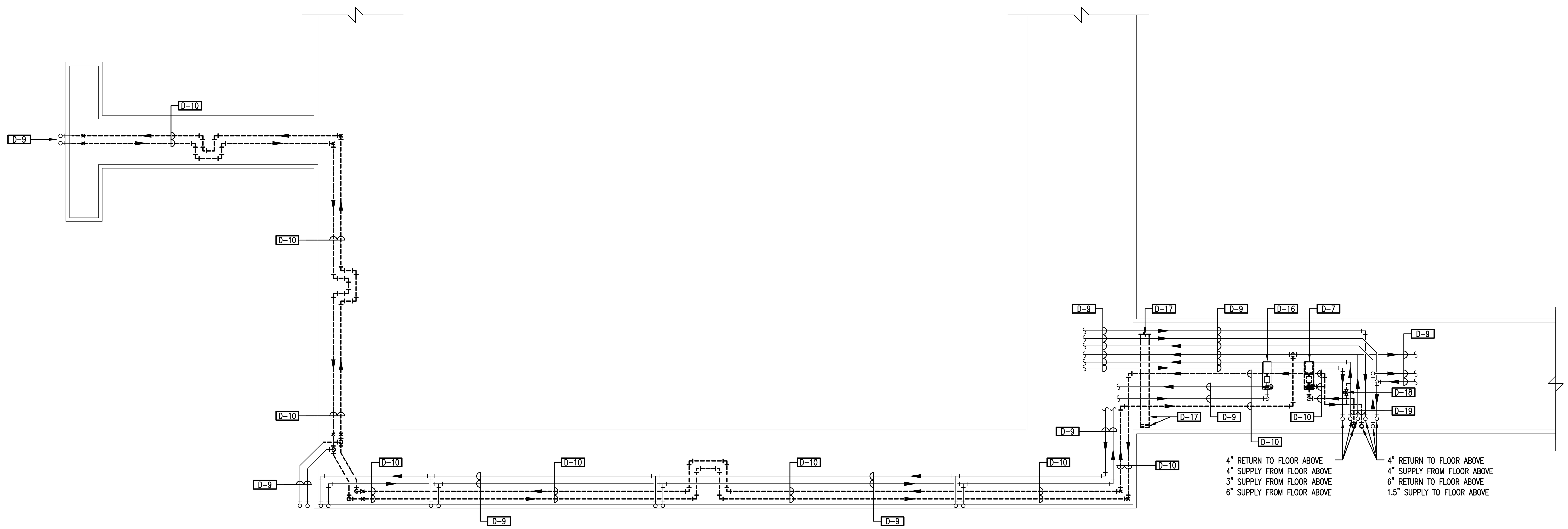
MECHANICAL (HVAC) DEMOLITION NOTES

I. REFERENCED DEMOLITION NOTES - DRAWINGS

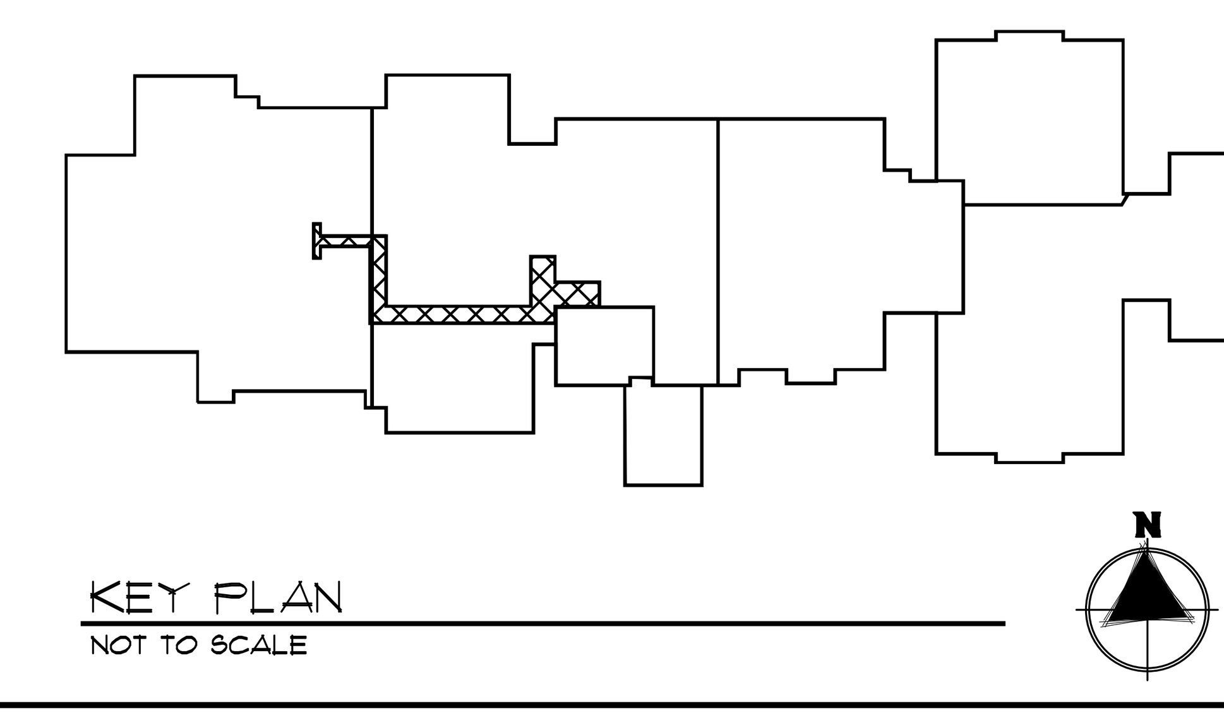
- D-1 THERMOSTAT/SENSOR TO BE COMPLETELY REMOVED INCLUDING ALL CONTROL WIRING AND/OR PNEUMATIC CONTROL AIR PIPING TO/FROM UNIT IT SERVES. PROVIDE STAINLESS STEEL BLANK COVER PLATE OVER OPENING IF LOCATION IS NOT REUSED FOR NEW THERMOSTAT/SENSOR UNDER THE INSTALLMENT OF THE NEW EQUIPMENT AND CONTROLS.
- D-2 AIR HANDLING UNIT TO BE COMPLETELY REMOVED INCLUDING ALL PIPING, DUCTWORK, CONTROL WIRING, PNEUMATIC CONTROL AIR PIPING, INTAKE/RELIEF HOOD, SUPPLY/RETURN/OUTSIDE AIR INTAKE DUCTWORK, VALVES, DRAINS, HANGERS, SUPPORTS, CONCRETE BASE, ETC. ALL ITEMS REMOVED SHALL NOT BE REUSED IN NEW CONSTRUCTION. PATCH WALL/FLOOR/ROOF AS STATED UNDER GENERAL DEMOLITION NOTES. COORDINATE ALL DISCONNECT REQUIREMENTS WITH ELECTRICAL CONTRACTOR PRIOR TO REMOVAL. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL PATCHING REQUIREMENTS.
- D-3 EXISTING SUPPLY/RETURN/EXHAUST/OUTDOOR/TRANSFER AIR DUCTWORK TO REMAIN. CLEAN INSIDE OF DUCTWORK, SPRAY ENCAPSULATE DUCT LINER AND SEAL EXISTING DUCTWORK (JOINTS/SEAMS/FITTINGS) BEING REUSED. SEE NEW WORK DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- D-4 REMOVE SUPPLY/RETURN/EXHAUST/OUTDOOR AIR DUCTWORK, TRANSFER DUCTWORK, FIRE DAMPERS COMPLETELY INCLUDING ALL RELATED SUPPORTS, ACCESSORIES, ETC. PATCH WALLS/FLOORS/ROOF AS STATED UNDER GENERAL DEMOLITION NOTES. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- D-5 REMOVE INTAKE/RELIEF HOOD INCLUDING DUCTWORK, CONTROLS, DAMPERS, HANGERS, SUPPORTS, ETC. SEE NEW WORK DRAWINGS. COORDINATE ALL DISCONNECT REQUIREMENTS WITH ELECTRICAL CONTRACTOR PRIOR TO REMOVAL. PATCH ROOF AS STATED UNDER GENERAL DEMOLITION NOTES. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- D-6 REMOVE CONTROL CABINET, VFD AND/OR ASSOCIATED CONTROLS INCLUDING WIRING, PNEUMATIC TUBING, CONDUIT, RELAYS, POWER, ETC. PATCH WALL AS STATED UNDER GENERAL DEMOLITION NOTES. COORDINATE ALL DISCONNECT REQUIREMENTS WITH ELECTRICAL CONTRACTOR.
- D-7 REMOVE BASE MOUNTED PUMP COMPLETELY INCLUDING PIPING, VALVES, CURB, SUPPORTS, HANGERS, ETC. PATCH FLOOR AS STATED UNDER GENERAL DEMOLITION NOTES. COORDINATE ALL DISCONNECT REQUIREMENTS WITH ELECTRICAL CONTRACTOR PRIOR TO REMOVAL. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- D-8 REMOVE ROOF MOUNTED COND. UNIT INCLUDING CURB, RAILS, PIPING, CONDUIT, CONTROLS, ETC. COORDINATE ALL DISCONNECT REQUIREMENTS WITH ELECTRICAL CONTRACTOR PRIOR TO REMOVAL. PATCH ROOF/WALLS/CEILING AS STATED UNDER GENERAL DEMOLITION NOTES. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- D-9 EXISTING PIPING TO REMAIN. SEE NEW WORK DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- D-10 REMOVE ALL HEATING/COOLING, REFRIGERANT AND/OR CONDENSATE/DRAIN PIPING, ROOF CURBS, AND INSULATION COMPLETELY INCLUDING VALVES, CONTROLS, HANGERS/SUPPORTS, EXPANSION JOINTS, PIPE GUIDES, SLEEVES, ANCHORS, ETC. PATCH ROOF/WALL/FLOOR AS STATED UNDER GENERAL DEMOLITION NOTES. PATCH WALL/ROOF/FLOOR AS STATED UNDER GENERAL DEMOLITION NOTES. SEE NEW WORK DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- D-11 EXISTING FIRE DAMPER TO REMAIN. PROVIDE NEW FUSIBLE LINK. FIELD VERIFY REQUIREMENTS.
- D-12 EXISTING SUSPENDED UNIT HEATER TO REMAIN AND ASSOCIATED THERMOSTAT TO REMAIN. VERIFY OPERATION.
- D-13 REMOVE ROOF MOUNTED COOLING TOWER INCLUDING PIPING, VALVES, CURB, RAILS, INSULATION INCLUDING SUPPORTS, HANGERS, ETC. PATCH ROOF/WALL AS STATED UNDER GENERAL DEMOLITION NOTES. COORDINATE ALL DISCONNECT REQUIREMENTS WITH ELECTRICAL CONTRACTOR PRIOR TO REMOVAL. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- D-14 REMOVE CHILLER/EVAPORATOR COMPLETELY INCLUDING PIPING, VALVES, CURB, PUMPS INCLUDING SUPPORTS, HANGERS, ETC. PATCH FLOOR AS STATED UNDER GENERAL DEMOLITION NOTES. COORDINATE ALL DISCONNECT REQUIREMENTS WITH ELECTRICAL CONTRACTOR PRIOR TO REMOVAL. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL REQUIREMENTS.
- D-15 EXISTING HOT WATER BOILER AND EXPANSION TANK TO REMAIN.
- D-16 EXISTING BASE MOUNTED PUMP TO REMAIN.
- D-17 REMOVE LOCKER SUPPLY/EXHAUST DUCTWORK TO/FROM FLOOR ABOVE BACK TO DUCTWORK MAIN. CAP MAIN WITH INSULATED BLANK-OFF AIRTIGHT. PATCH FLOOR AS STATED UNDER GENERAL DEMOLITION NOTES.
- D-18 REMOVE CONTROL VALVE AND CAP PIPE AT MAIN.
- D-19 REMOVE PIPE RISERS.
- D-20 REMOVE COOLING TOWER CHEMICAL FEED SYSTEM INCLUDING PIPING, PUMP(S), CONTROLS, CHEMICALS, ETC. PATCH WALL/ROOF AS STATED UNDER GENERAL DEMOLITION NOTES. COORDINATE ALL DISCONNECTS REQUIREMENTS WITH ELECTRICAL CONTRACTOR PRIOR TO REMOVAL.
- D-21 EXISTING ELECTRICAL PANEL, SEE ELECTRICAL DRAWINGS.

II. GENERAL DEMOLITION NOTES

A. ALL DEMOLITION OF THE HVAC SYSTEM AS CALLED FOR ON THE DEMOLITION DRAWINGS SHALL BE UNDER THIS CONTRACTOR'S WORK.
B. CONTRACTOR SHALL VISIT SCHOOL BUILDING, BEFORE SUBMITTING HIS BID, TO VERIFY THE EXISTING CONDITIONS WHICH WILL AFFECT HIS WORK.
C. CONTRACTOR SHALL REMOVE ALL EQUIPMENT, GRILLES, REGISTERS, ETC. SUPPORTED BY THE CEILING IN AREAS WHERE CEILING DEMOLITION IS TAKING PLACE BEFORE THE CEILING DEMOLITION CONTRACTOR STARTS HIS WORK. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING CEILING TILES AS REQUIRED TO PERFORM HIS WORK WHERE CEILINGS ARE NOT BEING REMOVED. CONTRACTOR SHALL REINSTALL TILES WHEN WORK HAS BEEN COMPLETED AND REPLACE ANY TILES THAT HAVE BEEN DAMAGED AT NO COST TO THE OWNER.
D. BEFORE STARTING ANY DEMOLITION ON HVAC EQUIPMENT WHICH HAS AN ELECTRICAL CONNECTION. THE MECHANICAL CONTRACTOR SHALL MEET WITH THE ELECTRICAL CONTRACTOR TO IDENTIFY ALL SUCH EQUIPMENT. THE ELECTRICAL CONTRACTOR WILL DISCONNECT THE POWER TO EACH UNIT, REMOVE CONDUIT, WIRING, DISCONNECT SWITCHES, AND STARTERS UNDER HIS CONTRACT. MECHANICAL CONTRACTOR WILL REMOVE ALL EQUIPMENT AND ELECTRIC TEMPERATURE CONTROL WIRING AND CONDUIT UNDER THIS CONTRACT.
E. CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN CLEAN-UP THROUGHOUT THE COURSE OF THE DEMOLITION WORK. IN THE EVENT HE FAILS TO PROVIDE SUCH CLEAN-UP THE ARCHITECT/ENGINEER WILL DIRECT THE CLEAN-UP, TO BE PERFORMED BY ANOTHER CONTRACTOR, AND THE CONTRACTOR WILL BE BACK-CHARGED AS DEEMED APPROPRIATE BY ARCHITECT/ENGINEER.
F. ALL EQUIPMENT, MATERIAL, ETC. THAT IS BEING DEMOLISHED OWNER SHALL HAVE FIRST RIGHT OF REFUSAL. THE REMAINING DEMOLISHED ITEMS WILL BECOME THE PROPERTY OF THE CONTRACTOR. ALL SUCH ITEMS WILL BE REMOVED FROM THE BUILDING SITE BY THE CONTRACTOR. NO ITEM WHICH IS BEING REMOVED UNDER THE DEMOLITION CONTRACT MAY BE REUSED UNDER THE NEW WORK CONTRACT. THE OWNER HAS FIRST RIGHT OF REFUSAL FOR ANY MATERIAL OR EQUIPMENT REMOVED.
G. SEQUENCE OF ALL DEMOLITION WORK SHALL BE IN STRICT ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND/OR AS DIRECTED BY ARCHITECT/ENGINEER.
H. THE CONTRACTOR PERFORMING THE DEMOLITION WORK SHALL REMOVE NO MORE THAN 8" OF BUILDING MATERIAL AROUND EACH DEVICE BEING DEMOLISHED.
I. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL LABOR AND MATERIAL REQUIRED TO PATCH ALL OPENINGS IN EXISTING ROOF/WALL/FLOOR AND FIRE SEPARATIONS CREATED BY THE REMOVAL OF THIS TRADES MATERIAL AND EQUIPMENT WHERE THESE OPENINGS ARE NOT TO BE REUSED. PATCHING OF ALL EXISTING WALL, FLOOR AND ROOF OPENINGS IS THE RESPONSIBILITY OF THIS CONTRACTOR.



1 EXISTING TUNNEL PLAN - MECHANICAL - ALTERNATE
1/8" = 1'-0"



KEY PLAN
NOT TO SCALE

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT:
WESTCHESTER INTERMEDIATE SCHOOL
1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

TRIA ARCHITECTURE

M.E.P./F.P. CONSULTANT:
OAS O'Higgins & Arnold Sustainability, LLC
769 HEARTLAND DR., UNIT A SUGAR GROVE, ILLINOIS 60554
(P) 630.538.1996

STRUCTURAL CONSULTANT:
Larson Engineering, Inc.
1488 BOND STREET, SUITE 100
NAPERVILLE, ILLINOIS 60563-6503
ILLINOIS LICENSE NO 184-001442
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(P) 630.357.0540
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DUNELAND SCHOOL CORPORATION · Chesterton, Indiana

PROJECT NUMBER:	19-0592
PROJECT MANAGER:	MG
DRAWN BY:	OAS
ISSUED FOR BID:	01/07/2020

REVISIONS: 1, 2, 3, 4, 5

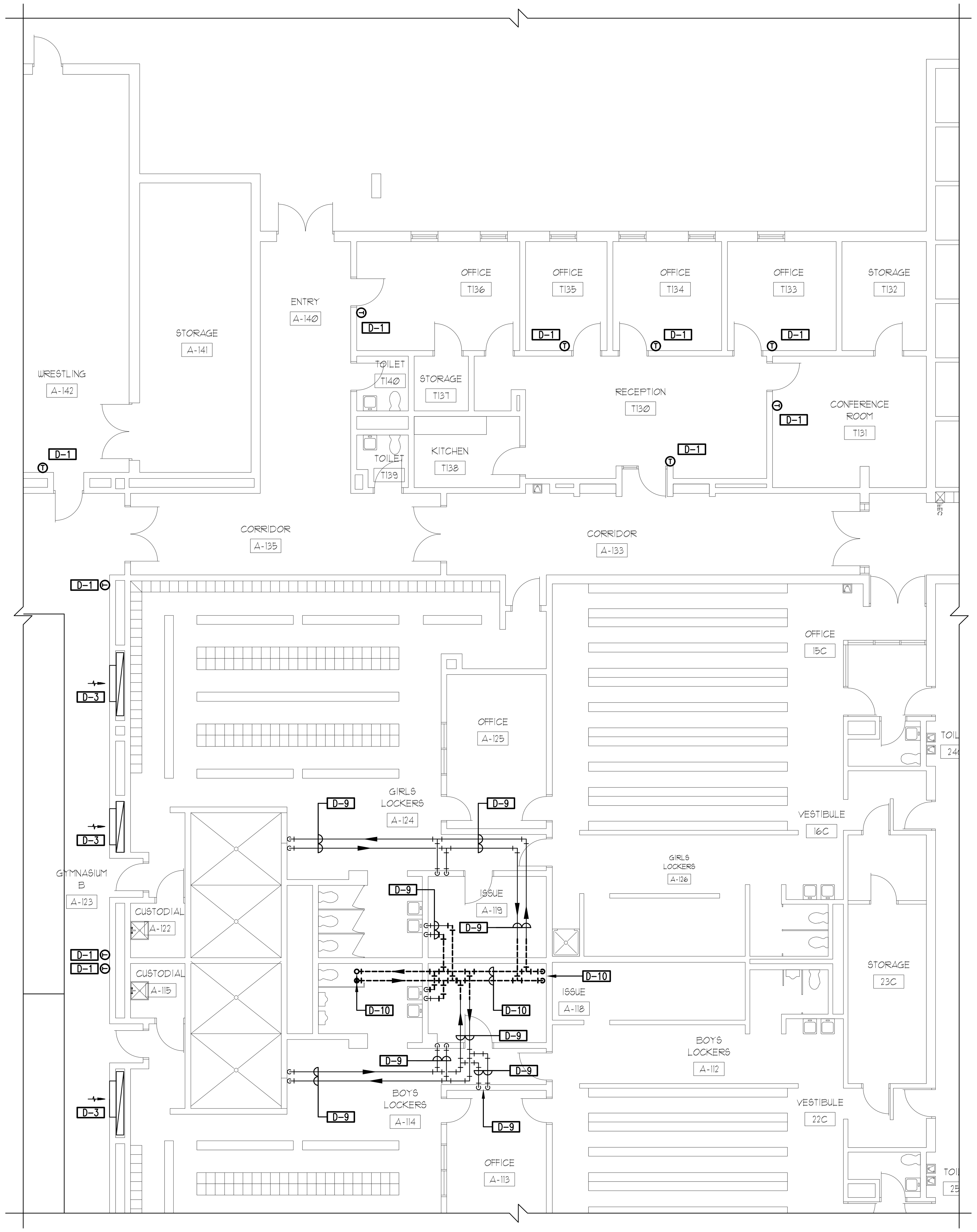
EXISTING TUNNEL PLAN - MECHANICAL ALTERNATE

KEITH BRYANT O'HIGGINS · REGISTERED · No. PE10911154 · STATE OF INDIANA · PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

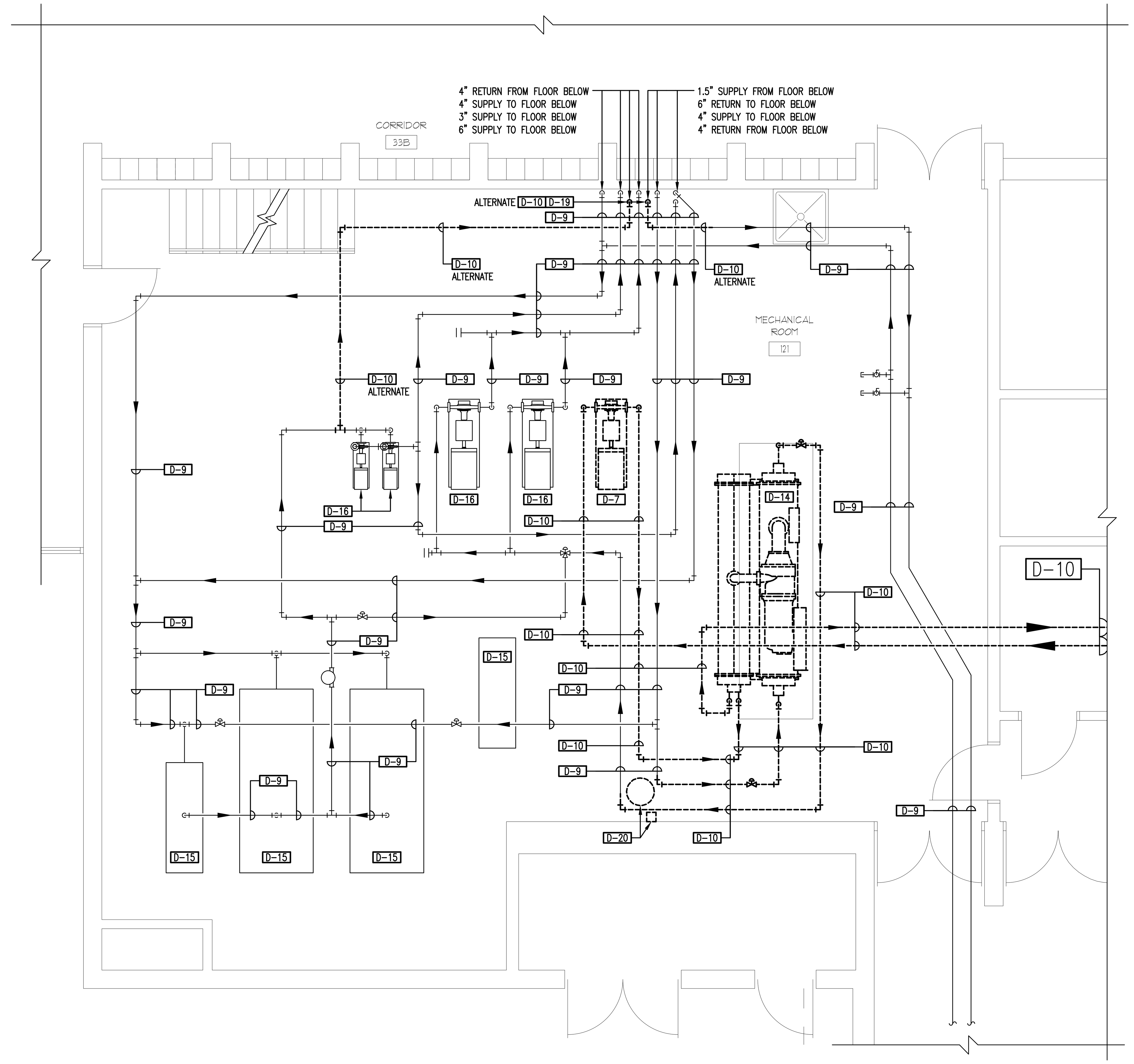
M0.10

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 11:29 AM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\M\WIS\139-I-3 M0.10 WIS
Mechanical Tunnel Demolition

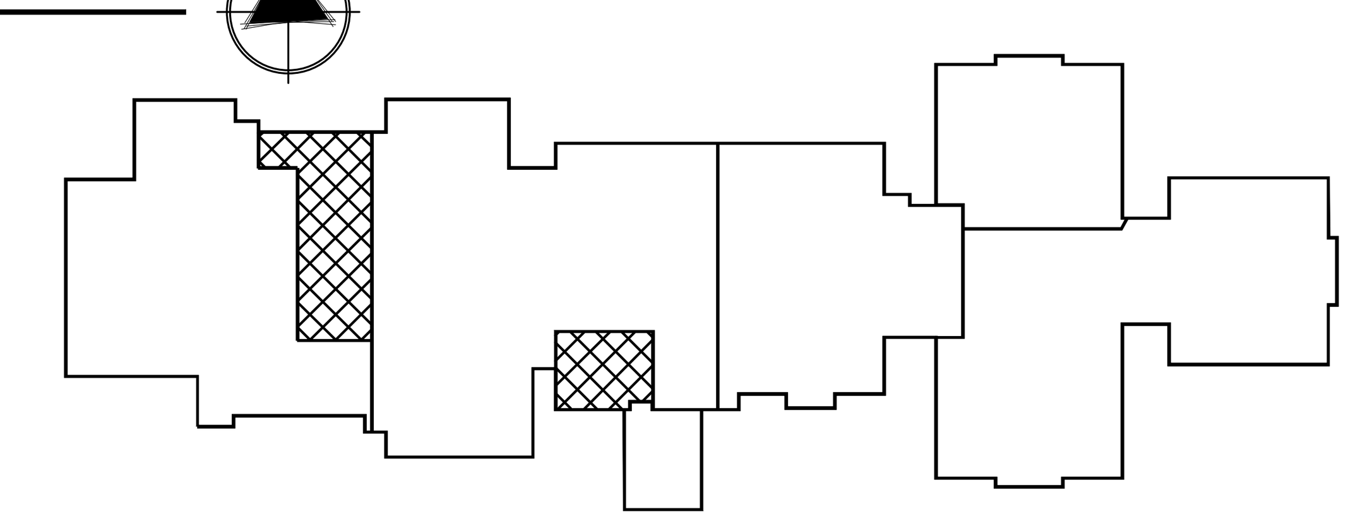
REFER TO SHEET M0.10 FOR EXISTING FLOOR PLAN NOTES



1 EXISTING FIRST FLOOR PLAN - MECHANICAL - ALTERNATE
1/8" = 1'-0"



2 EXISTING FIRST FLOOR PLAN - MECHANICAL
1/4" = 1'-0"



KEY PLAN
NOT TO SCALE

TRIA ARCHITECTURE

M.E.P./F.P. CONSULTANT: OAS

Larson Engineering, Inc. STRUCTURAL CONSULTANT

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

REVISIONS

PROJECT NUMBER: 15-0513
PROJECT MANAGER: MG
DRAWN BY: OAS

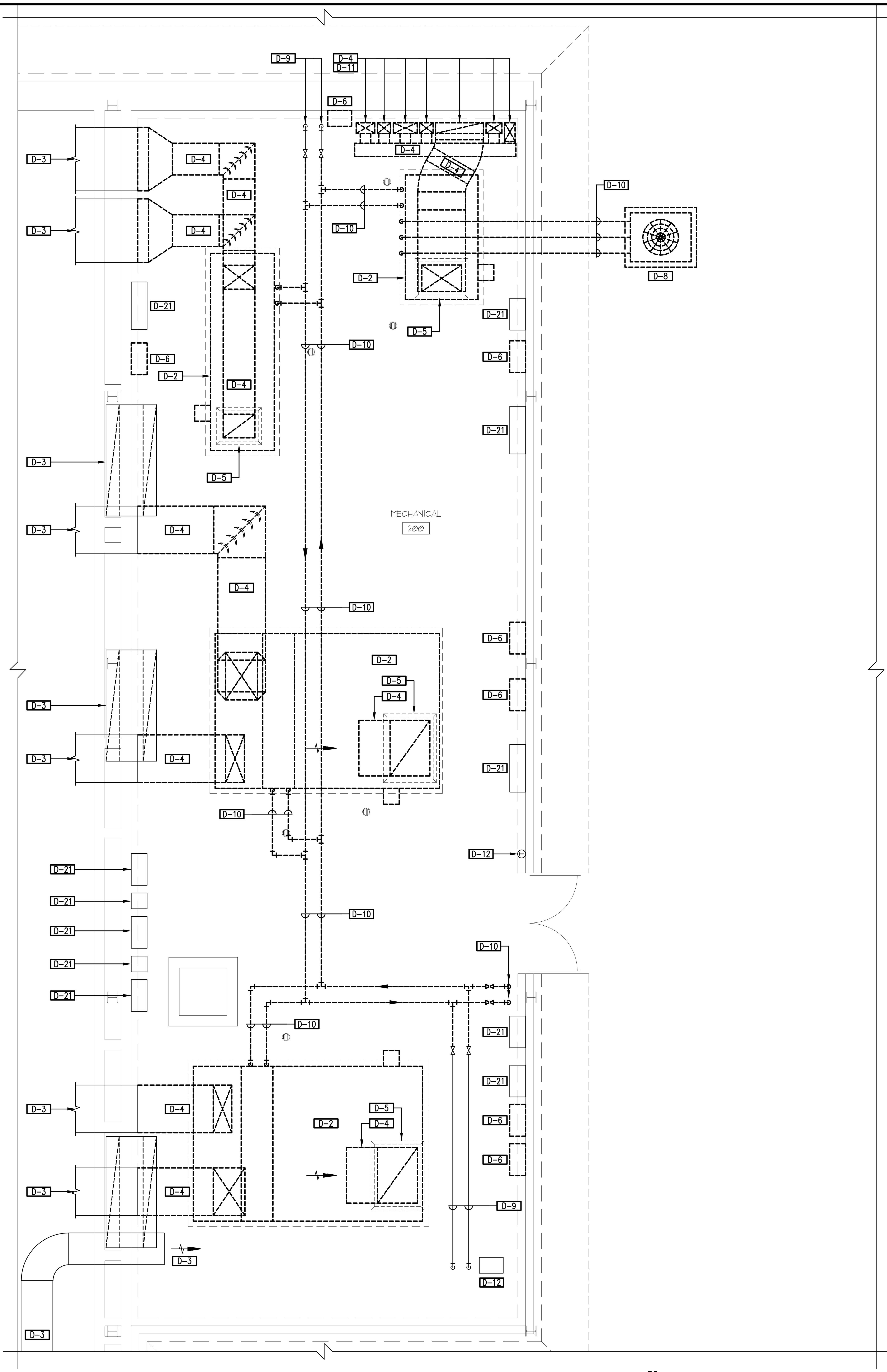
ISSUED FOR BID: 01/07/2020

EXISTING FIRST FLOOR PLANS - MECHANICAL

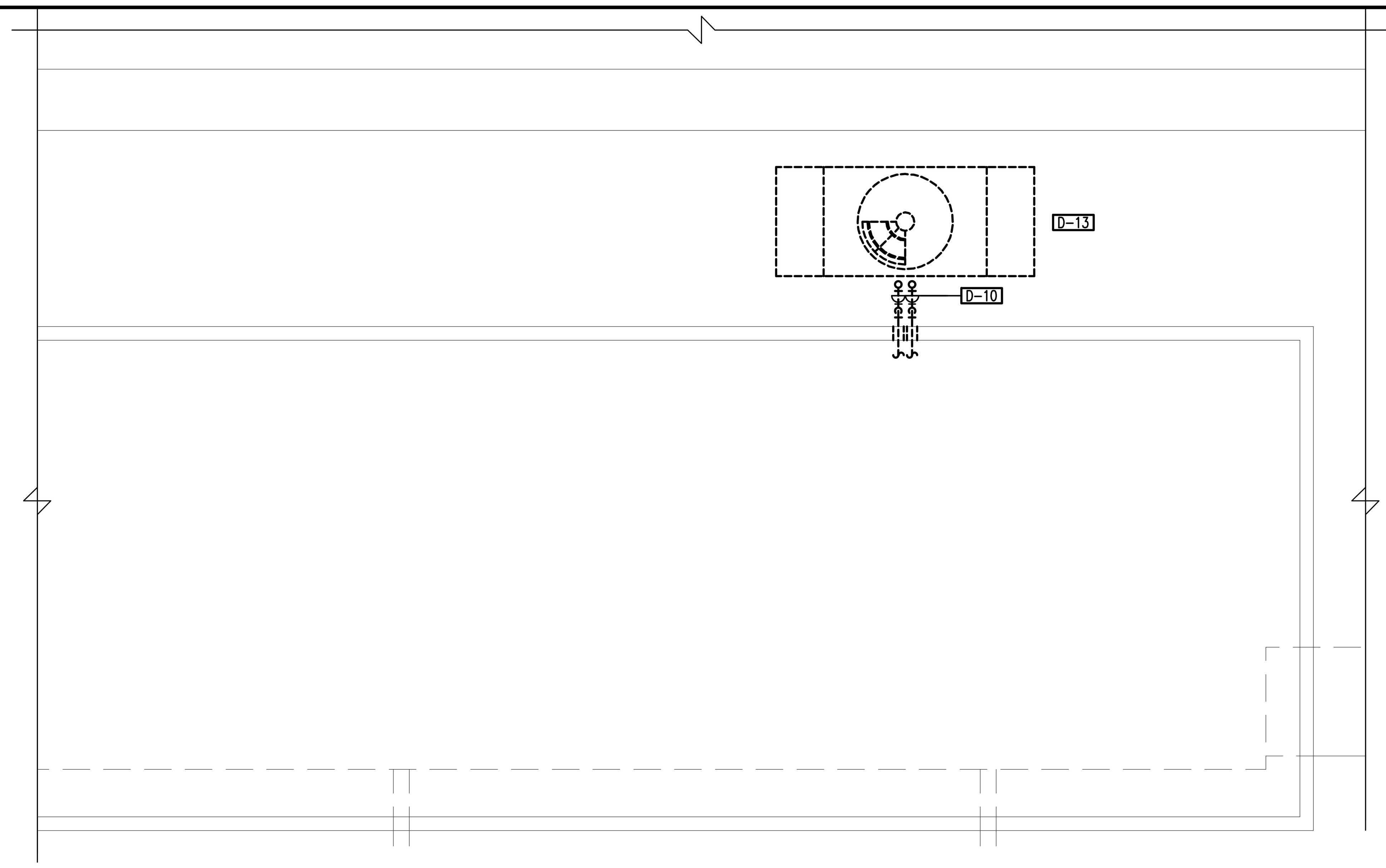
KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

M0.11

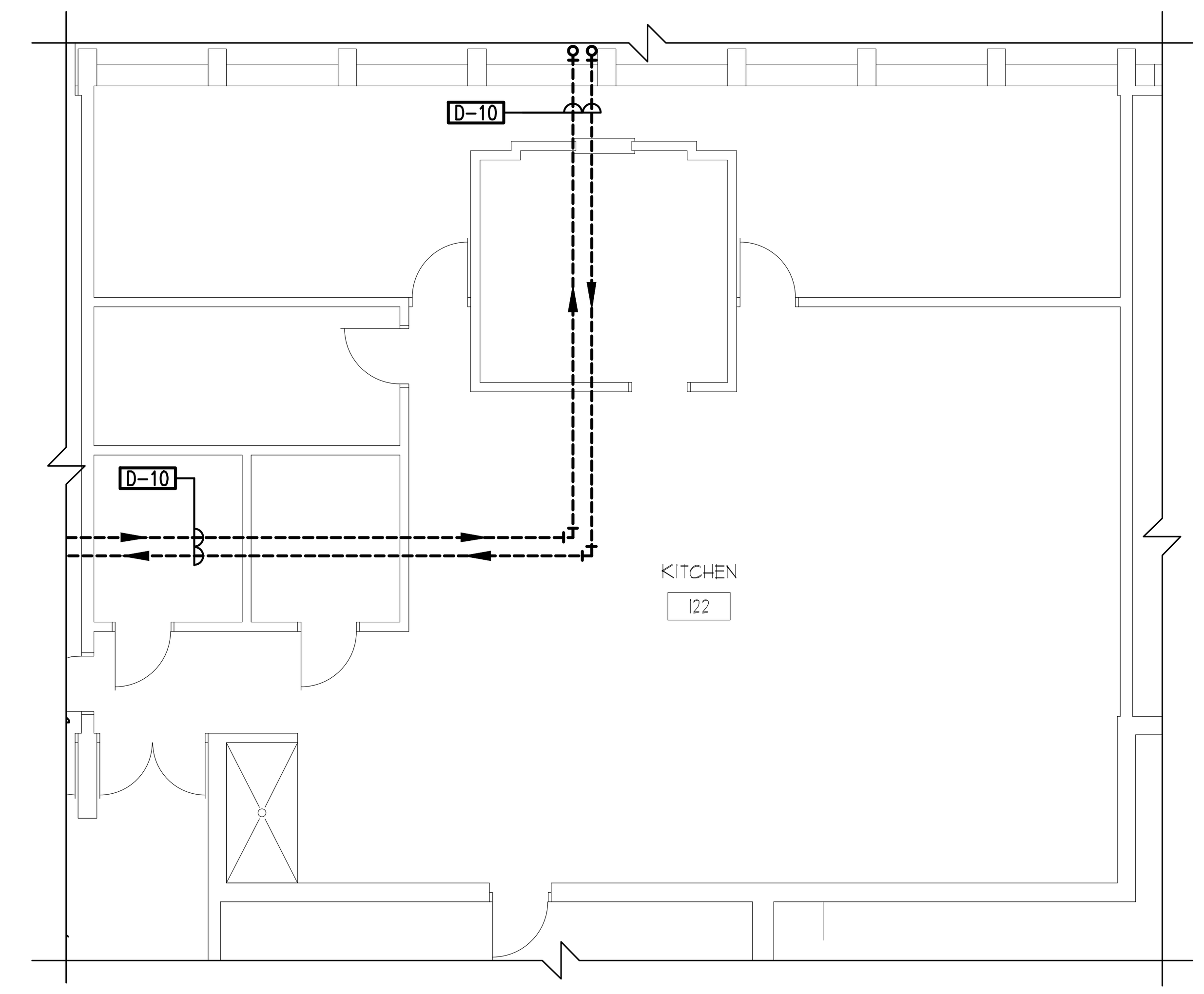
PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 11:29 AM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\M\WIS\139-I-3 M0.11 WIS
Mechanical First Floor Demolition



1 EXISTING SECOND FLOOR PLAN - MECHANICAL - ALTERNATE
1/4" = 1'-0"

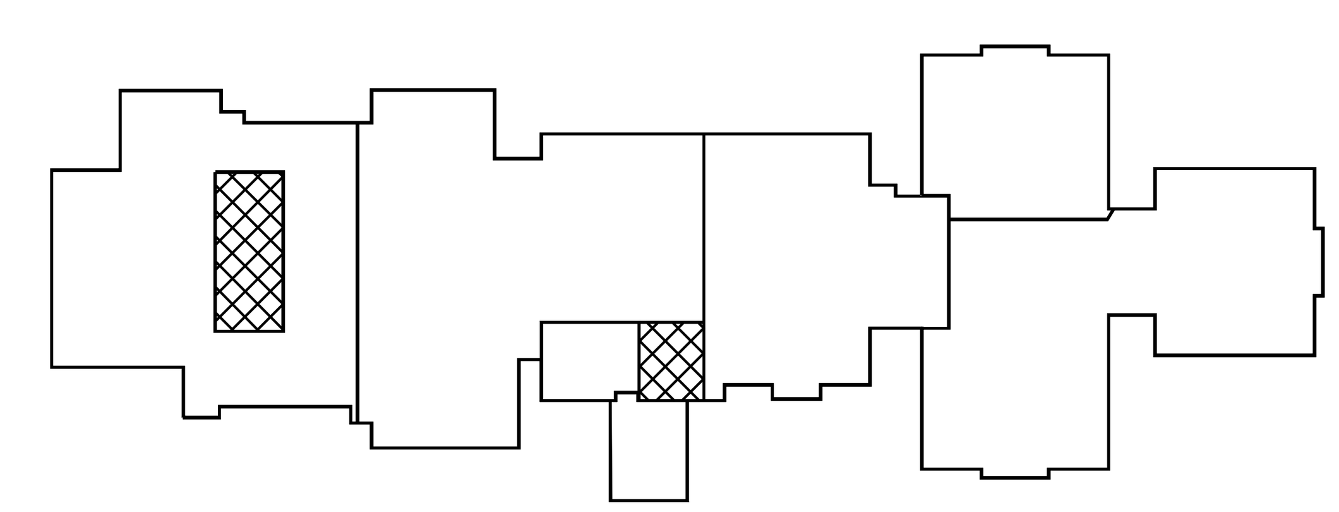


2 EXISTING ROOF PLAN - MECHANICAL
1/8" = 1'-0"



3 EXISTING FIRST FLOOR PLAN - MECHANICAL
1/8" = 1'-0"

REFER TO SHEET M0.10 FOR EXISTING FLOOR PLAN NOTES



KEY PLAN
NOT TO SCALE

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 11:30 AM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\M\WIS\139-I-3 M0.12 WIS
Mechanical Second Floor Demolition

TRIA ARCHITECTURE

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769 HEARTLAND DR., UNIT A SUGAR GROVE, ILLINOIS 60554
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DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL
1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

DUNELAND SCHOOL CORPORATION Chesterton, Indiana

PROJECT NUMBER: 19-059.2	REVISIONS:
PROJECT MANAGER: MG	1
DRAWN BY: OAS	2
	3
	4
ISSUED FOR BID: 01/07/2020	5

EXISTING FIRST AND SECOND FLOOR PLANS - MECHANICAL

KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

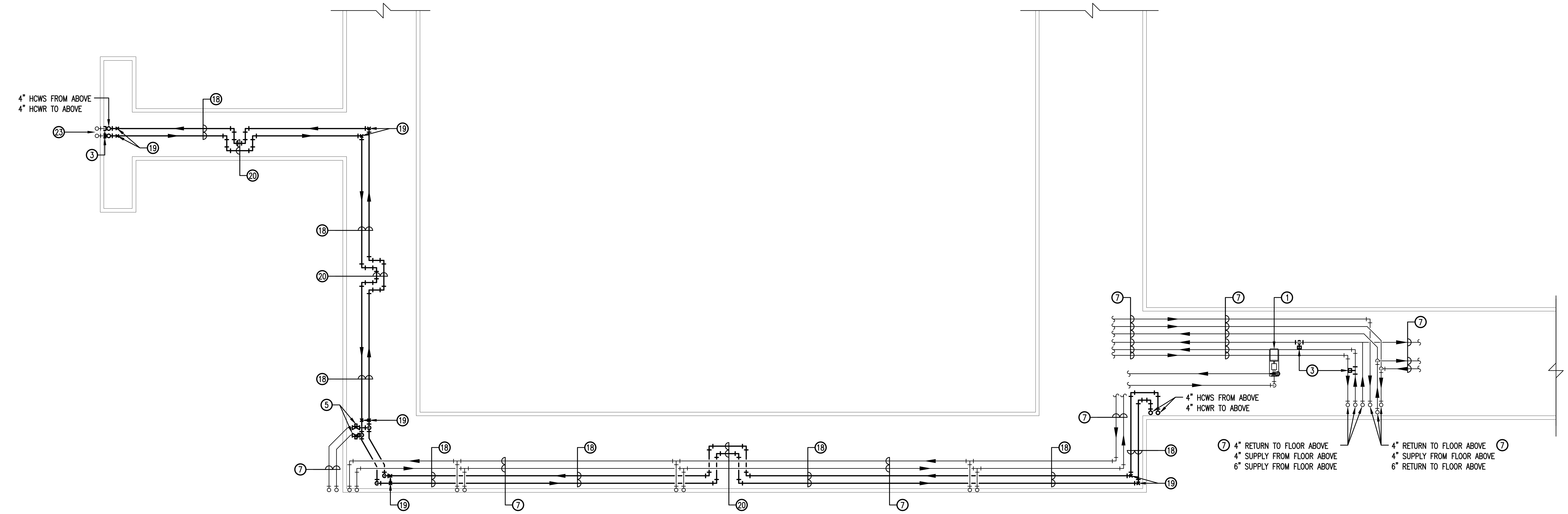
M0.12

MECHANICAL PIPING NEW WORK NOTES

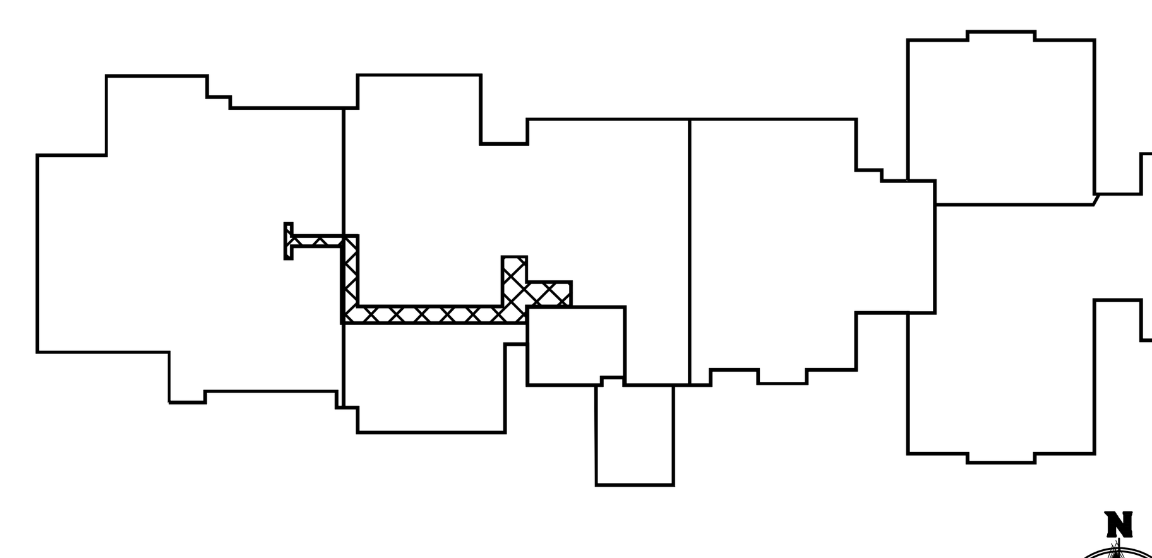
1. EXISTING BASE MOUNTED PUMP(S) AND ASSOCIATED PIPING TO REMAIN.
2. NEW BASE MOUNTED PUMP ON NEW 4" HIGH CONCRETE BASE. ANCHOR TO CONCRETE BASE. SEE LARGE SCALE DETAILS 1/M4.00, 2/M4.10, 3/M4.10, 7/M4.10 AND THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. PROVIDE INSULATED CAP AT EXISTING MAIN. FIELD VERIFY.
4. NEW CONNECTION TO EXISTING MAIN. FIELD VERIFY.
5. ACV-1 MOTORIZED LINE SIZE FULL PORT HEATING/COOLING ISOLATION VALVE. SEE SPECIFICATIONS FOR SEQUENCE. CUT INTO EXISTING PIPE OR NEW PIPING.
6. EXISTING HOT WATER BOILER.
7. EXISTING HOT WATER SUPPLY/RETURN OR HOT/CHILLED WATER SUPPLY/RETURN.
8. PROVIDE LINE SIZE ISOLATION VALVES AT 5'-0" ABOVE FINISHED FLOOR (SUPPLY/RETURN). PROVIDE 2" DRAIN VALVES AT BASE OF EACH RISER WITH THREAD CONNECTIONS AND 5' OF HOSE. PITCH ALL PIPING TO ALLOW DRAINING OF CHILLER DURING WINTER. SEE PLUMBING DRAWINGS FOR LOCATION OF SUMP PUMP.
9. PROVIDE NEW 6" CHILLER WATER SUPPLY/RETURN TO/FROM CHILLER. FIELD VERIFY ROUTING. PITCH ALL PIPING TO RISERS WITHIN BUILDING TO ALLOW DRAINING OF CHILLER AND PIPING. INSULATE PIPE AND PROVIDE ALUMINUM JACKET PER THE SPECIFICATIONS. PROVIDE ADJUSTABLE PIPE GROUND/WALL SUPPORTS AT MINIMUM 4'-0" O.C. COORDINATE WITH EXISTING TELEPHONE PEDESTAL. SEE ELECTRICAL DRAWINGS FOR HEAT TRACE REQUIREMENTS.
10. INSTALL NEW CHILLER ON CONCRETE BASE. MOUNT ON ISOLATORS. LARGE SCALE DETAILS 1/M4.10, 3/M4.10 AND THE SPECIFICATIONS FOR ADDITIONAL PIPING AND INSTALLATION REQUIREMENTS.
11. 6" CONCRETE BASE.
12. ACCESS/SERVICE AREA.
13. 4" HCWS/R TO/FROM BELOW.
14. PROVIDE FULL SIZE INSULATED DRAIN WITH TRAP TO FLOOR DRAIN. SEE PLUMBING DRAWINGS FOR LOCATIONS AND LARGE SCALE DETAIL 10/M4.10 FOR ADDITIONAL REQUIREMENTS.
15. AIR HANDLING UNIT: HOT WATER AND CHILLED WATER COILS, SEE LARGE SCALE DETAILS 3/M4.10, 5/MM4.10, 10/M4.10 AND THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
16. VARIABLE AIR VOLUME BOX: SEE LARGE SCALE DETAIL 6/M4.10 AND THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
17. VARIABLE FREQUENCY DRIVE FACTORY MOUNTED.
18. 4" HCWS/R MOUNT ON EXISTING TUNNEL WALL BELOW EXISTING PIPING. FIELD VERIFY ROUTING.
19. PIPE ANCHOR (TYP.)
20. EXPANSION LOOP (TYP.)
21. EXPANSION TANK, SUPPORT FROM EXISTING BUILDING STRUCTURE. SEE LARGE SCALE DETAILS FOR ADDITIONAL REQUIREMENTS.
22. EXISTING SUSPENDED UNIT HEATER AND THERMOSTAT. VERIFY OPERATION.
23. ABANDONED HOT WATER SUPPLY/RETURN PIPING.
24. EXISTING EXPANSION TANK.
25. PROVIDE NEW CONNECTION TO EXISTING PIPING/VALVES. FIELD VERIFY SIZE/LOCATION.
25. EXISTING TELEPHONE PEDESTAL TO REMAIN.

MECHANICAL VENTILATION NEW WORK NOTES

- (A) ACCESS/SERVICE AREA.
- (B) EXISTING SUPPLY/RETURN/EXHAUST/OUTDOOR/TRANSFER AIR DUCTWORK TO REMAIN. CLEAN INSIDE OF DUCTWORK, SPRAY ENCAPSULATE DUCT LINER AND SEAL EXISTING DUCTWORK (JOINTS/SEAMS/FITTINGS) BEING REUSED.
- (C) PROVIDE NEW CONNECTION TO EXISTING DUCTWORK. FIELD VERIFY SIZE, LOCATION AND ROUTING.
- (D) PROVIDE NEW CONNECTION TO EXISTING DUCTWORK. FIELD VERIFY SIZE, LOCATION AND ROUTING. REPLACE FUSIBLE LINK IN EXISTING FIRE DAMPER.
- (E) VARIABLE AIR VOLUME BOX: SEE LARGE SCALE DETAIL 6/M4.10 AND THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- (F) INTAKE/RELIEF HOOD: COORDINATE OPENING WITH EXISTING ROOF STRUCTURE. PROVIDE MINIMUM 10'-0" BETWEEN RELIEF/INTAKE HOODS. SEE LARGE SCALE DETAILS 2/M4.20, 3/M4.20 AND THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- (G) PROVIDE INSULATED SHEET METAL SLEEVE AROUND EXISTING ROOF STRUCTURE IN EXHAUST AIR DISCHARGE BELOW RELIEF HOOD.
- (H) PROVIDE FLEXIBLE CONNECTIONS AT OUTDOOR AIR/RETURN AIR/SUPPLY AIR DUCTWORK CONNECTIONS TO AIR HANDLING UNIT. SEE LARGE SCALE DETAIL 4/M4.20 AND THE SPECIFICATIONS FIR ADDITIONAL REQUIREMENTS.
- (I) PROVIDE MOTORIZED EXHAUST AIR DAMPER IN RELIEF HOOD. SEQUENCE WITH AIR HANDLING UNIT.
- (J) 6" CONCRETE BASE.
- (K) EXISTING RETURN AIR GRILLE. CLEAN AND BALANCE TO CFM SHOWN ON DRAWINGS.
- (L) VARIABLE FREQUENCY DRIVE FACTORY MOUNTED.
- (M) PROVIDE NEW SENSOR/THERMOSTAT IN SAME LOCATION AS REMOVED THERMOSTAT. PROVIDE WIREMOLD IF REQUIRED BY FIELD CONDITIONS. SEQUENCE NEW SENSOR/THERMOSTAT WITH NEW VAV BOX AND EXISTING FINNED TUBE RADIATION.
- (N) CLEAN AND BALANCE EXISTING CEILING/WALL DIFFUSER/GRILLE TO CFM SHOWN ON DRAWING.
- (O) EXISTING FINNED TUBE RADIATION.
- (P) PROVIDE NEW SENSOR/THERMOSTAT IN SAME LOCATION AS REMOVED THERMOSTAT. PROVIDE WIREMOLD IF REQUIRED BY FIELD CONDITIONS. SEQUENCE NEW SENSOR/THERMOSTAT WITH NEW AIR HANDLING UNIT.
- (Q) PROVIDE MESH SCREEN ON AHU RETURN AIR PLENUM INLET. RETURN AIR PLENUM TO BE PROVIDED BY AHU MANF.



