

# HVAC SPECIFICATIONS

## GENERAL

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERRORS IN FABRICATION, FOR THE CORRECT FITTING, INSTALLATION AND ERECTION OF THE VARIOUS MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS.
2. THE MECHANICAL CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN AND PAY FOR ALL PERMITS, GOVERNMENT SALES TAXES AND INSPECTIONS, FILE ALL NECESSARY PLANS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL DEPARTMENTS AND OR THE APPROPRIATE MUNICIPALITY AND/OR UTILITY COMPANY HAVING JURISDICTION, WHETHER INDICATED, SPECIFIED OR NOT. HE SHALL ALSO OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK AND DELIVER SAME TO THE GENERAL CONTRACTOR BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.
3. IGNORANCE OF CODES, RULES, REGULATION, LAWS, ETC. SHALL NOT RENDER THE MECHANICAL CONTRACTOR IRRESPONSIBLE FOR COMPLIANCE.
4. CONTRACTOR SHALL BE VERSED IN ALL CODES, RULES AND REGULATIONS PERTINENT TO HIS PART OF THE WORK PRIOR TO SUBMISSION OF A PROPOSAL.
5. THE MECHANICAL CONTRACTOR SHALL INCLUDE IN HIS WORK, WITHOUT EXTRA COST TO THE OWNER, ANY LABOR, MATERIALS, SERVICES, APPARATUS OR DRAWINGS IN ORDER TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES AND REGULATIONS, SHOWN ON THE DRAWINGS AND/OR SPECIFIED.
6. ALL MATERIALS AND EQUIPMENT FOR THE ELECTRICAL PORTION OF THE MECHANICAL SYSTEMS SHALL BEAR THE APPROVED LABEL OF, OR SHALL BE LISTED BY THE UNDERWRITERS LABORATORIES, INC.
7. ALL HEATING, VENTILATION AND AIR CONDITIONING WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE STATE OR LOCAL BUILDING CODE AND AMENDMENTS THERETO, THE LATEST STANDARDS RECOGNIZED BY THE AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS AND THE NATIONAL FIRE PROTECTION ASSOCIATION.
8. WHERE MINIMUM CODE REQUIREMENTS ARE EXCEEDED IN THE DESIGN OF THE HVAC SYSTEMS, THE DESIGN SHALL GOVERN.
9. THE MECHANICAL CONTRACTOR SHALL ENSURE THAT HIS WORK IS ACCOMPLISHED IN ACCORDANCE WITH OSHA STANDARDS AND THAT HE CONDUCTS HIS WORK AND THE WORK OF HIS PERSONNEL ON THIS PROJECT IN ACCORDANCE WITH SAME.
10. ALL WORK RELATING TO THE HANDICAPPED SHALL BE IN ACCORDANCE WITH REGULATIONS CURRENTLY ENFORCED BY THE AUTHORITY HAVING JURISDICTION.

## DRAWINGS AND SPECIFICATIONS

1. CONTRACT DRAWINGS FOR WORK UNDER THIS SECTION ARE IN PART DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT, DUCTS, PIPING AND THE APPROXIMATE SIZE AND LOCATION OF EQUIPMENT AND OUTLETS. THE CONTRACTOR SHALL FOLLOW THESE DRAWINGS IN LAYING OUT HIS WORK AND SHALL VERIFY SPACES IN WHICH HIS WORK WILL BE INSTALLED, INDICATING TO THE ARCHITECT WHERE ANY CONFLICTS OR OVERLAPPING OF SYSTEMS OCCUR.
2. WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN INDICATED LOCATIONS AND ARRANGEMENT, PROPOSED DEPARTURES SHALL BE SUBMITTED WITH DETAILED DRAWINGS TO THE ARCHITECT FOR APPROVAL BEFORE ANY OF THE PROPOSED WORK IS COMMENCED.
3. THE DRAWINGS AND THE SPECIFICATIONS ARE INTENDED TO INDICATE COMPLETE AND WORKING SYSTEMS, UNLESS SPECIFICALLY INDICATED TO THE CONTRARY. THE WORK INCLUDES THE FURNISHING, INSTALLING AND CONNECTING OF A COMPLETE WORKING INSTALLATION IN EACH CASE TO THE FULL EXTENT SET FORTH IN THE DRAWINGS AND HEREIN SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE FUNCTIONING SYSTEM, UNLESS SPECIFICALLY NOTED OTHERWISE.
4. THE DRAWINGS AND SPECIFICATIONS SHALL BE CONSIDERED AS COOPERATIVE. WORK AND MATERIAL INCLUDED IN EITHER, THOUGH NOT MENTIONED IN BOTH, SHALL BE A PART OF THE WORK TO BE ACCOMPLISHED AND SHALL BE CARRIED OUT COMPLETELY IN AS THOROUGH A MANNER AS IF COVERED BY BOTH.

## EQUIPMENT DESIGN AND INSTALLATION

1. THE DESIGN, MANUFACTURE, TESTING AND INSTALLATION OF ALL APPARATUS AND MATERIALS FURNISHED UNDER THE REQUIREMENTS OF THESE SPECIFICATIONS SHALL CONFORM TO THE APPLICABLE STANDARD RULES OF THE FOLLOWING, WHERE MATERIALS ARE NOT SPECIFICALLY REFERRED TO, BUT ARE REQUIRED, THEY SHALL MEET THE REQUIREMENTS OF THE APPLICABLE CODE.
  - ARI -AIR CONDITIONING & REFRIGERATION INSTITUTE
  - ASHRAE -AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS
  - ASME -AMERICAN SOCIETY OF MECHANICAL ENGINEERS
  - ASTM -AMERICAN SOCIETY OF TESTING MATERIALS
  - EPA -ENVIRONMENTAL PROTECTION AGENCY
  - IBC -2015 INTERNATIONAL BUILDING CODE, BUILDING, FIRE, FUEL GAS AND MECHANICAL, 2018 WISCONSIN UNIFORM PLUMBING CODE
  - NEC -NATIONAL ELECTRICAL CODE
  - NEMA -NATIONAL ELECTRICAL MANUFACTURER'S ASSOC.
  - NFPA -NATIONAL FIRE PROTECTION ASSOCIATION
  - OSHA -OCCUPATIONAL SAFETY AND HEALTH ADM.
  - SMACNA -SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION
  - UL -UNDERWRITERS LABORATORIES, INC.

2. UNLESS OTHERWISE SPECIFIED AND/OR APPROVED, EQUIPMENT AND MATERIALS OF THE SAME TYPE AND USED FOR THE SAME PURPOSE, SHALL BE PRODUCTS OF THE SAME MANUFACTURER
3. THE COMPONENTS AND COMPLETED ASSEMBLIES OF ALL EQUIPMENT FURNISHED SHALL BE U.L. LISTED, IN AN EFFORT TO ENSURE QUALITY PRODUCTS ON THE PROJECT.

## TESTS

1. ALL TESTS REQUIRED TO ESTABLISH THE ADEQUACY, QUALITY, SAFETY, COMPLETED STATUS AND SUITABLE OPERATION OF EACH SYSTEM AND ALL COMPONENTS THEREOF SHALL BE MADE IN THE PRESENCE OF AND TO THE SATISFACTION OF THE ARCHITECT OR HIS AUTHORIZED REPRESENTATIVE AND OTHER REPRESENTATIVES OF STATE AND LOCAL GOVERNMENT. ALL INSTRUMENTS, LABOR AND EXPERT SERVICE NECESSARY TO CONDUCT THESE TESTS SHALL BE SUPPLIED BY THE CONTRACTOR, POWER AND FUEL WILL BE FURNISHED BY THE OWNER.
2. THE FINAL INSPECTION AND TESTS ARE TO BE MADE ONLY AFTER THE OWNER IS SATISFIED THAT THE WORK DESCRIBED IN THESE SPECIFICATIONS HAS BEEN COMPLETELY INSTALLED IN ACCORDANCE WITH THE TRUE SPIRIT AND INTENT OF THESE SPECIFICATIONS AND THAT COMPLETE PRELIMINARY TESTS WERE MADE WHICH INDICATE ADEQUACY, QUALITY, COMPLETION AND SATISFACTORY OPERATION. THE ACCEPTANCE OF THE WORK HEREIN SPECIFIED, SHALL NOT IN ANY WAY PREJUDICE THE OWNER'S RIGHT TO DEMAND REPLACEMENT OF DEFECTIVE MATERIAL AND/OR WORKMANSHIP.

