GENERAL HVAC NOTES

GENERAL REQUIREMENTS:

1. MECHANICAL CONTRACTOR IS TO FURNISH AND PAY FOR ALL LABOR, MATERIAL, EQUIPMENT, PERMITS & FEES REQUIRED FOR THE COMPLETE INSTALLATION OF ALL SYSTEMS IN THIS SECTION OF WORK.
2. ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH NC MECHANICAL CODES AND ALL OTHER APPLICABLE CODES. MC IS TO COORDINATE W/ G.C. IN REGARDS TO PROJECT TIMELINE, WORK HOURS, AS WELL AS ANY BONDING OR INSURANCE REQUIREMENTS.
3. ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED COMPLETE WITH ALL ACCESSORIES, HANGERS, SUPPORTS, CONTROLS, ETC FOR A FULLY FUNCTIONING SYSTEM REGARDLESS OF PRESENCE ON PLANS.
4. ALL EQUIPMENT, MATERIALS AND INSTALLATION SHALL BE GUARANTEED TO BE FREE OF DEFECTS FOR A PERIOD OF ONE (1) YEAR AFTER FINAL ACCEPTANCE OF WORK OR IN ACCORDANCE WITH THE MANUFACTURER'S STANDARD GUARANTEE, IF LONGER. ALL COMPRESSORS ARE TO INCLUDE FIVE (5) YEAR WARRANTY. EXISTING EQUIPMENT IS EXCLUDED FROM WARRANTY REQUIREMENT.
5. THESE DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL LOCATION AND ARRANGEMENT OF ALL MATERIALS AND EQUIPMENT. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS BUILDING CONSTRUCTION AND ALL OTHER WORK WILL PERMIT.
6. DO NOT SCALE DRAWINGS FOR MEASUREMENT.
7. ALL DUCT DIMENSIONS SHOWN ARE INTERIOR CLEAR DUCT DIMENSIONS AND DO NOT INCLUDE REQUIRED ADJUSTMENTS FOR INSULATION. IF EXTERNAL INSULATION IS TO BE USED THE ACTUAL METAL DUCT DIMENSIONS SHALL MATCH THE DUCT DIMENSIONS SHOWN. IF INTERNAL INSULATION IS TO BE USED, THE ACTUAL METAL DUCT DIMENSIONS MUST BE INCREASED SO THAT THE INSIDE CLEAR DIMENSION (INSULATION FACE TO INSULATION FACE) MATCHES THE DIMENSIONS SHOWN ON THE PLAN .
8. INFORMATION GIVEN IN SCHEDULES INCLUDES BOTH DESCRIPTION OF PRODUCT AND MANUFACTURER'S MODEL #. IF CONFLICT IS PRESENT BETWEEN DESCRIPTION AND MODEL #, EQUIPMENT DESCRIPTION SHALL TAKE PRECEDENT. IN CASE OF CONFLICT BETWEEN THE PLANS AND NOTES/SPECIFICATIONS OR CONFLICT BETWEEN INFORMATION PRESENTED ON THE PLANS OR IN THE NOTES/SPECIFICATIONS, THEN THE MOST RESTRICTIVE SHALL TAKE PRECEDENT.
9. BEFORE BID MC IS RESPONSIBLE FOR CLARIFYING W/ G.C. ANY CONFUSION IN REGARDS TO RESPONSIBILITY OF WORK TO BE PERFORMED OR MATERIALS TO BE PROVIDED. THE SUBMITTAL OF THE BID BY THE CONTRACTOR WILL BE HELD AS PROOF THAT THE CONTRACTOR UNDERSTANDS THOROUGHLY AND COMPLETELY THE SCOPE OF THE WORK INVOLVED, AND HAS INCLUDED ON THE BID ALL THE NECESSARY ITEMS TO CARRY OUT THIS SECTION OF WORK.
10. AS SOON AS POSSIBLE (AND NOT MORE THAN 30 DAYS) AFTER CONTRACT IS SIGNED, THE MC SHALL PROVIDE SUBMITTALS OF MECHANICAL EQUIPMENT HE/SHE INTENDS TO PURCHASE FOR REVIEW AND COMMENT BY THE ENGINEER. ENGINEER IS TO APPROVE SUBMITTALS BEFORE EQUIPMENT IS ORDERED.
11. ALL QUESTIONS MUST BE SUBMITTED IN RFI FORMAT TO THE ARCHITECT AND MUST BE ADDRESSED BY THE APPROPRIATE DESIGNER OF RECORD PRIOR TO BECOMING A PROPOSED CHANGE ORDER.
12. UPON COMPLETION OF WORK M.C. IS TO PROVIDE OWNER W/ COMPLETE BOUND SET OF ALL EQUIPMENT OPERATION & MAINTENANCE MANUALS. PACKAGE IS ALSO TO INCLUDE AND WARRANTY & GUARANTEE INFORMATION.
13. M.C. IS TO PROVIDE TRAINING TO OWNER OR OWNER'S REPRESENTATIVE IN REGARDS TO OPERATION, FUNCTION, AND MAINTENANCE OF ALL MECHANICAL EQUIPMENT, CONTROLS, ETC.
14. M.C. IS TO REVIEW COMPLETE DRAWING SET. M.C. IS RESPONSIBLE FOR WORK EXPLICITLY SHOWN AND WORK IMPLIED.

DIVISION OF WORK:

1. ALL ROOF WORK INCLUDING PENETRATIONS, OPENINGS, FLASHING, CURB INSTALLS, ETC ARE TO BE PERFORMED BY ROOFING CONTRACTOR. M.C. RESPONSIBLE FOR PROVIDING ANY ROOF CURBS, EQUIPMENT RAILS, VENTS, ETC AND COMMUNICATING ALL REQ'S WITH G.C. & ROOFING CONTRACTOR.
2. ALL LOW VOLTAGE WIRING RELATED TO MECHANICAL EQUIPMENT AND SYSTEMS IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR (ANY LOW VOLTAGE FIRE ALARM WIRING TO BE BY E.C.). ALL HIGH VOLTAGE CONNECTIONS TO MECHANICAL EQUIPMENT, TO BE PROVIDED AND INSTALLED BY E.C. (SEE EQUIPMENT SCHEDULE FOR DISCONNECT RESPONSIBILITY).
3. G.C. TO BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ACCESS DOORS (WALL, FLOOR, CEILING) RELATED TO MECHANICAL SYSTEM. M.C. RESPONSIBLE FOR COMMUNICATING TO G.C. SIZE AND LOCATION OF REQ'D ACCESS DOOR(S).
4. MECHANICAL CONTRACTOR IS TO EMPLOY THE SERVICES OF THE G.C. FOR CUTTING AND PATCHING OF WALLS, FLOORS & CEILINGS RELATED TO THE INSTALLATION OF MECHANICAL EQUIPMENT & SYSTEMS.
5. G.C. RESPONSIBLE FOR PAINTING OF ANY EXPOSED DUCT, PIPING, GRILLES, ETC. M.C. RESPONSIBLE FOR CLEANING AND PREPARING ITEMS FOR PAINT, COORDINATE W/ G.C.
6. G.C. TO BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY ACCESS PLATFORMS, GUARD RAILS, LADDERS, CONCRETE PADS. M.C. TO COMMUNICATE REQ'S TO G.C.
7. G.C. TO BE RESPONSIBLE FOR PROVIDING AND INSTALLING ANY WALL LOUVERS BRICK VENTS OR SIMILAR. M.C. TO PROVIDE AND INSTALL ANY WALL CAPS.
8. ALL GAS PIPING IS BY MECHANICAL CONTRACTOR. SEE GAS MATERIAL AND EXECUTION NOTES.
9. WATER HEATER VENT BY PLUMBING CONTRACTOR.

COORDINATION:

1. THE MECHANICAL CONTRACTOR SHALL COORDINATE CLOSELY WITH ALL OTHER TRADES TO AVOID CONFLICT AND ENSURE OTHER TRADES PROVIDE MEASURES TO ACCOMMODATE MECHANICAL WORK (I.E. ACCESS DOORS, SLAB/WALL/ROOF OPENINGS, ELECTRICAL CONNECTIONS, ETC).
2. MECHANICAL CONTRACTOR SHALL VERIFY LOCATION OF ALL PENETRATIONS FOR RELIEF HOODS, OUTSIDE AIR HOODS, LOUVERS, AND WALL CAPS WITH ARCHITECT & OWNER PRIOR TO INSTALLATION.
3. M.C. TO COORDINATE LOCATION OF ALL ROOF PENETRATIONS W/ ROOFING CONTRACTOR. P.C. & M.C. TO COORDINATE TO ENSURE NO PLUMBING VENTS OR ANY OTHER SOURCES OF BUILDING EXHAUST ARE LOCATED WITHIN 10' OF ANY OUTSIDE AIR INTAKES.

MATERIALS:

1. ALL MATERIALS SHALL BE NEW UNLESS OTHERWISE SHOWN OR SPECIFIED.
2. ALL MATERIALS INSTALLED IN RETURN PLENUMS ARE TO BE PLENUM RATED.
3. PROVIDE HANGERS & SUPPORTS APPROVED FOR USE BY 2018 NC MECHANICAL CODE.
4. ALL MAIN DUCTWORK (SUPPLY, RETURN, EXHAUST, OUTSIDE AIR) SHALL BE GALVANIZED SHEET METAL CONSTRUCTED IN ACCORDANCE WITH SMACNA STANDARDS.
5. RUNOUTS FROM MAIN/BRANCH DUCTS MAY BE FLEXIBLE DUCT CONFORMING TO THE REQUIREMENTS OF UL 181 FOR CLASS 1.
   - 5.1. FLEXIBLE AIR DUCTS SHALL BE LIMITED TO 14' IN LENGTH.
   - 5.2. FLEXIBLE AIR CONNECTORS SHALL BE LIMITED TO 14' IN LENGTH. FLEXIBLE AIR CONNECTORS SHALL NOT PASS THROUGH ANY WALL, FLOOR OR CEILING.
6. NO FLEXIBLE DUCT ALLOWED FOR NEGATIVE PRESSURE EXHAUST APPLICATIONS.
7. ALL SUPPLY AND RETURN DUCTWORK AND PLENUMS SHALL BE INSULATED. INSULATION OF DUCTWORK IN UNCONDITIONED SPACE SHALL BE MINIMUM R-6 PER 2018 NCECC. INSULATION OF DUCTWORK OUTSIDE BUILDING THERMAL ENVELOPE (I.E. ROOF, ATTIC, CRAWLSPACE) SPACE SHALL BE MINIMUM R-8 (CLIMATE ZONES 3 & 4) OR R-12 (CLIMATE ZONE 5) PER NCECC.
8. CONCEALED SHEET METAL SUPPLY & RETURN DUCT MAY BE EXTERNALLY INSULATED WITH MINERAL FIBER BOARD OR BLANKET OR MAY BE INTERNALLY INSULATED WITH ACOUSTICAL DUCT LINER.
9. OUTSIDE AIR DUCTWORK SHALL BE WRAPPED WITH 1" FIBERGLASS DUCT WRAP WITH VAPOR BARRIER.
10. ALL MAIN DUCTWORK (INCLUDING EXHAUST) TO BE SEALED ACCORDING TO NCECC AND AT A MINIMUM INCLUDE SEALING OF ALL DUCT SEAMS W/ NON-HARDENING MASTIC. SEALING BY TAPE ALONE NOT ALLOWED.
11. DUCTWORK ELBOWS SHALL BE FULL RADIUS OR MITERED WITH TURNING VANES.
12. CONDENSATE DRAIN PIPING AND FITTINGS NOT IN A RETURN PLENUM SHALL BE SCHEDULE 40 PVC. DRAINS FROM AIR HANDLING UNITS SHALL BE TRAPPED (2" MINIMUM). TRAPS ON INTERIOR OF BUILDINGS TO BE INSULATED. PIPING IN RETURN PLENUM TO BE COPPER OR PLENUM RATED CPVC.
13. CONDENSATE PUMPS TO BE 120V W/ 24' LIFT. RECEPTACLE TYPE WHERE EXPOSED, HARD WIRED WHERE ABOVE CEILING. PUMPS SHALL EITHER BE INSTALLED IN THE UNIT AUXILIARY DRAIN PAN W/ FLOAT SWITCH OR SHALL BE EQUIPPED WITH AN INTEGRAL OVERFLOW SWITCH SUCH THAT THE AIR HANDLER WILL BE SHUT DOWN UPON FAILURE OF THE PUMP.
14. KITCHEN HOOD EXHAUST DUCT SHALL BE 16 GAUGE CARBON STEEL OR 18 GAUGE STAINLESS STEEL. ALL JOINTS AND SEAMS SHALL BE CONSTRUCTED WITH A CONTINUOUS LIQUID-TIGHT EXTERNAL WELD. PRE-APPROVED U.L. LISTED FACTORY BUILD EXHAUST SYSTEM (SUBMIT FOR APPROVAL BY ENGINEER BEFORE PURCHASE).
15. "FIRE WRAP" OR OTHER CLEARANCE REDUCING INSULATION INSTALLED ON GREASE EXHAUST DUCT TO BE EQUAL TO "3M FIRE BARRIER DUCT WRAP 615+".
16. VENT MATERIAL SERVING ANY GAS FIRED APPLIANCE TO BE LISTED & LABELED, PER MFG'S INSTRUCTIONS AND 2018 NC MECHANICAL CODE. IF CONFLICT IS NOTED CONTACT ENGINEER.
17. ALL DAMPERS TO INCLUDE SET SCREW OR SIMILAR FEATURE FOR LOCKING IN POSITION.
18. ALL REFRIGERANT LINE MATERIAL AS PER MFG'S REQUIREMENTS. SIZE PER MFG INSTRUCTIONS. SUCTION LINE INSULATION TO BE MINIMUM 1-1/2" THICK W/ THERMAL CONDUCTIVITY (K) LESS THAN OR EQUAL TO 0.27 PER NCECC COMMERCIAL PROVISIONS. INSULATION SHALL HAVE TAPED OR SEALED SEAMS.
19. ALL FIRE, SMOKE AND RADIATION DAMPERS TO BE U.L. LISTED AND APPROVED FOR CORRECT PRESSURE CLASS, APPLICATION (STATIC, DYNAMIC), ORIENTATION (HORIZONTAL/VERTICAL), AND INSTALLATION (WALL, FLOOR CEILING U.L. ASSEMBLY). TO INCLUDE 165° FUSIBLE LINK UNLESS OTHERWISE NOTED.
20. ALL FIRE SEALANTS TO BE U.L. LISTED AND APPROVED FOR USE W/ APPROPRIATE U.L. PENETRATION DETAIL.
21. ALL PROGRAMMABLE THERMOSTATS TO INCLUDE BATTERY BACK-UP AND HAVE CAPABILITY TO SETBACK TO 55°F (HEATING) & 85°F (COOLING). AUTO-CHANGEOVER THERMOSTATS TO HAVE A MIN. 5°F DEADBAND.
22. WITH THE EXCEPTION OF THE DRYER FLEX CONNECTION ALL DRYER EXHAUST DUCT SHALL BE 4Ø RIGID SHEET METAL WITH SMOOTH INTERIOR FINISH, 26 GAUGE OR THICKER. INSERT END OF DUCTWORK SHALL EXTEND INTO THE ADJOINING DUCT OR FITTING IN THE DIRECTION OF AIRFLOW. DUCTS SHALL BE SEALED IN ACCORDANCE WITH NCMC 603.9 AND SHALL NOT BE JOINED WITH SCREWS OR FASTENERS THAT PROTRUDE INTO THE INSIDE OF THE DUCT. JOIN DUCTS WITH HIGH TEMP & WATER RESISTANT UL-181 APPROVED FOIL TAPE. NONMETALLIC MECHANICAL FASTENERS (TIE-STRAPS) SHALL BE LISTED TO UL 181B. METAL BAND DUCT CLAMPS ARE NOT REQUIRED TO BE LISTED.
23. ALL EXTERIOR EQUIPMENT, DEVICES & MATERIALS SHALL BE RATED FOR USE IN A 146 MPH WIND ZONE.
24. ALL EQUIPMENT ON EXTERIOR OF BUILDING IS TO HAVE A CORROSION RESISTANT FINISH INTENDED FOR COASTAL ENVIRONMENTS.
25. EXTERIOR LOUVERS SHALL COMPLY WITH AMCA 550.

EXECUTION:

1. M.C. TO FOLLOW MANUFACTURER'S INSTRUCTIONS WHEN INSTALLING MECHANICAL EQUIPMENT. ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE MAINTAINED. IF CONFLICT EXISTS BETWEEN THESE PLANS AND MFG INSTRUCTIONS CONTACT ENGINEER.
2. ALL PENETRATIONS THROUGH EXTERIOR WALLS & ROOF SHALL BE FLASHED & COUNTER-FLASHED IN A WATERPROOF MANNER.
3. SEAL ALL PENETRATIONS OF RATED WALLS, CEILING, FLOORS IN ACCORDANCE W/ APPROPRIATE U.L. PENETRATION DETAIL.
4. INSTALL ALL CONTROL DEVICES, INCLUDING THERMOSTATS AND SWITCHES, 4'-0" ABOVE FINISHED FLOOR.
5. INDEPENDENT CERTIFIED TEST AND BALANCE CONTRACTOR SHALL BALANCE SYSTEM TO AIR QUANTITIES INDICATED ON PLANS AND IN ACCORDANCE W/ 2018 NCECC C408.2.2. M.C. TO PROVIDE OWNER'S REPRESENTATIVE & ENGINEER WITH COMPLETE BALANCE REPORT. MC RESPONSIBLE FOR PROVIDING ANY DAMPERS, VALVES, PORTS, ETC. NECESSARY FOR A COMPLETE SYSTEM BALANCE.
6. ALL REFRIGERANT PIPING SHALL BE INSTALLED PER MFG'S INSTRUCTIONS IN REGARDS TO SUPPORTS, BENDS, FITTINGS, OIL TRAPS, ETC. NAIL (SHIELDING) PLATES ARE TO BE PROVIDED AT ANY POINT REFRIGERANT PIPING PASSES THROUGH WALL, FLOOR OR ATTIC/ROOF FRAMING.
7. PENETRATIONS OF NON-RATED WALLS, PARTITIONS AND FLOOR OF COMBUSTIBLE CONSTRUCTION SHALL BE FIRESTOPPED WITH MATERIALS EQUIVALENT TO TWO INCHES OF WOOD. FIRESTOPPING SHALL COMPLY WITH ASTM E-814.
8. ANY NOTCHING, DRILLING, BORING OR OTHER ALTERATION TO BUILDING STRUCTURE SHALL BE PERFORMED IN A CODE APPROVED METHOD AND NOT THREATEN THE INTEGRITY OF THE BUILDING STRUCTURE.
9. SUPPORT ALL DUCTWORK AND PIPING IN ACCORDANCE W/ 2018 NC MECHANICAL CODE. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE. DO NOT ATTACH ANYTHING TO THE ROOF DECK.
10. PENETRATIONS OF ALL EXTERIOR WALLS, FLOORS AND CEILINGS SHALL BE SEALED IN AN AIR TIGHT MANNER AND IN ACCORDANCE W/ 2018 NCECC. ALL PENETRATIONS OF WALLS, FLOORS & CEILINGS IN RETURN OR EXHAUST PLENUMS SHALL BE SEALED IN AN AIR TIGHT MANNER.
11. DUCT ACCESS DOORS TO BE PROVIDED AT ALL FIRE, RADIATION & SMOKE DAMPERS, SMOKE DETECTORS, CLEANOUTS AND ANY OTHER CODE REQUIRED LOCATIONS.
12. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL MECHANICAL EQUIPMENT FROM FOREIGN MATERIAL DURING CONSTRUCTION (PAINT, SPACKLE, ETC.). UPON COMPLETION OF WORK THE MECHANICAL CONTRACTOR SHALL CLEAN, WASH, ETC ALL ITEMS AND EQUIPMENT WITHIN HIS SCOPE OF WORK AND LEAVE ALL ITEMS BRIGHT AND CLEAN.
13. M.C. IS TO ENSURE THAT THEIR INSTALLATION OF NEW CONDUITS, PIPES, DUCTWORK, AND SIMILAR DOES NOT BLOCK ACCESS TO NEW OR EXISTING AREA EQUIPMENT AND THAT THE FORE MENTIONED DOES NOT INTERFERE WITH THE REQUIRED SERVICE CLEARANCE OF NEW OR EXISTING EQUIPMENT. COORDINATE WITH OTHER TRADE CONTRACTORS AND CONTACT ENGINEER IF UNCERTAINTY EXISTS REGARDING EQUIPMENT SERVICE CLEARANCE REQUIREMENTS.
14. DISCHARGE FROM CONDENSATE PUMPS ROUTED TO ROOF IS TO TERMINATE AT AN ELEVATION HIGHER THAN EMERGENCY (SECONDARY) ROOF DRAINS. IF DISCHARGE IS ROUTED TO ROOF DRAIN PROVIDE CHECK VALVE IN CONDENSATE LINE.
15. MALE END OF ALL OVERLAPPING DRYER DUCT JOINTS ARE TO BE DIRECTED AWAY FROM DRYER. HORIZONTAL DUCT SECTIONS ARE TO HAVE THE LONGITUDINAL (LONG WAYS) SEAM FACING UP.
16. PER THE REQUIREMENTS OF THE NCECC, THE ADMINISTRATIVE BUILDING AND THE DINING/SHELTER/STORAGE BUILDING ARE SUBJECT TO MECHANICAL SYSTEMS COMMISSIONING. SEE MECHANICAL SYSTEMS COMMISSIONING NOTES ON SHEET M002 FOR SCOPE, PROCEDURE AND RESPONSIBILITIES.
17. ALL EQUIPMENT ON EXTERIOR OF BUILDING IS TO BE DESIGNED FOR USE IN A 146 MPH WIND ZONE. BRACE AND SECURE TO BUILDING AS REQUIRED.

TERMINAL UNIT SCHEDULE

		GENERAL DATA				PRIMARY AIR		HEAT & FAN						ELECTRICAL DATA			
UNIT TAG	AREA SERVED	MANUF. MODEL	INLET DIA (")	BOX TYP.	FAN MODEL	MIN. CFM	DESIGN CFM	HEAT CFM	FAN CFM	MOTOR (HP)	FAN ESP (" OF WG)	ELEC (KW)	# STAGES	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	NOTES
VAV-1	SHELTER - LOBBY	TRANE VCCF	8Ø	VAV	N/A	105	590	N/A	N/A	N/A	N/A	N/A	N/A	NOTE 7	N/A	N/A	1,2,5,6,7
VAV-2	SHELTER - FOYER	TRANE VCCF	10Ø	VAV	N/A	165	710	N/A	N/A	N/A	N/A	N/A	N/A	NOTE 7	N/A	N/A	1,2,5,6,7
FPB-4	SHELTER - BEDS	TRANE VPEF	8Ø	PRL	02SQ	275	720	505	230	1/8	0.35	5.0	2	208V/3Ø	19.4	20	1,2,3,4,5,6
FPB-5	SHELTER - BEDS	TRANE VPEF	12Ø	PRL	03SQ	520	1310	915	395	1/3	0.40	9.0	2	208V/3Ø	36.6	40	1,2,3,4,5,6
FPB-6	MEN'S - SHOWERS	TRANE VSEF	5Ø	SER	02SQ	0	150	150	150	1/8	0.35	1.0	1	120V/1Ø	12.9	15	1,3,4,5,6
FPB-8	WOMEN'S - SHOWERS	TRANE VSEF	5Ø	SER	02SQ	0	170	170	170	1/8	0.35	1.5	1	120V/1Ø	18.3	20	1,3,4,5,6

1. PRESSURE INDEPENDENT, ELECTRONIC AIR FLOW MEASUREMENT, DDC CONTROLS.
2. PROVIDE REQUIRED ACCESSORIES FOR "AUTO-CHANGEOVER" OPERATION SO THAT THE PRIMARY AIR VALVE AIRFLOW MAY BE UTILIZED AS BOTH A SOURCE OF HEATING AND COOLING.
3. W/ SINGLE POINT ELECTRICAL CONNECTION & STEP-DOWN TRANSFORMER FOR 24V CONTROLS.
4. W/ MAGNETIC CONTACTOR FOR HEATER OPERATION.
5. W/ 1" MATTE FACED INSULATION.
6. PROVIDE ZONE TEMPERATURE SENSOR WITH MANUAL OVERRIDE CONTROL AND T-STAT CONTROL. WIRE TEMPERATURE SENSOR AND T-STAT CONTROL TO BOX PER MFG'S INSTRUCTIONS.
7. VAV BOX WIRED VIA LOW VOLTAGE CONTROL WIRING.

SPLIT SYSTEM HEAT PUMP UNIT SCHEDULE

AIR HANDLING UNIT DATA														HEAT PUMP							
			FAN DATA				COOLING		HEAT	AUX.	ELECTRICAL DATA			GENERAL DATA				ELECTRICAL DATA			
UNIT TAG	AREA SERVED	MANUF. MODEL	FAN CFM	ESP (" OF WG)	MOTOR (HP)	OA (CFM)	TOTAL (MBH)	SENS. (MBH)	TOTAL (MBH)	HEAT (KW@208)	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	UNIT TAG	MANUF. MODEL	TONNAGE	EFF. (SEER)	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	NOTES
AH-1	SHELTER - LAUNDRY	TRANE GAM5B0A18	600	0.40	1/3	50	18.0	14.4	18.0	3.60	208V/1Ø	25.0	25	HP-1	TRANE 4TWR4018	1.5	14.0	208V/1Ø	12.0	20	1,2,3,4,5,6,7,8,9,10,11
AH-3	SHELTER - LAUNDRY	TRANE GAM5B0A18	600	0.40	1/3	60	18.0	14.4	18.0	3.60	208V/1Ø	25.0	25	HP-3	TRANE 4TWR4018	1.5	14.0	208V/1Ø	12.0	20	1,2,3,4,5,6,7,8,9,10,11

NOTES:

1. COOLING CAPACITIES ARE RATED IN ACCORDANCE WITH AHRI STANDARD 210/240 AT 95°F AMBIENT OUTDOOR AIR TEMP., 80°F DRY BULB, 67°F WET BULB ENTERING AIR TEMP., AND AIR QUANTITY LISTED BY MFG. UNITS ABOVE 5 TONS ARE RATED IN ACCORDANCE WITH AHRI STANDARD 340/360.
2. REFRIG. PIPING TO BE SIZED PER TOTAL INSTALL. EQUIV. LENGTH. LONG-LINE APP.TO BE PROVIDED WHENEVER MFG. RECOMM. LENGTHS ARE EXCEEDED, INCL. LIQ. LINE SOLENOID VALVES, ACCUMULATOR, ETC. MAX T.E.L. IS PER MFG.
3. PROVIDE SINGLE POINT ELECTRICAL CONNECTION FOR AIR HANDLING UNIT.
4. PROVIDE 3 SETS OF NEW FILTERS FOR EACH UNIT. PROVIDE ONE AT INSTALLATION, ONE PRIOR TO AIR BALANCE AND ONE AT TURNOVER TO OWNER.
5. PROVIDE HONEYWELL TH8321 SERIES 7 DAY PROGRAMMABLE THERMOSTAT/HUMIDISTAT W/ MANUAL OVERRIDE AND REHEAT BASED HUMIDITY CONTROL. SET RH TO 60%.
6. OUTDOOR UNITS SHALL HAVE A MINIMUM 14.0 SEER RATING.
7. PROVIDE BI-FLOW TXV FOR HEAT PUMP OPERATION.
8. OUTDOOR THERMOSTAT TO LOCK-OUT ELECTRIC HEAT WHEN TEMPERATURE IS 40°F OR HIGHER. PROVIDE UNIT WITH EMERGENCY HEAT OVERRIDE OPTION.
9. LOW AMBIENT KIT DOWN TO 30°F.
10. CYCLE PROTECTOR AND TIME DELAY RELAY (IF AVAILABLE).
11. PROVIDE WITH MFG'S SEACOAST KIT.

MINI-SPLIT HEAT PUMP SCHEDULE

AIR HANDLING UNIT DATA													HEAT PUMP							
			FAN DATA				COOLING		HEAT	ELECTRICAL DATA			GENERAL DATA				ELECTRICAL DATA			
UNIT TAG	AREA SERVED	MANUF. MODEL	FAN CFM	ESP (" OF WG)	MOTOR (WATTS)	OA (CFM)	TOTAL (MBH)	SENS. (MBH)	TOTAL (MBH)	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	UNIT TAG	MANUF. MODEL	TONNAGE	EFF. (SEER)	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	NOTES
AH-2	ADMIN - SERVER	MITSUBISHI PKA-A12HA7	320 370 425	N/A	30	N/A	12.0	9.7	14.0	208V/1Ø	1.0	NOTE 2	HP-2	MITSUBISHI PUZ-A12N	1.0	20.8	208V/1Ø	12.0	15.0	1,2,3,4,6,7,8,9
AH-4	RESIDENT. - OFFICE 412	MITSUBISHI SLZ-KF09NA	230 265 300	0.10	50	30	9.0	7.8	11.0	208V/1Ø	0.25	NOTE 2	HP-4	MITSUBISHI SUZ-KA09N	0.75	22.4	208V/1Ø	9.0	15.0	1,2,3,4,6,8,9
AH-5	RESIDENT. - OFFICE 312	MITSUBISHI SLZ-KF09NA	230 265 300	0.10	50	30	9.0	7.8	11.0	208V/1Ø	0.25	NOTE 2	HP-5	MITSUBISHI SUZ-KA09N	0.75	22.4	208V/1Ø	9.0	15.0	1,2,3,4,6,8,9
AH-6	ADMIN - SERVER	MITSUBISHI PKA-A12HA7	320 370 425	N/A	30	N/A	12.0	9.7	14.0	208V/1Ø	1.0	NOTE 2	HP-6	MITSUBISHI PUZ-A12N	1.0	20.8	208V/1Ø	12.0	15.0	1,2,3,4,6,7,8,9
AH-7A	SHELTER - ENTRY	MITSUBISHI SLZ-KF12NA	230 265 335	N/A	50	N/A	12.0	9.7	13.0	208V/1Ø	0.30	NOTE 2	HP-7	MITSUBISHI MXZ-3C24N	2.0	20.0	208V/1Ø	22.1	25	1,2,3,4,6,8,9,10,11
AH-7B	SHELTER - ENTRY	MITSUBISHI SLZ-KF12NA	230 265 335	N/A	50	N/A	12.0	9.7	13.0	208V/1Ø	0.30	NOTE 2								
AH-8	SHELTER - ENTRY	MITSUBISHI SLZ-KF12NA	230 265 335	N/A	50	N/A	12.0	9.7	13.0	208V/1Ø	0.30	NOTE 2	HP-8	MITSUBISHI SUZ-KA12N	1.0	22.0	208V/1Ø	9.0	15	1,2,3,4,6,8,9,10
AH-9A	ADMIN - ENTRY	MITSUBISHI SLZ-KF18NA	300 420 475	N/A	50	N/A	17.7	12.6	19.7	208V/1Ø	0.54	NOTE 2	HP-9	MITSUBISHI MXZ-4C36N	3.0	20.0	208V/1Ø	42.0	50	1,2,3,4,5,6,8,9,10,11
AH-9B	ADMIN - ENTRY	MITSUBISHI SLZ-KF18NA	300 420 475	N/A	50	N/A	17.7	12.6	19.7	208V/1Ø	0.54	NOTE 2								

NOTES:

1. COOLING CAPACITIES ARE RATED IN ACCORDANCE WITH AHRI STANDARD 210/240 AT 95°F AMBIENT OUTDOOR AIR TEMP., 80°F DRY BULB, 67°F WET BULB ENTERING AIR TEMP., AND AIR QUANTITY LISTED BY MFG. UNITS ABOVE 5 TONS ARE RATED IN ACCORDANCE WITH AHRI STANDARD 340/360.
2. INDOOR UNIT POWERED VIA WIRING FROM OUTDOOR UNIT. SEE MFG'S INSTRUCTIONS.
3. REFRIG. PIPING TO BE SIZED PER TOTAL INSTALL. EQUIV. LENGTH. LONG-LINE APP.TO BE PROVIDED WHENEVER MFG. RECOMM. LENGTHS ARE EXCEEDED, INCL. LIQ. LINE SOLENOID VALVES, ACCUMULATOR, ETC. MAX T.E.L. IS PER MFG.
4. PROVIDE NEW FILTER IN EACH UNIT AT INSTALLATION AND AT TURNOVER TO OWNER.
5. W/ MFG'S INTEGRAL CONDENSATE PUMP (AH-9A).
6. OUTDOOR UNITS SHALL HAVE A MINIMUM 14.0 SEER RATING.
7. PROVIDE W/ MFG'S WIND BAFFLE ACCESSORY FOR COOLING OPERATION DOWN TO 0°F.
8. HEAT PUMP TO BE MFG'S SEACOAST MODEL.
9. PROVIDE W/ MFG'S WIRED WALL-MOUNTED REMOTE CONTROLLER KIT.
10. THERMOSTAT(S) INSTALLED IN REMOTE LOCATION FROM UNIT(S). TEMPERATURE TO BE READ AT UNIT(S), NOT THERMOSTAT(S).
11. (1) EXTERIOR MULTI-ZONE HEAT PUMP TO BE TIED TO MULTIPLE INDOOR AIR HANDLERS. PROVIDE W/ ALL REQUIRED ACCESSORIES FOR MULTI-ZONE INSTALLATION. EACH AIR HANDLER TO HAVE INDIVIDUAL TEMPERATURE CONTROL.

