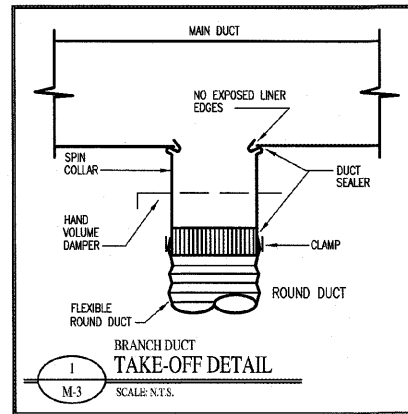


**MECHANICAL NOTES:**

1. ALL HVAC EQUIPMENT AND DUCTWORK TO BE INSTALLED IN ACCORDANCE WITH STATE AND LOCAL CODES.
2. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL DUCTWORK, PIPING, AND ELECTRICAL REQUIREMENTS WITH ALL OTHER TRADES PRIOR TO BEGINNING INSTALLATION TO AVOID CONFLICTS AND INTERFERENCE WITH OTHER TRADES.
3. ALL EQUIPMENT TO BE INSTALLED AS SUGGESTED BY MANUFACTURER.
4. INSULATE SUPPLY AND RETURN DUCTWORK LOCATED ABOVE LAY-IN CEILINGS BY WRAPPING WITH INSULATION WITH A MINIMUM INSTALLED R-VALUE OF 6.0. DIMENSIONS SHOWN ARE INSIDE CLEAR AREA DIMENSIONS.
5. EQUIP GAS PACKS WITH RETURN AIR FILTER RACKS AND WASHABLE SCREEN FILTERS ON OUTSIDE AIR INTAKES.
6. PROGRAMMABLE THERMOSTATS SHALL BE CAPABLE OF CONTROLLING BOTH HEATING AND COOLING, SET POINT OVERLAP RESTRICTION (DEADBAND OF AT LEAST 5°F), OFF HOURS CONTROL AND SET BACK CAPABILITIES AS REQUIRED BY SECTION 503.2.4 OF THE INTERNATIONAL ECC. THERMOSTAT, HONEYWELL VISION PRO SERIES TH8000. THERMOSTATS TO BE LOCKED AT 68° FOR HEAT AND 72° FOR COOL PRIOR TO OPENING.
7. THERMOSTATS TO BE INSTALLED AT MANAGERS DESK.
8. EXHAUST FANS ARE TO BE FURNISHED, INSTALLED AND DUCTED TO OUTDOORS BY THE MECHANICAL CONTRACTOR. EXHAUST FANS ARE TO BE WIRED BY THE ELECTRICAL CONTRACTOR.
9. SMOKE DETECTORS ARE TO BE PROVIDED IN SUPPLY AIR DUCT OF EACH UNIT TO SHUT DOWN ALL UNITS IN CASE OF FIRE.
10. SMOKE DETECTOR ACTUATION SHALL ACTIVATE AN AUDIBLE/VISUAL NOTIFICATION DEVICE LOCATED IN AN APPROVED LOCATION. SMOKE DETECTOR TROUBLE CONDITION SHALL ACTIVATE A VISIBLE OR AUDIBLE SIGNAL IN AN APPROVED LOCATION AND SHALL BE IDENTIFIED AS AIR DUCT DETECTOR TROUBLE.
11. EXHAUST FAN DISCHARGE TO BE AT LEAST TEN FEET AWAY FROM HVAC FRESH AIR IN-TAKE.
12. GAS PIPING BASED ON 7" W.G. GAS PRESSURE. VERIFY ALL GAS LINES SIZES WITH GAS COMPANY.
13. ALL GAS PIPING TO BE BLACK STEEL PIPING.
14. SEALED COMBUSTION GAS WATER HEATERS ARE TO BE EQUIPPED WITH A CONCENTRIC PVC VENT. VENT TO BE SIZED PER MANUFACTURERS SPECIFICATIONS.
15. GAS REGULATORS FOR HVAC EQUIPMENT TO BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR.
16. SUPPORTS FOR BLACK IRON PIPING ON ROOF MUST MEET THE REQUIREMENTS OF MSS SP-58 AS SPECIFIED IN NC GAS CODE SECTION 407.2 (TREATED WOOD BLOCKS ARE NOT ACCEPTABLE).
17. FINAL UTILITY CONNECTIONS (GAS, ELECTRIC, ETC.) TO EQUIPMENT SHALL BE MADE BY THE CONTRACTOR INSTALLING THE EQUIPMENT REQUIRING THE UTILITIES.
18. DUCT DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE INTENT OF THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY ADDITIONAL TRANSITIONS, OFFSETS, OR TURNS, IN THE DUCTWORK AND/OR PIPING, NOT SHOWN BUT REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.
