SEQUENCE OF OPERATION

GENERAL NOTES:

1. ADDITIONAL SPECIFICATIONS ARE INCLUDED AS SEPARATE DOCUMENTS AND ARE PART OF THE CONTRACT DOCUMENT SET.
2. BASE BID WILL BE TO REPLACE 4 ROOFTOP UNITS. THE ADD ALTERNATE BID WILL BE TO REPLACE THE GYM AHU'S. SEE SPECIFIC DRAWINGS FOR MORE INFORMATION.
3. ALL WORK SHALL BE COORDINATED WITH ALL OTHER TRADES BEFORE ANY INSTALLATION MAY BE DONE.
4. HVAC WORK IS SHOWN DIAGRAMATICALLY. EXACT SIZE AND LOCATION OF EQUIPMENT NEEDS TO BE FIELD VERIFIED BEFORE ORDERING.
5. CONTRACTOR TO COMPLY WITH ALL LOCAL AND STATE BUILDING CODES. FOLLOW ALL COVID REQUIREMENTS BOTH LOCAL AND STATE.
6. THE PREMISES SHALL BE KEPT CLEAN OF ALL CONSTRUCTION DEBRIS AT ALL TIMES. DAILY CLEAN UP WILL BE REQUIRED AT THE END OF EACH SHIFT. THE PROJECT SITE WILL BE LEFT BROOM CLEAN AT END OF PROJECT.
7. ANY EQUIPMENT, PIPING OR EXISTING BUILDING CONSTRUCTION DAMAGED DURING THE PROCESS OF THIS WORK WILL BE REPAIRED OR REPLACED TO ITS ORIGINAL CONDITION TO THE OWNER'S SATISFACTION AT NO ADDITIONAL COST TO THE OWNER.
8. PROVIDE ALL EQUIPMENT AS SPECIFIED IN THIS BID PACKAGE FOR BASE BID. ALTERNATE EQUIPMENT MAY BE PROVIDED IN ADDITION TO THE BASE BID PACKAGE AND LISTED AS A SEPARATE LINE ITEM TO THE CONTRACTOR'S BASE BID. NO EQUIPMENT WILL BE ALLOWED TO BE INSTALLED UNLESS IT IS THE SPECIFIED EQUIPMENT IN THIS BID PACKAGE OR THE CONTRACTOR HAS GOTTEN APPROVAL FROM THE ENGINEER TO INSTALL AN ALTERNATE.
9. THIS CONTRACTOR SHALL SUPPLY ALL NECESSARY EQUIPMENT AND CARRY A CONTROL CONTRACTOR TO MAKE THE SYSTEM FULLY FUNCTIONAL AS DESCRIBED IN THIS SET OF CONSTRUCTION DOCUMENTS.
10. PROVIDE A CERTIFIED FACTORY STARTUP AND PROGRAMMING TECHNICIAN TO PROGRAM THE NEW ROOFTOP UNITS TO WORK WITH THE OLD ALERTON BUILDING MANAGEMENT SYSTEM.
11. THESE CONSTRUCTION DOCUMENTS ARE BASED ON ONE MANUFACTURER'S EQUIPMENT AND CONTROLS. NOT EVERY MANUFACTURER HAS THE SAME CONTROL ABILITY OR WILL WORK WITH THE EXISTING SENSORS AND CONTROLLERS. THEREFORE, THE CONTRACTOR IS RESPONSIBLE FOR ANY SUBSTITUTION OF EQUIPMENT AND CONTROLS FROM THOSE LISTED AND WILL MAKE THE SYSTEM FULLY FUNCTIONAL AS PER THESE DOCUMENTS. ANY ADDITIONAL TIME REQUIRED BY TRINIDAD ENGINEERING TO RESEARCH, ADVISE AND ISSUE INSTRUCTIONS TO MAKE OTHER MANUFACTURER'S EQUIPMENT WORK WITH THIS CONTRACT REQUIREMENTS WILL BE BILLED AT A RATE OF $ 225 /HR. AGAINST THE CONTRACTOR CONSTRUCTION COST.
12. THIS CONTRACTOR TO PROTECT ROOF BY LAYING DOWN PLYWOOD. PICK UP ALL SCREWS AND OTHER MATERIAL THAT CAN PUNCTURE OR DAMAGE THE ROOF.
13. THIS CONTRACTOR TO VERIFY EXISTING VOLTAGES BEFORE SUBMITTING SUBMITTALS OR ORDERING EQUIPMENT.
14. THIS CONTRACTOR WILL HAVE A SHEET METAL CONTRACTOR ON SITE DURING ROOFTOP REPLACEMENT TO REPAIR DUCTWORK AS CALLED OUT ON THESE CONSTRUCTION DRAWINGS.
15. THIS CONTRACTOR TO CARRY THE COST OF A BALANCER TO SET STATIC PRESSURES, MINIMUM OUTSIDE AIR, UNOCCUPIED AIR AND OCCUPIED AIR FLOWS. A BALANCING REPORT IS REQUIRED AS A CONDITION OF ACCEPTANCE. SEE SPECIFICATIONS FOR A LIST OF ALL REQUIREMENTS FOR THE BALANCING REPORT. REFER TO OWNER'S ORIGINAL CONSTRUCTION DRAWINGS FROM 2005 ARE AVAILABLE IN PDF FORMAT. THESE ARE NOT INCLUDE IN THIS SET BUT ARE AVAILABLE ON REQUEST.
16. THIS CONTRACTOR WILL CARRY TIME FOR AN ALERTON CONTROLS CONTRACTOR TO FIND THE LOCATIONS OF THE EXISTING CONTROL PANELS. IF THE PANELS ARE LOCATED IN THE AIR HANDLERS, THEY WILL BE CAREFULLY REMOVED AND REUSED IN THE NEW UNITS. ALL CONTROL AND POWER WIRING WILL BE PROTECTED FROM DAMAGE AND REUSED FOR THE NEW EQUIPMENT.
17. ALL SPECIFIED REPLACEMENT ROOFTOPS AND AIR HANDLERS WERE SELECTED WITH SPECIAL LOADING, UNLOADING AND PERFORMANCE CHARACTERISTICS. THE BURNER TURN DOWN, VARIABLE SPEED FAN, VARIABLE SPEED COMPRESSORS ARE ALL SELECTED TO ACHIEVE A HIGH OPERATIONAL EFFICIENCY WHILE MEETING COMFORT REQUIREMENTS. ANY SUBSTITUTIONS MUST MEET THE SAME PERFORMANCE CRITERIA THESE BASE MODELS PROVIDE TO BE CONSIDERED AN EQUAL.
18. PROVIDE ADAPTER CURVE FABRICATED USING 22GA GALVANIZED SHEET METAL ALL CORNER JOINTS CONTINUOUSLY WELDED. ALL EXTERIOR WELDS SEALED WITH A GALVANIZING COATING TO PREVENT RUST AND CORROSION. METAL GAUGE SELECTED AND ADAPTER REINFORCED TO INSURE STRUCTURAL INTEGRITY.
    - 18.1. ADAPTER DESIGNED TO MINIMIZE PRESSURE DROP AND TURBULENCE.
    - 18.2. FACTORY INSTALLED DUCT TRANSITIONS, SOLID BOTTOMS WHERE REQUIRED. EXTERNAL SURFACES
    - 18.3. DESIGNED TO ELIMINATE STANDING WATER WHEREVER POSSIBLE.
    - 18.4. INCLUDES CODE COMPLIANT INSULATION, ADHERED AND MECHANICALLY FASTENED TO ADAPTER
    - 18.5. INTERIOR, RAW EDGES OF INSULATION SEALED TO PREVENT FRAYING.
    - 18.6. ADAPTER TOPS DESIGNED TO MATCH AHU STANDARD ROOF-CURBS.
    - 18.7. 3/4" X 3/4" CLOSED CELL RUBBER GASKET INCLUDED FOR SEALING AHU TO ADAPTER AND FOR SEALING UNIT TO ADAPTER TO EXISTING ROOF CURB. CLEAN SURFACES OF OLD ROOF CUBE BEFORE INSTALLING GASKET. SEE DETAIL
    - 18.8. INCLUDE THE COST OF A FACTORY REPRESENTATIVE TO DO A FIELD MEASUREMENT OF EXISTING CONDITIONS.
    - 18.9. SUBMIT CURB ADAPTER FOR APPROVAL

ROOF TOP UNITS RAC-2 (OFFICE)

* NOTE: THIS SEQUENCE IS FOR REFERENCE. THIS CONTROLLER DOES NOT NEED TO BE REPROGRAMMED, HOWEVER, THE ROOFTOP WILL NEED PROGRAMING.