PACKAGED DX COOLING/GAS-ELEC HEATING ROOF TOP UNIT SCHEDULE

		EVAPORATOR FAN DATA							COOLING SECTION						HEATING SECTION				ELECTRICAL DATA			GENERAL DATA				
UNIT TAG	AREA SERVED	FAN CFM	OA, MAX (CFM)	OA, DES (CFM)	OA, MIN (CFM)	ESP (" OF WG)	MOTOR (HP)	FAN RPM	AMBIENT DB/WB (°F)	ENT. AIR DB/WB (°F)	TOTAL (MBH)	SENS. (MBH)	# OF STAGES	REHEAT (MBH)	INPUT (MBH)	OUTPUT (MBH)	ELEC HEAT (KW)	# OF STAGES	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	MANUF. MODEL	NOM. TON.	EFF. (EER)	WT. (LBS)	NOTES
RTU-1	ADMIN - OFFICES	6000	NOTE 8	390	390	0.60	3.00	MFG.	93/76	80/67	180.5	142.2	2	N/A	250.0	200.0	N/A	2	208V/3Ø	68.0	90	TRANE YHD180	15	12.1	2550	1,5,6,8,10,12,14,15
RTU-2	ADMIN - MULTI-P.	5000	NOTE 8, 9	840	80	0.55	3.00	MFG.	93/76	80/67	146.4	110.0	2	105.0	150.0	120.0	N/A	2	208V/3Ø	64.0	90	TRANE YHD150	12.5	12.1	2290	1,5,6,7,8,9,10,11,12,14,16
RTU-3	ADMIN - MULTI-P.	5000	NOTE 8, 9	840	80	0.50	3.00	MFG.	93/76	80/67	146.4	110.0	2	105.0	150.0	120.0	N/A	2	208V/3Ø	64.0	90	TRANE YHD150	12.5	12.1	2290	1,5,6,7,8,9,10,11,12,14,16
RTU-4	ADMIN - MEN'S CO.	2400	NOTE 8, 9	400	40	0.50	2.75	MFG.	93/76	80/67	73.6	58.7	2	54.0	80.0	64.8	N/A	1	208V/3Ø	37.4	50	TRANE YHC074	6.0	13.1	1145	1,5,6,7,8,9,10,11,12,14,16
RTU-5	ADMIN - WOMEN'S	2400	NOTE 8, 9	400	40	0.50	2.75	MFG.	93/76	80/67	73.6	58.7	2	54.0	80.0	64.8	N/A	1	208V/3Ø	37.4	50	TRANE YHC074	6.0	13.1	1145	1,5,6,7,8,9,10,11,12,14,16
RTU-6	ADMIN - LOBBY	6000	NOTE 8	310	310	0.55	3.00	MFG.	93/76	80/67	180.5	142.2	2	N/A	250.0	200.0	N/A	2	208V/3Ø	68.0	90	TRANE YHD180	15	12.1	2550	1,4,5,6,8,10,12,14
RTU-7	SHELTER - DINING	6000	NOTE 8	1040	1040	0.55	3.00	MFG.	93/76	80/67	180.5	142.2	2	135.0	250.0	200.0	N/A	2	208V/3Ø	68.0	90	TRANE YHD180	15	12.1	2550	1,3,5,6,8,10,11,12,13,14
RTU-8	SHELTER - MEN'S	5000	NOTE 8	825	825	0.65	3.00	MFG.	93/76	80/67	146.4	110.0	2	100.0	150.0	120.0	N/A	2	208V/3Ø	64.0	90	TRANE YHD150	12.5	12.1	2290	1,3,5,6,8,10,11,12,14,19
RTU-9	SHELTER - MEN'S LOB.	1200	80	80	80	0.50	0.75	MFG.	93/76	80/67	38.5	27.9	1	N/A	60.0	48.0	N/A	1	208V/3Ø	20.6	30	TRANE YHC036	3.0	12.4	630	1,2,5,6,10,12,14,17
RTU-10	SHELTER - KITCHEN	5000	NOTE 8	100	100	0.45	3.00	MFG.	93/76	80/67	146.4	110.0	2	N/A	150.0	120.0	N/A	2	208V/3Ø	64.0	90	TRANE YHD150	12.5	12.1	2290	1,2,5,6,8,10,12,13,14
RTU-11	SHELTER - SERVING	5000	NOTE 8	510	510	0.50	3.00	MFG.	93/76	80/67	146.4	110.0	2	105.0	150.0	120.0	N/A	2	208V/3Ø	64.0	90	TRANE YHD150	12.5	12.1	2290	1,3,5,6,8,10,11,12,13,14
RTU-12	ADMIN - EXAMS	2400	NOTE 8	210	210	0.55	2.75	MFG.	93/76	80/67	73.6	58.7	2	N/A	80.0	64.8	N/A	1	208V/3Ø	37.4	50	TRANE YHC074	6.0	13.1	1145	1,5,6,8,10,12,14,15
RTU-14	DETOX - WOMEN'S	1600	NOTE 8	270	270	0.55	1.0	MFG.	93/76	80/67	49.9	35.1	1	32.0	60.0	49.0	N/A	1	208V/3Ø	27.2	40	TRANE YHC048	4.0	13.4	840	1,5,6,8,10,11,12,14,18,19
RTU-15	DETOX - MEN'S	2000	NOTE 8	280	280	0.55	1.0	MFG.	93/76	80/67	61.0	45.8	1	42.0	60.0	49.0	N/A	1	208V/3Ø	30.0	45	TRANE YHC060	5.0	12.9	880	1,5,6,8,10,11,12,14,18,19
RTU-16	SHELTER - WOM. LOB.	2400	NOTE 8	430	430	0.60	2.75	MFG.	93/76	80/67	73.6	58.7	2	55.0	80.0	64.8	N/A	1	208V/3Ø	37.4	50	TRANE YHC074	6.0	13.1	1145	1,3,5,6,8,10,11,12,14,19
RTU-18	SHELTER - STORAGE	1600	140	140	140	0.55	1.0	MFG.	93/76	80/67	49.9	35.1	1	N/A	60.0	49.0	N/A	1	208V/3Ø	27.2	40	TRANE YHC048	4.0	13.4	840	1,2,5,6,10,12,14,17
RTU-19	DETOX - FILES, CON.	1250	100	100	100	0.60	0.75	MFG.	93/76	80/67	38.5	27.9	1	N/A	60.0	48.0	N/A	1	208V/3Ø	20.6	30	TRANE YHC036	3.0	12.4	630	1,4,5,6,10,12,14,17
RTU-20	SHELTER - BEDS, TV	3400	NOTE 8	435	435	0.55	2.75	MFG.	93/76	80/67	98.1	77.9	2	72.0	120.0	96.0	N/A	1	208V/3Ø	42.0	50	TRANE YHC102	8.5	12.4	1160	1,3,5,6,8,10,11,12,14,19

NOTES:

1. COOLING CAPACITIES ARE RATED IN ACCORDANCE WITH AT LEAST ONE OF THE FOLLOWING ARI STANDARDS; 210-94, 270-95, OR 360-93 AT 95°F AMBIENT OUTDOOR AIR TEMP., 80°F DRY BULB, 67° WET BULB ENTRANCE AIR TEMP., AND AIR QUANTITY LISTED BY MFG.
2. PROVIDE HONEYWELL TH8321 SERIES 7 DAY PROGRAMMABLE THERMOSTAT W/ MANUAL OVERRIDE.
3. PROVIDE HONEYWELL TH8321 SERIES 7 DAY PROGRAMMABLE THERMOSTAT/HUMIDISTAT W/ MANUAL OVERRIDE AND REHEAT BASED HUMIDITY CONTROL. SET RH TO 60%.
4. PROVIDE HONEYWELL TH8321 SERIES 7 DAY PROGRAMMABLE THERMOSTAT/HUMIDISTAT W/ MANUAL OVERRIDE & WIRELESS REMOTE TEMPERATURE SENSOR.
5. PROVIDE 3 SETS OF NEW FILTERS FOR EACH UNIT. PROVIDE ONE AT INSTALLATION, ONE PRIOR TO AIR BALANCE AND ONE AT TURNOVER TO OWNER.
6. PROVIDE FACTORY INSULATED ROOF CURB.
7. PROVIDE HONEYWELL T7350 SERIES 7 DAY PROGRAMMABLE THERMOSTAT/HUMIDISTAT W/ MANUAL OVERRIDE AND REHEAT BASED HUMIDITY CONTROL. SET RH TO 60%.
8. PROVIDE WITH AIR SIDE DIFFERENTIAL ENTHALPY ECONOMIZER SECTION WITH BAROMETRIC RELIEF DAMPER.
9. PROVIDE MOTORIZED OUTSIDE AIR DAMPER CONTROLLED BY CO2 SENSOR FOR DEMAND CONTROLLED VENTILATION. DAMPER TO MODULATE PROPORTIONALLY BETWEEN READINGS OF 400 PPM CO2 (MINIMUM OA CFM) AND 2000 PPM CO2 (DESIGN OA CFM). ECONOMIZER OPERATION SHALL OVERRIDE DEMAND CONTROLLED VENTILATION.
10. COMPRESSOR CYCLE DELAY AND WINTER START TIME DELAY (IF AVAILABLE).
11. W/ HOT GAS REHEAT.
12. W/ FACTORY INSTALLED CONDENSATE DRAIN PAN OVERFLOW SWITCH.
13. SUPPLY FAN TO BE INTERLOCKED WITH HOOD OPERATIONS SUCH THAT SUPPLY FAN IS ACTIVE ANYTIME HOOD EXHAUST FAN(S) ARE ACTIVE.
14. W/ EPOXY COATED CONDENSER COIL FOR SEACOAST ENVIRONMENT APPLICATION.
15. ROOFTOP UNIT TO FUNCTION AS CHANGEOVER BYPASS VAV UNIT W/ VARITRAC BYPASS AND ZONE DAMPERS. SEE RTU CONTROL SEQUENCE AND ZONE/BYPASS DAMPER SCHEDULE.
16. MC TO PROVIDE MOTION SENSOR COMPATIBLE WITH RTU THERMOSTAT. ENSURE MOTION SENSOR WILL PROVIDE COMPLETE COVERAGE OF THE ROOM. WIRE MOTION SENSOR TO THERMOSTAT.
17. PROVIDE WITH MANUAL OUTSIDE AIR DAMPER.
18. PROVIDE HONEYWELL TH8321 SERIES 7 DAY PROGRAMMABLE THERMOSTAT/HUMIDISTAT W/ MANUAL OVERRIDE & WIRELESS REMOTE TEMPERATURE/HUMIDITY SENSOR. UNIT TO UTILIZE REHEAT BASED HUMIDITY CONTROL. SET RH TO 60%.
19. SUPPLY FAN TO RUN CONTINUOUSLY DURING OCCUPIED HOURS.

100% OUTSIDE AIR PACKAGED GAS/ELEC ROOF TOP UNIT SCHEDULE

		EVAPORATOR FAN DATA						COOLING SECTION							HEATING SECTION		ELECTRICAL DATA			GENERAL DATA				
UNIT TAG	AREA SERVED	FAN CFM	OA, MAX (CFM)	OA, MIN (CFM)	ESP (" OF WG)	MOTOR (HP)	FAN RPM	AMBIENT DB/WB (°F)	ENT. AIR DB/WB (°F)	LEAVE AIR DB/WB (°F)	TOTAL (MBH)	SENS. (MBH)	# OF STAGES	REHEAT (MBH)	INPUT (MBH)	OUTPUT (MBH)	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	MANUF. MODEL	NOM. TON.	EFF. (EER)	WT. (LBS)	NOTES
RTU-13	MEN'S RESIDENT.	2100	2100	210	0.65	2.0	MFG	95/78	93/76	52/51	178.3	94.3	NOTE 8	47.0	195.0	156.0	208V/3Ø	70.0	90	AAON RN-015-8	15.0	11.1	1860	1,2,4,5,6,7,8,9,10,11,12,13
RTU-17	WOMEN'S RESIDENT.	2100	2100	210	0.65	2.0	MFG	95/78	93/76	52/51	178.3	94.3	NOTE 8	47.0	195.0	156.0	208V/3Ø	70.0	90	AAON RN-015-8	15.0	11.1	1860	1,2,4,5,6,7,8,9,10,11,12,13

NOTES:

1. COOLING CAPACITIES ARE RATED IN ACCORDANCE WITH AHRI STANDARD 340/360 AT 95°F AMBIENT OUTDOOR AIR TEMP., 95°F DRY BULB, 78° WET BULB ENTRANCE AIR TEMP., AND AIR QUANTITY LISTED BY MFG.
2. PROVIDE MFG'S CONTROL SYSTEM TO MAINTAIN CORRIDOR SETPOINT TEMPERATURE AND HUMIDITY. SEE SEQUENCE OF OPERATIONS ON SHEET M003.
3. NOT USED.
4. PROVIDE 3 SETS OF NEW FILTERS FOR EACH UNIT. PROVIDE ONE AT INSTALLATION, ONE PRIOR TO AIR BALANCE AND ONE AT TURNOVER TO OWNER.
5. PROVIDE FACTORY ROOF CURB AND OUTSIDE AIR HOOD FOR EACH UNIT.
6. UNIT IS TO BE CONSTANT VOLUME.
7. W/ FACTORY INSTALLED CONDENSATE DRAIN PAN OVERFLOW SWITCH.
8. W/ VARIABLE CAPACITY SCROLL COMPRESSOR.
9. POLYMER E-COATED EVAPORATOR AND CONDENSER COILS.
10. W/ NATURAL GAS STAINLESS STEEL HEATER.
11. W/ VFD CONDENSER FAN.
12. W/ POLYMER E-COATED MODULATING HOT GAS REHEAT.
13. SEE PROJECT GENERAL NOTES REGARDING EXTERIOR EQUIPMENT.

HUMIDIFIER SCHEDULE

		GENERAL DATA					ELECTRICAL DATA		
UNIT TAG	AREA SERVED	MANUF. MODEL	MIN DUCT WIDTH	LOCATION	DESIGN CFM	STEAM FLOW (LBS/HR)	VOLTAGE (V/PH)	POWER CONSUMPTION (KW)	NOTES
HUM-1	RESIDENT.	CAREL UE025XW0U1	24"	ENTRY	2100	53	208V/3Ø	18.75	1,2,3

1. PROVIDE WITH WALL MOUNTED RELATIVE HUMIDITY SENSOR.
2. PROVIDE WITH HI-LIMIT HUMIDISTAT.
3. SET RH TO 40%.

isdesign
ARCHITECTURE + INTERIORS
1111 Haynes Street, Suite 103
Raleigh, North Carolina 27604
t. 919.833.5400
www.isdesignpa.com

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708 ST. MARYS ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
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WILMINGTON, NORTH CAROLINA

Client
NEW HANOVER COUNTY,
NORTH CAROLINA

SITE PLAN

Professional Seals
SEAL 049762
KEVIN SWEENEY
9/2/20

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
MECHANICAL
SCHEDULES
AND NOTES

Sheet Number
M001

PACKAGED TERMINAL HEAT PUMP/AC UNIT SCHEDULE

		FAN DATA				COOLING		HEAT	AUX.	ELECTRICAL DATA			GENERAL DATA			
UNIT TAG	AREA SERVED	FAN CFM	ESP (" OF WG)	MOTOR (HP)	OA (CFM)	TOTAL (MBH)	SENS. (MBH)	TOTAL (MBH)	HEAT (KW@208)	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	MANUF. MODEL	TONNAGE	EFF. (EER)	NOTES
PTAC-1	RESIDENT - ROOMS	270	N/A	MFG	65	9.0	6.6	N/A	2.1	208V/1Ø	14.1	15	AMANA HEC093H	0.75	11.9	1,2,3,5,6,7,9
PTHP-2	RESIDENT - ROOMS	270	N/A	MFG	65	9.0	6.6	8.0	2.1	208V/1Ø	14.1	15	AMANA HEH093H	0.75	12.7	1,2,3,4,5,6,7,8,9
PTAC-3	RESIDENT - LAUNDRY	270	N/A	MFG	65	14.5	9.2	N/A	3.0	208V/1Ø	19.5	20	AMANA HEC153H	1.25	10.2	1,2,3,5,6,9
PTHP-4	RESIDENT - LAUNDRY	370	N/A	MFG	65	14.0	9.0	13.7	3.0	208V/1Ø	19.5	20	AMANA PTH153G	1.25	9.7	1,2,3,4,5,6,8,9
PTAC-5	SHELTER - FACILITIES	270	N/A	MFG	65	7.0	4.9	N/A	2.1	208V/1Ø	14.1	15	AMANA HEC073H	0.60	13.0	1,2,3,5,6,7,9

NOTES:
1. PROVIDE W/ MFG'S WALL SLEEVE AND ALL REQUIRED ACCESSORIES FOR INSTALLATION.
2. COORDINATE OUTDOOR GRILLE SECTION W/ ARCHITECT.
3. CONDENSATE IN COOLING TO BE EVAPORATED BY CONDENSER COIL VIA INTEGRATED CONDENSATE DISPERSION SYSTEM.
4. CONDENSATE IN HEATING TO GRADE. DO NOT PROVIDE CONDENSATE DISPERSION SYSTEM FOR HEAT PUMP OPERATION (NOT RATED FOR COASTAL ENVIRONMENTS).
5. UNIT TO BE POWERED VIA PLUG-IN RECEPTACLE. PROVIDE W/ MFG'S SUB-BASE KIT & POWER DISCONNECT SWITCH.
6. PROVIDE W/ MFG'S WIRELESS HEAT-COOL-OFF WALL MOUNTED THERMOSTAT.
7. PROVIDE W/ MFG'S OCCUPANCY SENSOR ACCESSORY FOR AUTOMATED TEMPERATURE SETBACK.
8. OUTDOOR THERMOSTAT TO LOCK-OUT ELECTRIC HEAT WHEN TEMPERATURE IS 40°F OR HIGHER.
9. UNIT TO BE USED IN SEACOAST ENVIRONMENT. PROVIDE W/ ALL REQUIRED ACCESSORIES FOR CORROSION PROTECTION.

MECHANICAL SYSTEMS COMMISSIONING

I. GENERAL REQUIREMENTS:

1. MECHANICAL SYSTEM COMMISSIONING ONLY REQUIRED FOR ADMINISTRATION BUILDING AND DINING/SHELTER/STORAGE BUILDING.
2. ALTERED OR NEW MECHANICAL SYSTEMS LISTED UNDER THE COMMISSIONING SCOPE ARE TO BE COMMISSIONED IN ACCORDANCE WITH 2018 NCECC SECTION C408.
3. PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY, A REGISTERED DESIGN PROFESSIONAL, NOT LIMITED TO THE ENGINEER OF RECORD ON THE PERMIT DRAWINGS, SHALL PROVIDE A STATEMENT OF SYSTEM COMMISSIONING TO THE CODE OFFICIAL AND FACILITY OWNER IN ACCORDANCE WITH THE PROVISIONS OF NCECC C408 BY WAY OF APPENDIX C1.

II. COMMISSIONING SCOPE:

1. THE FOLLOWING MARKED SYSTEMS ARE TO BE COMMISSIONED IN THIS PROJECT:

EQUIPMENT COMMISSIONING REQUIREMENTS

EQUIPMENT:	AIR SYSTEM BALANCING:	FUNCTIONAL PERFORMANCE TESTING:	CONTROLS TESTING:
ADMINISTRATIVE BUILDING			
RTU-1:	X	X	X
RTU-2:	X	X	X
RTU-3:	X	X	X
RTU-4:	X	X	X
RTU-5:	X	X	X
RTU-6:	X	X	X
RTU-12:	X	X	X
ZD-1:	X		X
ZD-2:	X		X
ZD-3:	X		X
ZD-4:	X		X
ZD-5:	X		X
ZD-6:	X		X
ZD-7:	X		X
ZD-8:	X		X
ZD-9:	X		X
ZD-10:	X		X
ZD-11:	X		X
ZD-12:	X		X
ZD-13:	X		X
ZD-14:	X		X
ZD-15:	X		X
ZD-16:	X		X
ZD-17:	X		X
AH-2:			X
HP-2:			X
AH-6:			X
HP-6:			X
AH-9:			X
HP-9:			X
AH-10:			X
HP-10:			X
UH-1 (ADMIN):			X
EF-1:			X
EF-18:			X
EF-19:			X
BD-1:	X		X
BD-2:	X		X
DINING/SHELTER/STORAGE BUILDING			
RTU-7:	X	X	X
RTU-8:	X	X	X
RTU-9:		X	X
RTU-10:	X	X	X
RTU-11:	X	X	X
RTU-16:	X	X	X
RTU-18:		X	X
RTU-20:	X	X	X
UH-1 (SHELTER):			X
UH-3:			X
FPB-4:	X		X
FPB-5:	X		X
KEF-1:	X	X	X
KMUA-1:	X	X	X
EF-5:			X
EF-6:			X
EF-7:			X
EF-8:			X
EF-9:			X
RF-21:			X
PTAC-5:			X
AH-1:			X
HP-1:			X
AH-3:			X
AH-7A:			X
AH-7B:			X
HP-7:			X
AH-8:			X
HP-8:			X
HP-3:			X
FF-1:			X
FF-2:			X
MF-1:			X

III. COMMISSIONING PROCEDURE:

1. AIR SYSTEM BALANCING:
  1.2. A TEST AND BALANCE CONTRACTOR, WHICH IS PERMITTED TO BE THE MECHANICAL CONTRACTOR, IS RESPONSIBLE FOR PERFORMING THE AIR BALANCE IN ACCORDANCE WITH ACCEPTABLE STANDARDS SUCH AS ASHRAE STANDARD 111-2008 OR SIMILAR.
  1.3. EACH SUPPLY AIR OUTLET SHALL BE EQUIPPED WITH MEANS FOR AIR BALANCING IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 OF THE INTERNATIONAL MECHANICAL CODE. AIR SYSTEMS SHALL BE BALANCED IN A MANNER TO FIRST MINIMIZE THROTTLING LOSSES, THEN THE FAN SPEED SHALL BE ADJUSTED TO MEET DESIGN FLOW CONDITIONS. DESIGN AIRFLOWS SHOULD MATCH THOSE SHOWN ON ENGINEERING DRAWINGS WITHIN AN ACCEPTABLE TOLERANCE PER THE CHOSEN STANDARD.
  1.4. MC IS TO PROVIDE THE OWNER'S REPRESENTATIVE AND ENGINEER WITH A COMPLETE BALANCE REPORT UPON COMPLETION.

2. FUNCTIONAL PERFORMANCE TESTING (TESTING BY MECHANICAL CONTRACTOR OR THIRD PARTY COMMISSIONING AGENT):
  2.1. ECONOMIZERS (WHERE APPLICABLE PER THE SPECIFICATIONS):
    2.1.1. DIFFERENTIAL, OR DUAL, ENTHALPY ECONOMIZERS SHALL BE TESTED TO ENSURE OPERATION IS IN ACCORDANCE WITH THE MANUFACTURER'S CONTROL LITERATURE. ENSURE THE DAMPER IS OPERATIONAL UP TO 100% OA.
    2.1.2. THE ECONOMIZER SHALL BE FIELD VERIFIED, SO LONG AS CLIMATIC CONDITIONS DO NOT INTERFERE, AS OPERATIONAL DURING A CALL FOR COOLING IN WHICH THE OUTDOOR AIR ENTHALPY IS LESS THAN THAT OF THE RETURN AIR. IT SHALL BE NOTED IN THE COMMISSIONING REPORT IF CLIMATIC CONDITIONS DO NOT ALLOW FOR FIELD VERIFICATION.
  2.2. DUCT SMOKE DETECTOR OPERATION (WHERE APPLICABLE PER THE SPECIFICATIONS):
    2.2.1. DUCT SMOKE DETECTORS SHALL BE DEMONSTRATED TO OPERATE PER THE DETAILS AND SPECIFICATIONS ON THE ENGINEERING DRAWINGS BUT SHALL NOT BE LIMITED TO: UNIT SHUTDOWN UPON DETECTION OF SMOKE, A SUPERVISORY SIGNAL SENT TO THE BUILDING SPRINKLER CONTROL PANEL.
    2.2.2. TESTING OF THE DETECTOR SHALL NOT OCCUR PRIOR TO THE FULL INSTALLATION OF THE BUILDING SPRINKLER SYSTEM.
  2.3. CONDENSATE DRAIN PAN OVERFLOW SWITCHES SHOULD BE TESTED FOR OPERATION UNDER THE CONDITION THAT THE DRAIN LINE BECOMES CLOGGED.

3. CONTROLS TESTING (TESTING BY MECHANICAL CONTRACTOR OR THIRD PARTY COMMISSIONING AGENT):
  3.1. THE SEQUENCE OF OPERATIONS SHALL BE TESTED TO ENSURE THAT THE HVAC SYSTEM, CONTROL DEVICES, COMPONENTS AND EQUIPMENT ARE CALIBRATED, ADJUSTED AND OPERATIONAL IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS.

4. ITEMS TO BE PROVIDED TO THE BUILDING OWNER OR OWNER'S REPRESENTATIVE (BY MECHANICAL CONTRACTOR):
  4.1. EQUIPMENT OPERATING AND MAINTENANCE MANUALS THAT INCLUDE THE FOLLOWING:
    4.1.1. SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.
    4.1.2. MFG'S OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, EXCLUDING EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTING MAINTENANCE ITEMS SHALL BE CLEARLY IDENTIFIED.
    4.1.3. NAME AND ADDRESS OF AT LEAST ONE SERVICE AGENCY.
    4.1.4. HVAC CONTROLS SYSTEM MAINTENANCE AND CALIBRATIONS INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS AND CONTROL SEQUENCE DESCRIPTIONS. DESIRED OR FIELD-DETERMINED SET POINTS SHALL BE PERMANENTLY INTEGRATED INTO THE SYSTEM PROGRAMMING INSTRUCTIONS.
  4.2. SYSTEM TEST AND BALANCE REPORT:
    4.2.1. THE REPORT SHALL DESCRIBE THE ACTIVITIES AND MEASUREMENTS THAT WERE COMPLETED AS PART OF COMMISSIONING PROCEDURE 1.

5. ITEMS TO BE PROVIDED TO THE CERTIFIED DESIGN PROFESSIONAL BY THE MECHANICAL CONTRACTOR OR THIRD PARTY COMMISSIONING AGENT:
  5.1. SYSTEM TEST AND BALANCE REPORT.
  5.2. STATEMENT FROM THE OWNER OR OWNER'S REPRESENTATIVE THAT ALL OF THE ITEMS LISTED IN ITEM 4.1 HAVE BEEN RECEIVED.
  5.3. SIGNED LETTER FROM THE MECHANICAL CONTRACTOR OR THIRD PARTY COMMISSIONING AGENT, ON THEIR OFFICIAL LETTERHEAD, STATING FUNCTIONAL PERFORMANCE & CONTROLS TESTING HAS BEEN COMPLETED. THE RESULT OF EACH INDIVIDUAL TEST FOR EACH PIECE OF EQUIPMENT SHOULD BE INCLUDED, NOTING ANY DEFICIENCIES OR TESTS UNABLE TO BE PERFORMED.

MODULAR SMALL CABINET FAN SCHEDULE

		GENERAL DATA			HEAT & FAN								ELECTRICAL DATA			
UNIT TAG	AREA SERVED	MANUF. MODEL	FAN TYPE	NOMINAL FACE AREA	DESIGN CFM	DRIVE	FAN TYPE	MOTOR (HP)	FAN ESP (" OF WG)	RPM	ELEC (KW)	# STAGES	VOLTAGE (V/PH)	MCA (A)	MOCP (A)	NOTES
MF-1	SHELTER - DINING	GREENHECK MSCF-15L-FC	MODULAR SMALL CABINET FAN	1.5 SQFT	775	BELT	FORWARD CURVED	3/4	0.40	MFG	5.0	1	208V/3Ø	23.6	25	1,2,3,4,5,6,7,8

1. LOW-PROFILE MODEL WITH SIDE ACCESS PANELS.
2. WITH ONE INCH DOUBLE-WALL CONSTRUCTION.
3. WITH NEMA-1 DISCONNECT SWITCH.
4. PROVIDE NEW FILTER AT INSTALLATION AND AT TURNOVER TO OWNER.
5. WITH UL 1995 ELECTRIC HEATING COIL.
6. PROVIDE W/ 7 DAY PROGRAMMABLE THERMOSTAT. FAN TO ONLY OPERATE UPON CALL FOR HEATING.
7. PROVIDE MOTOR STATER/RELAY, TO BE WIRED TO AREA THERMOSTAT.
8. ELECTRIC HEATING COIL SHALL HAVE AIRFLOW INTERLOCK AND THERMAL CUTOUT FOR OVER-TEMPERATURE PROTECTION.

UNIT HEATER SCHEDULE

TAG	LOCATION	TYPE	INPUT (BTUH)	OUTPUT (BTUH)	ELECTRICAL DATA W	V	PH	HZ	MANUFACTURER & MODEL NO.	NOTES
UH-1	MULTIPLE BLDGS - RISER ROOM	ELEC	N/A	N/A	1,000	120	1Ø	60	MARKEL, E3312T2RPW	1,2,4,5,6
UH-3	SHELTER - RECEIVING	GAS	25000	20000	N/A	120	1Ø	60	REZNOR F25	5,6,7,8
UH-6	DETOX - CORRIDOR	ELEC	N/A	N/A	1,000	120	1Ø	60	MARKEL, E3312T2RPW	1,3,4,5,6
UH-8	RESIDENTIAL - COMMON AREAS	ELEC	N/A	N/A	1,000	120	1Ø	60	MARKEL, E3312T2RPW	1,3,4,5,6

NOTES:
1. INTERNAL THERMOSTAT
2. SURFACE MOUNT.
3. RECESSED MOUNT.
4. MOUNT HEATER @ 12" A.F.F.
5. UNIT DISCONNECT
6. U.L. LISTED
7. SUSPENDED UNIT HEATER
8. FURNISH W/ THERMOSTAT

FIRE-SMOKE DAMPER SCHEDULE

TAG	LOCATION	TYPE	RATING (HRS)	DUCT SIZE (Ø")	MANUFACTURER & MODEL NO.	NOTES
FSD-1	SEE PLANS	DYNAMIC	1.5	SEE PLANS	RUSKIN FSD35	1,2,3,5,6
FSD-2	SEE PLANS	DYNAMIC	1.5	SEE PLANS	RUSKIN FSD35	1,2,3,4,5,6

NOTES:
1. U.L. LISTED & RATED.
2. PROVIDE W/ SLEEVE, FRAME, ETC.
3. M.C. TO VERIFY WALL RATING.
4. PROVIDE TRANSITION AT CONNECTION TO ROUND DUCTWORK.
5. W/ 120V FAIL CLOSED FACTORY INSTALLED ACTUATOR.
6. W/ FACTORY INSTALLED NO-FLOW RATED SMOKE DETECTOR. AC POWER AND FA CONNECTION BY EC.

GRAVITY VENTILATOR SCHEDULE

UNIT DESIG.	LOCATION	SERVICE	INLET DIA.(")	FREE AREA(SQFT)	MANUFACTURER & MODEL #	NOTES
GV-1	SHELTER - LAUNDRY	INTAKE	8	0.37	GREENHECK GRSI-8	1,2
GV-2	SHELTER - LAUNDRY	INTAKE	8	0.37	GREENHECK GRSI-8	1,2
GV-6	DETOX - LAUNDRY	INTAKE	8	0.37	GREENHECK GRSI-8	1,2
GV-7	RESIDENTIAL - LAUNDRY	INTAKE	8	0.37	GREENHECK GRSI-8	1,2

NOTES:
1. FURNISH W/ MFG INSULATED ROOF CURB.
2. W/ SCREEN.

GAS MATERIAL AND EXECUTION NOTES

MATERIALS:

1. GAS PIPING TO BE:
  1.1. ABOVE GRADE - SCHEDULE 40 BLACK STEEL PIPE W/ THREADED FITTINGS. THREADED FITTINGS IN SIZES LARGER THAN 4" SHALL NOT BE USED. APPROVED FLEXIBLE GAS PIPING MAY BE USED AT CONNECTION TO EQUIPMENT.
2. GAS PIPE FITTINGS IN CONCEALED LOCATIONS SHALL BE LIMITED TO:
  2.1. THREADED, ELBOWS, TEES AND COUPLINGS.
  2.2. WELDED FITTINGS.
  2.3. FITTINGS LISTED TO ANSI LC-1/CSA 6.26 OR ANSI LC-4.

EXECUTION:

1. GAS PIPING SHALL NOT BE INSTALLED IN OR THROUGH A DUCTED SUPPLY, RETURN OR EXHAUST, OR A CLOTHES CHUTE, CHIMNEY OR GAS VENT, DUMBWAITER OR ELEVATOR SHAFT.
2. GAS PIPING SHALL NOT BE LOCATED IN SOLID PARTITIONS AND SOLID WALLS, UNLESS INSTALLED IN A CHASE OR CASING.
3. GAS PIPING THERMAL EXPANSION LOOPS SHALL BE PROVIDED FOR EVERY 50' OF STRAIGHT PIPE.
4. ABOVE-GROUND OUTDOOR GAS PIPING SHALL BE PROTECTED IN ACCORDANCE WITH NCFGC 404.9. PIPING SHALL NOT BE ELEVATED LESS THAN 3-1/2" ABOVE GROUND AND ROOF SURFACES.
5. EXPOSED GAS PIPING SHALL BE LABELED PER THE REQUIREMENTS OF THE 2018 NCFGC 401.5.
6. SUPPORT ALL PIPING IN ACCORDANCE W/ 2018 NC FUEL GAS CODE. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE. DO NOT ATTACH ANYTHING TO THE ROOF DECK.
7. WHERE A SEDIMENT TRAP IS NOT INCORPORATED AS PART OF THE APPLIANCE, SEDIMENT TRAPS SHALL BE INSTALLED PER THE REQUIREMENTS OF NCFGC 408.4.
8. EACH GAS-FIRED APPLIANCE SHALL BE PROVIDED WITH A SHUTOFF VALVE IN ACCORDANCE WITH NCFGC 409.5 AND SHALL BE LOCATED WITHIN 6 FEET OF THE APPLIANCE.
9. GAS SHUTOFF VALVES SHALL BE OF AN APPROVED TYPE; SHALL BE CONSTRUCTED OF MATERIALS COMPATIBLE WITH THE PIPING; AND SHALL COMPLY WITH THE STANDARD THAT IS APPLICABLE FOR THE PRESSURE AND APPLICATION IN ACCORDANCE WITH NCFGC TABLE 409.1.1. SHUTOFF VALVES SHALL BE ACCESSIBLE AND PROTECTED PER NCFGC 409.1.3.
10. MEDIUM PRESSURE REGULATORS (REDUCING PRESSURE FROM 0.5 PSI - 5 PSI TO A LOWER PRESSURE) SHALL BE INSTALLED IN COMPLIANCE WITH NCFGC 410.1 & 410.2 BUT NOT LIMITED TO THE FOLLOWING:
  10.1. THE MP REGULATOR SHALL BE PROVIDED WITH ACCESS.
  10.2. WHERE LOCATED INDOORS, THE REGULATOR SHALL BE VENTED TO THE OUTDOORS OR SHALL BE EQUIPPED WITH A LEAK-LIMITING DEVICE IN EITHER CASE COMPLYING WITH NCFGC 410.3.
  10.3. A TEE FITTING WITH ONE OPENING CAPPED OR PLUGGED SHALL BE INSTALLED BETWEEN THE MP REGULATOR AND ITS UPSTREAM SHUTOFF VALVE. SUCH TEE FITTING SHALL BE POSITIONED TO ALLOW CONNECTION OF A PRESSURE-MEASURING INSTRUMENT AND TO SERVE AS A SEDIMENT TRAP.
  10.4. A MEANS TO TEST PRESSURE SHALL BE INSTALLED NOT LESS THAN 10 PIPE DIAMETERS DOWNSTREAM OF THE MP REGULATOR OUTLET. SUCH FITTING SHALL BE POSITIONED TO ALLOW CONNECTION OF A PRESSURE-MEASURING INSTRUMENT.
  10.5. A LISTED SHUTOFF VALVE SHALL BE INSTALLED IMMEDIATELY AHEAD OF EACH MP REGULATOR (NCFGC 409.4).
11. PRESSURE REGULATORS REQUIRING VENTING SHALL BE INSTALLED IN ACCORDANCE WITH NCFGC 410.3. ALL REQUIRED CLEARANCES SHALL BE MAINTAINED.
12. GAS FIRED COOKING APPLIANCES INSTALLED ON CASTERS AND APPLIANCES THAT ARE MOVED FOR CLEANING, SANITATION PURPOSES, PERIODIC MOVEMENT OR RELOCATION FOR SUCH PURPOSES AS MAINTENANCE SHALL BE CONNECTED TO THE PIPING SYSTEM WITH AN APPLIANCE CONNECTOR LISTED AS COMPLYING WITH ANSI Z21.69. MOVEMENT OF APPLIANCES WITH CASTERS SHALL BE LIMITED BY A RESTRAINING DEVICE INSTALLED IN ACCORDANCE WITH THE CONNECTOR AND APPLIANCE MANUFACTURER'S INSTRUCTIONS. (NCFGC 411.1.1).
13. CONNECTORS SHALL BE PROTECTED AND INSTALLED PER NCFGC 411.1.2 AND 411.1.3. CONNECTORS SHALL HAVE A MAXIMUM OVERALL LENGTH OF 6 FEET AND SHALL NOT BE CONCEALED WITHIN OR EXTENDED THROUGH WALLS, FLOORS, PARTITIONS, CEILINGS OR APPLIANCE HOUSINGS.
14. A UNION FITTING SHALL BE PROVIDED FOR APPLIANCES CONNECTED BY RIGID METALLIC PIPE PER THE REQUIREMENTS OF NCFGC 411.1.6. SUCH UNIONS SHALL BE ACCESSIBLE AND LOCATED WITHIN 6 FEET OF THE APPLIANCE.
15. EACH NON-CSST ABOVE-GRADE PORTION OF THE GAS PIPING SYSTEM THAT IS LIKELY TO BE ENERGIZED SHALL BE ELECTRICALLY CONTINUOUS AND BONDED TO AN EFFECTIVE GROUND-FAULT CURRENT PATH. CSST GAS PIPING SYSTEMS CONTAINING ONE OR MORE SEGMENTS OF CSST SHALL BE BONDED TO THE ELECTRICAL SERVICE GROUNDING ELECTRODE SYSTEM. BONDING SHALL BE IN ACCORDANCE WITH NCFGC SECTION 310. BONDING CONNECTIONS SHALL BE IN ACCORDANCE WITH NFPA 70. DEVICES USED FOR MAKING THE BONDING CONNECTIONS SHALL BE LISTED FOR THE APPLICATION IN ACCORDANCE WITH UL 467.
16. M.C. RESPONSIBLE FOR EXECUTING ALL CODE REQUIRED TESTS AND INSPECTIONS INCLUDING BUT NOT LIMITED TO THE LEAK AND PRESSURE TESTING OF GAS AS DESCRIBED IN NCFGC SECTION 406. PURGING OF GAS LINES SHALL BE PERFORMED IN ACCORDANCE WITH NCFGC 406.7.

