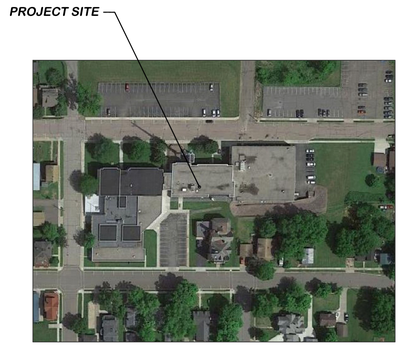
BOILER REPLACEMENT PROJECT FOR

CLARK COUNTY COURTHOUSE

517 COURT STREET, NEILLSVILLE WI 54456

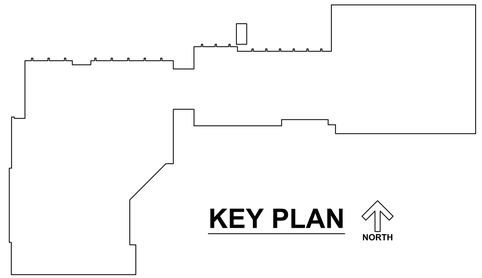
STATE MAP

NORTH



LOCATION MAP

NORTH



KEY PLAN

NORTH

CONTRACTOR ABBREVIATION KEY

ABBR:	CONTRACTOR:
E.C.	ELECTRICAL CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
T.C.C.	TEMPERATURE CONTROL CONTRACTOR

PROJECT DIRECTORY:

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MECHANICAL SHEET INDEX

GENERAL MECHANICAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH NATIONAL, STATE, & LOCAL CODES; AS WELL AS THE NATIONALLY RECOGNIZED TESTING AND APPROVAL AGENCIES.
2. AIR BALANCING SHALL BE DONE IN ACCORDANCE WITH THE SMACNA MANUAL FOR BALANCING AND ADJUSTMENT OF AIR HANDLING SYSTEMS. PROVIDE A FINAL REPORT TO ENGINEER FOR REVIEW.
3. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
4. PROVIDE THE OWNER WITH TRAINING AND WITH OPERATION AND MAINTENANCE MANUALS FOR THE FURNISHED EQUIPMENT PRIOR TO COMPLETION OF WORK.
5. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, EQUIPMENT SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY VERIFY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
6. THE INSTALLING CONTRACTOR SHALL VERIFY REQUIREMENTS FOR SUPPORTED EQUIPMENT AND COMPONENTS OF ANY KIND WITH THE BUILDING AND/OR SUPPORT STRUCTURE DESIGNER PRIOR TO INSTALLATION. APEX ENGINEERING DOES NOT PROVIDE STRUCTURAL DESIGN SERVICES.
7. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES WITH ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OF EQUIPMENT ORDERS.
8. ALL CONTROLS SHALL BE PROPERLY TESTED, ADJUSTED AND CALIBRATED BEFORE WORK IS COMPLETED. MOUNT THERMOSTATS AT 48" A.F.F. PROVIDE INSULATED BASE WHERE MOUNTED ON AN EXTERIOR WALL.
9. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY BETWEEN DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
10. DO NOT BLOCK TUBE/COIL PULL OR EQUIPMENT SERVICE CLEARANCES.
11. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
12. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
13. MAINTAIN WORKING CLEARANCES AT ELECTRICAL EQUIPMENT SUCH AS ELECTRICAL PANELS, MOTOR STARTERS, SWITCHES AND DISCONNECTS PER NEC REQUIREMENTS.
14. CONTRACTOR IS RESPONSIBLE FOR ALL COST ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
15. ALL EQUIPMENT, DUCTWORK, & PIPING SHALL BE KEPT CLEAN FROM DIRT & DEBRIS. DO NOT ALLOW THE INSIDE OF DUCT & LINER TO BE EXPOSED DURING CONSTRUCTION.
16. ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA STANDARDS IN ACCORDANCE WITH THE APPROPRIATE PRESSURE CLASSIFICATION.
17. DUCTWORK SIZE LISTED ON PLANS ARE INTERNAL FREE AREA DIMENSIONS. THE FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED.
18. AIR VENTS SHALL BE INSTALLED AT ALL HIGH POINTS & DRAINS AT ALL LOW POINTS OF WATER PIPING SYSTEMS.
19. PIPING CONNECTIONS WITH UNIONS OR FLANGES SHALL BE MADE TO COILS OR TUBE BUNDLES TO FACILITATE REMOVAL OF THAT ITEM WITHOUT DISTURBING THE BRANCH VALVES AND/OR PIPING.
20. SHUT-OFF VALVES INSTALLED IN INSULATED PIPING SHALL BE PROVIDED WITH EXTENDED OPERATOR HANDLE TO OUTSIDE OF INSULATION.
21. NO PIPING SHALL BE INSTALLED ABOVE ELECTRICAL EQUIPMENT, UNLESS OTHERWISE NOTED. REFER TO ELECTRICAL DRAWINGS FOR ELECTRICAL EQUIPMENT LOCATIONS. COORDINATE WITH ELECTRICAL TRADE FOR EXACT LOCATIONS.
22. OUTSIDE AIR INTAKES SHALL BE A MINIMUM DISTANCE OF 10'-0" FROM ANY EXHAUST/RELIEF OUTLET, FLUE, GAS OR PLUMBING VENT. COORDINATE WITH RESPECTIVE TRADES.
23. SEAL ALL EXTERIOR OPENINGS WATER TIGHT.

MECHANICAL RENOVATION NOTES:

1. THE DEMOLITION PLAN HAS BEEN PREPARED TO ASSIST THE M.C. IN DETERMINING THE SCOPE OF WORK TO BE INCLUDED IN THIS PROJECT. IT IS NOT INTENDED TO BE A COMPLETE INDICATION OF ALL WORK REQUIRED TO COMPLETE THE PROJECT. THE M.C. SHALL REVIEW DRAWINGS AND SPECIFICATIONS INCLUDING DEMOLITION SHOWN FOR OTHER TRADES, AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS, IN ORDER TO DETERMINE THE SCOPE OF DEMOLITION WORK.
2. FIELD VERIFY THE AVAILABLE CLEARANCES FOR DUCTWORK AND PIPING BEFORE FABRICATION. RISES AND DROPS MAY BE NECESSARY BECAUSE OF EXISTING FIELD CONDITIONS.
3. REFER TO DIVISION 1, GENERAL REQUIREMENTS, CUTTING AND PATCHING FOR ALL CUTTING AND PATCHING.
4. OBTAIN PERMISSION FROM OWNER BEFORE SHUTTING DOWN ANY SYSTEM FOR ANY REASON. MAINTAIN SERVICE TO ALL COMPONENTS THAT ARE TO REMAIN UNTIL NEW SYSTEMS ARE INSTALLED.
5. ALL REMOVED ITEMS THAT THE OWNER WANTS SHALL BE REMOVED AND TURNED OVER TO THE OWNER AT DESIGNATED STORAGE SPACE ON SITE. ALL REMAINING ITEMS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.
6. REMOVE ALL ACCESSIBLE ABANDONED OR UNUSED PNEUMATIC LINES AND CONTROLS THROUGHOUT WORK AREA. PATCH ALL CEILING, FLOOR, AND WALL OPENINGS TO MATCH EXISTING CONDITIONS.
7. PIPE INSULATOR SHALL INSTALL NEW INSULATION FROM EXISTING ISOLATION VALVES TO EACH PIECE OF NEW OR REMOVED EQUIPMENT OR AS DISTURBED/REMOVED BY M.C. FOR REQUIRED WORK. MAINTAIN VAPOR BARRIER ON ALL CHW PIPING AS SPECIFIED.

HYDRONIC PIPE SIZING CHART

REQUIRED PIPE SIZE	COPPER PIPE (GPM)	STEEL PIPE (GPM)
¾"	0 – 3.0	0 – 3.5
1"	3.1 – 6.5	3.6 – 6.7
1¼"	6.6 – 11.0	6.8 – 14.0
1½"	11.1 – 18.0	14.1 – 21.0
2"	18.1 – 38.0	21.1 – 42.0
2½"	38.1 – 68.0	42.1 – 68.0
3"	68.1 – 110.0	68.1 – 120.0
4"		120.1 – 250.0
5"		250.1 – 450.0
6"		450.1 – 720.0

GENERAL ELECTRICAL NOTES:

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH NATIONAL, STATE, & LOCAL CODES; AS WELL AS THE NATIONALLY RECOGNIZED TESTING AND APPROVAL AGENCIES.
2. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, PANELS, CONDUIT, ETC. ARE DIAGRAMMATIC AND MAY NOT REFLECT EXACT INSTALLATION CONDITIONS. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
3. PROVIDE THE OWNER WITH TRAINING AND WITH OPERATION AND MAINTENANCE MANUALS FOR THE FURNISHED EQUIPMENT PRIOR TO COMPLETION OF WORK.
4. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, EQUIPMENT SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY VERIFY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
5. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES WITH ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OF EQUIPMENT ORDERS.

ELECTRICAL RENOVATION NOTES:

1. THE DEMOLITION PLAN HAS BEEN PREPARED TO ASSIST THE E.C. IN DETERMINING THE SCOPE OF WORK TO BE INCLUDED IN THIS PROJECT. IT IS NOT INTENDED TO BE A COMPLETE INDICATION OF ALL WORK REQUIRED TO COMPLETE THE PROJECT. THE E.C. SHALL REVIEW DRAWINGS AND SPECIFICATIONS INCLUDING DEMOLITION SHOWN FOR OTHER TRADES, AND BECOME FAMILIAR WITH THE EXISTING CONDITIONS, IN ORDER TO DETERMINE THE SCOPE OF DEMOLITION WORK.
2. UNLESS OTHERWISE NOTED, ALL PANELS SHOWN REMAIN. PANELS SHOWN FOR REFERENCE ONLY.
3. E.C. SHALL REWORK EXISTING CONDUIT AND CONDUCTORS AS REQUIRED TO MAINTAIN CONTINUITY.
4. E.C. SHALL PROVIDE COVERS ON ALL OPEN J-BOXES CREATED BY DEMOLITION WORK. E.C. SHALL PROVIDE PATCHING AND PAINTING CREATED BY DEMOLITION WORK.
5. ALL REMOVED ITEMS THAT THE OWNER WANTS SHALL BE REMOVED AND TURNED OVER TO THE OWNER AT A DESIGNATED STORAGE SPACE ON SITE. ALL REMAINING ITEMS REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

MECHANICAL (HVAC) LEGEND

GENERAL SYMBOLS

- THERMOSTAT
- SPACE SENSOR (AS INDICATED)
- WALL SWITCH OR TIMER
- MECH. DEMOLITION KEYNOTES
- MECH. REMODEL KEYNOTES
- ELEC. DEMOLITION KEYNOTES
- ELEC. REMODEL KEYNOTES
- MECHANICAL EQUIPMENT TAG
- MECHANICAL EQUIPMENT (NEW)
- MECHANICAL EQUIPMENT (DEMO)
- MECHANICAL EQUIPMENT (EXISTING)
- INDICATES DIRECTION OF AIR FLOW
- SIDEWALL RETURN/EXHAUST/TRANSFER GRILLE
- SIDEWALL SUPPLY/TRANSFER GRILLE
- ROOM NAME / ### — INDICATES ROOM NAME, INDICATES ROOM NUMBER
- SECTION CUT
- CALLOUT BUBBLE
- CALLOUT REFERENCE DETAIL NUMBER, CALLOUT REFERENCE SHEET NUMBER
- REVISION NUMBER
- REVISION CLOUD

DUCTWORK SYMBOLS

- MITERED ELBOW W/ TURNING VANES
- SUPPLY/OUTSIDE/MIXED AIR DUCT DOWN
- SUPPLY/OUTSIDE/MIXED AIR DUCT UP
- RETURN/EXHAUST/TRANSFER AIR DUCT DOWN
- RETURN/EXHAUST/TRANSFER AIR DUCT UP
- ROUND DUCT DOWN
- ROUND DUCT UP
- DUCT OFFSET (AS INDICATED)
- SQUARE/RECTANGULAR DUCT BREAK
- MANUAL BALANCING (VOLUME) DAMPER
- CONTROL DAMPER W/ ACTUATOR
- ROUND DUCT OR 2-LINE PIPE BREAK

PIPING SYMBOLS

- GATE VALVE
- CHECK VALVE
- BALL VALVE
- BUTTERFLY VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- RELIEF VALVE
- PRESSURE REDUCING VALVE
- BALANCE VALVE (B.V.)
- FLOW MEASURING DEVICE (F.M.D.)
- STRAINER
- THERMOMETER
- TEMPERATURE SENSOR
- PRESSURE GAUGE
- UNION (OR FLANGE)
- AUTOMATIC AIR VENT
- CAPPED PIPING
- PIPE BREAK LINES FOR POINT OF DEMOLITION
- PIPE BREAK LINES FOR POINT OF RECONNECTION
- SINGLE LINE PIPE BREAK
- INDICATES DIRECTION OF WATER FLOW
- PIPE DOWN
- PIPE UP
- TEE – BOTTOM CONNECTION
- TEE – TOP CONNECTION
- PIPE ELEVATION CHANGE
- CIRCULATING PUMP

PIPING SYSTEM ABBREVIATIONS

—CD—	CONDENSATE DRAIN
—CHWR—	CHILLED WATER RETURN
—CHWS—	CHILLED WATER SUPPLY
—G—	GAS (TYPE AS INDICATED)
—HWR—	HOT WATER RETURN
—HWS—	HOT WATER SUPPLY
—LPC—	LOW PRESSURE CONDENSATE
—LPS—	LOW PRESSURE STEAM SUPPLY
—PC—	PUMPED CONDENSATE

EQUIPMENT ABBREVIATIONS

AHU	AIR HANDLING UNIT
AS	AIR SEPARATOR
B	BOILER
BCP	BOILER CIRCULATING PUMP
BT	BUFFER TANK
C	CONVECTOR
CDP	CONDENSATE PUMP
CH	CHILLER
CONV	STEAM-TO-HOT WATER CONVERTER
CP	CIRCULATING PUMP
CUH	CABINET UNIT HEATER
DAS	DIRT AND AIR SEPARATOR
EF	EXHAUST FAN
ET	EXPANSION TANK
H	HUMIDIFIER
HC	HEATING COIL
HX	HEAT EXCHANGER
L	LOUVER
PRV	PRESSURE REDUCING VALVE
ST	STEAM TRAP
UH	UNIT HEATER

GENERAL ABBREVIATIONS

A	AMPERE
A/C	AIR CONDITIONING
A.D.	ACCESS DOOR
A.F.F.	ABOVE FINISH FLOOR
A.F.G.	ABOVE FINISH GRADE
A.F.R.	ABOVE FINISHED ROOF
AMPS	AMPERES
AUX	AUXILIARY
AVG.	AVERAGE
B.D.	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CAP.	CAPACITY
CFM	CUBIC FEET PER MINUTE
CL	CENTERLINE
CLG.	COOLING
CEIL.	CEILING
C.O.	CLEANOUT
CONT.	CONTINUE
CU FT.	CUBIC FEET
CU IN.	CUBIC INCHES
ΔP	CHANGE IN PRESSURE
ΔT	CHANGE IN TEMPERATURE
°	DEGREE
DB	DRY BULB
DC	DIRECT CURRENT
DDC	DIRECT DIGITAL CONTROLS
DIA.	DIAMETER
DISC.	DISCONNECT
DN.	DOWN
DP	DIFFERENTIAL PRESSURE
DWG.	DRAWING
DWPT	DEWPOINT
DX	DIRECT EXPANSION (REFRIGERATION)
EAT	ENTERING AIR TEMPERATURE
EDB	ENTERING DRY BULB TEMPERATURE
EFF.	EFFICIENCY
EL.	ELEVATION
EWB	ENTERING WET BULB TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EWT	ENTERING WATER TEMPERATURE
EX.	EXISTING
EXH.	EXHAUST
°F	DEGREES FAHRENHEIT
F.D.	FIRE DAMPER
FLA	FULL LOAD AMPS
FLR.	FLOOR
FPI	FINS PER INCH
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
GAL	GALLONS
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GRV	GRAVITY RELIEF VENT
HD	HEAD (FEET)
HP	HORSEPOWER
HTG.	HEATING
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HW	HOT WATER
HZ	HERTZ (FREQUENCY)
ID	INSIDE DIAMETER
IN.	INCH OR INCHES
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LDB	LEAVING DRY BULB TEMPERATURE
LWB	LEAVING WET BULB TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MAT	MIXED AIR TEMPERATURE
MAX.	MAXIMUM
MBH	THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPS
MECH.	MECHANICAL
MFG.	MANUFACTURER
MOCP	MAXIMUM OVER CURRENT PROTECTION
M.O.D.	MOTOR OPERATED DAMPER
MTD.	MOUNTED
NIC	NOT IN CONTRACT
NOM.	NOMINAL
NPS	NOMINAL PIPE SIZE
NTS	NOT TO SCALE
OAT	OUTSIDE AIR TEMPERATURE
O.B.D.	OPPOSED BLADE DAMPER
O.C.	ON CENTER
OD	OUTSIDE DIAMETER
O.E.D.	OPEN ENDED DUCT
PD	PRESSURE DROP
PSI	POUNDS PER SQUARE INCH
PSIG	PSI GAUGE
ø	ROUND DIAMETER
RAT	RETURN AIR TEMPERATURE
RM.	ROOM
RPM	REVOLUTIONS PER MINUTE
SAT	SUPPLY AIR TEMPERATURE
SD	SMOKE DAMPER
SQ. FT.	SQUARE FEET
SHT.	SHEET
SM	SMOKE DETECTOR
SP	STATIC PRESSURE
SPEC.	SPECIFICATION
SPD.	SPEED
S.S.	STAINLESS STEEL
STD.	STANDARD
T.A.	THROW AWAY
TEMP.	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TYP.	TYPICAL
V	VOLTS
V.D.	VOLUME (BALANCING) DAMPER
VEL	VELOCITY
WB	WET BULB
W/	WITH
Z.D.	ZONE DAMPER

