

HVAC LEGEND

	SUPPLY AIR GRILLES (DUCT SIDE AND BOTTOM)		EXISTING DUCTWORK		AIRFLOW - SUPPLY
	SUPPLY AIR DIFFUSER WITH FLEX DUCT AND BELLMOUTH SPIN-IN WITH MANUAL DAMPER		EXISTING EQUIPMENT		AIRFLOW - RETURN, EXHAUST OR TRANSFER
	RETURN OR EXHAUST AIR GRILLES (DUCT SIDE AND BOTTOM)		SECTION THROUGH RETURN OR EXHAUST DUCTWORK		FLEXIBLE CONNECTION
	RETURN AIR GRILLE (OPEN TO PLENUM)		SECTION THROUGH SUPPLY DUCTWORK		MOTOR OPERATED DAMPER
	RETURN OR EXHAUST AIR GRILLE (SHOWN WITH DUCT)		DUCT ELBOW (WITH TURNING VANES)		FIRE SMOKE DAMPER
	RECTANGULAR DUCT (24" WIDE BY 12" DEEP)		DUCT TEE (WITH DIVIDER AND TURNING VANES)		FIRE DAMPER AND ACCESS DOOR
	ROUND DUCT (8" DIAMETER)		DUCT TEE (WITH DIVIDER AND TURNING VANES)		MANUAL VOLUME DAMPER
	FLEX DUCT		ROUND ELECTRONIC CONTROL DAMPER		SPLITTER DAMPER
			DUCT LINER (FOR SOUND ATTENUATION)		THERMOSTAT
			TIE IN POINT TO EXISTING DUCT		HUMIDISTAT
					SMOKE DETECTOR
					WALL MOUNTED SWITCH

FAN SCHEDULE

ITEM	TYPE	SERVICE	CFM	ESP IN WC	DRIVE TYPE	SONES	RPM	HP	VOLT/Ø	MANUFACTURER AND MODEL NUMBER	NOTES
EF-1	CEILING	RESTROOM	85	0.25	DIRECT	0.7	900	18W	115/1	GREENHECK SP-B80	1
EF-2	CEILING	RESTROOM	85	0.25	DIRECT	0.7	900	18W	115/1	GREENHECK SP-B80	1
EF-3	CEILING	RESTROOM	85	0.25	DIRECT	0.7	900	18W	115/1	GREENHECK SP-B80	1
EF-4	CEILING	RESTROOM	85	0.25	DIRECT	0.7	900	18W	115/1	GREENHECK SP-B80	1
EF-5	CEILING	RESTROOM	85	0.25	DIRECT	0.7	900	18W	115/1	GREENHECK SP-B80	1

1. INTERLOCK FAN CONTROL WITH LIGHT SWITCH.

OUTDOOR HEAT PUMP UNIT SCHEDULE

ITEM	FCU	COOLING				HEATING			ELECTRICAL			MANUFACTURER AND MODEL NUMBER	NOTES
		TOTAL MBH	SENS. MBH	OAT F DB	MINIMUM SEER	TOTAL MBH	HSPF	OAT F DB	VOLT/Ø	MCA	MOCP		
HP-1	FCU-1	44.5	35.2	95	14.5	44.0	8.5	47	208/1	24.4	40.0	GOODMAN GSZ140489	1,2,3
HP-2	FCU-2	44.5	35.2	95	14.5	44.0	8.5	47	208/1	24.4	40.0	GOODMAN GSZ140489	1,2,3
HP-3	FCU-3	44.5	35.2	95	14.5	44.0	8.5	47	208/1	24.4	40.0	GOODMAN GSZ140489	1,2,3
HP-4	FCU-4	44.5	35.2	95	14.5	44.0	8.5	47	208/1	24.4	40.0	GOODMAN GSZ140489	1,2,3
HP-5	FCU-5	44.5	35.2	95	14.5	44.0	8.5	47	208/1	24.4	40.0	GOODMAN GSZ140489	1,2,3
HP-6	FCU-6	44.5	35.2	95	14.5	44.0	8.5	47	208/1	24.4	40.0	GOODMAN GSZ140489	2,3,4
HP-7	FCU-7	44.5	35.2	95	14.5	44.0	8.5	47	208/1	24.4	40.0	GOODMAN GSZ140489	2,3,4
HP-8	FCU-8	44.5	35.2	95	14.5	44.0	8.5	47	208/1	24.4	40.0	GOODMAN GSZ140489	2,3,4
HP-9	FCU-9	44.5	35.2	95	14.5	44.0	8.5	47	208/1	24.4	40.0	GOODMAN GSZ140489	1,2,3
HP-10	FCU-10	44.5	35.2	95	14.5	44.0	8.5	47	208/1	24.4	40.0	GOODMAN GSZ140489	1,2,3

