MECHANICAL SCOPE OF WORK SUMMARY

- PROVIDE AND INSTALL HVAC AND RELATED PIPING SYSTEMS AS SHOWN ON THESE PLANS AND AS SPECIFIED IN THE PROJECT MANUAL.
- 2. THE WORK WILL BE PHASED BY THE CONSTRUCTION MANAGER AND THE OWNER.
- PROVIDE AND INSTALL HVAC EQUIPMENT AND APPURTENANCES AS SCHEDULED OR INDICATED INCLUDING DUCTWORK, VAV TERMINALS, HYDRONIC PIPING, SUPPLY AND RETURN GRILLES, INSULATION, SUPPORTS, SEALING PENETRATIONS, ETC. TO MAKE THE JOB COMPLETE AND FULLY FUNCTIONAL IN ACCORDANCE WITH THE DESIGN INTENT.
- CONTROLS WILL BE PROVIDED UNDER A SEPARATE CONTRACT BY LEON COUNTY SCHOOLS. THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE CONTROLS CONTRACTOR AND INSTALL DAMPERS AND CONTROLS INTO THE MECHANICAL EQUIPMENT.
- 5. TEST & BALANCE WILL BE PERFORMED UNDER A SEPARATE CONTRACT BY LEON COUNTY SCHOOLS.
- WORK INCLUDES OBTAINING PERMITS, PROCUREMENT OF EQUIPMENT, MATERIALS, ETC. ; COORDINATING BETWEEN TRADES; DEMOLITION, INSTALLATION, STARTUP, REPORTING, SYSTEMS CHECKOUT; ASSISTING THE TEST, ADJUST AND BALANCE CONTRACTOR, AND RESOLVING DISCREPANCIES; PERFORMING SUBSTANTIAL AND FINAL COMPLETION ACTIVITIES, TRAINING, DEVELOPING AND SUBMITTING THE OPERATION AND MAINTENANCE MANUALS, AND PERFORMING PROJECT CLOSEOUT.
- A COMMISSIONING AUTHORITY, HIRED UNDER SEPARATE CONTRACT, WILL COMMISSION THE EQUIPMENT PER THE SPEC AND PLAN. MECHANICAL CONTRACTOR AND T&B CONTRACTOR WILL SUPPORT THESE EFFORTS.

GENERAL NOTES:

- FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED TO COMPLETE ALL WORK SHOWN ON THE CONTRACT DRAWINGS.
- ALL CONSTRUCTION SHALL CONFORM TO APPLICABLE CODE STANDARDS INCLUDING:
- NATIONAL FIRE PROTECTION ASSOCIATION NFPA NFPA 70 - 2020; NATIONAL ELECTRICAL CODE
- NFPA 72 2019: NATIONAL FIRE ALARM AND SIGNALING CODE

FLORIDA BUILDING CODE

- FBC-B 2023; THE FLORIDA BUILDING CODE (8th EDITION) FPC 2023; THE FLORIDA FIRE PREVENTION CODE (8th EDITION)
- INCLUDING NFPA 101 2021; THE LIFE SAFETY CODE
- FBC-M 2023; THE FLORIDA MECHANICAL CODE (8th EDITION)
- FBC-A 2023; THE FLORIDA BUILDING CODE, ACCESSIBILITY (8th EDITION) FBC-EC 2023; THE FLORIDA BUILDING CODE, ENERGY CONSERVATION (8th EDITION)
- FBC-FG 2023; THE FLORIDA BUILDING CODE, FUEL GAS (8th EDITION)
- FBC-P 2023; THE FLORIDA BUILDING CODE, PLUMBING (8th EDITION) FBC-EB 2023; THE FLORIDA BUILDING CODE, EXISTING BUILDING (8th EDITION)
- STATE REQUIREMENTS FOR EDUCATIONAL FACILITIES 2014 EDITION
- SHOULD CONFLICT OCCUR BETWEEN PROJECT SPECIFICATIONS & DRAWING NOTES, THE DRAWING NOTES WILL TAKE PRECEDENCE.
- THE CONTRACTOR IS EXPECTED TO PROVIDE PROFESSIONAL WORK PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND BEST PRACTICES.
- THE WORK SHALL BE COMPLETE, FULLY OPERATIONAL, AND SUITABLE IN EVERY WAY FOR THE SERVICE REQUIRED.
- DRAWINGS INDICATE SCOPE AND DO NOT SHOW ALL DETAILS, DEVICES AND INCIDENTAL MATERIALS NECESSARY TO ACCOMPLISH THE WORK. THEREFORE, IT SHALL BE UNDERSTOOD THAT SUCH DEVICES AND INCIDENTAL MATERIALS REQUIRED SHALL BE FURNISHED AT NO COST TO THE OWNER.
- CONTRACTOR SHALL TAKE INTO ACCOUNT FIELD CONDITIONS AND COORDINATE IN ORDER TO AVOID CONFLICTS WITH EXISTING CONDITIONS AND INTERFERENCE BETWEEN TRADES.
- EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR PROPER OPERATION, MAINTENANCE, AND SERVICE. IF CHANGES TO THE CONTRACT DOCUMENTS ARE NECESSARY TO AVOID CONFLICTS, THE CONTRACTOR IS RESPONSIBLE FOR REQUESTING CLARIFICATION IN A TIMELY FASHION.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEFICIENCIES ASSOCIATED WITH WORK PERFORMED BEFORE OBTAINING WRITTEN CLARIFICATION.
- CONTRACTOR SHALL VERIFY SIZE, FLOW DIRECTION, AND LOCATION OF EXISTING DUCTS/PIPING TO REMAIN, RELATED BUILDING INFRASTRUCTURE/SERVICES, PRIOR TO COMMENCING WORK. ADVISE THE ENGINEER IN WRITING IF MATERIALLY DIFFERENT THAN SHOWN.
- THE CONTRACTOR SHALL TAKE DUE CARE DURING ALL PHASES OF WORK TO PROTECT BUILDING FINISHES, FURNISHINGS, EQUIPMENT, ETC. THE CONTRACTOR SHALL BEAR ALL COSTS TO REPAIR ANY DAMAGED ITEMS, FINISHES, ETC. RESULTING FROM HIS OR HIS SUBCONTRACTORS' WORK.
- THE CONTRACTOR SHALL PROVIDE DAILY CLEANUP OF HIS WORK AREAS. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL THOROUGHLY CLEAN SPACES THAT WERE OCCUPIED BY TEMPORARY WORK AND TEMPORARY FACILITIES. REMOVE ALL DEBRIS, RUBBISH, AND EXCESS MATERIAL FROM THE SITES.
- REPAIR DAMAGE CAUSED BY INSTALLATION OR USE OF TEMPORARY FACILITIES. THIS INCLUDES HARDSCAPING, LANDSCAPING, FINISHES, ETC.
- THE CONTRACTOR SHALL DELIVER TO THE OWNER, UPON SUBSTANTIAL COMPLETION OF THE WORK, TWO COPIES OF DESCRIPTIVE LITERATURE RELATED TO THE EQUIPMENT INSTALLED UNDER THIS CONTRACT, INCLUDING PARTS LISTS, WIRING DIAGRAMS, MAINTENANCE AND OPERATION MANUALS AND WARRANTIES CUSTOMARILY SUPPLIED BY MANUFACTURERS FOR EQUIPMENT INCORPORATED IN THIS WORK.
- THE LITERATURE SHALL BE NEATLY BOUND IN A 3-RING BINDER, IN ADDITION TO ELECTRONIC FORMAT ON A USB THUMB DRIVE, AND DELIVERED PRIOR TO FINAL ACCEPTANCE
- THE CONTRACTOR SHALL LABEL NEW EQUIPMENT AND ANCILLARY SYSTEMS INCLUDED IN THE SCOPE OF THIS PROJECT .
- THE CONTRACTOR SHALL GIVE PHYSICAL DEMONSTRATION AND VERBAL INSTRUCTIONS FOR PROPER OPERATION AND MAINTENANCE OF EQUIPMENT TO THE OWNER OR HIS DESIGNATED REPRESENTATIVE. SCHEDULE THESE DEMONSTRATIONS AND INSTRUCTIONS AT THE OWNER'S CONVENIENCE.

HAZARDOUS MATERIALS

- CONTRACTORS ARE EXPECTED TO NOTIFY THE OWNER WHEN EVER THEY DISCOVER THAT THEIR WORK WILL EXPOSE THEM TO ANY MATERIALS THAT ARE THE LEAST BIT SUSPICIOUS. REMOVAL OF CONTAMINATED MATERIALS WILL BE THE RESPONSIBILITY OF THE OWNER. HOWEVER THE CONTRACTOR IS RESPONSIBLE TO INSPECT FUTURE WORK AREAS IN A TIMELY FASHION SO AS NOT TO BE HELD UP WAITING FOR ABATEMENT.

TEST, ADJUST AND BALANCE (TAB) SCOPE OF WORK AND COORDINATION

- AND BALANCE THE NEW HVAC SYSTEMS UNDER A SEPARATE CONTRACT. CONSTRUCTION MANAGER WILL ASSIST IN COORDINATING THIS WORK.
- RESOLUTION OF TAB DISCREPANCIES.
- 4. TEST AND BALANCE CONTRACTOR SHALL PERFORM THE FOLLOWING TASKS:
- SUITABLE/PERMANENT IDENTIFICATION MATERIALS.
- DIAGRAM AND PRESSURE MEASUREMENTS FOR EACH AHU.
- OF EACH AHU.

SPECIFICATIONS:

PIPING:

- WILL BE THREADED CONSTRUCTION.
- IRON, A197, ANSI B16.3, CLASS 150.
- SHALL BE A105 SLIP-ON, UNLESS ATTACHING DIRECTLY TO A FITTING. FLANGES THAT ARE 2" AND SMALLER SHALL BE THREADED.
- PROVIDE DIELECTRIC COUPLINGS/NIPPLES TO ISOLATE DISSIMILAR MATERIALS.
- HEATING HOT WATER FLEXIBLE PIPING CONNECTIONS SHALL BE RUBBER WITH STAINLESS STEEL BRAID. - AIR VENT WASTE PIPING SHALL BE 1/4" SOFT COPPER.
- GENERAL PIPING INSTALLATION
- INSTALL VALVES, INSTRUMENTATION AND DEVICES AS INDICATED ON THE SCHEMATIC DIAGRAMS.
- PIPE DISCHARGE FROM AUTOMATIC AIR VENTS TO THE NEAREST FLOOR OR HUB DRAIN.
- PROVIDE VALVE AND WELL EXTENSIONS TO ACCOMMODATE INSULATION THICKNESS
- THE SCHEMATIC DIAGRAMS.
- AND WELD SPATTER.
- TREATMENT VENDOR.
- WELDED PIPING.

WELDING STEEL PIPE/FITTINGS:

- ACCORDANCE WITH RECOGNIZED STANDARDS.
- NAMED ON THE CERTIFICATION AND THAT THE CERTIFICATION IS ACCEPTABLE.
- MARK AT EACH WELD.
- PRACTICES INCLUDING NFPA 51B.
- WATER. INSTALL BLOWDOWN PIPING WITH VALVE FOR ALL STRAINERS.
- OPERATING PRESSURE AND NOT LESS THAN 100 PSI.
- WELDING OPERATIONS.

1. THE OWNER WILL CONTRACT WITH A PROFESSIONAL/AABB CERTIFIED TAB COMPANY TO TEST, ADJUST

2. THE MECHANICAL CONTRACTOR SHALL FULLY TEST THE OPERATION OF THE HVAC SYSTEM AND RESOLVE ALL KNOWN DISCREPANCIES PRIOR TO REQUESTING TAB SERVICES VIA THE CONSTRUCTION MANAGER.

3. THE MECHANICAL CONTRACTOR SHALL PARTICIPATE AND ASSIST THE TAB WORK , INCLUDING

A. MARK EQUIPMENT/DAMPER POSITIONS TO SHOW FINAL SETTINGS. MARK WITH PAINT OR OTHER

B. COMPLETE TESTING, ADJUSTING, AND BALANCING OF NEW/EXISTING HVAC SYSTEMS, INCLUDING HYDRONIC PIPING AND RELATED SYSTEMS INCLUDED IN THE SCOPE OF WORK.

C. MEASURE PRESSURE DROP ACROSS EACH AHU SECTION. REPORT SHALL INCLUDE AN AHU

D. MEASURE RETURN AIR, OUTSIDE AIR, MIXED AIR, COIL LEAVING AND UNIT LEAVING AIR CONDITIONS

BALANCE OUTSIDE AIR FANS WITH 0.15" ADDITIONAL PRESSURE DROP (I.E. ABOVE CLEAN PRESSURE DROP) TO ACCOUNT FOR AVERAGE/DIRTY FILTER PRESSURE DROP. SET POTENTIOMETER TO PROVIDE THE DESIGN FLOWRATE AT THE HIGHER PRESSURE DROP.

5. TEST AND BALANCE CONTRACTOR SHALL PROVIDE ONE (1) PAPER AND ELECTRONIC COPY OF THE PRELIMINARY REPORT TO THE ENGINEER FOR REVIEW/COMMENTS. DISCREPANCIES SHALL BE RESOLVED, THE TAB CONTRACTOR SHALL RETEST SYSTEMS AS NEEDED AND ISSUE THREE (3) FINAL SIGNED AND SEALED REPORTS PLUS ONE ELECTRONIC COPY AFTER ALL ISSUES ARE RESOLVED TO THE SATISFACTION OF THE ENGINEER. ITERATIVE PRELIMINARY COPIES MAY BE REQUIRED.

- ALL NEW MECHANICAL SYSTEMS PIPING SERVING AIR HANDLERS SHALL BE SCHEDULE 40, ASTM A53B CARBON STEEL PIPE. PIPING 2-1/2" & LARGER WILL BE WELDED CONSTRUCTION; PIPING 2" & SMALLER

- ALL WELDED PIPE SHALL HAVE BEVELED ENDS. SMALL-BORE PIPE WILL HAVE THREADED ENDS.

- BUTT-WELD FITTINGS SHALL CONFORM TO ASTM A234 WPB AND THREADED FITTINGS TO BE MALLEABLE

- STEEL FLANGES SHALL CONFORM TO ANSI B16.5 150# RAISED FACE. ALL FLANGES LARGER THAN 2"

- CHILLED WATER FLEXIBLE PIPING CONNECTIONS SHALL BE CORRUGATED RUBBER.

- SUPPORT PIPING: 1" & SMALLER - 8' MAX SPACING; 11/2" & 2" - 12' MAX SPACING; 3" & LARGER - 20' SPACING

- INSTALL DEVICES SHIPPED LOOSE WITH EQUIPMENT. LOCATE AND ORIENT VALVES FOR EASY ACCESS AND MAINTENANCE. INSTALL ALL GAUGES AND THERMOMETERS AS NEAR TO EYE LEVEL AS PRACTICAL INSTALL MISCELLANEOUS DEVICES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND

PROTECT OPEN PIPING WITH TEMPORARY COVERS/CAPS. CLEAN NEW PIPING OF LOOSE SCALE, RUST

- PROTECT SYSTEM CONTROL VALVES AND CIRCULATE SYSTEM FLUID AT THE GREATEST FLOW POSSIBLE. CLEAN SYSTEM STRAINERS. COORDINATE CHEMICAL TREATMENT WITH THE OWNER'S CHEMICAL

- CAPS SHALL BE PERMANENT AND OF THE SAME MATERIAL AS THE BASE PIPE. USE WELD CAPS FOR

- WELDING SHALL BE PERFORMED IN ACCORDANCE WITH ANSI B31.1. BEVEL PIPE THAT IS FIELD CUT IN

WELDERS SHALL BE CERTIFIED WITHIN THE LAST 12 MONTHS FOR THE PIPE SIZE REQUIRED BY THIS PROJECT. AT LEAST TWO WEEKS PRIOR TO COMMENCING WELDING, THE CONSTRUCTION MANAGER SHALL OBTAIN CERTIFICATIONS AND PHOTO ID COPIES FOR EACH WELDER PROPOSED FOR THE PROJECT. THE CONSTRUCTION MANAGER SHALL VERIFY THE INFORMATION TO ENSURE WELDER IS AS

- BEFORE PERFORMING WELDING OPERATIONS, REMOVE DIRT, SCALE AND OTHER FOREIGN MATTER FROM PIPING. SET JOINTS TRUE AND SQUARE WITH PROPER ROOT PASS GAP FOR SIZE PIPE. ROOT BEAD WILL PROVIDE FOR COMPLETE PENETRATION INTO THE ROOT OF THE JOINT, PROVIDE ROOT BEAD AND MULTIPLE FILLER LAYERS AND A FINAL COVER PASS. WELDERS SHALL PROVIDE IDENTIFYING

- CONTRACTOR SHALL REMOVE SUSPECT WELDS AND SUBMIT FOR DESTRUCTIVE TESTS AS REQUESTED BY THE ENGINEER. CONTRACTOR SHALL PAY FOR DESTRUCTIVE TESTS THAT FAIL.

- ALL WELDING SHALL BE PERFORMED BY WELDERS ADEQUATELY FAMILIAR WITH WELDING SAFETY

- INSTALL PIPING PARALLEL TO WALLS. SLOPE PIPING AT 1 INCH PER 40 FEET BACK TOWARDS PUMPS OR TO DRAINAGE POINTS. INSTALL DRAINS AT ANY LOW POINT THAT WILL TRAP OVER 5 GALLONS OF

- LEAK TEST ALL PIPING IN ACCORDANCE WITH NORMAL PRACTICE BUT NO LESS THAN 1.5 TIMES

PROTECT BUILDING FINISHES FROM WELD SPATTER WITH FIRE RETARDANT SHIELDS. MAINTAIN A FIRE EXTINGUISHER AT HAND AT ALL TIMES WHEN WELDING. PROVIDE ADEQUATE VENTILATION FOR

CONDENSATE & PIPING

- CONDENSATE DRAIN SHALL INCLUDE A P-TRAP, SEE DETAIL

- PIPING SHALL BE SAME SIZE AS DISCHARGE CONNECTION, D-W-V COPPER AND FITTINGS. MINIMUM SIZE IS 3/4". SUPPORT PIPING AT P-TRAP AND ON 4' CENTERS AND SLOPE 1/4" PER FOOT TOWARD DRAIN.

- PROVIDE CLEANOUTS WITH SCREW CAPS/PLUGS AT TRAPS, ON VERTICAL DROPS, AND IN HORIZONTAL DIRECTION CHANGES.

MISCELLANEOUS METALS:

- INTERIOR EQUIPMENT/PIPING SUPPORTS, HARDWARE, BRACKETS, FRAMING CHANNEL, ETC. SHALL BE GALVANIZED STEEL AND EQUAL TO B-LINE.

- METAL/ELECTRICAL FRAMING/CHANNEL, SUPPORTS, ETC. IN CONTACT WITH CONCRETE OR INSTALLED OUTDOORS SHALL BE HOT-DIPPED GALVANIZED.

- MISCELLANEOUS INTERIOR SUPPORTS SHALL BE 12 GA, 1-5/8" SQ. ELECTRO-GALVANIZED FRAMING CHANNEL. (MINIMUM).

PIPE/EQUIPMENT INSULATION:

INTERIOR COLD PIPING - INSULATE CHILLED WATER PIPING WITH 2" THICKNESS OF CELLULAR GLASS PIPE INSULATION AND FINISH WITH ALL-SERVICE JACKETING. USE 1-1/2" THICKNESS FOR PIPES 2" AND SMALLER. USE BEDDING MASTIC ON PIPING AND JOINTS AND FINISH ELBOWS WITH GLASS FABRIC AND MASTIC.

INTERIOR HOT PIPING - INSULATE HEATING HOT WATER PIPING WITH 1" PREFORMED FIBERGLASS INSULATION WITH ALL-SERVICE JACKET. PROVIDE PVC COVERS AT ELBOWS.

