

DUAL FUEL AIR HANDLING UNIT WITH HI EFFICIENCY HEAT PUMP COIL AND GAS FURNACE SCHEDULE																												
EQUIPMENT NUMBER	MFR.	MODEL NUMBER	CFM	MIN. CFM O.A. @ 95/78	E.S.P. IN. W.G.	MIN. MOTOR POWER/HP	REFRIG.	MIN. TOTAL MBH	MIN. SENSIBLE MBH	ENTERING AIR		LEAVING AIR		SAT. SUCT. TEMP. DEG. F	MAX. COIL FACE VELOCITY	MIN. COIL FPI/ROWS	COIL TYPE	NATURAL GAS HEAT			HEAT PUMP HEAT @ 14°F		ELECTRICAL POWER					
										DRY BULB DEG. F	WET BULB DEG. F	DRY BULB DEG. F	WET BULB DEG. F					INPUT	OUTPUT	MIN. SENSIBLE MBH	TEMPERATURE RISE DEG. F	VOLTS/PHASE/CYCLES	MOPC	MCA	UNIT WEIGHT LB.			
AHU-1	JCI	TM9E120D2MP11	2,000	150	0.87	0.75	R-410a	54.7	40.3	80.0	67.0	60.0	57.7	41.5	500	3/14	DX	14	60.0	116.6	120,000	114,000	42.2	30.5	115/1/60	20.0	11.9	156

- NOTES:
- AIR HANDLING UNITS ARE BASED ON JCI, DAIKIN AND CARRIER ARE APPROVED EQUALS.
 - FAN MOTORS SHALL BE ODP AND ENERGY EFFICIENT, TWO SPEED.
 - PROVIDE SINGLE POINT POWER CONNECTION WITH FACTORY DISCONNECT FOR EACH AIR HANDLING UNIT.
 - PROVIDE FACTORY INSTALLED GAS HEAT PER SCHEDULED PERFORMANCE.
 - ALL COILS SHALL BE ARI TESTED, RATED, AND CERTIFIED.
 - PROVIDE 24V ELECTRONIC PROGRAMMABLE AUTOMATIC CHANGEOVER THERMOSTATS.
 - PROVIDE FACTORY NITROGENIZED "AGR" COPPER REFRIGERANT PIPING KITS WITH ALL NECESSARY TRIM FOR A COMPLETE INSTALLATION.
 - PROVIDE TWO SETS OF DISPOSABLE FILTERS FOR EACH AIR HANDLING UNIT.

HEAT PUMP SCHEDULE																			
EQUIPMENT NUMBER	MFR.	MODEL NUMBER	REFRIG.	NO. OF COMPRESSORS	TOTAL CAP. MBH	SENSIBLE CAP. MBH	UNIT SEER	NO. OF REFRIG. CIRCUITS	SAT. SUCT. TEMP. DEG. F	DESIGN AMBIENT AIR DEG. F	UNIT CAP. TONS	COND. QTY.	FANS QTY.	MOPD	MCA	COND. UNIT VOLTAGE	REFRIG. PIPE CONN.(O.D.)		UNIT WEIGHT LB.
																	LIQUID LINE CKT. 1	SUCTION LINE CKT. 1	
HP-1	JCI	RHP14.604S22	R-410a	1	57.9	42.2	15.0	1	41.5	95.0	5.0	1	1	60	37.3	208/3/60	3/4"	3/4"	152

- NOTES:
- INFORMATION PROVIDED IS BASED ON JCI, DAIKIN AND CARRIER ARE APPROVED EQUALS.
 - PROVIDE 5-YEAR EXTENDED WARRANTY ON COMPRESSORS FOR PARTS.
 - UNITS SHALL BE SHIPPED WITH A HOLDING CHARGE OF R-410a.
 - PROVIDE 24 VOLT CONTROL TRANSFORMER.
 - PROVIDE SCREENS FOR CONDENSING UNIT FANS AND GUARDS FOR COILS.
 - INCLUDE FILTER-DRIERS, LIQUID LINE SOLENOID VALVES, SIGHT GLASS/MOISTURE INDICATOR, AND THERMAL EXPANSION VALVES.
 - PROVIDE HEAD PRESSURE CONTROL WITH ADJUSTABLE PRESSURE SWITCH FOR FAN CYCLING.
 - ALL NEW HP'S SHALL HAVE FACTORY INSTALLED OUTDOOR T-STATS.