1. THE UNIT SHALL OPERATE ON AN OCCUPIED/UNOCCUPIED SCHEDULE DIRECTED FROM ALERTON BUILDING MANAGEMENT SYSTEM.
2. WHEN THE UNIT IS IN THE UNOCCUPIED MODE THE UNIT SHALL BE OFF, COOLING DISABLE, AND THE FRESH AIR DAMPER CLOSED. THE UNIT FAN SHALL CYCLE ON TO MAINTAIN A REDUCED SPACE TEMPERATURE BELOW 60 °F (ADJUSTABLE), AND THE FRESH AIR DAMPER SHALL REMAIN CLOSED, AND HEATING COIL CONTROL VALVE SHALL MODULATE TO MAINTAIN CONDITIONS.
3. WHEN UNIT IS INDEXED TO OCCUPIED MODE, THE SUPPLY FAN SHALL RUN WITH THE FRESH AIR DAMPER CLOSED, THE GAS FIRED HEAT EXCHANGER SHALL MODULATE TO MAINTAIN 55 °F (ADJUSTABLE) DISCHARGE AIR TEMPERATURE. FOLLOWING WARM UP MODE THE FRESH AIR DAMPER SHALL POSITION TO ALLOW THE SCHEDULED AMOUNT OF FRESH AIR INTO THE SPACE.
4. THE SUPPLY AIR TEMPERATURE SENSOR SHALL SIGNAL THE CONTROLLER TO CYCLE THE COOLING IN SEQUENCE WITH ECONOMIZER DAMPER WHEN CONDITIONS ALLOW FOR ECONOMIZER COOLING TO MAINTAIN 55 °F SUPPLY AIR TEMPERATURE.
5. UPON RECEIVING SIGNAL FROM CO2 SENSOR INSTALLED IN THE RETURN DUCT THAT CO2 LEVEL REACHES HIGH LIMIT OF 800 PPM DDC SYSTEM SHALL OVERRIDE THE OUTDOOR AIR DAMPER CONTROL AND MODULATE DAMPER UP TO THE MAXIMUM SETTING OF OUTDOOR AIR FLOW. IF CO2 LEVEL IS 600 PPM OR BELOW, THE DAMPERS SHALL MODULATE TO THE MINIMUM SETTING OF OUTSIDE AIR.
6. THE UNIT SUPPLY STATIC PRESSURE SENSOR SHALL MODULATE THE VARIABLE FREQUENCY DRIVE TO MAINTAIN SUPPLY STATIC PRESSURE OF 0.75" WG (ADJUSTABLE).

ROOF TOP UNITS RAC-1 (CAFETORIUM) AND RAC-3 (LIBRARY)

* NOTE: THIS SEQUENCE IS FOR REFERENCE. THIS CONTROLLER DOES NOT NEED TO BE REPROGRAMMED, HOWEVER, THE ROOFTOP(S) WILL NEED PROGRAMMING.

1. THE UNITS SHALL BE INDEXED TO AN OPERATING MODE AS DIRECTED FROM ALERTON BUILDING MANAGEMENT SYSTEM THROUGH A SET OF START / STOP CONTACTS.
2. WHEN THE UNIT IS IN THE UNOCCUPIED MODE THE UNIT SHALL BE OFF, COOLING DISABLE, AND THE FRESH AIR DAMPER CLOSED. THE UNIT SHALL CYCLE ON AT 70% OF MAXIMUM AIR FLOW TO MAINTAIN A REDUCED SPACE TEMPERATURE BELOW 60 °F (ADJUSTABLE). DURING THE NIGHT SETBACK CYCLE THE SUPPLY AND RETURN FANS SHALL RUN, THE FRESH AIR DAMPER SHALL REMAIN CLOSED, AND THE NATURAL GAS FIRED HEAT EXCHANGER IN THE UNIT SHALL CYCLE TO MAINTAIN CONDITIONS.
3. WHEN UNIT IS INDEXED TO OCCUPIED MODE, THROUGH A SEPARATE SET OF OCCUP / UNOCCUPIED SET OF CONTACTS, THE SUPPLY AND RETURN FANS SHALL RUN WITH THE FRESH AIR DAMPER CLOSED, THE NATURAL GAS FIRED HEAT EXCHANGER SHALL CYCLE TO PROVIDE HEAT TO WARM UP THE SPACES TO 70 °F, FOLLOWING WARM UP MODE THE FRESH AIR DAMPER SHALL POSITION TO ALLOW THE SCHEDULED MINIMUM AMOUNT OF FRESH AIR INTO THE SPACE.
4. THE ROOM TEMPERATURE SHALL BE MAINTAINED FROM THE RETURN AIR. DX COOLING SHALL CYCLE IN SEQUENCE WITH THE ECONOMIZER DAMPERS TO MAINTAIN SET POINT SUBJECT TO A LOW LIMIT MIXED AIR TEMPERATURE OF 60 °F (ADJUSTABLE).
5. UPON RECENING SIGNAL FROM CO2 SENSOR INSTALLED IN THE RETURN DUCT THAT CO2 LEVEL REACHES HIGH LIMIT OF 800 PPM DDC SYSTEM SHALL OVERRIDE THE OUTDOOR AIR DAMPER CONTROL AND MODULATE DAMPER UP TO THE MAXIMUM SETTING OF OUTDOOR AIR FLOW. IF CO2 LEVEL IS 600 PPM OR BELOW, THE DAMPERS SHALL MODULATE TO THE MINIMUM SETTING OF OUTSIDE AIR.

ADD ALTERNATE:

AIR HANDLING UNITS AH-1 & 2 AND EF-10 & 11 (GYMNASIUM)

* NOTE: THIS CONTROLLER NEEDS TO BE REPROGRAMMED FOR COOLING AND HEATING OPERATION

1. THE UNIT SHALL OPERATE ON AN OCCUPIED/UNOCCUPIED SCHEDULE DIRECTED FROM OWS.
2. WHEN THE UNIT IS IN THE UNOCCUPIED MODE, THE UNIT SHALL BE OFF, THE FRESH AIR DAMPER SHALL REMAIN 100% CLOSED, AND EXHAUST FANS EF-10 & 11 SHALL BE DE-ENERGIZED. THE UNIT FAN SHALL CYCLE ON TO MAINTAIN A REDUCED SPACE TEMPERATURE BELOW 60 °F IN HEATING MODE AND ABOVE 80 °F IN COOLING MODE (ADJUSTABLE), AND THE WATER VALVE SHALL MODULATE TO DIRECT WATER TO THE COIL UPON A CHANGE IN SPACE TEMPERATURE FROM THE SETBACK SETPOINT. UPON A RETURN TO SPACE TEMPERATURE SETPOINT THE CONTROL VALVE SHALL MODULATE TO RESTRICT HOT FLOW THROUGH THE UNIT COIL.
3. WHEN UNIT IS INDEXED TO OCCUPIED MODE, THE UNIT FAN SHALL RUN CONTINUOUSLY. THE FRESH AIR DAMPER SHALL OPEN TO INTRODUCE THE SCHEDULED MINIMUM FRESH AIR VOLUME FLOW RATE TO THE AIR HANDLING UNIT. THE RETURN AIR DAMPER SHALL OPEN TO RETURN THE SCHEDULED MAXIMUM OF AIR VOLUME FLOW RATE THE UNIT FROM THE SPACE.
4. DURING OCCUPIED MODE, UPON A CHANGE IN RETURN AIR TEMPERATURE FROM SETPOINT WATER VALVE SHALL MODULATE TO DIRECT WATER TO THE COIL, AND UPON A RETURN IN RETURN AIR TEMPERATURE TO THE SETPOINT THE CONTROL VALVE SHALL MODULATE TO RESTRICT WATER FLOW THROUGH THE UNIT HEATING COIL.
5. THE FREEZE PROTECTION PUMP SHALL BE ENERGIZED WHEN THERE IS CALL FOR HEAT AND/OR THE OUTDOOR AIR AMBIENT TEMPERATURE IS 50 °F OR BELOW (ADJUSTABLE). THE COIL 3-WAY VALVE SHALL MODULATE TO DIRECT HOT WATER TO THE COIL FREEZE PROTECTION LOOP ON A DROP IN THE SPACE TEMPERATURE BELOW SPACE TEMPERATURE SETPOINT, AND MODULATE TO DIRECT HOT WATER TO THE HEATING COIL FREEZE PROTECTION LOOP BYPASS ON A RISE IN SPACE TEMPERATURE AT AND/OR ABOVE THE SPACE TEMPERATURE SETPOINT.
6. THE AUTOMATIC RESET LOW TEMPERATURE CUT-OFF THERMOSTAT (FREEZESTAT) AT DISCHARGE OF THE HEATING COIL ON SENSING DISCHARGE AIR TEMPERATURE OF 35 °F (ADJUSTABLE) OR BELOW SHALL DE-ENERGIZE THE SUPPLY AIR FAN, THE AIR DAMPER SHALL CLOSE 100%, RETURN AIR DAMPER SHALL OPEN 100%, ALARM SHALL BE INITIATED AT OWS, AND AUDIO/VISUAL ALARM DEVICE SHALL INITIATE. THE HEATING COIL SHALL RECEIVE FULL HOT WATER FLOW UNTIL THE AIR TEMPERATURE SENSED BY FREEZESTAT RISES ABOVE THE LOW LIMIT TEMPERATURE SENSOR SETPOINT. THE AUTOMATIC RESET FREEZESTAT SHALL RESET AND THE UNIT SHALL INITIALIZE TO THE APPROPRIATE SEQUENCE.
7. UPON RECENING SIGNAL FROM CO2 SENSOR INSTALLED IN THE RETURN DUCT THAT CO2 LEVEL REACHES HIGH LIMIT OF 800 PPM OUTDOOR AIR DAMPER SHALL MODULATE TO THE MAXIMUM SETTING OF 1,000 CFM OF OUTDOOR AIR FLOW, RETURN AIR DAMPER TO 1,000 CFM OF RETURN AIR, AND EXHAUST FAN EF-10 SHALL ENERGIZE. IF CO2 LEVEL IS 600 PPM OR BELOW, THE DAMPERS SHALL MODULATE TO THE MINIMUM SETTING OF 520 CFM OUTSIDE AIR AND 1,480 CFM RETURN AIR.
8. WHEN THE SYSTEM IS IN OCCUPIED MODE AND NO ACTIVITY IS DETECTED BY OCCUPANCY SENSOR, UNIT OUTDOOR AIR INTAKE AND EXHAUST AIR DAMPERS SHALL GO TO FULLY CLOSED POSITION AND THE RETURN AIR FAN SHALL OPERATE ON 100% RETURN AIR.
9. THE WHEN HEATING, THE HOT SUPPLY AIR TEMPERATURE WILL BE LIMITED TO 105 F TO PREVENT DAMAGE TO THE SUPPLY MOTOR.