## GUARANTEE AND SERVICE

1. ALL EQUIPMENT SHALL BE GUARANTEED AGAINST DEFECTIVE MATERIALS, DESIGN AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE, AS EVIDENCED BY DATE OF CERTIFICATE FOR FINAL PAYMENT.
2. IN ADDITION TO THE GUARANTEE, THE CONTRACTOR SHALL PROVIDE ALL REPAIR AND ADJUSTMENT SERVICE NECESSARY FOR THE PROPER OPERATION OF THE ENTIRE SYSTEM FOR A PERIOD OF ONE (1) YEAR AFTER THE SYSTEM IS PUT INTO OPERATION (CONCURRENT WITH THE GUARANTEE) UPON RECEIPT OF NOTICE FROM THE OWNER'S REPRESENTATIVE OF FAILURE OF ANY PART OF THE GUARANTEED EQUIPMENT DURING THE GUARANTEE PERIOD. THE AFFECTED PART SHALL BE REPLACED PROMPTLY WITH A NEW PART WITHOUT COST TO THE OWNER. UPON FAILURE TO TAKE ACTION WITHIN 48 HOURS AFTER BEING NOTIFIED, THE WORK WILL BE ACCOMPLISHED BY THE OWNER AT THE EXPENSE OF THE CONTRACTOR.

## CONTRACTOR FURNISHED DRAWINGS, DESCRIPTIVE DATA AND MANUALS

1. IN ACCORDANCE WITH THE GENERAL CONDITIONS, SHOP DRAWINGS SHALL BE SUBMITTED ON ALL UNITS OF PREFABRICATED MATERIALS.

## DEFINITIONS

1. ALL DOCUMENTS PERTINENT TO THE QUALITY AND QUANTITY OF WORK TO BE PERFORMED ON THE PROJECT, INCLUDES BUT NOT LIMITED TO: PLANS, SPECIFICATIONS, INSTRUCTIONS TO BIDDERS, GENERAL AND SPECIAL CONDITIONS, ADDENDA, ALTERNATES, LIST OF MATERIALS, LIST OF SUB-CONTRACTORS, UNIT PRICES, SHOP DRAWINGS, FIELD ORDERS, CHANGE ORDERS, COST BREAKDOWN, PERIODICAL PAYMENT REQUESTS, ETC.
2. IT IS THE INTENTION OF THESE SPECIFICATIONS AND ALL ASSOCIATED DRAWINGS TO CALL FOR FINISHED WORK, TESTED AND READY FOR OPERATION, WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN "FURNISH AND INSTALL COMPLETE AND READY FOR USE".
3. DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER INSTALLATION AND OPERATION OF SYSTEMS, EQUIPMENT, MATERIALS, ETC., SHALL BE INCLUDED IN THE WORK, THE SAME AS IF HEREIN SPECIFIED OR INDICATED.

## HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

1. STEEL HANGER RODS MAY BE THREADED BOTH ENDS, THREADED ONE END, OR CONTINUOUS THREADED.
2. INSERTS SHALL BE MALLEABLE IRON CASE OF GALVANIZED STEEL SHELL AND EXPANDER PLUG FOR THREADED CONNECTION WITH LATERAL ADJUSTMENT, TOP SLOT FOR REINFORCING RODS, LUGS FOR ATTACHING TO FORMS; SIZE INSERTS TO SUIT THREADED HANGER RODS.
3. BEAM CLAMPS SHALL HAVE MALLEABLE IRON JAWS, STEEL BOLT OR TIE ROD AND NUT.
4. PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS, HANGERS AND SUPPORTS LOCATED IN CRAWL SPACES, PIPE SHAFTS, AND SUSPENDED CEILING SPACES ARE NOT CONSIDERED EXPOSED.
5. PROVIDE INSERTS FOR SUSPENDING HANGERS FROM REINFORCED CONCRETE SLABS AND SIDES OF REINFORCED CONCRETE BEAMS.
6. PROVIDE HOOKED ROD TO CONCRETE REINFORCEMENT SECTION FOR INSERTS CARRYING PIPE OVER 4 INCHES.
7. WHERE CONCRETE SLABS FORM FINISHED CEILING, PROVIDE INSERTS TO BE FLUSH WITH SLAB SURFACE.
8. WHERE INSERTS ARE OMITTED, DRILL THROUGH CONCRETE SLAB FROM BELOW AND PROVIDE THRU-BOLT WITH RECESSED SQUARE STEEL PLATE AND NUT RECESSED INTO AND GROUDED FLUSH WITH SLAB.

## CONTROLS

1. PROVIDE THERMOSTAT MOUNTED AT 48" AFF WITH AUTOMATIC HEATING/COOLING SELECTION AND FAN ON/OFF/AUTO SWITCH. THERMOSTAT SHALL BE ONE STAGE COOLING AND ONE OR TWO STAGE HEATING AS REQUIRED.
2. ON A CALL FOR COOLING, THERMOSTAT SHALL CYCLE COMPRESSOR ON AND ENERGIZE THE AHU FAN MOTOR.
3. ON A CALL FOR HEATING, THERMOSTAT SHALL CYCLE AHU FAN AND HEATING COILS, WITH STAGING AS SHOWN ON DRAWINGS.
4. PROVIDE FLOW SWITCH IN SUPPLY AIR PLENUM THAT WILL NOT ALLOW HEATERS TO BE ENERGIZED UNTIL AIR FLOW IS PROVEN.

## DUCTWORK

1. DUCT SIZES INDICATED ARE INSIDE CLEAR DIMENSIONS. FOR LINED DUCTS, MAINTAIN SIZES INSIDE LINING.
2. TO BE NON-COMBUSTIBLE OR CONFORMING TO REQUIREMENTS FOR CLASS 1 AIR DUCT MATERIALS, OR UL 181.
3. ALL DUCT MATERIAL AND COVERING SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84.
4. STEEL DUCTS SHALL BE ASTM A525 OR ASTM A527 GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY, HAVING ZINC COATING OF 1.25 OZ. PER SQ.FT. FOR EACH SIDE IN CONFORMANCE WITH ASTM A90.
5. FLEXIBLE DUCTS SHALL BE INTERLOCKING SPIRAL OF GALVANIZED STEEL, OR FABRIC SUPPORTED ON HELICALLY WOUND SPRING STEEL WIRE. FLEXIBLE DUCTS SHALL CONFORM TO UL 181. WORKING PRESSURE UP TO 4" W.G. MAXIMUM VELOCITY. MAXIMUM LENGTH PER RUN SHALL BE 20 FEET.
6. INSULATED FLEXIBLE DUCT SHALL BE FLEXIBLE DUCT WRAPPED WITH FLEXIBLE GLASS FIBER INSULATION, ENCLOSED BY SEAMLESS ALUMINUM PIGMENTED PLASTIC VAPOR BARRIER JACKET.
7. FASTENERS MAY BE RIVETS, BOLTS OR SHEET METAL SCREWS.
8. SEALANT MUST BE NON-HARDENING, WATER RESISTANT, FIRE RESISTIVE, COMPATIBLE WITH MATING MATERIALS; LIQUID USED ALONG OR WITH TAPE, OR HEAVY MASTIC.
9. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.
10. DURING CONSTRUCTION, PROVIDE TEMPORARY CLOSURES OF METAL OR TAPED POLYETHYLENE ON OPEN DUCTWORK TO PREVENT CONSTRUCTION DUST FROM ENTERING DUCTWORK SYSTEM.

