

SCHEDULE OF HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS

UNIT NO.	LOCATION	AREA SERVED	AIR FLOW (CFM)	OUTSIDE AIR (CFM)	TYPE UNIT	TYPE FILTER	PRE-HEAT NO.	RE-HEAT NO.	HUMID NO.	COOLING COIL NO.	FAN MOTOR			EXT. S.P. (IN. W.C.)		TOTAL S.P. (IN. W.C.)		DESIGN BASIS	NOTES
											RETURN	SUPPLY	HP.	HP.	HP.	HP.	RETURN		
AC-1	EAST WARD ROO	FOURTH AND FIFTH FLOORS	18,500	5,000	CUSTOM	A	C	PH-1	H-1	CC-1	20.0	3-460	25.0	3-460	2.5	1.86	1.5	4.85	ALL BELOW

- NOTES:**
- CAPACITIES ARE BASED ON FUTURE CAPACITIES/LOADS AFTER 4TH FLOOR IS RENOVATED. BALANCE UNIT TO PROJECT CONDITIONS AS REQUIRED. SUPPLY CFM SHOWN IS FOR FUTURE (MAX.) REFER TO FLOOR PLAN DRAWINGS FOR S/A AND O/A BALANCE SETTINGS FOR THIS PROJECT. FURNISH SHAVES FOR BALANCING AND SETUP VPD'S AS REQUIRED FOR PROJECT CONDITIONS.
 - COIL FLOWS SHOWN ARE FOR FUTURE LOADS. BALANCE FLOWS TO MATCH LOAD CONDITIONS FOR PROJECT AS REQUIRED TO ALLOW PROPER CONTROL OF CONTROL VALVES/TEMPERATURES.
 - UNIT TO BE CUSTOM FIELD ASSEMBLED UNIT WITH DOUBLE WALL CONSTRUCTION. COORDINATE EXACT UNIT DIMENSIONS, WEIGHTS, ETC. WITH STRUCTURAL ENGINEER AND GENERAL CONTRACTOR PRIOR TO ORDERING. UNIT BE "POSTAL GRADE" CONSTRUCTION.
 - REFER TO SPECIFICATIONS, CONTROL AND PIPING DIAGRAMS FOR CONTROL AND PIPING REQUIREMENTS.
 - UNIT SHALL HAVE A MINIMUM AIRFLOW WITH OFF-BELOW FLOOR S/A SECTION WITH RETURN FAN, O/A CONTROL DAMPERS (BEYOND FAN), RELIEF HOOD WITH CONTROL DAMPER, COMBINATION FILTER/ECONOMIZER BOX (WITH O/A HOOD AND O/A CONTROL DAMPERS FOR "ECONOMIZER MODE"), INTEGRAL FAN & BYPASS HW PREHEAT COIL, CHW COOLING COIL, CLEAN STEAM HUMIDIFIER SECTION, FORWARD CURVED FAN WITH 20.0 SOLID GUARANTEED LUNGS, AND DISCHARGE FLEXIBLE WITH HORIZONTAL DISCHARGE.
 - DOORS SHALL BE PROVIDED ON BOTH SIDES OF AHU UNIT, IN ACCESS CORRIDOR AND ON OUTSIDE (OTHER SIDE OF UNIT). DOORS SHALL BE HEAVY DUTY, LIFT-OFF HINGE TYPE. DOORS SHALL BE FULL HEIGHT, FOR COMPLETE SERVICING/ACCESS TO FILTERS AND OTHER COMPONENTS (AS REQUIRED). COORDINATE EXACT REQUIRED LOCATIONS.
 - ALL FANS SHALL BE INTERNALLY ISOLATED. FANS AND MOTORS SHALL BE MOUNTED ON AN INTERNAL BASE WITH 1" DEFLECTION ISOLATORS WITH SEISMIC RESTRAINTS.
