- 1. PRIOR TO SUBMITTING HIS BID THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED CONSTRUCTION & THOROUGHLY ACQUAINT HIMSELF WITH EXISTING CONDITIONS TO BE ENCOUNTERED ETC. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR CONDITIONS INCREASING THE CONTRACTOR'S COST WHICH WERE NOT KNOWN OR APPRECIATED BY HIM WHEN SUBMITTING HIS PROPOSAL IF THE CONDITION WAS OBVIOUS AND COULD HAVE BEEN DISCOVERED BY HIM. THE CONTRACTOR SHALL INCLUDE IN HIS BID PROVISIONS TO ACCOMMODATE SAME.
- 2. EACH CONTRACTOR, SUPPLIER AND/OR MANUFACTURER SHALL REFER TO ALL DOCUMENTS PERTAINING TO THIS PROJECT AND COORDINATE ACCORDINGLY SO AS TO ENSURE ADEQUACY OF FIT, COMPLIANCE WITH SPECIFICATIONS, PROPER ELECTRICAL SERVICE, AND AVOID CONFLICT WITH ANY OTHER BUILDING SYSTEMS. VERIFY SAME WITH SHOP DRAWINGS.
- 3. ALL OFFSETS, TURNS, FITTINGS, TRIM, DETAIL, ETC., MAY NOT BE INDICATED, BUT SHALL BE PROVIDED AS REQUIRED. ADDITIONAL ALLOWANCES SHALL BE INCLUDED FOR SAME AT EACH PROPOSERS' DISCRETION.
- 4. OBSERVE ALL APPLICABLE CODES, RULES AND REGULATIONS (CITY, COUNTY, LOCAL, STATE, FEDERAL, MUNICIPALITY, UTILITY COMPANY, OSHA, ETC.).
- 5. ALL SYSTEMS, EQUIPMENT, AND MATERIALS ARE TO BE INSTALLED IN A NEAT AN WORKMANLIKE MANNER. WORK NOT DONE SO SHALL BE REMOVED AND REINSTALLED SATISFACTORILY.
- 6. WHERE MOUNTING HEIGHTS ARE NOT INDICATED OR ARE IN CONFLICT WITH ANY OTHER BUILDING SYSTEM, CONTACT THE ENGINEER BEFORE INSTALLATION. REFER ALSO TO ARCHITECTURAL WALL INTERIOR AND EXTERIOR WALL ELEVATIONS, CEILING HEIGHTS AND OTHER DETAILS OF THESE DOCUMENTS. REFERENCE SP-101 "MECHANICAL GENERAL PROVISIONS" FOR COORDINATION DRAWING REQUIREMENTS.
- 7. DO NOT SCALE DRAWINGS, PRINTING DISTORTS SCALE. WORK SHALL BE LAID OUT FROM DIMENSIONED DRAWINGS, OR DIMENSIONS SUPPLIED TO THE CONTRACTOR.
- 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED FOR THEIR WORK, ALL CUTTING AND PATCHING SHALL MATCH ADJACENT SURFACES.
- 9. TURNING VANES SHALL BE INSTALLED IN ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK ELBOWS. TURNING VANES NOT REQUIRED FOR KITCHEN EXHAUST DUCTS.
- 10. THESE DRAWINGS ARE ACCURATE TO THE BEST OF OUR KNOWLEDGE, HOWEVER LOCATIONS, DEPTHS, ELEVATIONS, AND SIZES WERE TAKEN FROM DIFFERENT SOURCES AND ARE SUBJECT TO DEVIATION. THE CONTRACTOR SHALL ASSUME SOME DEVIATIONS AND INCLUDE OFFSETS, ADDITIONAL PIPING, ETC, AT THE TIME OF BID.
- 11. ADVISE THE PRINCIPAL OF ANY CONFLICTS, ERRORS, OMISSIONS, ETC. AT LEAST TEN (10) DAYS PRIOR TO BID DATE, TO ALLOW CLARIFICATION BY WRITTEN ADDENDUM.
- 12. DEVIATION FROM SPECIFICATIONS OR PLANS REQUIRES PRIOR WRITTEN APPROVAL FROM MISSISSIPPI POWER AND MUST BE SUBMITTED IN WRITING NO LATER THAN TEN DAYS PRIOR TO THE BID DATE. 13. COORDINATE THE LOCATION OF DRAINS, ELECTRICAL OUTLETS, ETC. WITH ALL MECHANICAL ROOM EQUIPMENT, ETC. PRIOR TO
- COMMENCING INSTALLATION. WORK NOT SO COORDINATED SHALL BE REMOVED AND PROPERLY INSTALLED AT THE EXPENSE OF THE RESPONSIBLE CONTRACTOR(S).
- 14. THE PURPOSE AND INTENT OF THE DOCUMENTS PERTAINING TO THIS PROJECT IS TO PROVIDE A COMPLETE, FUNCTIONAL, AND SAFE FACILITY, ANYTHING LESS SHALL BE UNACCEPTABLE.
- 15. ALL VIBRATING, OSCILLATING, NOISE PRODUCING OR ROTATING EQUIPMENT SHALL BE ISOLATED FROM SURROUNDING SYSTEMS IN AN APPROVED MANNER. NOISY, VIBRATING, OR STRUCTURALLY DAMAGING INSTALLATIONS SHALL BE SATISFACTORILY REPLACED OR REPAIRED AT THE INSTALLING CONTRACTOR'S EXPENSE. THE FINAL DECISION ON THE SUITABILITY OF A PARTICULAR INSTALLATION SHALI BE THAT OF THE ARCHITECT.
- 16. INSTALL EQUIPMENT, MATERIALS, ETC. IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND DIRECTIONS. IF IN CONFLICT WITH THE DESIGN INDICATED IN CONTRACT DOCUMENTS, ADVISE MISSISSIPPI POWER PRIOR TO INSTALLATION FOR CLARIFICATION.
- 17. ALL SUPPORTS FOR EQUIPMENT, DEVICES, OR FIXTURES SHALL BE UNIQUE FROM THE BUILDING STRUCTURE. DO NOT SUPPORT FROM OTHER TRADES, EQUIPMENT OR SUPPORTS WITHOUT WRITTEN PERMISSION FROM MISSISSIPPI POWER AND CONSENT OF THE OTHER TRADE, IN WRITING.
- 18. DEVIATIONS IN SIZE, CAPACITIES, FIT, FINISH, ETC. FOR EQUIPMENT FROM THAT SPECIFIED SHALL BE THE RESPONSIBILITY OF THE PURCHASER OF THAT EQUIPMENT. ANY PROVISIONS REQUIRED TO ACCOMMODATE A DEVIATION, WHETHER APPROVED BY MISSISSIPPI POWER OR NOT, SHALL BE THE RESPONSIBILITY OF THE PURCHASER.
- 19. THE GENERAL CONTRACTOR FOR THIS CONSTRUCTION IS RESPONSIBLE FOR THE COORDINATION, APPEARANCE, SCHEDULING, AND TIMELINESS OF THE WORK OF ALL TRADES, CONTRACTORS, SUPPLIERS, INSTALLERS, ETC.
- 20. VALVES, BALANCING DAMPERS OR ANY MECHANICAL/ELECTRICAL ITEM SHALL NOT BE LOCATED ABOVE A HARD CEILING. IF THIS IS NOT POSSIBLE, THEN AN APPROPRIATELY SIZED ACCESS DOOR SHALL BE PLACED UNDER THE ITEM TO ALLOW EASY MAINTENANCE AND ADJUSTMENT BY THIS CONTRACTOR.
- 21. THE GENERAL CONTRACTOR, MECHANICAL CONTRACTOR, AND ALL OTHER CONTRACTORS SHALL ENSURE PROPER COORDINATION BETWEEN ALL TRADES SUCH THAT CONDUITS, PIPING, DUCTWORK, ETC. DO NOT BLOCK ACCESS TO VALVES, EQUIPMENT, DUCT ACCESS DOORS, ETC. ITEMS THAT HAVE BEEN INSTALLED WHERE ACCESS IS COMPROMISED SHALL BE RELOCATED AT THE CONTRACTOR'S EXPENSE.
- 22. THE CONTRACTOR SHALL INCLUDE IN THEIR BID ALL COSTS ASSOCIATED WITH DRAINING AND FILLING PIPING SYSTEMS AS REQUIRED TO INSTALL THEIR NEW WORK.
- 23. TESTING, ADJUSTING, AND BALANCING AGENCY IS TO PROVIDE SIZING OF FAN AND MOTOR SHEAVES REQUIRED FOR PROPER BALANCE. REPLACE FAN AND MOTOR SHEAVES AND BELTS AS REQUIRED ON EQUIPMENT (AHUS, EFS, ETC.). THE MECHANICAL CONTRACTOR SHALL PURCHASE AND INSTALL ALL SHEAVES AND BELTS AS REQUIRED.
- 24. PRIOR TO ORDERING ANY MATERIALS OR ROUGH-IN OF ANY KIND, THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL COORDINATION OF ALL ELECTRICAL REQUIREMENTS (I.E., VOLTAGE, PHASE, CIRCUIT BREAKER, WIRING SIZE, ETC.) WITH THE ELECTRICAL CONTRACTOR. THERE WILL BE NO CHANGE IN THE CONTRACT AMOUNT FOR ANY DISCREPANCIES. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ALL OTHER CONTRACTORS, VENDORS, AND SUPPLIERS AND SHALL INSURE COMPLETE, 100% FUNCTIONAL, TESTED, INSPECTED, AND APPROVED SYSTEMS. CLAIMS FOR ADDITIONAL COST OR CHANGE ORDERS WILL IMMEDIATELY BE REJECTED.
- 25. EQUIPMENT BRACING WILL BE INCLUDED FOR ALL OVERHEAD UTILITIES AND OTHER EQUIPMENT WEIGHING 31 POUNDS OR MORE (EXCLUDING DISTRIBUTED SYSTEMS SUCH AS PIPING, ETC.). BRACING SHALL BE ACCOMPLISHED BY EITHER RIGID OR FLEXIBLE SYSTEMS. ALL EQUIPMENT MOUNTINGS SHALL BE DESIGNED TO RESIST FORCES OF 0.5 TIMES THE EQUIPMENT WEIGHT IN ANY DIRECTION AND 1.5 TIMES THE EQUIPMENT WEIGHT IN THE DOWNWARD DIRECTION. ALL BRACING SHALL BE CONTRACTOR DESIGNED.
- 26. ALL BRANCH DUCTS TO AIR DISTRIBUTION DEVICES (SUPPLY, RETURN, EXHAUST, ETC.) SHALL INCLUDE VOLUME A VOLUME DAMPER PER DRAWINGS AND SPECIFICATIONS.
- 27. DUCT SIZES INDICATED ARE ACTUAL INSIDE (NET) DIMENSIONS. ALL RECTANGULAR SUPPLY, RETURN, EXHAUST, AND OUTDOOR AIR DUCT SIZES ARE INSIDE CLEAR DIMENSIONS (INSIDE LINER, WHERE APPLICABLE).
- 22. THE CONTRACTOR SHALL INSTALL CONDENSATE DRAINS, WITH UNION CONNECTIONS, FROM ALL A/C EQUIPMENT. PROVIDE TRAPPED DRAINAGE PIPING WITH VENT RISERS 6" HIGH NEAR EQUIPMENT CONNECTIONS. PROVIDE NEW INSULATED CONDENSATE DRAINS FOR ALL HVAC COOLING COILS AND OVERFLOW PANS AND ROUTE ON SLOPE TO CONNECTION WITH NEARBY PLUMBING VENT STACK, OR FLOOR DRAIN, OR AS INDICATED ON PLANS. PROVIDE CLEANOUTS ON DRAINS, 1" OR LARGER, EVERY 20' O.C., AND AT ENDS AND OFFSETS OF RUNS.