LINE TYPE KEY

- ——— NEW WORK BY MECHANICAL CONTRACTOR (DARK SOLID LINE)
- ——— NEW WORK BY OTHERS AND/OR EXISTING TO REMAIN (LIGHT SOLID LINE)
- – – – – – EXISTING TO BE REMOVED BY MECHANICAL CONTRACTOR (DARK SHORT DASHED LINE)

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BOILER REPLACEMENT PROJECT FOR
CLARK COUNTY COURTHOUSE
517 COURT STREET
NEILLSVILLE, WISCONSIN 54456

TITLE:
MECHANICAL GENERAL INFORMATION AND TITLE SHEET

DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

PROJECT NO: 22101
DRAWN BY: LJJ/PDK
DESIGNED BY: JKM/LJJ
DATE: 10-16-2023
SHEET: M001

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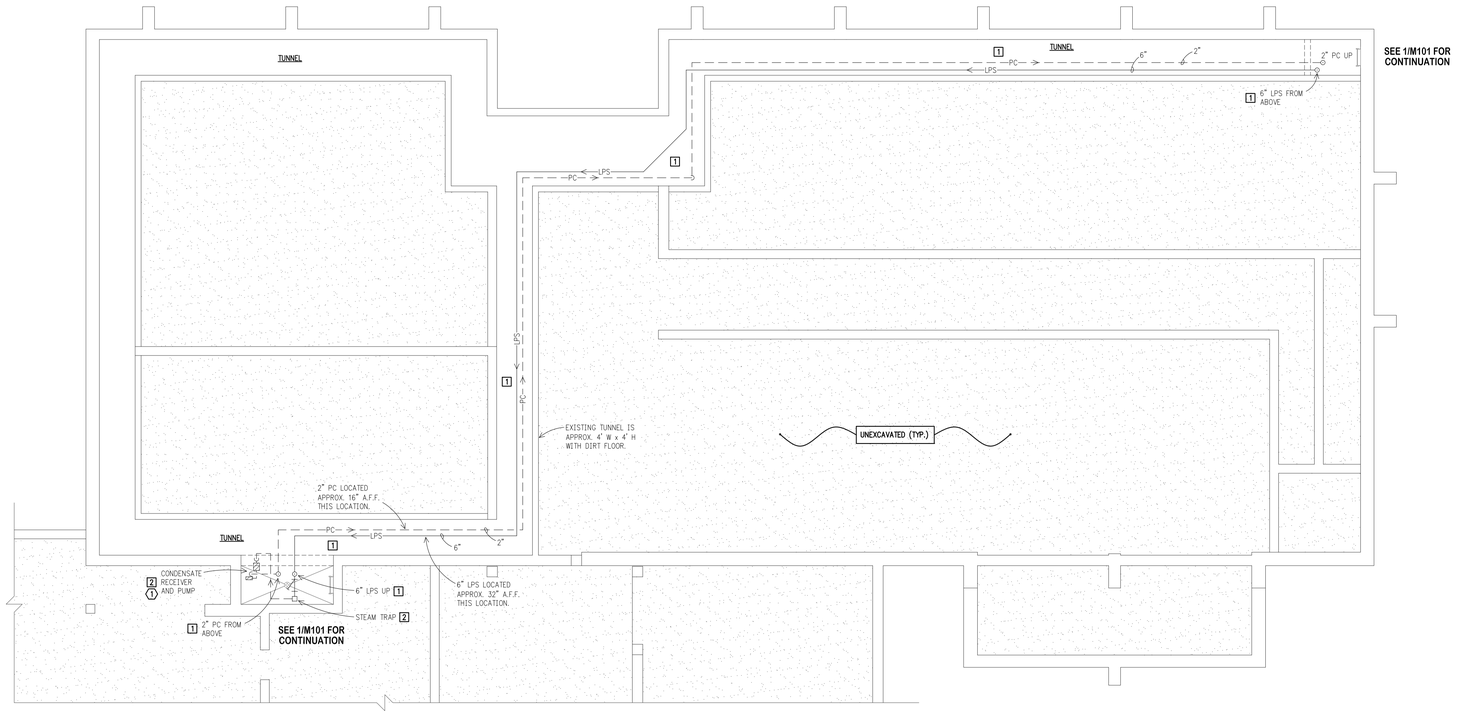


1 / M100 **MECHANICAL FOUNDATION AND TUNNEL PLAN** (DEMOLITION)
1/8"= 1'-0"

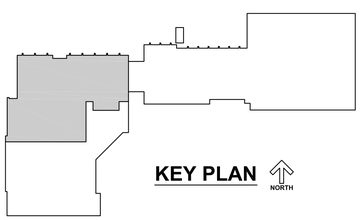
NORTH

MECHANICAL DEMOLITION NOTES:

1. ABANDON PIPING IN PLACE, UNDER ALTERNATE BID PIPING, HANGERS AND ACCESSORIES TO BE REMOVED COMPLETE. PATCH AND SEAL ALL UNUSED/REMAINING WALL, FLOOR, AND CEILING OPENINGS FROM REMOVED PIPING. REFER TO SPECIFICATION FOR REQUIREMENTS.
2. DISCONNECT AND ABANDON CONDENSATE RECEIVER AND PUMP. UNDER ALTERNATE BID CONDENSATE RECEIVER AND PUMP TO BE REMOVED COMPLETE INCLUDING STRAINERS, STEAM TRAPS, CONTROL AND ACCESSORIES.

ELECTRICAL DEMOLITION NOTES:

1. SEE MECHANICAL NOTE 2 (ALTERNATE). E.C. SHALL DISCONNECT PUMPS AND ALL APPURTENANCES TO THE SOURCE. UPDATE PANELBOARD SCHEDULE.



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BOILER REPLACEMENT PROJECT FOR

CLARK COUNTY COURTHOUSE

517 COURT STREET

NEILLSVILLE, WISCONSIN 54456

TITLE:

MECHANICAL FOUNDATION AND TUNNEL DEMOLITION PLAN

DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

PROJECT NO: **22101**

DRAWN BY: **LJJ/PDK**

DESIGNED BY: **JKM/PDK**

DATE: **10-16-2023**

SHEET: **M100**

APEX Engineering
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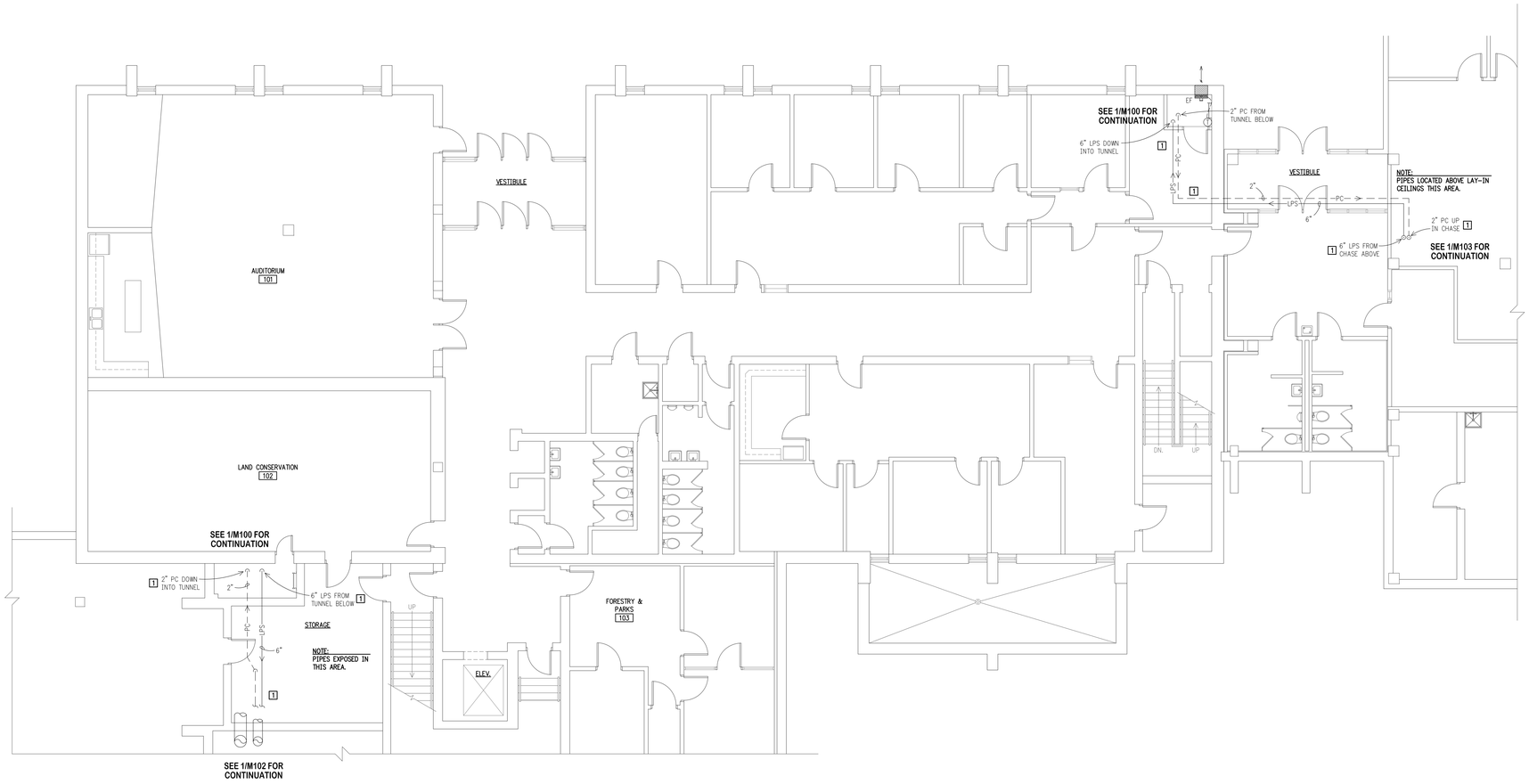


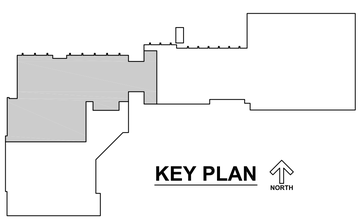
1 / M101 **MECHANICAL FIRST FLOOR PLAN** (DEMOLITION)
1/8"= 1'-0"

NORTH

MECHANICAL DEMOLITION NOTES:

1. ABANDON PIPING IN PLACE. UNDER ALTERNATE BID PIPING, HANGERS AND ACCESSORIES TO BE REMOVED COMPLETE. PATCH AND SEAL ALL UNUSED/REMAINING WALL, FLOOR, AND CEILING OPENINGS FROM REMOVED PIPING. REFER TO SPECIFICATION FOR REQUIREMENTS.

– UNDER ALTERNATE BID (PIPING REMOVAL): M.C. TO REMOVE CEILING GRID, TILE AND LIGHTING AS REQUIRED TO ACCOMPLISH WORK. NOTIFY OWNER OF ANY DEFICIENCIES BEFORE REMOVING. M.C. TO REINSTALL GRID, TILE AND LIGHTS AFTER REMOVAL OF PIPING. ANY BROKEN TILE, GRID OR LIGHTING THAT OCCURRED AS A RESULT OF THIS PROJECT SHALL BE REPLACED BY M.C. AT NO COST TO OWNER.



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517 COURT STREET

NEILLSVILLE, WISCONSIN 54456

TITLE:

MECHANICAL FIRST FLOOR DEMOLITION PLAN

DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

PROJECT NO: **22101**

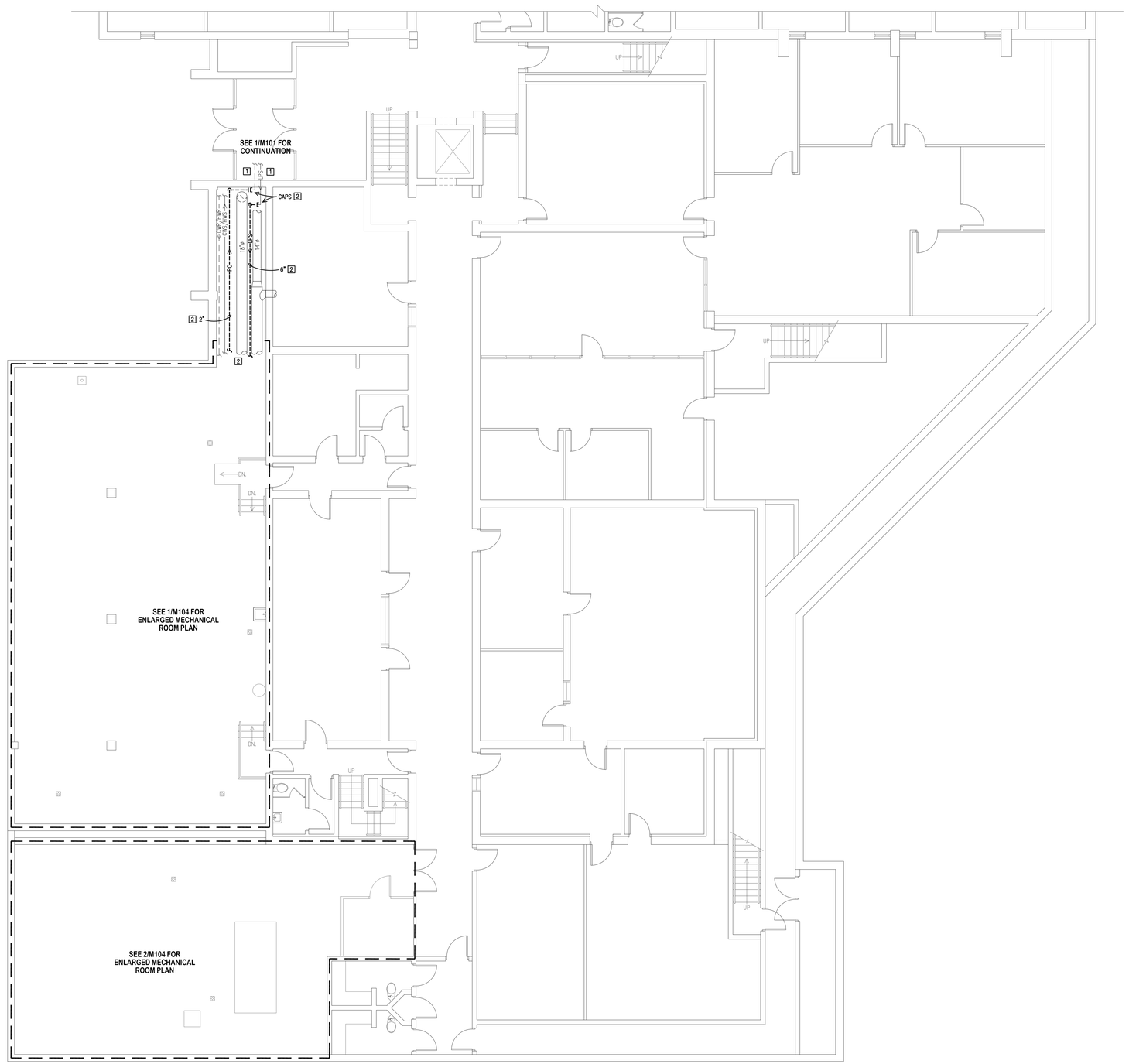
DRAWN BY: **LJJ/PDK**

DESIGNED BY: **JKM/PDK**

DATE: **10-16-2023**

SHEET: **M101**

landonJ 10/12/2023 9:24 AM 22101 Mech Plan Set.dwg



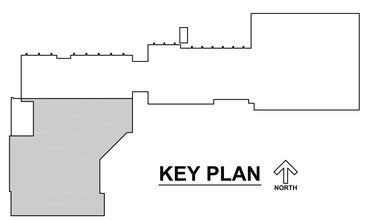
1 M102 **MECHANICAL SECOND FLOOR PLAN** (DEMOLITION)
1/8"= 1'-0"

NORTH

2 MECHANICAL DEMOLITION NOTES:

1. ABANDON PIPING IN PLACE. UNDER ALTERNATE BID PIPING, HANGERS AND ACCESSORIES TO BE REMOVED COMPLETE. PATCH AND SEAL ALL UNUSED/REMAINING WALL, FLOOR, AND CEILING OPENINGS FROM REMOVED PIPING. REFER TO SPECIFICATION FOR REQUIREMENTS.
2. REMOVE PIPING COMPLETE TO BREAK LINES AS SHOWN AND CAP. LABEL CAPPED PIPING 'ABANDONED'.

– UNDER ALTERNATE BID (PIPING REMOVAL): M.C. TO REMOVE CEILING GRID, TILE AND LIGHTING AS REQUIRED TO ACCOMPLISH WORK. NOTIFY OWNER OF ANY DEFICIENCIES BEFORE REMOVING. M.C. TO REINSTALL GRID, TILE AND LIGHTS AFTER REMOVAL OF PIPING. ANY BROKEN TILE, GRID OR LIGHTING THAT OCCURRED AS A RESULT OF THIS PROJECT SHALL BE REPLACED BY M.C. AT NO COST TO OWNER.