1 TUNNEL PLAN - MECHANICAL - ALTERNATE
1/8" = 1'-0"



KEY PLAN
NOT TO SCALE

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT:
WESTCHESTER INTERMEDIATE SCHOOL
1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

TRIA ARCHITECTURE

PROJECT NUMBER: 19-0592
PROJECT MANAGER: MG
DRAWN BY: OAS
ISSUED FOR BID: 01/07/2020

REVISIONS: 1 2 3 4 5

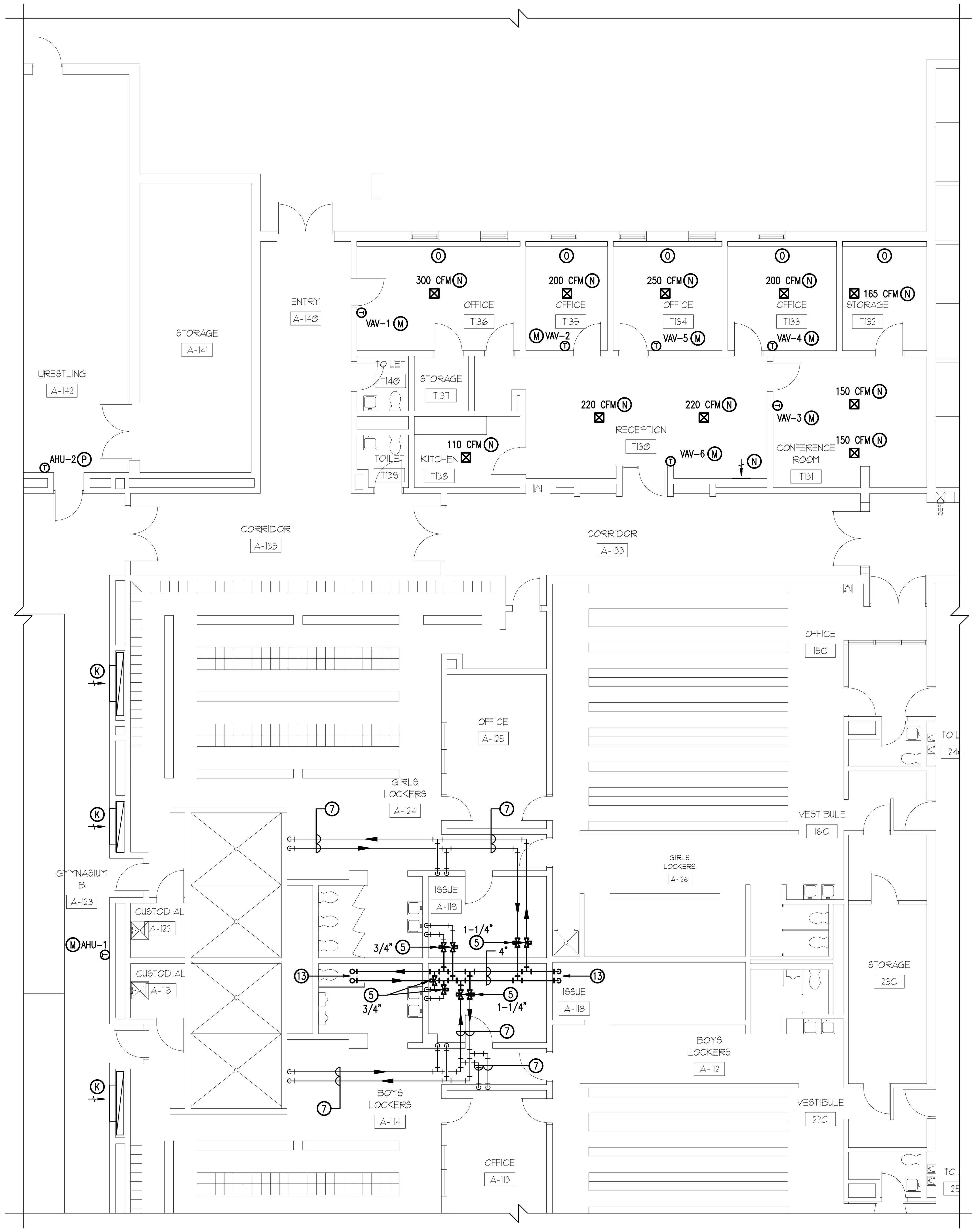
TUNNEL PLAN - MECHANICAL ALTERNATE

M1.10

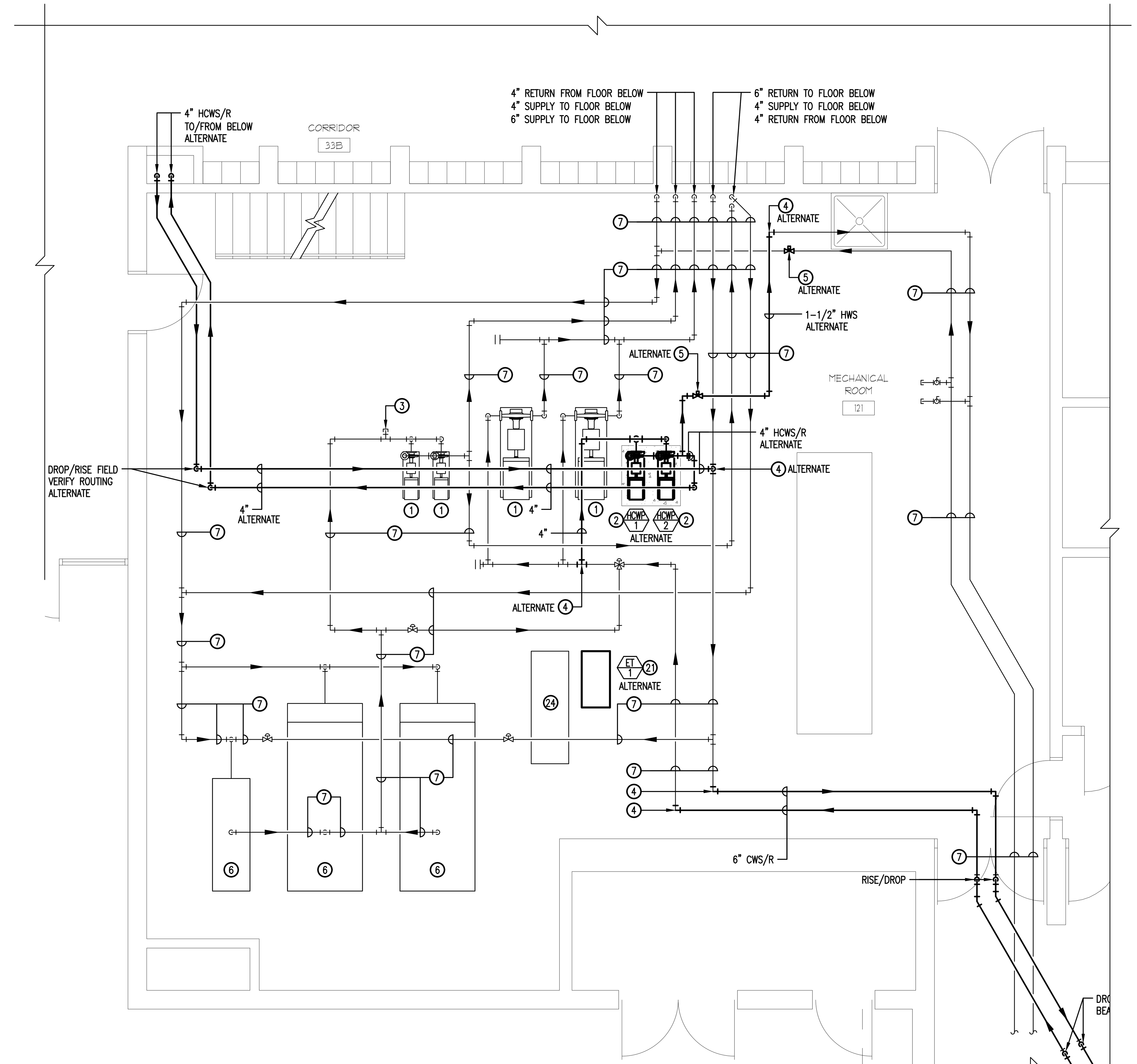
EXPIRES 07/31/2020

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 11:57 AM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\M\WIS\139-I-3 M1.10 WIS
Mechanical Tunnel

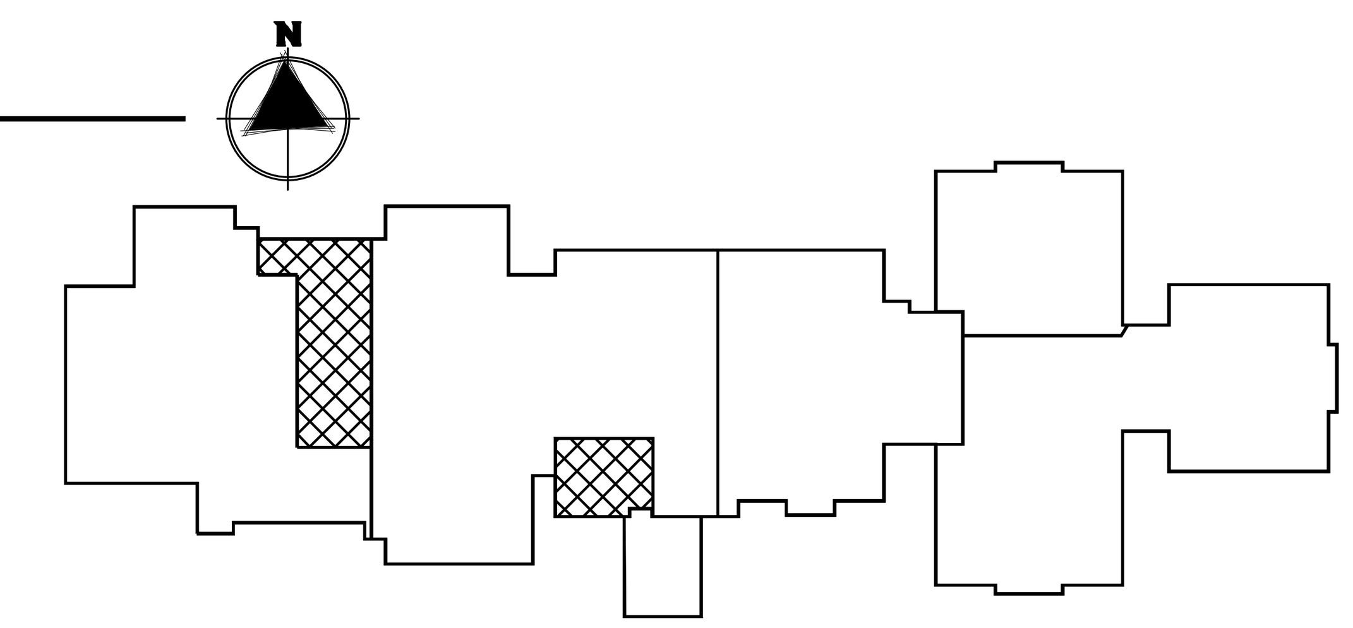
REFER TO SHEET M1.10 FOR FLOOR PLAN NOTES



1 PARTIAL FIRST FLOOR PLAN - MECHANICAL
1/8" = 1'-0"
ALTERNATE



2 PARTIAL FIRST FLOOR PLAN - MECHANICAL
1/4" = 1'-0"



KEY PLAN
NOT TO SCALE

KEITH BRYANT O'HIGGINS
REGISTERED
No. PE10911154
STATE OF INDIANA
PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

M1.11

PROJECT NUMBER: 19-0592
PROJECT MANAGER: MG
DRAWN BY: OAS
ISSUED FOR BID: 01/07/2020

REVISIONS:

PARTIAL FIRST FLOOR PLANS - MECHANICAL

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL
1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

DUNELAND SCHOOL CORPORATION Chesterton, Indiana

OAS O'Higgins & Arnold Sustainability, LLC
789 HEARTLAND DR., UNIT A SUGAR GROVE, ILLINOIS 60554
MEP/FP CONSULTANT: (P) 630.538.1996

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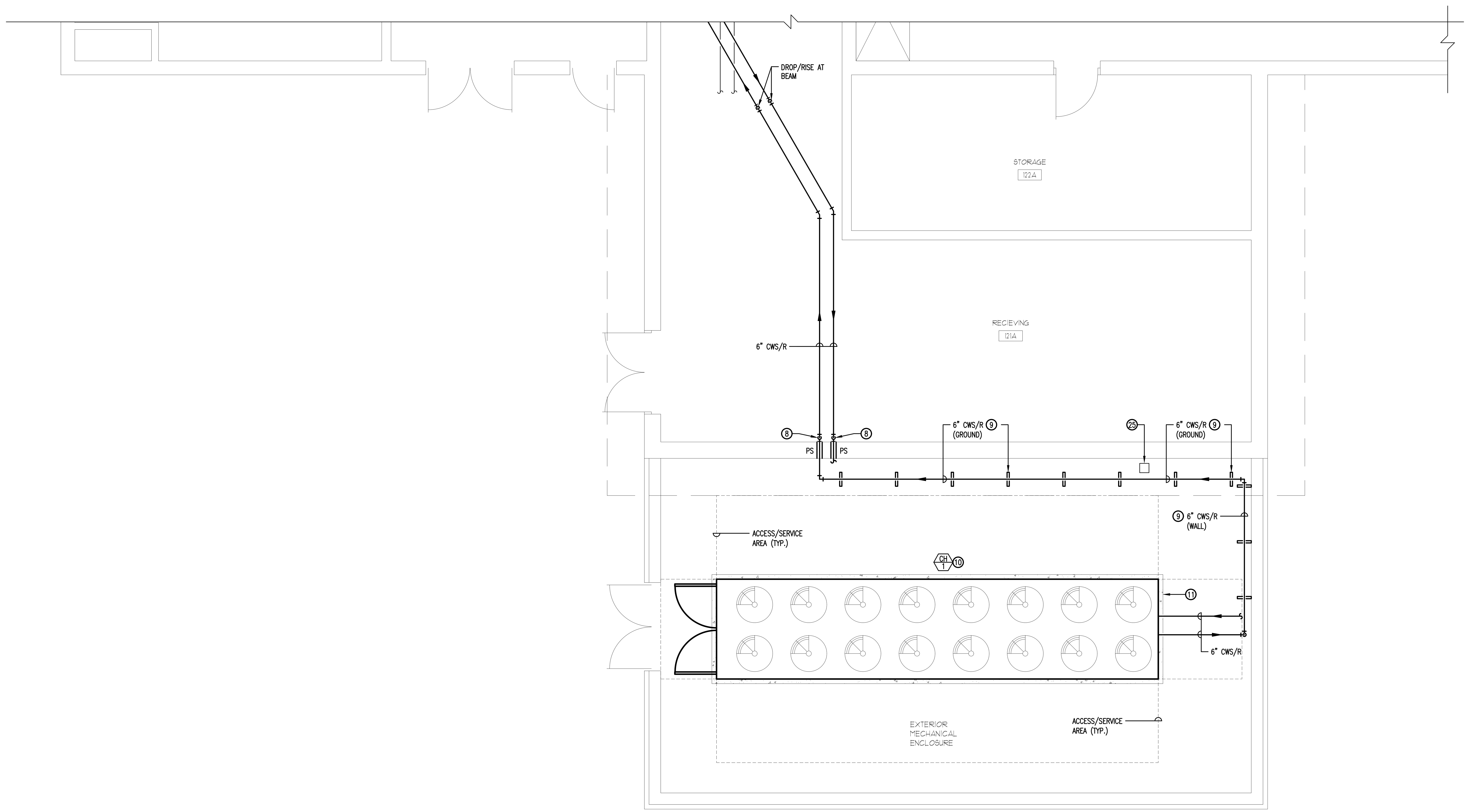
ILLINOIS LICENSE NO 184-001442
LEI COMM. NO 21160576.000
STRUCTURAL CONSULTANT: (P) 630.357.0540 (F) 630.357.0164

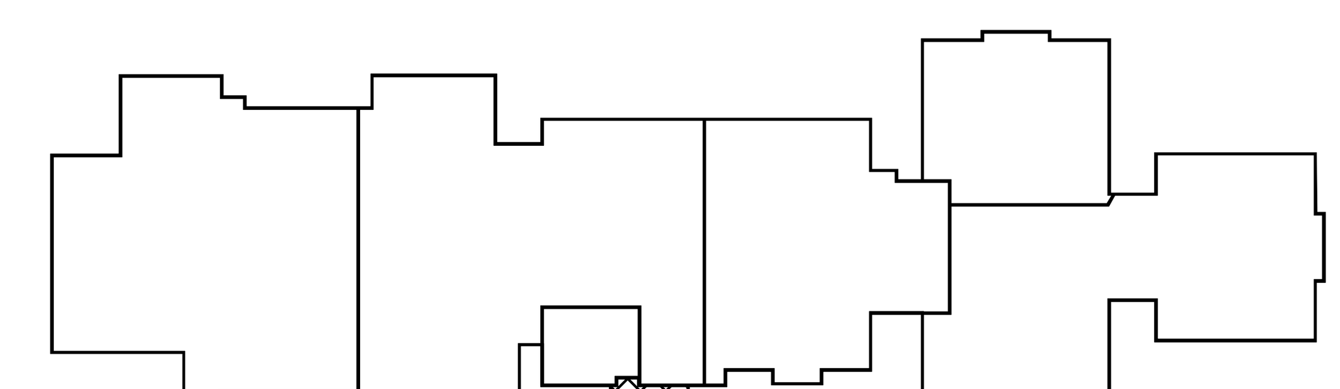
TRIA ARCHITECTURE

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 11:30 AM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\M\WIS\139-I-3 M1.11 WIS
Mechanical First Floor Plans

REFER TO SHEET M1.10 FOR FLOOR PLAN NOTES



1 PARTIAL FIRST FLOOR PLAN - MECHANICAL
1/4" = 1'-0"



KEY PLAN
NOT TO SCALE

TRIA ARCHITECTURE

OAS O'Higgins & Arnold Sustainability, LLC
769 HEARTLAND DR., UNIT A SUGAR GROVE, ILLINOIS 60554
M.E.P./F.P. CONSULTANT: (P) 630.538.1996

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1488 BOND STREET, SUITE 100
NAPERVILLE, ILLINOIS 60563-6503
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STRUCTURAL CONSULTANT: (P) 630.357.0540 (F) 630.357.0164

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

DUNELAND SCHOOL CORPORATION Chesterton, Indiana

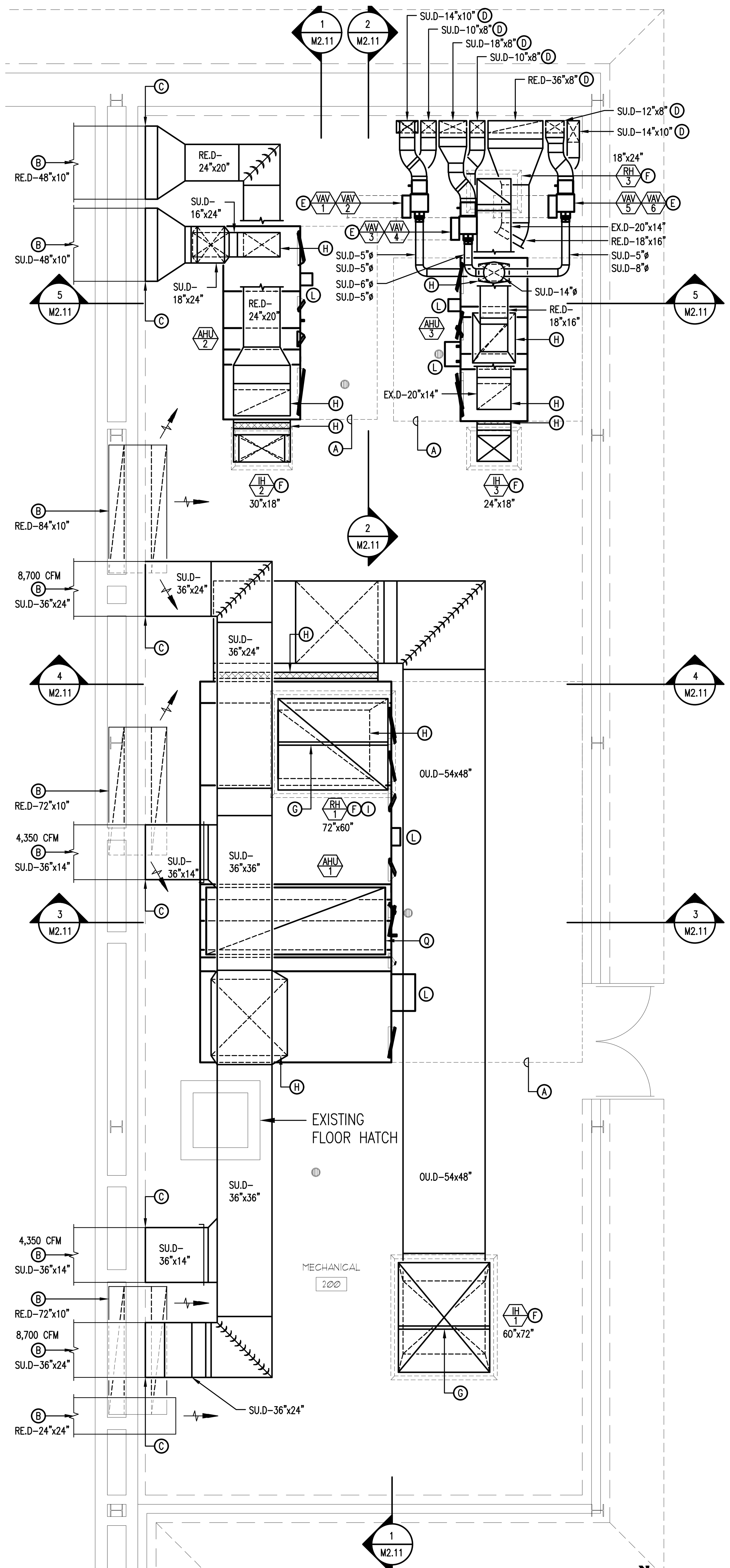
PROJECT NUMBER: 19-0592	REVISIONS:
PROJECT MANAGER: MG	1
DRAWN BY: OAS	2
	3
	4
ISSUED FOR BID: 01/07/2020	5

PARTIAL FIRST FLOOR PLAN - MECHANICAL

KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

M1.12

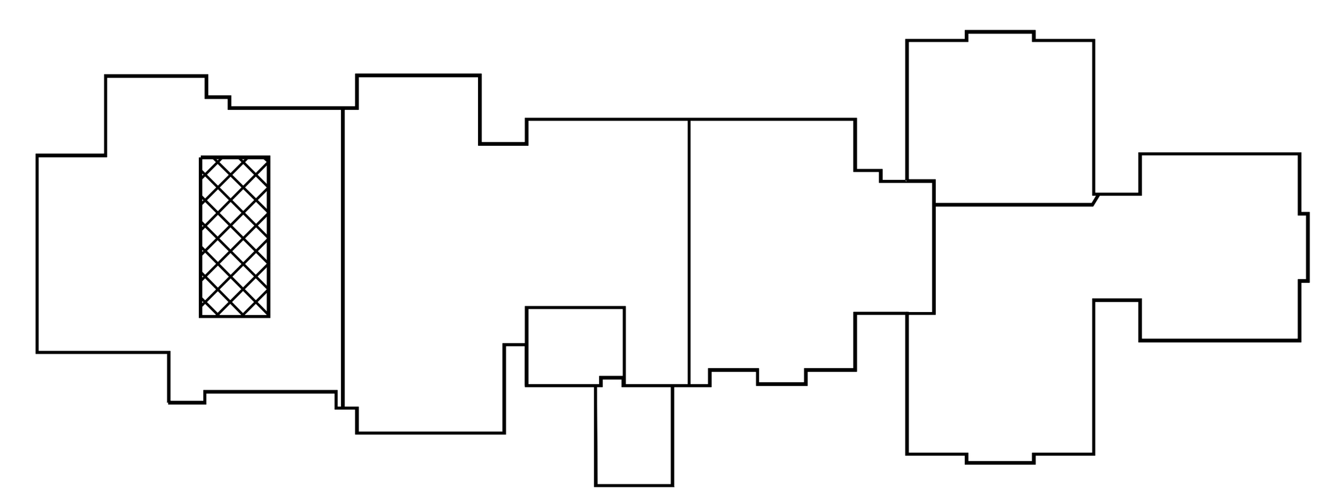
PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 11:30 AM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\M\WIS\139-I-3 M1.12 WIS
Mechanical First Floor Yard



1 SECOND FLOOR PLAN - VENTILATION - ALTERNATE
1/4" = 1'-0"

MECHANICAL VENTILATION NEW WORK NOTES

- (A) ACCESS/SERVICE AREA.
- (B) EXISTING SUPPLY/RETURN/EXHAUST/OUTDOOR/TRANSFER AIR DUCTWORK TO REMAIN. CLEAN INSIDE OF DUCTWORK, SPRAY ENCAPSULATE DUCT LINER AND SEAL EXISTING DUCTWORK (JOINTS/SEAMS/FITTINGS) BEING REUSED.
- (C) PROVIDE NEW CONNECTION TO EXISTING DUCTWORK. FIELD VERIFY SIZE, LOCATION AND ROUTING.
- (D) PROVIDE NEW CONNECTION TO EXISTING DUCTWORK. FIELD VERIFY SIZE, LOCATION AND ROUTING. REPLACE FUSIBLE LINK IN EXISTING FIRE DAMPER.
- (E) VARIABLE AIR VOLUME BOX: SEE LARGE SCALE DETAIL 6/M4.10 AND THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- (F) INTAKE/RELIEF HOOD: COORDINATE OPENING WITH EXISTING ROOF STRUCTURE. PROVIDE MINIMUM 10'-0" BETWEEN RELIEF/INTAKE HOODS. SEE LARGE SCALE DETAILS 2/M4.20, 3/M4.20 AND THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- (G) PROVIDE INSULATED SHEET METAL SLEEVE AROUND EXISTING ROOF STRUCTURE IN EXHAUST AIR DISCHARGE BELOW RELIEF HOOD.
- (H) PROVIDE FLEXIBLE CONNECTIONS AT OUTDOOR AIR/RETURN AIR/SUPPLY AIR DUCTWORK CONNECTIONS TO AIR HANDLING UNIT. SEE LARGE SCALE DETAIL 4/M4.20 AND THE SPECIFICATIONS FIR ADDITIONAL REQUIREMENTS.
- (I) PROVIDE MOTORIZED EXHAUST AIR DAMPER IN RELIEF HOOD. SEQUENCE WITH AIR HANDLING UNIT.
- (J) 6" CONCRETE BASE.
- (K) EXISTING RETURN AIR GRILLE. CLEAN AND BALANCE TO CFM SHOWN ON DRAWINGS.
- (L) VARIABLE FREQUENCY DRIVE FACTORY MOUNTED.
- (M) PROVIDE NEW SENSOR/THERMOSTAT IN SAME LOCATION AS REMOVED THERMOSTAT. PROVIDE WIREMOLD IF REQUIRED BY FIELD CONDITIONS. SEQUENCE NEW SENSOR/THERMOSTAT WITH NEW VAV BOX AND EXISTING FINNED TUBE RADIATION.
- (N) CLEAN AND BALANCE EXISTING CEILING/WALL DIFFUSER/GRILLE TO CFM SHOWN ON DRAWING.
- (O) EXISTING FINNED TUBE RADIATION.
- (P) PROVIDE NEW SENSOR/THERMOSTAT IN SAME LOCATION AS REMOVED THERMOSTAT. PROVIDE WIREMOLD IF REQUIRED BY FIELD CONDITIONS. SEQUENCE NEW SENSOR/THERMOSTAT WITH NEW AIR HANDLING UNIT.
- (Q) PROVIDE MESH SCREEN ON AHU RETURN AIR PLENUM INLET. RETURN AIR PLENUM TO BE PROVIDED BY AHU MANF.



KEY PLAN
NOT TO SCALE

TRIA ARCHITECTURE

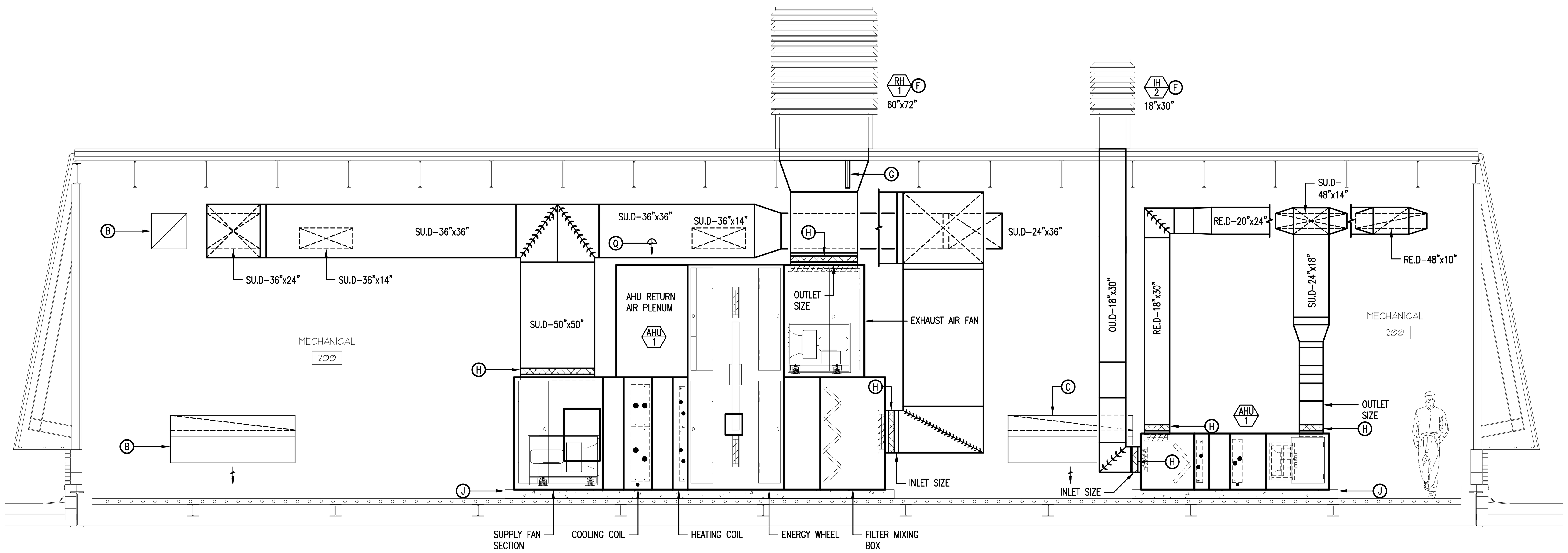
DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

LARGE SCALE PLAN - VENTILATION ALTERNATE

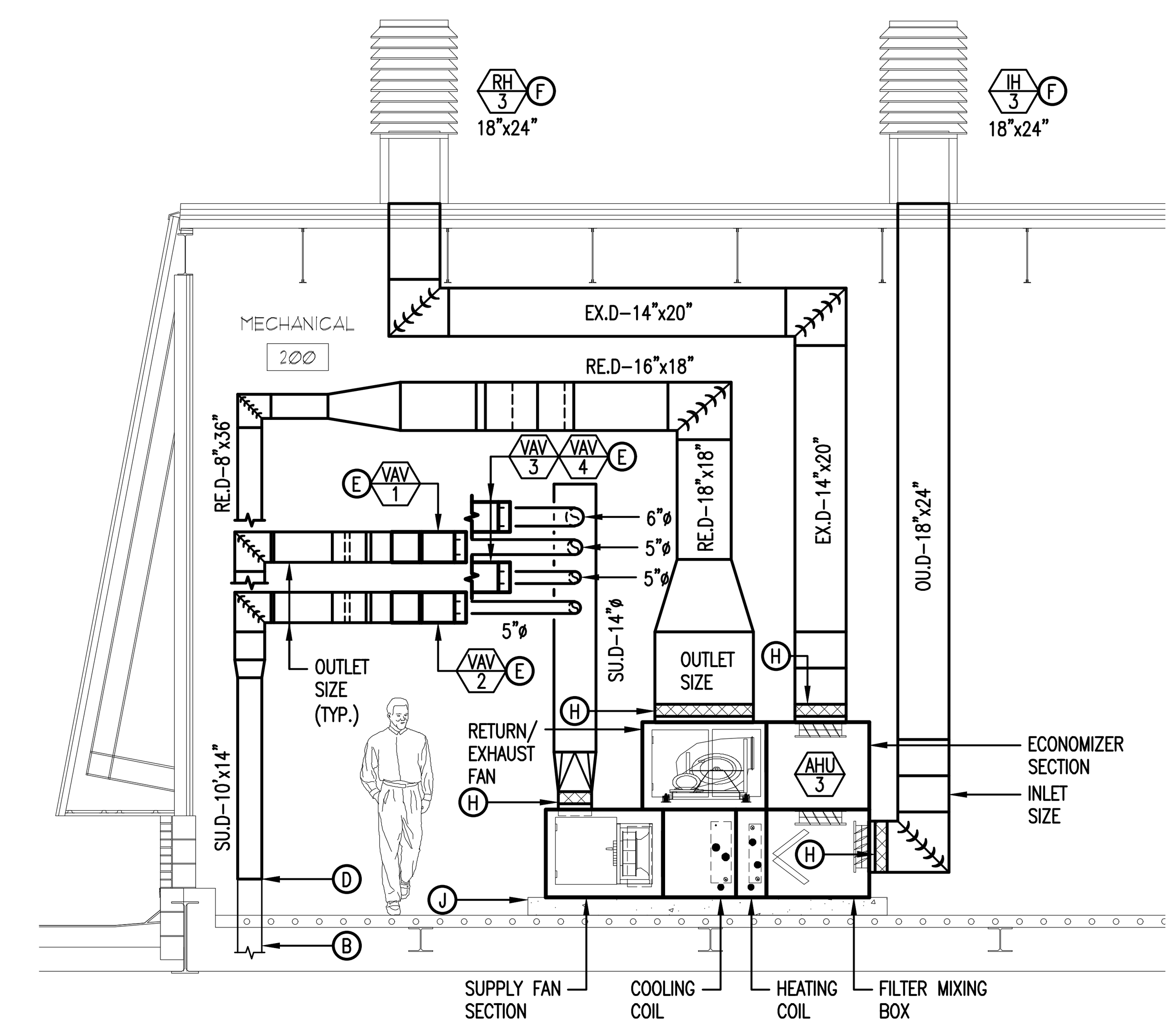
EXPIRES 07/31/2020

M2.10

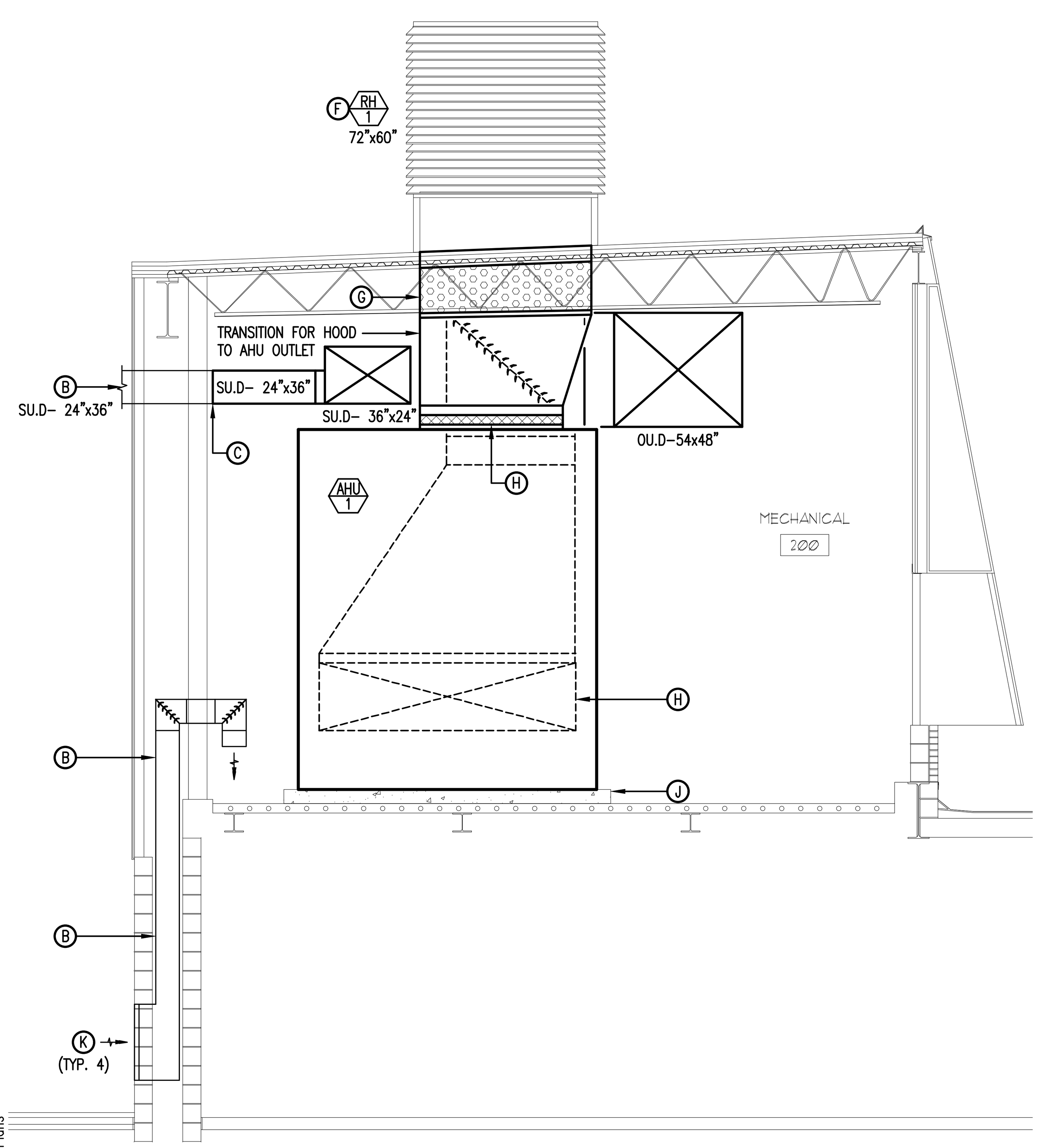


SECTION 1 - MECHANICAL - ALTERNATE
1/4" = 1'-0"

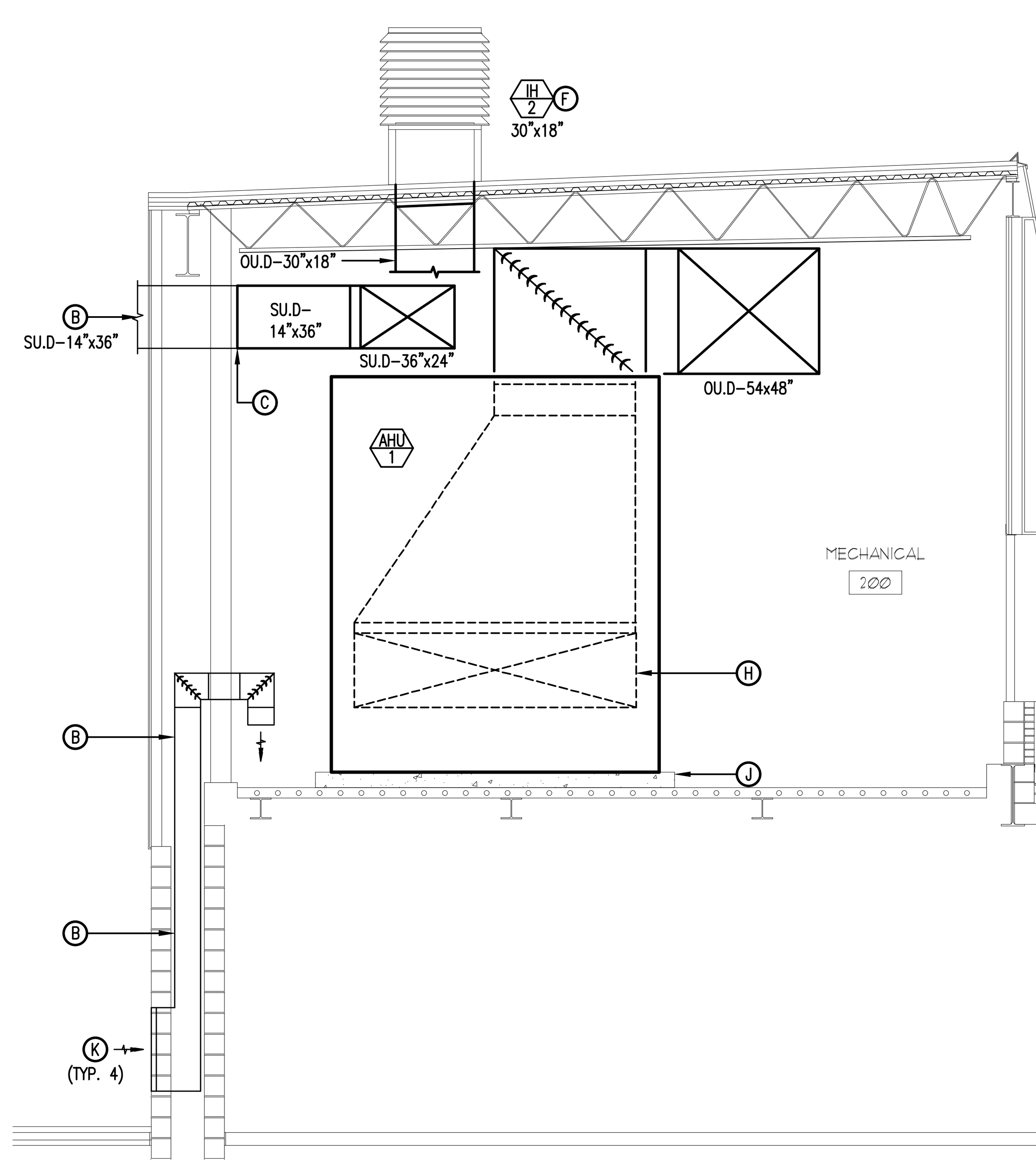
REFER TO SHEET M1.10 FOR FLOOR PLAN NOTES



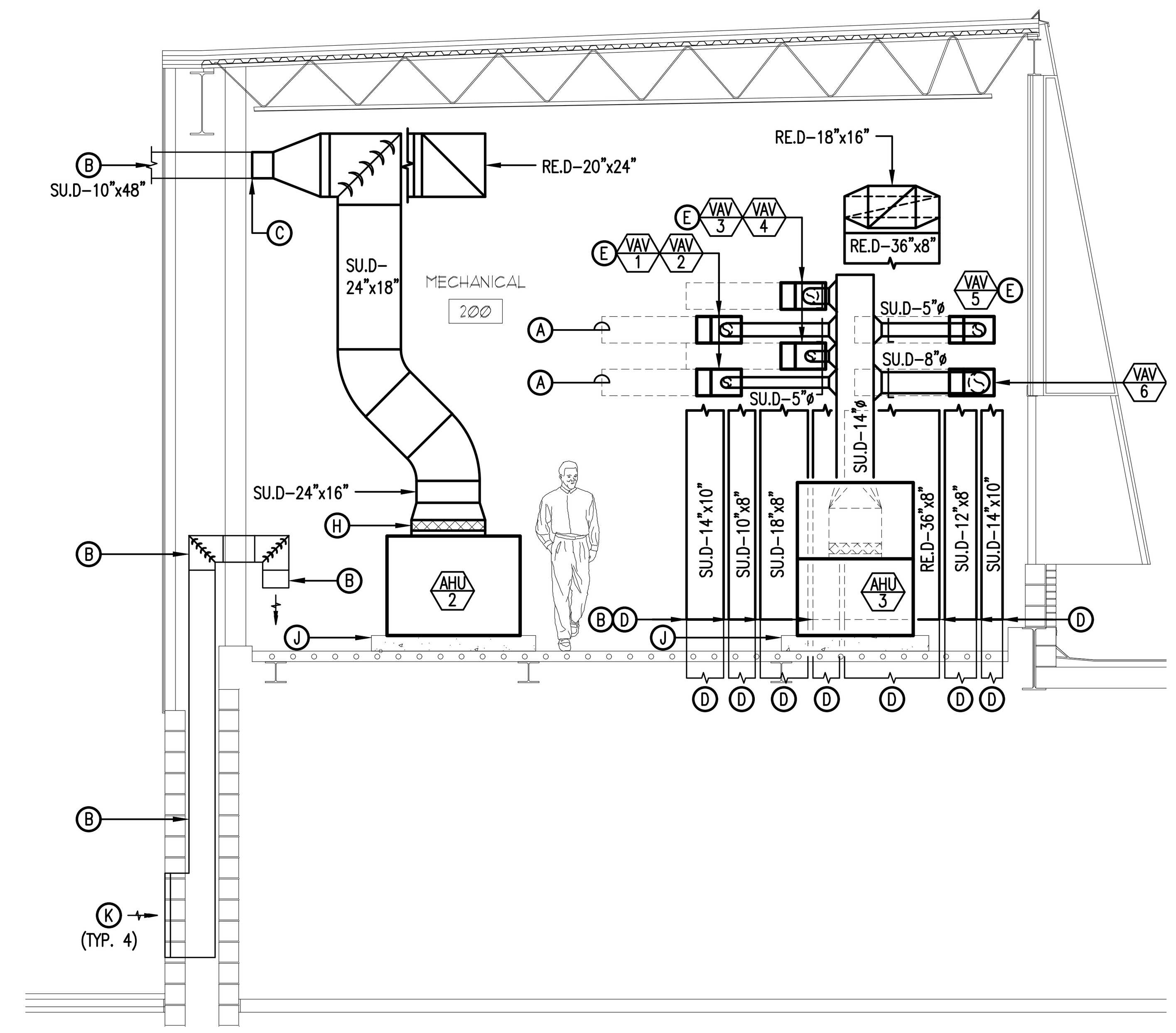
SECTION 2 - VENTILATION - ALTERNATE
1/4" = 1'-0"



SECTION 3 - VENTILATION - ALTERNATE
1/4" = 1'-0"



SECTION 4 - VENTILATION - ALTERNATE
1/4" = 1'-0"



SECTION 5 - VENTILATION - ALTERNATE
1/4" = 1'-0"

TRIA ARCHITECTURE

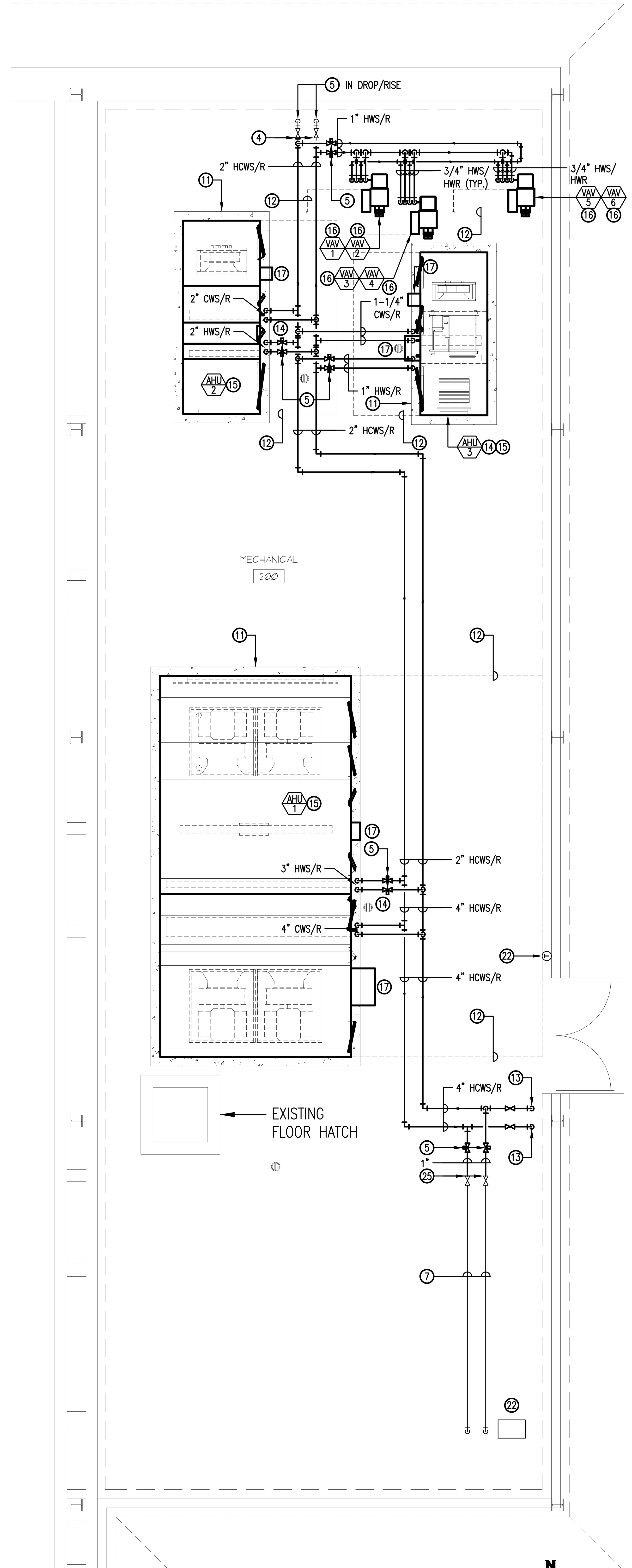
DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

LARGE SCALE PLANS - MECHANICAL ALTERNATE

KEITH BRYANT O'HIGGINS
REGISTERED
No. PE10911154
STATE OF INDIANA
PROFESSIONAL ENGINEER

M2.11

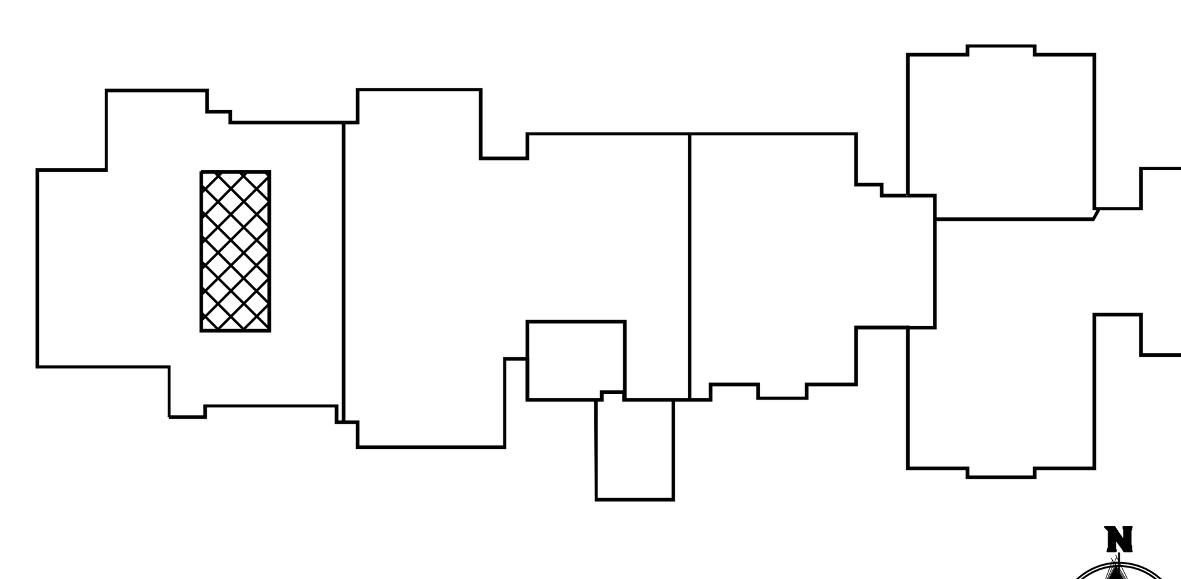


1 SECOND FLOOR PLAN - PIPING - ALTERNATE

1/4" = 1'-0"

MECHANICAL PIPING NEW WORK NOTES

1. EXISTING BASE MOUNTED PUMP(S) AND ASSOCIATED PIPING TO REMAIN.
2. NEW BASE MOUNTED PUMP ON NEW 4" HIGH CONCRETE BASE. ANCHOR TO CONCRETE BASE. SEE LARGE SCALE DETAILS 1/M4.00, 2/M4.10, 3/M4.10, 7/M4.10 AND THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. PROVIDE INSULATED CAP AT EXISTING MAIN. FIELD VERIFY.
4. NEW CONNECTION TO EXISTING MAIN. FIELD VERIFY.
5. ACV-1 MOTORIZED LINE SIZE FULL PORT HEATING/COOLING ISOLATION VALVE. SEE SPECIFICATIONS FOR SEQUENCE. CUT INTO EXISTING PIPE OR NEW PIPING.
6. EXISTING HOT WATER BOILER.
7. EXISTING HOT WATER SUPPLY/RETURN OR HOT/CHILLED WATER SUPPLY/RETURN.
8. PROVIDE LINE SIZE ISOLATION VALVES AT 5'-0" ABOVE FINISHED FLOOR (SUPPLY/RETURN). PROVIDE 2" DRAIN VALVES AT BASE OF EACH RISER WITH THREAD CONNECTIONS AND 5' OF HOSE. PITCH ALL PIPING TO ALLOW DRAINING OF CHILLER DURING WINTER. SEE PLUMBING DRAWINGS FOR LOCATION OF SUMP PUMP.
9. PROVIDE NEW 6" CHILLER WATER SUPPLY/RETURN TO/FROM CHILLER. FIELD VERIFY ROUTING. PITCH ALL PIPING TO RISERS WITHIN BUILDING TO ALLOW DRAINING OF CHILLER AND PIPING. INSULATE PIPE AND PROVIDE ALUMINUM JACKET PER THE SPECIFICATIONS. PROVIDE ADJUSTABLE PIPE GROUND/WALL SUPPORTS AT MINIMUM 4'-0" O.C. COORDINATE WITH EXISTING TELEPHONE PEDESTAL. SEE ELECTRICAL DRAWINGS FOR HEAT TRACE REQUIREMENTS.
10. INSTALL NEW CHILLER ON CONCRETE BASE. MOUNT ON ISOLATORS. LARGE SCALE DETAILS 1/M4.10, 3/M4.10 AND THE SPECIFICATIONS FOR ADDITIONAL PIPING AND INSTALLATION REQUIREMENTS.
11. 6" CONCRETE BASE.
12. ACCESS/SERVICE AREA.
13. 4" HCWS/R TO/FROM BELOW.
14. PROVIDE FULL SIZE INSULATED DRAIN WITH TRAP TO FLOOR DRAIN. SEE PLUMBING DRAWINGS FOR LOCATIONS AND LARGE SCALE DETAIL 10/M4.10 FOR ADDITIONAL REQUIREMENTS.
15. AIR HANDLING UNIT: HOT WATER AND CHILLED WATER COILS, SEE LARGE SCALE DETAILS 3/M4.10, 5/MM4.10, 10/M4.10 AND THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
16. VARIABLE AIR VOLUME BOX: SEE LARGE SCALE DETAIL 6/M4.10 AND THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
17. VARIABLE FREQUENCY DRIVE FACTORY MOUNTED.
18. 4" HCWS/R MOUNT ON EXISTING TUNNEL WALL BELOW EXISTING PIPING. FIELD VERIFY ROUTING.
19. PIPE ANCHOR (TYP.)
20. EXPANSION LOOP (TYP.)
21. EXPANSION TANK, SUPPORT FROM EXISTING BUILDING STRUCTURE. SEE LARGE SCALE DETAILS FOR ADDITIONAL REQUIREMENTS.
22. EXISTING SUSPENDED UNIT HEATER AND THERMOSTAT. VERIFY OPERATION.
23. ABANDONED HOT WATER SUPPLY/RETURN PIPING.
24. EXISTING EXPANSION TANK.
25. PROVIDE NEW CONNECTION TO EXISTING PIPING/VALVES. FIELD VERIFY SIZE/LOCATION.
25. EXISTING TELEPHONE PEDESTAL TO REMAIN.



