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DUCTWORK SYMBOLS LEGEND

Symbol	Description
(hatched)	EXISTING DUCT OR EQUIPMENT TO BE DEMOLISHED
(symbol)	NEW RIGID DUCT
(symbol)	NEW DOUBLE-WALL SPIRAL DUCT
A-200	DIFFUSER/GRILLE IDENTIFICATION WITH CFM QUANTITY
(symbol)	AIRFLOW DIRECTION
①	HVAC DEMO/RENO NOTE NUMBER
SA	SUPPLY AIR DUCT SYSTEM
RA	RETURN AIR DUCT SYSTEM
EA	EXHAUST AIR DUCT SYSTEM
Ⓣ	THERMOSTAT
SD	DUCT MOUNTED SMOKE DETECTOR (RETURN DUCT)
(symbol)	CURVED DUCT MOUNTED SUPPLY/RETURN GRILLE FOR SPIRAL DUCT
(symbol)	24x24 SUPPLY DIFFUSER
(symbol)	DUCT MOUNTED/WALL MOUNTED SUPPLY
(symbol)	DUCT MOUNTED/RETURN GRILLE

GENERAL HVAC NOTES

1. VISIT THE SITE OF THIS PROJECT AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING FIELD CONDITIONS. VERIFY EVERY ASPECT OF THE PROPOSED WORK AS DESCRIBED OR IMPLIED BY THE CONTRACT DOCUMENTS.
2. REVIEW THE CONTRACT DOCUMENTS OF ALL TRADES AND COORDINATE ALL WORK WITH THE OTHER TRADES AS NECESSARY TO AVOID CONFLICTS AND INTERFERENCES.
3. PROVIDE ALL CUTTING AND PATCHING NECESSARY FOR THE PROPER INSTALLATION OF WORK AND TO REPAIR ANY DAMAGE DONE DURING DEMOLITION OR RENOVATION.
4. IN THE EVENT THE CONTRACTOR CHOOSES TO USE PRODUCTS OTHER THAN THE BASIS OF DESIGN, HE ASSUMES FULL RESPONSIBILITY FOR COORDINATION AND INTEGRATION OF SUCH ITEMS. THE FUNCTIONAL DESIGN INTEGRITY OF ALL SYSTEMS AND COMPONENTS SHALL BE MAINTAINED. ANY ADDITIONAL COST RESULTING FROM SAID SUBSTITUTION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
5. ARCHITECTURAL AND STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THE ENGINEERING DRAWINGS REGARDING BUILDING CONSTRUCTION, DIMENSION AND ARRANGEMENT. LINES THAT REQUIRE SLOPE, SUCH AS PLUMBING WASTE LINES SHALL TAKE PRECEDENCE OVER ELECTRICAL LINES AND OTHER TRADES. CONTRACTOR SHALL COORDINATE CLOSELY WITH ALL TRADES TO AVOID CONFLICTS AND SHALL PROVIDE ALL OFFSETS AND EQUIPMENT AS REQUIRED TO FIT THE MECHANICAL AND ELECTRICAL WORK INTO THE AVAILABLE SPACE.
6. READ ALL NOTES AND REMARKS SUPPLIED ON EQUIPMENT SCHEDULES.
7. COORDINATE ALL SERVICE OUTAGES WITH OWNER.
8. COORDINATE LIGHT, PIPING, AND DUCT LOCATIONS CLOSELY WITH E.C. PRIOR TO BEGINNING WORK.
9. SEAL ALL NEW DUCTWORK WITH "HARDCAST".
10. ALL ITEMS THAT REQUIRE ACCESS, I.E. FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE INCLUDING BUT NOT LIMITED TO ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, AND CONTROL DEVICES.
11. IN AREAS OF THE BUILDING WHERE EXISTING SPRINKLER PIPING, HYDRONIC PIPING, CONDUITS, CONTROLS, LIGHTS, AND ITEMS OF EQUIPMENT ARE TO REMAIN AND MAY INTERFERE WITH THE INSTALLATION OF NEW SYSTEMS, THE MECHANICAL CONTRACTOR SHALL COORDINATE AND MAKE ADJUSTMENTS IN THE NEW AND EXISTING SYSTEMS TO MAKE INSTALLATION OF THE NEW SYSTEMS AS INDICATED.

