



BID # WMC24-02

ADDENDUM NUMBER 06

REQUEST FOR BIDS FOR:

Berlin MEP Upgrades

at White Mountains Community College

2020 Riverside Drive, Berlin NH 03570

A component of the Community College System of New Hampshire

26 College Drive, Concord, NH 03301

September 20, 2024

TO: ALL CONTRACT BIDDERS OF RECORD

This Addendum forms a part of the Contract Documents and modifies the Request for Bids dated August 5, 2024, with amendments and additions noted below. This Addendum consists of a total of eleven (11) pages.

CLARIFICATIONS TO THE REQUEST FOR PROPOSAL:

BID DATE: Remains the same – September 25th, 2024 at 2pm.

Project Substantial Completion Date for work: August 13th, 2025

Question #1: Asked for locations of hot water control valves.

Answer: The intent is to limit the new controls to the connect to the new rooftop units along with those other units specified in these plans at the Berlin campus and tie the controls to the Littleton campus. See attached markup with 35 hot water control valves deleted from the scope.

Acknowledge receipt of this Addendum with the Proposal Form. Failure to do so may disqualify the Bidder.

NOTE: IN THE EVENT THAT YOUR BID HAS BEEN SENT TO THIS OFFICE PRIOR TO RECEIVING THIS ADDENDUM, RETURN THE ADDENDUM WITHIN THE SPECIFIED TIME WITH ANY CHANGES YOU MAY WISH TO MAKE AND MARK ON THE REMITTANCE ENVELOPE BID INVITATION NUMBER AND OPENING DATE. RETURNED ADDENDA WILL SUPERSEDE PREVIOUSLY SUBMITTED BID.

Bidder _____

By _____ Date _____

(This Document Must Be Signed)

Name _____

(Please Print or Type Name)

Matthew Moore, P.E.
Director of Capitol Planning & Development
Community College System of New Hampshire
26 College Drive, Concord, N.H. 0330

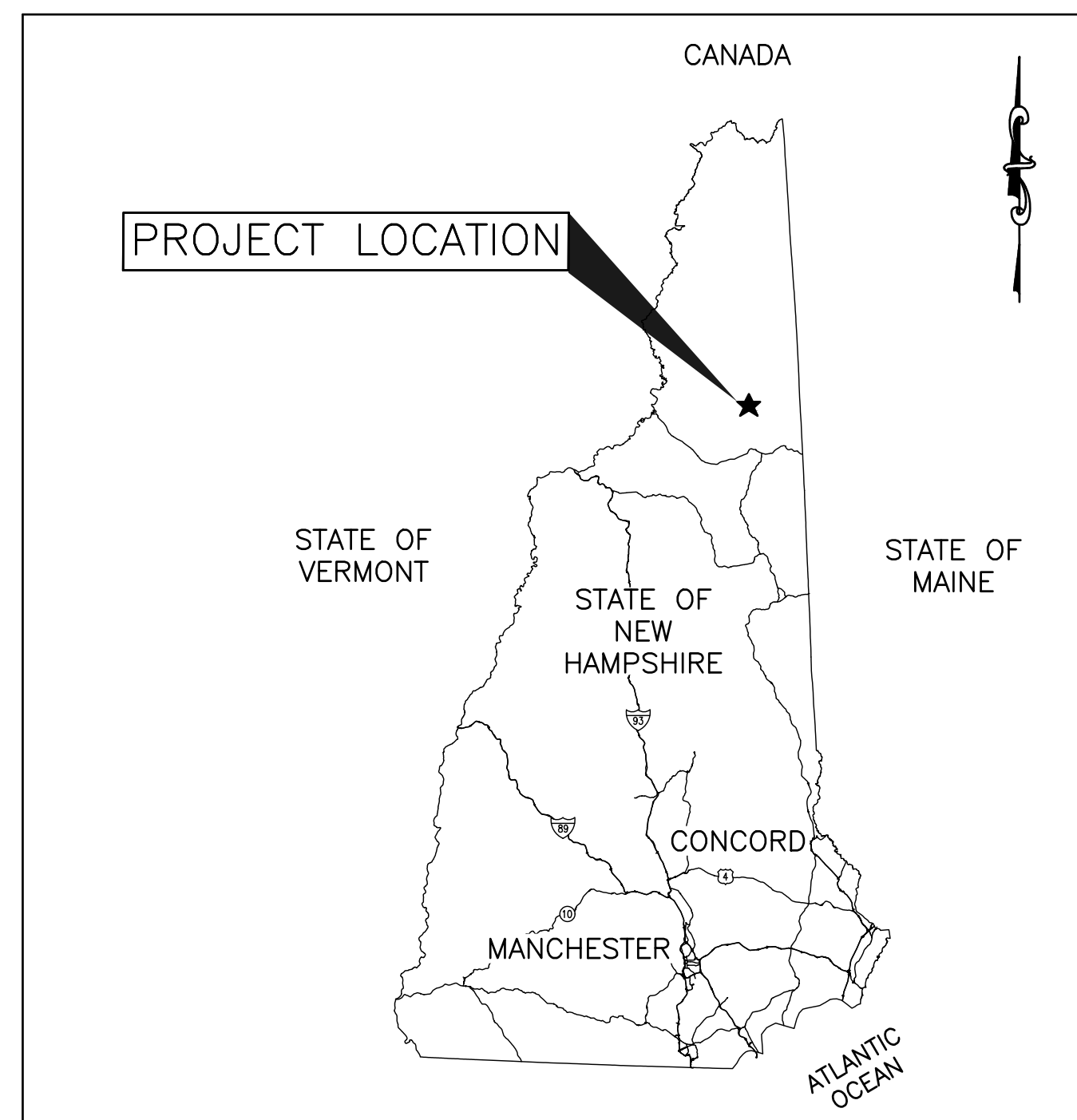
WHITE MOUNTAIN COMMUNITY COLLEGE

BERLIN MECHANICAL AND ELECTRICAL UPGRADES

BERLIN, NEW HAMPSHIRE

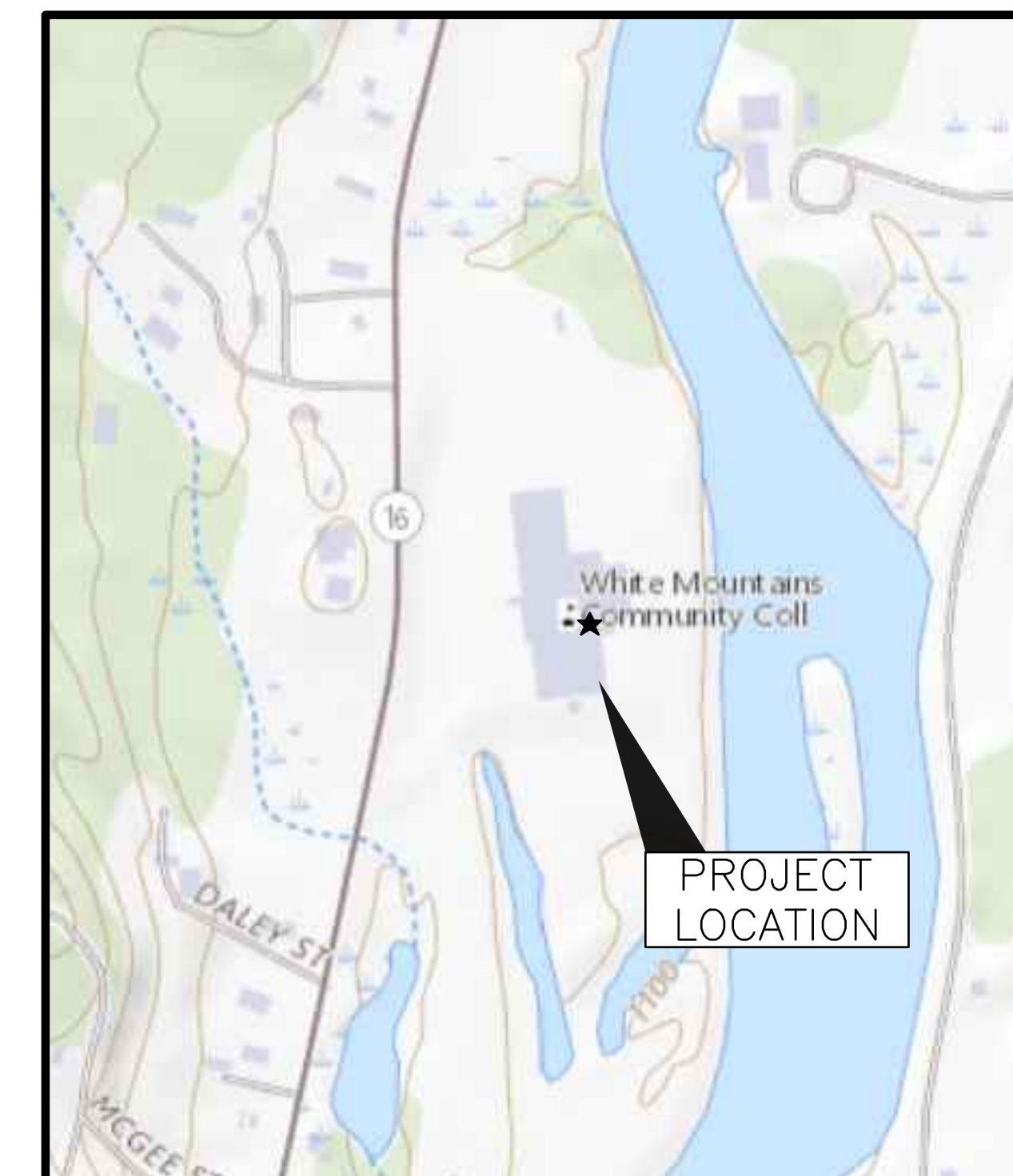
ISSUED FOR CONSTRUCTION

MARCH 11, 2022




VICINITY MAP
SCALE: NTS

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LOCUS MAP
SCALE: NTS

C:\Dropbox (Cobly Co Engineering)\Engineering\072 Community College System of NH\072.009.001 - WMCC Berlin Mechanical & Electrical Upgrades\Drawings\Sheets\G-001.dwg - 3/11/2022 4:13 PM - ZAK CHARLETTE

 COBLY COMPANY, LLC engineering & design	WHITE MTNS. COMMUNITY COLLEGE BERLIN, NEW HAMPSHIRE		
	MECHANICAL/ELECTRICAL UPGRADES		
47A York St Portland, ME 04101 207.553.7753	PETER BROWN No. 13953 REGISTERED PROFESSIONAL ENGINEER 03-11-22	0 ISSUED FOR CONSTRUCTION ZPC PJS 3/11/22 REV DESCRIPTION DWN APP DATE	PROJECT NO. 372.009.001 SHEET 1 OF 10
PLEASE NOTE: THIS DOCUMENT MAY NOT ACCURATELY REPRESENT THE FINAL DOCUMENT. ONLY AN ENGINEER, ARCHITECT OR SURVEYOR SIGNED, SEALED AND DATED PAPER COPY, PROVIDED BY THIS OFFICE, MAY BE UTILIZED FOR BIDDING OR CONSTRUCTION PURPOSES.		SIZE: ANSI D DATE: 2022.1.04 DES BY: ZPC DWN BY: ZPC CKD BY: RLM	DRAWING NO. G-001

ABBREVIATIONS

A	AMP
AC	AIR CONDITIONER
ACS	ACCESS
AFF	ABOVE FINISHED FLOOR
AHU	AIR-HANDLING UNIT
APD	AIR PRESSURE DROP
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BTUH	BRITISH THERMAL UNITS PER HOUR
CA	COMPRESSED AIR
CF	CEILING FAN
CFM	CUBIC FEET PER MINUTE
CLG	COOLING
CO	CLEANOUT
COND	CONDENSATE
CP	CONDENSATE PUMP
CW	COLD WATER
CU	CONDENSING UNIT
DB	DRY BULB
DBA	DECIBELS
DEG.	DEGREE
DIA, Ø	DIAMETER
DN	DOWN
DP,DPS	DIFFERENTIAL-PRESSURE SENSOR
(E)	EXISTING TO REMAIN
EA	EACH, EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
F	FAN, FAHRENHEIT
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
GA	GAUGE
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
HC	HOT GAS
HGB	HOT GAS BYPASS
HP	HEAT PUMP, HORSEPOWER
HR	HOUR
HTG	HEATING
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HZ	HERTZ
IN	INCHES
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LCP	LOCAL CONTROL PANEL
LWT	LEAVING WATER TEMPERATURE
MAU	MAKEUP AIR UNIT
MAX	MAXIMUM
MBH	1000 BTU PER HOUR
MCP	MAIN CONTROL PANEL
MIN	MINIMUM
MOP	MAXIMUM OVERCURRENT PROTECTION
NC	NOISE CRITERIA
NEC	NATIONAL ELECTRICAL CODE
NO	NUMBER
NTS	NOT TO SCALE
OA	OUTSIDE AIR
PC	PUMPED CONDENSATE
PD	PRESSURE DROP
PDS	PRESSURE DIFFERENTIAL SWITCH
PH	PHASE
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SWITCH
QTY	QUANTITY
RA	RETURN AIR
RG	REFRIGERANT GAS
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SP	STATIC PRESSURE
T	TEMPERATURE SENSOR, THERMOSTAT
THK	THICK
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
W/	WITH
WB	WET-BULB
WC	WATER COLUMN
WG	WATER GAUGE
WPD	WATER PRESSURE DROP

DUCTWORK SYMBOLS

	RETURN/EXHAUST DUCT UP
	RETURN/EXHAUST DUCT DOWN
	SUPPLY DUCT UP
	SUPPLY DUCT DOWN
	RISE(R) OR DROP(D)
	RADIUS ELBOW
	SQUARE ELBOW W/ TURNING VANES
	OFFSET
	DUCT TRANSITION FROM RECTANGULAR TO ROUND
	BULLHEAD TEE
	SPLIT TAKE-OFF W/ BRANCH DAMPERS SUPPLY
	TAKE-OFF
	SUPPLY
	EXHAUST/RETURN
	CEILING SUPPLY DIFFUSER W/ DIRECTION SHOWN BY ARROWS
	BULLHEAD SPLIT
	CEILING DIFFUSER OR GRILLE W/ FLEXIBLE DUCT
	FLEXIBLE DUCT

MECHANICAL LINE TYPE LEGEND

	EXISTING ITEMS TO REMAIN
	ITEMS TO BE REMOVED
	ITEMS TO BE PROVIDED
	HIDDEN ITEMS
	CONTROL WIRING

MECHANICAL SYMBOLS

	SECTION NUMBER
	DRAWING WHERE SECTION IS DRAWN
	SYMBOL PER ABBREVIATION LIST EQUIPMENT SEQUENCE NUMBER
	DIFFUSER, REGISTER OR GRILLE SEQUENCE NUMBER
	CFM
	SYMBOL PER ABBREVIATION LIST PER FOOT MBH
	LINEAL FEET OF ACTIVE ELEMENT
	BALANCING FLOW RATE
	SMACNA DUCT PRESSURE CLASS DESIGNATION MARKER
	UNIT HEATER
	FAN
	CONNECT TO EXISTING
	DIRECTION OF AIR FLOW (OUT)
	DIRECTION OF AIR FLOW (IN)
	FIRE DAMPER
	HAND DAMPER ACTUATOR
	IRIS DAMPER
	MANUAL DAMPER, HAND WHEEL
	MOTORIZED DAMPER
	MOTORIZED DAMPER OPPOSED BLADE
	VOLUME DAMPER
	DIFFERENTIAL PRESSURE SENSOR
	DUCT SMOKE DETECTOR
	TEMPERATURE SENSOR
	THERMOSTAT
	VARIABLE-AREA FLOW METER
	WALL SWITCH

