

## HVAC GENERAL NOTES

1. MECHANICAL EQUIPMENT AND INSTALLATIONS SHALL CONFORM WITH THE REQUIREMENTS OF THE INTERNATIONAL MECHANICAL CODE, THE INTERNATIONAL BUILDING CODE, THE NORTH CAROLINA STATE ENERGY CODE, AND ALL APPLICABLE CODES AND ORDINANCES.
2. PRIOR TO PURCHASING MATERIALS OR STARTING WORK, CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS. VERIFY DUCTWORK SIZES, DUCTWORK LOCATIONS, EQUIPMENT SIZES, EQUIPMENT LOCATIONS, VOLTAGES, ETC. SHOWN ON THE DRAWINGS OR CONDITIONS AFFECTING THIS WORK. REPORT ANY DEVIATIONS TO THE ARCHITECT.
3. **SHOP DRAWINGS:** SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER PRIOR TO ORDERING, PURCHASING, OR FABRICATING MECHANICAL EQUIPMENT. SHOP DRAWINGS SHALL INCLUDE: NEW EQUIPMENT SCHEDULED OR SPECIFIED ON THE DRAWINGS OR SPECS INCLUDING, BUT NOT LIMITED TO RTUs, CURBS, DIFFUSERS, FANS, DUCTWORK, DUCT INSULATION, AND DUCT LINER, ETC. SHOP DRAWINGS SHALL HAVE THE EQUIPMENT SUBMITTALS CLEARLY LABELED TO MATCH THE EQUIPMENT UNIT DESIGNATION ("TAG" AS NOTED IN SCHEDULE) SHOWN ON THE DRAWINGS. PROVIDE ALL INFORMATION INDICATED IN THE SCHEDULES OR ON THE DRAWINGS. CLEARLY ADDRESS ALL NOTES AND ACCESSORIES IN THE SCHEDULES. IF THERE ARE ANY DEVIATIONS FROM THE DESIGN DOCUMENTS CONTRACTOR SHALL STATE AS SUCH AT THE FRONT PAGE OF SUBMITTALS -- PROVIDE A LIST OF DEVIATIONS AND REFERENCE TO ITEM IN THE DESIGN DOCUMENTS.
4. **SHOP DRAWINGS:** SUBMIT ALL EQUIPMENT TOGETHER IN A CLEARLY LABELED AND ORGANIZED MANNER AT THE SAME TIME (IN SAME SUBMITTAL PACKAGE) OR ALL EQUIPMENT WILL BE REJECTED REGARDLESS OF LEAD TIMES OR DIFFERENT EQUIPMENT SUPPLIERS. NO EXCEPTIONS ALLOWED! IF THE ORIGINAL SUBMITTALS HAVE BEEN REVIEWED AND MARKED AS "REJECTED" OR "REVISE AND RESUBMIT," THEN ONLY THE EQUIPMENT THAT IS REQUIRED BY ENGINEER TO BE RESUBMITTED SHOULD BE RESUBMITTED AGAIN (DO NOT RESUBMIT EQUIPMENT NOTED AS "APPROVED" OR "EXCEPTIONS NOTED"). IF MULTIPLE ITEMS WERE NOT APPROVED, RESUBMIT ITEMS THAT NEED TO BE REVIEWED AGAIN AT THE SAME TIME OR THEY WILL BE REJECTED AGAIN.
5. THE MECHANICAL CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR AND ELECTRICAL CONTRACTOR THAT A FACE TO FACE MEETING IS REQUIRED BETWEEN ELECTRICAL AND MECHANICAL CONTRACTORS PRIOR TO ORDERING AND INSTALLING EQUIPMENT TO COORDINATE VOLTAGE, PHASE, AMPS, AND OTHER ELECTRICAL CHARACTERISTICS OF MECHANICAL EQUIPMENT. AFTER THIS MEETING HAS OCCURRED THE GENERAL CONTRACTOR SHALL PROVIDE NOTICE IN WRITING THAT THIS MEETING HAS OCCURRED AND ANY DISCREPANCIES HAVE BEEN RESOLVED.