SHEET INDEX

T101 TITLE SHEET

M101

M102

M601

PLAN SPECIFICATIONS SP101

MD101 FLOOR PLAN - HVAC EQUIPMENT "DEMOLITION" MD102 FLOOR PLAN - HVAC VENTILATION "DEMOLITION" FLOOR PLAN - HVAC EQUIPMENT "RENOVATION" FLOOR PLAN - HVAC VENTILATION "RENOVATION" HVAC SCHEDULES

BAY - WAVELAND MIDDLE SCHOOL INDOOR AIR QUALITY HVAC REPLACEMENT

BAY ST. LOUIS, MISSISSIPPI

ESSER FUNDS NARRATIVE

THE EXISTING SPLIT SYSTEMS AND OTHER TYPE HVAC UNITS INDICATED IN THIS PROJECT SERVING THE SCHOOL ARE BEYOND THEIR SERVICE LIFE AND HAVE UNKOWN / NON-CONTROLLED OUTSIDE AIR VENTILATION BEING DELIVERED AT GROUND LEVEL. OUTSIDE AIR WAS CALCULATED BASED ON ASHRAE 62.1-2019 USING THE INDOOR AIR QUALITY PROCEDURE.

SEPTEMBER 23, 2022



CONSULTANTS:

PROJECT:



NUMBER:	22-044
DATE:	09/23/2022
DRAWN BY:	KAH
CHECKED BY:	JCG
REV: 0 1 2 3	
SEAL CHRISTOPA CHRISTOPA SED PROFES ENGINE 17087 09.23.22 OF MISS	

SHEET TITLE:

TITLE SHEET

SHEET NUMBER



PHONE: (601) 362-3552 PHONE: (228) 388-8740 FAX: (601) 366-6418 FAX: (228) 388-3270



SPECIFICATIONS

OWNER/TENANT OPERATING & MAINTENANCE MANUALS AND INSTRUCTIONS

- A. IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO SETUP AND TRAIN THE OWNER'S PERSONNEL IN THE PROPER OPERATION AND MAINTENANCE OF ALL MECHANICAL EQUIPMENT PROVIDED AND/OR INSTALLED WITH THIS PROJECT. IT IS ESPECIALLY CRITICAL TO MAINTAIN PROPER AIR FILTER MAINTENANCE, INDOOR HUMIDITY BELOW 65% RH, INDOOR COOLING ABOVE 65°F., ETC. THE SAFE OPERATION OF ALL PLUMBING, HVAC AND SPRINKLER SYSTEMS SHALL BE ADEQUATELY CONVEYED TO PERTINENT OWNER PERSONNEL, ALONG WITH INSTRUCTIONS ON WHAT IS OWNER'S RESPONSIBILITY, AND WHOM TO CONTACT FOR STANDARD ONE (1) YEAR WARRANTY, AND AFTERWARDS FOR EXTENDED WARRANTIES. SOME INFORMATION SHALL BE INCLUDED IN O&M MANUALS.
- B. SUBMIT COMPLETE SETS OF SUBMITTALS ELECTRONICALLY. SUBMITTALS ARE TO BE INDEXED. AND LABELED FOR EACH PIECE OF EQUIPMENT. THE MANUALS SHALL BE TRANSMITTED TO THE OWNER AT THE COMPLETION OF THE PROJECT.
- C. SUBMITTAL DATA TO INCLUDE MANUFACTURER'S OPERATING AND MAINTENANCE PROCEDURES AND RECOMMENDATIONS, SPARE PARTS LISTS AND SUPPLIERS AND ANY INTERLOCKING CONTROL OR WIRING DIAGRAMS FOR ALL EQUIPMENT. THE INFORMATION LISTED HEREIN IS TO BE BOUND IN THE FOLLOWING ORDER:
- 1. COVER TO LIST PROJECT NAME, LOCATION, AND DATE COMPLETED.
- 2. FIRST SHEET TO LIST MISSISSIPPI POWER, ENGINEER, CONTRACTOR AND SUBCONTRACTORS WITH ADDRESSES FOR EACH.
- 3. SECOND SHEET TO LIST TYPE OF EQUIPMENT WITH SEQUENTIAL NUMBER, THE MANUFACTURER, MAKE, MODEL, AND SERIAL NUMBER OF THE ACTUAL EQUIPMENT NAMEPLATE DATA RATED HORSEPOWER, FULL LOAD RATED AMPS, VOLTAGE AND PHASE. INCLUDE PERTINENT CONTACT INFORMATION ON STANDARD ONE YEAR WARRANTY AND EXTENDED WARRANTY WORK.
- 4. NEXT, ACTUAL COPY OF APPROVED SUBMITTAL DATA INCLUDING ALL MANUFACTURER'S PUBLISHED INFORMATION ON CAPACITIES, CAPACITY CURVES OR TABLES, ACCESSORY AND CONTROL ITEM LISTS, AND OTHER PERTINENT INFORMATION AS REQUESTED BY ENGINEER. CROSS REFERENCE ALL EQUIPMENT TO CONTRACT DOCUMENTS.

