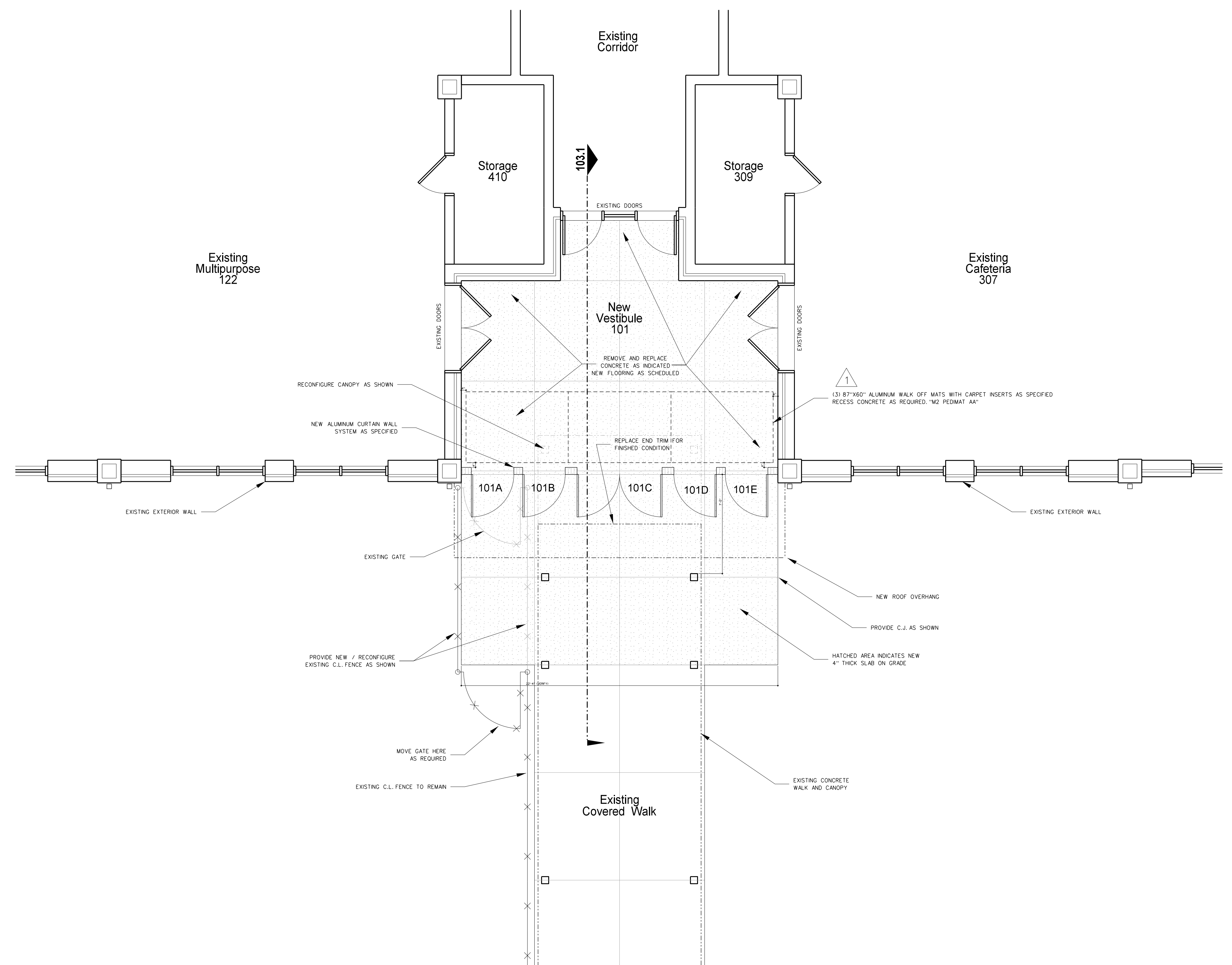
