

GENERAL NOTES AND SPECIFICATIONS

1. ALL WORK SHALL CONFORM TO ALL LOCAL, STATE, AND NATIONAL CODES. EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS.
2. THE MECHANICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS REQUIRED FOR HIS WORK.
3. ALL MATERIALS, EQUIPMENT AND PRODUCTS INCORPORATED IN THE WORK UNDER THE CONTRACT SHALL BE NEW, OF A SUITABLE GRADE FOR THE PURPOSES INTENDED, AND TO THE EXTENT POSSIBLE, STANDARD PRODUCTS OF THE VARIOUS MANUFACTURERS EXCEPT WHERE SPECIAL CONSTRUCTION OR PERFORMANCE FEATURES ARE CALLED FOR.
4. ANY EQUIPMENT OR MATERIAL DEVIATIONS FROM THAT SPECIFIED OR DETAILED ON THIS DRAWING SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER. ALL PROPOSED EQUIPMENT DEVIATIONS SUBMITTED SHALL BE SIMILAR BOTH IN QUALITY AND CAPACITY TO THAT EQUIPMENT SPECIFIED.
5. ALL MECHANICAL EQUIPMENT SHALL BE LISTED AND LABELED BY UNDERWRITERS LABORATORIES (U.L.).
6. THE MECHANICAL CONTRACTOR SHALL INSTALL EQUIPMENT AS SHOWN ON THE DRAWINGS ALLOWING FOR SUFFICIENT ACCESS AND CLEARANCE SPACE FOR EQUIPMENT MAINTENANCE, REPAIRS AND REPLACEMENT. PROVIDE PROPER CLEARANCES FOR REQUIRED PIPING AND ELECTRICAL SERVICES AND CONNECTIONS. INSTALL ALL EQUIPMENT WITH REQUIRED ACCESS AND CLEARANCES IN ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS AND/OR WITH ALL APPLICABLE CODES AND STANDARDS.
7. THE MECHANICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION AND ROUTING OF ALL PROPOSED DUCTWORK, PIPING AND EQUIPMENT WITHIN THE BUILDING STRUCTURE.
8. THE MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL HIS OWN SUPPORT EQUIPMENT. LOCATIONS SHALL BE COORDINATED WITH ALL CONTRACTORS PRIOR TO INSTALLATION.
9. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE EQUIPMENT PROVIDED UNDER THIS CONTRACT.
10. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING FOR HIS EQUIPMENT.
12. DUCTWORK AND PIPING LAYOUTS AND LOCATIONS ARE SCHEMATIC. DO NOT SCALE THESE DRAWINGS. EXACT ROUTING OF DUCTWORK AND PIPING MUST BE DETERMINED IN THE FIELD. ALL DIMENSIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR BY ACTUAL MEASUREMENT AND OBSERVATION BEFORE ORDERING OR FABRICATING ANY DUCTWORK, PIPING OR EQUIPMENT. ANY DISCREPANCIES BETWEEN THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND THE EXISTING CONDITIONS OR DIMENSIONS SHALL BE REPORTED TO THE ENGINEER BEFORE THE PERFORMANCE OF ANY WORK. FAILURE TO VERIFY AND REPORT SHALL CONSTITUTE THE CONTRACTOR'S ACCEPTANCE OF THE EXISTING CONDITIONS AS FIT FOR THE PROPER EXECUTION OF HIS WORK.
13. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PATCHING, PAINTING AND CLEANING ASSOCIATED WITH THIS PROJECT UNLESS NOTED OTHERWISE.
14. PROVIDE A COMPLETE 1-YEAR WARRANTY ON ALL LABOR AND MATERIALS.
15. CONTRACTOR SHALL FURNISH A BOUND SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF PROJECT.
16. INSTALL ESCUTCHEONS IN ALL PLACES WHERE PIPING PENETRATES A WALL IN AN EXPOSED LOCATION.
17. THE MECHANICAL CONTRACTOR SHALL MAKE A COMPLETE REVIEW OF THE MECHANICAL PLANS, INCLUDING THE SCHEDULES AND DETAILS PRIOR TO INSTALLATION OF ANY MECHANICAL SYSTEMS AND SHALL RESOLVE ANY CONFLICTS WITH THE ENGINEER.