- MOUNT UNIT ON CONCRETE PAD PER MFR RECOMMENDATIONS.
- PROVIDE UNIT WITH R410A REFRIGERANT AND REF. PIPING COORDINATED WITH AIR HANDLING UNIT.
- PROVIDE ALL START-UP SERVICES NECESSARY TO ENSURE CONFORMANCE WITH MFR WARRANTY REQUIREMENTS.
- PROVIDE ROOF SUPPORT RAILS OR SIMILAR DEVICE TO MOUNT UNITS ABOVE ROOF DECK.

AIR HANDLING UNIT SCHEDULE

ITEM	CFM	ESP IN WC	OA	FAN HP	COOLING		HEATING ELEC. CAP. (kW)	ELECTRICAL			WEIGHT LB	*MANUFACTURER AND MODEL NUMBER	NOTES
					TOTAL CAP MBH	SENS CAP MBH		VOLT/Ø	MCA	MOCP			
FCU-1	1,600	0.6	280	3/4	44.5	35.2	9.6	208/1	52.0	60.0	125	GOODMAN ASPT49D14A	1,2,3
FCU-2	1,600	0.6	280	3/4	44.5	35.2	9.6	208/1	52.0	60.0	125	GOODMAN ASPT49D14A	1,2,3
FCU-3	1,600	0.6	280	3/4	44.5	35.2	9.6	208/1	52.0	60.0	125	GOODMAN ASPT49D14A	1,2,3
FCU-4	1,600	0.6	280	3/4	44.5	35.2	9.6	208/1	52.0	60.0	125	GOODMAN ASPT49D14A	1,2,3
FCU-5	1,600	0.6	280	3/4	44.5	35.2	9.6	208/1	52.0	60.0	125	GOODMAN ASPT49D14A	1,2,3
FCU-6	1,600	0.6	280	3/4	44.5	35.2	9.6	208/1	52.0	60.0	125	GOODMAN ASPT49D14A	1,2,3
FCU-7	1,600	0.6	280	3/4	44.5	35.2	9.6	208/1	52.0	60.0	125	GOODMAN ASPT49D14A	1,2,3
FCU-8	1,600	0.6	280	3/4	44.5	35.2	9.6	208/1	52.0	60.0	125	GOODMAN ASPT49D14A	1,2,3
FCU-9	1,600	0.6	280	3/4	44.5	35.2	9.6	208/1	52.0	60.0	125	GOODMAN ASPT49D14A	1,2,3
FCU-10	1,600	0.6	280	3/4	44.5	35.2	9.6	208/1	52.0	60.0	125	GOODMAN ASPT49D14A	1,2,3

- PROVIDE UPFLOW UNIT WITH BOTTOM RETURN CONFIGURATION, ELECTRIC HEATER KIT, REPLACEABLE FILTER SECTION, VIBRATION ISOLATORS, CONDENSATE PUMP, & MFR'S ELECTRONIC PROGRAMMABLE WIFI THERMOSTAT.
- INSTALL UNIT INSIDE AUXILIARY DRAIN PAN WITH MOISTURE ALARM SWITCH INTERLOCKED WITH UNIT CONTROLS.
- PROVIDE FLEXIBLE DUCT CONNECTORS.

HVAC SPECIFICATIONS

GENERAL

SCOPE
THE INTENT OF THE SPECIFICATION AND THE DRAWINGS IS TO PROVIDE A COMPLETE AND FULLY OPERATIONAL MECHANICAL SYSTEM. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LABOR, MATERIAL AND EQUIPMENT NECESSARY TO COMPLETE THE MECHANICAL WORK.