MAKE-UP UNIT MUA-1 & KITCHEN EXHAUST FANS EF-1

* NOTE: THIS SEQUENCE NEEDS TO BE REPROGRAMMED IN THE EXISTING ALERTON SYSTEM. THE NEW ROOFTOP WILL ALSO NEED TO BE PROGRAMMED.

1. THE NEW MAKEUP AIR UNIT WILL HAVE A NEW BACNET CARD IN IT AND A NEW BACNET WIRE WILL BE RUN FROM THE EXISTING UG1.R CONTROLLER UP TO THE NEW MAKEUP AIR UNIT. THE CONTROL OF THE UNIT WILL BE BY ITS INTERNAL FACTORY CONTROLLER. A NEW HARD ENABLE AND DISABLE CONTACT WILL BE PROVIDED BY THE MANUFACTURER.
2. THE MAKE-UP AIR UNIT SHALL OPERATE ON AN OCCUPIED/UNOCCUPIED SCHEDULE AS DIRECTED FROM A NEW MODINE ROOM CONTROLLER AND THE EXISTING ALERTON SYSTEM. PROVIDED AND INSTALLED MODINE ROOM CONTROLER AND WIRE TO NEW UNIT BY THIS CONTRACTOR. LOCATED IN KITCHEN OFFICE.
3. WHEN THE UNIT IS IN THE UNOCCUPIED MODE THE UNIT SHALL BE OFF, AND THE FRESH AIR DAMPER CLOSED. THE UNIT SHALL CYCLE ON TO MAINTAIN A REDUCED SPACE TEMPERATURE BELOW 60 °F (ADJUSTABLE). THE FRESH AIR DAMPER SHALL REMAIN CLOSED, AND THE NATURAL GAS FIRED HEAT EXCHANGER IN THE UNIT SHALL CYCLE TO MAINTAIN CONDITIONS.
4. WHEN UNIT IS INDEXED TO OCCUPIED MODE, THE SUPPLY AIR FAN SHALL RUN WITH THE FRESH AIR DAMPER CLOSED. THE NATURAL GAS FIRED HEAT EXCHANGER SHALL CYCLE TO PROVIDE HEAT TO WARM UP THE SPACES TO 70 °F. (ADJUSTABLE) FOLLOWING WARM UP MODE THE FRESH AIR DAMPER SHALL POSITION TO ALLOW THE SCHEDULED AMOUNT OF FRESH AIR INTO THE SPACE, THE KITCHEN EXHAUST FAN SHALL RUN AND DISHWASHER FAN SHALL RUN.
5. THE ROOM TEMPERATURE SHALL BE MAINTAINED BY MODULATING GAS FIRED HEAT EXCHANGER. THE MODULATING SIGNAL FOR THE GAS FIRED HEAT EXCHANGE SHALL BE BASED ON THE UNIT DISCHARGE AIR TEMPERATURE. SUPPLY AIR TEMPERATURE SENSOR SHALL CYCLE THE GAS FIRED HEAT EXCHANGER TO MAINTAIN A MINIMUM SUPPLY TEMPERATURE OF 65 °F. THE SUPPLY AIR SETPOINT SHALL BE ADJUSTABLE THROUGH BACNET CONTROLLER.

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CONSULTANTS

HVAC UNIT REPLACEMENTS

OWNER

DALLIN ELEMENTARY
185 FLORENCE AVE.
ARLINGTON, MA

MARK	DATE	DESCRIPTION
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PROJECT NO: 22200181
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SHEET TITLE

GENERAL NOTES AND SEQUENCE OF OPERATION

SHEET

SPECIFICATIONS:

1. PAINT AND EXTEND NEW GAS LINE WITH SCHEDULE 40 THREADED STEEL PIPE. INSTALL NEW FULL SIZE GAS SHUT OFF AT ROOF LEVEL BEFORE REDUCING AT UNIT. ALL GAS FITTINGS TO MEET MASS CODE. REDUCE DOWN IN SIZE AT UNIT AND INSTALL UNION SAME SIZE AS UNIT CONNECTION BEFORE MAKING FINAL CONNECTION.

2. INSTALL LIQUID TIGHT JUNCTION BOXES AND CABLES TO EXTEND THE ELECTRICAL SERVICE TO NEW UNIT CONNECTION. ALL WIRING TO BE COPPER 600V THHN AND GAUGE TO MATCH EXISTING. PROVIDE DISCONNECTS AS CALLED OUT ON SCHEDULE SHEET.

3. PIPING AND ELECTRICAL SUPPORTS TO BE NVENT CADDY PYRAMID, WITH HOT DIPPED GALVANIZED BRACKETS AND FITTINGS, FOAM BOTTOM TO PROTECT ROOF MEMBRANE FROM ABRASION, MODEL TO BE COMPATIBLE WITH THE SUPPORT THAT IS NEEDED. ALL OUTSIDE ELECTRICAL DISCONNECTS TO MEET NEMA 3R CONSTRUCTION STANDARDS.

4. ALL ELECTRICAL CONDUIT TO BE RMC WITH LIQUID TIGHT. ATTACHEMENTS TO EQUIPMENT AND SUPPORTS SHALL BE HELD IN PLACE WITH HOT DIPPED GALVANIZED HARDWARE AND SUPPORTS.

5. ALL DUCTWORK TO BE CONSTRUCTED AND INSTALLED TO SMACNA 2" WATER GAUGE, GALVANIZED STEEL AS SIZED ON THE DRAWINGS OR AS NEEDED IN THE FIELD FOR REPAIRS. SEAL ALL DUCTWORK TO SMACNA SEAL CLASS "C" WITH A NON-HARDENING SEALER.

6. ALL AHU DRAIN , HOT AND CHILLED WATER PIPING TO BE FULL SIZE COPPER TYPE L FITTINGS TO BE PRO-PRESS COPPER.

7. BALANCING WATER VALVES BASED ON TACO ACU-FLOW VALVES. CHECK VALVES BASED ON WATTS WCV, BALL VALVES BASED ON APOLLO 70-140 SERIES, TWO PIECE, FULL PORT, 316 STAINLESS STEEL BALL AND STEM.

8. INSULATION TO MEET ALL ENERGY AND INSTALLATION CODES FOR INSULATING, FLAME AND SMOKE DEVELOPED.

9. ROOF CURBS ARE BASED ON CAMBRIDGEPORT AND WILL BE PROVIDED WITH ALTERNATE 3/4" THICK GASKET MATERIAL ON THE INTERFACE BETWEEN THE NEW UNIT AND THE NEW CURB ADAPTER, IT WILL ALSO BE PROVIDED ON THE INTERFACE BETWEEN THE OLD CURB AND THE NEW CURB ADAPTER. THIS IS AN ADDED COST TO THE BASE COST OF THE CURB ADAPTER. GASKET MATERIAL TO BE CLOSED CELL WITH ADHESIVE ON ONE SIDE. ONLY GASKET MATERIAL FROM CAMBRIDGEPORT OR ITS EQUAL WILL BE ACCEPTABLE. BASE BID TO CARRY CAMBRIDGEPORT GASKET MATERIAL

10. THIS CONTRACTOR TO HAVE ONSITE AT THE TIME OF INSTALLATION, 3" X 22 GAUGE GALVANIZED SHEET METAL STRAPPING TO REPAIR AND SEAL DUCTWORK AS NEEDED WHEN THE ROOFTOP UNIT IS REMOVED. SEE DETAILS ON DRAWING(S) FOR MORE INFORMATION.