## LOW PRESSURE DUCTWORK

1. FABRICATE AND SUPPORT IN COMPLETE ACCORDANCE WITH SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS AND ASHRAE HANDBOOKS, LATEST EDITIONS, EXCEPT AS INDICATED. PROVIDE DUCT MATERIAL, GAGES, REINFORCING AND SEALING FOR OPERATING PRESSURES INDICATED.
2. SIZE ROUND DUCTS INSTALLED IN PLACE OF RECTANGULAR DUCTS IN ACCORDANCE WITH ASHRAE TABLE OF EQUIVALENT RECTANGULAR AND ROUND DUCTS. NO VARIATION OF DUCT CONFIGURATION OR SIZES PERMITTED EXCEPT BY WRITTEN PERMISSION.
3. CONSTRUCT T'S, BENDS AND ELBOWS WITH RADIUS OF NOT LESS THAN 1-1/2 TIMES WIDTH OF DUCT ON CENTERLINE, WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS ARE USED, PROVIDE TURNING VANES.
4. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE WHEREVER POSSIBLE. DIVERGENCE UPSTREAM OF EQUIPMENT SHALL NOT EXCEED 30 DEGREES; CONVERGENCE DOWNSTREAM SHALL NOT EXCEED 30 DEGREES.
5. USE CRIMP JOINTS WITH OR WITHOUT BEAD FOR JOINING ROUND DUCT SIZES 8 INCHES AND SMALLER WITH CRIMP IN DIRECTION OF AIR FLOW.

## INSULATION

1. INTERNAL SHALL BE GLASS FIBER; ANSI/ASTM C553, 1.5 LB./CU. FT. MINIMUM DENSITY. INTERIOR SURFACE EXPOSED TO AIR STREAM SHALL HAVE THERMOSETTING ACRYLIC POLYMER OR LINER WITH EPA REGISTERED BIOCIDES RATED FOR MAXIMUM 4000 FPM AIR VELOCITY. MINIMUM INSTALLED R - VALUE OF 6.0, UNLESS DUCT IS INSTALLED IN MECHANICALLY COOLED SPACE OR BETWEEN FLOORS, IN WHICH CASE THE INSTALLED R - VALUE MAY BE 4.2. DETERMINE R - VALUES AT 75°F.
2. EXTERNAL SHALL BE FLEXIBLE OR RIGID GLASS FIBER; ANSI/ASTM C612 COMMERCIAL GRADE. MINIMUM INSTALLED R - VALUE OF 6.0, UNLESS DUCT IS INSTALLED IN MECHANICALLY COOLED SPACE OR BETWEEN FLOORS, IN WHICH CASE THE INSTALLED R - VALUE MAY BE 4.2. DETERMINE R-VALUES AT 75°F. PROVIDE WITH FOIL SCRIM FACING.
3. INSULATION MATERIAL AND JACKETS SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84.
4. ADHESIVES MUST BE WATERPROOF FIRE-RETARDANT TYPE.
5. LAGGING ADHESIVE MUST BE FIRE RESISTIVE TO ASTM E84, NFPA 255, UL723.
6. IMPALE ANCHORS SHALL BE GALVANIZED STEEL, 12 GAGE. SPOT WELDED OR SELF-ADHESIVE PAD. NO ANCHORS SHALL PENETRATE DUCT WALLS.
7. JOINT TAPE SHALL BE GLASS FIBER CLOTH, OPEN MESH.
8. TIE WIRE SHALL BE ANNEALED STEEL, 16 GAGE.
9. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
10. FOR INTERNAL APPLICATION, ADHERE INSULATION WITH ADHESIVE FOR 100 PERCENT COVERAGE. SECURE INSULATION WITH MECHANICAL FASTENERS ON 15 INCH CENTERS MAXIMUM ON TOP AND SIDE OF DUCTWORK WITH DIMENSION EXCEEDING 20 INCHES. SEAL AND SMOOTH JOINTS. DO NOT USE NAIL-TYPE FASTENERS. SEAL VAPOR BARRIER PENETRATIONS BY MECHANICAL FASTENERS WITH VAPOR BARRIER ADHESIVE.
11. DUCTWORK DIMENSIONS INDICATED ARE NET INSIDE DIMENSIONS REQUIRED FOR AIR FLOW.
12. SUPPLY AND RETURN DUCTS SHALL BE INSULATED.
13. OUTSIDE AIR DUCTS SHALL BE FLEXIBLE OR GALV. STEEL, EXTERNALLY INSULATED TO R - VALUE OF 4.5 (6.0 NOT REQUIRED).
14. INTERIOR EXHAUST DUCT FROM TOILET ROOMS AND DRYER SHALL NOT REQUIRE INSULATION.

## HANGERS

1. ALL DUCT HANGERS IN DIRECT CONTACT WITH GALVANIZED DUCT SHALL BE GALVANIZED STEEL.
2. DUCT HANGERS MAY BE DIRECTLY ATTACHED TO DUCTS. DUCTS SHALL BE HUNG BY ANGLES OR STRAPS AS DETAILED ON DRAWINGS. RODS, STRAPS OR ANGLES MAY BE USED IN TRAPEZE HANGERS.
3. WHERE TRAPEZE HANGERS ARE USED, THE BOTTOM OF THE DUCT SHALL BE SUPPORTED TO ANGLE SIZED AS 1" X 1" X 1/8" FOR DUCTS UP TO 34" (FOR ROUND DUCTS, THE ANGLE SHALL CONFORM TO THE BOTTOM 120 DEGREES OF THE DUCT).
4. ALL HANGERS SHALL BE SUFFICIENTLY CROSS-BRACED TO ELIMINATE, IN THE OPINION OF THE ARCHITECT, EXCESSIVE SWAY, WHEREVER DUCTWORK CONTAINS FILTER SECTIONS, COILS, FANS OR OTHER HEAVY EQUIPMENT (EXCLUDING REGISTERS, GRILLES, DIFFUSERS, SPLITTER DAMPERS, ETC.) SUCH EQUIPMENT SHALL BE HUNG INDEPENDENTLY OF THE DUCTWORK, WITH RODS OR ANGLES OF SIZES ADEQUATE TO SUPPORT THE LOAD.
5. DUCT HANGERS DIRECTLY IN CONTACT WITH OR DIRECTLY ATTACHED TO STAINLESS STEEL DUCTS SHALL BE STAINLESS STEEL.
6. IN THE EVENT DUCTWORK INTERFERES WITH SUSPENDED CEILING SUPPORT HANGERS, PROVIDE CROSS MEMBERS FROM HANGERS AFFECTED. THESE CROSS MEMBERS SHALL BE OF REINFORCED STEEL OR FURRING CHANNELS AND SHALL RUN UNDER DUCTWORK IN QUESTION FROM WHICH ADDITIONAL CEILING HANGERS SHALL BE SUPPORTED.

## PERMITTED DUCT MATERIAL USAGE

1. HVAC SUPPLY & RETURN MAY BE INSULATED GALV. STEEL, OR INSULATED FLEXIBLE
2. OUTSIDE AIR MUST BE EXTERNALLY INSULATED GALVANIZED STEEL.
3. TOILET EXHAUST SHALL BE GALVANIZED STEEL, NO INSULATION.