6. FOR UL LISTED EQUIPMENT, CONTRACTOR SHALL SUBMIT AN ADDITIONAL REVIEW TO THE ARCHITECT TO CONFIRM THAT THE EQUIPMENT BEING SUBMITTED IS UL LISTED FOR THE APPLICABLE UL ASSEMBLIES AS LISTED ON THE ARCHITECT'S DRAWINGS.
7. IF THE CONTRACTOR REQUESTS THE ENGINEER'S CAD DRAWINGS OR IF THE DRAWINGS ARE REQUESTED BY OTHERS TO BE USED BY CONTRACTOR FOR AS-BUILTS, COORDINATION, ETC.), DRAWINGS SENT OUT (BY THE ENGINEER) WILL BE OF FLOOR PLANS AND SECTIONS, BUT WILL NOT HAVE DETAILS, GENERAL NOTES, SCHEDULES, OR OTHER ITEMS DEEMED PROPRIETARY BY THE ENGINEER.
8. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF MECHANICAL EQUIPMENT WITH ELECTRICAL DRAWINGS PRIOR TO ORDERING EQUIPMENT OR SUBMITTING SHOP DRAWINGS, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN ON THE ELECTRICAL DRAWINGS.
9. MECHANICAL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE INSTALLED WITH DISCONNECT SWITCHES AT EACH PECE OF EQUIPMENT. COORDINATE SWITCH TYPE (FUSED OR NON-FUSED) WITH EQUIPMENT CHARACTERISTICS, MANUFACTURER'S RECOMMENDATIONS, AND ELECTRICAL DRAWINGS.
10. INCLUDE CONTROL WIRING AS A PART OF THE MECHANICAL WORK; UNLESS SHOWN ON THE ELECTRICAL DRAWINGS. CONTROL WIRING INCLUDING THERMOSTAT WIRING SHALL BE PLENUM RATED (MEETING THE 25/50 FLAME AND SMOKE DEVELOPED RATING OF ASTM E84)
11. UNLESS NOTED OTHERWISE, STARTERS, SMOKE DETECTORS, TRANSFORMERS, CONTROLS AND CONTROL WIRING REQUIRED FOR ALL MECHANICAL SYSTEMS SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR. PROVIDE A STARTER FOR ALL MOTORS. IF A SIGNAL IS REQUIRED TO START A MOTOR THEN PROVIDE AN H-O-A TYPE STARTER.
12. INSTALL MECHANICAL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS. DO NOT INSTALL MECHANICAL EQUIPMENT, DUCTWORK, OR PIPING ABOVE ELECTRICAL PANELS OR LOADCENTERS.
13. GUARANTEE MECHANICAL EQUIPMENT AND SYSTEMS FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE BY OWNER.
14. PROVIDE HVAC COMPRESSORS WITH AN EXTENDED 5-YEAR MANUFACTURER'S WARRANTY.
15. SEE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF OUTDOOR AIR CONDITIONING UNITS.
16. INSTALL OUTDOOR AIR CONDITIONING EQUIPMENT LEVEL AS SHOWN IN DETAIL.