KEY PLAN

NOT TO SCALE

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL

1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

PROJECT NUMBER: 19-0592
PROJECT MANAGER: MG
DRAWN BY: OAS
ISSUED FOR BID: 01/07/2020

REVISIONS: 1 2 3 4 5

LARGE SCALE PLAN - PIPING ALTERNATE

M2.20

PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER EXPIRES 07/31/2020

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 11:58 AM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\M\WIS\139-I-3 M2.20 WIS
Mechanical Large Scale Plans

VARIABLE AIR VOLUME BOX SCHEDULE (VAV)

GENERAL DATA					CFM		DIMENSIONAL DATA (IN.)					HOT WATER COIL DATA						NOTES
TAG	AREA SERVED	LOCATION	MANUFACTURER	MODEL NUMBER	MIN. (CLG./ HTG.)	MAX.	INLET DIA.	OUTLET SIZE	BOX LENGTH	BOX WIDTH	BOX HEIGHT	CFM	MBH	GPM	EWT (°F)	EAT (°F)	LAT (°F)	
VAV 1	OFFICE T136	MEZZANINE 201	TRANE	VCWF-05	100/ 100	300	5	10 X 8	15	12	10	100	6.0	0.5	180	55.0	110.0	1,2,3,4,5,6,7
VAV 2	OFFICE T135	MEZZANINE 201	TRANE	VCWF-05	70/ 70	200	4	10 X 8	15	12	10	70	4.1	0.5	180	55.0	122.2	1,2,3,4,5,6,7
VAV 3	CONF. T131 & STORAGE T132	MEZZANINE 201	TRANE	VCWF-06	155/ 155	465	6	10 X 8	15	12	10	155	7.2	0.5	180	55.0	97.7	1,2,3,4,5,6,7
VAV 4	OFFICE T133	MEZZANINE 201	TRANE	VCWF-05	70/ 70	200	4	10 X 8	15	12	10	70	4.1	0.5	180	55.0	122.2	1,2,3,4,5,6,7
VAV 5	OFFICE T134	MEZZANINE 201	TRANE	VCWF-05	85/ 85	250	5	10 X 8	15	12	10	85	5.6	0.5	180	55.0	115.4	1,2,3,4,5,6,7
VAV 6	RECEPTION T130	MEZZANINE 201	TRANE	VCWF-08	185/ 185	550	8	10 X 8	15	12	10	165	8.9	0.5	180	55.0	99.4	1,2,3,4,5,6,7

NOTES:
1. MAXIMUM NOISE LEVEL SHALL NOT EXCEED 35NC BASED ON 5 FEET LINED DUCTWORK DOWNSTREAM OF BOX, 10db ROOM ABSORPTION, RE 10-12 WATTS.
2. MAX. REQUIRED STATIC PRESSURE DIFFERENTIAL ACROSS INLET TO OUTLET OF BASIC BOX ASSEMBLY NOT EXCEED 0.25"S.P. TO ALLOW PROPER BOX OPERATION WHEN DELIVERING MAX. RATED CFM.
3. ALL BOXES TO BE PRESSURE INDEPENDENT WITH FACTORY SET MIN. AND MAX. CFM SETTINGS (READILY FIELD ADJUSTABLE).
4. SEE CONTROL DIAGRAMS FOR N.O. OR N.C. BOXES AND SPRING RANGE REQUIREMENTS.
5. HOT WATER COIL AIR PRESSURE SHALL NOT EXCEED 0.36 IN. AT AIR FLOW RATE SCHEDULED.
6. HOT WATER COIL WATER PRESSURE DROP SHALL NOT EXCEED 2.5 FT AT WATER FLOW RATE SCHEDULE.
7. ALTERNATE BID.

INTAKE HOOD AND RELIEF HOOD SCHEDULE (IH) (RH)

GENERAL DATA												NOTES
TAG	LOCATION	AREA SERVED	MANUFACTURER	MODEL	TYPE	CFM	S.P. (IN.)	OPENING X TIER	THROAT AREA (FT2)	THROAT VEL. (FPM)	FREE AREA/VELOCITY	
IH 1	ROOF	AHU-1	COOK	TRE	INTAKE	26,100	0.13	60 X 72 X 20	30.0	870	82.72 SQ. FT. 316 FPM	1,2,3,4
IH 2	ROOF	AHU-2	COOK	TRE	INTAKE	3,600	0.133	18 X 30 X 10	3.75	960	18.12 SQ. FT. 199 FPM	1,2,3,4
IH 3	ROOF	AHU-3	COOK	TRE	INTAKE	1,700	0.045	18 X 24 X 10	3.00	567	16.46 SQ. FT. 103 FPM	1,2,3,4
RH 1	ROOF	AHU-1	COOK	TRE	RELIEF	26,100	0.144	60 X 72 X 20	30.0	870	82.72 SQ. FT. 316 FPM	1,2,3,4
RH 2	NOT USED											
RH 3	ROOF	AHU-2	COOK	TRE	RELIEF	1,700	0.047	18 X 24 X 10	3.00	567	16.46 SQ. FT. 103 FPM	1,2,3,4

NOTES:
1. GALVANIZED BIRD SCREEN.
2. PREFABRICATED ALUMINUM ROOF CURB MINIMUM 18" HIGH.
3. 1" THICK THERMAL LINER.
4. ALTERNATE BID.

PUMP SCHEDULE (CHP)

TAG	LOCATION	SERVICE	MANUFACTURER	MODEL NUMBER	TYPE	GPM	HP	VOLT/PH	HEAD (FT.)	IMP. DIA. (IN.)	RPM	EFFICIENCY	TRIPLE DUTY VALVE	NOTES
HCWP 1	MECHANICAL 121	BUILDING (PRIMARY)	BELL & GOSSETT	1510 2EB	BASE MOUNTED	220	10.0	208/3	85.0	10.625	1750	73.6	YES	1,2,3
HCWP 2	MECHANICAL 121	BUILDING (STANDBY)	BELL & GOSSETT	1510 2EB	BASE MOUNTED	220	10.0	208/3	85.0	10.625	1750	73.6	YES	1,2,3

PUMP TYPES

HCWP # BUILDING PUMP

NOTES:
1. FURNISH WITH HIGH EFFICIENCY MOTORS AND INTEGRAL THERMAL OVERLOADS.
2. PROVIDE VFD WITH SEPARATE MECHANICAL BYPASS. SEE SECTION 17150 FOR MANUFACTURER AND VFD REQUIREMENTS.
3. ALTERNATE BID.

MECHANICAL/ELECTRICAL COORDINATION SCHEDULE

NOTES:
1. DEVICES TO BE FURNISHED BY THE ELECTRICAL CONTRACTOR (MARKED "E"), OR MECHANICAL CONTRACTOR (MARKED "M")
2. ALL CONDUIT AND WIRING FOR TEMPERATURE CONTROL AND EQUIPMENT INTERLOCK SHALL BE BY BAS CONTRACTOR. OTHER CONTROLS AND CONTROL CONDUIT/WIRING BY TRADE FURNISHING RESPECTIVE EQUIPMENT.
3. IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE AND REVIEW THE ELECTRICAL CHARACTERISTICS, AMPACITY AND OTHER REQUIREMENTS OF COMPONENTS BEFORE INSTALLATION OF WORK. ALL OTHER CONTRACTORS SHALL ADVISE ELECTRICAL CONTRACTOR OF ANY MOTOR/DEVICE CHANGES.
4. ALL LOOSE STARTERS SHALL INCLUDE HOA SWITCH, CONTROL TRANSFORMER, AND ONE N.O. AND ONE N.C. AUXILIARY CONTACTS. ALL SINGLE PHASE EXHAUST FAN CONTROL SWITCHES SHALL HAVE IDENTIFICATION NAMEPLATE AND PILOT LIGHT.
5. SEE SPECIFICATIONS AND DRAWINGS FOR TYPES AND LOCATIONS OF DEVICES SCHEDULED BELOW.

EQUIP. TAG	EQUIPMENT DESCRIPTION	UNIT MOUNTED DEVICES				REMOTE OR LOOSE DEVICES				REMARKS
		STARTER	DISCONNECT	OVERCURRENT PROTECTION	SINGLE POINT CONNECTION	STARTER	DISCONNECT	VFD	OVERCURRENT PROTECTION	
CH –	CHILLER	M	M	–	YES	–	–	–	E	ELECTRICAL CONTRACTOR TO PROVIDE SEPARATE 120V EVAPORATOR HEATER POWER CONNECTION
AHU –	INDOOR AIR HANDLING UNIT	–	–	–	–	–	–	M	E	VARIABLE FREQUENCY DRIVE FACTORY MOUNT BY THE AHU MANUFACTURER.
BWP –	BUILDING WATER PUMP	–	–	–	–	–	–	M	E	VARIABLE FREQUENCY DRIVE TO BE PROVIDE BY THE MECHANICAL CONTRACTOR AND INSTALLED/MOUNTED/WIRED BY THE ELEC. CONTRACTOR

NOTES: 1. VERIFY FINAL LOADS AND REQUIREMENTS OF ALL EQUIPMENT WITH FINAL MECHANICAL DRAWINGS.

AIR HANDLING UNIT SCHEDULE (AHU)

GENERAL INFORMATION									ELECTRICAL DATA		SUPPLY FAN DATA							
TAG	LOCATION	MANUF.	AREA SERVED	MODEL NUMBER	SYSTEM TYPE	UNIT TYPE	DIMENSIONS LxWxH (IN.)	WEIGHT LBS	MOTOR VOLT	MOTOR PH	CFM	MTR HP	BHP	MIN. ODA	FAN RPM	ESP (IN.)	MIN. DIA. (IN.)	MAX. OUTLET VEL. (FPM)
AHU 1	MEZZANINE 201	TRANE	GYM B A-123	CSAA050	SINGLE ZONE	HORIZONTAL STACKED	250"x126"x152"	12,000	208	3	26,100	2@ 16	31.7	30%	1,902	2.0	2@ 27	---
AHU 2	MEZZANINE 201	TRANE	WRESTLING A-142	CSAA008	SINGLE ZONE	HORIZONTAL	127"x51"x38"	1,200	208	3	3,600	7.6	2.9	20%	2,094	1.5	17.5	---
AHU 3	MEZZANINE 201	TRANE	OFFICE AREA	CSAA004	VARIABLE AIR VOLUME	HORIZONTAL STACKED	107"x44"x58"	1,500	208	3	1,700	3.6	1.4	20%	3,107	1.5	12.0	---

	RETURN/EXHAUST FAN DATA						HOT WATER COIL DATA											
TAG	MTR HP	BHP	FAN RPM	ESP (IN.)	MIN. DIA. (IN.)	MAX. OUTLET VEL. (FPM)	TYPE	GPM	HTG EAT (°F)	HTG LAT (°F)	MIN. ROW	FPF	MAX. VEL. (FPM)	MAX. SP. (IN.)	PD. (FT.)	HTG EWT (°F)	HTG LWT (°F)	HEATING MBH
AHU 1	2@ 11	21.0	1,706	0.5	2@ 27	---	HEAT	117.5	62.5	104.0	1	130	554	0.14	13.7	180.0	160.0	1,178.2
AHU 2	---	---	---	---	---	---	HEAT	19.5	54.0	104.0	1	161	492	0.15	1.2	180.0	160.0	195.2
AHU 3	1.5	1.4	1,621	0.5	9-6	---	HEAT	6.6	54.0	90.0	1	109	425	0.1	0.4	180.0	160.0	66.4

	COOLING WATER COIL DATA									ENERGY RECOVERY (ROTARY WHEEL HEAT EXCHANGER)									FILTER DATA			MIXING BOX	NOTES
										HEATING DATA			COOLING DATA										
TAG	GPM	EAT DB (°F)	EAT WB (°F)	LAT DB (°F)	LAT WB (°F)	EWT (°F)	LWT (°F)	TOTAL SENS. (MBH)	COOLING TOTAL MBH	EAT (°F)	LAT (°F)	TOTAL EFF.	VENT EAT (DB°F)	VENT EAT (WB°F)	LAT (DB°F)	LAT (WB°F)	TOTAL EFF.	TOTAL CAP. (MBH)	FACE VEL. (FPM)	FACE AREA (SQFT.)	FILTER TYPE	TYPE	
AHU 1	165	76.5	65.1	55.0	54.7	45.0	55.0	618.3	828.1	-10.0	62.5	68.3	91.0	74.0	76.5	65.1	66.1	101 T 95 S	475	55.0	2" TA	FILTER/MIX	1,2,3,4,5,6,7, 8,11,14,15
AHU 2	25.5	78.2	66.2	55.0	54.6	45.0	55.0	92.0	127.9	---	---	---	---	---	---	---	---	---	324	11.11	2" TA	FILTER/MIX	1,2,3,4,5,6,7, 9,12,14,15
AHU 3	12.0	78.2	66.2	55.0	54.7	45.0	55.0	43.5	60.2	---	---	---	---	---	---	---	---	---	191	8.9	2" TA	FILTER/MIX	1,2,3,4,5,6,7, 10,13,14,15

NOTES:
1. PROVIDE FACTORY MOUNTED PREMIUM EFFICIENCY FAN MOTOR(S) WITH FACTORY MOUNTED VFD'S. FANS TO BE INDIVIDUALLY POWERED.
2. PROVIDE DOUBLE WALL CONSTRUCTION FOR ALL SECTIONS PER THE SPECIFICATIONS.
3. SEE FLOOR PLANS FOR SECTION/MODULE AND ACCESS DOOR REQUIREMENTS.
4. PROVIDE INTERNAL VIBRATION ISOLATION AND FULL SIZE ACCESS DOORS ON BOTH SIDES OF UNIT.
5. PROVIDE SS HEATING/COOLING COIL CASING WITH REMOVABLE ACCESS PANEL AND SS DRAIN PAN.
6. DAMPERS AND DAMPER ACTUATORS (OA/RA/EA AND ENERGY WHEEL) BY AHU MANUFACTURER.
7. CONTRACTOR TO BREAKDOWN AND REASSEMBLY UNITS AS REQUIRED BY FIELD CONDITIONS TO GET UNITS INTO BUILDING.
8. PROVIDE SEPARATE CIRCUIT FOR SUPPLY FAN, RETURN FAN AND ERV (110 MCA W/175 A FUSE, 93.5 MCA W/150 A FUSE AND 3.75 MCA W/15 A FUSE).
9. PROVIDE SEPARATE CIRCUIT FOR SUPPLY FAN (22.9 MCA W/40 A FUSE).
10. PROVIDE SEPARATE CIRCUIT FOR SUPPLY FAN AND RETURN FAN (10.63 MCA W/15 A FUSE AND 8.5 MCA W/15 A FUSE).
11. AHU-1: PROVIDE THE FOLLOWING SECTIONS. BOTTOM (SUPPLY FAN, ACCESS, COOING COIL, ACCESS, HEATING COIL, ENERGY WHEEL, ACCESS, OA INTAKE/FILTER BOX) TOP (RETURN AIR PLENUM, ENERGY WHEEL EXHAUST FAN. PROVIDE CUSTOM SUPPLY AND EXHAUST CONNECTIONS TO MATCH DRAWINGS.
12. AHU-2: PROVIDE THE FOLLOWING SECTIONS. BOTTOM (SUPPLY FAN, ACCESS, COOING COIL, ACCESS, HEATING COIL, FILTER MIXING BOX).
13. AHU-3: PROVIDE THE FOLLOWING SECTIONS. BOTTOM (SUPPLY FAN, ACCESS, COOING COIL, ACCESS, HEATING COIL, FILTER MIXING BOX). TOP (RETURN/EXHAUST FAN, ECONOMIZER/MIXING BOX).
14. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
15. ALTERNATE BID.

AIR COOLED CHILLER SCHEDULE - OWNER-PROVIDED (CH)

EQUIPMENT TAG	LOCATION	MANUFACTURE	MODEL (TYPE)	DESIGN CAPACITY (TON)	REFRIGERANT (TYPE)	DIMENSIONS (LxWxH)	WEIGHT (LBS.)	COMPRESSORS							CONDENSER FANS			ELECTRICAL			EWT (°F)	LWT (°F)	GPM	PD (FT W.G.)	COOLING EFF. (MINIMUM)	IPLV.IP (MINIMUM)	NPLV.IP (MINIMUM)	NOTES
								CIRCUIT	QUANTITY	TONS EACH	HEAT REJECTED (TONS)	CAPACITY NO. STEPS	MIN. STEPS UNLOADING	DUAL CIRCUITED	EAT(°F)	QUANTITY	HP	VOLT/PH	MINIMUM CIRC. AMPS	MAXIMUM OCP. AMPS								
CH 1	GROUND	YORK	YVAA027	300	HFC-134a	380"x86"x95"	23,600	1	1	150	141.5	INFINITE	MODULATING TO 15%	YES	95.0	16	---	208/3	921	1,200	55.0	45.0	678.0	10.6	11.07 EER	19.79 EER	20.15 EER	1,2,3,4,5,6,7,8, 9,10,11,12,13,14, 15,16,17,18
								2	1	150	141.5																	

NOTES:
1. FACTORY SINGLE POINT ELECTRICAL SUPPLY CONNECTION.
2. FACTORY MOUNTED CIRCUIT BREAKER HIGH FAULT RATED.
3. FACTORY PHASE, GROUND FAULT AND UNDER/OVER VOLTAGE PROTECTION.
4. FACTORY INSTALLED CONTROL TRANSFORMER.
5. FACTORY INSTALLED FLOW SWITCHES.
6. FACTORY GROOVED END PIPE CONNECTIONS ON EVAPORATOR.
7. FACTORY INSULATED EVAPORATOR AND SOUND COMPRESSOR BLANKETS.
8. FACTORY MOUNTED SUCTION AND DISCHARGE ISOLATION VALVES PER CIRCUIT.
9. LOW NOISE CONDENSER FANS.
10. PROVIDE FACTORY MOUNTED BACNET CONTROLLER.
11. PROVIDE VIBRATION ISOLATORS AND FACTORY ARCH. LOUVERS.
12. PROVIDE LOW AMBIENT LOCKOUT STAT.
13. EER RATING CERTIFIED IN ACCORDANCE W/ARI STANDARD 590 AND IEEC.
14. PROVIDE SEPARATE 120V EVAPORATOR BUNDLE HEAT TRACE, CRANKCASE HEATER AND SEPARATE 120V FUSED POWER OUTLET.
15. SHORT CIRCUIT CURRENT RATING 65,000 AMP.
16. MAXIMUM 75 dbA WEIGHTED SOUND PRESSURE.
17. PROVIDE VFD ON SCREW COMPRESSOR WITH FACTORY INSTALLED PULSE AUTOTRANSFORMER TO REDUCE HARMONICS (IEEE 519).
18. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

EXPANSION TANK SCHEDULE (ET)

TAG	LOCATION	MANUFACTURER	MODEL NUMBER	CAPACITY TANK/ACCEPT (GAL.)	SYSTEM	H/V	NOTES
ET 1	MECHANICAL ROOM B104A	BELL & GOSSETT	B-200	53/53	BUILDING	HORIZONTAL	1,2,3,4,5

NOTES:
1. DRAIN VALVE
2. ATF FITTING
3. TUBE-GUAGE GLASS
4. INSULATION
5. ALTERNATE BID

TRIA ARCHITECTURE

M.E.P./F.P. CONSULTANT:
(P) 630.538.1996
OAS O'Higgins & Arnold Sustainability, LLC
769 HEARTLAND DR., UNIT A SUGAR GROVE, ILLINOIS 60554

STRUCTURAL CONSULTANT:
(P) 630.351.0540
(F) 630.351.0164
Larson Engineering, Inc.
1488 BOND STREET, SUITE 100
NAPERVILLE, ILLINOIS 60563-6503
ILLINOIS LICENSE NO 184-001442
LEI COMM. NO 21160576.000

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT:
WESTCHESTER INTERMEDIATE SCHOOL
1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

REVISIONS:
1
2
3
4
5

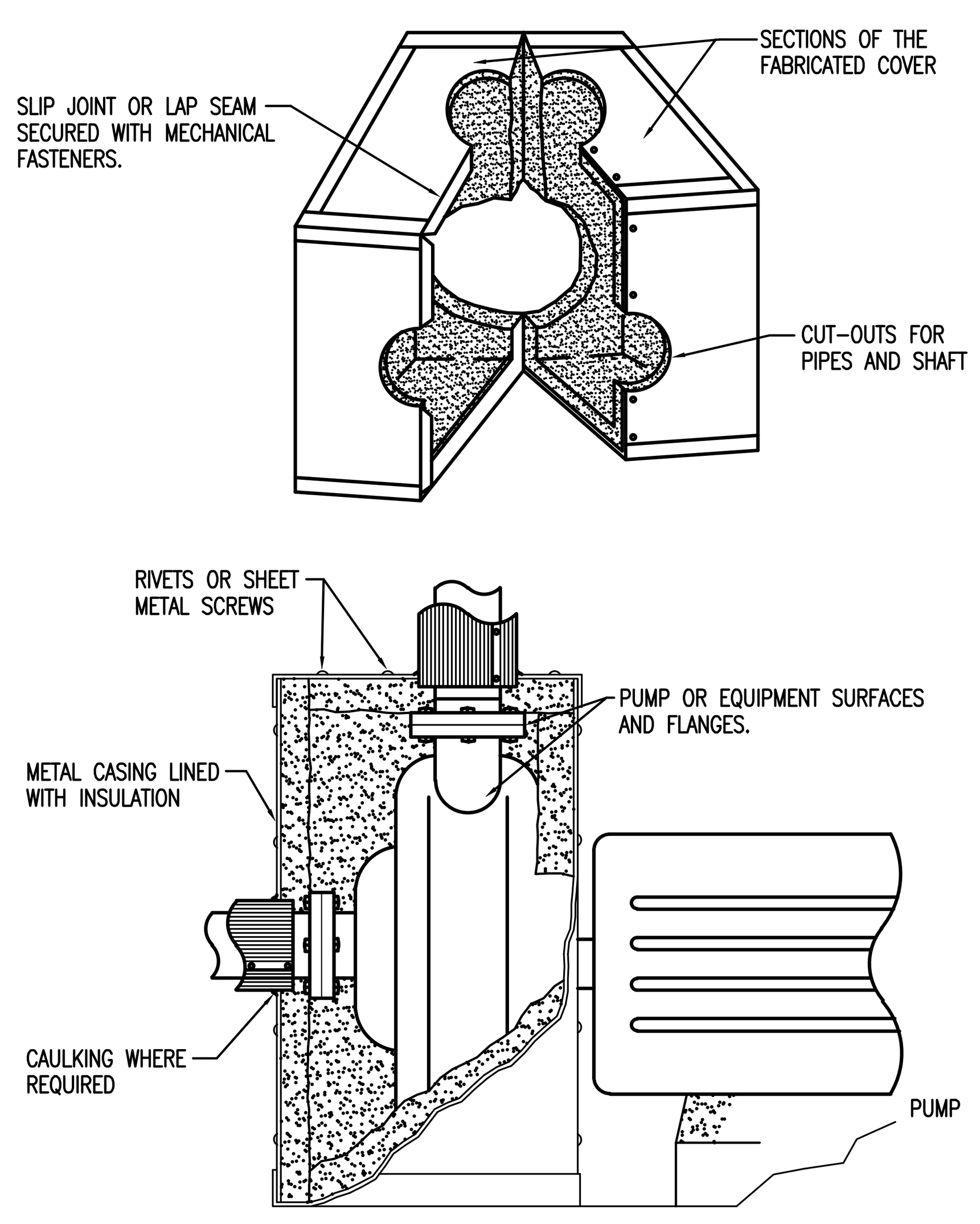
PROJECT NUMBER: 19-0592
PROJECT MANAGER: MG
DRAWN BY: OAS
ISSUED FOR BID: 01/07/2020

SCHEDULES
MECHANICAL

KEITH BRYANT O'HIGGINS
PE10911154
EXPIRES 07/31/2020

M3.00

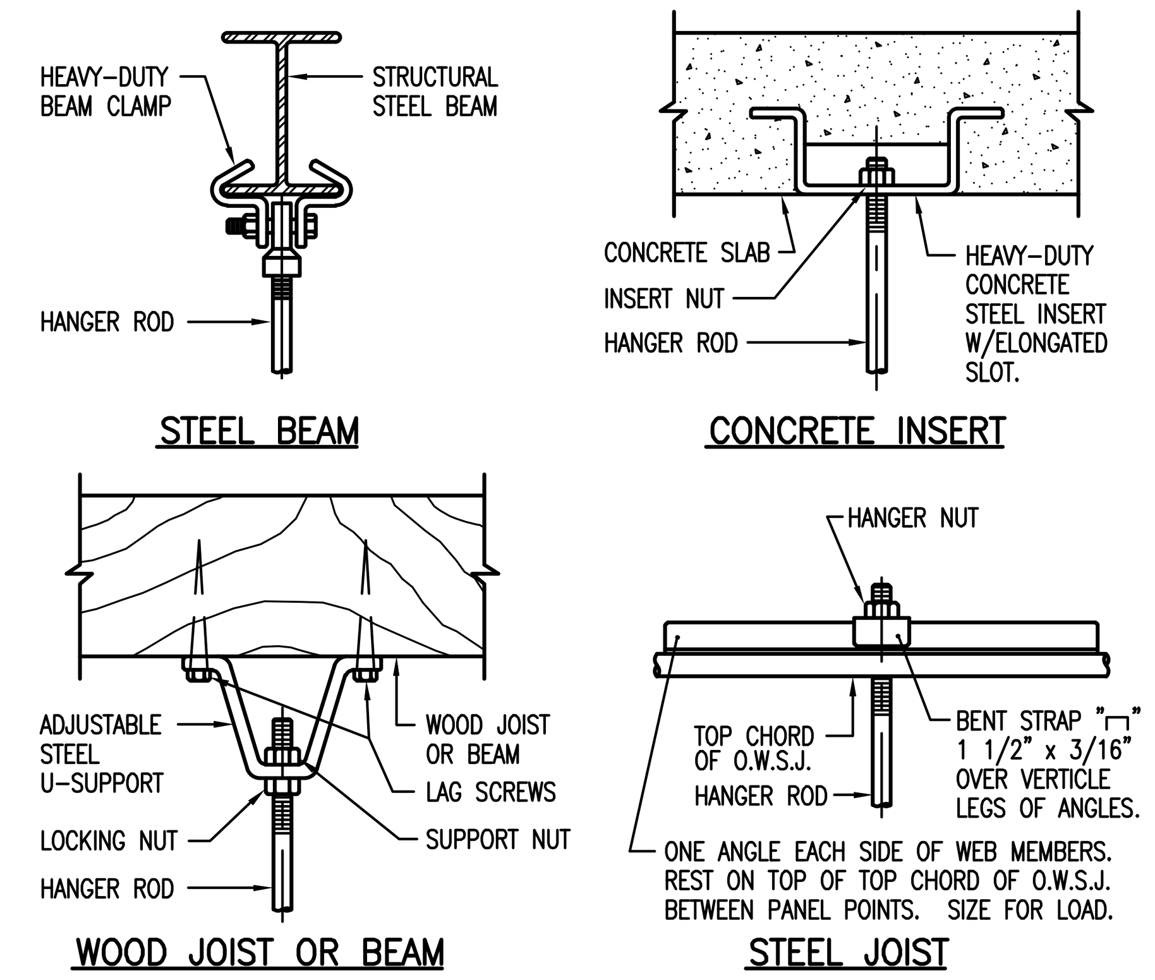
PLOTTED BY: LARRY ARNOLD   DATE PLOTTED: 1/6/2020 11:31 AM   FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\M\WIS\139-I-3 M3.00 WIS
Schedules



1 / M4.00 **REMOVABLE INSULATED METAL EQUIPMENT COVER DETAIL**

NO SCALE

(TYPICAL FOR PUMPS, AIR SEPARATORS, STRAINERS)



PIPE HANGERS AND SUPPORTS

SUPPORT HORIZONTAL STEEL AND COPPER PIPING AS FOLLOWS:

NOMINAL PIPE SIZE	DISTANCE BETWEEN SUPPORTS	HANGER ROD DIAMETERS
1/2"	6'	3/8"
3/4 TO 1-1/2"	6'	1/2"
2" TO 2-1/2"	10'	1/2"
3" AND 4"	10'	5/8"
6" TO 12"	14'	7/8"
14" TO 18"	20'	1"

PLACE HANGER WITHIN 1 FOOT OF EACH HORIZ. ELBOW. SUPPORT HORIZ. SOIL WASTE AND STORM PIPE NEAR EACH HUB, WITH 5 FEET MAXIMUM SPACING BETWEEN HANGERS.

VERTICAL PIPING:

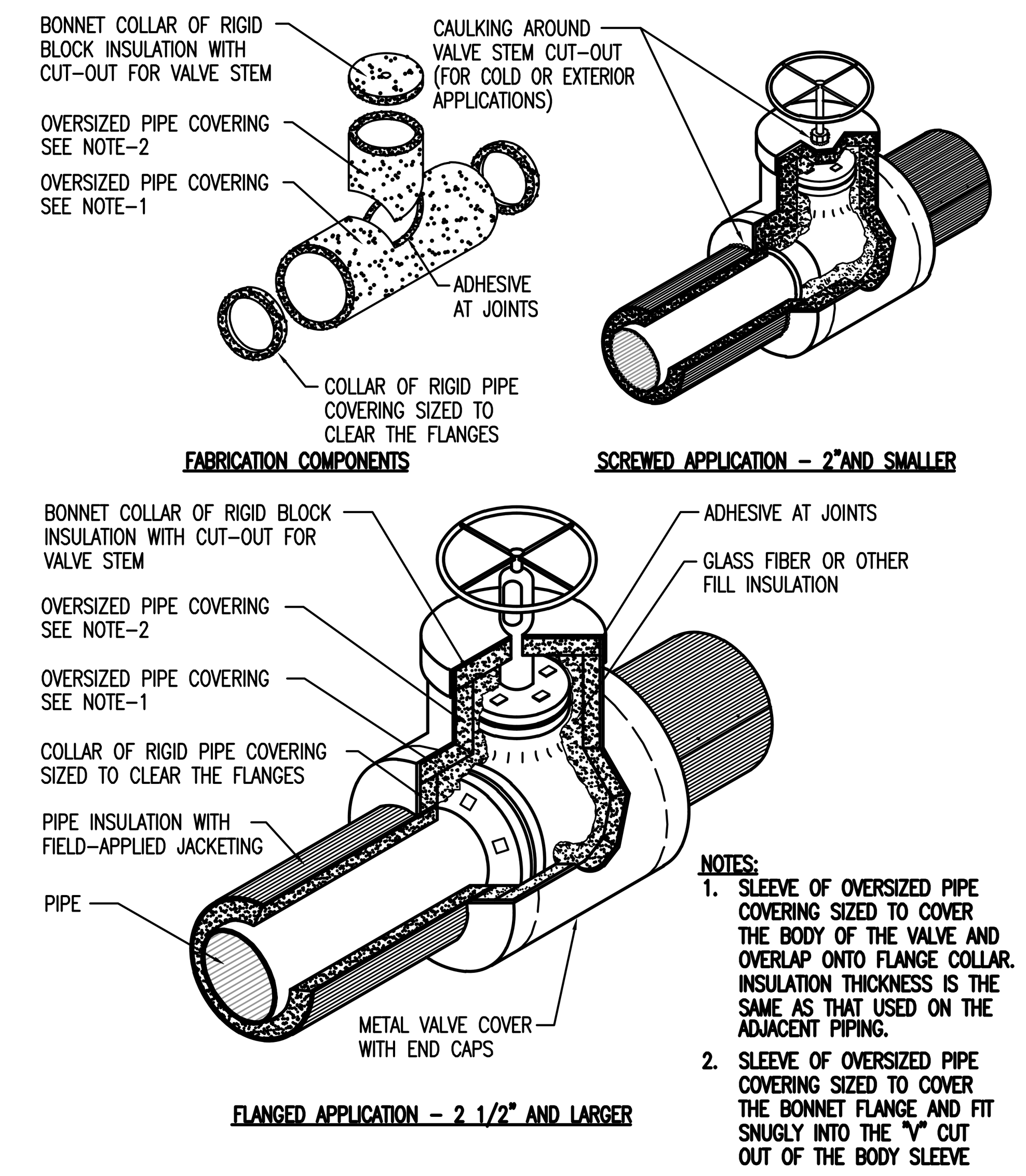
1. SUPPORT VERTICAL WATER PIPING AT EVERY FLOOR.
2. SUPPORT VERTICAL SOIL PIPE AT EACH FLOOR AT HUB.

WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AND AT SAME ELEVATION PROVIDE MULTIPLE OR TRAPEZE HANGERS.

WHERE PRACTICAL, SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZ. PIPING.

2 / M4.00 **PIPE HANGER DETAILS**

NO SCALE

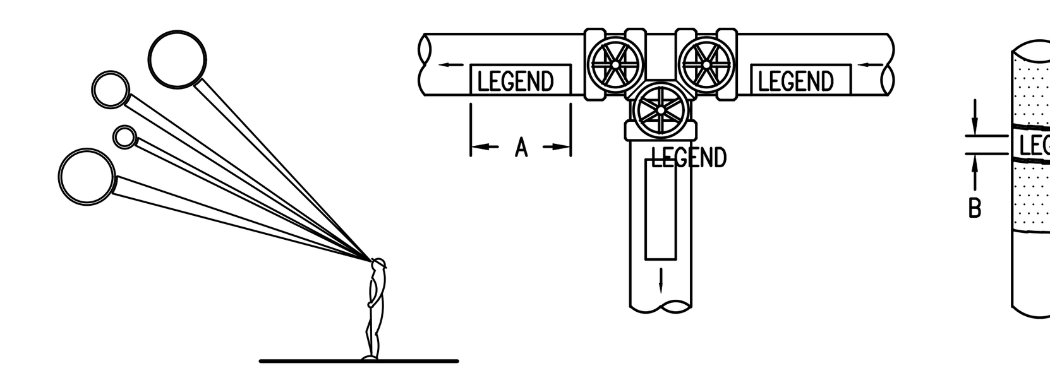


NOTES:

1. SLEEVE OF OVERSIZED PIPE COVERING SIZED TO COVER THE BODY OF THE VALVE AND OVERLAP ONTO FLANGE COLLAR. INSULATION THICKNESS IS THE SAME AS THAT USED ON THE ADJACENT PIPING.
2. SLEEVE OF OVERSIZED PIPE COVERING SIZED TO COVER THE BONNET FLANGE AND FIT SNUGLY INTO THE "V" CUT OUT OF THE BODY SLEEVE

3 / M4.00 **FIELD OR FACTORY-FABRICATED VALVE INSULATION**

NO SCALE



NOTES:

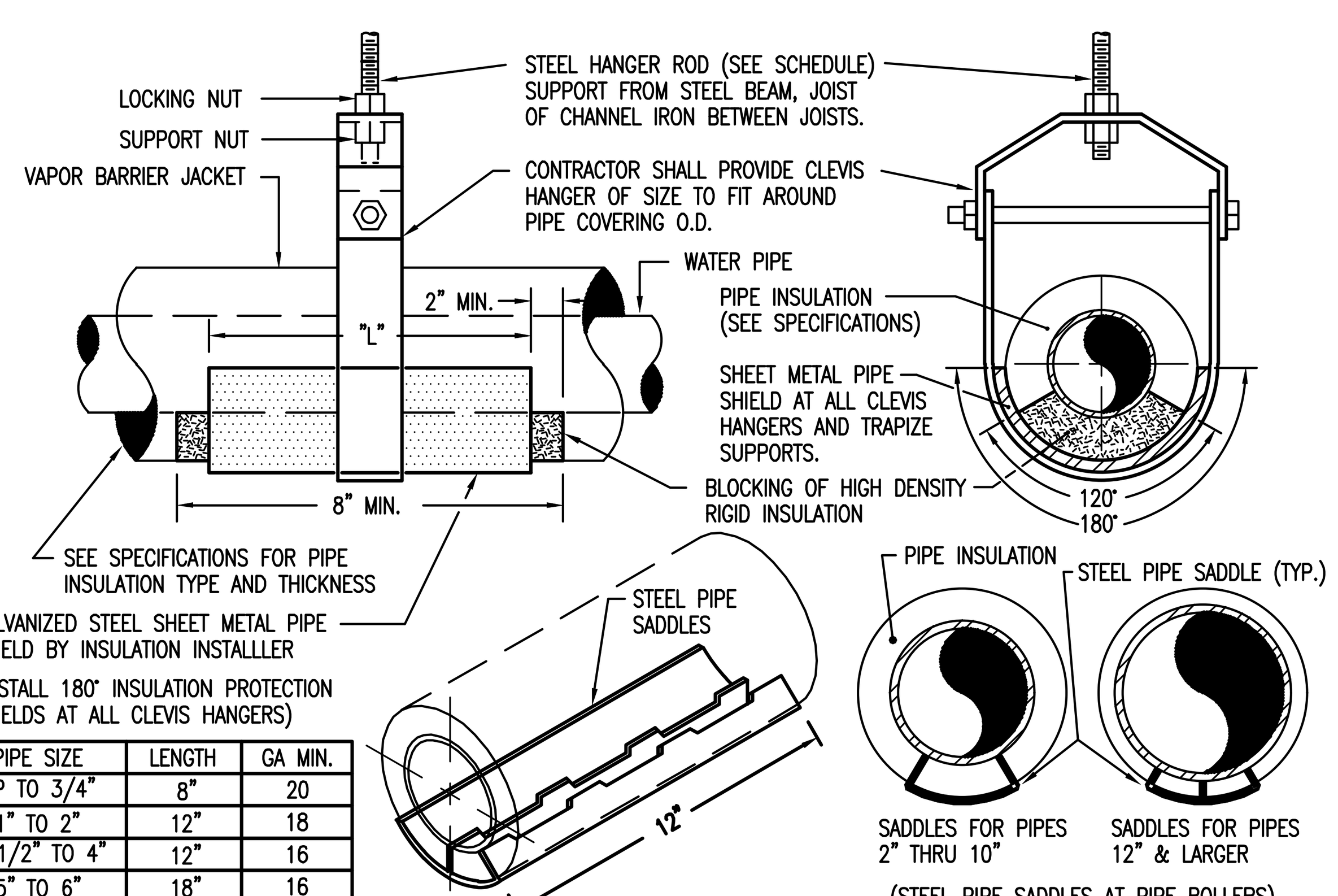
1. ONLY FACTORY MANUFACTURED MARKERS AS FOLLOWS WILL BE ACCEPTABLE:
   PIPES 3/4" THRU 5-7/8" DIAMETER: USE "SNAP-AROUND" TYPE.
   PIPES 6" DIAMETER AND LARGER: USE "STRAP-AROUND" TYPE.
   STENCILS AND STICK-ON TYPE MARKERS WILL NOT BE PERMITTED.
2. IDENTIFICATION MARKERS TO BE PLACED ON ALL EXPOSED COVERED AND UNCOVERED PIPES AT 20'-0" INTERVALS AND AT ALL VALVES AND BRANCHES AND ON BOTH SIDES OF WALLS WHERE PIPES PASS THROUGH SAME. ARROWS OF SAME COLOR AS IDENTIFICATION MARKERS SHALL ALSO BE PLACED ON PIPES POINTING AWAY FROM MARKER INDICATING DIRECTION OF FLOW.

SIZE OF LEGEND LETTERS		
OUTSIDE DIAMETER OF PIPE OR COVERING	LENGTH OF COLOR FIELD A	SIZE OF LETTERS B
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"

PLAN TAG	SERVICE	IDENTIFICATION MARKER
BWS	BOILER WATER SUPPLY	BLACK LETTERING ON YELLOW BACKGROUND
BWR	BOILER WATER RETURN	BLACK LETTERING ON YELLOW BACKGROUND
HWS	HOT WATER HEATING SUPPLY	BLACK LETTERING ON YELLOW BACKGROUND
HWR	HOT WATER HEATING RETURN	BLACK LETTERING ON YELLOW BACKGROUND
G	NATURAL GAS	BLACK LETTERING ON YELLOW BACKGROUND
MU	MAKE-UP WATER (H.W. TANK)	WHITE LETTERING ON GREEN BACKGROUND
HCWS	CHILLED/HOT WATER SUPPLY	BLACK LETTERING ON YELLOW BACKGROUND
HCWR	CHILLED/HOT WATER RETURN	BLACK LETTERING ON YELLOW BACKGROUND
CHWS	CHILLED WATER SUPPLY	WHITE LETTERING ON GREEN BACKGROUND
CHWR	CHILLED WATER RETURN	WHITE LETTERING ON GREEN BACKGROUND
C	CONDENSATE	BLACK LETTERING ON YELLOW BACKGROUND

4 / M4.00 **TYPICAL PIPE IDENTIFICATION MARKERS**

NO SCALE

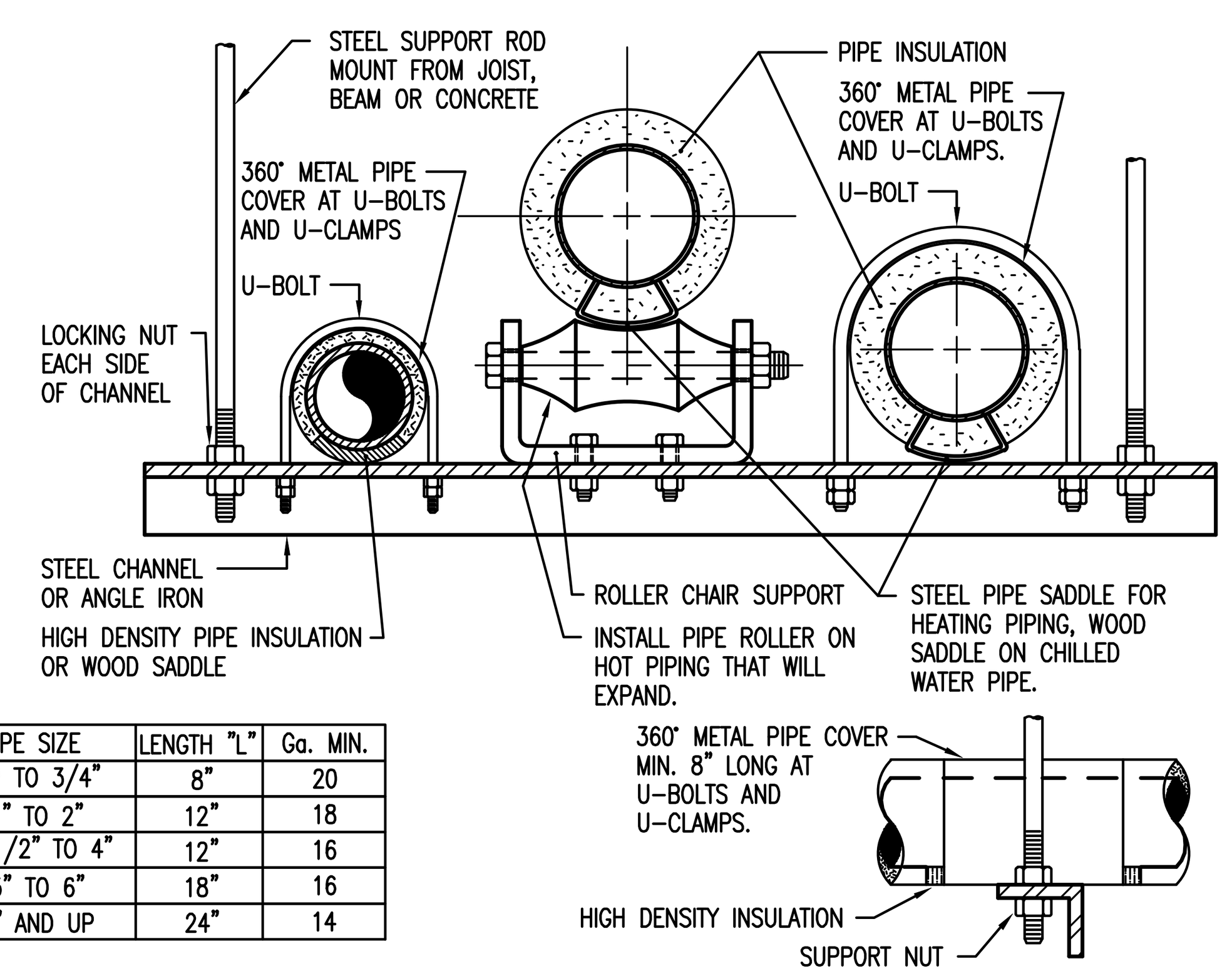


PIPE SIZE	LENGTH	GA MIN.
UP TO 3/4"	8"	20
1" TO 2"	12"	18
2-1/2" TO 4"	12"	16
5" TO 6"	18"	16
8" AND UP	24"	14

INSTALL 360° INSULATION PROTECTION SHIELDS AT ALL PIPING SECURED WITH U-BOLTS AND U-CLAMPS.
PROVIDE HIGH DENSITY INSULATION SUPPORTS AT ALL CLEVIS HANGERS, SUPPORTS AND TRAPEZE HANGERS.
PROVIDE STEEL PIPE INSULATION SADDLES ON ALL PIPES SUPPORTED BY ROLLERS.

5 / M4.00 **PIPE COVERING PROTECTION SHIELDS & PIPE SADDLES**

NO SCALE

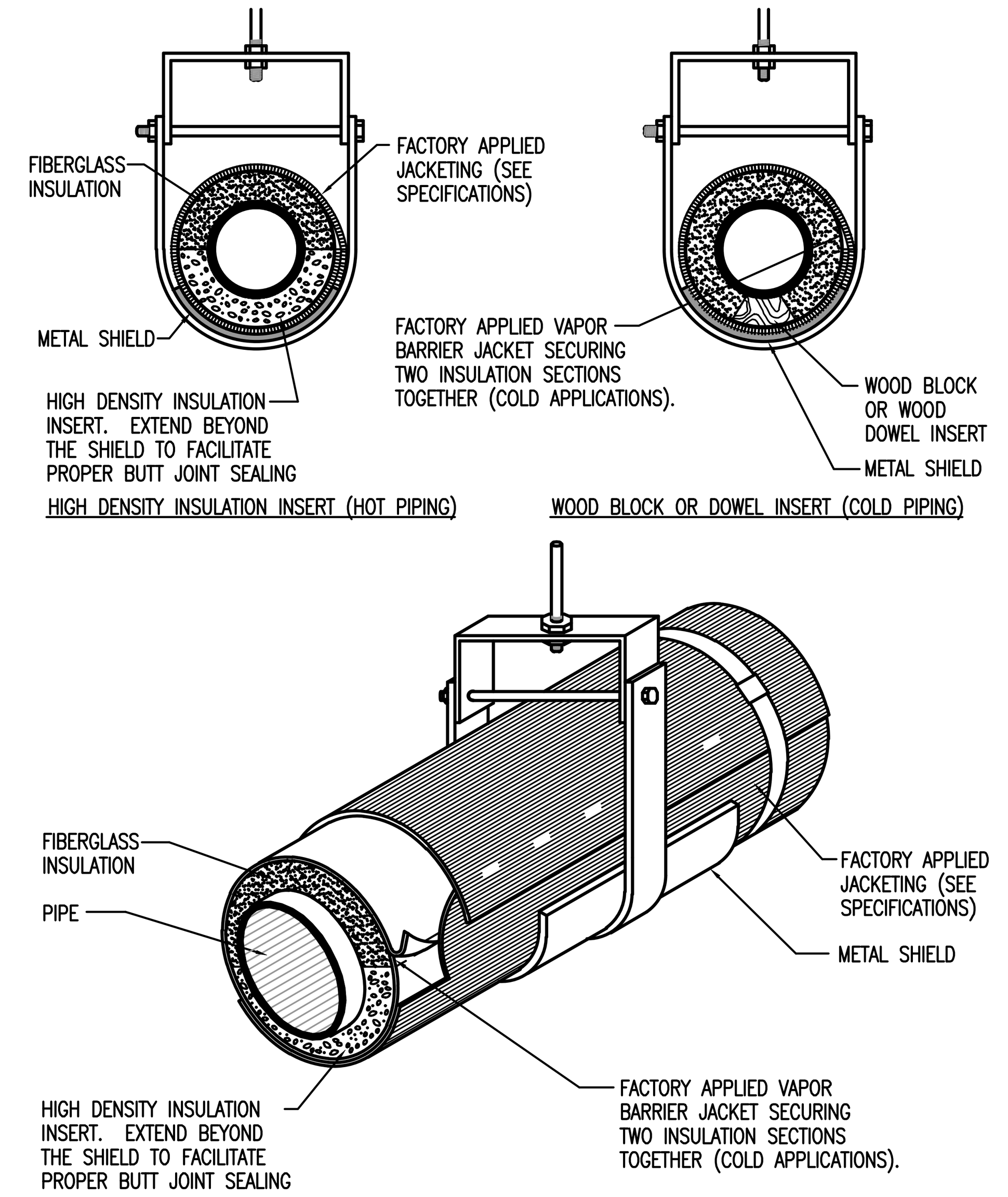


PIPE SIZE	LENGTH "L"	Ga. MIN.
UP TO 3/4"	8"	20
1" TO 2"	12"	18
2-1/2" TO 4"	12"	16
5" TO 6"	18"	16
8" AND UP	24"	14

INSTALL 360° INSULATION PROTECTION SHIELDS AT ALL PIPING SECURED WITH U-BOLTS AND U-CLAMPS.
PROVIDE HIGH DENSITY INSULATION SUPPORTS AT ALL CLEVIS HANGERS, SUPPORTS AND TRAPIZE HANGERS.
PROVIDE STEEL PIPE INSULATION SADDLES ON ALL PIPES SUPPORTED BY ROLLERS.

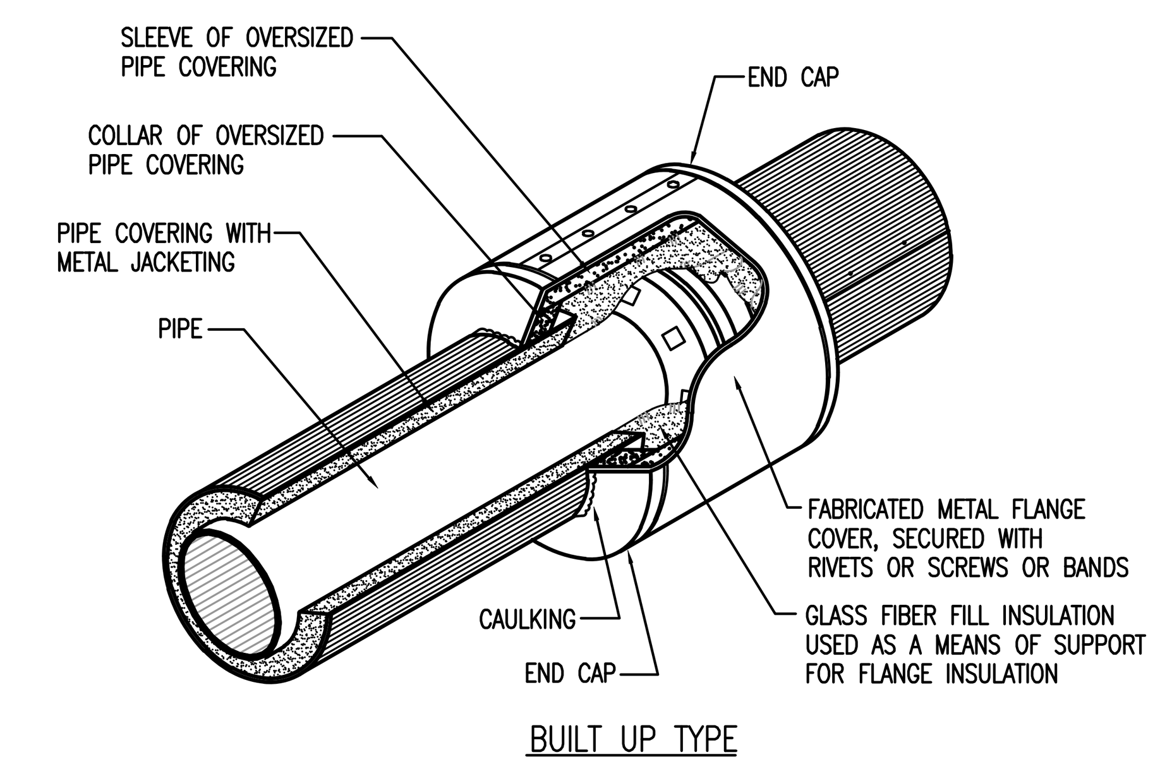
6 / M4.00 **TRAPEZE PIPE HANGER DETAIL**

NO SCALE



7 / M4.00 **CLEVIS HANGER HIGH DENSITY INSERT DETAIL**

NO SCALE



8 / M4.00 **IN-LINE FLANGE INSULATION**

NO SCALE

TRIA ARCHITECTURE

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

REVISIONS:

PROJECT NUMBER: 19-0512
PROJECT MANAGER: MG
DRAWN BY: CAS

ISSUED FOR BID: 01/07/2020

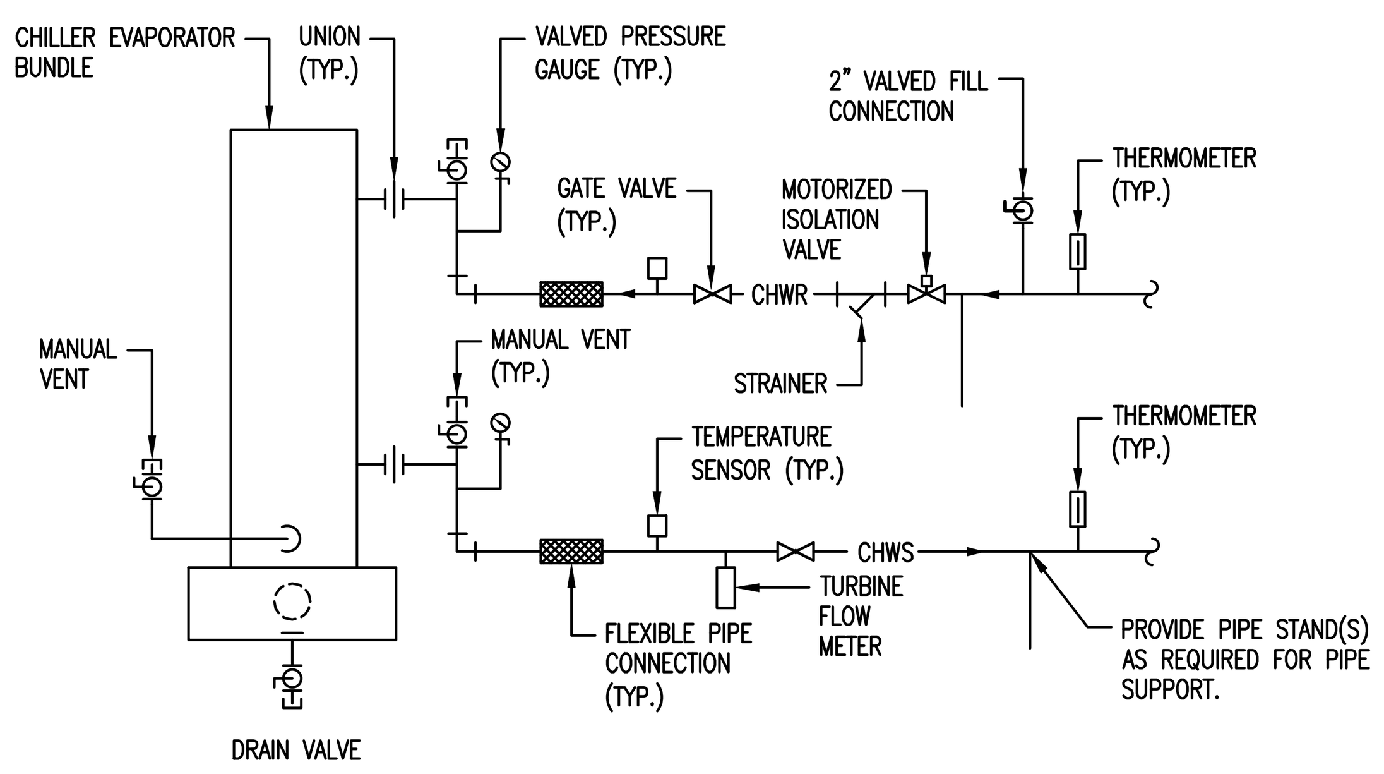
DETAILS MECHANICAL

KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER

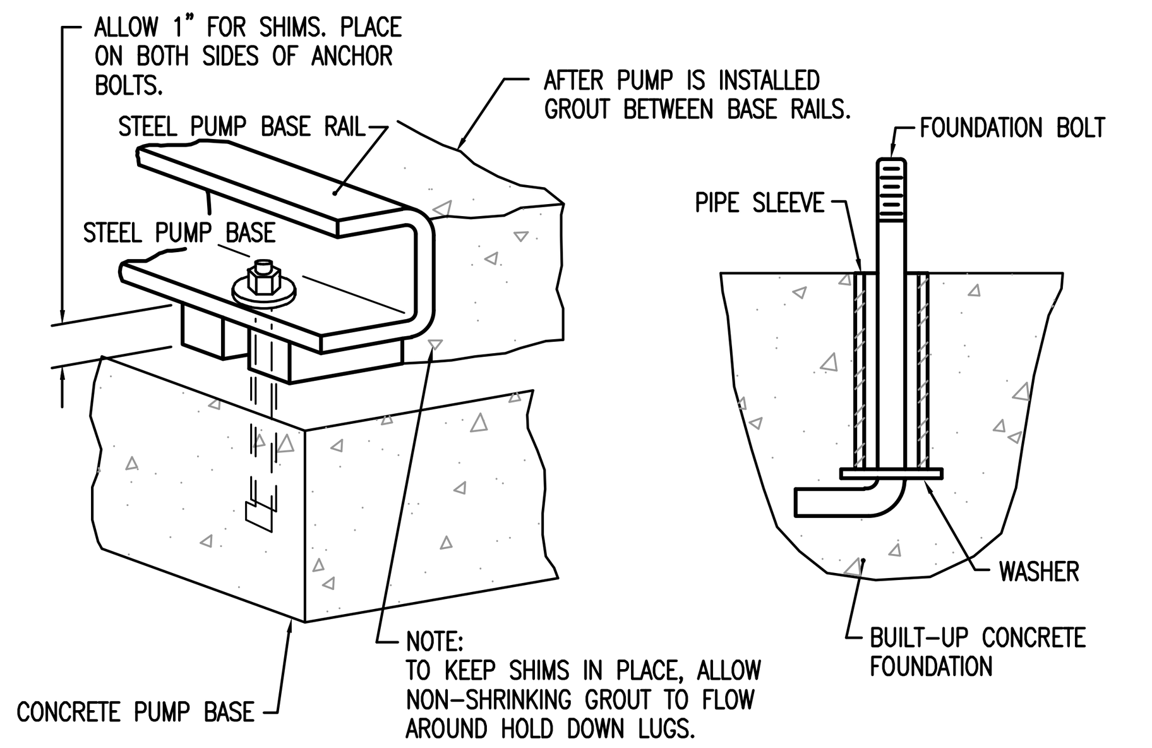
EXPIRES 07/31/2020

M4.00

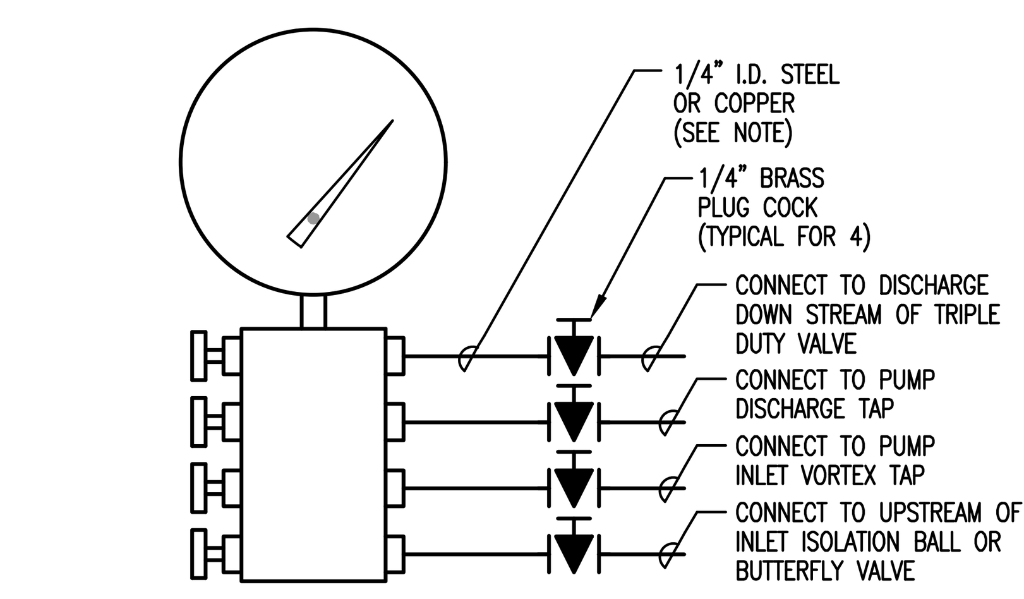
PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 11:31 AM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\MWS\139-I-3 M4.00 WS Details



1 M4.10 **CHILLER EVAPORATOR CHILLED WATER PIPING CONNECTION DIAGRAM**
NO SCALE

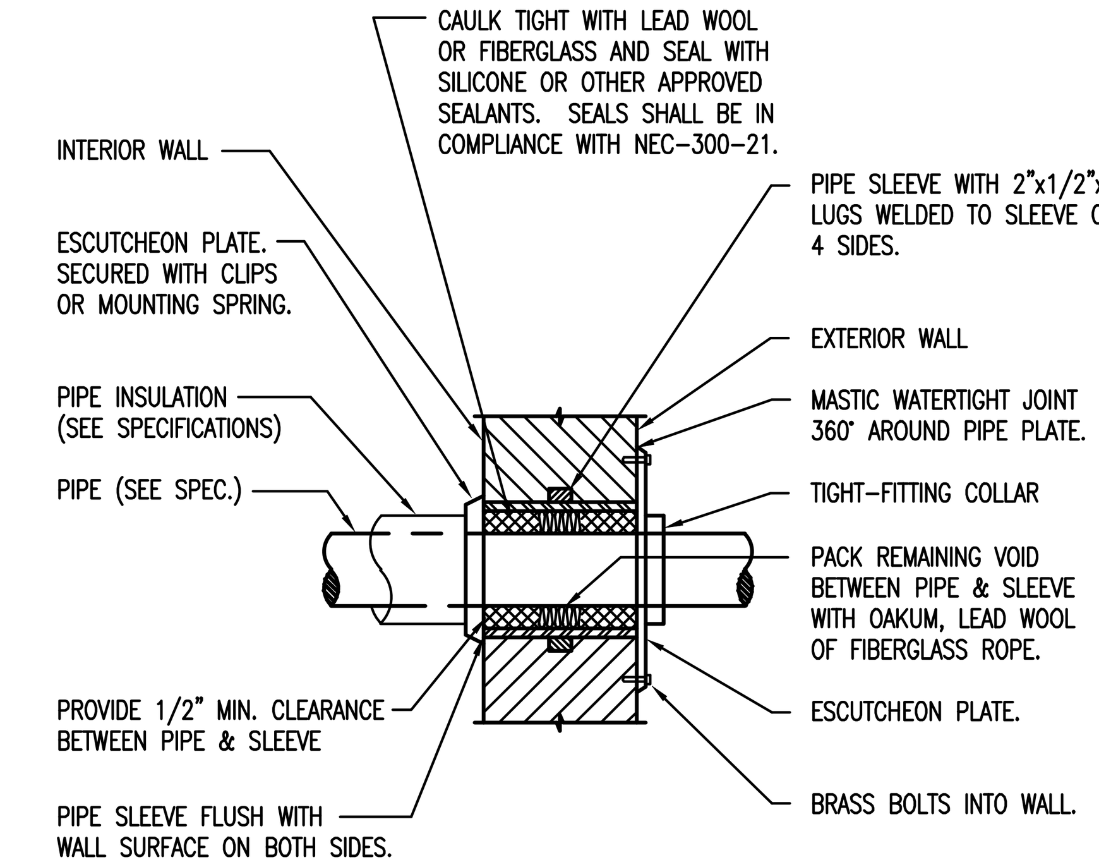


2 M4.10 **PUMP BASE INSTALLATION DETAIL**
NO SCALE



3 M4.10 **TYPICAL HYDRONIC INDICATOR DETAIL**
NO SCALE

NOTE:
1. FLEXIBLE COPPER TO BE USED, IT MUST BE SUPPORTED RIGIDLY EVERY 18" (MAXIMUM) AND PROTECTED FROM DAMAGE.
2. REFER TO INDIVIDUAL PIPING DETAILS FOR EXACT CONNECTION LOCATION OF TUBING.