EXTERIOR WATER PIPING - INSULATE EXTERIOR DOMESTIC WATER, FIRE WATER, ETC. WITH 1" PREFORMED FIBERGLASS WITH ASJ. COVER WITH ALUMINUM CLADDING. INSULATION SHALL EXTEND A MINIMUM OF 2 FEET INTO BUILDING.

INTERIOR WATER PIPING - INSULATE INTERIOR DOMESTIC WATER PIPING WITH 1" CLOSED CELL FOAM INSULATION. SEAL ALL JOINTS & SEAMS AIR TIGHT.

EXTERIOR HOT PIPING - INSULATE HEATING HOT WATER PIPING WITH FOAM GLASS PER SPECIFICATION. ABOVE GROUND PIPE TO HAVE ALUMINUM JACKETING; BELOW GROUND PIPE TO HAVE POLYGUARD JACKETING.

VALVES/EQUIPMENT/HYDRONIC DEVICES - INSULATE VALVES, FLEXIBLE CONNECTORS, PORTS, ITEMS REQUIRING MAINTENANCE ACCESS, ETC. WITH 1" THICKNESS OF FLEXIBLE CLOSED CELL ELASTOMERIC INSULATION AND INSTALL TO FACILITATE REMOVAL/ACCESS. PROVIDE ACCESS TO ALL PORTS, VALVE SHAFTS, PETE'S PLUGS, ETC.

CONDENSATE PIPING - INSULATE CONDENSATE PIPING WITH 3/4" CLOSED CELL FOAM INSULATION WITHIN BUILDING. SEAL ALL JOINTS, SEAMS, ETC. AIR TIGHT. PROVIDE ACCESS PLUGS/CAPS TO FITTINGS THAT REQUIRE MAINTENANCE.

DUCTWORK:

- ALL WORK SHALL COMPLY WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE. CONSTRUCT SUPPLY DUCTWORK FOR VAV SYSTEMS TO WITHSTAND 3" (MIN) AND RETURN DUCT -2" STATIC PRESSURES.
- USE EITHER ROUND OR RECTANGULAR DUCT WITH EQUAL OR GREATER EQUIVALENT FREE AREA TO ACCOMMODATE EXISTING STRUCTURE.
- CROSS BREAK DUCTS AND OTHER SHEET METAL OVER 24" WIDE.
- INTERIOR USE GALVANIZED SHEET METAL FOR RECTANGULAR WITH EXTERIOR INSULATION, UOS. USE GALVANIZED SPIRAL SEAM ROUND DUCT WITH EXTERIOR INSULATION.
- PROVIDE SHEET METAL CLOSURE ANGLES, ESCUTCHEONS, OR FLASHING ON BOTH SIDES OF WALL PENETRATIONS (NON RATED) AND SEAL AIR TIGHT. MINIMUM WIDTH IS 1" OR AS REQUIRED TO COVER OPENING.
- PROVIDE SMOKE TIGHT SEAL WHEN PENETRATING SMOKE COMPARTMENT WALLS.
- PROVIDE DOUBLE-THICKNESS TURNING VANES IN ALL RECTANGULAR ELBOWS AND OFFSETS.
- DUCT SIZES MAY BE CHANGED TO ACCOMMODATE CONDITION AS LONG AS THE INTERNAL FREE AREA IS NOT DIMINISHED.
- ALL FABRICATED DUCTWORK LONGITUDINAL AND TRANSVERSE JOINTS, TAPS, AND CONNECTIONS SHALL BE SEALED WITH DUCT MASTIC REGARDLESS OF PRESSURE CLASS.
- TAG ALL DAMPER LOCATIONS WITH ORANGE FLAG TAPE.

- PERMANENTLY MARK ALL DAMPER SHAFTS TO INDICATE DAMPER POSITION

DUCTWORK INSULATION:

- INSULATION IN CONCEALED/ACCESSIBLE INTERIOR SPACES SHALL BE BLANKET TYPE. SECURE INSULATION WITH IMPALE PINS WHEN DUCT IS OVER 24" WIDE.

- BLANKET INSULATION SHALL BE 2.2" THICK (OUT OF PACKAGE) FOIL BACKED R-6 (INSTALLED) INSULATION. SEAL ALL JOINTS, SEAMS, ETC. PER THE MANUFACTURER'S RECOMMENDATIONS. SEALING TAPE SHALL BE UL 181 LISTED PRESSURE-SENSITIVE TYPE.

INSULATION IN MECHANICAL ROOMS AND ON DUCTS PENETRATING WALLS (WITHOUT FIRE DAMPERS) SHALL BE RIGID FIBERGLASS TO 7 FEET ABOVE FINISHED FLOOR. EXTEND INSULATION 6" BEYOND WALL THEN TRANSITION TO DUCT WRAP (WHEN CONCEALED). USE CLIP ANGLES AT WALL TO SEAL OPENING (BOTH SIDES) UOS. SEAL PENETRATION TO COMPLY WITH THE WALL RATING, SEE ARCHITECTURAL SHEETS.

- RIGID INSULATION ON SUPPLY DUCTWORK SHALL BE 1.5" THICK TO PROVIDE AN R-VALUE EQUAL TO 6 (MINIMUM).

RIGID INSULATION ON RETURN AND OUTSIDE AIR DUCTWORK SHALL BE 1" THICK.

- INSULATE OUTSIDE AIR PLENUMS, LOUVER COVERS, OA DUCTS, ETC. WITH 1" RIGID INSULATION. SECURE INSULATION WITH MECHANICAL FASTENERS (IMPALE PINS) ON DUCTS OVER 24" WIDE. SEAL ALL RIGID EDGES WITH ALUMINUM TAPE AND MASTIC AT TAPE EDGES.

- MECHANICAL FASTENERS (IMPALE PINS) SHALL BE ADHERED WITH MASTIC SPACED ON 18" CENTERS. NOTE: SELF-ADHESIVE TYPE IMPALE PINS ARE PROHIBITED.

- ALL DUCTWORK CONVEYING CONDITIONED OR OUTSIDE AIR AIR SHALL BE EXTERNALLY INSULATED UNLESS SPECIFIED OTHERWISE.

- PROVIDE INCOMPRESSIBLE INSULATION/INSERTS AT ALL TRAPEZE-TYPE SUPPORTS TO PREVENT INSULATION COMPRESSION.

- INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY BEST PRACTICES FOR THE INTENDED PURPOSE.

PROVIDE COMPOSITE MECHANICAL INSULATION (INSULATION, JACKETS, COVERINGS, SEALERS, MASTICS AND ADHESIVES) HAVING FLAME SPREAD INDEX OF 25 OR LESS, AND SMOKE DEVELOPED INDEX OF 50 OR LESS, AS TESTED BY ASTM E 84 (NFPA 255) METHODS.

- VAPOR BARRIERS SHALL BE MAINTAINED COMPLETE AND CONTINUOUS. SEAL ALL GAPS, JOINTS, SEAMS ETC.

- INSTALL INSULATION AFTER THE DUCT SYSTEMS HAVE BEEN SEALED WITH MASTIC, PRESSURE TESTED AND FOUND FREE OF ALL LEAKS.

- SURFACES SHALL BE CLEAN AND DRY BEFORE APPLYING INSULATION MASTICS OR INSULATION.

- RATED PARTITIONS & WALLS SHALL BE PENETRATED ONLY WITH INSULATION MATERIALS AND TECHNIQUES THAT ARE UL LISTED TO MAINTAIN FIRE RATING. ANY QUESTIONS SHALL BE REFERRED TO THE ARCHITECT/ENGINEER.

AIR HANDLER UNIT INSTALLATION:

- COORDINATE WITH THE SUPPLIER TO UNDERSTAND WHICH FEATURES AND OPTIONS MUST BE FIELD INSTALLED.

COORDINATE CONTROLS AND POWER WIRING INSTALLATION. PROVIDE ALL PENETRATIONS INTO UNIT CABINET FOR ELECTRICAL AND POWER WIRING INSTALLATION.

- LOCATE UNIT TO PROVIDE PROPER CLEARANCE TO ACCESS PANELS, PIPING, CONTROLS, ETC. OPTIMIZE AVAILABLE SPACE.

- SET UNIT ON 1/2" THICK NEOPRENE VIBRATION-ISOLATION PADS ON 2' CENTERS UNDER MAIN SUPPORTS. PROVIDE EACH PRIMARY CONDENSATE DRAIN WITH P-TRAP AND DOWN STREAM CLEAN-OUT CAP. DEPTH OF SEAL SHALL EXCEED MAX FAN STATIC, SEE TRAP DETAIL.

- PROVIDE HEATING COIL DRAIN PIPING WITH NORMALLY CLOSED BALL VALVE (FOR FUTURE COIL CLEANING) AND ELBOW AND SHORT PIPE FOR HOSE CONNECTION.

- INSTALL DUCTWORK.

- INSTALL HEATING AND CHILLED WATER PIPING, SEE COIL PIPING DETAILS. PROVIDE PIPING SUPPORTS AT COIL CONNECTIONS WITHIN 12" OF LAST ELBOW WHERE VERTICAL PIPING SERVES COIL.

- REMOVE ALL DEBRIS, DUST, METAL SHAVINGS, ETC. FROM INTERIOR OF UNIT PRIOR TO STARTUP.

- PERFORM START-UP IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND COMPLETE A STARTUP REPORT.

- PROGRAM AND TEST CONTROLS, DAMPERS, AND SAFETIES.

- CLEAN FACTORY-FINISHED SURFACES. REPAIR ANY MARRED OR SCRATCHED SURFACES WITH MANUFACTURER'S TOUCH-UP PAINT.

- PROVIDE NEW FILTERS AT SUBSTANTIAL COMPLETION.

	Seal:	Consultant:	Client:	PHASE:	DRAWN:	REVIEWED:	DATE: ID:	REVISION:	DRAWN:REVIEWED:D/
		MCGINNISS +		CONCEPT SCHEM. DESIGN					
				DESIGN DEVELOPMENT	HM	E,	12/20/2024		
			3420 W. Tharpe St. Suite 100	EARLY DEMOLITION PACKAGE					
				80% CONSTRUCTION DOCS.	HM	B	03/21/2025		
		JON BARBER, PE 55427 BRIAN WALLACE, PE 75562 820 EAST PARK AVE. I-200. TALLAHASSEE. FL 32301		PERMIT DOCS.					
		MFE-INC.COM 850.681.6424		100% CONSTRUCTION DOCS.	НМ	B	05/09/2025		
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V	Phase:	100% Construction Documents	800 Alabama St. Tallahassee, FL 32304	MEDIA AND CADD FILES, ARE TH PURPOSE EXCEPT BY WRITTEN PLACED ON EACH DRAWING EXI	IE PROPERTY (AGREEMENT V HIBIT OR REND	JF ARCHITECTS: VITH THE ARCHIT ERING ON THIS D	LEWIS + WHITL(ECT IS PROHIBI DOCUMENT AND	OCK, PA.A. THEIR USE, REPI ITED. THIS COPYRIGHT NOT SHALL NOT BE REMOVED F	RESENTATION OR REPRODUCTION FOR TIFICATION SHALL BE TRUE AS IF DIREC FROM THESE DOCUMENTS

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Description: Mechanical General Notes



EQUIPMENT INSTALLATION

GENERAL EQUIPMENT INSTALLATION REQUIREMENTS:

INSTALL UNIT IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONTRACTOR IS REQUIRED TO HAVE EQUIPMENT INSTALLATION INSTRUCTIONS ON SITE FOR ALL EQUIPMENT THAT IS ON SITE.

ALL EQUIPMENT SHALL BE SECURED TO PADS OR BUILDING STRUCTURE. INSURE THAT PROPER ACCESS TO THE UNIT IS MAINTAINED. DO NOT RUN PIPING IN FRONT OF ACCESS PANELS.

INSTALL MISCELLANEOUS DEVICES SHIPPED LOOSE.

COORDINATE CONTROLS AND POWER WIRING INSTALLATION.

START-UP ALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

CLEAN FACTORY-FINISHED SURFACES. REPAIR ANY MARRED OR SCRATCHED SURFACES WITH MANUFACTURER'S TOUCH-UP PAINT. TURNOVER ANY SPECIAL TOOLS PROVIDED BY THE EQUIPMENT MANUFACTURER.

CONDENSING UNIT INSTALLATION:

INSTALL CONDENSING UNIT ON MANUFACTURER SUPPLIED WALL BRACKET. SECURE UNIT TO BRACKET PER MANUFACTURER'S INSTRUCTIONS.

INSTALL SITE GLASS AND FILTER/DRYER.

START-UP & CHECK-OUT THE SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. THE MECHANICAL CONTRACTOR SHALL TEST AND CERTIFY THE PROPER OPERATION OF THE SYSTEM AND CONTROLS.

DUCTLESS SPLIT FAN COIL INSTALLATION

COORDINATE EXACT LOCATION OF THE FAN COIL UNIT WITH THE OWNER.

INSTALL WIRED CONTROLLER AND CONTROL WIRING TO THE CONDENSING UNIT. CONTROL CABLE MUST BE IN CONDUIT EXCEPT: ACCESSIBLE CONCEALED LOCATIONS PLENUM RATED CABLE MAY BE USED.

NO AIR BALANCE TEST IS REQUIRED. SET FAN AIR FLOW ON HIGH SPEED.

PIPE PUMPED CONDENSATE (PUMP PROVIDED WITH EQUIPMENT) TO CONDENSATE DRAIN. INSTALL REFRIGERANT PIPING TO CONDENSING UNIT; SEE SCHEDULE FOR PIPE SIZES.

REFRIGERANT PIPING INSTALLATION:

REFRIGERANT PIPING SHALL BE ACR TYPE L. PROVIDE HARD DRAWN COPPER TUBING WITH BRAZED LONG RADIUS WROUGHT COPPER FITTINGS AT ALL AIR HANDLING UNITS, CONDENSING UNITS, IN MECHANICAL ROOMS AND OTHER EXPOSED LOCATIONS. WHERE CONCEALED, REFRIGERANT PIPING MAY BE SOFT COPPER.

PROVIDE SIGHT GLASS AND FILTER DRYER FOR EACH REFRIGERANT CIRCUIT. TAKE CARE NOT TO DOUBLE UP WHERE FILTER DRYER IS PROVIDED WITH CONDENSING UNIT.

LEAK TEST ALL REFRIGERANT PIPING. EVACUATE, DEHYDRATE AND CHARGE SYSTEM PER MANUFACTURER'S INSTRUCTIONS.

SUPPORT HORIZONTAL REFRIGERANT SUCTION PIPING 4 FEET ON CENTER. LIQUID LINE MAY BE STRAPPED TO THE INSULATED SUCTION LINE WITH DUCT TAPE.

INSURE THAT EXPOSED METAL PIPES DO NOT CONTACT METAL OR CONCRETE SURFACES. PROVIDE INSULATION MATERIALS OR SLEEVES AT ANY SUCH LOCATIONS.

DO NOT CONCEAL ANY REFRIGERANT PIPING INSIDE BUILDING MATERIALS UNTIL IT HAS BEEN INSPECTED BY THE ENGINEER.

CONCRETE HOUSEKEEPING PADS:

- WHERE INDICATED EXTEND EXISTING CONCRETE PADS FOR EQUIPMENT SUPPORT.

- USE MECHANICAL MEANS TO REMOVE FLOOR EPOXY FINISH, ROUGHEN CONCRETE, AND CLEAN
- POUR 4" CONCRETE SLAB W/ WELDED WIRE REINFORCING. CHAMFER EDGES

FANS:

- INSTALL FANS WITH REQUISITE LENGTH OF STRAIGHT FULL SIZE DUCTS ON INLET AND DISCHARGE TO MINIMIZE SYSTEM EFFECT. MINIMUM LENGTH IS 3 TIMES THE WHEEL DIAMETER UOS. LOCATE TAPS/BRANCHES BEYOND MINIMUM LENGTHS.

- PROVIDE FLEXIBLE DUCT CONNECTIONS AT FAN.

- SUPPORT FAN FROM STRUCTURE OR WALL.

DAMPERS:

- ELECTRIC/MOTOR OPERATED CONTROL DAMPERS SHALL BE OPPOSED-BLADE TYPE WITH NEOPRENE BLADE EDGE SEALS EQUAL TO RUSKIN.
- ELECTRIC MOTOR OPERATED DAMPERS SHALL HAVE 120VAC, 18 IN-LB TORQUE (MINIMUM) ACTUATORS EQUAL TO BELIMO "TF" SERIES WITH SPRING RETURN. OPERATORS SHALL BE SIZED ACCORDING TO DAMPER SIZE AND TORQUE REQUIREMENTS PER THE DAMPER/OPERATOR REQUIREMENTS (WHICHEVER IS HIGHER).
- DURING DAMPER INSTALLATION, PERMANENTLY MARK OR ENGRAVE EACH DAMPER SHAFT TO INDICATE DAMPER POSITION.
- DUCT SMOKE/FIRE DAMPERS, COMMON DAMPERS, AND DETECTORS:
- SMOKE AND FIRE DAMPERS, WHERE INDICATED, SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PROVIDE SLEEVES AND ANGLES WHERE REQUIRED. PROVIDE DUCT ACCESS PANELS FOR INSPECTION AND RESETTING OF FIRE DAMPERS.

- COMBINATION FIRE AND SMOKE DAMPERS SHALL BE 1-1/2 HR UL LABELED FOR FIRE WALLS RATED LESS THAN 3 HR, AND UL 555 + UL 555S LABELED. DAMPER OPERATORS SHALL BE FACTORY INSTALLED EXTERNAL ACTUATORS, 2-POSITION, 120VAC, FAIL CLOSED, HELD OPEN. FACTORY SUPPLIED SLEEVE (MAX 6" EXTENSION BEYOND WALL, BOTH SIDES.) INCLUDE A REUSABLE RESETTABLE LINK. UNIT SHALL BE AUTOMATICALLY RESETTABLE AFTER TEST, SMOKE DETECTION, OR POWER FAILURE. SEE DIVISION 26 FOR WIRING AND FIRE ALARM INFORMATION.

- HOURLY FIRE RATING: 1.5 HOURS
- LEAKAGE RATING: CLASS I ELEVATED TEMPERATURE RATING: 350°F
- VELOCITY & PRESSURE: 4" W.G., 2000 FPM
- SMOKE DAMPER OPERATORS SHALL BE FACTORY INSTALLED, 120V, NORMALLY CLOSED, HELD OPEN. UNIT SHALL BE AUTOMATICALLY RESETTABLE AFTER TEST, SMOKE DETECTION, OR POWER FAILURE. SEE DIVISION 26 FOR SMOKE DAMPER WIRING & FIRE ALARM. - DUCT SMOKE DETECTORS ARE PROVIDED AND WIRED TO THE FIRE ALARM BY DIVISION 26. - THE MECHANICAL SUBCONTRACTOR WILL BE RESPONSIBLE FOR MOUNTING DUCT FIRE/SMOKE DAMPERS/ DETECTORS AND WIRING TO THE AHU FOR SYSTEM SHUTDOWN ON ANY GENERAL FIRE ALARM.
- ELECTRIC OPERATED CONTROL AND MANUAL VOLUME DAMPERS SHALL BE OPPOSED-BLADE TYPE WITH NEOPRENE BLADE EDGE SEALS EQUAL TO RUSKIN. - ELECTRIC OPERATING CONTROL DAMPERS SHALL HAVE OPERATORS WITH SPRING RETURN. OPERATORS SHALL BE SIZED ACCORDING TO DAMPER SIZE AND TORQUE REQUIREMENTS PER THE DAMPER/OPERATOR REQUIREMENTS.
- DURING DAMPER INSTALLATION, PERMANENTLY MARK EACH DAMPER SHAFT TO INDICATE DAMPER POSITION.