KEY PLAN NORTH

APEX Engineering
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Telephone: 715-835-7736
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BOILER REPLACEMENT PROJECT FOR

CLARK COUNTY COURTHOUSE

517 COURT STREET

NEILLSVILLE, WISCONSIN 54456

TITLE:

MECHANICAL SECOND FLOOR DEMOLITION PLAN

DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

PROJECT NO: **22101**

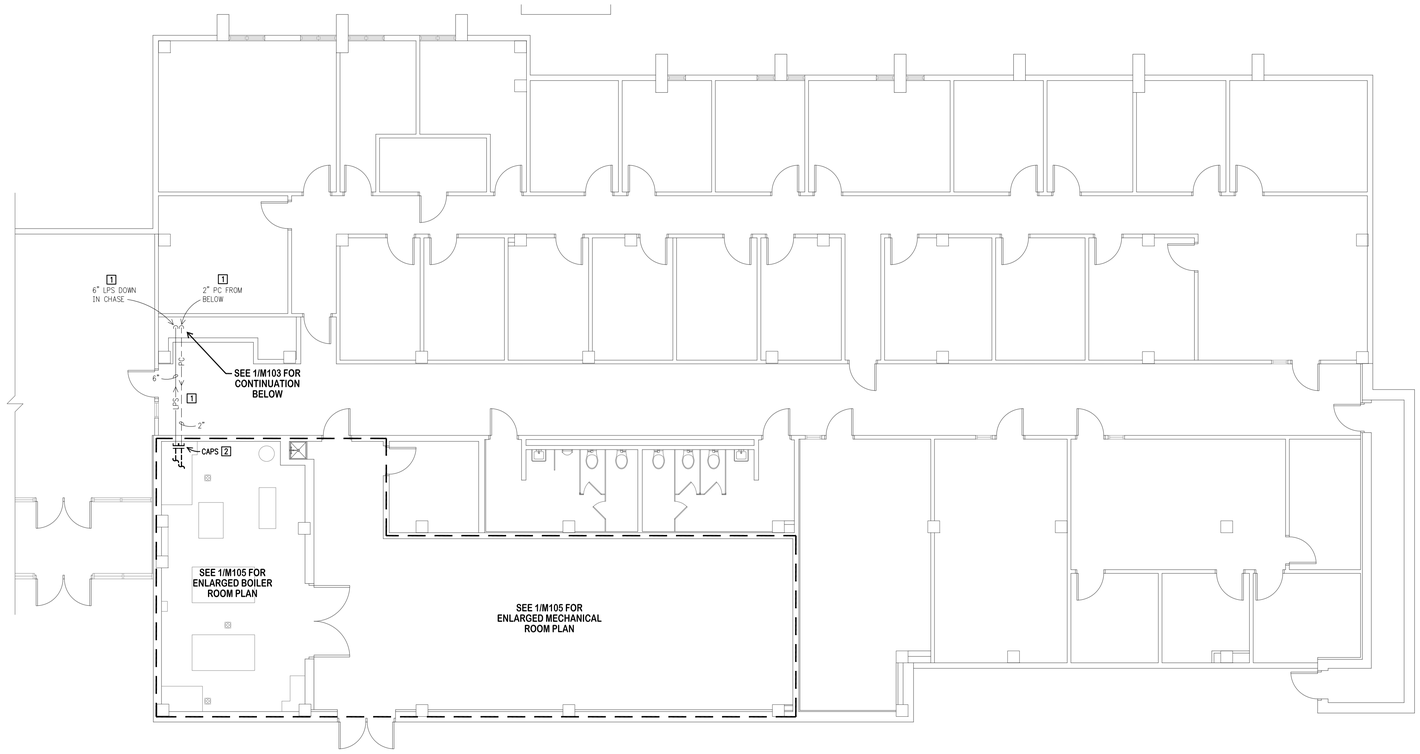
DRAWN BY: **LJJ/PDK**

DESIGNED BY: **JKM/PDK**

DATE: **10-16-2023**

SHEET: **M102**

APEX Engineering
landonJ 10/12/2023 9:25 AM 22101 Mech Plan Set.dwg

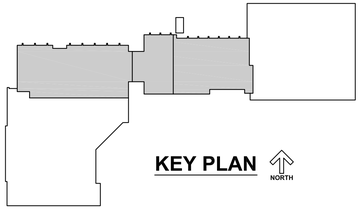


2 / M103 MECHANICAL FIFTH FLOOR PLAN (DEMOLITION)
1/8"= 1'-0"

NORTH

1 / M103 MECHANICAL THIRD FLOOR PLAN (DEMOLITION)
1/8"= 1'-0"

NORTH



KEY PLAN NORTH

MECHANICAL DEMOLITION NOTES:

1. ABANDON PIPING IN PLACE. UNDER ALTERNATE BID PIPING, HANGERS AND ACCESSORIES TO BE REMOVED COMPLETE. PATCH AND SEAL ALL UNUSED/REMAINING WALL, FLOOR, AND CEILING OPENINGS FROM REMOVED PIPING. REFER TO SPECIFICATION FOR REQUIREMENTS.
2. REMOVE PIPING COMPLETE TO BREAK LINES AS SHOWN AND CAP. LABEL CAPPED PIPING 'ABANDONED'.

– UNDER ALTERNATE BID (PIPING REMOVAL): M.C. TO REMOVE CEILING GRID, TILE AND LIGHTING AS REQUIRED TO ACCOMPLISH WORK. NOTIFY OWNER OF ANY DEFICIENCIES BEFORE REMOVING. M.C. TO REINSTALL GRID, TILE AND LIGHTS AFTER REMOVAL OF PIPING. ANY BROKEN TILE, GRID OR LIGHTING THAT OCCURRED AS A RESULT OF THIS PROJECT SHALL BE REPLACED BY M.C. AT NO COST TO OWNER.

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BOILER REPLACEMENT PROJECT FOR
CLARK COUNTY COURTHOUSE
517 COURT STREET
NEILLSVILLE, WISCONSIN 54456

TITLE:
MECHANICAL THIRD AND FIFTH FLOOR DEMOLITION PLANS

DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

PROJECT NO: **22101**
DRAWN BY: **LJJ/PDK**
DESIGNED BY: **JKM/PDK**
DATE: **10-16-2023**
SHEET: **M103**

APEX Engineering
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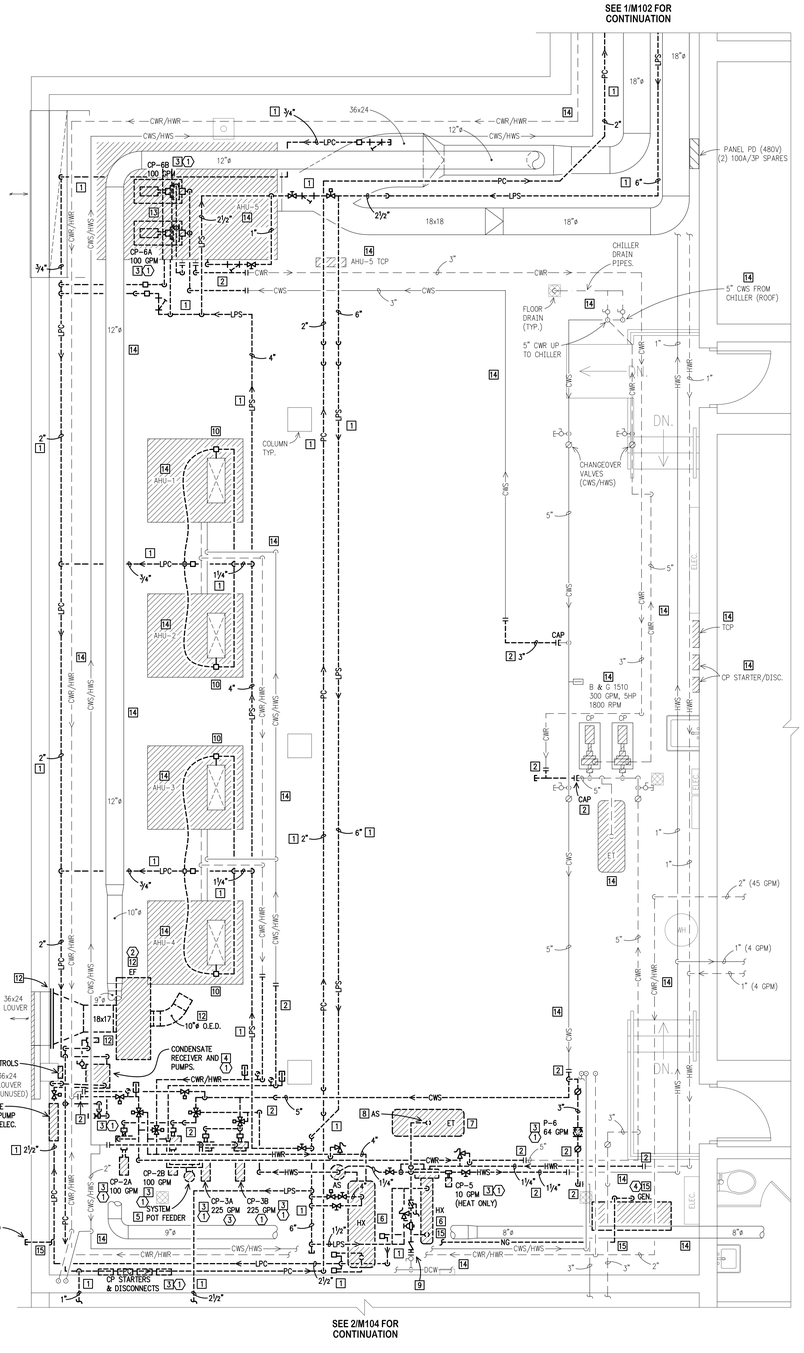
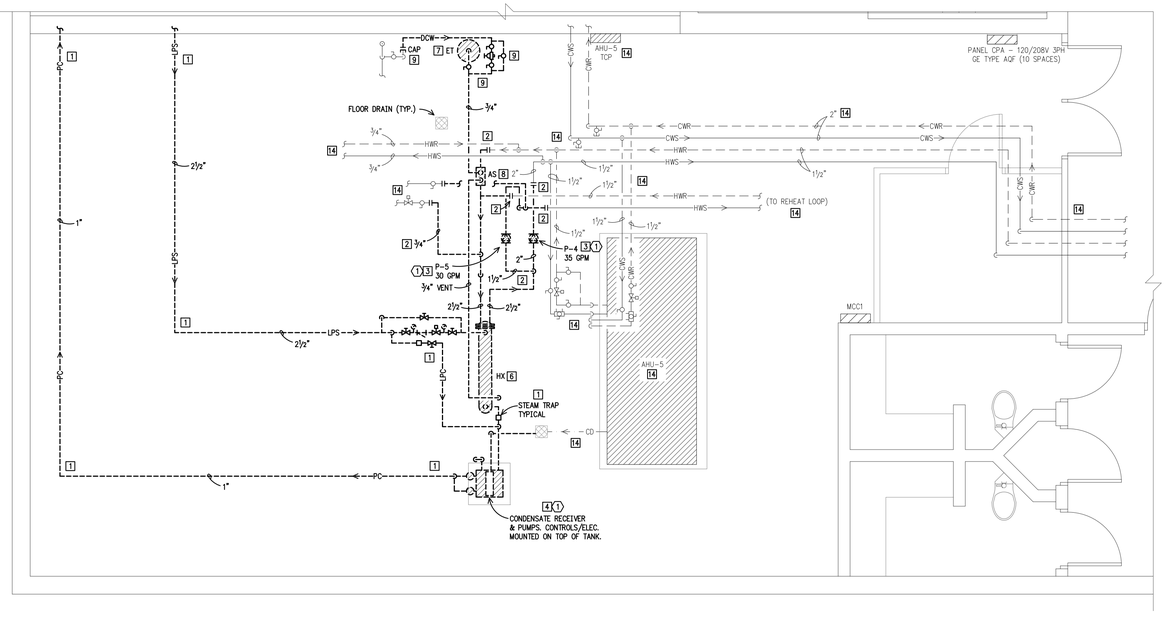


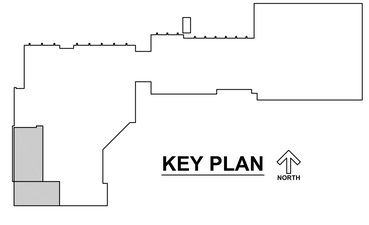
1 / M104 MECH. ROOM PLAN - SECOND FLOOR (DEMOLITION)
1/4"= 1'-0"

NORTH



2 / M104 MECH. ROOM PLAN - SECOND FLOOR (DEMOLITION)
1/4"= 1'-0"

NORTH



MECHANICAL DEMOLITION NOTES:

1. REMOVE LPS/LPC/PC PIPING COMPLETE INCLUDING STRAINERS, STEAM TRAPS AND ACCESSORIES.
2. REMOVE HWS,CWS/HWR,CWR PIPING COMPLETE OR TO BREAK LINES AS SHOWN AND CAP WHERE INDICATED.
3. DISCONNECT AND REMOVE CIRCULATING PUMP COMPLETE INCLUDING CONTROLS AND ACCESSORIES.
4. DISCONNECT AND REMOVE CONDENSATE RECEIVER AND PUMP(S) COMPLETE INCLUDING CONTROLS AND ACCESSORIES.
5. REMOVE CHEMICAL POT FEEDER COMPLETE INCLUDING ACCESSORIES.
6. REMOVE HEAT EXCHANGER COMPLETE INCLUDING ACCESSORIES, AND STEEL SUPPORT FRAME, WHERE APPLICABLE.
7. REMOVE EXPANSION TANK COMPLETE.
8. REMOVE AIR SEPARATOR COMPLETE.
9. REMOVE DOMESTIC MAKE-UP WATER SUPPLY PIPING TO BREAK LINES AS SHOWN INCLUDING PRESSURE REDUCING VALVE AND ACCESSORIES, CAP WHERE INDICATED.
10. REMOVE ABANDONED STEAM HUMIDIFIER COMPLETE INCLUDING SUPPLY AND DRAIN LINES, CONTROLS AND ACCESSORIES. PATCH DUCTWORK AT LOCATION OF REMOVED DISTRIBUTOR PROBE.
11. DISCONNECT AND REMOVE PNEUMATIC TCP.
12. REMOVE EXHAUST FAN COMPLETE INCLUDING 10"ø INLET DUCT, DISCHARGE DUCT TO BREAK LINES, CONTROL AND ACCESSORIES.
13. REMOVE STEAM HEATING COIL COMPLETE. NEW HOT WATER HEATING COIL TO BE INSTALLED IN REMODEL WORK.
14. EXISTING DUCTWORK/PIPING/EQUIPMENT REMAINS.
15. DISCONNECT AND REMOVE ABANDONED GENERATOR COMPLETE INCLUDING CONTROLS, ACCESSORIES AND GAS PIPING. ELECTRICAL DISCONNECTION BY E.C. WALL OPENING TO BE MODIFIED FOR NEW BOILER EXHAUST VENT IN REMODEL WORK.

ELECTRICAL DEMOLITION NOTES:

1. SEE MECHANICAL NOTE 3 AND 4. E.C. SHALL DISCONNECT PUMPS AND ALL APPURTENANCES TO THE SOURCE. UPDATE PANELBOARD AND OR MCC SCHEDULES/LABELS.
   SOUTH MECH. ROOM – P4,P5 FED FROM MCC1. CP–1 FED FROM CPA.
   NORTH MECH. ROOM – CP–2A,2B,3A,3B FED FROM PD. P6 FED FROM MCC1.
2. E.C. SHALL DISCONNECT HVAC EQUIPMENT AND ALL APPURTENANCES TO THE SOURCE. UPDATE PANELBOARD AND OR MCC SCHEDULES/LABELS. FIELD VERIFY POWER SOURCE.
3. ADJUST LIGHT FIXTURES IN THIS AREA AS NEEDED FOR DEMOLITION AND REMODEL WORK.
4. E.C. SHALL DISCONNECT ANY REMAINING ELECTRICAL CONNECTIONS TO THE ABANDONED GENERATOR. SEE MECHANICAL NOTE 15 FOR MORE INFORMATION.