19. ALL DUCTWORK SHALL BE INSTALLED TIGHT AGAINST THE STRUCTURE UNLESS OTHERWISE NOTED OR SHOWN.
20. AIR DISTRIBUTION LOCATIONS SHOWN ON MECHANICAL PLANS ARE APPROXIMATE. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR ACTUAL LOCATIONS.
21. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF WALLS AND PARTITIONS AND FOR PARTITION THICKNESS AND CONSTRUCTION MATERIALS.
22. KITCHEN EXHAUST HOOD DUCTWORK TO BE 16 GAUGE STEEL MINIMUM. ALL JOINTS AND SEAMS ARE TO BE WELDED LIQUID TIGHT. AN APPROVED CLEAN-OUT DOOR TO BE PROVIDED AT EVERY CHANGE IN DIRECTION. DUCTWORK TO BE SLOPED AT 1" PER FOOT MINIMUM.
23. ANSUL HOOD SYSTEMS TO BE WIRED TO SHUT DOWN ALL COOKING EQUIPMENT UNDER IT IN CASE OF FIRE.
24. PRESSURE REGULATORS FOR GAS KITCHEN EQUIPMENT TO BE PROVIDED BY AND INSTALLED BY CONTRACTOR INSTALLING THE GAS PIPING.
25. ELECTRICAL POWER REQUIREMENTS ARE BASED ON MANUFACTURER'S PUBLISHED DATA. IF ACTUAL UNIT IS A DIFFERENT MANUFACTURER OR THE ACTUAL PURCHASED UNIT(S) OTHERWISE HAVE DIFFERENT ELECTRICAL LOAD (MCA) OR CIRCUIT BREAKER (MCB) REQUIREMENTS THAN WHAT IS PUBLISHED ON THE DRAWING SCHEDULE, THE MECHANICAL CONTRACTOR MUST SUBMIT THE CORRECT DATA IN WRITING TO THE GENERAL CONTRACTOR AND ELECTRICAL CONTRACTOR (IF KNOWN). IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE GC AND ELECTRICAL CONTRACTOR ARE NOTIFIED OF CHANGES IN THE MECHANICAL EQUIPMENT, WHICH WILL CHANGE THE ELECTRICAL WIRING, BREAKER SIZES OR QUANTITY OF CIRCUITS.
26. ROOF-TOP UNITS ARE TO BE EQUIPPED WITH A WATER DETECTION DEVICE WIRED TO SHUT DOWN THE UNIT IN CASE OF CONDENSATE DRAIN BLOCKAGE.
27. INSULATE REFRIGERANT LINES WITH 1-1/2" INSULATION WITH A THERMAL CONDUCTIVITY OF 0.27 BTU PER INCH/1.172°F. ALTERNATE THICKNESS CAN BE USED IF ADJUSTED IN ACCORDANCE WITH TABLE C403.2.10 NOTE B OF THE NC ENERGY CONSERVATION CODE (NC ECC).
28. ALL DUCTS, AIR HANDLERS, AND FILTER BOXES SHALL BE SEALED. JOINTS AND SEAMS SHALL COMPLY WITH SECTION 603.9 OF THE INTERNATIONAL MECHANICAL CODE.
29. CONTRACTOR TO PROVIDE CERTIFIED TEST AND BALANCE REPORT PRIOR TO FINAL PAYMENT.
30. AN OPERATING AND MAINTENANCE MANUAL FOR EACH HVAC SYSTEM SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR TO THE OWNER IN ACCORDANCE WITH SECTION 503.2 OF THE NC ECC.
31. A NC LICENSED ENGINEER SHALL INSPECT THE HVAC SYSTEM INSTALLATION AND PREPARE A STATEMENT OF COMPLIANCE - HVAC SYSTEM INSTALLATION" IN ACCORDANCE WITH SECTION C408.4 OF THE NC ECC. (PROJECTS GREATER THAN 10,000 SQ. FT.)
32. DUCTING FOR HOOD EXHAUST AIR SHALL BE IN ONE HOUR 3M FIRE-RAP WHERE 18" OF CLEARANCE TO COMBUSTIBLES CANNOT BE MAINTAINED.