11. PROVIDE OWNER WITH BOUNDED OPERATIONAL AND PARTS MANUALS BOTH HARD COPY AND ELECTRONICALLY.

12. ALL OUTDOOR HARDWARE AND SUPPORTS TO BE HOT DIPPED GALVANIZED. ALL INTERNAL OR INSIDE HARDWARE AND SUPPORTS TO BE ZINC COATED STEEL

11. GYM AHU-1 AND AHU-2 – ALTERNATE TO BASE BID

ALSO SEE BOOK SPECIFICATIONS

1. AIR HANDLER: DAIKIN DESTINY AIR HANDLER
2. UNIT SIZE: 005
3. VINTAGE: A
4. UNIT TYPE: DRAW-THROUGH COOLING OR COOLING/HEATING
5. UNIT ARRANGEMENT: HORIZONTAL
6. FAN DRIVE SIDE: LEFT HAND (REF. FROM AIR HITTING BACK OF HEAD)
7. COIL CONNECTION LOCATION SIDE: DRIVE SIDE
8. HINGES AND LATCHES: HINGED ACCESS, BOTH SIDE FILTER, FAN
9. FILTER ARRANGEMENT: FLAT
10. PRE-FILTER TYPE: NONE
11. MAIN FILTER TYPE: 4" – PLEATED MERV 14
12. DRAIN PAN MATERIAL: STAINLESS STEEL SLOPED
13. COOLING COIL: CHILLED WATER
14. COOLING COIL FINS PER INCH: 12 FPI
15. COOLING COIL ROWS: 4 – ROW
16. HEATING COIL: NO HEATING COIL
17. HEATING COIL FINS PER INCH: NO HEATING COIL
18. HEATING COIL ROWS: NO HEATING COIL
19. MOTOR TYPE: ODP
20. MOTOR SIZE: 2 HP
21. MOTOR EFFICIENCY: PREMIUM EFFICIENCY
22. VOLTAGE: 460/60/3
23. FAN DISCHARGE: TOP HORIZONTAL – CCW (VIEWED FROM DRIVE SIDE)
24. MIXING BOX: PLAIN
25. MIXING BOX OA AIR DAMPER : TOP OPENING WITH DAMPER
26. MIXING BOX RETURN AIR DAMPER: BOTTOM OPENING WITH DAMPER
27. MIXING BOX FRESH AIR DAMPER ACTUATOR & TYPE: NONE
28. MIXING BOX RETURN AIR DAMPER ACTUATOR & TYPE: NONE
29. REFRIGERANT TYPE: NONE
30. COIL CASING MATERIAL: STAINLESS STEEL CASING, COIL 1
31. UV LIGHTS AND LOCATION: NONE
32. HEAT COIL POSITION: NO HEATING COIL
33. CONTROLS: DISCONNECT, NON-FUSED
34. CRATING: STANDARD CRATING, NO BASE RAIL
35. WARRANTY: STANDARD
36. SPECIAL: NONE
37. PANEL EXTERIOR MATERIAL: GALVANIZED STEEL
38. 1" RIGID INSULATION BETWEEN PANELS
39. PANEL LINER MATERIAL: GALVANIZED STEEL
40. ELECTRIC HEAT OPTIONS: NONE
41. ELECTRIC HEAT STAGES: NONE
42. ELECTRIC HEAT SIZE: NONE
43. FAN TYPE: FORWARD CURVED
44. MOTOR DRIVE TYPE: BELT DRIVE
45. FAN WHEEL DIAMETER: 10 INCH
46. FAN VENDOR: SOLAR & PALAU
47. PLENUM FAN BLADE TYPE: NO PLENUM FAN
48. MOTOR MOUNT: TOP MOUNT
49. MODULAR CONSTRUCTION: UNITARY CONSTRUCTION
50. DISCHARGE PLENUM/FINAL FILTER: NO DISCHARGE PLENUM
51. FINAL FILTER TYPE: NO FINAL FILTER
52. FUTURE USE: NONE
53. FILTER GAUGE: FILTER GAUGE MOUNTED IN COIL SECTION
54. MARINE LIGHT, GFI OUTLET: NONE
55. ELECTRIC HEAT SCR CONTROL: NONE

HVAC REPLACEMENT SCHEDULE

		EXISTING UNIT										NEW UNIT												
NO.	AREA SERVED	MAKE	MODEL	COOLING TONS	SUPPLY CFM	GAS INPUT MBH	MIN. GAS IN. WC.	SUPPLY HP	POWER EXH HP	VOLT / PHASE	MCA/MOP	MAKE	MODEL	SUPPLY CFM	OA CFM	EXTERNAL STATIC	COOLING TONS	COOL MBH TOT/SEN	HEATING INPUT MBH	VOLT PHASE	COOLING EA DB/WB	COOLING RA DB/WB	MCA/MOP	SUPPLY HP/BHP	NOTES:
RAC-1	CAFETERIA	AAON	RM-010-3-0	10	2400	270	6	2	1	460/3	26/30	AAON	RN-011-3-0	2,640	2,475	1.25	11	137/83	293	460/3	57/56	75/62	27/30	1.35	1, 4-14
RAC-2	MAIN OFFICE	AAON	RM-005-3-0	5	1550	90	6	1	1	460/3	17/25	AAON	RN-006-3-0	1,700	330	1.1	6	65/49	90	460/3	52/51	75/62	16/20	1/0.82	2, 4-14
RAC-3	LIBRARY	AAON	RM-006-3-0	6	2250	90	6	2	1	460/3	19/25	AAON	RN-006-3-0	2,475	875	1.1	6	72/63	90	460/3	58/57	75/62	19/25	2/1.29	3, 4-14
MAU1	KITCHEN	J. CHURCH	SDF-35	–	3500	437	5.5	1	–	208/3	16/20	MODINE	HDP400	3,750	3,750	1.0	–	–	400	208/3	–	–	13/20	3/2.5	14,15, 21
AHU1	GYM	MCQUAY	LAH 005 AHH	–	2000	114	–	1	–	460/3	3/20	DAIKIN DESTINY	LAH 005	2,000	520	1.0	3.6	44/41	200	460/3	54/54	75/62	4/20	3/2	16-20
AHU2	GYM	MCQUAY	LAH 005 AHH	–	2000	144	–	1	–	460/3	3/20	DAIKIN DESTINY	LAH 005	2,000	520	1.0	3.6	44/41	200	460/3	54/54	75/62	4/20	3/2	16-20

• WEIGHTS DO NOT INCLUDE CURB ADAPTERS ONLY FOR ROOFTOP UNITS

NOTES:

1. RAC-1 COMPLETE MODEL NUMBER: RN-011-3-0-E60B-30B ; BEAC-A0B-0CD-A0A-00EAH0E-00-00000000, ALSO SEE BOOK SPECIFICATIONS
2. RAC-2 COMPLETE MODEL NUMBER: RN-006-3-0-E60B-32B ; BETC-A0B-0HC-A0A-00EAH0D-00-00A00000, ALSO SEE BOOK SPECIFICATIONS
3. RAC-3 COMPLETE MODEL NUMBER: RN-006-3-0-E60B-32B ; BETC-A0B-0CD-A0A-00EJH0D-00-00A00000, ALSO SEE BOOK SPECIFICATIONS
4. INSTALL 3/4" X 3/4" CLOSED CELL FOAM RUBBER GASKET BETWEEN OLD CURB, NEW CURB AND NEW ROOFTOP. SEE CURB DETAIL.
5. PROVIDE NEW GAS UNION AND FULL PORT SHUT OFF. TO BE FULL SIZE GAS PIPE UNIT CONNECTION AND PAINT ALL NEW AND EXISTING GAS PIPE PER CODE
6. RECONNECT ALL SMOKE DETECTORS AS PART OF THE CONTROLS PACKAGE
7. UNIT WILL REUSE THE EXISTING TEMPERATURE CONTROL WIRING. SEE CONTROL SCHEMACTICS FOR MORE INFORMATION.
8. BASED ON 410A REFRIGERATION, 81. F DB/ 73 F WB AMBIENT CONDITIONS
9. 10:1 GAS TURN DOWN, STAINLESS STEEL HEAT EXCHANGERS
10. CONTRACTOR TO PROVIDE BALANCING BY CERTIFIED NEBB BALANCER FOR TOTAL CFM AND TO SET MINIMUM OUTSIDE AIR SETTING.
11. CLEAN OLD GASKET OFF EXISTING CURB WITH SOLVENTS AND APPLY NEW 3/4" THICK RUBBER GASKET TO EXISTING CURB
12. SEE ATTACHED AAON SUBMITTALS AS PART OF THIS CONTRACT DOCUMENT FOR CLARIFICATION ON FEATURES AND PERFORMANCE REQUIREMENTS.
13. PROVIDE FACTORY CO2 CONTROL WITH CO2 SENSOR LOCATED IN THE RETURN AIR STREAM.
14. MIN. 80 % COMBUSTION EFFICIENCY.
15. PROVIDE WITH FACTORY DOWN PLENUM, HEATER AND BLOWER ASSEMBLY, OUTSIDE AIR HOOD WITH BIRD SCREEN, 115V, CONTROL TRANSFORMER, 10:1 BURNER CONTROL, GAS TRAIN TO BE MASSACHUSETTS APPROVED, NEMA 3R FUSED DISCONNECT, 115 V GFI SERVICE OUTLET
16. HOT WATER COIL HEAT OUTPUT, ALSO SEE BOOK SPECIFICATIONS
17. 8 GPM DESIGN FLOW RATE, WATER TEMPERATURE INLET HEATING = 180 F, COOLING 47 F.
18. MERV 13, 4" DEEP FILTERS, FLAT FILTER RACK. SEE SPECIFICATION ABOVE FOR MORE INFORMATION.
19. 4 ROW COOLING COIL PIPED INTO THE EXISTING 1-1/4" COMBINED HOT AND CHILLED WATER PIPING THREE WAY VALVE.
20. THESE ARE ADD ALTERNATE PRICING. THEY SHOULD BOLT UP TO EXISTING, SUPPLY, FRESH AIR AND RETURN AIR DUCTWORK WITH MINIMAL DUCT MODIFICATIONS.
21. MAU-1 COMPLETE MODEL NUMBER HDP400TMRHN3DSEBEJA00, THIS IS TO HAVE A BACNET MS / TP CARD, ADJUSTABLE MOTOR SHEAVE ON FAN MOTOR. ALSO SEE BOOK SPECIFICATIONS
22. MERV 8 FILTERS
23. 2" 30 % PRE-FILTER AND 4" MERV 13 FILTER

TABLE C403.11.3 MINIMUM PIPE INSULATION THICKNESS (in inches)[a, c]

FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (inches)				
	Conductivity Btu • in./(h • ft² • °F)[b]	Mean Rating Temperature, °F	< 1	1 to < 1 1/2	1 1/2 to < 4	4 to < 8	≥ 8
> 350	0.32 – 0.34	250	4.5	5.0	5.0	5.0	5.0
251 – 350	0.29 – 0.32	200	3.0	4.0	4.5	4.5	4.5
201 – 250	0.27 – 0.30	150	2.5	2.5	2.5	3.0	3.0
141 – 200	0.25 – 0.29	125	1.5	1.5	2.0	2.0	2.0
105 – 140	0.21 – 0.28	100	1.0	1.0	1.5	1.5	1.5
40 – 60	0.21 – 0.27	75	0.5	0.5	1.0	1.0	1.0
< 40	0.20 – 0.26	50	0.5	1.0	1.0	1.0	1.5

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ARLINGTON, MA

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SPECIFICATIONS

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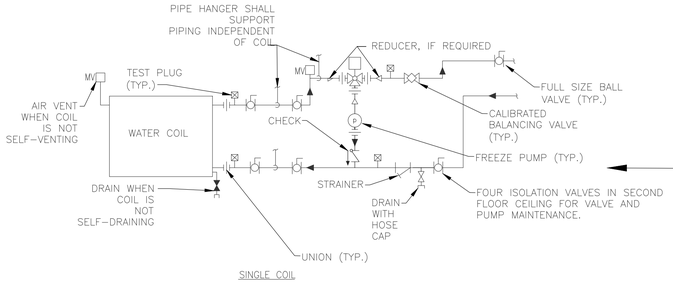
ADD ALTERNATE TO BASE BID



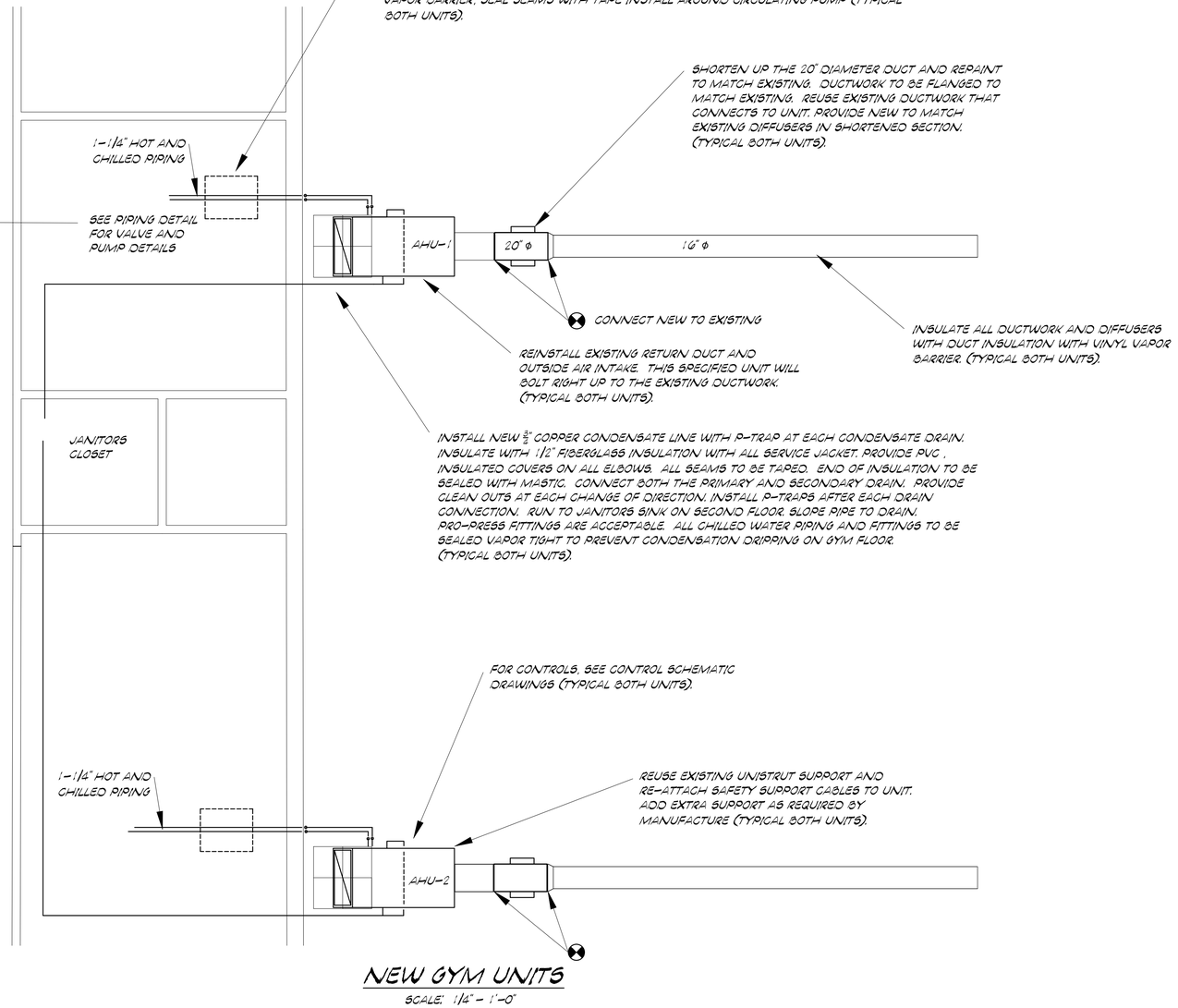
SINGLE COIL

NOTES:

1. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALES, OR EQUIPMENT.
2. CIRCULATING PUMP IS TACO, MODEL IL009, 8 GPM, 1/8 HP, 10 FEET HEAD, 120 VOLT, SINGLE PHASE.
3. USE GALVANIZED INSULATION SHIELDS ON ALL PIPE HANGERS. INSULATION DENSITY SUCH THAT IT DOES NOT CRUSH.

