

OUTSIDE AIR CALCULATION							
ROOM NAME	AREA TYPE	FLOOR AREA (SQ. FT.)	CFM/SQ. FT.	DEFAULT OCCUPANT DENSITY #/1000 SQ. FT.	# OF PEOPLE PER SPACE	PEOPLE OUTDOOR AIRFLOW RATE IN BREATHING ZONE (CFM/PERSON)	OUTSIDE AIR PER SPACE (CFM)
OFFICE 149	OFFICE SPACES	125	0.06	10	1	5	10
OPEN OFFICE	OFFICE SPACES	1075	0.06	10	10	5	110
STORAGE 148	STORAGE ROOMS	85.5	0.12	0	0	0	10
OFFICE 150	OFFICE SPACES	110	0.06	10	1	5	10
OFFICE 151	OFFICE SPACES	124	0.06	10	1	5	10
OPEN OFFICE/WORKROOM 152	OFFICE SPACES	488	0.06	10	5	5	50
OFFICE 154	OFFICE SPACES	170	0.06	10	2	5	20
STORAGE 155	STORAGE ROOMS	98	0.12	0	0	0	10

TOTAL OUTSIDE AIR CALCULATION (V_o) = 230
 ZONE DISTRIBUTION EFFECTIVENESS (E_z) = 0.8
 ZONE OUTDOOR AIRFLOW RATE (V_{o,z}) = 280

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE

Prescriptive Energy Cost Budget

Thermal Zone: Guilford County (4A)

Exterior Design Conditions
 Winter Dry Bulb: 91
 Summer Dry Bulb: 16

Interior Design Conditions
 Winter Dry Bulb: 70
 Summer Dry Bulb: 75
 Relative Humidity: 50%

Building Heating Load: N/A - EXISTING BUILDING
 Building Cooling Load: N/A - EXISTING BUILDING

Mechanical Space Conditioning System

Unitary:
 Description of Unit: EXISTING 4-PIPE HVAC SYSTEM

Heating Efficiency: EXISTING 4-PIPE HVAC SYSTEM
 Cooling Efficiency: EXISTING 4-PIPE HVAC SYSTEM
 Heat Output of Unit: EXISTING 4-PIPE HVAC SYSTEM
 Cooling Output of Unit: EXISTING 4-PIPE HVAC SYSTEM

List Equipment Efficiencies:

Equipment Schedules with Motors (Mechanical Systems)
 Motor Horsepower: Comply w/ 2018 NC Energy Code
 Number of Phases: Comply w/ 2018 NC Energy Code
 Minimum Efficiency: Comply w/ 2018 NC Energy Code
 Motor Type: Comply w/ 2018 NC Energy Code
 Number of Poles: Comply w/ 2018 NC Energy Code

Designer Statement:
 To the best of my knowledge and belief, the design of this building complies with the 2018 North Carolina Energy Code. The requirements of Section C406 meet through the Subsection C406.3 (Reduced Lighting Power Density).

GRILLE & DIFFUSER SCHEDULE

SYM	TYPE	USE	CFM RANGE	NECK SIZE	OVER-ALL SIZE	FINISH	FRAME	PRICE MODEL NO	REMARKS
A-	PERF.	SUPPLY 4-WAY	SEE PLANS & RMK 5	RMK 5	RMK 4	OFF WHITE	RMK 3	PDNS	1-6
B-	PERF.	RETURN	SEE PLANS & RMK 7	RMK 7	24X24	OFF WHITE	RMK 3	PDDR	1-4, 7-10
C-	PERF.	EXHAUST	SEE PLANS & RMK 7	RMK 7	12X12	OFF WHITE	RMK 3	PDDR	1-4, 7-10

REMARKS
 1. EQUALS: METALARE, TITUS, KRUEGER, TUTTLE & BAILEY, NAIL-OR-CARNES. SCHEDULE IS GENERAL, SOME MAY NOT BE USED. PAINT ALL INSIDE VISIBLE SURFACES FLAT BLACK.
 2. SYMBOL EXPLANATION:
 XXX/CFM = SYMBOL, FRAME (RMK 3), NECK (RMK 5, 7) CFM
 3. FRAME TYPES:
 S = FLUSH SURF. MTD., E = DUCT MOUNTED, V-BEVELED PLASTER FRAME FOR DROP SURF. (TYPE "A" DIFFUSER) CEILING MOUNTING. D = DROPPED FRAME
 NOTE: VERIFY FRAME/CEILING COMPATIBILITY.
 4. OVERALL SIZE: LAY-IN = 2'x2', OTHER GRILLES = NECK + 2"x2".
 5. PERFORATED FACE SUPPLY NECK SIZES

NO.	ROUND NK SIZE	CFM	NO.	SQUARE NK SIZE	CFM
A	6"	100	H	6"x6"	125
B	8"	175	I	8"x8"	200
C	10"	275	J	10"x10"	400
D	12"	400	K	12"x12"	780
E	14"	535	L	14"x14"	1125
F	16"	700	M	16"x16"	1530
G	18"	885	N	18"x18"	2000

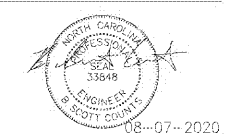
NOTE: VERIFY CFM / NECK SIZE.
 6. ADJUSTABLE: HORIZONTAL VERTICAL - "PANO HINGE" DEVICE.
 "S" & "E" EXHAUST RETURN NECK SIZES = SQ. NK. ONLY.