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BOILER REPLACEMENT PROJECT FOR

CLARK COUNTY COURTHOUSE

517 COURT STREET

NEILLSVILLE, WISCONSIN 54456

TITLE:

MECHANICAL ROOM DEMOLITION PLANS - SECOND FLOOR

DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

PROJECT NO: 22101

DRAWN BY: LJJ/PDK

DESIGNED BY: JKM/PDK

DATE: 10-16-2023

SHEET: **M104**

APEX Engineering
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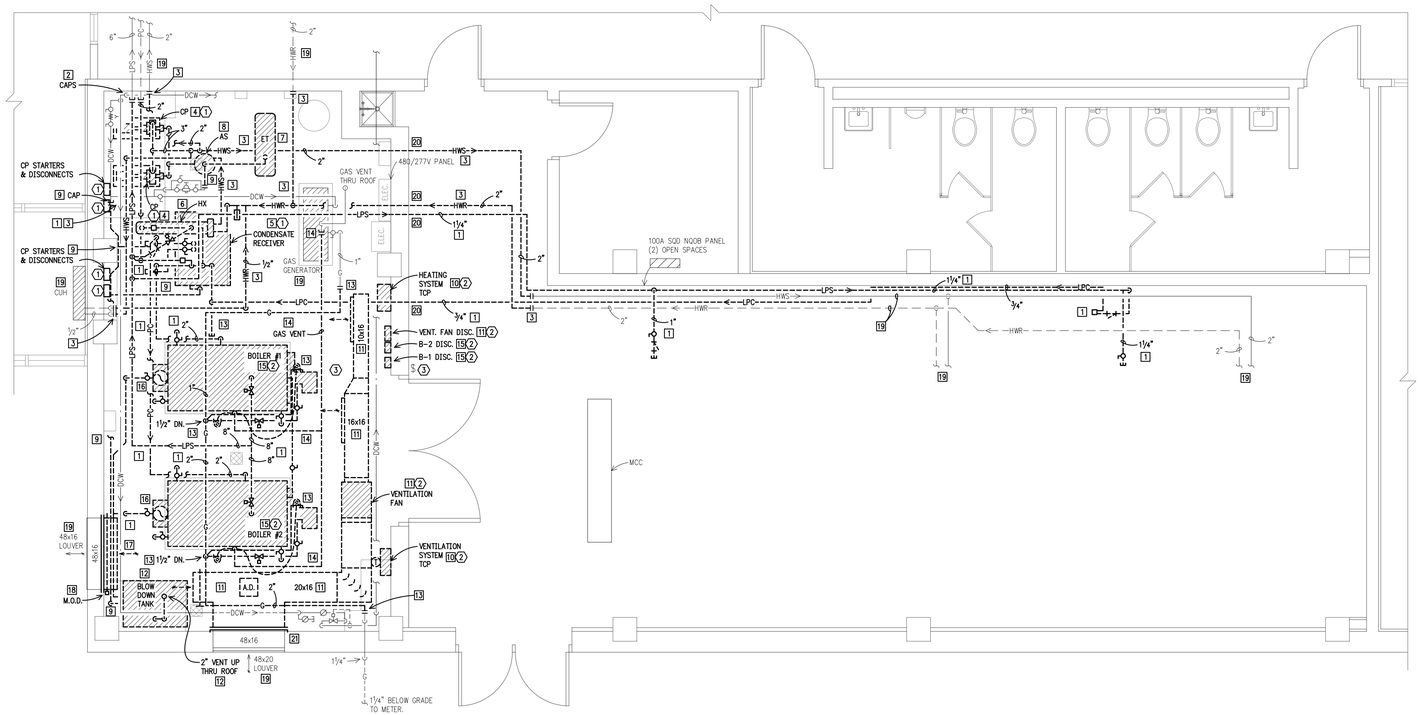


1 M105 **MECH. ROOM PLAN - FIFTH FLOOR** (DEMOLITION)

1/4"= 1'-0"

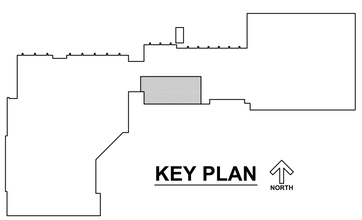
NORTH

MECHANICAL DEMOLITION NOTES:

1. REMOVE LPS/LPC/PC PIPING COMPLETE INCLUDING STRAINERS, STEAM TRAPS AND ACCESSORIES.
2. SEE 2/M103 FOR NOTES.
3. REMOVE HWS/R PIPING COMPLETE OR TO BREAK LINES AS SHOWN.
4. DISCONNECT AND REMOVE CIRCULATING PUMP COMPLETE INCLUDING CONTROLS AND ACCESSORIES.
5. DISCONNECT AND REMOVE CONDENSATE RECEIVER AND PUMP(S) COMPLETE INCLUDING CONTROLS AND ACCESSORIES.
6. REMOVE HEAT EXCHANGER COMPLETE INCLUDING ACCESSORIES.
7. REMOVE EXPANSION TANK COMPLETE.
8. REMOVE AIR SEPARATOR COMPLETE.
9. REMOVE DOMESITC MAKE-UP WATER SUPPLY PIPING TO BREAK LINES AS SHOWN INCLUDING PRESSURE REDUCING VALVE AND ACCESSORIES, CAP WHERE WHERE INDICATED.
10. DISCONNECT AND REMOVE TCP COMPLETE.
11. DISCONNECT AND REMOVE VENTILATION FAN COMPLETE INCLUDING INLET DUCTWORK TO LOUVER, DISCHARGE DUCT AND SUPPLY REGISTERS, CONTROLS AND ACCESSORIES.
12. REMOVE BLOW-DOWN TANK COMPLETE INCLUDING VENT THRU ROOF. PATCH ROOF OPENING WITH MATERIALS TO MATCH EXISTING SURROUNDINGS. SEAL WATER TIGHT.
13. REMOVE GAS PIPING COMPLETE TO BREAK LINES AS SHOWN INCLUDING REGULATORS AND ACCESSORIES.
14. REMOVE VENT PIPING COMPLETE TO BREAK LINES. VENT TO BE EXTENDED TO NEW GAS REGULATORS IN REMODEL WORK.
15. DISCONNECT AND REMOVE EXISTING KEWANEE STEAM BOILER (1620 MBH INPUT) COMPLETE INCLUDING PRESSURE RELIEF VALVES, BURNER, LOW WATER CUT-OFF DEVICES, DRAIN PIPING, CONTROL AND ACCESSORIES.
16. REMOVE 10"ø BOILER VENT STACK THRU ROOF COMPLETE. ROOF OPENING REMAINS FOR USE IN REMODEL WORK.
17. REMOVE PORTION OF DUCTWORK TO BREAK LINES AS SHOWN.
18. DISCONNECT AND REMOVE M.O.D. COMPLETE INCLUDING CONTROLS AND ACCESSORIES.
19. EXISTING EQUIPMENT AND PIPING REMAINS.
20. PATCH WALL OPENING TO MAINTAIN FIRE RATING OF EXISTING MECHANICAL ROOM.
21. CAP LOUVER. SEE REMODEL PLANS FOR NOTES.

E ELECTRICAL DEMOLITION NOTES:

1. SEE MECHANICAL NOTE 4 AND 5. E.C. SHALL DISCONNECT PUMPS AND ALL APPURTENANCES TO THE SOURCE. PUMPS ARE FED FROM MCC. UPDATE MCC SCHEDULE/LABELS.
2. E.C. SHALL DISCONNECT HVAC EQUIPMENT AND ALL APPURTENANCES TO THE SOURCE. UPDATE MCC AND OR PANELBOARD SCHEDULE/LABELS. BOILERS ARE FED FROM MCC. FIELD VERIFY POWER SOURCE.
3. DISCONNECT AND REMOVE LUMINAIRES/CONTROL AND CONDUCTORS FOR THIS ROOM TO SOURCE. SALVAGE AS MUCH CONDUIT AS POSSIBLE. PREP FOR NEW LIGHTING IN NEW LOCATIONS IN THIS ROOM. SEE REMODEL PLANS.



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BOILER REPLACEMENT PROJECT FOR

CLARK COUNTY COURTHOUSE

517 COURT STREET

NEILLSVILLE, WISCONSIN 54456

TITLE:

MECHANICAL ROOM DEMOLITION PLAN - FIFTH FLOOR

DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

PROJECT NO: **22101**

DRAWN BY: **LJJ/PDK**

DESIGNED BY: **JKM/PDK**

DATE: **10-16-2023**

SHEET: **M105**

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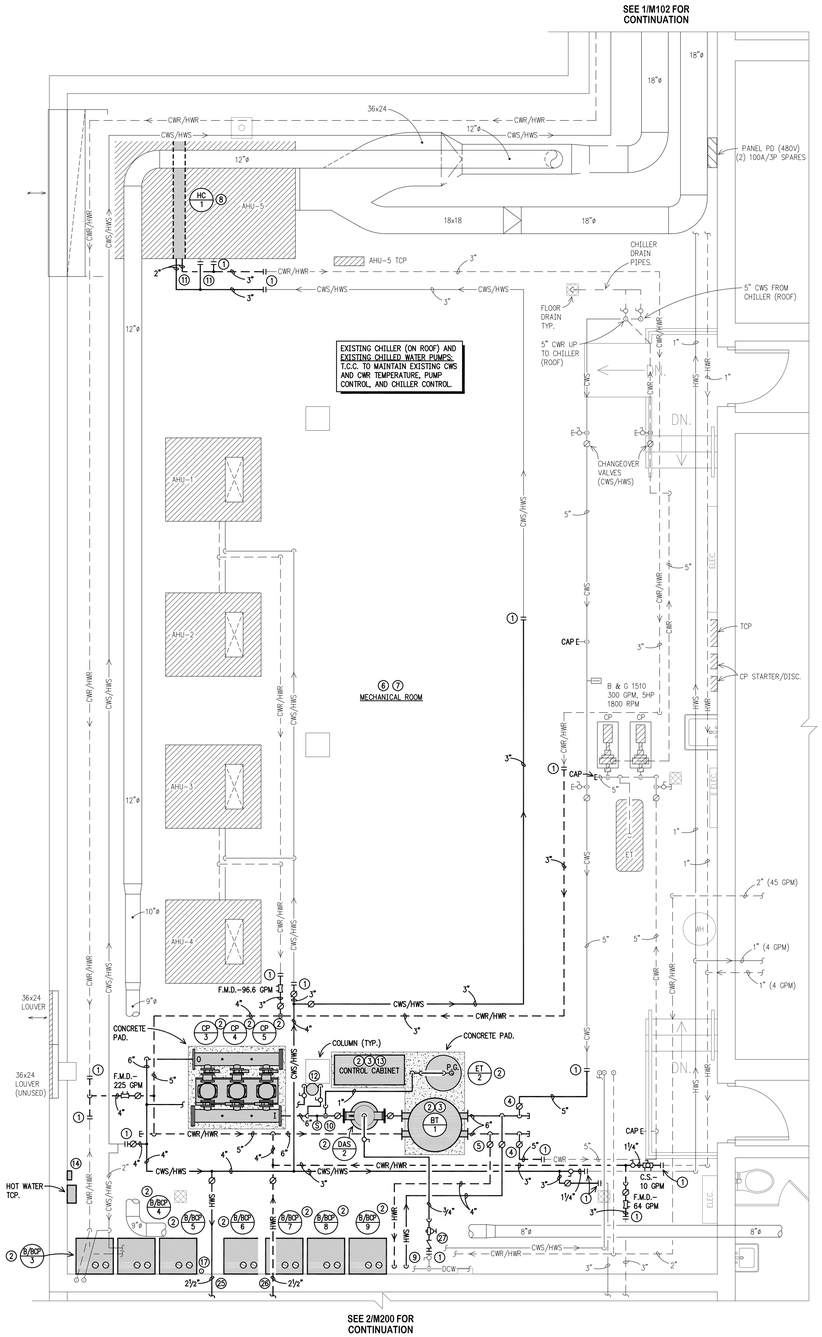
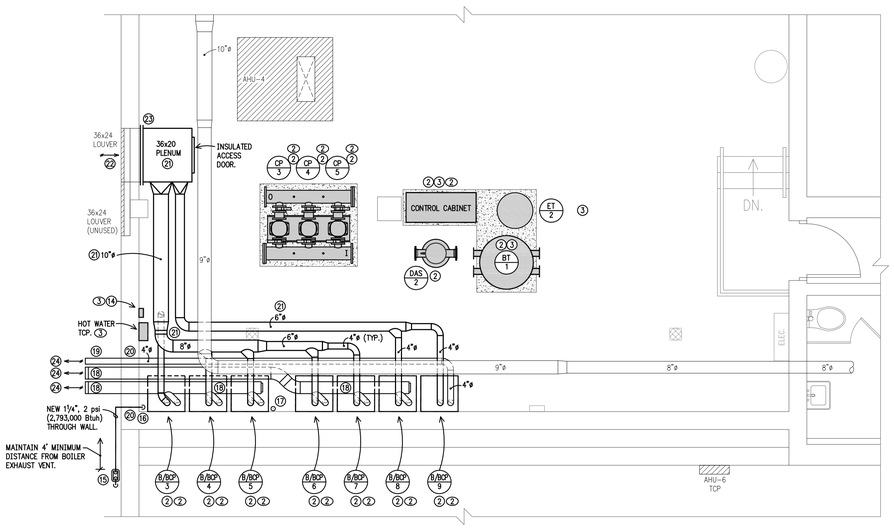
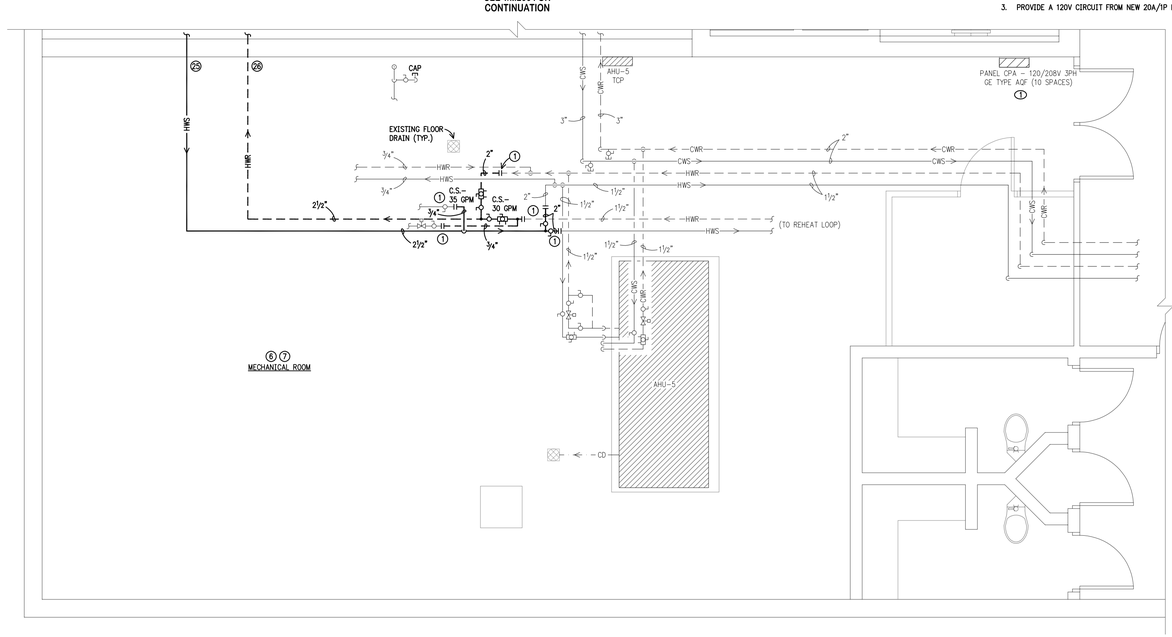


1 M200 **MECH. ROOM PLAN - SECOND FLOOR**
1/4"= 1'-0" (REMODEL - HYDRONIC)
NORTH



3 M200 **MECH. ROOM PLAN - SECOND FLOOR**
1/4"= 1'-0" (REMODEL - VENTING)
NORTH



2 M200 **MECH. ROOM PLAN - SECOND FLOOR**
1/4"= 1'-0" (REMODEL - HYDRONIC)
NORTH

KEY PLAN NORTH

MECHANICAL REMODEL NOTES:

1. NEW CONNECTION TO EXISTING PIPE. EXTEND AS SHOWN.
2. SEE DETAILS.
3. MOUNT ON NEW 4" CONCRETE PAD. REFER TO SPECIFICATION FOR REQUIREMENTS.
4. COOLING CHANGEOVER VALVES. VALVES OPEN IN SYSTEM COOLING MODE. VALVES CLOSED IN SYSTEM HEATING MODE.
5. HEATING CHANGEOVER VALVES. VALVES OPEN IN SYSTEM HEATING MODE. VALVES CLOSED IN SYSTEM COOLING MODE.
6. LABEL ALL NEW AND EXISTING PIPING IN MECHANICAL ROOM.
7. PIPING AND DUCTWORK SHOWN IS DIAGRAMMATIC AND SHOWN TO ASSIST THE M.C. WITH INSTALLATION. COORDINATE ALL NEW WORK WITH EXISTING CONDITIONS AND AVAILABLE SPACE IN ROOM. COORDINATE ELEVATIONS FOR INSTALLATION AND MAINTAIN ALL MFG. AND CODE REQUIRED CLEARANCES.
8. INSTALL NEW HOT WATER HEATING COIL (HC–1) IN EXISTING AHU. PROVIDE ANY EXTRA ACCESSORIES AS NEEDED FOR PROPER INSTALLATION. FIELD VERIFY ALL SIZES BEFORE ORDERING.
9. 4" HWS/R PIPING DN. TO BOILERS. SEE BOILER DETAIL FOR PIPING SIZES AND LAYOUTS.
10. PUMP SUCTION PRESSURE SENSOR.
11. T.C.C. TO MAINTAIN EXISTING SEQUENCE FOR HEATING/COOLING WITH NEW HOT AND CHILLED WATER DDC CONTROL VALVES. ADD POINTS AS REQUIRED FOR PROPER SEQUENCING.
12. M.C. TO PROVIDE NEW CHEMICAL POT FEEDER AND CONNECT TO HOT WATER SYSTEM AS SHOWN. SEE DETAIL. MOUNT TO WALL OR ON FLOOR STAND. UPON COMPLETION OF REMODEL WORK, PROVIDE SYSTEM INHIBITORS/CHEMICAL TREATMENT AS REQUIRED.
13. PACKAGED PUMP SYSTEM HAS TWO CONTROL SETPOINTS. T.C.C. TO PROGRAM COOLING AND HEATING FLOW/HEAD SETPOINTS AS REQUIRED. SEE SCHEDULES.
14. PROVIDE HEAT TIMER MULTI–MOD BOILER MODULATING CONTROLLER WITH EXM EXTENSION MODULE WITH BACNET INTEGRATION. T.C.C.'S OPTION TO PROVIDE FULL DDC CONTROL OF ALL BOILERS INCLUDING ALL INPUT/OUTPUT POINTS.
15. NEW 2 psi GAS METER SUPPLIED AND INSTALLED BY GAS SERVICE PROVIDER. PAINT ALL NEW PIPING WITH GREY ENAMEL. REFER TO SPECIFICATION FOR REQUIREMENTS.
16. 1¼" GAS MAIN DN. TO BENEATH BOILERS. SEE GAS SCHEMATIC FOR SIZING, CONNECTIONS AND ACCESSORIES.
17. EXISTING PLUMBING VENT.
18. PROVIDE MFG. SUPPLIED COMMON VENT SYSTEM MODEL No. PSVKIT05 FOR THREE BOILERS AS SHOWN. TERMINATE THROUGH WALL WITH MFG. APPROVED TERMINATION. SIZE AND INSTALL PER MFG. REQUIREMENTS.
19. BOILER EXHAUST VENT THRU WALL TO MFG. APPROVED TERMINATION.
20. NEW WALL OPENINGS. SEAL OPENINGS WATER TIGHT. REFER TO SPECIFICATION FOR REQUIREMENTS.
21. INSULATE COMBUSTION AIR DUCT WITH 2" FIBERGLASS PIPE INSULATION AND ASJ JACKET AS SPECIFIED.
22. THOROUGHLY CLEAN EXISTING LOUVER. LOUVER TO BE USED FOR COMBUSTION AIR INTAKE FOR BOILER IN REMODEL WORK.
23. NEW CONNECTION TO EXISTING LOUVER. SEE DETAIL.
24. TERMINATION TO EXTEND BEYOND OVERHANG.
25. REUSE EXISTING WALL OPENING. MODIFY AND SEAL AS REQUIRED.
26. CORE DRILL NEW WALL OPENING. SEAL AS REQUIRED.
27. NEW BACKFLOW PREVENTER (RPBP–1) AND PRV. SEE DETAILS.