 - UNIT SHALL BE PROVIDED WITH A HEAVY GUAGE FLOOR PLATE THROUGHOUT.
 - ALL FAN MOTORS SHALL BE 20.0 SOLID GUARANTEED LUNGS.
 - PROVIDE VPD'S FOR S/A AND O/A FANS WITH ISOLATION TRANSFORMERS AND IEEE LINE FILTERS. VPD'S SHALL BE BY AHU MFR.
 - UNIT SHALL BE BUILT WITH 20.0 SOLID GUARANTEED LUNGS.
 - PROVIDE TYPE 304 SS POSITIVE PITCH DRAIN PANS WITH TYPE 304SS COOLING COIL CASING AND GALVANIZED HEATING COIL CASING. PROVIDE PANS UNDER CHW AND HUMIDIFIER SECTIONS AS A MINIMUM. PROVIDE AUXILIARY DRAIN PANS AS REQUIRED.
 - ALL COIL DRAIN AND VENT CONNECTIONS SHALL BE PIPED TO EXTERIOR OF CASING. PROVIDE BOTTOM INLET/OUTLET PIPE CHASE FOR STEAM/CONDENSATE, CHILLED AND HOT WATER CONNECTIONS.
 - PROVIDE MINIMUM (2) VAPORPROOF LIGHTS AS SHOWN WITH PILOT LIGHT SWITCH FOR EACH.
 - PROVIDE MINIMUM (2) MAGNETIC PRESSURE GAUGES.
 - PROVIDE (1) SET OF TEMPORARY FILTERS (PRE, AFTER AND FINAL) FOR STARTUP AND TESTING.
 - DAMPERS SHALL BE ULTRA LOW LEAKAGE ALUMINUM HINGE TYPE.
 - UNIT SHALL BE BUILT FOR WEATHERPROOF CONSTRUCTION.
 - UNIT SHALL BE PAINTED WITH AIR DREG GLOSS ENamel.
 - UNIT SHALL BE PROVIDED WITH MINIMUM (7) CONVENIENCE OUTLETS.
 - UNIT SHALL BE SINGLE POINT POWER CONNECTION AND HAVE A DISCONNECT SWITCH.
 - EXTERNAL STATIC PRESSURE IS FOR OUTDOOR SYSTEM ONLY.
 - UNIT HEATER, HUMIDIFIER, CONTROL, AND ALL ACCESSORIES SHALL BE PROVIDED BY THE AHU MFR.
 - HUMIDIFIER DISPERSION TUBES & STEAM TO STEAM GENERATOR SHALL BE PROVIDED BY THE AHU MFR.
 - TYPE "X" FILTERS ARE MERV 14, 2" THROWAWAY, 30% MINIMUM EFFICIENCY.
 - TYPE "C" FILTERS ARE MERV 14, 12" CARTRIDGE, 80% MINIMUM EFFICIENCY.
 - PROVIDE FULL UNIT BASERAL, 6" HIGH MINIMUM.
 - BASIS OF DESIGN UNIT DIMENSIONS ARE 47" LONG X 131" WIDE X 117" HIGH. UNIT WEIGHT IS APPROX. 20,000 LBS. APPROXIMATE UNIT DIMENSIONS ARE INDICATED. COORDINATE EXACT SIZE/REQUIREMENTS. NOTE THAT SERVICE ACCESS CORRIDOR SHALL BE 5"-0" WIDE CLEAR INSIDE.
 - CONTINGENT UPON COMPLIANCE WITH THESE DRAWINGS AND SPECIFICATIONS, OTHER ACCEPTABLE MANUFACTURERS SHALL BE INNOVATIVE AND YORK/JCI.