**PACKAGED GAS UNIT SCHEDULE**

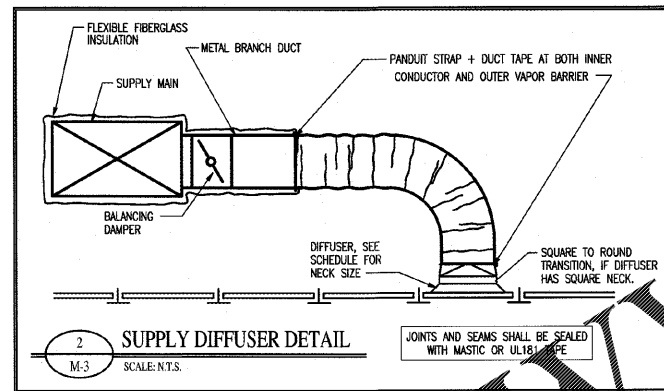
MARK	MANUFACTURER	MODEL NO.	TONS	POWER	MCA	MCB	FAN DATA				COOLING CAPACITY			HEATING CAPACITY					
							AIR FLOW (CFM)	R.A. FLOW (CFM)	O.A. FLOW (CFM)	E.S.P. (IN. W.G.)	MOTOR SIZE (H.P.)	SENSIBLE (BTUH)	TOTAL (BTUH)	MIN. EFF.	ACTUAL EFF.	INPUT (BTUH)	OUTPUT (BTUH)	MIN. EFF.	ACTUAL EFF.
RTU-1	TRANE	YHC072E3	6	208V/3ø	32.3	50	2400	1900	500	0.5	1	52,850	72,370	11.0 EER	12.6 EER	120,000	100,000	80%	80%
RTU-2	TRANE	YHC072E3	6	208V/3ø	32.3	50	2400	1900	500	0.5	1	52,850	72,370	11.0 EER	12.6 EER	120,000	95,000	80%	80%

\* UNITS TO BE EQUIPPED WITH FACTORY ROOF CURBS, ECONOMIZER WITH BAROMETRIC RELIEF AND HINGED ACCESS PANELS.  
 \*\* UNITS TO BE EQUIPPED WITH HOT GAS REHEAT DEHUMIDIFICATION AND WALL MOUNTED HUMIDITY SENSOR.

**VENTILATION CALCULATIONS**

OCCUPANCY CLASSIFICATION (PER TABLE 403.3)	NET SQUARE FOOTAGE, A <sub>s</sub>	OCCUPANCY PERSONS PER 1,000 S.F.	CALCULATED # OF PEOPLE, P <sub>z</sub>	PEOPLE CFM (PER PERSON, R <sub>p</sub> ) (TOTAL, R <sub>p</sub> x P <sub>z</sub> )	AREA CFM (PER SF, R <sub>a</sub> ) (TOTAL, R <sub>a</sub> x A <sub>s</sub> )	OUTSIDE AIR CFM REQUIRED, V <sub>oz</sub> *	OUTSIDE AIR CFM PROVIDED	EXHAUST AIR REQUIRED (CFM)	EXHAUST AIR PROVIDED (CFM)
DRY STORAGE	189	-	-	-	.12 (21)	-	500	-	-
RESTROOM	44	-	-	-	-	-	-	140	140
KITCHEN/SERVICE	594	-	-	-	-	-	500	0.7 PER S.F. (416)	3900
<b>TOTAL</b>							1000	556	4040

\* V<sub>oz</sub> = (R<sub>p</sub> x P<sub>z</sub>) + (R<sub>a</sub> x A<sub>s</sub>)



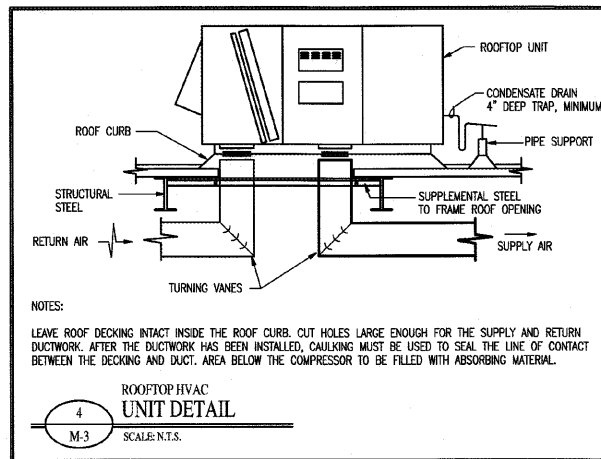
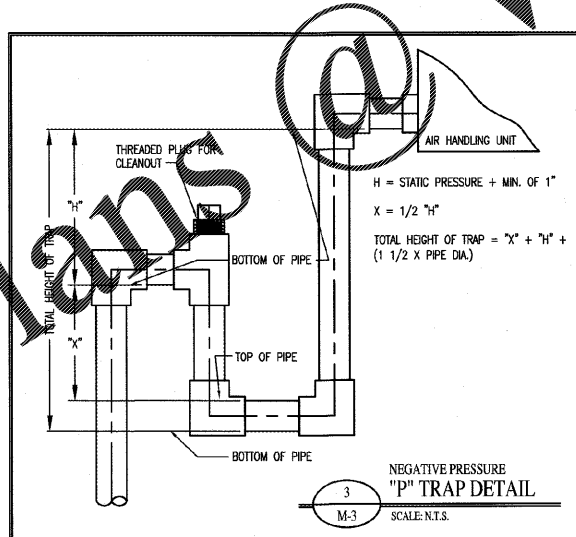
**AIR DISTRIBUTION SCHEDULE**