## POWER VENTILATORS

1. MANUFACTURERS SHALL BE GREENHECK, PENN, BROAN, NUTONE OR APPROVED EQUAL.
2. CEILING EXHAUST FANS SHALL BE V-BELT OR DIRECT DRIVE, WITH GALVANIZED STEEL HOUSING LINED WITH 1/2 INCH ACOUSTIC INSULATION, RESILIENT MOUNTED MOTOR, GRAVITY BACKDRAFT DAMPER IN DISCHARGE.
3. DISCONNECT SWITCH SHALL BE FACTORY WIRE, NON-FUSIBLE, IN HOUSING FOR THERMAL OVERLOAD PROTECTED MOTOR.
4. GRILLE SHALL BE MOLDED WHITE PLASTIC OR ALUMINUM WITH BAKED WHITE ENAMEL FINISH.
5. SPEED CONTROLLER TO BE SOLID STATE.
6. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

## DIFFUSERS, REGISTERS AND GRILLES

1. FURNISH AND INSTALL WHERE SHOWN ON DRAWINGS ALL REGISTERS, GRILLES, DIFFUSERS AND LOUVERS IN ACCORDANCE WITH THE TABULATION IN THE SCHEDULE ON DRAWINGS.
2. PROVIDE ACCESSORIES AND MODIFICATIONS AS INDICATED IN SCHEDULE NOTES.
3. MANUFACTURER LISTED IN SCHEDULE IS FOR DESIGN SELECTION ONLY. REGISTERS, GRILLES, AND DIFFUSERS AS MANUFACTURED BY PRICE, KRUEGER, TITUS, METALAIR OR APPROVED EQUAL WILL BE ACCEPTED.

## DUCT ACCESSORIES

1. INSTALL ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. PROVIDE BALANCING DAMPERS AT POINTS ON LOW PRESSURE SUPPLY, RETURN, AND EXHAUST SYSTEMS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING.
3. PROVIDE BACKDRAFT DAMPERS ON EXHAUST FANS OR EXHAUST DUCTS NEAREST TO OUTSIDE AND WHERE INDICATED.
4. PROVIDE FLEXIBLE CONNECTIONS IMMEDIATELY ADJACENT TO EQUIPMENT IN DUCTS ASSOCIATED WITH FANS AND MOTORIZED EQUIPMENT.

## VOLUME CONTROL DAMPERS

1. FABRICATE IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS, AND AS INDICATED. AIR BALANCE, BARBER-COLMAN, CARNES, NATIONAL CONTROLLED AIR, RUSKIN, CESCO OR APPROVED EQUAL.
2. FABRICATE SINGLE BLADE DAMPERS FOR DUCT SIZES TO 12 INCH.
3. FABRICATE MULTI-BLADE DAMPER OF OPPOSED BLADE PATTERN WITH MAXIMUM BLADE SIZES 12 X 72 INCH. ASSEMBLE CENTER AND EDGE CRIMPED BLADES IN PRIME COATED OR GALVANIZED CHANNEL FRAME WITH SUITABLE HARDWARE.
4. EXCEPT IN ROUND DUCTWORK 12 INCHES AND SMALLER, PROVIDE END BEARINGS, ON MULTIPLE BLADE DAMPERS, PROVIDE OIL-IMPREGNATED NYLON OR SINTERED BRONZE BEARINGS.
5. PROVIDE LOCKING, INDICATING QUADRANT REGULATORS ON SINGLE AND MULTI-BLADE DAMPERS, WHERE ROD LENGTHS EXCEED 30 INCHES PROVIDE REGULATOR AT BOTH ENDS.

## BACKDRAFT DAMPERS

1. DAMPERS SHALL BE AIR BALANCE, VENT COCK, ANEMOSTAT, RUSKIN, CESCO OR APPROVED EQUAL.
2. GRAVITY BACKDRAFT DAMPERS, SIZE 18X18 INCHES OR SMALLER, FURNISHED WITH AIR MOVING EQUIPMENT, MAY BE AIR MOVING EQUIPMENT MANUFACTURER'S STANDARD CONSTRUCTION.

3. FABRICATE MULTI-BLADE, PARALLEL ACTION GRAVITY BALANCED BACKDRAFT DAMPERS OF 16 GAGE GALVANIZED STEEL, WITH CENTER PIVOTED BLADES OF MAXIMUM 6 INCH WIDTH, WITH FELT OR FLEXIBLE VINYL SEALED EDGES, LINKED TOGETHER IN RATTLE-FREE MANNER WITH 90 DEGREE STOP, STEEL BALL BEARINGS, AND PLATED STEEL PIVOT PIN; ADJUSTMENT DEVICE TO PERMIT SETTING FOR VARYING DIFFERENTIAL STATIC PRESSURE.

## AIR TURNING DEVICES

1. AIR TURNING VANES SHALL BE BARBER/COLMAN, TUTTLE AND BAILEY, ANEMOSTAT, METALAIR OR APPROVED EQUAL.
2. MULTI-BLADE DEVICE WITH BLADES ALIGNED IN SHORT DIMENSION; STEEL OR ALUMINUM CONSTRUCTION; WITH INDIVIDUALLY ADJUSTABLE BLADES, MOUNTING STRAPS. PROVIDE IN ALL SQUARE TURNS.

## FLEXIBLE DUCT CONNECTIONS

1. SHALL BE VENT FABRIC 6" VENTGLAS, ANEMOSTAT, BARBER/COLMAN OR APPROVED EQUAL.
2. FABRICATE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS 1ST EDITION, 1985.
3. UL LISTED FIRE-RETARDANT NEOPRENE COATED WOVEN GLASS FIBER FABRIC TO NFPA 90A, MINIMUM DENSITY 20 OZ PER SQUARE YARD, APPROXIMATELY 6 INCHES WIDE, CRIMPED INTO METAL EDGING STRIP.

## SUBMITTAL NOTE TO GC AND SUB-CONTRACTORS:

COORDINATE ALL MECHANICAL, ELECTRICAL, FIRE ALARM, SPRINKLER AND PLUMBING DEVICES/EQUIPMENT SUBMITTALS WITH ESSENTIAL PARTIES INCLUDING BUT NOT LIMITED TO: ELECTRICAL, MECHANICAL, PLUMBING, FIRE ALARM, SPRINKLER, AND MILLWORK CONTRACTORS. PRIOR TO SENDING SUBMITTALS FOR APPROVAL, ALL AFFECTED DISCIPLINES MUST INCLUDE A SIGNATURE OF APPROVAL ENSURING THAT ALL NECESSARY PARTIES HAVE HAD AN OPPORTUNITY TO REVIEW SAID SUBMITTAL AND RAISE ANY CONCERNS ABOUT EQUIPMENT BEING USED AND THE MEANS AND METHODS TO INSTALL SUCH EQUIPMENT. UPON RECEIVING A SUBMITTAL WITHOUT THE NECESSARY PARTY SIGNATURES, THE SUBMITTAL WILL IMMEDIATELY BE REJECTED WITHOUT REVIEW UNTIL THE SIGNATURES HAVE BEEN PROVIDED.