FAN SCHEDULE

UNIT NO.	SERVICE	AREA SERVED	CFM	S.P.	RPM	TYPE & ARRANGEMENT	MIN. MOTOR HP & VOLTAGE	MANUFACTURER & MODEL NO.	DRIVE	CONTROL SCHEME	NOTES
EF-1	EXHAUST	ADMIN - RESTRMS.	780	0.15"	MFG	ROOF, DOWNBLAST	1/6 HP 120V/1Ø	GREENHECK G-095-VG	DIRECT	A	1,2,3,4,5,6
EF-2	EXHAUST	RESIDENT IT	150	0.20"	MFG	CEILING, CENTRIFUGAL	113 WATTS 120V/1Ø	GREENHECK SPA-190	DIRECT	D	1,2,3,4,7
EF-3	EXHAUST	DETOX SOILED LIN	75	0.20"	MFG	CEILING, CENTRIFUGAL	49 WATTS 120V/1Ø	GREENHECK SPA-110	DIRECT	B	1,2,3,4
EF-4	EXHAUST	RESIDENT IT	150	0.20"	MFG	CEILING, CENTRIFUGAL	113 WATTS 120V/1Ø	GREENHECK SPA-190	DIRECT	D	1,2,3,4,7
EF-5	EXHAUST	SHELTER - STAFF	75	0.35"	MFG	INLINE, CENTRIFUGAL	1/6 HP 120V/1Ø	GREENHECK SQ-60-VG	DIRECT	A	1,2,3,4,5
EF-6	EXHAUST	SHELTER - MENS	830	0.25"	MFG	ROOF, DOWNBLAST	1/6 HP 120V/1Ø	GREENHECK G-095-VG	DIRECT	A	1,2,3,4,5,6
EF-7	EXHAUST	SHELTER-WOMENS	790	0.20"	MFG	ROOF, DOWNBLAST	1/6 HP 120V/1Ø	GREENHECK G-095-VG	DIRECT	A	1,2,3,4,5,6
EF-8	EXHAUST	SHELTER - MENS	360	0.15"	MFG	ROOF, DOWNBLAST	1/6 HP 120V/1Ø	GREENHECK G-080-VG	DIRECT	A	1,2,3,4,5,6
EF-9	EXHAUST	SHELTER - STAFF	75	0.35"	MFG	INLINE, CENTRIFUGAL	1/6 HP 120V/1Ø	GREENHECK SQ-60-VG	DIRECT	A	1,2,3,4,5
EF-10	EXHAUST	2-PERSON MENT.	75	0.25"	MFG	CEILING, CENTRIFUGAL	49 WATTS 120V/1Ø	GREENHECK SPA-110	DIRECT	A	1,2,3,4
EF-11	EXHAUST	MEN'S RESIDENT.	560	0.15"	MFG	ROOF, DOWNBLAST	1/6 HP 120V/1Ø	GREENHECK G-085-VG	DIRECT	A	1,2,3,4,5,6
EF-12	EXHAUST	WOMEN'S RESID.	530	0.15"	MFG	ROOF, DOWNBLAST	1/6 HP 120V/1Ø	GREENHECK G-085-VG	DIRECT	A	1,2,3,4,5,6
EF-13	EXHAUST	DETOX SOILED LIN	75	0.20"	MFG	CEILING, CENTRIFUGAL	49 WATTS 120V/1Ø	GREENHECK SPA-110	DIRECT	B	1,2,3,4
EF-14	EXHAUST	DETOX MEN'S	500	0.15"	MFG	ROOF, DOWNBLAST	1/6 HP 120V/1Ø	GREENHECK G-090-VG	DIRECT	A	1,2,3,4,5,6
EF-15	EXHAUST	DETOX WOMEN'S	440	0.15"	MFG	ROOF, DOWNBLAST	1/6 HP 120V/1Ø	GREENHECK G-085-VG	DIRECT	A	1,2,3,4,5,6
EF-16	EXHAUST	DETOX - STAFF	75	0.35"	MFG	INLINE, CENTRIFUGAL	1/6 HP 120V/1Ø	GREENHECK SQ-60-VG	DIRECT	A	1,2,3,4,5
EF-18	EXHAUST	ADMIN - RESTRMS.	150	0.15"	MFG	ROOF, DOWNBLAST	1/6 HP 120V/1Ø	GREENHECK G-060-VG	DIRECT	A	1,2,3,4,6
EF-19	EXHAUST	ADMIN - HC TOIL.	75	0.20"	MFG	CEILING, CENTRIFUGAL	49 WATTS 120V/1Ø	GREENHECK SPA-110	DIRECT	A	1,2,3,4
RF-20	RE-CIRC	DETOX IT/SERVER	150	0.20"	MFG	CEILING, CENTRIFUGAL	113 WATTS 120V/1Ø	GREENHECK SPA-190	DIRECT	D	3,4,7
RF-21	RE-CIRC	SHELTER IT/SERVER	150	0.20"	MFG	CEILING, CENTRIFUGAL	113 WATTS 120V/1Ø	GREENHECK SPA-190	DIRECT	D	3,4,7
FF-1	AIR CURTAIN	RECEIVING	1379	N/A	MFG	OVERDOOR, CENTRIFUGAL	1/2 HP 120V/1Ø	MARS N236-2UA	DIRECT	C	3,4
FF-2	AIR CURTAIN	RECEIVING	2884	N/A	MFG	OVERDOOR, CENTRIFUGAL	1/2 HP 120V/1Ø	MARS STD296-2UA	DIRECT	C	3,4,8

NOTES:
1. SCREEN
2. BACKDRAFT DAMPER
3. COLOR BY ARCHITECT
4. INTEGRAL DISCONNECT SWITCH
5. SPEED CONTROLLER
6. PROVIDE WITH FACTORY INSULATED ROOF CURB
7. PROVIDE WITH THERMOSTAT
8. PROVIDE WITH MFG'S WEATHER GUARD FOR EXTERIOR INSTALLATION

CONTROL OPTIONS:
A. CONTROL W/ ROOM LIGHTS
B. CONTINUOUS OPERATION
C. CONTROL W/ DOOR OPENING
D. CONTROL W/ THERMOSTAT

DIFFUSER SCHEDULE

SYMBOL	CFM	NECK SIZE	MODULE SIZE	FRAME TYPE	PATTERN	DAMPER	MATERIAL	SERVICE	FINISH	MANUFACTURER & MODEL NO.	NOTES
A	AS NOTED	AS NOTED	24x24	LAY-IN	4-WAY	NO	STEEL	SUPPLY	NOTE 2	TITUS TDC	1,2,3,6,9
B	AS NOTED	AS NOTED	24x24	LAY-IN	PERF.	NO	STEEL	RETURN/ EXHAUST/ TRANSFER	NOTE 2	TITUS PAR	1,2,3,6,7
C	AS NOTED	AS NOTED	24x24	LAY-IN	PERF.	NO	STEEL	SUPPLY	NOTE 2	TITUS PAS	1,2,3,6
D	AS NOTED	AS NOTED	AS NOTED	LAY-IN	SLOT	NO	ALUM.	SUPPLY	NOTE 2	TITUS ML-38 (2-SLOT, 3/4" SPACING)	2,3,5,6
E	AS NOTED	N/A	AS NOTED	SURFACE	DBL. DEFL.	YES	STEEL	SUPPLY	NOTE 2	TITUS 300RS	1,2,3,6
F	AS NOTED	N/A	AS NOTED	SURFACE	DBL. DEFL.	YES	ALUM.	SUPPLY	NOTE 2	TITUS 300FS	1,2,3,6
G	AS NOTED	N/A	AS NOTED	SURFACE	LOUVERED	YES	ALUM.	EXHAUST	NOTE 2	TITUS 350FL	1,2,3,6
H	AS NOTED	AS NOTED	24x24	LAY-IN	PERF.	NO	ALUM.	SUPPLY	NOTE 2	TITUS PAR-AA	1,2,3,4,6
J	AS NOTED	20x20	24x24	LAY-IN	PERF.	NO	STEEL	FILTER RETURN	NOTE 2	TITUS 8RF	1,2,3,6
K	AS NOTED	AS NOTED	24x24	LAY-IN	2-WAY	NO	STEEL	SUPPLY	NOTE 2	TITUS TDC	1,2,3,6,9
L	AS NOTED	AS NOTED	12x24	LAY-IN	PERF.	NO	STEEL	SUPPLY	NOTE 2	TITUS PAS	1,2,3,6
M	AS NOTED	AS NOTED	12x24	LAY-IN	PERF.	NO	STEEL	EXHAUST	NOTE 2	TITUS PAR	1,2,6
N	AS NOTED	AS NOTED	24x24	LAY-IN	PERF.	YES	STEEL	EXHAUST	NOTE 2	TITUS PAR	1,2,6
O	AS NOTED	N/A	AS NOTED	SURFACE	LOUVERED	NO	ALUM.	RETURN/ TRANSFER	NOTE 2	TITUS 350FL	1,2,3,6
P	AS NOTED	AS NOTED	24x24	LAY-IN	PERF.	NO	ALUM.	SUPPLY	NOTE 2	TITUS PAS-AA	1,2,3,6
Q	AS NOTED	AS NOTED	24x24	LAY-IN	PERF.	NO	ALUM.	RETURN/ TRANSFER	NOTE 2	TITUS PAR-AA	1,2,3,6
R	AS NOTED	AS NOTED	AS NOTED	SURFACE	LINEAR BAR	YES	ALUM.	SUPPLY	NOTE 2	TITUS CT-480 (1/8" THICK BARS, 1/4" SPACING)	1,2,3,6,8
S	AS NOTED	N/A	AS NOTED	SURFACE	LOUVERED	NO	STEEL	TRANSFER	NOTE 2	TITUS 350RL	1,2

NOTES:

GENERAL - MC RESPONSIBLE FOR VERIFYING QTY, COLOR & FRAME TYPE OF DIFFUSERS/GRILLES BEFORE ORDERING. PROVIDE SQR TO RND TRANSTIONS & PLENUMS AS NECESSARY.

1. DIFFUSER DESIGNATIONS ON PLANS AS FOLLOWS:

2. FINISH TO MATCH / BE ABLE MATCH CEILING OR WALL OR DOOR.
3. FACTORY INSULATION BACKING ON GRILLES EXPOSED TO NON-CONDITIONED AREAS. ALTERNATELY, FIELD SUPPLY AND INSTALL.
4. RETURN GRILLE TO BE USED AS A SUPPLY DEVICE FOR "AIR-DROP" EFFECT.
5. SLOT DIFFUSER DESIGNATIONS ON PLANS AS FOLLOWS:

6. PROVIDE TRANSITIONS AT DIFFUSER NECK WHERE DUCT AND DIFFUSER SIZE DON'T MATCH.
7. PROVIDE ALL RETURN PLENUM GRILLES WITH SOUND BOOTS. SEE PLANS FOR RETURN PLENUM GRILLE LOCATIONS. SEE DETAIL.
8. PROVIDE WITH 0° DEFLECTION.
9. DIFFUSER LOUVERS TO COVER FULL FACE OF GRILLE FOR A CONSISTENT LOOK. INLET NECK DIMENSIONS ARE AS INDICATED ON PLANS.

ZONE DAMPER SCHEDULE

		GENERAL DATA		AIR FLOW		ELECTRICAL	
UNIT TAG	AREA SERVED	MANUF. MODEL	INLET DIA.(")	MIN CFM	DESIGN CFM	VOLTAGE (V)	NOTES
ZD-1	FLEX. WRK.	TRANE VADB14A	14Ø	135	1370	24V	1,2,3,4
ZD-2	CONF.	TRANE VADB08A	8Ø	35	340	24V	1,2,3,4
ZD-3	DIRECTOR	TRANE VADB8A	8Ø	50	500	24V	1,2,3,4
ZD-4	OFFICES	TRANE VADB14A	14Ø	125	1265	24V	1,2,3
ZD-5	OFFICES	TRANE VADB12A	12Ø	115	1125	24V	1,2,3
ZD-6	BREAK RM	TRANE VADB06A	6Ø	15	150	24V	1,2,3
ZD-7	RECEPTION	TRANE VADB8A	8Ø	50	500	24V	1,2,3
ZD-8	BOARD	TRANE VADB10A	10Ø	75	750	24V	1,2,3,4
ZD-9	MEN'S PL.	TRANE VADB6A	6Ø	20	220	24V	1,2,3,4
ZD-10	PLANNING	TRANE VADB6A	6Ø	15	150	24V	1,2,3,4
ZD-11	WAITING	TRANE VADB6A	6Ø	25	270	24V	1,2,3,4
ZD-12	CLINIC OFF.	TRANE VADB6A	6Ø	20	175	24V	1,2,3,4
ZD-13	PHYS. OFF.	TRANE VADB6A	6Ø	25	260	24V	1,2,3,4
ZD-14	EXAMS	TRANE VADB8A	8Ø	20	480	24V	1,2,3
ZD-15	TRANSITION	TRANE VADB6A	6Ø	25	235	24V	1,2,3
ZD-16	WOMEN'S	TRANE VADB8A	8Ø	35	340	24V	1,2,3,4
ZD-17	PLANNING	TRANE VADB6A	6Ø	25	270	24V	1,2,3

NOTES
1. PROVIDE W/ MFG'S UNIT CONTROL MODULE.
2. PROVIDE 120V/24V AC CONTROL TRANSFORMER.
3. PROVIDE W/ MFG'S ZONE TEMPERATURE SENSOR W/ OVERRIDE BUTTONS.
4. PROVIDE W/ OCCUPANCY SENSOR CONTROL OF ZONE TEMPERATURE. SEE PLANS FOR QUANTITY REQUIRED.

BYPASS DAMPER SCHEDULE

		GENERAL DATA		AIR FLOW		ELECTRICAL	
UNIT TAG	AREA SERVED	MANUF. MODEL	INLET DIM (")	MIN. CFM	MAX CFM	VOLTAGE (V)	NOTES
BD-1	ADMIN - OFFICES	TRANE VADB3RB	20x20	0	4800	24V	1,2
BD-2	ADMIN - CHAPEL	TRANE VADB1RB	14x12	0	1920	24V	1,2

NOTES
1. PROVIDE 120V/24V AC CONTROL TRANSFORMER.
2. PROVIDE W/ DUCT MOUNTED STATIC PRESSURE & TEMPERATURE SENSORS.

MECHANICAL LEGEND

18x14	RECTANGULAR DUCT
18x14	RECTANGULAR DUCT
6Ø	ROUND METAL DUCT
6Ø	ROUND METAL DUCT
6Ø	FLEX/RIGID ROUND DUCT
	ELBOW WITH TURNING VANES
	VOLUME DAMPER
	SUPPLY TAP WITH VOLUME DAMPER
	SUPPLY TAP
☒	SUPPLY DIFFUSER/GRILLE OR RISER
⧄	RETURN REGISTER/GRILLE OR RISER
⧅	EXHAUST REGISTER/GRILLE OR RISER
▬	SIDEWALL DIFFUSER/GRILLE
▥	CEILING EXHAUST FAN
Ⓣ	THERMOSTAT/HUMIDISTAT
(SD)	DUCT SMOKE DETECTOR
Ⓒ	CARBON DIOXIDE SENSOR
Ⓡ	REMOTE TEMP/HUMIDITY SENSOR
(MS)	MOTION SENSOR
(SP)	DUCT STATIC PRESSURE SENSOR
(DT)	DUCT MOUNTED TEMPERATURE SENSOR
Ⓗ	RELATIVE HUMIDITY SENSOR
(HL)	HI-LIMIT HUMIDISTAT
Ⓥ	VAV SYSTEM CONTROLLER
Ⓐ	TROUBLE ALARM
	LOUVERED DOOR (SEE ARCHITECTURAL DRAWINGS)
	3/4" DOOR UNDER CUT
FSD▶	FIRE/SMOKE DAMPER (WIRING BY E.C.)
Ⓟ	REMOTE PULL STATION
###	KITCHEN EQUIPMENT TAG
—G—	GAS PIPING

ENERGY REQUIREMENTS:

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

METHOD OF COMPLIANCE

PRESCRIPTIVE ☒ ENERGY COST BUDGET ☐

THERMAL ZONE 3A

EXTERIOR DESIGN CONDITIONS
WINTER DRY BULB 16
SUMMER DRY BULB 95

INTERIOR DESIGN CONDITIONS
WINTER DRY BULB 70
SUMMER DRY BULB 76
RELATIVE HUMIDITY 50%

	ADMIN	SHELTER	M RESID.	W RESID.	DETOX.
BUILDING HEATING LOAD (MBH)	326.2	372.5	141.1	128.7	143.5
BUILDING COOLING LOAD (MBH)	798.3	897.8	72.8	72.0	63.9

MECHANICAL SPACING CONDITIONING SYSTEM
UNITARY
DESCRIPTION OF UNIT SEE SCHEDULES
HEATING EFFICIENCY SEE SCHEDULES
COOLING EFFICIENCY SEE SCHEDULES
HEAT OUTPUT OF UNIT SEE SCHEDULES
COOLING OUTPUT OF UNIT SEE SCHEDULES
BOILER
TOTAL BOILER OUTPUT NA
CHILLER
TOTAL CHILLER OUTPUT NA

LIST EQUIPMENT EFFICIENCIES SEE SCHEDULES

DESIGNER'S STATEMENT:
TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT REQUIREMENTS OF THE N.C.S. ENERGY CODE.

SIGNED: Kevin Sweeney

NAME: KEVIN SWEENEY, PE

TITLE: MECHANICAL ENGINEER

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ARCHITECTURE + INTERIORS
1111 Haynes Street, Suite 103
Raleigh, North Carolina 27604
t. 919.833.5400
www.isdesignpa.com

MAPLE
ENGINEERING, PLLC
708 ST. MARYS ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

Project
THE HEALING PLACE OF NEW HANOVER COUNTY
1000 MEDICAL CENTER DRIVE
WILMINGTON, NORTH CAROLINA

Client
NEW HANOVER COUNTY, NORTH CAROLINA

SITE PLAN

Professional Seals
SEAL 049762
KEVIN SWEENEY
9/2/20

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
MECHANICAL SCHEDULES AND NOTES

Sheet Number
M002

RTU-13, RTU-17 SEQUENCE OF OPERATION

- UNIT TO BE CONSTANT VOLUME WITH 24/7 SUPPLY FAN.
- SUPPLY AIR TEMPERATURE AND HUMIDITY TO BE MODULATED TO SATISFY INTERIOR SPACE TEMPERATURE AND HUMIDITY SET POINTS BY MODULATION OF AC COMPRESSOR, REHEAT AND HEATING SYSTEM.
- UNIT TO PROVIDE 10% OUTSIDE AIR DURING UNOCCUPIED HOURS
- UNIT TO PROVIDE 100% OUTSIDE AIR DURING OCCUPIED HOURS
- COOLING LEAVING AIR TEMPERATURE MUST BE SELECTED TO BE EQUAL TO OR LESS THAN SPACE DEW POINT DESIGN OR RELATIVE HUMIDITY WILL NOT BE ABLE TO BE PROPERLY CONTROLLED.

RTU-1, RTU-12 SEQUENCE OF OPERATION

- VAV SYSTEM CONTROLLER TO RECEIVE INPUT FROM ZONE THERMOSTATS AND MODULATE BYPASS DAMPER ACTUATOR AND RTU HEAT/COOL STAGES TO MAINTAIN DUCT SUPPLY AIR TEMPERATURE AND STATIC PRESSURE SET POINTS.
- CONTROLLER TO POLL ZONE THERMOSTAT SET POINTS AND READINGS TO DETERMINE WHETHER SYSTEM IS TO BE OPERATED IN HEATING OR COOLING. ALL ZONE THERMOSTATS ARE TO HAVE EQUAL VOTING WEIGHT.
- AFTER (3) MINUTES IN COOLING, IF SUPPLY AIR TEMPERATURE IS 57° F OR ABOVE, STAGE 2 OF COOLING IS TO ACTIVATE UNTIL SPACE SET POINTS ARE REACHED. LIKEWISE, AFTER (3) MINUTES IN HEATING IF SUPPLY AIR TEMPERATURE IS 94° F OR LESS, STAGE 2 OF HEATING IS TO ACTIVATE UNTIL SPACE SET POINTS ARE REACHED (RTU-12 DOES NOT HAVE 2 STAGES OF HEAT). ONCE SUPPLY AIR TEMPERATURE DROPS ONE DEGREE BELOW/ABOVE THE SET POINT (DEPENDING ON COOLING/HEATING), THE RTU WILL DE-ENERGIZE FOR (4) MINUTES.
- M.C. TO WORK WITH OWNER TO PROGRAM HOURS/DAYS OF OPERATION AND OCCUPIED/UNOCCUPIED SETTING BY DEFAULT AND SWITCH TO OCCUPIED SETTINGS WHEN MANUAL OVERRIDES ARE ACTIVATED AT CONTROLLER OR ZONE THERMOSTATS.
- ZONE DAMPERS ARE TO MODULATE PRIMARY AIR VALVE TO MAINTAIN ZONE TEMPERATURE.
- ZONE DAMPERS PAIRED WITH OCCUPANCY SENSORS ARE TO CLOSE TO MINIMUMS WHEN NO MOTION IS DETECTED BY SENSOR.
- RTU COMPRESSORS / HEATERS TO SHUT OFF IF NO CALLS FOR HEATING OR COOLING ARE DETECTED.
- RTU SUPPLY FAN TO RUN CONTINUOUSLY DURING OCCUPIED MODE. ON/OFF AS REQUIRED DURING UNOCCUPIED MODE.

Ventilation Calculations

Calc's Based on the 2018 NCMC Chapter 4

AH/RTU: **RTU-1** Spaces: **Admin Plan East**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Visitation Room 112	70	30	2.1	0.06	5	4	11	15	1.0	15
Secure Files 115	107	0	0	0.12	0	13	0	13	1.0	13
Office 117	47	5	1	0.06	5	3	5	8	1.0	8
Bookkeeping 118	48	5	1	0.06	5	3	5	8	1.0	8
Human Resources 122	47	5	1	0.06	5	3	5	8	1.0	8
Director 123	48	5	1	0.06	5	3	5	8	1.0	8
Coordinator 124	47	5	1	0.06	5	3	5	8	1.0	8
Director 125	126	5	1	0.06	5	8	5	13	1.0	13
Conference 127	92	50	4.6	0.06	5	6	23	29	1.0	29
Flexible Workstation 128	651	15	9.765	0.06	5	39	49	88	1.0	88
Reception 111	189	30	5.67	0.06	5	11	28	40	1.0	40
Corridor 151	16	0	0	0.06	0	1	0	1	1.0	1
Corridor 152	47	0	0	0.06	0	3	0	3	1.0	3
Corridor 153	26	0	0	0.06	0	2	0	2	1.0	2
Corridor 154	34	0	0	0.06	0	2	0	2	1.0	2
Corridor 155	8	0	0	0.06	0	0	0	0	1.0	0
Copy 121	9	4	1	0.06	5	1	5	6	1.0	6
Board Room 119	348	50	17.4	0.06	5	21	87	108	1.0	108
Break Room 126	82	50	4.1	0.06	5	5	21	25	1.0	25

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 382
Supplied CFM: 390

AH/RTU: **RTU-2, RTU-3** Spaces: **Admin Multi-Purpose Room**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Multi-Purpose Room 129	2541	120	304.92	0.06	5	152	1525	1677	1.0	1677

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 1677
Supplied CFM: 1680

AH/RTU: **RTU-4** Spaces: **Admin Men's Community Room**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Men's Community Room 130	592	120	71.04	0.06	5	36	355	391	1.0	391

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 391
Supplied CFM: 400

AH/RTU: **RTU-5** Spaces: **Admin Women's Community Room**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Women's Community Room 131	593	120	71.16	0.06	5	36	356	391	1.0	391

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 391
Supplied CFM: 400

AH/RTU: **RTU-6** Spaces: **Admin Lobby**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Vestibule 101	83	10	1	0.06	5	5	5	10	1.0	10
Lobby 102	2308	10	23.08	0.06	5	138	115	254	1.0	254
Corridor 149	164	0	0	0.06	0	10	0	10	1.0	10
Corridor 150	158	0	0	0.06	0	9	0	9	1.0	9
Storage 133	172	0	0	0.12	0	21	0	21	1.0	21

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 304
Supplied CFM: 310

AH/RTU: **RTU-7** Spaces: **Shelter Dining**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Dining 240	1471	70	102.97	0.18	7.5	265	772	1037	1.0	1037

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 1037
Supplied CFM: 1040

AH/RTU: **RTU-8** Spaces: **Shelter Plan Northeast**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Program Beds 259	44	20	2	0.06	5	3	10	13	1.0	13
Program Beds 260	44	20	2	0.06	5	3	10	13	1.0	13
Program Beds 261	44	20	2	0.06	5	3	10	13	1.0	13
Program Beds 262	44	20	2	0.06	5	3	10	13	1.0	13
Program Beds 263	46	20	2	0.06	5	3	10	13	1.0	13
Program Beds 264	44	20	2	0.06	5	3	10	13	1.0	13
Program Beds 265	46	20	2	0.06	5	3	10	13	1.0	13
Program Beds 266	46	20	2	0.06	5	3	10	13	1.0	13
Program Beds 267	26	20	2	0.06	5	2	10	12	1.0	12
Program Beds 268	44	20	2	0.06	5	3	10	13	1.0	13
Shelter Beds 269	44	20	2	0.06	5	3	10	13	1.0	13
Shelter Beds 271	44	20	2	0.06	5	3	10	13	1.0	13
TV Room 274	232	70	16.24	0.06	10	14	162	176	1.0	176
Belongings 273	19	0	0	0.12	0	2	0	2	1.0	2
Corridor 279	52	0	0	0.06	0	3	0	3	1.0	3
Corridor 280	112	0	0	0.06	0	7	0	7	1.0	7
Corridor 281	48	0	0	0.06	0	3	0	3	1.0	3
Corridor 282	48	0	0	0.06	0	3	0	3	1.0	3
Corridor 283	71	0	0	0.06	0	4	0	4	1.0	4

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 349
Supplied CFM: 825

AH/RTU: **RTU-9** Spaces: **Shelter Men's Lobby**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Men's Lobby 254	481	10	4.81	0.06	5	29	24	53	1.0	53

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 53
Supplied CFM: 80

AH/RTU: **RTU-10** Spaces: **Shelter Kitchen**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Kitchen 242	842	-	-	0.7	-	589	-	589	Exhaust	589
Scullery 241	144	10	1.44	0	15	0	22	22	1.0	22
Chef 243	11	5	1	0.06	5	1	5	6	1.0	6

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

**Exhaust supplied via net difference between KSF and KEF's CFM.

Total Req'd CFM: 27
Total Req'd Exhaust CFM: 589
Supplied OA CFM: 100
Exhaust CFM**: 1187

AH/RTU: **RTU-11** Spaces: **Shelter Serving Line**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Foyer 233	584	10	5.84	0.06	5	35	29	64	1.0	64
Vestibule 235	9	0	0	0.06	0	1	0	1	1.0	1
Serving Line 234	475	100	47.5	0.18	7.5	86	356	442	1.0	442
Vestibule 237	6	0	0	0.06	0	0	0	0	1.0	0

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 507
Supplied CFM: 510

AH/RTU: **RTU-12** Spaces: **Admin Exams, Planning Rooms**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Men's Planning Room 103	199	5	2	0.06	5	12	10	22	1.0	22
Planning Rm Coord 104	65	5	2	0.06	5	4	10	14	1.0	14
Waiting Room 137	87	30	2.61	0.06	5	5	13	18	1.0	18
Clinic Office 139	27	5	1	0.06	5	2	5	7	1.0	7
Physician's Office 141	30	5	1	0.06	5	2	5	7	1.0	7
Triage 142	20	20	2	0	15	0	30	30	1.0	30
Exam 143	32	20	2	0	15	0	30	30	1.0	30
Exam 144	32	20	2	0	15	0	30	30	1.0	30
Women's Planning Room 106	180	5	2	0.06	5	11	10	21	1.0	21
Planning Rm Coord 107	66	5	2	0.06	5	4	10	14	1.0	14
Transition Case Mgr 105	66	5	1	0.06	5	4	5	9	1.0	9
Pharmacy/Supplies 147	45	0	0	0.12	0	5	0	5	1.0	5
Corridor 157, Corridor 158	32	0	0	0.06	0	2	0	2	1.0	2

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 209
Supplied CFM: 210

AH/RTU: **RTU-13** Spaces: **Men's Residential**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Corridor 437	149	0	0	0.06	0	9	0	9	1.0	9
Entry 401	125	10	1.25	0.06	5	8	6	14	1.0	14
Reception/Lounge 402	531	30	15.93	0.06	5	32	80	112	1.0	112
Corridor 436	435	0	0	0.06	0	26	0	26	1.0	26

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 160
Supplied CFM: 2100

AH/RTU: **RTU-14** Spaces: **Women's Detox Suite**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Lounge 525	49	30	1.47	0.06	5	3	7	10	1.0	10
Women's Detox Suite 519	1086	30	32.58	0.06	5	65	163	228	1.0	228
Reception/Staff 520	121	30	3.63	0.06	5	7	18	25	1.0	25

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 264
Supplied CFM: 270

AH/RTU: **RTU-15** Spaces: **Men's Detox Suite**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Lobby 511	41	10	1	0.06	5	2	5	7	1.0	7
Men's Detox Suite 503	1080	30	32.4	0.06	5	65	162	227	1.0	227
Lounge 507	48	30	1.44	0.06	5	3	7	10	1.0	10
Reception/Staff 502	123	30	3.69	0.06	5	7	18	26	1.0	26
Staff Corridor 531	16	0	0	0.06	0	1	0	1	1.0	1

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 271
Supplied CFM: 280

AH/RTU: **RTU-16** Spaces: **Shelter - Women's Lobby, Beds**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Program Beds 208	44	20	2	0.06	5	3	10	13	1.0	13
Program Beds 207	44	20	2	0.06	5	3	10	13	1.0	13
Program Beds 206	44	20	2	0.06	5	3	10	13	1.0	13
Program Beds 205	44	20	2	0.06	5	3	10	13	1.0	13
Shelter Beds 204	44	20	2	0.06	5	3	10	13	1.0	13
Shelter Beds 203	44	20	2	0.06	5	3	10	13	1.0	13
Corridor 227	74	0	0	0.06	0	4	0	4	1.0	4
Corridor 228	74	0	0	0.06	0	4	0	4	1.0	4
Corridor 231	68	0	0	0.06	0	4	0	4	1.0	4
Belongings 220	9	0	0	0.12	0	1	0	1	1.0	1
Women's Lobby 202	354	10	3.54	0.06	5	21	18	39	1.0	39

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 129
Supplied CFM: 430

AH/RTU: **RTU-17** Spaces: **Women's Residential**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Corridor 337	149	0	0	0.06	0	9	0	9	1.0	9
Entry 301	125	10	1.25	0.06	5	8	6	14	1.0	14
Reception/Lounge 302	531	30	15.93	0.06	5	32	80	112	1.0	112
Corridor 335	435	0	0	0.06	0	26	0	26	1.0	26

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 160
Supplied CFM: 2100

AH/RTU: **RTU-18** Spaces: **Shelter Storage, Receiving**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Tools & Equipment 250	152	0	0	0.12	0	18	0	18	1.0	18
Receiving 249	95	0	0	0.12	0	11	0	11	1.0	11
Corridor 252	351	0	0	0.06	0	21	0	21	1.0	21
Dry Storage 244	226	0	0	0.12	0	27	0	27	1.0	27
General Storage 247	469	0	0	0.12	0	56	0	56	1.0	56

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 134
Supplied OA CFM: 140

AH/RTU: **RTU-19** Spaces: **Detox Files, Consultation**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Lobby 501	110	10	1.1	0.06	5	7	6	12	1.0	12
Files 522	29	0	0	0.12	0	3	0	3	1.0	3
Office 524	41	5	1	0.06	5	2	5	7	1.0	7
Consultation 526	50	5	1	0.06	5	3	5	8	1.0	8
Consultation 508	50	5	1	0.06	5	3	5	8	1.0	8
Office 506	41	5	1	0.06	5	2	5	7	1.0	7
Files 504	29	0	0	0.12	0	3	0	3	1.0	3

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 50
Supplied CFM: 100

AH/RTU: **RTU-20** Spaces: **Shelter - Women's TV Room, Beds**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Program Beds 215	27	20	2	0.06	5	2	10	12	1.0	12
Program Beds 214	44	20	2	0.06	5	3	10	13	1.0	13
Program Beds 213	45	20	2	0.06	5	3	10	13	1.0	13
Program Beds 212	44	20	2	0.06	5	3	10	13	1.0	13
Program Beds 211	44	20	2	0.06	5	3	10	13	1.0	13
Program Beds 210	44	20	2	0.06	5	3	10	13	1.0	13
Corridor 230	180	0	0	0.06	0	11	0	11	1.0	11
Corridor 229	81	0	0	0.06	0	5	0	5	1.0	5
TV Room 217	267	70	18.69	0.06	10	16	187	203	1.0	203

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 293
Supplied CFM: 435

AH/RTU: **AH-1** Spaces: **Shelter Laundry 256**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Laundry 256	174	10	1.74	0	25	0	44	44	1.0	44

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 44
Supplied CFM: 50

AH/RTU: **AH-3** Spaces: **Shelter Laundry 218**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Laundry 218	205	10	2.05	0	25	0	51	51	1.0	51
Supplies 219	11	0	0	0.12	0	1	0	1	1.0	1

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 53
Supplied CFM: 60

AH/RTU: **AH-4** Spaces: **Residential Men's Office 412**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Office 412	52	5	1	0.06	5	3	5	8	1.0	8

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 8
Supplied CFM: 30

AH/RTU: **AH-5** Spaces: **Residential Women's Office 312**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Office 312	52	5	1	0.06	5	3	5	8	1.0	8

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 8
Supplied CFM: 30

AH/RTU: **PTAC-1, PTHP-2** Spaces: **Residential - 2-Person Mentor Room**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
2-Person Mentor Room	113	20	2.26	0.06	5	7	11	18	1.0	18

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 18
Supplied CFM: 65

AH/RTU: **PTAC-1, PTHP-2** Spaces: **Residential - 2-Person Room**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
2-Person Room	121	20	2.42	0.06	5	7	12	19	1.0	19

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 19
Supplied CFM: 65

AH/RTU: **PTHP-4** Spaces: **Residential Laundry**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Laundry 407/Laundry 307	92	10	1	0	25	0	25	25	1.0	25

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 25
Supplied CFM: 65

AH/RTU: **PTAC-3, PTHP-4** Spaces: **Residential Laundry**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Laundry 423/Laundry 323	77	10	1	0	25	0	25	25	1.0	25

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 25
Supplied CFM: 65

AH/RTU: **PTAC-5** Spaces: **Shelter - Facilities Office**

Occupancy	Area (sqft)	Occ. Density (ppl/1000 sqft)	# People	CFM/Sqft	CFM/Person	Area CFM	People CFM	Total Gross CFM	Vent. Eff*	Req'd CFM
Facilities Office 251	45	5	1	0.06	5	3	5	8	1.0	8

*Ceiling or Floor Supply Cool Air (Space will be unoccupied or only partially occupied when in heating) (2018 NCMC 403.3.1.1.1.2)

Total Req'd CFM: 8
Supplied CFM: 65

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RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
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WILMINGTON, NORTH CAROLINA

Client
NEW HANOVER COUNTY, NORTH CAROLINA

SITE PLAN

Professional Seals
NORTH CAROLINA PROFESSIONAL SEAL 049762 ENGINEER KEVIN SWEENEY
9/2/20

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
MECHANICAL SCHEDULES AND NOTES

Sheet Number
M003

9/2/2020 1:18 PM
ISD-1801-M003.DWG

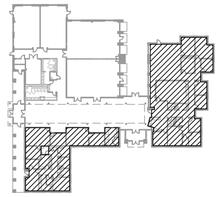
TAGGED NOTES - THIS SHEET

1. PROVIDE DUCT MOUNTED SMOKE DETECTOR. SEE DETAIL.
2. SUPPLY AND RETURN DUCTS DOWN FROM RTU ON ROOF ABOVE. DUCTS ELBOW HORIZONTALLY ABOVE CEILING. SEE DETAIL.
3. EXHAUST DUCT RUNS UP TO EXHAUST FAN ON ROOF ABOVE. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES.
4. PROVIDE LOCKABLE THERMOSTAT COVER.
5. ZONE DAMPER ABOVE LAY-IN CEILING. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED. SEE DETAIL.
6. INSTALL MINI SPLIT AIR HANDLER HIGH ON WALL. COORDINATE EXACT LOCATION WITH AREA EQUIPMENT AND G.C.. ROUTE CONDENSATE TO EXTERIOR GRADE AWAY FROM FOOT TRAFFIC.
7. PROVIDE SIDEWALL DIFFUSER EQUALLY SPACED WITH OTHER DIFFUSERS FOR CONSISTENT LOOK. DO NOT PROVIDE DUCT CONNECTION TO DIFFUSER.
8. INSTALL SURFACE MOUNTED UNIT HEATER 12" AFF. COORDINATE EXACT LOCATION WITH AREA EQUIPMENT AND G.C..
9. PROVIDE DOOR WITH LOUVER. LOUVER MINIMUM FREE AREA TO BE 240 SQIN. COORDINATE LOUVER SELECTION W/ ARCHITECT.
10. ROOF ACCESS HATCH BY G.C..
11. SUPPLY DUCT CONNECTS TO BYPASS DAMPER FOR CHANGEOVER BYPASS VAV RTU CONTROL SYSTEM. BYPASS DAMPER IS OPEN TO PLENUM SPACE.
12. COORDINATE ROUTING OF SUPPLY DUCT IN BULKHEAD WITH STRUCTURE.
13. PROVIDE TRANSFER OPENING FOR RETURN AIR PATH IN WALL ABOVE CEILING. MINIMUM FREE AREA REQUIREMENT INDICATED ON PLAN. COORDINATE POSSIBLE SECURITY BARS IN TRANSFER OPENING W/ OWNER & GC.
14. GAS METER LOCATION. SEE SHEET M101.2 FOR GAS PIPING PLAN. COORDINATE LOCATION WITH AREA ROOF DRAIN.
15. LOCATE STATIC PRESSURE AND SUPPLY AIR TEMPERATURE SENSORS FOR RTU CONTROL SYSTEM IN THE MAIN SUPPLY DUCT UPSTREAM OF BYPASS DAMPER. WIRE TO RTU CONTROLS.
16. SUPPLY AND RETURN DUCTS DOWN FROM RTU ON ROOF ABOVE. SUPPLY DUCT ELBOWS HORIZONTALLY ABOVE CEILING. RETURN DUCT OPEN TO PLENUM. SEE DETAIL.
17. BATHROOM EXHAUST UP TO ROOF JACK. PROVIDE WITH INSECT SCREEN AND BDD. MAINTAIN 10' CLEARANCE FROM ALL BUILDING AIR INTAKES.
18. INSTALL SURFACE MOUNTED SUPPLY DIFFUSER HIGH ON VERTICAL FACE OF WALL. BOTTOM OF DIFFUSER TO BE 14' AFF.
19. WIRELESS REMOTE SENSOR FOR RTU. THERMOSTAT CONTROLS LOCATED IN IT 138. COORDINATE EXACT LOCATION WITH OWNER.
20. MAIN SUPPLY DUCT TO RUN TIGHT TO STRUCTURE BETWEEN JOISTS. SUPPLY DUCT TO BRANCH OFF THE BOTTOM OF MAIN DUCT AND ELBOW HORIZONTALLY ABOVE CEILING/BELOW JOISTS.
21. ROUTE DUCT THROUGH OPENING IN STRUCTURAL BEAM. COORDINATE WITH STRUCTURE.
22. INSTALL CASSETTE MINI-SPLIT AIR HANDLER IN CEILING. ROUTE CONDENSATE TO EXTERIOR GRADE AWAY FROM FOOT TRAFFIC.
23. INSTALL CASSETTE MINI-SPLIT AIR HANDLER IN CEILING.
24. INSTALL MINI SPLIT AIR HANDLER HIGH ON WALL. COORDINATE EXACT LOCATION WITH AREA EQUIPMENT AND G.C..
25. CONDENSATE TO GRAVITY DRAIN FROM AH INTO CONDENSATE PUMP INSTALLED IN AREA. CONDENSATE PUMP TO HAVE INTEGRAL OVERFLOW DETECTION DEVICE. MINI-SPLIT OPERATION TO BE INTERRUPTED UPON FAILURE OF THE CONDENSATE PUMP. ADDITIONALLY, THE DETECTION DEVICE IS TO ACTIVATE SPACE ALARM TO INDICATE PUMP FAILURE. CONDENSATE PUMP TO DISCHARGE TO ROOF. MC TO PROVIDE PUMP AND ALARM.
26. PROVIDE TRANSFER OPENING FOR RETURN AIR PATH IN WALL ABOVE CEILING. MINIMUM FREE AREA OF OPENING TO BE 80 SQIN. COORDINATE POSSIBLE SECURITY BARS IN TRANSFER OPENING W/ OWNER & GC..
27. TEMPERATURE TO BE READ AT AIR HANDLER, NOT AT THERMOSTAT. THERMOSTAT LOCATED IN IT ROOM 138.
28. SUPPLY DUCT CONNECTS TO BYPASS DAMPER FOR CHANGEOVER BYPASS VAV RTU CONTROL SYSTEM. BYPASS DAMPER CONNECTS INTO RETURN DUCT.
29. ROUTE DUCTWORK THROUGH WEBBING OF JOISTS.
30. CONDENSATE PIPING FOR AH-9A TO GRAVITY DRAIN TO EXTERIOR GRADE, AWAY FROM FOOT TRAFFIC AS SHOWN. ROUTE PIPING ABOVE CEILING.