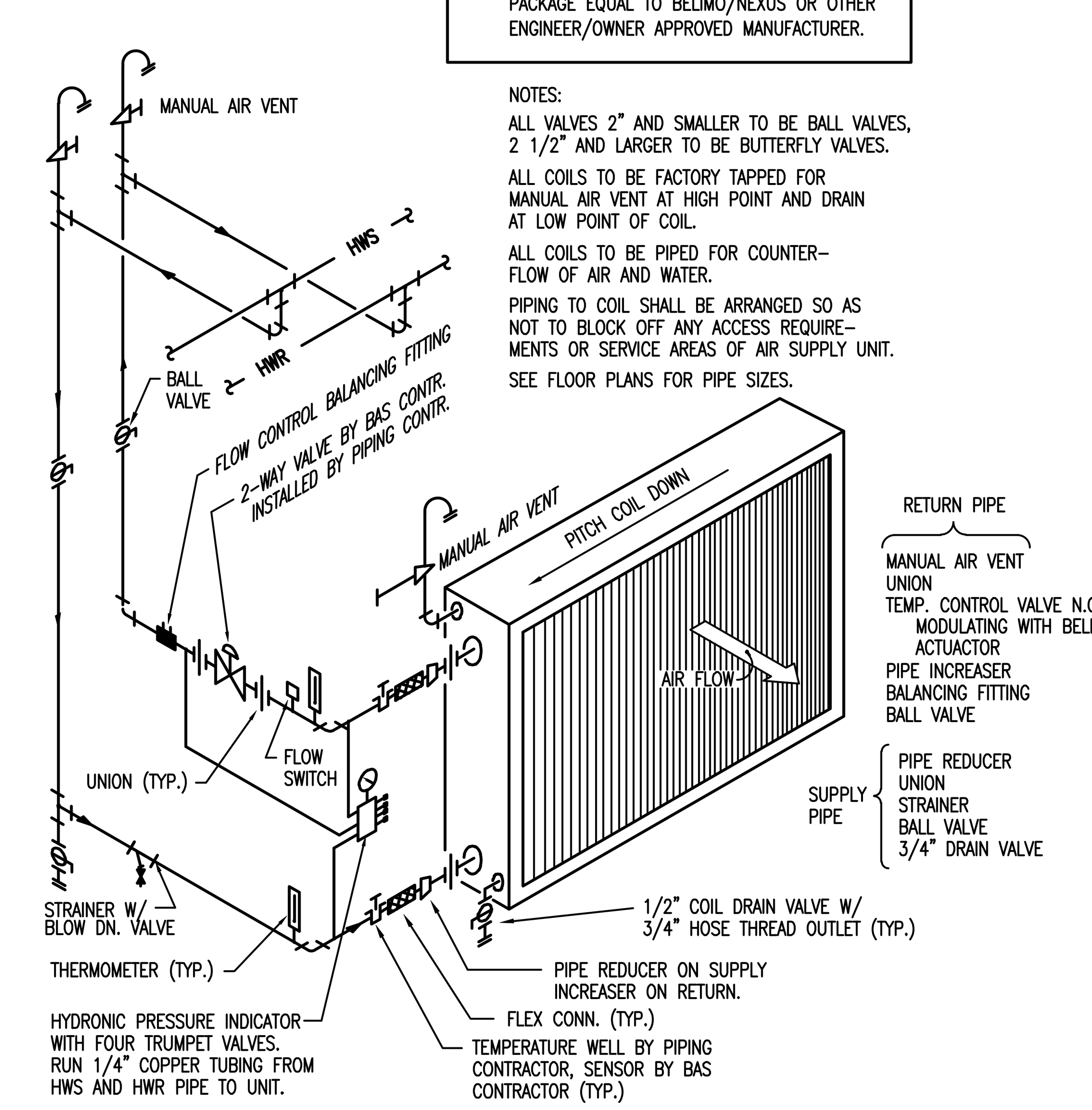


NOTES:
1. CONTRACTOR SHALL ISOLATE ALL PIPES FROM CONSTRUCTION WHICH VIBRATE IN ORDER TO AVOID TRANSMISSION TO STRUCTURE.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THEIR SLEEVES WITH OTHER TRADES AND/OR CONTRACTORS.
3. PIPE SLEEVES THRU SMOKE OR FIRE WALLS SHALL BE IN COMPLIANCE WITH NFPA-90A.

4 M4.10 **PIPE SLEEVE THRU EXTERIOR WALL**
NO SCALE

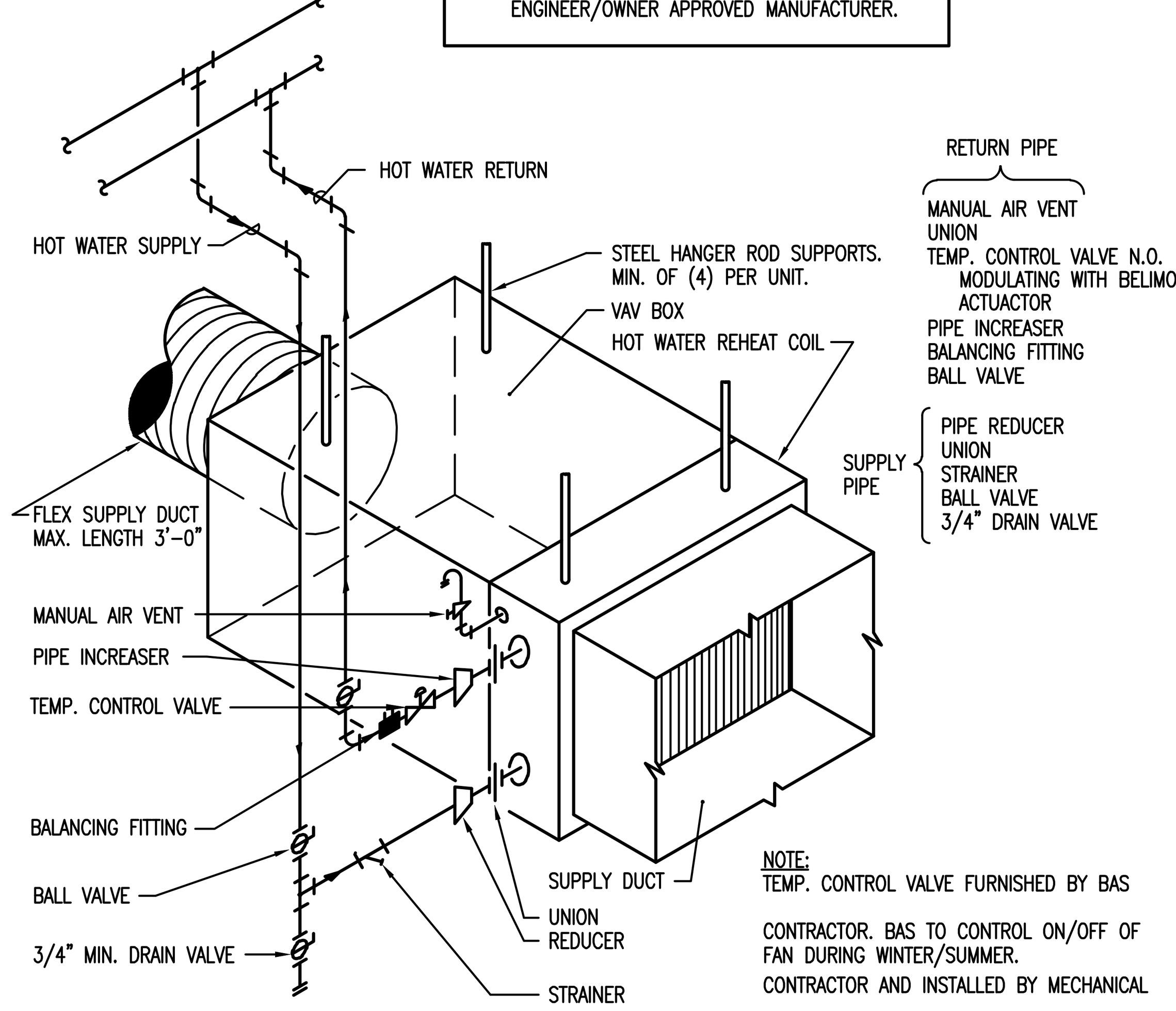
NOTES:
1. PROVIDE VALVE EQUIPMENT/COIL PIPE VALVE PACKAGE EQUAL TO BELIMO/NEXUS OR OTHER ENGINEER/OWNER APPROVED MANUFACTURER.

NOTES:
ALL VALVES 2" AND SMALLER TO BE BALL VALVES, 2 1/2" AND LARGER TO BE BUTTERFLY VALVES.
ALL COILS TO BE FACTORY TAPPED FOR MANUAL AIR VENT AT HIGH POINT AND DRAIN AT LOW POINT OF COIL.
ALL COILS TO BE PIPED FOR COUNTER-FLOW OF AIR AND WATER.
PIPING TO COIL SHALL BE ARRANGED SO AS NOT TO BLOCK OFF ANY ACCESS REQUIREMENTS OR SERVICE AREAS OF AIR SUPPLY UNIT.
SEE FLOOR PLANS FOR PIPE SIZES.



5 M4.10 **HOT/CHILLED WATER HEATING/COOLING COIL W/ 2-WAY VALVE PIPING DETAIL (AHU)**
NO SCALE

NOTES:
1. PROVIDE VALVE EQUIPMENT/COIL PIPE VALVE PACKAGE EQUAL TO BELIMO/NEXUS OR OTHER ENGINEER/OWNER APPROVED MANUFACTURER.

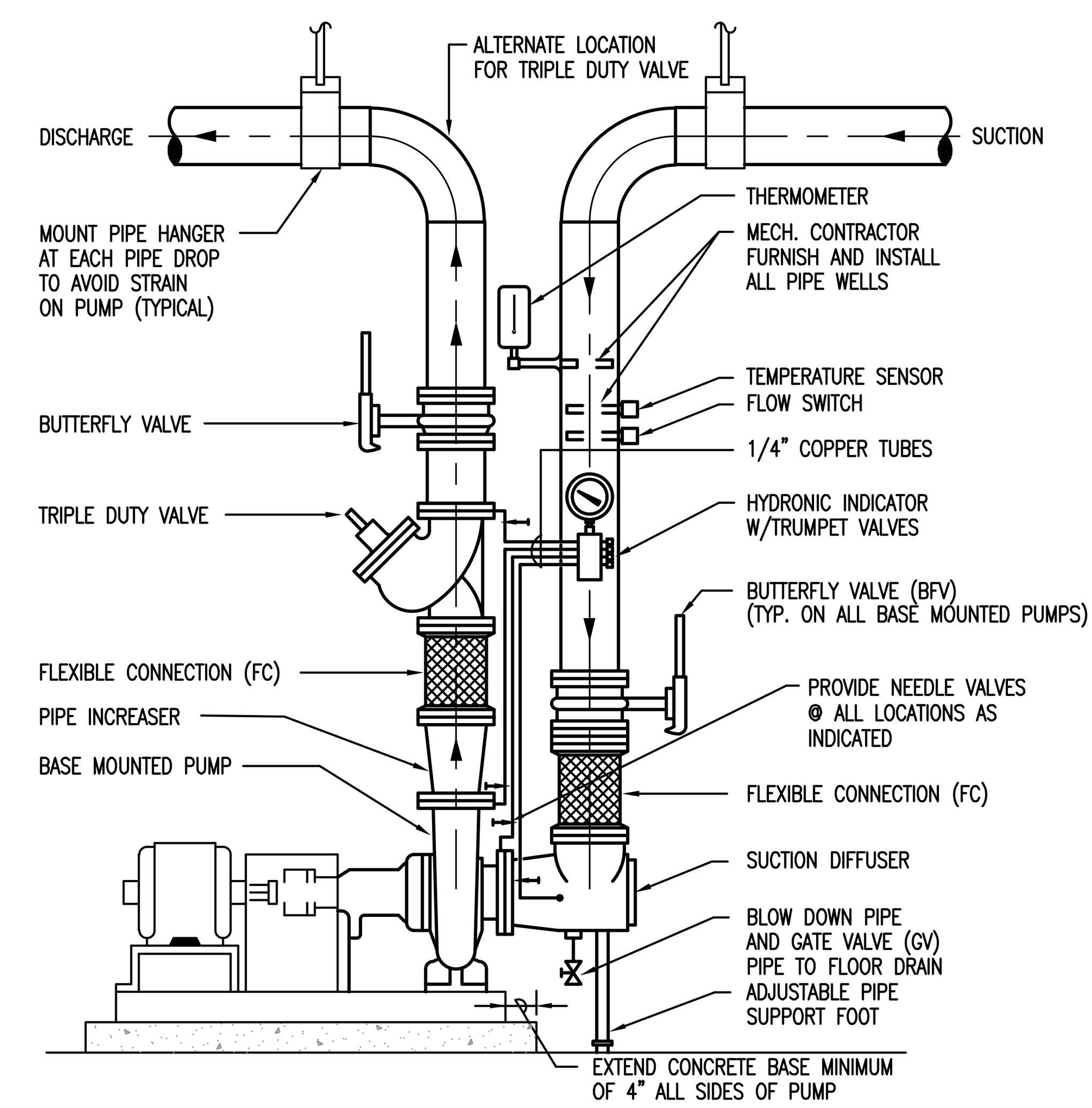


NOTE:
TEMP. CONTROL VALVE FURNISHED BY BAS CONTRACTOR. BAS TO CONTROL ON/OFF OF FAN DURING WINTER/SUMMER. CONTRACTOR AND INSTALLED BY MECHANICAL

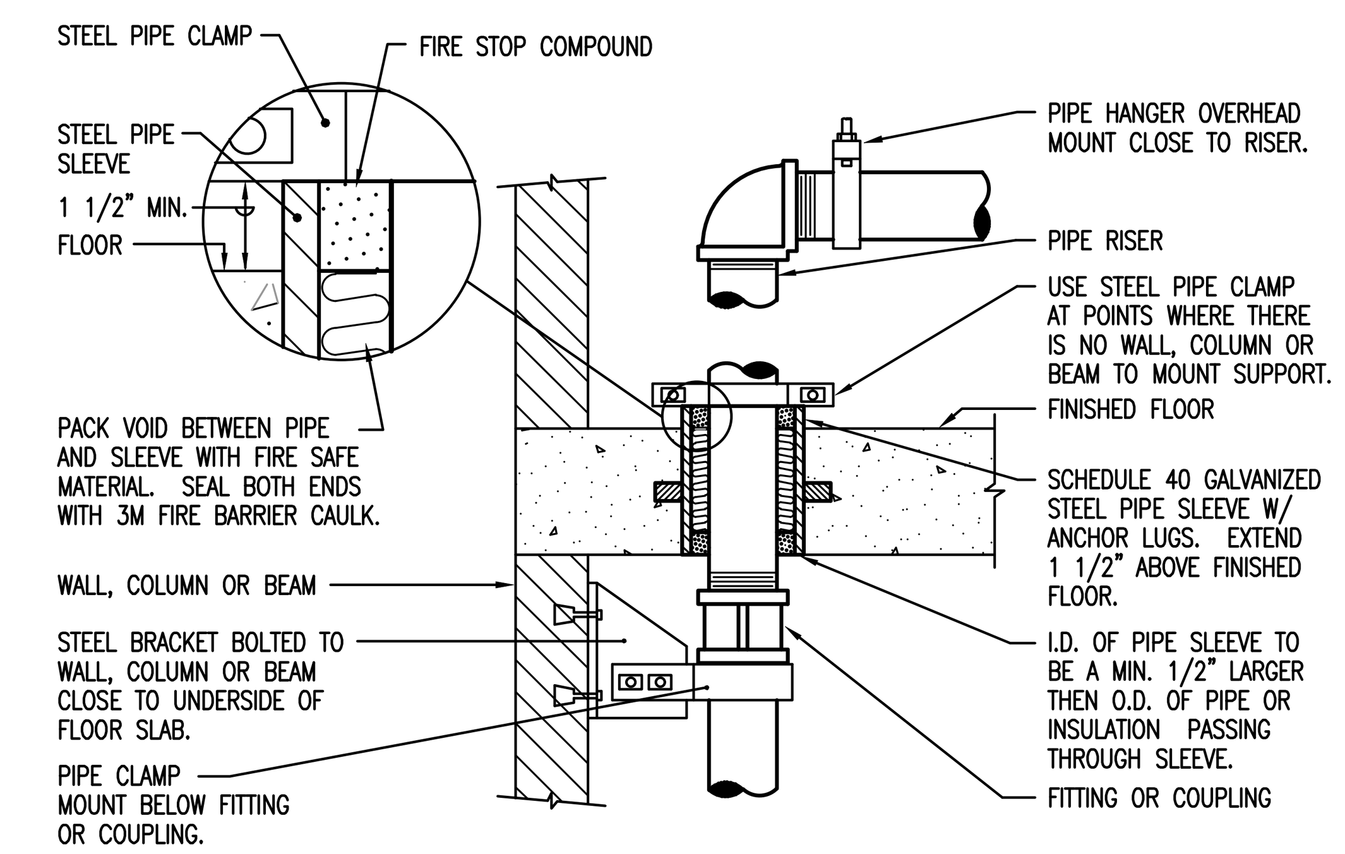
6 M4.10 **VAV BOX W/HOT WATER REHEAT COIL DETAIL**
NO SCALE

NOTE:
FLOW SWITCHES & TEMPERATURE SENSORS PROVIDED BY BAS CONTRACTOR. INSTALLED BY MECHANICAL CONTRACTOR.

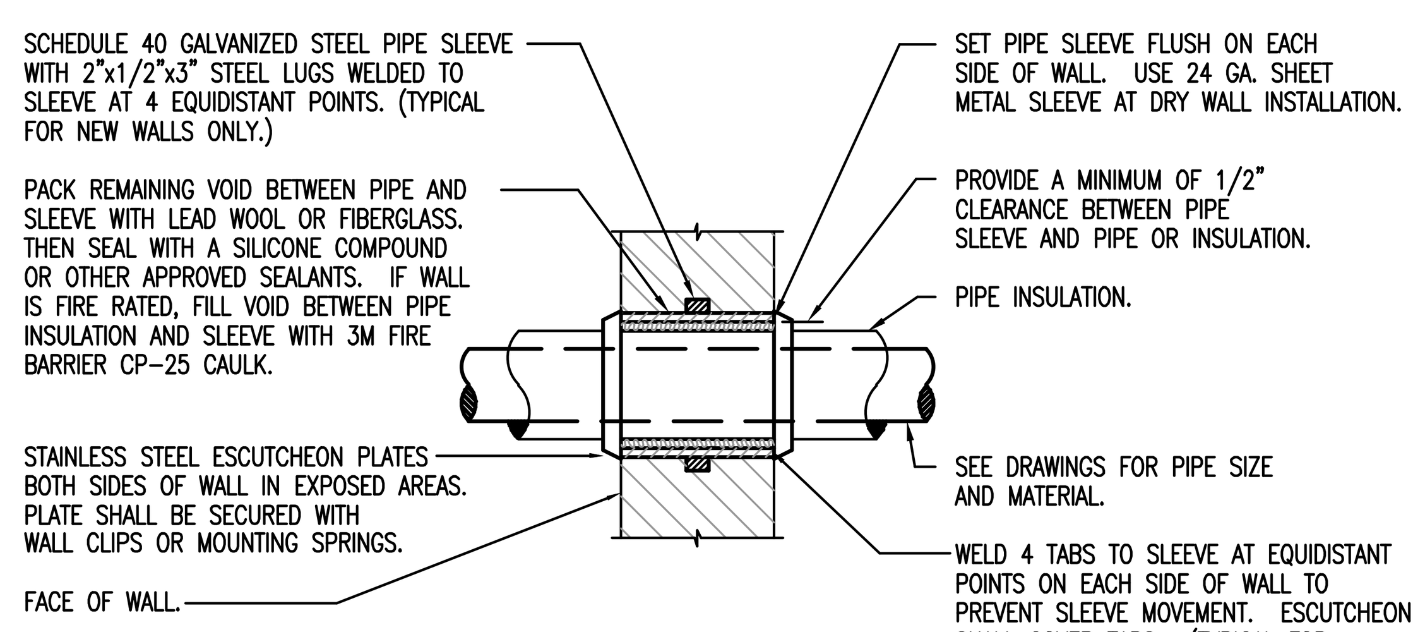
NOTE:
MECH. CONTRACTOR SHALL PROVIDE & INSTALL ALL COPPER TUBING, MOUNTING HARDWARE & NEEDLE VALVES REQUIRED FOR A COMPLETE INSTALLATION OF THE TRUMPET VALVE ASSEMBLY



7 M4.10 **BASE MOUNTED PUMP DETAIL**
NO SCALE

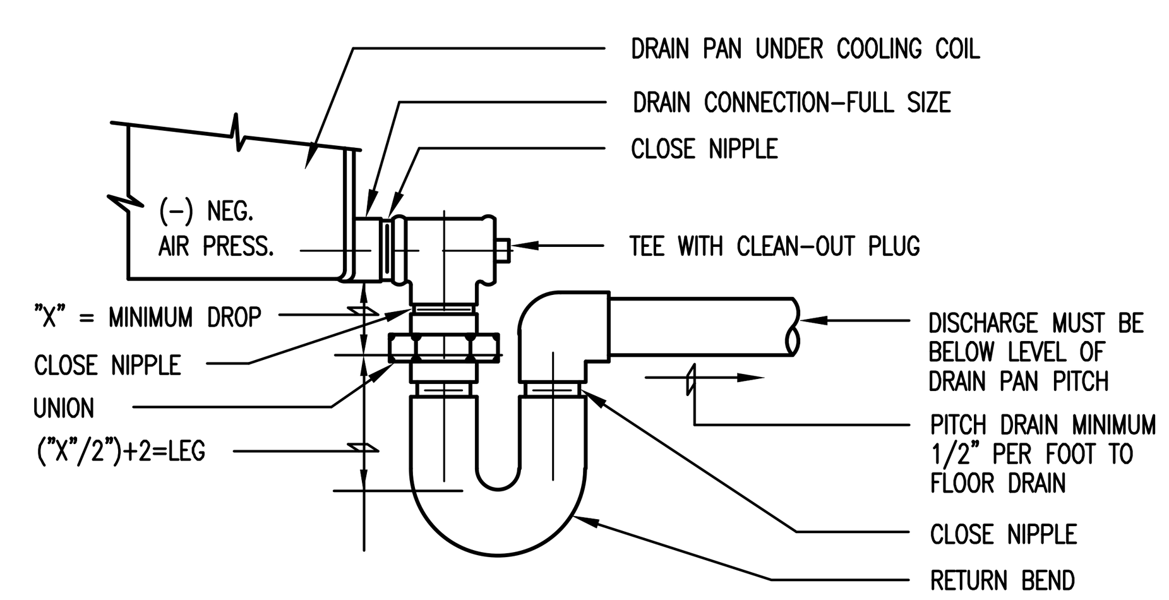


8 M4.10 **EXPOSED VERTICAL PIPE RISER SUPPORT DETAIL**
NO SCALE



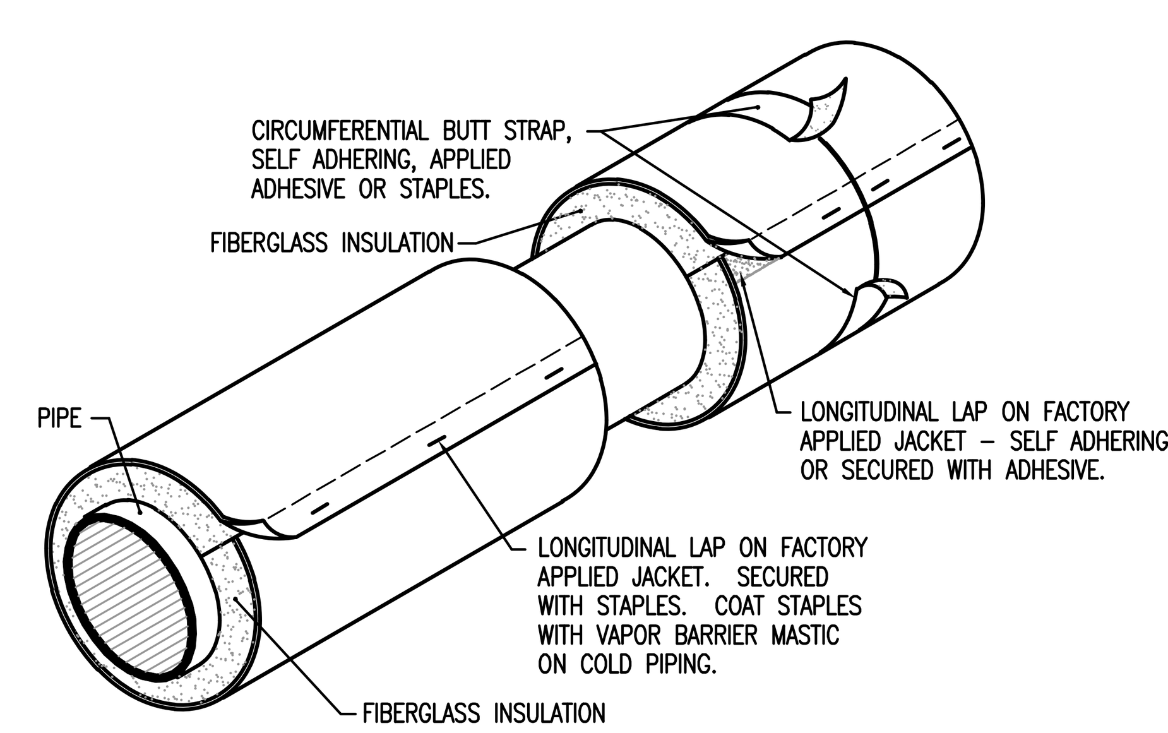
NOTES:
1. I.D. OF OF PIPE SLEEVE TO BE A MIN. OF 1/2" LARGER THAN O.D. OF PIPE OR INSULATION PASSING THROUGH WALL.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF THEIR SLEEVES WITH OTHER TRADES AND/OR CONTRACTORS.
3. PIPE SLEEVES THRU SMOKE OR FIRE WALLS SHALL BE IN COMPLIANCE WITH NFPA-90A.

9 M4.10 **PIPE SLEEVE THRU INTERIOR RATED WALL DETAIL**
NO SCALE

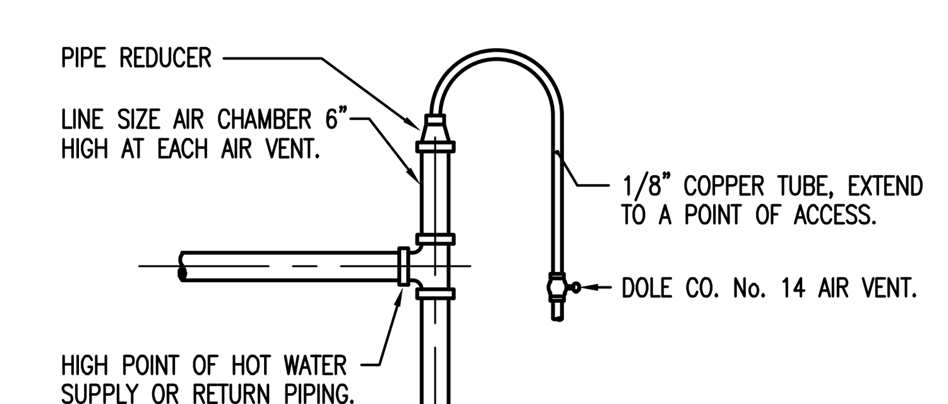


"X" = SUCTION PRESSURE AT FAN INLET (NEGATIVE INTERNAL S.P.)

10 M4.10 **DRAW-THRU AIR HANDLING UNIT COOLING COIL DRAIN PAN DRAIN DETAIL**
NO SCALE



11 M4.10 **FACTORY-APPLIED NON-METAL JACKETING**
NO SCALE



12 M4.10 **MANUAL AIR VENT DETAIL**
NO SCALE

TRIA ARCHITECTURE

Larson Engineering, Inc. STRUCTURAL CONSULTANT

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

REVISIONS

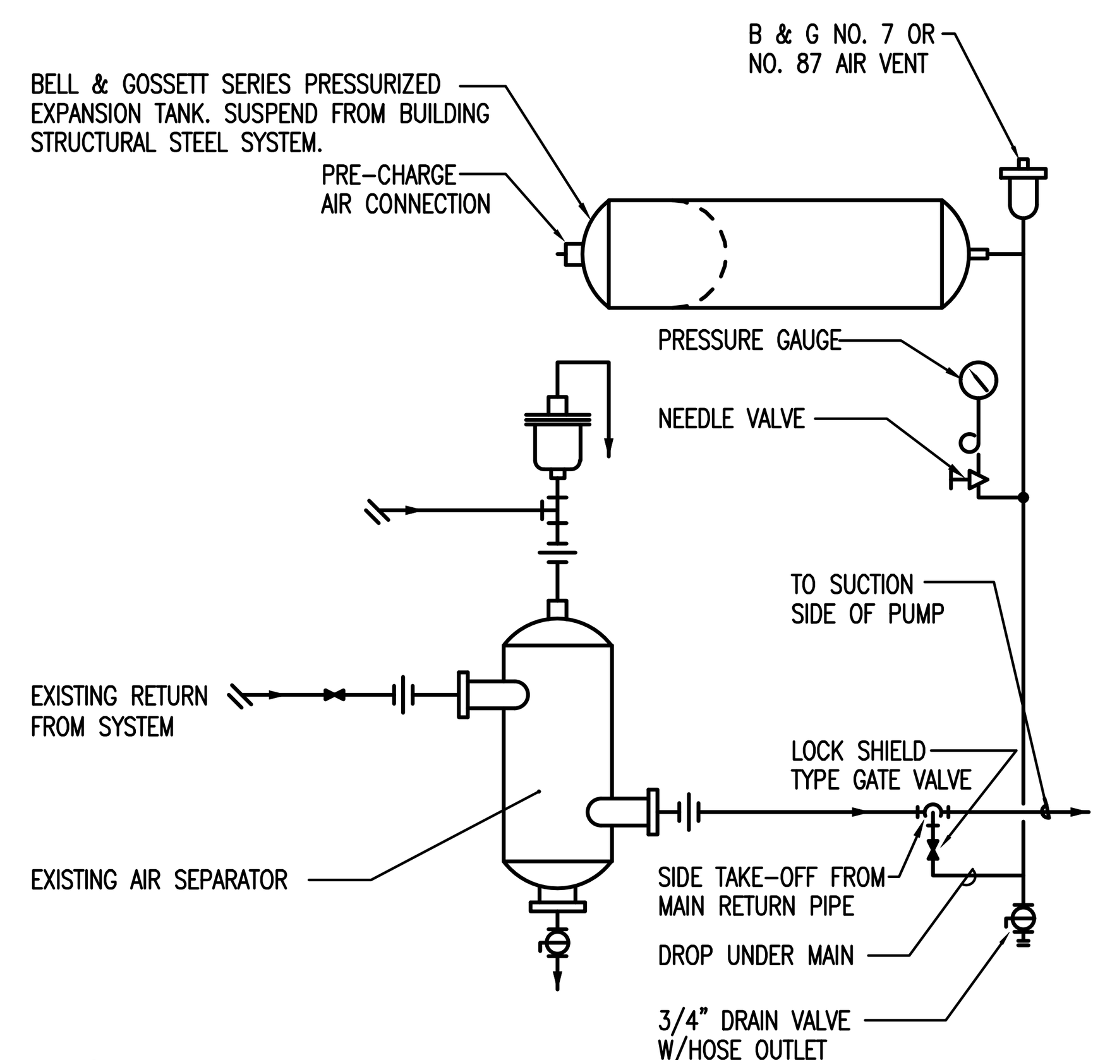
PROJECT NUMBER: 19-0512
PROJECT MANAGER: MG
DRAWN BY: OAS

DETAILS MECHANICAL

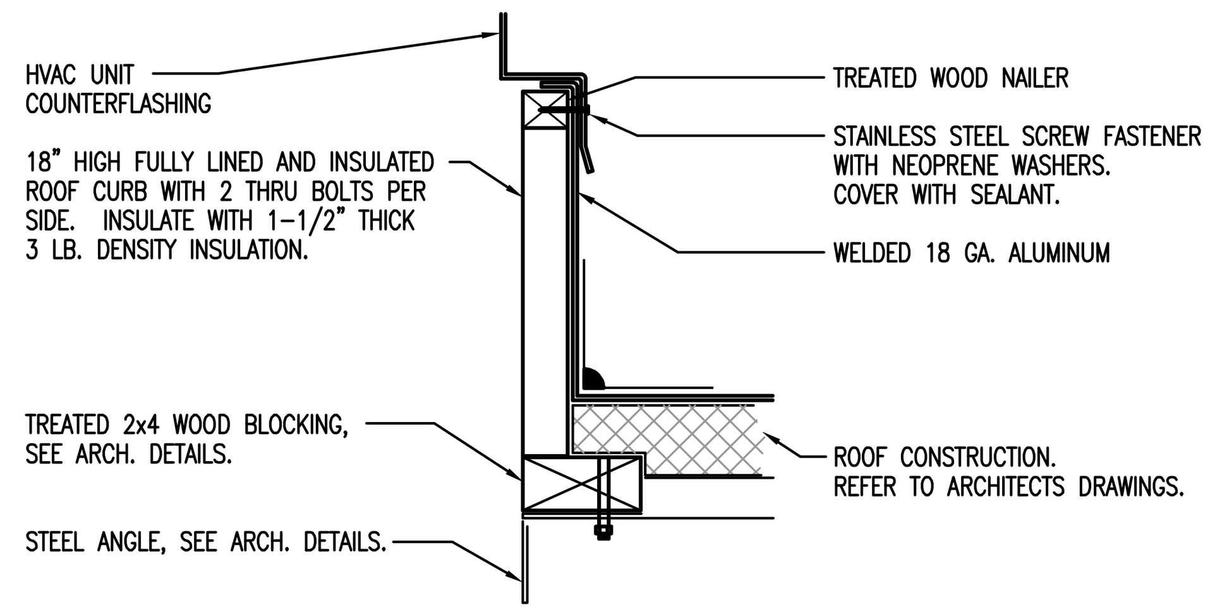
KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

M4.10

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 11:32 AM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\M\WS\139-I-3 M4.10 WS Details



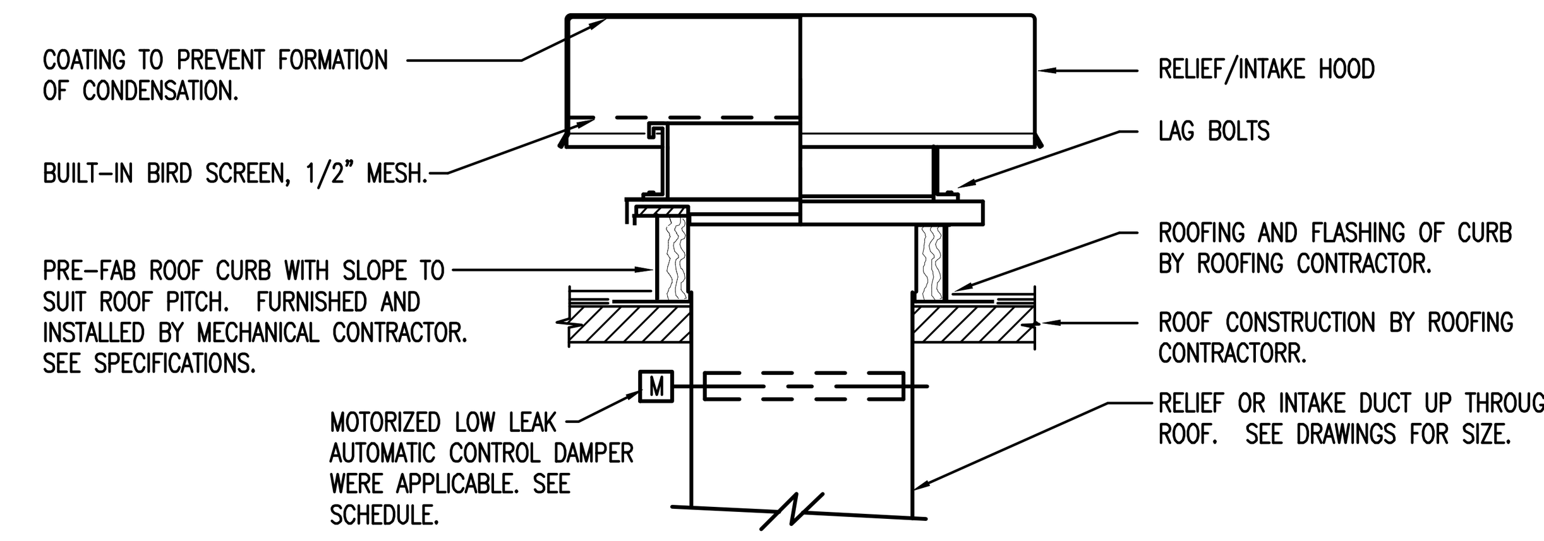
1 / M4.20 **PRESSURIZED HYDRONIC AIR CONTROL DETAIL**
NO SCALE



NOTE:
THIS DETAIL TYPICAL FOR ALL ROOF EXHAUSTERS, INTAKE/RELIEF HOODS, EQUIPMENT SUPPORT, AND PIPE PENETRATION CURBS.

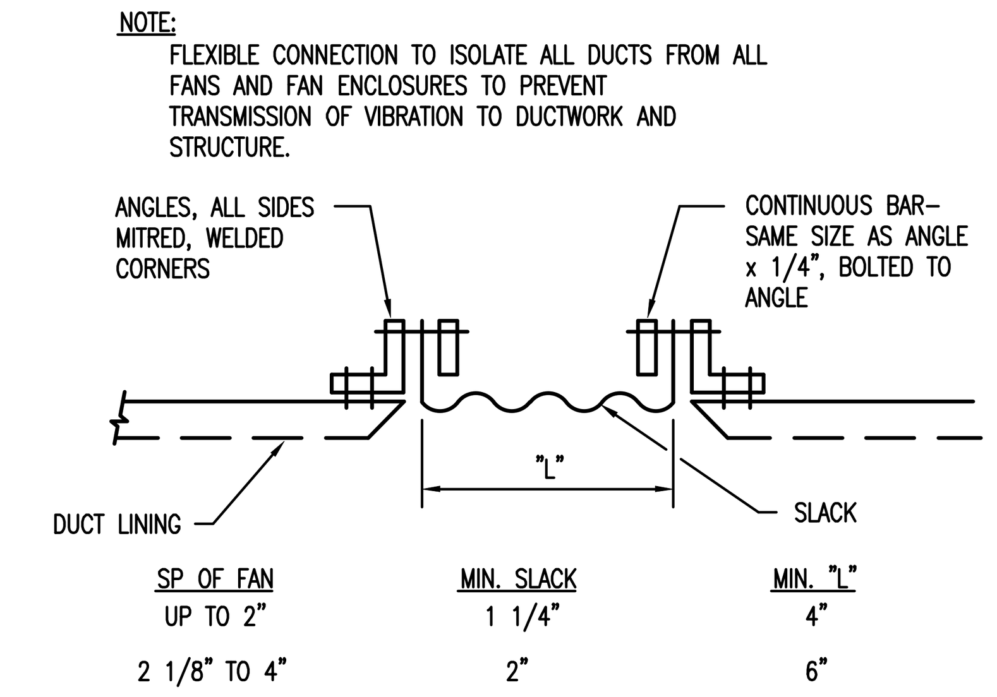
2 / M4.20 **ROOF CURB DETAIL**
NO SCALE

SEE ARCHITECTURAL DETAILS FOR ROOFING REQUIREMENTS.

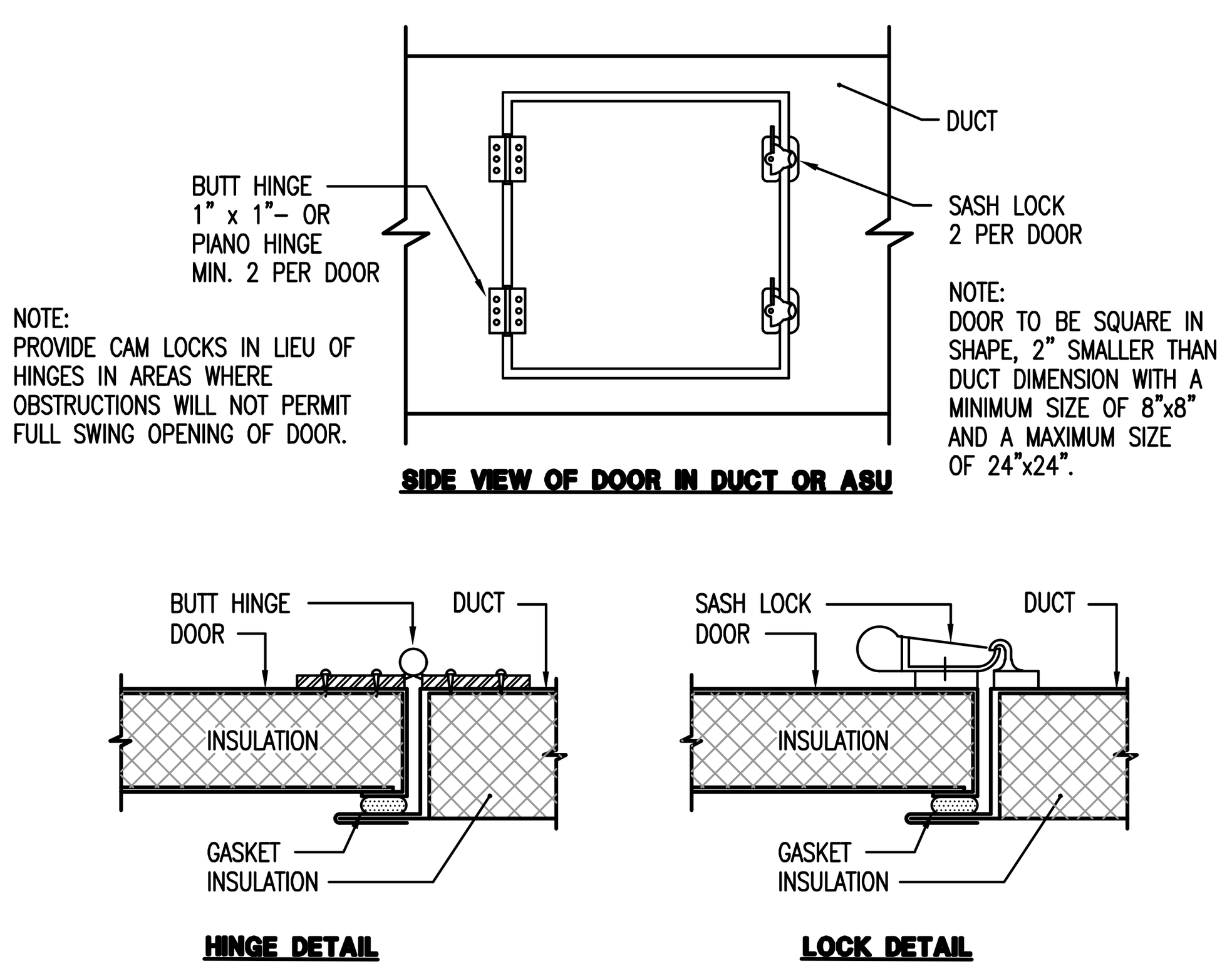


3 / M4.20 **RELIEF OR INTAKE HOOD INSTALLATION DETAIL**
NO SCALE

SEE ARCHITECTURAL DETAILS FOR ROOFING REQUIREMENTS.



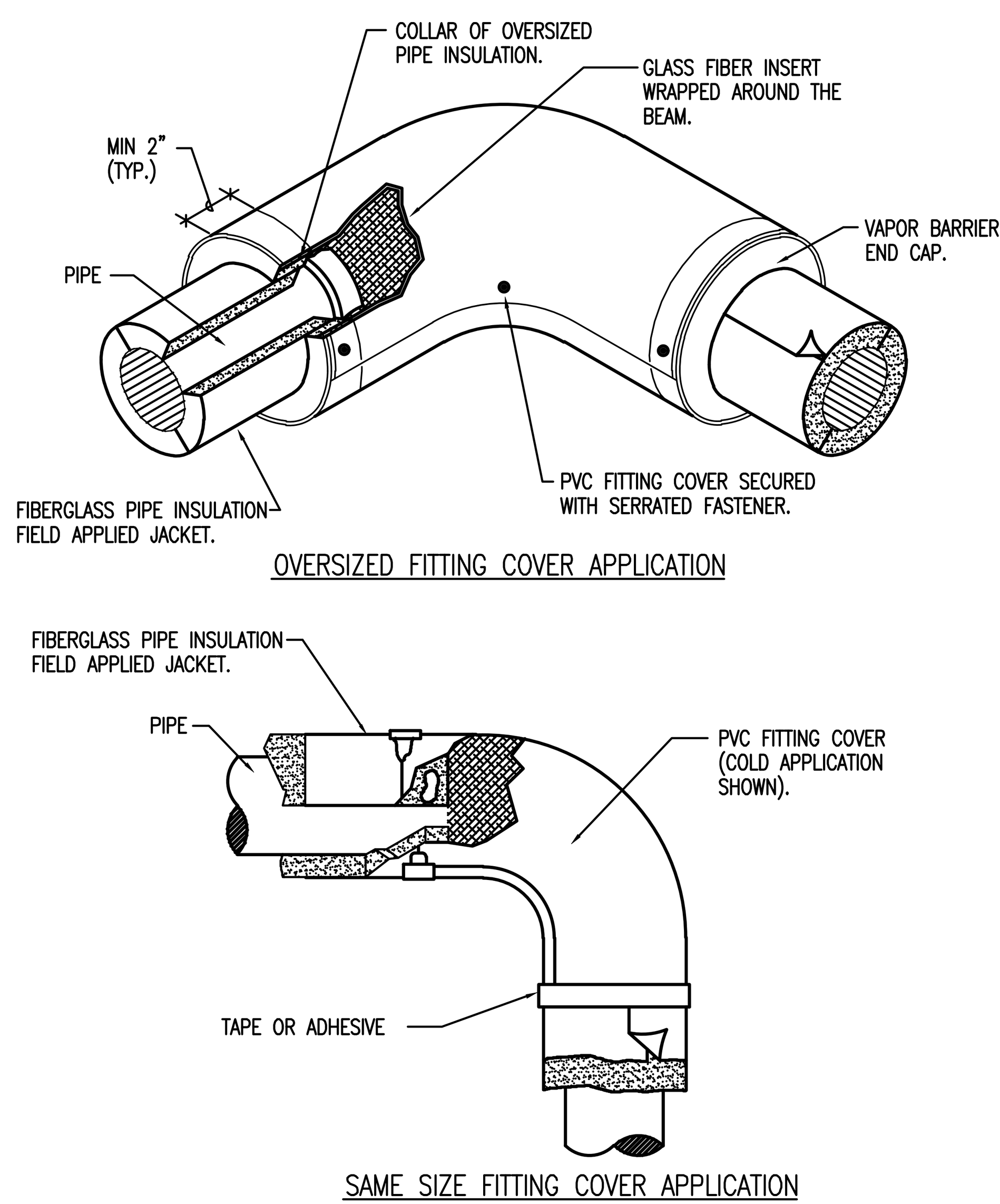
4 / M4.20 **FLEXIBLE CONNECTION**
NO SCALE



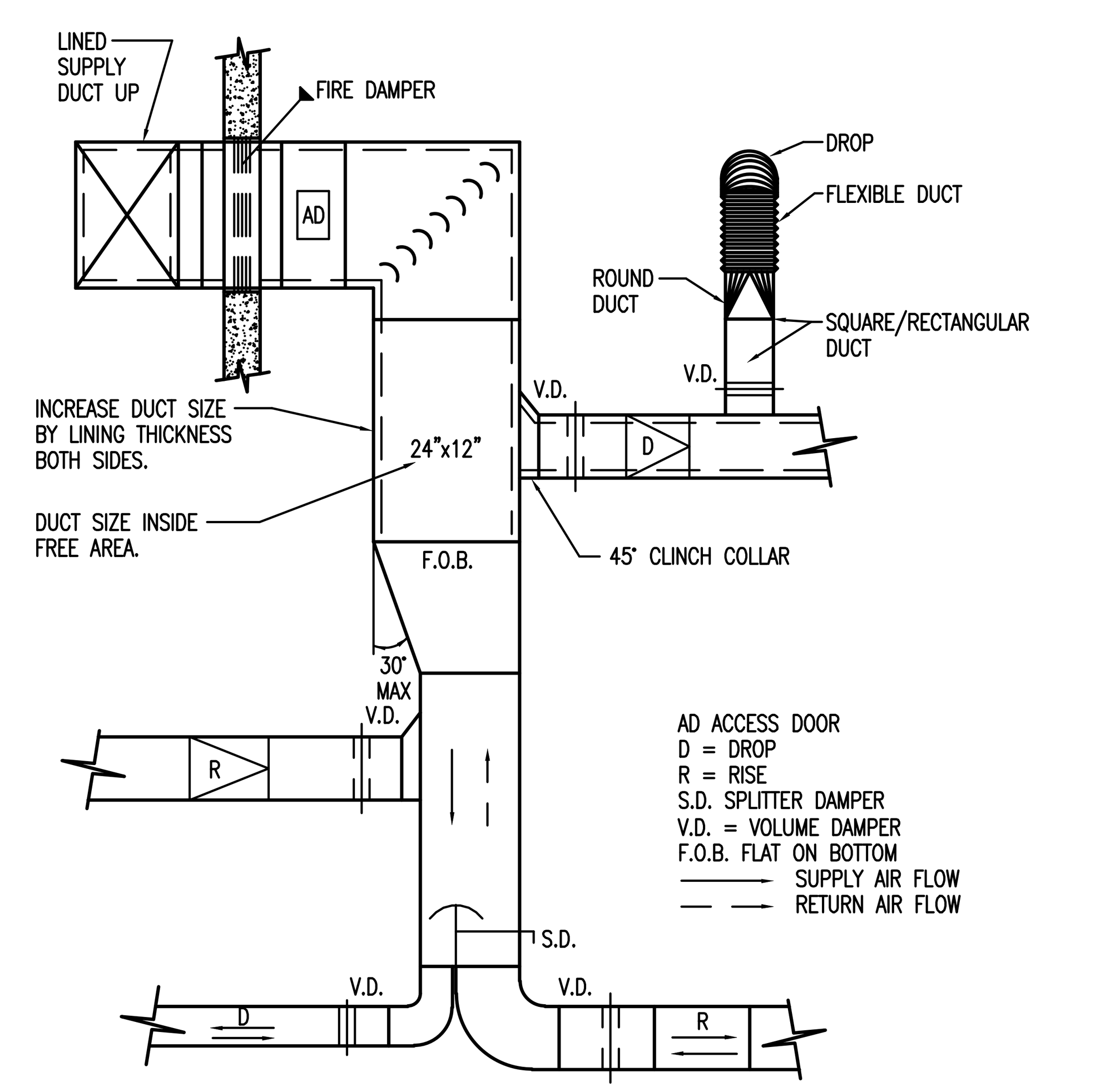
STATIC IN DUCT	DOOR SIZE	NO. HINGES	NO. LOCKS	METAL GAGE FRAME	METAL GAGE DOOR	METAL GAGE BACK
2" W.G. STATIC AND LESS	12" x 12" 18" x 18" 24" x 24"	2 2 3	2-S 2-S 2-S	24 22 22	26 24 22	26 26 26
3" W.G. STATIC	12" x 12" 18" x 18" 24" x 24"	2 2 3	2-S 2-S, 1-T, 1-B 2-S, 1-T, 1-B	24 22 22	26 24 22	26 26 26
4" W.G. TO 10" W.G.	12" x 12" 18" x 18" 24" x 24"	2 3 3	2-S, 1-T, 1-B 2-S, 1-T, 1-B 2-S, 1-T, 1-B	24 22 22	26 24 22	26 26 26

S = SIDE OPPOSITE HINGES, T = TOP, B = BOTTOM
NOTE: TYPICAL LOCATIONS FOR ACCESS DOORS – FIRE DAMPERS, AUTO DAMPERS, REHEAT COILS, SMOKE DAMPERS & DEVICES MOUNTED INSIDE DUCT.