18. CATALOG PART NUMBERS SHOWN ARE FOR DESCRIPTIVE AND QUALITY STANDARDS ONLY, NOT TO BE USED FOR ORDERING WITHOUT VERIFICATION. ENGINEER SHALL NOT BE RESPONSIBLE FOR MISMATCHED OR INACCURATE PART NUMBERS.
19. CONTRACTOR SHALL TAKE POSSESSION OF AND DISPOSE OF ALL EXISTING MATERIALS AND EQUIPMENT BEING DEMOLISHED AND/OR REMOVED. ALL ITEMS SHALL BE DISPOSED OF IN FULL COMPLIANCE WITH ALL APPLICABLE LAWS, RULES, AND REGULATIONS THAT APPLY. CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE DISPOSAL.
20. THE HIGHEST OPERATING COMPONENT OF THE THERMOSTAT SHALL BE MOUNTED AT 48" MAX A.F.F. AND IN COMPLIANCE WITH NCSCC VOLUME 1-C, CHAPTER 16.
21. INSULATE ALL SUPPLY AND RETURN DUCT DOWN STREAM OF LINED DUCT WITH BLANKET INSULATION. BLANKET INSULATION SHALL BE 1 LB. DENSITY GLASS FIBER WITH FIRE RETARDANT FOIL-SCRIM KRAFT JACKET. THERMAL CONDUCTIVITY SHALL NOT EXCEED 0.29 AT 75 DEGREES FAHRENHEIT. AS AN ALTERNATE, THE MECHANICAL CONTRACTOR MAY LINE RIGID DUCTWORK WITH ACOUSTICAL LINER IN LIEU OF WRAPPING DUCTWORK WITH BLANKET INSULATION. INSULATION R-VALUES SHALL BE IN COMPLIANCE WITH NORTH CAROLINA ENERGY CODE.
22. ALL DUCT TO BE CONSTRUCTED OF GALVANIZED STEEL SHEETS IN ACCORDANCE WITH SMACNA GAGES AND STANDARDS. SUPPLY DUCT JOINTS SHALL BE SEALED AIRTIGHT. ALL SQUARE BENDS OR ELBOW FITTINGS SHALL HAVE TURNING VANES. PROVIDE SPLITTER DAMPERS AT SUPPLY TEES AND EXTRACTORS AT ALL SUPPLY AIR BRANCHES. PROVIDE BALANCING DAMPERS IN ALL DUCTS WHERE REQUIRED FOR SYSTEM BALANCING AS SHOWN ON PLANS OR AS REQUIRED.
23. INSTALL FLEXIBLE DUCT CONNECTIONS AT THE SUPPLY AND RETURN DUCTWORK CONNECTIONS OF ALL AIR HANDLING UNITS.
24. PROVIDE FIRE DAMPERS AT ALL DUCT PENETRATIONS THROUGH THE FIRE-RATED WALLS AS SHOWN ON PLANS OR AS REQUIRED. PROVIDE RADIATION DAMPERS AT ALL DIFFUSERS/GRILLES MOUNTED IN FIRE-RATED CEILINGS AND CEILING ASSEMBLIES AS SHOWN ON PLANS OR AS REQUIRED.
25. PROVIDE ACCESS PANELS IN THE DUCTWORK FOR ALL FIRE DAMPERS OR OTHER DUCT MOUNTED EQUIPMENT. LOCATE ACCESS PANEL SO THAT ACCESS TO EQUIPMENT IS EASILY ATTAINED.
26. OUTSIDE AIR INTAKES SHALL BE LOCATED A MINIMUM OF 10 FEET FROM ALL EXHAUST DISCHARGE AND PLUMBING VENTS.
27. REPLACE ALL FILTERS JUST PRIOR TO ACCEPTANCE BY THE OWNER.
28. FLEXIBLE DUCT SHALL BE INSULATED, SOUND ATTENUATING, LOW VELOCITY TYPE AND SHALL COMPLY WITH NFPA 90A AND 90B. FLEXIBLE DUCT SHALL BE U.L. LISTED, CLASS 1 INSULATED TYPE, RATED FOR A MINIMUM OF 4" POSITIVE STATIC PRESSURE AND A MINIMUM OF 1" NEGATIVE STATIC PRESSURE. FLEXIBLE DUCT SHALL BE FACTORY-FORMED, COMPOSED OF SPIRAL WOUND, CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER, COVERED WITH INSULATION WITH A VAPOR BARRIER. INSULATION R-VALUES PER THE NORTH CAROLINA ENERGY CODE.
29. TEST AND BALANCE SHALL BE PERFORMED IN ACCORDANCE WITH "AABC" REQUIREMENTS. AIR FLOW AND STATIC PRESSURE SHALL BE MEASURED AND RECORDED FOR ALL OUTLETS ON EACH AIR SYSTEM. PROVIDE COMPLETE TEST AND BALANCE REPORTS.
30. CATALOG PART NUMBERS SHOWN ARE FOR DESCRIPTIVE AND QUALITY STANDARDS ONLY, NOT TO BE USED FOR ORDERING WITHOUT VERIFICATION. ENGINEER SHALL NOT BE RESPONSIBLE FOR MISMATCHED OR INACCURATE PART NUMBERS.