17. **DUCT INSULATION:** FIBERGLASS DUCT WRAP, WITH FOIL FACED VAPOR BARRIER INSULATION SHALL BE U.L. LISTED. GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 553, TYPE II, WITHOUT FACING AND WITH ALL-SERVICE JACKET MANUFACTURED FROM KRAFT PAPER, REINFORCING SCRAM, ALUMINUM FOIL, AND VINYL FILM. JOHNS MANVILLE, OWENS CORNING, OR EQUAL. IF DUCTWORK SUPPORT STRAPS ARE ATTACHED TO THE DUCT, THEN LOCATE STRAPS INSIDE THE INSULATION AND SEAL WITH MASTIC AT PUNCTURE. ALL PUNCTURES (STAPLES) AND PENETRATIONS OF THE FOIL VAPOR BARRIER SHALL BE SEALED AIRTIGHT WITH FOIL TAPE AND/OR MASTIC -- DO NOT USE DUCT TAPE (FABRIC OR CLOTH TYPE EVEN IF IT HAS A FOIL FACE). MASTIC MUST BE APPLIED THICK ENOUGH TO COMPLETELY COVER STAPLES. PERIMETER JOINTS SHALL BE FORMED SUCH THAT THE INSULATION ON THE TOP OF THE DUCT OVERLAPS THE INSULATION ON THE SIDES AND THE SIDES OVERLAP THE BOTTOM. DO NOT COMPRESS THE INSULATION WITH SUPPORTS (STRAPS, HANGERS, ETC.) -- WHERE NECESSARY PROVIDE RIGID BOARD (6 LB DENSITY) THE SAME THICKNESS AS THE INSULATION INSERTED INTO THE INSULATION AT THE HANGER.
18. **DUCT:** DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED PER THE GUIDELINES OF SMACNA, 2005 EDITION. EXCEPT WHERE NOTED, ALL DUCTWORK MATERIAL SHALL BE GALVANIZED SHEETMETAL NOT LESS THAN 28 GAUGE (0.0119 INCHES) AND HAVING A ZINC COATING DESIGNATION OF G60 OR GREATER. DUCTS AND EQUIPMENT SHALL BE SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE. DUCT SUPPORTS AND ATTACHMENTS TO STRUCTURE SHALL BE PER SMACNA STANDARDS. ALL EXHAUST DUCTS AND ALL RETURN DUCTS UNDER A NEGATIVE PRESSURE AND LOCATED IN CEILING PLENUMS SHALL BE CONSTRUCTED TO A MINIMUM PRESSURE CLASS OF NEGATIVE 1/2" W.C. AND ALL JOINTS SHALL BE SEALED TO A SEAL CLASS OF "C" AS DEFINED BY SMACNA. SUPPLY (CONDITIONED AIR) DUCTS SHALL BE CONSTRUCTED TO A PRESSURE CLASSIFICATION OF 2" W.C. AND SEALED TO A CLASS "C". ALL JOINTS AND SEAMS IN ALL DUCTWORK SHALL BE SEALED WITH DUCT SEALER, UL LISTED 181A OR 181B FOR TAPES AND MASTICS. DO NOT USE DUCT TAPE.
19. SHEETMETAL DUCT ELBOWS SHALL BE STANDARD RADIUS TYPE OR RECTANGULAR TYPE WITH SINGLE THICKNESS TURNING VANES. DO NOT USE RADIUS ELBOWS WITH A SQUARE THROAT. DO NOT USE TURNING VANES ON RETURN, EXHAUST, OR OA DUCT ELBOWS UNLESS NOTED OR SPECIFICALLY SHOWN ON THE DRAWINGS. INSTEAD USE STANDARD RADIUS ELBOWS.
20. FLEXIBLE DUCT SHALL BE UL LISTED AS A CLASS I AIR DUCT COMPLYING WITH UL STANDARD 181, NFPA 90A & 90B AND HAVE A FLAME SPREAD RATING OF NOT OVER 25 AND A SMOKE DEVELOPMENT RATING OF NOT OVER 50. FLEXIBLE DUCT SHALL HAVE A POSITIVE OPERATING PRESSURE OF 10" MINIMUM. FLEXIBLE DUCT SHALL BE TESTED FOR A MAXIMUM INTERNAL OPERATING TEMPERATURE OF 200°F UNDER CONTINUOUS OPERATION AND SHALL BE RATED FOR A MINIMUM OF 5000 FPM AIR VELOCITY. INSULATION SHALL BE A MINIMUM OF 2" THICK 3/4 PCF DENSITY