MECHANICAL GENERAL PROVISIONS

GENERAL

- A. GENERAL
- 1. THE CONTRACTOR SHALL PROVIDE ALL ITEMS, ARTICLES, MATERIALS, OPERATIONS AND METHODS, MENTIONED OR SCHEDULED ON THE DRAWINGS AND/OR SPECIFIED HEREIN, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS NECESSARY AND REQUIRED FOR COMPLETE MECHANICAL SYSTEMS FOR THE PROJECT COVERED BY THESE SPECIFICATIONS.
- B. SCOPE OF WORK
- 1. THE FOLLOWING IS A GENERAL CLASSIFICATION OF THE MECHANICAL WORK TO BE INCLUDED FOR THE PROJECT COVERED BY THESE SPECIFICATIONS. THE GENERAL WORK CLASSIFICATION SHALL NOT BE INTERPRETED IN ANY MANNER AS TO LIMIT THE WORK REQUIRED FOR COMPLETE MECHANICAL SYSTEMS OF THE PROJECT:
- 2. HEATING AND AIR CONDITIONING SYSTEMS:
- a. METAL DUCT
- b. METAL DUCT INSULATION
- c. WATER SOURCE HEAT PUMPS
- d. ENERGY RECOVERY UNIT
- e. ION GENERATOR (BY OTHERS) f. TEST AND BALANCE
- g. WARRANTIES
- 4. MISCELLANEOUS
- a. LOW VOLTAGE ELECTRIC AUTOMATIC TEMPERATURE CONTROL SYSTEMS (BY OTHERS) INCLUDING:
- a.1. CONTROL AND CONTROL INTERLOCK WIRING a.2. POWER WIRING FOR CONTROLS
- b. FURNISH AND INSTALL ALL PIPING, DUCTWORK, EQUIPMENT AND FIXTURE HANGERS AND SUPPORTS. c. PERFORM CUTTING AS REQUIRED FOR INSTALLATION OF THE WORK.
- d. DETERMINATION OF LOCATIONS AND SIZES OF FURRINGS AND CHASES REQUIRED FOR INSTALLATION OF MECHANICAL SYSTEMS
- e. FURNISH AND INSTALL MOTOR AND MOTOR STARTERS AND CONTROLLERS. f. FURNISH AND INSTALL INSULATION FOR VARIOUS PIPING AND EQUIPMENT.
- g. PERFORM PRESSURE TESTING OF PIPING SYSTEMS.
- h. TRAINING OF OWNER'S PERSONNEL IN THE OPERATION AND MAINTENANCE OF THE PLUMBING, AND HEATING AND VENTILATING SYSTEMS AND EQUIPMENT INSTALLED IN THIS CONTRACT.

REFERENCE STANDARDS

- A. CODES, STANDARDS, PERMITS AND INSPECTIONS
- 1. THE CONTRACTOR SHALL COMPLY WITH LOCAL AND STATE LAWS, CODES AND ORDINANCES RELATIVE TO WORK HEREINSPECIFIED. MECHANICAL EQUIPMENT AND SYSTEMS UNDER THIS SECTION OF THE SPECIFICATIONS SHALL COMPLY WITH THE LATEST EDITIONS OF THE FOLLOWING CODES AND STANDARDS:
- a. ELECTRICAL EQUIPMENT AND WIRING: NFPA 70-2008 NATIONAL ELECTRICAL CODE. b. AIR SYSTEMS: 1995 SMACNA "HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE", SECOND EDITION; NFPA 90A-2002 "INSTALLATION OF AIR-CONDITIONING AND VENTILATING SYSTEMS
- c. FANS: AMCA CERTIFIED FOR AIR AND SOUND PERFORMANCE.
- d. MECHANICAL SYSTEMS: INTERNATIONAL MECHANICAL CODE, 2015 EDITION.
- e. BUILDING SYSTEMS PIPING: ASME/ANSI 31.9 "BUILDING SERVICES PIPING". f. PLUMBING SYSTEMS: INTERNATIONAL PLUMBING CODE, 2015 EDITION.
- g. AIR CONDITIONING EQUIPMENT: U.L.; ARI CERTIFIED RATINGS.

METAL DUCT

A.GENERAL

- 1. PROVIDE ALL SUPPLY, RETURN, OUTSIDE AIR, EXHAUST AND OTHER DUCTWORK AS INDICATED AND AS REQUIRED FOR THE AC SYSTEM, INCLUDING MAINS, BRANCHES, PLENUMS, MIXING BOXES, FITTING, ACCESSORIES AND OTHER RELATED SHEET METAL WORK.
- 2. CONSTRUCT ALL RECTANGULAR DUCTWORK WITH APPROVED NEW PRIME G-60 OR BETTER GALVANIZED STEEL SHEET ASTM S27 (LFQ) WITH CHEMICAL TREATMENT OR AS SPECIFIED WITH CAREFUL, NEAT AND ACCURATE WORKMANSHIP AND WITH ALL JOINTS AND SEAMS AIR TIGHT.
- 3. PROVIDE UL APPROVED FIRE RETARDANT NEOPRENE TYPE FLEXIBLE CONNECTORS PROPERLY CLAMPED TO DUCTWORK AND EQUIPMENT AT EACH DUCTWORK CONNECTION TO EACH PIECE OF EQUIPMENT HAVING ROTATING OR VIBRATING PARTS AND AT OTHER LOCATIONS INDICATED. FLEXIBLE CONNECTORS ON THE OUTSIDE UNIT CONNECTIONS SHALL BE SEALED AIRTIGHT AND INSTALLED TO SHED WATER.

- 4. THE RECTANGULAR DUCT SIZES AS INDICATED ON THE DRAWINGS ARE INSIDE DIMENSIONS, OR NET FREE AREA, ALL NECESSARY ALLOWANCES SHOULD BE MADE IN THE SIZES SHOWN ON THE DRAWINGS TO ACCOMMODATE INTERNAL INSULATION OR ACOUSTIC LINING. THE DUCT DIMENSIONS SHOWN ARE INTERNAL MEASUREMENTS AFTER SPECIFIED INTERIOR INSULATION LINER.
- B. RECTANGULAR DUCTWORK:
- CROSS SECTIONAL DIMENSION OF THE DUCT INVOLVED, SHALL BE AS FOLLOWS (FROM ASHRAE GUIDE):

DUCTWORK SIZE	GAUGE
12" AND SMALLER	24
13" THRU 30"	24

- 2. EACH CURVED ELBOW IN RECTANGULAR DUCTWORK SHALL HAVE A CENTERLINE RADIUS OF 1-1/2 TIMES THE CROSS SECTIONAL DIMENSION OF THE DUCT IN THE PLANE OF THE TURN.
- 3. ELBOWS IN RECTANGULAR DUCTWORK SHALL BE THE TYPES INDICATED, EXCEPT WHERE INTERFERENCES PREVENT THE USE OF AN INDICATED CURVED OR RADIUS ELBOW. A MITERED ELBOW WITH TURNING VANES MAY BE USED.