SMOKE DETECTORS:

- THE MECHANICAL SUBCONTRACTOR WILL BE RESPONSIBLE FOR MOUNTING DUCT FIRE/SMOKE DAMPERS/ DETECTORS AND WIRING TO THE AHU FOR SYSTEM SHUTDOWN ON ANY GENERAL FIRE ALARM.

-DUCT SMOKE DETECTORS ARE PROVIDED AND WIRED TO THE FIRE ALARM BY DIVISION 26.

HVAC SYMBOLS/LEGEND				
DESIGNATION	DESCRIPTION			
	LAY-IN SUPPLY AIR DIFFUSER			
	LAY-IN RETURN AIR DIFFUSER WITH ROUND CONNECTION LAY-IN EXHAUST AIR DIFFUSER			
	SURFACE MOUNT RETURN GRILLE			
8"Ø	ROUND DUCT WITH SIZE INDICATED			
T	THERMOSTAT/TEMPERATURE SENSOR & WIREWAY			
T/H	TEMP/RELATIVE HUMIDITY SENSOR AND WIREWAY			
8"Ø	INSULATED FLEXIBLE DUCTWORK & SIZE/DIA.			
- 12X12 ->	RECTANGULAR DUCTWORK & INTERNAL SIZE (FREE AREA)			
	FIRE DAMPER			
	COMBINATION FIRE/SMOKE DAMPER			
sd	SMOKE DAMPER			
	FLEXIBLE DUCT CONNECTION			
	MITERED ELBOW FITTING WITH DOUBLE THICKNESS TURNING VANES			
	MITERED TAKEOFF (SHOWN WITH MVD - SOME ARE W/O DAMPER) PROVIDE STANDOFF			
() D	DUCT SMOKE DETECTOR			
•	POINT OF CONNECTION TO EXISTING			
M	MANUAL VOLUME DAMPER WITH LOCKING QUADRANT			
Ę	ELECTRIC OPERATED CONTROL DAMPER			
CO2	CARBON DIOXIDE SENSOR			
	1" DOOR UNDERCUT			
>	FLOW DIRECTION			
	DUCT TURNING DOWN			
	DUCT TURNING UP			
^	AIR FLOW DIRECTION			
	SQUARE-TO-ROUND TRANSITION			
	CONICAL/ROUND TAKEOFF FITTING W/MVD AND STANDOFF			
D 375	GRILLE AND FLOWRATE (CFM) DESIGNATION			
EF-	CENTRIFUGAL CEILING MOUNTED EXHAUST FAN			
	CENTRIFUGAL INLINE CABINET EXHAUST FAN			
	DUCT RISE UP OR DOWN			
	SERVICE AREA - MAINTAIN CLEAR			
è	FLEXIBLE DUCT (SIZE PER GRILLE FLOW SCHEDULE)			
R (R)	RELOCATE AND RELOCATED, RESPECTIVELY			
SCR	ELECTRIC HEATER WITH SCR CONTROLLER			

ABBRE	EVIATIONS
AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
BAS	BLDG AUTOMATION SYSTEM
BHP	BRAKE HORSE POWER
BJ	BAR JOIST
BTUH	BRITISH THERMAL UNIT/HOUR
BOD	BOTTOM OF DUCT
CFM	CUBIC FEET PER MINUTE
CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
C.O.	CLEANOUT
DB	DRY BULB
DIA OR Ø	DIAMETER
DG	DOOR GRILLE
EA	EXHAUST AIR
EF	EXHAUST FAN
ESP	EXTERNAL STATIC PRESSURE
EX OR (E)	EXISTING
EXT	EXTERNAL OR EXTERIOR
=CU	FAN COIL UNIT
=L	FLOOR
=J	FLEXIBLE JOINT
=PM	FEET PER MINUTE
=SD	FIRE AND SMOKE DAMPER
GPM	GALLONS PER MINUTE
H HDG HP HHWS/R	HIGH HOT-DIP GALVANIZED HORSE POWER HEATING HOT WATER SUPPLY/RETURN
<w< td=""><td>KILOWATT</td></w<>	KILOWATT
L	LONG
LAT	LEAVING AIR TEMPERATURE
MU	MAKE UP WATER
MAX	MAXIMUM
MBH	1000 BTU/HOUR
MIN	MINIMUM
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPS	NOMINAL PIPE SIZE
AC	OUTSIDE AIR
PD	PRESSURE DROP
PH	PHASE
PNL	PANEL
RA	RETURN AIR
RAG	RETURN AIR GRILLE
RLA	RATED LOAD AMPS
SA	SUPPLY AIR
SAG	SUPPLY AIR GRILLE
SP	STATIC PRESSURE
SQ	SQUARE
SAN SWR	SANITARY SEWER
T	TEMPERATURE
TEFC	TOTALLY ENCL. FAN COOLED
THK	THICK
TOD	TOP OF DUCT
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
JG	UNDERGROUND
JOS	UNLESS OTHERWISE SPECIFIED
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
V	VOLTS
NB	WET BULB
NG	WATER GAUGE
XFA	TRANSFER AIR

Seal:	Consultant:	Client	PHASE:	DRAWN:	REVIEWED:	DATE: ID:	REVISION:	DRAWN:REVIEWED:DATE:
	McGINNISS +		CONCEPT SCHEM. DESIGN					
			DESIGN DEVELOPMENT	MH	Яſ	12/20/2024		
		3420 W. Tharpe St. Suite 100	EARLY DEMOLITION PACKAGE					
			80% CONSTRUCTION DOCS.	HM	B	03/21/2025		
	JON BARBER, PE 55427 BRIAN WALLACE, PE 75562 820 EAST PARK AVE 1-200. TALLAHASSEE. FL 32301		PERMIT DOCS.					
	MFE-INC.COM 850.681.6424		100% CONSTRUCTION DOCS.	MM	JB	05/09/2025		
Project #:	23483	Job Title: Griffin Middle School - Phase 2	THESE DRAWINGS AND RENDE	ERINGS ARE IN	STRUMENTS OF SI	ERVICE. THE DR	AWINGS AND ASSOCIATED COPIE	IS THEREOF, INCLUDING ELECTRONIC
Phase:	100% Construction Documents	800 Alabama St. Tallahassee, FL 32304	MEUIA ANU CAUD FILES, ARE 1 PURPOSE EXCEPT BY WRITTEI PLACED ON EACH DRAWING E)	I HE PROPERTY N AGREEMENT XHIBIT OR REN	Y OF AKCHITECTS: - WITH THE ARCHIT DERING ON THIS C	LEWIS + WHIIL FECT IS PROHIB JOCUMENT AND	JUCK, PA.A. IHEIK USE, KEPKESEN ITED. THIS COPYRIGHT NOTIFICAT SHALL NOT BE REMOVED FROM '	I A IION OK KEPKOUOCI ION FOK ANY TON SHALL BE TRUE AS IF DIRECTLY THESE DOCUMENTS



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Description: Mechanical Notes & Legend

Sheet No.: M1.1

DESIGNATION		AHU-1	AHU-2	AHU-3
AREA SERVED		MUSIC / GYM LOBBY	GYM	LOCKER ROOM
MANUFACTURER		TRANE	TRANE	TRANE
UNIT MODEL		CSAA014	CSAA030	CSAA008
CONFIGURATION (SEE BELOW)		HORIZONTAL VAV	HORIZONTAL VAV	HORIZONTAL VA
ORIENTATION/HANDING		RIGHT	LEFT	LEFT
MAX SUPPLY AIR	CFM	6800	14000	3900
VENTILATION AIR	CFM	2400	8500	1200
CC ENTERING AIR CONDITIONS	°FDB/°FWB	78.3 / 66.5	79.8 / 68.6	74.8 / 65.2
CC LEAVING AIR CONDITIONS	°FDB/°FWB	54 / 54	52 / 52	53.8 / 53.4
UNIT TOTAL COOLING CAPACITY	MBH	260	720	132
UNIT LATENT COOLING CAPACITY	MBH	80	430	42
UNIT SENSIBLE COOLING CAPACITY	MBH	180	290	90
CHILLED WATER FLOW RATE	GPM	44	120	22
CHILLED WATER TEMP ENT/LEAV	°F / °F	44 / 56	44 / 56	44 / 56
CHILLED WATER COIL ROWS & FINS/INCH		8 / 6.8	8 / 10	6 / 12
CHILLED WATER COIL FACE VELOCITY	FPM	518	488	533
COOLING COIL FLUID PRESSURE DROP	FT WG	4.5	6	2.8
HEATING COIL CAPACITY	MBH	140	330	78
HC ENTERING AIR CONDITIONS	°F DB	60	56	56
HC LEAVING AIR CONDITIONS	°F DB	79	78	74.5
HOT WATER FLOW RATE	GPM	16	33	10
HOT WATER TEMP ENT/LEAV (MAX/MIN)	°F / °F	160 / 140	160 / 140	160 / 140
HOT WATER COIL ROWS & FINS PER INCH		1 / 6.7	1 / 6.7	1 / 6.7
HOT WATER COIL FLUID PRESSURE DROP	FT WG	0.7	2.3	0.2
MAX HEATING COIL FACE VELOCITY	FPM	544	488	533
DP ERV	IN WG	0.9	1.8	-
DP FILTER SECTION	IN WG	1.4	1.4	1.5
DP COOLING COIL STATIC	IN WG	0.7	1	0.75
DP HEATING COIL STATIC	IN WG	0.1	0.1	0.1
DP FAN SECTION	IN WG	0.5	0.1	0.3
EXTERNAL STATIC	IN WG	1.5	1.5	1.5
TOTAL STATIC PRESS. DROP (CLEAN/DIRTY)	IN WG	5	5.9	4.1
AHU FAN BRAKE HORSEPOWER (DIRTY)	BHP	9.5	29	4.7
AHU FAN MOTOR HORSEPOWER	HP	ECM 2 @ 8.05	ECM 4 @ 8.05	ECM 8.05
AHU ELECTRICAL CHARACTERISTICS	V/Ø/HZ	480/3/60	480/3/60	480/3/60
MOTOR F.L.A.	AMPS	2 @ 8.5	4 @ 8.4	8.75
BREAKER SIZE (MOCP)	AMPS	25	40	15
MAXIMUM CABINET DIMENSIONS (LxWxH)	IN	155 x 72 x 45	164 x 94 x 65	150 x 50 x 41
NOTES		1 - 16	1 - 16	1 - 14

NOTES: 1. OUTSIDE AIR FLOW RATE SHALL VARY BASED ON INDOOR CO2 CONCENTRATION (DCV)

2. NO CONTROLLER. CONTROLS BY OTHERS.

3. COOLING COIL SECTION SHALL HAVE STAINLESS STEEL IAQ DRAIN PAN. 4. INCLUDE STAINLESS STEEL COIL CASING AND COIL SUPPORTS.

5. FILTER SECTION TO ACCOMMODATE 2" THICK PRE-FILTERS (MERV 8) WITH 4" THICK FINAL FILTERS (MERV 11).

6. THE COOLING COIL SHALL NOT HAVE MORE THAN 8 ROWS. 7. G-60 GALVANIZED DOUBLE-WALL UNIT WITH 2" THICK FOAM FILLED INSULATION, MINIMUM R = 13.

8. MOTORS SHALL BE ECM

9. MINIMUM 6" HIGH BASE RAIL INTEGRAL TO UNIT. CONDENSATE CONNECTION SHALL BE HIGH ENOUGH TO ALLOW FOR P-TRAP AND NO STANDING WATER IN PAN. 10. ACCESS DOORS SHALL BE HINGED WITH ROTATING DOOR LOCK AND GASKETS, AND MANUFACTURED OF THE

SAME CONSTRUCTION OF THE BASE. 11. MEAN FILTER PRESSURE DROP USED IN TSP AND BHP CALCULATIONS.

12. FC FAN, FACTORY BALANCED ACROSS OPERATING RPM, MOUNTED ON ISOLATION PLATFORM.

13. PROVIDE A 5-YEAR MANUFACTURER'S WARRANTY ON PARTS AND LABOR 14. FAN SHIPPING SECTIONS SHALL FIT THROUGH A 6'-0 x 7'-0 DOUBLE DOOR, OR INCLUDE INSTRUCTIONS TO KNOCK-DOWN SECTIONS.

15. ENTERING AIR TEMPERATURES ARE CALCULATED WITH ERV SYSTEM

16. FAN SECTIONS SHALL INCLUDE PERFORATED PANELS FOR NOISE ATTENUATION IN GYM AND MUSIC ROOMS.

DRAW -THRU CONFIGURATION:

1. MIXING BOX SECTION, TOP INLET WITH NO DAMPER, WITH FILTER FRAMES

2. COOLING COIL

3. HEATING COIL 4. FAN SECTION, TOP OUTLET

5. PROVIDE ACCESS DOORS ON ONE SIDE.

FAN SCHEDULE								
DESIGNATION		EF-1	EF-2	EF-3	EF-4	EF-5	EF-6	EF-7
AREA/ROOM SERVED & BUILDING		MUSIC / GYM LOBBY	GYM	LOBBY	LOCKER ROOM	LOCKER ROOM	RESTROOMS	FLAMM. STG
SERVICE		ERV EXHAUST	ERV EXHAUST	TOILET EXHAUST	FEMALE	MALE	TOILET / SHOWER EXHAUST	BUILDING EXHAUST
MANUFACTURER		GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL		CUE-140-VG	CUBE-300-VG	G-95-VG	G-90-VG	G-90-VG	SP-A70-VG	CUE-090-C
TYPE		UPBLAST	SIDEWALL	DOWNBLAST	DOWNBLAST	DOWNBLAST	CEILING	SIDEWALL
FAN CONSTRUCTION		ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	PP & GALV.	ALUMINUM
DRIVE TYPE		DIRECT	BELT	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
AIR FLOWRATE DESIGN	CFM	1800	7500	700	530	530	70	250
DESIGN STATIC PRESSURE	IN	1.0	1.25	0.5	0.5	0.5	0.4	0.25
DESIGN FAN SPEED	RPM	1440	725	1624	1628	1628	808	1050
RADIATED SOUND POWER	SONES	11.4	17.0	9.6	8.0	8.0	2.0	4.4
ELECTRICAL CHARACTERISTICS	V/Ø/HZ	208 / 1 / 60	460 / 3 / 60	208 / 1 / 60	208 / 1 / 60	208 / 1 / 60	115/1/60	115/1/60
MOTOR HORSEPOWER	HP	3/4	3	1/6	1/6	1/6	23 W	1/40
MIN CIRCUIT AMPACITY	AMPS	7.5	6.2	1.9	1.9	1.9		
OPTIONS		3, 5, 6, 7, 8	3, 5, 8, 9	3, 4, 5, 6, 7	3, 4, 5, 6, 7	3, 4, 5, 6, 7	1,2,3,4	3, 5, 6, 9, 10
CONTROL NOTES		3	3	1	1	1	2	4
PROJECT QTY.		1	1	1	1	1	4	1
OPTIONS: 1. ALUMINUM GRILLE. 2. PREWIRED MOTOR DISCONNEC 3. BACKDRAFT DAMRER	T SWITCH,	7. Pl Si NEMA-1. 8. V	ROVIDE ROOF CUR HALL EXTEND MIN. ARI-GREEN MOTOF	RB TO MATCH ROOF F 8" ABOVE ROOFING. R AND INPUT FOR 0-1	PITCH, CURB <u>C</u> 1. 0V SIGNAL 2 NG	ONTROL NOTES: FAN WILL OPERA	TE DURING OCCUPIE	ED HOURS VIA BAS. PANCY SENSOR.

3. BACKDRAFT DAMPER

4. VARI-GREEN MOTOR

5. PREWIRED MOTOR DISCONNECT SWITCH, NEMA-3R. 6. FAN & CURB ARE TO BE RATED FOR HIGH WIND APPLICATION

9. WALL BRACKET FOR SIDE-WALL MOUNTING. 10.FOR USE IN FLAMMABLE STORAGE APPLICATION, CLASS I, DIV 1, GROUP D. FAN TO BE SPARK RESISTANT AND MOTOR TO BE EXPLOSION-PROOF. 3. FAN WILL BE VARIABLE SPEED TO PROVIDE CONSTANT

BUILDING PRESSURE THROUGH BAS.

4. FAN WILL OPERATE VIA WALL SWITCH.

ESIGNATION REA/ROOM SERVED & BUILDING ERVICE ANUFACTURER ODEL TY. YPE UPPLY AIR FLOWRATE XHAUST AIR FLOWRATE	CFM CFM	ERV-1 AHU-1 ENERGY RECOVERY RENEWAIRE CA-3XJIN 2 STATIC PLATE 2400	ERV-2 AHU-2 ENERGY RECOVERY RENEWAIRE CA-4XJIN 3 STATIC PLATE
REA/ROOM SERVED & BUILDING ERVICE ANUFACTURER ODEL TY. YPE UPPLY AIR FLOWRATE XHAUST AIR FLOWRATE	CFM CFM	AHU-1 ENERGY RECOVERY RENEWAIRE CA-3XJIN 2 STATIC PLATE 2400	AHU-2 ENERGY RECOVERY RENEWAIRE CA-4XJIN 3 STATIC DI ATE
ERVICE ANUFACTURER ODEL TY. YPE UPPLY AIR FLOWRATE XHAUST AIR FLOWRATE	CFM CFM	ENERGY RECOVERY RENEWAIRE CA-3XJIN 2 STATIC PLATE 2400	ENERGY RECOVERY RENEWAIRE CA-4XJIN 3 STATIC DI ATE
ANUFACTURER ODEL TY. YPE UPPLY AIR FLOWRATE XHAUST AIR FLOWRATE	CFM CFM	RENEWAIRE CA-3XJIN 2 STATIC PLATE 2400	RENEWAIRE CA-4XJIN 3
ODEL TY. YPE UPPLY AIR FLOWRATE XHAUST AIR FLOWRATE	CFM CFM	CA-3XJIN 2 STATIC PLATE 2400	CA-4XJIN 3
TY. YPE UPPLY AIR FLOWRATE XHAUST AIR FLOWRATE	CFM CFM	2 STATIC PLATE 2400	3 STATIC DI ATE
YPE UPPLY AIR FLOWRATE XHAUST AIR FLOWRATE	CFM CFM	STATIC PLATE	
UPPLY AIR FLOWRATE XHAUST AIR FLOWRATE	CFM CFM	2400	STATIC FLATE
XHAUST AIR FLOWRATE	CFM	2100	8500
		1800	7500
OUTDOOR AIR	°FDB/°FWB	96 / 76	96 / 76
FRESH AIR	°FDB/°FWB	79.9 / 68.9	80.6 / 69.5
RETURN AIR	°FDB/°FWB	73 / 63	73 / 63
SENSIBLE EFFECTIVENESS	%	88.5%	76.3%
TOTAL EFFECTIVENESS	%	77%	60.8%
LOAD SAVINGS RATIO	%	58%	53.4%
SENSIBLE ENERGY RECOVERY	MBTUH	39.6	142
LATENT ENERGY RECOVERY	MBTUH	28	80.4
TOTAL ENERGY RECOVERY	MBTUH	67.6	222.4
MOISTURE REMOVED	GR / LB	15.8	12.7
OUTDOOR AIR	°FDB/°FWB	25.6 / 21.4	25.6 / 21.4
FRESH AIR	°FDB/°FWB	54.9 / 42.4	55.3 / 42.2
RETURN AIR	°FDB/°FWB	70 / 51.5	70 / 51.5
SENSIBLE EFFECTIVENESS	%	88.5%	76.3%
TOTAL EFFECTIVENESS	%	86.5%	72.8%
LOAD SAVINGS RATIO	%	64.5%	63.8%
SENSIBLE ENERGY RECOVERY	BTUH	76.4	274.2
LATENT ENERGY RECOVERY	BTUH	16.9	52.7
TOTAL ENERGY RECOVERY	BTUH	93.3	327
MOISTURE ADDED	GR / LB	9.9	8.7
ITERNAL STATIC, O/A / E/A	IN WC	0.51 / 0.36	1.02 / 0.86
LTER QTY / SIZE, EACH	IN	6 / 20x20x2	8 / 20x20x2
LTER TYPE		MERV 11	MERV 11
NIT DIMENSIONS, EACH	LXWXH	62" x 35" x 35"	82" x 35" x 35"
PPROX. UNIT WEIGHT, EACH	LBS	325	400
DTES: INDOOR UNITS DOUBLE WALL INSULATED CABINET MULTIPLE UNITS ARE TO BE STACKE BE PLENUM STYLE. MAINTAIN ACCESS TO BOTH SIDES (ED, AND DUCT DF ERV FOR FI	CONNECTIONS WILL	

LAY-IN SUPPLY AIR GRILLE NECK SIZES					
AIR FLOW RANGE (CFM)	NECK SIZE SIZE (IN)				
25-120 6"Ø					
125-225	8"Ø				
230-350	230-350 10"Ø				
351-500	12"Ø				
NOTES:					

1. EQUIVALENT SQUARE/RECT SIZES ARE ACCEPTABLE.

NOTES:

LAY-IN RETURN/EXH GRILLE CONNEC	HAUST/TRANSFER AIR CTION SIZES (UOS)
	NECK/DUCT CONNECTION SIZ

AIR FLOW RANGE (CFM)	(UOS) (IN)
0-100	6"Ø
101-175	8"Ø
176-300	10"Ø
301-450	12"Ø
451-750	14"Ø

DESIGNATION		L-1	L-2
SERVICE		MECH ROOM 109	MEZZANINE 200
NOMINAL SIZE (WXH)	IN	76" x 24"	72" x 40"
FREE AREA (DESIGN MINIMUM)	%	42%	45%
FREE AREA	SQ FT	5.4 SF	9.1 SF
DEPTH	IN	6	6
ТҮРЕ		EXTERIOR	EXTERIOR
MATERIAL/CONSTRUCTION		ALUMINUM	ALUMINUM
BASIS OF DESIGN MANUFACTURER		GREENHECK	GREENHECK
BASIS OF DESIGN MODEL		EHH-601	EHH-601
QUANTITY		1	1
NOTES		1 THRU 8	1 THRU 6, 9
NOTES: 1. CONSTRUCTED OF EXTRUDED ALU 2. EXPANDED, FLATTENED ALUMINU 3. MIAMI-DADE CERTIFIED. 4. WIND DRIVEN RAIN RESISTANT 5. FINISH COLOR TO BE BRIGHT SILV 6. INCLUDE INSECT SCREEN 7. PROVIDE INSULATED BLANK PANE	JMINUM. BL M BIRD SCR 'ER AL222, V	ADES POSITIONED HOP EEN. 'ERIFY WITH OWNER	RIZONTALLY.