MECHANICAL SYSTEMS AND EQUIPMENT
METHOD OF COMPLIANCE:

Prescriptive ☒ Energy Cost Budget ☐

Thermal Zone 4A

EXTERIOR DESIGN CONDITIONS

Winter Dry Bulb: 16°F
Summer Dry Bulb: 90°F

INTERIOR DESIGN CONDITIONS

Winter Dry Bulb: 70°F
Summer Dry Bulb: 75°F
Relative Humidity: 50%

NEW CONDITIONED AREA HEATING LOAD: 22,900 Btu/Hr

NEW CONDITIONED AREA COOLING LOAD: 18,500 Btu/Hr

MECHANICAL SPACE CONDITIONING SYSTEM:

Unitary -New Split System.
Boiler - Not applicable to this project.
Chiller -Not applicable to this project.

EQUIPMENT EFFICIENCIES:

Efficiencies are listed on equipment schedules - See drawings.

EQUIPMENT SCHEDULES WITH MOTORS:





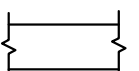
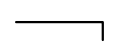
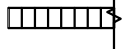


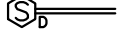











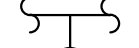



See drawings for efficiencies.

DESIGNER STATEMENT:

To the best of my knowledge and belief, the design of this building complies with the mechanical system and equipment requirements of the North Carolina Building, Code, 2009 Edition-Energy.

SIGNED: _____
NAME: JOHN W. MATHEWS
TITLE: PROFESSIONAL ENGINEER

MECHANICAL LEGEND

-  THERMOSTAT
-  CARBON DIOXIDE
-  SUPPLY DIFFUSER
-  RETURN DIFFUSER
-  RECTANGULAR DUCT
-  BALANCING (VOLUME) DAMPER
-  ROUND FLEX DUCT
-  RECTANGULAR DUCT - RISER
-  MOTORIZED DAMPER
-  DUCT SMOKE DETECTOR
-  DIFFUSER TAG
-  DIFFUSER CFM
-  CONDENSATE PIPING
-  SMOKE DETECTOR ANNUNCIATOR
-  BALL VALVE
-  DRAIN
-  PRESSURE RELIEF VALVE
-  FLOW CHECK VALVE
-  PRESSURE REDUCING VALVE
-  BACK FLOW PREVENTER
-  WYE STRAINER
-  UNION
-  TEMPERATURE/PRESSURE GAUGE
-  TIE TO EXISTING
-  LIMITS OF DEMO

ABBREVIATIONS:

- AHU AIR HANDLING UNIT
- CFM CUBIC FEET PER MINUTE
- CU CONDENSING UNIT
- EA EXHAUST AIR
- EF EXHAUST FAN
- EUH ELECTRIC UNIT HEATER
- FD FIRE DAMPER
- FPM FEET PER MINUTE
- GUH GAS UNIT HEATER
- HP HEAT PUMP
- L LOUVER
- LP LIQUID PROPANE
- NG NATURAL GAS
- RA RETURN AIR
- RTU ROOFTOP UNIT
- OA OUTDOOR AIR
- PKG PACKAGE UNIT
- SA SUPPLY AIR

SPLIT SYSTEM HVAC SCHEDULE																					
	GAS FURNACE							EVAPORATOR COIL					CONDENSING UNIT								
TAG	MANUF/MODEL #	CFM	ESP	FAN HP	INPUT MBH	OUTPUT MBH	OUTSIDE AIR CFM	COIL MDOEL #	EAT DB °F	EAT WB °F	TOTAL CAPACITY MBH	SENSIBLE CAPACITY MBH	TAG	MANUF/MODEL #	TOTAL COOLING (TON)	SEER	VOLT/PH	MCA	MOCp	WEIGHT (LBS)	NOTES
AHU-2	TRANE #TUH1B060A9361A	850	0.4	1/3	60 MBH	57 MBH	80/280	TRANE #4TXCA024BC3HCA	80	67	21.8	15.1	CU-2	TRANE #4TTB3024D1	2	13.0	208/1	11	15	165	1,2,3,4,5