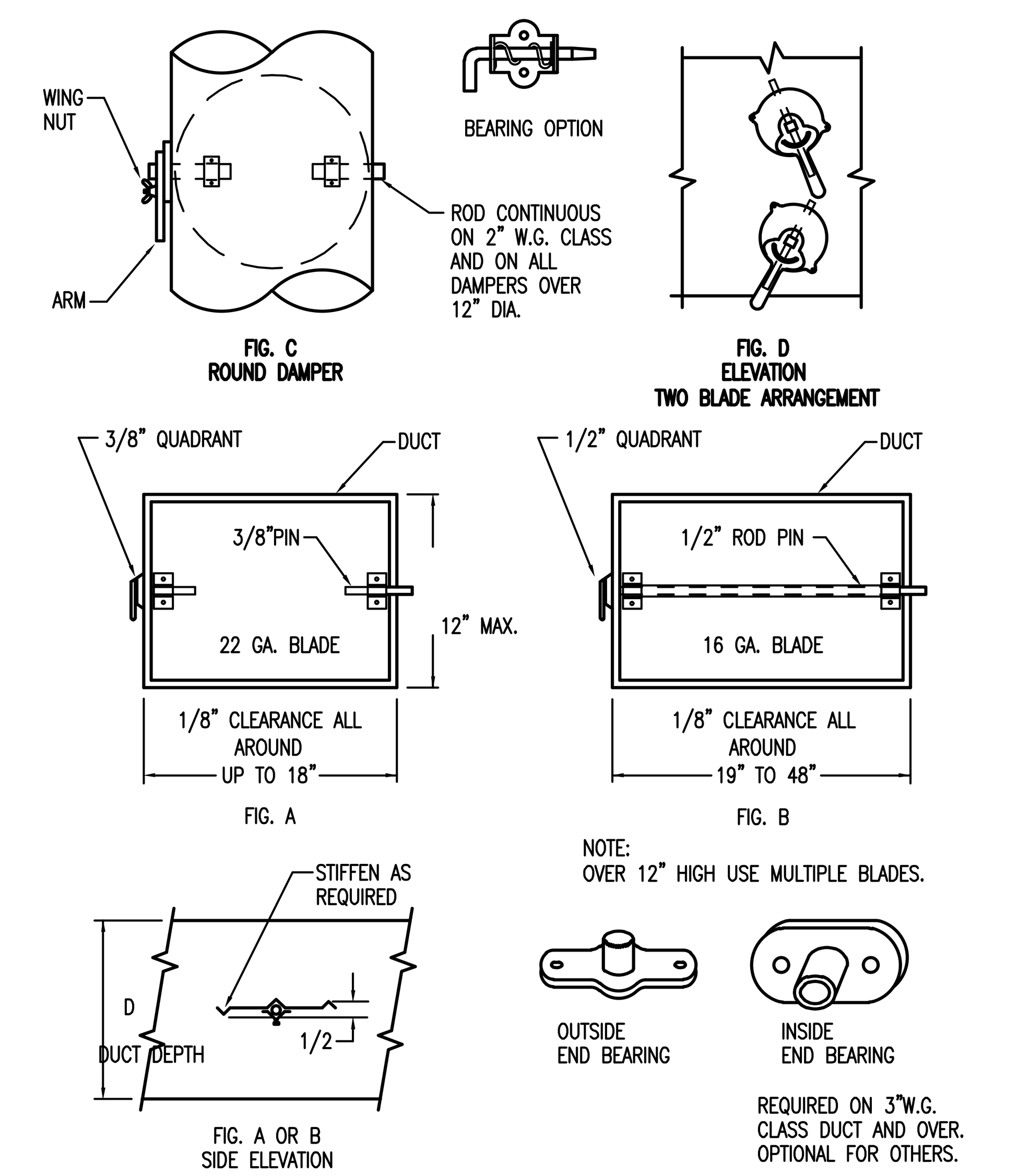
5 / M4.20 **TYPICAL DUCT ACCESS DOOR**
NO SCALE



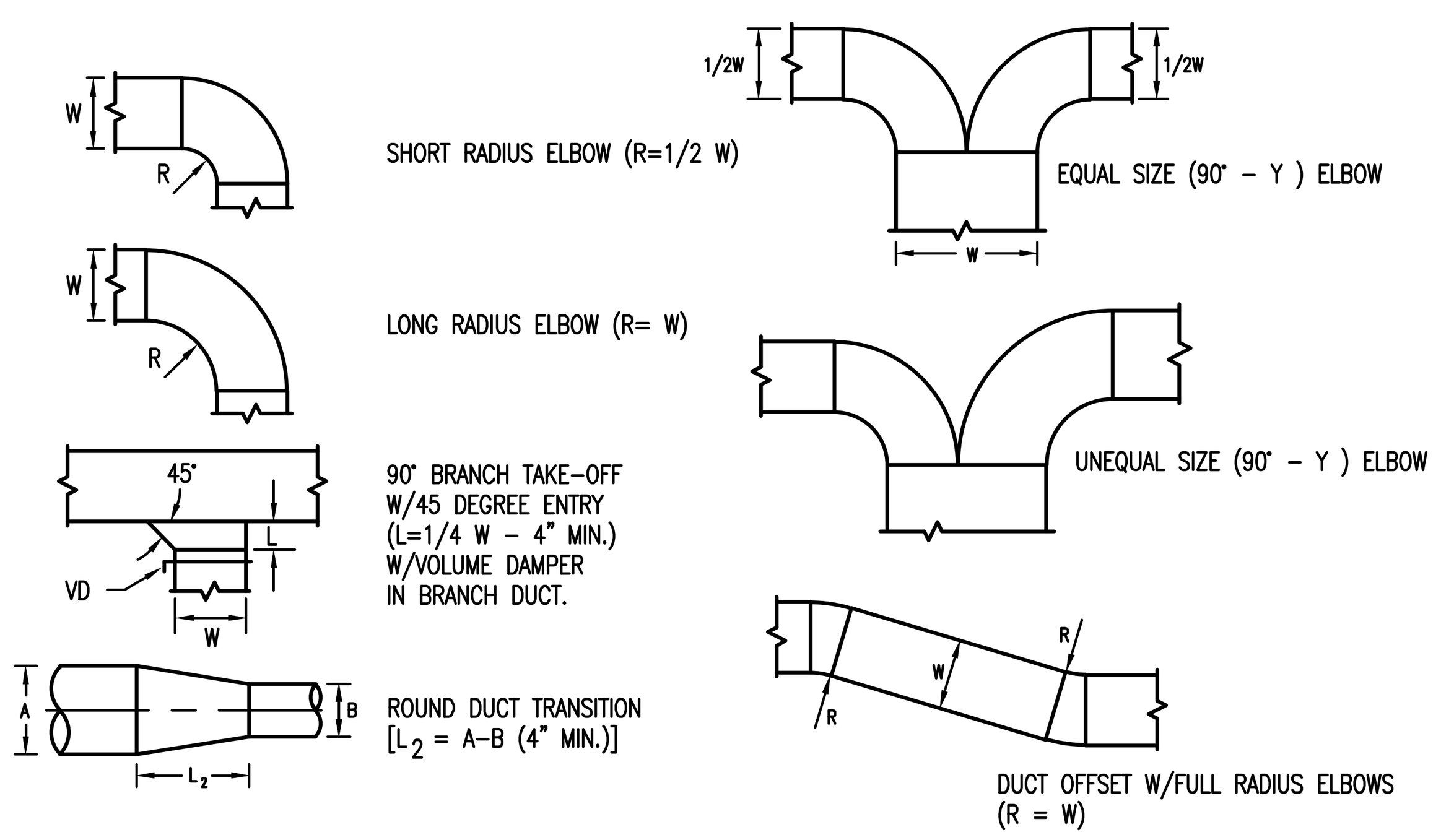
6 / M4.20 **PVC/GLASS FIBER ELBOW INSULATION SYSTEM DETAIL**
NO SCALE



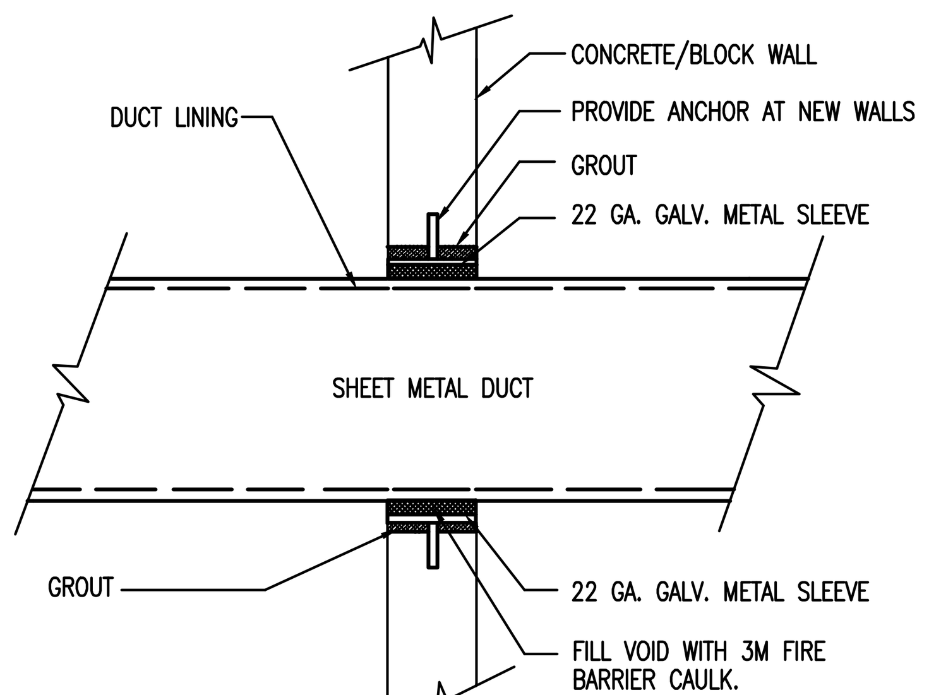
7 / M4.20 **TYPICAL FITTINGS & VOLUME DAMPER LOCATION IN SUPPLY OR RETURN DUCT SYSTEM**
NO SCALE



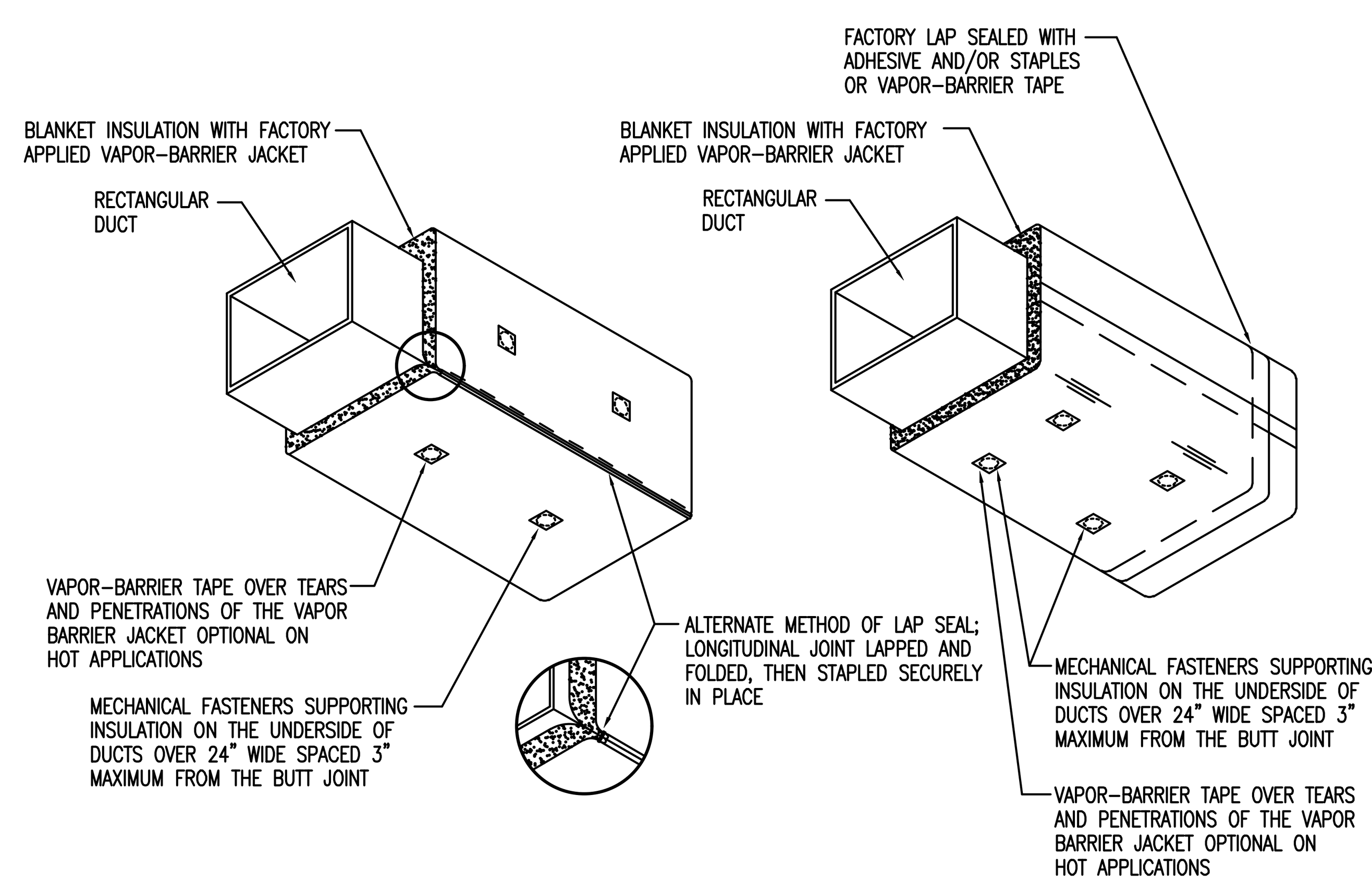
8 / M4.20 **VOLUME DAMPERS - SINGLE BLADE TYPE**
NO SCALE



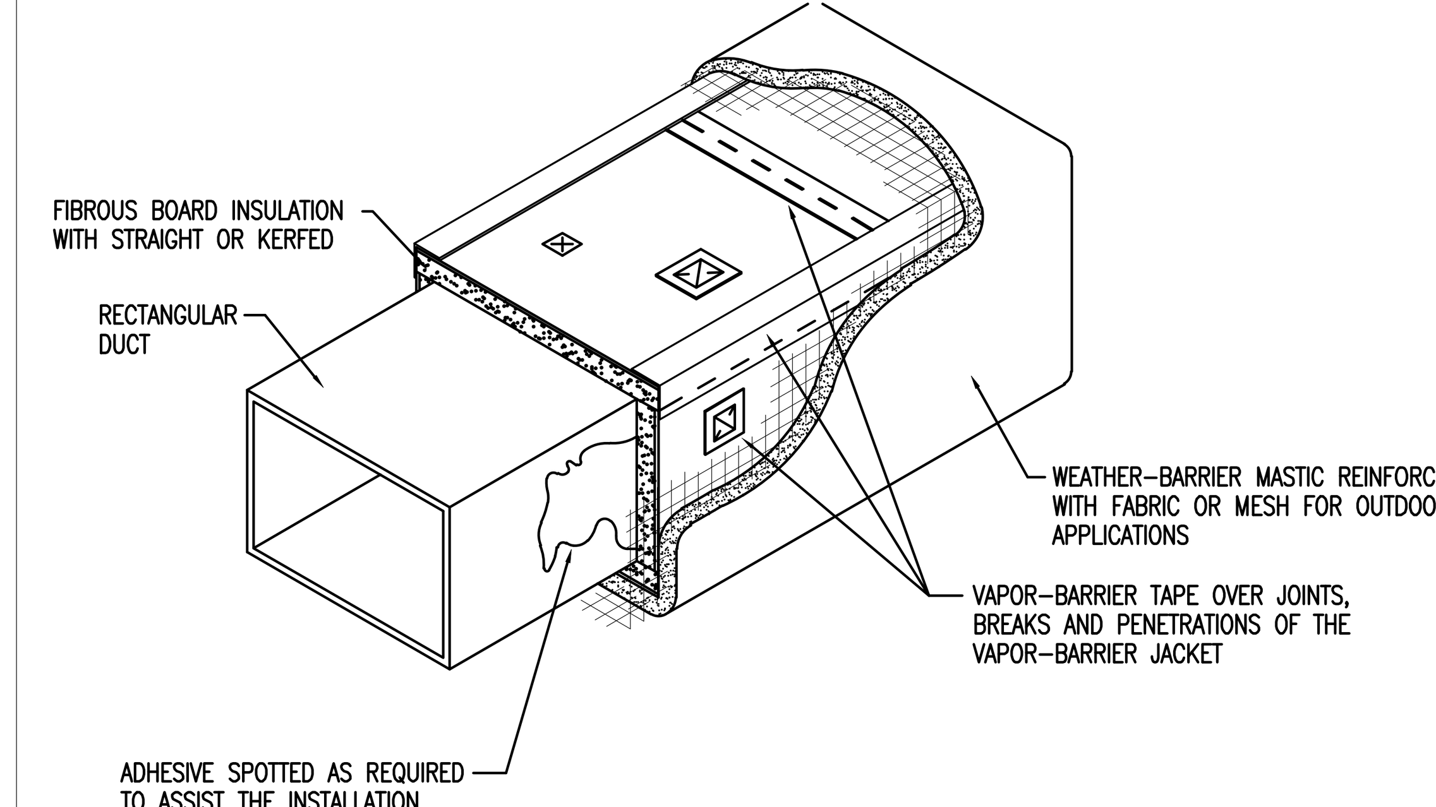
9 / M4.20 **TYPICAL DUCTWORK CONNECTIONS**
NO SCALE



10 / M4.20 **DUCT PASSING THROUGH WALL DETAIL**
NO SCALE



11 / M4.20 **FLEXIBLE FIBROUS RECTANGULAR/ EXPOSED DUCT INSULATION DETAIL**
NO SCALE



12 / M4.20 **FIBROUS BOARD RECTANGULAR/ EXPOSED DUCT INSULATION**
NO SCALE

TRIA ARCHITECTURE

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DUNELAND SCHOOL CORPORATION
2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL
1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

PROJECT NUMBER: 19-0592
PROJECT MANAGER: MG
DRAWN BY: OAS
ISSUED FOR BID: 01/07/2020
REVISIONS:
DETAILS MECHANICAL

KEITH BRYANT O'HIGGINS, REGISTERED No. PE10911154, STATE OF INDIANA, PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

M4.20

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 11:32 AM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\WI\WIS\139-I-3 M4.20 WIS Details

GENERAL NOTES FOR MECHANICAL WORK

1. DRAWINGS ARE GENERALLY DIAGRAMMATIC. ROUTING OF PIPING AND DUCTWORK AS SHOWN, DOES NOT INTEND TO SHOW EVERY RISE, DROP, OFFSET, FITTING NOR EVERY STRUCTURAL ELEMENT THAT MAY BE ENCOUNTERED DURING THE INSTALLATION OF THIS WORK. EACH CONTRACTOR SHALL MAKE ANY REQUIRED CHANGES FROM THE GENERAL ROUTING SHOWN ON THESE DRAWINGS, SUCH AS OFFSETS, BENDS OR CHANGES IN ELEVATION DUE TO COORDINATION WITH THE WORK OF OTHER TRADES AND BUILDING CONSTRUCTION. ALL CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER OR DELAY IN COMPLETION DATE OF THE PROJECT.

2. IT IS INTENDED THAT EQUIPMENT SHALL BE LOCATED SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS OF THE BUILDING, NOTWITHSTANDING THE FACT THAT LOCATIONS INDICATED BY THESE DRAWINGS MAY BE DISTORTED FOR CLEARNESS OF PRESENTATION.

3. CONTRACTOR SHALL CHECK DRAWINGS OF OTHER TRADES TO VERIFY THAT SPACES IN WHICH THEIR WORK WILL BE INSTALLED ARE CLEAR OF OBSTRUCTIONS. WORK SHALL BE INSTALLED TO MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITION AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION OF THEIR WORK.

4. CONTRACTOR SHALL FURNISH OTHER TRADES ADVANCE INFORMATION AND/OR SHOP DRAWINGS ON LOCATIONS AND SIZES OF PIPING, DUCTWORK, EQUIPMENT, FRAMES, BOXES, SLEEVES AND OPENINGS, ETC. NEEDED FOR THEIR WORK TO PERMIT OTHER TRADES AFFECTED TO INSTALL THEIR WORK PROPERLY AND WITHOUT DELAY.

5. WHERE THERE IS EVIDENCE THAT WORK OF ONE TRADE WILL INTERFERE WITH WORK OF OTHER TRADES, ALL TRADES SHALL MEET ON JOB SITE TO WORK OUT SPACE CONDITIONS AND MAKE SATISFACTORY ADJUSTMENTS TO INSTALLATION OF THE NEW WORK. CONTRACTOR SHALL BE RESPONSIBLE, AT THEIR OWN EXPENSE, FOR THE REMOVAL AND REINSTALLATION OF ANY PART OF THEIR WORK IF SAME WAS INSTALLED WITHOUT CONSULTING WITH OTHER TRADES BEFORE INSTALLING THEIR WORK.

6. CONTRACTOR SHALL PROVIDE SLEEVES IN FLOORS AND WALLS AS SHOWN ON THE DRAWINGS, AS REQUIRED BY JOB SITE CONDITIONS, AND/OR AS SPECIFIED, WHEN INSTALLING THEIR WORK.

7. THE SEQUENCE FOR THE INSTALLATION OF ALL WORK SHALL BE COORDINATED BETWEEN ALL CONTRACTORS ON THE PROJECT AND IN STRICT ACCORDANCE WITH ARCHITECT/ENGINEER AND OWNERS STIPULATION AS CALLED FOR IN THE SPECIFICATION AND/OR AS DIRECTED.

8. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL AND STRUCTURAL CONTRACT DRAWINGS (BEFORE SUBMITTING THEIR BIDS) TO FAMILIARIZE THEMSELVES WITH THE EXTENT OF THE OTHER TRADES CONTRACTORS WORK, CEILING HEIGHTS AND CLEARANCE FOR INSTALLING THEIR WORK.

9. CONTRACTOR SHALL BE RESPONSIBLE AND PAY FOR ALL CORING, CUTTING, PATCHING, REPAIRING AND REFINISHING OF BUILDING CONSTRUCTION REQUIRED TO ACCOMMODATE THE INSTALLATION OF THEIR WORK. ALL PATCHING, REPAIRING AND REFINISHING WORK SHALL BE PERFORMED BY THOSE REGULARLY INVOLVED IN THAT TRADE AND SHALL MATCH THE NEW CONSTRUCTION AS CLOSELY AS POSSIBLE. CARE SHALL BE TAKEN SO AS NOT TO DAMAGE ANY EXISTING BUILDING CONSTRUCTION OR ITEMS THAT ARE TO REMAIN. ANY EXISTING FINISHES THAT ARE DAMAGED DURING THE INSTALLATION OF NEW WORK SHALL BE REPAIRED, REPLACED AND PAID FOR BY THE INSTALLING CONTRACTOR, TO THE SATISFACTION OF THE ARCHITECT AND OWNER. REFER TO ARCHITECTURAL DRAWINGS FOR EXISTING BUILDING CONSTRUCTION THAT IS TO REMAIN AND, THEREFORE, SUBJECT TO PATCHING, REPAIRING, AND REFINISHING.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR OWN CLEAN-UP DURING CONSTRUCTION. IF CONTRACTOR FAILS TO PROVIDE SUCH CLEAN-UP, THE ARCHITECT/ENGINEER WILL DIRECT ANOTHER CONTRACTOR TO PERFORM THE CLEAN-UP AND THE NEGLIGENT CONTRACTOR SHALL PAY THE ASSOCIATED BACK-CHARGES AS DEEMED APPROPRIATE BY THE ARCHITECT/ENGINEER.

11. CONTRACTOR SHALL INSTALL ALL AUXILIARY SUPPORTING STEEL AS REQUIRED FOR THE SUPPORTING OF THEIR PIPING, DUCTWORK, CONDUIT, TANKS, EQUIPMENT, ETC. ALL SUPPORTING STEEL FOR ITEMS ABOVE A SUSPENDED CEILING SHALL BE FROM BUILDING STRUCTURAL MEMBERS ONLY.

12. ALL PIPING SHALL BE SUSPENDED WITH CLEVIS AND/OR TRAPEZE PIPE HANGERS. INSULATED PIPING SHALL REST ON STEEL OR WOOD (CHILLED WATER PIPING) PIPE COVERING PROTECTION SADDLES OR SHEET METAL INSULATION SHIELDS AS CALLED FOR IN THE SPECIFICATIONS AND/OR DETAILED ON THE DRAWINGS.

13. ALL WATER SUPPLY AND RETURN PIPING SHALL BE INSULATED, INCLUDING ALL PIPING ABOVE CEILINGS, INSIDE EQUIPMENT, CABINETS, PIPE CHASES AND IN WALLS. SEE SPECIFICATIONS FOR TYPE AND THICKNESS OF INSULATION.

14. ALL HOT WATER SUPPLY/RETURNS PIPING SHALL BE INSTALLED TO COMPENSATE FOR EXPANSION OF THE PIPE BY INSTALLING PIPE ANCHORS, GUIDES, EXPANSION JOINTS OR LOOPS AND PIPE OFFSETS AS REQUIRED BY FIELD CONDITIONS OR AS SHOWN ON THE DRAWINGS.

15. PITCH ALL SUPPLY AND RETURN WATER LINES TO DRAIN COMPLETELY THROUGH LOWER EQUIPMENT, UNIONS, OR DRAIN VALVES. INSTALL A 1/2" DRAIN VALVE WITH 3/4" HOSE THREAD OUTLET IN ALL MAIN PIPING RUNS WHICH WOULD NOT BE ABLE TO DRAIN THRU A LOWER PIECE OF EQUIPMENT. ALL DRAIN VALVES TO BE BALL VALVES.

16. INSTALL A MANUAL SHUT OFF COCK AND DIRT LEG ON EACH BRANCH GAS LINE CONNECTED TO GAS FIRED EQUIPMENT. ALL VENT LINES FROM EACH GAS REGULATOR SHALL BE GROUPED INTO A COMMON HEADER AND RUN UP THRU ROOF TO A TURNED DOWN ELBOW WITH GALVANIZED INSECT SCREEN OVER OPENING.

17. RECESSED AND/OR SEMI-RECESSED CABINET UNIT HEATERS (CUH) SHALL BE MOUNTED A MINIMUM OF 8" ABOVE THE FLOOR AND HAVE A FOUR (4) SIDE FLANGED OVERLAP WALL GUARD FRAME.

18. ALL ROOF MOUNTED EXHAUST FANS SHALL HAVE A BUILT IN DISCONNECT SWITCH, ALUMINUM BIRD SCREEN, MOTORIZED DAMPER OR MANUAL BACKDRAFT DAMPER (REFER TO SCHEDULE) AND SHALL BE MOUNTED ON AN ALUMINUM PREFABRICATED CURB WITH SOUND INSULATION ON THE INSIDE OF THE CURB. CURB HEIGHT SHALL BE A MINIMUM OF 18 INCHES ABOVE ROOF DECK.

19. ALL DUCTWORK SIZES SHOWN ON THE DRAWINGS ARE INSIDE DIMENSIONS. WHERE DUCT LINING IS CALLED FOR CONTRACTOR SHALL INCREASE THE SIZE OF THE DUCT TO MAINTAIN THE MINIMUM INSIDE DIMENSIONS CALLED FOR ON THE DRAWINGS.

20. MECHANICAL CONTRACTOR SHALL COORDINATE ALL SERVICE POINTS ON VAV BOXES WITH THE INSTALLATION OF NEW WORK IN THIS PROJECT AND NEW BUILDING CHARACTERISTICS TO MAKE SURE ACCESSIBILITY IS MAINTAINED.

21. ALL DUCTWORK CONNECTIONS TO AIR MOVING EQUIPMENT SHALL BE MADE WITH FLEXIBLE DUCT CONNECTIONS ON THE INLET AND DISCHARGE OF ALL SUPPLY, RETURN AND EXHAUST FANS (EXCEPT ROOF MOUNTED EXHAUST FANS).

22. ALL BUILT UP UNITS SHALL HAVE INTERNAL SPRING VIBRATION ISOLATORS. ALL SUSPENDED EXHAUST AND EXHAUST/RETURN FANS SHALL BE HUNG WITH OR SET ON SPRING VIBRATION ISOLATORS.

23. INSTALL TURNING VANES IN ALL SQUARE DUCT ELBOWS. INSTALL MANUAL VOLUME DAMPERS IN EACH BRANCH DUCT AT CONNECTION TO MAIN DUCT AND IN EACH DUCT AFTER A BRANCH DUCT SPLIT.

24. INSTALL A MINIMUM 12" X 12" ACCESS DOOR (INLET SIDE) AT EACH MOTORIZED DAMPER, FIRE DAMPER, SMOKE DAMPER, INLINE FAN, INTAKE AND EXHAUST PLENUMS AND AN ACCESS DOOR AT AIR SUPPLY UNIT FILTER SECTION.

25. THE LOCATIONS SHOWN FOR ALL DIFFUSERS, REGISTERS AND GRILLES, ETC. ARE DIAGRAMMATIC. EXACT LOCATION SHALL BE DETERMINED FROM THE REFLECTED CEILING PLANS AND/OR ON THE JOB SITE BY THE ARCHITECT/ENGINEER REPRESENTATIVES.

26. INSTALL CODE APPROVED FUSIBLE LINK FIRE DAMPERS IN ALL DUCTS WHICH PASS THROUGH FAN ROOM WALL, BOILER ROOM WALL, MECHANICAL ROOM WALL, AND ALL FLOORS OR AS INDICATED ON DRAWINGS. WHERE FIRE DAMPERS CANNOT BE CHECKED FROM A REGISTER OR GRILLE, INSTALL AN ACCESS DOOR IN THE DUCT NEXT TO THE DAMPER AND ACCESS PANEL IN ALL NEW ACCESSIBLE CEILINGS.

27. UNLESS INDICATED OTHERWISE, THE ARCHITECT/ENGINEER MAKES NO REPRESENTATION AS TO WHETHER OR NOT ANY HAZARDOUS OR CONTAMINATED MATERIALS (INCLUDING BUT NOT LIMITED TO ASBESTOS, PCB'S, CONTAMINATED SOILS, ETC.) ARE PRESENT WITHIN THE EXISTING BUILDING OR ON THE SITE. WORK SHOWN ON THE DRAWINGS AND/OR INDICATED IN THE SPECIFICATIONS SHALL NOT BE CONSTRUED TO CALL FOR CONTACT WITH ANY OF THESE MATERIALS. IF THESE MATERIALS ARE ENCOUNTERED OR SUSPECTED, THE CONTRACTOR SHALL NOT DISTURB THEM AND SHALL CONTACT THE ARCHITECT/ENGINEER IMMEDIATELY.

28. CONTRACTOR SHALL STORE ALL MATERIALS AND EQUIPMENT SHIPPED TO THE SITE IN A PROTECTED AREA. IF MATERIAL IS STORED OUTSIDE OF THE BUILDING, IT MUST BE STORED OFF THE GROUND A MINIMUM OF SIX INCHES (6") SET ON 6 X 6 PLANKS AND/ OR WOOD PALLETS. ALL MATERIAL AND EQUIPMENT MUST BE COMPLETELY COVERED WITH WATERPROOF TARPS OR VISQUIN. ALL PIPING AND DUCTWORK WILL HAVE THE ENDS CLOSED TO KEEP OUT DIRT AND OTHER DEBRIS. NO EQUIPMENT WILL BE ALLOWED TO BE STORED ON THE SITE UNLESS IT IS SITTING ON WOOD PLANKS AND COMPLETELY PROTECTED WITH WEATHERPROOF COVERS.

29. SEE LARGE SCALE DRAWINGS (DETAILS) FOR ALL REQUIRED VALVES, FITTINGS, GAUGES, VENTS, THERMOMETERS WHICH ARE CONNECTED TO FINNED TUBE RADIATION (FTR), AIR HANDLING UNITS (AHU), CABINET UNIT HEATERS (CUH), SUSPENDED UNIT HEATERS (SUH), HOT AND CHILLED WATER COILS, EXPANSION TANKS (ET), AIR SEPARATORS (AS), PUMPS, ETC. ALL WORK SHOWN ON DETAILS SHALL BE BY INSTALLING CONTRACTOR UNLESS OTHERWISE NOTED.

30. ALL AUTOMATIC MOTORIZED DAMPERS SHALL BE FURNISHED BY BAS CONTRACTOR (EXCEPT FOR DAMPERS FURNISHED WITH PACKAGED AIR HANDLING UNITS AND PROVIDED WITH POWER ROOF EXHAUST FANS) AND INSTALLED BY MECHANICAL CONTRACTOR. ALL DAMPER MOTORS FURNISHED AND INSTALLED BY BAS CONTRACTOR

31. MECHANICAL CONTRACTOR SHALL PROVIDE ON SITE SCHOOLING OF OWNERS OPERATING PERSONNEL FOR ALL SYSTEMS AND EQUIPMENT INSTALLED UNDER HIS CONTRACT.

32. BEFORE STARTING ANY SYSTEM INSTALLING CONTRACTOR SHALL CONTACT EQUIPMENT MANUFACTURER TO VERIFY THAT EACH PIECE OF EQUIPMENT OR SYSTEM HAS BEEN CHECKED FOR PROPER LUBRICATION, DRIVE ROTATION, BELT TENSION, CONTROL SEQUENCE OR OTHER CONDITIONS WHICH MAY CAUSE DAMAGE TO THE EQUIPMENT OR SYSTEM.

33. MECHANICAL CONTRACTOR TO FURNISH AND INSTALL ALL GAS REGULATORS ON THE LEAVING SIDE OF THE GAS METER. EACH GAS REGULATORS WILL HAVE A VENT PIPE WHICH TERMINATES 18" ABOVE THE ROOF WITH A GOOSENECK.

34. MECHANICAL CONTRACTOR SHALL INSTALL ALL WELLS IN PIPING FOR MOUNTING OF BUILDING AUTOMATION SYSTEM CONTROLS AND MECHANICAL CONTRACTOR'S THERMOMETERS AND GAUGES. MECHANICAL CONTRACTOR WILL COORDINATE THE EXACT LOCATION OF BUILDING AUTOMATION SYSTEM CONTRACTOR'S CONTROLS WITH HIM PRIOR TO INSTALLING WELLS.

35. MECHANICAL CONTRACTOR SHALL RUN INSULATED DRAIN PIPES FROM ALL HEATING/COOLING FAN COIL UNITS AND UNIT VENTILATORS. SEE DRAWINGS AND DETAILS FOR LOCATION OF TERMINATION OF DRAIN PIPING. ALL CONDENSATE DRAIN PIPES MUST BE PITCHED AWAY FROM THE DRAIN PAN. ALL CONDENSATE DRAIN PIPES WILL BE INSULATED FROM UNIT TO TERMINATION POINT.

36. MECHANICAL CONTRACTOR SHALL INSTALL DRAIN PIPING FROM ALL BUILT-UP AIR HANDLING UNITS. DRAIN PIPE WILL BE RUN FROM UNIT DRAIN PAN TO NEAREST FLOOR DRAIN.

37. THE MECHANICAL CONTRACTOR TO PROVIDE 1/4 INCH SCALE PIPING AND DUCTWORK DRAWINGS FOR COORDINATION WITH OTHER TRADES. DRAWINGS TO INDICATE DIMENSIONS AND ELEVATIONS OF ALL PIPING AND DUCTWORK. DRAWINGS TO ALSO INCLUDE ALL WALL/FLOOR/ROOF OPENINGS.

38. MECHANICAL CONTRACTOR TO PROVIDE SCHEDULE OF CURB INSTALLATION/REMOVAL ON EXISTING ROOF AREAS TO CONTRACTOR FIVE (5) WORKING DAYS IN ADVANCE. ANY REVISIONS TO THIS SCHEDULE RESULTING IN UN-PATCHED ROOF TIE-INS AND DAMAGE TO EXISTING CONDITIONS SHALL BE REPAIRED BY MECHANICAL CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.

39. ALL PIPE PASSING THRU WALLS SHALL HAVE A GALVANIZED SHEET METAL OR SCHEDULE 40 STEEL PIPE SLEEVE INSTALLED AROUND THE PIPE AND PIPE INSULATION. SEE SLEEVE DETAILS THESE DRAWINGS.

40. INSTALL A SHEET METAL SLEEVE AROUND ANY DUCTWORK WHICH GOES THROUGH WALL CONSTRUCTION, PACK FIBERGLAS INSULATION AROUND SLEEVE AND DUCT AND CAULK WITH FIRE SEAL CAULKING.

41. WHEN INSTALLING EXPANSION JOINTS, CONTRACTOR SHALL INSTALL A PIPE ANCHOR AT EACH END OF RUN AND PIPE GUIDES A MINIMUM OF EVERY TWENTY-FIVE (25) FEET OR AS CALLED FOR ON THE DRAWINGS. MOUNT THE FIRST PIPE GUIDE LOCATED ON EACH SIDE OF THE EXPANSION JOINT A MINIMUM OF FOUR (4) PIPE DIAMETERS FROM THE EXPANSION JOINT.

42. THE DRAWINGS, SCHEDULES AND SPECIFICATIONS HAVE BEEN PREPARED USING ONE MANUFACTURER FOR EACH PIECE OF EQUIPMENT AS THE BASIS FOR DIMENSIONAL DESIGN. IF THE CONTRACTOR PURCHASES EQUIPMENT LISTED AS A SPECIFIED ACCEPTABLE MANUFACTURER BUT IS NOT THE SCHEDULED MANUFACTURER USED FOR THE BASE DESIGN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING ALL THE DIMENSIONS OF THE EQUIPMENT TO VERIFY THAT IT WILL FIT IN THE SPACE SHOWN ON THE DRAWINGS. MINOR DEVIATIONS IN DIMENSIONS WILL BE PERMITTED, PROVIDED THE RATINGS MEET THOSE SHOWN ON THE DRAWINGS AND EQUIPMENT WILL PHYSICALLY FIT INTO THE SPACE ALLOCATED WITH SUITABLE ACCESS AROUND EQUIPMENT FOR OPERATION AND MAINTENANCE ON THE EQUIPMENT.

43. CONTRACTOR AND/OR MANUFACTURER SHALL VERIFY THAT THE CHARACTERISTICS OF THE EQUIPMENT HE SUBMITS FOR REVIEW MEETS THE CAPACITY AND DUTY SPECIFIED.

44. WHEN EQUIPMENT IS SUBMITTED FOR REVIEW AND DOES NOT MEET THE PHYSICAL SIZE OR ARRANGEMENT OF THAT SCHEDULED AND SPECIFIED, CONTRACTOR SHALL PAY FOR ALL ALTERATIONS REQUIRED TO ACCOMMODATE SUCH EQUIPMENT AT NO ADDITIONAL COST TO OWNER. CONTRACTOR WILL ALSO PAY ALL COSTS FOR ADDITIONAL WORK REQUIRED BY OTHER CONTRACTORS, OWNER, ARCHITECT OR ENGINEER TO MAKE CHANGES WHICH WOULD ALLOW THE EQUIPMENT TO FIT IN THE SPACE AND FUNCTION AS INTENDED.

GENERAL NOTES - B.A.S.

I. GENERAL

THE CONTROLS CONTRACTOR SHALL BE THE CONTROLS ENGINEER FOR THIS PROJECT: RESPONSIBLE FOR DESIGN AND ENGINEERING OF ALL CONTROL SYSTEMS TO OPERATE AS DESCRIBED IN THE SEQUENCE OF OPERATION, TO CONFORM WITH THE GOVERNING BUILDING CODES AND OPERATE IN A MANNER CONSISTENT WITH KNOWN GOOD CONTROLS ENGINEERING PRACTICE.

THE CONTROLS CONTRACTOR/ENGINEER SHALL IDENTIFY ANY POTENTIAL CONDITIONS THAT COULD BE CONSTRUED TO DEVIATE FROM GOOD CONTROLS ENGINEERING PRACTICE PRIOR TO BIDDING AND INCLUDE ALL ENGINEERING AND INSTALLATION WORK REQUIRED TO MAKE ALL HVAC SYSTEMS COMPLETE AND OPERATIONAL, IN CONFORMANCE WITH GOOD CONTROLS ENGINEERING PRACTICE: PRIOR TO SUBMITTING HIS BID.

THE BAS CONTRACTOR SHALL PROVIDE ALL CONTROL COMPONENTS, WIRING, INTERLOCKS, ELECTRICAL POWER AND ALL OTHER DEVICES REQUIRED TO MAKE ALL HVAC EQUIPMENT INSTALLED UNDER THIS PROJECT COMPLETE AND FULLY OPERATIONAL PER THE SEQUENCE OF OPERATION AND AS REQUIRED FOR SAFE AND ACCURATE CONTROL.

THE BAS CONTRACTOR SHALL PROVIDE ALL CONTROL VALVES AND ACTUATORS TO THE MECHANICAL CONTRACTOR FOR INSTALLATION. THE BAS CONTRACTOR SHALL DIRECT THE MECHANICAL CONTRACTOR AS TO THE PROPER LOCATION AND ORIENTATION OF ALL DEVICES TO ACHIEVE A PROPER AND CORRECT CONTROL SEQUENCE.

THE BAS CONTRACTOR SHALL INCLUDE ADEQUATE TIME IN HIS BID FOR COMPLETE COMMISSIONING OF THE MECHANICAL SYSTEMS, ON SITE IN COORDINATION WITH THE MECHANICAL CONTRACTOR AND OTHER TRADES AS REQUIRED TO MAKE ALL EQUIPMENT COMPLETE AND FULLY OPERATIONAL.

IN THE EVENT THAT ANY PART OF THE MECHANICAL DRAWINGS, SPECIFICATIONS OR NOTES CONFLICT WITH ANY OTHER: THE MOST STRINGENT REQUIREMENT SHALL APPLY, PROVIDING THE GREATEST SAFETY AND/OR AT THE HIGHEST COST OF THE CONFLICTING OPTIONS.

II. ELECTRICAL

THE BAS CONTRACTOR SHALL PROVIDE EMERGENCY POWER FOR ALL ELECTRICAL POWER AND CONTROL WIRING, CONDUIT, JUNCTION BOXES, RACEWAY, TRANSFORMERS, RELAYS AND ALL OTHER ELECTRICAL APPURTENANCES REQUIRED FOR A COMPLETE AND FULLY OPERATIONAL CONTROL SYSTEM. THIS INCLUDES ALL POWER WIRING FROM SPARE CIRCUIT BREAKERS PROVIDED IN BUILDING EMERGENCY POWER PANELS FOR POWERING OF CONTROLS AND CONTROL PANELS AND ALL OTHER CONTROL SYSTEM COMPONENTS. ALL HVAC EQUIPMENT, I.E AIR HANDLING UNITS, EXHAUST FANS, PUMPS, BOILERS, ETC. ARE TO HAVE THEIR CONTROLS POWERED FROM EMERGENCY POWER PANELS. SEE ELECTRICAL DRAWINGS FOR PANEL LOCATION.

ALL ELECTRICAL WORK SHALL BE IN CONFORMANCE WITH THE CURRENT NATIONAL ELECTRICAL CODE AND APPLICABLE STATE AND LOCAL AMENDMENTS.

THE BAS CONTRACTOR SHALL PROVIDE AND INSTALL ALL HARDWIRED INTERLOCKS BETWEEN STARTERS AS REQUIRED TO ACHIEVE THE SEQUENCE OF OPERATION AND PROPER SYSTEM CONTROLS. PROVIDE RELAYS AS REQUIRED FOR AUTOMATIC START/STOP OF ALL SINGLE PHASE EXHAUST FANS AND INTERLOCK OF AUTOMATIC DAMPERS.

III. CONTROL VALVES

ALL CONTROL VALVES SHALL SPRING RETURN TO A FAIL SAFE POSITION. ALL HEATING CONTROL VALVES SHALL FAIL OPEN BY SPRING RETURN TO HEATING AND ALL COOLING CONTROL VALVES SHALL FAIL CLOSED BY SPRING RETURN.

ALL CONTROL VALVES USED FOR POSITIVE SHUT-OFF ISOLATION, SUCH AS HOT/CHILLED WATER ISOLATION OR CHANGEOVER IN A TWO-PIPE SYSTEM, SHALL BE QUARTER TURN TYPE BUTTERFLY OR BALL VALVES RATED FOR 300 PSI, BUBBLE TIGHT SHUT-OFF SERVICE.

THE CONTROLS CONTRACTOR/ENGINEER SHALL SIZE ALL MODULATING TEMPERATURE CONTROL VALVES WITH A Cv AND PRESSURE DROP SUCH THAT THERE IS LINEAR CONTROL OF WATER FLOW THROUGHOUT THE ENTIRE STROKE OF THE VALVE. COORDINATE WITH THE MECHANICAL CONTRACTOR TO PROVIDE REDUCERS AS REQUIRED FOR MODULATING VALVES THAT ARE NOT LINE SIZE.

IV. AUTOMATIC CONTROL DAMPERS

ALL CONTROL DAMPERS SHALL BE EXTRUDED ALUMINUM, LOW LEAKAGE AIR FOIL BLADE TYPE WITH ELASTOMER BLADE EDGE SEALS AND STAINLESS STEEL OR ELASTOMER BLADE END SEALS.

ALL CONTROL DAMPERS SHALL SPRING RETURN TO A FAIL SAFE POSITION FOR FREEZE PREVENTION BY SPRING RETURN. FACE AND BYPASS DAMPER SHALL FAIL OPEN, OUTDOOR AIR DAMPERS SHALL FAIL CLOSED, EXHAUST AIR DAMPERS SHALL FAIL CLOSED, AND RETURN AIR DAMPER SHALL FAIL OPEN.

V. THERMOSTAT

THE BAS CONTRACTOR SHALL PROVIDE THERMOSTATS FOR ALL CONTROLLED EQUIPMENT TO OPERATE AS DESCRIBED IN THE SEQUENCE OF OPERATION AND/OR PER MANUFACTURER'S REQUIREMENTS AND KNOWN STANDARDS OF GOOD CONTROL PRACTICE. INCLUDE ALL THERMOSTATS AS REQUIRED FOR EQUIPMENT TO BE COMPLETE AND FULLY OPERATIONAL WHETHER SHOWN SPECIFICALLY ON THE PLANS OR NOT.

ALL TEMPERATURE SENSORS IN DUCTWORK, AIR HANDLING UNITS AND PLENUMS SHALL BE OF AVERAGING TYPE. PROPERLY SUPPORT AVERAGING ELEMENT (MINIMUM TWENTY FEET LENGTH) ACROSS A REPRESENTATIVE AREA TO ACHIEVE A TRUE AVERAGE READING. SUPPORT USING HEAVY CABLE AND/OR HALF INCH CONDUIT WITH NYLON WIRE TIES.

BUILDING/SPACE STATIC PRESSURE SENSORS SHALL BE INSTALLED IN THE CEILING IN A MAIN BUILDING CORRIDOR OPEN TO THE MAIN ENTRANCE OF THE BUILDING. STATIC PRESSURE SENSING TIP SHALL HAVE COVER PLATE TO MATCH CEILING AND AN EMBOSSED LABEL STATING "PRESSURE CONTROL SENSOR – DO NOT PAINT".

THE CONTROLS CONTRACTOR/ENGINEER SHALL SELECT ALL PRESSURE AND TEMPERATURE SENSORS WITH AN APPROPRIATE SPAN AND RANGE FOR THE APPLICATION.

ALL OUTDOOR AIR SENSORS SHALL BE INSTALLED WITH SUN SHIELD AND IN A LOCATION WHERE THEY CANNOT BE WASHED BY EXHAUST AIR OR OTHER SOURCES OF FALSE READINGS.

ALL TEMPERATURE AND PRESSURE SENSORS SHALL BE INSTALLED IN LOCATIONS SUCH THAT THEY DO NOT MAKE FALSE READINGS. BAS CONTRACTOR/ENGINEER SHALL REVIEW THE PLANS AND IDENTIFY ANY SUCH POTENTIAL CAUSES FOR FALSE READINGS AND NOTIFY THE ENGINEER IN WRITING THAT THESE SHOULD BE RELOCATED PRIOR TO ROUGH IN AND CONTROLS INSTALLATION. THE BAS CONTROLS CONTRACTOR SHALL RELOCATE ANY SENSORS INSTALLED IN IMPROPER LOCATIONS AND GIVING FALSE READINGS AT HIS OWN EXPENSE. CONDITIONS TO BE AWARE OF SHALL INCLUDE BUT ARE NOT LIMITED TO LOCATIONS OF THERMOSTATS BEHIND DOORS, OUTDOOR AIR SENSORS NEAR EXHAUST OPENINGS, STATIC PRESSURE SENSORS IN TURBULENT LOCATIONS, THERMOSTATS INSTALLED ADJACENT TO HEAT SOURCES SUCH AS COFFEE POTS, COMPUTERS, VENDING MACHINES AND OTHER APPLIANCES, ETC.

VI. SAFETY DEVICES

THE BAS CONTRACTOR/ENGINEER SHALL FURNISH AND INSTALL MANUAL RESET SAFETY DEVICES FOR ANY AND ALL CONDITIONS THAT COULD DAMAGE THE EQUIPMENT AND/OR REPRESENT A THREAT TO HUMAN SAFETY. ALL WATER COILS SHALL BE PROTECTED BY AN AVERAGING ELEMENT FREEZE-STAT WITH A NON-ADJUSTABLE 40°F SET POINT, MANUAL RESET, AND HARDWIRED INTERLOCK TO SHUT DOWN THE ASSOCIATED FAN ANY TIME THE TEMPERATURE ACROSS ANY 12" LENGTH OF THE AVERAGING ELEMENT FALLS BELOW 40°F. FREEZE STATS SHALL BE INSTALLED DOWNSTREAM OF ALL WATER COILS.

WATER CHILLERS SHALL BE INTERLOCKED SUCH THAT THEY CAN NOT START UNTIL FLOW IS PROVED THROUGH CHILLED WATER BUNDLERS.

INSTALL A FLOAT SWITCH IN THE EVAPORATOR DRAIN PAN OF ALL AIR HANDLING EQUIPMENT INSTALLED ABOVE CEILINGS IN OCCUPIED SPACES TO SHUT DOWN THE ASSOCIATED SYSTEM.

THE BAS CONTRACTOR SHALL WIRE ALL SUPPLY FANS OVER 2000 CFM TO THE LOCAL DUCT SMOKE DETECTOR TO SHUT DOWN THE SUPPLY FAN ON SMOKE ALARM.

VII. PUMP CONTROL

THE BAS CONTRACTOR SHALL WIRE HOT WATER COIL CIRCULATING PUMPS TO START AND RUN CONTINUOUSLY ANY TIME THE OUTDOOR AIR TEMPERATURE IS BELOW 40°F. (ADJ.)

CENTRAL HEATING AND/OR COOLING PUMPS SHALL HAVE A LOCAL CONTROL FOR PROOF OF FLOW AND AUTOMATIC STARTING OF THE STANDBY PUMP WHEN THE LEAD PUMP FAILS.

VIII. RELAYS

PROVIDE ALL RELAYS AS REQUIRED BY SITE CONDITIONS TO CONTROL ALL PUMPS, FANS, ETC. PROVIDE DEFINITE PURPOSE CONTACTORS IF POWER REQUIREMENTS EXCEED RELAY CAPACITY.

IX. TAGGING

SEE EQUIPMENT SCHEDULES FOR EQUIPMENT TAGGING. ALL EQUIPMENT TO BE LABELED AND/OR REFERENCED ON BAS PER THE EQUIPMENT SCHEDULES.

TRIA ARCHITECTURE

Larson Engineering, Inc.