ELECTRICAL REMODEL NOTES:

1. PROVIDE (9) 20A/1P BREAKERS IN OPEN SPACES IN EXISTING PANEL CPA.
2. SEE ELECTRICAL EQUIPMENT SCHEDULE ON SHEET M300 FOR MORE INFORMATION.
3. PROVIDE A 120V CIRCUIT FROM NEW 20A/1P BREAKER IN PANEL CPA.

APEX Engineering
Eau Claire, Wisconsin
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Web: apexengineering.biz

BOILER REPLACEMENT PROJECT FOR
CLARK COUNTY COURTHOUSE
517 COURT STREET
NEILLSVILLE, WISCONSIN 54456

TITLE:
MECHANICAL ROOM REMODEL PLANS - SECOND FLOOR

DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

PROJECT NO: **22101**
DRAWN BY: **LJJ/PDK**
DESIGNED BY: **JKM/PDK**
DATE: **10-16-2023**
SHEET: **M200**

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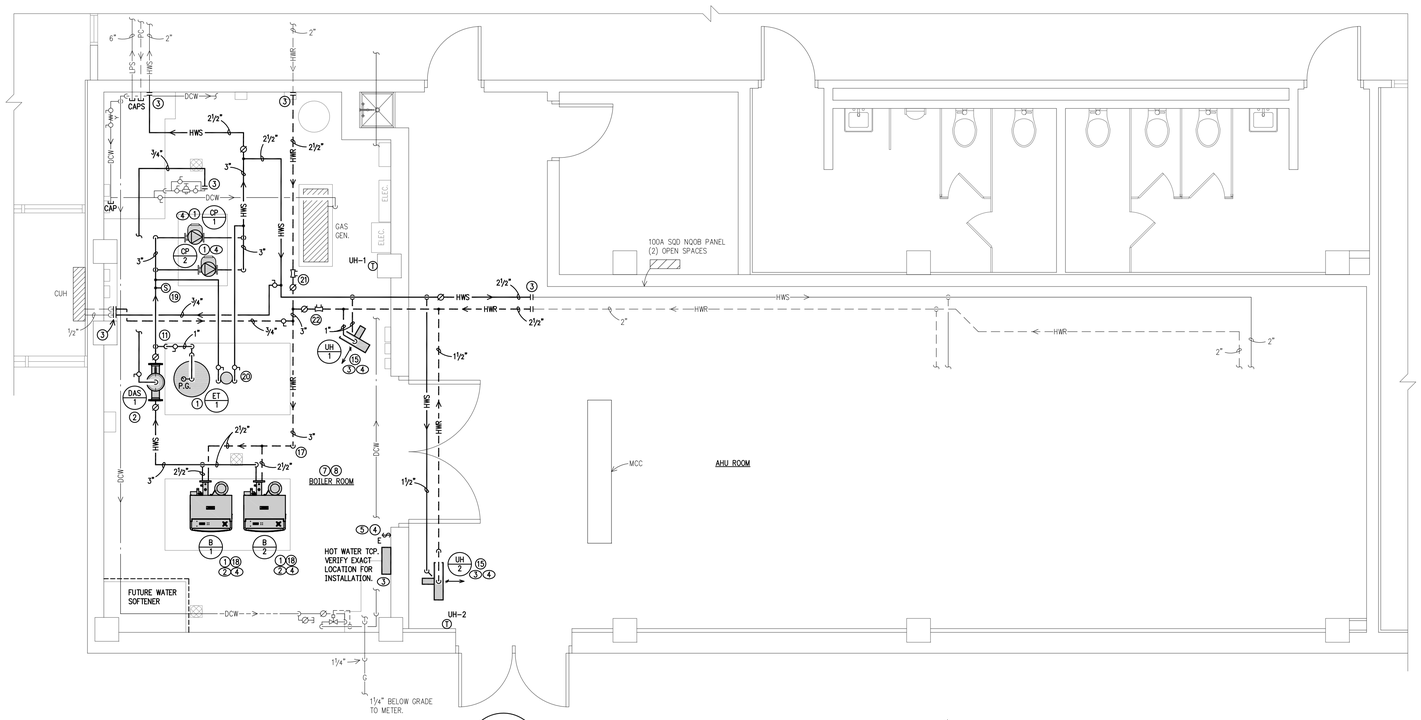
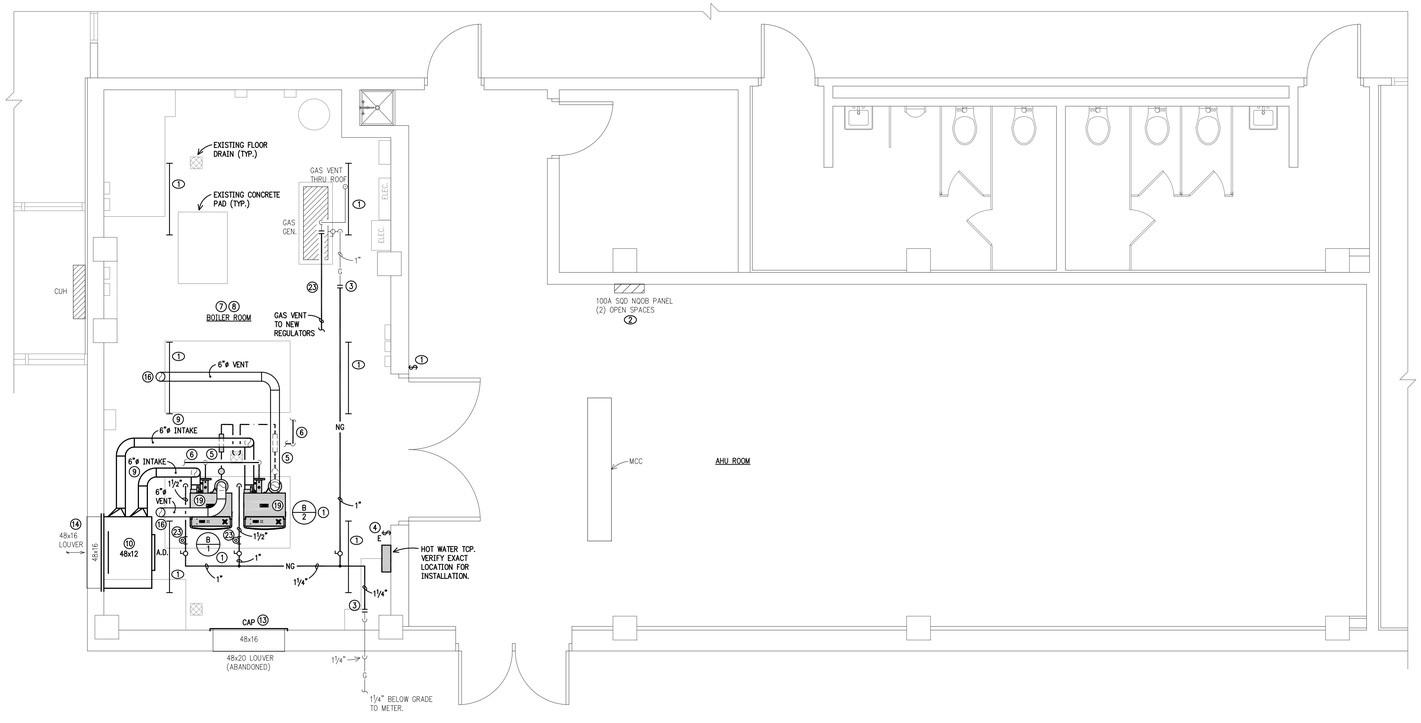


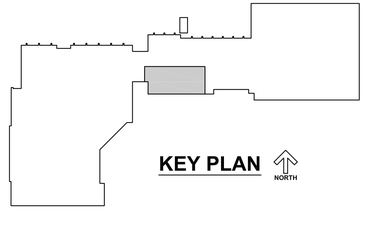
1 M201 **MECH. ROOM PLAN - FIFTH FLOOR** (HYDRONIC REMODEL)
1/4"= 1'-0"

NORTH



1 M201 **MECH. ROOM PLAN - FIFTH FLOOR** (DUCTWORK REMODEL)
1/4"= 1'-0"

NORTH



MECHANICAL REMODEL NOTES:

1. MOUNT LEVEL ON EXISTING CONCRETE PAD. SEE DETAILS.
2. SUPPORT FROM STRUCTURE ABOVE. SEE DETAILS.
3. NEW CONNECTION TO EXISTING PIPE. EXTEND AS SHOWN.
4. PROVIDE BOILER KILL SWITCH WIRED TO DISCONNECT ELECTRICAL POWER TO BOTH BOILERS AND CLOSE THE GAS VALVE AT EACH BOILER. PROVIDE LATCHING CLEAR COVER – NON LOCKABLE. SWITCH TO BE EATON 10250TSB62–S106 LABELED 'EMERGENCY BOILER SHUTDOWN'. VERIFY THAT THE GAS VALVE CLOSES UPON POWER DISCONNECTION. ALL WIRING TO BE IN CONDUIT. PROPER OPERATION OF EMERGENCY SHUTDOWN TO BE VERIFIED PRIOR TO PROJECT COMPLETION. COORDINATE LOCATION WITH LOCAL INSPECTOR.
5. PROVIDE DRAIN TRAP AND NEUTRALIZER. SEE DETAILS FOR SIZES. ROUTE CONDENSATE PIPING TO EXISTING FLOOR DRAIN. SIZE PER MFG. INSTRUCTIONS. ALL DRAIN PIPING TO BE STAINLESS STEEL.
6. APPROXIMATE LOCATION OF HWS/R PIPING FOR COORDINATION.
7. PIPING AND DUCTWORK SHOWN IS DIAGRAMMATIC AND SHOWN TO ASSIST THE M.C. WITH INSTALLATION. COORDINATE ALL NEW WORK WITH EXISTING CONDITIONS AND AVAILABLE SPACE IN ROOM. COORDINATE ELEVATIONS FOR INSTALLATION AND MAINTAIN ALL MFG. AND CODE REQUIRED CLEARANCES.
8. LABEL ALL NEW AND EXISTING PIPING IN THIS SPACE.
9. 2" FIBERGLASS PIPE INSULATION OVER COMBUSTION AIR SYSTEM. SEAL WITH ASJ JACKET.
10. 2" RIGID INSULATION WITH LAG & MASTIC ON 48x12 COMBUSTION AIR PLENUM.
11. BOTTOM CONNECTION TO HWS MAIN WITH TRAP. SEE DETAIL.
12. ROUTE BOILER PRESSURE RELIEF PIPING TO EXISTING FLOOR DRAIN. SEE DETAIL FOR MAXIMUM SYSTEM PRESSURE AND CONNECTION TO B–1 & 2.
13. CAP EXISTING LOUVER WITH SHEET METAL AND 2" RIGID INSULATION. SEAL AIR TIGHT.
14. NEW CONNECTION TO EXISTING LOUVER. THOROUGHLY CLEAN PRIOR TO DUCT INSTALLATION.
15. HANG LEVEL FROM STRUCTURE ABOVE.
16. 6"ø BOILER VENT UP THRU EXISTING ROOF OPENING. MODIFY OPENING AS REQUIRED. FLASH AND SEAL WATER TIGHT. FLASHING CONE AND SUPPORT TO BE STAINLESS STEEL. TERMINATE A MINIMUM OF 3' ABOVE EXISTING ROOF AND ADDITIONAL 2' ABOVE ANY OBJECT WITHIN 10' HORIZONTAL DISTANCE WITH MFG. APPROVED EXIT CONE. VERIFY WITH EXISTING CONDITIONS. SUPPORT STACK WITH GUY WIRES AS REQUIRED. INSTALL PER MFG. REQUIREMENTS. SEE DETAIL.
17. 3" HWR PIPE DN. TO NEAR FLOOR. COORDINATE EXACT ELEVATION WITH BOILER HWR INLET CONNECTION. SUPPORT PIPING FROM FLOOR AS REQUIRED.
18. MAINTAIN A MINIMUM OF 18" CLEAR ABOVE TOP OF BOILER PER MFG. INSTRUCTIONS.
19. PUMP SUCTION PRESSURE SENSOR.
20. M.C. TO PROVIDE NEW CHEMICAL POT FEEDER AND CONNECT TO HOT WATER SYSTEM AS SHOWN. SEE DETAIL. MOUNT ON FLOOR STAND. UPON COMPLETION OF REMODEL WORK, PROVIDE SYSTEM INHIBITORS/CHEMICAL TREATMENT AS REQUIRED.
21. F.M.D. – 47 GPM.
22. F.M.D. – 69 GPM.
23. PROVIDE 2 psig DOWN TO 7" WATER COLUMN (w.c.) GAS PRESSURE REGULATOR. INSTALL GAS REGULATOR AS PER REGULATOR AND GAS EQUIPMENT MANUFACTURER'S SPECIFICATIONS. VENT GAS REGULATORS TO EXISTING PIPE THRU ROOF AS SHOWN ON PLANS. INSTALL AND SIZE VENT PIPING PER GAS REGULATOR MFG. RECOMMENDATIONS.

ELECTRICAL REMODEL NOTES:

1. PROVIDE (6) 4' LED LENSED STRIP LIGHTS EQUAL TO A LITHONIA #CSS L48 MVOLT SWMW3 SELECTABLE WATTAGE AND COLOR TEMP. SET TO HIGH LUMENS AND 4000K. COORDINATE LOCATIONS WITH EQUIPMENT AND PROVIDE MOUNTING HARDWARE AS NEEDED. PROVIDE A NEW SWITCH AND REUSE EXISTING LIGHTING CIRCUIT WITH NEW CONDUCTORS. REUSE AS MUCH OF THE EXISTING CONDUIT AS POSSIBLE.
2. PROVIDE (2) 20A/1P BREAKERS IN EXISTING PANEL TO FEED NEW BOILERS (B–1 AND B–2).
3. USE SPARE 20A/1P BREAKERS CREATED BY DEMOLITION FOR OTHER NEW 120V EQUIPMENT.
4. SEE ELECTRICAL EQUIPMENT SCHEDULE ON SHEET M300 FOR MORE INFORMATION.
5. SEE MECHANICAL NOTE 4 FOR ELECTRICAL WORK.