NO.	ROUND NK SIZE	CFM	NO.	SQUARE NK SIZE	CFM
A	6"	100	G	8"x8"	220
B	8"	175	H	10x10	345
C	10"	275	I	12x12	500
D	12"	400	J	14x14	680
E	14"	535	K	16x16	885
F	16"	700	L	18x18	1125
			M	22x22	1680
			N	22x46	2600

NOTE: VERIFY CFM / NECK SIZE.

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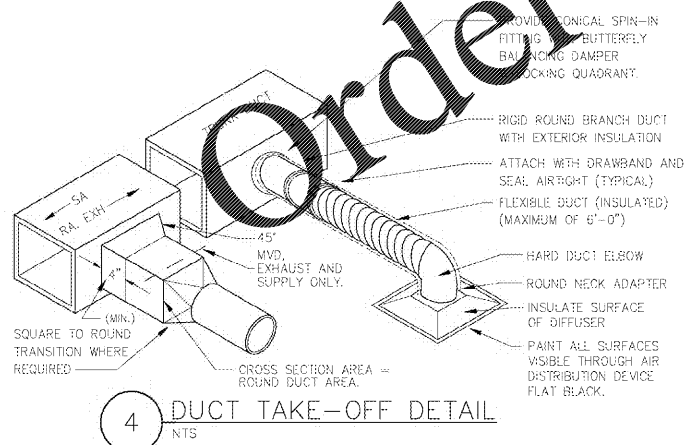
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 MSWG PROJECT #20--027



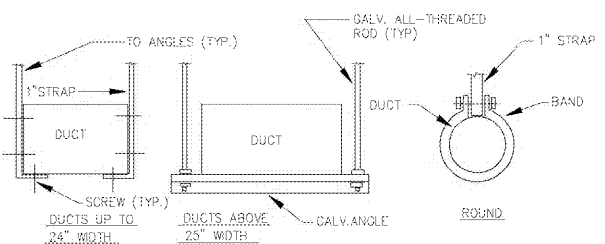
Drawn: MGC
 Checked: BSC
 Date: August 7, 2020
 Revisions:

ADD ALTERNATE #3:

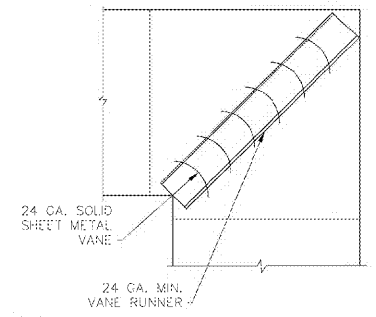
THE CONTRACTOR SHALL REPLACE EXISTING AHU-3 IN BASEMENT MECHANICAL ROOM INCLUDING CONTROLS TO MATCH EXISTING. EXISTING DUCT AND PIPE MAINS SHALL REMAIN. THE CONTRACTOR SHALL ENSURE THAT AHU-3 IS FULLY FUNCTIONAL. EXISTING AHU-3 IS TRANE DRAW-THRU CLIMATE CHANGER. MODEL: CGDB9BANEJ VAA5LQ2LLAJ 1DD0B2B100G0B2G SERIAL: K89C07720. APPROVED EQUIVALENT MANUFACTURERS INCLUDE: TRANE, CARRIER, DAIKIN-MCQUAY, AND YORK. PRIOR TO BIDDING THIS PROJECT, THE CONTRACTOR SHALL FULLY INSPECT EXISTING UNIT AND DETERMINE SCOPE OF WORK NECESSARY TO PROVIDE A COMPLETE, FULLY FUNCTIONAL REPLACEMENT OF THE EXISTING AIR HANDLING UNIT.



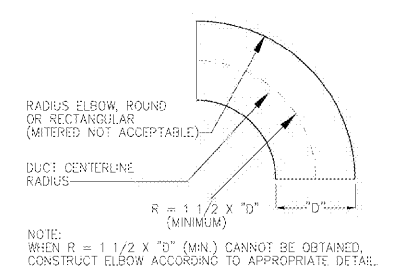
4 DUCT TAKE-OFF DETAIL
 NTS



3 DUCTWORK HANGER DETAILS
 NTS



2 TURNING VANE DETAIL
 NTS
 REQUIRED FOR ALL EMBROLOGY LAB S/A & R/A DUCT



1 RADIUS ELBOW DETAIL
 NTS

MECHANICAL EQUIPMENT LEGEND	
SYMBOL	DESCRIPTION
LOW PRESSURE DUCTWORK	
[Symbol]	DUCT SECTION - 1ST FIGURE WIDTH, 2ND HEIGHT
[Symbol]	SQUARE TO ROUND TRANS.
[Symbol]	FLEX DUCTWORK
[Symbol]	ELBOW W/TURNING VANES
[Symbol]	LONG RADIUS ELBOW
[Symbol]	EXHAUST DUCT SECTION
[Symbol]	SUPPLY DUCT SECTION
[Symbol]	RETURN/RELIEF AIR DUCT SECTION
[Symbol]	CIRCULAR DUCT TAKE-OFF
[Symbol]	FIRE DAMPER "A" OR "B"
MISCELLANEOUS	
[Symbol]	THERMOSTAT (EXISTING)
[Symbol]	DAMPER
[Symbol]	IS INTO EXISTING AT THIS POINT

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Brown Hall Renovation
 1601 E. Market Street
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 SCO ID No. 20-22082-01A

Project Number: 109
 Title: Schedules and Details
 Sheet: M001
 Plate: of