FAN SCHEDULE														
EQUIPMENT NUMBER	MFR.	LOCATION	MODEL	SERVICE	CFM	E.S.P. IN. W.G.	FAN RPM	MTR RPM	POWER	VOLTS/PHASE/CYCLES	FLA	WEIGHT	SONES	dBA
EF-1	GREENHECK	CEILING	SP-B110	EXHAUST	100	0.5	950	950	80 W	115/1/60	0.7	10 LB.	2.7	42
EF-2	GREENHECK	CEILING	SP-B110	EXHAUST	100	0.5	950	950	80 W	115/1/60	0.7	10 LB.	2.7	42
EF-3	GREENHECK	CEILING	SP-B110	EXHAUST	100	0.5	950	950	80 W	115/1/60	0.7	10 LB.	2.7	42
EF-4	GREENHECK	CEILING	SP-B110	EXHAUST	100	0.5	950	950	80 W	115/1/60	0.7	10 LB.	2.7	42
EF-5	GREENHECK	CEILING	SP-B110	EXHAUST	100	0.5	950	950	80 W	115/1/60	0.7	10 LB.	2.7	42

- NOTES:
- EXHAUST FAN INFORMATION IS BASED UPON GREENHECK, PENN. AND COOK ARE APPROVED EQUALS.
 - PROVIDE FACTORY MOUNTED AND WIRED DISCONNECT AND BACKDRAFT DAMPERS.
 - EF-1, 2, 3, 4, AND 5 SHALL CONTROLLED BY THERMOSTAT SWITCH IN RESPECTIVE ROOMS.

HVAC DESIGN DATA										
PROJECT	LOCATION	OUTSIDE			SUMMER			WINTER		
		DRY BULB	WET BULB	% HUMIDITY	DRY BULB	% HUMIDITY	DRY BULB	WET BULB	DRY BULB	% HUMIDITY
HISTORIC SPENCER SHOPS	SPENCER, NC	95°F	78°F	75% ±2F	50 +/- -15%	14°F	10°F	70°F ±2F	NA	

GRILLE AND DIFFUSER SCHEDULE							
MARK	MFR.	MODEL	NECK SIZE (IN.)	FACE	FINISH	CONSTRUCTION	ACCESSORIES
SA	PRICE	520D	10x4	12x6%	OW	STL/SURFACE MOUNT	ODB
RA	PRICE	530	7x6	9x8%	OW	STL/SURFACE MOUNT	
RB	PRICE	530	20x24	22x28%	OW	STL/SURFACE MOUNT	

- NOTES:
- ACCEPTABLE ALTERNATE MANUFACTURERS - METAL-AIRE, NAILOR, CARNES AND TITUS.
 - MC SHALL COORDINATE DIFFUSER TYPE WITH CEILING TYPE. SEE ARCHITECTURAL PLANS.
 - INSTALL THERMAL BLANKETS ON THE BACK SIDE OF ALL DIFFUSERS.

HP	OPEN MOTORS			ENCLOSED MOTORS		
	2-POLE	4-POLE	6-POLE	2-POLE	4-POLE	6-POLE
1.0	80.0	81.5	82.5	72.0	80.0	77.0
1.5	80.0	81.5	82.5	80.0	81.5	82.5
2.0	81.5	81.5	82.5	81.5	81.5	84.0
3.0	81.5	84.0	84.0	82.5	84.0	85.5
5.0	82.5	85.5	85.5	85.5	85.5	85.5
7.5	85.5	86.5	86.5	86.5	86.5	87.5
10.0	86.5	87.5	88.5	87.5	87.5	87.5
15.0	87.5	89.5	88.5	88.5	89.5	88.5
20.0	88.5	89.5	89.5	88.5	89.5	88.5
25.0	89.5	90.2	91.0	89.5	91.0	90.2
30.0	89.5	91.0	91.0	89.5	91.0	90.2
40.0	91.0	91.0	91.0	90.2	91.7	91.7
60.0	91.7	92.4	92.4	91.7	92.4	92.4
75.0	91.7	93.0	92.4	91.7	93.0	92.4
100.0	91.7	93.0	93.0	92.4	93.6	93.0
125.0	92.4	93.6	93.0	93.6	93.6	93.0
150.0	92.4	94.1	93.6	93.6	94.1	94.1
200.0	93.6	94.1	93.6	94.1	94.1	94.1
250.0	93.6	94.3	94.5	94.5	94.5	94.1
300.0	94.1	94.5	94.5	94.5	94.5	94.1
350.0	94.1	94.5	94.5	94.5	94.5	94.1
400.0	94.5	94.5	94.5	94.5	94.5	94.5
450.0	95.0	95.0	94.5	94.5	94.5	94.5
500.0	95.0	95.0	94.5	94.5	95.0	94.5