PACKAGED ROOF TOP UNIT (GAS) SCHEDULE

TAG	MANUFACTURER	MODEL NO.	NOMINAL TONS	AREA SERVED	S.A. CFM	MIN. O.A. CFM	E.S.P. (IN WC)	COOLING CAPACITY TC (MBH)	SC (MBH)	MIN. EFFICIENCY	GAS HEATING CAPACITY INPUT (MBH)	OUTPUT (MBH)	NO. OF STAGES	ELECTRICAL DATA MCA	MOCP	FLA	VOLTAGE/PHASE	OPERATING WEIGHT	REMARKS
RTU-1	TRANE	YHC-060	5.0	SALES AREA	2,000	400	0.75	61.0	45.8	12.9 EER	80.0	64.0	1	30.0	45.0	26.0	208/3	1300 LBS	SEE BELOW
RTU-2	TRANE	YHC-036	3.0	STORAGE AREA	1,200	125	0.75	38.4	27.9	12.4 EER	80.0	64.0	1	21.0	30.0	17.9	208/3	1000 LBS	SEE BELOW

REMARKS:
1. RTU SHALL BE CLEARLY MARKED AND LABEL WITH THE RTU DESIGNATION NUMBER AND AREA SERVED
2. PROVIDE RTU WITH ROOF CURB. ROOF CURB SHALL BE INSULATED FOR SOUND.
3. PROVIDE WITH 7-DAY DIGITAL PROGRAMMABLE THERMOSTAT.
4. HINGED ACCESS PANELS.
5. BACNET/LONTALK CONSTROLS CONFIGURATION.
6. ENTHALPY ECONOMIZER WITH BARMETRIC RELIEF.
7. 2" FILTERS - MERV 8.
8. LOW AMBIENT CONTROL TO 0 DEGREES F.
9. 5 YEAR COMPRESSOR WARRANTY.

EXHAUST FAN SCHEDULE

TAG	MANUF	MODEL NO.	TYPE	SERVICE	DRIVE	CFM	ESP	RPM	SONES	BHP	WATTS	MOTOR FLA	ELEC	CONTROL	LOCATION	REMARKS
EF-1	GREENHECK	SP-B70	CEILING EXHAUST	TOILET	DIRECT	75	0.10"	675	0.8	0.01	16.0	0.5	115V/1	LIGHT SWITCH	CEILING	SEE BELOW

REMARKS
1. INCLUDE BACKDRAFT DAMPER.
2. PROVIDE WALL CAP FOR EXTERIOR WALL DISCHARGE.
3. INTERLOCK FAN WITH LIGHT SWITCH WITH TIMER; COORDINATE WITH E.C.

AIR DISTRIBUTION SCHEDULE

MARK	MANFACTURER	MODEL	TYPE	NECK SIZE	MODULE SIZE	CEILING TYPE	DEFLECTION	CONSTRUCTION	FINISH	REMARKS
A	NAILOR	51DHC	SUPPLY SPIRAL DUCT MNTD/CURVED TYPE	[illegible]x6"	14"x8"	EXPOSED TO STRUCTURE	DOUBLE	ALUMINUM	-	1, 2
B	NAILOR	ARNSA	STAMPED FACE SUPPLY	6" ROUND	24"x24"	LAY-IN	4-WAY	ALUMINUM	-	1, 4
C	NAILOR	51DH-OA	SIDEWALL TYPE /SUPPLY DUCT MOUNTED	8"x8"	10"x10"	EXPOSED TO STRUCTURE	DOUBLE	ALUMINUM	-	1
D	NAILOR	5155FH-OA	SIDEWALL TYPE /RETURN DUCT MOUNTED	24x12	26x14	EXPOSED TO STRUCTURE	SINGLE	ALUMINUM	-	1, 3

REMARKS
1. AIR DISTRIBUTION DIFFSERS/GRILLES SHALL BE BY NAILOR OR APPROVED EQUIVALENT.
2. CURVED DUCT MOUNTED SUPPLY GRILLE FOR SPIRAL DUCT .
3. INSTALLED ON THE END OF THE RETURN DUCT.
4. INSULATED BACK PAN.