INDOOR UNIT NOTES:

1. PROVIDE WITH A DIGITAL AUTO-CHANGEOVER THERMOSTAT.
2. INSTALL PER THE MANUFACTURER'S RECOMMENDATIONS, MAINTAIN REQUIRED CLEARANCES FOR SERVICING.
3. PROVIDE WITH NEW FILTERS UPON COMPLETION.
4. APPROVED EQUAL CARRIER, LENNOX, OR YORK.
5. PROVIDE WITH MANUFACTURER'S CONCENTRIC VENT KIT AND VENT THROUGH THE BACK WALL.

OUTDOOR UNIT NOTES:

1. MOUNT ON A CONCRETE PAD AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.
2. INSTALL PER THE MANUFACTURER'S RECOMMENDATIONS, MAINTAIN REQUIRED CLEARANCES FOR SERVICING.
3. PROVIDE WITH LIQUID LINE FILTER DRIER AND SIGHT GLASS.
4. USE MANUFACTURER'S LONG-LINE APPLICATION GUIDELINES FOR TUBING RUNS GREATER THAN 50 FT. PROVIDE WITH LIQUID-LINE SOLENOID VALVE FOR LONG-LINE APPLICATIONS.
5. APPROVED EQUAL CARRIER, LENNOX, OR YORK.

AIR DISTRIBUTION SCHEDULE						
TAG	MANUF/MODEL #	PANEL SIZE	TYPE	NECK SIZE	USE	NOTES
A	NAILOR MODEL# RNS	24x24	LAY-IN CEILING	10"ø	SUPPLY	1,2
B	NAILOR MODEL# RNS	24x24	LAY-IN CEILING	8"ø	SUPPLY	1,2
C	NAILOR MODEL# 51EC	24x24	LAY-IN CEILING	20"x20"	RETURN	1,2
D	NAILOR MODEL# 51FE	24"x12"	LAY-IN CEILING	20"x10"	RETURN	1,2

NOTES:

1. VERIFY CEILING TYPES, COLOR BY ARCHITECT.
2. APPROVED EQUAL PRICE, TITUS, KRUEGER, AND TUTTLE AND BAILEY.

OUTDOOR AIR CALCULATION			
ROOM	NUMBER OF PEOPLE	CFM/PERSON	OUTDOOR AIR (CFM)
CONFERENCE (6)	11	20	220
OFFICE (7)	1	20	20
BREAK (10)	2	20	40
TOTAL OUTDOOR AIR REQUIRED			280
TOTAL OUTDOOR AIR PROVIDED			280

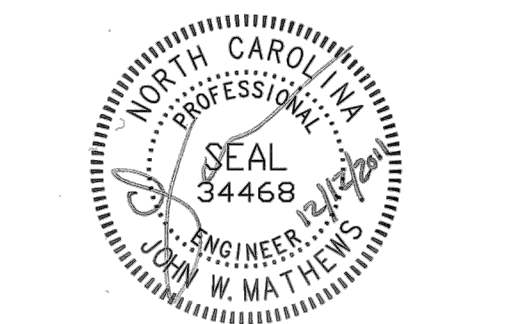
OUTDOOR AIR CALCULATION NOTES:

1. OUTDOOR AIR VALUES WERE DETERMINED PER THE 2009 NORTH CAROLINA MECHANICAL CODE - SECTION 403.

RUSTY LONG, ARCHITECT
SUSTAINABLE | MODERN | DESIGN

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OFFICE FITUP
2019 PRODUCTION DR.
SUITE 101
APEX, NC

RUSTY LONG ARCHITECT
1544 DIRKSON COURT
CARY, NC 27511
919-602-4180

REVISIONS

DATE: December 12, 2011
PROJECT #: 2011_JSB
DRAWN BY: JMB2
CHECKED BY: JWM

MECHANICAL NOTES,
LEGENDS, & SCHEDULES

ME001

- ☒ FOR CONSTRUCTION
- ☐ NOT FOR CONSTRUCTION