GRAVITY VENTILATOR SCHEDULE					
DESIGNATION		GV-1			
SERVICE		EXHAUST			
NOMINAL SIZE (WXH)	IN	8			
FREE AREA (DESIGN MINIMUM)	SQ FT	0.37			
AIR FLOW RATE	CFM	70-300			
MAXIMUM PRESSURE DROP	IN	0.2			
THROAT VELOCITY	FPM	VARIES			
MATERIAL/CONSTRUCTION		ALUMINUM			
CURB CAP	IN	19x19			
ROOF CURB		YES			
CURB HEIGHT	IN	12", F.V.			
ROOF OPENING	IN	10.5 x 10.5			
BASIS OF DESIGN MANUFACTURER		GREENHECK			
BASIS OF DESIGN MODEL		GRSR			
PROJECT QTY.		4			
 NOTES: 1. HEAVY-GAUGE ALUMINUM CONSTRUCTION, STANDARD FINISH 2. PROVIDE ROOF CURB TO MATCH ROOF PITCH, CURB SHALL EXTEND MIN. 8" ABOVE ROOFING. 3. CURB CAP TO BE PRE-PUNCHED FOR MOUNTING TO CURB 4. BIRD SCREEN, 1/2" GALV. MESH 5. VENTILATOR & CURB ARE TO BE RATED FOR HIGH WIND APPLICATION 					

8. TO BE INSTALLED IN A DOOR FRAME

9. TO BE INSTALLED IN A CMU WALL

LOUVER SCHEDULE

VRF SYSTEM SCHEDULE			DI	FFU	SE
			 TYPE	OTY	
DESIGNATION		CU-102 & FCU-102			
TYPE OF UNIT		WALL MOUNT COOLING ONLY	A	14	A
MANUFACTURER		MITSUBISHI			S
FAN COIL UNIT MODEL		PKA-AL12NL			<u> </u>
CONDENSING UNIT MODEL		PUZ-AK12NL	B	13	A
SUPPLY AIR (LOW, MED, HIGH)	CFM	265, 290, 385			5
VENTILATION AIR	CFM	N/A			<u> </u>
FAN STATIC (EXTERNAL)	IN	N/A		7	A
AHRI RATED COOLING CAPACITY	MBH	12.0			S
SEER	BTUH/WATT	21.3			
RATED HEATING CAPACITY	MBH	N/A		4	F
UNIT ELECTRICAL CHARACT.	V/Ø/HZ	208/230 / 1 / 60		4	S
MINIMUM CIRCUIT AMPS	AMPS	16			5
BREAKER SIZE	AMPS	20			
SUCTION/LIQUID LINE SIZE	IN	1/2" / 1/4"	E	3	A
MAX PIPING LENGTH	FT	165			
FAN COIL DIMENSIONS (LXWXDP)	IN	36X12X10			
NOTES		1-3, 5-7	F	1	L A
NOTES:					

1. VARIABLE INVERTER-DRIVEN COMPRESSOR, HIGH PRESSURE SWITCH, EXTERNAL SERVICES VALVES.

2. INDOOR UNIT POWERED BY OUTDOOR UNIT. 3. PROVIDE SIMPLE WIRED CONTROLLER

4. CASSETTE TO HAVE CAPACITY TO LIFT CONDENSATE TO 33"

5. INCLUDE MFR LINESET OF APPROPRIATE LENGTH. 6. PROVIDE REFCO GOBI II CONDENSATE PUMP W/ RESERVOIR & SENSOR TO

OVERRIDE EQUIPMENT OPERATION ON HIGH CONDENSATE LEVEL. 7. INCLUDE CONDENSER WALL BRACKET OR MOUNTING PAD.

D	4	A S S
E	3	L(A
F	1	L(A
G	8	P R
H	10	P R
	1	P R
C	6	P R
K	2	P R
Ĺ	3	P R
M	1	Lu G
N	14	D S D
0	2	L(A
P	1	H N
Q	2	A S S
R	2	A S S
S	2	P R
T	2	P R
<u>NOTI</u> 1. 2.	<u>ES:</u> SUPI COO	PLY

J	SER & GRILLE S	CHEDU	LE		
(DESCRIPTION	MODEL	REMARKS	AIR PATTERN	DAMPER
	ARCHITECTURAL SQUARE PLAQUE SUPPLY AIR GRILLE	TITUS OMNI-AA	LAY-IN TYPE, SQUARE PLAQUE, ALUMINUM, WITH FORMED EDGES, WHITE FINISH, 24x24 MODULE SIZE, WITH OPTIONAL FACTORY MOLDED INSULATION BLANKET. 10" ROUND NECK SIZE.	4-WAY	NO
	ARCHITECTURAL SQUARE PLAQUE SUPPLY AIR GRILLE	TITUS OMNI-AA	LAY-IN TYPE, SQUARE PLAQUE, ALUMINUM, WITH FORMED EDGES, WHITE FINISH, 24x24 MODULE SIZE, WITH OPTIONAL FACTORY MOLDED INSULATION BLANKET. 8" ROUND NECK SIZE.	4-WAY	NO
	ARCHITECTURAL SQUARE PLAQUE SUPPLY AIR GRILLE	TITUS OMNI-AA	LAY-IN TYPE, SQUARE PLAQUE, ALUMINUM, WITH FORMED EDGES, WHITE FINISH, 24x24 MODULE SIZE, WITH OPTIONAL FACTORY MOLDED INSULATION BLANKET. 6" ROUND NECK SIZE.	4-WAY	NO
	ARCHITECTURAL SQUARE PLAQUE SUPPLY AIR GRILLE	TITUS OMNI-AA	SURFACE MOUNT, SQUARE PLAQUE, ALUMINUM, WITH FORMED EDGES, WHITE FINISH, 12X12 MODULE SIZE, WITH OPTIONAL FACTORY MOLDED INSULATION BLANKET. 6" ROUND NECK SIZE.	4-WAY	NO
	LOUVERED SUPPLY AIR GRILLE	TITUS 301FS	SURFACE MOUNT TYPE-1, ALUMINUM CONSTRUCTION, 3/4" BLADE SPACING, ADJ. BLADES, SINGLE DEFLECTION, 32"x8" FINISH COLOR TO BE SAPPHIRE BLUE RAL5003.	NA	NO
	LOUVERED SUPPLY AIR GRILLE	TITUS 301FS	SURFACE MOUNT TYPE-1, ALUMINUM CONSTRUCTION, 3/4" BLADE SPACING, ADJ. BLADES, SINGLE DEFLECTION, WHITE FINISH, 8x8, OPPOSED BLADE DAMPER	NA	YES
	PERFORATED RETURN AIR GRILLE	TITUS PAR	LAY-IN TYPE, 3/16" Ø HOLES ON 1/4" CENTERS, ALUMINUM CONSTRUCTION, WHITE FINISH, 24x24 MODULE SIZE, 12" ROUND NECK SIZE	NA	NO
	PERFORATED RETURN AIR GRILLE	TITUS PAR	LAY-IN TYPE, 3/16" Ø HOLES ON 1/4" CENTERS, ALUMINUM CONSTRUCTION, WHITE FINISH, 24x24 MODULE SIZE, 10" ROUND NECK SIZE	NA	NO
	PERFORATED RETURN AIR GRILLE	TITUS PAR	LAY-IN TYPE, 3/16" Ø HOLES ON 1/4" CENTERS, ALUMINUM CONSTRUCTION, WHITE FINISH, 24x24 MODULE SIZE, 8" ROUND NECK SIZE	NA	NO
	PERFORATED RETURN AIR GRILLE	TITUS PAR	LAY-IN TYPE, 3/16" Ø HOLES ON 1/4" CENTERS, ALUMINUM CONSTRUCTION, WHITE FINISH, 24x24 MODULE SIZE, 6" ROUND NECK SIZE	NA	NO
	PERFORATED RETURN AIR GRILLE	TITUS PAR	SURFACE MOUNT, 3/16" Ø HOLES ON 1/4" CENTERS, ALUMINUM CONSTRUCTION, WHITE FINISH, 12X12 MODULE SIZE, 8" ROUND NECK SIZE	NA	NO
	PERFORATED RETURN AIR GRILLE	TITUS PAR	SURFACE MOUNT, 3/16" Ø HOLES ON 1/4" CENTERS, ALUMINUM CONSTRUCTION, WHITE FINISH, 8X8 MODULE SIZE, 6" ROUND NECK SIZE	NA	NO
	LOUVERED RETURN GRILLE	GREENHECK XG-RHE	SURFACE MOUNT TYPE-1, ALUMINUM CONSTRUCTION, 3/4" BLADE SPACING, 45° FIXED BLADE, SINGLE DEFLECTION, 32" x 16" FINISH COLOR TO BE SAPPHIRE BLUE RAL5003.	NA	NO
	DRUM LOUVER FOR SPIRAL-WOUND, DOUBLE-WALL DUCT	GREENHECK XG-RL-SP	DRUM LOUVER FOR INSTALLATION INTO DOUBLE-WALL DUCT. ALUMINUM CONSTRUCTION, ADJUSTABLE DIRECTION VANES, AIR SCOOP, COLOR TO BE WHITE, 30" x 12"	2-WAY	NO
	LOUVERED RETURN AIR GRILLE	GREENHECK XG-RHE	SURFACE MOUNT TYPE-1, ALUMINUM CONSTRUCTION, 3/4" BLADE SPACING, 45° FIXED BLADE, SINGLE DEFLECTION, 64" x 40". FOR USE IN A GYM. FINISH COLOR TO BE AGATE GREY RAL 7038.	NA	NO
	HIGH PRESS SUPPLY NOZZLE	UNICO SYSTEMS	WHITE, 2" ROUND NOZZLE WITH SOUND ATTENUATING HOSE.	NA	NO
	ARCHITECTURAL SQUARE PLAQUE SUPPLY AIR GRILLE	TITUS OMNI-AA	SURFACE MOUNT, SQUARE PLAQUE, ALUMINUM, WITH FORMED EDGES, WHITE FINISH, 24x24 MODULE SIZE, WITH OPTIONAL FACTORY MOLDED INSULATION BLANKET. 8" ROUND NECK SIZE.	4-WAY	NO
	ARCHITECTURAL SQUARE PLAQUE SUPPLY AIR GRILLE	TITUS OMNI-AA	SURFACE MOUNT, SQUARE PLAQUE, ALUMINUM, WITH FORMED EDGES, WHITE FINISH, 24x24 MODULE SIZE, WITH OPTIONAL FACTORY MOLDED INSULATION BLANKET. 6" ROUND NECK SIZE.	4-WAY	NO
-	PERFORATED RETURN AIR GRILLE	TITUS PAR	SURFACE MOUNT, 3/16" Ø HOLES ON 1/4" CENTERS, ALUMINUM CONSTRUCTION, WHITE FINISH, 24x24 MODULE SIZE, 12" ROUND NECK SIZE	NA	NO
	PERFORATED RETURN AIR GRILLE	TITUS PAR	SURFACE MOUNT, 3/16" Ø HOLES ON 1/4" CENTERS, ALUMINUM CONSTRUCTION, WHITE FINISH, 24x24 MODULE SIZE, 6" ROUND NECK SIZE	NA	NO

PPLY FLOW RATES SHALL BE ADJUSTABLE AT THE TAKE OFF UOS. ORDINATE FINISHES WITH ARCHITECT. DUCT MOUNT GRILLES IN EXPOSED DUCTWORK TO BE FIELD-PAINTED

Consultant:	Client:	PHASE: DRAWN: F	REVIEWED:	DATE: ID: REVISION:	DRAWN:REVIEWED:DATE:
McGINNISS +	Leon County Schools	CONCEPT SCHEM. DESIGN			
		DESIGN DEVELOPMENT MH	JB	12/20/2024	
	3420 W. Tharpe St., Suite 100	EARLY DEMOLITION PACKAGE			
		80% CONSTRUCTION DOCS. MH	В	33/21/2025	
JON BARBER, PE 55427 BRIAN WALLACE, PE 75562 820 EAST PARK AVE. I-200. TALLAHASSEE. FL 32301	I alialiassee, FL 32303	PERMIT DOCS.			
MFE-INC.COM 850.681.6424		100% CONSTRUCTION DOCS. MH	B	35/09/2025	
	Job Title: Griffin Middle School - Phase 2	THESE DRAWINGS AND RENDERINGS ARE INST	FRUMENTS OF S	ERVICE. THE DRAWINGS AND ASSOCIATED (COPIES THEREOF, INCLUDING ELECTRONIC
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Architects Lewis + Whitlock 206 West Virginia St. Tallahassee, Florida 32301 850,942.1718 www.think3d.net

Description: Mechanical Schedules

Sheet No.:

M1.2

AIR COOLED SCROLL CHILLE	R		
DESIGNATION		CH-1	
MANUFACTURER		TRANE	
MODEL		CGAM	
REFRIGERANT / OPERATING CHARGE		R454B / 138 LBS	
COOLING CAPACITY (NOMINAL)	TONS	90	
UNIT POWER CONSUMPTION	KW	99.37	
FULL LOAD EFFICIENCY / EER (MIN)	BTUH / W	10.74	
INTEGRATED PART LOAD VALUE (MIN)	kW / TON	16.83	
AMBIENT CONDITIONS	°F	95°	
EVAPORATOR FLOW RATE (NOMINAL/MIN)	GPM	210/120	
SYSTEM PRESSURE DROP (MAX)	FT	15.2	
ENTERING WATER TEMPERATURE	°F	56°	
LEAVING WATER TEMPERATURE	°F	44°	
AVAILABLE HEAD PRESSURE for CHWS	TDH	N/A	
EXPANSION TANK	GAL	N/A	
BUFFER TANK	GAL	N/A	
FOULING FACTOR	HR-SF-°F/ BTU	0.00010	
INDEPENDENT REFRIGERANT CIRCUITS	MIN	2	
COMPRESSORS	MAX	4	
CAPACITY CONTROL DOWN TO	MIN. %	22%	
CHILLER ELECTRICAL CHARACTERISTICS	V/Ø/HZ	460 / 3 / 60	
UNIT POWER REQUIREMENT (MAX)	MCA/MOP	183A/225A	
SHORT CIRCUIT CURRENT RATING (MIN)	kA	65k	
EVAP HEAT POWER ELECTRICAL	V/Ø/HZ	120 / 1 / 60	
EVAP HEAT POWER REQUIREMENT	MCA	20	
A-WEIGHTED SOUND PRESSURE 100/75/50/25	dBA	65	(at 30 FEET)
SHIPPING WEIGHT	LBS	5859	
UNIT DIMENSIONS L x W x H	IN	146 x 88 x 93	

NOTES:

1. HIGH-EFFICIENCY AIR-COOLED SCROLL CHILLER

3. FULL ACCEPTANCE BLADDER 4. ASME Section VIII CONSTRUCTION 5. TANK TO BE UNINSULATED

2. SYSTEM TO BE VARIABLE PRIMARY, WITH REDUNDANT PUMP. PUMPS BY OTHERS. 2. SINGLE-POINT POWER CONNECTION.

- 3. FACTORY CONTROL PANEL WITH LCD DISPLAY & BACNET CARD. BACNET OVER MS/TP OR IP.
- 4. LOW AMBIENT TEMPERATURE OPERATION: 0°-105°F°-105°F

5. FREEZE PROTECTION TO -20°F.°F. 6. INCLUDE EVAPORATOR INSULATION FOR HIGH HUMIDITY CLIMATE, MIN. 1.5" THICK; AND EVAP HEATER FOR FREEZE PROTECTION.

7. PROVIDE EVAPORATOR INLET STRAINER FOR FIELD INSTALLATION. 8. PROVIDE FACTORY MOUNTED AND WIRED FLOW SWITCH AT EVAP OUTLET, 60 cm/s.

9. PROVIDE COMPREHENSIVE ACOUSTIC PACKAGE TO MEET SCHEDULED SOUND PRESSURES.

10. PROVIDE ELASTOMERIC ISOLATORS FOR MOUNTING TO CONCRETE PAD.

11. PROVIDE FACTORY MOUNTED CIRCUIT BREAKER. 12. PROVIDE COMPLETE MANUFACTURER 10-YEAR PARTS, LABOR & REFRIGERANT WARRANTY.