DIFFUSER/REGISTER/GRILLE SCHEDULE

SYMBOL	TYPE	FACE SIZE NOMINAL	NECK SIZE NOMINAL	CFM	MANUFACTURER/MODEL
B	CEILING SUPPLY DIFFUSER	24"x24"	8" DIA.	180-265	NAILOR 6200-0A*
C	CEILING SUPPLY DIFFUSER	24"x24"	10" DIA.	230-350	NAILOR 6200-0A*
D	CEILING SUPPLY DIFFUSER	24"x24"	12" DIA.	275-415	NAILOR 6200-0A*
E	CEILING SUPPLY DIFFUSER	24"x24"	14" DIA.	400-600	NAILOR 6200-0A*
R1	CEILING RETURN REGISTER	12"x12"	6" DIA.	0-150	NAILOR 5145H-0A*
R2	CEILING RETURN REGISTER	24"x24"	8" DIA.	180-265	NAILOR 5145H-0A*
R3	CEILING RETURN REGISTER	24"x24"	9" DIA.	230-350	NAILOR 5145H-0A*
R4	CEILING RETURN REGISTER	24"x24"	10"x10"	275-415	NAILOR 5145H-0A*
R5	CEILING RETURN REGISTER	24"x24"	12"x12"	400-600	NAILOR 5145H-0A*
E1	CEILING EXHAUST REGISTER	12"x12"	6" DIA.	0-150	NAILOR 5145H-0A*
E2	CEILING EXHAUST REGISTER	24"x24"	8" DIA.	180-265	NAILOR 5145H-0A*
E3	CEILING EXHAUST REGISTER	24"x24"	9" DIA.	230-350	NAILOR 5145H-0A*
E4	CEILING EXHAUST REGISTER	24"x24"	10"x10"	275-415	NAILOR 5145H-0A*
E5	CEILING EXHAUST REGISTER	24"x24"	12"x12"	400-600	NAILOR 5145H-0A*

- OR APPROVED EQUAL - SEE SPECIFICATIONS**
- NOTES:**
- ALL DAMPERS FURNISHED WITH DIFFUSERS, REGISTERS, AND GRILLES SHALL BE CONSTRUCTED OF ALUMINUM WITH A WHITE FINISH.
 - ALL REGISTERS SHALL HAVE 45° DEFLECTION BLADES.
 - ALL DIFFUSERS SHALL BE SUITABLE FOR CEILING TYPE.
 - ALL HEPA DIFFUSERS SHALL BE 304SS CONSTRUCTION. PROVIDE WITH SS DAMPERS.
 - ALL DIFFUSERS, REGISTERS, AND GRILLES SHALL BE PROVIDED WITH CARTRIDGE TUBES.

SCHEDULE OF HOT WATER COILS

COIL NO.	SYSTEM	AIR FLOW (CFM)	AIR TEMP. (DEG F)	MIN. CAPACITY (BTUH)	WATER TEMP. (DEG F)	WATER FLOW (GPM)	WATER FLOW (GPM)	AIR PRES. (IN. H2O)	WATER PRES. DROP (FT. H2O)	TYPE	NOTES
PH-1	AC-1	18,500	40.0	75.0	160	140	70	0.10	4.0	NON FREEZE	1

- NOTES:**
- PREHEAT COIL SHALL BE PROVIDED BY THE AHU MFR.

SCHEDULE OF CHILLED WATER COOLING COILS

COIL NO.	SYSTEM	AIR FLOW (CFM)	ENT. AIR TEMP. (DEG F)	WATER TEMP. (DEG F)	CAPACITY (BTUH)	WATER FLOW (GPM)	AIR PRES. (IN. H2O)	WATER PRES. DROP (FT. H2O)	NOTES					
										INLET	OUTLET	SENSEABLE	TOTAL	
CC-1	AC-1	18,500	79.0	66.0	52,000	51.8	45.0	57.0	130	544,900	783,200	0.90	16.0	ALL BELOW

- NOTES:**
- COOLING COIL SHALL BE PROVIDED BY THE AHU MFR.