SITE EXAMINATION
THE MECHANICAL CONTRACTOR SHALL THOROUGHLY EXAMINE ALL AREAS WHERE EQUIPMENT, DUCTWORK, AND PIPING WILL BE INSTALLED AND WILL REPORT ANY CONDITION THAT, IN HIS OPINION, PREVENTS THE PROPER INSTALLATION OF THE MECHANICAL WORK.

STANDARDS
EQUIPMENT AND MATERIALS SHALL CONFORM WITH APPROPRIATE PROVISIONS OF ARI, ASME, ASTM, UL, NEMA, ANSI, SMACNA, ASHRAE, NFPA, AS APPLICABLE TO EACH INDIVIDUAL UNIT OR ASSEMBLY.

CODES
ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. IN CASE OF CONFLICT BETWEEN THE DRAWINGS/SPECIFICATIONS AND THE CODES AND ORDINANCES, THE HIGHEST STANDARD SHALL APPLY. THE MECHANICAL CONTRACTOR SHALL SATISFY CODE REQUIREMENTS AS A MINIMUM STANDARD WITHOUT ANY EXTRA COST TO THE PROJECT.

PERMITS AND FEES
THE MECHANICAL CONTRACTOR SHALL PROCURE AND PAY FOR ALL PERMITS, FEES AND INSPECTIONS NECESSARY TO COMPLETE THE MECHANICAL WORK.

WARRANTY
THE MECHANICAL CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL ACCEPTANCE BY THE OWNER AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.

AIR HANDLING EQUIPMENT & MATERIALS

SPLIT HEAT PUMP SYSTEM(S)
INSTALL SPLIT SYSTEM HEAT PUMP HVAC UNIT(S) AS SHOWN AND NOTED ON THE DRAWINGS. ADJUST SYSTEM OPERATION TO MEET THE PERFORMANCE REQUIREMENTS SHOWN ON THE DRAWINGS. PROVIDE COMPLETE CONTROLS PACKAGE INCLUDING, BUT NOT LIMITED TO, NEW ELECTRONIC PROGRAMMABLE THERMOSTAT(S) IF NOT SUPPLIED WITH NEW UNIT(S).

FILTERS
PROVIDE THREE (3) SETS OF PLEATED DISPOSABLE FILTERS. USE ONE SET UNTIL COMPLETION OF CONSTRUCTION. INSTALL ONE SET AT COMPLETION OF CONSTRUCTION AND DELIVER ONE SET OF FILTERS TO THE OWNER. FILTERS TO BE FARR, OR SIMILAR.

PACKAGED GAS HEATING/ELECTRIC COOLING HVAC UNIT
PACKAGED GAS HEATING/ELECTRIC COOLING HVAC UNIT IS EXISTING AND IN PLACE. PROVIDE ALL ACCESSORIES AND OTHER COMPONENTS REQUIRED FOR A COMPLETE AND OPERATIONAL INSTALLATION. ADJUST SYSTEM OPERATION TO MEET THE PERFORMANCE REQUIREMENTS SHOWN ON THE DRAWINGS. VERIFY PROPER OPERATION OF ALL STAGES OF OPERATION AND COORDINATION WITH THERMOSTAT.

AIR HANDLING EQUIPMENT & MATERIALS (CONT'D)

EXHAUST FANS
FANS SHALL BE CEILING MOUNTED OR INLINE, DIRECT DRIVEN, CENTRIFUGAL EXHAUST FANS. FANS SHALL BE U.L. LISTED AND SHALL BE AMCA CERTIFIED FOR SOUND AND AIR PERFORMANCE.

FANS SHALL EXCEED U.L. REQUIREMENTS FOR SMOKE AND HEAT GENERATION. FANS SHALL BE PROVIDED WITH ALUMINUM BACKRAFT DAMPER IN DISCHARGE. THE INLET BOX SHALL BE MINIMUM 22 GAUGE GALV. STEEL. MOTOR SHALL BE ISOLATION MOUNTED. A WHITE, NON-YELLOWING, HIGH IMPACT MOLDED GRILLE SHALL BE PROVIDED. FAN WHEELS SHALL BE CENTRIFUGAL FORWARD CURVED TYPE AND SHALL BE BALANCED IN ACCORDANCE WITH AMCA STANDARD 204-96.

