

**HVAC GENERAL NOTES:**

**GENERAL:**  
THESE GENERAL NOTES PRESENT AND/OR SUMMARIZE KEY PRODUCT INFORMATION FOR THE PLAN READER'S CONVENIENCE. SEE PLANS AND SPECIFICATIONS FOR FURTHER REQUIREMENTS.

WORK COVERED BY THIS DOCUMENT SHALL INCLUDE ALL LABOR, MATERIAL, PRODUCTS, AND SERVICES FOR, AND INCIDENTAL TO, INSTALLATION OF COMPLETE AND OPERATING HVAC SYSTEMS DRAWN OR SPECIFIED.

ALL WORK SHALL CONFORM TO ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES INCLUDING, BUT NOT LIMITED TO, NFPA 13, NFPA 90A, NFPA 90B, NFPA 96, 2017 NATIONAL ELECTRICAL CODE, AND 2012 INTERNATIONAL MECHANICAL CODE w/ AMENDMENTS.

ALL EQUIPMENT AND MATERIALS SHALL BE AS SPECIFIED OR 'APPROVED EQUAL' BY THE ARCHITECT OR ENGINEER.

INSTALL ALL MECHANICAL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS.

ARRANGEMENTS OF MECHANICAL WORK SHALL BE AS SHOWN. DRAWINGS ARE NOT INTENDED TO INDICATE ALL OFFSETS AND FITTINGS. EXAMINE ALL DRAWINGS. INVESTIGATE CONDITIONS TO BE ENCOUNTERED AND ARRANGE WORK ACCORDINGLY. FURNISH AND INSTALL ALL FITTINGS AND OFFSETS.

DRAWINGS ARE NOT INTENDED TO SHOW IN DETAIL EXACT LOCATIONS AND CONNECTIONS FOR EQUIPMENT AND ACCESSORIES. FINAL CONNECTIONS SHALL BE AS SHOWN ON APPROVED SHOP DRAWINGS.

MEASUREMENT OF DRAWINGS BY SCALE SHALL NOT BE USED AS DIMENSIONS FOR FABRICATION. MEASUREMENTS FOR LOCATING EQUIPMENT, DUCTWORK, PIPING AND ACCESSORIES SHALL BE MADE ON THE JOB SITE AND SHALL BE BASED ON ACTUAL JOB CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEASUREMENTS WHERE THE CONTRACTOR PREFABRICATES ANY WORK BASED ON THE DRAWINGS WITHOUT VERIFYING ACTUAL JOB CONDITIONS. THEN THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL COSTS INVOLVED IN MAKING CHANGES TO PREFABRICATED WORK WHERE CONFLICTS OCCUR.

THE CONTRACTOR SHALL CHECK CEILING HEIGHTS IN EACH SPACE ON ARCHITECTURAL DRAWINGS AND SHALL ARRANGE ALL MECHANICAL WORK TO FIT IN THE SPACE ABOVE THE CEILING ALLOWING FOR ACCESS TO REMOVE TILE. PARTICULAR ATTENTION SHALL BE DIRECTED TOWARD DUCT SIZES AS SHOWN ON DRAWINGS, TO VERIFY THAT DUCTWORK ALONG WITH ALL OTHER WORK WILL FIT IN THE SPACE ABOVE THE CEILINGS. AFTER VERIFYING DIMENSIONS, IF THE CONTRACTOR DETERMINES THAT THE WORK WILL NOT FIT IN THE SPACE INDICATED, THEN THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF THE CONFLICT AND SHALL NOT INSTALL ANY WORK UNTIL INSTRUCTIONS ARE RECEIVED FROM THE ARCHITECT/ENGINEER. IF THE CONTRACTOR INSTALLS WORK AS SHOWN ON DRAWINGS WITHOUT VERIFYING ADEQUACY OF SPACES, AND THE WORK DOES NOT FIT THE SPACE SHOWN, THEN THE CONTRACTOR SHALL BE RESPONSIBLE FOR REARRANGING WORK AND CHANGING DUCT SIZES AS REQUIRED TO FIT THE SPACE AND THE CONTRACTOR SHALL PAY ALL COSTS CONNECTED WITH THE CHANGES.

CONTRACTOR SHALL INSTALL DUCTS, PIPING AND EQUIPMENT IN A NEAT AND WORKMANLIKE MANNER AND SHALL AVOID CONFLICT WITH OTHER WORK. EQUIPMENT SHALL BE SO ARRANGED AND FITTED INTO AVAILABLE SPACE SO THAT WORKING PARTS INCLUDING FILTERS AND LUBRICATION POINTS, AND COIL REMOVAL ARE ACCESSIBLE FOR SERVICE WITHOUT DAMAGE TO BUILDING STRUCTURE OR FINISHES OR WITHOUT MOVING OTHER EQUIPMENT. THE CONTRACTOR SHALL NOT INSTALL ANY EQUIPMENT WHERE PARTS ARE INACCESSIBLE FOR SERVICE.

WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT TO PROVIDE MAXIMUM HEADROOM POSSIBLE.

EXACT LOCATION OF GRILLES & CEILING OUTLETS SHALL BE DETERMINED ON THE JOB. COORDINATE WITH LIGHTS AND ARCHITECTURAL REQUIREMENTS TO PROVIDE A UNIFORM & SYMMETRICAL APPEARANCE. REFER TO ARCHITECTURAL & ELECTRICAL DRAWINGS & DETAILS.

CUTTING AND REPAIRING: THE HVAC CONTRACTOR SHALL DO ALL CUTTING AND REPAIRING OF WALLS, FLOORS, CEILINGS, ETC. NECESSARY FOR THE INSTALLATION OF THE WORK BUT HE SHALL NOT CUT INTO ANY STRUCTURAL MEMBER WITHOUT THE PERMISSION OF THE ARCHITECT.

PROVIDE UNION OR FLANGE CONNECTIONS IN PIPING AT ALL EQUIPMENT & AS REQUIRED FOR SERVICE.

GENERAL CONTRACTOR TO PROVIDE ACCESS PANELS FOR ALL INACCESSIBLE, ABOVE CEILING DAMPERS AND EQUIPMENT. COORDINATE LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.

**METAL DUCT:**  
ALL DUCTWORK SHALL BE INSTALLED IN STRICT COMPLIANCE WITH SMACNA, NFPA BULLETIN 90A, AND ASHRAE GUIDES. UNLESS OTHERWISE NOTED, DUCTWORK SHALL BE GALVANIZED SHEET STEEL. FIBERGLASS DUCTWORK IS NOT ACCEPTABLE.

ALL EXPOSED SUPPLY AND RETURN DUCTWORK SHALL BE RECTANGULAR GALVANIZED LINED DUCT WITH PAINT GRIP PRIMER OR DOUBLE WALL INSULATED SPIRAL DUCT WITH PAINT GRIP PRIMER, U.N.O.

MINIMUM DUCTWORK STATIC PRESSURE CLASS SHALL BE 2-INCH W.G. MINIMUM DUCT SEAL CLASS SHALL BE CLASS "A".

ALL DUCT DIMENSIONS ARE CLEAR INSIDE DIMENSIONS. ON RECTANGULAR DUCTS, DIMENSIONS GIVEN FIRST IS DIMENSION SEEN. DUCT DIMENSIONS MAY BE ALTERED AS LONG AS SAME DUCT CROSS SECTIONAL AREA IS MAINTAINED, IN ORDER TO AVOID INTERFERENCES AS NEEDED.

LOW PRESSURE FLEXIBLE DUCT: FACTORY FABRICATED ASSEMBLY, UL-181, CLASS 1 LISTED, HAVING A MINIMUM R-VALUE OF 4.2 EQUAL TO THERMAFLEX "KM". CONNECT DIFFUSERS TO DUCTS WITH MAXIMUM 60-INCH LENGTHS OF FLEXIBLE DUCT CLAMPED OR STRAPPED IN PLACE.

MANUAL VOLUME DAMPERS: DAMPERS SHALL BE SAME MATERIAL AS DUCTWORK, PER SMACNA. PROVIDE AXLES FULL LENGTH OF DAMPER BLADES AND BEARINGS AT BOTH ENDS OF OPERATING SHAFT. PROVIDE MANUAL VOLUME DAMPERS IN ALL BRANCH DUCTS (ONE PER SUPPLY AND RETURN OUTLET).

FLEXIBLE CONNECTIONS: GLASS FABRIC DOUBLE COATED WITH NEOPRENE, 26 OZ. PER SQUARE YARD, COMPLYING WITH UL 181, CLASS 1. PROVIDE FLEXIBLE CONNECTION BETWEEN ALL EQUIPMENT AND RIGID DUCTWORK. FABRIC CONNECTIONS SHALL BE AT LEAST 3.5 INCHES WIDE AND HAVE A METAL-EDGED CONNECTOR AT EACH END. PROVIDE METAL COMPATIBLE WITH CONNECTED DUCTS.

TURNING VANES: GALVANIZED STEEL, COMPLYING WITH SMACNA. VANES SHALL BE SINGLE WALL FOR DUCTS UP TO 48 INCHES WIDE AND DOUBLE WALL FOR LARGER DIMENSIONS. ALL 90 DEGREE SQUARE ELBOWS AND TEES SHALL HAVE TURNING VANES (SUPPLY & RETURN DUCT).