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT:
WESTCHESTER INTERMEDIATE SCHOOL
1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

NOTES
MECHANICAL

KEITH BRYANT O'HIGGINS
REGISTERED
No. PE10911154
STATE OF INDIANA
PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

M5.00

MECHANICAL SYSTEM (HVAC) SYMBOLS

- NEW PIPING
- EXISTING TO REMAIN PIPING
- EXISTING TO BE REMOVED PIPING
- MU — MAKE-UP WATER
- G — NATURAL GAS
- RD — REFRIGERANT DISCHARGE
- RS — REFRIGERANT SUCTION
- RL — REFRIGERANT LIQUID
- HCWS — HOT/CHILLED WATER SUPPLY
- HCWR — HOT/CHILLED WATER RETURN
- HWS — HOT WATER SUPPLY
- HWR — HOT WATER RETURN
- D — DRAIN LINE
- LINE ARROW INDICATES DIRECTION OF FLOW OR PITCH
- PIPE ELBOW (TURNED UP)
- PIPE ELBOW (TURNED DOWN)
- PIPE TEE DOWN (DROP)
- PIPE TEE UP
- PIPE TEE UP OR ANGLE
- PIPE TEE DOWN OR ANGLE
- PIPE TEE HORIZONTAL
- 90° ELBOW IN HORIZONTAL PIPE RUN
- ANGLE ELBOW IN HORIZONTAL PIPE RUN
- NC — NEW CONNECTION
- GATE VALVE
- CHECK VALVE
- BUTTERFLY VALVE
- BALL VALVE
- 3 WAY CONTROL VALVE
- 2 WAY CONTROL VALVE
- TRIPLE DUTY VALVE
- CIRCUIT BALANCING VALVE W/BALANCING PORTS
- AUTOMATIC FLOW DEVICE
- SQUARE HEAD COCK
- S — SOLENOID VALVE
- PRESSURE REDUCING VALVE
- D — DRAIN VALVE WITH 3/4" HOSE THREADED OUTLET
- PRESSURE RELIEF VALVE (PIPE TO FLOOR DRAIN)
- BACKFLOW PREVENTER
- NEEDLE VALVE
- STRAINER
- AUTOMATIC BUTTERFLY VALVE
- EJ — PIPE EXPANSION JOINT
- PIPE ANCHOR
- PIPE FLEXIBLE CONNECTION
- PG — PIPE ALIGNMENT GUIDE
- PS — PIPE SLEEVE
- PIPE UNION (OR FLANGES IF 2 1/2" OR LARGER PIPE)
- PS — PRESSURE SWITCH (WITH THREAD OR WELD-O-LET)
- PRESSURE GAUGE AND NEEDLE VALVE
- FS — FLOW SWITCH (WITH THREAD OR WELD-O-LET)
- THERMOMETER (WITH PIPE WELL)
- SENSOR WELL

- H — HUMIDISTAT
- T — WALL MOUNTED THERMOSTAT/SENSOR
- T R — REVERSE ACTING THERMOSTAT/SENSOR
- $ — SWITCH
- NEW DUCTWORK
- EXISTING TO REMAIN DUCTWORK
- EXISTING TO BE REMOVED DUCTWORK
- FC — FLEXIBLE DUCT CONNECTION
- AD — ACCESS DOOR ON TOP, BOTTOM OR SIDE OF DUCT
- VD — SINGLE BLADE OR OPPOSED BLADE MANUAL VOLUME DAMPER.
- ACD — AUTOMATIC CONTROL DAMPER
- EXHAUST DUCT UP TO ROOF MOUNTED EXHAUST FAN OR VENTILATOR.
- SQUARE NECK DROP TO SQUARE DIFFUSER (ARROW SHOWS DIRECTION OF THROW)
- ROUND NECK DROP TO ROUND DIFFUSER (ARROW SHOWS DIRECTION OF THROW)
- ROUND NECK DROP TO SQUARE DIFFUSER (ARROW SHOWS DIRECTION OF THROW)
- FD OR SMD, AD — VERTICAL FIRE DAMPER OR SMOKE DAMPER (IN HORIZONTAL DUCT AT WALL) WITH ACCESS DOOR.
- AIR SUPPLY FLOW
- EXHAUST OR RETURN AIR FLOW
- A NK SIZE / CFM — WALL OR DUCT MOUNTED SUPPLY REGISTER OR GRILLE (TOP NO. = SIZE OF FACE OR NECK, BOTTOM NO. = AMOUNT OF AIR, LETTER INDICATES TYPE).
- B 18x12 NK / 500 CFM; C 24x12 NK / 500 CFM — BOTTOM MOUNTED REGISTER OR GRILLE.
- 24x12 — DUCT SIZE FREE AREA (1ST NUMBER IS DUCT WIDTH ON PLAN VIEW, 2ND NUMBER IS DUCT DEPTH IN PLAN VIEW.)
- SUPPLY OR FRESH AIR DUCT UP
- RETURN OR EXHAUST AIR DUCT UP
- SUPPLY OR FRESH AIR DUCT DOWN
- RETURN OR EXHAUST AIR DUCT DOWN

- RISE OR DROP IN SUPPLY DUCT (TOP VIEW) ARROW DIRECTION OF FLOW
- R / D — INCLINED RISE (R) OR DROP (D), ARROW IN DIRECTION OF AIR FLOW
- 90° ELBOW WITH TURNING VANES
- W, R — SHORT RADIUS ELBOW (R=1/2 W)
- W, R — LONG RADIUS ELBOW (R= W)
- 45°, VD, W — 90° BRANCH TAKE-OFF W/45 DEGREE ENTRY (L=1/4 W - 4" MIN.) W/VOLUME DAMPER IN BRANCH DUCT.
- AD, HC — HEATING COIL WITH ACCESS DOOR IN DUCT
- ROUND FLEXIBLE DUCT
- ROUND OR OVAL DUCT (——— INDICATES CENTER LINE OF DUCT)
- A, B, L_2 — ROUND DUCT TRANSITION [L_2 = A-B (4" MIN.)]
- ROUND DUCT UP
- ROUND DUCT DOWN
- CROSS-SECTION OF ROUND DUCT
- 1/2W, W — UNEQUAL SIZE (90° - Y) ELBOW
- EQUAL SIZE (90° - Y) ELBOW
- SD — 90° BRANCH TAKE-OFF FROM MAIN
- 30° MAX. — SQUARE OR RECTANGLE DUCT TRANSITION
- UNEQUAL SIZE (90° - T) ELBOW

- SQUARE OR RECTANGLE TO ROUND DUCT TRANSITION
- R, W — DUCT OFFSET W/FULL RADIUS ELBOWS (R = W)
- EQUIPMENT TYPE / EQUIPMENT # — EQUIPMENT TAG
- D-# — DEMOLITION NOTE REFERENCE NUMBER — DEMOLITION NOTE TAG
- # — PLAN NOTE REFERENCE NUMBER — PLAN NOTE TAG

MECHANICAL ABBREVIATIONS LIST

ACV	AUTOMATIC CONTROL VALVE	EUH	ELECTRIC UNIT HEATER	NK	NECK
AFD	AUTOMATIC FLOW DEVICE	EWT	ENTERING WATER TEMPERATURE	N.C.	NORMALLY CLOSED
AHU	AIR HANDLING UNIT	EXD	EXHAUST DUCT	N.I.C.	NOT IN CONTRACT
AS	AIR SEPARATOR	F	FAHRENHEIT	N.O.	NORMALLY OPEN
BCP	BOILER CIRCULATING PUMP	FC	FLEXIBLE CONNECTION	OAD	OUTDOOR AIR DAMPER
BWP	BUILDING WATER PUMP	FCU	FAN COIL UNIT	OUD	OUTSIDE AIR DUCT
BHP	BRAKE HORSE POWER	FID	FIRE DAMPER	PD	PRESSURE DROP
BTU	BRITISH THERMAL UNIT	FPF	FINS PER FOOT	PG	PIPE GUIDE
BTUH	BRITISH THERMAL UNIT PER HOUR	FPM	FEET PER MINUTE	PH	PHASE
BV	BALL VALVE	FTR	FINNED TUBE RADIATION	PS	PIPE SLEEVE
CBP	COIL BOOSTER PUMP	FV	FACE VELOCITY	PSI	POUNDS PER SQUARE INCH
CC	COOLING COIL	G	GAS PIPING	RAD	RETURN AIR DAMPER
CFM	CUBIC FEET PER MINUTE	GPM	GALLONS PER MINUTE	RED	RETURN AIR DUCT
CH	CHILLER	GV	GATE VALVE	RF	RETURN AIR FAN
CKV	CHECK VALVE	HC	HEATING COIL	RH	RELIEF HOOD
CU	CONDENSING UNIT	HCWP	HOT/CHILLED WATER PUMP	RPM	REVOLUTIONS PER MINUTE
CUH	CABINET UNIT HEATER	HCWR	HOT/CHILLED WATER RETURN	RTU	ROOF TOP UNIT
CUV	CLASSROOM UNIT VENTILATOR	HCWS	HOT/CHILLED WATER SUPPLY	SF	SUPPLY FAN
CWP	CHILLED WATER PUMP	HP	HORSEPOWER	SP	STATIC PRESSURE
CHWR	CHILLED WATER RETURN	HWB	HOT WATER BOILER	STR	STRAINER
CHWS	CHILLED WATER SUPPLY	HWP	HOT WATER CIRCULATING PUMP	SUD	SUPPLY DUCT
D	DRAIN LINE	HWR	HOT WATER RETURN	SUH	SUSPENDED UNIT HEATER
DB	DRY BULB	HWS	HOT WATER SUPPLY	TSP	TOTAL STATIC PRESSURE
EAD	EXHAUST AIR DAMPER	IH	INTAKE HOOD	WB	WET BULB
EAT	ENTERING AIR TEMPERATURE	LAT	LEAVING AIR TEMPERATURE	WC	WATER COLUMN
EF	EXHAUST FAN	LWT	LEAVING WATER TEMPERTURE	WG	WATER GAUGE
EH	EXHAUST HOOD	MOD	MOTOR OPERATED DAMPER	WLS	WALL LOUVER AND SCREEN
ET	EXPANSION TANK	NC	NEW CONNECTION		

TRIA ARCHITECTURE

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

DUNELAND SCHOOL CORPORATION Chesterton, Indiana

PROJECT NUMBER:	19-0592
PROJECT MANAGER:	MG
DRAWN BY:	OAS
ISSUED FOR BID:	01/07/2020

REVISIONS: 1, 2, 3, 4, 5

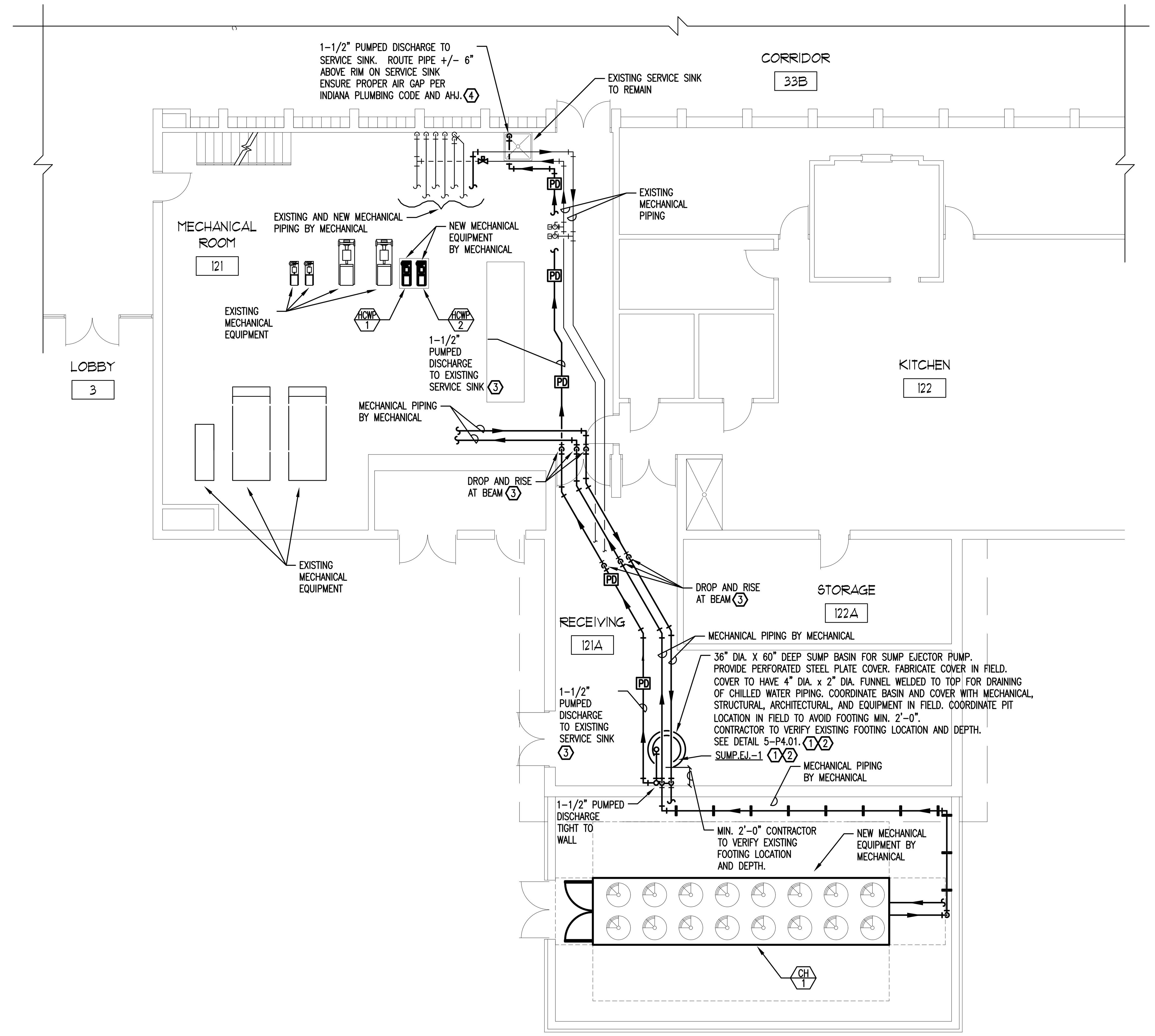
SYMBOLS AND ABBREVIATIONS - MECHANICAL

KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER

EXPIRES 07/31/2020

M5.10

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 11:32 AM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\M\WIS\139-I-3_M5.10_WIS
Symbols and Abbrevations



1 PARTIAL FIRST FLOOR PLAN - PLUMBING
1/8" = 1'-0"

GENERAL NOTES

1. CONTRACTOR TO INSULATE ALL NEW PIPING AND CONNECTIONS PER INDIANA ENERGY CONSERVATION CODE.
2. ALL NEW DOMESTIC WATER PIPING TO BE DISINFECTED PER THE INDIANA PLUMBING CODE AND AHJ.
3. CONTRACTOR TO FIELD VERIFY LOCATION OF ALL SANITARY, VENT, AND WATER PIPING PRIOR TO WORK.
4. CONTRACTOR TO VERIFY NO CONDUIT OR PIPING ARE IN SAW CUT AREAS PRIOR TO SAW CUTTING FLOORS OR WALLS.
5. CONTRACTOR IS RESPONSIBLE FOR ANY CEILING, WALL, OR FLOOR REMOVAL / REPLACEMENT REQUIRED BY NEW WORK. PATCH TO MATCH.
6. CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, PATCHING, AND PAINTING FOR INSTALLATION OF NEW WORK. SEE ARCHITECTURAL FOR MORE INFORMATION.
7. ALL PLUMBING, NEW AND EXISTING, AFFECTED BY THIS WORK MUST BE COMPLIANT TO INDIANA PLUMBING CODE AND AHJ. IN THE EVENT OF CONFLICT BETWEEN CODES AND DRAWINGS, THE CODES SHALL BE FOLLOWED.
8. ALL NEW PIPING MUST BE COORDINATED WITH MECHANICAL, ELECTRICAL, FIRE PROTECTION, ARCHITECTURAL, STRUCTURAL, CIVIL, AND EQUIPMENT.
9. ENSURE NO DEAD ENDS REMAIN IN SANITARY, WATER, VENT SYSTEMS PER INDIANA PLUMBING CODE AND AHJ.
10. ALL PLUMBING VENT TERMINALS SHALL BE A MINIMUM OF 12'-0" AWAY FROM ANY INTAKE AS PER INDIANA PLUMBING CODE AND AHJ.

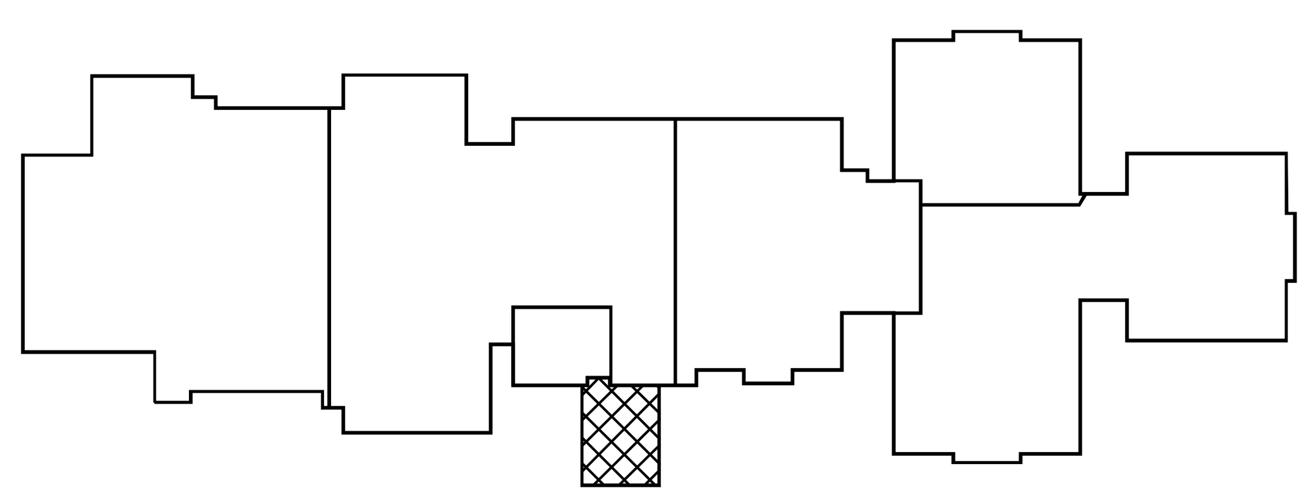
KEYED NOTES:

(1) SUMP PIT: 36" DIAMETER X 60" DEEP SUMP BASIN FOR SUMP PUMP. PROVIDE PERFORATED STEEL PLATE COVER. FABRICATE COVER IN FIELD. COORDINATE BASIN AND COVER WITH MECHANICAL, STRUCTURAL, ARCHITECTURAL, AND EQUIPMENT IN FIELD. COORDINATE BASIN WITH EXISTING WALL FOOTING AND LOCATE AS REQUIRED TO AVOID FOOTING. MINIMUM 2'-0" CONTRACTOR TO VERIFY AND COORDINATE IN FIELD. SAW CUT FLOOR FOR BASIN. EXCAVATE AS REQUIRED FOR TOP OF BASIN TO SIT FLUSH WITH FLOOR. FILL WITH COMPACTED STONE AROUND BASIN BELOW SLAB. RE-POUR AND PATCH FLOOR AROUND BASIN. COORDINATE EAST-WEST LOCATION OF SUMP WITH MECHANICAL CONTRACTORS PLANNED LOCATION OF THE CHILLED WATER PIPING ENTERING THE BUILDING. SUMP COVERED PUMP SHOULD BE CLEAR OF ALL CONFLICTS WITH THESE PIPES

(2) SUMP PUMP: PROVIDE LIBERTY PUMP 280 SERIES 1/2 HP SUBMERSIBLE EFFLUENT PUMP, OR OWNER APPROVED EQUAL. SEE SCHEDULE.

(3) 1-1/2" PUMPED DISCHARGE PIPING. RISE UP TIGHT TO WALL. PROVIDE ALL ANCHORS, SUPPORTS, HANGERS TO ROUTE PIPING FROM SUMP PIT TO SERVICE SINK IN ADJACENT MECHANICAL ROOM. ROUTE HORIZONTAL PIPING AT SIMILAR HEIGHTS AND PATH AS MECHANICAL PIPING BY MECHANICAL.

(4) 1-1/2" PUMPED DISCHARGE TO SERVICE SINK. SECURE TIGHT TO WALL. ROUTE PIPE +/- 6" ABOVE RIM ON SERVICE SINK ENSURE PROPER AIR GAP PER INDIANA PLUMBING CODE AND AHJ.



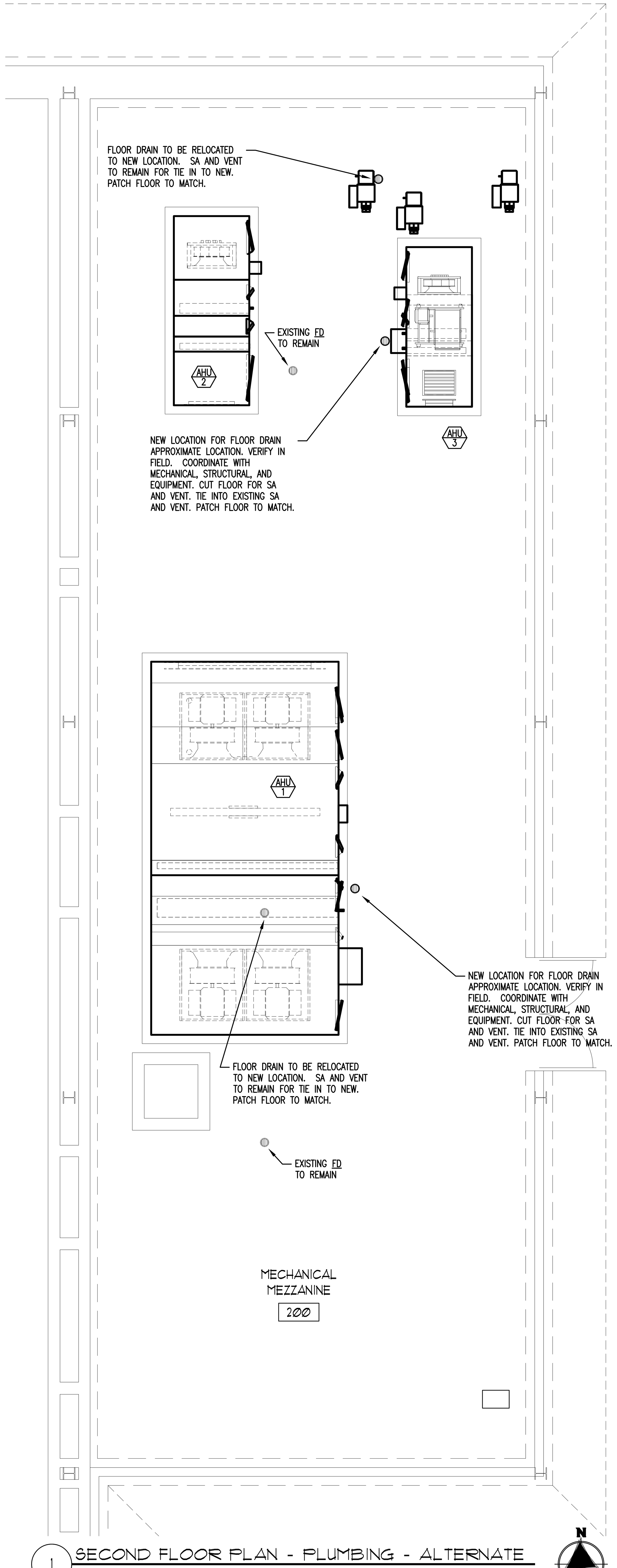
KEY PLAN
NOT TO SCALE

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL
1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

PARTIAL FIRST FLOOR PLAN - PLUMBING

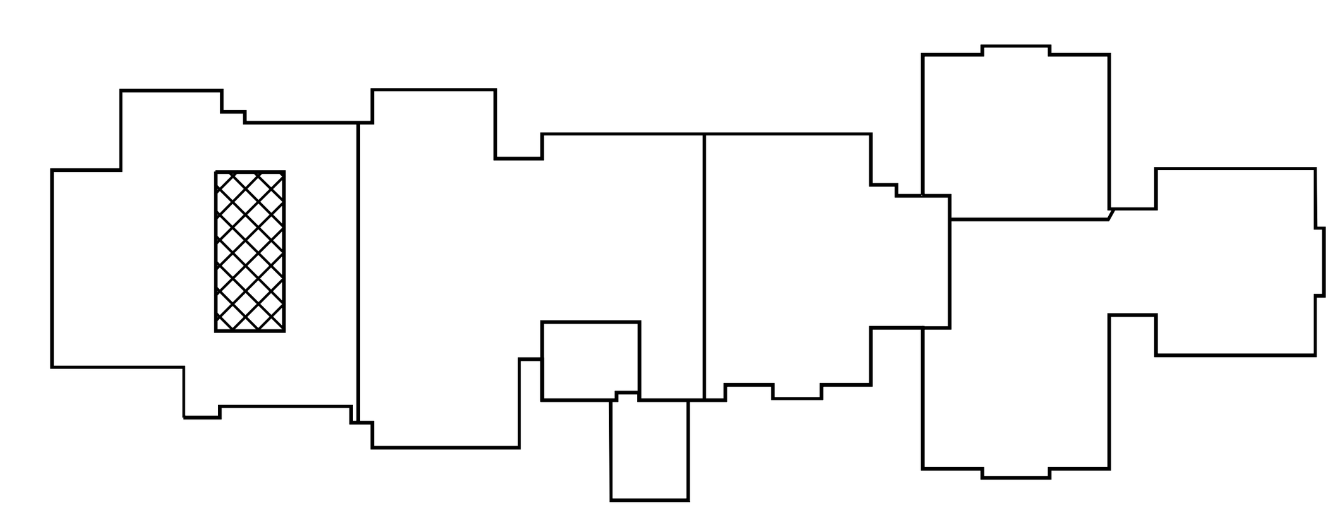
P1.12



1 SECOND FLOOR PLAN - PLUMBING - ALTERNATE
1/4" = 1'-0"

GENERAL NOTES

1. CONTRACTOR TO INSULATE ALL NEW PIPING AND CONNECTIONS PER INDIANA ENERGY CONSERVATION CODE.
2. ALL NEW DOMESTIC WATER PIPING TO BE DISINFECTED PER THE INDIANA PLUMBING CODE AND AHJ.
3. CONTRACTOR TO FIELD VERIFY LOCATION OF ALL SANITARY, VENT, AND WATER PIPING PRIOR TO WORK.
4. CONTRACTOR TO VERIFY NO CONDUIT OR PIPING ARE IN SAW CUT AREAS PRIOR TO SAW CUTTING FLOORS OR WALLS.
5. CONTRACTOR IS RESPONSIBLE FOR ANY CEILING, WALL, OR FLOOR REMOVAL / REPLACEMENT REQUIRED BY NEW WORK. PATCH TO MATCH.
6. CONTRACTOR IS RESPONSIBLE FOR ALL CUTTING, PATCHING, AND PAINTING FOR INSTALLATION OF NEW WORK. SEE ARCHITECTURAL FOR MORE INFORMATION.
7. ALL PLUMBING, NEW AND EXISTING, AFFECTED BY THIS WORK MUST BE COMPLIANT TO INDNANA PLUMBING CODE AND AHJ. IN THE EVENT OF CONFLICT BETWEEN CODES AND DRAWINGS, THE CODES SHALL BE FOLLOWED.
8. ALL NEW PIPING MUST BE COORDINATED WITH MECHANICAL, ELECTRICAL, FIRE PROTECTION, ARCHITECTURAL, STRUCTURAL, CIVIL, AND EQUIPMENT.
9. ENSURE NO DEAD ENDS REMAIN IN SANITARY, WATER, VENT SYSTEMS PER INDNANA PLUMBING CODE AND AHJ.
10. ALL PLUMBING VENT TERMINALS SHALL BE A MINIMUM OF 12'-0" AWAY FROM ANY INTAKE AS PER INDIANA PLUMBING CODE AND AHJ.



KEY PLAN
NOT TO SCALE

TRIA ARCHITECTURE

DUNELAND SCHOOL CORPORATION
2020 MECHANICAL RENOVATIONS AT:
WESTCHESTER INTERMEDIATE SCHOOL
1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

LARGE SCALE PLAN - PLUMBING - ALTERNATE

EXPIRES 07/31/2020

P2.20

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 12:01 PM FILE PATH AND NAME: P:\139-I-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\P\139-I-3 P2.20 WIS Plumbing
Large Scale Plans

PLUMBING SYMBOLS

NOTE: NOT ALL SYMBOLS SHOWN MAY BE REQUIRED FOR THIS PROJECT.

Symbol	Description
CW	COLD WATER SUPPLY
HW	HOT WATER SUPPLY
HWC	HOT WATER CIRCULATING
CPW	CITY PRESSURE COLD WATER
WM	WATER MAIN
SA	SUSPENDED SANITARY SEWER
ST	SUSPENDED STORM SEWER
SA	UNDERGROUND SANITARY SEWER
V	SUSPENDED VENT PIPING
PD	PUMPED DISCHARGE
	LINE ARROW INDICATES DIRECTION OF FLOW
PITCH	PITCH OF PIPE (DOWN)
	PIPE ELBOW (TURNED UP)
	PIPE ELBOW (TURNED DOWN)
	PIPE TEE DOWN (DROP)
	PIPE TEE UP TO FLOOR ABOVE (RISE)
	PIPE TEE UP OR ANGLE
	PIPE TEE DOWN OR ANGLE
	PIPE TEE HORIZONTAL
	90° ELBOW IN HORIZONTAL PIPE RUN
	ANGLE ELBOW IN HORIZONTAL PIPE RUN
NC	NEW CONNECTION
GV	GATE VALVE
CK	CHECK VALVE
BV	BALL VALVE
BF	BALANCING FITTING
CS	CIRCUIT BALANCING VALVE W/BALANCING PORTS
D	DRAIN VALVE WITH 3/4" HOSE THREADED OUTLET
EJ	PIPE EXPANSION JOINT
	PIPE ANCHOR
	PIPE FLEXIBLE CONNECTION
PG	PIPE ALIGNMENT GUIDE
PS	PIPE SLEEVE
UN	PIPE UNION
STR	STRAINER
	ECCENTRIC REDUCER OR INCREASER
PG	PRESSURE GAUGE AND NEEDLE VALVE
WT	WATER THERMOMETER (WITH PIPE WELL)
	THERMOMETER WELL
CO	CLEANOUT IN SUSPENDED CEILING
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN (ROUND)
HV	HOSE VALVE

P-1 — PLUMBING STACK No. / RISER DIAGRAM DRAWING No. — RISER DIAGRAM TAG

SUMP EJECTOR PUMP SCHEDULE

EQUIPMENT TAG	LOCATION	GPM @ FT. HD	MINIMUM SOLIDS SIZE	PUMP DISCHARGE	BASIN SIZE	MOTOR CHARACTERISTICS	MANUFACTURER AND MODEL NUMBER	NOTES
SUMP.EJ#1	MECHANICAL ROOM	20 @ 25	3/4"	1-1/2" SIMPLEX	36" DIA. 5'-0" MIN. DEPTH	1/2 H.P., 120V, 1 PHASE CONTROLS TYPE-B	LIBERTY 280 SERIES - MODEL 283 OR EQUAL	(1)(3)(4)(5)(6) (7)(8)(9)(11)

EJECTOR PUMP(S) SCHEDULE NOTES:

1. FLOAT OPERATING LEVELS ARE MEASURED FROM BASIN RIM TO ACTUATING LEVEL. VERIFY LEVEL ELEVATIONS AND INLET ELEVATIONS WITH FIELD CONDITIONS PRIOR TO ORDERING BASINS.
2. PROVIDE WITH EXTRA CONTACTS FOR REMOTE ANNUNCIATION OF HIGH WATER ALARM.
3. PROVIDE TYPE-B PERFORATED STEEL COVER WITH PUMP DISCHARGE FLANGE.
4. PROVIDE COVER CUP FLANGE ON BASIN FOR FLUSH WITH FLOOR MOUNTING OF COVER. PROVIDE CONCRETE ANCHOR FLANGE 5" BELOW COVER FLANGE.
6. PROVIDE CONCRETE ANCHOR FLANGES 5" BELOW COVER FLANGE AND AT BOTTOM.
7. PROVIDE LINE SIZED BALL/GATE AND CHECK VALVES ON DISCHARGE AND CONNECT TO PUMP DISCHARGE.
8. PROVIDE WITH FRP - PVC SETTLING BASIN OF SAME SIZE.
9. FINAL DEPTH OF BASIN TO BE DETERMINED IN FIELD BY CONTRACTOR. BASIN BOTTOM TO BE MINIMUM OF 5'-0" BELOW FINISHED FLOOR HEIGHT.
10. PUMP SYSTEM MAY REQUIRE A DEEPER BASIN THEN THE STANDARD MODEL OFFERED. SEE MANUFACTURER SPECIFICATIONS.
11. LIBERTY 208 SERIES - MODEL # 283 WITH AUTOMATIC PIGGY BACK FLOAT SWITCH.

GENERAL NOTES - ALL CONTRACTORS

A. DRAWINGS ARE GENERALLY DIAGRAMMATIC. ROUTING OF PIPING, DUCTWORK, CONDUITS, RACEWAYS, ETC., AS SHOWN ON DRAWINGS, DOES NOT INTEND TO SHOW EVERY RISE, DROP, OFFSET, FITTING, NOR EVERY STRUCTURAL ELEMENT THAT MAY BE ENCOUNTERED DURING THE INSTALLATION OF THIS WORK. EACH CONTRACTOR SHALL MAKE ANY REQUIRED CHANGES FROM THE GENERAL ROUTING SHOWN ON THESE DRAWINGS, SUCH AS OFFSETS, BENDS OR CHANGES IN ELEVATION DUE TO COORDINATION WITH THE WORK OF OTHER TRADES AND BUILDING CONSTRUCTION. ALL CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TOT HE OWNER OR DELAY IN COMPLETION DATE OF THE PROJECT.

B. IT IS INTENDED THAT EQUIPMENT SHALL BE LOCATED SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS OF THE BUILDING, NOTWITHSTANDING THE FACT THAT LOCATIONS INDICATED BY THESE DRAWINGS MAY BE DISTORTED FOR CLEARNESS OF PRESENTATION.

C. CONTRACTOR SHALL CHECK DRAWINGS OF OTHER TRADES TO VERIFY THAT SPACES IN WHICH THEIR WORK WILL BE INSTALLED ARE CLEAR OF OBSTRUCTIONS. WORK SHALL BE INSTALLED TO MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITION AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION OF THEIR WORK.

D. CONTRACTOR SHALL FURNISH OTHER TRADES ADVANCE INFORMATION AND/OR SHOP DRAWINGS ON LOCATIONS AND SIZES OF PIPING, DUCTWORK, CONDUIT, RACEWAYS, EQUIPMENT, FRAMES, BOXES, SLEEVES AND OPENINGS, ETC. NEEDED FOR THEIR WORK TO PERMIT OTHER TRADES AFFECTED TO INSTALL THEIR WORK PROPERLY AND WITHOUT DELAY.

E. WHERE THERE IS EVIDENCE THAT WORK OF ONE TRADE WILL INTERFERE WITH WORK OF OTHER TRADES, ALL TRADES SHALL MEET ON JOB SITE TO WORK OUT SPACE CONDITIONS AND MAKE SATISFACTORY ADJUSTMENTS TO INSTALLATION OF THE NEW WORK. CONTRACTORS SHALL VERIFY EXACT LOCATIONS OF ALL DEVICES AND EQUIPMENT WITH FIELD CONDITIONS, SHOP DRAWINGS, AND WORK OF OTHER TRADES PRIOR TO ROUGH-IN. EACH CONTRACTOR SHALL BE RESPONSIBLE, AT THEIR OWN EXPENSE, FOR THE REMOVAL AND REINSTALLATION OF ANY PART OF THEIR WORK IF SAME WAS INSTALLED WITHOUT CONSULTING WITH OTHER TRADES BEFORE INSTALLING THEIR WORK.

F. CONTRACTOR SHALL PROVIDE SLEEVES IN BEAMS, FLOORS, COLUMNS AND WALLS AS SHOWN ON THE DRAWINGS, AS REQUIRED BY JOB SITE CONDITIONS, AND/OR AS SPECIFIED, WHEN INSTALLING THEIR WORK. ALL BEAMS AND COLUMNS WHICH ARE REQUIRED TO BE SLEEVED SHALL BE CUT AND REINFORCED AS REQUIRED BY FIELD CONDITIONS AND LOCATIONS AND SIZES SHALL BE CHECKED AND APPROVED BY ARCHITECT BEFORE CONTRACTOR CUTS AND STRUCTURAL BUILDING MEMBER.

G. THE SEQUENCE FOR THE INSTALLATION OF ALL WORK SHALL BE COORDINATED BETWEEN ALL CONTRACTORS ON THE PROJECT AND IN STRICT ACCORDANCE WITH ARCHITECT/ENGINEER AND OWNERS STIPULATION AS CALLED FOR IN THE SPECIFICATION AND/OR AS DIRECTED.

H. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL AND STRUCTURAL CONTRACT DRAWINGS (BEFORE SUBMITTING THEIR BIDS) TO FAMILIARIZE THEMSELVES WITH THE EXTENT OF THE GENERAL CONTRACTORS WORK, CEILING HEIGHTS AND CLEARANCE FOR INSTALLING THEIR WORK.

I. CONTRACTOR SHALL BE RESPONSIBLE AND PAY FOR ALL CORING, CUTTING, PATCHING, REPAIRING, REFINISHING AND REMOVAL/REPLACEMENT OF NEW OR EXISTING BUILDING CONSTRUCTION REQUIRED TO ACCOMMODATE THE INSTALLATION OR REMOVAL OF THEIR WORK. ALL PATCHING, REPAIRING AND REFINISHING WORK SHALL BE PERFORMED BY THOSE REGULARLY INVOLVED IN THAT TRADE AND SHALL MATCH THE ADJACENT CONSTRUCTION AS CLOSELY AS POSSIBLE. CARE SHALL BE TAKEN SO AS NOT TO DAMAGE ANY EXISTING BUILDING CONSTRUCTION OR ITEMS THAT ARE TO REMAIN. ANY EXISTING BUILDING CONSTRUCTION OR ITEMS THAT ARE TO REMAIN. ANY EXISTING FINISHES THAT ARE DAMAGED DURING THE INSTALLATION OF NEW WORK OR REMOVAL OF EXISTING WORK SHALL BE REPAIRED, REPLACED AND PAID FOR BY THE INSTALLING CONTRACTOR, TO THE SATISFACTION OF THE ARCHITECT AND OWNER. REFER TO ARCHITECTURAL DRAWINGS FOR EXISTING BUILDING CONSTRUCTION THAT IS TO REMAIN AND, THEREFORE, SUBJECT TO PATCHING, REPAIRING, REFINISHING, AND REMOVAL/REPLACEMENT.

J. SOME OF THE EXISTING ITEMS AND EQUIPMENT SCHEDULED TO BE REMOVED SHALL BE TURNED OVER TO THE OWNER. ANY ITEMS THAT THE OWNER WANTS TO RETAIN SHALL BE REMOVED CAREFULLY SO AS NOT TO DAMAGE THEM. ALL OTHER ITEMS TO BE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND REMOVED FROM THE SITE.

K. CONTRACTOR SHALL BE RESPONSIBLE FOR THEIR OWN CLEAN-UP DURING CONSTRUCTION. IF CONTRACTOR FAILS TO PROVIDE SUCH CLEAN-UP, THE ARCHITECT/ENGINEER WILL DIRECT ANOTHER CONTRACTOR TO PERFORM THE CLEAN-UP AND THE NEGLIGENT CONTRACTOR SHALL PAY THE ASSOCIATED BACK-CHARGES AS DEEMED APPROPRIATE BY THE ARCHITECT/ENGINEER.

L. CONTRACTOR SHALL INSTALL ALL AUXILIARY SUPPORTING STEEL AS REQUIRED FOR THE SUPPORTING OF THEIR PIPING, DUCTWORK, CONDUIT, TANKS, EQUIPMENT, ETC. ALL SUPPORTING STEEL FOR ITEMS ABOVE A SUSPENDED CEILING SHALL BE FROM BUILDING STRUCTURAL MEMBERS ONLY.

M. IT IS MANDATORY THAT THE COMPLETE EXISTING BUILDING REMAIN IN CONTINUOUS AND NON-INTERRUPTED OPERATION DURING REMODELING/ALTERING OF SAID EXISTING BUILDING. THE SPECIFIC AREA(S) BEING REMODELED/ALTERED AT ANY SCHEDULED TIME ARE OBVIOUSLY EXCLUSIVE OF THIS STATEMENT. SERVICES TO EXISTING BUILDING SHALL BE KEPT IN CONTINUOUS OPERATION INCLUDING POWER, SIGNAL SYSTEMS, LIGHTING, TELEPHONE, HEATING, COOLING, VENTILATING, TEMPERATURE CONTROL, SEWERS AND HOT AND COLD WATER. ANY ABSOLUTELY NECESSARY INTERRUPTION OF THESE SERVICES TO ACCOMPLISH CONTRACT WORK SHALL BE ARRANGED THROUGH THE ARCHITECT WITH THE OWNER A MINIMUM OF TEN (10) WORKING DAYS IN ADVANCE. SUCH INTERRUPTIONS SHALL BE KEPT TO AN ABSOLUTE MINIMUM AS FAR AS TIME INTERVAL IS INVOLVED AND TEMPORARY SERVICES SHALL BE FURNISHED AND INSTALLED UNDER THIS CONTRACT WHERE NECESSARY TO ACCOMPLISH THIS PURPOSE. TEMPORARIES SHALL BE REMOVED BY THE CONTRACTOR ONLY AFTER NEW PERMANENT SERVICES ARE INSTALLED AND FULLY OPERATIONAL.

N. UNLESS INDICATED OTHERWISE, THE ARCHITECT/ENGINEER MAKES NO REPRESENTATION AS TO WHETHER OR NOT ANY HAZARDOUS OR CONTAMINATED MATERIALS (INCLUDING BUT NOT LIMITED TO ASBESTOS, PCB'S, CONTAMINATED SOILS, ETC.) ARE PRESENT WITHIN THE EXISTING BUILDING OR ON THE SITE. WORK SHOWN ON THE DRAWINGS AND/OR INDICATED IN THE SPECIFICATIONS SHALL NOT BE CONSTRUED TO CALL FOR CONTACT WITH ANY OF THESE MATERIALS. IF THESE MATERIALS ARE ENCOUNTERED OR SUSPECTED, THE CONTRACTOR SHALL NOT DISTURB THEM AND SHALL CONTACT THE ARCHITECT/ENGINEER IMMEDIATELY.

O. CONTRACTOR SHALL STORE ALL MATERIALS AND EQUIPMENT SHIPPED TO THE SITE IN A PROTECTED AREA. IF MATERIAL IS STORED OUTSIDE OF THE BUILDING, IT MUST BE STORED OFF THE GROUND A MINIMUM OF SIX INCHES (6") SET ON 6 X 6 PLANKS AND/OR WOOD PALLETS. ALL MATERIAL AND EQUIPMENT MUST BE COMPLETELY COVERED WITH WATERPROOF TARPS OR VISQUIN. ALL PIPING AND DUCTWORK WILL HAVE THE ENDS CLOSED TO KEEP OUT DIRT AND OTHER DEBRIS. NO EQUIPMENT WILL BE ALLOWED TO BE STORED ON THE SITE UNLESS IT IS SITTING ON WOOD PLANKS AND COMPLETELY PROTECTED WITH WEATHERPROOF COVERS.

P. THE DRAWINGS, SCHEDULES AND SPECIFICATIONS HAVE BEEN PREPARED USING ONE MANUFACTURER FOR EACH PIECE OF EQUIPMENT AS THE BASIS FOR DIMENSIONAL DESIGN. IF THE CONTRACTOR PURCHASES EQUIPMENT LISTED AS A SPECIFIED ACCEPTABLE MANUFACTURER BUT IS NOT THE SCHEDULED MANUFACTURER USED FOR THE BASE DESIGN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING ALL THE DIMENSIONS OF THE EQUIPMENT TO VERIFY THAT IT WILL FIT IN THE SPACE SHOWN ON THE DRAWINGS. MINOR DEVIATIONS IN DIMENSIONS WILL BE PERMITTED, PROVIDED THE RATINGS MEET THOSE SHOWN ON THE DRAWINGS AND EQUIPMENT WILL PHYSICALLY FIT INTO THE SPACE ALLOCATED WITH SUITABLE ACCESS AROUND EQUIPMENT FOR OPERATION AND MAINTENANCE ON THE EQUIPMENT.

Q. CONTRACTOR AND/OR MANUFACTURER SHALL VERIFY THAT THE CHARACTERISTICS OF THE EQUIPMENT HE SUBMITS FOR REVIEW MEETS THE CAPACITY AND DUTY SPECIFIED.

R. WHEN EQUIPMENT IS SUBMITTED FOR REVIEW AND DOES NOT MEET THE PHYSICAL SIZE OR ARRANGEMENT OF THAT SCHEDULED AND SPECIFIED, CONTRACTOR SHALL PAY FOR ALL ALTERATIONS REQUIRED TO ACCOMMODATE SUCH EQUIPMENT AT NO ADDITIONAL COST TO OWNER. CONTRACTOR WILL ALSO PAY ALL COSTS FOR ADDITIONAL WORK REQUIRED BY OTHER CONTRACTORS, OWNER, ARCHITECT OR ENGINEER TO MAKE CHANGES WHICH WOULD ALLOW THE EQUIPMENT TO FIT IN THE SPACE AND FUNCTION AS INTENDED.

S. CONTRACTOR SHALL FIELD VERIFY THE SIZE OF EXISTING OPENINGS, WINDOWS, DOORS, CORRIDORS, ROOMS, ETC. FOR ACCESS OF THE NEW EQUIPMENT INTO OR REMOVAL OF EXISTING EQUIPMENT FROM THE BUILDING. IF OPENINGS ARE TOO SMALL FOR ACCESS THEN CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROVIDE NEW OR ENLARGED OPENINGS AND RESTORE SAME TO ORIGINAL SIZE AND CONDITION. CONTRACTOR MAY ELECT TO ORDER THE EQUIPMENT DISASSEMBLED AND/OR WITH SPLIT HOUSING FOR ENTRANCE INTO THE EXISTING SPACE OR BUILDING. CONTRACTOR SHALL REASSEMBLE EQUIPMENT AFTER IT IS IN THE SPACE AT HIS OWN EXPENSE.

GENERAL NOTES - PLUMBING

A. ALL WATER SUPPLY AND RETURN PIPING SHALL BE SUSPENDED WITH CLEVIS AND/OR TRAPEZE PIPE HANGERS. INSULATED PIPING SHALL REST ON STEEL OR WOOD. PIPE COVERING PROTECTION SADDLES OR SHEET METAL INSULATION SHIELDS AS CALLED FOR IN THE SPECIFICATIONS AND/OR DETAILED ON THE DRAWING.

B. ALL WATER SUPPLY AND RETURN PIPING SHALL BE INSULATED, INCLUDING ALL PIPING ABOVE CEILINGS, INSIDE EQUIPMENT, CABINETS, PIPE CHASES AND IN WALLS. SEE SPECIFICATIONS FOR TYPE AND THICKNESS OF INSULATION.

C. ALL HOT WATER SUPPLY AND RECIRCULATING PIPING SHALL BE INSTALLED TO COMPENSATE FOR EXPANSION OF THE PIPE BY INSTALLING PIPE ANCHORS, GUIDES, EXPANSION JOINTS OR LOOPS AND PIPE OFFSETS AS REQUIRED BY FIELD CONDITIONS OR AS SHOWN ON THE DRAWINGS.

D. ALL PIPING PASSING THRU FLOOR CONSTRUCTION SHALL HAVE A SCHEDULE 40 STEEL PIPE SLEEVE INSTALLED AROUND PIPE ONLY. ALL PIPE PASSING THRU WALLS SHALL HAVE A GALVANIZED SHEET METAL OR SCHEDULE 40 STEEL SLEEVE INSTALLED AROUND THE PIPE AND PIPE INSULATION. SEE SLEEVE DETAILS THESE DRAWINGS.

E. PITCH ALL SUPPLY AND RETURN WATER LINES TO DRAIN COMPLETELY THROUGH LOWER EQUIPMENT FIXTURES, UNIONS, OR DRAIN VALVES. INSTALL A 1/2" DRAIN VALVE WITH 3/4" HOSE THREAD AND VACUUM BREAKER OUTLET IN ALL MAIN PIPING RUNS WHICH WOULD NOT BE ABLE TO DRAIN THRU A LOWER PIECE OF EQUIPMENT.

F. ALL VENT AND WASTE PIPING SIZES ARE MINIMUM. ADDITIONAL VENTS SHALL BE ADDED AND/OR PIPE SIZE INCREASED AS REQUIRED BY APPLICABLE CODES, STATUTES AND REGULATIONS, ETC. WITHOUT ADDITIONAL COST TO THE OWNER.

G. UNUSED OPENINGS IN SEWERS, MANHOLES, ETC. SHALL BE CAPPED; THOSE IN PIPING SHALL BE CAPPED OR PLUGGED; STRUCTURAL MEMBERS AND SUPPORTS SHALL NOT BE CUT UNLESS AUTHORIZED BY ARCHITECT IN WRITING.

H. CERTAIN ABBREVIATIONS OR SYMBOLS, WHEN APPLIED TO PRESENT (OR EXISTING) LINE, DEVICE OR EQUIPMENT, SHALL HAVE THE FOLLOWING MEANINGS.

NC NEW CONNECTION TO PRESENT PIPING, DEVICE, MANHOLE, SEWER, DUCT, WIRING, EQUIPMENT, ETC. INSTALL, TEST, COVER, PAINT, ETC. SAME AS NEW WORK. IF IN SEWER MANHOLE, PROVIDE FLOW CHANNEL IN BOTTOM.

VL VERIFY EXACT LOCATION, SIZE, INVERT, ETC. IN FIELD. THIS NOTE APPLIES TO ALL PRESENT OR EXISTING UTILITIES AND CONSTRUCTION WHETHER CALLED FOR OR NOT.

PLUMBING ABBREVIATIONS

NOTE: NOT ALL ABBREVIATIONS SHOWN MAY BE REQUIRED FOR THIS PROJECT.

AC	ABOVE CEILING	PRV	PRESSURE RELIEF VALVE
BV	BALL VALVE	PS	PIPE SLEEVE
BBA	BETWEEN BEAMS ABOVE	RCO	RISER CLEANOUT
BFP	BACKFLOW PREVENTER	SH	SHOWER
BF	BALANCING FITTING	SK	SINK
CI	CAST IRON	SS	SERVICE SINK
CIU	CAST IRON PIPE UNDERGROUND	SSR	SERVICE SINK RECEPTOR
CK	CHECK VALVE	TB	THRUST BLOCK
CO	CLEANOUT	TFA	TO FLOOR ABOVE
CTB	CLOSE TO BOTTOM OF BEAM	TFB	TO FLOOR BELOW
CTC	CLOSE TO CEILING	TMV	THERMOSTATIC MIXING VALVE
DF	DRINKING FOUNTAIN	UR	URINAL
DIP	DUCTILE IRON PIPE	UV	UNDERFLOOR VENT
EWC	ELECTRIC WATER COOLER	V42"	VENT LINE RUN OR CONNECTED ABOVE FLOOR BY 42"
FBO	FURNISHED BY OTHERS	VB	VACUUM BREAKER
FCO	FLOOR CLEANOUT	VTR	VENT THROUGH ROOF
FFA	FROM FLOOR ABOVE	W	WASTE
FFB	FROM FLOOR BELOW	WC	WATER CLOSET
GV	GATE VALVE	WCO	WALL CLEANOUT
HV	HOSE VALVE	WH	WALL HYDRANT
INV.	INVERT ELEVATION	WT	WATER THERMOMETER
LAV	LAVATORY	YCO	YARD CLEANOUT
OSD	OPEN SITE DRAIN		

TRIA ARCHITECTURE

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STRUCTURAL CONSULTANT: Larson Engineering, Inc. 1488 BOND STREET, SUITE 100 NAPERVILLE, ILLINOIS 60563-6503 ILLINOIS LICENSE NO 184-001442 LEI COMM. NO 21160576.000 (P) 630.357.0540 (F) 630.357.0464

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

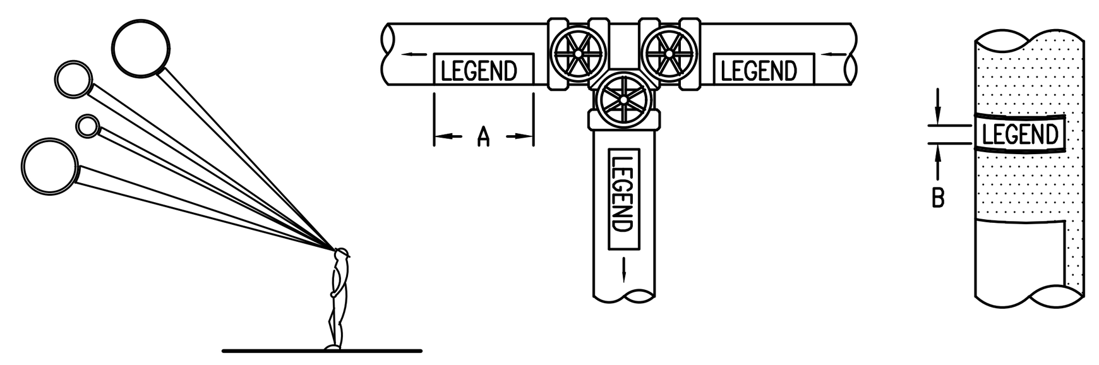
DUNELAND SCHOOL CORPORATION Chesterton, Indiana

PROJECT NUMBER: 19-0592
PROJECT MANAGER: MG
DRAWN BY: OAS
ISSUED FOR BID: 01/07/2020
REVISIONS: 1 2 3 4 5

ABBREVIATIONS, NOTES, AND SYMBOLS - PLUMBING

KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER EXPIRES 07/31/2020

P3.01



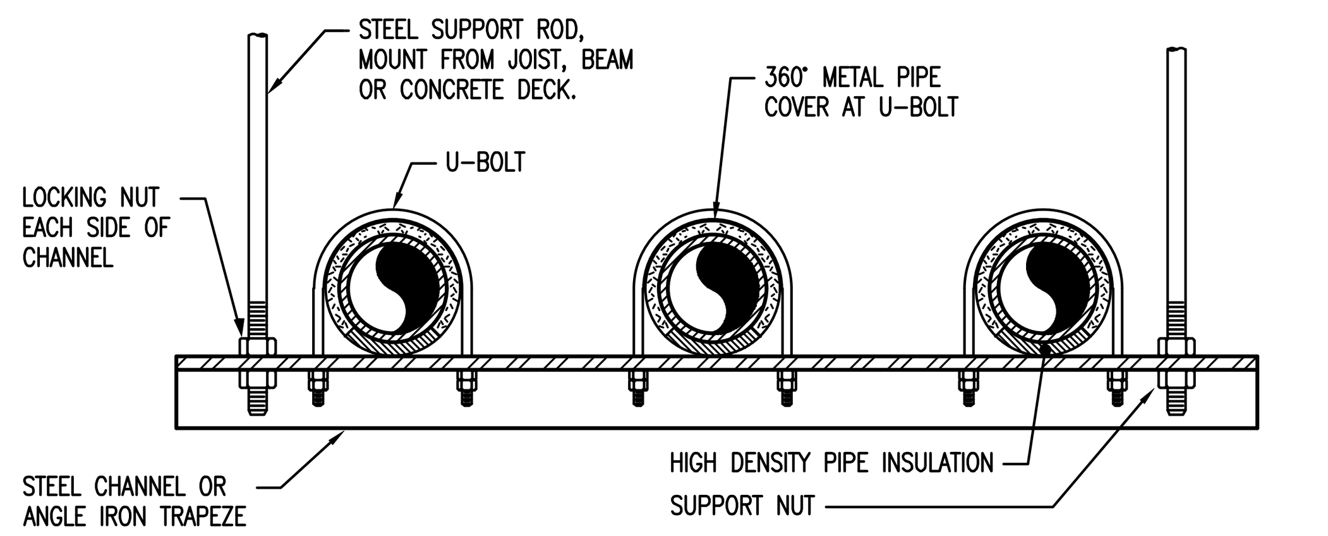
NOTE:
IDENTIFICATION MARKERS OR STRIPS TO BE PLACED ON ALL EXPOSED COVERED AND UNCOVERED PIPES AT 50'-0" INTERVALS AND AT ALL VALVES AND BRANCHES AND ON BOTH SIDES OF WALLS WHERE PIPES PASS THROUGH SAME. ARROWS OF SAME COLOR AS IDENTIFICATION MARKERS SHALL ALSO BE PLACED ON PIPES POINTING AWAY FROM MARKER INDICATING DIRECTION OF FLOW.