GENERAL NOTES - THIS SHEET

1. ENSURE THAT ALL SOURCES OF BUILDING EXHAUST ARE A MINIMUM OF 10' HORIZONTALLY FROM OR A MINIMUM OF 3' ABOVE ANY AREA OUTSIDE AIR INTAKES.
2. PORTIONS OF SPACES ARE SERVED BY ABOVE CEILING RETURN PLENUMS. ENSURE THAT AIR FLOW PATH IS PRESENT FROM EACH ROOM BACK TO MAIN AIR HANDLER RETURNS. SEE DWG #2 THIS SHEET.
3. SEE SHEET M101.2 FOR GAS PIPING TABLES AND ROOF PLAN.

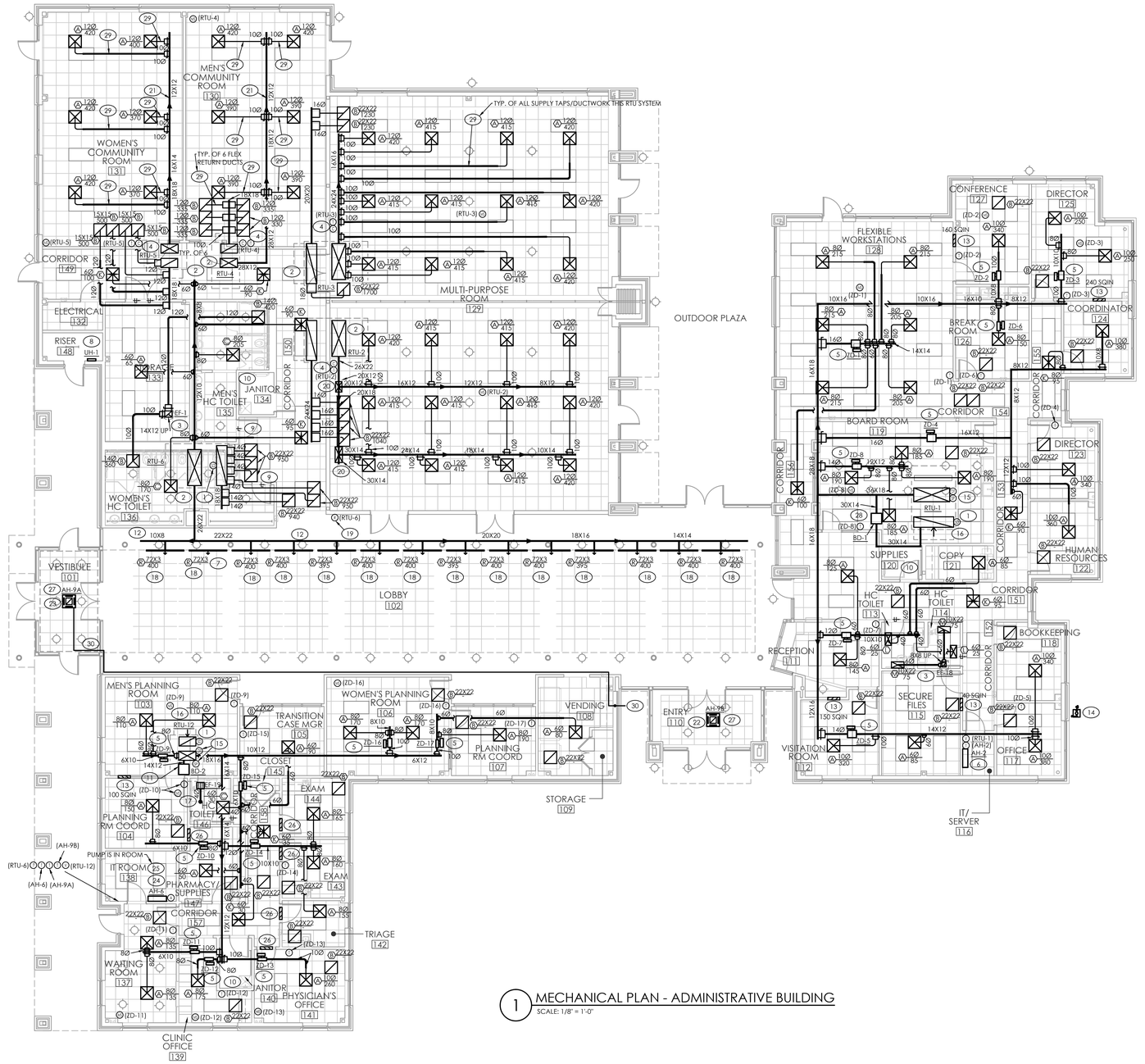
NOTE:
HATCHED AREAS INDICATE A RETURN PLENUM ABOVE CEILING.



2 RETURN PLENUM LOCATIONS
NO SCALE

NOTE:
PROVIDE ALL RETURN PLENUM GRILLES WITH SOUND BOOTS. SEE DETAIL

NOTE:
COORDINATE DUCT ROUTING WITH STRUCTURE, OVERHEAD PIPING, AND LIGHTS.



1 MECHANICAL PLAN - ADMINISTRATIVE BUILDING
SCALE: 1/8" = 1'-0"

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Raleigh, North Carolina 27604
t. 919.833.5400
www.isdesignpa.com

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RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
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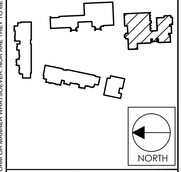

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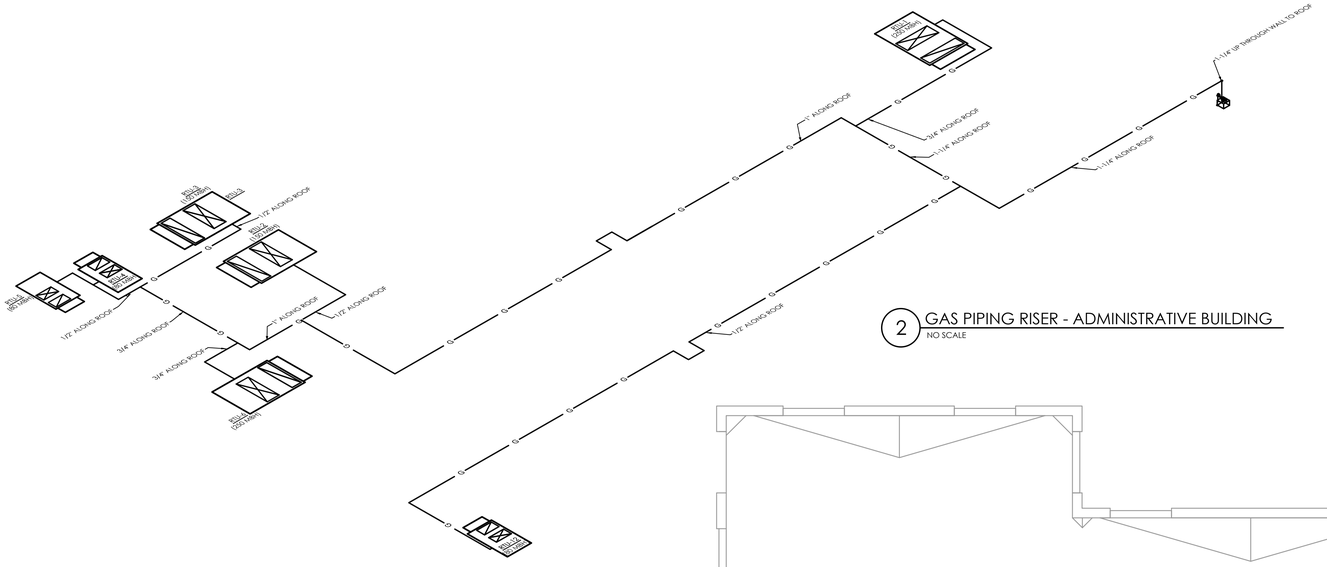
9/2/20

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

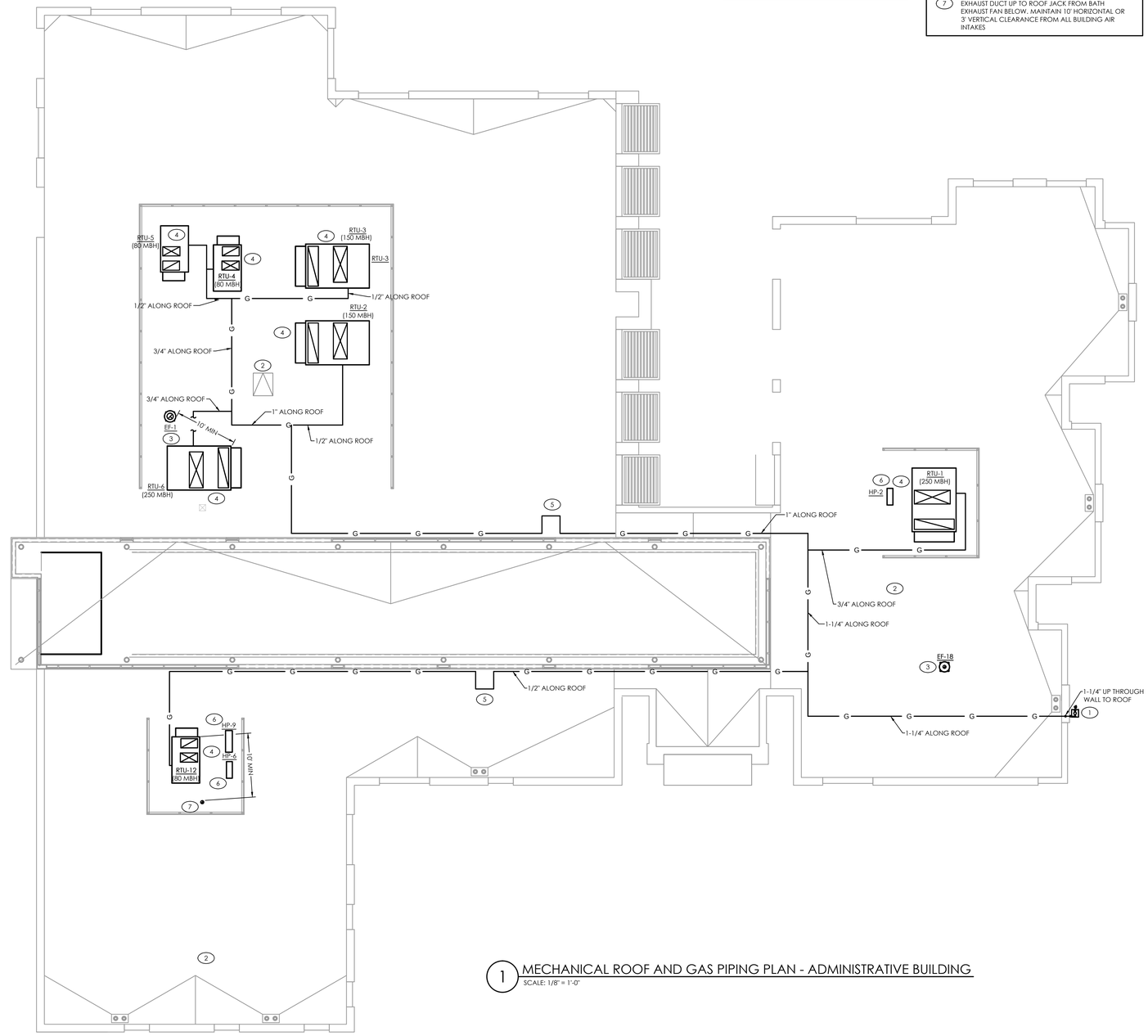
Sheet Title
MECHANICAL ADMINISTRATIVE BUILDING PLAN

Sheet Number
M101.0

9/2/2020 1:18 PM
05-1801-M101.0.DWG



2 GAS PIPING RISER - ADMINISTRATIVE BUILDING
NO SCALE



1 MECHANICAL ROOF AND GAS PIPING PLAN - ADMINISTRATIVE BUILDING
SCALE: 1/8" = 1'-0"

NATURAL GAS CALCULATIONS TABLE 402.4(5)

PIPE SIZE (IN.)	MAX CAPACITY OF PIPE IN MBH		
	EQUIV. LENGTH = 350 FT		
1/2"	232 MBH		
3/4"	486 MBH		
1"	869 MBH		
1-1/4"	1790 MBH		

BASED UPON CHAPTER 4 OF THE 2018 NORTH CAROLINA FUEL GAS CODE. 2.0 PSI INLET PRESSURE. 1.0 PSI PRESSURE DROP.

GAS SYSTEM LOAD

EQUIPMENT	MBH (INPUT)
RTU-1	250.0
RTU-2	150.0
RTU-3	150.0
RTU-4	80.0
RTU-5	80.0
RTU-6	250.0
RTU-12	80.0
TOTAL:	1040.0

GENERAL NOTES - THIS SHEET

1. SEE SHEET M002 FOR ADDITIONAL GAS PIPING NOTES.
2. COORDINATE EXACT LOCATION OF ROOF EQUIPMENT W/ STRUCTURE BELOW. POSITION EQUIPMENT AS CLOSE TO SUPPORTING ELEMENTS AS POSSIBLE.
3. ENSURE THAT ROOF MOUNTED EQUIPMENT IS A MINIMUM OF 6' FROM ROOF EDGE IF PARAPET WALL IS LESS THAN 42" IN HEIGHT.
4. ENSURE THAT ALL SOURCES OF BUILDING EXHAUST ARE A MINIMUM OF 10' HORIZONTALLY FROM OR A MINIMUM OF 3' ABOVE ANY AREA OUTSIDE AIR INTAKES.

TAGGED NOTES - THIS SHEET

1. NEW GAS METER AND 2.0 PSI REGULATOR BY UTILITY. M.C. TO COORDINATE. GAS PIPING SYSTEM DESIGNED FOR 1040 MBH TOTAL LOAD AND 350 FT EQUIVALENT LENGTH. GAS PIPING TO TRAVEL UP THROUGH WALL TO ROOF.
2. ROOF ACCESS HATCH BY G.C..
3. EXHAUST DUCT DOWN TO BELOW FROM EXHAUST FAN ON ROOF. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES. SEE DETAIL.
4. SUPPLY AND RETURN DUCTS DOWN TO BELOW FROM RTU ON ROOF. SEE DETAIL.
5. PROVIDE EXPANSION LOOP AS SHOWN. SEE DETAIL.
6. INSTALL HEAT PUMP ON ROOF. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED. SEE DETAIL.
7. EXHAUST DUCT UP TO ROOF JACK FROM BATH EXHAUST FAN BELOW. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES

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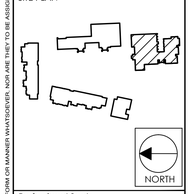

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No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
MECHANICAL ROOF AND GAS PIPING PLAN - ADMINISTRATIVE BUILDING

Sheet Number
M101.2

9/2/2020 1:19 PM
03-18BH-M101.2.DWG

COMBUSTION AIR CALC'S

BASED ON 2018 NCFGC SEC 304

SPACE	MBH (INPUT)
APPLIANCES	MBH (INPUT)
UH-3	25.0
TOTAL:	25.0
ROOM AIR (SEC. 304.5)	
REQ'D VOLUME @ 50 CU. FT PER 1,000 BTUH:	1250
ROOM VOLUME:	7800

Refrigerant Calc's

Based on the 2018 NCMC Chp 11

Cooler Volume (Cu.Ft)

W	L	H	Volume
14.92	16.5	8.88	2186

Refrigerant R-404A
***Refrigerant Classification A1**
System Classification Direct, High Prob.

Refrigerant R-404A

Max Lbs/1000 Cu.Ft	31	
Max Lbs Allowed		
2186.0784 /1000 x 13	=	**67.8**

15588 BTUH @ 4 LBS/TON	
Est. Refrigerant Capacity =	**5.196**

Freeze Volume (Cu.Ft)

W	L	H	Volume
14.92	20.5	8.88	2716.037

Refrigerant R-404A
***Refrigerant Classification A1**
System Classification Direct, High Prob.

Refrigerant R-404A

Max Lbs/1000 Cu.Ft	31	
Max Lbs Allowed		
2716.0368 /1000 x 13	=	**84.2**

17690 BTUH @ 4 LBS/TON	
Est. Refrigerant Capacity =	**2.9**

TAGGED NOTES - THIS SHEET

1. PROVIDE DUCT MOUNTED SMOKE DETECTOR. SEE DETAIL.
2. SUPPLY AND RETURN DUCTS DOWN FROM RTU ON ROOF ABOVE. DUCTS ELBOW HORIZONTALLY ABOVE CEILING. SEE DETAIL.
3. PACKAGED THROUGH THE WALL AC/ELECTRIC HEAT UNIT TO BE INSTALLED LOW ON WALL. UNIT TO BE INSTALLED MINIMUM 12" ABOVE FINISHED FLOOR. COORDINATE EXACT INSTALLATION HEIGHT WITH G.C. AND ARCHITECT.
4. KMUA ON ROOF. SEE SHEET M102.1 FOR DUCT ROUTING.
5. PROVIDE 1" DOOR UNDERCUT.
6. TEMPERATURE TO BE READ AT AIR HANDLER, NOT AT THERMOSTAT. THERMOSTAT LOCATED BESIDE MEN'S LOBBY 254.
7. ROOF ACCESS HATCH BY G.C..
8. INSTALL SURFACE MOUNTED UNIT HEATER 12" AFF. COORDINATE EXACT LOCATION WITH AREA EQUIPMENT AND G.C..
9. INSTALL CASSETTE MINI-SPLIT AIR HANDLER IN CEILING. ROUTE CONDENSATE TO EXTERIOR GRADE AWAY FROM FOOT TRAFFIC.
10. EXHAUST DUCT RUNS UP TO EXHAUST FAN ON ROOF ABOVE. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES.
11. FAN POWERED BOX ABOVE LAY-IN CEILING. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED. SEE DETAIL.
12. EXHAUST DUCT RUNS FROM INLINE EXHAUST FAN ABOVE CEILING TO MFG'S ROOF JACK. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM BUILDING AIR INTAKES. SEE DETAIL.
13. GAS LINE DOWN FROM ROOF TO ABOVE CEILING. GAS TO SERVE AREA WATER HEATERS. SEE RISER.
14. RE-CIRC FAN TO DISCHARGE TO CORRIDOR.
15. INSTALL SIDEWALL DIFFUSER AS LOW AS POSSIBLE ON VERTICAL FACE.
16. INSTALL MODULAR SMALL CABINET FAN ABOVE LAY-IN CEILING. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED.
17. INSTALL AIR CURTAIN ABOVE DOOR INSIDE BUILDING. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED.
18. 1/2" GAS LINE RUNS DOWN THROUGH WALL TO GAS UNIT HEATER. INSTALL SUSPENDED GAS UNIT HEATER HIGH IN SPACE. 4Ø DOUBLE WALL TYPE B FLUE VENT RUNS FROM UNIT HEATER TO MFG'S ROOF JACK. INSTALLATION PER MFG'S INSTRUCTIONS.
19. PROVIDE CONDENSATE PUMP FOR WALK-IN COOLER/FREEZER. ROUTE DISCHARGE TO ROOF.
20. GAS METER LOCATION. SEE SHEET M102.1 AND M102.2 FOR GAS PIPING PLANS.
21. CONCENTRIC WATER HEATER VENTS BY P.C..
22. INSTALL AIR CURTAIN ABOVE DOOR OUTSIDE BUILDING. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED.
23. PROVIDE LOCKABLE THERMOSTAT COVER.
24. TEMPERATURE TO BE READ AT AIR HANDLER, NOT AT THERMOSTAT. THERMOSTAT LOCATED IN IT/SERVER 221.
25. ROUTE DUCTWORK THROUGH WEBBING OF JOISTS.
26. VAV BOX ABOVE LAY-IN CEILING. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED. SEE DETAIL.

GENERAL NOTES - THIS SHEET

1. ENSURE THAT ALL SOURCES OF BUILDING EXHAUST ARE A MINIMUM OF 10' HORIZONTALLY FROM OR A MINIMUM OF 3' ABOVE ANY AREA OUTSIDE AIR INTAKES.
2. M.C. TO SEE HOOD & FAN DRAWINGS FOR ADDITIONAL INFORMATION.
3. SEE SHEET M102.2 FOR GAS PIPING TABLES AND ROOF PLAN.

FIRE RATING LEGEND

- 1-HR WALL
- 1-HR WALL/ SMOKE WALL
- SMOKE PARTITION

NOTE:
COORDINATE DUCT ROUTING WITH STRUCTURE, OVERHEAD PIPING, AND LIGHTS.

Dining and Kitchen Air Balance

Kitchen

Equipment	Supply	Exhaust
KEF-1	0	5933
KMUA-1	4746	0
RTU-10	100	0
Totals	4846	5933
Kitchen	**1087**	**CFM Negative**

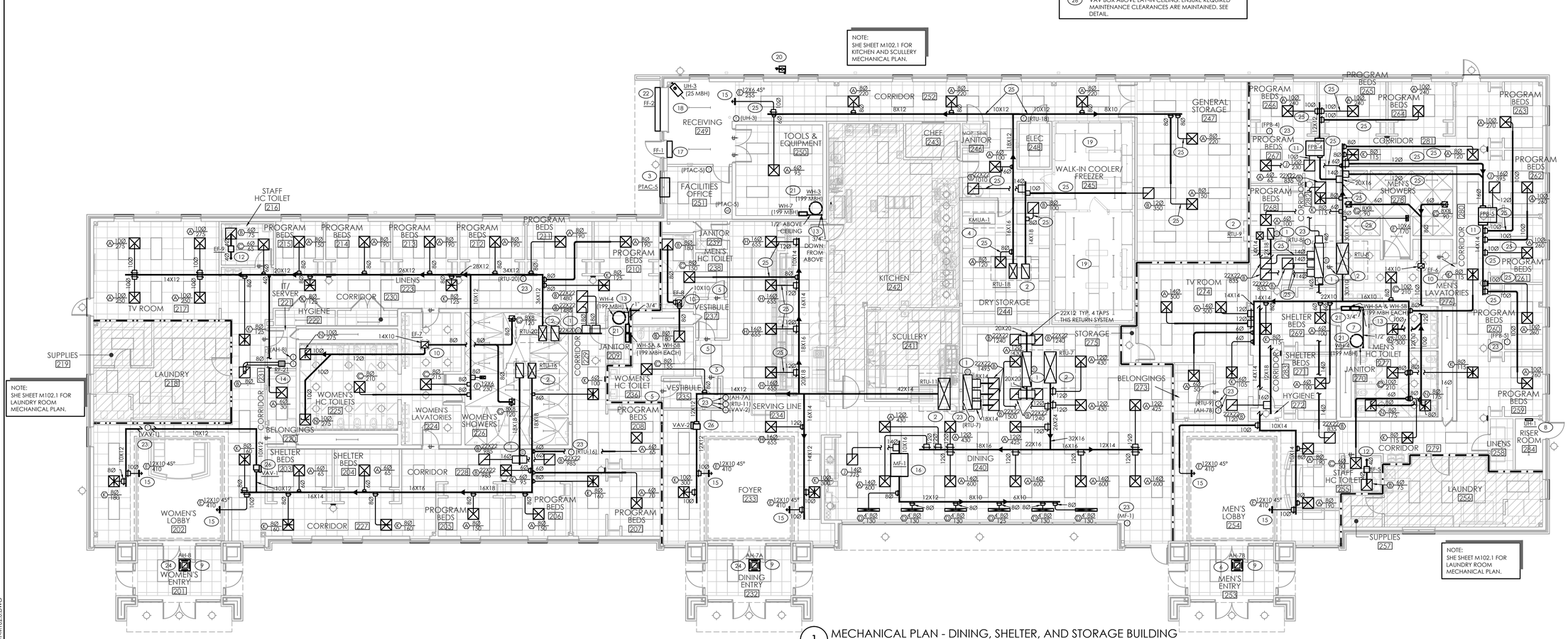
Dining & Other

Equipment	Supply	Exhaust
RTU-7	1040	0
RTU-11	510	0
EF-8	0	360
Transfer to Kit	0	1087
Totals	1550	1447
Dining and Kitchen	**103**	**CFM Positive**

NOTE:
SHE SHEET M102.1 FOR KITCHEN AND SCULLERY MECHANICAL PLAN.

NOTE:
SHE SHEET M102.1 FOR LAUNDRY ROOM MECHANICAL PLAN.

NOTE:
SHE SHEET M102.1 FOR LAUNDRY ROOM MECHANICAL PLAN.



1 MECHANICAL PLAN - DINING, SHELTER, AND STORAGE BUILDING

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

9/2/2020 11:19 P.M.
RDS-1801-M102.0.DWG

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ARCHITECTURE + INTERIORS
1111 Haynes Street, Suite 103
Raleigh, North Carolina 27604
t. 919.833.5400
www.isdesignpa.com

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SITE PLAN

NORTH

Professional Seals

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 049762 JOHN SWEENEY
9/2/20

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
MECHANICAL DINING BUILDING PLAN

Sheet Number
M102.0

EQUIPMENT SCHEDULE

ITEM #	DESCRIPTION	GAS LINE SIZE (IN)	GAS INPUT (MBTUH)
53	KETTLE, STEAM JACKETED, GAS, TILT	0.50	100.00
54	RANGE, RESTAURANT, GAS	0.75	243.00
56	OVEN, CONVECTION, GAS	0.50	110.0
57A	FRYER, DEEP FAT, GAS WITH FILTER	0.50	105.0
57B	FRYER, DEEP FAT, GAS WITH FILTER	0.50	105.0
58	TILT SKILLET	0.50	100.0

NOTE:
M.C. TO VERIFY EXACT TYPE, QTY, LOCATION OF EQUIPMENT GAS CONNECTIONS BEFORE BEGINNING WORK. M.C. RESPONSIBLE FOR PROVIDING AND INSTALLING ALL REQUIRED FITINGS, ACCESSORIES AND SIMILAR. FINAL CONNECTION TO EQUIPMENT BY M.C

COMBUSTION AIR CALC'S

BASED ON 2018 NCFGC SEC 304	
SPACE:	MBH (INPUT)
APPLIANCES	MBH (INPUT)
(2) DRYERS	224.0
TOTAL:	224.0
ONE OPENING (SEC 304.6.2)	
REQ'D FREE AREA @ 1 SQIN PER 3,000 BTUH:	75

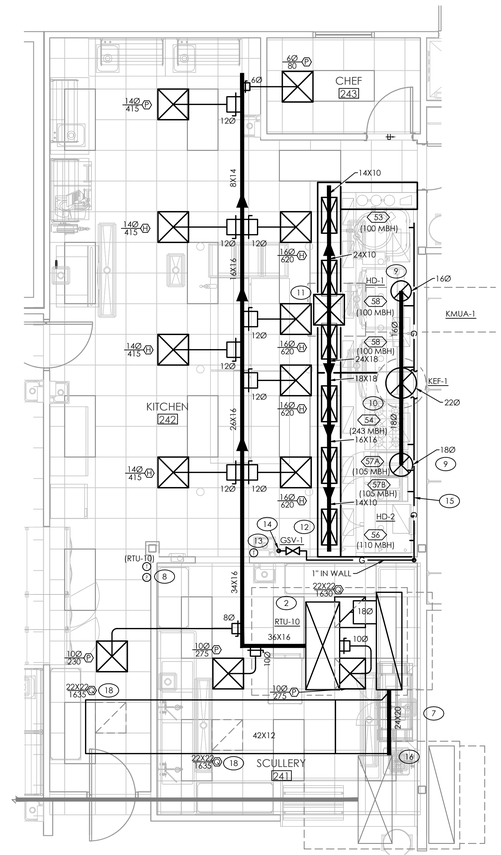
GENERAL NOTES - THIS SHEET

1. ENSURE THAT ALL SOURCES OF BUILDING EXHAUST ARE A MINIMUM OF 10' HORIZONTALLY FROM OR A MINIMUM OF 3' ABOVE ANY AREA OUTSIDE AIR INTAKES.
2. M.C. TO SEE HOOD & FAN DRAWINGS FOR ADDITIONAL INFORMATION.
3. SEE SHEET M102.2 FOR GAS PIPING TABLES AND ROOF PLAN.

TAGGED NOTES - THIS SHEET

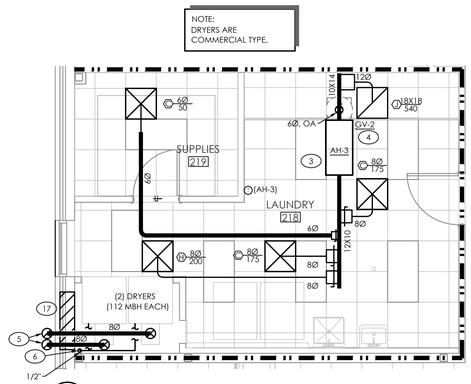
1. PROVIDE DUCT MOUNTED SMOKE DETECTOR. SEE DETAIL.
2. SUPPLY AND RETURN DUCTS DOWN FROM RTU ON ROOF ABOVE. DUCTS ELBOW HORIZONTALLY ABOVE CEILING. SEE DETAIL.
3. INSTALL SUSPENDED AIR HANDLER ABOVE LAY-IN CEILING. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED. SEE DETAIL.
4. OUTSIDE AIR DUCT DOWN FROM GRAVITY VENTILATOR ON ROOF. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING EXHAUST. SEE DETAIL.
5. 8Ø DRYER VENT TO RUN THROUGH WALL THEN TURN DOWN AND TERMINATE WITH BDD (NO SCREEN). MAINTAIN 2' MINIMUM CLEARANCE ON ALL SIDES OF DUCT AT WALL PENETRATION. VENT TO TERMINATE A MINIMUM 3' ABOVE GRADE AND 3' BELOW INTAKE LOUVER.
6. GAS LINE DOWN FROM ROOF TO COMMON GAS HEADER FOR GAS-FIRED DRYERS. SEE SHEET M102.2 FOR GAS PIPING PLAN.
7. VENTLESS DISHWASHER BY OTHERS.
8. REMOTE PULL STATION FOR HOOD FIRE SUPPRESSION SYSTEM. SEE DETAIL. COORD. EXACT LOCATION W/ LOCAL AHJ.
9. GREASE EXHAUST DOWN TO HOOD. TRANSITION AT HOOD AS NECESSARY.
10. 22Ø GREASE EXHAUST DUCT UP TO KEF ON ROOF.
11. 24X24 DOWN FROM KSF ON ROOF. PROVIDE MITERED ELBOW W/ TURNING VANES AT VERTICAL TO HORIZONTAL BEND.
12. SUPPLY TAP W/ VOLUME DAMPER DOWN TO HOOD CONNECTION. COORDINATE EXACT QTY, SIZE AND CFM OF TAPS W/ HOOD MFG AND DRAWINGS. TYPICAL.
13. HOOD TEMPERATURE SENSOR. COORDINATE WITH HOOD PROVIDER.
14. 1" GAS LINE DOWN FROM ROOF ABOVE THEN ELBOWS HORIZONTALLY JUST BELOW LAY-IN CEILING. INSTALL GAS SOLENOID VALVE, GSV-1, IN GAS LINE. SOLENOID VALVE TO BE CONNECTED TO HOOD FIRE SUPPRESSION SYSTEM. COORDINATE WITH HOOD PROVIDER. GAS LINE THEN RUNS THROUGH WALL THEN DOWN TO 12" AFF BESIDE HOOD.
15. 1" GAS HEADER 12" AFF BEHIND COOK LINE.
16. RTU SHOWN FOR REFERENCE. SEE SHEET M102.0 FOR CONTINUATION OF DUCTS.
17. OUTSIDE AIR INTAKE LOUVER HIGH ON WALL W/ INSECT SCREEN AND DRAINABLE BLADES. INSTALL LOUVER WITHIN 12' OF CEILING. BOTTOM OF LOUVER TO MAINTAIN MINIMUM 36" CLEARANCE ABOVE DRYER EXHAUST TERMINATIONS. MINIMUM FREE AREA = 2.0 SQFT. SELECTION AND EXACT LOCATION BY ARCHITECT. COORDINATE W/ G.C..
18. TAP RUNS FROM BOTTOM OF RETURN DUCT TO RETURN DIFFUSER.

NOTE:
COORDINATE DUCT ROUTING WITH STRUCTURE, OVERHEAD PIPING, AND LIGHTS.



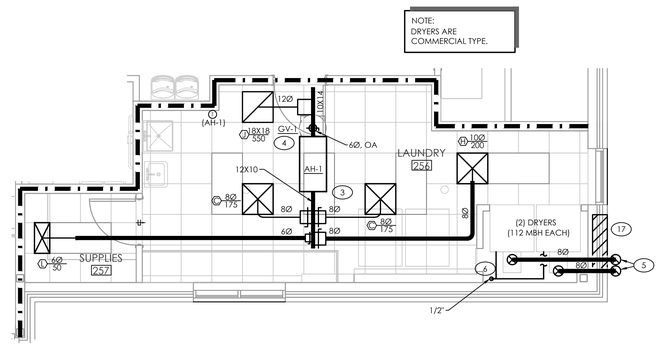
3 MECHANICAL PLAN - KITCHEN ENLARGEMENT
SCALE: 1/4" = 1'-0"

NOTE:
DRYERS ARE COMMERCIAL TYPE.



2 MECHANICAL PLAN - LAUNDRY 218 ENLARGEMENT
SCALE: 1/4" = 1'-0"

NOTE:
DRYERS ARE COMMERCIAL TYPE.