PIPING SYMBOLS

	AUTOMATIC AIR VENT
	BACKFLOW PREVENTER
	BALL VALVE
	BALL DRAIN VALVE W/ HOSE THREAD OUTLET AND CAP
	CHECK VALVE
	CHECK VALVE, SILENT
	COMBINATION FLOW MEASURING/ BALANCING VALVE (CIRCUIT SETTER)
	GATE VALVE
	GLOBE VALVE
	MANUAL AIR VENT
	PRESSURE GAUGE W/ BALL VALVE
	PRESSURE REDUCING VALVE
	PRESSURE/TEMPERATURE PORT
	PUMP
	SAFETY RELIEF VALVE
	STRAINER WITH SCREEN CAP
	STRAINER W/BALL DRAIN VALVE, HOSE THREAD OUTLET AND CAP
	THERMOMETER IN WELL
	THREE-WAY AUTOMATIC CONTROL VALVE
	TWO-WAY AUTOMATIC CONTROL VALVE
	DIRECTION OF FLOW OF PIPE
	PITCH UP IN DIRECTION OF FLOW
	PITCH DOWN IN DIRECTION OF FLOW
	DRAIN
	END CAP
	FLANGE CONNECTION
	FLEXIBLE CONNECTION
	PIPE TEE FROM TOP
	PIPE TEE FROM BOTTOM
	PIPE RISE
	PIPE DROP
	REDUCER (CONCENTRIC)
	REDUCER (ECCENTRIC-FOB OR FOT)
	UNION OR FLANGE, DICTATED BY PIPE SIZE
	VIBRATION ISOLATOR

APPLICABLE CODES AND STANDARDS

- INTERNATIONAL MECHANICAL CODE (2015) WITH NH AMENDMENTS
- SHEET METAL AND AIR CONDITIONING NATIONAL ASSOCIATION, INC. (SMACNA)

GENERAL NOTES

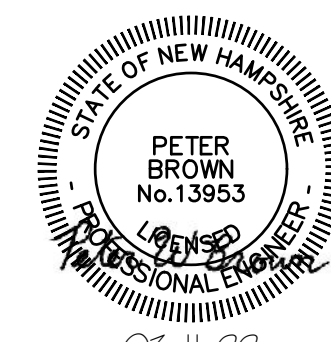
- GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO DRAWINGS MARKED M-# AND MD-#.
- DRAWINGS ARE DIAGRAMMATIC; DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
- COORDINATE WORK OF THIS SECTION WITH THAT OF OTHER SECTIONS.
- INSTALL THERMOSTATS AND OTHER OCCUPANT CONTROLS WITH TOPS OF OPERABLE ELEMENTS 48 INCHES AFF FOR ADA ACCESSIBILITY.
- COORDINATE WORK WITH THE OTHER TRADES INVOLVED. PROVIDE OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS AT NO ADDITIONAL COST TO THE GOVERNMENT.
- VERIFY EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE DIMENSIONS BEFORE FABRICATION.
- PROVIDE ACCESS PANELS, WHERE REQUIRED, TO SERVICE FIRE DAMPERS, VOLUME DAMPERS, VALVES AND CONCEALED MECHANICAL EQUIPMENT.
- INSTALL EQUIPMENT, PIPING, AND DUCTWORK AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION AND TO FACILITATE EQUIPMENT ACCESS AS REQUIRED BY EQUIPMENT MANUFACTURER.
- CONTROL WIRE AND CONDUIT SHALL COMPLY WITH NEC.
- DUCT SIZES INDICATED ARE INTERNAL CLEAR AIR FLOW DIMENSIONS.
- DIFFUSER SIZES SHOWN ARE NECK SIZES; REGISTER AND GRILLE SIZES ARE NOMINAL.
- PROVIDE FLEXIBLE DUCT CONNECTIONS ON DUCTS CONNECTING TO FANS AND AIR HANDLING UNITS. GROUND DUCTS TO BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS.
- PROVIDE PIPING AND DUCTWORK. PERFORM TESTS BEFORE INSULATING.
- PROVIDE CLAMPS, OFFSETS, EXPANSION JOINTS, ANCHORS AND GUIDES AS NECESSARY TO PREVENT STRESS ON PIPING.
- PITCH CONDENSATE PIPING 1/8" PER FOOT IN DIRECTION OF FLOW.
- PROVIDE VENTS AT HIGH POINTS IN PIPING SYSTEMS AND DRAIN VALVES AT LOW POINTS.

SCOPE SUMMARY

- REPLACE AIR HANDLERS ON THE ROOF: RTU-1, RTU-2, RTU-3, & RTU-4.
- REPLACE FANS ON THE ROOF: EF-1, EF-2.
- REPLACE MAKEUP AIR UNIT MAU-1 AT GROUND LEVEL.
- REPLACE SPLIT SYSTEM CU-1 AT GROUND LEVEL AND IU-1 IN THE BUILDING.
- 35 NEW CONTROL VALVES, INCLUDING TEMPERATURE TRANSMITTERS.
- NEW WATER ENTRANCE.
- BUILDING AUTOMATION SYSTEM.



47A York St
Portland, ME
04101
207.553.7753



				WHITE MTNS. COMMUNITY COLLEGE BERLIN, NEW HAMPSHIRE			
				MECHANICAL/ELECTRICAL UPGRADES			
				MECHANICAL LEGEND, ABBREVIATIONS & GENERAL NOTES			
0	ISSUED FOR CONSTRUCTION	ZPC	PJS	3/11/22			
REV	DESCRIPTION	DWN	APP	DATE			
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				DATE: 2022.1.04	372.009.001		
				DES BY: ZPC	SHEET		
				DWN BY: ZPC	2	OF 10	
				CKD BY: RLM			

M-001

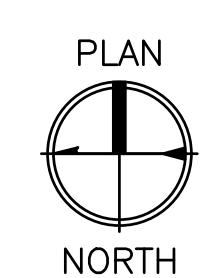
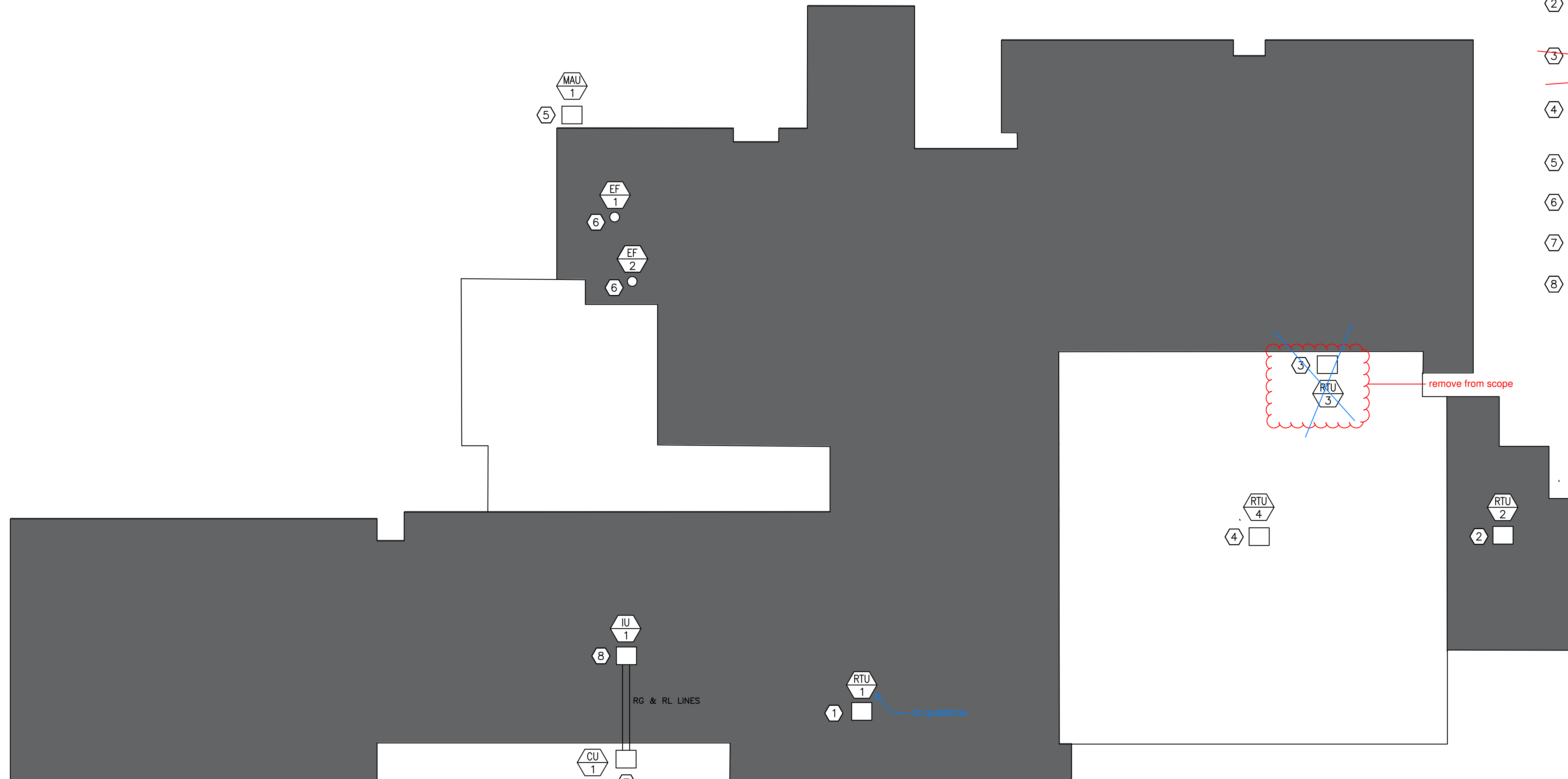
ADDENDUM SEE JOHNSON CONTROLS ROOF TOP UNIT SELECTIONS FOR RTU 1,2 & 4, RTU 3 IS REMOVE FROM THE PROJECT, CONTROLS OF RTU 3 ARE INCLUDED AS SHOWN ON M-702

NOTES:

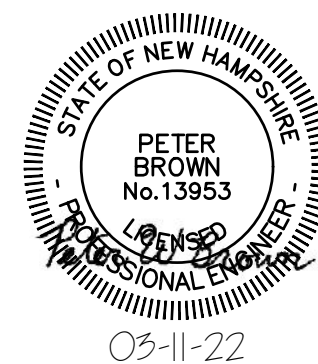
- SEE SHEET M-001 FOR LEGEND, ABBREVIATIONS, AND GENERAL NOTES.

KEYED NOTES:

- JOHNSON CONTROLS SINGLE PACKAGE R-410A AIR CONDITIONER FOR GENERAL ELECTRIC AIR CONDITIONER REPLACEMENT. MODEL NUMBER: **KQE06A2C1AB5H321A1**
- JOHNSON CONTROLS SINGLE PACKAGE R-410A AIR CONDITIONER FOR TRANE AC ONLY REPLACEMENT SFRVING ROOMS 312, 314, AND 316 IN THE LIBRARY. MODEL NUMBER: **KQG05E2C1AB5H321A1**
- ~~JOHNSON CONTROLS SINGLE PACKAGE R-410A AIR CONDITIONER W/ HEAT FOR TRANE LP GAS FIRED RTU REPLACEMENT SERVING THE LIBRARY OFFICE. MODEL NUMBER: ZQG04D2C1AA1C321A3.~~
- JOHNSON CONTROLS SINGLE PACKAGE R-410A AIR CONDITIONER W/ HEAT FOR YORK RTU REPLACEMENT SERVING STUDY ROOMS IN LIBRARY. MODEL NUMBER: **KQE06A2C1AB5H321A1**
- ABSOLUTAIRE MAU REPLACEMENT FOR CURRENT ABSOLUTAIRE MAU. MODEL NUMBER: V5-HVM.
- COOK MODEL EXHAUST FAN DIRECT REPLACEMENT. MODEL NUMBER: 210VCR.
- JOHNSON CONTROLS SPLIT-SYSTEM CONDENSING UNIT FOR NORDYNE SPLIT-SYSTEM REPLACEMENT. UNIT MODEL NUMBER: TCD42B32S.
- JOHNSON CONTROLS SPLIT-SYSTEM INDOOR UNIT FOR NORDYNE SPLIT-SYSTEM REPLACEMENT. UNIT MODEL NUMBER: AE42CX21. LOCATED IN BUSINESS OFFICE CLOSET.



MECHANICAL RTU PLAN
SCALE: NTS

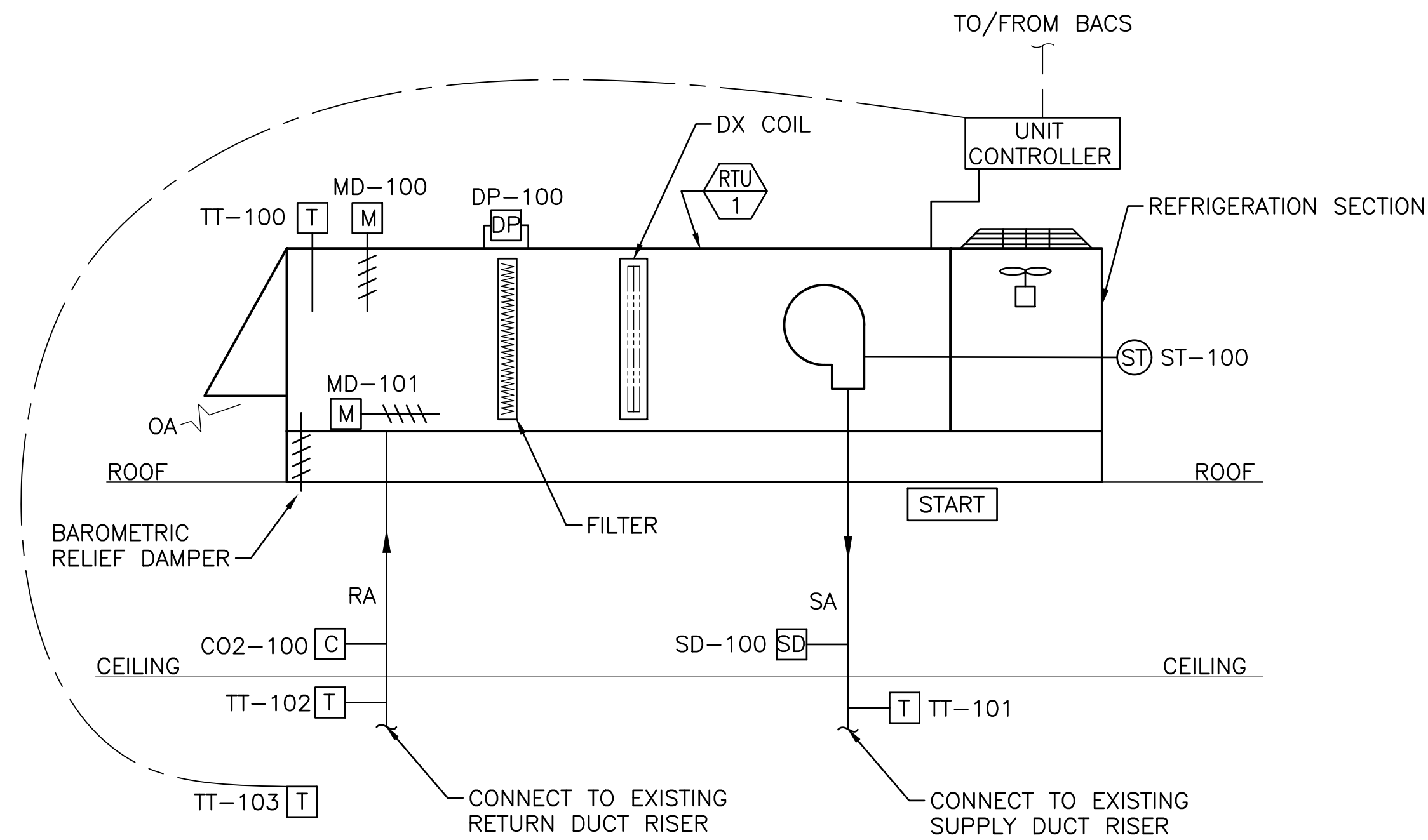


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				MECHANICAL/ELECTRICAL UPGRADES			
				MECHANICAL RTU PLAN			
0	ISSUED FOR CONSTRUCTION	ZPC	PJS	3/11/22	PROJECT NO. 372.009.001		DRAWING NO. M-100
REV	DESCRIPTION	DWN	APP	DATE	SHEET 3 OF 10		
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				DATE: 2022.1.04	DRAWING NO. M-100		
				DES BY: ZPC	SHEET 3 OF 10		
				DWN BY: ZPC			
				CKD BY: RLM			

RTU-1 POINT LIST										
TAG	POINT DESCRIPTION	GRAPHIC	AI	AO	DI	DO	ALARM	TREND	LOG	NOTES
TT-100	OA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
ST-100	FAN MOTOR START/STOP	X	-	-	-	X	-	X	-	-
TT-101	SA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
TT-102	RA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
TT-103	SPACE TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
MD-100	OA MOTORIZED DAMPER	X	-	X	-	-	-	X	-	-
DP-100	FILTER DIFFERENTIAL PRESSURE	X	-	X	-	-	-	X	-	-
SD-100	SA SMOKE DETECTOR	X	-	X	-	-	X	X	-	-
CO2-100	CO2 SENSOR	X	X	-	-	-	-	X	-	-
MD-101	OA MOTORIZED DAMPER	X	-	X	-	-	-	X	-	-

NOTES:
1. PROVIDE ALL FIELD INSTRUMENTS SHOWN ON DIAGRAM AND PER THE CONTROLS SPECIFICATION.