YARD OFFICE MINIMUM OUTDOOR AIR REQUIREMENTS (NCSBC MECHANICAL 2018)										
EQUIPMENT ID	ROOM NAME AND ROOM NUMBER	OCCUPANCY CLASSIFICATION	AREA SQFT.	PEOPLE PER PERSON	AREA / SQ.FT.	SENSIBLE / 1000 SQ.FT.	OCCUPANCY REQ.	TOTAL O.A. REQ.	MINIMUM TOTAL O.A. PROVIDED	TOTAL REQ. E.A. CFM
AHU-1	KITCHEN 101	KITCHEN	75	0	0	0	0	0	0	55.0
	SHOP OFFICE 102	OFFICE SPACE	204	5	0.06	5	1	17.24	10	0.0
	CONFERENCE ROOM 103	CONFERENCE ROOM	444	5	0.06	50	22	136.64	90	0.0
	LOCKER ROOM 104	LOCKER/DRESSING ROOMS	212	5	0.06	4	1	17.72	10	55.0
	SHOWERS ROOM 105	LOCKER/DRESSING ROOMS	49	5	0.06	4	1	7.94	10	15.0
	TOILET 106	TOILET ROOMS PRIVATE INTERMITTENT	48	0	0	0	0	0	0	70.0
	BATHROOM 107	BATHROOM/TOILET PRIVATE INTERMITTENT	77	0	0	0	0	0	0	70.0
	TRAIN MASTERS OFFICE 108	OFFICE SPACE	235	5	0.06	5	1	19.1	20	0.0
	TOOL STORAGE 109	STORAGE ROOMS	59	0	0.12	0	0	7.08	10	0.0
	TOTAL		1,403	25		68	26	205.72	150	265.0
	Total Sq. Ft.		1,403							
	GRAND TOTALS						26	206	150	265

* NATURAL VENTILATION AND MECHANICAL VENT MEETS NCSBC-MC 402.2 OPEN AREA OF EXTERIOR DOORS OR WINDOWS MEETS OR EXCEEDS 4% OF FLOOR AREA.
 ** NATURAL VENTILATION AND MECHANICAL VENT MEETS NCSBC-MC 402.3 VENTILATION THROUGH ADJOINING ROOMS SHALL BE UNOBSTRUCTED AND SHALL HAVE AN AREA NOT LESS THAN 8% OF THE FLOOR AREA OF THE INTERIOR ROOM OR SPACE.

MINIMUM ACCEPTABLE NOMINAL FULL-LOAD EFFICIENCY FOR SINGLE-SPEED POLYPHASE MOTORS	
HORSEPOWER	MIN. EFFICIENCY %
1 - 4	78.5
5 - 9	84.0
10 - 19	85.5
20 - 49	88.5
50 - 99	90.2
100 - 124	91.7
125 OR GREATER	92.4

REFRIGERANT PIPING SIZES						
TAG	EQUIPMENT SERVED	NOM. TONS	EQUVALENT LENGTH (ft)	LIQUID LINE	SUCTION LINE	HOT GAS
HP-1	AHU-1	5.0	30'	3/8"	7/8"	---

- NOTES:
- ALL REFRIGERANT PIPING SHALL BE NITROGENIZED ACR COPPER TUBING.
 - TUBING SIZES SCHEDULED ARE O.D. TYPE L COPPER.
 - PROVIDE ALL REFRIGERANT SPECIALTIES FOR A COMPLETE INSTALLATION EQUAL TO SPORLAN PRODUCTS.
 - REFRIGERANT LINE SIZES ARE BASED UPON DESIGN, MECHANICAL CONTRACTOR SHALL HAVE MANUFACTURER SIZE ALL LINE SETS BASED UPON ACTUAL INSTALLATION LENGTHS AND PRESSURE DROP.

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT:

Method of Compliance: Prescriptive Yes Performance Energy Cost Budget

Thermal Zone: ZONE 3A

R-Value	U-Value
Roof/Ceiling: 30	0.033
Ext. Walls: 19	0.053
Doors: 6	0.167
Windows: 6	0.167
Walls Below Grade: 6	0.167
Floors Over Unconditioned spaces: 13	0.077
Floors On Slab: 6	0.167

Exterior Design Conditions

winter dry bulb 14°F
summer dry bulb 95°F

Interior Design Conditions

winter dry bulb 70°F ± 4°F
summer dry bulb 75°F ± 4°F
relative humidity 40-60% (SUMMER ONLY)

Building heating load 96.9 MBH (YARD OFFICE)
Building cooling load 37.5 MBH (YARD OFFICE)

Mechanical Spacing Conditioning System

Utility description of unit heating efficiency cooling efficiency heat output of unit cooling output of unit

SEE SCHEDULES ON THIS SHEET

Boiler: Total Boiler Output, If Oversized, state reason: N/A

Chiller: Total Chiller Capacity, If oversized, state reason: N/A

LIST EQUIPMENT EFFICIENCIES: ** See Motor Efficiencies Table This Sheet

EQUIPMENT SCHEDULES WITH MOTORS (Mechanical systems): ** See HVAC Equipment Schedule This Sheet

Motor horsepower: _____ Motor type: _____
Number of phases: _____ # of poles: _____
Minimum efficiency: _____

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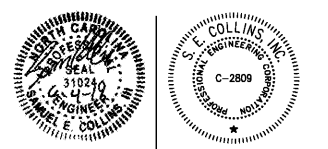
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MECHANICAL SCHEDULES

REVISION #1 SCO 5/29/2019

HISTORIC SPENCER SHOPS YARD OFFICE



SAS
DRAWN BY
SEC
CHECKED BY
05/06/2019
DATE

SHEET NO.
M3.1
OF 4

REVISÉ CODE YEAR