1 MECHANICAL PLAN - LAUNDRY 256 ENLARGEMENT
SCALE: 1/4" = 1'-0"

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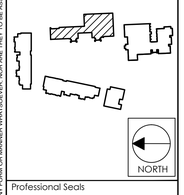
SITE PLAN



Professional Seals

9/2/20

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
MECHANICAL DINING BUILDING PLANS - ENLARGEMENTS

Sheet Number
M102.1

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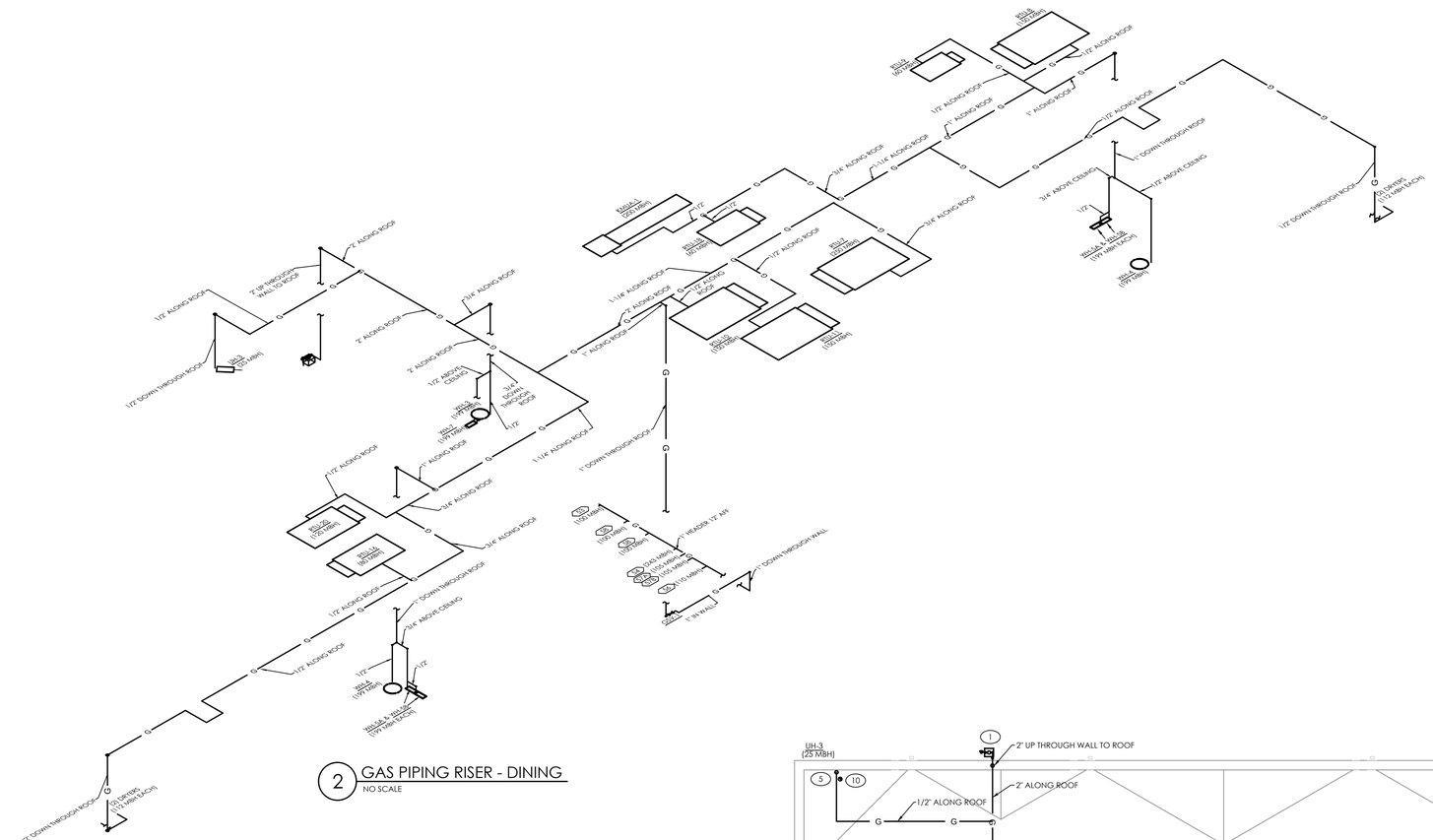
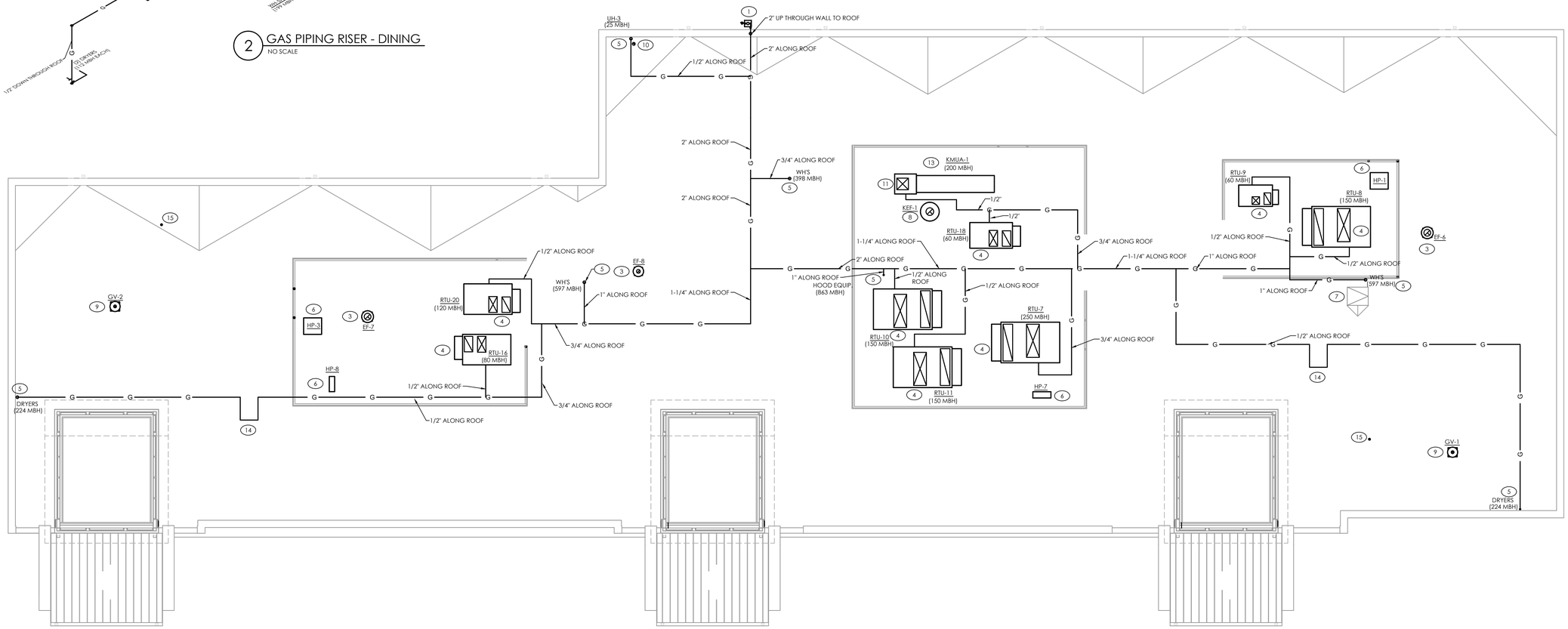


2 GAS PIPING RISER - DINING
NO SCALE



1 MECHANICAL ROOF AND GAS PIPING PLAN - DINING
SCALE: 1/8" = 1'-0"

NATURAL GAS CALCULATIONS TABLE 402.4(5)

PIPE SIZE (IN.)	MAX CAPACITY OF PIPE IN MBH		
	EQUIV. LENGTH = 350 FT		
1/2"	232 MBH		
3/4"	486 MBH		
1"	869 MBH		
1-1/4"	1790 MBH		
1-1/2"	2670 MBH		
2"	5150 MBH		

BASED UPON CHAPTER 4 OF THE 2018 NORTH CAROLINA FUEL GAS CODE. 2.0 PSI INLET PRESSURE. 1.0 PSI PRESSURE DROP.

GAS SYSTEM LOAD

EQUIPMENT	MBH (INPUT)
RTU-7	250.0
RTU-8	150.0
RTU-9	60.0
RTU-10	150.0
RTU-11	150.0
RTU-16	80.0
RTU-18	60.0
RTU-20	120.0
KMUA-1	200.0
4 DRYERS	448.0
WH-3	199.0
(2) WH-4	398.0
(2) WH-5A	398.0
(2) WH-5B	398.0
WH-7	199.0
KETTLE, STEAM JACKETED, GAS, TILT	100.0
RANGE, RESTAURANT, GAS	243.0
OVEN, CONVECTION, GAS	110.0
(2) FRYER, DEEP FAT, GAS WITH FILTER	210.0
(2) TILT SKILLET	200.0
UH-3	25.0
TOTAL:	4148.0

GENERAL NOTES - THIS SHEET

1. SEE SHEET M002 FOR ADDITIONAL GAS PIPING NOTES.
2. COORDINATE EXACT LOCATION OF ROOF EQUIPMENT W/ STRUCTURE BELOW. POSITION EQUIPMENT AS CLOSE TO SUPPORTING ELEMENTS AS POSSIBLE.
3. ENSURE THAT ROOF MOUNTED EQUIPMENT IS A MINIMUM OF 6' FROM ROOF EDGE IF PARAPET WALL IS LESS THAN 42" IN HEIGHT.
4. ENSURE THAT ALL SOURCES OF BUILDING EXHAUST ARE A MINIMUM OF 10' HORIZONTALLY FROM OR A MINIMUM OF 3' ABOVE ANY AREA OUTSIDE AIR INTAKES.

TAGGED NOTES - THIS SHEET

1. NEW GAS METER AND 2.0 PSI REGULATOR BY UTILITY. M.C. TO COORDINATE. GAS PIPING SYSTEM DESIGNED FOR 4148 MBH TOTAL LOAD AND 350 FT EQUIVALENT LENGTH. GAS PIPING TO TRAVEL UP THROUGH WALL TO ROOF.
2. NOT USED.
3. EXHAUST DUCT DOWN TO BELOW FROM EXHAUST FAN ON ROOF. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES. SEE DETAIL.
4. SUPPLY AND RETURN DUCTS DOWN TO BELOW FROM RTU ON ROOF. SEE DETAIL.
5. GAS LINE RUNS DOWN THROUGH ROOF TO BELOW.
6. INSTALL HEAT PUMP ON ROOF. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED. SEE DETAIL.
7. ROOF ACCESS HATCH BY G.C..
8. KITCHEN EXHAUST FAN ON ROOF. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES. SEE DETAIL.
9. OUTSIDE AIR DUCT UP FROM BELOW TO GRAVITY VENTILATOR ON ROOF. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING EXHAUST. SEE DETAIL.
10. FLUE VENT UP FROM GAS UNIT HEATER BELOW.
11. 24X24 KITCHEN MAKEUP AIR DUCT RUNS DOWN THROUGH ROOF TO KITCHEN SPACE. SEE SHEET M102.1 FOR CONTINUATION OF DUCT.
12. NOT USED.
13. KITCHEN MAKEUP AIR FAN ON ROOF. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED.
14. PROVIDE EXPANSION LOOP AS SHOWN. SEE DETAIL.
15. EXHAUST DUCT UP TO ROOF JACK FROM BATH EXHAUST FAN BELOW. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES

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NORTH

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NORTH CAROLINA PROFESSIONAL SEAL 049762 ENGINEER KEVIN M SWEENEY
9/2/20

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
MECHANICAL ROOF AND GAS PIPNG PLAN - DINING BUILDING

Sheet Number
M102.2

9/2/2020 1:20 PM
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TAGGED NOTES - THIS SHEET

1. PROVIDE DUCT MOUNTED SMOKE DETECTOR. SEE DETAIL.
2. SUPPLY AND RETURN DUCTS DOWN FROM RTU ON ROOF ABOVE. DUCTS ELBOW HORIZONTALLY ABOVE CEILING. SEE DETAIL.
3. PACKAGED THROUGH THE WALL AC/ELECTRIC HEAT UNIT TO BE INSTALLED LOW ON WALL. UNIT TO BE INSTALLED MINIMUM 12" ABOVE FINISHED FLOOR. COORDINATE EXACT INSTALLATION HEIGHT WITH G.C. AND ARCHITECT. TYPICAL OF ALL PTAC..
4. PACKAGED THROUGH THE WALL HEAT PUMP UNIT TO BE INSTALLED LOW ON WALL. UNIT TO BE INSTALLED MINIMUM 12" ABOVE FINISHED FLOOR. COORDINATE EXACT INSTALLATION HEIGHT WITH G.C. AND ARCHITECT. TYPICAL OF ALL PTHP.
5. PROVIDE WALL CAP WITH INSECT SCREEN AND BDD. CAULK BEHIND AND AROUND CAP WITH 100% SILICONE. MAINTAIN 10' CLEARANCE FROM ALL BUILDING AIR INTAKES.
6. TRANSFER GRILLES AND DUCTWORK.
7. DRYER VENT LOW THROUGH WALL TO WALL CAP W/ BDD (NO SCREEN). CAULK BEHIND AND AROUND CAP WITH 100% SILICONE. MAINTAIN 10' CLEARANCE FROM ALL BUILDING AIR INTAKES.
8. INSTALL SURFACE MOUNTED UNIT HEATER 12" AFF. COORDINATE EXACT LOCATION WITH AREA EQUIPMENT AND G.C..
9. INSTALL FIRE-SMOKE DAMPER AND ACCESS DOOR IN DUCT.
10. EXHAUST DUCT RUNS UP TO EXHAUST FAN ON ROOF ABOVE. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES.
11. FAN POWERED BOX ABOVE LAY-IN CEILING. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED. SEE DETAIL.
12. INSTALL RECESSED MOUNTED UNIT HEATER 12" AFF IN RATED WALL. COORDINATE EXACT LOCATION WITH AREA EQUIPMENT AND G.C.. SEE DETAIL.
13. INSTALL CASSETTE MINI-SPLIT AIR HANDLER IN CEILING. ROUTE CONDENSATE TO EXTERIOR GRADE AWAY FROM FOOT TRAFFIC.
14. PROVIDE WALL CAP WITH INSECT SCREEN (NO BDD). CAULK BEHIND AND AROUND CAP WITH 100% SILICONE. MAINTAIN 10' CLEARANCE FROM ALL BUILDING EXHAUST.
15. GAS LINE DOWN FROM ROOF TO WATER HEATERS.
16. RELAY TO TURN OFF RTU UPON ACTIVATION OF BUILDING FIRE ALARM SYSTEM. COORDINATE W/ E.C.. RELAY PROVIDED BY FA CONTRACTOR.
17. ROOF ACCESS HATCH BY G.C..
18. CONCENTRIC WATER HEATER VENTS BY P.C..
19. GAS METER LOCATION. SEE SHEET M103.1 FOR GAS PIPING PLAN.
20. STEAM HUMIDIFIER TO BE INSTALLED ON WALL ABOVE CEILING. WATER AND DRAIN CONNECTIONS BY P.C.. STEAM PIPING BY M.C.. INSTALL PER MFG'S INSTRUCTIONS. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED.
21. STEAM PROBE TO BE INSTALLED IN SUPPLY DUCT. ENSURE REQ'D STRAIGHT DUCT LENGTH DOWNSTREAM AND UPSTREAM OF PROBE IS MAINTAINED. ENSURE RUBBER STEAM PIPING TO PROBE DOES NOT EXCEED MFG'S MAX PIPE LENGTH.
22. ENSURE HI-LIMIT HUMIDISTAT IS A MINIMUM 6' DOWNSTREAM OF STEAM PROBES AND LOCATED UPSTREAM OF BRANCH TAKE-OFFS.
23. NO INTERNAL DUCT LINERS SHALL BE USED DOWNSTREAM OF HUMIDIFIER PROBE.
24. PTAC/PTHP
25. OUTSIDE AIR INTAKE LOUVER HIGH ON WALL W/ INSECT SCREEN AND DRAINABLE BLADES. INSTALL TOP OF LOUVER WITHIN 12" OF CEILING. MAINTAIN MINIMUM 3' CLEARANCE ABOVE DRYER EXHAUST TERMINATIONS. MINIMUM FREE AREA = 2.0 SQFT. SELECTION AND EXACT LOCATION BY ARCHITECT. COORDINATE W/ G.C..
26. GAS LINE DOWN FROM ROOF TO COMMON GAS HEADER FOR GAS-FIRED DRYERS. SEE SHEET M103.1 FOR GAS PIPING PLAN..
27. 8Ø DRYER VENT TO RUN THROUGH WALL THEN TURN DOWN AND TERMINATE WITH BDD (NO SCREEN). MAINTAIN 2" MINIMUM CLEARANCE ON ALL SIDES OF DUCT AT WALL PENETRATION. VENT TO TERMINATE A MINIMUM 3' ABOVE GRADE AND 3' BELOW INTAKE LOUVER.
28. DOOR UNDERCUT CANNOT EXCEED 3/4".
29. PROVIDE WATERPROOF SECURITY COVER FOR THERMOSTAT. COORDINATE EXACT SELECTION W/ OWNER.
30. 8Ø DOWN FROM GRAVITY VENTILATOR TO CEILING DIFFUSER. SEE DETAIL.

GENERAL NOTES - THIS SHEET

1. ENSURE THAT ALL SOURCES OF BUILDING EXHAUST ARE A MINIMUM OF 10' HORIZONTALLY FROM OR A MINIMUM OF 3' ABOVE ANY AREA OUTSIDE AIR INTAKES.
2. SEE SHEET M103.1 FOR GAS PIPING TABLES AND ROOF PLAN.

NOTE:
COORDINATE DUCT ROUTING WITH STRUCTURE, OVERHEAD PIPING, AND LIGHTS.

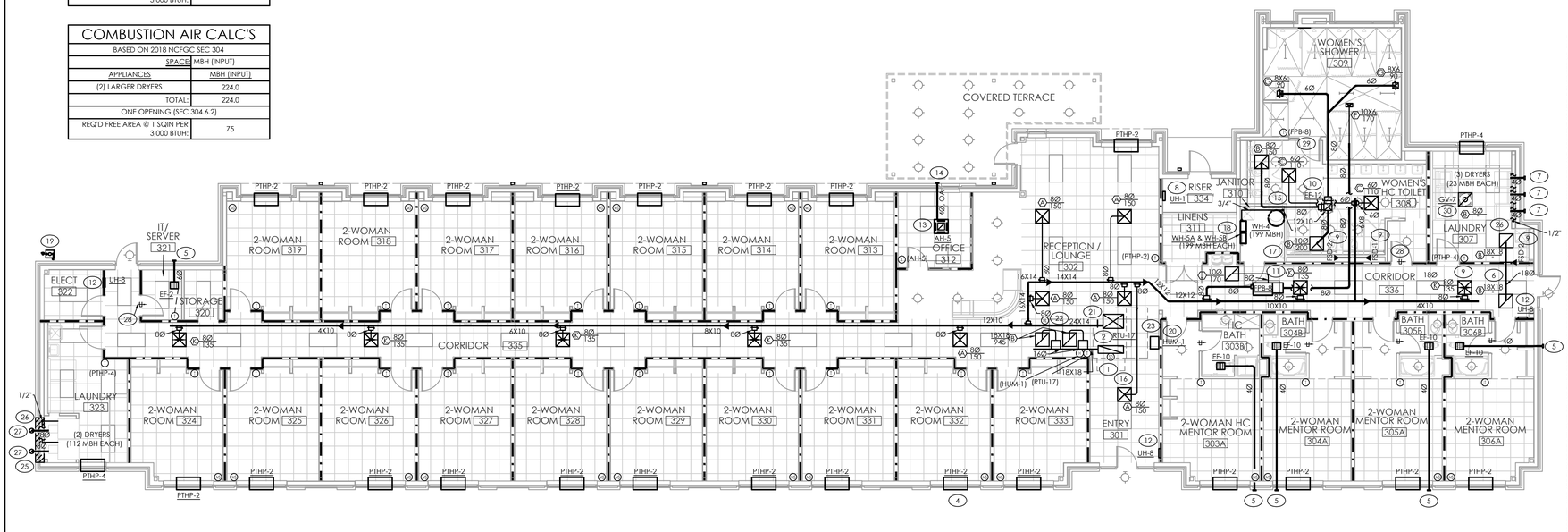
COMBUSTION AIR CALC'S

BASED ON 2018 NCFGC SEC 304	
SPACE:	MBH (INPUT)
APPLIANCES	MBH (INPUT)
(3) SMALLER DRYERS	69.0
TOTAL:	69.0
ONE OPENING (SEC 304.6.2)	
REQ'D FREE AREA @ 1 SQIN PER 3,000 BTUH:	23

COMBUSTION AIR CALC'S

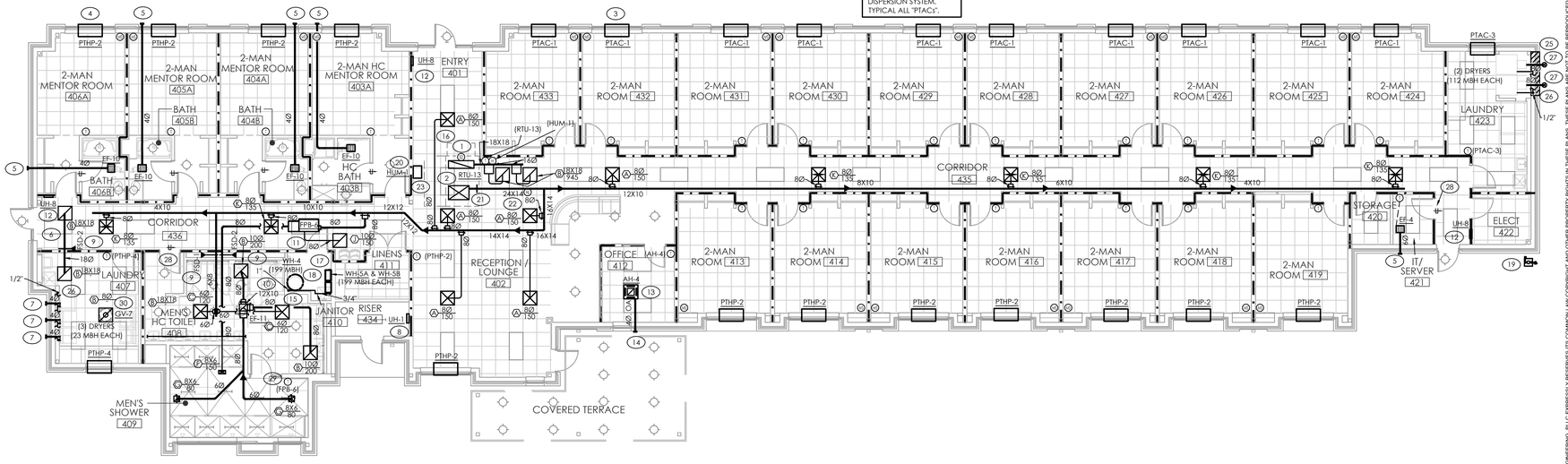
BASED ON 2018 NCFGC SEC 304	
SPACE:	MBH (INPUT)
APPLIANCES	MBH (INPUT)
(2) LARGER DRYERS	224.0
TOTAL:	224.0
ONE OPENING (SEC 304.6.2)	
REQ'D FREE AREA @ 1 SQIN PER 3,000 BTUH:	75

FIRE RATING LEGEND
- 1-HR WALL
- 1-HR WALL/ SMOKE WALL
- SMOKE PARTITION



2 MECHANICAL PLAN - WOMEN'S RESIDENTIAL BUILDING
SCALE: 1/8" = 1'-0"

NOTE:
AREA PTACS ABUT SIDEWALK. CONDENSATE DISCHARGE VIA DISPERSION SYSTEM. TYPICAL ALL "PTACS".



1 MECHANICAL PLAN - MEN'S RESIDENTIAL BUILDING
SCALE: 1/8" = 1'-0"

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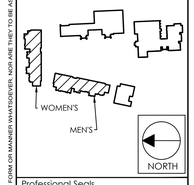

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No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
MECHANICAL RESIDENT BUILDING PLANS

Sheet Number
M103.0

9/2/2020 1:24 PM
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MEN'S GAS SYSTEM LOAD

EQUIPMENT	MBH (INPUT)
WH-4	199.0
WH-5A	199.0
WH-5B	199.0
RTU-13	195.0
(2) LARGER GAS DRYERS	224.0
(3) SMALLER GAS DRYERS	69.0
TOTAL:	1085.0

WOMEN'S GAS SYSTEM LOAD

EQUIPMENT	MBH (INPUT)
WH-4	199.0
WH-5A	199.0
WH-5B	199.0
RTU-17	195.0
(2) LARGER GAS DRYERS	224.0
(3) SMALLER GAS DRYERS	69.0
TOTAL:	1085.0

NATURAL GAS CALCULATIONS TABLE 402.4(5)

PIPE SIZE (IN.)	MAX CAPACITY OF PIPE IN MBH		
	EQUIV. LENGTH = 350 FT		
1/2"	232 MBH		
3/4"	486 MBH		
1"	869 MBH		
1-1/4"	1790 MBH		

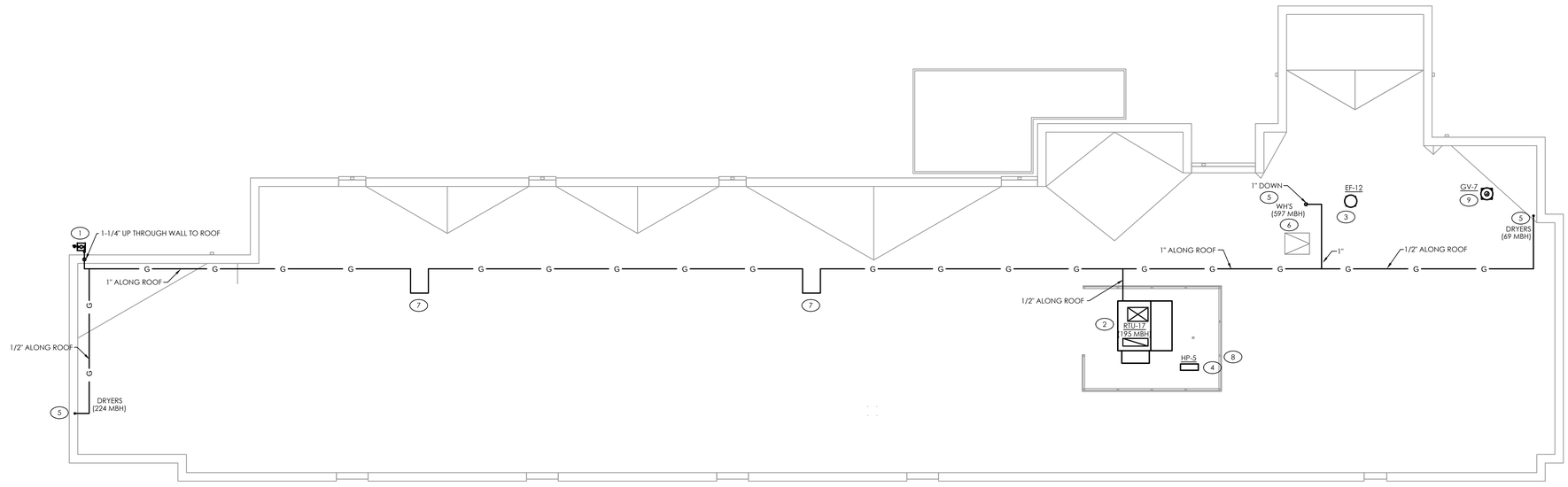
BASED UPON CHAPTER 4 OF THE 2018 NORTH CAROLINA FUEL GAS CODE. 2.0 PSI INLET PRESSURE, 1.0 PSI PRESSURE DROP.

GENERAL NOTES - THIS SHEET

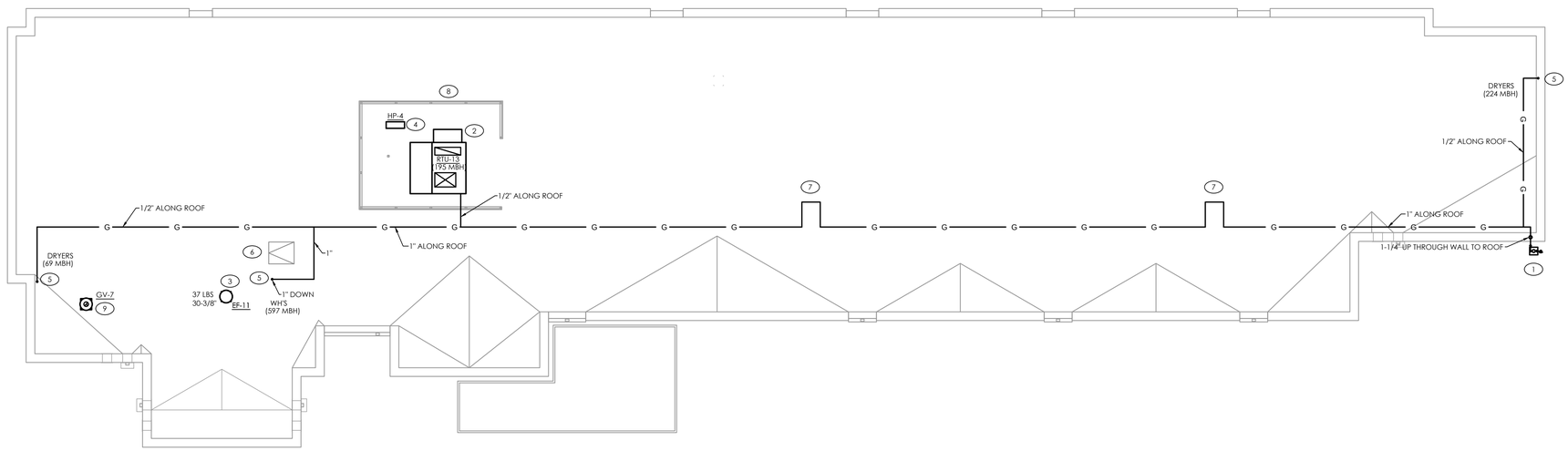
1. SEE SHEET M002 FOR ADDITIONAL GAS PIPING NOTES.
2. COORDINATE EXACT LOCATION OF ROOF EQUIPMENT W/ STRUCTURE BELOW. POSITION EQUIPMENT AS CLOSE TO SUPPORTING ELEMENTS AS POSSIBLE.
3. ENSURE THAT ROOF MOUNTED EQUIPMENT IS A MINIMUM OF 6' FROM ROOF EDGE IF PARAPET WALL IS LESS THAN 42" IN HEIGHT.
4. ENSURE THAT ALL SOURCES OF BUILDING EXHAUST ARE A MINIMUM OF 10' HORIZONTALLY FROM OR A MINIMUM OF 3' ABOVE ANY AREA OUTSIDE AIR INTAKES.

TAGGED NOTES - THIS SHEET

1. NEW GAS METER AND 2.0 PSI REGULATOR BY UTILITY. M.C. TO COORDINATE. GAS PIPING SYSTEM DESIGNED FOR 1085 MBH TOTAL LOAD AND 350 FT EQUIVALENT LENGTH.
2. SUPPLY AND RETURN DUCTS DOWN TO BELOW FROM RTU ON ROOF. SEE DETAIL.
3. EXHAUST DUCT DOWN TO BELOW FROM EXHAUST FAN ON ROOF. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES. SEE DETAIL.
4. INSTALL HEAT PUMP ON ROOF. ENSURE REQUIRED MAINTENANCE CLEARANCES ARE MAINTAINED. SEE DETAIL.
5. GAS LINE RUNS DOWN THROUGH ROOF TO BELOW. SEE SHEET M104.0 FOR CONTINUATION OF DOWNSTREAM PIPING.
6. ROOF ACCESS HATCH BY G.C..
7. PROVIDE EXPANSION LOOP AS SHOWN. SEE DETAIL.
8. ROOF EQUIPMENT SCREEN.
9. INSTALL GRAVITY VENTILATOR ON ROOF. SEE DETAIL.



2 MECHANICAL ROOF AND GAS PIPING PLAN - WOMEN'S RESIDENTIAL BUILDING
SCALE: 1/8" = 1'-0"



1 MECHANICAL ROOF AND GAS PIPING PLAN - MEN'S RESIDENTIAL BUILDING
SCALE: 1/8" = 1'-0"

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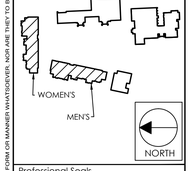

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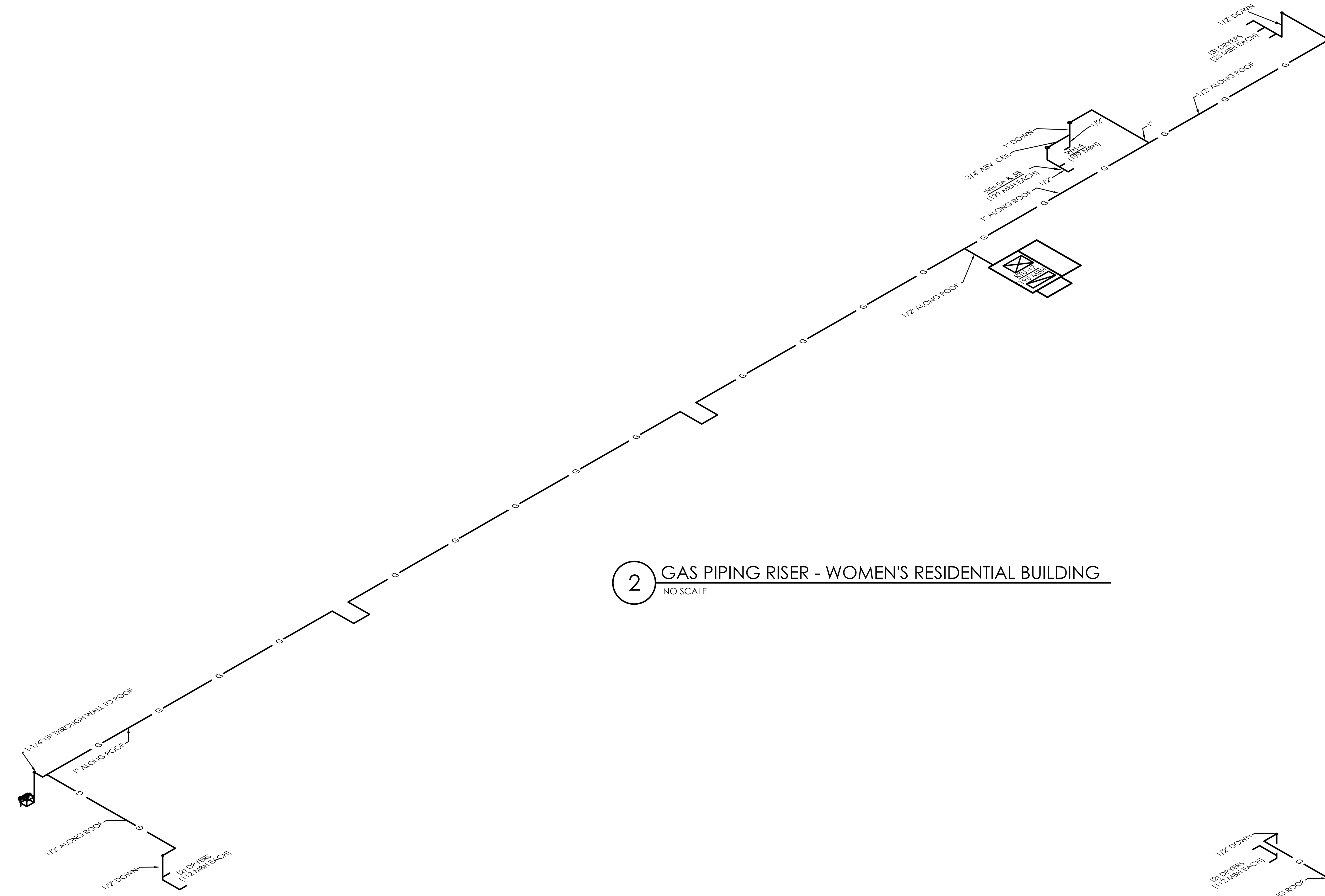
No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

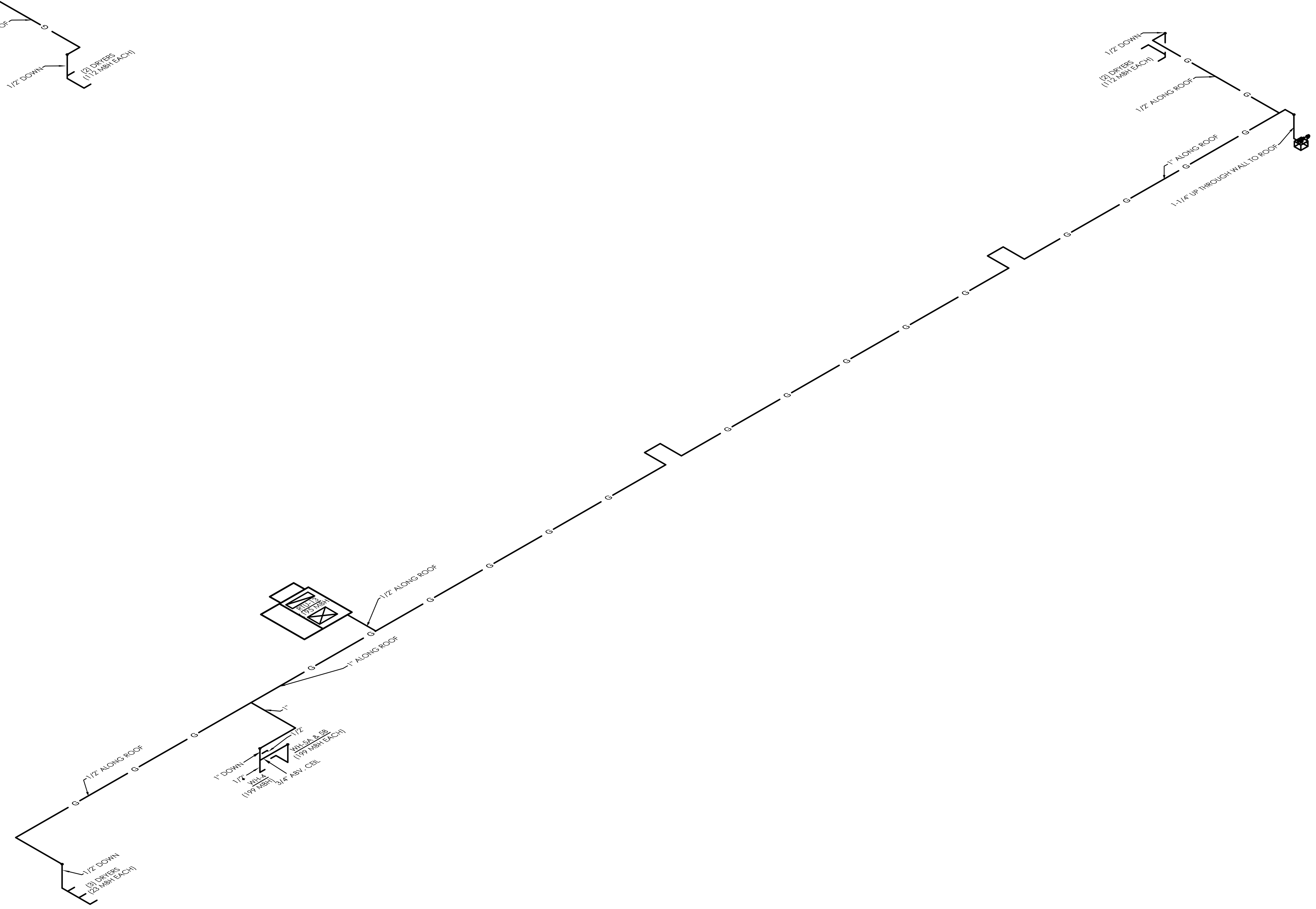
Sheet Title
MECHANICAL ROOF AND GAS PIPING PLAN - RESIDENTIAL BUILDINGS

Sheet Number
M103.1

9/2/2020 1:21 PM
RD-1801-M103.1.DWG



2 GAS PIPING RISER - WOMEN'S RESIDENTIAL BUILDING
NO SCALE



1 GAS PIPING RISER - MEN'S RESIDENTIAL BUILDING
NO SCALE

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SITE PLAN
WOMEN'S
MEN'S
NORTH

Professional Seals
NORTH CAROLINA PROFESSIONAL SEAL 049762 ENGINEER KEVIN SWEENEY
9/2/20

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
GAS PIPING RISERS - RESIDENTIAL BUILDINGS

Sheet Number
M103.2

9/2/2020 1:21 PM
ISD-1801-M103.2.DWG

GENERAL NOTES - THIS SHEET

1. ENSURE THAT ALL SOURCES OF BUILDING EXHAUST ARE A MINIMUM OF 10' HORIZONTALLY FROM OR A MINIMUM OF 3' ABOVE ANY AREA OUTSIDE AIR INTAKES.
2. SEE SHEET M104.1 FOR GAS PIPING TABLES AND ROOF PLAN.