RTU-1 - SEQUENCE OF OPERATIONS

PACKAGED ROOFTOP AIR CONDITIONER IS A CONSTANT VOLUME, VARIABLE TEMPERATURE UNIT DESIGNED TO PROVIDE COOLING, PRESSURIZATION AND VENTILATION TO SPACE. SPACE TEMPERATURE SETTINGS, SETBACK SCHEDULE AND OCCUPIED SCHEDULES ARE CONTROLLED BY BAS. AIR CONDITIONER IS PROVIDED W/ FACTORY CONTROLS W/ BAS COMMUNICATION CARD. BUILT-IN FACTORY CONTROL OF AIR CONDITIONER SHALL CONTROL SPEED OF INTERNAL COMPONENTS TO PROVIDE MOST EFFICIENT COOLING AS REQUIRED TO SATISFY SPACE SETPOINTS.

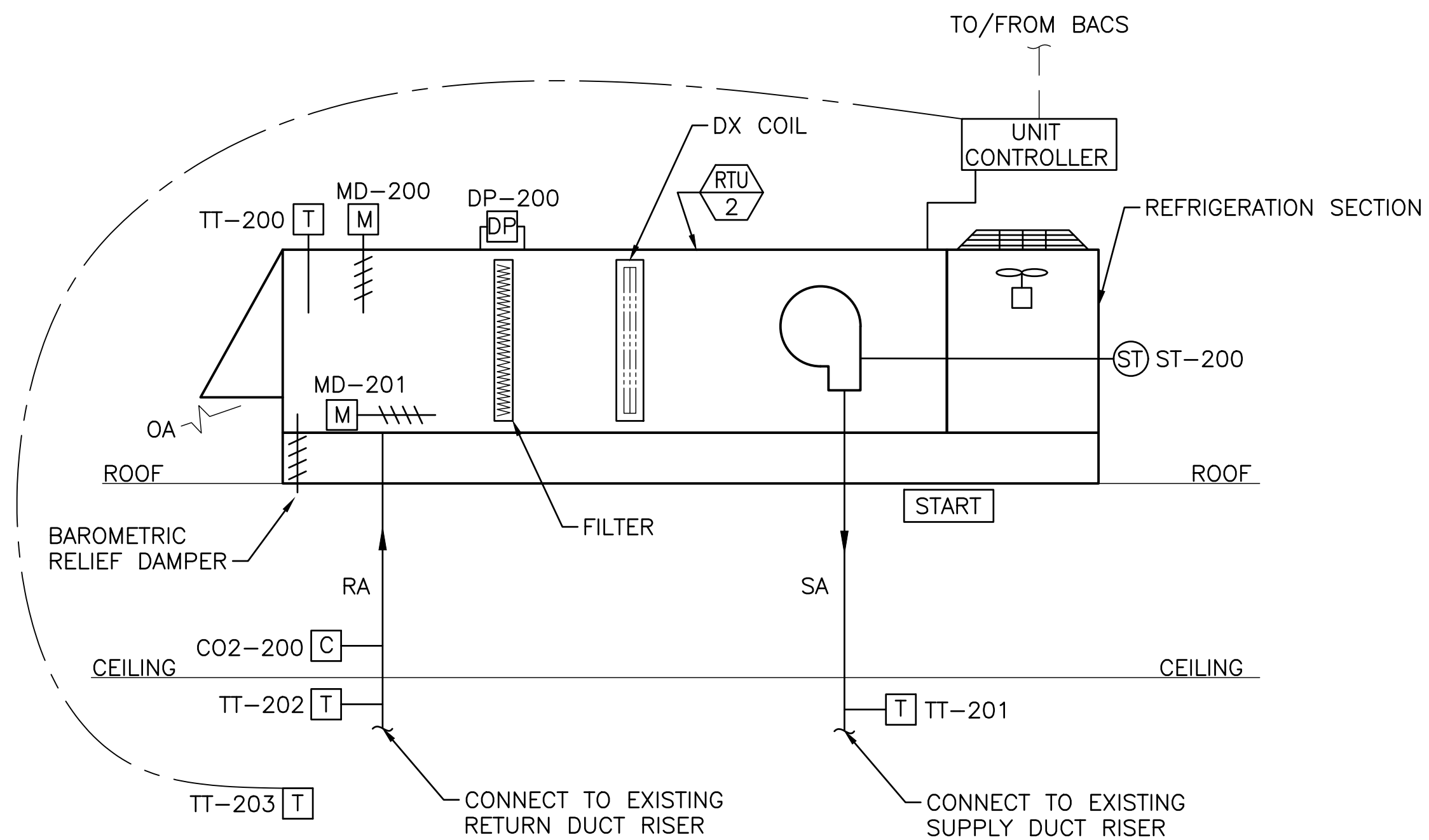
PACKAGED RTU SHALL BE CONTROLLED BY DEMAND CONTROL VENTILATION WITH CO2 SENSORS. DURING OCCUPIED MODES THE SUPPLY FAN RUNS CONTINUOUSLY, AND THE OUTDOOR AIR DAMPER SHALL BE OPEN TO SUPPLY THE MINIMUM OUTDOOR AIR REQUIRED. WHEN THE CO2 IN THE RETURN DUCT RISER REACHES 700 PPM, THE OA DAMPER SHALL MODULATE TO MAINTAIN 700 PPM OR LESS. THE AIR CONDITIONER SHALL DISCHARGE A MINIMUM OF 58.5 DEG F SUPPLY AIR.

ECONOMIZER MODE: THE RTU IS EQUIPPED WITH ENTHALPY BASED ECONOMIZER CONTROLS TO PROVIDE FREE COOLING WHEN POSSIBLE. BAROMETRIC RELIEF DAMPER RELIEVES AIR DURING ECONOMIZER OPERATION. USE STANDARD ALGORITHMS TO PROVIDE FREE COOLING WHEN CONDITIONS ALLOW.

DUCT SMOKE: UPON SMOKE DETECTION IN SUPPLY AIR THE UNIT SHALL SHUTDOWN AND NOTIFY THE FACP AND INDICATE ALARMS STATUS TO BACS.

RTU-2 POINT LIST										
TAG	POINT DESCRIPTION	GRAPHIC	AI	AO	DI	DO	ALARM	TREND	LOG	NOTES
TT-200	OA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
ST-200	FAN MOTOR START/STOP	X	-	-	-	X	-	X	-	-
TT-201	SA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
TT-202	RA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
TT-203	SPACE TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
MD-200	OA MOTORIZED DAMPER	X	-	X	-	-	-	X	-	-
DP-200	FILTER DIFFERENTIAL PRESSURE	X	-	X	-	-	-	X	-	-
CO2-200	CO2 SENSOR	X	X	-	-	-	-	X	-	-
MD-201	OA MOTORIZED DAMPER	X	-	X	-	-	-	X	-	-

NOTES:
1. PROVIDE ALL FIELD INSTRUMENTS SHOWN ON DIAGRAM AND PER THE CONTROLS SPECIFICATION.



RTU-2 - SEQUENCE OF OPERATIONS

PACKAGED ROOFTOP AIR CONDITIONER IS A CONSTANT VOLUME, VARIABLE TEMPERATURE UNIT DESIGNED TO PROVIDE COOLING, PRESSURIZATION AND VENTILATION TO SPACE. SPACE TEMPERATURE SETTINGS, SETBACK SCHEDULE AND OCCUPIED SCHEDULES ARE CONTROLLED BY BAS. AIR CONDITIONER IS PROVIDED W/ FACTORY CONTROLS W/ BAS COMMUNICATION CARD. BUILT-IN FACTORY CONTROL OF AIR CONDITIONER SHALL CONTROL SPEED OF INTERNAL COMPONENTS TO PROVIDE MOST EFFICIENT COOLING AS REQUIRED TO SATISFY SPACE SETPOINTS.

PACKAGED RTU SHALL BE CONTROLLED BY DEMAND CONTROL VENTILATION WITH CO2 SENSORS. DURING OCCUPIED MODES THE SUPPLY FAN RUNS CONTINUOUSLY, AND THE OUTDOOR AIR DAMPER SHALL BE OPEN TO SUPPLY THE MINIMUM OUTDOOR AIR REQUIRED. WHEN THE CO2 IN THE RETURN DUCT RISER REACHES 700 PPM, THE OA DAMPER SHALL MODULATE TO MAINTAIN 700 PPM OR LESS. THE AIR CONDITIONER SHALL DISCHARGE A MINIMUM OF 59 DEG F SUPPLY AIR.

ECONOMIZER MODE: THE RTU IS EQUIPPED WITH ENTHALPY BASED ECONOMIZER CONTROLS TO PROVIDE FREE COOLING WHEN POSSIBLE. BAROMETRIC RELIEF DAMPER RELIEVES AIR DURING ECONOMIZER OPERATION. USE STANDARD ALGORITHMS TO PROVIDE FREE COOLING WHEN CONDITIONS ALLOW.

FIN TUBE RADIATOR POINTS LIST										
TAG	POINT DESCRIPTION	GRAPHIC	AI	AO	DI	DO	ALARM	TREND	LOG	NOTES
TT-700	ROOM TEMPERATURE	X	X	-	-	-	X	X	2	-
-	ROOM TEMPERATURE HEATING SETPOINT	X	X	-	-	-	-	X	1	-
CV-700	HOT WATER CONTROL VALVE	X	-	X	-	-	-	X	-	-
-	NIGHT HEATING SET-BACK SETPOINT	X	X	-	-	-	-	X	1	-

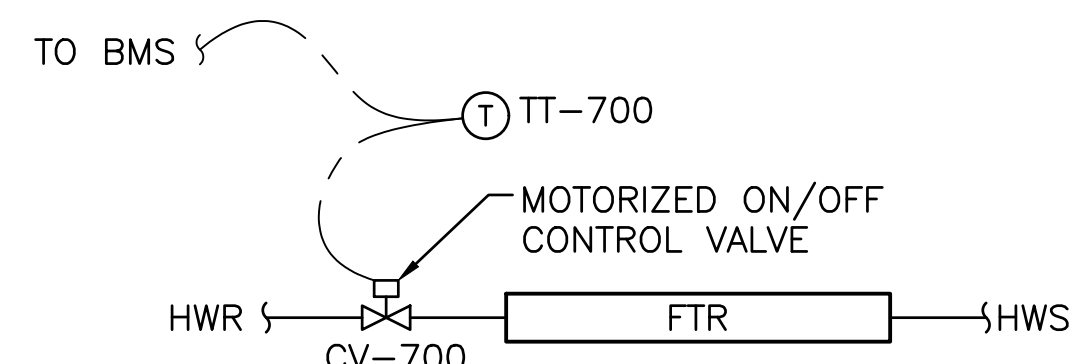
NOTES:
1. BMS TO CONTROL HIGH TEMPERATURE AND LOW TEMPERATURE LIMITS.
2. GENERATE ALARM IF ROOM TEMPERATURE IS NOT WITHIN +/- 5 DEG F OF SETPOINT.
3. LOCATIONS OF CONTROL VALVES ARE VARIOUS IN THE BUILDING TO BE IDENTIFIED BY THE OWNER.
4. PROVIDE THERMOSTAT FOR INTEGRATION INTO CONTROLS.

35 CONTROL VALVES - SEQUENCE OF OPERATIONS

HYDRONIC HOT WATER CONTROL VALVES ARE ON OR OFF SOLENOID TYPE. THE CONTROL VALVE WILL OPEN ON A CALL FOR HEAT FROM THE BMS.

THE BMS WILL CYCLE THE CONTROL VALVES TO MAINTAIN SETPOINT BASED ON THE SPACE TEMPERATURE. THE SETPOINT WILL BE ADJUSTABLE FOR SCHEDULING OF OCCUPIED AND UNOCCUPIED TIME AS WELL AS NIGHT SETBACK AND MORNING WARM UP.