SIZE OF LEGEND LETTERS

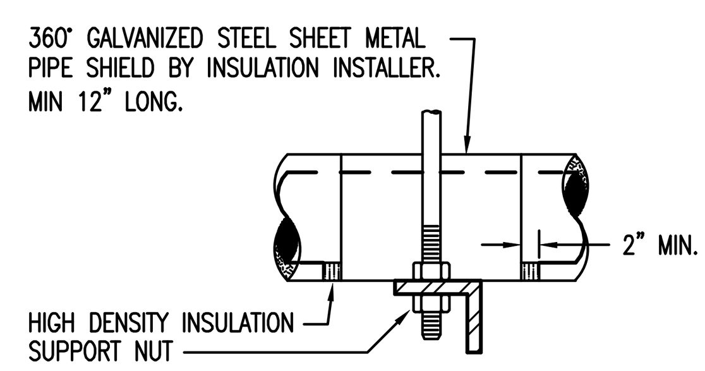
OUTSIDE DIAMETER OF PIPE OR COVERING	LENGTH OF COLOR FIELD A	SIZE OF LETTERS B
3/4" TO 1-1/4"	8"	1/2"
1-1/2" TO 2"	8"	3/4"
2"-1/2" TO 6"	12"	1-1/4"
8" TO 10"	24"	2-1/2"
OVER 10"	32"	3-1/2"

SERVICE	BACKGROUND OR COLOR BAND	IDENTIFICATION MARKER
CITY WATER	GREEN	WHITE ON GREEN
DOMESTIC COLD WATER	GREEN	WHITE ON GREEN
DOMESTIC HOT WATER	YELLOW	BLACK ON YELLOW
FIRE PROTECTION (SPRINKLER)	RED	WHITE ON RED
NATURAL GAS	YELLOW	BLACK ON YELLOW
SANITARY DRAIN	GREEN	WHITE ON GREEN
STORM WATER	GREEN	WHITE ON GREEN

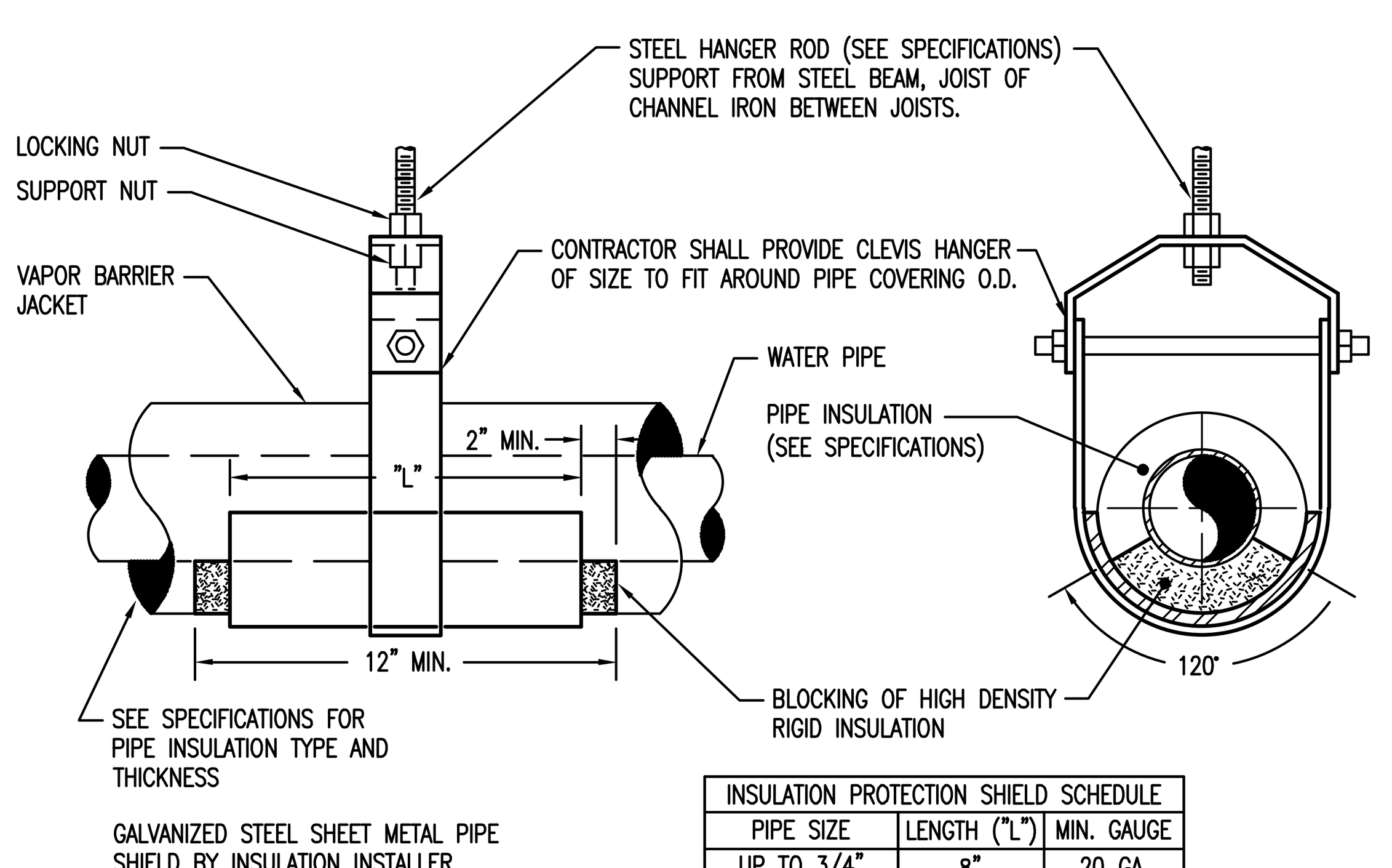
1 / P4.01 **TYPICAL PIPE IDENTIFICATION MARKERS**
NO SCALE



INSULATION PROTECTION SHIELD SCHEDULE		
PIPE SIZE	LENGTH ("L")	MIN. GAUGE
UP TO 3"	12"	18 GA.
4"	12"	16 GA.
5" & 6"	18"	16 GA.
8" AND UP	24"	14 GA.

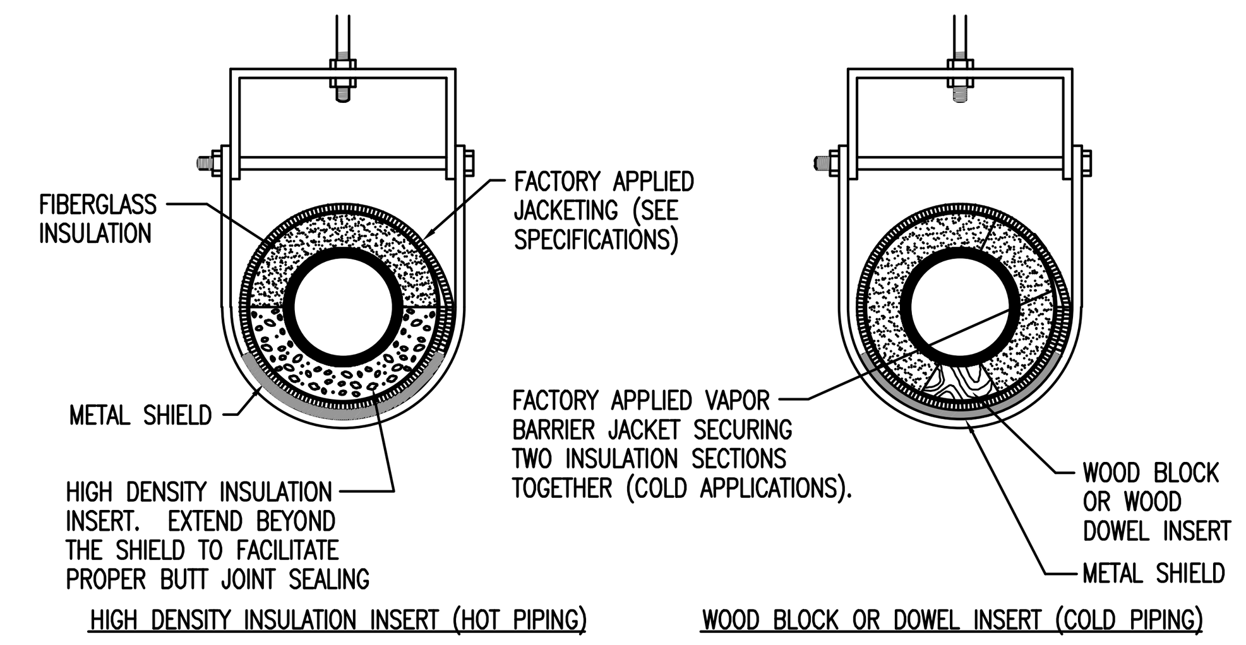


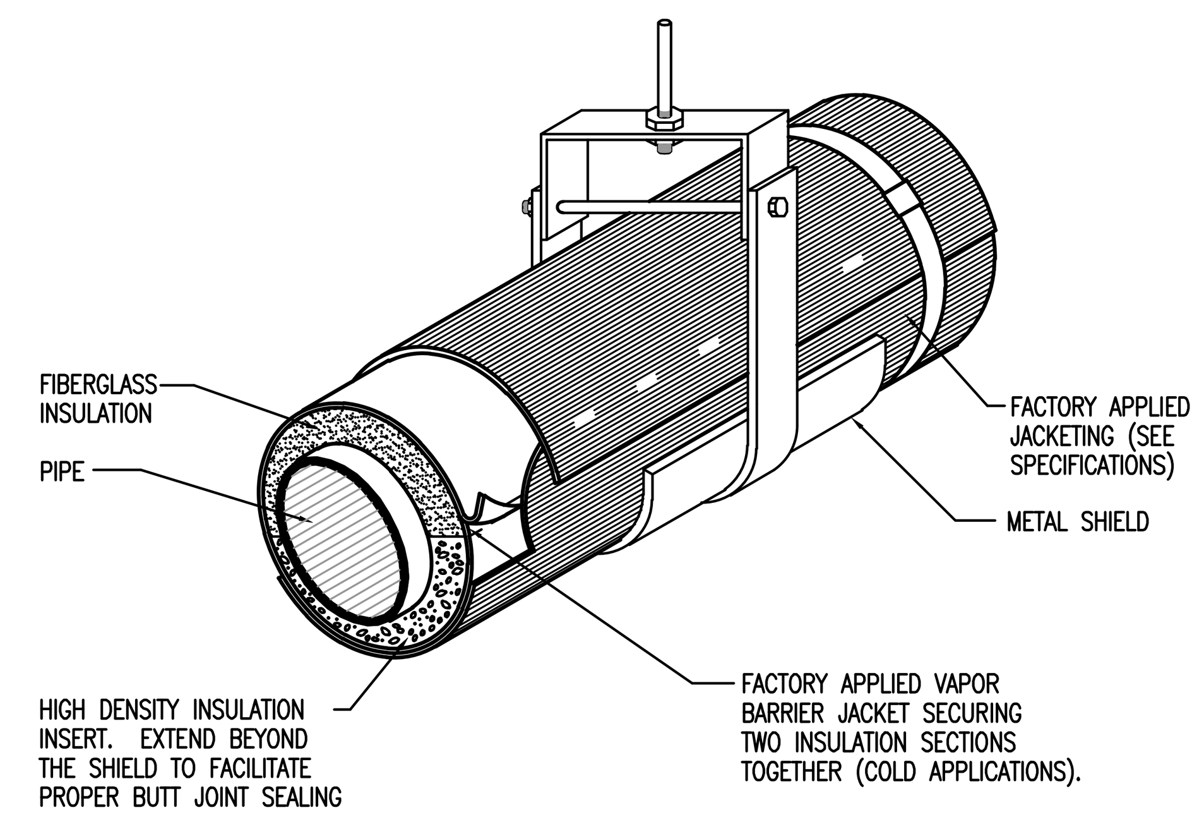
2 / P4.01 **PIPE COVERING PROTECTION SHIELDS AND TRAPEZE HANGER DETAIL**



INSULATION PROTECTION SHIELD SCHEDULE		
PIPE SIZE	LENGTH ("L")	MIN. GAUGE
UP TO 3/4"	8"	20 GA.
1" TO 2"	12"	18 GA.
2-1/2" TO 4"	12"	16 GA.
5" TO 6"	18"	16 GA.
8" AND UP	24"	14 GA.

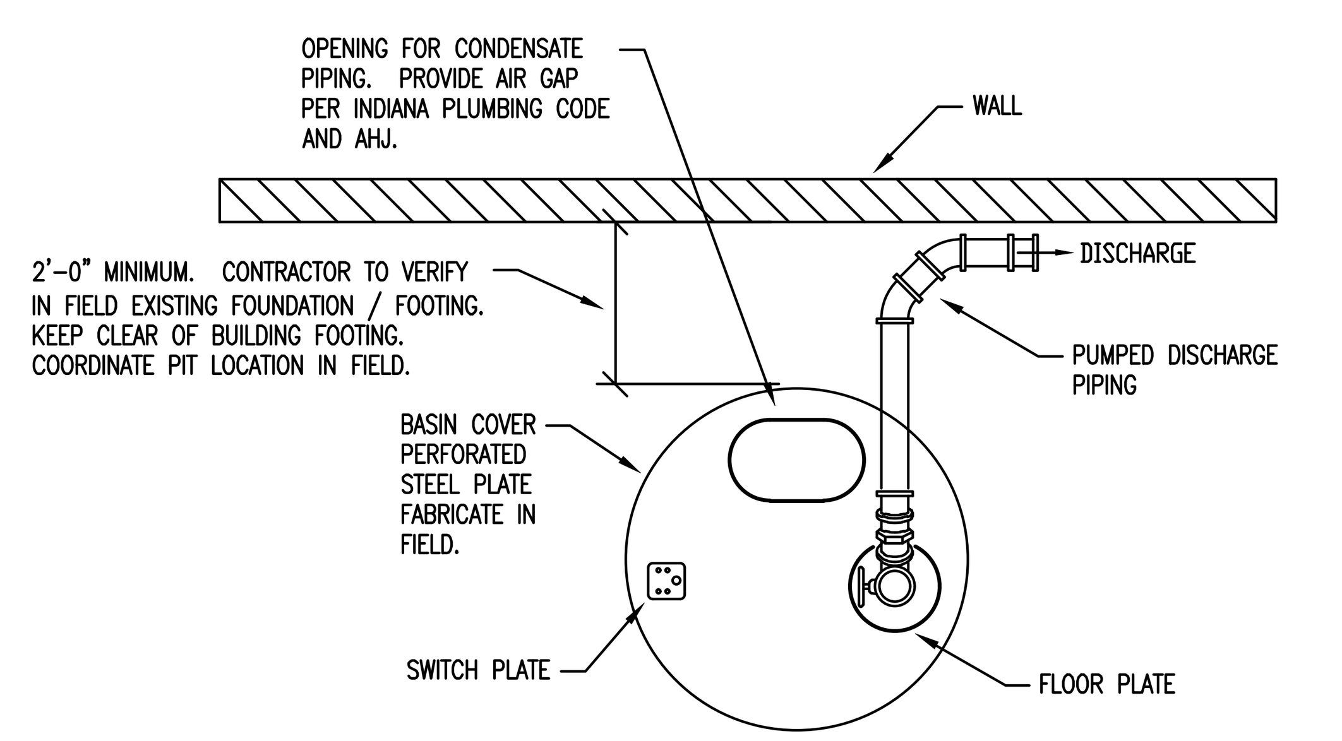
3 / P4.01 **PIPE COVERING PROTECTION SHIELDS AND CLEVIS HANGER DETAIL**
NO SCALE

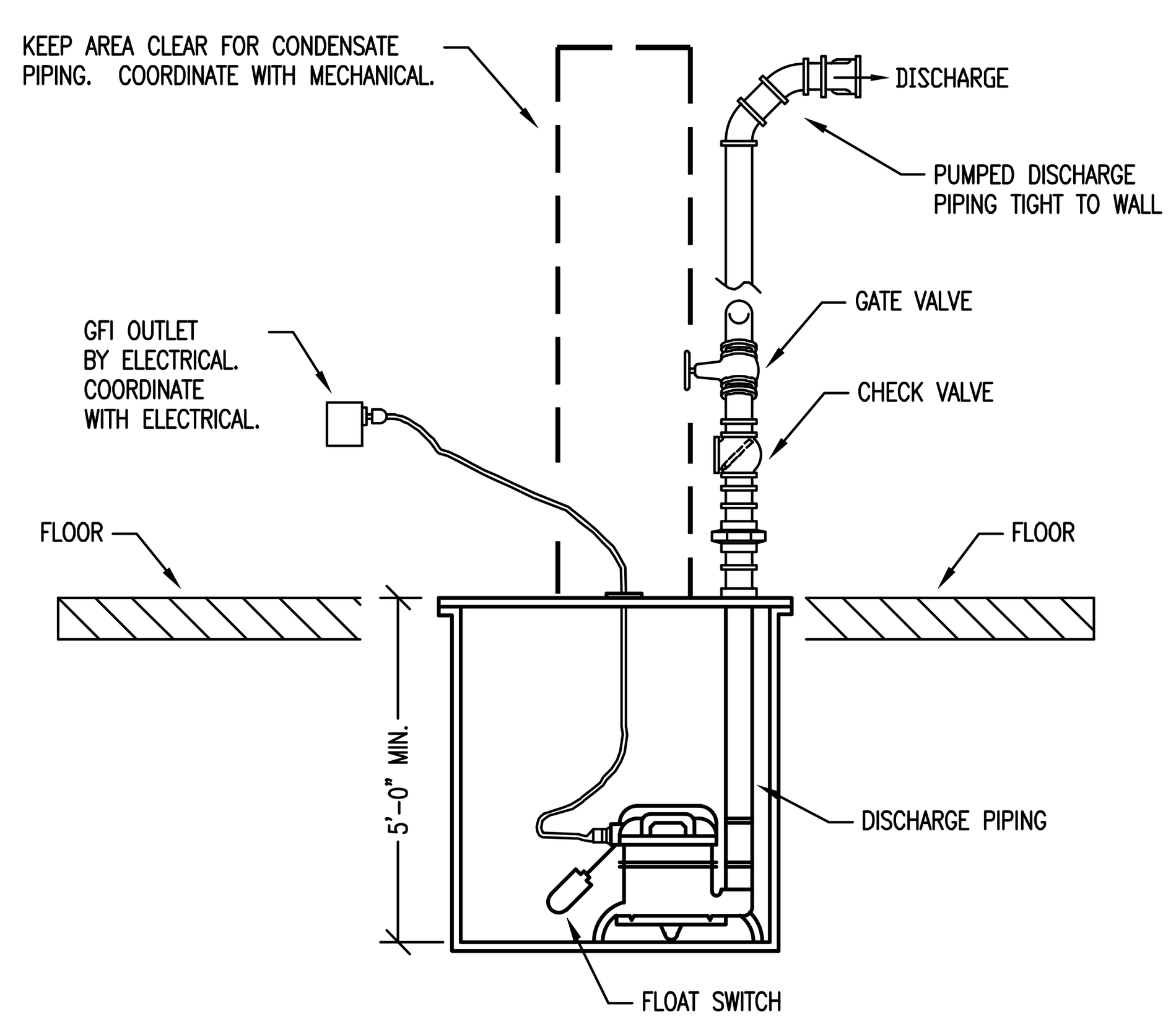




4 / P4.01 **CLEVIS HANGER HIGH DENSITY INSERT DETAIL**
NO SCALE

NOTE:
NO HORIZONTAL PIPE HANGERS TO BE SPACED FURTHER THAN 10'-0" APART.





5 / P4.01 **SUMP PUMP PIPING DETAIL (TYP.)**
NO SCALE

NOTE: COORDINATE SUMP BASIN, SUMP PUMP, PIPING AND CONTROLS IN FIELD. COORDINATE WITH MECHANICAL, ELECTRICAL, ARCHITECTURAL, STRUCTURAL, AND EQUIPMENT. INSTALL PER MANUFACTURERS SPECIFICATIONS AND INSTRUCTIONS. ENSURE COMPLIANCE TO INDIANA PLUMBING CODE AND AHJ. CONTRACTOR TO VERIFY LOCATION AND DEPTH OF EXISTING EXTERIOR WALL FOUNDATION FOOTING.

TRIA ARCHITECTURE

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DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

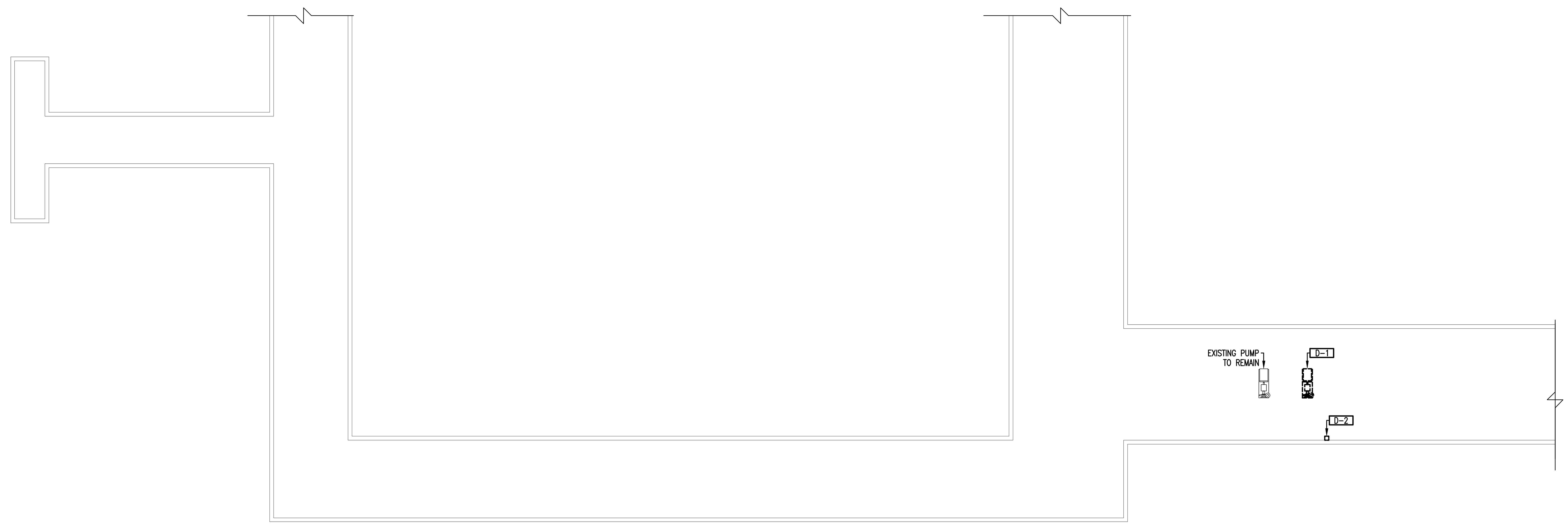
DUNELAND SCHOOL CORPORATION Chesterton, Indiana

PROJECT NUMBER: 19-0592
PROJECT MANAGER: MG
DRAWN BY: OAS
ISSUED FOR BID: 01/07/2020
REVISIONS: 1 2 3 4 5

DETAILS - PLUMBING

KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

P4.01

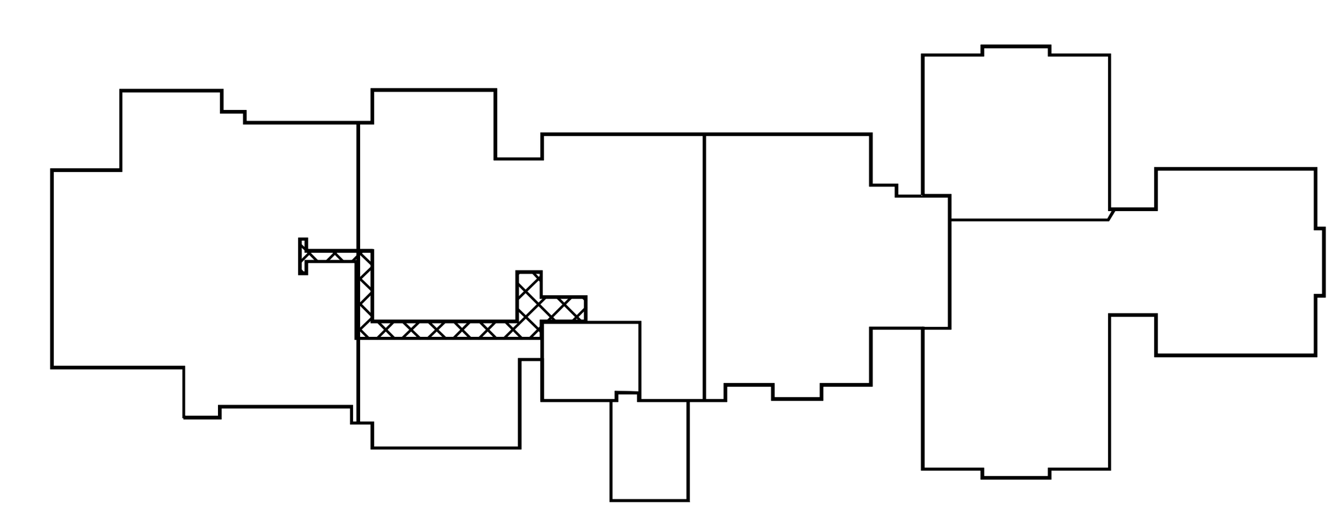


1 EXISTING TUNNEL PLAN - ELECTRICAL - ALTERNATE
1/8" = 1'-0"

ELECTRICAL DEMOLITION NOTES:

D-1 DISCONNECT AND REMOVE ELECTRICAL CONNECTION FROM EXISTING PUMP. REMOVE WIRING BACK TO SOURCE. REMOVE ACCESSIBLE CONDUIT BACK TO SOURCE. INACCESSIBLE CONDUIT MAY BE ABANDONED, BUT MUST BE CAPPED.

D-2 DISCONNECT AND REMOVE EXISTING STARTER/DISCONNECT. REMOVE WIRING AND CONDUIT AS DIRECTED IN PUMP NOTE ABOVE.



KEY PLAN
NOT TO SCALE

TRIA ARCHITECTURE

Larson Engineering, Inc. STRUCTURAL CONSULTANT

M.E.P.F.P. CONSULTANT

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

PROJECT NUMBER:	19-0592
PROJECT MANAGER:	MG
DRAWN BY:	OAS
ISSUED FOR BID:	01/07/2020

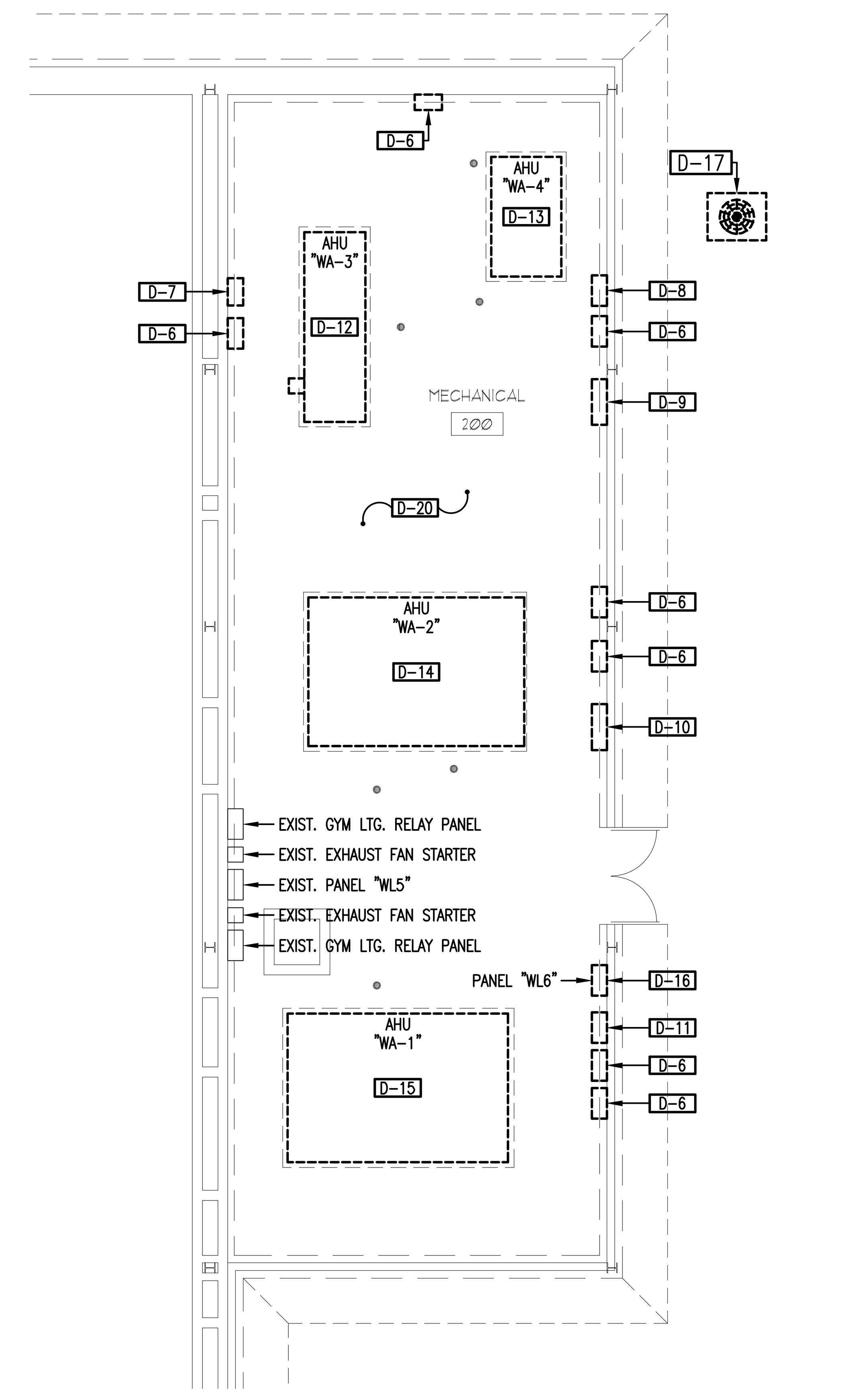
REVISIONS: 1 2 3 4 5

EXISTING TUNNEL PLAN - ELECTRICAL- ALTERNATE

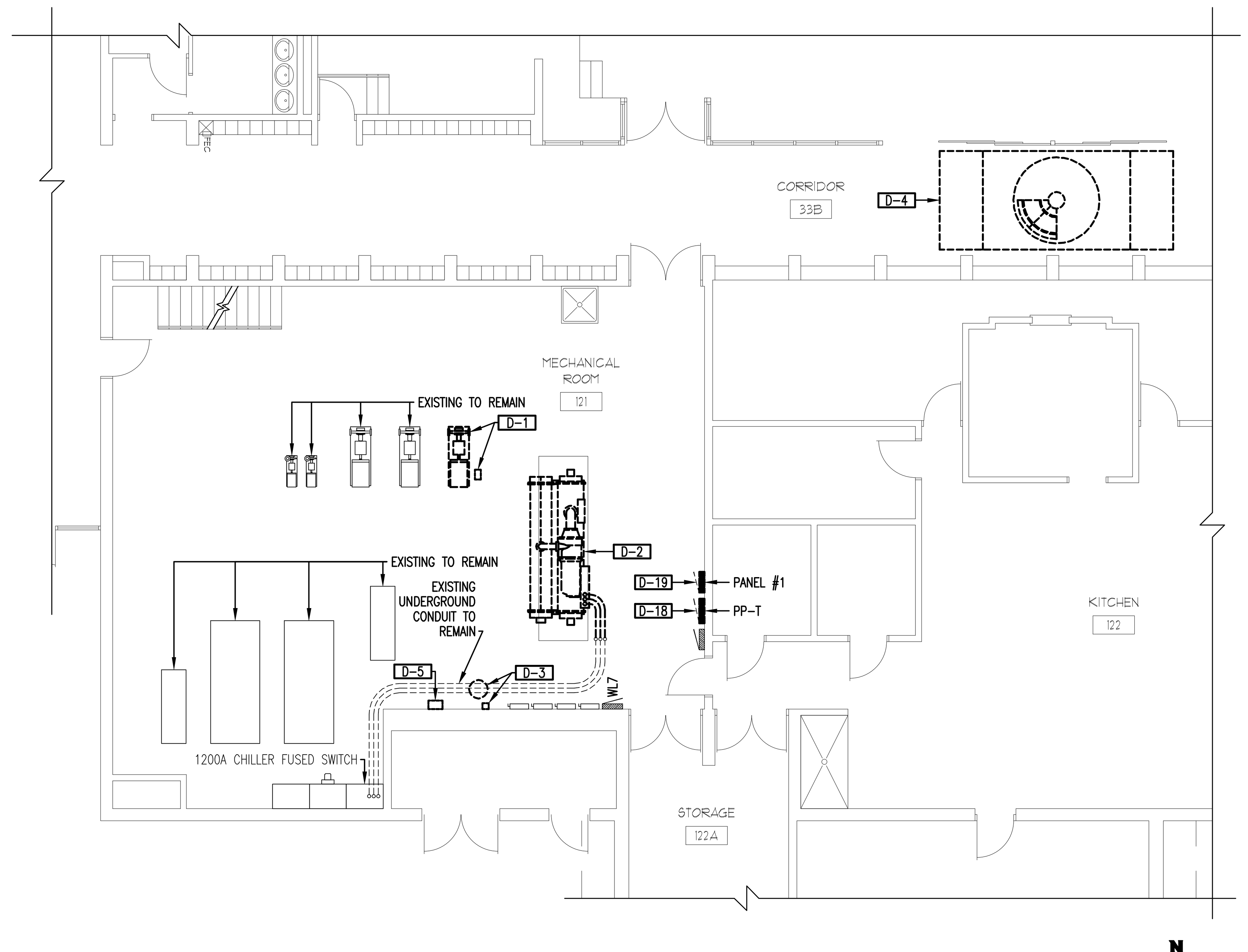
E0.10

KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 12:13 PM FILE PATH AND NAME: P:\139-1-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\E\Westchester MS (WIS)\139-1-3
E0.10 WIS Electrical Tunnel Demolition



2 EXISTING SECOND FLOOR PLAN ELECTRICAL - ALTERNATE
1/8" = 1'-0"



1 EXISTING FIRST FLOOR PLAN - ELECTRICAL
1/8" = 1'-0"

ELECTRICAL DEMOLITION NOTES:

1. NEW WORK DRAWINGS INDICATE NEW DUCT MOUNTED SMOKE DETECTORS REQUIRED. REMOVE ANY EXISTING DUCT DETECTORS THAT ARE WITHIN THE DUCTWORK OF THE UNITS TO BE REMOVED. PROVIDE ALL PROGRAMMING REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.

ELECTRICAL DEMOLITION NOTES:

D-1 DISCONNECT AND REMOVE ELECTRICAL CONNECTION FROM EXISTING 75HP PUMP AND ASSOCIATED ELECTRICAL COMPONENTS (e.g. STARTER/ DISCONNECT). REMOVE WIRING BACK TO SOURCE. REMOVE ACCESSIBLE CONDUIT BACK TO SOURCE. INACCESSIBLE CONDUIT MAY BE ABANDONED, BUT MUST BE CAPPED.

D-2 CAREFULLY DISCONNECT AND REMOVE ELECTRICAL CONNECTIONS TO EXISTING CHILLER. REMOVE WIRING BACK TO SOURCE. REMOVE ACCESSIBLE CONDUIT BACK TO INDICATED FLOOR PENETRATION. UNDERGROUND CONDUIT TO BE REUSED, AS INDICATED IN NEW WORK DRAWINGS.

D-3 DISCONNECT AND REMOVE ELECTRICAL CONNECTIONS FROM EXISTING CHEMICAL FEED PUMP SYSTEM. REMOVE WIRING AND CONDUIT BACK TO NEAREST UNAFFECTED COMPONENT.

D-4 DISCONNECT AND REMOVE ELECTRICAL CONNECTIONS FROM EXISTING ROOF MOUNTED COOLING TOWER AND ASSOCIATED ELECTRICAL COMPONENTS. REMOVE WIRING AND CONDUIT BACK TO SOURCE. PATCH ALL ROOF/WALL PENETRATIONS AS REQUIRED.

D-5 DISCONNECT AND REMOVE COOLING TOWER DISCONNECT SWITCH. REFER TO COOLING TOWER DEMOLITION NOTE ABOVE FOR ADDITIONAL WORK.

D-6 EXISTING TEMPERATURE CONTROL PANEL. REFER TO MECHANICAL DWGS.

D-7 DISCONNECT AND REMOVE DISCONNECT SWITCH FOR AHU "WA-3". SEE DEMOLITION NOTE FOR AHU "WA-3" BELOW FOR ADDITIONAL REQUIREMENTS.

D-8 DISCONNECT AND REMOVE DISCONNECT SWITCH FOR AHU "WA-4". SEE DEMOLITION NOTE FOR AHU "WA-4" BELOW FOR ADDITIONAL REQUIREMENTS.

D-9 DISCONNECT AND REMOVE EXISTING WALL MOUNTED CONTROL TRANSFORMER. REMOVE WIRING AND CONDUIT BACK TO SOURCE.

D-10 DISCONNECT AND REMOVE DISCONNECT SWITCH FOR AHU "WA-2". SEE DEMOLITION NOTE FOR AHU "WA-2" BELOW FOR ADDITIONAL REQUIREMENTS.

D-11 DISCONNECT AND REMOVE DISCONNECT SWITCH FOR AHU "WA-1". SEE DEMOLITION NOTE FOR AHU "WA-1" BELOW FOR ADDITIONAL REQUIREMENTS.

D-12 DISCONNECT AND REMOVE ELECTRICAL CONNECTION FOR AHU "WA-3". REMOVE WIRING AND CONDUIT BACK TO SOURCE.

D-13 DISCONNECT AND REMOVE ELECTRICAL CONNECTION FOR AHU "WA-4". REMOVE WIRING AND CONDUIT BACK TO SOURCE.

D-14 DISCONNECT AND REMOVE ELECTRICAL CONNECTION FOR AHU "WA-2". REMOVE WIRING AND CONDUIT BACK TO SOURCE.

D-15 DISCONNECT AND REMOVE ELECTRICAL CONNECTION FOR AHU "WA-1". REMOVE WIRING AND CONDUIT BACK TO SOURCE.

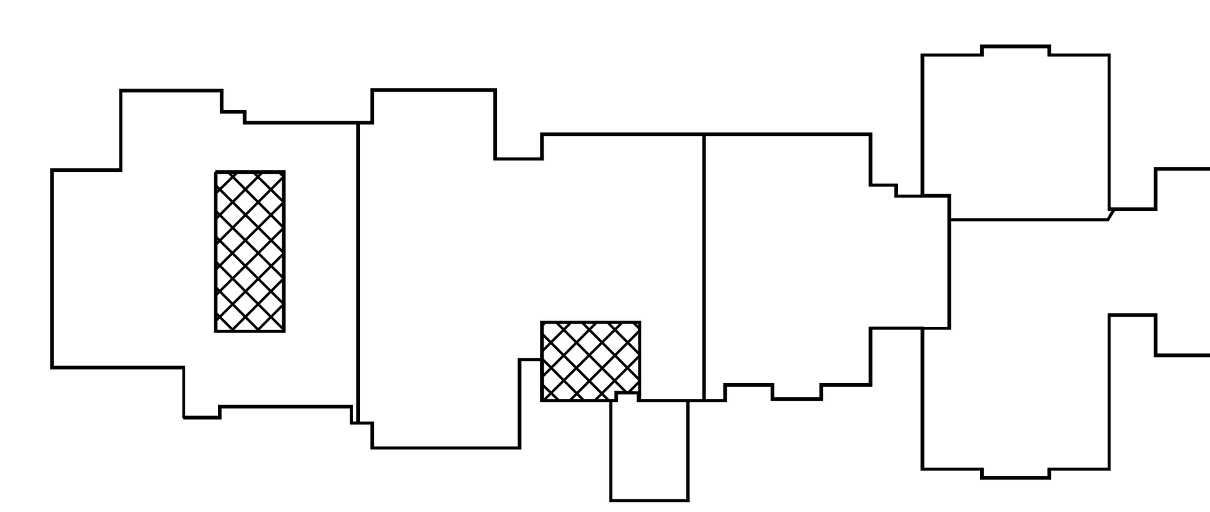
D-16 DISCONNECT ALL ELECTRICAL CONNECTIONS TO EXISTING PANEL "WL6". REMOVE PANEL AND TURN OVER TO OWNER. IF THEY DO NOT WISH TO KEEP THE PANEL, PROPERLY DISPOSE OF PANEL. PREPARE EXISTING 400A FEEDER FOR RECONNECTION TO NEW PANEL "WL6", AS INDICATED IN NEW WORK DRAWINGS.

D-17 DISCONNECT AND REMOVE ROOF MOUNTED CONDENSING UNIT AND ASSOCIATED ELECTRICAL COMPONENTS. REMOVE WIRING AND CONDUIT BACK TO SOURCE. PATCH ALL ROOF/WALL PENETRATIONS AS REQUIRED.

D-18 DISCONNECT ALL ELECTRICAL CONNECTIONS TO EXISTING PANEL "PP-T". REMOVE PANEL AND TURN OVER TO OWNER. IF THEY DO NOT WISH TO KEEP THE PANEL, PROPERLY DISPOSE OF PANEL. PREPARE EXISTING 400A FEEDER AND ASSOCIATED BRANCH FEEDERS FOR RECONNECTION TO NEW PANEL "PP-T", AS INDICATED IN NEW WORK DRAWINGS.

D-19 DISCONNECT ALL ELECTRICAL CONNECTIONS TO EXISTING PANEL. REMOVE PANEL. PREPARE TO EXTEND ALL EXISTING CIRCUITS TO NEW PANEL "RP1", AS INDICATED IN NEW WORK DRAWINGS.

D-20 DISCONNECT AND REMOVE EXISTING CEILING MOUNTED FLUORESCENT LIGHT FIXTURES. REMOVE WIRING AND FLEXIBLE CONDUIT BACK TO NEAREST JUNCTION BOX. PREPARE EXISTING WIRING FOR EXTENSION/CONNECTION TO NEW LED LIGHT FIXTURES, AS INDICATED IN NEW WORK PLANS. EXISTING SWITCHING TO REMAIN.



KEY PLAN
NOT TO SCALE

TRIA ARCHITECTURE

MEP/F.P. CONSULTANT: O'Higgins & Arnold Sustainability, LLC, 789 HEARTLAND DR., UNIT A SUGAR GROVE, ILLINOIS 60554 (P) 630.538.1996

STRUCTURAL CONSULTANT: Larson Engineering, Inc. 1488 BOND STREET, SUITE 100 NAPERVILLE, ILLINOIS 60563-6503 ILLINOIS LICENSE NO 184-001442 LEI COMM. NO 2116057.000 (P) 630.357.0540 (F) 630.357.0164

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

DUNELAND SCHOOL CORPORATION Chesterton, Indiana

PROJECT NUMBER: 19-0592
PROJECT MANAGER: MG
DRAWN BY: OAS
ISSUED FOR BID: 01/07/2020

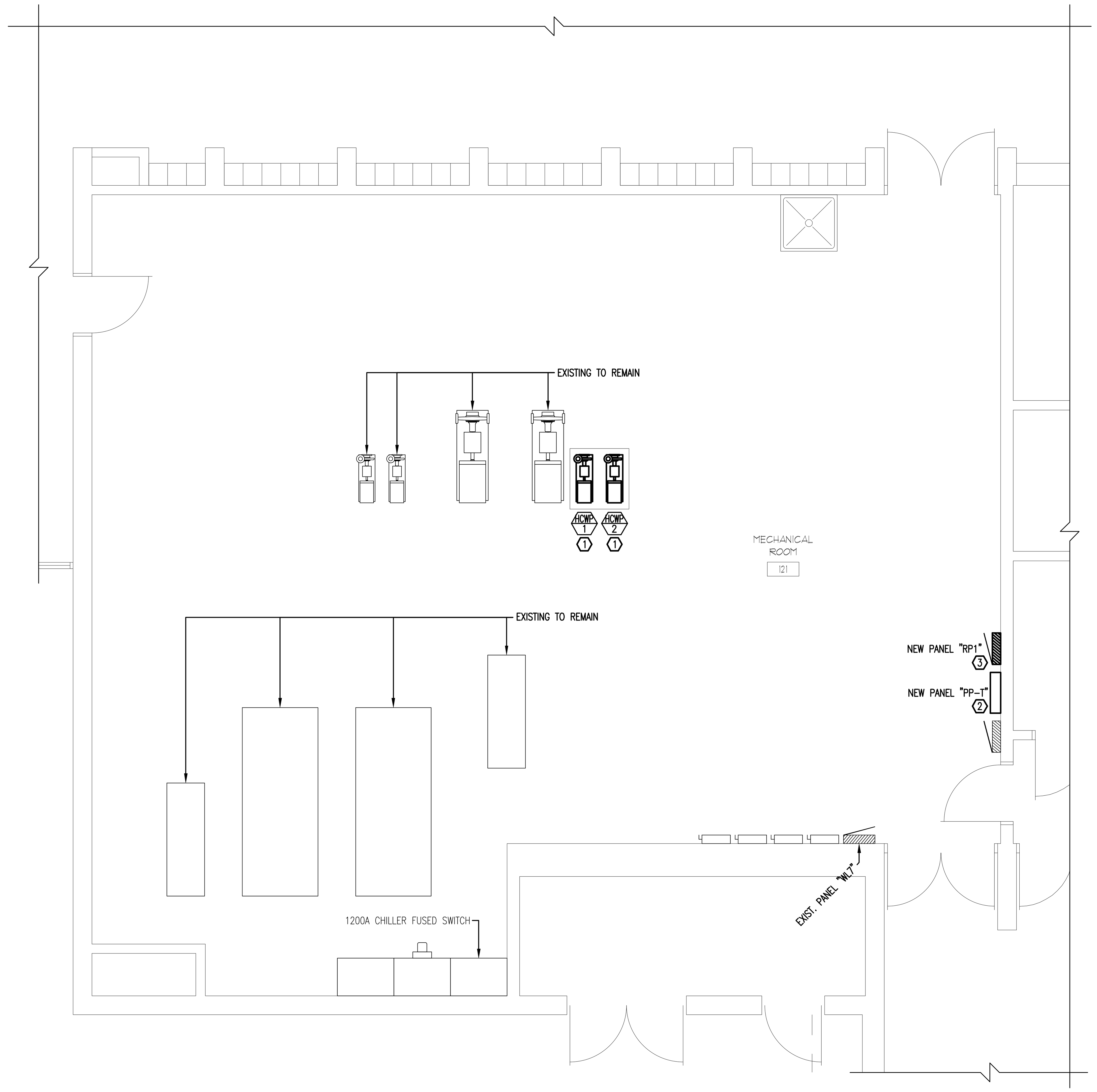
REVISIONS: 1 2 3 4 5

EXISTING FLOOR PLANS - ELECTRICAL

KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

E0.11

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 12:14 PM FILE PATH AND NAME: P:\139-1-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\E\Westchester MS (WIS)\139-1-3
E0.11 WIS Electrical First Floor Demolition



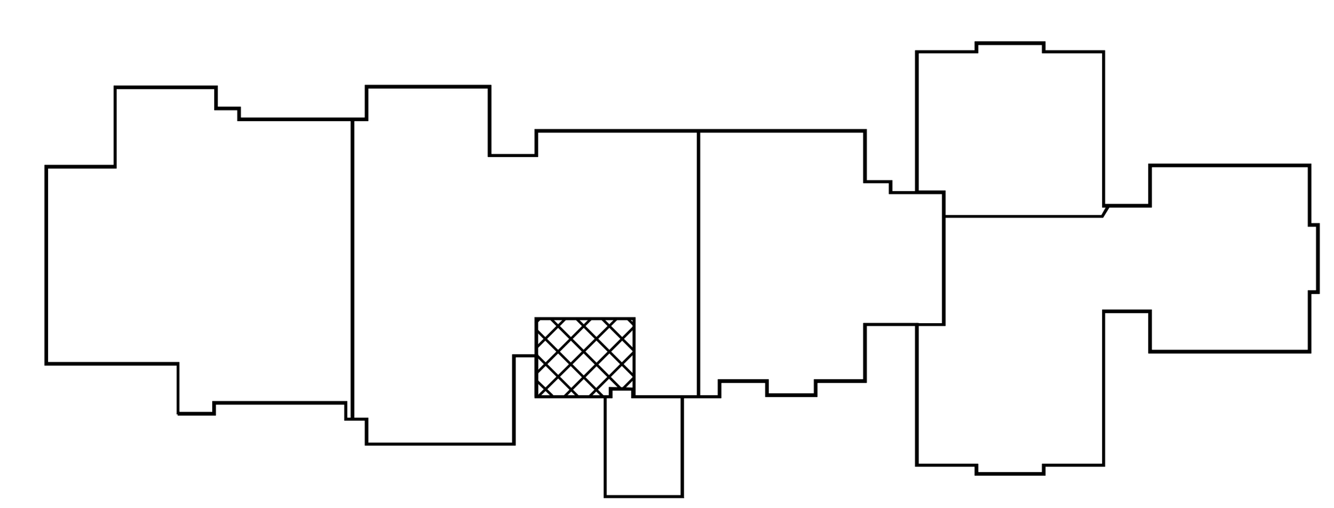
1 PARTIAL FIRST FLOOR PLAN - ELECTRICAL
1/4" = 1'-0"

ELECTRICAL KEY NOTES:

1. UNDER ALTERNATE BID, PROVIDE FINAL CONNECTION TO NEW PUMP VIA VFD (FURNISHED BY MECHANICAL CONTRACTOR). RUN 60A FEEDER OVERHEAD FROM PUMP TO NEW PANEL "PP-T". COORDINATE FINAL LOCATION OF VFD WITH MECHANICAL CONTRACTOR AND INSTALL AS REQUIRED.

2. PROVIDE NEW 400A, 208/120V, 3ø, 4W PANEL "PP-T", SQUARE D STYLE HCN OR APPROVED EQUAL, TO REPLACE DEMOLISHED PANEL. VERIFY SIZE OF EXISTING CIRCUIT BREAKERS TO REMAIN AND PROVIDE NEW CIRCUIT BREAKERS TO MATCH. EXTEND EXISTING FEEDERS TO NEW CIRCUIT BREAKERS. PROVIDE NEW CIRCUIT BREAKERS FOR NEW EQUIPMENT, AS INDICATED IN PANEL SCHEDULE ON SHEET E2.01. PROVIDE NEW CIRCUIT DIRECTORY DETAILING EXISTING AND NEW CONNECTIONS.

3. PROVIDE NEW 200A, 208/120V, 3ø, 4W PANEL "RP1" TO REPLACE DEMOLISHED PANEL. VERIFY SIZE OF EXISTING CIRCUIT BREAKERS TO REMAIN AND PROVIDE NEW CIRCUIT BREAKERS TO MATCH. EXTEND EXISTING FEEDERS TO NEW CIRCUIT BREAKERS. REFER TO PANEL SCHEDULE ON SHEET E2.01.



KEY PLAN
NOT TO SCALE

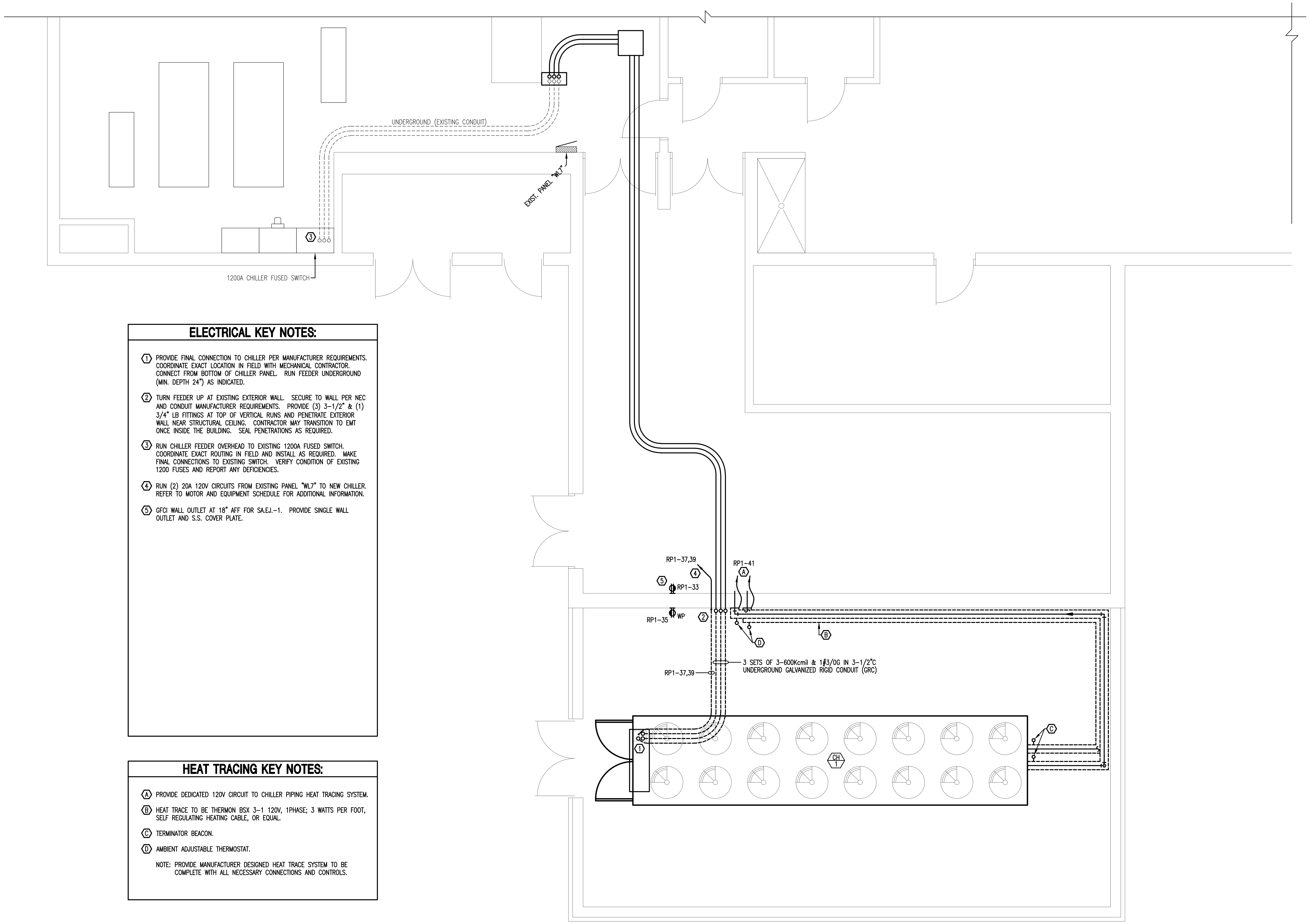
TRIA ARCHITECTURE

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

FLOOR PLANS - ELECTRICAL

E1.11



ELECTRICAL KEY NOTES:

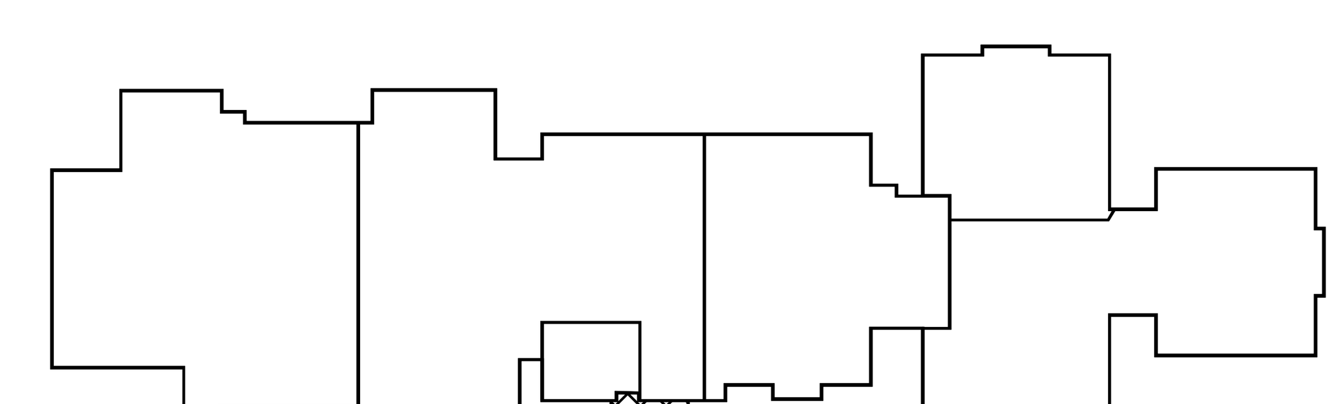
1. PROVIDE FINAL CONNECTION TO CHILLER PER MANUFACTURER REQUIREMENTS. COORDINATE EXACT LOCATION IN FIELD WITH MECHANICAL CONTRACTOR. CONNECT FROM BOTTOM OF CHILLER PANEL. RUN FEEDER UNDERGROUND (MIN. DEPTH 24") AS INDICATED.
2. TURN FEEDER UP AT EXISTING EXTERIOR WALL. SECURE TO WALL PER NEC AND CONDUIT MANUFACTURER REQUIREMENTS. PROVIDE (3) 3-1/2" & (1) 3/4" LB FITTINGS AT TOP OF VERTICAL RUNS AND PENETRATE EXTERIOR WALL NEAR STRUCTURAL CEILING. CONTRACTOR MAY TRANSITION TO EMT ONCE INSIDE THE BUILDING. SEAL PENETRATIONS AS REQUIRED.
3. RUN CHILLER FEEDER OVERHEAD TO EXISTING 1200A FUSED SWITCH. COORDINATE EXACT ROUTING IN FIELD AND INSTALL AS REQUIRED. MAKE FINAL CONNECTIONS TO EXISTING SWITCH. VERIFY CONDITION OF EXISTING 1200 FUSES AND REPORT ANY DEFICIENCIES.
4. RUN (2) 20A 120V CIRCUITS FROM EXISTING PANEL "WL7" TO NEW CHILLER. REFER TO MOTOR AND EQUIPMENT SCHEDULE FOR ADDITIONAL INFORMATION.
5. GFCI WALL OUTLET AT 18" AFF FOR SA.EJ.-1. PROVIDE SINGLE WALL OUTLET AND S.S. COVER PLATE.