MOTORS SHALL BE OPEN DRIP PROOF TYPE WITH PERMANENTLY LUBRICATED BEARINGS. FAN SHALL BE COOK OR APPROVED EQUAL.

DUCTWORK & ACCESSORIES

SHEETMETAL DUCTWORK
UNLESS NOTED OTHERWISE, ALL DUCTWORK TO BE RIGID SHEETMETAL CONSTRUCTED FROM GALVANIZED SHEET STEEL IN ACCORDANCE WITH SMACNA LOW VELOCITY DUCT CONSTRUCTION STANDARDS. ALL EXPOSED DUCTWORK TO BE ROUND, SPIRAL, OR RECTANGULAR LOCK-SEAM TYPE, AS SHOWN ON HVAC PLAN SHEETS.

ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICE FOR ACHIEVING AIR TIGHT (LESS THAN 5% LEAKAGE) AND NOISELESS (NO OBJECTIONABLE NOISE) SYSTEMS, CAPABLE OF PERFORMING EACH INDICATED SERVICE. FURNISH ALL REQUIRED DAMPERS, TRANSITIONS, CONNECTIONS TO AIR TERMINALS, AND OTHER ACCESSORIES NECESSARY FOR A COMPLETE OPERATING SYSTEM. NO VARIATION OF DUCT CONFIGURATION OR SIZES WILL BE PERMITTED EXCEPT BY PERMISSION FROM THE ENGINEER.

SHEETMETAL DUCTWORK
DUCT SEALANT
SEAL ALL LONGITUDINAL AND TRANSVERSE JOINTS WITH A NON-HARDENING, NON-MIGRATING MASTIC OR LIQUID ELASTIC SEALANT OF A TYPE RECOMMENDED BY THE MANUFACTURER FOR SEALING JOINTS AND SEAMS IN SHEET METAL DUCTWORK. COVER ALL FIELD JOINTS, JOINTS AROUND SPIN-IN FITTINGS AND FASTENING SCREWS WITH MASTIC. SUPPORTS PROVIDE HOT-DIPPED GALVANIZED STEEL, FASTENERS, ANCHORS, RODS, STRAPS, TRIM, AND ANGLES FOR SUPPORT OF DUCTWORK.

DAMPERS
PROVIDE OPPOSED-BLADE, MULTI-LEAF VOLUME CONTROL DAMPERS WHERE INDICATED ON DRAWINGS AND AT POINTS ON LOW PRESSURE SUPPLY, RETURN AND EXHAUST DUCTS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS. PROVIDE UL LISTED FIRE DAMPERS WHERE REQUIRED AND IN ACCORDANCE WITH NFPA AND LOCAL CODES. PROVIDE CONVENIENTLY LOCATED ACCESS DOORS OF AMPLE SIZE AND QUANTITY FOR SERVICING THE DAMPERS.

DUCTWORK & ACCESSORIES (CONT'D)

GRILLES, REGISTERS & DIFFUSERS
GRILLES, REGISTERS AND DIFFUSERS SHALL BE TITUS MODELS AS SCHEDULED, OR APPROVED EQUIVALENT, AND SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR. DIFFUSERS SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS AND SCHEDULES. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS ITEMS NECESSARY FOR A COMPLETE AND PROPER INSTALLATION IN THE TYPE OF CEILING AND WALLS USED IN THIS PROJECT.

THERMAL INSULATION
PROVIDE EXTERNAL THERMAL INSULATION WITH AN INTEGRAL VAPOR BARRIER FACING OF SUFFICIENT THICKNESS TO MEET LOCAL ENERGY CODE REQUIREMENTS. PROVIDE INSULATION ON EXHAUST AND OUTSIDE AIR DUCTS, AND ON CONCEALED PORTIONS OF SUPPLY AND RETURN AIR DUCTS. DO NOT INSULATE EXPOSED DUCTWORK AND PORTIONS OF DUCTWORK THAT ARE INTERNALLY LINED. THERMAL INSULATION SHALL COMPLY WITH AN NFPA FLAME SPREAD OF 25 OR LESS, AND SMOKE DEVELOPED RATING NO GREATER THAN 50.