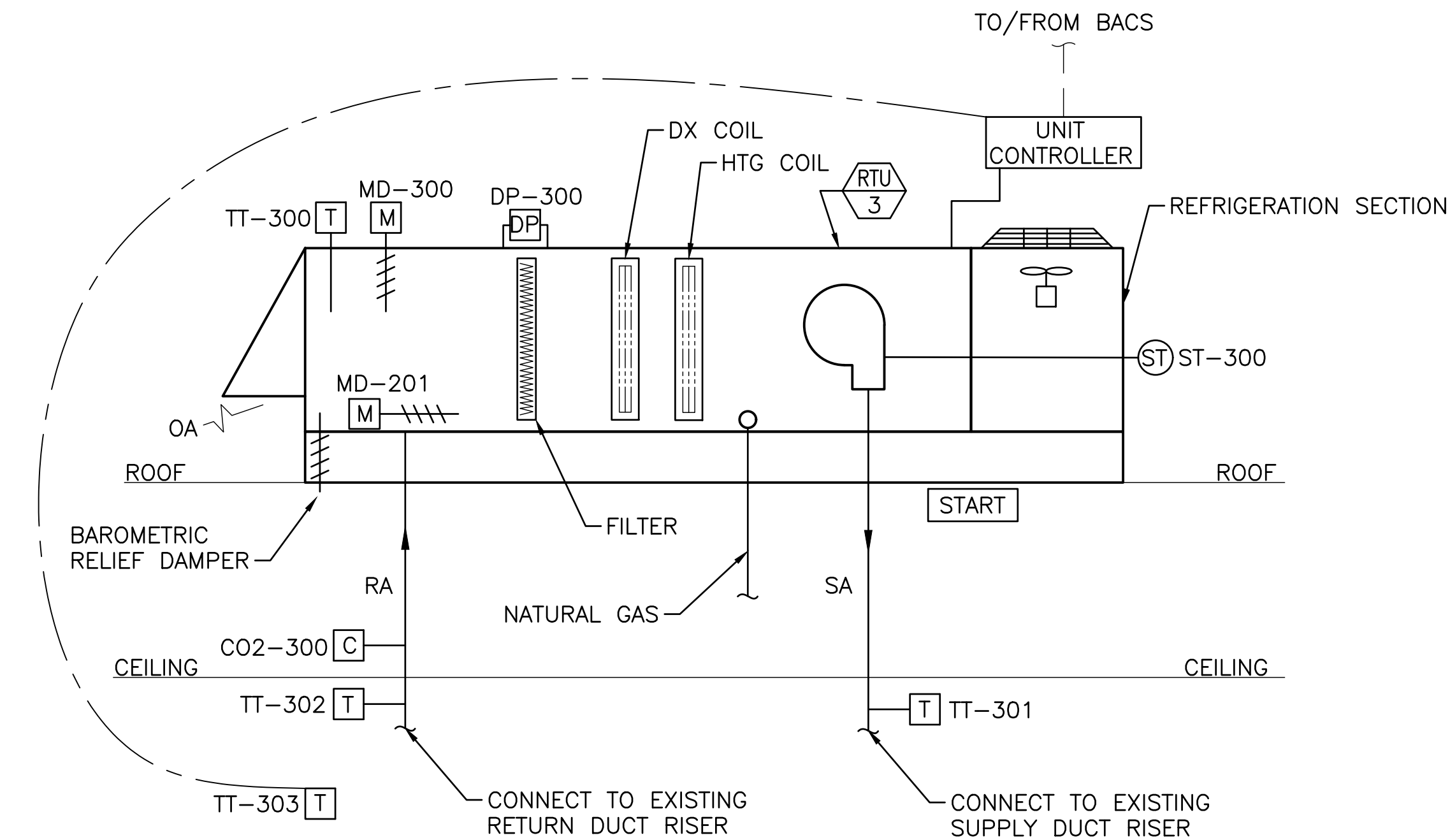
The Hot Water Control Valves are deleted for the RFP.



		WHITE MTNS. COMMUNITY COLLEGE BERLIN, NEW HAMPSHIRE			
		MECHANICAL/ELECTRICAL UPGRADES			
47A York St Portland, ME 04101 207.553.7753		0 ISSUED FOR CONSTRUCTION REV DESCRIPTION	ZPC PJS DWN APP DATE	3/11/22	AIR HANDLING UNIT SCHEMATICS SHEET 1 OF 3
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RTU-3 POINT LIST										
TAG	POINT DESCRIPTION	GRAPHIC	AI	AO	DI	DO	ALARM	TREND	LOG	NOTES
TT-300	OA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
ST-300	FAN MOTOR START/STOP	X	-	-	X	-	-	X	-	-
TT-301	SA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
TT-302	RA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
TT-303	SPACE TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
MD-300	OA MOTORIZED DAMPER	X	-	X	-	-	-	X	-	-
DP-300	FILTER DIFFERENTIAL PRESSURE	X	-	-	X	-	-	X	-	-
CO2-300	CO2 SENSOR	X	X	-	-	-	-	X	-	-
MD-301	OA MOTORIZED DAMPER	X	-	X	-	-	-	X	-	-

NOTES:
1. PROVIDE ALL FIELD INSTRUMENTS SHOWN ON DIAGRAM AND PER THE CONTROLS SPECIFICATION.
2. THIS RTU IS EXISTING AND WILL HAVE THE CONTROLS POINTS LISTED INTEGRATED INTO THE BMS.



RTU-3 - SEQUENCE OF OPERATIONS

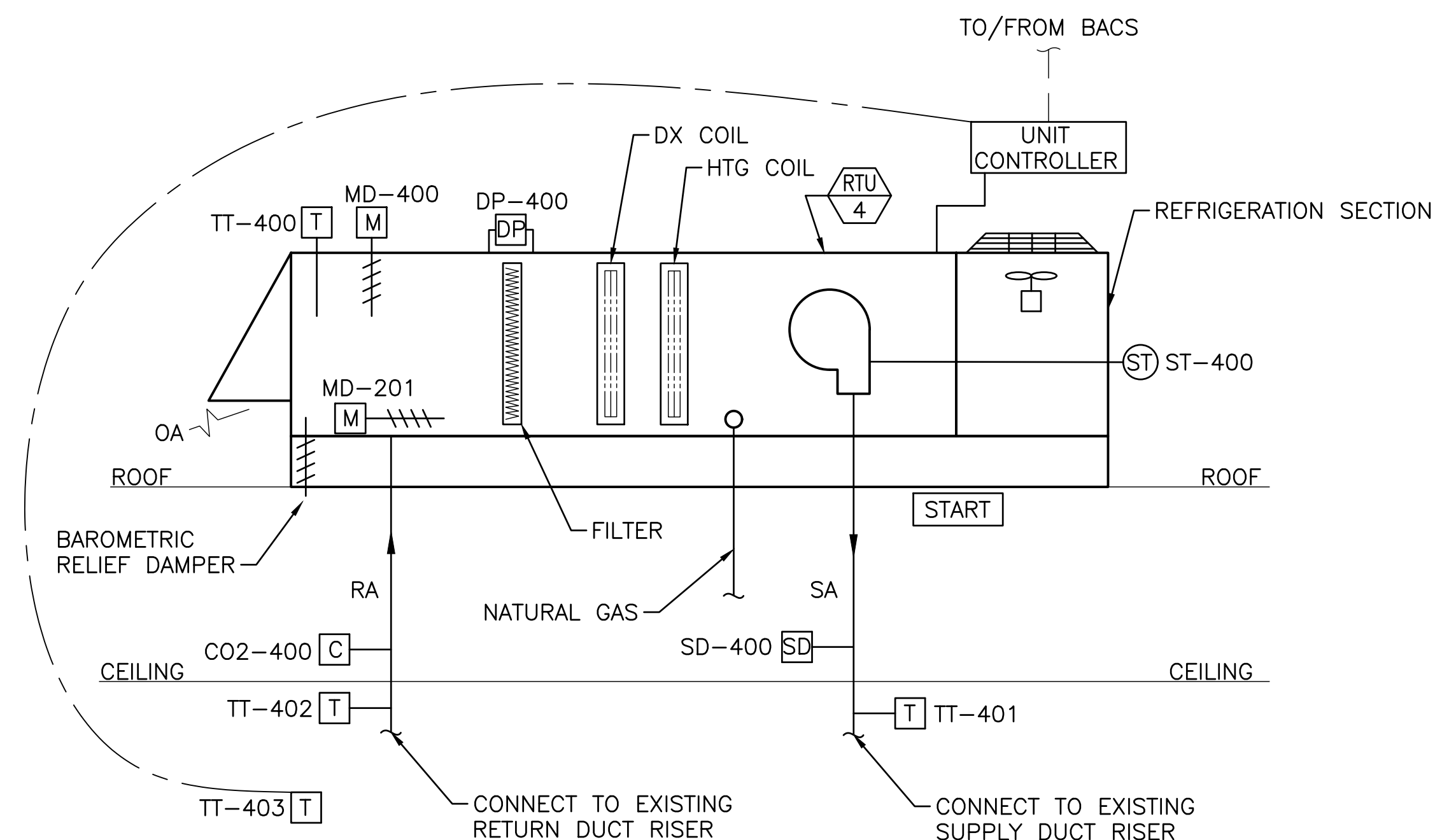
PACKAGED ROOFTOP UNIT IS A CONSTANT VOLUME, VARIABLE TEMPERATURE UNIT DESIGNED TO PROVIDE HEATING, COOLING, PRESSURIZATION AND VENTILATION TO SPACE. SPACE TEMPERATURE SETTINGS, SETBACK SCHEDULE AND OCCUPIED SCHEDULES ARE CONTROLLED BY BAS. RTU IS PROVIDED W/ FACTORY CONTROLS W/ BAS COMMUNICATION CARD. BUILT-IN FACTORY CONTROL OF AIR CONDITIONER SHALL CONTROL SPEED OF INTERNAL COMPONENTS TO PROVIDE MOST EFFICIENT HEATING AND COOLING AS REQUIRED TO SATISFY SPACE SETPOINTS.

PACKAGED RTU SHALL BE CONTROLLED BY DEMAND CONTROL VENTILATION WITH CO2 SENSORS. DURING OCCUPIED MODES THE SUPPLY FAN RUNS CONTINUOUSLY, AND THE OUTDOOR AIR DAMPER SHALL BE OPEN TO SUPPLY THE MINIMUM OUTDOOR AIR REQUIRED. WHEN THE CO2 IN THE RETURN DUCT RISER REACHES 700 PPM, THE OA DAMPER SHALL MODULATE TO MAINTAIN 700 PPM OR LESS. THE RTU SHALL DISCHARGE A MINIMUM OF 59.6 DEG F SUPPLY AIR FOR COOLING AND A MINIMUM OF 103.2 DEG F SUPPLY AIR FOR HEATING.

ECONOMIZER MODE: THE RTU IS EQUIPPED WITH ENTHALPY ECONOMIZER CONTROLS TO PROVIDE FREE COOLING WHEN POSSIBLE. BAROMETRIC RELIEF DAMPER RELIEVES AIR DURING ECONOMIZER OPERATION. USE STANDARD ALGORITHMS TO PROVIDE FREE COOLING WHEN CONDITIONS ALLOW.

RTU-4 POINT LIST										
TAG	POINT DESCRIPTION	GRAPHIC	AI	AO	DI	DO	ALARM	TREND	LOG	NOTES
TT-400	OA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
ST-400	FAN MOTOR START/STOP	X	-	-	X	-	-	X	-	-
TT-401	SA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
TT-402	RA TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
TT-403	SPACE TEMPERATURE SENSOR	X	X	-	-	-	-	X	-	-
MD-400	OA MOTORIZED DAMPER	X	-	X	-	-	-	X	-	-
DP-400	FILTER DIFFERENTIAL PRESSURE	X	-	-	X	-	-	X	-	-
SD-400	SA SMOKE DETECTOR	X	-	-	X	-	X	X	-	-
CO2-400	CO2 SENSOR	X	X	-	-	-	-	X	-	-
MD-401	OA MOTORIZED DAMPER	X	-	X	-	-	-	X	-	-

NOTES:
1. PROVIDE ALL FIELD INSTRUMENTS SHOWN ON DIAGRAM AND PER THE CONTROLS SPECIFICATION.



RTU-4 - SEQUENCE OF OPERATIONS

PACKAGED ROOFTOP UNIT IS A CONSTANT VOLUME, VARIABLE TEMPERATURE UNIT DESIGNED TO PROVIDE HEATING, COOLING, PRESSURIZATION AND VENTILATION TO SPACE. SPACE TEMPERATURE SETTINGS, SETBACK SCHEDULE AND OCCUPIED SCHEDULES ARE CONTROLLED BY BAS. RTU IS PROVIDED W/ FACTORY CONTROLS W/ BAS COMMUNICATION CARD. BUILT-IN FACTORY CONTROL OF AIR CONDITIONER SHALL CONTROL SPEED OF INTERNAL COMPONENTS TO PROVIDE MOST EFFICIENT HEATING AND COOLING AS REQUIRED TO SATISFY SPACE SETPOINTS.

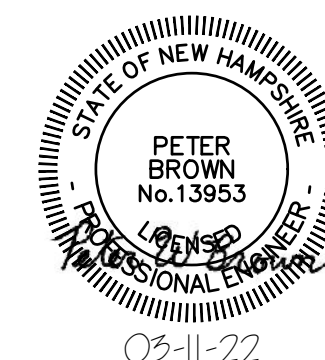
PACKAGED RTU SHALL BE CONTROLLED BY DEMAND CONTROL VENTILATION WITH CO2 SENSORS. DURING OCCUPIED MODES THE SUPPLY FAN RUNS CONTINUOUSLY, AND THE OUTDOOR AIR DAMPER SHALL BE OPEN TO SUPPLY THE MINIMUM OUTDOOR AIR REQUIRED. WHEN THE CO2 IN THE RETURN DUCT RISER REACHES 700 PPM, THE OA DAMPER SHALL MODULATE TO MAINTAIN 700 PPM OR LESS. THE RTU SHALL DISCHARGE A MINIMUM OF 58.5 DEG F SUPPLY AIR FOR COOLING AND A MINIMUM OF 113.7 DEG F SUPPLY AIR FOR HEATING.

ECONOMIZER MODE: THE RTU IS EQUIPPED WITH ENTHALPY ECONOMIZER CONTROLS TO PROVIDE FREE COOLING WHEN POSSIBLE. BAROMETRIC RELIEF DAMPER RELIEVES AIR DURING ECONOMIZER OPERATION. USE STANDARD ALGORITHMS TO PROVIDE FREE COOLING WHEN CONDITIONS ALLOW.

DUCT SMOKE: UPON SMOKE DETECTION IN SUPPLY AIR THE UNIT SHALL SHUTDOWN AND NOTIFY THE FACP AND INDICATE ALARMS STATUS TO BACS.



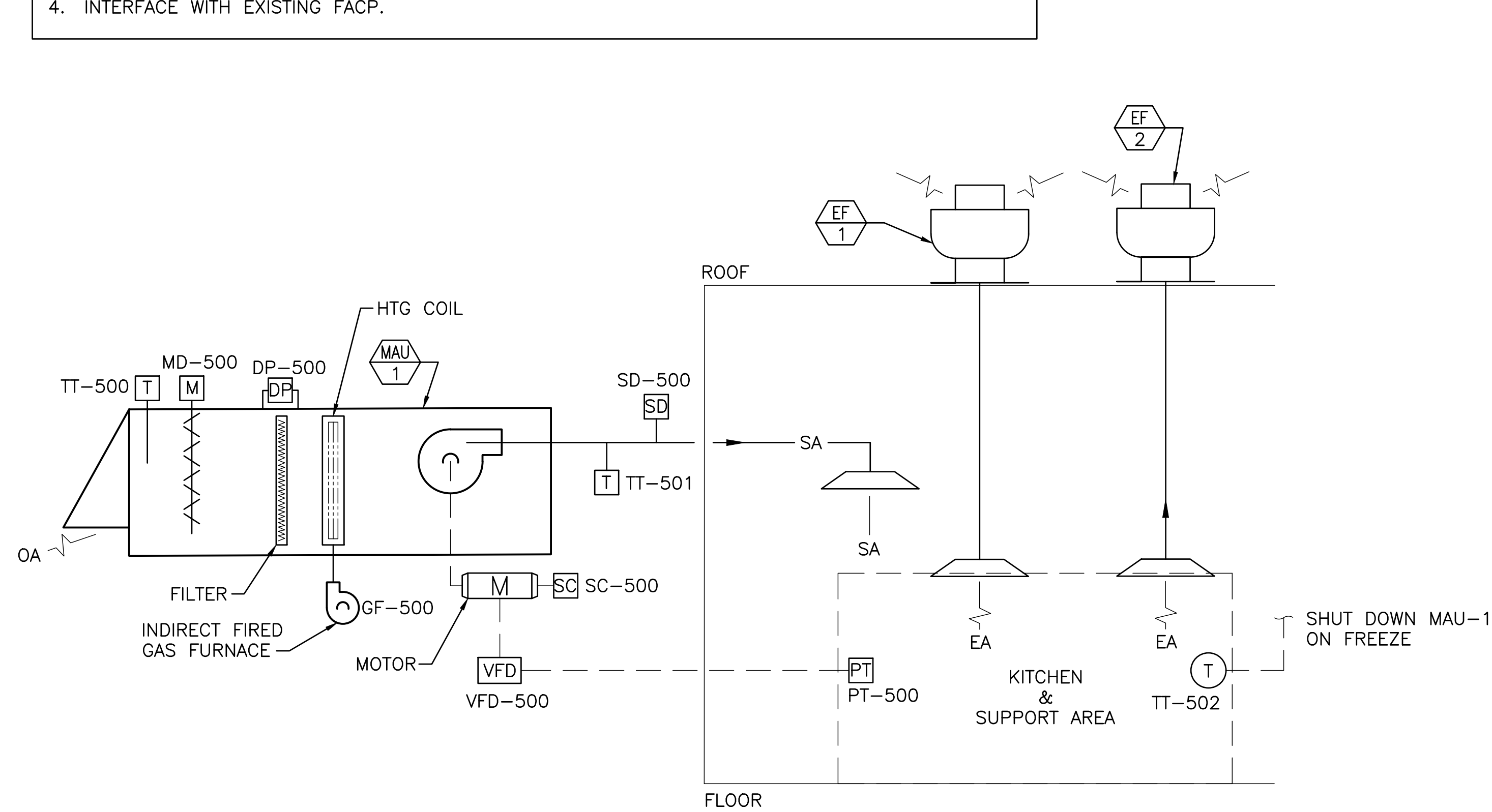
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				WHITE MTNS. COMMUNITY COLLEGE BERLIN, NEW HAMPSHIRE	
				MECHANICAL/ELECTRICAL UPGRADES	
				AIR HANDLING UNIT SCHEMATICS SHEET 2 OF 3	
0	ISSUED FOR CONSTRUCTION	ZPC	PJS	3/11/22	
REV	DESCRIPTION	DWN	APP	DATE	
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		DWN BY: ZPC	APP: RLM	DATE: 3/11/22	SHEET 5 OF 10
		CKD BY: RLM	DRAWING NO: M-702		