SCHEDULE OF CLEAN STEAM DISTRIBUTOR HUMIDIFIER

TAG	H-1	STEAM PRESSURE (PSIG)	10.0	WATER SEAL LOCATION	INSIDE AHU
HEADER SIZE (INCHES)	3.0	INLET SIZE (NPT)	3/4	AIR FLOW	HORIZONTAL
ENT DRY BULB (F)	10.0	DUCT WIDTH (INCHES)	74.0	AIR VELOCITY (FPM)	1332
ENTERING RH (%)	38.0	DUCT HEIGHT (INCHES)	100.0	AIR PRESS. DROP (INCHES)	0.151
FINAL DRY BULB (F)	75.0	VOL/FM/AMPS	1207/10.8	ENTERING RH (%)	62
FINAL RH (%)	50.0	ABSORP. DISTANCE (FEET)	0.25	LEAVING RH (%)	83
AIRFLOW (CFM)	18,500	MOUNTING LOCATION	COIL	HUMIDIFIER OUTLET (INCHES)	FLANGE 3
ENT OUT AIR (RH)	27.0	ENTERING DUCT TEMP (F)	58.7	VALVE Cv	28.0
TOTAL HUMID (LBS/HR)	186.0	LEAVING DUCT TEMP (F)	60.0	STEAM GENERATOR MODEL	NORTEC SPEC 375
NOMINAL CAP (LBS/HR)	375.0	HEADER LOCATION	INSIDE AHU	STEAM TUBE & DISPERSION	NORTEC SAM-6

- NOTES:**
- CLEAN STEAM GENERATOR/HUMIDIFIER SHALL BE PROVIDED, PACKAGED, PIPED AND WIRED BY THE AHU MFR.
 - COORDINATE EXACT UNIT FACE REQUIREMENTS WITH FINAL AHU SELECTION.
 - CLEAN STEAM GENERATOR SHALL UTILIZE PLANT STEAM TO GENERATE CLEAN STEAM FOR THE HUMIDIFIER.
 - HUMIDIFIER OPTIONS SHALL INCLUDE POTABLE WATER FINAL WALL MOUNT DRUM COOLER, SEISMIC CERTIFICATION, AND SUPPORT LEADS.
 - CONTROL OPTIONS SHALL INCLUDE BUILDING AUTOMATION SYSTEM (BAS/NET), ELECTRIC MODULATING CONTROL, PRESSURE AIRFLOW PROVIDING SWITCH, HUMIDISTAT (ON-OFF HIGH LIMIT DUCT), AND CONTROL CABINET.
 - CABINET OPTIONS SHALL INCLUDE REMOTE MOUNT, 5 FOOT KEYPAD CABLE LENGTH, ENGLISH (IF UNIT OF MEASURE).
 - DOMESTIC MAKEUP WATER OPTIONS INSIDE AHU SHALL INCLUDE 1" ISOLATION BALL VALVE, 1" W/WE STRAINER, 1" WATTS DOUBLE CHECK VALVE ASSEMBLY BENCH MOUNTED REDUCING END, AND HIGH END WITH REDUCING END. PROVIDE PRESSURE GAUGE WITH COCK, ALL MOUNTED, SUPPORTED, AND INSULATED. MOUNT WHERE ACCESSIBLE FOR EASY MAINTENANCE.
 - OTHER ACCEPTABLE MANUFACTURER SHALL BE DRI-STEAM.

TAG NO.	LOCATION	DESCRIPTION
UH-1	AC-1 CORRIDOR	HORIZONTAL, FAN-FORCED, HOT WATER UNIT HEATER, 550 CFM, 26,100 BTUH NOMINAL OUTPUT HEATING CAPACITY AT 160° FWT, 140° LWT, 60° FAT, 2.6 GPM, 5" WPD, 18W, 120V/1PH, W/ 20.0 AMP BREAKER, 20.0 AMP SUPPLY, 20.0 AMP DISCONNECT WITH ISOLATORS. PROVIDE MODNE OR APPROVED EQUAL.
FB-2	ISOLATION ROOM 5507	2
FB-2	ISOLATION ROOM 5508	2

FILTER NO.	LOCATION	AIR FLOW (CFM)	PRE-FILTER	FINAL FILTER	NOTES	DESIGN BASIS
FB-1	ISOLATION ROOM 5507	470	PLEATED MEDIA	MERV RATING (IN H2O)	1.0	1.2
FB-2	ISOLATION ROOM 5508	320	PLEATED MEDIA	HEPA 15	1.0	1.2

- NOTES:**
- PROVIDE TWO STAGE SIDE-ACCESS FILTER HOUSING WITH INSULATED DOWD, PLEATED MERV 6 PRE-FILTER (24X12), AND HIGH CAPACITY HEPA FILTER 99.9%. PROVIDE ONE ADDITIONAL SET OF FILTERS.
 - PROVIDE DUCT TRANSITIONS TO FILTER HOUSING AS REQUIRED.

