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 99B, NFPA 96, 2017 NATION ELECTRICAL CODE, AND 2018 INTERNATIONAL MECHANICAL CODE WAMENDMENTS.

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 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 MODALL 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 ARCHITECTENGINEER OF THE CONTRACTOR SHALL NOTIFY THE CONTRACTOR INSTRUCTIONS ARE RECEIVED FROM THE ARCHITECTENGINEER. IF THE CONTRACTOR INSTRUCTIONS ARE RECEIVED FROM THE ARCHITECTENGINEER. IF THE CONTRACTOR INSTRUCTIONS ARE RECEIVED FROM THE ARCHITECTENGINEER. IF THE CONTRACTOR INSTRUCTIONS ARE RECEIVED FROM THE ARCHITECTENGINEER. IF THE CONTRACTOR INSTRUCTIONS ARE RECEIVED FROM THE ARCHITECTENGINEER. IF THE CONTRACTOR INSTRUCTIONS ARE RECEIVED FROM THE ARCHITECTENGINEER. IF THE CONTRACTOR SHALLS 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

CONTRACTOR SHALL INSTALL DUCTS. PIPING AND EQUIPMENT IN A NEAT AND ORKMANLIKE MANNER AND SHALL AVOID CONFLICT WITH OTHER WORK, EQUIPMENT SHALL BE SO ARRANGED AND FITTED INTO AVAILABLE SPACE SO THAT WORKING PARTS NCLUDING 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 NIFORM STATES OF THE PROVINCE OF THE STATES OF THE STATE

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

METAL DUCT:
ALL DUCTWORK SHALL BE INSTALLED IN STRICT COMPLIANCE WITH SMACNA, NEPA 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 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 1-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 6.0, EQUAL TO HASEMBLT, UL-10 : CLASS T 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 SMACHA. 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 CONNECTIOR 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).

<u>DUCT INSULATION:</u>
ALL CONCEALED SUPPLY AND RETURN DUCTS SHALL BE INSULATED WITH 2.2 INCH THICK MINERAL-FIBER BLANKET INSULATION, ASTM C553 TYPE II AND ASTM C1290 TYPE III, WITH FACTORY-APPLIED FSK JACKET AND 3/4 LB. NOMINAL DENSITY, EQUAL TO CERTAINTEED "SOFTTOUGH DUCT WRAP".

ALL OUTDOOR SUPPLY AND RETURN DUCTS SHALL BE INSULATED WITH 1.5 INCH THICK ALL OUT IDOURS OFPET AND RETURN DOUT SHALL BE INSOLATED WITH 1.5 INCH THICK MINERAL-RIBER BOARD INSULATION, ASTM G612 TYPE IA OR TYPE IB, WITH FACTORY-APPLIED ALL TYPE IB, WITH FEATORY-APPLIED ALL MININUM JACKET, 0.020
"CERTAPRO COMMERCIA BOARD". INSTALL RIELD-APPLIED ALLMINIUM JACKET, 0.020 INCH THICK, OVER INSULATION MATERIAL ON ALL OUTDOOR SUPPLY AND RETURN DUCTS

DUCT LINER (NON-ACQUISTIC) SHALL BE 1 INCH THICK FLEXIBLE FIBROUS-GLASS TYPE I DUCT LINER, COMPLYING WITH ASTM C1071 AND NEPA 90A OR NEPA 90B, EQUAL TO JOHNS MANVILLE "LINACOUSTIC RC".

ACOUSTIC DUCT LINER SHALL BE 1 INCH THICK FLEXIBLE FIBROUS-GLASS. TYPE I DUCT LINER, COMPLYING WITH ASTM C1071 AND NFPA 90A OR NFPA 90B, EQUAL TO JOHNS MANVILLE "LINACOUSTIC RC".