METAL DUCT INSULATION

- A. DUCTWORK CONCEALED IN CEILING OR RETURN AIR PLENUMS, CONCEALED IN UNCONDITIONED SPACES SHALL BE INSULATED AS FOLLOWS:
- 1. DUCT WRAP WITH VAPOR BARRIER
- BLANKET.
- 3. VAPOR BARRIER JACKET TO BE FACTORY INSTALLED (FSK) WITH 0.02 PERM
- 4. OWENS-CORNING ALL SERVICE FACED DUCT-WRAP

WATER SOURCE HEAT PUMP SYSTEM

- A. MANUFACTURER'S
- 1. DAIKIN
- 2. TRANE
- 3. CLIMATE MASTERS 4. WATER FURNACE
- B. GENERAL
- 1. PROVIDE WITH R-410A REFRIGERANT

C. CASING AND CABINET

- 1. UNIT CABINET SHALL BE FABRICATED FROM HEAVY GAUGE G-60 GALVANIZED SHEET METAL. INTERIOR SURFACES SHALL BE LINED WITH ½-INCH, 1½ LB. DUAL DENSITY COATED FIBERGLASS INSULATION.
- C. UNIT
- 1. PROVIDE WITH A COMPRESSOR BLANKET CONSTRUCTED FROM HIGH PERFORMANCE DURACOUSTIC SOUND MATERIAL. THE SOUND RATED MATERIAL SHALL HAVE A DENSITY OF 1 .5 LB/FT3 THAT IS MADE FROM A LOADED VINYL REINFORCED BARRIER AND IS EMBEDDED WITH 0.5" URETHANE FOAM.
- 2. PROVIDE WITH FACTORY-INSTALLED IN A LOW LEAKAGE 2-INCH, 4-SIDED COMBINATION FILTER RACK WITH ³/⁴ RETURN AIR DUCT COLLAR AND REMOVABLE, TOOL-LESS ACCESS DOOR WITH THUMB SCREWS. MERV 13 FILTER.
- 3. UNIT SHALL UTILIZE A CORROSION RESISTANT, STAINLESS STEEL, INSULATED DRAIN
- 4. UNITS SHALL HAVE A R-410A SEALED REFRIGERANT CIRCUIT, WHICH INCLUDES A ROTARY OR SCROLL COMPRESSOR, THERMOSTATIC EXPANSION VALVE, AN ALUMINUM LANCED-FIN AND RIFLED COPPER TUBE REFRIGERANT-TO-AIR HEAT EXCHANGER, REVERSING VALVE, AND COAXIAL, TUBE-IN-TUBE, REFRIGERANT-TO-WATER HEAT EXCHANGER . THE AIRSIDE COIL SHALL BE RATED AT 600 PSIG WORKING PRESSURE . THE COAXIAL COIL SHALL BE MADE OF A COPPER NICKEL INNER TUBE AND A PAINTED STEEL OUTER TUBE AND BE RATED AT 500 PSIG WORKING PRESSURE ON THE WATERSIDE AND 600 PSIG WORKING PRESSURE ON THE REFRIGERANT SIDE . THE COMPRESSOR SHALL HAVE THERMAL OVERLOAD PROTECTION.
- 5. THE FAN MOTOR SHALL BE PERMANENTLY LUBRICATED, VARIABLE SPEED, CONSTANT CFM, ELECTRONICALLY COMMUTATED FOR IMPROVED OPERATION.

ENERGY RECOVERY VENTILATOR

A. MANUFACTURER'S

- 1. LOREN COOK
- 2. GREENHECK
- **B. GENERAL**
- 1. ENERGY RECOVERY WHEEL CONSTRUCTED OF FLUTED SYNTHETIC MEDIA
- 2. CASSETTE ASSEMBLY SLIDES OUT FOR EASY ACCESS AND CONSISTS OF ENERGY
- RECOVERY WHEEL, DRIVE MOTOR, AND DRIVE COMPONENTS 3. REMOVABLE ACCESS DOORS PROVIDE ACCESS TO ALL INTERNAL COMPONENTS
- VENTILATOR CABINET CONSISTING OF A MINIMUM 18 GAUGE GALVANIZED STEEL HOUSING MOUNTED TO A MINIMUM 16 GAUGE GALVANIZED STEEL BASE
- 6. BLOWER WHEEL BEARINGS RATED AT 200,000 HOURS AVERAGE LIFE
- 7. BLOWER WHEELS ARE FACTORY ADJUSTED TO SPECIFIED RPM
- 8. STANDARD SIZE 2" THICK, MERV 8 FILTERS IN SUPPLY AND EXHAUST AIR STREAMS
- 10. INTERLOCK DISCONNECT ON HINGED CONTROL PANEL DOOR.

5. ALL DUCTWORK SEAMS, JOINTS AND CONNECTIONS SHALL BE SEALED AIR TIGHT.

1. SHEET METAL GAUGES FOR RECTANGULAR DUCTWORK, BASED UPON THE LARGER

2. INSULATION: 2.2 INCHES, ASTM C553 AND C612; FLEXIBLE, NONCOMBUSTIBLE

CONTAINING WATER SELECTIVE MOLECULAR SIEVE DESICCANT

4. CABINET INTERNALLY LINED WITH 1" THICK, 3 LB. DENSITY, FSK INSULATION

5. FORWARD CURVED STEEL BLOWERS MOUNTED ON VIBRATION ISOLATORS

9. ALL ELECTRICAL COMPONENTS PRE-WIRED FOR SINGLE POINT POWER CONNECTION

AIR PURIFICATION SYSTEM

A. MANUFACTURER'S

1. GLOBAL PLASMA

B. GENERAL

- 1. THE AIR PURIFICATION SYSTEM SHALL BE A PRODUCT OF AN ESTABLISHED MANUFACTURER IN THE USA AND SHALL BE MANUFACTURED AND ASSEMBLED IN THE (SUBMITTED ALL AT ONE TIME TO ARCHITECT)
- 2. A QUALIFIED REPRESENTATIVE FROM THE MANUFACTURER SHALL BE AVAILABLE TO INSPECT THE INSTALLATION OF THE AIR PURIFICATION SYSTEM TO ENSURE INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION.
- 3. PROJECTS DESIGNED USING ASHRAE STANDARD 62.1 IAQ PROCEDURE SHALL REQUIRE THE MANUFACTURER TO PROVIDE INDOOR AIR QUALITY CALCULATIONS USING THE FORMULAS WITHIN ASHRAE STANDARD 62.1 TO VALIDATE ACCEPTABLE INDOOR AIR QUALITY AT THE OUTSIDE AIR QUANTITY SCHEDULED. THE MANUFACTURER SHALL PROVIDE INDEPENDENT TEST DATA ON A PREVIOUS INSTALLATION IN A SIMILAR APPLICATION THAT PROVES COMPLIANCE TO ASHRAE 62.1 AND THE ACCURACY OF THE CALCULATIONS.
- 4. THE AIR PURIFICATION TECHNOLOGY SHALL HAVE BEEN TESTED BY UL OR INTERTEK/ETL TO PROVE CONFORMANCE TO UL 867-2007 INCLUDING THE OZONE CHAMBER TESTING AND PEAK OZONE TEST FOR ELECTRONIC DEVICES. ALL MANUFACTURERS SHALL SUBMIT THEIR INDEPENDENT UL 867 TEST DATA WITH OZONE RESULTS TO THE ENGINEER DURING THE SUBMITTAL PROCESS. ALL MANUFACTURERS SHALL SUBMIT A COPY WITH THEIR QUOTATION. CONTRACTORS SHALL NOT ACCEPT ANY PROPOSAL WITHOUT THE PROPER OZONE TESTING DOCUMENTATION.

TESTING, ADJUSTING AND BALANCING (TAB)

ALL TAB SHALL BE PERFORMED BY A QUALIFIED TAB VENDOR WHO IS A CERTIFIED MEMBER OF AABC, NEBB, OR AS APPROVED BY ENGINEER-OF-RECORD.