UNIT NO.	LOCATION	SIZE (DIA)	AIR FLOW (CFM)	SERVICE BASIS	DESIGN BASIS
AV-1	ISOLATION ROOM 5507	8"	470	SUPPLY	PHENIX ACCEL II
AV-2	ISOLATION ROOM 5507	8"	250	SUPPLY	PHENIX ACCEL II

CONFIDENTIAL THESE DRAWINGS MUST BE RETURNED TO FACILITIES MANAGEMENT SERVICE, PROJECT SECTION, UPON COMPLETION, OR FINAL USE BY THE CONTRACTOR FOR BOOKING PURPOSES.

ASBESTOS WARNING: ASBESTOS CONTAINING BUILDING MATERIALS (ACBM) ARE PRESENT THROUGHOUT THE FACILITY. IF CONTRACTORS FIND ACBM, OR SUSPECT FINDING ACBM, SHALL IMMEDIATELY STOP WORK AND CONTACT THE PROJECT COTR.

SCALING NOTES: FULL SIZE VA, T, S SHEETS (SCALE AS INDICATED) AND HALF SIZE VA, T, S SHEETS (½ THE SCALE INDICATED LETTER SIZE DRAWINGS ARE NOT TO SCALE.

GENERAL NOTE: CONTRACTORS AND ARCHITECT/ENGINEERING FIRMS ARE RESPONSIBLE FOR THE FIELD VERIFICATION OF ALL EXISTING CONDITIONS.