DESIGNATION		HHW-ET	CHW-ET
SYSTEM SERVED		HEATING HOT WATER	CHILLED WATER
TANK TYPE		FULL ACCEPT BLADDER	FULL ACCEPT BLADDER
MANUFACTURER		TACO	TACO
MODEL		CA140-125A	CA140-125A
SIZE	IN.	Ø20x40	Ø20x40
SYSTEM CONNECTION	IN.	1" NPT	1" NPT
MAKE-UP FILL PRESSURE	PSI	25	25
MAKE-UP RELIEF PRESSURE	PSI	75	75
MIN OPERATING TEMP	°F	20	20
MAX DESIGN TEMP	°F	170	100
APPROXIMATE SYSTEM VOLUME	GALLONS	500	500
CALCULATED EXPANSION VOLUME	GALLONS	12.2	2.88
REQUIRED TANK VOLUME	GALLONS	22	5.17
APPLICABLE NOTES		1-5	1-5

BOILER SCHEDULE		
DESIGNATION		B-1
SERVICE		HYDRONIC HEAT
BOILER TYPE		CONDENSING
VENT TYPE		MFR STD
MANUFACTURER		PATTERSON KELLY
MODEL		SC650
MAX PRESSURE	PSIG	160
MAX TEMPERATURE	°F	194
LEAVING WATER TEMP (DESIGN)	°F	160
ENTERING WATER TEMP	°F	140
FUEL TYPE		NATURAL GAS
OUTPUT CAPACITY (LOW/HIGH)	MBH	122.3 / 611.6
HEATING EFFICIENCY	%	94.1
INPUT (LOW/HIGH)	MBH	125 / 650
WATER FLOW RATE (DESIGN / MIN)	GPM	61 / 25
TEMPERATURE DIFF (DESIGN)	°F	20
WATER PRESSURE DROP (MAX)	FT WG	14
INLET GAS PRESSURE RANGE	IN WG	3.5" - 14"
ELECTRICAL CHARACTERISTICS	V/Ø/Hz	120 / 1 / 60
POWER REQUIREMENTS (MAX)	AMPS	<5
DIMENSIONS (LxWxH)	IN	84x36x57
OPERATING WEIGHT	#	780
FEATURES:		

1. BOILER WILL BE INSTALLED OUTDOORS IN A PRIMARY LOOP CONFIGURATION.

- 2. PROVIDE OUTDOOR ENCLOSURE FOR BOILERS, McCOOK, OR EQUAL,
- INCLUDING FLUE AND COMBUSTION AIR STACKS. 3. PROVIDE NEUTRALIZATION KIT FOR INSTALLATION BY CONTRACTOR.
- 4. FULL MODULATION, 5:1 TURNDOWN
- 5. ASME CSD-1 RATED
- 6. FACTORY INTEGRATED CONTROLS 7. PROVIDE A BACNET PROTOCOL CONVERTER, INCLUDING
- ENCLOSURE AND 24VDC POWER. 8. HIGH LIMIT AND OPERATING THERMOSTATS.
- 9. LOW WATER CUT-OFF, 75 PSIG PRESSURE RELIEF VALVE W/ TEMP

INDICATOR.

- 10. PROVIDE GAS TRAIN WITH VALVES
- 11. HIGH EXHAUST BACK PRESSURE SWITCH 12. DP COMBUSTION AIR SWITCH
- 13. COMBUSTION BLOWER, VARIABLE SPEED. PROVIDE FILTER AND
- SPARE FILTER FOR START-UP.

CHEMICAL POT FEEDER SCHEDULE

DESIGNATION		HHW - CPF	
SYSTEM SERVED		CHW	
MANUFACTURER		NEPTUNE	
MODEL		DBF-5HP	
CONNECTION SIZE & TYPE		3/4" NPT	
CAPACITY	GAL.	5	
FILTER BAG KIT		YES	
DESIGN PRESSURE	PSIG	300	
DIMENSIONS (DIA/HT)	IN	10 x 30	
DRY WEIGHT	LB	38	
OPTIONS/FEATURES		1	

NOTES:

. PROVIDE OPTIONAL FILTER BAG KIT FBK-5. 2. TANK TO BE INSULATED BY CONTRACTOR; MAINTAIN ACCESS TO CAP.

AIR & DIRT SEPARATOR SCHEDULE						
DESIGNATION		CHW - ADS				
SYSTEM SERVED		CHW				
MANUFACTURER		TACO				
MODEL		4904AD-150A				
CONNECTION SIZE & TYPE		4" FLANGED	2			
FLOW RATE	GPM	210				
PRESS DROP (MAX)	FT H2O	1.5				
SUPPORT	TYPE	PIPE SUPPORT	P			
DIMENSIONS (DIA/HT)	IN	Ø12x22				
DRY WEIGHT	LB	90				
OPTIONS/FEATURES		SEE BELOW				
	1					

NOTES:

1. RATED FOR 125 PSI & 350°° F

2. TANGENTIAL NOZZLES FOR CENTRIFUGAL PARTICULATE REMOVAL 3. PROVIDE BASE RING, AIR VENT, & BLOWDOWN VALVE

4. ASME Section VIII CONSTRUCTION

5. TANK TO BE INSULATED BY CONTRACTOR

6. SUPPORT PER MANUFACTURER'S INSTRUCTIONS.

DESIGNATION		VFD-CHWP-1 & 2	VFD-HHWP-1 & 2	
SERVICE		CHILLED WATER PUMP	HOT WATER PUMP	
QTY.		2	2	
DRIVE RATED HORSEPOWER CAPACITY (MIN)	HP	7.5	2	
DRIVE MOTOR FULL LOAD AMPACITY (MIN)	AMP	11	3.5	
DRIVE AMBIENT OPERATING TEMP (MAX)	°F	104	104	
MOTOR ELECTRICAL SERVICE	V/PH/HZ	480/3/60	480/3/60	
SPEED CONTROL SIGNAL		0-10vDC	0-10vDC	
DRIVE EFFICIENCY (MINIMUM AT FULL LOAD)		95%	95%	
POWER FACTOR (MINIMUM)		0.95	0.95	
DISCONNECT		YES	YES	
BYPASS		NO	NO	
ENCLOSURE TYPE		NEMA 4X	TYPE 4X	
BASIS OF DESIGN MANUFACTURER/MODEL		TACO	TACO	
APPLICABLE NOTES		1-6	1-6	
 PROVIDE FACTORY CERTIFIED STARTOF OF PROVIDE BACNET PROTOCOL TO COMMUN PROVIDE HAND-OFF-AUTO CAPABILITY. PROVIDE THREE (3) YEAR PARTS/LABOR W/ DRIVE TO INCLUDE 5% DC CHOKE. 	ARRANTY.	L. THE BAS.		
 PROVIDE BACNET PROTOCOL TO COMMUN PROVIDE HAND-OFF-AUTO CAPABILITY. PROVIDE THREE (3) YEAR PARTS/LABOR W/ DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE	ARRANTY.	THE BAS.		
 2. PROVIDE FACTORY PROTOCOL TO COMMUN 4. PROVIDE HAND-OFF-AUTO CAPABILITY. 5. PROVIDE THREE (3) YEAR PARTS/LABOR W/ 6. DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE DESIGNATION		THE BAS.	2 HHWP-1 & HH	₩P-2
2. PROVIDE FACTORY PROTOCOL TO COMMUN 3. PROVIDE BACNET PROTOCOL TO COMMUN 4. PROVIDE HAND-OFF-AUTO CAPABILITY. 5. PROVIDE THREE (3) YEAR PARTS/LABOR W/ 6. DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE DESIGNATION SYSTEM SERVED		THE BAS. CHWP-1 & CHWP- CHILLED WATEF	2 HHWP-1 & HH	IWP-2 WATER
2. PROVIDE FACTORY CERTIFIED STARTOF OF 3. PROVIDE BACNET PROTOCOL TO COMMUN 4. PROVIDE HAND-OFF-AUTO CAPABILITY. 5. PROVIDE THREE (3) YEAR PARTS/LABOR W/ 6. DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE DESIGNATION SYSTEM SERVED DUTY	ARRANTY.	THE BAS. CHWP-1 & CHWP- CHILLED WATER VARIABLE PRIMAR	2 HHWP-1 & HH HEATING HOT RY VARIABLE PR	IWP-2 WATER
2. PROVIDE FACTORY PROTOCOL TO COMMUN 4. PROVIDE HAND-OFF-AUTO CAPABILITY. 5. PROVIDE THREE (3) YEAR PARTS/LABOR W/ 6. DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE DESIGNATION SYSTEM SERVED DUTY MANUFACTURER		THE BAS. CHWP-1 & CHWP- CHILLED WATER VARIABLE PRIMAR TACO	2 HHWP-1 & HH HEATING HOT Y VARIABLE PR TACO	IWP-2 WATER IMARY
2. PROVIDE FACTORY PROTOCOL TO COMMUN 4. PROVIDE HAND-OFF-AUTO CAPABILITY. 5. PROVIDE THREE (3) YEAR PARTS/LABOR W/ 6. DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE DESIGNATION SYSTEM SERVED DUTY MANUFACTURER MODEL		THE BAS. CHWP-1 & CHWP- CHILLED WATEF VARIABLE PRIMAF TACO SCI2509D	2 HHWP-1 & HH B HEATING HOT RY VARIABLE PR TACO SKV15071	IWP-2 WATER IMARY D
2. PROVIDE FACTORY PROTOCOL TO COMMUN 4. PROVIDE BACNET PROTOCOL TO COMMUN 4. PROVIDE HAND-OFF-AUTO CAPABILITY. 5. PROVIDE THREE (3) YEAR PARTS/LABOR W/ 6. DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE DESIGNATION SYSTEM SERVED DUTY MANUFACTURER MODEL CASING / IMPELLER	ARRANTY.	THE BAS. CHWP-1 & CHWP- CHILLED WATEF VARIABLE PRIMAF TACO SCI2509D C.I. / BRONZE	2 HHWP-1 & HH B HEATING HOT RY VARIABLE PR TACO SKV15071 C.I. / BRON	IWP-2 WATER IMARY D
2. PROVIDE PACIENT PROTOCOL TO COMMUN 4. PROVIDE HAND-OFF-AUTO CAPABILITY. 5. PROVIDE THREE (3) YEAR PARTS/LABOR W/ 6. DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE DESIGNATION SYSTEM SERVED DUTY MANUFACTURER MODEL CASING / IMPELLER CONNECTION SIZES (SUCTION/DISCHARGE)		THE BAS. CHWP-1 & CHWP- CHILLED WATER VARIABLE PRIMAR TACO SCI2509D C.I. / BRONZE 3" / 2-1/2"	2 HHWP-1 & HH HEATING HOT RY VARIABLE PR TACO SKV1507I C.I. / BRON 1-1/2" x 1-1	IWP-2 WATER IMARY D IZE /2"
2. FROVIDE FACTORY PROTOCOL TO COMMUN 3. PROVIDE BACNET PROTOCOL TO COMMUN 4. PROVIDE HAND-OFF-AUTO CAPABILITY. 5. PROVIDE THREE (3) YEAR PARTS/LABOR W/ 6. DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE DESIGNATION SYSTEM SERVED DUTY MANUFACTURER MODEL CASING / IMPELLER CONNECTION SIZES (SUCTION/DISCHARGE) PUMP TYPE	ICATE WITH	THE BAS. CHWP-1 & CHWP- CHILLED WATER VARIABLE PRIMAR VARIABLE PRIMAR TACO SCI2509D C.I. / BRONZE 3" / 2-1/2" CLOSE-COUPLED	2 HHWP-1 & HH HEATING HOT RY VARIABLE PR TACO SKV1507I C.I. / BRON 1-1/2" x 1-1 VERTICAL INI	IWP-2 WATER IMARY D IZE /2" LINE
2. PROVIDE PACINITY CERTIFIED STARTOF OF 3. PROVIDE BACNET PROTOCOL TO COMMUN 4. PROVIDE HAND-OFF-AUTO CAPABILITY. 5. PROVIDE THREE (3) YEAR PARTS/LABOR W/ 6. DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE DESIGNATION SYSTEM SERVED DUTY MANUFACTURER MODEL CASING / IMPELLER CONNECTION SIZES (SUCTION/DISCHARGE) PUMP TYPE FLOW RATE NORMAL / MINIMUM		THE BAS. CHWP-1 & CHWP- CHILLED WATER VARIABLE PRIMAR TACO SCI2509D C.I. / BRONZE 3" / 2-1/2" CLOSE-COUPLED 220 / 120	2 HHWP-1 & HH HEATING HOT RY VARIABLE PR TACO SKV1507I C.I. / BRON 1-1/2" x 1-1 VERTICAL INI 61 / 25	IWP-2 WATER IMARY D IZE /2" LINE
2. FINOVIDE FACIOIN CERTIFIED OF ARTOFOR 3. PROVIDE BACNET PROTOCOL TO COMMUN 4. PROVIDE HAND-OFF-AUTO CAPABILITY. 5. PROVIDE THREE (3) YEAR PARTS/LABOR W/ 6. DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE DESIGNATION SYSTEM SERVED DUTY MANUFACTURER MODEL CASING / IMPELLER CONNECTION SIZES (SUCTION/DISCHARGE) PUMP TYPE FLOW RATE NORMAL / MINIMUM TEMP		THE BAS. CHWP-1 & CHWP- CHILLED WATER VARIABLE PRIMAR VARIABLE PRIMAR TACO SCI2509D C.I. / BRONZE 3" / 2-1/2" CLOSE-COUPLED 220 / 120 44	2 HHWP-1 & HH HEATING HOT XY VARIABLE PR XY VARIABLE PR TACO SKV1507 C.I. / BRON 1-1/2" x 1-1 VERTICAL INI 61 / 25 160	IWP-2 WATER IMARY D IZE /2" LINE
2. FILOVIDE FACTORY PERTOCOL TO COMMUN 3. PROVIDE BACNET PROTOCOL TO COMMUN 4. PROVIDE HAND-OFF-AUTO CAPABILITY. 5. PROVIDE THREE (3) YEAR PARTS/LABOR W/ 6. DRIVE TO INCLUDE 5% DC CHOKE. PUMP SCHEDULE DESIGNATION SYSTEM SERVED DUTY MANUFACTURER MODEL CASING / IMPELLER CONNECTION SIZES (SUCTION/DISCHARGE) PUMP TYPE FLOW RATE NORMAL / MINIMUM TEMP TOTAL DYNAMIC HEAD	ICATE WITH ARRANTY.	L. THE BAS. CHWP-1 & CHWP- CHILLED WATER VARIABLE PRIMAR VARIABLE PRIMAR TACO SCI2509D C.I. / BRONZE 3" / 2-1/2" CLOSE-COUPLED 220 / 120 44 60	2 HHWP-1 & HH 2 HEATING HOT 3 Y VARIABLE PR 4 TACO 5 KV1507 C.I. / BRON 1-1/2" x 1-1 VERTICAL INI 61 / 25 160 50	IWP-2 WATER IMARY D IZE /2" LINE

GYMNASIUM EQUIPMENT	COOLING	G LOADS	HEATIN	G LOADS
	MBH	GPM	MBH	GPM
		@ 12° DT		@ 20° DT
AHU-1	260	44	140	14
AHU-2	708	120	330	33
AHU-3	132	22	78	8
TOTALS	1100	186	550	55
TONS	91.7			

CHW - CPF CHW NEPTUNE DBF-5HP 3/4" NPT 5 YES 300 10 x 30 38 1

HHW - ADS HHW TACO 49025AD-125 2.5" FLANGED

60 2 PIPE SUPPORT Ø12x20 50 SEE BELOW

PUMP SCHEDULE			
DESIGNATION		CHWP-1 & CHWP-2	HHWP-1 & HHWP-2
SYSTEM SERVED		CHILLED WATER	HEATING HOT WATER
DUTY		VARIABLE PRIMARY	VARIABLE PRIMARY
MANUFACTURER		TACO	TACO
MODEL		SCI2509D	SKV1507D
CASING / IMPELLER		C.I. / BRONZE	C.I. / BRONZE
CONNECTION SIZES (SUCTION/DISCHARGE)	IN	3" / 2-1/2"	1-1/2" x 1-1/2"
PUMP TYPE		CLOSE-COUPLED	VERTICAL INLINE
FLOW RATE NORMAL / MINIMUM	GPM	220 / 120	61 / 25
TEMP	°F	44	160
TOTAL DYNAMIC HEAD	FT	60	50
SHUT-OFF HEAD	FT	68	55
PUMP EFFICIENCY	%	75	52%
IMPELLER DIA	IN	9	6.7
PUMP SPEED	RPM	1760	1750
ELECTRICAL CHARACTERISTICS	V/Ø/HZ	460/3/60	460/3/60
MOTOR HORSEPOWER	HP	7.5	2
MOTOR TYPE		TEFC, INVERTER RATED	TEFC, INVERTER RATE
SUCTION DIFFUSER, FLG'D	IN	4 x 3	N/A
MULTI-PURPOSE VALVE, FLG'D	IN	N/A	N/A
APPLICABLE NOTES		2, 3, 4, 5	2, 3, 4, 5
		*	

NOTES: 1. FIXED-SPEED PUMP

2. PUMP OPERATED BY VARIABLE FREQUENCY DRIVE, SEE SCHEDULE.

3. STANDARD MECHANICAL SEAL WITH NO EXTERNAL FLUSH. 4. SELF SENSING PUMP FOR PRESSURE CONTROL.

5. INSTALLED OUTSIDE.

6. CHILLED WATER PUMPS ARE SIZED FOR CHILLED WATER DT = 10F, BUT WILL OPERATE AT DT = 12F.

FLOW METER SCHEDULE

DESIGNATION		FM-1	FM-4
SERVICE		CHILLER	BOILER
FLUID		CHILLED WATER	HOT WATER
MANUFACTURER		ONICON	ONICON
MODEL NUMBER		F-3200	F-3200
SENSING METHOD		ELECTROMAGNETIC	ELECTROMAGNETIC
ТҮРЕ		INLINE	INLINE
CONNECTION		4" 150# FLG	2-1/2" 150# FLG
BODY		CARBON STEEL	CARBON STEEL
LINER		PTFE	PTFE
ACCURACY (FULL SCALE)		+/- 0.2%	+/- 0.2%
INPUT POWER		24 VDC	24 VDC
TRANSMITTER		INTEGRAL	INTEGRAL
OPERATING FLOW	GPM	210	60
DESIGN / OPERATING TEMPERATURE	°F	0 to 212 / 45	0 to 212 / 160
DESIGN / OPERATING PRESSURE	PSIG	580 / 60	580 / 60
OUTPUT		(2) 4-20 mA	(2) 4-20 mA
LOCAL DISPLAY		YES	YES
PROJECT QTY.		1	1
NOTES		1, 2, 3	1, 2, 3
NOTES:	FOR		

CHILLED/H	HW WAT	ER PIPING ACCESSORIES

OTHELED			
DESCRIPTION	MODEL	REMARKS	QTY.
EJ-2.5, 2.5"	METRAFLEX MSRDEE	PUMP DISCHARGE EXPANSION JOINT, EPDM, ANSI 125#/150# FLANGED ENDS, 6" LENGTH, RETAINING RING. INCLUDE CONTROL RODS.	6
EJ-4, 4"	METRAFLEX MSRDEE	PUMP SUCTION EXPANSION JOINT, EPDM, ANSI 125#/150# FLANGED ENDS, 6" LENGTH, RETAINING RING. CONTROL RODS ARE NOT REQUIRED.	2
EJ-4V, 4"	METRAFLEX MSRDEE	CHILLER EXPANSION JOINT, EPDM, VICTAULIC ENDS, 6" LENGTH, RETAINING RING. INCLUDE CONTROL RODS.	2

1. FLOW & TEMPERATURE MONITOR. FOR LOCAL DISPLAY ONLY.

2. INSTALL PER MFR INSTRUCTIONS - 3D UPSTREAM, 2D DOWNSTREAM; METER MUST ALWAYS BE FULL OF WATER.

3. AS SPECIFIED, OR EQUIVALENT.

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		MCGINNISS + Leon County Schools Design Development MH JB 12/20/2024	M McGINNISS + Leon County Schools concert schem. Design concert schem. Design FLEMING 3420 W. Tharbe St., Suite 100 Early Demolifion Package MH JB 12/20/2024	Modinniss + Leon County Schools concept schem. Design n	McGINNISS + Leon County Schools concept schem. design d	Modinniss + Leon County Schools concept schem design a	McGINNISS + Encline Libration Encline Fight McGINNISS + Encline Fight McGINNISS + Encline Fight McGINISS + Encline



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Description: Mechanical Schedules

Sheet No.:

M1.3



- MANUFACTURER TO COMPLY WITH THE PRODUCT'S WIND LOAD CAPABILITY. 7. INSTALL CANT STRIP AT INTERSECTION OF ROOF AND CURB.
- 8. ROOF MEMBRANE SHALL COVER THE EXTERIOR OF THE CURB AND THE TIE STRAPS. 9. UPPER SECTION OF DUCT TO BE SUPPORTED AT ROOF.
- 10. FLEXIBLE CONNECTION
- 11. DUCT SUPPORTED FROM JOISTS 12. BACK-DRAFT DAMPER
- 13. POWER TO CONNECT TO FACTORY DISCONNECT
- 14. FRAMING FOR ROOF PENETRATION, SEE STRUCTURAL SHEETS

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Description: Mechanical Details

M1.4



VARIABLE PRIMARY CHILLED WATER PIPING SCHEMATIC





AIR-DIRT SEPARATOR DETAIL SCALE: NTS

NOTES:

- SEE EQUIPMENT SCHEDULE. 2. DIRECT AIR VENT & BLOWDOWN TO A SAFE LOCATION.
- 3. INSULATE SEPARATOR FOR ENERGY CONSERVATION AND
- PERSONNEL PROTECTION.
- 4. 4" AND SMALLER ADS WILL BE SUPPORTED VIA PIPING.