FIBERGLASS. DUCTS SHALL HAVE INSULATION WITH A MINIMUM R-VALUE OF 6.0. OUTER LINER SHALL BE A BI-DIRECTIONAL FIBERGLASS REINFORCED METALLIZED VAPOR BARRIER. FLEXIBLE DUCTWORK SHALL BE INSTALLED AS STRAIGHT AS POSSIBLE, AND SHALL BE ROUTED AND SUPPORTED WITHOUT FORMING CRUMPS OR OTHER AIR FLOW RESTRICTIONS. PROVIDE SQUARE TO ROUND ADAPTERS OR BOOTS TO CONNECT TO AIR DEVICE NECK WHEN REQUIRED.
21. ROUND AND FLEXIBLE DUCTWORK SHALL BE CONNECTED TO MAIN DUCTS WITH SPIN-IN OR DOVE-TAIL FITTINGS. ALSO PROVIDE BALANCING DAMPERS WHERE INDICATED IN THESE GENERAL NOTES AND ON THE DRAWINGS. DO NOT PROVIDE A SCOOP FITTING.
22. **DUCT LINERS:** SHEET METAL DUCTWORK SHOWN OR CALLED OUT AS BEING INTERNALLY LINED SHALL BE LINED WITH 1" THICK 1-1/2 LB./CU. FT. DENSITY DUCTLINER, R=4.2 PER INCH, MANVILLE LINACOUSTIC OR EQUAL. DUCT LINER SHALL MEET REQUIREMENTS OF NFPA 90A & 90B, FLAME SPREAD OF 25 AND SMOKE DEVELOPED OF 50, MEET ASTM G-21 AND G-22, A MIN NOISE REDUCTION COEFFICIENT OF 0.70. LINE ALL DUCTWORK MIN. 10'-0" DOWNSTREAM OF ALL AIR HANDLING UNITS OR RTUs UNLESS NOTED OTHERWISE. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. SEAL ALL EDGES, SEAMS, RIPS, TEARS, ETC COMPLETELY (NO OPENINGS ALLOWED) WITH MANUFACTURER RECOMMENDED SEALER. A SEALER SHALL BE APPLIED AS NOTED ABOVE, REGARDLESS OF DIRECTION BY MANUFACTURER. NOTE: LINER IS NOT A SUBSTITUTE FOR INSULATION UNLESS SPECIFICALLY NOTED TO BE. PROVIDE A MINIMUM 6"x6" SAMPLE OF DUCT LINER TO ENGINEER DURING SUBMITTAL.
23. PORTIONS OF DUCTWORK VISIBLE THROUGH AIR DISTRIBUTION DEVICES IN FINISHED AREAS SHALL BE PAINTED FLAT BLACK.
24. DUCTWORK DIMENSIONS SHOWN ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS. INCREASE SIZE TO ACCOMMODATE LINER.
25. **TEST AND BALANCE (TAB):** AFTER CONSTRUCTION, THE ENTIRE HVAC SYSTEM, INCLUDING THE EXHAUST AND RETURN AIR SYSTEMS SHALL BE TESTED, ADJUSTED, AND BALANCED TO DELIVER THE AIR QUANTITIES SHOWN ON THE DRAWINGS. SUBMIT CERTIFIED TEST AND BALANCE REPORT TO ARCHITECT AND ENGINEER FOR APPROVAL. EXHAUST AND RETURN SYSTEMS UNDER NEGATIVE PRESSURE SHALL NOT EXCEED BY MORE THAN 10% FOR EACH FAN AND BY NO MORE THAN 10% AT EACH INLET OF THE VALUES INDICATED ON THE DRAWINGS. TEST AND BALANCE SHALL BE DONE PRIOR TO OPERATING THE HVAC EQUIPMENT. HVAC EQUIPMENT SHALL ONLY BE TURNED ON BEFORE TEST AND BALANCE TO VERIFY OPERATION (AFTER VERIFICATION TURN EQUIPMENT OFF). AFTER TEST AND BALANCE SHUTDOWN THE EQUIPMENT UNTIL ENGINEER/ARCHITECT REVIEWS TEST AND BALANCE REPORT AND RESPONDS BACK