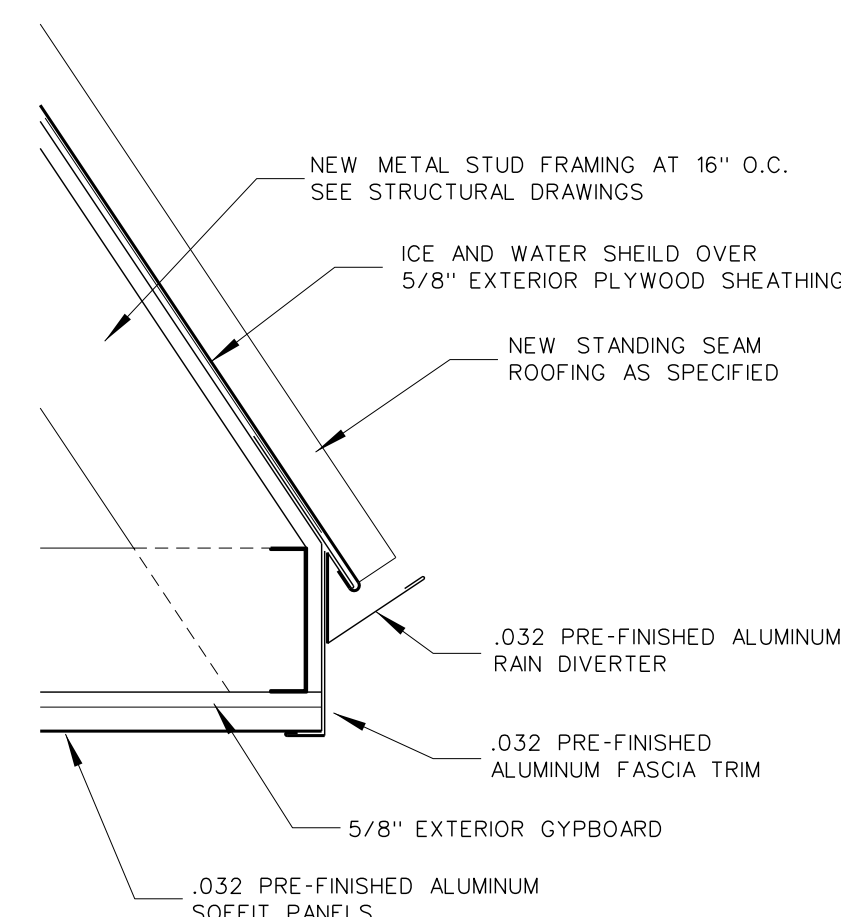