Project Title
RENOVATE WARD 5 EAST

Drawing Title
FIFTH FLOOR - WARD EAST MECHANICAL SCHEDULES, NOTES & LEGEND

Date
12/21/12

Project No.
637-11-119

Building Number
47

Checked
TMF

Drawn
CMH

Location
ASHEVILLE, NC

DRAWING NO.
M001

Dwg 46 of 78

GENERAL NOTES

- PROVIDE ALL MATERIALS AND LABOR FOR COMPLETE AND PROPERLY FUNCTIONING MECHANICAL SYSTEMS. WARRANTY ALL WORK AND ALL MATERIALS, EQUIPMENT, AND DEVICES FOR A PERIOD OF ONE YEAR AFTER OWNERS ACCEPTANCE.
- WORK SHALL CONFORM TO OR MEET THE REQUIREMENTS OF THE MOST CURRENT EDITION OF:
 - A. INTERNATIONAL MECHANICAL CODE - 2009
 - B. INTERNATIONAL BUILDING CODE - 2009
 - C. SMACNA
 - D. ASHRAE
 - E. VA HVAC DESIGN MANUAL - 2008
 - F. ALL FEDERAL, STATE, AND LOCAL CODES AND ORDINANCES WHICH APPLY TO THIS WORK.
- DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE NOT INTENDED TO BE SCALED FOR DIMENSIONS.
- ALL MATERIALS, EQUIPMENT, AND DEVICES SHALL MEET THE REQUIREMENTS OF UL WHERE UL STANDARDS ARE ESTABLISHED FOR THOSE ITEMS. ALL ITEMS SHALL BE CLASSIFIED BY UL AS SUITABLE FOR THE PURPOSE USED.
- COORDINATE LOCATION OF MECHANICAL WORK WITH OTHER TRADES TO AVOID CONFLICTS AND INTERFERENCES.
- INSTALL ALL EQUIPMENT AND MATERIAL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN, PRINTED INSTRUCTIONS AND RECOMMENDATIONS.
- PROVIDE OWNER WITH CERTIFICATES OF FINAL INSPECTION AND ACCEPTANCE FROM AUTHORITY HAVING JURISDICTION.
- MAKE CONNECTIONS FROM MECHANICAL EQUIPMENT TO DUCTWORK USING FLEXIBLE DUCT CONNECTIONS.
- DUCT SIZES INDICATED ARE NET FINE INSIDE DIMENSIONS OF RECTANGULAR METAL DUCT. AT CONTRACTOR'S OPTION, EQUIVALENT SIZE ROUND DUCT MAY BE USED.
- PROVIDE FLOAT SWITCH IN ALL SECONDARY PANS TO SHUT OFF UNITS WHEN DRAINS BECOME OBSTRUCTED.
- FURNISH AND INSTALL ALL MANUAL DAMPERS INDICATED ON DRAWINGS OR NECESSARY TO PROPERLY DISTRIBUTE AND BALANCE AIR. ALL IMMOVABLE VOLUME DAMPERS SHALL BE PROVIDED WITH REMOTE CONCEALED DAMPER REGULATORS.
- WHERE PIPES PENETRATE FIRE RATED WALLS, FLOORS OR CEILING, SEAL OPENING AROUND PIPES WITH U.L. LISTED FIRE STOPPING MATERIAL TO MAINTAIN THE FIRE RATING OF THE WALL, FLOOR OR CEILING IN ACCORDANCE WITH U.L. LISTED DESIGN FOR 1 HOUR PENETRATIONS. SUBMIT U.L. DESIGN FOR FIRE RATED PENETRATIONS SEALS TO ARCHITECT/ENGINEER FOR APPROVAL PRIOR TO START OF WORK.
- ALL DUCTWORK SHALL BE GALVANIZED STEEL. ALL JOINTS AND SEAMS SHALL BE CLEANED, COATED AND SEALED WITH MASTIC OR MASTIC TAPE PRIOR TO APPLYING THE EXTERNAL INSULATION.
- UNLESS OTHERWISE NOTED OR SPECIFIED, SUPPLY DUCTWORK SHALL BE INSULATED WITH 2" FIBERGLASS DUCT WRAP. RETURN DUCTWORK SHALL BE INSULATED WITH 1-1/2" FIBERGLASS DUCT WRAP.
- CONTRACTOR SHALL PROVIDE COORDINATION SHOP DRAWINGS FOR REVIEW PRIOR TO INSTALLATION. COORDINATION BETWEEN MECHANICAL, ELECTRICAL, FIRE PROTECTION, CEILING TRAC AND SEISMIC RESTRAINT IS CRITICAL AND SHALL MEET ALL REQUIREMENTS FOR COMPLETE INSTALLATION ABOVE AND BELOW CEILING.

HVAC LEGEND

- ⊖ THERMOSTAT
- ⊙ EMCS TEMPERATURE SENSOR
- AHU AIR HANDLING UNIT
- W/ WITH
- AFF ABOVE FINISH FLOOR
- ABO ABOVE FINISH GRADE
- DCO BALL VALVE
- CIRCUIT SETTER
- BUTTERFLY VALVE
- ⊞ GATE VALVE
- ⊟ CHECK VALVE

SR SUPPLY REGISTER
RR RETURN REGISTER
AHU AIR HANDLING UNIT
AHU AIR HANDLING UNIT
VD MANUAL VOLUME DAMPER

BID SET - 100% CONSTRUCTION DOCUMENTS

FULLY SPRINKLERED

Office of Facilities
University of North Carolina at Asheville

A THREE INCHES = ONE FOOT
B ONE AND ONE-HALF INCHES = ONE FOOT
C ONE INCH = ONE FOOT
D THREE-QUARTERS INCH = ONE FOOT
E ONE-HALF INCH = ONE FOOT
F THREE-QUARTERS INCH = ONE FOOT
G ONE-FOURTH INCH = ONE FOOT

OBRIEN & GERE



BY	REVISIONS	DATE