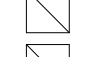

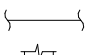







## HVAC GENERAL NOTES:

1. COORDINATE WITH ALL OTHER TRADES PRIOR TO PURCHASING OR INSTALLING EQUIPMENT AND MATERIALS. PERFORM WORK IN SUCH MANNER AND AT SUCH TIMES AS NOT TO DELAY WORK OF OTHER TRADES.
2. OBTAIN MANUFACTURER'S DATA ON ALL EQUIPMENT, THE DIMENSIONS OF WHICH MAY AFFECT INSTALLATION. USE THIS DATA TO COORDINATE PROPER SERVICE CHARACTERISTICS, ENTRY LOCATIONS, ETC., AND TO INSURE MINIMUM CLEARANCES ARE MAINTAINED.
3. WORKMAN SHALL BE EXPERIENCED IN THEIR RESPECTIVE TRADE. WORKMANSHIP OF INSTALLED WORK SHALL BE THE BEST CLASS AND WILL BE SO JUDGED. SUBSTANDARD WORK SHALL BE REMOVED AND REPLACED AT CONTRACTOR'S EXPENSE.
4. CONTRACTOR SHALL AND DOES HEREBY WARRANT ALL MATERIALS AND EQUIPMENT FURNISHED UNDER THIS SECTION TO BE FREE FROM DEFECTS AND TO FUNCTION OR OPERATE SATISFACTORILY FOR ONE YEAR AFTER FINAL ACCEPTANCE OF THE WORK, AND THAT ANY ITEMS NOT MEETING THIS REQUIREMENT WILL BE MADE GOOD BY HIM WITHOUT ANY COST TO THE OWNER.
5. PROVIDE ONLY NEW, STANDARD FIRST-GRADE MATERIALS THROUGHOUT, CONFORMING TO STANDARDS ESTABLISHED BY UNDERWRITER LABORATORIES INC., AND SO MARKED AND LABELED, TOGETHER WITH MANUFACTURER'S BRAND OR TRADEMARK. ALL LIKE ITEMS SHALL BE OF ONE MANUFACTURER.
6. ALL WORK SHALL BE EXECUTED IN A MANNER THAT SHALL PRESENT A NEAT APPEARANCE UPON COMPLETION. CARE SHALL BE EXERCISED THAT ALL ITEMS ARE PLUMB, STRAIGHT, AND LEVEL.
7. ANY WALLS, CEILINGS, EQUIPMENT, ETC., DAMAGED BY THE CONTRACTOR IN CONSTRUCTION OF THIS PROJECT SHALL BE REPAIRED, RESTORED, AND/OR REPLACED BY THE CONTRACTOR TO ITS ORIGINAL CONDITION, OR TO PERFORM ITS INTENDED FUNCTION, AT NO ADDITIONAL COST TO OWNER.
8. PIPING SHALL BE NEW AND IN GOOD CONDITION. ALL PIPING SHALL CONFORM TO ALL APPLICABLE MILITARY, STATE, COUNTY, AND LOCAL CODES. PIPING SHALL BE INSTALLED PARALLEL TO BUILDING LINES.
9. REFRIGERANT PIPING SHALL BE TESTED IN ACCORDANCE WITH INDUSTRY ACCEPTED METHODS. LEAKS SHALL BE REPAIRED AND ANY LOST REFRIGERANT SHALL BE REPLACED AT NO ADDITIONAL COST.
10. DIELECTRIC UNIONS SHALL BE INSTALLED IN ALL COPPER AND FERROUS PIPING CONNECTIONS.
11. DUCT DIMENSIONS NOTED ARE INSIDE DIMENSIONS AND DO NOT INCLUDE INSULATION OR LINER.
12. TEST AND BALANCE ALL AIR SYSTEMS IN ACCORDANCE WITH AABC AND/OR NEBB REQUIREMENTS. ALL EQUIPMENT USED FOR TESTING SHALL BE IN PROPER WORKING ORDER.
13. THE TEST AND BALANCE CONTRACTOR SHALL REGULATE AND ADJUST ALL SPLITTERS, DEFLECTORS, AND DAMPERS SO THAT THE INLET OR OUTLET SHALL DELIVER OR REMOVE THE REQUIRED NUMBER OF CUBIC FEET OF AIR PER MINUTE (CFM) AT THE RESPECTIVE OPENINGS.
14. PROVIDE VIBRATION ISOLATORS AND ACOUSTIC INSULATION AS REQUIRED TO ELIMINATE ANY OBJECTIONABLE NOISE OR VIBRATION.
15. PIPE AND DUCT ROUTING SHOWN IS SCHEMATIC. PROVIDE ANY ADDITIONAL OFFSETS AND FITTINGS, INCLUDING DIVIDED DUCTS REQUIRED FOR PROPER INSTALSLATION AND TO MAINTAIN CLEARANCES AS ENCOUNTERED IN THE FIELD.
16. PROVIDE ALL CONTROL WIRING AND CONDUIT IN COMPLIANCE WITH NEC AND DIVISION 16 SPECIFICATIONS.
17. PROVIDE MATERIALS WHICH HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOP RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84.
18. INSULATE SUPPLY, RETURN, AND PRE-CONDITIONED OUTSIDE AIR DUCTS TO A MINIMUM R-VALUE OR 6.0. IF INSTALLED IN A MECHANICALLY COOLED SPACE OR IN A CAVITY WHOSE EXTERIOR WALLS ARE INSULATED, THE R-VALUE MAY BE 4.2.
19. IN HANDICAPPED ACCESSIBLE AREAS, MOUNT CONTROLS AT 48" ABOVE FINISHED FLOOR.
20. LOCATE WALL AND ROOF TERMINATIONS AT THE SAME RELATIVE ELEVATION AND HORIZONTAL POSITION TO MAINTAIN A UNIFORM APPEARANCE. WHEN IN DOUBT, COORDINATE PLACEMENT WITH ARCHITECT. PRIME COAT AND PAINT EXTERIOR TERMINATIONS TO MATCH BUILDING COLOR.
21. SLEEVE AND FIRE STOP PENETRATIONS THROUGH FIRE RATED SYSTEMS TO MAINTAIN RATING OF SYSTEM.
22. PROVIDE ENGRAVED TAGS FOR ALL RTUS. MOUNT TAGS PERMANENTLY ON RTU AND ON DISCONNECT.
23. COORDINATE DIFFUSER AND GRILLE LOCATIONS WITH REFLECTED CEILING PLAN AND OTHER TRADES.
24. PAINT INSIDE OF DUCTS AND PORTIONS OF CEILING ASSEMBLY VISIBLE THROUGH DIFFUSERS OR GRILLES WITH FLAT BLACK PAINT.
25. FLEX DUCTS SHALL NOT EXCEED 4 FT IN LENGTH.
26. TEST AND BALANCE CONTRACTOR SHALL RETURN AT THE CHANGE OF HEATING OR COOLING SEASON TO VERIFY THAT THE BALANCE OF THE SYSTEM HAS NOT CHANGED.
27. EACH RTU SHALL BE EQUIPPED WITH AT LEAST ONE AUTOMATIC DEVICE TO SETBACK OR SHUT OFF THE SYSTEM DURING PERIODS OF NON-OCCUPANCY.
28. DUCT SYSTEMS SHALL BE CONSTRUCTED, INSTALLED, SEALED, AND INSULATED AS REQUIRED BY ALL LOCAL STANDARDS AND SMACNA STANDARDS.
29. MECHANICAL CONTRACTOR SHALL REFER TO LANDLORD CRITERIA FOR ROOF TOP UNIT NUMBERING. IF NO CRITERIA EXISTS, NUMBER AS SHOWN ON DRAWINGS.
30. PROVIDE 3/4" UNDERCUT FOR ALL RESTROOM DOORS FOR MAKE-UP OF EXHAUST AIR.
31. BRANCH DUCT TO GRILLE OR DIFFUSER SHALL BE THE SAME AS THE NECK SIZE.
32. A NATIONAL ACCOUNT HAS BEEN ESTABLISHED WITH NOVAR CONTROLS. CONTACT JOHN AIKEN OR JOE BORDERS AT (216) 682-1600 PRIOR TO ORDERING.