101.4 PARTIAL EAST ELEVATION



101.1 PARTIAL FLOOR PLAN

101.2 PARTIAL REFLECTED CEILING PLAN



NOTE: COLUMN TO DRAIN WATER

EXTRUDED ALUMINUM COLUMN SIZED PER MANUFACTURER

SEE PLAN FOR LOCATION OF EXPANSION JOINTS AND CONTROL JOINTS

4" CONCRETE SLAB REINFORCED WITH 6x6/2.9x2.9 WWM

MATCH WALK FINISH

PER MANUFACTURER

4"

PER MANUFACTURER

COMPACTED SUBGRADE

REMOVABLE BLOCK-OUT

FILL GROUT WELL SOLID WITH NON-SHRINK GROUT

HOLES IN BOTTOM OF COLUMN TO KEY GROUT

CONCRETE FOOTING

COAT COLUMN IN CONTACT WITH CONCRETE WITH CLEAR ACRYLIC

REINFORCING

FINISH GRADE

—SLOPE TO DRAIN

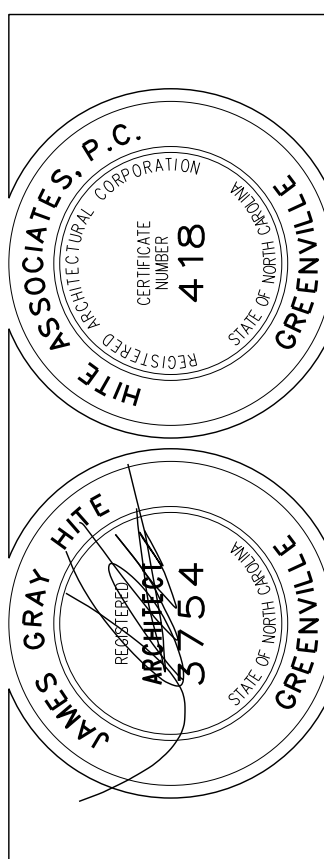
OPEN DRAIN AT BOTTOM OF COLUMNS

GROUT SOLID TO BOTTOM OF DOWNSPOUT

MATCH

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- (1) SEE EXTERIOR ELEVATIONS FOR BRICK COLOR.
- (2) GENERAL CONTRACTOR SHALL VERIFY TOP OF FINISH GRADES, TOP OF CONCRETE WALKS AND TOP OF CONCRETE SLABS ADJACENT TO BUILDING, AND ADJUST LOCATION OF THROUGH WALL FLASHING ACCORDINGLY.
- (3) PROVIDE PLASTIC INSERT WEEPS AT ALL DOOR, WINDOW AND FLOOR FLASHING.
- (4) GENERAL CONTRACTOR SHALL SLOPE CONCRETE WINDOW TO FLOOR DRAIN AS SHOWN ON FLOOR DRAINAGES.
- (5) ALL CMU CELLS BELOW FINISH FLOOR SHALL BE FILLED WITH CONCRETE.
- (6) ALL VAPOR BARRIERS UNDER FLOOR SLABS SHALL BE LAPPED "2" MINIMUM AND TAPED CONTINUOUS AT JOINTS. GENERAL CONTRACTOR SHALL REPAIR ANY DAMAGED VAPOR BARRIER PRIOR TO PLACING CONCRETE.
- (7) PROVIDE 4" MINIMUM SPRAY POLYURETHANE INSULATION IN ALL METAL STUDS EXTERIOR WALLS. SEE WALL SECTIONS AND SPECIFICATIONS.
- (8) PROVIDE SPRAY POLYURETHANE INSULATION IN ALL NESTED METAL STUD WINDOW AND DOOR JAMS, SILLS AND HEADS.
- (9) ALL INTERIOR METAL STUD/GYPSUM WALLBOARD PARTITIONS REQUIRE SOUND ATTENUATION DATTS.
- (10) PROVIDE METAL CHAIRS UNDER ALL STEEL WIRE MATS REINFORCING STEEL FOR CONCRETE SLABS AND FOUNDATIONS.
- (11) PROVIDE GYPSUM CONTROL JOINTS AT ALL GYPSOBORD / METAL STUD WINDOW JAMBS. SEE INTERIOR ELEVATIONS.
- (12) ALL SEAL-ANT COPS TO BE SELECTED BY ARCHITECT.
- (13) ROOF INSULATION: TAPE ALL ROOF INSULATION JOINTS, BOTH LAYER, LAP AND TAPE VAPOR BARRIER, ARCHITECT TO FIELD VERIFY ROOF TO METAL ROOF PANEL INSTALLATION.
- (14) PROVIDE THE FORMED THROUGH-WALL FLASHING CORNER MEMBERS FOR EXTERIOR WALL CORNERS AS SPECIFIED.

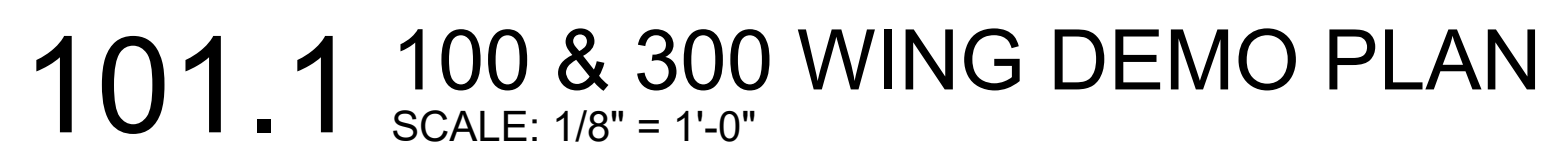


Bogue Sound Elementary School
Renovations to
3323 Hwy. 24, Newport, NC 28570
Carteret County Schools / North Carolina

A
103

GENERAL DEMOLITION KEY NOTE COMMENT: CONTRACTORS ARE RESPONSIBLE FOR READING, UNDERSTANDING AND FOLLOWING WORK SEQUENCING/PHASING PLAN WITH REGARDS TO WHEN THE FOLLOWING DEMOLITION WORK IS TO TAKE PLACE.