- A. COORDINATE TAB PROCEDURES WITH ANY PHASED CONSTRUCTION REQUIREMENTS FOR THE PROJECT SO THAT USABLE INCREMENTS OF FINISHED WORK MAY BE ACCEPTED FOR BENEFICIAL OCCUPANCY. SYSTEMS SERVING PARTIALLY OCCUPIED PHASES OF THE PROJECT MAY REQUIRE BALANCING FOR EACH PHASE PRIOR TO FINAL BALANCING AND SHALL REQUIRED SEPARATE TAB EFFORT AND REPORTS FOR EACH PHASE AND SUBMITTAL PRIOR TO ADVANCING TO NEXT PHASE OF PROJECT.
- ALLOW SUFFICIENT TIME IN CONSTRUCTION SCHEDULE FOR TAB PRIOR TO SUBSTANTIAL COMPLETION INSPECTION FOR THE PROJECT.
- CONDUCT FINAL TAB AFTER SYSTEM MODIFICATIONS HAVE BEEN COMPLETED AND SYSTEM IS IN FULL WORKING ORDER. PUT ALL HVAC SYSTEMS INTO FULL OPERATION AND CONTINUE OPERATION OF THE SYSTEMS DURING EACH WORKING DAY OF TAB. D
- PROFESSIONAL APPROVED INDEPENDENT TAB AGENCY SHALL FURNISH ALL LABOR AND MATERIALS TO BALANCE THE FOLLOWING NEW AND/OR MODIFIED EQUIPMENT AND SYSTEMS: THE FOLLOWING MINIMUM INFORMATION SHALL BE PROVIDED:
- WATER SOURCE HEAT PUMP SYSTEMS: ON SYSTEMS SCHEDULED TO HAVE MULTIPLE E. STAGES OF HEATING AND/OR COOLING CAPACITY, OR CFM REQUIREMENTS, PROVIDE THE INFORMATION FOR TEMPERATURES AND/OR AIRFLOW TO INDICATE SAME FOR EACH OPERATING CONDITION. ALL INFORMATION/DATA SHALL BE GATHERED WITHIN A 90 MINUTE PERIOD.
 - 1. TOTAL S/A CFM (HEATING AND COOLING)
 - 2. R/A CFM -
 - 3. O/A CFM ·
 - 4. R/A E.A.T. DB/WB (COOLING) -
 - 5. O/A E.A.T. DB/WB (COOLING) -6. S/A L.A.T. - DB/WB - (FIRST AND SECOND STAGE COOLING)
 - 7. R/A E.A.T. (HEATING) -
 - 8. O/A E.A.T. (HEATING) -
- 9. S/A L.A.T. (FIRST STAGE HEATING ONLY) -
- 10. EXTERNAL STATIC PRESSURE
- 11. FAN RPM
- 12. FAN MOTOR F.L.A. RATED VS. ACTUAL
- 13. FAN MOTOR HORSEPOWER AND SERVICE FACTOR (BELT DRIVE UNITS)
- 14. SIZE, TYPE, EFFICIENCY AND RELATIVE CONDITION OF ALL AIR FILTERS 15. REPORT WITH ALL CONTROL VALVES OPEN TO COIL AND ALL PUMPS (EXCEPT STANBY PUMPS) OPERATING AT FULL SPEED.
- 15.1. UNIT TAG
- 15.2. CONTROL VALVE MODEL NUMBER AND SERIAL NUMBER 15.3. PRESSURE DROP ACROSS COIL
- 15.4. FLOW AS MEASURED BY CALIBRATED BALANCING VALVE (WHERE APPLICABLE).
- BALANCE ALL S.A., E.A. AND O.A. AIR DISTRIBUTION DEVICES TO WITHIN 10% OF SPECIFIED C.F.M., YET MAIN AREA PRESSURIZATION AND DIFFERENTIALS, AND PROPORTION TO ORIGINAL CFM, IN ALL AREAS.
- MARK ALL FLOW C.F.M., ETC. ON AN 1/8" PER FOOT SCALE SET OF WORKING DRAWINGS AND SUBMIT TO PROFESSIONAL WITH TAB REPORT PRIOR TO COMPLETION OF WORK.
- SUBMIT THE TEST AND BALANCE REPORT AS INDICATED ABOVE, ALONG WITH THE G. WORKING DRAWING TO PROFESSIONAL FOR APPROVAL PRIOR TO COMPLETION AND SUBSTANTIAL COMPLETION INSPECTION TO JOB.
- CERTIFICATION: TEST FUNCTION OF OPERATION OF ALL HVAC AND DOMESTIC WATER Η. CONTROLS AND SYSTEMS. CHECK ALL SAFETY AND OPERATING CONTROLS FOR PROPER OPERATION AND SEQUENCE AND REPORT ANY DEFICIENCIES. TAB AGENCY SHALL PROVIDE THE FOLLOWING WRITTEN CERTIFICATION WITHIN THE FINAL TAB REPORT: "THE TESTING, ADJUSTING AND BALANCING (TAB) AGENCY CERTIFIES THAT THE HVAC AIR AND PLUMBING WATER SYSTEMS AND CONTROLS HAVE HAD A FULL RANGE OF TESTS AND CHECKS CARRIED OUT BY THE TAB AGENCY, TO DETERMINE IF ALL COMPONENTS, SUB-SYSTEMS, SYSTEMS AND INTERFACES BETWEEN SYSTEMS OPERATE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THIS INCLUDES ALL MODES AND SEQUENCES OF CONTROL OPERATION, INTERLOCKS AND CONDITIONAL AND SPECIFIED CONTROL RESPONSES TO ABNORMAL, SAFETY AND EMERGENCY CONDITIONS."

WARRANTIES

- REPLACEMENT) PARTS AND LABOR
- COMPRESSOR, ETC.

CLOSE-OUT SUBMITTALS

- A. TAB REPORT
- B. AS-BUILT DRAWINGS.
- C. O&M MANUALS OF HVAC EQUIPMENT. D. EXTENDED WARRANTIES OF HVAC EQUIPMENT

A. CONTRACTOR SHALL GUARANTEE ALL MATERIALS, EQUIPMENT AND WORKMANSHIP TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE-YEAR FROM DATE OF SUBSTANTIAL COMPLETION AS DIRECTED BY ARCHITECT (THIS INCLUDES ALL CONTROLS AND REFRIGERANT

B. WATER SOURCE HEAT PUMP UNITS TO HAVE 4 YEAR COMPLETE UNIT, INCLUDING BUT NOT LIMITED TO, REFRIGERANT CIRCUIT,



WATER SOURCE HEAT PUMP PIPING DETAIL - 2-WAY CONTROL VALVE



CONSULTANTS

PROJECT:



SHEET TITLE:

HVAC SPECIFICATIONS

SHEET NUMBER



NO SCALE



- A. ALL REMOVED HVAC EQUIPMENT TO BE OFFERED TO OWNER. EQUIPMENT NOT ACCEPTED BY OWNER SHALL BE DISPOSED OF OFF SITE PER LOCAL CODES AND ORDINANCES. ALL OTHER DEMOLISHED MECHANICALLY RELATED MATERIALS SHALL BE DISPOSED OF SIMILARLY.
- B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING INSTALLATIONS AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
- C. EXISTING DUCTWORK AND AIR DISTRIBUTION DEVICES , RELATED TO REMOVED MECHANICAL EQUIPMENT, TO REMAIN, BE RECONNECTED / REUSED WITH NEW EQUIPMENT. REMOVE ALL DUCT CONNECTIONS/TRANSITIONS FOR EXISTING EQUIPMENT TO BE REMOVED.
- D. ALL EXISTING DRAIN PANS SHALL BE FULLY CLEANED AND/OR REPLACED. CONTRACTOR SHALL REPLACE ANY DAMAGED DRAIN PANS TO ENSURE PROPER WORKING ORDER OF ALL DRAIN PANS.
- E. CONTRACTOR SHALL REMOVE ALL CONDENSATE DRAIN PIPING FROM UNITS TO MAIN PIPING. REMOVE ALL PIPING, P-TRAPS, ETC. PROTECT CONNECTION TO MAIN FOR FUTURE CONNECTION.

PLAN NOTES:

- 1. DISCONNECT AND REMOVE EXISTING WATER SOURCE HEAT PUMP UNIT FOR REPLACEMENT UNDER NEW WORK.
- 2. DISCONNECT AND REMOVE EXISTING WATER SOURCE HEAT PUMP UNIT FOR REPLACEMENT UNDER NEW WORK. EXISTING DUCT REHEAT COIL TO REMAIN. REHEAT COIL TO BE INSPECTED AND CLEANED. REPORT ANY OTHER OPERATIONAL DEFECTIONS TO OWNER/ENGINEER DURING TEST AND BALANCE PHASE.
- 3. DISCONNECT AND REMOVE EXISTING DX SPLIT HEAT PUMP SYSTEM, INCLUDING INDOOR AND OUTDOOR UNIT, FOR REPLACEMENT UNDER NEW WORK. EXISTING RETURN AIR PLENUM TO BE REMOVED. REMOVE EXISTING RETURN AIR DUCTWORK FROM PLENUM AND PROTECT FOR FUTURE CONNECTION.