HEAT TRACING KEY NOTES:

A. PROVIDE DEDICATED 120V CIRCUIT TO CHILLER PIPING HEAT TRACING SYSTEM.
B. HEAT TRACE TO BE THERMON BSX 3-1 120V, 1PHASE; 3 WATTS PER FOOT, SELF REGULATING HEATING CABLE, OR EQUAL.
C. TERMINATOR BEACON.
D. AMBIENT ADJUSTABLE THERMOSTAT.

NOTE: PROVIDE MANUFACTURER DESIGNED HEAT TRACE SYSTEM TO BE COMPLETE WITH ALL NECESSARY CONNECTIONS AND CONTROLS.

1 PARTIAL FIRST FLOOR PLAN - ELECTRICAL
1/4" = 1'-0"



KEY PLAN
NOT TO SCALE

TRIA ARCHITECTURE

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DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

DUNELAND SCHOOL CORPORATION Chesterton, Indiana

PROJECT NUMBER:	19-059.2
PROJECT MANAGER:	MG
DRAWN BY:	OAS
ISSUED FOR BID:	01/07/2020

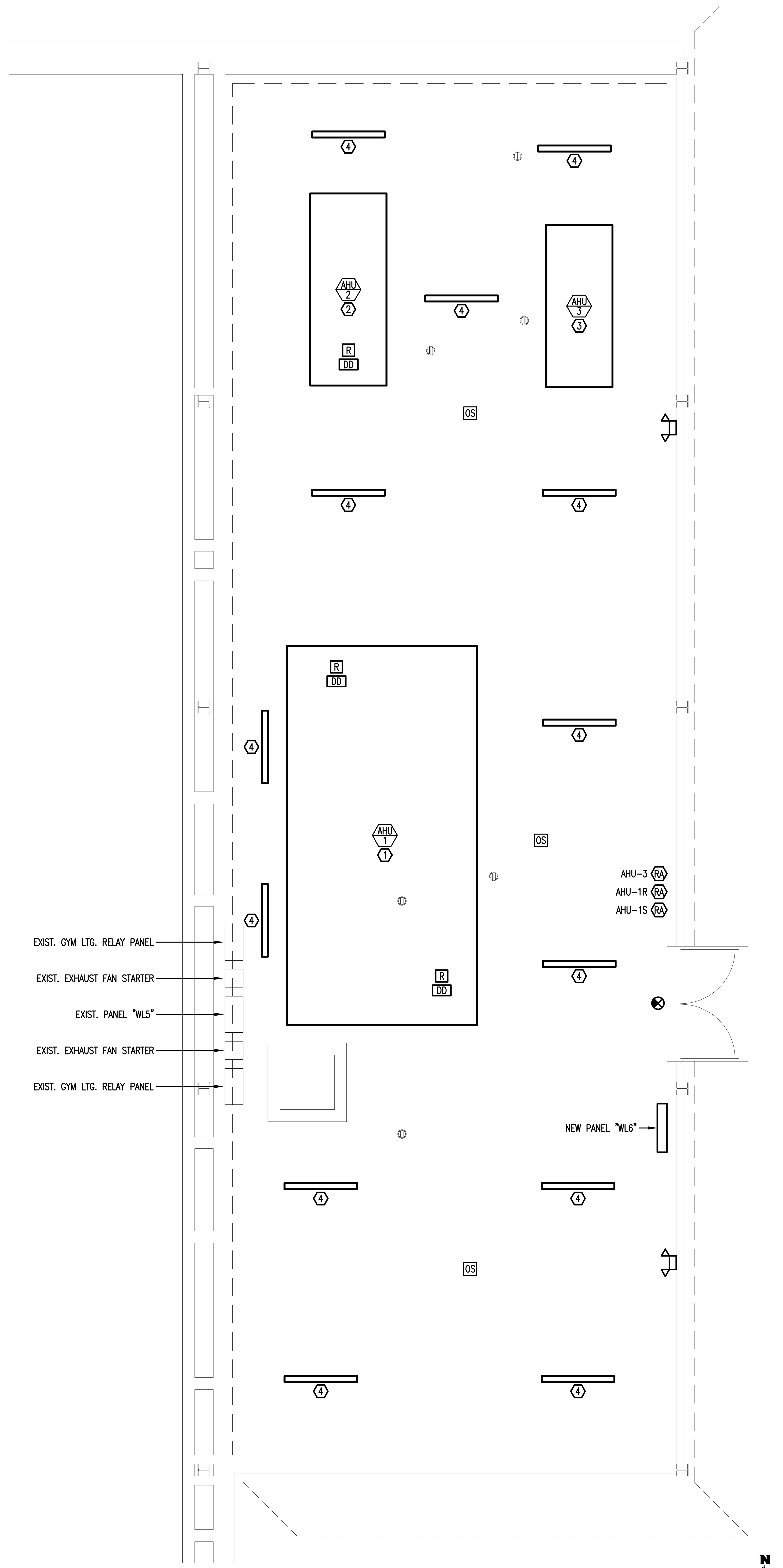
REVISIONS: 1 2 3 4 5

FLOOR PLANS - ELECTRICAL

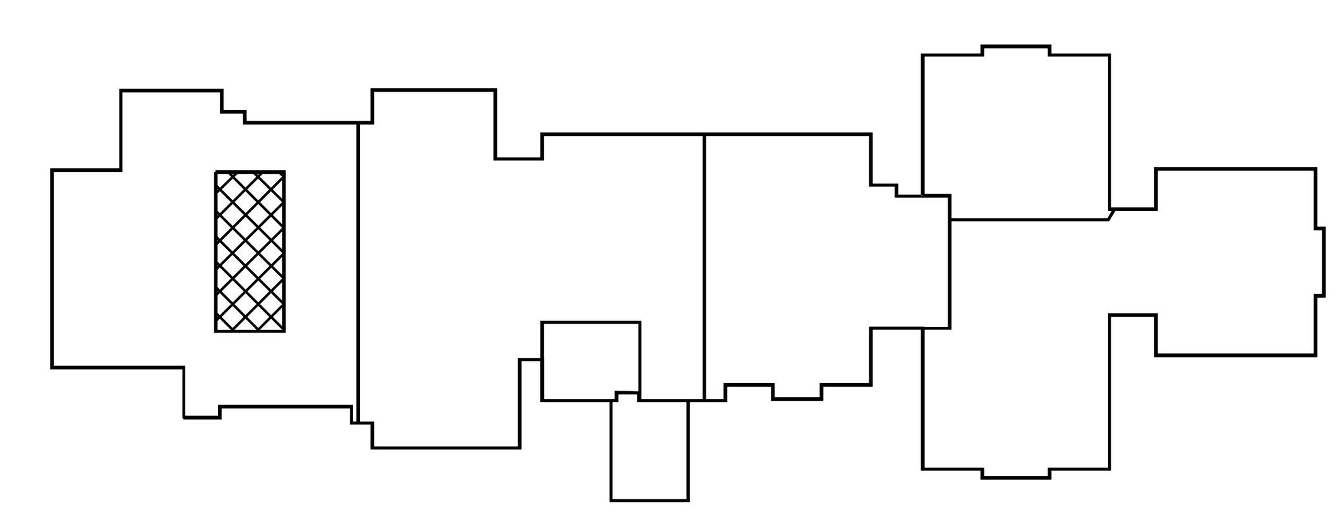
KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

E1.12

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 12:14 PM FILE PATH AND NAME: P:\139-1-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\E\Westchester MS (WIS)\139-1-3 E1.12 WIS Electrical First Floor



1 SECOND FLOOR PLAN - ELECTRICAL - ALTERNATE
1/4" = 1'-0"



KEY PLAN
NOT TO SCALE

GENERAL ELECTRICAL NOTES:

1. NEW DUCT MOUNTED SMOKE DETECTORS AND ASSOCIATED PERIPHERAL DEVICES ARE INDICATED. PROVIDE COMPONENTS THAT ARE COMPATIBLE WITH THE EXISTING FIRE ALARM SYSTEM. PROVIDE ALL PERIPHERAL COMPONENTS REQUIRED (e.g. PROGRAMMING, CIRCUIT CARDS, WIRING, ETC.) FOR A COMPLETE AND OPERABLE SYSTEM. PROPERLY LABEL EACH REMOTE TEST/INDICATER WITH THE ASSOCIATED UNIT DESIGNATION, AS WELL AS SUPPLY OR RETURN.

ELECTRICAL KEY NOTES:

1. PROVIDE FINAL CONNECTIONS TO AHU-1 SUPPLY FANS, RETURN FANS, AND ERV. SEE MOTOR EQUIPMENT SCHEDULES FOR ADDITIONAL INFORMATION.
2. PROVIDE FINAL CONNECTION TO AHU-2 SUPPLY FANS. SEE MOTOR EQUIPMENT SCHEDULES FOR ADDITIONAL INFORMATION.
3. PROVIDE FINAL CONNECTIONS TO AHU-3 SUPPLY FAN AND RETURN FAN. SEE MOTOR EQUIPMENT SCHEDULES FOR ADDITIONAL INFORMATION.
4. PROVIDE NEW SURFACE/SUSPENDED LED STRIP FIXTURES, (13) TOTAL, LITHONIA #CLX L48 5000LM SEF RDL MVOLT GZ10 35K 80CRI, MOUNTED AT APPROX. 10'-0" AFF OR TIGHT TO CEILING, WHICHEVER IS LOWER. EXTEND EXISTING CIRCUIT TO NEW FIXTURE LOCATIONS, AND RECONNECT TO EXISTING SWITCHING CONFIGURATION.

TRIA ARCHITECTURE

DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL

1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

FLOOR PLAN - ELECTRICAL
ALTERNATE

STATE OF INDIANA REGISTERED PROFESSIONAL ENGINEER No. PE10911154
EXPIRES 07/31/2020

E1.21

PLOTTED BY: LARRY ARNOLD DATE PLOTTED: 1/6/2020 12:14 PM FILE PATH AND NAME: P:\139-1-3 Duneland School District - Chesterton & Westchester IS Chiller Replacements\E\Westchester MS (WIS)\139-1-3 E1.21 WIS Mezz Electrical

MOTOR AND EQUIPMENT SCHEDULE

EQUIP. TAG	DESIGNATED TAG	LOCATION	LOAD: VOLTS	PHASE	H.P.	AMP	KVA	CONDUIT AND WIRE SIZE	SOURCE OF POWER: PANEL	CCT. NO.	PROTECT (AMPERES)	STARTER: SIZE	TYPE	DISCONNECT: SIZE	TYPE	REMARKS
AHU 1S	AIR HANDLING UNIT	MEZZANINE 201	208	3	–	110.0	39.6	(7)	WL6	1	175A 3P	VFD FURNISHED BY MECHANICAL				PROVIDE 120V CONNECTION TO ERV FROM PANEL "WL5".
AHU 1R			208	3	–	93.5	33.7	(6)	WL6	2	150A 3P	VFD FURNISHED BY MECHANICAL				
AHU 2	AIR HANDLING UNIT	MEZZANINE 201	208	3	–	22.9	8.3	(4)	WL6	3	40A 3P	VFD FURNISHED BY MECHANICAL				
AHU 3S	AIR HANDLING UNIT	MEZZANINE 201	208	3	–	10.6	3.8	(3)	WL6	4	20A 3P	VFD FURNISHED BY MECHANICAL				
AHU 3R			208	3	–	8.5	3.1	(3)	WL6	5	20A 3P	VFD FURNISHED BY MECHANICAL				
CH 1	CHILLER	EXTERIOR GROUND	208	3	–	921.0	331.8	(8)	SEE PLAN		1200A 3P	UNIT MOUNTED VFD AND CIRCUIT BREAKER BY MECHANICAL				PROVIDE (2) 120V CCTS: (1) FOR HEAT TRACE & CRANK CASE HEATER & (1) FOR CONV. RECEP.
HCWP 1	BUILDING PUMP	MECHANICAL 121	208	3	10.0	32.2	11.6	(5)	PP-T	23	60A 3P	VFD FURNISHED BY MECHANICAL, INSTALLED BY ELECTRICAL				
HCWP 2	BUILDING PUMP	MECHANICAL 121	208	3	10.0	32.2	11.6	(5)	PP-T	24	60A 3P	VFD FURNISHED BY MECHANICAL, INSTALLED BY ELECTRICAL				
SA-EJ 1	SANITARY EJECTOR	RECEIVING	120	1	0.5	10.0	1.2	(1)			20A 1P	–	–	–	–	PLUG-IN W/ FLOAT CONTROL

FEEDER SCHEDULE

No.	WIRE QTY. + SIZE	CONDUIT	CB
(1)	2#12 & 1#12G	3/4"	20A 1P
(2)	2#12 & 1#12G	3/4"	20A 2P
(3)	3#12 & 1#12G	3/4"	20A 3P
(4)	3#8 & 1#10G	3/4"	40A 3P
(5)	3#6 & 1#10G	3/4"	60A 3P
(6)	3#1/0 & 1#6G	1-1/2"	150A 3P
(7)	3#2/0 & 1#6G	2"	175A 3P
(8)	4#3/0 & 1#6G	2"	200A 3P
(9)	3 SETS OF 3-600Kcmil & 1#3/0G	3-1/2"	1200A 3P

DISTRIBUTION PANEL SCHEDULE - "WL6" (NEW)

VOLTAGE: 208/120V, 3ø, 4W	MAIN TYPE: 400A M.L.O.	MOUNTING: SURFACE WALL	LOCATION: MECH. ROOM 102
DESIGN BASIS: SQUARE D "HCN"	BUS TYPE: COPPER	ENCLOSURE: NEMA 1	FAULT DUTY: 22,000 A.I.C.

CCT NO.	LOAD DESCRIPTION	DEVICE RATING (AMP): FRAME	TRIP	FEEDER NO.	KVA	NOTES
1	AIR HANDLING UNIT 1 - SUPPLY	175A 3P	CB	(7)	39.6	
2	AIR HANDLING UNIT 1 - RETURN	150A 3P	CB	(6)	33.7	
3	AIR HANDLING UNIT	40A 3P	CB	(4)	8.3	
4	AIR HANDLING UNIT 3 - SUPPLY	20A 3P	CB	(3)	3.8	
5	AIR HANDLING UNIT 3 - RETURN	20A 3P	CB	(3)	3.1	
6	SPACE	100A 3P				
7	SPACE	100A 3P				
8	SPACE	100A 3P				
				TOTAL CONNECTED LOAD:	88.5	KVA
					245.7	A

DISTRIBUTION PANEL SCHEDULE - "PP-T" (NEW)

VOLTAGE: 208/120V, 3ø, 4W	MAIN TYPE: 400A M.L.O.	MOUNTING: SURFACE WALL	LOCATION: MECH. ROOM 102
DESIGN BASIS: SQUARE D "HCN"	BUS TYPE: COPPER	ENCLOSURE: NEMA 1	FAULT DUTY: 22,000 A.I.C.

CCT NO.	LOAD DESCRIPTION	DEVICE RATING (AMP): FRAME	TRIP	FEEDER NO.	KVA	NOTES
1	EXISTING LOAD	15A 3P	CB	EXISTING	0.0	OLD CCT. #1
2	EXISTING LOAD	40A 3P	CB	EXISTING	0.0	OLD CCT. #2
3	EXISTING LOAD	15A 3P	CB	EXISTING	0.0	OLD CCT. #3
4	EXISTING LOAD	15A 3P	CB	EXISTING	0.0	OLD CCT. #4
5	EXISTING LOAD	15A 3P	CB	EXISTING	2.5	OLD CCT. #5
6	EXISTING LOAD	15A 3P	CB	EXISTING	2.5	OLD CCT. #6
7	EXISTING LOAD	15A 3P	CB	EXISTING	2.5	OLD CCT. #7
8	EXISTING LOAD	100A 3P	CB	EXISTING	9.0	OLD CCT. #8
9	EXISTING LOAD	20A 3P	CB	EXISTING	3.6	OLD CCT. #9
10	EXISTING LOAD	100A 3P	CB	EXISTING	9.0	OLD CCT. #10
11	EXISTING LOAD	20A 3P	CB	EXISTING	3.6	OLD CCT. #11
12	EXISTING LOAD	100A 3P	CB	EXISTING	9.0	OLD CCT. #12
13	EXISTING LOAD	20A 3P	CB	EXISTING	3.0	OLD CCT. #13
14	EXISTING LOAD	100A 3P	CB	EXISTING	9.0	OLD CCT. #14
15	EXISTING LOAD	20A 3P	CB	EXISTING	3.6	OLD CCT. #15
16	EXISTING LOAD	20A 3P	CB	EXISTING	3.6	OLD CCT. #16
17	EXISTING LOAD	15A 3P	CB	EXISTING	2.5	OLD CCT. #21
18	EXISTING PANEL "WL7"	175A 3P	CB	EXISTING	31.5	OLD CCT. #18
19	EXISTING LOAD	100A 3P	CB	EXISTING	9.0	OLD CCT. #23
20	EXISTING LOAD	70A 3P	CB	EXISTING	12.6	OLD CCT. #22
21	EXISTING LOAD	100A 3P	CB	EXISTING	0.0	OLD CCT. #24
22	EXISTING LOAD	150A 3P	CB	EXISTING	27.0	OLD CCT. #26
23	SPACE					
24	PANEL "RP1"	200A 3P	CB	(8)		
25	HCWP-1	60A 3P	CB	(5)	11.6	
26	HCWP-2	60A 3P	CB	(5)	11.6	
				TOTAL CONNECTED LOAD:	166.7	KVA
					462.7	A

PANEL BOARD SCHEDULE "RP1" (NEW)

VOLTAGE:	208/120V, 3ø, 4W	MAIN (A)	MCB	MLO	LOCATION:	MECHANICAL RM. 121
		200A		X	MOUNT:	SURFACE
		WITH GROUND BUS		X	TYPE:	10,000 A.I.C.

USE AND/OR AREA SERVED	C/B	CIR. NO.	A	B	C	CIR. NO.	C/B	USE AND/OR AREA SERVED
EXISTING LOAD	20/1	1	1000 / 1000			2	20/1	EXISTING LOAD
EXISTING LOAD	20/1	3		1000 / 1000		4	20/1	EXISTING LOAD
EXISTING LOAD	20/1	5			1000 / 1000	6	20/1	EXISTING LOAD
EXISTING LOAD	20/1	7	1000 / 1000			8	20/1	EXISTING LOAD
EXISTING LOAD	20/1	9		1000 / 1000		10	20/1	EXISTING LOAD
EXISTING LOAD	20/1	11			1000 / 1000	12	20/1	EXISTING LOAD
EXISTING LOAD	20/1	13	1000 / 1000			14	20/1	EXISTING LOAD
EXISTING LOAD	20/1	15		1000 / 1000		16	20/1	EXISTING LOAD
EXISTING LOAD	20/1	17			1000 / 1000	18	20/1	EXISTING LOAD
EXISTING LOAD	20/1	19	1000 / 1000			20	20/3	EXISTING LOAD
EXISTING LOAD	20/1	21		1000 / 1000		22		
EXISTING LOAD	20/1	23			1000 / 1000	24		
EXISTING LOAD	20/1	25	1000 / 1000			26	20/1	EXISTING LOAD
EXISTING LOAD	20/1	27		1000 / 1000		28	20/1	EXISTING LOAD
EXISTING LOAD	20/1	29			1000 / 1000	30	20/1	EXISTING LOAD
BOILER (RELOCATED CCT. FROM PANEL "PP-T")	20/1	31	1000 / 0			32	20/1	SPARE
SA/EJ-1 (NEW)	20/1	33		1000 / 0		34	20/1	SPARE
OUTDOOR RECEPTACLE (NEW)	20/1	35			500 / 0	36	20/1	SPARE
CHILLER BUNDLE HEAT TRACE & CRANK CASE HEATER	20/1	37	1000 / 0			38	20/1	SPARE
CHILLER CONVENIENCE RECEPTACLE	20/1	39		1000 / 0		40	20/1	SPARE
HEAT TRACE SYSTEM, EXTERIOR CHILLER PIPING	20/1	41			500 / 0	42	20/1	SPARE
TOTAL LOAD PER PHASE			12000	12000	11000	TOTAL KVA:		35.0
						AMPS:		97.2

TRIA ARCHITECTURE

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DUNELAND SCHOOL CORPORATION Chesterton, Indiana

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SCHEDULES ELECTRICAL

KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

E2.01

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GENERAL NOTES - ALL CONTRACTORS

1. DRAWINGS ARE GENERALLY DIAGRAMMATIC. ROUTING OF PIPING, DUCTWORK, CONDUITS, RACEWAYS, ETC, AS SHOWN ON DRAWINGS, DOES NOT INTEND TO SHOW EVERY RISE, DROP, OFFSET, FITTING NOR EVERY STRUCTURAL ELEMENT THAT MAY BE ENCOUNTERED DURING THE INSTALLATION OF THIS WORK. CONTRACTOR SHALL MAKE ANY REQUIRED CHANGES FROM THE GENERAL ROUTING SHOWN ON THESE DRAWINGS, SUCH AS OFFSETS, BENDS OR CHANGES IN ELEVATION DUE TO COORDINATION WITH THE WORK OF OTHER TRADES AND BUILDING CONSTRUCTION. ALL CHANGES SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER OR DELAY IN COMPLETION DATE OF THE PROJECT.

2. IT IS INTENDED THAT EQUIPMENT SHALL BE LOCATED SYMMETRICALLY WITH THE ARCHITECTURAL ELEMENTS OF THE BUILDING, NOTWITHSTANDING THE FACT THAT LOCATIONS INDICATED BY THESE DRAWINGS MAY BE DISTORTED FOR CLEARNESS OF PRESENTATION.

3. CONTRACTOR SHALL CHECK DRAWINGS OF OTHER TRADES TO VERIFY THAT SPACES IN WHICH THEIR WORK WILL BE INSTALLED ARE CLEAR OF OBSTRUCTIONS. WORK SHALL BE INSTALLED TO MAINTAIN MAXIMUM HEADROOM AND SPACE CONDITION AT ALL POINTS IN THE BUILDING. WHERE HEADROOM OR SPACE CONDITIONS APPEAR INADEQUATE, CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE INSTALLATION OF THEIR WORK.

4. CONTRACTOR SHALL FURNISH OTHER TRADES ADVANCE INFORMATION AND/OR SHOP DRAWINGS ON LOCATIONS AND SIZES OF PIPING, DUCTWORK, CONDUIT, RACEWAYS, EQUIPMENT, FRAMES, BOXES, SLEEVES AND OPENINGS, ETC. NEEDED FOR THEIR WORK TO PERMIT OTHER TRADES AFFECTED TO INSTALL THEIR WORK PROPERLY AND WITHOUT DELAY.

5. WHERE THERE IS EVIDENCE THAT WORK OF ONE TRADE WILL INTERFERE WITH WORK OF OTHER TRADES, ALL TRADES SHALL MEET ON JOB SITE TO WORK OUT SPACE CONDITIONS AND MAKE SATISFACTORY ADJUSTMENTS TO INSTALLATION OF THE NEW WORK. CONTRACTORS SHALL VERIFY EXACT LOCATIONS OF ALL DEVICES AND EQUIPMENT WITH FIELD CONDITIONS, SHOP DRAWINGS, AND WORK OF OTHER TRADES PRIOR TO ROUGH-IN. CONTRACTOR SHALL BE RESPONSIBLE, AT HIS OWN EXPENSE, FOR THE REMOVAL AND REINSTALLATION OF ANY PART OF THEIR WORK IF SAME WAS INSTALLED WITHOUT CONSULTING WITH OTHER TRADES BEFORE INSTALLING THEIR WORK.

6. CONTRACTOR SHALL PROVIDE SLEEVES IN BEAMS, FLOORS, COLUMNS AND WALLS AS SHOWN ON THE DRAWINGS, AS REQUIRED BY JOB SITE CONDITIONS, AND/OR AS SPECIFIED, WHEN INSTALLING THEIR WORK. ALL BEAMS AND COLUMNS WHICH ARE REQUIRED TO BE SLEEVED SHALL BE CUT AND REINFORCED AS REQUIRED BY FIELD CONDITIONS AND LOCATIONS AND SIZES SHALL BE CHECKED AND APPROVED BY ARCHITECT BEFORE CONTRACTOR CUTS ANY STRUCTURAL BUILDING MEMBER.

7. THE SEQUENCE FOR THE INSTALLATION OF ALL WORK SHALL BE COORDINATED BETWEEN CONTRACTOR AND IN STRICT ACCORDANCE WITH ARCHITECT/ENGINEER AND OWNERS STIPULATION AS CALLED FOR IN THE SPECIFICATION AND/OR AS DIRECTED.

8. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL AND STRUCTURAL CONTRACT DRAWINGS (BEFORE SUBMITTING HIS BID) TO FAMILIARIZE HIMSELF WITH THE EXTENT OF THE GENERAL CONTRACTOR WORK, CEILING HEIGHTS AND CLEARANCE FOR INSTALLING HIS WORK.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CORING, CUTTING, PATCHING, REPAIRING, REFINISHING AND REMOVAL/REPLACEMENT OF NEW OR EXISTING BUILDING CONSTRUCTION REQUIRED TO ACCOMMODATE THE INSTALLATION OR REMOVAL OF THEIR WORK. ALL PATCHING, REPAIRING AND REFINISHING WORK SHALL BE PERFORMED BY THOSE REGULARLY INVOLVED IN THAT TRADE AND SHALL MATCH THE ADJACENT CONSTRUCTION AS CLOSELY AS POSSIBLE. CARE SHALL BE TAKEN SO AS NOT TO DAMAGE ANY EXISTING BUILDING CONSTRUCTION OR ITEMS THAT ARE TO REMAIN. ANY EXISTING FINISHES THAT ARE DAMAGED DURING THE INSTALLATION OF NEW WORK OR REMOVAL OF EXISTING WORK SHALL BE REPAIRED, REPLACED AND PAID FOR BY THE INSTALLING CONTRACTOR, TO THE SATISFACTION OF THE ARCHITECT AND OWNER. REFER TO ARCHITECTURAL DRAWINGS FOR EXISTING BUILDING CONSTRUCTION THAT IS TO REMAIN AND, THEREFORE, SUBJECT TO PATCHING, REPAIRING, REFINISHING, AND REMOVAL/REPLACEMENT.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN CLEAN UP DURING CONSTRUCTION. IF CONTRACTOR FAILS TO PROVIDE SUCH CLEAN UP, THE ARCHITECT/ENGINEER WILL DIRECT ANOTHER CONTRACTOR TO PERFORM THE CLEAN UP AND THE NEGLIGENT CONTRACTOR SHALL PAY THE ASSOCIATED BACK CHARGES AS DEEMED APPROPRIATE BY THE ARCHITECT/ENGINEER.

11. CONTRACTOR SHALL INSTALL ALL AUXILIARY SUPPORTING STEEL AS REQUIRED FOR THE SUPPORTING OF THEIR PIPING, DUCTWORK, CONDUIT, TANKS, EQUIPMENT, ETC. ALL SUPPORTING STEEL FOR ITEMS ABOVE A SUSPENDED CEILING SHALL BE FROM BUILDING STRUCTURAL MEMBERS ONLY.

12. UNLESS INDICATED OTHERWISE, THE ARCHITECT/ENGINEER MAKES NO REPRESENTATION AS TO WHETHER OR NOT ANY HAZARDOUS OR CONTAMINATED MATERIALS (INCLUDING BUT NOT LIMITED TO ASBESTOS, PCB'S, CONTAMINATED SOILS, ETC.) ARE PRESENT WITHIN THE EXISTING BUILDING OR ON THE SITE. WORK SHOWN ON THE DRAWINGS AND/OR INDICATED IN THE SPECIFICATIONS SHALL NOT BE CONSTRUED TO CALL FOR CONTACT WITH ANY OF THESE MATERIALS. IF THESE MATERIALS ARE ENCOUNTERED OR SUSPECTED, THE CONTRACTOR SHALL NOT DISTURB THEM AND SHALL CONTACT THE ARCHITECT/ENGINEER IMMEDIATELY.

13. CONTRACTOR SHALL STORE ALL MATERIALS AND EQUIPMENT SHIPPED TO THE SITE IN A PROTECTED AREA. IF MATERIAL IS STORED OUTSIDE OF THE BUILDING, IT MUST BE STORED OFF THE GROUND A MINIMUM OF SIX INCHES (6") SET ON 6 X 6 PLANKS AND/ OR WOOD PALLETS. ALL MATERIAL AND EQUIPMENT MUST BE COMPLETELY COVERED WITH WATERPROOF TARPS OR VISQUINE. ALL PIPING AND DUCTWORK WILL HAVE THE ENDS CLOSED TO KEEP OUT DIRT AND OTHER DEBRIS. NO EQUIPMENT WILL BE ALLOWED TO BE STORED ON THE SITE UNLESS IT IS SITTING ON WOOD PLANKS AND COMPLETELY PROTECTED WITH WEATHERPROOF COVERS.

14. THE DRAWINGS, SCHEDULES AND SPECIFICATIONS HAVE BEEN PREPARED USING ONE MANUFACTURER FOR EACH PIECE OF EQUIPMENT AS THE BASIS FOR DIMENSIONAL DESIGN. IF THE CONTRACTOR PURCHASES EQUIPMENT LISTED AS A SPECIFIED ACCEPTABLE MANUFACTURER BUT IS NOT THE SCHEDULED MANUFACTURER USED FOR THE BASE DESIGN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING ALL THE DIMENSIONS OF THE EQUIPMENT TO VERIFY THAT IT WILL FIT IN THE SPACE SHOWN ON THE DRAWINGS. MINOR DEVIATIONS IN DIMENSIONS WILL BE PERMITTED, PROVIDED THE RATINGS MEET THOSE SHOWN ON THE DRAWINGS AND EQUIPMENT WILL PHYSICALLY FIT INTO THE SPACE ALLOCATED WITH SUITABLE ACCESS AROUND EQUIPMENT FOR OPERATION AND MAINTENANCE ON THE EQUIPMENT.

15. CONTRACTOR AND/OR MANUFACTURER SHALL VERIFY THAT THE CHARACTERISTICS OF THE EQUIPMENT HE SUBMITS FOR REVIEW MEETS THE CAPACITY AND DUTY SPECIFIED.

16. WHEN EQUIPMENT IS SUBMITTED FOR REVIEW AND DOES NOT MEET THE PHYSICAL SIZE OR ARRANGEMENT OF THAT SCHEDULED AND SPECIFIED, CONTRACTOR SHALL PAY FOR ALL ALTERATIONS REQUIRED TO ACCOMMODATE SUCH EQUIPMENT AT NO ADDITIONAL COST TO OWNER. CONTRACTOR WILL ALSO PAY ALL COSTS FOR ADDITIONAL WORK REQUIRED BY OTHER CONTRACTORS, OWNER, ARCHITECT OR ENGINEER TO MAKE CHANGES WHICH WOULD ALLOW THE EQUIPMENT TO FIT IN THE SPACE AND FUNCTION AS INTENDED.

17. CONTRACTOR SHALL FIELD VERIFY THE SIZE OF EXISTING OPENINGS, WINDOWS, DOORS, CORRIDORS, ROOMS, ETC. FOR ACCESS OF THE NEW EQUIPMENT INTO OR REMOVAL OF EXISTING EQUIPMENT FROM THE BUILDING. IF OPENINGS ARE TOO SMALL FOR ACCESS THEN CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROVIDE NEW OR ENLARGED OPENINGS AND RESTORE SAME TO ORIGINAL SIZE AND CONDITION. CONTRACTOR MAY ELECT TO ORDER THE EQUIPMENT DISASSEMBLED AND/OR WITH SPLIT HOUSING FOR ENTRANCE INTO THE EXISTING SPACE OR BUILDING. CONTRACTOR SHALL REASSEMBLE EQUIPMENT AFTER IT IS IN THE SPACE AT HIS OWN EXPENSE.

GENERAL ELECTRICAL NOTES

1. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ADDITIONAL GENERAL NOTES WHICH WILL APPLY HERE.

2. DO NOT SCALE DRAWINGS.

3. NOTES ON DRAWINGS SHALL APPLY TO ALL SIMILAR CONDITIONS WHETHER THEY ARE REPEATED OR NOT.

4. BOXES LOCATED ON OPPOSITE SIDES OF NON-FIRE RATED WALLS SHALL BE OFFSET A MINIMUM OF 6" HORIZONTALLY. BOXES ON OPPOSITE SIDES OF FIRE RATED WALL SHALL BE OFFSET A MINIMUM OF 24" HORIZONTALLY. "THRU THE WALL" BOXES SHALL NOT BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.

5. ELECTRICAL CONTRACTOR SHALL VERIFY TOTAL CONNECTED LOAD/HP WITH ALL OTHER TRADES PRIOR TO WIRING OF ALL OTHER TRADES' EQUIPMENT. MAKE ANY CHANGES TO OVERCURRENT DEVICES AND FEEDER SIZE PER ELECTRICAL CODE AS REQUIRED.

6. ALL EXPOSED CABLES IN PLENUM CEILING SHALL BE APPROVED FOR PLENUM APPLICATION.

7. PROVIDE CONCRETE PAD FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. (SUCH AS SWITCHBOARDS, PANELS, TRANSFORMER, ETC.)

8. REFER TO PANEL DIVISION LINES FOR BRANCH CIRCUIT HOMERUN PANEL BOARD DESIGNATION, UNLESS NOTED OTHERWISE, IF APPLICABLE.

9. CIRCUIT NUMBERS SHOWN FOR EXISTING PANELS ARE FOR REFERENCE ONLY. USE NEXT AVAILABLE CIRCUITS AND PROVIDE APPROPRIATE SIZE BREAKERS.

10. IN GENERAL, DASHED LINES INDICATE EXISTING ITEMS TO BE REMOVED OR LOCATED UNDERGROUND, LIGHT SOLID LINES INDICATE ITEMS TO REMAIN AND DARK SOLID LINES INDICATE NEW ITEMS.

11. THE SYSTEMS PROVIDED BY THIS CONTRACTOR SHALL BE COMPLETELY OPERATIONAL REGARDLESS OF OMISSION OF MINOR ITEMS, SUCH AS CIRCUIT NUMBER FOR RELAY, A CIRCUIT NUMBER NEXT TO A LIGHTING FIXTURE, POWER FOR CONTROL EQUIPMENT, ETC.

12. ALL OUTDOOR DEVICES SUCH AS RECEPTACLES, DISCONNECTS, SPEAKERS, LIGHTING FIXTURES, JUNCTION BOXES, ETC. SHALL BE OUTDOOR TYPE.

13. PROVIDE LOCKING CLIPS ON CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING, FIRE ALARM SYSTEM, PA/INTERCOMM, TELEPHONE SYSTEM AND SECURITY SYSTEM LOAD.

14. IN CERTAIN CASES LARGER SIZE CABLES ARE SPECIFIED IN ORDER TO COMPENSATE FOR VOLTAGE DROP. PROVIDE OVERSIZE AND/OR MULTIPLE LUGS AT THE LINE AND LOAD SIDE OF EQUIPMENT TO INCORPORATE LARGER AND ADDITIONAL CABLES. IF REQUIRED, PROVIDE SPLICE BOXES AT EITHER END OF CABLE TO INTERCEPT CHANGE IN THE CABLES.

15. UNLESS NOTED OTHERWISE, ALL OVERCURRENT PROTECTION DEVICES 800 AMP AND LARGER SHALL BE 100% RATED.

16. DUE TO THE SMALL SCALE AND INTERFERENCE OF EXISTING EQUIPMENT, EACH AND EVERY ITEM IS NOT SHOWN. SHOWN INFORMATION IS INTENDED AS A GUIDE. CONTRACTOR SHALL VERIFY INFORMATION AND CONDITIONS IN THE FIELD.

17. ALL RECEPTACLES LOCATED WITHIN 6' OF SOURCE OF WATER (SUCH AS SINK) AND ALL OUTDOOR RECEPTACLES SHALL BE GFI TYPE, WHETHER SPECIFICALLY INDICATED OR NOT.

18. PROVIDE EXPANSION FITTINGS FOR ALL ELECTRICAL RACEWAYS AT EVERY EXPANSION JOINT. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR LOCATION OF EXPANSION JOINTS.

19. COORDINATE THE INSTALLATION OF ELECTRICAL PANELS, SWITCHBOARD, ETC. WITH OTHER TRADES SUCH THAT NO DUCTWORK, PIPING ETC. IS LOCATED ABOVE THEM.

20. VERIFY QUANTITY AND SIZE OF LUGS PROVIDED IN OTHER TRADE'S EQUIPMENT (FOR EXAMPLE, CHILLER, ELEVATOR, FIRE PUMP ETC.) BEFORE STARTING ANY WORK ASSOCIATED WITH SUCH EQUIPMENT. IF THEIR LUGS CANNOT ACCOMMODATE THE CABLES INDICATED IN ELECTRICAL DOCUMENT, PROVIDE LUG FITTINGS TO ACCOMMODATE CHANGE IN THE CABLES. PROVIDE SUCH FITTINGS IN A JUNCTION BOX AS CLOSE AS POSSIBLE TO THEIR EQUIPMENT. IF ALLOWED BY THE EQUIPMENT MANUFACTURER, SUCH FITTINGS MAY BE INSTALLED IN THEIR EQUIPMENT RATHER THAN IN A SEPARATE JUNCTION BOX.

21. UNLESS NOTED OTHERWISE, THE TRANSFORMER PRIMARY VOLTAGE SHALL BE 480V, 3Ø, 3W AND SECONDARY VOLTAGE SHALL BE 120/208V, 3Ø, 4 WIRE.

22. PROVIDE SEPARATE DEDICATED GROUNDING CONDUCTOR IN EACH FEEDER AND BRANCH CIRCUIT WIRING CIRCUIT.

23. PROVIDE REMOTE TEST AND INDICATING STATION IN A READILY ACCESSIBLE AND VISIBLE SPACE FOR EACH DUCT SMOKE DETECTOR.

24. WHERE "VIF" IS INDICATED NEXT TO A DEVICE, CONTRACTOR SHALL VERIFY ITS REQUIREMENT IN FIELD. THIS INCLUDES VERIFICATION OF DEVICE TYPE, LOCATION, WIRING CONDUIT AND CIRCUIT BREAKER ETC. PROVIDE APPROPRIATE DEVICE, WIRING, CONDUIT, CIRCUIT BREAKER ETC. AS REQUIRED.

25. PROVIDE ONE WEATHERPROOF, GFI RECEPTACLE WITHIN 25' OF ROOF MOUNTED OR GRADE MOUNTED HVAC EQUIPMENT, WHETHER SPECIFICALLY INDICATED OR NOT AND FEED FROM NEAREST UNLOADED RECEPTACLE CIRCUIT.

26. WHETHER SPECIFICALLY INDICATED OR NOT, PROVIDE MINIMUM OF ONE DUCT SMOKE DETECTOR FOR AIR SUPPLY SYSTEM HAVING A CAPACITY GREATER THAN 2,000 CFM AND TWO DUCT SMOKE DETECTORS FOR AIR SUPPLY SYSTEM HAVING A CAPACITY GREATER THAN 15,000 CFM.

27. PROVIDE SEPARATE NEUTRAL WIRE FOR EACH CIRCUIT FED FROM ARC-FAULT TYPE CIRCUIT BREAKER.

28. PERFORM COORDINATION STUDY OF ELECTRICAL DISTRIBUTION SYSTEM AS INDICATED IN POWER SYSTEM STUDY SPECIFICATION. IT SHALL BE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO PROVIDE EQUIPMENT WITH PROPER INTERRUPTING RATING OF EQUIPMENT BASED UPON COORDINATION STUDY. AIC (AVAILABLE INTERRUPTING CAPACITY) OF ALL PANELS AND SWITCHBOARD SHOWN IN DRAWINGS ARE FOR GENERAL INFORMATION ONLY. THE FINAL AIC OF ELECTRICAL EQUIPMENT SHALL BE BASED UPON WORST CONDITION FAULT CURRENT AND THE RECOMMENDATIONS MADE IN COORDINATION STUDY. THE COST TO PROVIDE ALL ELECTRICAL DISTRIBUTION EQUIPMENT WITH PROPER FAULT INTERRUPTING RATING (REGARDLESS OF WHAT IS SHOWN ON DRAWINGS) SHALL BE INCLUDED IN THE BID.

29. PROVIDE WEATHERPROOF TYPE WHILE-IN-USE COVER FOR ALL 15 AMP AND 20 AMP 120V. RECEPTACLES LOCATED IN OUTDOOR LOCATIONS WHETHER SPECIFICALLY INDICATED OR NOT.

30. THE PANEL DIRECTORY SHALL HAVE SPECIFIC LIST OF LOAD SERVED. THE GENERIC OR BROAD LIST IS NOT ACCEPTABLE. FOR EXAMPLE LISTING "LIGHTS IN CLASSROOM" IS NOT ADEQUATE. PROVIDE MORE SPECIFIC LIST SUCH AS "LIGHTS IN CLASSROOM 231, 234 AND STORAGE 239" SHALL BE PROVIDED TO REFLECT THE SPECIFIC LOAD SERVED.

31. UNLESS NOTED OTHERWISE, ALL WIRING SHALL BE IN CONDUIT EXCEPT LOW VOLTAGE WIRING ABOVE ACCESSIBLE CEILING SPACE. LOW VOLTAGE WIRING EXCEPT FIRE ALARM SYSTEM WIRING ABOVE ACCESSIBLE CEILING SPACE SHALL BE EXPOSED. ALL FIRE ALARM SYSTEM WIRING SHALL BE IN CONDUIT.

32. UNLESS SPECIFICALLY INDICATED, ALL CONDUITS OTHER THAN IN ELECTRICAL/MECHANICAL EQUIPMENT ROOMS AND AUTO/WOOD SHOPS SHALL BE CONCEALED. WHERE A FREE-STANDING EQUIPMENT IS TO BE FED, THE CONDUIT SHALL BE FED FROM FLOOR BELOW. POWER POLE OR CONDUIT FED FROM CEILING IS STRICTLY PROHIBITED.

33. THE CONTRACTOR MUST VISIT THE SITE TO FAMILIARIZE HIMSELF WITH THE EXISTING SITE AND BUILDING CONDITIONS WHICH WILL BE AFFECTED DURING CONSTRUCTION PRIOR TO SUBMITTING HIS BID PROPOSAL. CONTRACTOR IS CAUTIONED THAT THE PROJECT IS A REMODELING JOB AND IT IS ASSUMED THAT HE HAS INCLUDED FUNDS IN HIS BID TO COVER UNFORESEEN ITEMS WHICH MUST BE MOVED, RELOCATED OR ADJUSTED TO FIT HIS WORK. NO EXTRA COMPENSATION WILL BE ALLOWED FOR ANY EXTRA WORK CAUSED BY FAILURE TO VISIT, EXAMINE OR VERIFY.

34. ALL EXISTING EQUIPMENT IS TO REMAIN OPERATIONAL DURING CONSTRUCTION PERIOD. ALL TEMPORARY WIRING OR REROUTING OF CIRCUITRY TO ACHIEVE THIS IS BY THE ELECTRICAL CONTRACTOR. SHUTDOWN OF EXISTING SERVICES SHALL ONLY BE PERMITTED UPON WRITTEN APPROVAL FROM THE OWNER AND THEN ONLY FOR THAT DATE AND DURATION AGREED UPON. INCLUDE ALL PREMIUM TIME CHARGES IN THE BASE BID.

35. FOR THE AREA TO BE DEMOLISHED, THE DEMOLITION OF LIGHT FIXTURES, OUTLETS OR ANY OTHER ELECTRICAL EQUIPMENT/DEVICES SHALL BE PERFORMED AS REQUIRED. SEE ARCHITECTURAL DRAWINGS AND THE RESPECTIVE FLOOR PLANS IN ELECTRICAL DRAWINGS FOR DEMOLITION. ELECTRICAL CONTRACTOR SHALL REMOVE ALL ASSOCIATED RACEWAYS AND WIRING AS REQUIRED. ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE AND DISCONNECT APPLICABLE WIRING TO FACILITATE SAFE DEMOLITION.

36. THE EXISTING EQUIPMENT IS SHOWN BASED UPON THE INFORMATION OBTAINED THROUGH BRIEF SURVEY OF THE FACILITY. CONTRACTOR IS TO SURVEY THE EXISTING FACILITY IN ORDER TO DETERMINE THE FULL EXTENT OF WORK AND BE COMPLETELY FAMILIAR WITH ALL THE EXISTING CONDITIONS INCLUDING PLUMBING, HVAC, ELECTRICAL, ETC. THE ARCHITECT/ENGINEER AND OWNER ASSUME NO RESPONSIBILITY IN RESPECT TO THE ACCURACY OF SUCH INFORMATION SHOWN ON THE DRAWINGS. CONTRACTOR SHALL MAKE ADEQUATE ALLOWANCE IN HIS BID FOR SOME DEVIATIONS TO SUCH INFORMATION.

37. WHERE EXISTING CONDITIONS PREVENT PROPER INSTALLATION OF PROPOSED WORK, REROUTE, EXTEND OR ALTER EXISTING WORK SO AS TO ACCOMMODATE PROPOSED WORK REQUIREMENTS.

38. AS REQUIRED EXTEND EXISTING RECEPTACLES WHERE EXISTING WALLS ARE FURRED OUT. REFER TO ARCHITECTURAL DRAWINGS FOR EXTENT OF THIS WORK.

39. IN ORDER TO FACILITATE THE REPLACEMENT OF EXISTING OR INSTALLATION OF NEW DUCTWORK AND/OR PIPING, REMOVE EXISTING LIGHTING FIXTURE AND/OR SMOKE /HEAT DETECTORS AS REQUIRED, WHETHER SHOWN ON DRAWINGS OR NOT. THIS NOTE IS GENERALLY APPLICABLE, BUT NOT LIMITED TO, WHERE THERE IS NO DROPPED CEILING (IN EXPOSED CEILING AREA). ONCE THE INSTALLATION OF DUCTWORK, PIPING ETC IS COMPLETED, REINSTALL ELECTRICAL EQUIPMENT/DEVICES. PROVIDE ADEQUATE ALLOWANCE IN THE BID FOR THIS WORK.

40. ELECTRICAL CONTRACTOR SHALL VERIFY SIZE OF ALL EXISTING OPENINGS, DOORS, ETC., FOR REMOVING EQUIPMENT AND MATERIAL OUT OF BUILDING. ELECTRICAL CONTRACTOR SHALL PROVIDE ANY NEW OR ENLARGED OPENINGS IN EXISTING BUILDING CONSTRUCTION REQUIRED TO FACILITATE EXITING OF HIS EQUIPMENT/MATERIAL AND RESTORE SUCH OPENINGS TO THEIR ORIGINAL STATE AFTER COMPLETION.

41. THE ELECTRICAL DRAWINGS SHOW DIRECT PRINCIPLE WORK WHICH MUST BE ACCOMPLISHED UNDER THIS CONTRACT. INDIRECT AND INCIDENTAL WORK WILL ALSO BE NECESSARY DUE TO CHANGES AFFECTING EXISTING ARCHITECTURAL, MECHANICAL, PLUMBING OR OTHER SYSTEMS. SUCH INCIDENTAL WORK IS ALSO PART OF THIS CONTRACT. INSPECT THOSE AREA, AND ASCERTAIN WORK NEEDED AND DO THAT WORK IN ACCORDANCE WITH THE CONTRACT REQUIREMENTS, AT NO ADDITIONAL COST.

42. PROVIDE GROUNDING OF ALL METALLIC EQUIPMENT/DEVICES (SUCH AS REINFORCING RODS, DRAINS, LADDERS, JUNCTION BOXES, LIGHTING FIXTURES, RACEWAY, PANELS, CONTROL PANELS, PUMPS, ETC.) LOCATED IN AND SERVING SWIMMING POOL AND HOT TUB.

43. ALL SWITCHBOARDS, DISTRIBUTION PANELS AND PANEL BOARDS SHALL BE FURNISHED WITH FULL RATED COPPER BUS ND BE BRACED FOR AVAILABLE FAULT CURRENT WITH MINIMUM RATINGS AS FOLLOWS:
    SWITCHBOARDS - 100,000 AIC
    DISTRIBUTION PANELS - 55,000 AIC
    PANELBOARDS - 10,000 AIC (120/208V) OR 14,000 AIC (277/480V)

44. ALL CIRCUIT BREAKERS FOR PANEL BOARDS SHALL BE THE BOLT-ON TYPE, RATED FOR SWITCHING DUTY AND RATED FOR THE AVAILABLE FAULT CURRENT WITH MINIMUM RATING OF 10,000 AIC FOR 120/208V PANELS AND 14,000 AIC FOR 277/480V PANELS.

45. ALL CIRCUIT BREAKER SIZES AND QUANTITIES INDICATED ON SCHEDULE(S) ARE FOR THE CONVENIENCE OF THE BIDDERS ONLY. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING AND SUPPLYING ALL REQUIRED BRANCH BREAKERS.

46. UNLESS SPECIFICALLY NOTED OTHERWISE, ALL NEW CONDUITS SHALL BE SURFACE MOUNTED, SECURED AT INTERVALS PER INDUSTRY STANDARD. CONDUIT LOCATED WITHIN INTERIOR SPACES MAY BE EMT. ALL CONDUIT LOCATED OUTDOORS OR UNDERGROUND SHALL BE GRC.

LIGHTING

SYMBOL	DESCRIPTION
	2'x4' FLUORESCENT LTG. FIXTURE
	1'x4' FLUORESCENT LTG. FIXTURE
	1'x8' FLUORESCENT LTG. FIXTURE
	2'x2' FLUORESCENT LTG. FIXTURE
	DOWN LIGHT FIXTURE
	DOWN LIGHT FIXTURE

EMERGENCY LIGHTING

SYMBOL	DESCRIPTION
	TWO-LAMP WALL MOUNTED EMERGENCY FIXTURE
	TWO-LAMP CEILING MOUNTED EMERGENCY FIXTURE
	ONE-LAMP CEILING MOUNTED EMERGENCY FIXTURE

EXIT LIGHTING

SYMBOL	DESCRIPTION
	EXIT SIGN

SWITCHES

SYMBOL	DESCRIPTION
$	SINGLE POLE SWITCH
OS	OCCUPANCY SENSOR

POWER EQUIPMENT

SYMBOL	DESCRIPTION
F	BUS PLUG FUSIBLE DISCONNECT SWITCH
C	BUS PLUG CIRCUIT BREAKER
	BRANCH CIRCUIT PANEL BOARD
	DISTRIBUTION PANEL BOARD
	CEILING MOUNTED JUNCTION BOX
	WALL MOUNTED JUNCTION BOX
	JUNCTION BOX W/ FLEXIBLE CONDUIT
$T OR $T	TOGGLE DISCONNECT SWITCH WITH THERMAL OVERLOAD RELAY
T OR T	TOGGLE DISCONNECT SWITCH WITH THERMAL OVERLOAD RELAY AND FLEXIBLE CONDUIT
	NON-FUSED DISCONNECT SWITCH
F	FUSED DISCONNECT SWITCH
	COMBO MOTOR STARTER WITH NON-FUSED DISCONNECT SWITCH
	COMBO MOTOR STARTER WITH FUSED DISCONNECT SWITCH
	MAGNETIC MOTOR STARTER
T	TRANSFORMER
	GROUNDING

FIRE ALARM

SYMBOL	DESCRIPTION
DD	DUCT MOUNTED SMOKE DETECTOR
R	SHUT DOWN RELAY
RA	REMOTE RESET

ABBREVIATION LIST

AFF	DENOTES ABOVE FINISHED FLOOR.
AFG	DENOTES ABOVE FINISHED GRADE.
C/B	DENOTES CIRCUIT BREAKER.
CCT	DENOTES CIRCUIT.
C/T	DENOTES CURRENT TRANSFORMER.
CU	DENOTES COPPER.
EC	DENOTES ELECTRICAL CONTRACTOR.
EMT	ELECTRIC METALLIC TUBING
GFCI	DENOTES GROUND FAULT CIRCUIT INTERRUPTER
GRC	GALVANIZED RIGID CONDUIT
GRD	DENOTES GROUND.
KWH	DENOTES KILOWATT HOUR.
VIF	DENOTES VERIFY IN FIELD.
WP	DENOTES EQUIPMENT IN A WEATHERPROOF ENCLOSURE.

RECEPTACLES

WALL MOUNTED	DESCRIPTION
	NORMAL DUPLEX RECEPTACLE
	NORMAL FOURPLEX RECEPTACLE
	DUPLEX ISOLATED GROUND RECEPTACLE
	FOURPLEX ISOLATED GROUND RECEPTACLE
	DUPLEX RECEPTACLE FOR CRITICAL DISTRIBUTION SYSTEM
	FOURPLEX RECEPTACLE FOR CRITICAL DISTRIBUTION SYSTEM
	DUPLEX RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTER FEATURE
	SWITCHED DUPLEX RECEPTACLE
	SIMPLEX RECEPTACLE
TV	TV OUTLET
TV	TV OUTLET AND DUPLEX RECEPTACLE

KEITH BRYANT O'HIGGINS REGISTERED No. PE10911154 STATE OF INDIANA PROFESSIONAL ENGINEER
EXPIRES 07/31/2020

TRIA ARCHITECTURE

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DUNELAND SCHOOL CORPORATION

2020 MECHANICAL RENOVATIONS AT: WESTCHESTER INTERMEDIATE SCHOOL 1050 SOUTH 5TH STREET, CHESTERTON, IN 46304

PROJECT NUMBER: 19-0592
PROJECT MANAGER: MG
DRAWN BY: OAS
ISSUED FOR BID: 01/07/2020
REVISIONS: 1 2 3 4 5

ABBREVIATIONS, NOTES, AND SYMBOLS - ELECTRICAL

E3.01