NOTE:
COORDINATE DUCT ROUTING WITH STRUCTURE, OVERHEAD PIPING, AND LIGHTS.

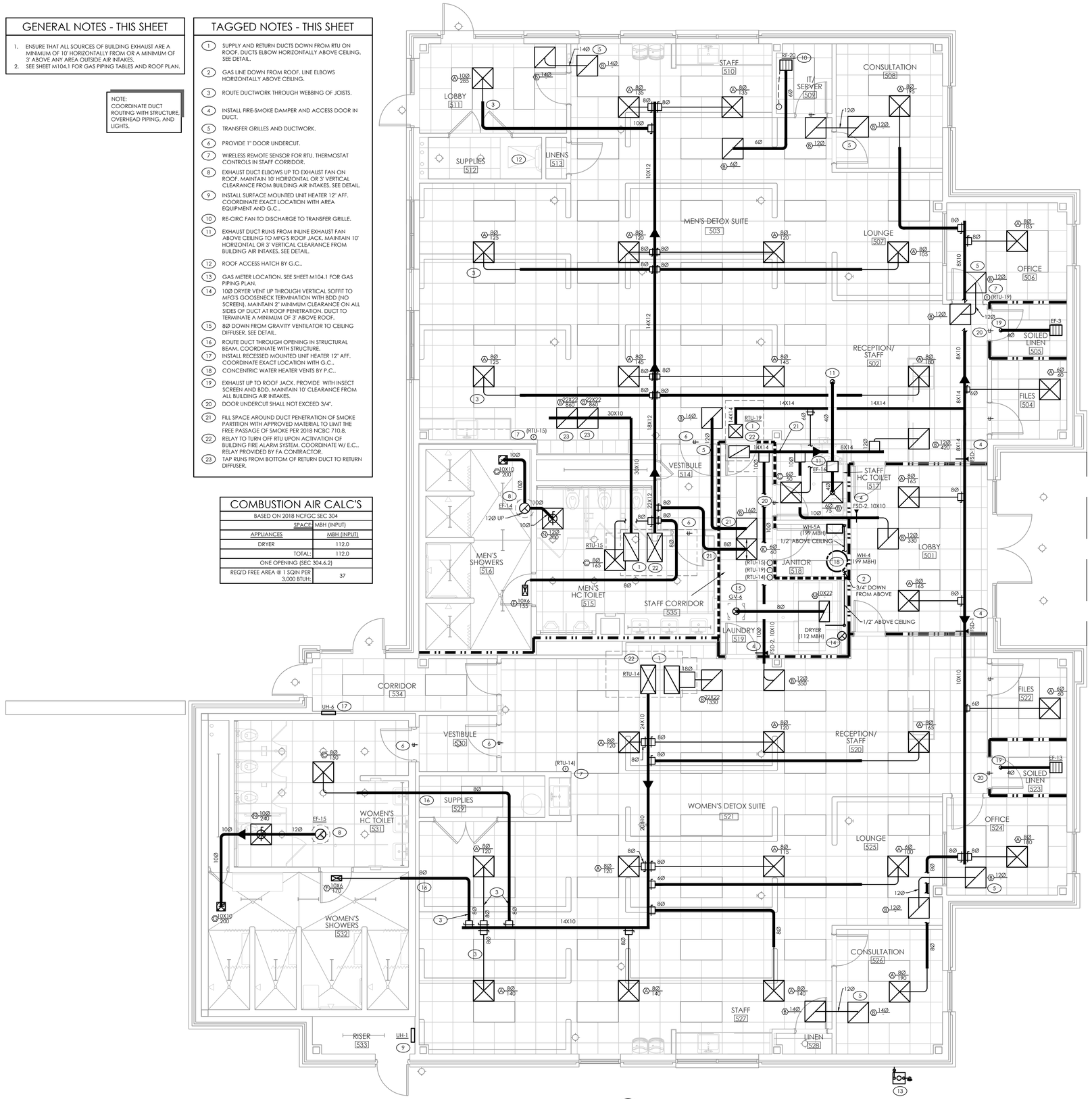
TAGGED NOTES - THIS SHEET

1. SUPPLY AND RETURN DUCTS DOWN FROM RTU ON ROOF. DUCTS ELBOW HORIZONTALLY ABOVE CEILING. SEE DETAIL.
2. GAS LINE DOWN FROM ROOF. LINE ELBOWS HORIZONTALLY ABOVE CEILING.
3. ROUTE DUCTWORK THROUGH WEBBING OF JOISTS.
4. INSTALL FIRE-SMOKE DAMPER AND ACCESS DOOR IN DUCT.
5. TRANSFER GRILLES AND DUCTWORK.
6. PROVIDE 1" DOOR UNDERCUT.
7. WIRELESS REMOTE SENSOR FOR RTU. THERMOSTAT CONTROLS IN STAFF CORRIDOR.
8. EXHAUST DUCT ELBOWS UP TO EXHAUST FAN ON ROOF. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM BUILDING AIR INTAKES. SEE DETAIL.
9. INSTALL SURFACE MOUNTED UNIT HEATER 12" AFF. COORDINATE EXACT LOCATION WITH AREA EQUIPMENT AND G.C..
10. RE-CIRC FAN TO DISCHARGE TO TRANSFER GRILLE.
11. EXHAUST DUCT RUNS FROM INLINE EXHAUST FAN ABOVE CEILING TO MFG'S ROOF JACK. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM BUILDING AIR INTAKES. SEE DETAIL.
12. ROOF ACCESS HATCH BY G.C..
13. GAS METER LOCATION. SEE SHEET M104.1 FOR GAS PIPING PLAN.
14. 10Ø DRYER VENT UP THROUGH VERTICAL SOFFIT TO MFG'S GOOSENECK TERMINATION WITH BDD (NO SCREEN). MAINTAIN 2" MINIMUM CLEARANCE ON ALL SIDES OF DUCT AT ROOF PENETRATION. DUCT TO TERMINATE A MINIMUM OF 3' ABOVE ROOF.
15. 8Ø DOWN FROM GRAVITY VENTILATOR TO CEILING DIFFUSER. SEE DETAIL.
16. ROUTE DUCT THROUGH OPENING IN STRUCTURAL BEAM. COORDINATE WITH STRUCTURE.
17. INSTALL RECESSED MOUNTED UNIT HEATER 12" AFF. COORDINATE EXACT LOCATION WITH G.C..
18. CONCENTRIC WATER HEATER VENTS BY P.C..
19. EXHAUST UP TO ROOF JACK. PROVIDE WITH INSECT SCREEN AND BDD. MAINTAIN 10' CLEARANCE FROM ALL BUILDING AIR INTAKES.
20. DOOR UNDERCUT SHALL NOT EXCEED 3/4".
21. FILL SPACE AROUND DUCT PENETRATION OF SMOKE PARTITION WITH APPROVED MATERIAL TO LIMIT THE FREE PASSAGE OF SMOKE PER 2018 NCBC 710.8.
22. RELAY TO TURN OFF RTU UPON ACTIVATION OF BUILDING FIRE ALARM SYSTEM. COORDINATE W/ E.C.. RELAY PROVIDED BY FA CONTRACTOR.
23. TAP RUNS FROM BOTTOM OF RETURN DUCT TO RETURN DIFFUSER.

COMBUSTION AIR CALC'S

BASED ON 2018 NCFGC SEC 304	
SPACE	MBH (INPUT)
APPLIANCES	MBH (INPUT)
DRYER	112.0
TOTAL:	112.0
ONE OPENING (SEC 304.6.2)	
REQ'D FREE AREA @ 1 SQIN PER 3,000 BTUH:	37

FIRE RATING LEGEND
- 1-HR WALL
- 1-HR WALL/ SMOKE WALL
- SMOKE PARTITION



1 MECHANICAL PLAN - DETOX BUILDING
SCALE: 1/4" = 1'-0"

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www.isdesignpa.com

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RALEIGH, NC 27605 LIC.#: P-0990
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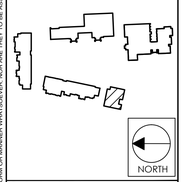
Project
THE HEALING PLACE OF NEW HANOVER COUNTY
1000 MEDICAL CENTER DRIVE
WILMINGTON, NORTH CAROLINA

Client
NEW HANOVER COUNTY, NORTH CAROLINA

SITE PLAN



Professional Seals

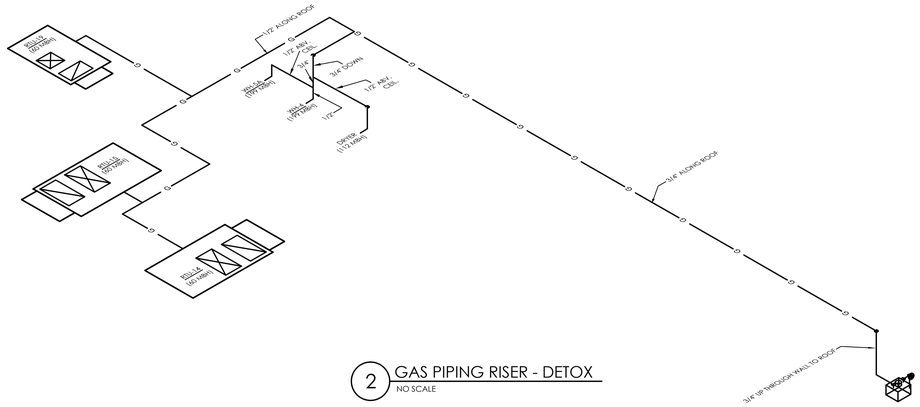
9/2/20

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

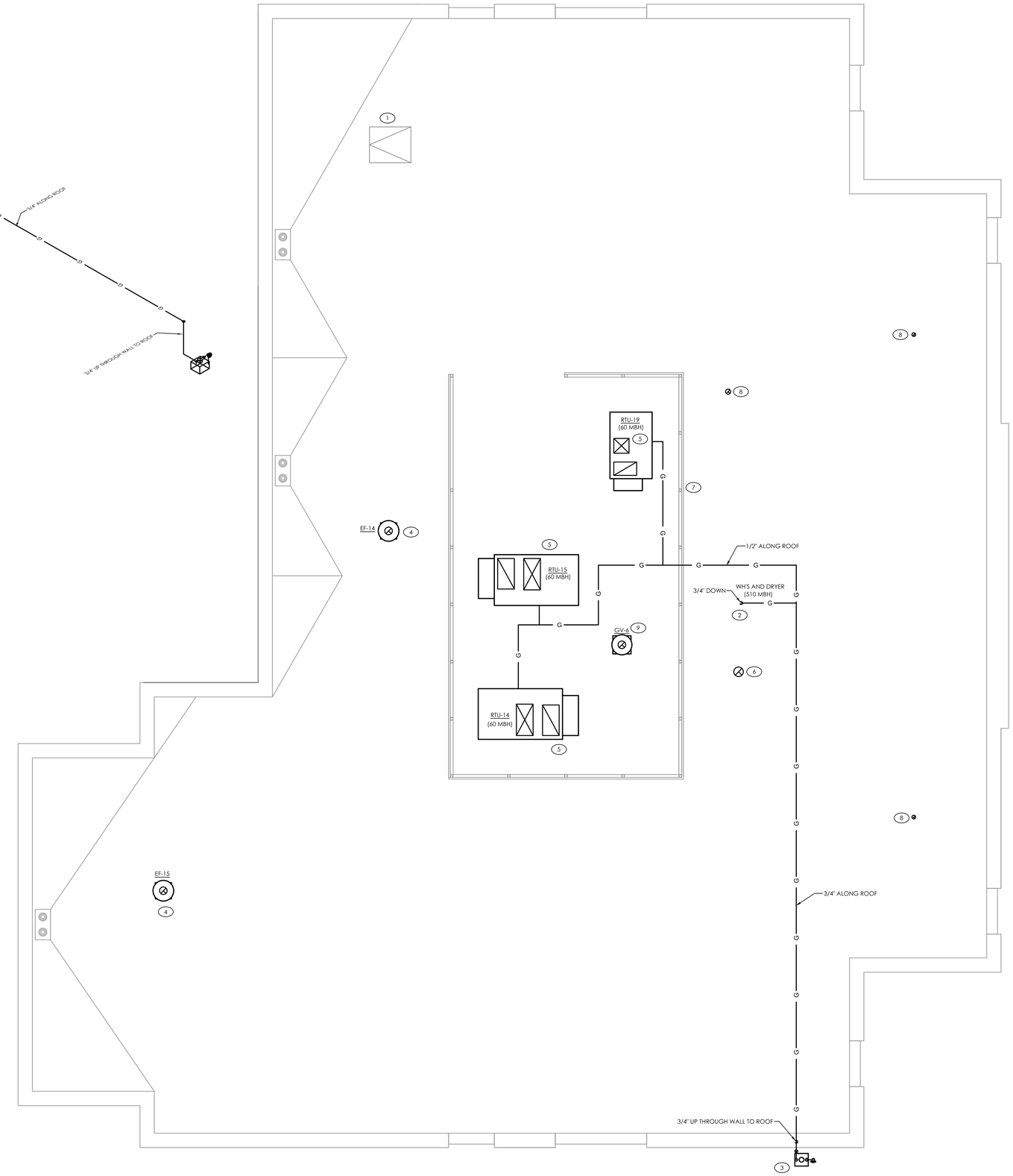
Sheet Title
MECHANICAL DETOX BUILDING PLAN

Sheet Number
M104.0

9/2/2020 1:21 PM
BIS-1801-M104.01.DWG



2 GAS PIPING RISER - DETOX
NO SCALE



1 MECHANICAL ROOF PLAN - DETOX PLAN
SCALE: 1/4" = 1'-0"

GENERAL NOTES - THIS SHEET

1. SEE SHEET M002 FOR ADDITIONAL GAS PIPING NOTES.
2. COORDINATE EXACT LOCATION OF ROOF EQUIPMENT W/ STRUCTURE BELOW. POSITION EQUIPMENT AS CLOSE TO SUPPORTING ELEMENTS AS POSSIBLE.
3. ENSURE THAT ROOF MOUNTED EQUIPMENT IS A MINIMUM OF 6' FROM ROOF EDGE IF PARAPET WALL IS LESS THAN 42" IN HEIGHT.
4. ENSURE THAT ALL SOURCES OF BUILDING EXHAUST ARE A MINIMUM OF 10' HORIZONTALLY FROM OR A MINIMUM OF 3' ABOVE ANY AREA OUTSIDE AIR INTAKES.

TAGGED NOTES - THIS SHEET

1. ROOF ACCESS HATCH BY G.C..
2. GAS LINE RUNS DOWN THROUGH ROOF TO BELOW. SEE SHEET M104.0 FOR CONTINUATION OF DOWNSTREAM PIPING.
3. NEW GAS METER AND 2.0 PSI REGULATOR BY UTILITY. M.C. TO COORDINATE. GAS PIPING SYSTEM DESIGNED FOR 690 MBH TOTAL LOAD AND 150 FT EQUIVALENT LENGTH. GAS PIPING TO TRAVEL UP THROUGH WALL TO ROOF.
4. EXHAUST DUCT DOWN TO BELOW FROM EXHAUST FAN ON ROOF. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES. SEE DETAIL.
5. SUPPLY AND RETURN DUCTS DOWN TO BELOW FROM RTU ON ROOF. SEE DETAIL.
6. 10Ø DRYER VENT UP THROUGH VERTICAL SOFFIT TO MFG'S GOOSENECK TERMINATION WITH BDD (NO SCREEN). DUCT TO TERMINATE A MINIMUM OF 3' ABOVE ROOF. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES.
7. ROOF EQUIPMENT SCREEN.
8. EXHAUST DUCT UP TO ROOF JACK FROM EXHAUST FAN BELOW. MAINTAIN 10' HORIZONTAL OR 3' VERTICAL CLEARANCE FROM ALL BUILDING AIR INTAKES
9. DUCT DOWN FROM GRAVITY VENTILATOR ON ROOF. SEE DETAIL.

GAS SYSTEM LOAD

EQUIPMENT	MBH (INPUT)
WH-4	199.0
WH-5A	199.0
RTU-14	60.0
RTU-15	60.0
RTU-19	60.0
DRYER	112.0
TOTAL:	690.0

NATURAL GAS CALCULATIONS TABLE 402.4(5)

PIPE SIZE (IN.)	MAX CAPACITY OF PIPE IN MBH		
	EQUIV. LENGTH = 150 FT		
1/2"	372 MBH		
3/4"	751 MBH		
1"	1370 MBH		

BASED UPON CHAPTER 4 OF THE 2018 NORTH CAROLINA FUEL GAS CODE, 2.0 PSI INLET PRESSURE, 1.0 PSI PRESSURE DROP.

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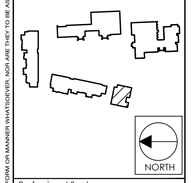

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	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
MECHANICAL ROOF AND GAS PIPING PLAN - DETOX BUILDING

Sheet Number
M104.1

9/2/2020 1:21 P.M.
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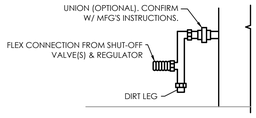
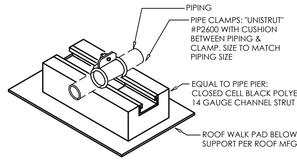


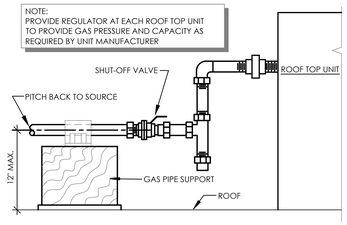
18 GAS CONNECTION DETAIL
NO SCALE



NOTE:
SUPPORT PIPE AT MAXIMUM OF 6'-0" O.C.
SEE ARCH. DWGS. FOR ROOF PENETRATION DETAILS.

17 GAS PIPING SUPPORT DETAIL
NO SCALE

NOTE:
PROVIDE REGULATOR AT EACH ROOF TOP UNIT TO PROVIDE GAS PRESSURE AND CAPACITY AS REQUIRED BY UNIT MANUFACTURER



16 GAS PIPING RTU CONNECTION
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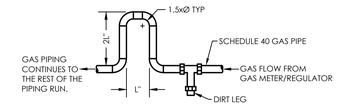

15 GAS EXPANSION LOOP DETAIL
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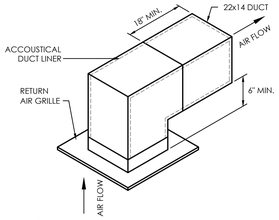
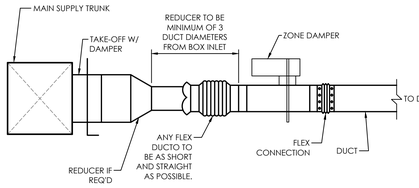
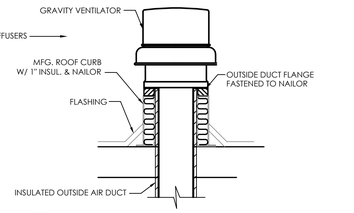


14 SOUND BOOT DETAIL
NO SCALE

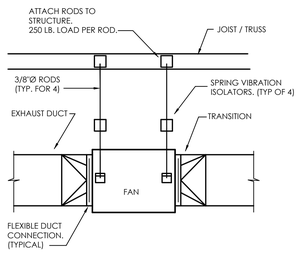


NOTE: ALL DUCT TO BE INSULATED PER PLANS

13 ZONE DAMPER DETAIL.
NO SCALE



12 GRAVITY VENTILATOR DETAIL (INTAKE)
NO SCALE



KITCHEN HOOD NOTES

1. ALL GREASE EXHAUST WORK IS TO BE DONE IN ACCORDANCE W/ 2018 NCMC SEC 506 & ALL OTHER APPLICABLE CODES. M.C. IS TO REVIEW REQUIREMENTS OF 2018 NCMC SEC 506 BEFORE BEGINNING WORK.
2. KITCHEN EXHAUST DUCT TO BE CONSTRUCTED OF MIN. 16 GAUGE STEEL. JOINTS TO BE CONTINUOUS EXTERNAL LIQUID-TIGHT WELDS.
3. EXHAUST DUCT TO SLOPE BACK TO HOOD OR APPROVED GREASE RESERVOIR. DUCT TO MAINTAIN MIN. 2% SLOPE FOR DUCT SYSTEMS 75' OR LESS IN LENGTH AND 8.3% SLOPE FOR DUCT SYSTEMS GREATER THAN 75' IN LENGTH.
4. ALL BENDS TO BE RADIUS THROAT AND RADIUS BACK TYPE. CENTER LINE RADIUS 1.0 TIMES DUCT DIMENSION OR GREATER.
5. CLEANOUTS TO BE PROVIDED WITHIN 10' OF ALL CHANGES IN DUCT DIRECTION & EVERY 20' ON CENTER IN HORIZONTAL RUNS. CONSULT LOCAL CODES REGARDING ADDITIONAL CLEANOUT LOCATIONS, CLEANOUT PROTECT. SIZING, AND ORIENTATION ON DUCT.
6. ALL GREASE EXHAUST DUCT(S) IS TO BE INSTALLED PER CODE REQUIREMENTS REGARDING CLEARANCE. DUCT ENCLOSURES, AND ACCESS. 18" CLEARANCE IS TO BE MAINTAINED FROM DUCT TO SURROUNDING COMBUSTIBLE CONSTRUCTION AND 3" CLEARANCE IS TO BE MAINTAINED FROM NON-COMBUSTIBLE CONSTRUCTION (6" REQ'Q FOR DUCT ENCLOSURES). SOME CLEARANCE OR DUCT ENCLOSURE REQUIREMENTS MAY BE OMITTED THROUGH THE USE OF APPROVED DUCTWRAP/FIREWRAP. DUCTWRAP USED FOR CLEARANCE REDUCTION AROUND GREASE DUCT TO BE 2-LAYERS OF "3M FIRE BARRIER DUCT WRAP 615+" OR EQUAL. CONSULT LOCAL AHJ.
7. ALL DUCTWRAP/FIREWRAP OR SIMILAR IS TO BE INSTALLED PER MFG. RECOMMENDATIONS.
8. GC IS TO PROVIDE RATED ENCLOSURE (WHEN NEEDED) WITH RATED ACCESS DOORS AS REQUIRED. GC TO SPACE STRUCTURE TO ACCOMMODATE DUCTS WITH WRAP, DUCT ENCLOSURES, AND ACCESS DOORS AS NECESSARY.
9. HOOD TO BE INSTALLED SUCH THAT CODE REQUIRED MIN. DISTANCE BETWEEN LOWEST EDGE OF GREASE FILTER(S) AND COOKING/HEATING SURFACE IS NOT VIOLATED. MIN. DISTANCE EQUALS 12" FOR SURFACES WITH NO EXPOSED FLAME, 24" FOR SURFACES WITH EXPOSED FLAME AND BURNERS & 42" FOR EXPOSED CHARCOAL AND CHARBROIL TYPE SURFACES. LOWEST EDGE OF HOOD MUST NOT BE MORE THAN 48" FROM COOKING SURFACE(S).
10. HOOD CAPTURE SIZED BASED UPON EQUIPMENT SCHEDULED TO BE UNDER HOOD PLUS MIN. 6" OVERHANG ON ALL EXPOSED SIDES PER CODE. FIELD VERIFY & COORDINATE ACTUAL FURNISHED EQUIPMENT WITH SPECIFIED HOOD SIZE.
11. EXHAUST DUCT CONNECTION TO HOOD TO BE CONTINUOUS LIQUID TIGHT WELD. ALTERNATE GASKETED BOLT TYPE CONNECTION IS PERMISSIBLE IF ALLOWED BY LOCAL CODES. ALTERNATE CONNECTION MUST BE MADE EXACTLY AS DIRECTED BY LOCAL CODES.
12. MC TO VERIFY EXACT DIMENSIONS OF HOOD EXHAUST AND MAKE UP AIR CONNECTION WITH HOOD MFG. PRIOR TO FABRICATION OR ORDERING OF RELATED EQUIPMENT (BALANCING DAMPERS, ETC.)
13. HOOD MUST MEET U.L. 710.
14. KITCHEN EQUIPMENT SERVED BY HOOD INTERLOCKED WITH HOOD CONTROLS. OPERATION OF KITCHEN EQUIPMENT TO BE IMPOSSIBLE WITHOUT OPERATION OF HOOD EXHAUST FAN. HOOD ACTIVATION BY TEMPERATURE SENSOR IS ACCEPTABLE ALTERNATIVE.
15. MC RESPONSIBLE FOR VIEWING ALL OTHER APPLICABLE KITCHEN PLANS FROM KITCHEN EQUIPMENT PROVIDER AND ARCHITECT PRIOR TO BEGINNING WORK. MC TO MAKE KNOWN ANY SIGNIFICANT DISCREPANCIES BETWEEN PLANS TO G.C., ARCHITECT OR ENGINEER.
16. PRIOR TO USE OR CONCEALMENT OF ANY PORTION OF THE GREASE DUCT SYSTEM A LEAKAGE TEST SHALL BE PERFORMED IN THE PRESENCE OF THE LOCAL AHJ. TEST TO BE PERFORMED AS OUTLINED IN 2018 NCMC SEC. 506.3.2.5.
17. AFTER INSTALLATION MC TO PERFORM BOTH "PERFORMANCE" AND "CAPTURE AND CONTAINMENT" TESTS IN THE PRESENCE OF THE LOCAL AHJ. SEE 2018 NCMC SEC.. 507.6.

KITCHEN HOOD FIRE SUPPRESSION SYSTEM

PROVIDE A PRE-ENGINEERED, WET CHEMICAL W/ WATER ASSIST FIRE PROTECTION SYSTEM EQUAL TO ANSUL R102 SYSTEM, DESIGNED IN COMPLIANCE WITH UL300 REQUIREMENTS. THE SYSTEM SHALL BE CAPABLE OF AUTOMATIC DETECTION AND REMOTE ACTUATION. THE SYSTEM SHALL BE IN ACCORDANCE WITH NFPA 96 AND LOCAL AHJ. DISCHARGE NOZZLES WILL PROVIDE COVERAGE OF, BUT NOT LIMITED TO, THE HOOD AREA AND EXHAUST DUCT. FURNISH ELECTRIC OPERATED GAS SHUT OFF VALVE.

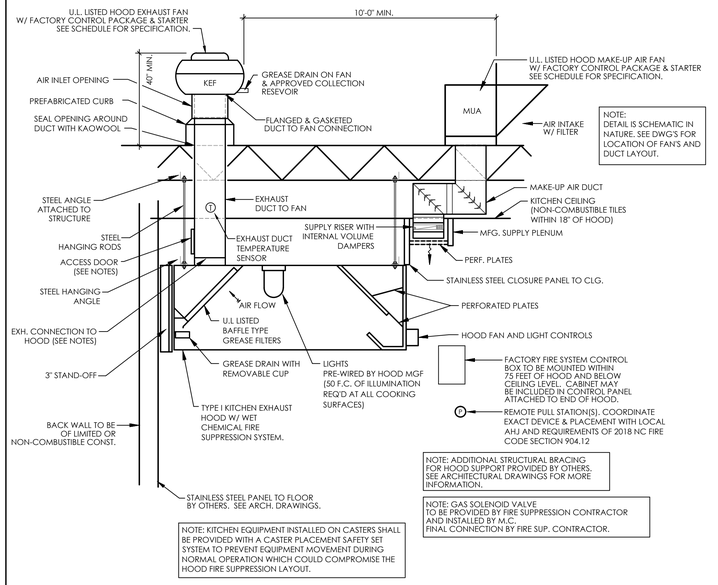
HOOD FIRE SUPPRESSION SEQUENCE OF OPERATION:
UPON ACTIVATION OF THE KITCHEN HOOD FIRE SUPPRESSION SYSTEM ALL HOOD MAKE-UP AIR FANS AND KITCHEN RTU SUPPLY FANS ARE TO SHUT DOWN. HOOD EXHAUST FANS ARE TO ACTIVATE. GAS SOLENOID VALVE IS TO CLOSE AND AN ALARM SIGNAL IS TO BE SENT TO THE BUILDING FIRE ALARM SYSTEM CONTROL PANEL. EQUIPMENT SHUNT TRIP BREAKER TO TURN OFF EQUIPMENT.

NOTE: SEE HOOD/FAN MFG DRAWINGS FOR MORE INFO.

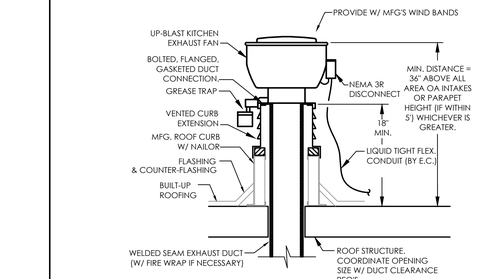
EXHAUST FAN NOTES

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 400°F (204°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (315°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

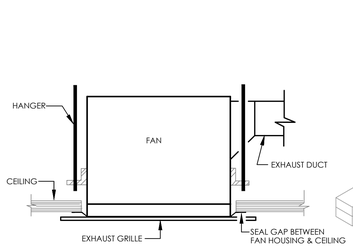


10 KITCHEN HOOD DETAIL (TYPE 1, WALL)
NO SCALE



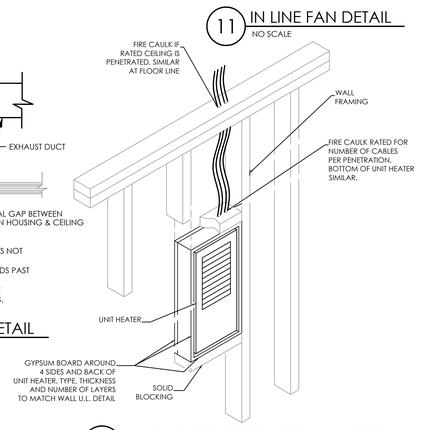
NOTE:
FAN DISCHARGE TO BE A MIN. OF 10' AWAY HORIZONTALLY FROM ANY NON-PARAPET PARTS OF THE BUILDING STRUCTURE AND ANY OUTSIDE AIR INTAKES.

9 GREASE EXHAUST FAN DETAIL
NO SCALE



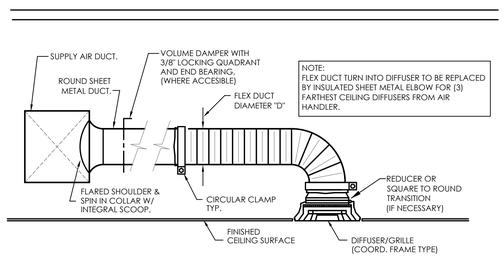
NOTES:
1. IF FAN IS EQUIPPED W/ INTERNAL BDD ENSURE BDD IS NOT TAPED SHUT.
2. ENSURE NO PORTION OF TAPE, SEALING, ETC EXTENDS PAST EDGE OF EXHAUST GRILLE.
3. INSTALLATION IN HARD-CEILING SIMILAR. FAN TO BE FASTENED TO RAFTER/JOIST. SEE MFG INSTRUCTIONS.

8 EXHAUST FAN (CEILING) DETAIL
NO SCALE



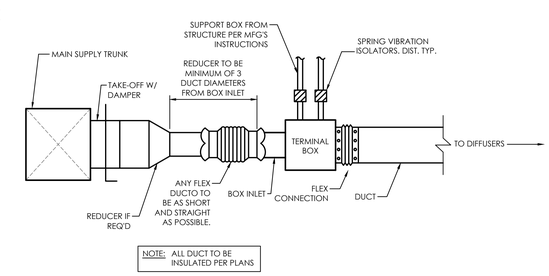
11 IN LINE FAN DETAIL
NO SCALE

7 UNIT HEATER FIRE RATED WALL DETAIL
NO SCALE



NOTES:
1. PROVIDE INSULATED REGISTER BOOT/PLENUM BOX IF NECESSARY.
2. RETURN APPLICATION IS SIMILAR. ALL ELBOWS IN RETURN APPLICATION TO BE INSULATED SHEET METAL (NO FLEX ELBOWS).

6 DIFFUSER DETAIL
NO SCALE



NOTE: ALL DUCT TO BE INSULATED PER PLANS

5 TERMINAL BOX DETAIL.
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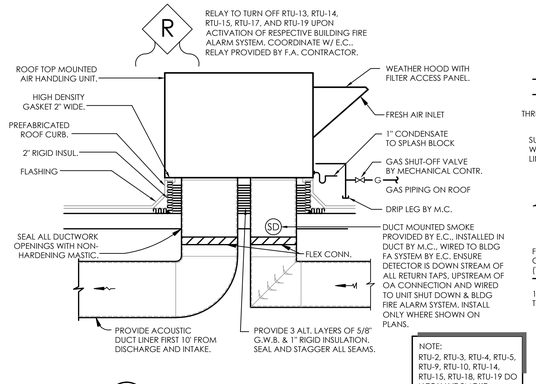
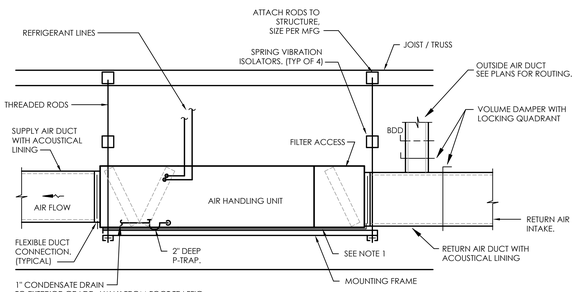


NOTE:
RTU-2, RTU-3, RTU-4, RTU-5, RTU-9, RTU-10, RTU-14, RTU-15, RTU-18, RTU-19 DO NOT HAVE SMOKE DETECTORS.