MAU-1 POINTS LIST								
TAG	POINT DESCRIPTION	GRAPHIC	AI	AO	DI	DO	ALARM	NOTES
TT-500	OA TEMPERATURE SENSOR	X	X	-	-	-	-	1
MD-500	INTAKE ISOLATION DAMPER	X	-	-	X	X	-	-
TT-501	SA TEMPERATURE SENSOR	X	X	-	-	-	-	-
SC-500	SA FAN START/STOP/STATUS	X	-	-	X	X	-	-
VFD-500	SA FAN VFD SPEED	X	-	X	-	-	-	-
GF-500	GAS FURNACE	X	X	X	-	-	-	-
PT-500	PRESSURE TRANSMITTER	X	X	-	-	-	-	3
EF-1,2	EXHAUST FAN STATUS (TYP 2)	X	-	-	X	-	-	-
TT-502	FREEZE STAT (THERMOSTAT)	X	-	-	-	-	X	2
DP-500	FILTER DIFFERENTIAL PRESSURE	X	-	-	X	-	-	-
-	MINIMUM SPARES	-	2	2	2	2	2	-
SD-500	SA SMOKE DETECTOR	X	-	-	X	-	X	4

- NOTES:
1. SENSOR FOR OVERALL BLDG CONTROL.
 2. HARDWIRE TO SHUT DOWN
 3. VFD MODULATED TO MAINTAIN -0.05 " WC SPACE PRESSURE.
 4. INTERFACE WITH EXISTING FACP.



MAU-1: KITCHEN MAKEUP AIR - SEQUENCE OF OPERATIONS

OCCUPANCY: MAU-1 SHALL BE ENABLED WHEN ANY OF THE COOKING EXHAUST HOOD OR DISHWASHING HOOD FANS ARE ENERGIZED. WHEN ALL EXHAUST FANS ARE SHUT OFF MAU-1 SHALL BE DISABLED, OUTSIDE AIR DAMPER SHALL CLOSE (FAIL CLOSED), FURNACE AND FAN SHALL SHUT DOWN.

SUPPLY FAN PRESSURIZATION: MAU-1 IS RESPONSIBLE FOR MAINTAINING SPACE PRESSURIZATION IN RESPONSE TO THE TOTAL DEMAND OF OPERATING EXHAUST FANS AND TO SUPPLY HEATED MAKEUP AIR TO THE SPACE. ON A CALL TO RUN THE OUTSIDE AIR DAMPER SHALL OPEN. WHEN THE OUTSIDE AIR DAMPER REACHES FULLY OPEN POSITION THE SUPPLY FAN SHALL START. THE VFD SHALL MODULATE FAN SPEED TO MAINTAIN SPACE PRESSURE AT SLIGHTLY NEGATIVE VALUE, APPROXIMATELY -0.05 INCHES WATER COLUMN (ADJUSTABLE). AS ADDITIONAL EXHAUST FANS ARE ENERGIZED THE FAN WILL INCREASE SPEED TO ACCOMMODATE THE PRESSURE CHANGE AS SENSED BY THE STATIC PRESSURE SENSOR IN THE KITCHEN.

HEATING: WHEN AMBIENT AIR IS BELOW 55 DEG F (ADJUSTABLE) THE GAS FIRED FURNACE SHALL STAGE ON TO TEMPER THE SUPPLY AIR TO APPROXIMATELY 65 DEG F.

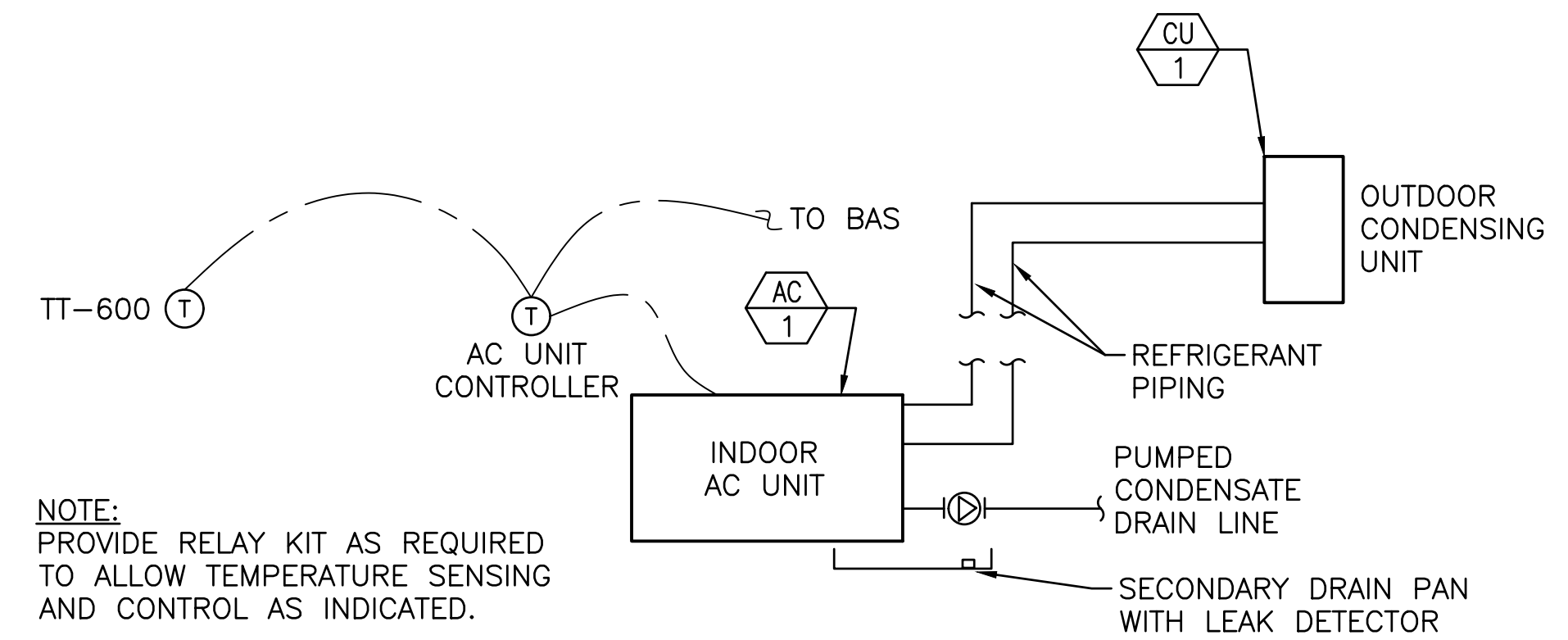
FREEZE STAT (WALL THERMOSTAT): THE SPACE THERMOSTAT SHALL BE UTILIZED TO SHUT DOWN THE MAU. PROVIDE ANY TRANSFORMERS OR RELAYS REQUIRED TO HARDWIRE THERMOSTAT TO SHUTDOWN UNIT. OUTSIDE AIR DAMPER SHALL GO TO CLOSED POSITION. GAS FURNACE IS DISABLED. FANS ARE DISABLED. GENERATE ALARM CONDITION.

KITCHEN HOOD/DISHWASHER EXHAUST: SWITCHED ON LOCAL WALL SWITCH. THE BACS SHALL INDICATE OPERATION VIA CURRENT SWITCH ON EACH FAN.

DUCT SMOKE: UPON SMOKE DETECTION IN SA DUCT, SHUTDOWN UNIT & NOTIFY FACP & INDICATE STATUS TO BACS.

MINI-SPLIT SYSTEM (CU-1, AC-1)									
TAG	POINT DESCRIPTION	GRAPHIC	AI	AO	DI	DO	ALARM	TREND LOG	NOTES
TT-600	ROOM TEMPERATURE	X	X	-	-	-	X	X	2
-	ROOM TEMPERATURE SETPOINT	X	X	-	-	-	-	X	3
-	NIGHT SETBACK TEMPERATURE SETPOINT (ADJ.)	X	-	X	-	-	-	X	-
-	DRAIN PAN LEAK DETECTOR	X	-	-	X	-	X	-	-
-	CONDENSATE PUMP LEVEL	X	-	-	X	-	X	X	-
-	INDOOR UNIT STATUS (ON/OFF/FAIL)	X	-	-	X	-	X	X	4
-	CONDENSING UNIT STATUS (ON/OFF/FAIL)	X	-	-	X	-	X	X	4

- NOTES:
1. SPLIT SYSTEM SHALL COMMUNICATE DIRECTLY WITH BAS.
 2. GENERATE ALARM IF ROOM TEMPERATURE IS NOT WITHIN ± 5 DEG F OF SET POINT.
 3. BAS SHALL CONTROL HIGH TEMPERATURE AND LOW TEMPERATURE LIMITS.
 4. GENERATE AC/CU MAINTENANCE ALARM AT BAS.



- NOTE:
- PROVIDE RELAY KIT AS REQUIRED TO ALLOW TEMPERATURE SENSING AND CONTROL AS INDICATED.

SPLIT AIR CONDITIONING UNIT, AC-1 - SEQUENCE OF OPERATIONS

AIR CONDITIONING UNIT AC-1 SHALL UTILIZE ITS UNITARY THERMOSTAT CONTROLLER PROVIDED BY THE MANUFACTURER TO PROVIDE SUPPLEMENTAL ROOM COOLING.


THE UNITARY THERMOSTAT CONTROLLER WILL BE CONTROLLED AND MONITORED BY THE BAS. LOW AND HIGH TEMPERATURE ALARMS SHALL BE MONITORED.

AC UNIT WILL MAINTAIN A CONSTANT SETPOINT OF 65 DEG F (ADJUSTABLE) IN COOLING MODE.

ON A RISE OR DROP IN SPACE TEMPERATURE ABOVE THE OCCUPIED COOLING SETPOINT THE UNIT COMPRESSOR SHALL CYCLE AS REQUIRED TO SATISFY THE SPACE TEMPERATURE SETPOINT. THE SPACE COOLING SETPOINTS SHALL BE DEFINED BY THE BAS.

ONCE THE SPACE TEMPERATURE IS SATISFIED, THE COMPRESSOR SHALL SWITCH OFF AND THE UNIT FAN WILL RUN FOR AN ADDITIONAL 30 SECONDS. THE UNIT SHALL REMAIN DISABLED UNTIL REQUIRED FOR SUPPLEMENTAL COOLING.

SHUT DOWN UNIT UPON ALARM INDICATING DRAIN PAN LEAK OR CONDENSATE PUMP HIGH LEVEL.

 CCE engineering & design	WHITE MTNS. COMMUNITY COLLEGE BERLIN, NEW HAMPSHIRE		
	MECHANICAL/ELECTRICAL UPGRADES		
47A York St Portland, ME 04101 207.553.7753	0 ISSUED FOR CONSTRUCTION REV DESCRIPTION	ZPC PJS 3/11/22 DWN APP DATE	AIR HANDLING UNIT SCHEMATICS SHEET 3 OF 3
PETER BROWN No. 13953 LICENSED PROFESSIONAL ENGINEER 03-11-22	PLEASE NOTE: THIS DOCUMENT MAY NOT ACCURATELY REPRESENT THE FINAL DOCUMENT. ONLY AN ENGINEER, ARCHITECT OR SURVEYOR SIGNED, SEALED AND DATED PAPER COPY, PROVIDED BY THIS OFFICE, MAY BE UTILIZED FOR BIDDING OR CONSTRUCTION PURPOSES.	SIZE: ANSI D DATE: 2022.1.04 DES BY: ZPC DWN BY: ZPC CKD BY: RLM	PROJECT NO. 372.009.001 SHEET 6 OF 10 M-703

NOTES:

- DRAWINGS ARE DIAGRAMMATIC; DETERMINE LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.

APPLICABLE CODES AND STANDARDS

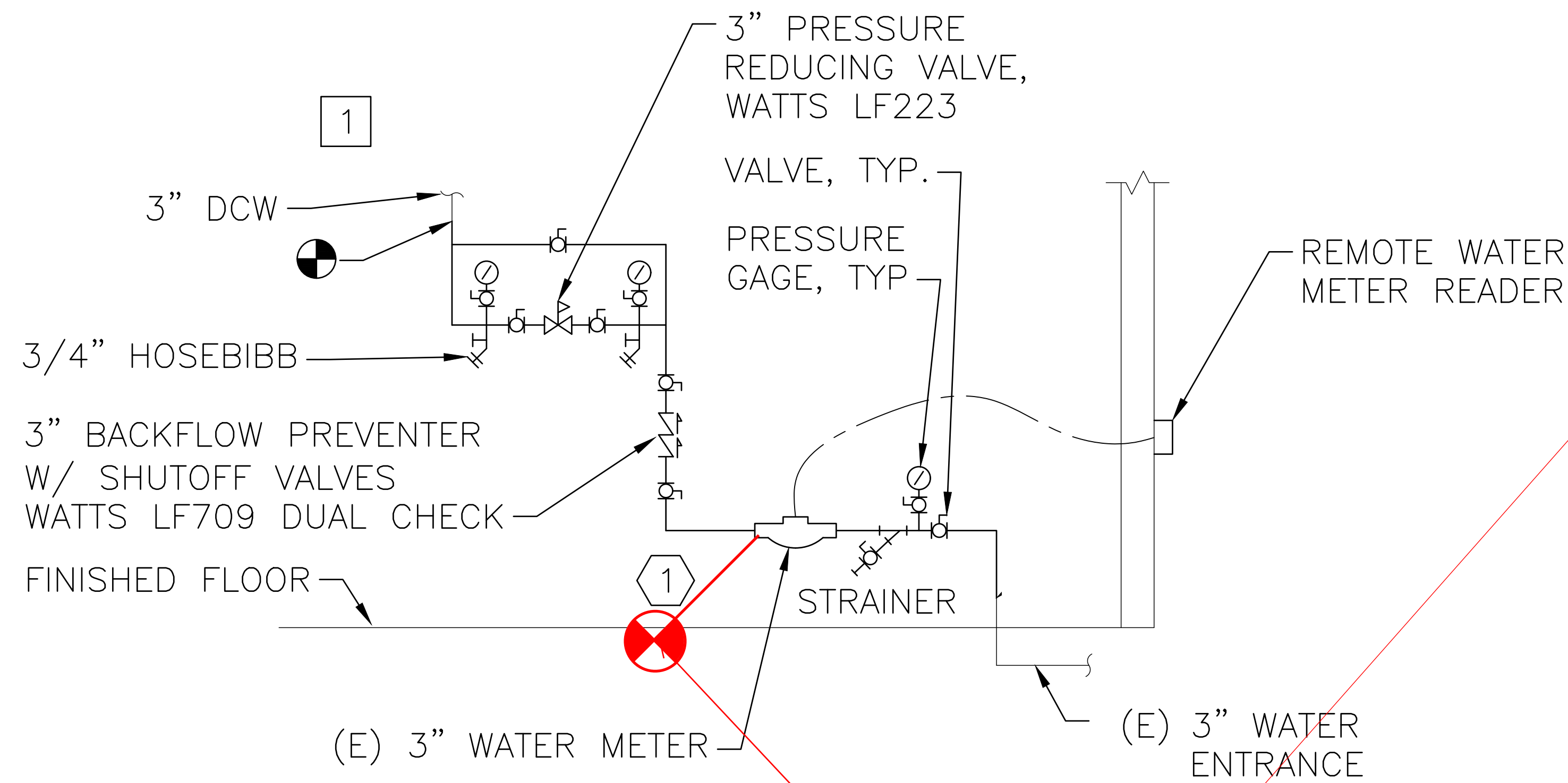
- INTERNATIONAL PLUMBING CODE (2015)

KEYED NOTES:

- PROVIDE METAL SUPPORT SYSTEM FOR PIPES AND EQUIPMENT, MOUNTED TO FLOOR.