CONSULTANTS:

PROJECT:



NUMBER:	22-044
DATE:	09/23/2022
DRAWN BY:	KAH
CHECKED BY:	JCG
REV: 0 1 2 3 SEAL	
CHRISTOPA SED PROFES SED PROFES SENGINE 17087 09.23.22 SOF MISS	

SHEET TITLE:

FLOOR PLAN - HVAC EQUIPMENT "DEMOLITION"

SHEET NUMBER

ENGINEERING RESOURCE GROUP

 350 EDGEWOOD TERRACE DR.
 2030 PASS RD., SUITE A

 JACKSON, MS 39206
 BILOXI, MS 39531

 PHONE: (601) 362-3552
 PHONE: (228) 388-8740

 FAX: (601) 366-6418
 FAX: (228) 388-3270

D

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G







- A. ALL REMOVED HVAC EQUIPMENT TO BE OFFERED TO OWNER. EQUIPMENT NOT ACCEPTED BY OWNER SHALL BE DISPOSED OF OFF SITE PER LOCAL CODES AND ORDINANCES. ALL OTHER DEMOLISHED MECHANICALLY RELATED MATERIALS SHALL BE DISPOSED OF SIMILARLY.
- B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING EXISTING INSTALLATIONS AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
 C. EXISTING DUCTWORK AND AIR DISTRIBUTION DEVICES RELATED TO REMOVED MECHANICAL
- DEVICES RELATED TO REMOVED MECHANICAL EQUIPMENT TO REMAIN AND BE RECONNECTED / REUSED WITH NEW EQUIPMENT

PLAN NOTES:

- 1. DISCONNECT AND REMOVE EXISTING ERV INDOOR UNIT LOCATED ON MECHANICAL MEZZANINE, AND RELATED OUTDOOR CONDENSING UNIT, FOR REPLACEMENT UNDER NEW WORK. REMOVE EXISTING REFRIGERANT PIPING, PIPE INSULATION, ETC. EXISTING PIPE HANGERS TO REMAIN FOR FUTURE USE.
- 2. DISCONNECT AND REMOVE EXISTING DUCTWORK CONNECTIONS TO ERV UNITS THAT ARE SHOWN DASHED FROM APPROXIMATE POINT INDICATED BACK TO UNIT. THE AIR DISTRIBUTION SYSTEMS ARE TO REMAIN IN PLACE TO BE RECONNECTED WITH MODIFIED DUCTWORK CONNECTIONS TO NEW ERV UNITS.

CONSULTANTS:

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PROJECT:

BAY - WAVELAND MIDDLE SCHOOL INDOOR AIR QUALITY HVAC REPLACEMENT BAY ST. LOUIS, MISSISSIPPI

PROJECT	
NUMBER:	22-044
DATE:	09/23/2022
DRAWN BY:	KAH
CHECKED BY:	JCG
REV: 0	

SHEET TITLE:

FLOOR PLAN - HVAC EQUIPMENT "DEMOLITION"

SHEET NUMBER

- A. RECONNECT NEW WATER SOURCE HEAT PUMP TO EXISTING AIR DISTRIBUTION SYSTEM. PROVIDE AND INSTALL NEW DUCT CONNECTIONS/TRANSITIONS AS REQUIRED FOR CONNECTIONS TO EXISTING DUCTWORK.
- B. THOROUGHLY CLEAN ALL RELATED SUPPLY AND RETURN AIR DISTRIBUTION DEVICES RELATED TO NEW REPLACEMENT EQUIPMENT.
- C. PROVIDE AND INSTALL MANUFACTURER'S RECOMMENDED SIZE AND CONFIGURATION REFRIGERANT PIPING ROUTED CONCEALED BETWEEN INDOOR EVAPORATOR COIL AND MATCHING OUTDOOR CONDENSING UNIT.
- D. ROUTE 1-1/2" NEW CONDENSATE DRAIN PIPING FROM UNITS TO EXISTING MAIN. CONNECT TO EXISTING MAN AND SEAL WATER TIGHT.

PLAN NOTES:

- 1. PROVIDE AND INSTALL NEW WATER SOURCE HEAT PUMP UNIT. RECONNECT TO EXISTING DUCTWORK, PIPING, CONTROLS, ETC.
- 2. PROVIDE AND INSTALL NEW WATER SOURCE HEAT PUMP. EXISTING DUCT REHEAT COIL TO REMAIN. MODIFY SUPPLY AND RETURN DUCT WORK AS REQUIRED. RECONNECT TO EXISTING PIPING, CONTROLS, ETC.
- 3. PROVIDE AND INSTALL NEW DX SPLIT HEAT PUMP SYSTEM TO BE REPLACED. RECONNECT TO EXISTING DUCTWORK, PIPING, REFRIGERANT PIPING, CONTROLS, ETC. PROVIDE AND INSTALL A NEW RETURN AIR PLENUM. COORDINATE EXACT HEIGHT OF PLENUM IN FIELD. ROUTE EXISTING RETURN AIR DUCTWORK DOWN TO NE PLENUM AND CONNECT. SEAL RETURN DUCT CONNECTION TO PLENUM AIR TIGHT.
- 4. PROVIDE AND INSTALL NEW TWINNED WATER SOURCE HEAT PUMP SYSTEM. MODIFY CHILLED WATER PIPING CONNECTIONS AND PROVIDE VALVES, PIPING ACCESSORIES, ETC., AS NEEDED TO CONVERT A SINGLE UNIT INTO TWO UNITS TWINNED TOGETHER. MODIFY DUCT CONNECTIONS AS REQUIRED.
- 5. CONTRACTOR SHALL BALANCE KITCHEN HOOD EXHAUST FAN AND SUPPLY FAN TO 180 CFM PER LINEAR FOOT. FIELD VERIFY EXACT DIMENSIONS OF HOOD.

CONSULTANTS:

PROJECT:

NUMBER:	22-044
DATE:	09/23/2022
DRAWN BY:	KAH
CHECKED BY:	JCG
REV: 0 1 2 3	
SEAL CHRISTOP	

SHEET TITLE:

FLOOR PLAN - HVAC EQUIPMENT "RENOVATION"

SHEET NUMBER

ENGINEERING RESOURCE GROUP

 350 EDGEWOOD TERRACE DR.
 2030 PASS RD., SUITE A

 JACKSON, MS 39206
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 FAX: (228) 388-3270

- A. CFM TO MATCH NEW ERV LISTED CFM ON SCHEDULE. RE-BALANCE AIR DISTRIBUTION DEVICES TO LISTED CUBIT FEET PER MINUMTE (CFM) SHOWN ON PLAN.
- B. THOROUGHLY CLEAN EXISTING AIR DISTRIBUTION DEVICES.
- C. THOROUGHLY CLEAN EXISTING O/A INTAKE AND E/A DISCHARGE LOUVERS ON EXTERIOR WALLS.
- D. PROVIDE AND INSTALL MANUFACTURER'S RECOMMENDED SIZE AND CONFIGURATION REFRIGERANT PIPING ROUTED CONCEALED BETWEEN INDOOR EVAPORATOR COIL AND MATCHING OUTDOOR CONDENSING UNIT.

PLAN NOTES:

- 1. PROVIDE AND INSTALL NEW ERV INDOOR UNIT TO REPLACE EXISTING.
- 2. CONNECT NEW DUCTWORK TO EXISTING AT APPROXIMATE LOCATIONS INDICATED AND TRANSITION TO FULL UNIT SIZE CONNECTION DUCTS TO CONNECT TO UNIT WITH FLEXIBLE CONNECTORS (FC).
- 3. PROVIDE AND INSTALL NEW OUTDOOR CONDENSING UNIT MATCHED TO NEW INDOOR ERV UNIT. INSTALL ON EXISTING EQUIPMENT PAD. MODIFY PAD AS NEEDED. ROUTE NEW REFRIGERANT PIPING FROM OUTDOOR UNIT TO MATCHING INDOOR ERV UNIT. SIZE AND ROUTE PER MANUFACTURER'S RECOMMENDATIONS.