WITH COMMENTS. TESTING AGENCY SHALL BE AABC OR NEBB CERTIFIED AND SHALL BE INDEPENDENT (NONAFFILIATED) FROM THE CONTRACTOR (INCLUDING SUBCONTRACTOR). THE CONTRACTOR SHALL INCLUDE IN THEIR SCOPE OF WORK ONE (1) FULL DAY (8 HOURS AT SITE) ON SITE WITH THE MECHANICAL ENGINEER OR OWNER OR AS DIRECTED BY THE ENGINEER TO SPOT CHECK OR REMEASURE AIRFLOWS, TEMPERATURES, ETC. TO VERIFY COMPLIANCE WITH THE CONTRACT DOCUMENTS AND THE TAB REPORT.
26. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF MECHANICAL EQUIPMENT, DUCTWORK, ETC. TO FIT WITHIN THE SPACE ALLOWED BY THE ARCHITECTURAL AND STRUCTURAL CONDITIONS. CUTTING OR OTHERWISE ALTERING ANY STRUCTURAL MEMBERS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE ARCHITECT.
27. THERMOSTATS SHALL NOT HAVE MERCURY. MOUNT THERMOSTATS, SENSORS, AND OTHER CONTROLLERS SUCH THAT TOP OPERABLE CONTROL IS MAXIMUM 48" AFF UNLESS NOTED OTHERWISE. PROVIDE DIGITALLY LOCKABLE THERMOSTATS OR CLEAR LOCKING COVER ASSEMBLIES FOR ALL THERMOSTATS LOCATED IN PUBLIC AREAS.
28. LOCATIONS OF GRILLES, REGISTERS, & DIFFUSERS SHOWN ON THE DRAWINGS ARE APPROXIMATE. COORDINATE EXACT LOCATIONS WITH LIGHTS, CEILING GRID, ETC.
29. PROVIDE ACCESS PANELS IN NON-ACCESSIBLE CEILINGS AND IN WALL STRUCTURE TO ALLOW ADEQUATE ROOM FOR MAINTENANCE OF EQUIPMENT AND BALANCING OF SYSTEM.
30. LABEL EQUIPMENT WITH BLACK STENCILED LETTERING ON A WHITE BACKGROUND OR USE BAKELITE LETTERING ON A DIFFERENT COLOR BACKGROUND, MINIMUM 2" LETTERING. LABEL RTUs ON BOTH LONG SIDES.
31. DURING CONSTRUCTION AND PRIOR TO OPERATING HVAC SYSTEMS, PROVIDE MIN MERV 7 PLEATED FILTERS IN ALL UNITS. ALSO PROVIDE FILTER MEDIA AT RETURN DUCT INLET. AT TIME OF TEST AND BALANCE, REMOVE FILTER MEDIA, REMOVE PLEATED FILTERS, AND PROVIDE SCHEDULED/SPECIFIED FILTERS FOR HVAC SYSTEMS.
32. ACCESS DOORS IN CEILINGS/WALLS SHALL BE A MINIMUM OF 18X18, HINGED, AND FIRE RATED TO MATCH CEILING/WALL RATING.
33. DUCT ACCESS DOOR SHALL BE SIZE AS INDICATED ON DRAWINGS AND SHALL HAVE THE FOLLOWING: LOW PRESSURE DUCT ACCESS DOORS SHALL BE DOUBLE WALL IF INSTALLED ON SUPPLY DUCT, AND PROVIDED WITH THUMB LATCHES FOR AN AIR TIGHT FIT. FOR MEDIUM PRESSURE DUCT ACCESS DOORS SHALL BE CLOSED CELL NEOPRENE GASKET BONDED TO THE DOOR, HAND KNOBS WITH ZINC COATED SPRINGS INSTALLED BETWEEN THE INNER AND OUTER DOORS, AN INNER AND OUTER DOOR, INSULATED BETWEEN INNER AND OUTER DOORS, TESTED TO 5" W.C. DOORS SHALL BE UNITED MCGILL OR EQUAL.