PUMP DETAIL SCALE: NTS

EMERGENCY CHILLER

CONNECTION,

CHWS

6. FULLY INSULATE PIPING & APPURTENANCES TO PREVENT CONDENSATION.



BY-PASS FEEDER DETAIL

NTS

NOTES 1. INSTALL UNIT PER THE MANUFACTURER'S REQUIREMENTS.

2. PROVIDE ISOLATION VALVES AT CONNECTION TO MAIN PIPING.

3. INSULATE PIPING, VALVES, TANK.







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Description: Mechanical Details







Sheet No.: M2.0



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Description: New Gymnasium First Floor Plan Mechanical Piping

Sheet No.: M3.1



	Seal:	Consultant:		Client:	PHASE:	DRAWN:	REVIEWED:	DATE:	D: REVISION:	DRAWN:	REVIEWED:DATE:
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Description: New Gymnasium Mechanical Mezzanine Plan



















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Description: New Gymnasium Enlarged Plans & Sections

Sheet No .: M3.4



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Description: New Gymnasium Sections



HVAC CONTROLS:

- CONTROL SYSTEM INCLUDES (BUT IS NOT LIMITED TO) LABOR AND MATERIALS FOR TERMINATIONS, PATHWAYS, INSTALLATIONS, CERTIFICATIONS, TESTING, SYSTEM VERIFICATION, PROJECT COMMISSIONING, INTEGRATION EQUIPMENT, AND INSTRUMENTATION.
- CONTROL WIRING REQUIRED FOR THIS SYSTEM SHALL BE PROVIDED & INSTALLED PER DIVISION 26. WIRING MUST BE IN CONDUIT OVER ITS ENTIRE LENGTH; COORDINATE SUPPORTS & WALL PENETRATIONS WITH OTHER TRADES. 1. INSIDE CONTROL WIRING: MINIMUM OF ³/₄" CONDUIT FOR ALL CONTROL WIRING WITH EXCEPTION OF ¹/₂" FOR THE ROOM TEMPERATURE WALL SENSORS BACK TO THE
- TERMINAL UNIT. 2. AHU MECHANICAL ROOMS: MINIMUM OF 3/4" CONDUIT FOR ALL CONTROL WIRING - WITH 1/2 INCH STEEL FLEX (6FT. MAX) - WITH ALL STEEL FITTINGS FOR EMT AND FLEX
- CONNECTORS.
- 3. CENTRAL PLANT: EMT ABOVE 6FT ABOVE FINISHED FLOOR. RIGID BELOW 6FT + SEALTITE (6FT MAX) TO ALL DEVICES. 4. TSTATS: 2 X 4 VERTICAL BOX BY ELECTRICAL DIVISION. LOCATIONS TO BE COORDINATED WITH OTHER TRADES
- 5. CONDUITS BETWEEN BUILDINGS: 1" BY ELECTRICAL DIVISION. THESE TYPICALLY RUN BETWEEN COMM ROOMS OR BETWEEN TWO MECHANICAL ROOMS. 6. EXTERIOR CONDUIT: RIGID CONDUIT+ SEALTITE FOR ANY OUTSIDE CONTROL WIRING.
- UNLESS EXPLICITLY LISTED BELOW, THE CONTROLS DEVICES AND PROGRAMMING SHALL BE SUPPLIED BY THE CONTROLS CONTRACTOR. THE SEQUENCE ON THIS SHEET SHALL GOVERN THE OPERATION OF THE CONTROLS.
- 1. THE VFDs ARE SUPPLIED BY THE MECHANICAL CONTRACTOR
- CONTACT CLOSURES ARE AVAILABLE FROM THE LIGHTING CONTROL SYSTEM FOR INTEGRATION OF OCCUPANCY.
- THE CONTROLS CONTRACTOR SHALL PROVIDE THE FOLLOWING EQUIPMENT AND COORDINATE INSTALLATION WITH THE MECHANICAL AND ELECTRICAL CONTRACTORS: 2-WAY COOLING COIL VALVES, MODULATING, FAIL CLOSED
 - 3-WAY & 2-WAY HEATING COIL VALVES, DIVERTING, MODULATING, FAIL TO BYPASS POSITION
- R/A & O/A CONTROL DAMPERS AND ACTUATORS. MODULATING OPERATION. ANALOG AND BINARY DEVICES FOR AHU AND DUCT - VERIFY REQUIRED STRAIGHT RUN REQ'S
- ANALOG AND BINARY DEVICES FOR HYDRONIC SYSTEMS VERIFY REQUIRED STRAIGHT RUN REQ'S
- ALL DEVICES SHALL BE INTEGRATED INTO THE BAS; VISIBLE AND CONTROLLABLE (WHERE APPLICABLE) IN THE USER INTERFACE.
- PRIOR TO START-UP, PERFORM SYSTEM OPERATIONAL CHECKOUT.
- THE CONTROLS VENDOR SHALL ASSIST THE COMMISSIONING AGENT THROUGH ACCEPTANCE OF FUNCTIONAL PERFORMANCE TESTING.
- PROVIDE OWNER TRAINING, INCLUDING PROCESS TO START-UP AND OPERATE EQUIPMENT
- AT THE END OF THE PROJECT, PROVIDE RECORD DOCUMENTS, MANUFACTURER INFORMATION FOR BAS & INSTRUMENTS, AND OPERATION MANUALS.

CONTROL	S LEGEND & ABBREV.
DESIGNATION	DESCRIPTION
T/H	SPACE TEMP/RH SENSOR & WIREWAY
$\bigcirc D$	DUCT DETECTOR
0	THERMOMETER
\bigcirc	PRESS GAUGE & COCK
57 F	FLOW SWITCH
- T	TEMPERATURE SENSOR
57 FS	FREEZE STAT
	HIGH PRESSURE SWITCH
55 SP	STATIC PRESSURE
Star	LEVEL SWITCH
KRH-	HUMIDISTAT
STEM-	FLOW METER
	DIFFERENTIAL PRESSURE TRANSDUCER
SCT	CURRENT TRANSDUCER
Ε	ELECTRIC ACTUATOR
Μ	MANUAL ACTUATOR
ES	EMERGENCY SWITCH
	PUMP
PT	PRESS/TEMP PORT
A	TWO-WAY CONTROL VALVE
Ŕ	THREE-WAY CONTROL VALVE
	COMBINATION MOTOR STARTER DISCONNECT WITH HOA SWITCH
	VARIABLE FREQ. DRIVE W/HOA SWITCH
T	SPACE TEMPERATURE SENSOR & WIREWAY
BAS	BUILDING AUTOMATION SYSTEM

CHILLED WATER SYSTEM

GENERAL

BETWEEN THE VFD AND THE PUMP CONTROLLER.

THE DP SETPOINT IS TO BE PROVIDED TO THE VFD.

REFERENCE "VARIABLE PRIMARY CHILLED WATER PIPING SCHEMATIC" ON SHEET M1.5

THE CHILLER IS SUPPLIED WITH A MANUFACTURER CONTROLLER WITH BACNET COMPATIBILITY. COMMUNICATION WITH CHILLER & DEVICES SHALL BE VIA BACNET, INCLUDING PUMP CONTROL & FLOW SWITCH STATUS.

PROGRAM TREND DATA FOR KEY OPERATING PARAMETERS OF PLANT SYSTEMS TO INCLUDE CHILLER % RATED AMPS, LEAVING AND ENTERING WATER TEMPERATURES, SETPOINTS, RUN TIME, EQUIPMENT STATUS, PROOF OF FLOW, CHILLER DP, ALARMS, ETC.

START-UP SEQUENCE THE SYSTEM SHALL NOT BE ALLOWED TO START UNLESS ALL SAFETIES ARE OUT OF ALARM.

THE SYSTEM SHALL BE ACTIVE ANY TIME AN ASSOCIATED AIR HANDLING UNIT IS ACTIVE AND CALLS FOR COOLING.

- UPON START-UP COMMAND, VIA BAS:
- 1. CHILLED WATER BYPASS VALVE OPENS. FLOW)
- 3. CHILLER STARTS AND IS PROVEN.
- 4. DIFFERENTIAL PRESSURE RESET SEQUENCE ACTIVATES. 5. TEMPERATURE CONTROL SEQUENCE ACTIVATES.
- 6. BYPASS CONTROL VALVE SEQUENCE ACTIVATES.

IF A PUMP OR CHILLER IS NOT PROVEN WITHIN 60 SECONDS OF START COMMAND, THE SHUTDOWN SEQUENCE ACTIVATES FOR THAT EQUIPMENT, AN ALARM IS GENERATED, AND THE LAG EQUIPMENT STARTS.

DIFFERENTIAL PRESSURE RESET

- EVERY 15 MINUTES (ADJ), THE DIFFERENTIAL PRESSURE SETPOINT RESETS WITHIN MINIMUM AND MAXIMUM LIMITS:
- 1. IF ANY ASSOCIATED CHILLED WATER VALVE COMMAND IS GREATER THAN 90% (ADJ), INCREASE SETPOINT BY 1.0 PSID (ADJ).
- 2. IF ALL ASSOCIATED CHILLED WATER VALVE COMMANDS ARE LESS THAN 60% (ADJ), DECREASE

SETPOINT BY 1.0 PSID (ADJ).

TEMPERATURE CONTROL CHILLER CAPACITY MODULATES TO MAINTAIN LOOP SUPPLY TEMPERATURE SETPOINT:

THE SETPOINT FOR LEAVING WATER TEMPERATURE WILL BE 44°F (ADJ).

BYPASS VALVE CONTROL VALVE SHALL MODULATE TO MAINTAIN MINIMUM FLOW RATE THROUGH CHILLERS.

CHILLER OPERATION MINIMUM FLOW RATE = 120 GPM.

LEAD/LAG PUMP ROTATION EVERY TWO WEEKS(ADJ) UPON ROTATION COMMAND OR OPERATOR INPUT, THE LEAD/LAG DESIGNATIONS ROTATE, ASSIGNED IN ORDER OF RUN HOURS.

SHUTDOWN SEQUENCE UPON SHUTDOWN COMMAND:

- 1. CHILLED WATER BYPASS VALVE OPENS
- 2. ALL ACTIVE SEQUENCES DEACTIVATE.
- 3. CHILLER STOPS AND IS PROVEN. 4. PUMP RUNS FOR 10 MINUTES, THEN STOPS AND IS PROVEN.

CHILLER PUMP COMMAND: FREEZE PROTECTION - WHEN CHILLER CALLS FOR PUMP OPERATION BASED ON LOW AMBIENT TEMPERATURE, OPEN BYPASS VALVE TO 100%, START LEAD PUMP AND RUN AT FULL FLOW UNTIL THE CHILLER ENDS THE REQUEST

EQUIPMENT FAILURE

IF THE CHILLER FAILS, THE SHUTDOWN SEQUENCE ACTIVATES, AN ALARM IS GENERATED. THE DESIGN DP ACROSS THE EVAPORATOR & STRAINER IS 15.1 FT H2O. WHEN THE DP REACHES 20 FT H2O (ADJ) GENERATE AN ALARM

TE AMBIENT TEMP FSL

CHILLER 90-TON SCROLL

FT 120 GPM MIN. 186 GPM TARGET 240 GPM MAX.



THIS PROJECT WILL INSTALL A 90-TON AIR-COOLED CHILLER AND 2 VARIABLE PRIMARY PUMPS IN AN N+1 CONFIGURATION. PUMPS HAVE SELF-SENSING CONTROL TO ADAPT TO CHANGES IN SYSTEM PRESSURE. COMMUNICATING VFDs ARE PROVIDED WITH THE PUMPS; CONTROL WIRING SHALL BE CONNECTED

THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE CONTROLS CONTRACTOR.

PROVIDE CHILLER AND PRIMARY PUMP GRAPHICS. OUTDOOR AIR TEMPERATURE SHALL BE DISPLAYED ON THE CHILLER SCREEN.

2. LEAD PUMP STARTS, IS COMMANDED TO MINIMUM SPEED OF 34 Hz (ADJ) AND IS PROVEN (MINIMUM SPEED TO BE DETERMINED BY T&B AND WILL CORRESPOND TO CHILLER MINIMUM

CHILLED WATER SYSTEM

SEE SCHEMATIC ON M1.5 FOR ALL INLINE DEVICES

						COI	NTRC	L PO	INTS			
				POIN	TS			A	LARM	GE	ENER	AL
			NPUT	-	0	UTPL	IT					
POINT NAME	UNITS	ANALOG	DIGITAL	INTEGRATED	ANALOG	DIGITAL	INTEGRATED	GENERAL	UNIT SHUTDOWN	TREND LOG	GRAPHIC	INTERLOCK
PUMP 1 RUN COMMAND	ON/OFF					X				x	x	
PUMP 1 SPEED COMMAND	% SPEED						Х			X	Х	
PUMP 1 RUN STATUS	ON/OFF		X					x		X	Х	
PUMP 1 DIFFERENTIAL PRESSURE	PSID			X			Х	X		X	Х	
PUMP 2 RUN COMMAND	ON/OFF					Х				X	Х	
PUMP 2 SPEED COMMAND	% SPEED						Х			X	Х	
PUMP 2 RUN STATUS	ON/OFF		X					x		X	Х	
PUMP 2 DIFFERENTIAL PRESSURE	PSID			X			Х	X		X	Х	
CHILLED WATER LOOP FLOW	GPM	Х						x		X	Х	
3YPASS CONTROL VALVE	%				x					X	Х	
CHW PLANT DIFFERENTIAL PRESSURE	PSID	Х								X	Х	
CHW LOOP DIFFERENTIAL PRESSURE	PSID	Х								X	Х	
EVAPORATOR DIFFERENTIAL PRESSURE	PSID	Х						х		X	Х	
CHW LOOP RETURN TEMPERATURE	DEG F	Х								X	Х	
CHW LOOP SUPPLY TEMPERATURE	DEG F	Х								X	Х	
OUTSIDE AIR TEMPERATURE	DEG F	Х								X	Х	
CHILLER ENABLE COMMAND	ON/OFF						Х			X	Х	
CHW SUPPLY TEMPERATURE SETPOINT	DEG F						Х			X	Х	
CHW DIFFERENTIAL PRESSURE SETPOINT	PSID						Х			X	Х	
CHILLED WATER PROOF OF FLOW	YES/NO			Х						X	Х	
CHW ENTERING TEMPERATURE	DEG F			Х						X	Х	
CHW LEAVING TEMPERATURE	DEG F			Х						X	Х	
EVAP HEATER	ON/OFF			X						X	Х	
COMPRESSOR CURRENT	% RLA			Х						X	Х	
COMPRESSOR CURRENT MAX SETPOINT	% RLA			X						X	Х	
CHILLER RUN STATUS	ON/OFF			X						X	Х	
CHILLER RUN STATUS ALARM	NORMAL/ALARM			Х						X	Х	
CHILLER CLEAR ALARM							Х					
SERVICE REQUEST								X				
											_	<u> </u>
PLANT CONSUMPTION TOTALIZED	TON HR			X						X	Х	



TO PLANT CONTROLLER TO PREVENT LOSS OF COMMUNICATION SEE T&B REPORT FOR DP SETPOINT

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Consultant:	MCGINNISS +				JON BARBER, PE 55427 BRIAN WALLACE, PE 75562 820 EAST PARK AVE. I-200. TALLAHASSEE. FL 32301	MFE-INC.COM 850.681.6424	13 / Construction Documents	

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Description: Controls General & Chiller



EQUIPMENT FAILURE

4. PUMP RUNS FOR 10 MINUTES (WITH PROOF OF FLOW) THEN STOPS AND IS PROVEN.

IF THE LEAD PUMP OR BOILER FAILS, THE SHUTDOWN SEQUENCE ACTIVATES FOR THAT EQUIPMENT, AN ALARM IS GENERATED, MANUAL RESET IS REQUIRED FOR ALL EQUIPMENT AFTER EQUIPMENT TRIP.

EVERY 5 MINUTES (ADJ), THE TEMPERATURE SETPOINT RESETS WITHIN MINIMUM AND MAXIMUM LIMITS: 1. IF PUMP SPEED IS AT MINIMUM FLOW, AND RWT IS ABOVE 140F AND CLIMBING, RESET LWT DOWN BY 2F 2. IF RWT IS BELOW 140F, RESET LWT UP BY 2F, UP TO MAX SET POINT

BOILER CAPACITY MODULATES TO MEET SUPPLY WATER TEMPERATURE SETPOINT.

THE LOOP SUPPLY WATER TEMPERATURE SEQUENCE ACTIVES ONLY IF PUMP SPEED (FLOW) HAS BEEN RESET TO MINIMUM.

EVERY TWO WEEKS(ADJ) UPON ROTATION COMMAND OR OPERATOR INPUT, THE LEAD/LAG DESIGNATIONS ROTATE, ASSIGNED IN

TEMPERATURE CONTROL

SUPPLY WATER TEMPERATURE RESET

1. ALL ACTIVE SEQUENCES DEACTIVATE 2. BOILER STOPS AND IS PROVEN. 3. BOILER ISOLATION VALVES CLOSE.

1. IF ANY ASSOCIATED HOT WATER VALVE COMMAND IS GREATER THAN 90% (ADJ), INCREASE SETPOINT BY 1.0 PSI (ADJ). 2. IF ALL ASSOCIATED HOT WATER VALVE COMMANDS ARE LESS THAN 60% (ADJ), DECREASE SETPOINT BY 1.0 PSI (ADJ).

THE PUMP SPEED MODULATES TO MAINTAIN MECH ROOM DIFF PRESSURE SETPOINT. SECONDARY PRESSURE RESET EVERY 15 MINUTES (ADJ), THE PRESSURE SETPOINT RESETS WITHIN MINIMUM AND MAXIMUM LIMITS:

IF A PUMP OR BOILER IS NOT PROVEN WITHIN 60 SECONDS OF START COMMAND, THE SHUTDOWN SEQUENCE ACTIVATES FOR THAT EQUIPMENT, AN ALARM IS GENERATED, AND THE LAG EQUIPMENT STARTS.

6. TEMPERATURE CONTROL SEQUENCE ACTIVATES.

- 4. DIFFERENTIAL PRESSURE CONTROL SEQUENCE ACTIVATES. 5. DIFFERENTIAL PRESSURE RESET SEQUENCE ACTIVATES.
- 3. BOILER STARTS AND IS PROVEN.
- 1. BOILER ISOLATION VALVE OPENS (BY BOILER) 2. LEAD PRIMARY PUMP STARTS, IS COMMANDED TO MINIMUM SPEED OF 23 Hz (ADJ), AND IS PROVEN FOR 5 MINUTES. (MINIMUM SPEED TO BE DETERMINED BY T&B AND WILL CORRESPOND TO BOILER MINIMUM FLOW)

UPON START-UP COMMAND, VIA BAS:

DIFFERENTIAL PRESSURE CONTROL

LEAD/LAG PUMP ROTATION

ORDER OF RUN HOURS.