CONSULTANTS:

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PROJECT:

SHEET TITLE:

FLOOR PLAN - HVAC EQUIPMENT "RENOVATION"

SHEET NUMBER

M-102

WATE	R SOURC	E HEAT	PUMP S	CHEDULE																								
		Make & Airflow External EWT EAT LAT Total Sensible Heat of EWT LWT EAT Heat of CO																Heat	ting	I			Elect	trical				
TAG	Make & Model	Airflow (CFM)	Static Pressure (inH ₂ O)	Fluid Flow (gpm)	EWT (°F)	LWT (°F)	EDB (°F)	EWB	LDE	LAI B LWB	Total (Btu/hr)	Sensible (Btu/hr)	Heat of Rejection (Btu/hr)	EER (AHRI)	EWT (°F)	LWT - (°F)	EAT EDB (°F)	LAT LDB (°F)	Total (Btu/hr)	Heat of Absorption (Btu/hr)	COP (AHRI)	Voltage	Compressor RLA	Fan Motor FLA	FLA	MCA (A)	Max Fuse	REMARKS
HP-1	DAIKIN WGDH030	1000	0.7	7.50	90.0	98.8	75.0	63.0	57.9	9 54.1	25.3	18.6	33.0	15.7	60.0	53.4	65.0	94.8	32.4	24.7	3.2	460/3	4.3	2.4	6.7	7.8	15	DUAL STAGE COMPRESSOR, 100/90 CONDENSOR WATER, ECM CONSTANT CFM FAN, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-2	DAIKIN WGDH024	800	0.7	6.00	90.0	99.2	75.0	63.0	56.7	7 53.4	21.7	15.9	27.6	18.3	60.0	53.1	65.0	95.5	26.5	20.6	3.4	208-230/1	11.7	2.8	14.5	17.4	25	DUAL STAGE COMPRESSOR, 100/90 CONDENSER WATER, ECM CONSTANT CFM FAN, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-3	DAIKIN WGDH042	1400	0.7	10.70	90.0	98.8	75.0	63.0	57.5	5 53.9	36.3	26.6	47.1	16.9	60.0	53.8	65.0	93.6	43.5	33.0	3.3	460/3	6.2	4.8	11.0	12.6	15	DUAL STAGE COMPRESSOR, 100/90 CONDENSER WATER, ECM CONSTANT CFM FAN, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-4	DAIKIN WGDH048	1600	0.7	12.40	90.0	98.8	75.0	63.0	55.9	9 53.6	42.9	33.2	54.8	16.8	60.0	53.2	65.0	97.0	55.5	42.1	3.6	460/3	6.4	4.8	11.2	12.8	15	DUAL STAGE COMPRESSOR, 100/90 CONDENSER WATER, ECM CONSTANT CFM FAN, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-5	DAIKIN WGDH036	1200	0.7	9.00	90.0	99.2	75.0	63.0	56.2	2 53.4	32.5	24.5	41.5	17.6	60.0	53.2	65.0	95.1	39.2	30.5	3.3	460/3	5.7	3.4	9.1	10.5	15	DUAL STAGE COMPRESSOR, 100/90 CONDENSER WATER, ECM CONSTANT CFM FAN, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-6	DAIKIN WLVW1120	4000	0.75	31.90	90.0	98.9	75.0	63.0	55.5	5 53.4	109.0	83.7	141.3	15.9	60.0	52.7	65.0	98.3	145.2	115.9	3.9	460/3	7.8	2.8	18.4	20.4	25	TWO COMPRESSORS, 100/90 CONDENSER WATER, STANDARD WITH VFD MOTOR, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-7A DAIKIN WLVW1215 7000 0.75 45.00 90.0 101.3 75.0 63.0 56.4 53.2 193.7 139.6 253.8 N/A 60.0 52.8 65.0 65.0													52.8	65.0	92.9	213.0	162.7	N/A	460/3	16.7	3.8	37.2	41.4	50	TWO COMPRESSORS, 100/90 CONDENSER WATER, STANDARD WITH VFD MOTOR, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)			
HP-7B DAIKIN WLVW1215 7000 0.75 54.00 90.0 99.5 75.0 63.0 56.3 53.1 196.3 140.7 255.4 N/A 60.0 53.2 65.0 95.8 235.4													53.2	65.0	95.8	235.4	183.7	N/A	460/3	16.7	3.8	37.2	41.4	50	TWO COMPRESSORS, 100/90 CONDENSER WATER, STANDARD WITH VFD MOTOR, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)			
HP-8	DAIKIN WGCV024	800	0.7	6.00	90.0	99.5	75.0	63.0	56.1	1 53.4	21.8	16.4	28.6	15.9	60.0	53.5	65.0	93.2	24.5	19.5	3.4	208-230/1	13.5	3.0	16.5	19.9	30	SINGLE STAGE, 100/90 CONDENSER WATER, ECM CONSTANT CFM FAN, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-9	DAIKIN WGCV030	1000	0.7	7.50	90.0	98.8	75.0	63.0	57.1	1 54.0	25.7	19.4	33.1	15.2	60.0	53.4	65.0	93.8	31.3	24.8	3.3	460/3	5.1	2.6	7.7	9.0	15	SINGLE STAGE, 100/90 CONDENSER WATER, ECM CONSTANT CFM FAN, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-10	DAIKIN WGCV048	1600	0.7	12.40	90.0	98.3	75.0	63.0	56.2	2 54.0	41.2	32.6	51.7	16.9	60.0	52.8	65.0	97.2	55.9	44.9	3.6	460/3	6.2	5.5	11.7	13.2	15	SINGLE STAGE, 100/90 CONDENSER WATER, ECM CONSTANT CFM FAN, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-11	DAIKIN WLVC1096	2400	1.2	20.70	90.0	99.5	75.0	63.0	55.3	3 51.6	76.3	50.8	98.1	13	60.0	52.9	65.0	100.3	92.6	73.1	4.7	460/3	6.2	2.4	14.8	16.4	20	TWO COMPRESSORS, 100/90 CONDENSER WATER, STANDARD WITH VFD MOTOR, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-12A	DAIKIN WLVW1215	7000	0.75	45.00	90.0	101.3	75.0	63.0	56.4	4 53.2	193.7	139.6	253.8	N/A	60.0	52.8	65.0	92.9	213.0	162.7	N/A	460/3	16.7	3.8	37.2	41.4	50	TWO COMPRESSORS, 100/90 CONDENSER WATER, STANDARD WITH VFD MOTOR, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-12B	DAIKIN WLVW1215	7000	0.75	45.00	90.0	101.3	75.0	63.0	56.4	4 53.2	193.7	139.6	253.8	N/A	60.0	52.8	65.0	92.9	213.0	162.7	N/A	460/3	16.7	3.8	37.2	41.4	50	TWO COMPRESSORS, 100/90 CONDENSER WATER, STANDARD WITH VFD MOTOR, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-13	DAIKIN WGCV048	1600	0.7	12.40	90.0	98.3	75.0	63.0	56.2	2 54.0	41.2	32.6	51.7	16.9	60.0	52.8	65.0	97.2	55.9	44.9	3.6	460/3	6.2	5.5	11.7	13.2	15	SINGLE STAGE, 100/90 CONDENSER WATER, ECM CONSTANT CFM FAN, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-14	DAIKIN WLVW1096	2900	0.98	18.00	90.0	101.3	75.0	63.0	56.7	7 53.5	78.0	57.2	101.4	14.6	60.0	52.0	65.0	94.0	91.6	71.6	3.6	460/3	6.2	2.4	14.8	16.4	20	TWO COMPRESSORS, 100/90 CONDENSER WATER, STANDARD WITH VFD MOTOR, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-15	DAIKIN WLVW1096	2400	1.2	20.00	90.0	99.8	75.0	63.0	55.3	3 51.6	76.3	50.7	98.0	14.6	60.0	52.8	65.0	100.0	91.8	72.4	3.6	460/3	6.2	2.4	14.8	16.4	20	TWO COMPRESSORS, 100/90 CONDENSER WATER, STANDARD WITH VFD MOTOR, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-16	DAIKIN WLVW1290	8000	2.25	63.80	90.0	100.8	75.0	63.0	55.1	1 51.7	253.2	171.0	345.3	N/A	60.0	52.4	65.0	102.5	327.6	243.4	N/A	460/3	23.1	9.3	55.5	61.3	80	TWO COMPRESSORS, 100/90 CONDENSER WATER, STANDARD WITH VFD MOTOR, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-17	DAIKIN WGCV048	1600	0.7	12.40	90.0	98.3	75.0	63.0	56.2	2 54.0	41.2	32.6	51.7	16.9	60.0	52.8	65.0	97.2	55.9	44.9	3.6	460/3	6.2	5.5	11.7	13.2	15	SINGLE STAGE, 100/90 CONDENSER WATER, ECM CONSTANT CFM FAN, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
HP-18	DAIKIN WLVW1290	7200	2.35	53.70	90.0	102.1	75.0	63.0	54.8	8 51.0	240.5	156.3	325.6	N/A	60.0	52.2	65.0	101.3	285.2	210.1	N/A	460/3	23.1	9.3	55.5	61.3	80	TWO COMPRESSORS, 100/90 CONDENSER WATER, STANDARD WITH VFD MOTOR, SOUND BLANKET WITH SOUND PACKAGE, PRESSURE DIFFERENTIAL SWITCH, 2" MERV 13 FILTER, S.S. DRAIN PAN, OVERFLOW SWITCH ON SECONDARY, BACNET TSTAT (BY OTHERS)
																												NOTE: PROVIDE ALL UNITS WITH IONIZATION GENERATOR. PROVIDE UNITS UP TO 5000 CFM WITH IG-1. PROVIDE UNITS WITH GREATER THAN 5000 CFM WITH IG-2.