34. PROVIDE MvDs AT TAKE-OFFS, WHERE ACCESSIBLE CEILING (LAY-IN) IS PROVIDED, OF RUNOUTS TO DIFFUSERS AND WHERE SHOWN ON PLANS. WHERE BALANCING DAMPERS ARE ALSO PROVIDED AT THE SUPPLY GRILLE/DIFFUSER (SEE SCHEDULE), BALANCE THE SYSTEM WITH THE DAMPER AT THE TAKE-OFF (NOT AT GRILLE). GRILLE DAMPER SHOULD BE 100% OPEN AFTER TEST AND BALANCE.
35. ROUTE DUCT HIGH AS POSSIBLE UNDER JOIST/ROOF SUPPORT. DUCT SUPPORTS/HANGERS SHALL BE ATTACHED TO THE TOP CHORD OF JOISTS.
36. **FIRESTOPPING:** PIPE AND DUCT PENETRATIONS OF FIRE AND OR SMOKE-RATED ASSEMBLIES SHALL BE FIRE-STOPPED AS REQUIRED TO RESTORE ASSEMBLY TO THE ORIGINAL INTEGRITY. FIRE BARRIER PRODUCTS SHALL BE AS MANUFACTURED BY 3M CO. CP25 CAULK, CS195 COMPOSITE PANEL, FS195 WRAP/ STRIP, OR PSS 7900 SERIES SYSTEM AS RECOMMENDED BY MFG. FOR PARTICULAR APPLICATION, OR EQUIVALENT SYSTEM AS APPROVED BY LOCAL CODE OFFICIALS.
37. DUCT-MOUNTED SMOKE DETECTORS SHALL BE PROVIDED WHERE SHOWN ON THE PLANS. EACH SMOKE DETECTOR SHALL BE WIRED TO STOP THE FAN UPON DETECTION OF SMOKE, AND SIGNAL THE BUILDING FIRE ALARM CONTROL PANEL. THE SMOKE DETECTOR SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR. MOUNTED IN THE DUCT BY THE MECHANICAL CONTRACTOR, AND WIRED BY THE ELECTRICAL CONTRACTOR. DO NOT INSTALL DUCT DETECTORS IN DUCTWORK SERVING SHOWER OR STEAM ROOMS OR ROOMS PRODUCING EXCESSIVE MOISTURE. PROVIDE A REMOTE TEST SWITCH AT THE UNIT THERMOSTAT FOR UNITS WITH DUCT SMOKE DETECTORS. EACH SMOKE DETECTOR SHALL BE WIRED TO STOP THE FAN UPON DETECTION OF SMOKE, AND SHALL ACTIVATE AN AUDIBLE AND VISUAL SIGNAL. PROVIDE TYPED LETTERING BELOW THE SIGNAL STATING "AIR DUCT DETECTOR TROUBLE". SMOKE DETECTORS SHALL WITH UL 258A.
38. CONTROL FOR THERMOSTATS CONTROLLING MOTOR OPERATED DAMPERS AND FANS CAN BE EITHER 120 V OR 24 VOLT. PROVIDE CONTROL TRANSFORMER WHERE REQUIRED. INSTALL 120 VOLT WIRING IN CONDUIT. ROUTE WIRING IN WALLS WHERE AVAILABLE.
39. FIRE DAMPERS SHALL BE TYPE B (BLADES OUT OF AIRSTREAM) UNLESS NOTED OTHERWISE IN DETAILS.
40. ROOF ASSOCIATED WORK SHALL BE DONE BY THE LANDLORDS/OWNERS APPROVED ROOFING CONTRACTOR. COORDINATE WITH THE LANDLORD/OWNER PRIOR TO START OF WORK.
41. REFRIGERANT PIPE ROUTED THRU A WALL SHALL BE SLEAVED WITH A PVC SCHEDULE 40 OR GREATER PIPE AT LEAST 1/2" LARGER THAN THE PIPE (WITH INSULATION), ONE SLEEVE CAN ACCOMMODATE A LIQUID, SUCTION AND T'STAT WIRE. CAULK AS NECESSARY AROUND AND INSIDE SLEEVE TO PRESERVE WALL INTEGRITY.
42. DISHWASHER EXHAUST SHALL BE GALVANIZED G90 SHEETMETAL, WATER-TIGHT CONSTRUCTION, SLOPED AT 1/4" PER FOOT TOWARDS THE EXHAUST HOOD.