WATER COILS - PIPING CONNECTIONS

NTS



NEW GYM UNITS

SCALE: 1/4" = 1'-0"

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SECOND FLOOR NEW WORK

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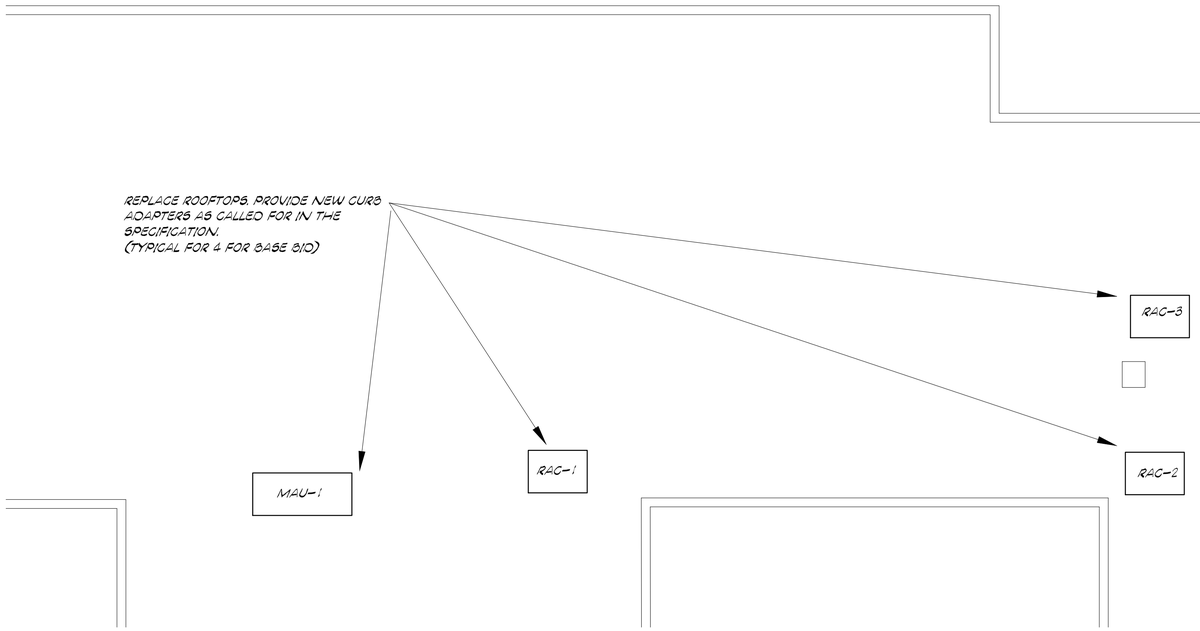
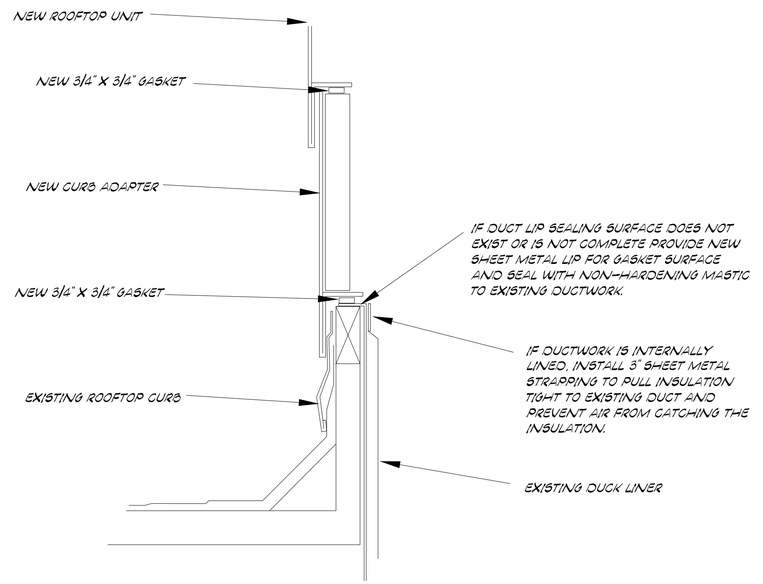


NEW WORK ROOF PLAN

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



ROOF ADAPTER INSTALLATION DETAIL - SECTION VIEW

SCALE: NONE

NOTES:

1. REPLACE MAU-1 AND RAC-1, RAC-2 AND RAC-3 WITH NEW UNITS CALLED OUT IN THIS CONSTRUCTION SET.
2. CONNECT NEW UNITS TO EXISTING GAS LINES AND PROVIDE NEW UNIONS AND NEW GAS SHUT OFFS AT EQUIPMENT. GAS SHUT OFFS TO BE FULL PORT VALVES.
3. RECONNECT EXISTING CONTROL WIRES AS CALLED OUT IN THIS CONSTRUCTION SET.
4. NEW UNITS TO HAVE ALL THE PERFORMANCE, ACCESSORIES AND MATERIALS OF CONSTRUCTION CALLED OUT IN THIS CONSTRUCTION SET.
5. PROVIDE NEW GALVANIZED ROOFTOP ADAPTER CURBS ALL WELDED CONSTRUCTION, GALVANIZED STEEL WITH THE THICKNESS OF GASKET AND INSTALLATION REQUIREMENTS CALLED OUT IN THIS CONSTRUCTION SET.

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NEW WORK ROOF PLAN

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THIS DAMPER CONTROL WILL NOT BE REUSED. THE UNIT CONTROLLER WILL CONTROL ALL ITS OWN DAMPERS.

THE FLAME CONTROL WILL BE REPROGRAMMED TO CONTROL THE OUTSIDE AND RETURN AIR DAMPERS FOR OCCUPIED AND UNOCCUPIED CONTROL.

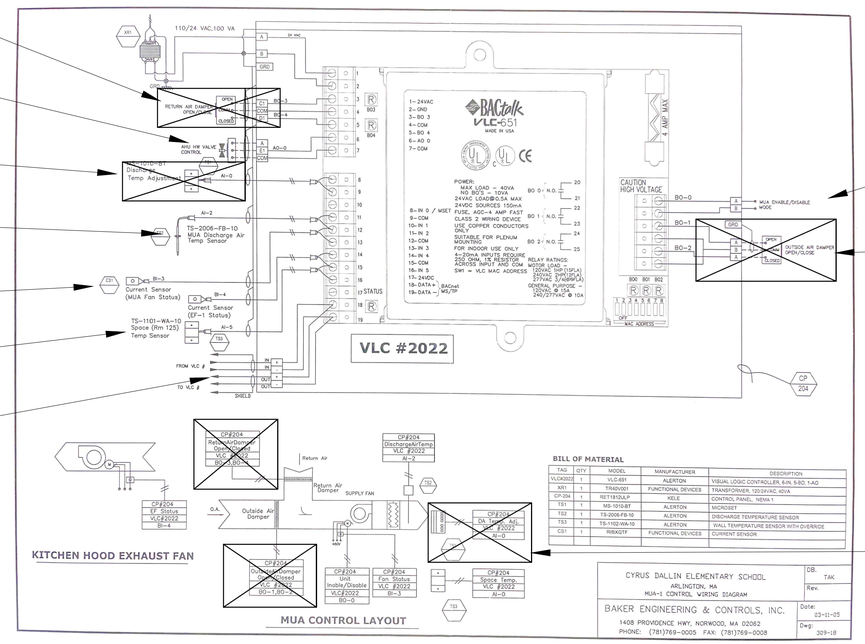
DISCHARGE TEMPERATURE ADJUSTMENT TO BE REMOVED AND NOT BE REUSED.

REUSE EXISTING DISCHARGE AIR TEMPERATURE SENSOR. CALIBRATE SENSOR.

CONNECT THE EXISTING FAN CURRENT TRANSFORMER TO THE FAN WIRING.

SPACE TEMPERATURE SENSOR TO REMAIN

RUN A NEW BACNET APPROVED SHEILDED, TWISTED PAIR WIRING UP TO NEW MAKEUP AIR UNIT. PROVIDE NEW PROGRAMMING AND GRAPHICAL INTERFACE UPDATE TO BRING DATA INTO CONTROLLER. THE EXISTING ALERTON CONTROL SYSTEM SHALL SET OPERATING SCHEDULES, SUPPLY AIR TEMPERATURES AND TEMPERATURE RESETS. IT WILL ALSO COMMAND THE UNIT'S OUTSIDE AIR AND RETURN AIR DAMPERS. THE UNIT WILL USE ITS OWN SAFETY CONTROLS AND FIRING RATE ADJUSTMENTS TO MAINTAIN CONTROL SEQUENCE REQUIREMENTS.



CONNECT THE EXISTING DIGITAL ENABLE/DISABLE CONTROLLER OUTPUTS TO THE NEW ROOFTOPS ENABLE CONTROLS.

THIS WILL NOT BE USED. THE DAMPERS WILL BE CONTROLLED BY THE MAKEUP AIR UNITS INTERNAL CONTROLS.

THIS WILL NOT BE USED. REMOVE THIS OLD CONTROLLER AND REPLACE WITH THE NEW MODINE REMOTE CONTROLLER.