ACOUSTICAL DUCT LINER
UNLESS OTHERWISE INDICATED ON THE PLANS, PROVIDE 1" GLASS FIBER ACOUSTICAL DUCT LINER ON SUPPLY AND RETURN DUCTWORK WITHIN 10 FEET OF THE DISCHARGE AND INTAKE OF AIR HANDLING UNITS. INCREASE DUCT SIZED INDICATED ON PLANS 2" IN EACH DIMENSION TO ACCOMMODATE LINER.

CONTROLS & OPERATION

CONTROL WIRING
THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CONTROL WIRING IN CONDUIT NECESSARY FOR THE COMPLETE AND PROPER OPERATING TEMPERATURE CONTROL SYSTEM.

THERMOSTAT
THERMOSTATS SHALL BE MANUFACTURERS STANDARD PROGRAMMABLE WITH SWITCHING SUBBASE FOR INSTALLATION BY THE MECHANICAL CONTRACTOR. ONE THERMOSTAT SHALL BE PROVIDED FOR EACH AIR CONDITIONING SYSTEM. MOUNT THERMOSTATS AT 60" ABOVE FINISHED FLOOR IN LOCATIONS AS SHOWN. MECHANICAL CONTRACTOR SHALL PROVIDE ALL THERMOSTATS UNLESS NOTED OTHERWISE.

TESTING, ADJUSTING & BALANCING

TESTING, ADJUSTING, BALANCING
MECHANICAL CONTRACTOR SHALL OBTAIN THE SERVICES OF AN INDEPENDENT NEBB OR AABC CERTIFIED AIR BALANCE CONTRACTOR TO ACCURATELY BALANCE THE AIR SYSTEMS TO PROVIDE AIR QUALITIES INDICATED ON THE DRAWINGS AND IN THIS SPECIFICATION. OPERATE AUTOMATIC CONTROLS SYSTEM AND VERIFY SET POINTS DURING BALANCING. SUBMIT TWO (2) COPIES OF THE BALANCE REPORT TO THE ENGINEER FOR APPROVAL. INCLUDE A COPY OF THE BALANCE REPORT AS APPROVED BY THE ENGINEER WITH APPLICATION FOR FINAL CONTRACT PAYMENT.

DIFFUSER, GRILLE & REGISTER SCHEDULE

ITEM	TYPE	SERVICE	FRAME	CFM	PD IN WC	MAX NC	DAMPER OPERATOR	FACE SIZE	MANUFACTURER AND MODEL NUMBER	NOTES
A	CEILING DIFFUSER	SUPPLY	LAY-IN	NOTED	0.10	20	OBD	24x24	TITUS TMSA	1,2,3,4
B	CEILING DIFFUSER	SUPPLY	LAY-IN	NOTED	0.10	20	OBD	12x12	TITUS TMSA	1,2,3,4
C	RETURN GRILLE	RETURN	LAY-IN	NOTED	0.10	20	---	24x24	TITUS 350RL	1,2,3
D	REGISTER	SUPPLY	FLANGE	NOTED	0.10	20	OBD	12x8	TITUS 300SHD-TG	1,3
E	RETURN GRILLE	RETURN	FLANGE	NOTED	0.10	20	---	12x12	TITUS 350RL	1,3
F	RETURN GRILLE	RETURN	FLANGE	NOTED	0.10	20	---	24x14	TITUS 350RL	1,3

- COLOR TO BE SELECTED BY ARCHITECT.
- MOUNTING FRAME TYPE SHALL BE COORDINATED WITH CEILING CONSTRUCTION.
- GRILLE OR DIFFUSER NECK SIZE TO BE AS NOTED.
- PROVIDE DIFFUSER WITH INSULATED BACK AND CONNECT WITH FLEXIBLE DUCT CONNECTOR.

Kent Ahrenhold
Architect

6851 ROSWELL RD. NE, NO K-22
ATLANTA, GEORGIA 30328
PHONE: 404-374-5985

DRAWN BY

JEL

CHECKED BY

BGD

DATE

28 Feb. 2022

DRAWING TITLE

HVAC SPECIFICATION

AND SCHEDULES

SHEET NO.

M-1.0

RELEASED FOR
CONSTRUCTION