SHUTDOWN SEQUENCE UPON SHUTDOWN COMMAND

THE SYSTEM SHALL NOT BE ALLOWED TO START UNLESS ALL SAFETIES ARE OUT OF ALARM. THE SYSTEM SHALL BE ENABLED ANY TIME AN ASSOCIATED AIR HANDLING UNIT CALLS FOR HEATING.

START-UP SEQUENCE

AHU-2 HEATING COIL WILL HAVE A 2-WAY VALVE - 33 GPM.

AHU-1, 16 GPM AHU-3, 10 GPM

BOILER MINIMUM FLOW RATE IS 25 GPM. THERE WILL BE 3-WAY VALVES AT THE FOLLOWING EQUIPMENT

THE BOILER CONTROL VALVES SHALL BE WIRED INTO THE BOILER CONTROLLER AND CONTROLLED BY THE BOILER.

REFERENCE "VARIABLE PRIMARY HOT WATER PIPING SCHEMATIC" ON SHEET M1.5.

THE DP SETPOINT IS TO BE PROVIDED TO THE VFD.

GENERAL THE SYSTEM IS COMPOSED OF A 650MBH CONDENSING BOILER AND TWO VARIABLE VOLUME PUMPS IN AN N+1 CONFIGURATION. PUMPS HAVE SELF-SENSING CONTROL TO ADAPT TO CHANGES IN SYSTEM PRESSURE. COMMUNICATING VFDs ARE PROVIDED WITH THE PUMPS; CONTROL WIRING SHALL BE CONNECTED BETWEEN THE VFD AND THE PUMP CONTROLLER.

HEATING HOT WATER PLANT SYSTEM

BOILER SHUT DOWN CONTROLS (BY CONTROLS VENDOR)

PROVIDE A SINGLE EMERGENCY STOP SWITCH STATION ON THE INTERIOR OF THE MECHANICAL YARD NEAR THE ENTRANCE GATE,

SWITCH SHALL INTERRUPT THE BOILER'S SAFETY CIRCUIT AND

THE SWITCH SHALL BE CERTIFIED TO MEET THE REQUIREMENTS

INSTALLATION OUTSIDE.

STOP SWITCH ".

INCLUDE SHUTDOWN OF THE BOILER'S GAS TRAIN.

SEE PLAN.

OF ASME CSD-1 AND INCLUDE A NEMA 3R ENCLOSURE FOR

PROVIDE SIGNAGE AT SWITCH STATING "BOILER EMERGENCY



SEE SCHEMATIC ON M1.5 FOR ALL INLINE DEVICES

						CO	NTRO	DL PO	INTS				
				POIN	TS			A	LARM	1	GE	ENER	AL
			NPUT	-	C	UTPU	ΙŢ						
POINT NAME	UNITS	ANALOG	DIGITAL	INTEGRATED	ANALOG	DIGITAL	INTEGRATED	GENERAL	UNIT SHUTDOWN		TREND LOG	GRAPHIC	INTERLOCK
BOILER ENABLE COMMAND	ON/OFF						x				х	x	
BOILER RUN STATUS	ON/OFF			Х							Х	Х	
BOILER EMERGENCY STOP SWITCH	ON/OFF		Х					Х	Х		Х	Х	
PUMP 1 RUN COMMAND	ON/OFF					Х					Х	Х	
PUMP 1 SPEED COMMAND	% SPEED						Х				Х	Х	
PUMP 1 RUN STATUS	ON/OFF		Х					Х			Х	Х	
HW PUMP 1 DIFFERENTIAL PRESSURE	PSID			Х			Х				Х	Х	
PUMP 2 RUN COMMAND	ON/OFF					Х					Х	Х	
PUMP 2 SPEED COMMAND	% SPEED						Х				Х	Х	
PUMP 2 RUN STATUS	ON/OFF		Х					Х			Х	Х	
HW PUMP 2 DIFFERENTIAL PRESSURE	PSID			Х			Х				Х	Х	
HOT WATER LOOP FLOW	GPM	Х						Х			Х	Х	
HW PLANT DIFFERENTIAL PRESSURE	PSID	X									X	X	
HW LOOP DIFFERENTIAL PRESSURE	PSID	Х									Х	Х	
HW LOOP RETURN TEMPERATURE	DEG F	Х						X			Х	Х	
HW LOOP SUPPLY TEMPERATURE	DEG F	Х						X			Х	Х	
HW SUPPLY TEMPERATURE SETPOINT	DEG F			x							X	x	
HW PLANT DP SETPOINT	PSID			X							Х	X	
HW REMOTE DP SETPOINT	PSID										Х	X	
BOILER 1 RUN STATUS ALARM	NORMAL/ALARM			X							Х	X	
	MBH			x							x	x	

DP SENSORS PROVIDED WITH PUMP

(DPT)

** REMOTE DP TRANSMITTER TO BE WIRED TO PLANT CONTROLLER TO PREVENT LOSS OF COMMUNICATION

HEATING HOT WATER SYSTEM

eal:	Consultant:	Client:	PHASE: DRAWN: REVIEWED: DATE: ID: REVI	ON: DRAWN REVIEWED: DATE:
	McGINNISS +		CONCEPT SCHEM. DESIGN	
			DESIGN DEVELOPMENT 12/20/2024 12/20/2024	
		3420 W Tharpe St Suite 100	EARLY DEMOLITION PACKAGE	
			80% CONSTRUCTION DOCS. JB JB 03/21/2025	
	JON BARBER, PE 55427 BRIAN WALLACE, PE 75562 820 FAST PARK AVE 1-200 TAIT AHASSEF EL 32301	I alialiassee, rr 32303	PERMIT DOCS.	
	MFE-INC.COM 850.681.6424		100% CONSTRUCTION DOCS. JB JB 05/09/2025	
roject #:	23483	Job Title: Griffin Middle School - Phase 2	THESE DRAWINGS AND RENDERINGS ARE INSTRUMENTS OF SERVICE. THE DRAWINGS /	D ASSOCIATED COPIES THEREOF, INCLUDING ELECTRONIC
hase:	100% Construction Documents	800 Alabama St. Tallahassee, FL 32304	MELIA AND CAUD FILES, AKE THE PROPERT TOF ARCHITECTS: LEWIS + WHILLOUC, TAIA PURPOSE EXCEPT BY WRITTEN AGREEMENT WITH THE ARCHITECT IS PROHIBITED. THIS PLACED ON EACH DRAWING EXHIBIT OR RENDERING ON THIS DOCUMENT AND SHALL N	TEIK USE, REFRESENTATION OK REFROUULTION FUR ANY DPVRIGHT NOTIFICATION SHALL BE TRUE AS IF DIRECTLY BE REMOVED FROM THESE DOCUMENTS

Architects Lewis + Whitlock 206 West Virginia St. Tallahassee, Florida 32301 850,942.1718 www.think3d.net

Description: Controls Heating Hot Water

M4.1



VARIABLE AIR VOLUME AHU CONTROL

TYPICAL OF 2 SYSTEMS, AHU-1 & AHU-2

NOTES:

- AHU-1 WILL HAVE A 3-WAY HHW VALVE, AHU-2 WILL HAVE A 2-WAY HHW VALVE
- DUCT SMOKE DETECTORS SHOWN DIAGRAMMATICALLY FOR COORDINATION PURPOSES, SEE ELECTRICAL. SENSORS LOCATED IN CABINET SHALL HAVE THEIR PENETRATIONS SEALED WITH BUTYL CAULK ON INSIDE AND OUTSIDE.

AIR HANDLING SYSTEM

GENERAL THE AIR HANDLING SYSTEM IS A VARIABLE AIR VOLUME SYSTEM WITH CHILLED WATER COOLING AND HOT WATER HEATING THAT DISTRIBUTES AIR TO A SINGLE ZONE. THE SYSTEM INCLUDES AIR-TO-AIR ENERGY RECOVERY.

VENTILATION AIR WILL BE VIA DEMAND CONTROL VENTILATION. ENERGY RECOVERY AND EXHAUST AIR WILL BE CONTROLLED ON BUILDING PRESSURE.

OPTIMAL START ADJUST START TIME OF UNIT TO:

- WARM-UP FACILITY FOR AN AVERAGE INDOOR AIR TEMPERATURE OF 70°F (ADJ).
- 2. COOL DOWN FACILITY FOR AN AVERAGE INDOOR TEMPERATURE OF 74°F (ADJ).

WARM-UP / COOL-DOWN MODE

THE SYSTEM SHALL NOT BE ALLOWED TO START UNLESS ALL SAFETIES ARE OUT OF ALARM.

- UPON WARM-UP/COOL-DOWN START COMMAND, VIA BAS SCHEDULE OR OPTIMAL START COMMAND: 1. OCCUPIED SETPOINTS ACTIVATE.
- 2. OUTSIDE AIR DAMPER OPENS & IS PROVEN OPEN. 3. SUPPLY FAN STARTS & IS PROVEN.
- THE SUPPLY FAN IS COMMANDED TO MINIMUM SPEED (12 Hz, ADJ).
- ON STATUS PROOF, FAN SPEED CONTROL RELEASES.
- IF THE FAN HAS FAILED (60 SEC DELAY), THE SHUTDOWN SEQUENCE ACTIVATES. 4. EXHAUST FAN EF-1 (or EF-2) STARTS AT MINIMUM SPEED (12Hz, ADJ) AND IS PROVEN
- 5. ZONE TEMPERATURE CONTROL SEQUENCES ACTIVATE

START COMMAND

UPON INITIATION OF START COMMAND OVERRIDE:

- OUTSIDE AIR DAMPER OPENS AND IS PROVEN.
- 2. SUPPLY FAN STARTS AND IS PROVEN.
- THE SUPPLY FAN IS COMMANDED TO MINIMUM SPEED (12 Hz, ADJ). ON STATUS PROOF, FAN SPEED CONTROL RELEASES.
- IF THE FAN HAS FAILED (60 SEC DELAY), THE SHUTDOWN SEQUENCE ACTIVATES.
- 3. EXHAUST FAN EF-1 STARTS AND IS PROVEN 4. OCCUPIED MODE SEQUENCES ACTIVATE.

OCCUPIED MODE

- UPON OCCUPIED COMMAND, VIA BAS SCHEDULE:
- WARM-UP / COOL-DOWN SEQUENCES REMAIN ACTIVE. 2. ZONE TEMPERATURE CONTROL SEQUENCE ACTIVATES.
- 3. LOW TEMPERATURE SEQUENCE ACTIVATES.
- 4. DEMAND CONTROL VENTILATION SEQUENCE ACTIVATES
- 5. EXHAUST AIR FAN SEQUENCE ACTIVATES 6. COOLING COIL LAT RESET SEQUENCE ACTIVATES

OCCUPIED STANDBY MODE

DURING OCCUPIED HOURS AND ALL ROOM OCCUPANCY SENSORS INDICATE UNOCCUPIED: 1. MODULATE AHU TO 15Hz (ADJ)

2. MODULATE OUTSIDE AIR FLOW TO 25% OF DESIGN FLOW

UNOCCUPIED MODE

- UPON UNOCCUPIED COMMAND, VIA BAS SCHEDULE:
- SHUTDOWN SEQUENCE ACTIVATES UNOCCUPIED HEATING & COOLING SHALL BE AVAILABLE WITH NO OUTSIDE AIR.
- UNOCCUPIED SET POINTS ACTIVATE 3. 4. O/A DAMPER CLOSES; R/A DAMPER OPENS TO 100%; EXHAUST FANS ARE OFF
- SHUTDOWN SEQUENCE
- UPON SHUTDOWN COMMAND OR LOSS OF FAN STATUS:
- SUPPLY FAN STOPS AND IS PROVEN.
- **RETURN AIR DAMPER OPENS TO 100%**
- OUTSIDE AIR FLOW CONTROL SEQUENCE DEACTIVATES AND DAMPER CLOSES. EXHAUST FAN STOPS AND IS PROVEN. 5. ALL OTHER SEQUENCES DEACTIVATE.

ZONE TEMPERATURE CONTROL

- SETPOINT AT MINIMUM VALUE. B. SUPPLY FAN SPEED MODULATES TO MAINTAIN ZONE TEMPERATURE SETPOINT. C. HEATING COIL VALVE REMAINS CLOSED. 2. IF ZONE TEMPERATURE IS BETWEEN COOLING AND HEATING TEMPERATURE SETPOINTS:
- A. COOLING COIL CONTROL VALVE MODULATES TO MAINTAIN LEAVING AIR TEMPERATURE SETPOINT
- C. HEATING COIL VALVE REMAINS CLOSED. 3. IF ZONE TEMPERATURE IS BELOW HEATING TEMPERATURE SETPOINT:
- A. COOLING COIL CONTROL VALVE MODULATES CLOSED. B. SUPPLY FAN SPEED REMAINS AT MINIMUM. C. HEATING COIL CONTROL VALVE MODULATES TO MAINTAIN LEAVING AIR TEMPERATURE SETPOINT.
- 4. IF ZONE TEMPERATURE CONTINUES TO FALL BELOW HEATING TEMPERATURE SETPOINT: A. COOLING COIL CONTROL VALVE REMAINS CLOSED.
- SUPPLY FAN SPEED MODULATES TO MAINTAIN ZONE TEMPERATURE SETPOINT.
- HEATING COIL VALVE MODULATES TO MAINTAIN MAX. HEATING COIL LEAVING AIR

- MINIMUM AND MAXIMUM LIMITS:
- 1°F (ADJ) 2. IF RETURN HUMIDITY EXCEEDS OCCUPIED SETPOINT, THE LEAVING AIR TEMPERATURE RESETS TO THE MINIMUM.

OUTSIDE AIR FLOW CONTROL SEQUENCE THE DEMAND CONTROL VENTILATION SEQUENCE.

- - B. SUPPLY FAN SPEED MODULATES TOWARDS MINIMUM.

 - TEMPERATURE SETPOINT.

COOLING COIL LEAVING AIR TEMPERATURE RESET



EXHAUST FANS EF-3 & EF-6 (ASSOCIATED WITH AHU-1 ONLY)

THE EXHAUST FAN SHALL RUN DURING OCCUPIED HOURS. 2 PLACES.

EXHAUST FAN

- 1. IF ZONE TEMPERATURE IS ABOVE ZONE COOLING TEMPERATURE SETPOINT: A. COOLING COIL CONTROL VALVE MODULATES TO MAINTAIN LEAVING AIR TEMPERATURE

EVERY 15 MINUTES (ADJ), THE COOLING COIL LEAVING AIR TEMPERATURE SETPOINT RESETS WITHIN THE EQUIPMENT FAILURE 1. IF RETURN HUMIDITY IS BELOW OCCUPIED SETPOINT, LEAVING AIR TEMPERATURE INCREASES BY

- THE OUTSIDE AIR DAMPER MODULATES TO MAINTAIN THE OUTSIDE AIR FLOW SETPOINT DETERMINED BY
- IF THE OUTSIDE AIR DAMPER IS 100% OPEN AND CO2 SETPOINT IS NOT ACHIEVED, THE RETURN AIR DAMPER MODULATES CLOSED TO INDUCE HIGHER OUTSIDE AIR FLOW, UNTIL SETPOINT IS ACHIEVED.

- EXHAUST AIR FAN CONTROL SEQUENCE
- THE EXHAUST FAN IS AVAILABLE DURING OCCUPIED HOURS
- 1. THE SPACE POSITIVE PRESSURE SETPOINT IS 0.02" W.C. (ADJ) 2. EXHAUST FAN SPEED MODULATES TO MAINTAIN SPACE PRESSURE DURING OCCUPIED HOURS. 3. MINIMUM FAN FREQUENCY IS 10 Hz (ADJ)
- DEMAND CONTROL VENTILATION
- EVERY 15 MINUTES (ADJ), THE OUTSIDE AIR FLOW SETPOINT RESETS WITHIN THE MINIMUM AND MAXIMUM
- LIMITS: 1. IF RETURN AIR CO₂ CONCENTRATION IS BELOW THE CO₂ CONCENTRATION LIMIT, THE OUTSIDE AIR FLOW SETPOINT DECREASES IN INCREMENTS OF 100 CFM (ADJ).
- 2. IF RETURN AIR CO₂ CONCENTRATION IS ABOVE THE CO₂ CONCENTRATION LIMIT, THE OUTSIDE AIR FLOW SETPOINT INCREASES IN INCREMENTS OF 100 CFM (ADJ).
- DEHUMIDIFICATION MODE CONTROL
- IF THE ZONE HUMIDITY EXCEEDS HIGH LIMIT SETPOINT AND DOES NOT BEGIN TO DECLINE: 1. COOLING COIL LEAVING AIR TEMPERATURE RESETS TO MINIMUM VALUE.
- 2. THE REHEAT VALVE MODULATES TO MAINTAIN A SUPPLY AIR TEMPERATURE OF 60°F (ADJ.) 3. SUPPLY FAN SPEED MODULATES TO MAINTAIN ZONE TEMP SETPOINT.
- WHEN ZONE HUMIDITY READINGS ARE BELOW OCCUPIED HIGH LIMIT SETPOINT:
- 1. REHEAT VALVE CLOSES 2. COOLING COIL LEAVING AIR TEMPERATURE RESET CONTROL SEQUENCE RESUMES NORMAL OPERATION.

LOW TEMPERATURE SEQUENCE

- IF MIXED AIR TEMPERATURE IS BELOW 40 °F (ADJ) A. THE COOLING COIL & HEATING COIL VALVES OPEN TO 100%.
- B. THE EXHAUST FAN STOPS
- C. THE RETURN AIR DAMPER OPENS TO 100%
- D. THE OUTSIDE AIR DAMPER CLOSES
- 2. IF MIXED AIR TEMPERATURE FALLS BELOW 35 °F (ADJ), THE SHUTDOWN SEQUENCE ACTIVATES.
- ECONOMIZING: WHEN THE SPACE CALLS FOR COOLING AND THE MIXED AIR DEW POINT IS BELOW 57°F, AND THE MIXED AIR TEMPERATURE IS BELOW THE ZONE TEMPERATURE SET POINT, THE COOLING COIL LEAVING AIR TEMP WILL RESET UP TO MAINTAIN ZONE TEMPERATURE AND HUMIDITY.

IF SUPPLY FAN OR ERV EXHAUST FAN FAILURE IS DETECTED, THE SHUTDOWN SEQUENCE ACTIVATES AND AN ALARM IS GENERATED.

SAFETIES

- THE FOLLOWING SAFETIES ACTIVATE THE SHUTDOWN SEQUENCE:
- 1. LOW TEMPERATURE LIMIT SWITCH 2. DUCT SMOKE ALARM
- HIGH STATIC PRESSURE ALARM 3.
- 4. DRAIN PAN FLOAT SWITCH
- A MANUAL RESET IS REQUIRED AFTER SAFETY ACTIVATION.