BILL OF MATERIAL

TAG	QTY	MODEL	MANUFACTURER	DESCRIPTION
VLC#2022	1	VLC-651	ALERTON	VISUAL LOGIC CONTROLLER, 8 IN, 8 BO, 1 AO
XR1	1	TR40V001	FUNCTIONAL DEVICES	TRANSFORMER, 120/24VAC, 40VA
CP-204	1	RET181DULP	KELE	CONTROL PANEL, NEMA 1
TS1	1	MS-101S-B7	ALERTON	MICROSET
TS2	1	TS-2006-FB-10	ALERTON	DISCHARGE TEMPERATURE SENSOR
TS3	1	TS-1102-WA-10	ALERTON	WALL TEMPERATURE SENSOR WITH OVERRIDE
CS1	1	RIBKX01F	FUNCTIONAL DEVICES	CURRENT SENSOR
			FUNCTIONAL DEVICES	CURRENT SENSOR

CYRUS DALLIN ELEMENTARY SCHOOL ARLINGTON, MA MUA-1 CONTROL WIRING DIAGRAM	DB. TAK Rev.
BAKER ENGINEERING & CONTROLS, INC. 1408 PROVIDENCE HWY, NORWOOD, MA 02062 PHONE: (781)769-0005 FAX: (781)769-0008	Date: 03-11-05 Dwg: 309-1B

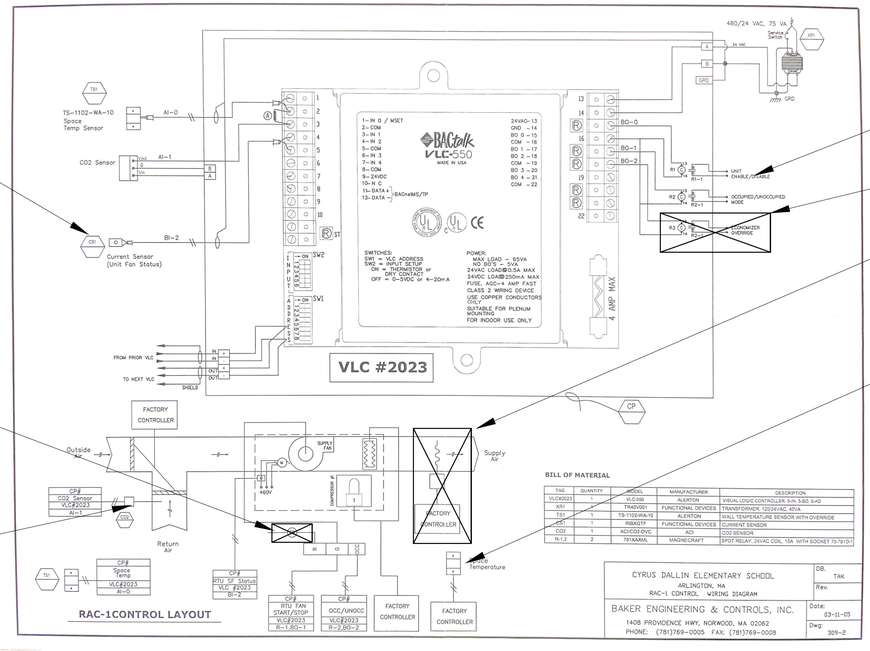
KITCHEN MAKE UP AIR UNIT CONTROL SCHEMATIC – FOR REFERENCE

SCALE: NONE

CONNECT THE EXISTING FAN CURRENT TRANSFORMER TO THE FAN WIRING.

CONSTANT VOLUME UNITS. THERE ARE NO VAV BOXES ON THIS UNIT.

PROVIDE A NEW FACTORY CO2 SENSOR AND MOUNT IN RETURN DUCTWORK. WIRE IT BACK TO THE UNIT AND HAVE IT SET TO 800 PPM (ADJ). IT WILL OVERRIDE ECONOMIZER CONTROL AS NEEDED.



CONNECT THE EXISTING DIGITAL ENABLE/DISABLE AND OCCUPIED / UNOCCUPIED CONTROLLER OUTPUTS TO THE NEW ROOFTOPS ENABLE AND OCCUPIED CONTROLS.

THIS WILL NOT BE USED. THE FACTORY CO2 SENSOR WILL CONTROL AND OVER RIDE THE ECONOMISER AND MIN AIR POSITIONS AS NEEDED.

NO DISCHARGE AIR TEMPERATURE SENSOR OR CONTROLLER. THE ROOM THERMOSTAT WILL MODULATE THE HEATER AND THE COOLING SYSTEM AS NECESSARY TO MAINTAIN SPACE TEMPERATURE. AS THE TEMPERATURE DRIFTS FURTHER FROM SET POINT THE HEAT OUT WILL INCREASE FOR HEATING. THE SAME FOR COOLING. AS THE TEMPERATURE DRIFTS FROM THE COOLING SET POINT MORE COOLING WILL BE BROUGHT ON. THE REVERSE WILL OCCUR WHEN THE ROOM TEMPERATURE APPROACHES SET POINT IN HEATING AND COOLING MODES.

PROVIDE A NEW FACTORY ROOM THERMOSTAT THAT WILL WORK ON THE EXISTING THERMOSTAT WIRING AND CONNECT TO THE NEW ROOFTOP UNIT. THE THERMOSTAT WILL READ TEMPERATURE FOR BOTH OCCUPIED AND UNOCCUPIED. IT WILL ALSO PROVIDE AN OVERRIDE SWITCH THAT WILL ALLOW THE USER TO SWITCH THE UNIT FROM UNOCCUPIED TO OCCUPIED.

BILL OF MATERIAL

TAG	QUANTITY	MODEL	MANUFACTURER	DESCRIPTION
VLC#2023	1	VLC-550	ALERTON	VISUAL LOGIC CONTROLLER, 8 IN, 5 BO, 0 AO
XR1	1	TR40V001	FUNCTIONAL DEVICES	TRANSFORMER, 120/24VAC, 40VA
TS1	1	TS-1102-WA-10	ALERTON	WALL TEMPERATURE SENSOR WITH OVERRIDE
CT1	1	RIBKX01F	FUNCTIONAL DEVICES	CURRENT SENSOR
CO2	1	ACI/CO2/OVC	ACI	CO2 SENSOR
R-1,2	2	7910AXXXL	MAGNECRAFT	SPDT RELAY, 24VAC COIL, 15A WITH SOCKET 70-78131-

CYRUS DALLIN ELEMENTARY SCHOOL ARLINGTON, MA RAC-1 CONTROL WIRING DIAGRAM	DB. TAK Rev.
BAKER ENGINEERING & CONTROLS, INC. 1408 PROVIDENCE HWY, NORWOOD, MA 02062 PHONE: (781)769-0005 FAX: (781)769-0008	Date: 03-11-05 Dwg: 309-2

NOTE:

UNLESS CALLED OUT OTHERWISE, ALL EXISTING CONTROL WIRING AND SENSORS WILL REMAIN. THE CONTROL CONTRACTOR AND/OR THE VENDOR OF THE EQUIPMENT WILL MAKE ALL THE NEW SENSORS AND SEQUENCES WORK WITH THE NEW ROOFTOP EQUIPMENT

RAC1 AND RAC3 CONTROL SCHEMATIC – FOR REFERENCE

SCALE: NONE

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PROJECT NO: 22200101

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CONNECT THE EXISTING FAN CURRENT TRANSFORMER TO THE FAN WIRING.

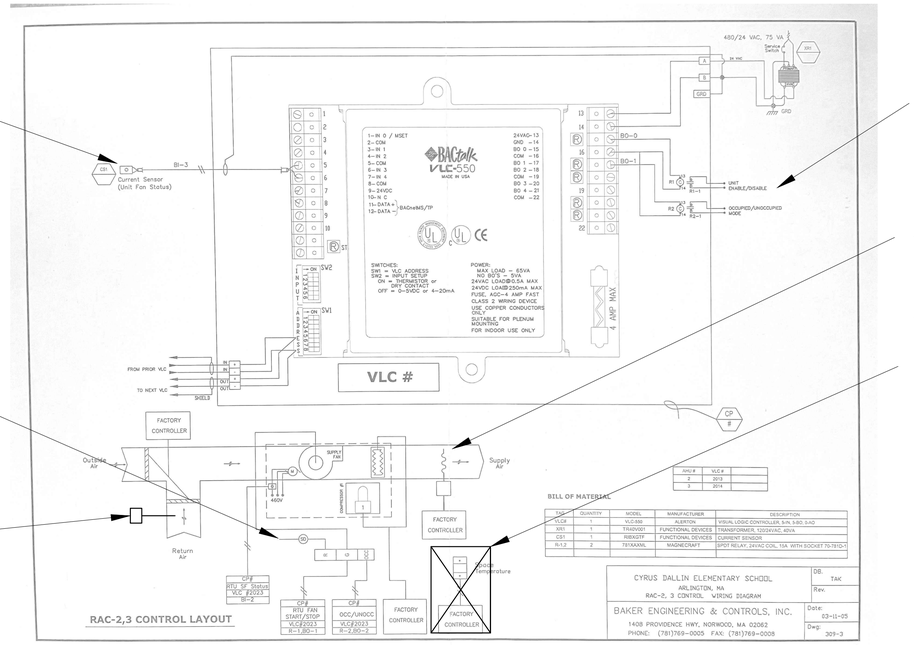
CONNECT THE NEW DIGITAL ENABLE/DISABLE AND OCCUPIED / UNOCCUPIED CONTROLLER OUTPUTS TO THE NEW ROOFTOPS ENABLE AND OCCUPIED CONTROLS.