TYPE LINTCHEN HOOD EXHAUST DUCTS:
EXHAUST DUCTWORK CONNECTED TO COMMERCIAL KITCHEN HOODS SHALL BE TYPE 304,
STAINLESS-STEEL SHEET: NO. 28 FINISH FOR CONCEALED DUCT: NO. 4 FINISH FOR
EXPOSED DUCT: WELDED SEAMS AND JOINTS, POSITIVE OR NEGATIVE 2-INCH WG
PRESSURE CLASS, ARTIGHTWATERTIGHT.

DUCTS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 96. INSTALL ALL DUCTS WITHOUT DIPS AND TRAPS THAT MAY HOLD GREASE, AND SLOPE A MINIMUM OF 2 PERCENT TO DRAIN GREASE BACK TO THE HOOD. INSTALL FIRE-RATED ACCESS PANEL ASSEMBLES AT EACH CHANGE IN DIRECTION AND A THAXIMUM INTERVALS OF 20 FEET IN HORIZONTAL DUCTS, AND AT EVERY FLOOR FOR VERTICAL DUCTS. DUCTS SHALL HAVE A CLEARANGE TO COMBUSTBLE CONSTRUCTION OF NOT LESS THAN 18 INCHESS AND SHALL HAVE A CLEARANGE TO NONCOMBUSTBLE CONSTRUCTION OF NOT LESS THAN 3 INCHESS WHERE REQUIRED CLEARANCES ARE NOT ACHIEVABLE. CONTINUOUSLY COVER DUCTS ON ALL SIDES WITH TWO LAYERS OF FIRE BARRIER DUCT WRAP. 3M FIRE BARRIER DUCT WRAP 615-0 REQUAL TO REDUCE REQUIRED CLEARANCES TO COMBUSTBLE CONSTRUCTION TO ZERO INCHES.

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.

THERMAL HANGER SHIELD INSERTS.

INSTALL THERMAL HANGER SHIELD INSERT IN PIPE HANGER FOR INSULATED PIPING, WITH PROTECTIVE SADDLE. FOR COLD PIPING, INSERT MATERIAL SHALL BE ASTM C552, TYPE II CELLULAR GLASS WITH 100-PSI OR ASTM C591, TYPE VI, GRADE 1 POLVISOCYANURATE WITH 125-PSI WINIMIM COMPRESSIVE STRENGTH AND VAPOR BARRIER, FOR HOT PIPING, INSERT MATERIAL SHALL BE WATER-REPELLENT-TREATED, ASTM C533, TYPE I CALC/M SULCATE WITH 100-PSI, ASTM C552, TYPE I CELLULAR GLASS WITH 100-PSI, OR AST C591, TYPE VI, GRADE 1 POLVISOCYANURATE WITH 125-PSI MINIMUM COMPRESSIVE STRENGTH.

SLEEVES AND SLEEVE SEALS: INSTALL SLEEVES FOR PIPING PASSING THROUGH PENETRATIONS IN FLOORS PARTITIONS, ROOFS, AND WALLS, INSTALL SLEEVES IN CONCRETE FROOF SLABS, AND CONCRETE WALLS AS NEW SLABS AND WALLS AS CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH SUIT AND WALLS AS NEW SLABS AND WALLS A OR SILICONE SEALANT, SEAL OUTSIDE OF SLEEVES I SLEEVE-SEAL SYSTEM. INSTALL SLEEVES THAT ARE ANNULAR CLEAR SPACE BETWEEN SLEEVE AND PIP ANNULAR SPACE BETV THAT WILL HAVE SLEEVE-SLABS AND WALLS: SLEE

OLLOWING PIPNG-PENETRATION LS ABOVE GRADE: STEEL PIPE SLEEVES, ASTM A 53, TYPE E. VANIZED, WITH PLAIN ENDS AND INTEGRAL WATESTOR