## ABBREVIATIONS:

ACC	ABOVE ACCESSIBLE CEILING
ACT	ABOVE COUNTER TOP
AFB	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALUM	ALUMINUM
APR	AIR PRESSURE RESISTANT
ASPE	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS
BTU	BRITISH THERMAL UNIT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CO2	CARBON DIOXIDE
CONT	CONTINUATION
CD	CONDENSING UNIT
EF	EXHAUST FAN
EXIST	EXISTING
FD	FIRE DAMPER
FLOR	FLOOR
FPM	FEET PER MINUTE
FM	FIRE RESISTANT
GALV	GALVANIZED
HP	HORSEPOWER
MACU	MAKE UP AIR CONDENSING UNIT
MAU	MAKE UP AIR UNIT
MEZZ	MEZZANINE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NG	NATURAL GAS
NTS	NOT TO SCALE
OAU	OUTSIDE AIR UNIT
OACU	OUTSIDE AIR CONDENSING UNIT
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RPM	REVOLUTIONS PER MINUTE
RTU	ROOF TOP UNIT
SS	STAINLESS STEEL
T, TSTAT	THERMOSTAT
TEMP	TEMPERATURE
TP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
VAV	VARIABLE AIR VOLUME
VRF	VARIABLE REFRIGERANT FLOW
VRU	VARIABLE REFRIGERANT UNIT
WC	WATER COLUMN
WG	INCH WATER GAUGE

## HVAC LEGEND:

	SUPPLY DIFFUSER
	RETURN AIR GRILLE
	EXHAUST AIR GRILLE
	RIGID DUCTWORK (WIDTH/DEPTH)
	FLEX DUCTWORK (DIAMETER)
	ELBOW WITH TURNING VANES
	MANUAL VOLUME DAMPER
	DUCT MOUNTED SMOKE DETECTOR
	THERMOSTAT
	CONNECT TO EXISTING
	LIMIT OF DEMOLITION



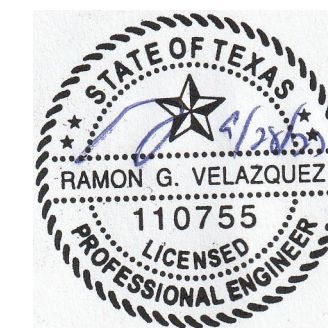
PHILLIPS

CONSULTANT

SAVANT Engineering, LLC

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Sandy Springs GA 30342 770.319.7400  
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PROJECT

DIAMONDS DIRECT

NORTH FREEWAY SERVICE

ROAD AND WOODSON



PHILLIPS  
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PROJECT

**DIAMONDS DIRECT**  
NORTH FREEWAY SERVICE ROAD AND WOODSON ROAD  
OAKRIDGE NORTH, MONTGOMERY COUNTY, TX 77381

CLIENT



DIAMONDS DIRECT

PHILLIPS JOB NUMBER 2336404

ISSUE DATE 09/28/2023

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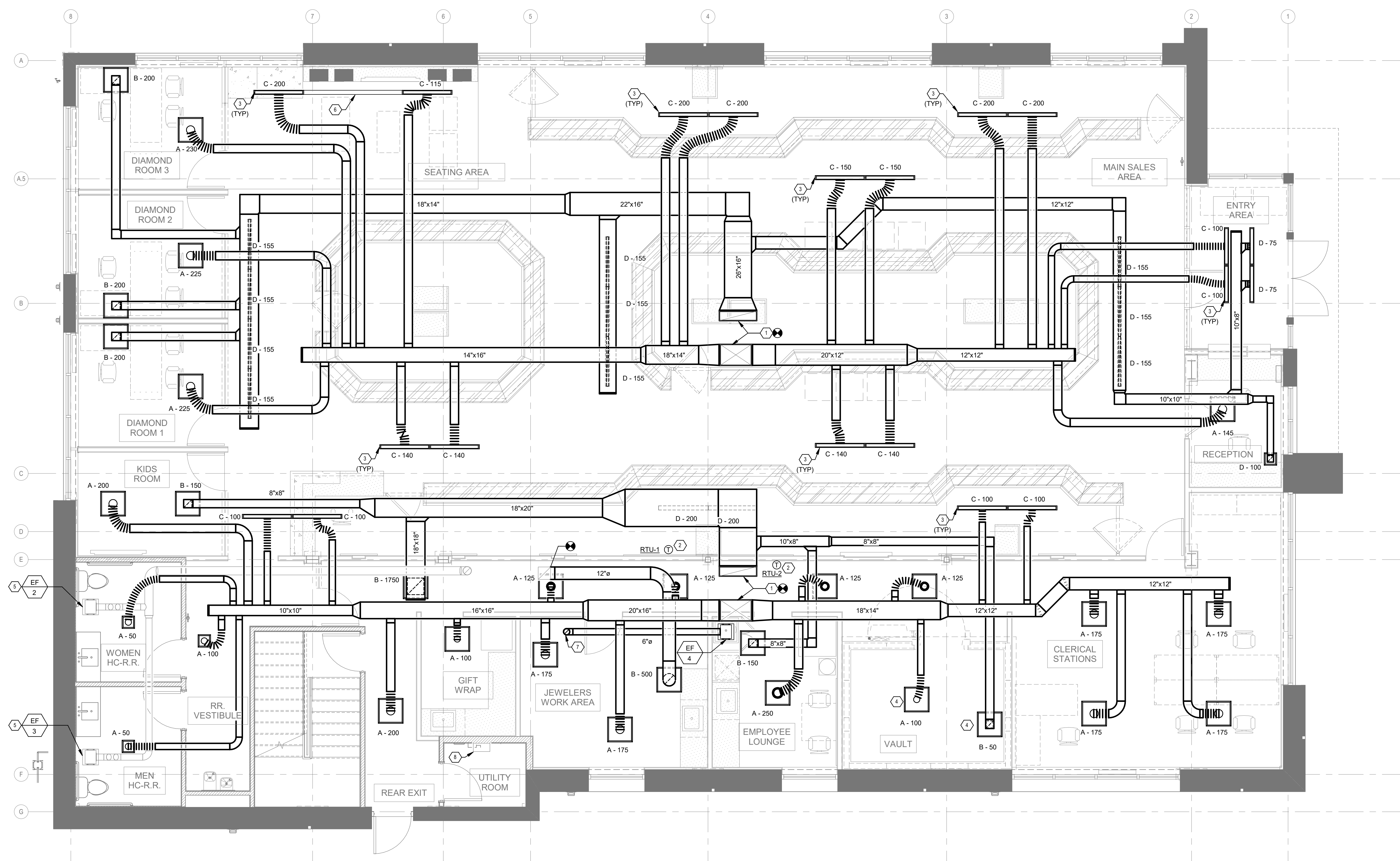
DRAWING TITLE FLOOR PLAN - HVAC

SHEET NUMBER

**M-1.1**

5901 PEACHTREE DUNWOODY RD.  
BUILDING A, SUITE 450  
ATLANTA, GEORGIA 30328  
PHILLIPS PART.COM 770.394.1616

ISSUED FOR CONSTRUCTION



**GRILLE/DIFFUSER SCHEDULE**

MARK	CFM	NECK SIZE	TYPE	MFG	MODEL	NOTES
A	0-100 101-200 201-400 401-600 601-800	6" 8" 10" 12" 14"	CEILING MOUNTED SQUARE SUPPLY DIFFUSER	TITUS	OMNI	1 - 5
B	0-125 126-250 251-400 401-600 601-900 901-1350 1351-2000	6X6 8X8 10X10 12X12 16X16 18X18 22X22	EGGCRATE RETURN/EXHAUST AIR GRILLE	TITUS	50F	1, 2, 4, 5
C	0-50 51-75 76-100	2 3 4	1" SLOT 48" LONG LINEAR SUPPLY DIFFUSER	TITUS	ML-39	4 - 8
D	0-85 86-120 121-160	2 3 4	1" SLOT 48" LONG LINEAR RETURN GRILLE	TITUS	MLR-39	4 - 8

- NOTES:
1. PROVIDE WITH OPPOSED BLADE BACKDRAFT DAMPER.
  2. PROVIDE 24X24 FULLY LOUVERED FACE LAYIN MODULE WHERE LOCATED IN LAYIN CEILING.
  3. PROVIDE SQUARE TO ROUND NECK TRANSITION WHERE APPLICABLE.
  4. COORDINATE BORDER TYPES WITH ARCHITECTURAL FLOOR PLAN AND REFLECTED CEILING PLAN.
  5. PROVIDE WITH WHITE FINISH.
  6. PROVIDE WITH TITUS MPI-39 48" LENGTH MODULINEAR INSULATED PLENUM.
  7. PROVIDE WITH DURODYNE GCDOR INTERNAL ROUND GEAR DRIVEN CABLE OPERATED DAMPER.
  8. CFM PER LINEAR FOOT AND NUMBER OF SLOTS LISTED IN LIEU OF CFM AND NECK SIZE.