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BOILER REPLACEMENT PROJECT FOR

CLARK COUNTY COURTHOUSE

517 COURT STREET

NEILLSVILLE, WISCONSIN 54456

TITLE:

MECHANICAL ROOM REMODEL PLANS - FIFTH FLOOR

DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

PROJECT NO: **22101**

DRAWN BY: **LJJ/PDK**

DESIGNED BY: **JKM/PDK**

DATE: **10-16-2023**

SHEET: **M201**

APEX Engineering
landonJ 10/12/2023 9:26 AM 22101 Mech Plan Set.dwg

GENERAL ELECTRICAL SPECIFICATIONS

GENERAL:

1. PROVIDE A COMPLETE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND DESCRIBED HEREIN.
2. ALL WORK SHALL BE IN CONFORMANCE WITH NATIONAL, STATE, AND LOCAL CODES AND/OR ORDINANCES.
3. PROVIDE ALL INCIDENTALS, EQUIPMENT, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPPORTS, TOOLS, SUPERVISION, LABOR CONSUMABLE ITEMS, FEES, LICENSES, ETC., NECESSARY TO PROVIDE COMPLETE SYSTEMS. PERFORM START-UP AND CHECKOUT ON EACH ITEM AND SYSTEM TO PROVIDE FULLY OPERABLE SYSTEMS.
4. EXAMINE AND COMPARE THE ELECTRICAL DRAWINGS AND SPECIFICATIONS WITH THE DRAWINGS AND SPECIFICATIONS OF OTHER TRADES, AND REPORT ANY DISCREPANCIES BETWEEN THEM TO THE ARCHITECT/ENGINEER AND OBTAIN FROM HIM WRITTEN INSTRUCTIONS FOR CHANGES NECESSARY IN THE WORK. AT TIME OF BID, THE MOST STRINGENT REQUIREMENTS MUST BE INCLUDED IN SAID BID.
5. INSTALL AND COORDINATE THE ELECTRICAL WORK IN COOPERATION WITH OTHER TRADES INSTALLING INTERRELATED WORK. BEFORE INSTALLATION, MAKE PROPER PROVISIONS TO AVOID INTERFERENCES IN A MANNER APPROVED BY THE ARCHITECT/ENGINEER. ALL CHANGES REQUIRED IN THE WORK OF THE CONTRACTOR, CAUSED BY HIS NEGLECT TO DO SO, SHALL BE MADE BY HIM AT HIS OWN EXPENSE.
6. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS TO PROVIDE A COMPLETE WORKABLE SYSTEM READY FOR THE OWNER'S OPERATION. ANY ITEM NOT SPECIFICALLY SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS, BUT NORMALLY REQUIRED TO CONFORM WITH THE INTENT, ARE TO BE CONSIDERED A PART OF THE CONTRACT.
7. ALL MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE NEW AND UNUSED (TEMPORARY LIGHTING AND POWER PRODUCTS ARE EXCLUDED) AND FREE FROM DEFECTS. ALL MATERIALS USED SHALL BEAR THE UNDERWRITER'S LABORATORY, INC. LABEL PROVIDED A STANDARD HAS BEEN ESTABLISHED FOR THE MATERIAL IN QUESTION.
8. EXCEPT FOR CONDUIT, CONDUIT FITTINGS, OUTLET BOXES, WIRE AND CABLE, ALL ITEMS OF EQUIPMENT OR MATERIAL SHALL BE THE PRODUCT OF ONE MANUFACTURER THROUGHOUT THE ENTIRE PROJECT. MULTIPLE MANUFACTURERS WILL NOT BE PERMITTED.
9. UPON COMPLETION OF THE ELECTRICAL WORK, THE INSTALLATION SHALL BE TESTED FOR CONTINUITY, GROUNDS, AND SHORT CIRCUITS. THE ELECTRICAL CONTRACTOR SHALL DEMONSTRATE PROPER PERFORMANCE OF ALL SYSTEMS. ALL DEFECTIVE WORK OR MATERIALS SHALL BE REPLACED OR REPAIRED AS NECESSARY AND RETESTED.

QUALITY ASSURANCE:

1. WORK UNDER THIS DIVISION SHALL BE SUPERVISED BY A PERSON WHO HOLDS A CERTIFICATION ISSUED BY THE WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES AS A CERTIFIED ELECTRICAL CONTRACTOR, CERTIFIED ELECTRICAL CONTRACTOR-RESTRICTED OR CERTIFIED MASTER ELECTRICIAN.
2. WORK UNDER THIS DIVISION SHALL BE EXECUTED BY A PERSON WHO HOLDS A CERTIFICATION ISSUED BY THE WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES AS A CERTIFIED ELECTRICAL CONTRACTOR, CERTIFIED ELECTRICAL CONTRACTOR-RESTRICTED OR CERTIFIED MASTER ELECTRICIAN, CERTIFIED JOURNEYMAN ELECTRICIAN OR CERTIFIED BEGINNING ELECTRICIAN.

SERVICE AND DISTRIBUTION:

1. PANELBOARDS, PANELBOARD PRODUCTS, AND MOTOR CONTROL CENTER SHALL BE BY SQ-D, SIEMENS, GE OR CUTLER-HAMMER. GROUND PANELBOARDS IN ACCORDANCE WITH ELECTRICAL CODES. PANELBOARDS SHALL HAVE A TYPEWRITTEN CIRCUIT SCHEDULE INSTALLED INSIDE THE COVER. COVER SCHEDULE WITH CLEAR PLASTIC. PROVIDE ENGRAVED PLASTIC LAMINATE LABEL IDENTIFYING PANELBOARDS. PANELBOARDS TO BE FILLED AS INDICATED ON PANEL SCHEDULE.
2. ELECTRICAL CONTRACTOR SHALL VERIFY AVAILABLE FAULT CURRENT WITH ELECTRIC SERVICE PROVIDER AND PROVIDE EQUIPMENT RATED TO THE GREATER VALUE OF THIS INFORMATION OR AS INDICATED ON PLAN SHEET.
3. PROVIDE FACTORY-ASSEMBLED CIRCUIT BREAKERS OF FRAME SIZES, CHARACTERISTICS, AND RATINGS INCLUDING RMS SYMMETRICAL INTERRUPTING RATINGS AS REQUIRED. MULTI-POLE BREAKERS SHALL HAVE COMMON INTERNAL TRIP AND U.L. LISTED AS MULTI-POLE ON ALL BREAKERS, AND SHALL HAVE TRIP RATING ENGRAVED IN HANDLE.
4. PROVIDE HEAVY-DUTY FUSED OR NOT FUSED DISCONNECT SWITCHES BY SQ-D, CUTLER-HAMMER OR APPROVED EQUIVALENT. DISCONNECT SWITCH ENCLOSURE TO BE NEMA TYPE AS REQUIRED FOR APPLICATION.
5. PROVIDE FUSES OF TYPE, CLASS, AND CURRENT RATING AS REQUIRED. FUSES ARE TO BE BUSSMAN, FERRAZ SHAWMUT, LITTELFUSE OR EQUIVALENT.

RACEWAYS:

1. ALL WIRING SHALL BE IN APPROVED METAL RACEWAY. USE RACEWAYS IN ACCORDANCE WITH ELECTRICAL CODES. IN GENERAL, PROVIDE ELECTRICAL METALLIC TUBING ABOVE SUSPENDED CEILINGS, IN PARTITIONS, AND IN OTHER AREAS NOT SUBJECT TO MOISTURE. ALL CONDUIT SHALL BE MINIMUM 1/2" SIZE. USE COMPRESSION TYPE FITTINGS OR SET SCREW ON E.M.T. TYPE AC/MC CABLE AND FLEXIBLE METAL CONDUIT MAY BE USED FOR LIGHT FIXTURE CONNECTIONS AND OTHER FLEXIBLE CONNECTIONS. USE RIGID OR INTERMEDIATE METAL CONDUIT IN DAMP OR WET LOCATION WITH WATERTIGHT FITTINGS. PVC CONDUIT MAY BE USED FOR UNDERGROUND INTERIOR AND EXTERIOR LOCATIONS OR AS INDICATED ON PLAN.
2. RACEWAYS SHALL BE CONCEALED IN ALL FINISHED AREAS IN THE BEST MANNER POSSIBLE. RACEWAYS SHALL BE RUN IN PARALLEL WITH CONSTRUCTION WHERE EXPOSED AND ABOVE SUSPENDED CEILINGS. USE RODS AND STEEL CHANNELS TO SUPPORT MULTIPLE CONDUIT RACEWAY RUNS. SINGLE CONDUIT RUNS SHALL BE SECURED TO STRUCTURE WITH HEAVY DUTY STRAPS.
3. PROVIDE MINIMUM #12 GROUND WIRE IN ALL RACEWAYS. PROVIDE ADDITIONAL GROUND WIRE FOR IG RECEPTACLES.
4. ELECTRICAL RACEWAYS THAT PENETRATE FIRE RATED ASSEMBLIES SHALL BE SLEEVED AND SEALED AS PER THE CURRENT WISCONSIN COMMERCIAL BUILDING CODE SECTION 712 REQUIREMENTS.

BOXES:

1. PROVIDE JUNCTION BOXES AND PULL BOXES AS REQUIRED BY ELECTRICAL CODES.
2. PROVIDE APPROPRIATE BOXES FOR WIRING DEVICES. OUTLET BOXES FOR DRY INTERIOR LOCATIONS SHALL BE GALVANIZED STEEL SIZED IN ACCORDANCE WITH CONDUCTOR FILL.
3. BACK-TO-BACK OUTLET BOX INSTALLATIONS SHALL NOT BE ALLOWED.
4. EXTERIOR LIGHTING AND POWER BOXES SHALL BE RECESSED WITH DEVICE MOUNTED FLUSH WITH WALL . SEAL BOXES IN EXTERIOR WALLS TO PREVENT INFILTRATION.
5. BOXES AND WIREWAYS SHALL MEET THE REQUIREMENTS FOR THE AREA IN WHICH INSTALLED. WHERE EXPOSED, BOXES 6" X 6" AND LARGER SHALL BE PAINTED GRAY.

WIRE:

1. USE TYPE THW, THHN, THWN OR XHHW COPPER WIRE. PROVIDE CONDUCTORS WITH 90° C INSULATION FOR WIRING LOCATED INSIDE LIGHT FIXTURES AND FOR FEEDERS TO PANELBOARDS. SIZE AND USE CONDUCTORS IN ACCORDANCE WITH WISCONSIN ELECTRICAL CODES.
2. BRANCH CIRCUIT WIRING SHALL BE MINIMUM #12 AWG. LINE VOLTAGE CONTROL WIRING SHALL BE A MINIMUM OF #14 AWG.
3. IDENTIFY WIRE AT EACH CONNECTOR OR SPLICE WITH PERMANENTLY ATTACHED WRAPAROUND ADHESIVE MARKERS. PROVIDE IDENTIFICATION ON MARKERS WHICH WILL AID FUTURE TROUBLE SHOOTING AND WIRE TRACING. IDENTIFY ALL JUNCTION BOXES 4"x4" AND LARGER WITH SYSTEM, EQUIPMENT SERVED AND/OR CIRCUIT NUMBERS. ADHESIVE PLASTIC TAPE MAY BE USED FOR JUNCTION BOX IDENTIFICATION. IDENTIFY ALL GROUND FAULT INTERRUPTER RECEPTACLES AS GFI.

WIRING DEVICES:

1. SWITCHES SHALL BE SPECIFICATION GRADE AC SWITCHES. SWITCHES SHALL BE RATED 20 AMP AND SHALL BE THE MANUFACTURE'S PREMIUM SPECIFICATION GRADE TOGGLE SWITCH WITH QUIET ACTUATION AND HEAVY-DUTY CONTACT ARM. ACCEPTABLE MANUFACTURERS ARE COOPER WIRING DEVICES, HUBBELL LEVITON OR EQUIVALENT.
2. WALL PLATES SHALL BE HIGH-IMPACT RESISTANT THERMOPLASTIC MATERIAL WITH MATCHING COLOR SCREWS. WALL PLATES SHALL MEET UL514 AND FED. SPEC. WP-455 REQUIREMENTS.

LIGHTING:

1. PROVIDE LUMINARIES AS SCHEDULED ON DRAWINGS.
2. INSTALL IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, INCLUDING ALL COMPONENTS NECESSARY FOR MOUNTING LUMINARIES.

IDENTIFICATION

1. PROVIDE CLOTH TYPE WIRE MARKERS ON EACH CONDUCTOR AT PANEL BOARDS, PULL BOXES, OUTLET BOXES AND J-BOXES.
2. E.C. SHALL PROVIDE A TYPED PANEL BOARD DIRECTORY FOR ANY NEW PANELS OR CHANGES IN EXISTING PANELS.
   - PANEL BOARDS DIRECTORY SHALL BE LABELED FROM WHERE THE PANEL IS FED FROM.
3. NEW PANEL BOARDS, DISCONNECTS, RELAYS AND SUCH DEVICES SHALL HAVE AN ENGRAVED THREE LAYER LAMINATED PLASTIC LABEL, BLACK WITH WHITE BACKGROUND.

MOTOR, HVAC & EQUIPMENT SCHEDULE

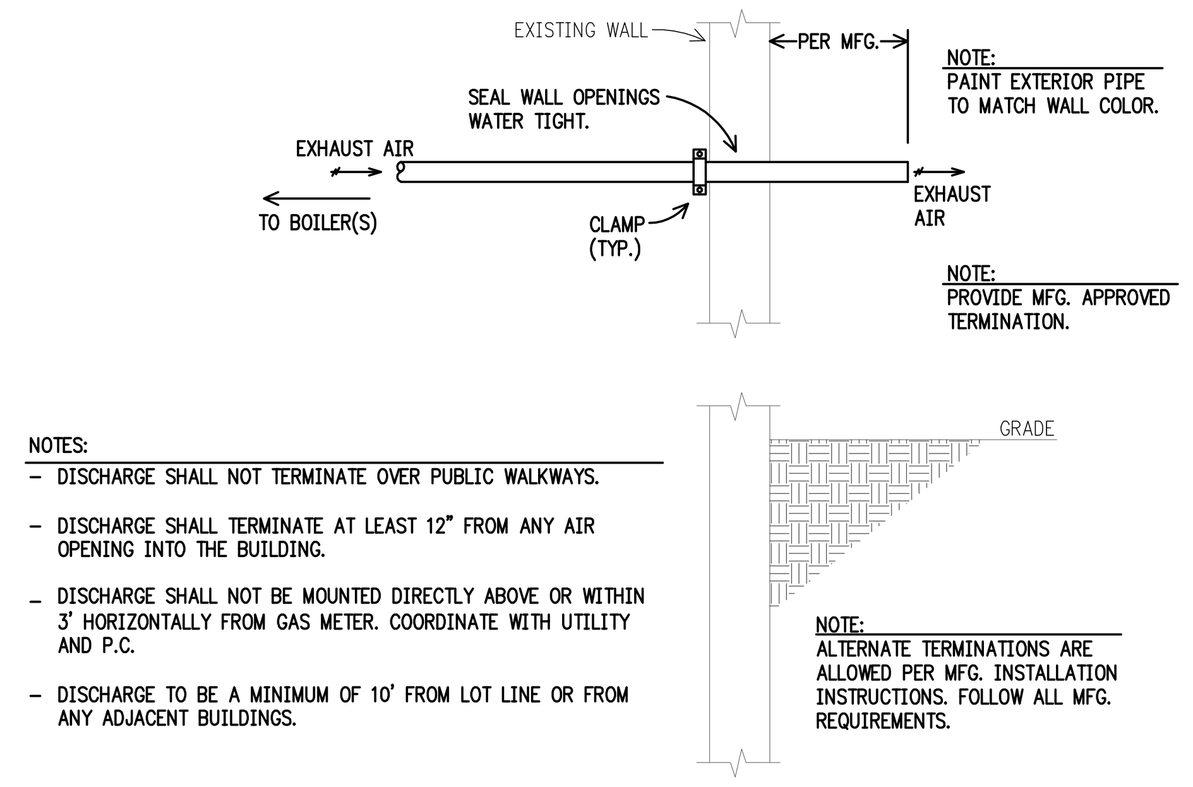
IDENTIFICATION				CHARACTERISTICS			DISCONNECT DEVICE				STARTER				CONTROLS/CONTROL WIRING			NOTES
IDENT.	BREAK/FUSE SIZE	CIRCUIT #	FEEDER SIZE	KW,HP,FLA	V/PH	LOCATION	TYPE	NEMA	PROVIDE BY	LOCATION	TYPE	NEMA	PROVIDE BY	LOCATION	CHARACTERISTICS	WIRE BY	PRO. BY	
B-1	20A/1P BRK	SEE PLANS	2-#12+1-#12GND	FRACT.	120V/1PH	SEE PLANS	MOTOR RATED SNAP SWITCH	1	E.C.	SEE PLAN	INTEGRAL				HVAC CONTROLS	M.C.	M.C.	1
B-2	20A/1P BRK	SEE PLANS	2-#12+1-#12GND	FRACT.	120V/1PH	SEE PLANS	MOTOR RATED SNAP SWITCH	1	E.C.	SEE PLAN	INTEGRAL				HVAC CONTROLS	M.C.	M.C.	1
B-3/BCP-3	20A/1P BRK	CPA	2-#12+1-#12GND	FRACT.	120V/1PH	SEE PLANS	MOTOR RATED SNAP SWITCH	1	E.C.	SEE PLAN	INTEGRAL VFD (BCP)				HVAC CONTROLS	M.C.	M.C.	1,2
B-4/BCP-4	20A/1P BRK	CPA	2-#12+1-#12GND	FRACT.	120V/1PH	SEE PLANS	MOTOR RATED SNAP SWITCH	1	E.C.	SEE PLAN	INTEGRAL VFD (BCP)				HVAC CONTROLS	M.C.	M.C.	1,2
B-5/BCP-5	20A/1P BRK	CPA	2-#12+1-#12GND	FRACT.	120V/1PH	SEE PLANS	MOTOR RATED SNAP SWITCH	1	E.C.	SEE PLAN	INTEGRAL VFD (BCP)				HVAC CONTROLS	M.C.	M.C.	1,2
B-6/BCP-6	20A/1P BRK	CPA	2-#12+1-#12GND	FRACT.	120V/1PH	SEE PLANS	MOTOR RATED SNAP SWITCH	1	E.C.	SEE PLAN	INTEGRAL VFD (BCP)				HVAC CONTROLS	M.C.	M.C.	1,2
B-7/BCP-7	20A/1P BRK	CPA	2-#12+1-#12GND	FRACT.	120V/1PH	SEE PLANS	MOTOR RATED SNAP SWITCH	1	E.C.	SEE PLAN	INTEGRAL VFD (BCP)				HVAC CONTROLS	M.C.	M.C.	1,2
B-8/BCP-8	20A/1P BRK	CPA	2-#12+1-#12GND	FRACT.	120V/1PH	SEE PLANS	MOTOR RATED SNAP SWITCH	1	E.C.	SEE PLAN	INTEGRAL VFD (BCP)				HVAC CONTROLS	M.C.	M.C.	1,2
B-9/BCP-9	20A/1P BRK	CPA	2-#12+1-#12GND	FRACT.	120V/1PH	SEE PLANS	MOTOR RATED SNAP SWITCH	1	E.C.	SEE PLAN	INTEGRAL VFD (BCP)				HVAC CONTROLS	M.C.	M.C.	1,2
CP-1	EXISTING MCC	MCC-1	3-#12+1-#12GND	**5 HP**	480V/3PH	SEE PLANS	INTEGRAL			SEE PLAN	INTEGRAL VFD/DISC.				HVAC CONTROLS	M.C.	M.C.	1,3,5
CP-2	EXISTING MCC	MCC-1	3-#12+1-#12GND	5 HP	480V/3PH	SEE PLANS	INTEGRAL			SEE PLAN	INTEGRAL VFD/DISC.				HVAC CONTROLS	M.C.	M.C.	1,3,5
CP-3			REUSE EXISTING	7.5 HP	480V/3PH	SEE PLANS	INTEGRAL			SEE PLAN	INTEGRAL VFD/DISC.				HVAC CONTROLS	M.C.	M.C.	1,4
CP-4	EXISTING 100A		REUSE EXISTING	7.5 HP	480V/3PH	SEE PLANS	INTEGRAL			SEE PLAN	INTEGRAL VFD/DISC.				HVAC CONTROLS	M.C.	M.C.	1,4
CP-5	IN PANEL PD.	VERIFY	REUSE EXISTING	7.5 HP	480V/3PH	SEE PLANS	INTEGRAL			SEE PLAN	INTEGRAL VFD/DISC.				HVAC CONTROLS	M.C.	M.C.	1,4
UH-1	EXISTING	SEE PLANS	2-#12+1-#12GND	1/12 HP	120V/1PH	SEE PLANS	MOTOR RATED SNAP SWITCH	1	E.C.	SEE PLAN	INTEGRAL				HVAC CONTROLS	M.C.	M.C.	1,6,7
UH-2	EXISTING	SEE PLANS	2-#12+1-#12GND	1/3 HP	120V/1PH	SEE PLANS	MOTOR RATED SNAP SWITCH	1	E.C.	SEE PLAN	INTEGRAL				HVAC CONTROLS	M.C.	M.C.	1,6,7