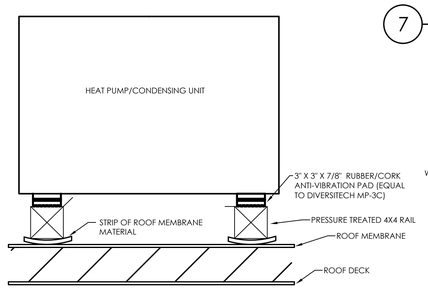
2 GAS/ELEC ROOFTOP UNIT
NO SCALE



NOTE:
1. AUXILIARY DRAIN PAN WITH MICROFLOAT SWITCH. INTERLOCK FLOAT SWITCH WITH AIR HANDLER. INSTALL FLOAT SWITCH IN ONE CORNER OF PAN AND TILT PAN TO THAT CORNER.

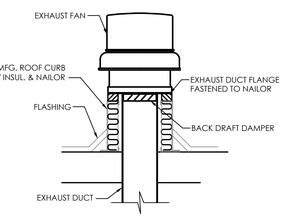
1 AIR HANDLING UNIT DETAIL
NO SCALE

NOTE:
COORDINATE HEAT PUMP MOUNTING W/ ARCH. AND STRUCTURAL ENGINEER. HEAT PUMP TO WITHSTAND 146 MPH WIND.



NOTES:
1. ANTI-VIBRATION PAD TO BE INSTALLED AT ALL (4) CORNERS OF UNIT.

4 ROOF HEAT PUMP DETAIL
NO SCALE



3 EXH. FAN DETAIL (ROOF)
NO SCALE

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SITE PLAN

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9/2/20

No.	Description	Date
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Sheet Title
MECHANICAL DETAILS

Sheet Number
M201

9/2/2020 1:21 PM
IISD-1801-M201.DWG

i-s design
ARCHITECTURE + INTERIORS
1111 Haynes Street, Suite 103
Raleigh, North Carolina 27604
t. 919.833.5400
www.isdesignpa.com

MAPLE
ENGINEERING, PLLC
708 ST. MARYS ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

Project
THE HEALING PLACE OF NEW HANOVER COUNTY
1000 MEDICAL CENTER DRIVE
WILMINGTON, NORTH CAROLINA

Client
NEW HANOVER COUNTY, NORTH CAROLINA

SITE PLAN

Professional Seals
NORTH CAROLINA PROFESSIONAL SEAL 049762 ENGINEER JOHN SWEENEY
9/2/20

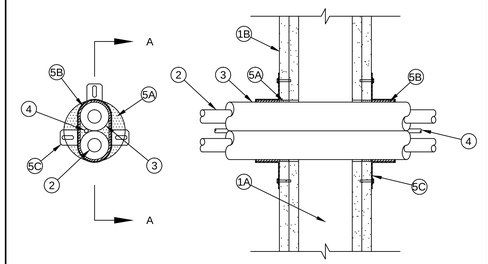
No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
MECHANICAL DETAILS

Sheet Number
M202

System No. W-L-8117

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings - 1 and 2 Hr (See Item 1)	F Rating - 1 and 2 Hr (See Item 1)
T Rating - 0 or 3/4 Hr (See Item 1)	FT Rating - 0 or 3/4 Hr (See Item 1)
	FH Rating - 1 and 2 Hr (See Item 1)
	FTH Rating - 0 or 3/4 Hr (See Item 1)



SECTION A-A

1. **Wall Assembly -** The 1 or 2 hr fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, V300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs -** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board* -** Thickness, type, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, V300, U400 , V400 or W400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 4 in. (102 mm).

   The F and FH Ratings of the firestop system are equal to the hourly fire rating of the wall in which it is installed. When the F rating is 1 hour the T, FT and FTH Ratings are 0 HR.
2. **Through Penetrants -** A max of two pipes, conduits or tubing to be installed within the opening. The annular space between the pipes, conduits or tubing and the periphery of the opening shall be min 1/8 in. (3.2 mm) to max 2 in. (51 mm). The annular space between the pipes, conduits or tubing and other penetrants shall be a min 0 in. (point contact) to a max 1/8 in. (3.2 mm). Pipes, conduits or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. **Steel Pipe -** Nom 3/4 in. diam (or smaller) Schedule 5 (or heavier) steel pipe.
   B. **Iron Pipe -** Nom 3/4 in. diam (or smaller) cast or ductile iron pipe.
   C. **Conduit -** Nom 3/4 in. diam (or smaller) rigid steel conduit or steel electrical metallic tubing (EMT).
   D. **Copper Pipe -** Nom 3/4 in. diam (or smaller) regular (or heavier) copper pipe.
   E. **Copper Tube -** Nom 3/4 in. diam (or smaller) Type L (or heavier) copper tube.
3. **Pipe Insulation - Foamed Plastic* -** Nom 1/2 in. (13 mm) thick polyethylene (PE) foamed plastic insulation. The insulation may be preassembled on a max of two pipes or tubes.

   See **Foamed Plastic** (BRYX) category in the Building Materials Directory for names of manufacturers. Any foamed plastic pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less may be used.
4. **Cables -** Max four pair No. 18 AWG (or smaller) copper conductor thermostat cable with PVC insulation and jacket. Cable shall be spaced 0 in. (point contact) to max 1/8 in. (3.2 mm) from insulated and bare penetrants. The annular space between the cable and the periphery of the opening shall be min 1/8 in. (3.2 mm) to max 2 in. (51 mm). Cable rigidly supported on both sides of wall assembly.
5. **Firestop System -** The firestop system shall consist of the following:
   A. **Fill, Void or Cavity Material* - Sealant -** Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of the wall. Additional fill material forced into grouped penetrant interstices to max extent possible.

      SPECIFIED TECHNOLOGIES INC - SpecSeal Series SSS Sealant or SpecSeal LCI Sealant
   B. **Fill, Void or Cavity Material* - Wrap Strip -** Nom 1/8 in. (3.2 mm), 3/16 in. (4.8 mm) or 1/4 in. (6.4 mm) thick intumescent material faced on both sides with a plastic film, supplied in 1-1/2 in. (38 mm) or 2 in. (51 mm) wide strips. One layer of wrap strip encircled around penetrant bundle with ends butted and held in place with masking tape. The edge of the wrap strips shall abut the surface of the wall on each side of the wall.

      SPECIFIED TECHNOLOGIES INC - SpecSeal RED, RED2, BLU or BLU2 Wrap Strip
   C. **Steel Collar -** Collar fabricated from coils of precut 0.016 in. (0.4 mm) thick (30 MSG) galv sheet steel available from wrap strip manufacturer. Collar shall be nom 1-1/2 in. (38 mm) to 2 in. (51 mm) deep, dependent upon width of wrap strip, with min three 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs for attachment to the wall. Retainer tabs, 3/4 in. (19 mm) wide tapering down to 1/4 in. (6 mm) wide and located opposite the anchor tabs, are folded 90 degrees toward through-penetrant surface to maintain the annular space around the through-penetrant and to retain the wrap strips. Steel collar wrapped around wrap strips and penetrant bundle with a 1 in. (25 mm) wide overlap along its perimeter joint. Steel collar tightened around wrap strips and penetrant bundle using min 1/2 in. (13 mm) wide by 0.028 in. (0.71 mm) thick stainless steel hose clamp installed at midheight of the collar or using three symmetrically located No. 8 steel sheet metal screws. Collar secured to wall surface by means of 1/8 in. (3.2 mm) diam by 1-3/4 in. (44 mm) long steel molly bolts or toggle bolts in conjunction with min 1-1/4 in. (32 mm) diam steel fender washers. Three fasteners symmetrically located, are required on each side of the wall.

      *** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

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(800)992-1180 • (908)526-8000 • FAX (908)231-8415 • E-Mail:techserv@stifirestop.com • Website:www.stifirestop.com
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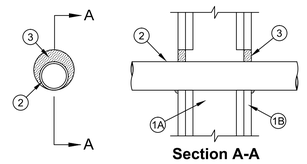
1 AC LINE SET (GYPSUM WALL) DETAIL
NO SCALE

Classified by
Underwriters Laboratories, Inc.
to ASTM/ULL1479 (ASTM E814)

System No. W-L-2241
F Ratings - 1 and 2 Hr (See Item 1)
T Ratings - 0, 1/4, 1 and 1-3/4 Hr (See Item 2)
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft



Section A-A

1. **Wall Assembly -** The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:
   A. **Studs -** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-1/2 in. (89 mm) wide and spaced max 24 in. (610 mm) OC.
   B. **Gypsum Board* -** Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Diam of opening to be 1 in. to 1-1/8 in. (25 to 29 mm) larger than outside diam of pipe.

      The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed. When Item 2G or 2H is used, the hourly F Rating is 1 hr.
2. **Through Penetrant -** One nonmetallic pipe, conduit or tube to be installed eccentrically or concentrically within the firestop system. Pipe, conduit or tube to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes, conduits and tubes may be used:
   A. **Polyvinyl Chloride (PVC) Pipe -** Nom 2 in. (51 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. Annular space shall be min 0 in. (0 mm, point contact) to max 1 in. (25 mm).
   B. **Chlorinated Polyvinyl Chloride (CPVC) Pipe -** Nom 2 in. (51 mm) diam (or smaller) SDR 13.5 or Schedule 80 CPVC pipe for use in closed (process or supply) piping systems. Annular space shall be min 0 in. (0 mm, point contact) to max 1 in. (25 mm).
   C. **Rigid Nonmetallic Conduit+ -** Nom 2 in. (51 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA 70). Annular space shall be min 0 in. (0 mm, point contact) to max 1 in. (25 mm).
   D. **Electrical Nonmetallic Tubing+ -** Nom 2 in. (51 mm) diam (or smaller) PVC tubing installed in accordance with Article 331 of the National Electrical Code (NFPA 70). Annular space shall be min 0 in. (0 mm, point contact) to max 1 in. (25 mm).
   E. **Cross Linked Polyethylene (PEX) Tubing -** Nom 1 in. (25 mm) diam (or smaller) SDR9 PEX tubing for use in closed (process or supply) piping systems. Annular space shall be min 0 in. (0 mm, point contact) to max 1 in. (25 mm).
   F. **Acrylonitrile Butadiene Styrene (ABS) pipe -** Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 solid-core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. Annular space shall be min 1/4 in. (6 mm) to max 3/4 in. (19 mm).
   G. **Polyvinyl Chloride (PVC) Pipe -** Nom 3 in. (76 mm) diam (or smaller) Schedule 40 solid or cellular core PVC pipe for use in closed (process or supply) piping systems. Annular space shall be min 0 in. (0 mm, point contact) to max 1 in. (25 mm).
   H. **Chlorinated Polyvinyl Chloride (CPVC) Pipe -** Nom 3 in. (76 mm) diam (or smaller) SDR 17 CPVC pipe for use in closed (process or supply) piping systems. Annular space shall be min 0 in. (0 mm, point contact) to max 1 in. (25 mm).

      When Item 2A or 2B is used, the T Rating is 1/4 hr. When Item 2C, 2D, or 2E is used, the T Rating is 1 hr and 1-3/4 hr for 1 hr and 2 hr fire rated walls, respectively. When Item 2F, 2G, or 2H is used, T Rating is 0 hr.
3. **Fill, Void or Cavity Material* - Sealant -** Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly. At point contact location, min 1/4 in. (6 mm) diam bead of fill material applied at nonmetallic pipe/gypsum board interface on both surfaces of wall.

   SPECIFIED TECHNOLOGIES INC - SpecSeal LCI Sealant or Type WF300 Firestop Caulk (for wood studs only)

   * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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2 NON-METALLIC PIPE (GYPSUM WALL) DETAIL
NO SCALE

9/2/2020 1:22 PM
BD+-1801-M202.DWG

HOOD INFORMATION – Job#4431482

HOOD NO	TAG	MODEL	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/ft	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW
1	HD-1; Left	6024 ND-2-PSP-F	10' 8"	600 Deg	I	Heavy	275	2933			4"	16"	2933	2101	-1.251"	2346	430 SS Where Exposed	LEFT	ALONE
2	HD-2; Right	6024 ND-2-PSP-F	12' 0"	600 Deg	I	Heavy	250	3000			4"	18"	3000	1698	-0.951"	2400	430 SS Where Exposed	RIGHT	ALONE

PATENT NUMBERS

AC-PSP (United States) - US Patent 7963830 B2
AC-PSP Wall (Canada) - CA Patent 2820509
AC-PSP Island (Canada) - CA Patent 2520330

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	FIRE SYSTEM SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1	HD-1; Left	Captrate Solo Filter	8	20"	16"	85% See Filter Spec	4	L55 Series E26	NO	Left	20"x60"x24"	Ansul R102	3.0/3.0/1.5	DCV-2111	1 Light 1 Fan	YES	843 LBS
2	HD-2; Right	Captrate Solo Filter	9	20"	16"	85% See Filter Spec	4	L55 Series E26	NO							YES	698 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	HD-1; Left	FIELD WRAPPER 18.00" High Front, Left
		BACKSPLASH 122.00" High X 311.00" Long 430 SS Vertical
		BALANCE DAMPERS
		RISER SENSOR INSTALL 3IN DBL
2	HD-2; Right	FIELD WRAPPER 18.00" High Front, Right
		RIGHT SIDESPLASH 122.00" High X 78.00" Long 430 SS Vertical
		RIGHT END STANDOFF (FINISHED) 1" Wide 60" Long Insulated
		BALANCE DAMPERS
		RISER SENSOR INSTALL 3IN DBL

PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	PDS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S) WIDTH	LENG	DIA	CFM	SP
1	HD-1; Left	Front	148"	18"	6"	MUA	12"	28"		782	0.228"
						MUA	12"	28"		782	0.228"
						MUA	12"	28"		782	0.228"
2	HD-2; Right	Front	145"	18"	6"	MUA	12"	28"		800	0.238"
						MUA	12"	28"		800	0.238"
						MUA	12"	28"		800	0.238"

CAPTIVEAIRE SYSTEMS RECOMMENDS THE USE OF LISTED, PRE-FABRICATED ROUND GREASE EXHAUST DUCT TO REDUCE STATIC PRESSURE IN THE SYSTEM, MINIMIZE INSTALLATION AND INSPECTION TIMES, AND ENSURE DUCT IS LIQUID TIGHT

HVAC DISTRIBUTION NOTE

HIGH VELOCITY DIFFUSERS OR HVAC RETURNS SHOULD NOT BE PLACED WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORATED DIFFUSERS ARE RECOMMENDED.

*** NOTE ***

ALL WALLS THAT COME WITHIN 18" OF HOOD MUST BE METAL STUDS AND SHEETROCK. WOOD STUDS NOT ALLOWED.

SPECIFICATION: CAPTRATE® GREASE-STOP® SOLO FILTER

THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

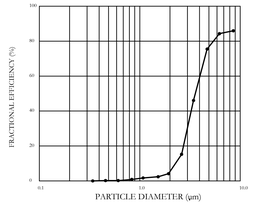
FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

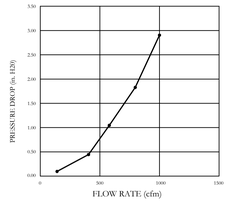
GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.

THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05.

EFFICIENCY VS. PARTICLE DIAMETER

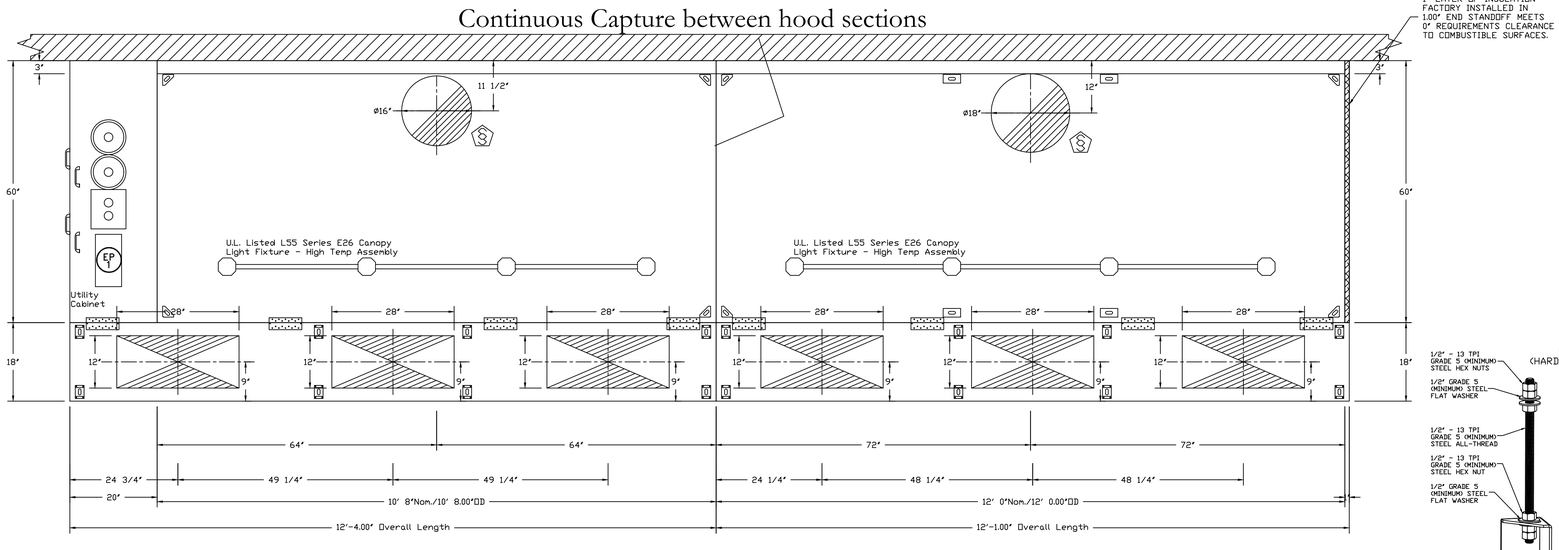


PRESSURE DROP VS. FLOW RATE



CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH:
NFPA #96
NSF STANDARD #2
UL STANDARD #1046
INT. MECH. CODE (IMC)
ULC-S649

Continuous Capture between hood sections



PLAN VIEW – Hood #1 (HD-1; Left)
10' 8.00" LONG 6024ND-2-PSP-F

PLAN VIEW – Hood #2 (HD-2; Right)
12' 0.00" LONG 6024ND-2-PSP-F

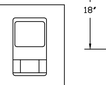
NOTE: Additional hanging angles provided for hoods 12' and longer.

Continuous Capture	
Hood No.	Location
1	Right
2	Left

DUCT TEMPERATURE SENSOR

Provides exhaust air temperature for proper hood control operation. For all installations excluding a single hood with factory risers and a hood mounted panel, duct mounted temperature sensors will need to be field wired. 2-wire 18 AWG plenum rated thermistor cable must be used.

ROOM TEMPERATURE SENSOR



Provides room override based on temperature differential between the room and duct. Installed by electrician on a wall, 5'-6' off the finished floor, in the space but not directly under the hood or close to an appliance (including the electrical control box) so the reading is accurate for space.

HOOD CONTROL INTERFACE

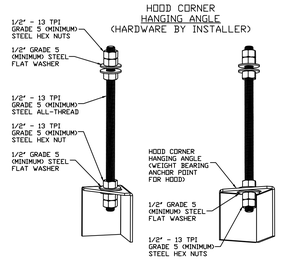
The LCD interface provides user control and hood status. The faceplate is connected to the hood control panel through CAT-5 cable. A faceplate has 2 RJ-45 connectors. One connects to port J4 or J5 in the hood control panel and the other will typically be occupied by a RJ-45 end-of-line terminator.

Fire System Information – Job#4431482

FIRE SYSTEM NO	Tag	TYPE	SIZE	FLOW POINTS	INSTALLATION SYSTEM	INSTALLATION LOCATION ON HOOD
1		Ansul R102	3.0/3.0/1.5	16	Fire Cabinet Left	Left, Hood 1

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

HOOD CORNER HANGING ANGLE (HARDWARE BY INSTALLER)



ASSEMBLY INSTRUCTIONS

NOTE:
SEE ADDITIONAL HOOD DRAWINGS & MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

NOTE:
HOOD & FAN DESIGN IS BY OTHERS. HOOD & FAN INFORMATION SUPPLIED BY OTHERS AND PRESENTED ON THIS DRAWING HAS ONLY BEEN REVIEWED TO THE EXTENT OF IT'S ACCEPTABILITY GIVEN THE REQUIREMENTS OF THE OVERALL MECHANICAL SYSTEM.

is-design
ARCHITECTURE + INTERIORS
1111 Haynes Street, Suite 103
Raleigh, North Carolina 27604
t. 919.833.5400
www.isdesignpa.com

MAPLE ENGINEERING, PLLC
708 ST. MARYS ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

REVISIONS

	DESCRIPTION	DATE:
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△		
△		

CAPTIVEAIRE
Blue Ridge
607 5th St. NW, Hickory, NC, 28601 PHONE: (800) 445-1869 FAX: (919) 227-5993 EMAIL: reg16@captiveaire.com
www.captiveaire.com

Project
THE HEALING PLACE OF NEW HANOVER COUNTY
1000 MEDICAL CENTER DRIVE
WILMINGTON, NORTH CAROLINA

Client
NEW HANOVER COUNTY, NORTH CAROLINA

SITE PLAN

Professional Seals
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 049762 STEPHEN SWEENEY
9/2/20

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Healing Places v2071020
WILMINGTON, NC, 28402

DATE: 7/10/2020

DWG.#: 4431482

DRAWN BY: MHB - 16

SCALE:

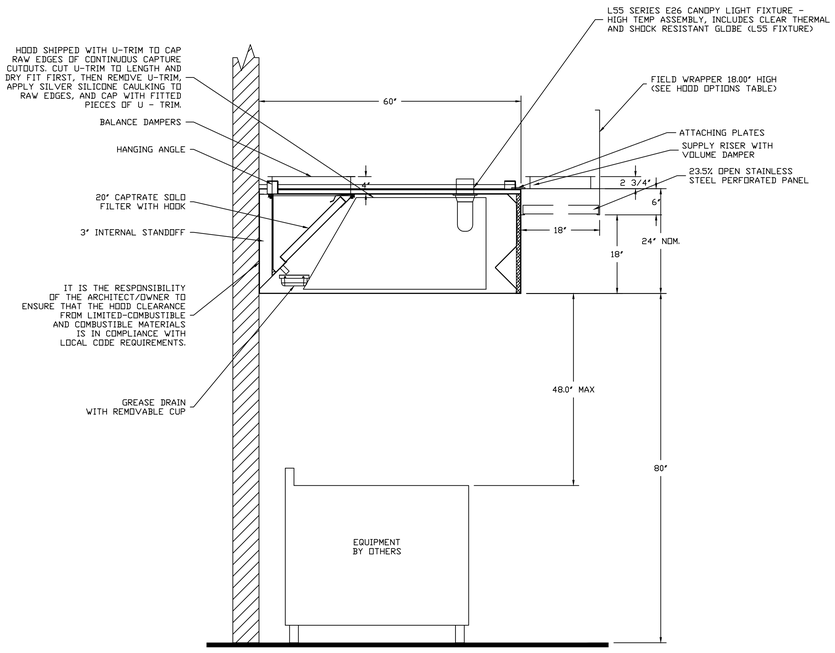
MASTER DRAWING

SHEET NO. 1

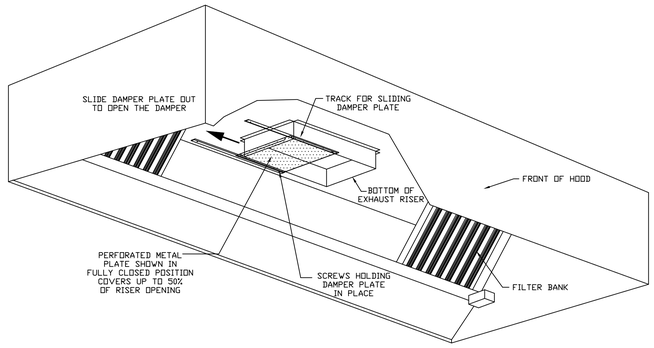
Sheet Title
HOOD DRAWINGS

Sheet Number
HD001

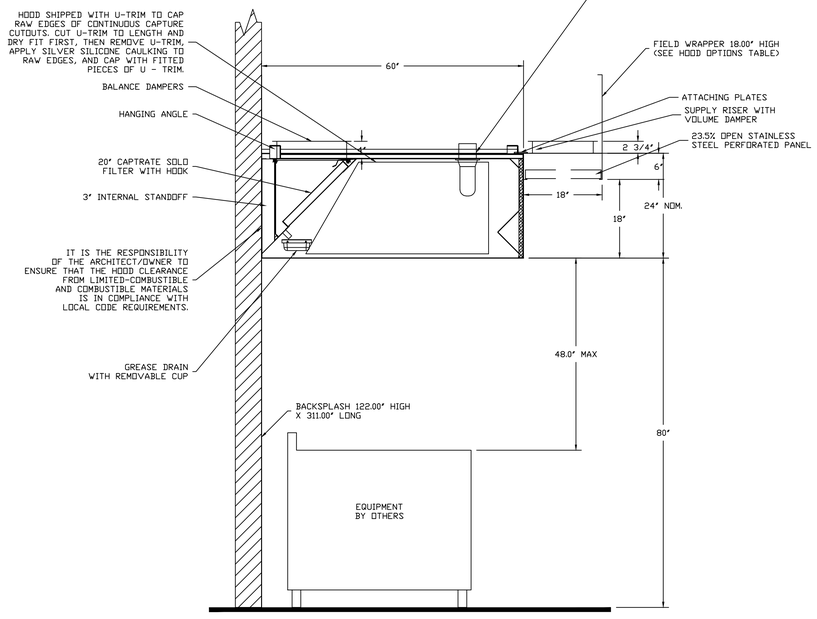
9/2/2020 1:17 PM
IES-1801-HD001.DWG



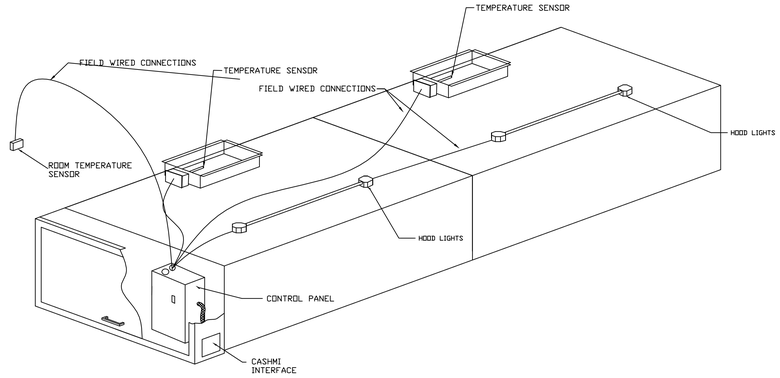
SECTION VIEW - MODEL 6024ND-2-PSP-F
HOOD - #2 (HD-2; Right)



BALANCING DAMPER DETAIL



SECTION VIEW - MODEL 6024ND-2-PSP-F
HOOD - #1 (HD-1; Left)



NOTE:
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REVISIONS

	DESCRIPTION:	DATE:
△		
△		
△		
△		

CAPTIVE-AIRE
Blue Ridge
607 5th St. NW, Hickory, NC, 28601 PHONE: (800) 445-1869 FAX: (919) 227-5993 EMAIL: reg16@captiveaire.com
www.captiveaire.com

Healing Places v2071020
WILMINGTON, NC, 28402

DATE: 7/10/2020

DWG.#: 4431482

DRAWN BY: MHB - 16

SCALE: [redacted]

MASTER DRAWING

SHEET NO. 2

is-design
ARCHITECTURE + INTERIORS
1111 Haynes Street, Suite 103
Raleigh, North Carolina 27604
t. 919.833.5400
www.isdesignpa.com

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SITE PLAN

Professional Seals
NORTH CAROLINA PROFESSIONAL SEAL 049762 ENGINEER JOSEPH SWEENEY
9/2/20

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
HOOD DRAWINGS

Sheet Number
HD002

9/2/2020 1:17 PM
HD-1801-HD002.DWG

EXHAUST FAN INFORMATION – Job#4431482

FAN UNIT NO	TAG	FAN UNIT MODEL #	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	Ø	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1		DU200HFA	2933	1.500	1176	ODP,PREMIUM	2.000	1.6280	3	208	8.3	714 FPM	202	19.5
~~2~~		~~DU200HFA~~	~~3000~~	~~1.500~~	~~1182~~	~~ODP,PREMIUM~~	~~2.000~~	~~1.6640~~	~~3~~	~~208~~	~~8.8~~	~~730 FPM~~	~~202~~	~~19.8~~

NOTE:
GREASE FAN SELECTION SHOWN ON SHEET IS PRELIMINARY. EXHAUST TO TERMINATE AT A SINGLE UPBLAST GREASE EXHAUST FAN RATED AT 5933 CFM. EXACT FAN SPECIFICATIONS BY HOOD SUPPLIER.

MUA FAN INFORMATION – Job#4431482

FAN UNIT NO	TAG	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	Ø	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
3		A3-24D	24MF-3-MOD	A3	3000	4746	0.450	994	ODP,PREMIUM	3.000	1.9410	3	208	10.2	12.8A	20A	584	13.1

FAN OPTIONS

FAN UNIT NO	TAG	OPTION (Qty - Descr)
~~1~~		~~1 - Grease Box~~
2		1 - Grease Box

NOTE:
MAKE-UP AIR FAN SELECTION SHOWN ON SHEET IS PRELIMINARY. MAKE-UP AIR UNIT TO UTILIZE GAS HEAT FOR MAKE-UP AIR TEMPERING. EXACT SPECIFICATIONS BY HOOD SUPPLIER.

CURB ASSEMBLIES

NO	ON FAN	WEIGHT	ITEM	SIZE
~~1~~	~~# 1~~	~~38 LBS~~	~~Curb~~	~~26.500"W x 26.500"L x 24.000"H Right Vented Hinged~~
2	# 2	38 LBS	Curb	26.500"W x 26.500"L x 24.000"H Right Vented Hinged
3	# 3	32 LBS	Curb	35.000"W x 35.000"L x 15.000"H

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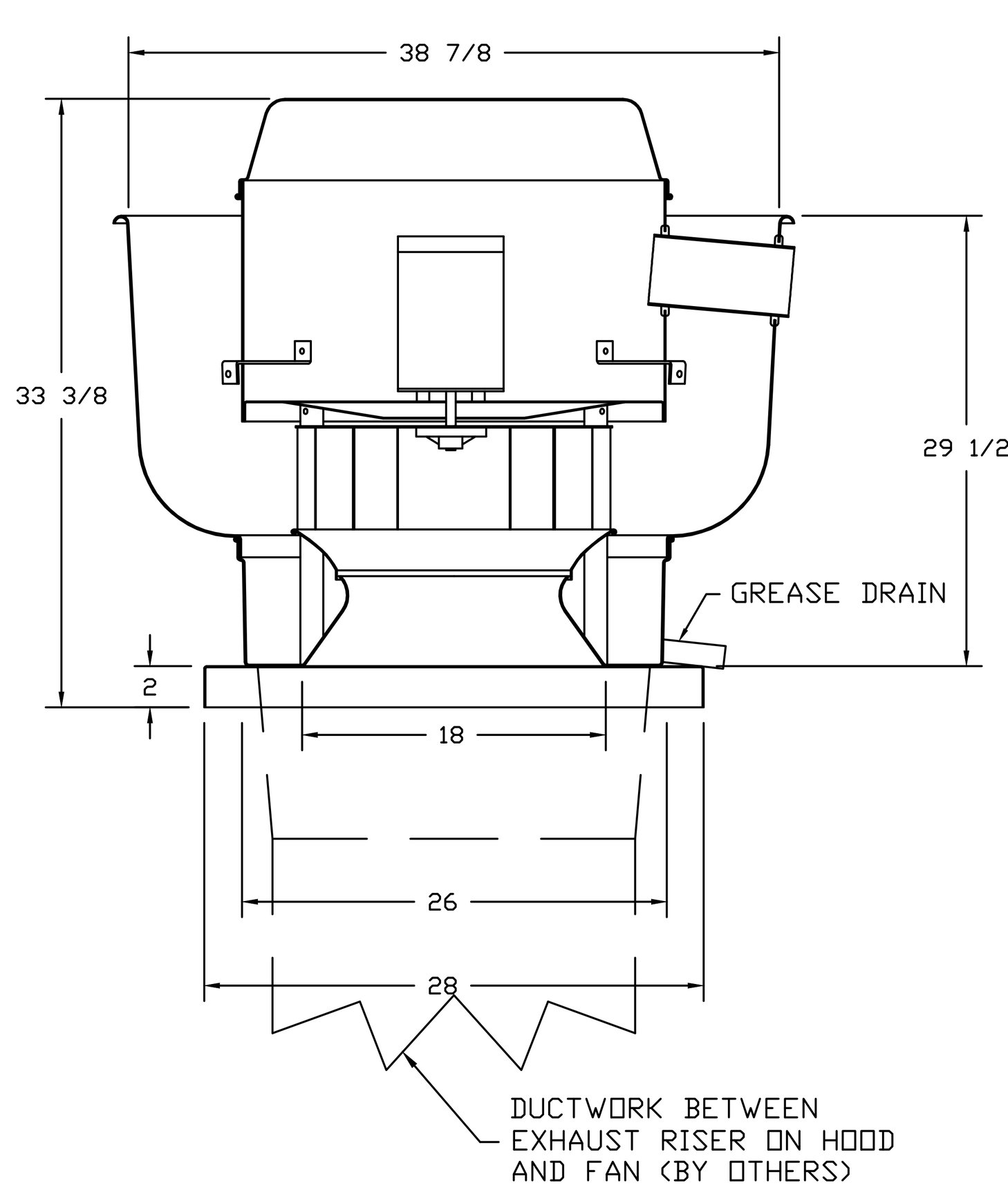
FANS #1, ~~#2~~ - DU200HFA EXHAUST FAN



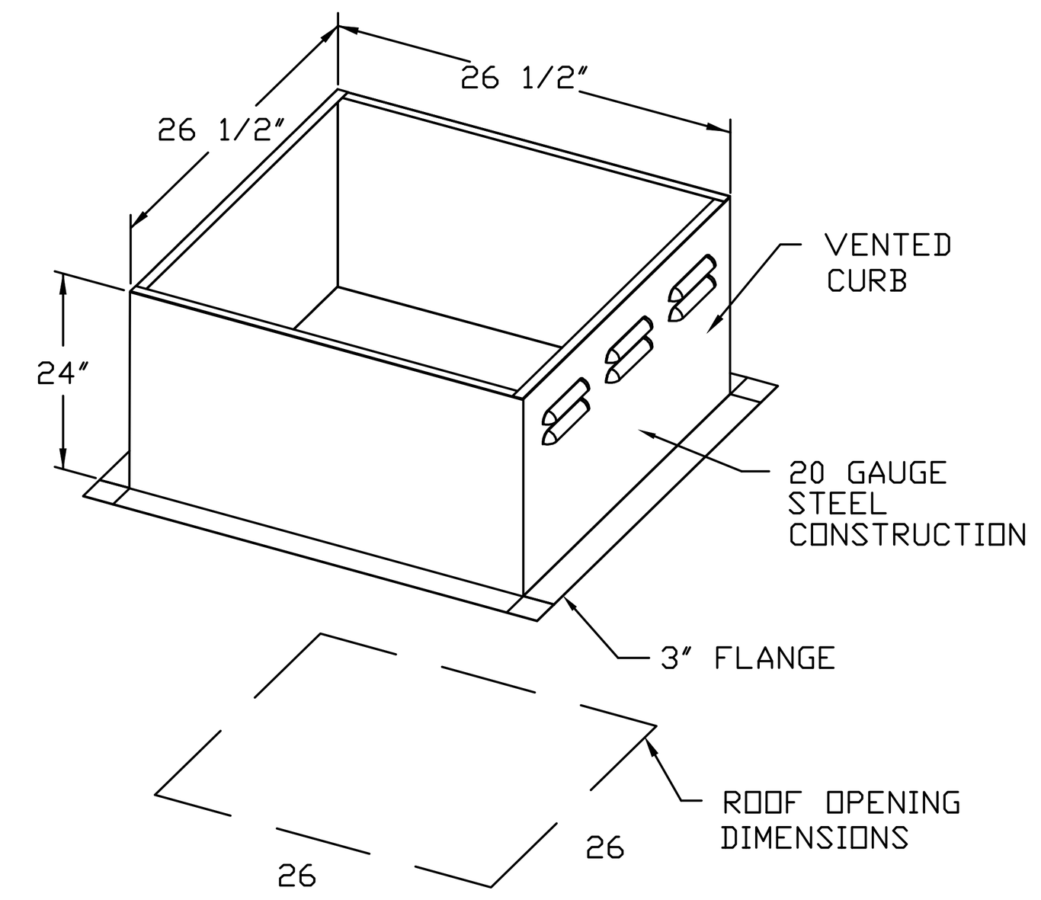
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS)
- ROOF MOUNTED FANS
- RESTAURANT MODEL
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL
- INTERNAL WIRING
- WEATHERPROOF DISCONNECT
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE)
- HIGH HEAT OPERATION 300°F (149°C)
- GREASE CLASSIFICATION TESTING

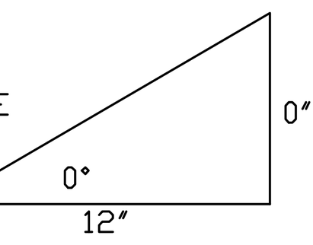
NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

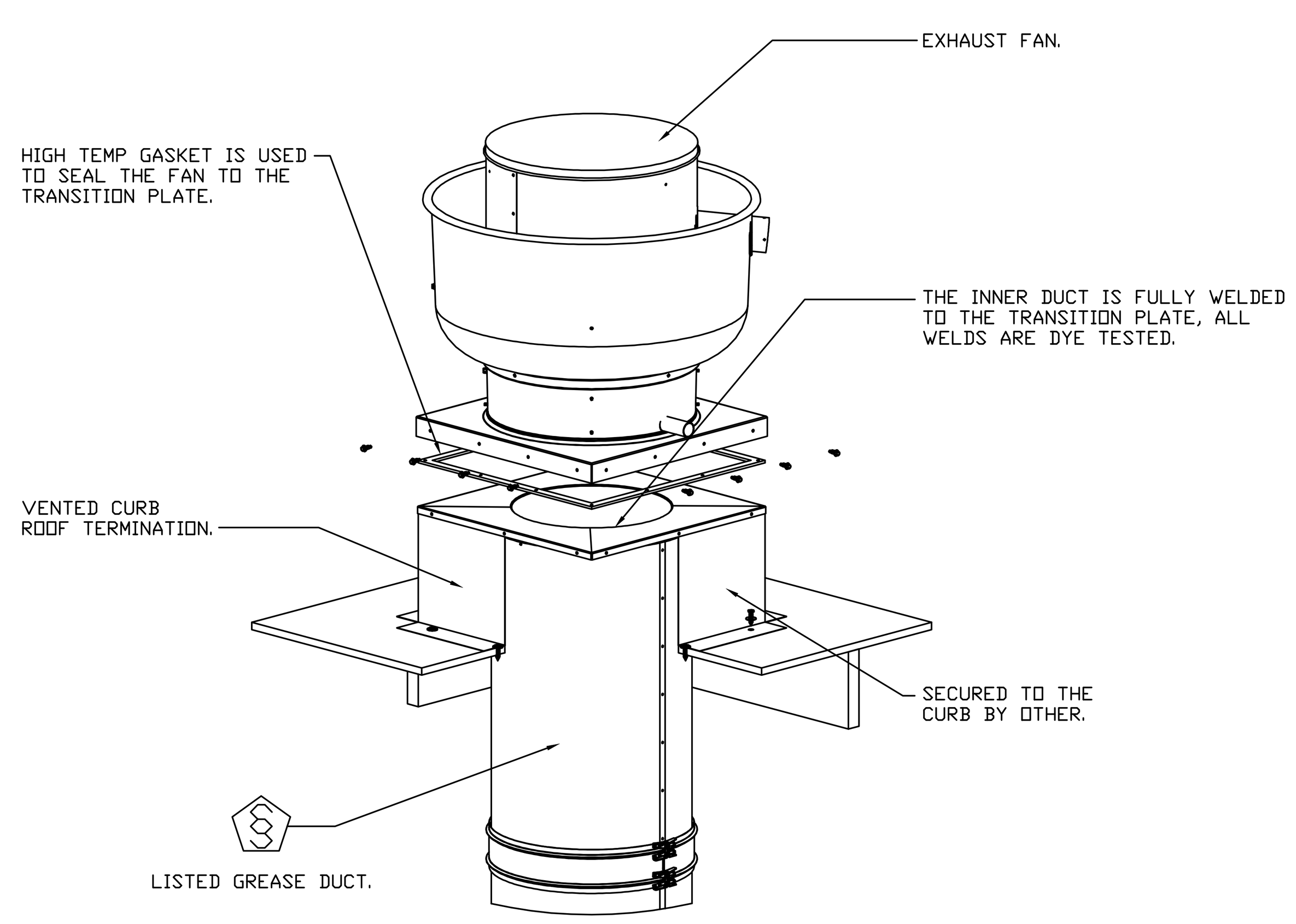
OPTIONS
GREASE BOX.



PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.



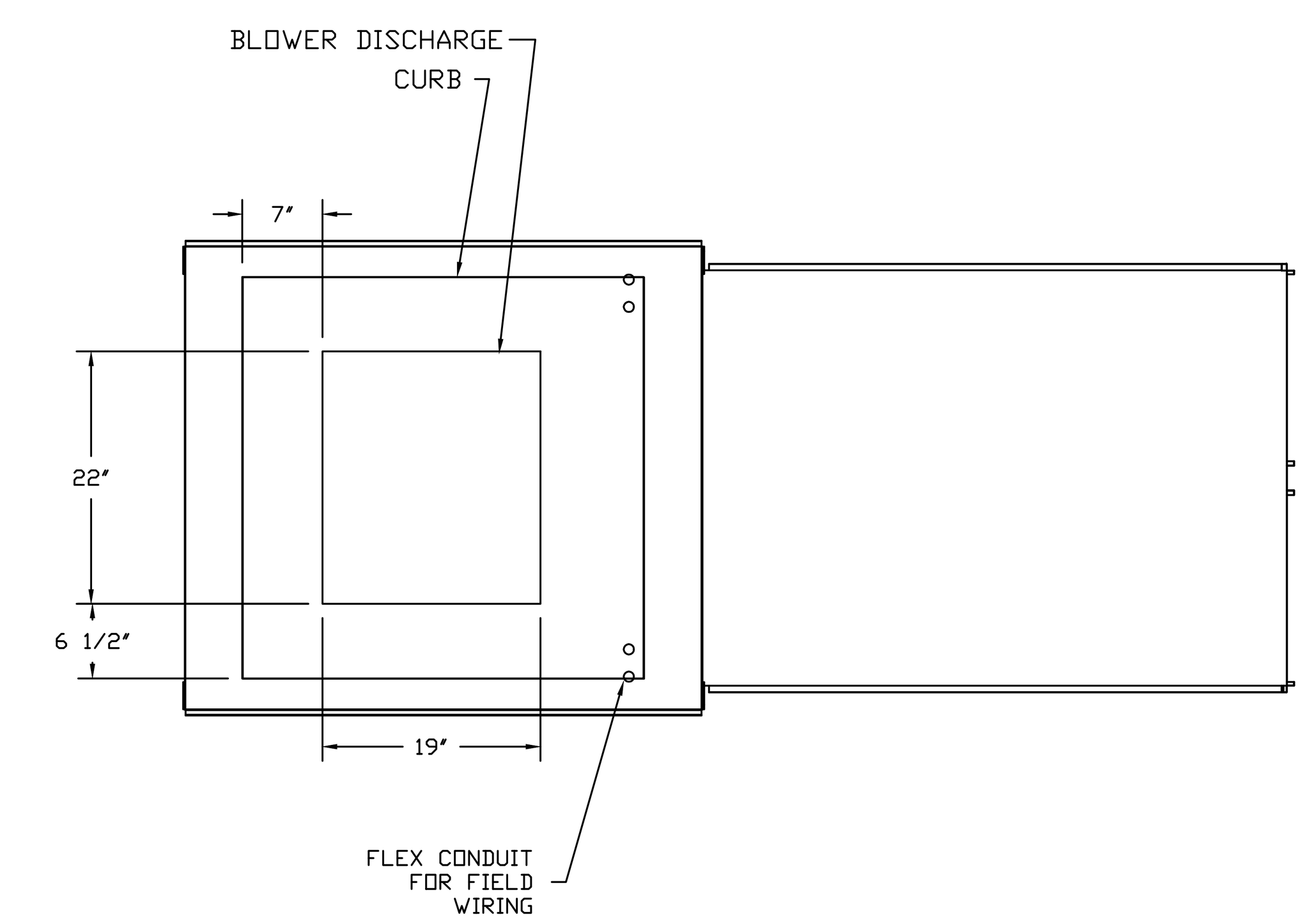
SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE

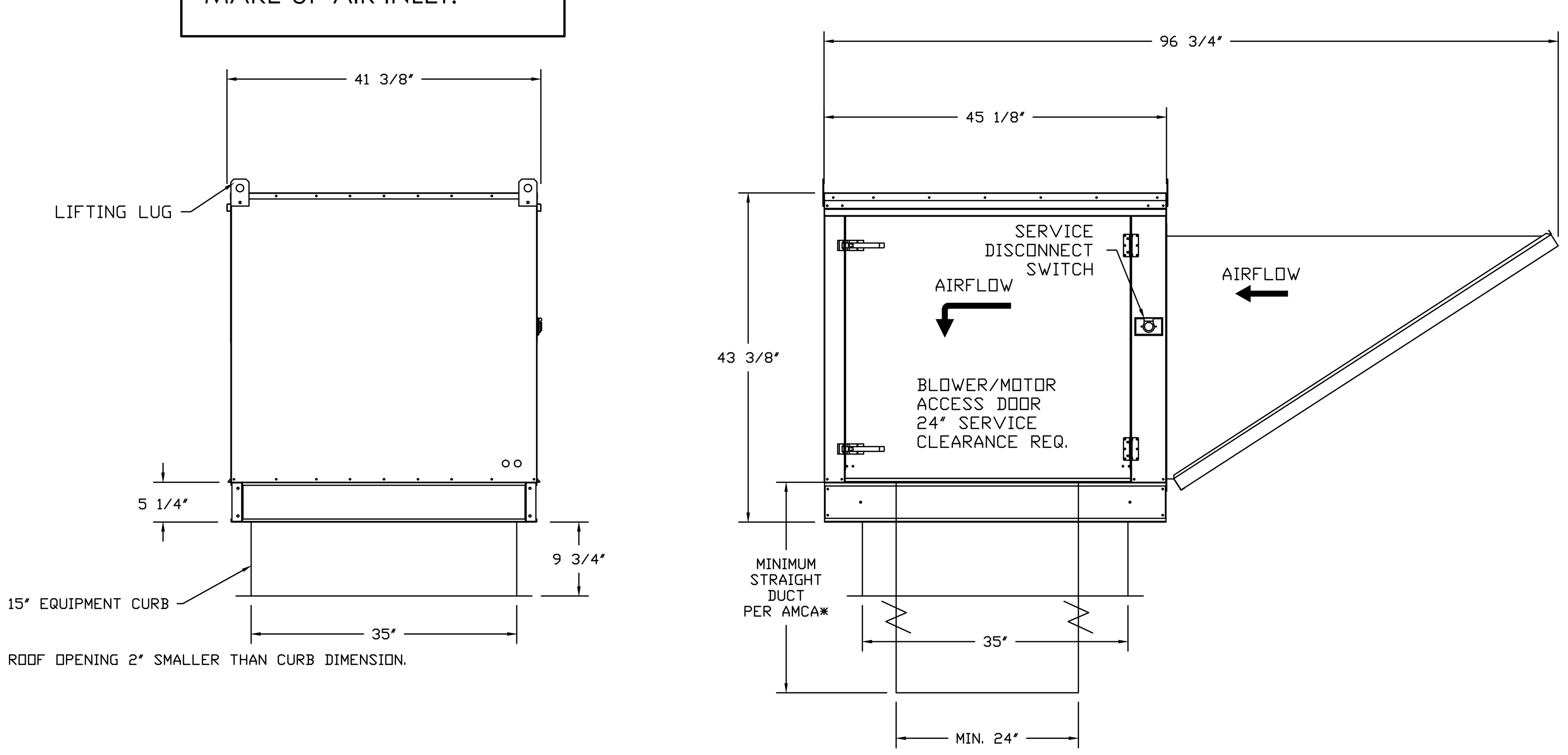


NOTE:
PROVIDE MAKE UP AIR FAN WITH AIR INTAKE EXTENSION TO ENSURE 10' HORIZONTAL SEPARATION BETWEEN GREASE EXHAUST TERMINATION AND MAKE-UP AIR INLET.

FAN #3 A3-24D - SUPPLY FAN
1. UNTEMPERED SUPPLY UNIT WITH 24" DIRECT DRIVE FAN IN SIZE #3 HOUSING
2. INTAKE HOOD WITH EZ FILTERS
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT
4. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER SECTION)

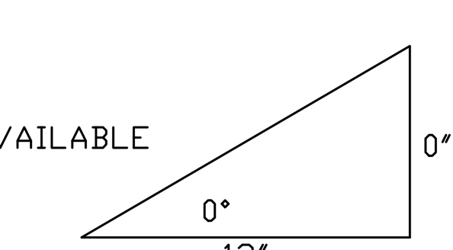
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.
SUGGESTED STRAIGHT DUCT SIZE IS 24" x 24"





ROOF OPENING 2" SMALLER THAN CURB DIMENSION.

PITCHED CURBS ARE AVAILABLE FOR PITCHED ROOFS.



SPECIFY PITCH:
EXAMPLE: 7/12 PITCH = 30° SLOPE

NOTE:
SEE ADDITIONAL HOOD DRAWINGS & MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION.

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REVISIONS	
DESCRIPTION	DATE:

CAPTIVEAIRE
www.captiveaire.com
Blue Ridge
607 5th St. NW, Hickory, NC, 28601 PHONE: (800) 445-1869 FAX: (919) 227-5993 EMAIL: reg16@captiveaire.com

Healing Places v2071020
WILMINGTON, NC, 28402

DATE: 7/10/2020

DWG.#: 4431482

DRAWN BY: MHB - 16

SCALE: [redacted]

MASTER DRAWING

SHEET NO. 3

isdesign
ARCHITECTURE + INTERIORS
1111 Haynes Street, Suite 103
Raleigh, North Carolina 27604
t. 919.833.5400
www.isdesignpa.com

MAPLE ENGINEERING, PLLC
708 ST. MARYS ST
RALEIGH, NC 27605 LIC.#: P-0990
P:919-341-4247 F:919-890-3797
PLUMBING MECHANICAL ELECTRICAL

Project
THE HEALING PLACE OF NEW HANOVER COUNTY
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WILMINGTON, NORTH CAROLINA

Client
NEW HANOVER COUNTY, NORTH CAROLINA

SITE PLAN

Professional Seals
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 049762 KEVIN SWEENEY
9/2/20

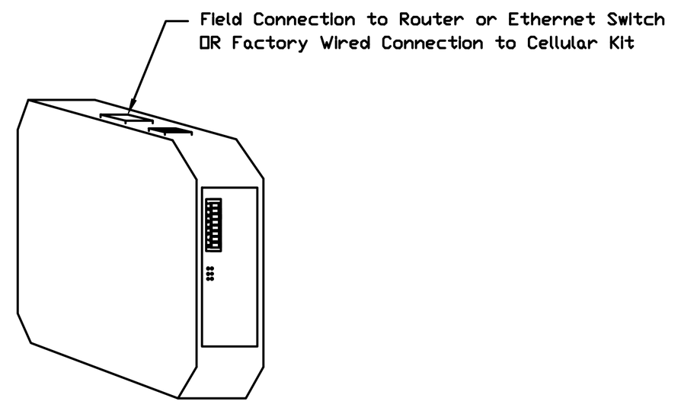
No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
HOOD DRAWINGS

Sheet Number
HD003

ELECTRICAL PACKAGE – Job#4431482

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY		TYPE	Φ	HP	VOLT	FLA
1		DCV-2111	Utility Cabinet Left	03 – Utility Cabinet Left	1 Light	Smart Controls DCV	Exhaust	3	2.000	208	8.3
							Exhaust	3	2.000	208	8.3
				Hood # 1	1 Fan		Supply	3	3.000	208	10.2



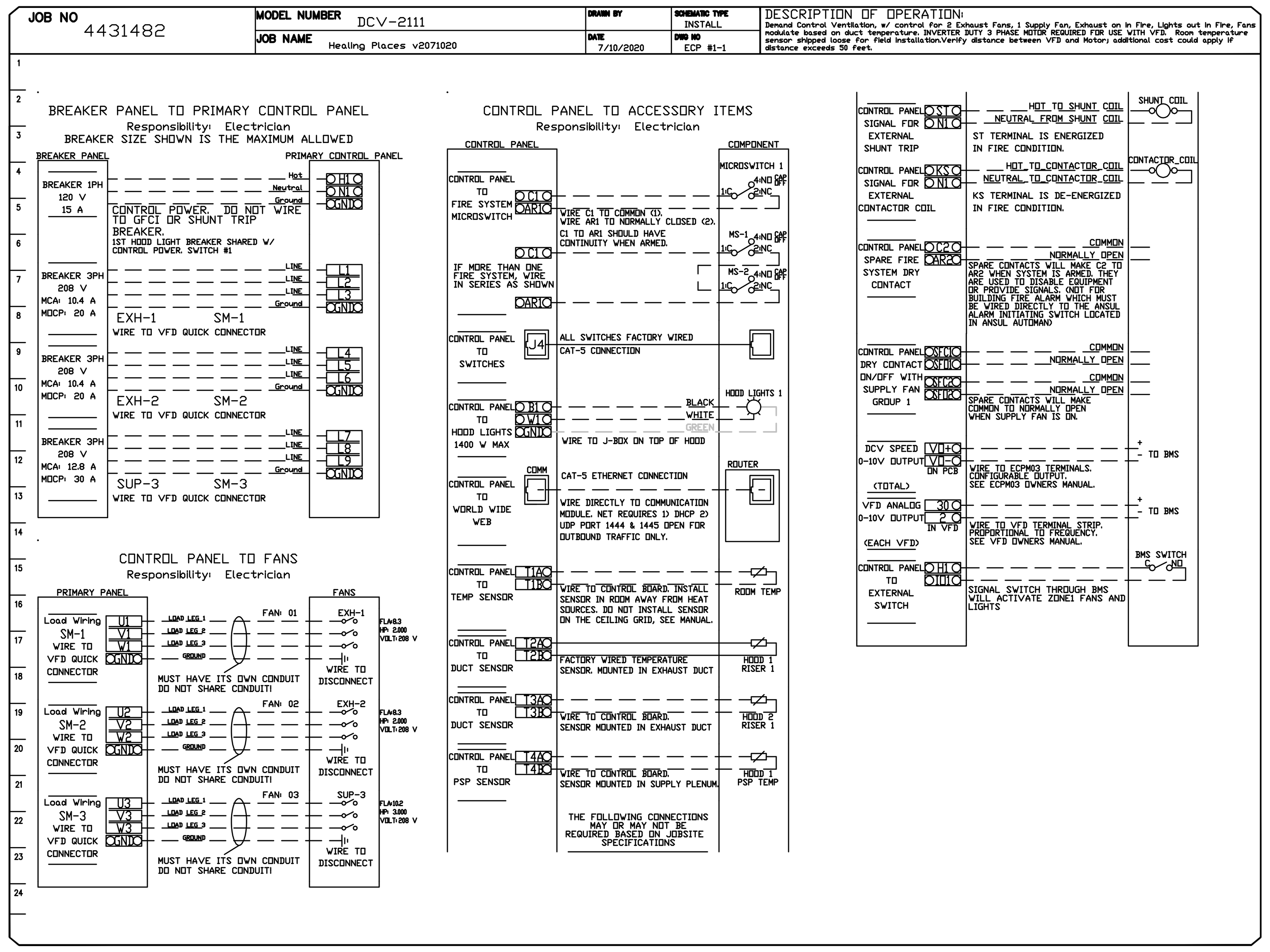
CASlink Monitor and Control

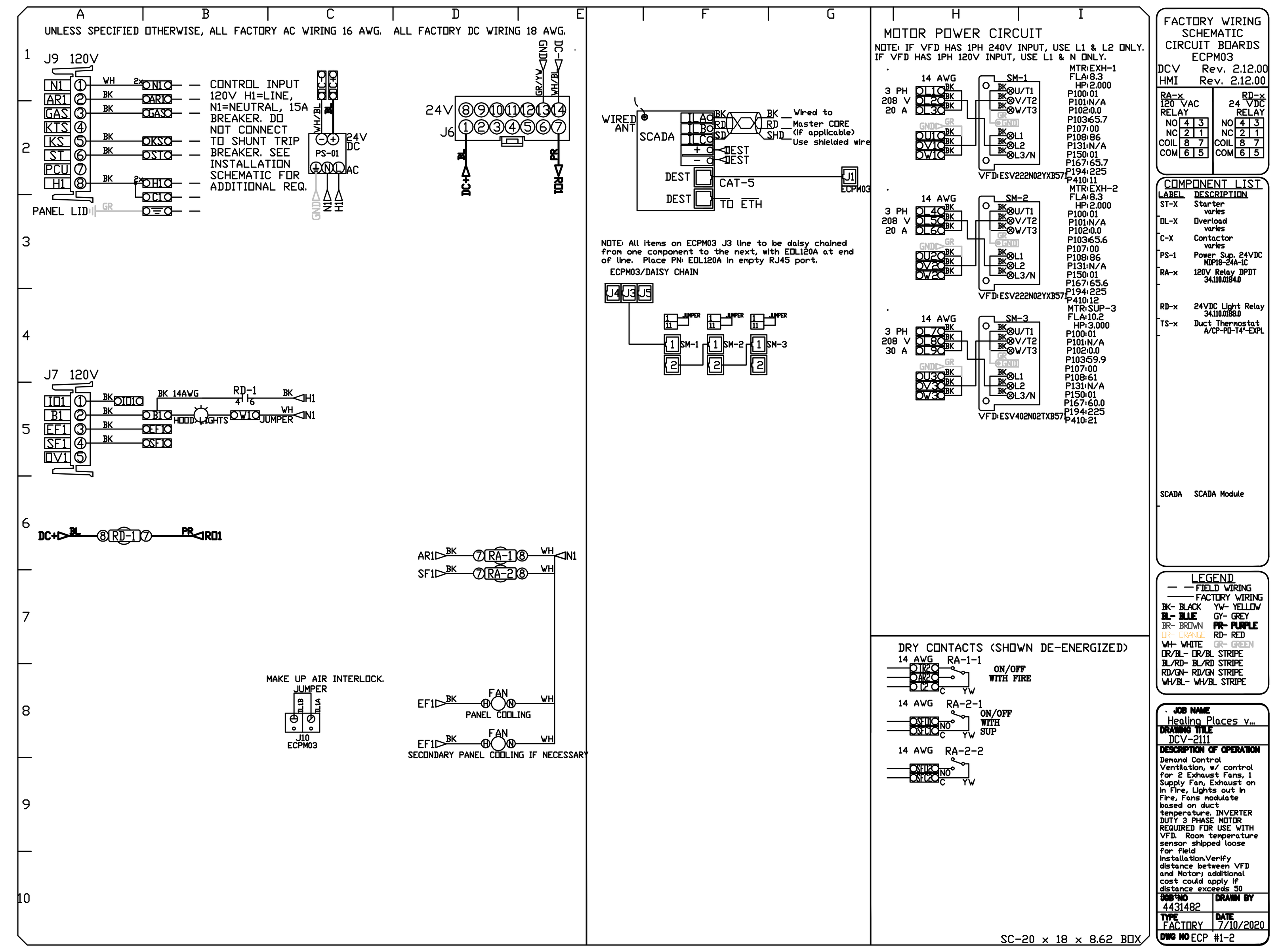
- Hood control panel to support communications to cloud-based Building Management System.
- Hood Control Panel to allow cloud-based Building Management System to monitor real time parameters outlined as MONITOR in the points list.
- Hood Control Panel to allow cloud-based Building Management System to control parameters outlined as CONTROL in the points list.
- Hood control panel to allow remote changes to system setting such as: VFD Frequencies, ECM speeds, temperature set points, fan and wash schedules, etc.

MONITORING AND CONTROL POINTS LIST

DCV Packages	Function
Room Temperature	MONITOR
Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR
Fan Amperage	MONITOR
Fan Power	MONITOR
VFD Faults	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
CORE Fire System	MONITOR
Building Pressures	MONITOR
Prep Time Button	MONITOR & CONTROL
Fans Button	MONITOR & CONTROL
Lights Button	MONITOR & CONTROL
Wash Button	MONITOR & CONTROL

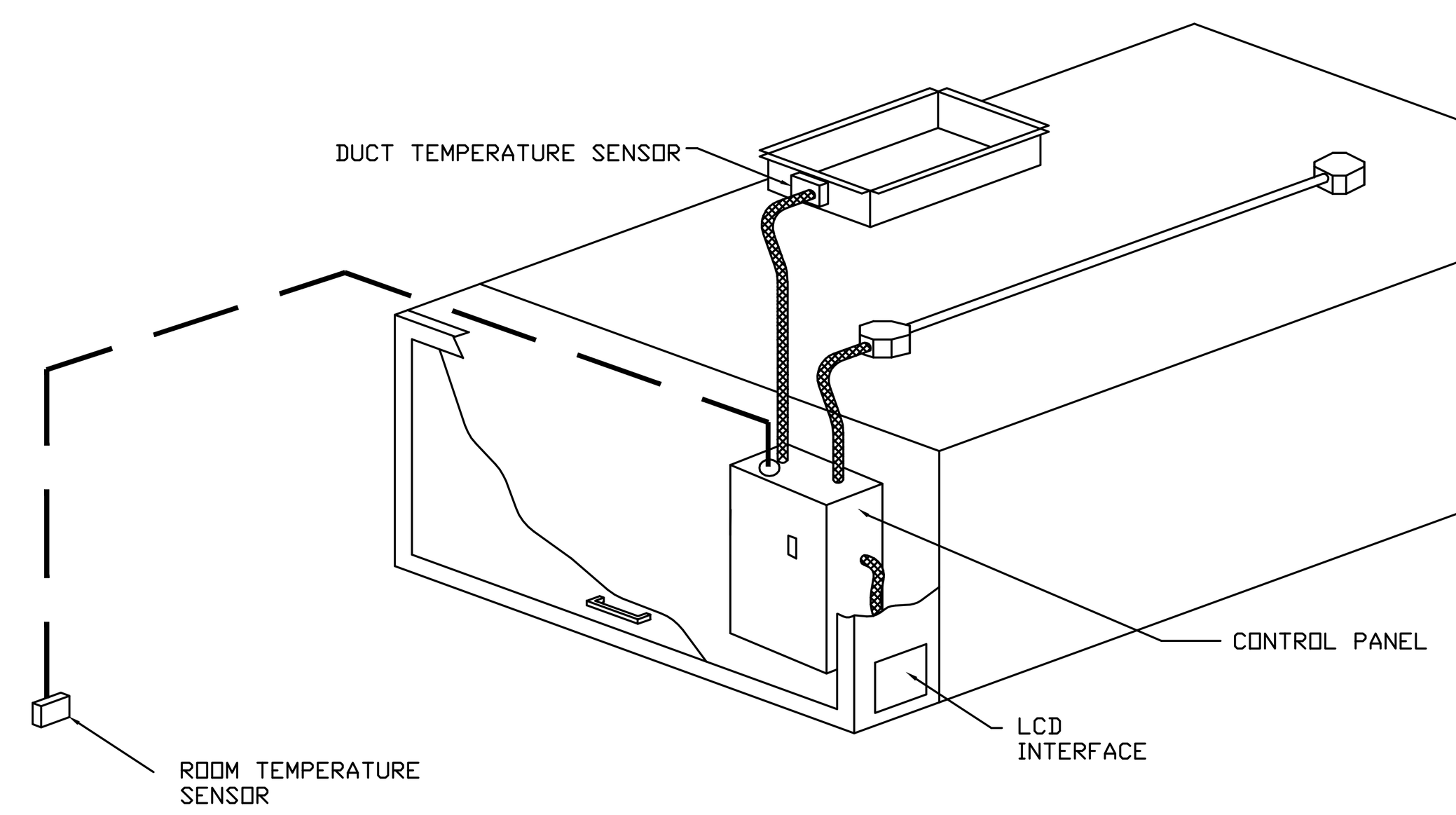
SC Packages	Function
Room Temperature(s)	MONITOR
Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
CORE Fire System	MONITOR
Building Pressures	MONITOR
Fans Button(s)	MONITOR & CONTROL
Lights Button(s)	MONITOR & CONTROL
Wash Button	MONITOR & CONTROL





Demand Control Ventilation Hood Control Panel Specifications:

- Controls shall be listed by ETL (UL 508A) and shall comply with demand ventilation system turndown requirements outlined in IECC 403.2.8 (2015).
- The control enclosure shall be NEMA 1 rated and listed for installation inside of the exhaust hood utility cabinet. The control enclosure may be constructed of stainless steel or painted steel.
- Temperature probe(s) located in the exhaust duct riser(s) shall be constructed of stainless steel.
- A digital controller shall be provided to activate the hood exhaust fans dynamically based on a fixed differential between the ambient and duct temperatures sensors. This function shall meet the requirements of IMC 507.1.1.
- A digital controller shall provide adjustable hysteresis settings to prevent cycling of the fans after the cooking appliances have been turned off and/or the heat in the exhaust system is reduced.
- A digital controller shall provide an adjustable minimum fan run-time setting to prevent fan cycling.
- Variable Frequency Drives (VFDs) shall be provided for fans as required. The digital controller shall modulate the VFDs between a minimum setpoint and a maximum setpoint on demand. The duct temperature sensor input(s) to the digital controller shall be used to calculate the speed reference signal.
- The VFD speed range of operation shall be from 0% to 100% for the system, with the actual minimum speed set as required to meet minimum ventilation requirements.
- An internal algorithm to the digital controller shall modulate supply fan VFD speed proportional to all exhaust fans that are located in the same fan group as the supply fan.
- The system shall operate in PREP MODE during light cooking load or COOL DOWN MODE when sufficient heat remains underneath the hood system after cooking operations have completed. Operation during either of these periods will disable the supply fans and provide an exhaust fan speed that is equal to the minimum ventilation requirement.
- A digital controller shall disable the supply fan(s), activate the exhaust fan(s), activate the appliance shunt trip, and disable an electric gas valve automatically when fire condition is detected on a covered hood.
- A digital controller shall allow for external BMS fan control via Dry Contact (external control shall not override fan operation logic as required by code).
- An LCD interface shall be provided with the following features:
  a. On/Off push button fan & light switch activation
  b. Integrated gas valve reset for electronic gas valves (no reset relay required)
  c. VFD Fault display with audible & visual alarm notification
  d. Duct temperature sensor failure detection with audible & visual alarm notification
  e. Mis-wired duct temperature sensor detection with audible & visual alarm notification
  f. A single low voltage Cat-5 RJ45 wiring connection
  g. An energy savings indicator that utilizes measured kWh from the VFDs



TYPICAL HOOD CONTROL PANEL INSTALLATION

Sequence of Operations:

The hood control panel is capable of operating in one or more of the following states at any given time:

- Automatic: The system operates based on the differential between room temperature and the temperature at the hood cavity or exhaust duct collar. Fans activate at a configurable temperature differential threshold. Depending on the job configuration each fan zone can be configured as static or dynamic. These terms refer to whether a variable motor (such as EC Motors or VFD driven motors) modulate with temperature. If the panel is equipped with variable speed fans and the zone is defined as "dynamic", these will modulate within a user-defined range based on the temperature differential. Panels equipped with variable speed fans and a fan zone defined as "static", fans will run at a set speed calculated for the drive. Demand control ventilation systems are capable of modulating exhaust and make up air fan speeds per the requirements outlined in IECC 403.2.8.
- Manual: The system operates based on human input from an HMI.
- Schedule: A weekly schedule can be set to run fans for a specified period throughout the day. There are three occupied times per day to allow for the user to set up a time that is suitable to their needs. Any time that is within the defined occupied time, the system will run at modulation mode and follow the fan procedure algorithm based on temperature during this time. During unoccupied time, the system will have an extra offset to prevent unintended activation of the system during a time where the system is not being occupied.
- Other: The system operates based on the input from an external source (DDC, BMS or hard-wired interlock)

NOTE:
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NOTE:
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Blue Ridge
607 5th St. NW, Hickory, NC, 28601 PHONE: (800) 445-1869 FAX: (919) 227-5993 EMAIL: reg16@captiveaire.com
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REVISIONS

DESCRIPTION	DATE:

Healing Places v2071020
WILMINGTON, NC, 28402

DATE: 7/10/2020
DWG.#: 4431482
DRAWN BY: MHB - 16
SCALE:
MASTER DRAWING
SHEET NO. 4

isdesign ARCHITECTURE + INTERIORS
1111 Haynes Street, Suite 103
Raleigh, North Carolina 27604
t. 919.833.5400
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708 ST. MARYS ST
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P:919-341-4247 F:919-890-3797
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NEW HANOVER COUNTY, NORTH CAROLINA

SITE PLAN

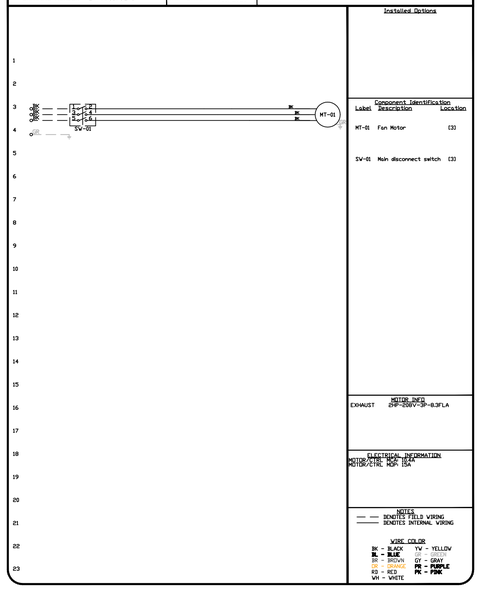
Professional Seals

No.	Description	Date
	CONSTRUCTION DOCUMENT SET	08/25/20

Sheet Title
HOOD DRAWINGS

Sheet Number
HD004

Exhaust Fan Wiring	JOB 4431482 - Heall...
DRAWING NUMBER EXH4431482-1	SHIP DATE 7/10/2020
	MODEL DU2008FA



Installed Options

Component Identification

Label	Description	Location
MT-01	Fan Motor	(3)
SV-01	Main disconnect switch	(3)

MOTOR INFO
EXHAUST 2HP-208V-3P-8.3FLA

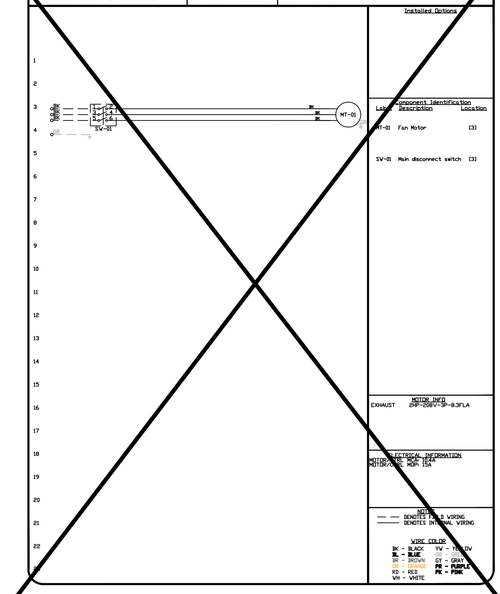
ELECTRICAL INFORMATION
MOTOR/CTRL MCA 12.5A
MOTOR/CTRL MOP 15A

NOTES
— — DENOTES FIELD WIRING
——— DENOTES INTERNAL WIRING

WIRE COLOR

BK = BLACK	YL = YELLOW		
BL = BLUE	GY = GRAY		
BR = BROWN	OR = ORANGE		
GN = GREEN	PU = PURPLE		
RD = RED	PK = PINK		
WH = WHITE			

Exhaust Fan Wiring	JOB 4431482 - Heall...
DRAWING NUMBER EXH4431482-2	SHIP DATE 7/10/2020
	MODEL DU2008FA



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Component Identification

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SV-01	Main disconnect switch	(3)

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ELECTRICAL INFORMATION
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MOTOR/CTRL MOP 15A

NOTES
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——— DENOTES INTERNAL WIRING

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RD = RED	PK = PINK		
WH = WHITE			

AirHandler Wiring	JOB 4431482 - Heall...
DRAWING NUMBER A4431482-3	SHIP DATE 7/10/2020
	MODEL AR-84D

ATTENTION ELECTRICIAN
DROP FOR DISCONNECT CONNECTION
IS FACTORY SUPPLIES
CONNECT POWER TO THE DROP

Installed Options

Component Identification

Label	Description	Location
MT-01	Supply motor	(2)
SV-01	Main disconnect switch	(2)

MOTOR INFO
SUPPLY 3HP-208V-3P-10.2FLA

ELECTRICAL INFORMATION
MOTOR/CTRL CIRCUIT MCA 12.5A
MOTOR/CTRL CIRCUIT MOP 20A

NOTES
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——— DENOTES INTERNAL WIRING

WIRE COLOR

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Blue Ridge
607 5th St. NW, Hickory, NC. 28601 PHONE: (800) 445-1869 FAX: (919) 227-5993 EMAIL: reg16@captiveaire.com
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DRAWN BY: MHB - 16

SCALE: [redacted]

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is-design
ARCHITECTURE + INTERIORS
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9/2/20

No.	Description	Date
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Sheet Title
HOOD DRAWINGS

Sheet Number
HD005

9/2/2020 1:17 PM
ISS-1801-HD005.DWG