**1 FLOOR PLAN - HVAC**  
M-1.1 1/4" = 1'-0"

**EXHAUST FAN SCHEDULE**

TAG	AREA SERVED	MANUFACTURER	MODEL	LOCATION	DRIVE	CFM	ESP IN WC	W	RPM	VOLTAGE	PHASES	NOTES
EF-4	EMPLOYEE LOUNGE	GREENHECK	SP-A90	CEILING	DIRECT	70	0.20	15	900	120 V	1	1 - 3

- NOTES:
1. PROVIDE WITH FAN SPEED CONTROLLER, BACKDRAFT DAMPER, AND DISCONNECT SWITCH.
  2. FAN SHALL BE INTERLOCKED WITH LIGHT SWITCH(ES) IN ROOM.
  3. GREENHECK IS THE BASIS OF DESIGN.

**UNIT HEATER SCHEDULE**

TAG	MANUFACTURER	MODEL	LOCATION	FUEL SOURCE	VOLTAGE (V)	PHASES	INPUT (KW)	NOTES
UH-1	QMARK	MUH0381	STORAGE	ELECTRIC	208	2	4 KW	1 - 2

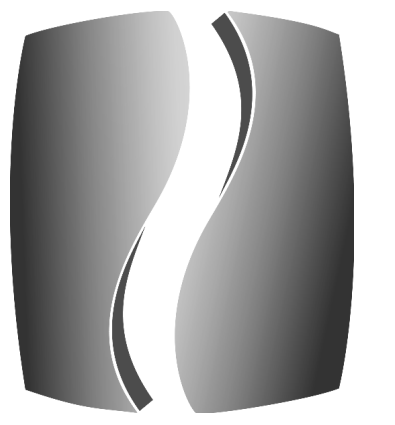
- NOTES:
1. PROVIDE WITH DISCONNECT SWITCH.
  2. PROVIDE WITH ADJUSTABLE THERMOSTAT SET TO MAINTAIN SPACE TEMPERATURE OF 50 DEG F.

**KEYED NOTES:**

1. CONNECT TO EXISTING SA AND RA DROPS FROM EXISTING RTU ON ROOF. INTERNALLY LINE THE FIRST 10' OF DUCT FROM THE EXISTING UNIT. REBALANCE TO CFMS INDICATED ON ROOF PLAN SHEET M-2.3.
2. MOUNT PROGRAMMABLE THERMOSTAT AT 42" A.F.F. COORDINATE EXACT LOCATION WITH ARCH PRIOR TO INSTALLATION. PROVIDE CONTROL WIRING FROM THERMOSTAT TO ASSOCIATED ROOFTOP AIR HANDLING UNIT AND CONNECT. PROVIDE AUDIO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET FOR SMOKE DETECTOR MOUNTED AT 42" A.F.F. ALIGN ANNUNCIATOR WITH THERMOSTAT SENSOR WHERE APPLICABLE. COORDINATE EXACT LOCATION OF NEW THERMOSTAT WITH ARCH PRIOR TO INSTALLATION.
3. PROVIDE CABLE OPERATED DAMPER (TYP). REFER TO DETAIL 1/M4.01
4. VERIFY SUPPLY AND RETURN AIR TERMINAL REQUIREMENTS WITH VAULT SUPPLIER AND INSTALLER. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE REQUIREMENTS, LOCATION, AND ELEVATION PRIOR TO CONSTRUCTION. CONNECT AIR TERMINALS TO SUPPLY AND RETURN AIR MAIN.
5. EXISTING EXHAUST FAN AND ASSOCIATED DUCTWORK SHALL REMAIN.
6. PROVIDE BLANK SLOT IN CEILING. REFER TO ARCHITECTURAL PLANS.
7. NEW 6" Ø EXHAUST DUCT UP TO NEW ROOF CAP. REFER TO M-2.3 FOR CONTINUATION
8. EXISTING WALL HEATER TO REMAIN.

**GENERAL NOTES:**

1. OBTAIN MANUFACTURER'S DATA ON ALL EQUIPMENT. THE DIMENSIONS OF WHICH MAY AFFECT INSTALLATION. USE THIS DATA TO COORDINATE PROPER SERVICE CHARACTERISTICS, ENTRY LOCATIONS, ETC., AND TO ENSURE MINIMUM CLEARANCES ARE MAINTAINED.
2. ANY WALLS, CEILINGS, EQUIPMENT, ETC., DAMAGED BY THE CONTRACTOR IN CONSTRUCTION OF THIS PROJECT SHALL BE REPAIRED, RESTORED AND/OR REPLACED BY THE CONTRACTOR TO ITS ORIGINAL CONDITION, OR TO PERFORM ITS INTENDED FUNCTION, AT NO ADDITIONAL COST TO OWNER.
3. ALL EXISTING CONDITIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR. REPAIR, CLEAN, AND REPLACE EXISTING EQUIPMENT, DEVICES, AND DUCTWORK AS NEEDED.
4. SPIN SIZES SHALL BE EQUAL TO DIFFUSER CONNECTION SIZE. SEE DIFFUSER SCHEDULE.