						CO	NTRO	L PO	INTS			
				POIN	TS			Α	LARM	GE	NER	AL
		11	NPUT	-	0	UTPU	IT					
									7			
POINT NAME	UNITS	ANALOG	DIGITAL	INTEGRATED	ANALOG	DIGITAL	INTEGRATED	GENERAL	UNIT SHUTDOWN	TREND LOG	GRAPHIC	INTERLOCK
OUTSIDE AIR DAMPER					Х					Х	Х	
O/A TEMPERATURE	°F	Х								Х	Х	
D/A FLOW	CFM	Х								Х	Х	
ENERGY RECOVERY O/A FILTER STATUS	DP, IN W.C.		X					Х		Х	Х	
ENERGY RECOVERY E/A FILTER STATUS	DP, IN W.C.		X					Х		Х	Х	
EXHAUST AIR TEMPERATURE	°F	Х								Х	Х	
EXHAUST AIR FLOW	CFM	X								х	X	
E/A FAN			X		Х	x				X	X	
RETURN AIR TEMPERATURE	°F	X								X	X	
R/A RELATIVE HUMIDITY	%	X								Х	Х	
R/A CO2 CONCENTRATION	PPM	Х								Х	Х	
RETURN AIR DAMPER					х					Х	Х	
MIXED AIR TEMPERATURE	°F	Х								Х	Х	
MIXED AIR RELATIVE HUMIDITY	%	Х								Х	Х	
AIR HANDLER FILTER STATUS	DP, IN W.C.		X					Х		Х	Х	
AHU FREEZE STAT			X					Х	Х	Х	Х	Х
AHU COOLING COIL					Х					Х	Х	
COOLING COIL TEMPERATURE	°F	Х								Х	Х	
AHU DRAIN PAN LEVEL			X					Х	х	Х	Х	
AHU HOT WATER COIL					Х					Х	Х	
HEATING COIL TEMPERATURE	°F	Х								Х	X	
AHU FAN			X		Х	х				X	X	
AHU HIGH STATIC PRESSURE			X					Х	X	Х	X	Х
AHU SMOKE DETECTOR			X					Х	X	X	Х	Х
SUPPLY AIR TEMPERATURE	°F	Х								X	Х	
SPACE STATIC PRESSURE	IN W.C.			X						Х	Х	
SPACE TEMP & %RH (QTY. 2)	°F & %	X								Х	Х	
SUPPLY AIR TEMPERATURE SETPOINT	°F						X			Х	Х	
SPACE TEMPERATURE	°F			Х								
SPACE RELATIVE HUMIDITY	%			X								
SPACE CO2 CONCENTRATION	PPM			Х								
EXHAUST FAN	ON/OFF					X				Х	Х	

OCCUPIED COOLING SETPOINT: 74°F (ADJ.) UNOCCUPIED COOLING SETPOINT: 80°F (ADJ.) OCCUPIED HEATING SETPOINT: 70°F (ADJ.) UNOCCUPIED HEATING SETPOINT: 63°F (ADJ.)

OCCUPIED RELATIVE HUMIDITY SETPOINT: 55% RH (ADJ.) UNOCCUPIED RELATIVE HUMIDITY SETPOINT: 60% RH (ADJ.)

OCCUPIED CO₂ CONCENTRATION SETPOINT: 900 PPM OCCUPIED CO₂ CONCENTRATION MINIMUM: 500 PPM OCCUPIED CO₂ CONCENTRATION MAXIMUM: 1000 PPM

COOLING COIL SET POINT 52°F to 57°F HEATING COIL SET POINT 75°F to 85°F

OUTSIDE AIR MAX. FLOW: 2400 CFM OUTSIDE AIR MIN. FLOW - OCCUPIED: 800 CFM OUTSIDE AIR MIN. FLOW - UNOCCUPIED: 500 CFM

AHU-2

OUTSIDE AIR MAX. FLOW: 8500 CFM OUTSIDE AIR MIN. FLOW: 2000 CFM

AHU-1

BUILDING PRESSURE SET POINT 0.02" W.C. (ADJ)





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Description: Controls Air Handler & Energy Recovery





VARIABLE AIR VOLUME AIR HANDLER

TYPICAL OF 1 SYSTEM, AHU-3

NOTES:

- AHU-3 WILL HAVE A 3-WAY HHW VALVE
- DUCT SMOKE DETECTORS SHOWN DIAGRAMMATICALLY FOR COORDINATION PURPOSES SEE ELECTRICAL
- SENSORS LOCATED IN CABINET SHALL HAVE THEIR PENETRATIONS SEALED WITH BUTYL CAULK ON INSIDE AND OUTSIDE.

AIR HANDLING SYSTEM

GENERAL

THE AIR HANDLING SYSTEM IS A VARIABLE AIR VOLUME SYSTEM WITH CHILLED WATER COOLING AND HOT WATER HEAT/REHEAT THAT DISTRIBUTES AIR TO A SINGLE ZONE.

AHU-3 OUTSIDE AIR DAMPER SHALL MODULATE TO MAINTAIN MAINTAIN TARGET OUTSIDE AIR FLOW RATE DURING OCCUPIED HOURS. THE SYSTEM WILL OTHERWISE BE AVAILABLE FOR CLIMATE CONTROL.

OPTIMAL START ADJUST START TIME OF UNIT TO:

1. WARM-UP FACILITY FOR AN AVERAGE INDOOR AIR TEMPERATURE OF 70°F (ADJ). 2. COOL DOWN FACILITY FOR AN AVERAGE INDOOR TEMPERATURE OF 74°F (ADJ).

WARM-UP / COOL-DOWN MODE

THE SYSTEM SHALL NOT BE ALLOWED TO START UNLESS ALL SAFETIES ARE OUT OF ALARM.

UPON WARM-UP/COOL-DOWN START COMMAND, VIA BAS SCHEDULE OR OPTIMAL START COMMAND: 1. OCCUPIED SETPOINTS ACTIVATE. 2. SUPPLY FAN STARTS & IS PROVEN.

- THE SUPPLY FAN IS COMMANDED TO MINIMUM SPEED (12 Hz, ADJ). ON STATUS PROOF, FAN SPEED CONTROL RELEASES.
- IF THE FAN HAS FAILED (60 SEC DELAY), THE SHUTDOWN SEQUENCE ACTIVATES.
- 4. ZONE CONTROL SEQUENCES ACTIVATE, EXCEPT FOR ZONE UNOCCUPIED CONTROL

START COMMAND

- UPON INITIATION OF START COMMAND OVER: 1. SUPPLY FAN STARTS AND IS PROVEN.
- THE SUPPLY FAN IS COMMANDED TO MINIMUM SPEED (12 Hz. ADJ).
- ON STATUS PROOF, FAN SPEED CONTROL RELEASES.
- 3. ZONE TEMP CONTROL SEQUENCE ACTIVATES 4. OCCUPIED MODE SEQUENCE ACTIVATES.

- OCCUPIED MODE
- UPON OCCUPIED COMMAND, VIA BAS SCHEDULE: WARM-UP / COOL-DOWN SEQUENCES REMAIN ACTIVE.
- 2. ZONE TEMPERATURE CONTROL SEQUENCE ACTIVATES.
- 3. LOW TEMPERATURE SEQUENCE ACTIVATES.
- 4. DEMAND CONTROL VENTILATION SEQUENCE ACTIVATES
- 5. COOLING COIL LAT RESET SEQUENCE ACTIVATES

OCCUPIED STANDBY MODE

DURING OCCUPIED HOURS AND ALL ROOM OCCUPANCY SENSORS INDICATE UNOCCUPIED: 1. MODULATE AHU-3 TO 15Hz 2. MODULATE OUTSIDE AIR FLOW TO 25% OF DESIGN FLOW

UNOCCUPIED MODE

- UPON UNOCCUPIED COMMAND, VIA BAS SCHEDULE:
- 1. SHUTDOWN SEQUENCE ACTIVATES
- 2. UNOCCUPIED HEATING & COOLING SHALL BE AVAILABLE WITH NO OUTSIDE AIR. UNOCCUPIED SET POINTS ACTIVATE
- 4. O/A DAMPER CLOSES; R/A DAMPER OPENS TO 100%; EXHAUST FANS ARE OFF

SHUTDOWN SEQUENCE

- UPON SHUTDOWN COMMAND OR LOSS OF FAN STATUS:
- 1. SUPPLY FAN STOPS AND IS PROVEN. 2. RETURN AIR DAMPER OPENS TO 100%
- 3. OUTSIDE AIR FLOW CONTROL SEQUENCE DEACTIVATES AND DAMPER CLOSES.
- 4. ALL OTHER SEQUENCES DEACTIVATE.

ZONE TEMPERATURE CONTROL

- 1. IF ZONE TEMPERATURE IS ABOVE ZONE COOLING TEMPERATURE SETPOINT: A. COOLING COIL CONTROL VALVE MODULATES TO MAINTAIN LEAVING AIR TEMPERATURE SETPOINT AT MINIMUM VALUE.
- B. SUPPLY FAN SPEED MODULATES TO MAINTAIN ZONE TEMPERATURE SETPOINT.
- C. HEATING COIL VALVE REMAINS CLOSED.
- 2. IF ZONE TEMPERATURE IS BETWEEN COOLING AND HEATING TEMPERATURE SETPOINTS: A. COOLING COIL CONTROL VALVE MODULATES TO MAINTAIN LEAVING AIR TEMPERATURE SETPOINT.
- B. SUPPLY FAN SPEED MODULATES TOWARDS MINIMUM. C. HEATING COIL VALVE REMAINS CLOSED.
- 3. IF ZONE TEMPERATURE IS BELOW HEATING TEMPERATURE SETPOINT:

- A. COOLING COIL CONTROL VALVE MODULATES CLOSED. B. SUPPLY FAN SPEED REMAINS AT MINIMUM.
- SETPOINT. A. COOLING COIL CONTROL VALVE REMAINS CLOSED.

COOLING COIL LEAVING AIR TEMPERATURE RESET EVERY 15 MINUTES (ADJ), THE COOLING COIL LEAVING AIR TEMPERATURE SETPOINT RESETS WITHIN THE MINIMUM AND MAXIMUM LIMITS:

SETPOINT.

- 1°F (ADJ)
- TO THE MINIMUM.

OUTSIDE AIR FLOW CONTROL SEQUENCE THE OUTSIDE AIR DAMPER MODULATES TO MAINTAIN THE OUTSIDE AIR FLOW SETPOINT DETERMINED BY OUTSIDE AIR MIN. FLOW - OCCUPIED: 1060 CFM THE DEMAND CONTROL VENTILATION SEQUENCE.

IF THE OUTSIDE AIR DAMPER IS 100% OPEN AND CO2 SETPOINT IS NOT ACHIEVED, THE RETURN AIR DAMPER MODULATES CLOSED TO INDUCE HIGHER OUTSIDE AIR FLOW, UNTIL SETPOINT IS ACHIEVED.

DEMAND CONTROL VENTILATION EVERY 15 MINUTES (ADJ), THE OUTSIDE AIR FLOW SETPOINT RESETS WITHIN THE MINIMUM AND MAXIMUM LIMITS:

DEHUMIDIFICATION MODE CONTROL

- REHEAT VALVE CLOSES

LOW TEMPERATURE SEQUENCE

- 1. IF MIXED AIR TEMPERATURE IS BELOW 40 °F (ADJ)
- C. THE OUTSIDE AIR DAMPER CLOSES

GENERATED.

- DUCT SMOKE ALARM
- 4. DRAIN PAN FLOAT SWITCH
- A MANUAL RESET IS REQUIRED AFTER SAFETY ACTIVATION.

- OPERATION.
- B. THE RETURN AIR DAMPER OPENS TO 100%
- ECONOMIZING:
- EQUIPMENT FAILURE

SAFETIES

- THE FOLLOWING SAFETIES ACTIVATE THE SHUTDOWN SEQUENCE: 1. LOW TEMPERATURE LIMIT SWITCH
- HIGH STATIC PRESSURE ALARM



LOCKER ROOM

EXHAUST FANS EF-4, EF-5, EF-6 IN LOCKER ROOM

SPACE TEMP & RH (2 PLACES)

THE EXHAUST FAN SHALL RUN DURING OCCUPIED HOURS. 3 PLACES. NOTE: RESTROOM EXHAUST FANS OPERATE VIA OCCUPANCY SENSORS

EXHAUST FAN

C. HEATING COIL CONTROL VALVE MODULATES TO MAINTAIN LEAVING AIR TEMPERATURE 4. IF ZONE TEMPERATURE CONTINUES TO FALL BELOW HEATING TEMPERATURE SETPOINT:

B. SUPPLY FAN SPEED MODULATES TO MAINTAIN ZONE TEMPERATURE SETPOINT. C. HEATING COIL VALVE MODULATES TO MAINTAIN HEATING COIL LEAVING AIR TEMPERATURE

1. IF RETURN HUMIDITY IS BELOW OCCUPIED SETPOINT, LEAVING AIR TEMPERATURE INCREASES BY 2. IF RETURN HUMIDITY EXCEEDS OCCUPIED SETPOINT, THE LEAVING AIR TEMPERATURE RESETS

1. IF RETURN AIR CO₂ CONCENTRATION IS BELOW THE CO₂ CONCENTRATION LIMIT, THE OUTSIDE AIR FLOW SETPOINT DECREASES IN INCREMENTS OF 100 CFM (ADJ). 2. IF RETURN AIR CO₂ CONCENTRATION IS ABOVE THE CO₂ CONCENTRATION LIMIT, THE OUTSIDE AIR FLOW SETPOINT INCREASES IN INCREMENTS OF 100 CFM (ADJ).

IF THE ZONE HUMIDITY EXCEEDS HIGH LIMIT SETPOINT AND DOES NOT BEGIN TO DECLINE: COOLING COIL LEAVING AIR TEMPERATURE RESETS TO MINIMUM VALUE. THE REHEAT VALVE MODULATES TO MAINTAIN A SUPPLY AIR TEMPERATURE OF 60°F (ADJ.) 3. SUPPLY FAN SPEED MODULATES TO MAINTAIN ZONE TEMP SETPOINT.

WHEN ZONE HUMIDITY READINGS ARE BELOW OCCUPIED HIGH LIMIT SETPOINT:

2. COOLING COIL LEAVING AIR TEMPERATURE RESET CONTROL SEQUENCE RESUMES NORMAL

A. THE COOLING COIL & HEATING COIL VALVES OPEN TO 100%. 2. IF MIXED AIR TEMPERATURE FALLS BELOW 35 °F (ADJ), THE SHUTDOWN SEQUENCE ACTIVATES.

1. WHEN THE SPACE CALLS FOR COOLING AND THE MIXED AIR DEW POINT IS BELOW 57°F, AND THE MIXED AIR TEMPERATURE IS BELOW THE ZONE TEMPERATURE SET POINT, THE COOLING COIL LEAVING AIR TEMP WILL RESET UP TO MAINTAIN ZONE TEMPERATURE AND HUMIDITY.

IF SUPPLY FAN FAILURE IS DETECTED, THE SHUTDOWN SEQUENCE ACTIVATES AND AN ALARM IS

OCCUPIED COOLING SETPOINT: 74°F (ADJ.) UNOCCUPIED COOLING SETPOINT: 80°F (ADJ.) OCCUPIED HEATING SETPOINT: 70°F (ADJ.) UNOCCUPIED HEATING SETPOINT: 63°F (ADJ.)

OCCUPIED RELATIVE HUMIDITY SETPOINT: 55% RH (ADJ.) UNOCCUPIED RELATIVE HUMIDITY SETPOINT: 60% RH (ADJ.)

OCCUPIED CO₂ CONCENTRATION SETPOINT: 900 PPM OCCUPIED CO₂ CONCENTRATION MINIMUM: 500 PPM OCCUPIED CO₂ CONCENTRATION MAXIMUM: 1000 PPM

COOLING COIL SET POINT 52°F to 57°F HEATING COIL SET POINT 75°F to 85°F

BUILDING PRESSURE SET POINT 0.02" W.C. (ADJ)

OUTSIDE AIR MAX. FLOW: 1200 CFM OUTSIDE AIR MIN. FLOW - UNOCCUPIED: 300 CFM



\geq	HOT WATER
EQUIPMENT	
RP-1	



HOT WATER LOOP RETURN WATER TEMP HOT WATER LOOP SUPPLY WATER TEMP

WATER HEATER SCHEDULE WATER HEATER RETURN WATER TEMP WATER HEATER SUPPLY WATER TEMP

OCCUPIED MODE

UPON OCCUPIED COMMAND, VIA SCHEDULE: 1. PUMP STARTS

UNOCCUPIED MODE UPON OCCUPIED COMMAND, VIA SCHEDULE: PUMP STOPS

					CON	NTRO	L PO	INTS			
		F		гs			А	LARM	GE	NER	AL
	11	NPUT		0	UTPU	Т					
UNITS	ANALOG	DIGITAL	INTEGRATED	ANALOG	DIGITAL	INTEGRATED	GENERAL	UNIT SHUTDOWN	TREND LOG	GRAPHIC	INTERLOCK
°F	Х								Х	Х	
%	Х								Х	Х	
PPM	Х								Х	Х	
%				Х					Х	Х	
%				Х					Х	Х	
°F	Х						Х		Х	Х	
%	Х								Х	Х	
DP, IN W.C.		Х					Х		Х	Х	
°F		Х					Х	Х	Х	Х	Х
%				Х					Х	Х	
°F	Х								Х	Х	
		Х					Х	Х	Х	Х	
%				Х					Х	Х	
°F	Х								Х	Х	
		Х		Х	Х				Х	Х	
IN W.C.		Х					Х	Х	Х	Х	Х
		Х					Х	Х	Х	Х	Х
°F	Х								Х	Х	
		Х							Х	Х	
°F & %	Х								Х	Х	
IN W.C.	Х								Х	Х	
ON/OFF						Х			Х	Х	
°F						Х			Х	Х	
°F						Х			Х	Х	
°F						Х			Х	Х	
% RH						Х			Х	Х	
PPM						Х			Х	Х	
ON/OFF					Х				Х	Х	



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	PO	ΙΝΤ ΤΥ	′PE	SE	TPOI	T	ŀ	ALARM	1
				``	VALUE		CC	NDITI	ON
UNITS	ANALOG	DIGITAL	INTEGRATED	DEFAULT	MAXIMUM	MINIMUM	HIGH LIMIT	LOW LIMIT	ALARM DELAY (MIN)
ON/OFF		Х							
ON/OFF		Х							
°F	X								
°F	X								
ON/OFF			Х						
°F			Х						
°F			Х						

HOT WATER CIRCULATING PUMP THAT OPERATES DURING OCCUPIED HOURS. CONNECT TO WATER HEATER CONTROLLER VIA BACNET FOR SSCHEDULING AND STATUS

:H	Consultant:	Client:	PHASE:	DRAWN: REVIEWED: DATE:	ID: REVISION:	DRAWN:R	KEVIEWED:DAT
	McGINNISS +		CONCEPT SCHEM. DESIGN				
			DESIGN DEVELOPMENT	12/20/20	24		
		3420 W. Tharpe St. Suite 100	EARLY DEMOLITION PACKAGE				
			80% CONSTRUCTION DOCS.	JB JB 03/21/20	25		
	JON BARBER, PE 55427 BRIAN WALLACE, PE 75562 820 FAST PARK AVE 1-200 TALLAHASSEE FL 32301	I alialassee, FL 32303	PERMIT DOCS.				
	MFE-INC.COM 850.681.6424		100% CONSTRUCTION DOCS.	JB JB 05/09/20	25		
ject #: ase:	23483 100% Construction Documents	Job Title: Griffin Middle School - Phase 2 800 Alabama St. Tallahassee, FL 32304	THESE DRAWINGS AND REND MEDIA AND CADD FILES, ARE PURPOSE EXCEPT BY WRITTE PLACED ON EACH DRAWING E	ERINGS ARE INSTRUMENTS OF SERVICE. HE PROPERTY OF ARCHITECTS: LEWIS + V AGREEMENT WITH THE ARCHITECT IS I KHIBIT OR RENDERING ON THIS DOCUME	THE DRAWINGS AND ASSOCIATED WHITLOCK, PA.A. THEIR USE, REF ROHIBITED. THIS COPYRIGHT NO NT AND SHALL NOT BE REMOVED	D COPIES THEREOF , IN PRESENTATION OR REI OTTFICATION SHALL BE FROM THESE DOCUMI	VCLUDING ELECTR PRODUCTION FOR TRUE AS IF DIRECT ENTS

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Description: Controls Air Handler