VENTILATION AIR CALCULATIONS

Room	P_z People	R_p (CFM / person)	A_z Area (Ft^2)	R_a (CFM / Ft^2)	V_{bz} (CFM)	E_z (Cooling)	V_{oz} (CFM)	E_z (Heating)	V_{oz} (CFM)
102 - Sales Retail Area	10	7.5	2429	0.12	366.5	1	366.5	0.8	458.1
103 - Storage/Receiving	3	0	1015	0.12	121.8	1	121.8	0.8	152.3
100 - Main Entry	1	5	83	0.06	10.0	1	10.0	0.8	12.5

AHU-1 V_{oz} (CFM): Cooling = 498.3 Heating = 622.8

Note: Ventilation rates are based on the NCMC Table 403.3.1.1 & ASHRAE 62.1-2010 Table 6-1 Retail Stores Occupancy Classification

DUCTLESS SPLIT DX SYSTEM SCHEDULE

DESIG	SERVICE	TYPE	SUPPLY FAN CFM (LO)	CFM(HI)	NOISE dBA	COOLING CAPACITY	HEATING CAPACITY	MAX. PIPE HEIGHT	MAX. PIPE LENGTH	UNIT DIMENSIONS HEIGHT x WIDTH x DEPTH	WEIGHT	POWER VOLTS/PHASE	MCA	MOCP	SEER	MANUF	MODEL	REMARKS
DSS-1	ELECTRICAL CLOSET	DX WALL MOUNTED SPLIT UNIT	290	380	36	12,000	N/A	-	-	12 x 35 x 10	30 LBS	208/230 / 1	1	-		MITSUBISHI	PKA-A12	SEE BELOW
CU-1		DX CONDENSING UNIT	1,941		43	-	N/A	100 FT	100	24 x 32 x 14	100 LBS	208/230 / 1	13	15	15.2	MITSUBISHI	PUY-A12	SEE BELOW

NOTES:
1. UNIT SHALL BE MITSUBISHI TYPE OR EQUIVALENT.
2. PROVIDE CONDENSATE PUMP
3. CONDENSING UNIT TO BE MOUNTED ON CONCRETE EQUIPMENT PAD
4. PROVIDE WIND BAFFLE KIT
5. REFER TO MANUFACTURERS SPECIFICATIONS FOR CLEARANCE RECOMMENDATIONS.
6. LOW AMBIENT TO 0°F, ISOLATION RELAY, EVAPORATOR FREEZE THERMOSTAT
7. FACTORY MOUNTED FILTER LINE DRYER
8. REMOTE MOUNTED DIGITAL THERMOSTAT
9. THERMOSTATIC EXPANSION VALVE
10. ANY EXPOSED PIPING TO BE COVERED WITH LINESET COVER SIMILAR TO SLIM DUCT
11. 1-YEAR PARTS AND 5-YEAR COMPRESSOR AND LABOR WARRANTY

HVAC SPECIFICATIONS

1.0 GENERAL:

1.1. Provide all work, equipment, services, labor, and materials necessary for the construction of new mechanical systems as described or implied by the contract documents.

1.2. The drawings are diagrammatic and are not intended to include every detail of construction, materials, and equipment. Take actual field measurements at the job site in lieu of scaling the drawings.

1.3. Review the contract documents of all trades and coordinate all work with the other trades as necessary to avoid conflicts and interferences.

1.4. Visit the site of this project and become thoroughly familiar with all existing field conditions.

1.5. All work and materials shall comply with applicable state, local, and national codes (including OSHA). Compliance with the latest edition of the North Carolina State Building Code and these specifications shall be the absolute minimum standard of acceptance.

1.6. Obtain and pay for any and all required permits.

1.7. Locations shown for ductwork, equipment, piping, valves, devices, etc., are diagrammatic. Adjustments in these locations shall be made by the Contractor to fully coordinate with the space conditions. Install all equipment so that all code-required and manufacturer-recommended servicing clearances are maintained.

1.8. Provide only new materials and equipment listed and labeled (for the use intended) by an approved third-party laboratory service such as Underwriter's Laboratories, Inc.

1.9. Submit shop drawings and catalog data in six (6) copies (or electronic PDF's) for air distribution, insulation, and equipment.

2.0 PIPING, PIPE FITTINGS,AND PIPE HANGERS/SUPPORTS:

2.1. Condensate drain piping shall be ASTM 88 type "L" hard drawn copper tubing with 125 psi solder joint ANSI B16.22 wrought copper fittings. Solder shall be 95-5. Insulate piping with Armaflex.

2.2. Refrigerant piping shall be ACR type "L" hard drawn copper tubing meeting ASTM B280. Insulate refrigerant lines with E-Flex Guard Model 72-B Series.

2.3. Install piping and related items neatly with routes generally chosen to be parallel and perpendicular to building lines. Provide P-traps on each condensate drain and connect all piping to equipment so that the trap and drain pan can be easily serviced. Maintain access to all valves and equipment.