## HVAC LEGEND

SYMBOL	DESCRIPTION
	RETURN AIR GRILLE, 24x12 OR 24x24
	SUPPLY AIR DIFFUSER
	SUPPLY AIR DIFFUSER, TYPE "A"
	DUCT OR EQUIP (SHOWN AS SOLID)
	DUCT LINED (LINER SHOWN AS DASHED)
	FLEX DUCT
	HVAC EQUIPMENT DESIGNATION
	HVAC EQUIPMENT
	MANUAL VOLUME DAMPER
	THERMOSTAT
	HUMIDISTAT
	SPACE TEMPERATURE SENSOR
	RECTANGULAR DUCT ELBOW WITH TURNING VANES
	MOTORIZED DAMPER
	DUCT SMOKE DETECTOR
	BACKDRAFT DAMPER
	CEILING TRANSFER GRILLE
	CONDENSATE DRAIN
	CONDENSER WATER SUPPLY
	CONDENSER WATER RETURN
	EXHAUST FAN
	FAN COIL UNIT
	MIXED AIR
	MOTOR OPERATED DAMPER
	NECK
	OUTSIDE AIR
	OPPOSED BLADE DAMPER
	POLLUTION CONTROL UNIT
	RETURN AIR
	RETURN AIR GRILLE
	SUPPLY AIR
	UNDERCUT DOOR 1/2"

## WALL LOUVERS

(ALL NOTES APPLY)

TAG	MAKE & MODEL	CFM	SIZE WAH	MIN. FREE AREA SQ. FT.	TYPE	DUTY	MAX SPD @ 700 FPM	ACCESSORIES
WL-1	RUSKIN ELF375X	--	24x24	1.92	STATIONARY FORMED LOUVER	--	--	1
WL-2	RUSKIN ELF375X	--	--	--	STATIONARY FORMED LOUVER	--	--	--
WL-3	RUSKIN ELF375X	--	--	--	STATIONARY FORMED LOUVER	--	--	--

- NOTES:**
1. LOUVERS SHALL BE CAPABLE OF WITHSTANDING A WIND LOAD UP TO 20 LBS PER SQ. FT.
  2. UNIT SHALL BE MADE OF ALUMINUM WITH AN ALLOY.
  3. SCREENS SHALL BE CONTAINED WITHIN A REMOVABLE FRAME.
  4. UNIT SHALL BE ANCA LICENSED.
  5. LOUVER SHALL HAVE A BAKED ENAMEL PAINTED FINISH -- COLOR SELECTION BY ARCHITECT AT TIME OF SHOP DRAWINGS.
- ACCESSORIES:**
1. BIRDSCREEN.
  2. LOUVER SHALL HAVE MOD.
  3. INTERLOCK MOD WITH DRIVERS.
- BASIS OF DESIGN: AS NOTED; EQUAL BY: GREENHECK, ARROW

## ROOF TOP UNITS (GAS HEAT)

(ALL NOTES APPLY)

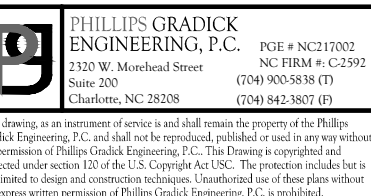
TAG	AREA SERVED	NOMINAL TONS	CARRIER MODEL NO.	TOTAL CFM	ESP (INCHES)	OA CFM	MAX. FAN HP	COOLING (NOTE 1)				HEATING		MAX WEIGHT, LBS. NOTE 2	ACCESSORIES
								MBH TOT.	MBH SENS.	EAT (COIL) DB/WB	MIN SEER/EER NOTE 3	NAT GAS			
												INPUT	OUTPUT		
RTU-1 THRU RTU-4	RESTAURANT	7.5	48TCED08	3000	0.70	550	2	90.1	68.9	80.0/67.0	11.0	180	148	1400	1-11
RTU-5 THRU RTU-12	RETAIL STORE	5.0	48KCEA06	2000	0.60	480	1.5	61.8	46.2	80.0/67.0	14.1 SEER	115	93	1000	1-11