1. SEE MECHANICAL SHEETS FOR LOCATION OF EQUIPMENT AND COORDINATION WORK.
2. E.C SHALL PROVIDE CONNECTION FROM BOILER TO BCP.
3. PROVIDE NEW CONDUCTORS IN EXISTING CONDUIT.
4. CP-3,4,5 ARE ON ONE SKID WITH A SINGLE POINT POWER CONNECTION TO THE CONTROL PANEL.
5. USE EXISTING TUB CREATED BY DEMOLITION. UPDATE FUSING TO MATCH MFG. RECOMMENDATIONS.
6. USE EXITING 20A/1P BREAKER SPARE CREATED BY DEMOLITION.
7. UH-1 AND UH-2 SHALL BE ON THE SAME CIRCUIT.

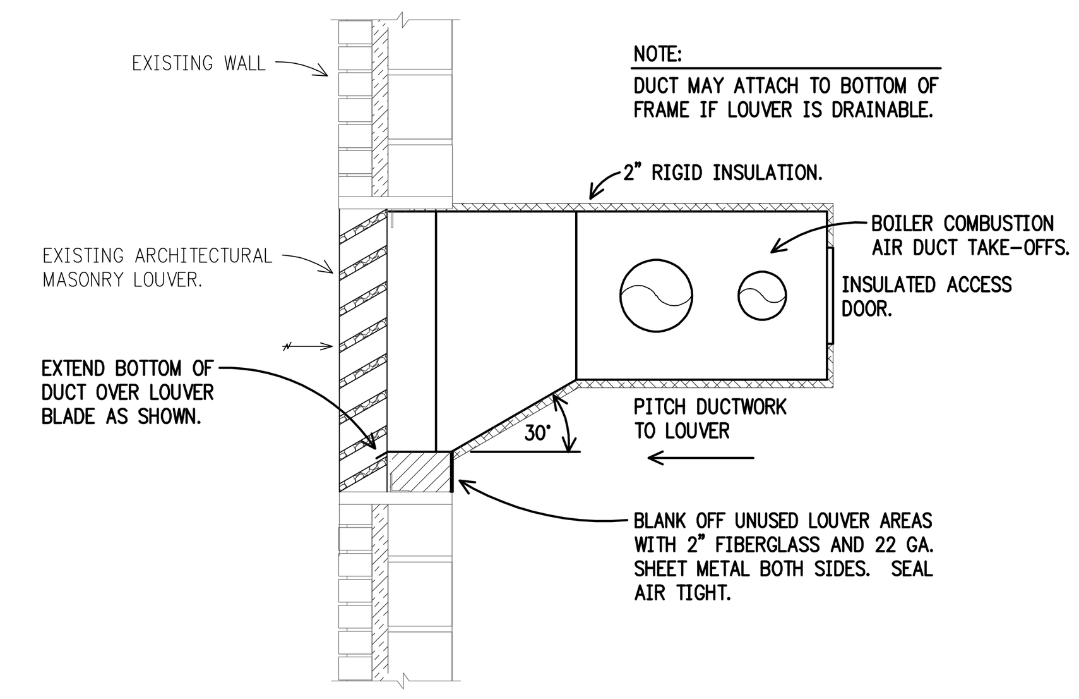
GENERAL NOTE: E.C. SHALL UPDATE ALL LABELING ON DISCONNECTS, MOTOR CONTROL CENTERS, PANELS AND VFDS TO MATCH NEW NUMBERING SYSTEM.

UH # UNIT HEATER SCHEDULE

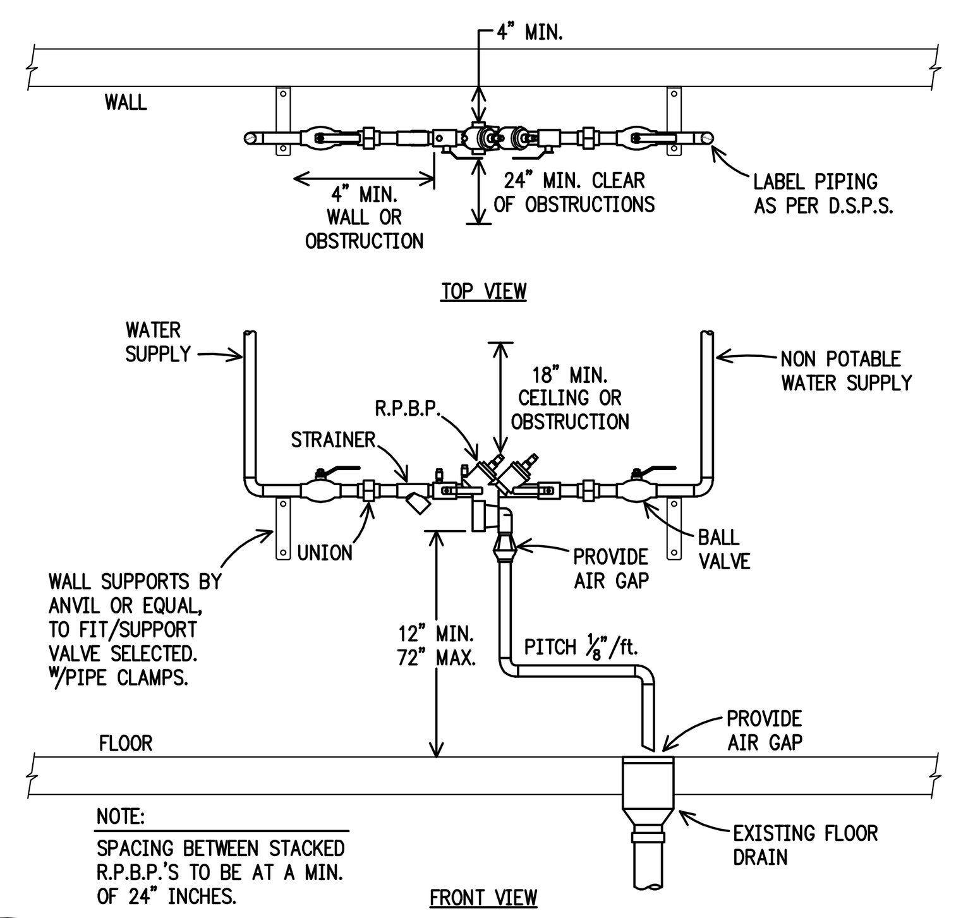
PLAN SYMBOL	ROOM NO.	TYPE	CFM	E.A.T. (°F)	HEATING MEDIUM	E.W.T. (°F)	L.W.T. (°F)	MBH	GPM	MAX. W.P.D. (FT.)	FAN MOTOR HP/W	FAN MOTOR RPM	ELEC. CHAR.	MANUFACTURER & MODEL NO.	ACCESS./ NOTES
UH-1	SEE PLANS	HORIZONTAL THROW	1400	60	WATER	180	160	59.73	6.0	0.29	1/12 HP	1000	120/1	STERLING HS-96	TOTALLY ENCLOSED MOTOR WITH THERMAL OVERLOAD.
UH-2	SEE PLANS	HORIZONTAL THROW	2900	60	WATER	180	160	129.93	13.0	0.79	1/3 HP	1140	120/1	STERLING HS-204	TOTALLY ENCLOSED MOTOR WITH THERMAL OVERLOAD.



2 / M300 VENT TERMINATION DETAIL
NO SCALE (BOILER EXHAUST) (B-3 THRU B-9)



1 / M300 LOUVER CONNECTION DETAIL
NO SCALE (BOILER COMBUSTION AIR) (B-3 THRU B-9)



3 / M300 CROSS CONNECTION CONTROL DETAIL
NO SCALE (REDUCED PRESSURE BACKFLOW DEVICE)

B # BOILER SCHEDULE

PLAN SYMBOL	ROOM NO.	TYPE	HEATING MEDIUM	MIN. FLOW (GPM)	GROSS INPUT (MBH)	GROSS OUTPUT (MBH)	AHRI EFF. (80-180)	FUEL	TURNDOWN	ELEC. CHAR.	APPROX. WEIGHT (LBS)	MANUFACTURER & MODEL NO.	ACCESSORIES/NOTES
B-1	SEE PLANS	HIGH EFF. CONDENSING LOW NOx	180°F H.W.	12	750	720	95.6%	NAT.	15:1	120/1	910	AERCO BMK750 (1) LOW NOx (2)	VENTING & TERMINATION. CONDENSATE NEUTRALIZATION KIT. SEE DETAILS.
B-2	SEE PLANS	HIGH EFF. CONDENSING LOW NOx	180°F H.W.	12	750	720	95.6%	NAT.	15:1	120/1	910	AERCO BMK750 (1) LOW NOx (2)	VENTING & TERMINATION. CONDENSATE NEUTRALIZATION KIT. SEE DETAILS.
B-3 (3)	SEE PLANS	HIGH EFF. CONDENSING LOW NOx	180°F H.W.	16	399	379	95.0%	NAT.	5.5:1	120/1	280	TRIANGLE TUBE (1) PRESTIGE SOLO 399	30 PSI RELIEF VALVE. VENTING & TERMINATION. SEE DETAILS.
B-4 (3)	SEE PLANS	HIGH EFF. CONDENSING LOW NOx	180°F H.W.	16	399	379	95.0%	NAT.	5.5:1	120/1	280	TRIANGLE TUBE (1) PRESTIGE SOLO 399	30 PSI RELIEF VALVE. VENTING & TERMINATION. SEE DETAILS.
B-5 (3)	SEE PLANS	HIGH EFF. CONDENSING LOW NOx	180°F H.W.	16	399	379	95.0%	NAT.	5.5:1	120/1	280	TRIANGLE TUBE (1) PRESTIGE SOLO 399	30 PSI RELIEF VALVE. VENTING & TERMINATION. SEE DETAILS.
B-6 (3)	SEE PLANS	HIGH EFF. CONDENSING LOW NOx	180°F H.W.	16	399	379	95.0%	NAT.	5.5:1	120/1	280	TRIANGLE TUBE (1) PRESTIGE SOLO 399	30 PSI RELIEF VALVE. VENTING & TERMINATION. SEE DETAILS.
B-7 (3)	SEE PLANS	HIGH EFF. CONDENSING LOW NOx	180°F H.W.	16	399	379	95.0%	NAT.	5.5:1	120/1	280	TRIANGLE TUBE (1) PRESTIGE SOLO 399	30 PSI RELIEF VALVE. VENTING & TERMINATION. SEE DETAILS.
B-8 (3)	SEE PLANS	HIGH EFF. CONDENSING LOW NOx	180°F H.W.	16	399	379	95.0%	NAT.	5.5:1	120/1	280	TRIANGLE TUBE (1) PRESTIGE SOLO 399	30 PSI RELIEF VALVE. VENTING & TERMINATION. SEE DETAILS.
B-9 (3)	SEE PLANS	HIGH EFF. CONDENSING LOW NOx	180°F H.W.	16	399	379	95.0%	NAT.	5.5:1	120/1	280	TRIANGLE TUBE (1) PRESTIGE SOLO 399	30 PSI RELIEF VALVE. VENTING & TERMINATION. SEE DETAILS.

(1) 1" GAS CONNECTION.
(2) ALL CONDENSATE DRAIN PIPING TO BE STAINLESS STEEL.
(3) PROVIDE PROPER COMPONENTS FOR BACNET INTEGRATION OF BOILERS AND MODULATION CONTROL FROM HEAT TIMER MULTI-MOD BOILER CONTROLLER.

CP/BCP # CIRCULATING PUMP/BOILER CIRCULATING PUMP SCHEDULE

PLAN SYMBOL	ROOM NO.	SERVICE	FLUID TYPE	TYPE	FLOW (GPM)	HEAD (FT)	MIN. NPSH REQ'D	MIN. EFF. (%)	SIZE (IN.) SUCT.	SIZE (IN.) DISCH.	SIZE (IN.) IMP.	MOTOR BHP	MOTOR HP/W	MOTOR RPM	MOTOR ELEC. CHAR.	MOTOR VFD	MANUFACTURER & MODEL NO.	ACCESS./ NOTES
CP-1	SEE PLANS	BUILDING HEATING	WATER	VERTICAL INLINE	116	60	5.11	71.22	2½	2½	4.66	2.47	5 HP	3600	480/3	(7)	GRUNDFOS CRE-DP 32-1	(8)(9)
CP-2	SEE PLANS	BUILDING HEATING	WATER	VERTICAL INLINE	116	60	5.11	71.22	2½	2½	4.66	2.47	5 HP	3600	480/3	(7)	GRUNDFOS CRE-DP 32-1	(8)(9)
CP-3	SEE PLANS	HEATING/ COOLING	WATER	VERTICAL INLINE	(1)	(1)	11.27/ 8.63	64.85/ 67.38	PER MFG.	PER MFG.	PER MFG.	6.86/ 5.44	7.5 HP	3500/ 3300	480/3	(2)	GRUNDFOS CRE 32-2-1 (3)	(4)(5)(6)
CP-4	SEE PLANS	HEATING/ COOLING	WATER	VERTICAL INLINE	(1)	(1)	11.27/ 8.63	64.85/ 67.38	PER MFG.	PER MFG.	PER MFG.	6.86/ 5.44	7.5 HP	3500/ 3300	480/3	(2)	GRUNDFOS CRE 32-2-1 (3)	(4)(5)(6)
CP-5	SEE PLANS	HEATING/ COOLING	WATER	VERTICAL INLINE	(1)	(1)	11.27/ 8.63	64.85/ 67.38	PER MFG.	PER MFG.	PER MFG.	6.86/ 5.44	7.5 HP	3500/ 3300	480/3	(2)	GRUNDFOS CRE 32-2-1 (3)	(4)(5)(6)
BCP-3	SEE PLANS	B-3	WATER	INLINE	33	15	–	59.26	PER MFG.	PER MFG.	PER MFG.	–	0.6 HP	PER MFG.	120/1	(7)	GRUNDFOS MAGNA3 40-120 GF	INTERLOCK WITH B-3
BCP-4	SEE PLANS	B-4	WATER	INLINE	33	15	–	59.26	PER MFG.	PER MFG.	PER MFG.	–	0.6 HP	PER MFG.	120/1	(7)	GRUNDFOS MAGNA3 40-120 GF	INTERLOCK WITH B-4
BCP-5	SEE PLANS	B-5	WATER	INLINE	33	15	–	59.26	PER MFG.	PER MFG.	PER MFG.	–	0.6 HP	PER MFG.	120/1	(7)	GRUNDFOS MAGNA3 40-120 GF	INTERLOCK WITH B-5
BCP-6	SEE PLANS	B-6	WATER	INLINE	33	15	–	59.26	PER MFG.	PER MFG.	PER MFG.	–	0.6 HP	PER MFG.	120/1	(7)	GRUNDFOS MAGNA3 40-120 GF	INTERLOCK WITH B-6
BCP-7	SEE PLANS	B-7	WATER	INLINE	33	15	–	59.26	PER MFG.	PER MFG.	PER MFG.	–	0.6 HP	PER MFG.	120/1	(7)	GRUNDFOS MAGNA3 40-120 GF	INTERLOCK WITH B-7
BCP-8	SEE PLANS	B-8	WATER	INLINE	33	15	–	59.26	PER MFG.	PER MFG.	PER MFG.	–	0.6 HP	PER MFG.	120/1	(7)	GRUNDFOS MAGNA3 40-120 GF	INTERLOCK WITH B-8
BCP-9	SEE PLANS	B-9	WATER	INLINE	33	15	–	59.26	PER MFG.	PER MFG.	PER MFG.	–	0.6 HP	PER MFG.	120/1	(7)	GRUNDFOS MAGNA3 40-120 GF	INTERLOCK WITH B-9