DEMO NOTES:

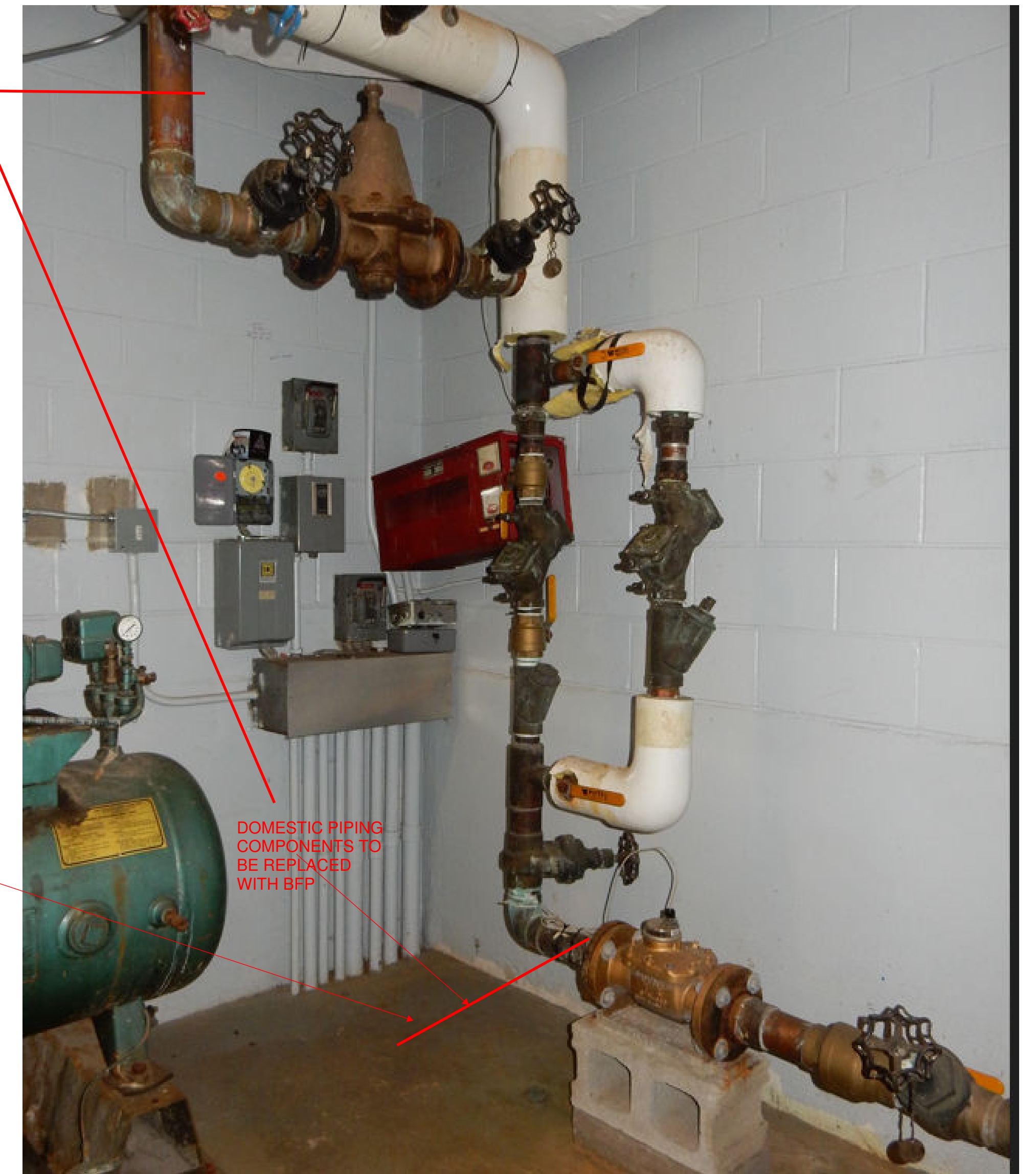
- REMOVE PRESSURE REDUCING VALVE, (2) DUAL CHECK VALVE ASSEMBLIES, AND INTERCONNECTING PIPING.



DOMESTIC WATER SUPPLY ENTRANCE

SCALE: NTS

MOVED SCOPE
BREAK HERE PER
PHOTO TO THE
RIGHT



DOMESTIC PIPING
COMPONENTS TO
BE REPLACED
WITH BFP

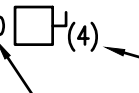
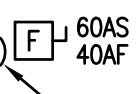
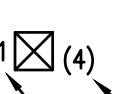
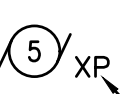
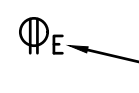
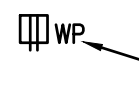

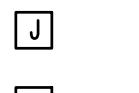
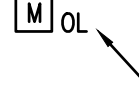




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SIZE:	ANSI D	PROJECT NO. 372.009.001		
DATE:	2022.1.04	DRAWING NO. P-100		
DES BY:	PWB	SHEET 7 OF 10		
DWN BY:	ZPC			
CKD BY:	RLM			

WHITE MTNS. COMMUNITY COLLEGE BERLIN, NEW HAMPSHIRE	
MECHANICAL/ELECTRICAL UPGRADES	
DOMESTIC WATER SUPPLY ENTRANCE	
PROJECT NO. 372.009.001	DRAWING NO. P-100
SHEET 7 OF 10	

POWER:

- 60  (4) NON-FUSED SAFETY SWITCH
NEMA ENCLOSURE (NEMA 1 UNLESS OTHERWISE NOTED)
AMPERE RATING
- (4)  ^{60AS}/_{40AF} FUSED SAFETY SWITCH, TOP NUMBER INDICATES SWITCH
AMPERE RATING, LOWER NUMBER INDICATES FUSE
RATING
NEMA ENCLOSURE (NEMA 1 UNLESS OTHERWISE NOTED)
- 1  (4) MAGNETIC MOTOR STARTER, FVNR UNLESS
INDICATED OTHERWISE
NEMA ENCLOSURE (NEMA 1 UNLESS OTHERWISE NOTED)
NEMA SIZE (TYP.)
- 5  _{XP} ELECTRIC MOTOR, NUMBER INDICATES HORSEPOWER
RATING
XP - EXPLOSION PROOF
-  DUPLEX RECEPTACLE, NEMA 5-20R
E - INSTALLED ON EMERGENCY CIRCUIT
IG - ISOLATED GROUND
S - SWITCHED RECEPTACLE
-  WP GFCI DUPLEX RECEPTACLE, NEMA 5-20R
WEATHER PROOF
-  PANELBOARD, NORMAL POWER
-  JUNCTION BOX
-  M OL MANUAL MOTOR STARTER, TOGGLE OPERATED,
SINGLE PHASE. 1,2 OR 3 POLE AS REQUIRED
OVERLOAD PROTECTION
-  TRANSFORMER
-  VFD VARIABLE FREQUENCY DRIVE

LINE TYPES:

-  EXISTING
-  NEW
-  DEMOLITION
-  MATCHLINE
-  PART PLAN OUTLINE

ABBREVIATIONS:

- AC ALTERNATING CURRENT
- AMP AMPERE
- AFF ABOVE FINISHED FLOOR
- AFG ABOVE FINISHED GRADE
- AHJ AUTHORITY HAVING JURISDICTION
- AIC AMPERE INTERRUPTING CAPACITY
- ATS AUTOMATIC TRANSFER SWITCH
- AWG AMERICAN WIRE GAUGE
- BAS BUILDING AUTOMATION CONTROL SYSTEM
- BFG BELOW FINISHED GRADE
- BLDG BUILDING
- BOS BOTTOM OF STEEL
- C CONDUIT
- CATV CABLE TELEVISION
- CB CIRCUIT BREAKER
- CCTV CLOSED CIRCUIT TELEVISION
- CLG CEILING
- CPT CONTROL POWER TRANSFORMER
- CT CURRENT TRANSFORMER
- CU COPPER
- DACT DIGITAL ALARM COMMUNICATOR TRANSMITTER
- DB DIRECT BURIED
- DC DIRECT CURRENT
- DISC DISCONNECT
- DN DOWN
- EMT ELECTRICAL METALLIC TUBING
- EWC ELECTRIC WATER COOLER
- EWH ELECTRIC WATER HEATER
- EQP EQUIPMENT
- EXIST EXISTING
- FAA FIRE ALARM ANNUNCIATOR
- FACP FIRE ALARM CONTROL PANEL
- FBO FURNISHED BY OTHERS
- FLR FLOOR
- FWE FURNISHED WITH EQUIPMENT
- FU FUSE
- G GROUND
- GEN GENERATOR
- GFCI GROUND FAULT CIRCUIT INTERRUPTER
- GND GROUND
- HP HORSEPOWER
- HTR HEATER
- IDS INTRUSION DETECTION SYSTEM
- IG ISOLATED GROUND
- IMC INTERMEDIATE METAL CONDUIT
- K KILO
- KCMIL THOUSAND CIRCULAR MILS
- KV KILOVOLT
- KVA KILOVOLT-AMPERE
- KVAR KILOVOLT-AMPERE REACTIVE
- KW KILOWATT
- KWH KILOWATT-HOUR
- LA LIGHTNING ARRESTER
- LTC LIGHTING
- MC METAL CLAD
- MCB MAIN CIRCUIT BREAKER
- MFR MANUFACTURER
- MI MINERAL INSULATED
- MLO MAIN LUG ONLY
- MNS MASS NOTIFICATION SYSTEM
- MTD MOUNTED
- MV MEDIUM VOLTAGE
- NC NORMALLY CLOSED
- NEC NATIONAL ELECTRICAL CODE
- NEG NEGATIVE
- NEUT NEUTRAL
- NIC NOT IN CONTRACT
- NO NORMALLY OPEN
- NTS NOT TO SCALE
- P POLE
- PF POWER FACTOR
- PH PHASE
- PVC POLYVINYL CHLORIDE
- RFID RADIO FREQUENCY IDENTIFICATION
- RGS RIGID GALVANIZED STEEL CONDUIT
- RECEPT RECEPTACLE
- RM ROOM
- RSC RIGID STEEL CONDUIT
- RTD RESISTANCE TEMPERATURE DETECTOR
- SN SOLID NEUTRAL
- SPD SURGE PROTECTIVE DEVICE
- SPDT SINGLE POLE DOUBLE THROW
- STP SHIELDED TWISTED PAIR
- STT SHIELDED TWISTED TRIPLET
- SWBD SWITCHBOARD
- SWGR SWITCHGEAR
- TOS TOP OF STEEL
- TYP TYPICAL
- V VOLT
- VA VOLT-AMPERE
- VAR VOLT-AMPERE REACTIVE
- WM WATT METER
- WP WEATHER PROOF
- XFMR TRANSFORMER
- XP EXPLOSION PROOF

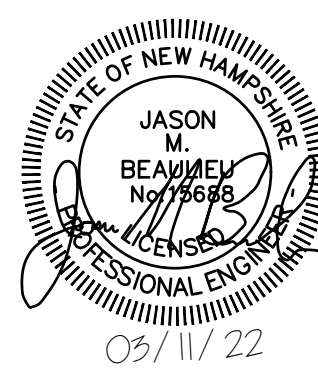
GENERAL NOTES:

1. GENERAL NOTES, SYMBOL LISTS AND DETAILS ARE TO BE CONSIDERED AS APPLICABLE TO ALL ELECTRICAL DRAWINGS FOR THIS PROJECT. SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY AND DO NOT INDICATE THEIR INCORPORATION IN THE DESIGN.
2. DRAWINGS ARE SCHEMATIC AND DIAGRAMMATIC. USE JUDGMENT AND CARE TO INSTALL ELECTRICAL WORK TO FUNCTION PROPERLY AND FIT WITHIN BUILDING CONSTRUCTION AND FINISHES. ELECTRICAL CONDUCTORS, CONDUIT, COMPONENTS, NOT SHOWN OR SPECIFIED, WHICH ARE REQUIRED FOR ANY DEVICE OR SYSTEM TO PRODUCE A COMPLETE AND OPERATIVE SYSTEM ARE REQUIRED TO BE FURNISHED AND INSTALLED.
3. PERFORM WORK IN ACCORDANCE WITH NFPA-70, NATIONAL ELECTRICAL CODE (NEC) 2017.
4. VERIFY THAT FIELD MEASUREMENTS, SURFACES, SUBSTRATES AND CONDITIONS ARE AS REQUIRED, AND READY TO RECEIVE WORK. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. BY BEGINNING WORK, CONTRACTOR ACCEPTS CONDITIONS AND ASSUMES RESPONSIBILITY FOR CORRECTING UNSUITABLE CONDITIONS ENCOUNTERED AT NO ADDITIONAL COST.
5. PANEL SCHEDULE INFORMATION FOR EXISTING PANELS IS BASED ON AVAILABLE INFORMATION DURING DESIGN. VERIFY THAT PANEL SCHEDULES ARE ACCURATE AND NOTIFY CONTRACTING OFFICER OF ANY DISCREPANCY PRIOR TO COMMENCING WORK.
6. REMOVE ELECTRICAL EQUIPMENT WHERE INDICATED. REMOVE CONDUIT, CIRCUIT CONDUCTORS, SWITCHES, LIGHTING FIXTURES AND MISCELLANEOUS APPLIANCES BACK TO ENERGIZING SOURCE OR JUNCTION BOX WHERE MULTIPLE EQUIPMENT IS POWERED.
7. CONDUCTOR MATERIAL, INCLUDING WIRING, PANELBOARD BUSES, TRANSFORMER WINDINGS, AND GROUNDING MUST BE COPPER. ALUMINUM CONDUCTORS ARE NOT ALLOWED.
8. UNLESS OTHERWISE NOTED, FOR 20A-1P BRANCH CIRCUIT WIRING USE 2#12 AWG CONDUCTORS AND #12 GND. HOME RUNS FED FROM 20A-1P CIRCUITS IN EXCESS OF 100 FEET USE #10 AWG.
9. PROVIDE COMMERCIAL SPECIFICATION GRADE CONVENIENCE RECEPTACLES, GROUNDING TYPE NEMA 5-20R, SIDE WIRED. LEVITON, PASS AND SEYMOUR OR APPROVED EQUAL.
10. PROVIDE GALVANIZED STEEL WALL PLATES FOR MECHANICAL SPACES WIRING DEVICES, NYLON SMOOTH WALL PLATES FOR FINISHED PARTITIONED SPACES WIRING DEVICES, AND THERMOPLASTIC WALL PLATES FOR EXTERIOR WIRING DEVICES.
11. UNLESS OTHERWISE NOTED, PROVIDE TYPE EMT CONDUIT FOR INTERIOR RACEWAY, TYPE RGS CONDUIT FOR EXTERIOR RACEWAY, LIQUID TIGHT FLEXIBLE METAL CONDUIT FOR FINAL CONNECTIONS TO MOTORS, AND FLEXIBLE METAL CONDUIT FOR CONNECTIONS TO LIGHT FIXTURES (MAXIMUM 6FT LENGTH).
12. PROVIDED EQUIPMENT DISCONNECTS AND MANUAL MOTOR STARTERS UNLESS NOTED AS FURNISHED WITH EQUIPMENT (FWE). INCLUDE FUSES RATED FOR PROTECTION OF LOAD SUPPLIED. MOUNT ALL DISCONNECTS AND MOTOR STARTERS IN AN ACCESSIBLE LOCATION WITHIN SIGHT OF THE LOAD SERVED. ALL DISCONNECTS AND MOTOR STARTERS MUST BE LOCKABLE IN THE OPEN POSITION.
13. UNLESS OTHERWISE NOTED MOUNT CONVENIENCE RECEPTACLES 18" AFF. MEASUREMENTS ARE MADE TO TOP OF DEVICE.
14. SEAL PENETRATIONS THROUGH FLOORS, RATED WALLS AND PARTITIONS WITH UL APPROVED FIRE SEALANT MATERIAL TO MAINTAIN THE RATING OF SEPARATION.