**DUCT INSULATION:**  
ALL CONCEALED SUPPLY AND RETURN DUCTS SHALL BE INSULATED WITH 2.2 INCH THICK MINERAL-FIBER BLANKET INSULATION, ASTM C533 TYPE II AND ASTM C1290 TYPE III, WITH FACTORY-APPLIED FSK JACKET AND 3/4 LB. NOMINAL DENSITY, EQUAL TO CERTAINTED "SOFT TOUCH DUCT WRAP".

ALL OUTDOOR SUPPLY AND RETURN DUCTS SHALL BE INSULATED WITH 1.5 INCH THICK MINERAL-FIBER BOARD INSULATION, ASTM C612 TYPE IA OR TYPE IB, WITH FACTORY-APPLIED FSK JACKET AND 2 LB. NOMINAL DENSITY, EQUAL TO CERTAINTED "CERTAPRO COMMERCIAL BOARD". INSTALL FIELD-APPLIED ALUMINUM JACKET, 0.0020 INCH THICK, OVER INSULATION MATERIAL ON ALL OUTDOOR SUPPLY AND RETURN DUCTS.

DUCT LINER (NON-ACOUSTIC) SHALL BE 1 INCH THICK FLEXIBLE CLOSED-CELL ELASTOMERIC DUCT LINER, COMPLYING WITH ASTM C534 TYPE II AND NFPA 90A OR NFPA 90B, EQUAL TO ARMACELL "AP ARMAFLEX".

ACOUSTIC DUCT LINER SHALL BE 1 INCH THICK FLEXIBLE CLOSED-CELL ELASTOMERIC DUCT LINER, COMPLYING WITH ASTM C534 TYPE II AND NFPA 90A OR NFPA 90B, EQUAL TO ARMACELL "AP COILFLEX".

**REFRIGERANT PIPING:**  
PROVIDE AND INSTALL REFRIGERANT PIPING IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND IN SUCH A WAY AS TO BE INCONSPICUOUS AND FREE FROM ANY POSSIBLE CONDENSATION.

REFRIGERANT PIPING SHALL BE COPPER, TYPE ACR, ANNEALED-TEMPER TUBING AND WROUGHT-COPPER FITTINGS WITH SOLDERED JOINTS SUITABLE FOR CONNECTION WITH SILVER SOLDER.

ALL INDOOR REFRIGERANT SUCTION AND HOT GAS PIPING SHALL BE INSULATED WITH 1 INCH THICK FLEXIBLE CLOSED-CELL ELASTOMERIC INSULATION, EQUAL TO ARMACELL "AP ARMAFLEX".

ALL OUTDOOR REFRIGERANT SUCTION AND HOT GAS PIPING SHALL BE INSULATED WITH 2 INCH THICK FLEXIBLE CLOSED-CELL ELASTOMERIC INSULATION, EQUAL TO ARMACELL "AP ARMAFLEX".

**CONDENSATE DRAIN PIPING:**  
ALL CONDENSATE DRAIN PIPING AND FITTINGS SHALL BE SCHEDULE 40 PVC WITH SOLVENT WELD JOINTS, CONFORMING TO ASTM D 1785, ASTM D 2466, AND ASTM 2564.

**CONTROLS:**  
PROVIDE AND INSTALL CONTROL WIRING AND 7-DAY PROGRAMMABLE THERMOSTATS AS REQUIRED UNLESS OTHERWISE SPECIFIED. MOUNT THERMOSTATS 4'-0" A.F.F.

**ELECTRICAL:**  
ALL EQUIPMENT FURNISHED UNDER THIS DIVISION SHALL COMPLY WITH THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) AND THE REQUIREMENTS OF DIVISION 26. ALL POWER WIRING AND FINAL POWER CONNECTIONS TO THE SYSTEM SHALL BE PROVIDED UNDER DIVISION 26. CONTROL WIRING (120V AND LESS) SHALL BE PROVIDED UNDER DIVISION 23 AND EXTEND FROM THE INDICATED 120V POWER CIRCUIT INDICATED ON THE ELECTRICAL DRAWINGS. ALL ELECTRICAL CHARACTERISTICS SHALL BE TAKEN FROM THE ELECTRICAL DRAWINGS AND SPECIFICATIONS AND COORDINATED PRIOR TO ORDERING THE EQUIPMENT. ALL WIRING IN THE CEILING PLENUM SHALL BE PLENUM-RATED CABLE OR INSTALLED IN CONDUIT.