IN THE NEW UNIT, A FACTORY DISCHARGE SENSOR WILL BE SET UP TO MAINTAIN A RESET SCHEDULE BASED ON OUTDOOR AIR TEMPERATURE. AT 70 F (ADJ.) AND ABOVE OUTSIDE AIR TEMPERATURE WILL BE 55 F (ADJ). AT 20 F (ADJ.) OUTSIDE AIR TEMPERATURE THE SUPPLY AIR TEMPERATURE WILL BE 65 F (ADJ).

NEW UNIT TO HAVE NEW STATIC PRESSURE SENSOR. INSTALL IN DUCTWORK AND TIE BACK INTO THE ROOFTOP FACTORY CONTROL SYSTEM. SET STATIC PRESSURE FOR PROPER AIR FLOW. BALANCER TO WORK WITH CONTROL CONTRACTOR TO SET STATIC PRESSURE SETTING.

NOT HERE. CONTROLLED BY DISCHARGE AIR TEMPERATURE.

PROVIDE A NEW FACTORY CO2 SENSOR AND MOUNT IN RETURN DUCTWORK. WIRE IT BACK TO THE UNIT AND HAVE IT SET TO 800 PPM (ADJ.). IT WILL OVERRIDE ECONOMIZER CONTROL AS NEEDED.



RAC-2,3 CONTROL LAYOUT

NOTE:

UNLESS CALLED OUT OTHERWISE, ALL EXISTING CONTROL WIRING AND SENSORS WILL REMAIN. THE CONTROL CONTRACTOR AND/OR THE VENDOR OF THE EQUIPMENT WILL MAKE ALL THE NEW SENSORS AND SEQUENCES WORK WITH THE NEW ROOFTOP EQUIPMENT

BILL OF MATERIAL

TAG	QUANTITY	MODEL	MANUFACTURER	DESCRIPTION
VLC#	1	VLC-550	ALERTON	VISUAL LOGIC CONTROLLER, 8-IN, 5-BO, 1-AO
XR1	1	TRA0V001	FUNCTIONAL DEVICES	TRANSFORMER, 120/24VAC, 40VA
CS1	1	RIB1GTF	FUNCTIONAL DEVICES	CURRENT SENSOR
R-1,2	2	781AXAML	MAGNECRAFT	SPDT RELAY, 24VAC COIL, 15A WITH SOCKET 70-781D-1

AHU #	VLC #
2	2013
3	2014

CYRUS DALLIN ELEMENTARY SCHOOL
ARLINGTON, MA
RAC-2, 3 CONTROL WIRING DIAGRAM

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1408 PROVIDENCE HWY, NORWOOD, MA 02062
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DB: TAK
Rev.
Date: 03-11-05
Dwg 309-3

RAC2 CONTROL SCHEMATIC – FOR REFERENCE

SCALE: NONE

REUSE EXISTING SENSORS IN NEW AIR HANDLER. EXTEND WIRES AS NECESSARY. PROVIDE NEW MOUNTING EQUIPMENT.

PROVIDE NEW LOW TEMPERATURE CUT OFF. FOR BUDGET PURPOSES USE JOHNSON CONTROLS A70BA-1. FIELD VERIFY BEFORE PURCHASING.

REUSE EXISTING SENSORS IN NEW AIR HANDLER. EXTEND WIRES AS NECESSARY. PROVIDE NEW MOUNTING EQUIPMENT.

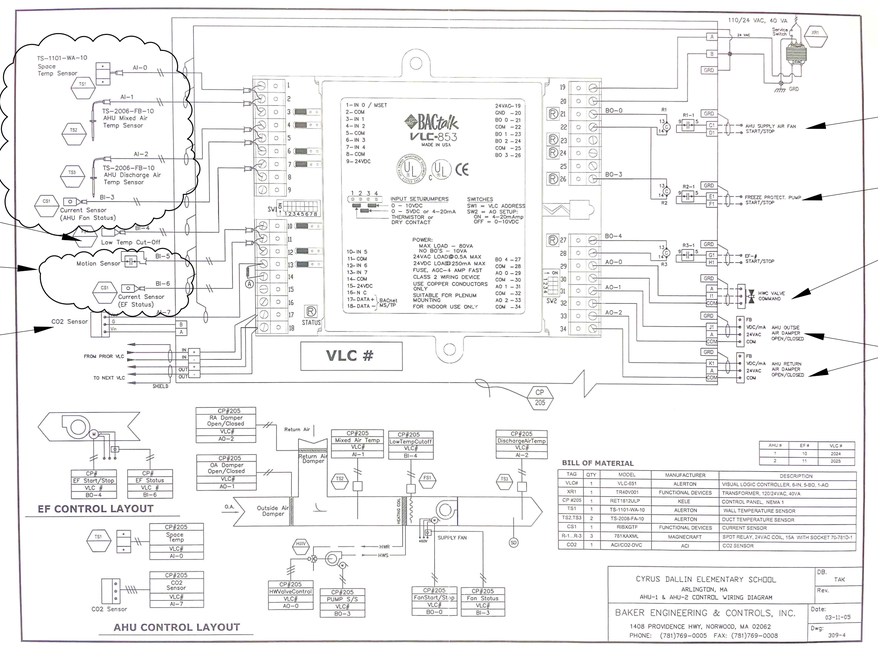
PROVIDE AND INSTALL NEW CO2 SENSOR. FOR BUDGET PURPOSES USE MODEL AC/CO2-DVC BY AGI. FIELD VERIFY BEFORE PURCHASING.

TIE 24 V START / STOP INTO NEW HIGH VOLTAGE RELAY TO NEW MOTOR.

TIE 24 V START / STOP INTO NEW HIGH VOLTAGE RELAY TO PUMP MOTOR.

TIE ANALOG OUTPUT INTO NEW THREE WAY CONTROL VALVE. THIS VALVE WILL NOW BOTH HEAT AND COOL. THE CONTROLLER NEEDS TO BE REPROGRAMMED FOR BOTH HEATING AND COOLING. BASE BID ON NEW BELIMO B318+T24-SR US, 24 VOLT, PROPORTIONAL, THREE WAY, DIVERTING VALVE. FIELD VERIFY BEFORE ORDERING.

TIE ANALOG OUTPUT INTO NEW BELIMO DAMPER 24 VOLT MOTORS. BASE BID ON NEW BELIMO MOTOR LF24-SR+NO/FO US, 24 VOLT, PROPORTIONAL, SPRING RETURN CLOSE. FIELD VERIFY BEFORE ORDERING.



EF CONTROL LAYOUT

AHU CONTROL LAYOUT

BILL OF MATERIAL

TAG	QTY	MODEL	MANUFACTURER	DESCRIPTION
VLC#	1	VLC-851	ALERTON	VISUAL LOGIC CONTROLLER, 8-IN, 5-BO, 1-AO
XR1	1	TRA0V001	FUNCTIONAL DEVICES	TRANSFORMER, 120/24VAC, 40VA
CP #205	1	RET181XLP	KELE	CONTROL PANEL, NEMA 1
TS1	1	TS-1101-WA-10	ALERTON	WALL TEMPERATURE SENSOR
TS2-TS3	2	TS-2006-FA-10	ALERTON	DUCT TEMPERATURE SENSOR
CS1	1	RIBXGTF	FUNCTIONAL DEVICES	CURRENT SENSOR
R-1 , R-3	3	781AXAML	MAGNECRAFT	SPDT RELAY, 24VAC COIL, 15A WITH SOCKET 70-781D-1
CO2	1	AGI/CO2-DVC	AGI	CO2 SENSOR

AHU #	EF #	VLC #
1	10	2024
2	11	2025

CYRUS DALLIN ELEMENTARY SCHOOL
ARLINGTON, MA
AHU-1 & AHU-2 CONTROL WIRING DIAGRAM

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PHONE: (781)769-0005 FAX: (781)769-0008

DB: TAK
Rev.
Date: 03-11-05
Dwg 309-4

GYM BUILDING CONTROL SCHEMATIC – FOR REFERENCE

SCALE: NONE

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