- NOTES:**
1. COOLING CAPACITIES BASED ON E.A.T. SCHEDULED & 95°Fdb ENTERING OUTDOOR UNIT. CAPACITIES OF UNITS SUBMITTED SHALL NOT BE LESS THAN 95% OF SCHEDULED VALUES EXCEPT RTU-2 WHICH SHALL NOT HAVE A SENSIBLE CAPACITY LESS THAN THAT SCHEDULED.
  2. WEIGHT INCLUDES ACCESSORIES AND ROOF CURB AND 100 LBS FOR SOUND ATTENUATION INSULATION WITHIN THE ROOF CURB -- SEE DETAIL.
  3. SEER AND EER RATINGS ARE BASED AT 80°F db/67°F wb ENTERING THE EVAPORATOR COIL AND 95°F db ENTERING CONDENSER COIL.
  4. MINIMUM BOX A.F.U.L.E. GAS SHALL BE TWO STAGE.
  5. SUBMIT SHOP DRAWINGS INDICATING THE PROPOSED UNIT'S CAPACITIES OF THE SCHEDULED VALUES.
- ACCESSORIES:**
1. PROVIDE 2" THICK, PLEATED, 30% FILTERS -- MERV 7 OR HIGHER. PRESSURE DROP FOR CLEAN FILTER MAX. 0.15" wg.
  2. PROVIDE PROGRAMMABLE THERMOSTAT AND HUMIDISTAT WITH BATTERY BACKUP TO MAINTAIN PROGRAM SETTINGS FOR AT LEAST 10 HOURS WITHOUT POWER AND 5' DEADBAND CAPABILITY BETWEEN HEAT AND COOL. STATS SHALL BE BY SAME MANUFACTURER AS THE RTU.
  3. 5-YEAR COMPRESSOR WARRANTY.
  4. UNIT SHALL BE BELT DRIVE WITH VARIABLE PITCH SHEAVES IF AVAILABLE.
  5. SINGLE-POINT POWER CONNECTION WITH FACTORY PROVIDED INTEGRAL DISCONNECT.
  6. PROVIDE INTEGRATED COMPRESSOR OPERATES WITH 100% (OA) ENTHALPY COMPARISON (OA AND RA) ECONOMIZER WITH BAROMETRIC RELIEF AND MOTORIZED OA DAMPER SO THAT THE DAMPER WILL CLOSE WHEN THE UNIT IS NOT ENERGIZED.
  7. PROVIDE SLOPED COMPOSITE OR HIGH IMPACT PLASTIC EVAPORATOR COIL DRAIN PANS.
  8. PROVIDE ALL ACCESSORIES RECOMMENDED BY THE MANUFACTURER FOR LOW-AMBIENT OPERATION DOWN TO 25°F.
  9. INSTALL A SMOKE DETECTOR IN THE SUPPLY AIR DUCT INSIDE THE BUILDING BEFORE THE FIRST TAKE-OFF OR IN THE RTU.
  10. PROVIDE POWERED CONVENIENCE OUTLET INTEGRAL TO AND INSIDE OF UNIT.
  11. PROVIDE FACTORY ROOF CURB 14" TALL INSULATED.
- BASIS OF DESIGN: AS SCHEDULED, EQUAL BY TRANE, YORK

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PROJECT

CRESCENT COMMUNITIES  
36TH STREET, CHARLOTTE, NC  
NoDa RETAIL BUILDING

STAMP

DRAWING LOG

ISSUE:	DESIGN DEVELOPMENT
DATE:	4/26/17
ISSUE:	(2)
DATE:	(DATE 2)
ISSUE:	(3)
DATE:	(DATE 3)
ISSUE:	(4)
DATE:	(DATE 4)
ISSUE:	(5)
DATE:	(DATE 5)
ISSUE:	(6)
DATE:	(DATE 6)

SHEET INFORMATION

DATE OF DRAWING:	4/26/17
DRAWN BY:	PIW
JOB NUMBER:	119201

ROOF PLAN - MECHANICAL

M001