**MOTORS AND STARTERS:**  
PROVIDE MOTORS, STARTERS, VARIABLE FREQUENCY DRIVES, PUSH BUTTONS, THERMAL OVERLOAD SWITCHES, AND CONTACTORS FOR EQUIPMENT COVERED HEREIN UNLESS OTHERWISE SPECIFIED. INSTALLATION OF STARTERS, PUSH BUTTONS, THERMAL OVERLOAD SWITCHES, AND CONTACTORS (NOT FACTORY INSTALLED) IS SPECIFIED UNDER DIVISION 26.

**CLEANING AND ADJUSTING:**  
CLEAN ALL GREASE, OIL, PAINT, AND OTHER CONSTRUCTION DEBRIS FROM THE EXTERIOR SURFACES OF ALL MECHANICAL EQUIPMENT, PIPING, AND DUCTS. CLEAN ALL DUCTS, PLENUMS, AND CASINGS OF DEBRIS AND BLOWN FREE OF ALL PARTICLES OF RUBBISH AND DUST PRIOR TO INSTALLATION OF OUTLET FACES.

BEARINGS THAT REQUIRE LUBRICATION SHALL BE LUBRICATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL CONTROL EQUIPMENT SHALL BE ADJUSTED TO THE SETTINGS INDICATED OR REQUIRED FOR PERFORMANCE AS SPECIFIED. REMOVE ALL STICKERS, RUST, STAINS, LABELS, AND TEMPORARY COVERS BEFORE FINAL ACCEPTANCE. REMOVE FOREIGN MATTER FROM EQUIPMENT, PIPING AND DUCTWORK SYSTEMS AND APPURTENANCES. CLEAN AND POLISH IDENTIFICATION PLATES.

REMOVE ALL TRASH AND DEBRIS FROM THE JOBSITE ON A DAILY BASIS.

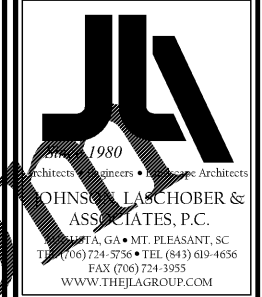
**TESTING, ADJUSTING, AND BALANCING:**  
ALL WORK SHALL BE TESTED AND BALANCED BY AN INDEPENDANT CERTIFIED TAB SPECIALIST. TAB SPECIALIST SHALL BE CERTIFIED BY AABC, NEBB, OR TABB.

SUBMIT FINAL TEST AND BALANCE REPORT FOR REVIEW AND APPROVAL PRIOR TO TURN-OVER OF FINAL PROJECT.

HVAC LEGEND	
SYMBOL	DESCRIPTION
	SUPPLY DIFFUSER
	RETURN AIR GRILLE
	SIDEWALL GRILLE
	CEILING MOUNTED EXHAUST FAN
	MARK/CFM (SEE AIR DISTRIBUTION SERVICE SCHEDULE)
	DUCT SIZE (W x H HEIGHT)
	MANUAL VOLUME DAMPER
	THERMOSTAT (WALL MOUNTED)
	SOUND ATTENUATOR
	AIR FLOW DIRECTION
	FLEX DUCT (LOW PRESSURE)
	NEW DUCTWORK
	REDUCER
SA	SUPPLY AIR
RA	RETURN AIR
EA	EXHAUST AIR
OA	OUTDOOR AIR
U.N.O.	UNLESS NOTED OTHERWISE

DESIGN CONDITIONS			
	SUMMER	WINTER	COMMENTS
INDOORS	80°F db / 65°F wb	70°F db	①②
OUTDOORS	95°F db / 76°F wb	21°F db	②③

- ① FOR AIR QUANTITIES BASED ON ASHRAE 62.1-2010  
 ② VENTILATION RATES BASED ON ASHRAE 62.1-2010  
 ③ BASED ON GEORGIA ENERGY CODE



CLIENT: COLUMBIA COUNTY  
 4325 EVANS TO LOCKS RD., EVANS, GA 30809  
 PROJECT NAME: HARLEM THEATER RENOVATIONS PROJECT  
 PROJECT LOCATION: 135 N. LOUISVILLE ST., HARLEM, GA 30814



REV	DATE	BY	DESCRIPTION
1	08/14/18	MNB	RE-ISSUE FOR CONSTRUCTION
0	05/09/18	MNB	ISSUED FOR CONSTRUCTION

PROJECT NO. 3045.1704  
 DRAWN BY: MNB  
 CHECKED BY: CVW  
 DATE: 03/26/18  
 SHEET TITLE: HVAC GENERAL NOTES AND LEGEND  
 SCALE: AS NOTED  
 DRAWING NO. M-001  
 REV. 1

This document is the property of Johnson, Laschober & Associates, P.C. The unauthorized reproduction, copying or otherwise use of this document is strictly prohibited and any infringement thereupon may be subject to legal action.