GENERAL NOTES CONTINUED:

15. EQUIPMENT CONNECTIONS ARE SHOWN FOR BASIS-OF-DESIGN PRODUCTS. COORDINATE EQUIPMENT CONNECTIONS - INCLUDING DISCONNECTING MEANS, OVERCURRENT PROTECTION, AND WIRE SIZING - WITH SELECTED MANUFACTURER'S RECOMMENDED INSTRUCTIONS.
16. COORDINATE FINAL DEVICE LOCATIONS IN PARTITIONED SPACES WITH OWNER'S PROPOSED FURNITURE LAYOUT.
17. PROVIDE MOUNTING HARDWARE NECESSARY FOR A COMPLETE INSTALLATION. MOUNT EQUIPMENT AND ROUTE CONDUIT SO AS NOT TO INTERFERE WITH OPERATIONS SUCH AS OVERHEAD DOORS, DOOR SWINGS, ACCESS POINTS, AND OTHER INSTALLATIONS.
18. MANUFACTURER'S NAMES AND MODEL NUMBERS ARE USED THROUGHOUT THE PROJECT FOR DESCRIPTIVE PURPOSES ONLY AND ARE INTENDED TO INDICATE THE STANDARD OF MATERIAL OR ARTICLES REQUIRED. DESIGN IS PREDICATED AROUND LISTED MANUFACTURERS AS NOTED ON SCHEDULES AND NOTES AND IS NOT INTENDED TO LIMIT THE CONTRACTOR TO ONE MANUFACTURER.
19. PROVIDE A 3-INCH HIGH REINFORCED CONCRETE PAD UNDER ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
20. SUPPLY DISTRIBUTION EQUIPMENT FROM THE SAME MANUFACTURER. APPROVED MANUFACTURERS INCLUDE SQUARE D, EATON/CUTLER-HAMMER, SIEMENS, OR APPROVED EQUAL.
21. GROUND THE ELECTRICAL DISTRIBUTION SYSTEM IN ACCORDANCE WITH NEC ARTICLE 250 AND ELECTRICAL SPECIFICATIONS.
22. UNLESS OTHERWISE NOTED WIRING MUST BE AS FOLLOWS:
 - A. LOW VOLTAGE INTERIOR DISTRIBUTION AND BRANCH WIRING MUST BE 600V, COPPER WITH THHN/THWN INSULATION
 - B. LOW VOLTAGE EXTERIOR DISTRIBUTION AND BRANCH WIRING MUST BE 600V, COPPER WITH XHHW INSULATION.
23. EQUIPMENT ENCLOSURES, SWITCHES, RECEPTACLES, AND DEVICES MUST BE LABELED WITH THE SOURCE CIRCUIT AND EQUIPMENT CONTROLLED WHERE APPLICABLE. ALL PANELBOARDS AND SWITCHBOARDS MUST HAVE APPROPRIATE ARC-FLASH LABELS INSTALLED IN ACCORDANCE WITH NFPA 70E REQUIREMENTS.

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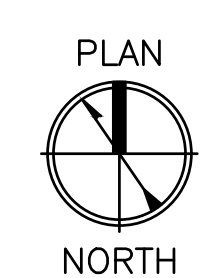
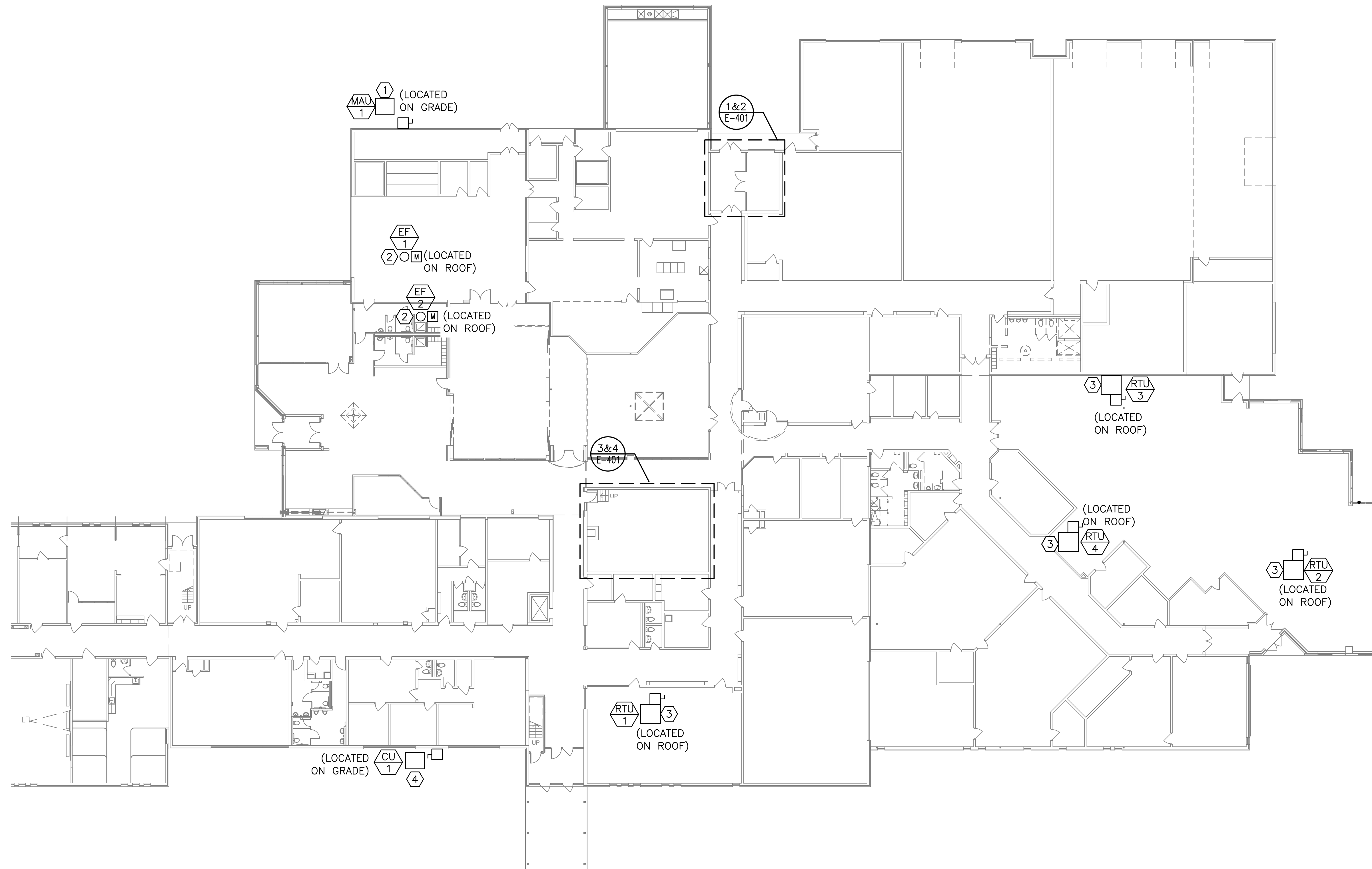
WHITE MTNS. COMMUNITY COLLEGE BERLIN, NEW HAMPSHIRE			
MECHANICAL/ELECTRICAL UPGRADES			
ELECTRICAL LEGEND, ABBREVIATIONS & GENERAL NOTES			
SIZE: ANSI D	PROJECT NO. 372.009.001	E-001	
DATE: 2022.1.04	SHEET 8 OF 10		
DES BY: ACY	DWN BY: JLH		
CKD BY: JMB			

NOTES:

1. SEE SHEET E-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.

KEYED NOTES:

- 1 DISCONNECT POWER TO MAKEUP AIR UNIT AND SAVE POWER AND CONTROL WIRING IN PLACE FOR CONNECTION TO NEW UNIT. CONNECT TO NEW MAKEUP AIR UNIT. CONTRACTOR IS RESPONSIBLE FOR SPLICING EXISTING WIRING AND EXTENDING TO NEW UNIT FOR FINAL TERMINATIONS.
- 2 DISCONNECT POWER TO EXHAUST FAN AND SAVE POWER AND CONTROL WIRING IN PLACE FOR CONNECTION TO NEW UNIT. CONNECT TO NEW EXHAUST FAN. CONTRACTOR IS RESPONSIBLE FOR SPLICING EXISTING WIRING AND EXTENDING TO NEW UNIT FOR FINAL TERMINATIONS.
- 3 DISCONNECT POWER TO ROOFTOP UNIT AND SAVE POWER AND CONTROL WIRING IN PLACE FOR CONNECTION TO NEW UNIT. CONNECT TO NEW ROOFTOP UNIT. CONTRACTOR IS RESPONSIBLE FOR SPLICING EXISTING WIRING AND EXTENDING TO NEW UNIT FOR FINAL TERMINATIONS.
- 4 DISCONNECT POWER TO EXISTING CONDENSING UNIT AND SAVE POWER AND CONTROL WIRING IN PLACE FOR CONNECTION TO NEW UNIT. CONNECT TO NEW CONDENSING UNIT. CONTRACTOR IS RESPONSIBLE FOR SPLICING EXISTING WIRING AND EXTENDING TO NEW UNIT FOR FINAL TERMINATIONS.

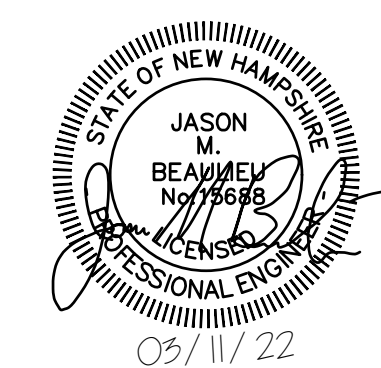


Scale: 1/16" = 1'-0"

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



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WHITE MTNS. COMMUNITY COLLEGE BERLIN, NEW HAMPSHIRE	
MECHANICAL/ELECTRICAL UPGRADES	
ELECTRICAL PLAN	
PROJECT NO. 372.009.001	DRAWING NO. E-100
SHEET 9 OF 10	

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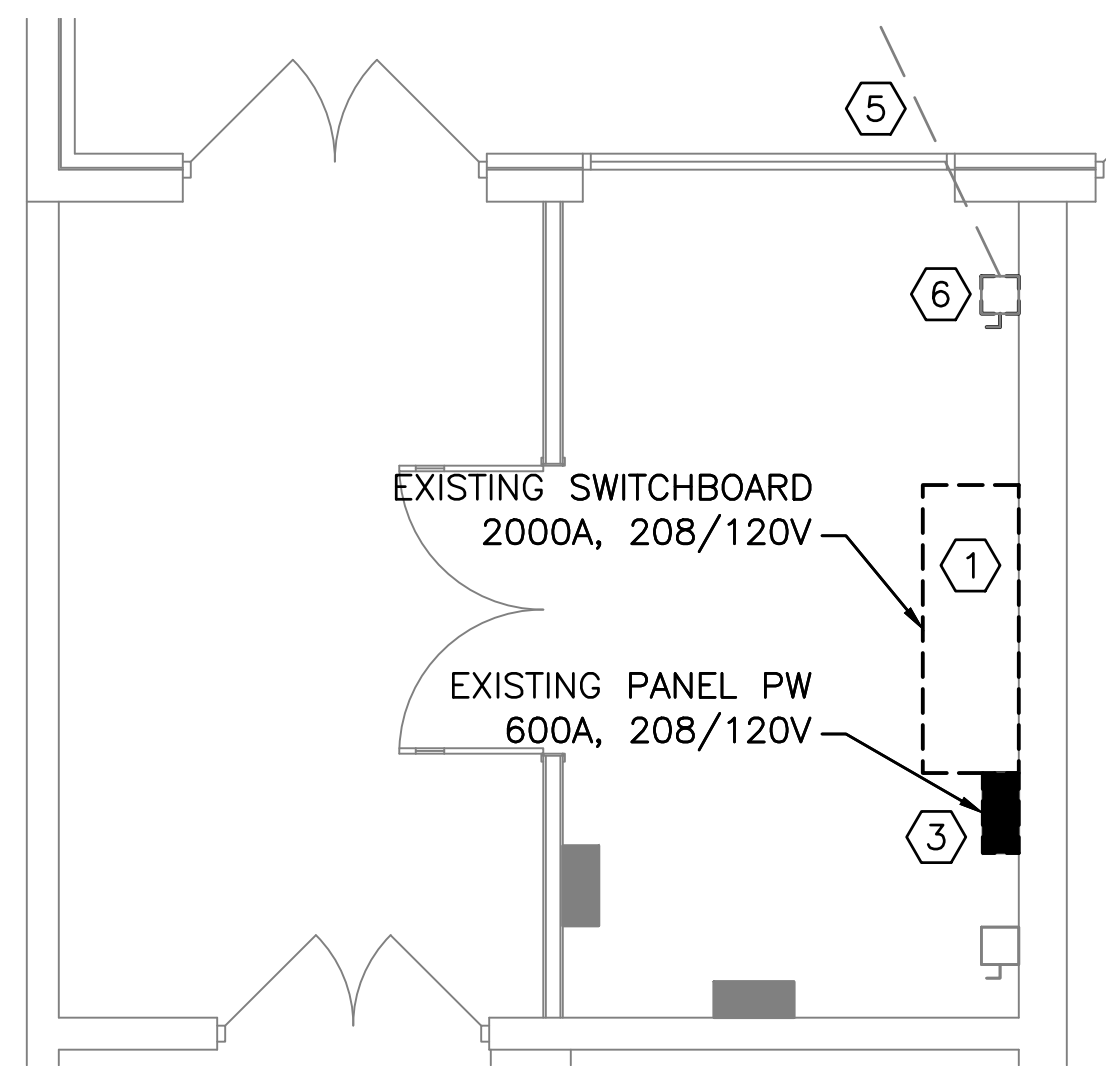
SIZE: ANSI D
DATE: 2022.1.04
DES BY: JLH
DWN BY: ACY
CKD BY: JMB