**PHILLIPS**  
CONSULTANT

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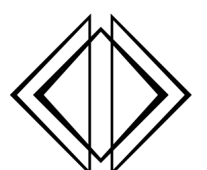
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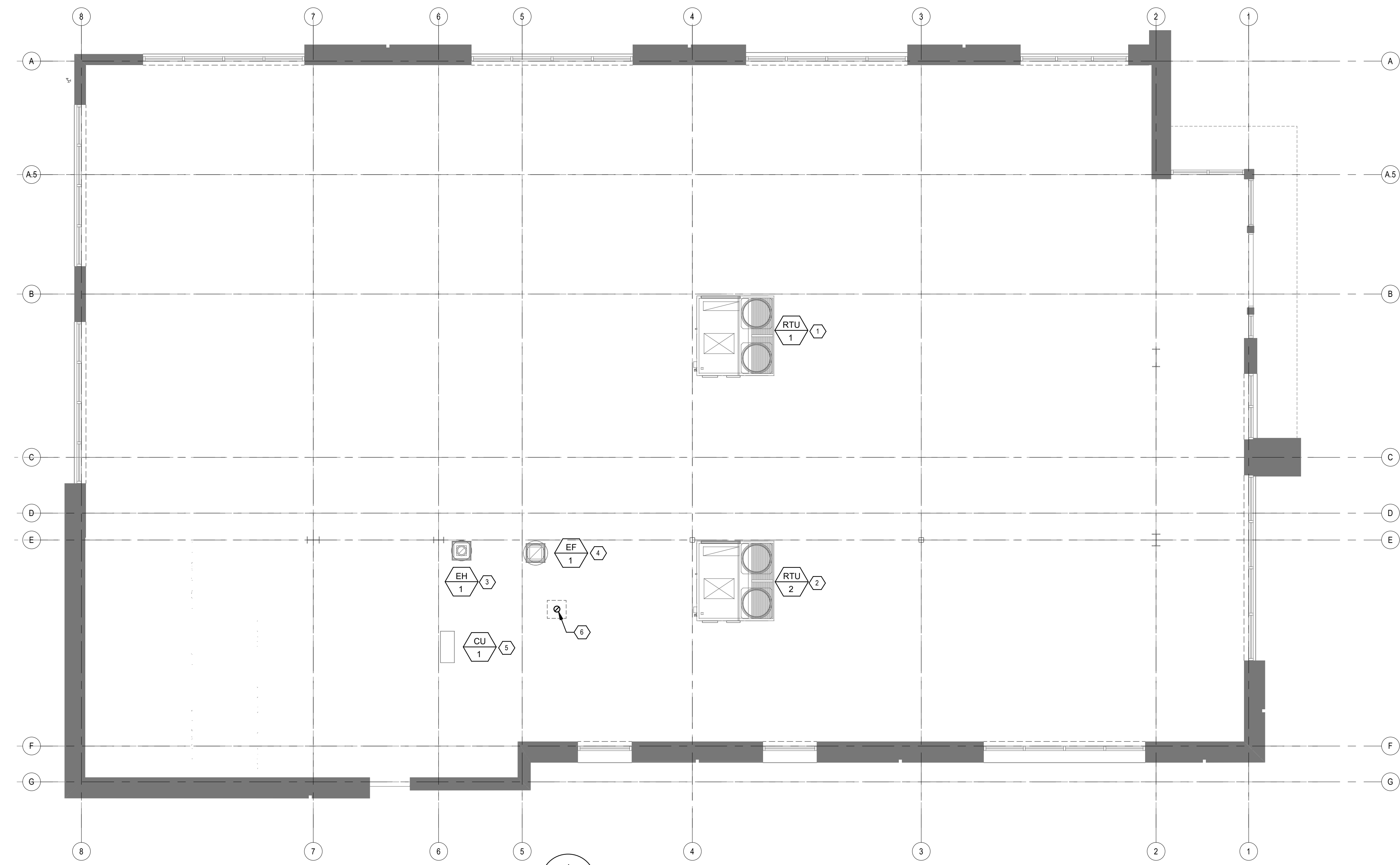
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**MEZZANINE & ROOF PLAN - HVAC**

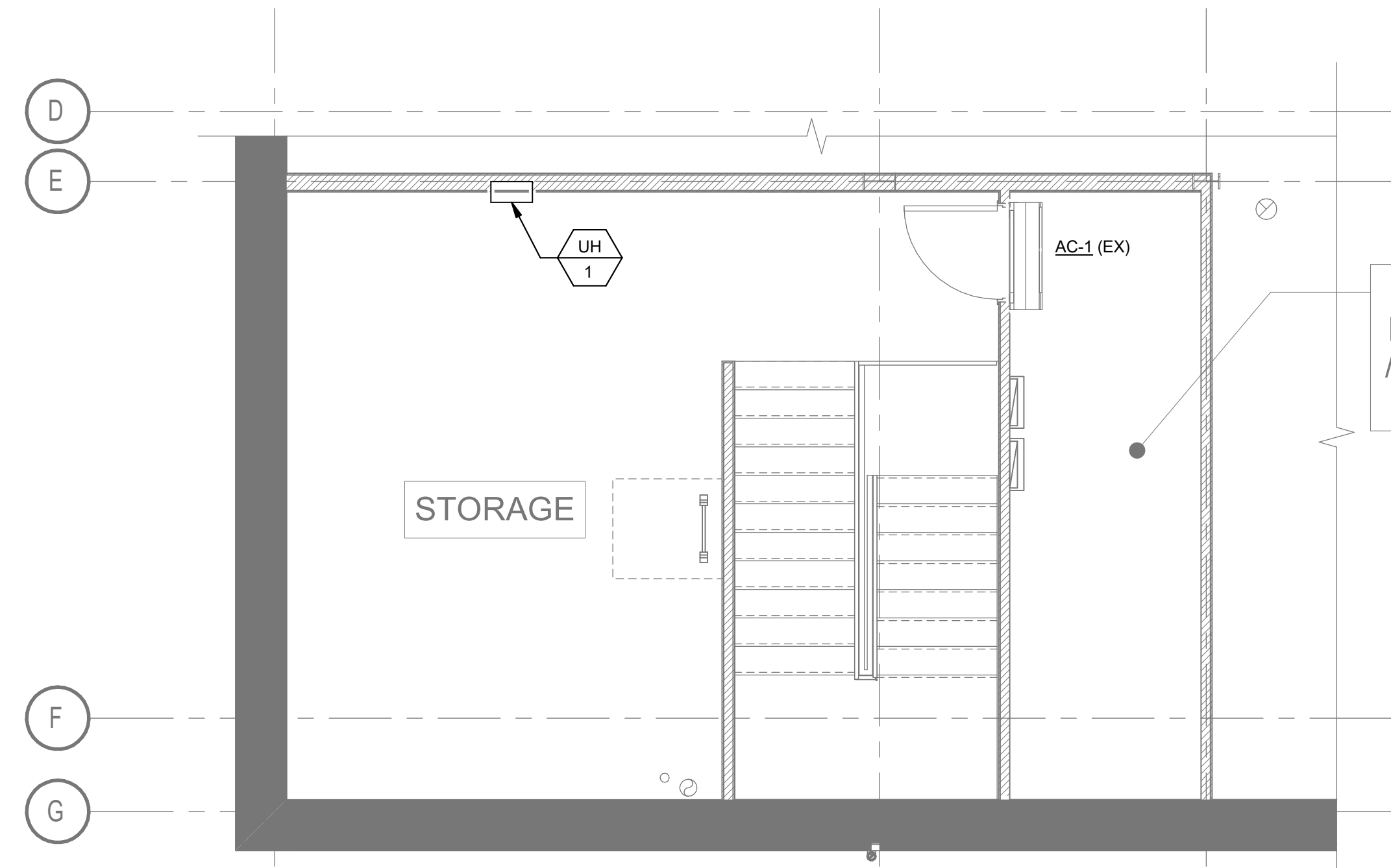
SHEET NUMBER

**M-1.2**

5901 PEACHTREE DUNWOODY RD.  
BUILDING A, SUITE 450  
ATLANTA, GEORGIA 30328  
PHILLIPSPART.COM 770-394-1616



**1 ROOF PLAN - HVAC**  
M-1.2 3/16" = 1'-0"



**2 MEZZANINE PLAN - HVAC**  
M-1.2 1/4" = 1'-0"

**TECH. ROOM  
MECHANICAL  
/ ELECTRICAL  
COMP. / TEL**

**KEYED NOTES:**

- EXISTING 10 TON RTU-1 TO REMAIN. CLEAN AND SERVICE UNIT AND REPORT ANY DIFFICIENCIES TO THE ARCHITECT. BALANCE TO 3000 CFM SUPPLY AIR AND 600 CFM OF OUTSIDE AIR. INSTALL BI-POLAR IONIZATION DEVICE EQUAL TO GLOBAL PLASMA SOLUTIONS.
- EXISTING 10 TON RTU-2 TO REMAIN. CLEAN AND SERVICE UNIT AND REPORT ANY DIFFICIENCIES TO THE ARCHITECT. BALANCE TO 3000 CFM SUPPLY AIR AND 500 CFM OF OUTSIDE AIR.
- EXISTING EXHAUST HOOD TO REMAIN.
- EXISTING EXHAUST FAN EF-1 TO REMAIN.
- EXISTING CU-1 TO REMAIN.
- NEW 6" ROOF CAP FROM EF-4 BELOW. PROVIDE BIRDSCREEN AND BACKDRAFT DAMPER. MAINTAIN MIN 10'-0" FROM ANY FRESH AIR INTAKES.

**ISSUED FOR CONSTRUCTION**