ENERGY RECOVERY VENTILATOR	(ERV)	SCHEDULE

ENEF																																		
		SUPPLY FAN EXHAUST FAN ENERGY WHEEL (SUMMER) ENERGY WHEEL (WINTER) DX COOLING SCR ELECTRIC HEAT FILTER ELECTRICAL DATA															OP																	
TAG	BASIS OF DESIGN	TOTAL	EXT. S.PINS	ECM	TOTAL I	EXT. S.PINS	ECM	FRES	HAIR	EXI	HAUST AI	R	FEE	FRESH	AIR	EXHA	AUST AIR		EEE EDB	LDB	CAPAC	ITY, MBH	FPI	EDB	LDB	CAPACITY (KW)	TYPE	ПЕРТН	MERV	ıια	МСА	MOP	WT	REMARKS
		CFM	WATER	HP	CFM	WATER	HP	EDB	EWB E	EDB EV	VB LDB	B LWB		EDB E	WB E	DB EWE	B LDB	LWB	EWB	LWB	TOTAL	SENS	ROWS	EWB	LWB	TOTAL				110	MCA		(LD3.)	
ERV	СООК	2770	1.0	1.8	2630	1.0	1.5	03	76	75 6	3 88	73	0.61	25	21 7	72 56	36	31	79.9	54.2			12	59.3	72.0	15.0		2"	13 4	30/3	33 10	35	2250	PROVIDE WITH REMOTE DISPLAY, UNIT TO OPERATE 24/7, PROVIDE WITH
	ERV-3500	2110	1.0	1.0	2030	1.0	1.5	30	10	75 0	5 00	75	0.01	20	21 1	50	50	51	66.8	54.1			6	47.9	53.4	15.0		2		50/0	00.10	55	2230	AUTOMATIC BACKDRAFT DAMPER O/A INTAKE AND E/A DISCHARGE
ERV	СООК	2000	1.0	2.1	2550	1.0	1.4	02	76	75 6	2 00	72	0.61	25	21 -	70 56	24	20	80.7	55.1			12	57.1	72.0	15.0		0"	12 /	50/3	34.04	25	2200	PROVIDE WITH REMOTE DISPLAY, UNIT TO OPERATE 24/7, PROVIDE WITH
2	ERV-3500	2990	1.0	2.1	2550	1.0	1.4	93	70	75 0	09	73	0.01	25	21 1	72 50	- 34	30	67.5	54.9			6	46.5	53.0	15.0	PLEATED	2		50/5	54.94		2300	AUTOMATIC BACKDRAFT DAMPER O/A INTAKE AND E/A DISCHARGE
ERV	СООК	2100	1.0	2.2	2740	1.0	1.6	02	76	75 6	2 00	72	0.61	25	21 -	72 56	25	21	80.6	55.3			12	57.3	72.0	15.0		2"	12 /	30/3	35 11	25	2250	PROVIDE WITH REMOTE DISPLAY, UNIT TO OPERATE 24/7, PROVIDE WITH
3	ERV-3500	3100	1.0	2.3	2740	1.0	1.0	93	70	75 0	5 69	73	0.01	25	21 1	72 50	- 35	51	67.4	55.1			6	46.6	53.0	15.0	FLEATED	2		50/5	55.44		2350	AUTOMATIC BACKDRAFT DAMPER O/A INTAKE AND E/A DISCHARGE

SUPPLY FAN ELECTRIC HEAT DX COOLING COIL FILTER OPER	
TAG MANUFACTURER NOMINAL NOMINAL NOMINAL NOMINAL NOMINAL NOMINAL	AL OPER SEED WT DEMARKS
TAG & MODEL NO TONS SUPPLY CFM OA CFM SUPPLY CFM OA CFM ESP HP VOLT/Ø KW MCA MOP MODEL NO EAT (DB/WB) MBH (TOTAL/SENSIBLE) TYPE DEPTH MERV MCA	VOLT/Ø
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	460 / 3 550 PROVIDE WITH TANDEM COMPRESSORS
AC LENNOX 5.0 1950 300 0.5 1 208 / 3 15 20 25 80/67 53.2/46.2 THROW AWAY 2" 13 300 ECM MOTOR, TXV, OVERFLOW SAFE-T-SWITCH MODEL SS2 OR EQUAL ON EVAPORATOR COLL SECONDARY DRAIN, 2" EXTERNAL FILTER RACK, DAIKIN RCS-10 ERV-2 10 410A 14.8 22 40	460 / 3 550 PROVIDE WITH TANDEM COMPRESSORS
NOTE: PROVIDE THESE AC UNIT AIR HANDLERS WITH ION GENERATORS IG-1 DAIKIN RCS-10 DAIKIN RCS-10 ERV-3 10 410A 14.8 22 40	460 / 3 550 PROVIDE WITH TANDEM COMPRESSORS

HEAT	HEAT PUMP CONDENSING UNIT SCHEDULE													ORS	(BY OTHERS)				
TAG	MANUFACTURER	SERVING	NOM	REFR		E	LECTRIC	CAL	- SEEF		REMARKS	TAG	MANUFACT & MODEL	IRER NO.	UNIT SUPPLY CFM	DEVICES REQUIRED	DEVICE MOUNTING LOCATION	MIN ION OUTPUT PER DEVICE	POWER	REMARKS
	& MODEL NO		TONS	TYPE	RLA	MCA	моср	VOLT/Ø		(LBS)		IG-1	GLOBAL PL GPS-FC4	SMA AC	UP TO 5000 CFM	1	IN UNIT DOWNSTREAM OF FILTERS	> 400 MILLION +/- IONS/CC	24 VAC TO 240 VAC	PROVIDE WITH: SWITCH AND LE
AC 1	LENNOX ML14XP1-048-463	AC-1	4.0	410A		8	10	460 / 3	15.0	275	HAIL GUARD	IG-2	GLOBAL PL GPS-FC4	SMA AC	ABOVE 5000 CFM	2	IN UNIT DOWNSTREAM OF FILTERS	> 400 MILLION +/- IONS/CC	24 VAC TO 240 VAC	PROVIDE WITH SWITCH AND LE
AC 2	LENNLENNOX ML14XP1-060-463	AC-1	5.0	410A		9	10	460 / 3	15.5	275	HAIL GUARD									

H: BUILT IN UNIVERSAL INPUT VOLTAGE TRANSFORMER, ON/OFF LED POWER INDICATOR LIGHT, UL-2998 NO OZONE CERTIFIED H: BUILT IN UNIVERSAL INPUT VOLTAGE TRANSFORMER, ON/OFF LED POWER INDICATOR LIGHT, UL-2998 NO OZONE CERTIFIED

CONSULTANTS:

PROJECT:

MIDDLE SCHOOL HVAC REPLACEMENT MISSISSIPPI LOUIS, · WAVELAND I NIR QUALITY H . S AIR ВАΥ BAY INDOOR

SHEET TITLE:

HVAC SCHEDULE

SHEET NUMBER

M-601