NOTES:

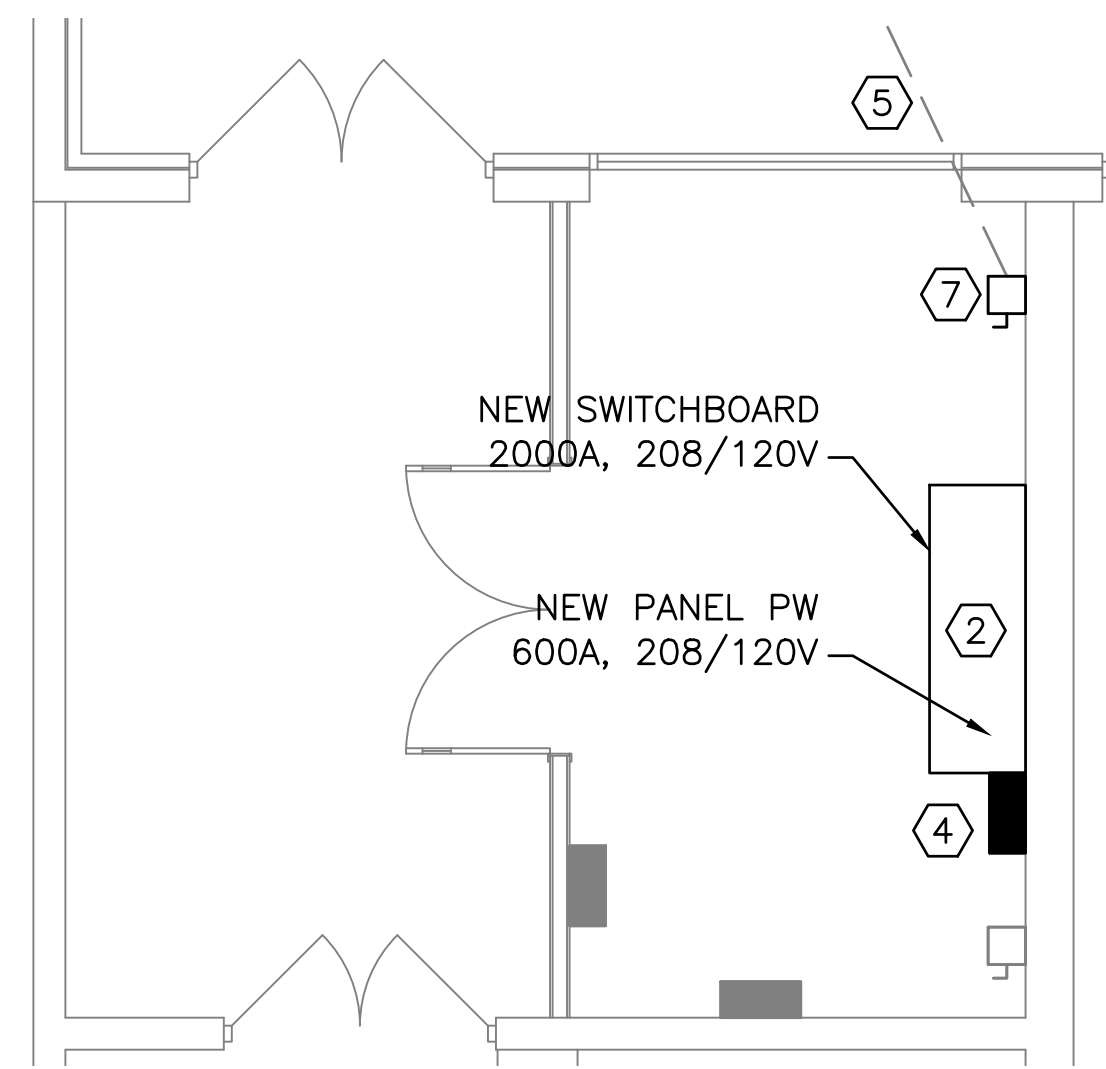
1. SEE SHEET E-001 FOR GENERAL NOTES, LEGEND, AND ABBREVIATIONS.

KEYED NOTES:

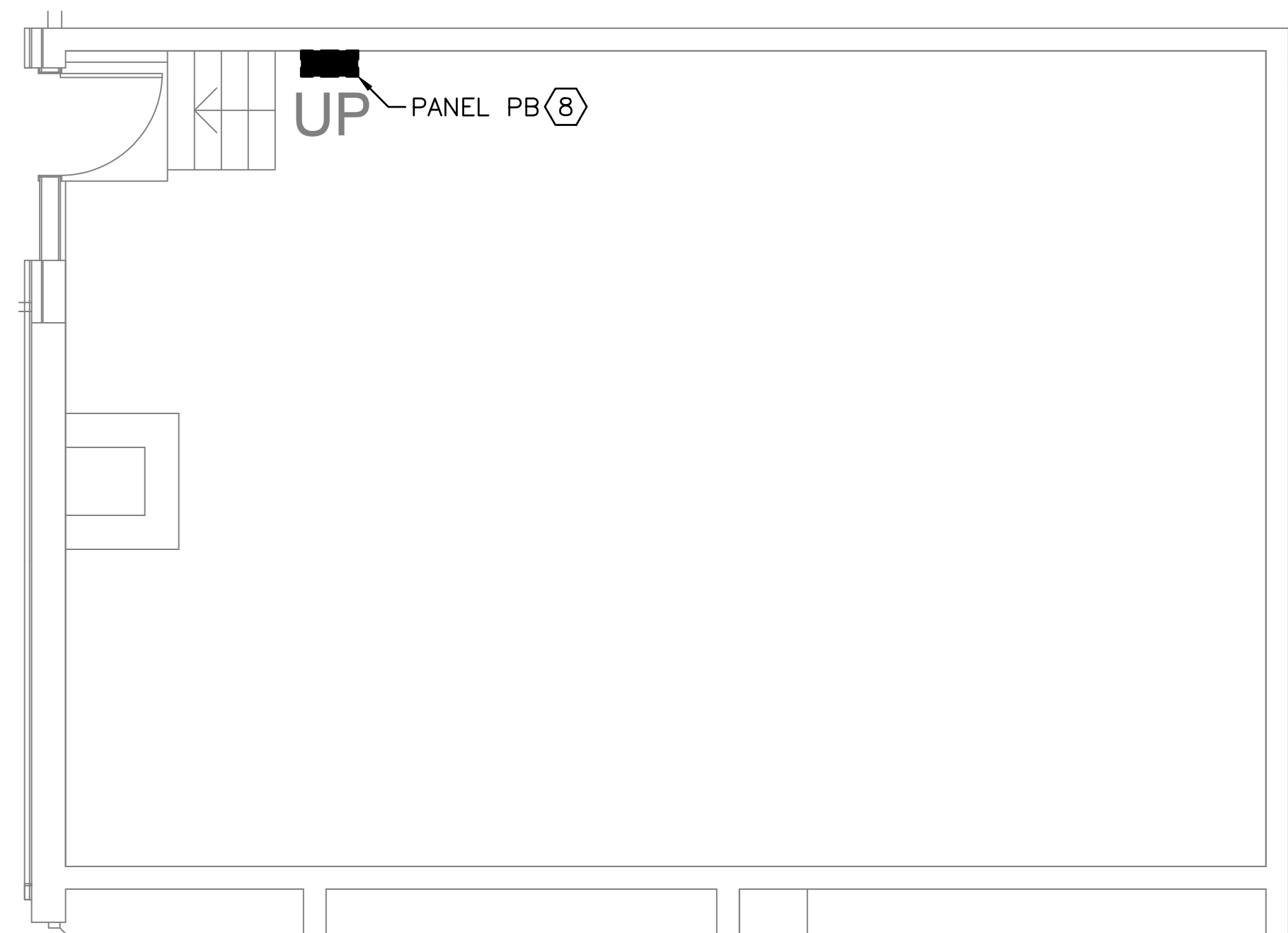
- 1 REMOVE EXISTING ITE 2000A SWITCHBOARD COMPLETELY AND MAINTAIN CIRCUIT FEEDERS IN PLACE FOR CONNECTION TO NEW 2000A SWITCHBOARD.
- 2 PROVIDE NEW SWITCHBOARD, SQUARE D, RATED 208Y/120V, 2000A IN A NEMA 1 ENCLOSURE. CONNECT SALVAGED FEEDERS TO NEW CIRCUIT TERMINATIONS IN SWITCHBOARD. COORDINATE POWER OUTAGE WITH OWNER, OUTAGE TO TAKE PLACE DURING NIGHTS, WEEKENDS, AND/OR TIMES WHEN BUILDING IS NOT IN USE.
- 3 REMOVE EXISTING ITE 600A PANELBOARD "PW" COMPLETELY AND MAINTAIN CIRCUIT FEEDERS IN PLACE FOR CONNECTION TO NEW 600A PANELBOARD.
- 4 PROVIDE NEW PANELBOARD "PW", SQUARE D, RATED 208Y/120V, 600A IN A NEMA 1 ENCLOSURE. CONNECT SALVAGED FEEDERS TO NEW CIRCUIT TERMINATIONS IN PANELBOARD.
- 5 MAINTAIN UNDERGROUND FEEDERS TO MAIN ELECTRICAL SERVICE SWITCHBOARD AND SERVICE DISCONNECT STUB UP LOCATIONS.
- 6 REMOVE EXISTING ELECTRICAL SERVICE DISCONNECT. MAINTAIN EXISTING FEEDERS IN PLACE FOR CONNECTION TO NEW SERVICE ENTRANCE DISCONNECT.
- 7 PROVIDE NEW SERVICE ENTRANCE DISCONNECT RATED 2000A, 208Y/120V 3 PHASE, 4 WIRE.
- 8 REMOVE EXISTING PANEL "PB" COMPLETELY. SALVAGE AND SAVE EXISTING CONDUCTORS AND BRANCH CIRCUIT WIRING IN PLACE FOR CONNECTION TO NEW PANEL.
- 9 PROVIDE NEW 225A, 208Y/120V 3 PHASE, 4 WIRE PANEL AND LABEL "PB". CONNECT EXISTING BRANCH CIRCUITS AND CONDUCTORS IN SAME CIRCUIT POSITIONS AS INDICATED IN PANEL SCHEDULE.



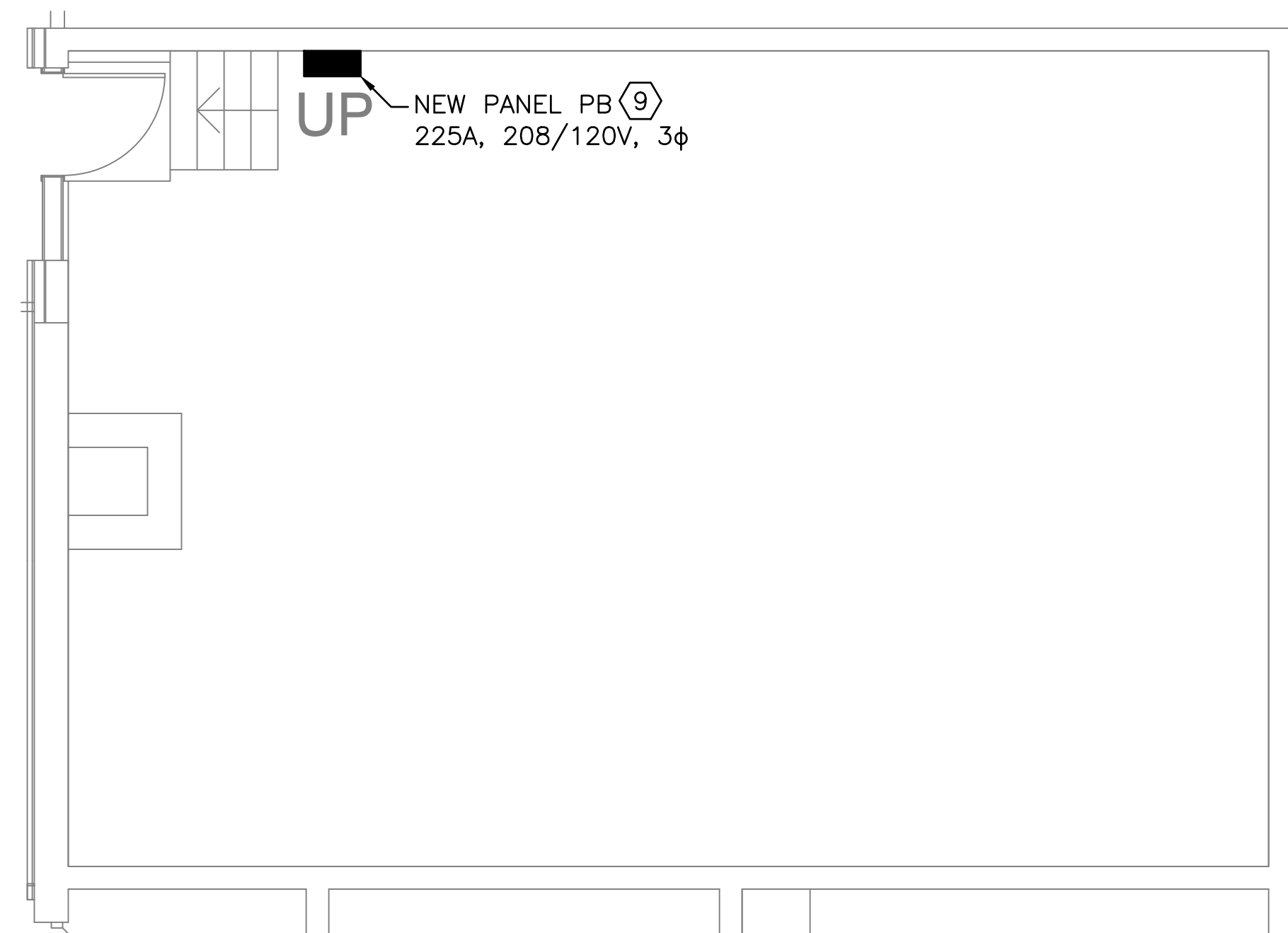
1 MAINTENANCE/ELECTRICAL ROOM DEMO FLOOR PLAN
E-402 SCALE: 1/4" = 1'-0" E-100



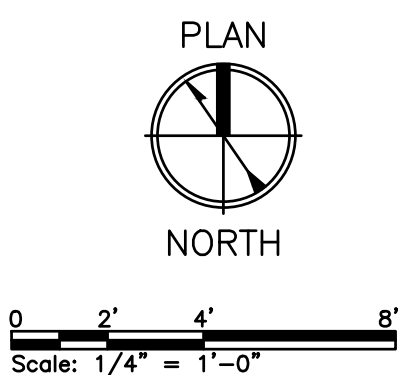
2 MAINTENANCE/ELECTRICAL ROOM FLOOR PLAN
E-402 SCALE: 1/4" = 1'-0" E-100



3 BOILER ROOM DEMO FLOOR PLAN
E-402 SCALE: 1/4" = 1'-0" E-100



4 BOILER ROOM FLOOR PLAN
E-402 SCALE: 1/4" = 1'-0" E-100



		WHITE MTNS. COMMUNITY COLLEGE BERLIN, NEW HAMPSHIRE		
		MECHANICAL/ELECTRICAL UPGRADES		
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		DES BY: JLH	SHEET 10 OF 10	
		DWN BY: ACY		
		CKD BY: JMB		