LLS BELOW GRADE: CAST-IRON PIPE SLEEVES, WITH PLAIN

CONCRETE SLAB-ON-GRADE: CAST-IRON PIPE SLEEVES, WITH PLAIN ENDS AND INTEGRAL

CONCRETE SLAB-UNGSRADE: GAST-INKUN PIPE SLEEVES, WITH PLAIN ENUS AND INTEGRAL WATERSTOP COLLAR WITH SLEEVE-SEAL SYSTEM.
CONCRETE SLABS ABOVE GRADE: STACK-SLEEVE FITTINGS.
INTERRIOR PARTITIONS: STEEL PIPE SLEEVES, ASTM A 53, TYPE E, GRADE B, SCHEDULE 40,
GALVANIZED. WITH PLAIN ENDS AND INTEGRAL WELDED WATERSTOP COLLAR FOR PIPING
SMALLER THAN NPS 6; GALVANIZED-STEEL SHEET SLEEVES, 0.0239-INCH MINIMUM
THICKNESS, ROUND TUBE CLOSED WITH WELDED LONGITUDINAL JOINT FOR PIPING NPS 6
AND LABSTEEN.

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

CONCRETE PADS:
PROVIDE 3000 PSI CONCRETE PAD FOR ALL GROUND AND FLOOR MOUNTED HVAC PROVIDE 3000 PSI CONCRETE PAD FOR ALL GKOUND AND FLOUR MOUNT ED HYMA EQUIPMENT. PADS OUTDOORS ON GRADE SHALL BE 6 INCHES THICK AND EXTEDD 4 INCHES ABOVE THE ADJACENT GRADE. PADS INDOORS SHALL BE NOMINALLY 4" THICK PADS SHALL BE REINFORCED WITH 6"x6" 1010 WIRE AND SHALL HAVE CHAMFERED EDGES. CONCRETE PADS SHALL EXTEND 3 INCHES BEYOND ALL SIDES OF UNIT

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 DIVISION 26. ALL POWER WINNIG 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.

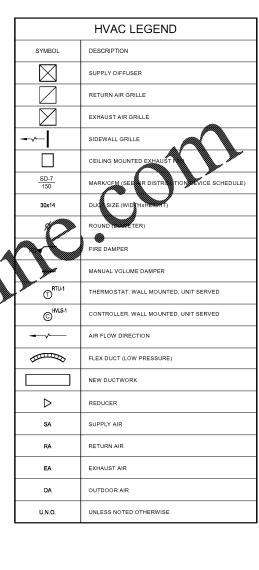
CLEANING AND ADJUSTING:
CLEAN ALL GREASE, OIL, PAINT, AND OTHER CONSTRUCTION DEBRIS FROM THE
EXTERIOR SURFACES OF ALL MECHANICAL EQUIPMENT, PIPING, AND DUCTS, CLEAN ALL
DUCTS, PLENUMS, AND CASINGS OF DEBRIS AND BLOWN FREE OF ALL PARTICLES OF
RUBBISH AND DUST PRIOR TO INSTALLATION OF OUTLET FACES.

BEARINGS THAT REQUIRE LUBRICATION SHALL BE LUBRICATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL CONTROL EQUIPMENT SHALL BE ADJUSTED TO THE SETTINS 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 SPECIALIST. TAB SPECIALIST SHALL BE CERTIFIED BY AABO

SUBMIT FINAL TEST AND BALANCE REPORT FOR REVIEW TURN-OVER OF FINAL PROJECT



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_	CLENT. CITY OF NORTH AUGUSTA, SC 100 GEORGIA AVENUE, NORTH AUGUSTA, SC 28841	PROJECT NAME: NORTH AUGUSTA	FIRE STATION 1 RELOCATION	PROJECT LOCATION: 311 W. MARTINTOWN ROAD, NORTH AUGUSTA, SC 29841
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AS NOTED M-001

DESIGN CONDITIONS SUMMER WINTER 75°Fdb 55%RH 94°Fdb / 76°Fwb 21°Fdb

① OUTDOOR AIR QUANTITIES BASED ON ASHRAE 62.1-2016

② VENTILATION RATES BASED ON ASHRAE 62.1-2016

BASED ON SOUTH CAROLINA ENERGY CODE