2.4. Provide pipe covering protection saddles at all supports for insulated piping. Saddles shall be 10-gauge sheet metal measuring one-half the circumference of the insulation and a minimum of 12 inches long.

3.0 DUCTWORK, DUCTWORK ACCESSORIES, & DUCT INSULATION:

3.1. Ductwork from New RTU-1 shall be exposed paint-grip type. Round Ductwork from New RTU-2 shall be double wall insulated spiral ductwork equal to Lindab "SAFE" or "SAFE-CLICK" with 1" thick minimum insulation.

3.2. Splitter dampers, balancing dampers, turning vanes, duct transitions, etc., shall be installed generally where shown on the drawings, and where required for the proper control of air flow.

3.3. Rectangular ductwork shall meet the gauges and construction methods indicated in the latest ASHRAE guide and by SMACNA standards for the indicated pressure classification. Unless noted otherwise, construct supply duct and return duct for 2" pressure class.

3.4. Hangers and supports for ductwork shall be metal bands, angles, and/or rods per ASHRAE and SMACNA.

3.5. Joints shall be sealed with Hardcast "Iron Grip" or equal, to provide a completely airtight system.

3.6. Balancing Dampers shall be Ruskin model MDRS25 with 2" quadrant standoff bracket. Provide balancing dampers on all divided flow fittings and branches.

3.7. Insulate all ductwork from New RTU-2 with 1-1/2" thick, 1-1/2 lb density minimum R-8 fiberglass blanket with foil, scrim, kraft vapor barrier jacket. Insulation shall meet NC Building Code for flame spread and smoke development ratings.

4.0 MECHANICAL EQUIPMENT:

4.1. Provide HVAC equipment as scheduled on the drawings. Include all appurtenances necessary for a complete and total installation.

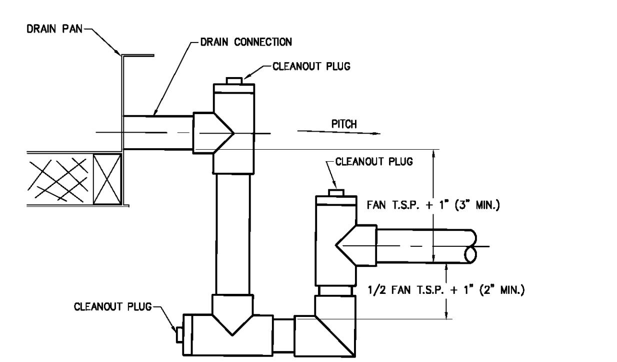
4.2. Install all equipment and controls so that the installation meets the requirements of the equipment manufacturer.

PROJECT SCOPE OF WORK

REMOVE EXISTING ROOF TOP UNIT AND UNIT RAILS, ASSOCIATED GAS PIPING, AND ASSOCIATED DUCTWORK. PROVIDE AND INSTALL TWO (2) NEW ROOF TOP UNITS AND ROOF CURBS, DUCTLESS SPLIT SYSTEM FOR ELECTRICAL ROOM, ASSOCIATED REFRIGERANT PIPING AND CONDENSATE PIPING. PROVIDE AND INSTALL NEW EXHAUST FAN (EF-1) IN TOILET ROOM. PROVIDE AND INSTALL ALL THERMOSTATS AND CONTROL WIRING.

CONTRACTOR SHALL MODIFY EXISTING ROOF PENETRATION TO ACCOMMODATE NEW RTU-1. M.C. SHALL INSTALL DOUBLE-WALL 1" INSULATED SPIRAL PAINTGRIP TYPE AS SHOWN ON SHEET M2.1.

SEE ALL KEYED RENOVATION NOTES ON SHEET M2.1 FOR FURTHER INFORMATION.



1 / M0.1 **Condensate Drain Trap Detail - RTU**
SCALE: NONE

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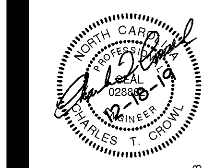

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RENOVATIONS TO :

ABC STORE

HOLLOWAY ST.
DURHAM,NC

PROJECT NUMBER
19-063

HVAC
Renovation Plan

DTW
Architects & Planners, Ltd.
229 North Gregson Street
Durham, NC 27701
919.317.4020

CONSTRUCTION DOCUMENTS

Revisions	
Drawn	BDT
Checked	CTC
Date	12/18/2019
Sheet	M0.1
Of	

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