MARK	MANUFACTURER	NECK SIZE	PANEL SIZE	FM RANGE	USE	TYPE	MODEL	MATERIAL
A	J & J REGISTER	6"	14x24	0-150	SUPPLY	MODULAR LOWER FACE	RZ1444	ENGINEERED POLYMER
B	J & J REGISTER	10"	24x24	251-375	SUPPLY	MODULAR LOWER FACE	RZ1444	ENGINEERED POLYMER
C	J & J REGISTER	12"	24x24	376-600	SUPPLY	MODULAR LOWER FACE	RZ1444	ENGINEERED POLYMER
D	EEGER PRODUCTS, INC.	14"	24x24	0-1600	RETURN	FILTERED RETURN GRILLE	EFAR14W	ENGINEERED POLYMER

**FAN SCHEDULE**

MARK	MANUFACTURER	MODEL	TYPE	CFM	SP	MOTOR	POWER	SONES	WATTS	CONTROL
EF-1	GREENHECK	SP-A190	CEILING EXHAUST	150	.125" W.G.	F.H.P.	120/1ø	2.0	113	SWITCH
EHF-1	CAPTIVE-AIRE	HRE-20	HOOD EXHAUST	3900	.80" W.G.	3.0 HP	208/3ø	-	1693	HOOD CONTROLS
MUA-1	CAPTIVE-AIRE	A1-D.250-G10	MAKE-UP AIR	2912	.50" W.G.	.75 HP	208/3ø	-	2162	HOOD CONTROLS

\* RESTROOM EXHAUST FANS SHALL HAVE AUTOMATIC OR GRAVITY DAMPERS THAT CLOSE WHEN THE FAN IS NOT OPERATING.



NOTES:  
 LEAVE ROOF DECKING INTACT INSIDE THE ROOF CURB. CUT HOLES LARGE ENOUGH FOR THE SUPPLY AND RETURN DUCTWORK. AFTER THE DUCTWORK HAS BEEN INSTALLED, CAULKING MUST BE USED TO SEAL THE LINE OF CONTACT BETWEEN THE DECKING AND DUCT. AREA BELOW THE COMPRESSOR TO BE FILLED WITH ABSORBING MATERIAL.

**MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE**

PRESCRIPTIVE  ENERGY COST BUDGET

THERMAL ZONE 3A

EXTERIOR DESIGN CONDITIONS  
 WINTER DRY BULB 22°F  
 SUMMER DRY BULB 81°F

INTERIOR DESIGN CONDITIONS  
 WINTER DRY BULB 70°F  
 SUMMER DRY BULB 75°F  
 RELATIVE HUMIDITY 50%

BUILDING HEATING LOAD 115,200 BTU/HR  
 BUILDING COOLING LOAD 10.8 TONS

MECHANICAL SPACING CONDITIONING SYSTEM  
 UNITARY  
 DESCRIPTION OF UNIT PACKAGED A/C  
 HEATING EFFICIENCY 87% GAS HEAT  
 COOLING EFFICIENCY 12.6 EER  
 HEATING OUTPUT OF UNIT 192,000 BTU/HR  
 COOLING OUTPUT OF UNIT 12.0 TONS

LIST EQUIPMENT EFFICIENCIES  
 EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEM)  
 MOTOR HORSEPOWER SEE SCHEDULE HP  
 NUMBER OF PHASES SEE SCHEDULE ø  
 MINIMUM EFFICIENCY SEE SCHEDULE %  
 MOTOR TYPE  
 # OF POLES

DESIGNER 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 NORTH CAROLINA STATE BUILDING CODES.

**Alamance Consulting Engineers**

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 www.lindseyarchitecture.com

NEW BUILDING FACILITY:  
**COOK OUT**  
 4455 Main Street  
 Shallotte, North Carolina

DRAWING NAME  
**MECHANICAL DETAILS**

NORTH CAROLINA  
 PROFESSIONAL ENGINEERING  
 SEAL  
 25043  
 ENGINEER  
 DATE: 2/28/2019

DRAWN  
 TGW  
 DATE  
 2/27/19  
 SCALE  
 AS NOTED  
 JOB NO.  
 19021  
 SHEET

**M-3**