NOTE: SCHEDULE VALUES LISTED AS "COOLING/HEATING" FOR CP-3 THRU CP-5.
(1) COOLING FLOW SETPOINT: 480 GPM AT 110' HEAD. HEATING FLOW SETPOINT: 435 GPM AT 100' HEAD.
(2) VFD MOUNTED IN CONTROL CABINET.
(3) PACKAGED PUMP SKID SYSTEM INCLUDES PUMPS, VFD'S, MANIFOLDS, ISOLATION VALVES ON SUCTION AND DISCHARGE, CHECK VALVES ON DISCHARGE SIDE, PRESSURE TRANSDUCERS AND GAUGES ON SUCTION AND DISCHARGE MANIFOLDS, CONTROL PANEL AND 304 S.S. BASE FRAME. VERTICAL INLINE MULTI-STAGE PUMPS WITH CARTRIDGE SHAFT SEALS. BACNET MS/TP. PROVIDE BACNET INTERFACE CARD. PACKAGED PUMP SYSTEM MODEL: GRUNDFOS HYDRO MPC-E 3CRE 32-2-1.
(4) CONTROL PANEL INCLUDES CU352 COLOR DISPLAY CONTROLLER. SERVICE DISCONNECT SWITCH. SURGE PROTECTION. PUMP RUN LIGHTS. ALARM CIRCUIT WITH FAULT LIGHT AND 100KA SCCR RATING.
(5) CONTROLLER SHALL HAVE A MINIMUM SCREEN SIZE OF 3.5"x4.625" AND SHALL HAVE THE FOLLOWING CAPABILITIES: PROPORTIONAL PRESSURE CONTROL, PUMP CASCADE CONTROL BASED ON EFFICIENCY, FORCED PUMP CHANGEOVER FOR EQUAL RUN TIME, HIGH & LOW PRESSURE SHUTDOWN, DRY RUN PROTECTION, REDUCED OPERATION MODE, LOW/NO FLOW STOP FUNCTION, SOFT PRESSURE BUILT MODE, ABILITY TO DISPLAY PRESSURE SETPOINT, SYSTEM STATUS, PUMP STATUS, ALARM, ESTIMATED FLOW RATE & POWER CONSUMPTION, BATTERY BACKUP.
(6) SYSTEM SHALL BE FACTORY TESTED AND UL LISTED, NSF61 & 372 CERTIFIED AND ASHRAE 90.1 COMPLIANT.
(7) VFD INTEGRAL TO PUMP.
(8) EC MOTOR WITH INTEGRAL DP SENSORLESS CONTROL, BACNET MS/TP. PUMP SHALL READ/DISPLAY FLOW AND PRESSURE. PROVIDE BACNET INTERFACE CARD.
(9) SUCTION DIFFUSER WITH STARTUP AND SYSTEM STRAINERS.

ET # EXPANSION TANK SCHEDULE

PLAN SYMBOL	ROOM NO.	TYPE	FLUID	FLUID TEMP. (AVG.)	MINIMUM PRECHARGE PRESSURE	MAXIMUM OPERATING PRESSURE	EXPAN. VOLUME (GAL.)	MIN. TANK VOLUME (GAL.)	DIMENSIONS (L" x DIA")	MANUFACTURER & MODEL NO.	ACCESSORIES/NOTES
ET-1	SEE PLANS	ASME VERTICAL DIAPHRAGM	WATER	170°F	12 PSI	30 PSI	22.6	55.7	34x24	AMTROL EXTROL AX-100V (1)	AUTOMATIC AIR VENT, DRAIN VALVE, AND PRESSURE GAUGE.
ET-2	SEE PLANS	ASME VERTICAL DIAPHRAGM	WATER	170°F	16 PSI	30 PSI	106	106	66x24	AMTROL EXTROL 400-L (1)	AUTOMATIC AIR VENT, DRAIN VALVE, AND PRESSURE GAUGE.

(1) SEE AIR CONTROL DETAIL. CHARGE TO FILL PRESSURE LISTED IN SCHEDULE.

DAS # DIRT AND AIR SEPARATOR SCHEDULE

PLAN SYMBOL	ROOM NO.	TYPE	FLUID	FLUID TEMP. (AVG.)	SYSTEM GPM	MAX SUGGESTED GPM	SIZE	COALESCING MEDIUM	RATED WORKING PRESS.	MANUFACTURER & MODEL NO.	ACCESSORIES/NOTES
DAS-1	SEE PLANS	COALESCING	WATER	170°F	116	150	3"	STAINLESS STEEL	175 PSIG	GRUNDFOS GBSR-030	SEE DETAILS AND SPECIFICATIONS.
DAS-2	SEE PLANS	COALESCING	WATER	170°F	480	560	6"	STAINLESS STEEL	175 PSIG	GRUNDFOS GBSR-060	SEE DETAILS AND SPECIFICATIONS.

BT # BUFFER TANK SCHEDULE

PLAN SYMBOL	ROOM NO.	STORAGE CAPACITY (GAL)	TANK TEMP	INLET AND RETURN CONNECTION	INLET AND RETURN QUANTITY	WATER OUTLET CONNECTION	WATER OUTLET QUANTITY	RELIEF VALVE CONN.	AQUASTAT CONN.	MANUFACTURER & MODEL NO.	ACCESSORIES/NOTES
BT-1	SEE PLANS	400	180°F	6"	2	6"	2	¾"	¾"	AMERICAN WHEATLEY HS-400	(1)

(1) INSULATE AS SPECIFIED.

RPBP # REDUCED PRESSURE BACKFLOW PREVENTER

UNIT NO.	ROOM NO.	SIZE	WATER TEMPERATURE	PRESSURE DROP	REPR. MFGR. & MODEL NO.	ACCESSORIES	REMARKS
RPBP-1	MECH.	¾"	40°F	16 psig AT 10 G.P.M.	WILKINS 975XL	WILKINS AG-4 AIR GAP CONNECTION.	INSTALL AS PER CODE AND DETAIL. BOILER MAKE-UP WATER. (1)

(1) M.C. IS RESPONSIBLE FOR TESTING AND REGISTRATION OF NEW VALVE.
(2) EXTEND AIR GAP CONNECTION TO CLOSEST DRAIN.

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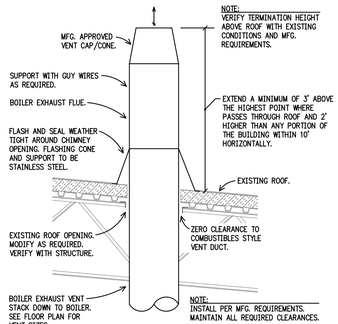
BOILER REPLACEMENT PROJECT FOR
CLARK COUNTY COURTHOUSE
517 COURT STREET
NEILLSVILLE, WISCONSIN 54456

TITLE:
MECHANICAL SCHEDULES AND DETAILS

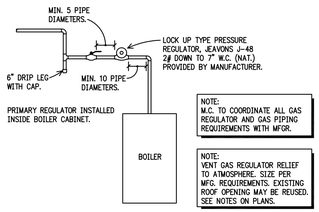
DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

PROJECT NO: 22101
DRAWN BY: LJJ/PDK
DESIGNED BY: JKM/PDK
DATE: 10-16-2023
SHEET: **M300**

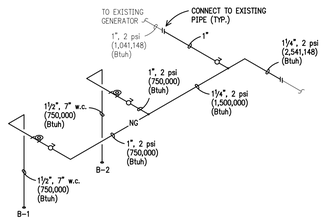
landonJ 10/12/2023 12:42 PM 22101 Mech Plan Set.dwg



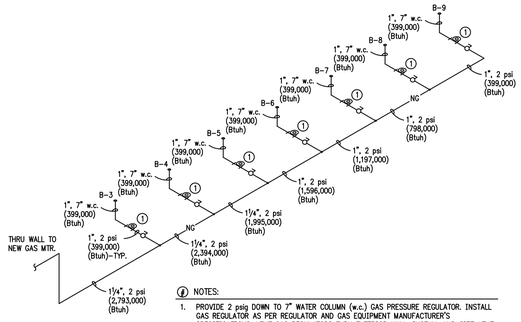
14 M301 BOILER VENT TERMINATION DETAIL
NO SCALE (THROUGH ROOF) (B-1 & 2)



15 M301 GAS CONNECTION DETAIL
NO SCALE (BOILERS)

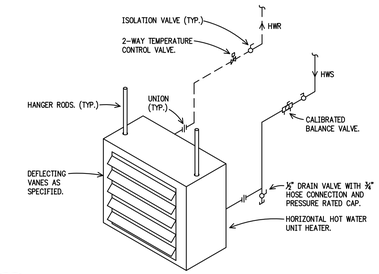


16 M301 GAS PIPING SCHEMATIC
NO SCALE (B-1 & 2)

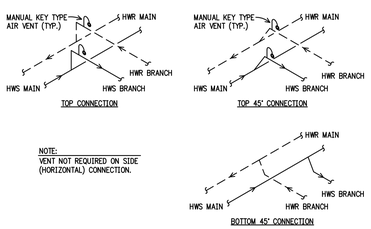


NOTES:
1. PROVIDE 2 psig DOWN TO 7" WATER COLUMN (w.c.) GAS PRESSURE REGULATOR. INSTALL GAS REGULATOR AS PER REGULATOR AND GAS EQUIPMENT MANUFACTURER'S SPECIFICATIONS. VENT GAS REGULATORS THRU EXTERIOR WALL. INSTALL AND SIZE VENT PIPING PER GAS REGULATOR MFG. RECOMMENDATIONS.

17 M301 GAS PIPING SCHEMATIC
NO SCALE (B-3 THRU 9)

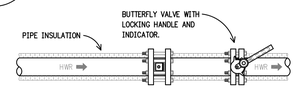


9 M301 HOT WATER UNIT HEATER DETAIL
NO SCALE (HORIZONTAL) (UH-1 & 2)



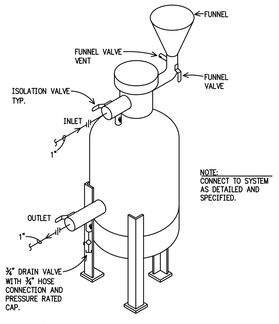
NOTE:
VENT NOT REQUIRED ON SIDE (HORIZONTAL) CONNECTION.

10 M301 HW BRANCH PIPING DETAIL
NO SCALE



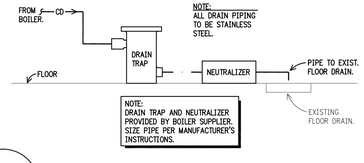
NOTE:
B&G CIRCUIT SENSOR FLOW METER – TYPE A, OR AS SPECIFIED.

11 M301 FLOW SENSING DEVICE DETAIL
NO SCALE (2-1/2" AND LARGER)

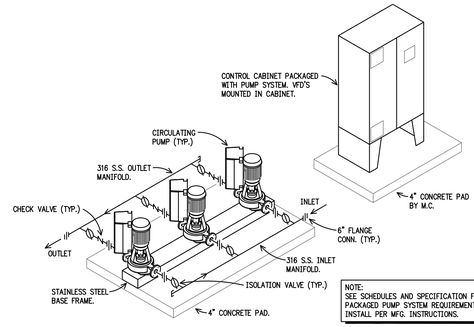


NOTE:
CONNECT TO SYSTEM AS DETAILED AND SPECIFIED.

12 M301 POT FEEDER DETAIL
NO SCALE

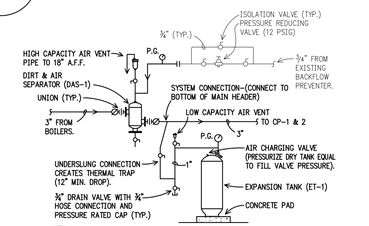


13 M301 CONDENSATE NEUTRALIZER DETAIL
NO SCALE

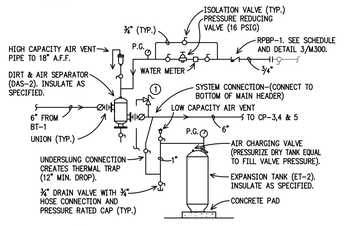


NOTE:
SEE SCHEDULES AND SPECIFICATION FOR ALL PACKAGED PUMP SYSTEM REQUIREMENTS. INSTALL PER MFG. INSTRUCTIONS.

4 M301 PACKAGED PUMP SYSTEM DETAIL
NO SCALE (CP-3,4 & 5)

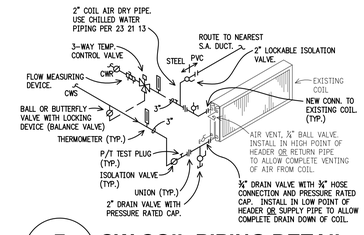


5 M301 AIR CONTROL DETAIL
NO SCALE (HOT WATER) (B-1 & 2 SYSTEM)

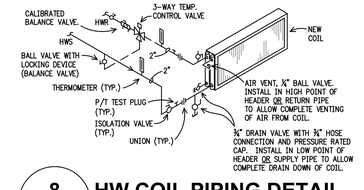


NOTES:
1. 30 PSIG SYSTEM RELIEF VALVE. PIPE TO EXISTING DRAIN.

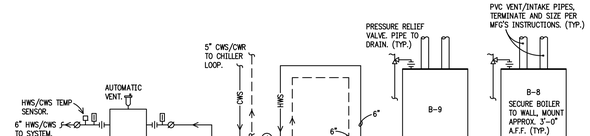
6 M301 AIR CONTROL DETAIL
NO SCALE (HOT & CHILLED WATER) (BT-1 SYSTEM)



7 M301 CW COIL PIPING DETAIL
NO SCALE (3-WAY CW COIL) (EXISTING AHU-5)



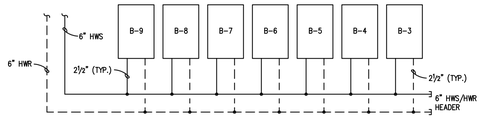
8 M301 HW COIL PIPING DETAIL
NO SCALE (3-WAY HW COIL) (EXISTING AHU-5)



NOTE:
M.C. TO RUN CONDENSATE LINE FROM BOILER TO EXISTING FLOOR DRAIN.

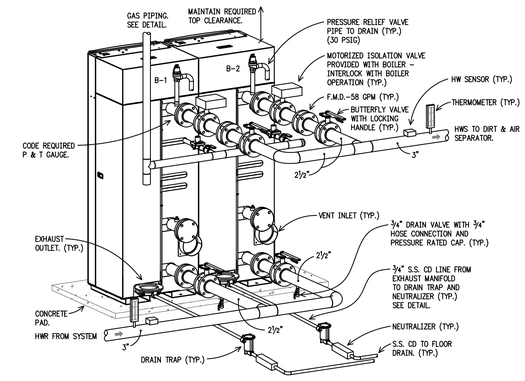
NOTE:
SEE PIPING SCHEMATIC BELOW FOR PIPING SIZES TO BOILERS.

NOTES:
1. POINT OF PHASING FOR REQUIRED WORK. COORDINATE WITH OWNER AND ENGINEER.



BOILER PIPING SCHEMATIC

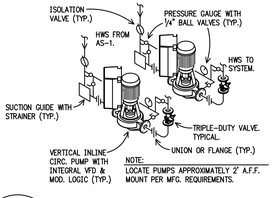
1 M301 HOT WATER BOILER DETAIL
NO SCALE (B/BCP WITH BUFFER TANK) (B/BCP-3 THRU 9)



NOTE:
1. EACH AUTOMATICALLY–FIRED HOT WATER BOILER SHALL HAVE AT LEAST ONE TEMERATURE ACTUATED CONTROL TO SHUT OFF THE FUEL SUPPLY WHEN THE BOILER REACHES A PRESET OPERATING TEMPERATURE.
2. IN ADDITION THE BOILER SHALL HAVE A (BACKUP) HIGH LIMIT SWITCH WHICH WILL PREVENT THE WATER TEMPERATURE FROM EXCEEDING THE BOILER MAXIMUM ALLOWABLE TEMPERATURE. EACH LIMIT CONTROL SHALL BE CLEARLY SEPARATED AND HAVE ITS OWN SENSING ELEMENT AND OPERATING SWITCH.

NOTE:
BOILER INSTALLATION SHALL COMPLY WITH ASME IV AND CSD–1.

2 M301 HOT WATER BOILER DETAIL
NO SCALE (B-1 & 2)



NOTE:
LOCATE PUMPS APPROXIMATELY 2' A.F.F. MOUNT PER MFG. REQUIREMENTS.

3 M301 CIRCULATING PUMP DETAIL
NO SCALE (CP-1 & 2)

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BOILER REPLACEMENT PROJECT FOR
CLARK COUNTY COURTHOUSE
517 COURT STREET
NEILLSVILLE, WISCONSIN 54456

TITLE:
MECHANICAL DETAILS AND SCHEMATICS

DO NOT SCALE DRAWINGS
USE FIGURED DIMENSIONS ONLY

PROJECT NO: 22101
DRAWN BY: LJJ/PDK
DESIGNED BY: JKM/PDK
DATE: 10-16-2023
SHEET: **M301**

APEX Engineering
landonJ 10/12/2023 9:26 AM 22101 Mech Plan Set.dwg