- J** EXISTING UNIT DISCONNECT TO BE REMOVED. REMOVE CONNECTION TO EQUIPMENT BEING DEMOLISHED. MAINTAIN ASSOC. FEEDER FOR REUSE.



ES2400S

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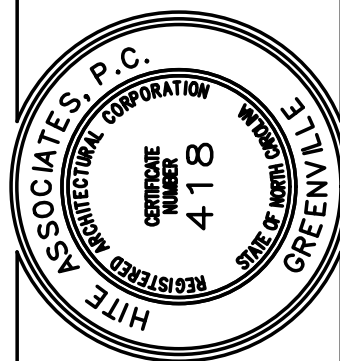
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HVAC Renovations to
Bogue Elementary School
3355 Hwy. 24, Newport, NC 28570
Carteret County Schools / North Carolina

Project No.	22419
Date:	11 Nov 2024
Drawing no.	ME 101

MECH-ELEC DEMO KEY NOTES:

GENERAL DEMOLITION KEY NOTE COMMENTS: CONTRACTORS ARE RESPONSIBLE FOR READING, UNDERSTANDINGS AND FOLLOWING WORK ORDER AND DEMOLITION PLANS. CONTRACTORS ARE RESPONSIBLE WHEN THE FOLLOWING DEMOLITION WORK IS TO TAKE PLACE.

REMOVE EXISTING "PRE-COOLING" (PC) UNITS WITH ALL ASSOCIATED HYDRONIC PUMP BACK TO MAINS AND CAP. REPAIR OH DUCT WHERE UNIT IS REMOVED AND MAINTAIN FOR REUSE WITH NEW UNIT.

REMOVE EXISTING CEILING TIES IN THIS AREA AND REWORK GRID AS NECESSARY TO ALLOW NEW CHILLED WATER PIPING TO BE INSTALLED OR UNIT TO BE REMOVED.

REMOVE EXISTING FLUORESCENT LIGHTS IN THIS AREA AS INDICATED BY ELECTRICAL POWER CONTROL WIRING FOR REUSE. INSTALL TEMPORARY LIGHTS AS NECESSARY TO MAINTAIN SAFE WORKING ENVIRONMENT UNTIL NEW LED LIGHTS ARE INSTALLED.

REMOVE EXISTING PUMP AND ASSOCIATED PUMP TRIM. MAINTAIN SUPPLY AND RETURN PIPING DROPS FOR RECONNECTION TO NEW UNIT. MAINTAIN ASSOCIATED NEW DUCT CONNECTIONS.

DISCONNECT EQUIPMENT BEING DEMOLISHED, REMOVE SWITCH AND ASSOC. FEEDER BACK TO PANEL LABEL AS "SAP" OR WITH REC-PURPOSED LOAD AS APPROPRIATE.

SEQUENTIALLY REMOVE EXISTING AIR HANDLERS ACCORDING TO SCHEDULE DEVELOPED WITH OWNER, MAINTAIN MAINTENANCE PAD AND REPAIR OR REPLACE AS NECESSARY. MAINTAIN DUCT CONNECTIONS TO THE AHU. MAINTAIN ASSOCIATED DUCT MAINS TO ALLOW NEW AHU TO GO BACK INTO THE SAME LOCATION AND THE TACK NEW UNIT.

REPLACE EXISTING DX AIR COOLED SPLIT SYSTEM AHU AND ASSOCIATED REFRIGERANT PIPING, OUTDOOR UNIT, WATER COIL, ASSOCIATED COIL TRIM, AND EXTERIOR MAINTENANCE PAD. MAINTAIN HYDRONIC SPLIT/RETURN.

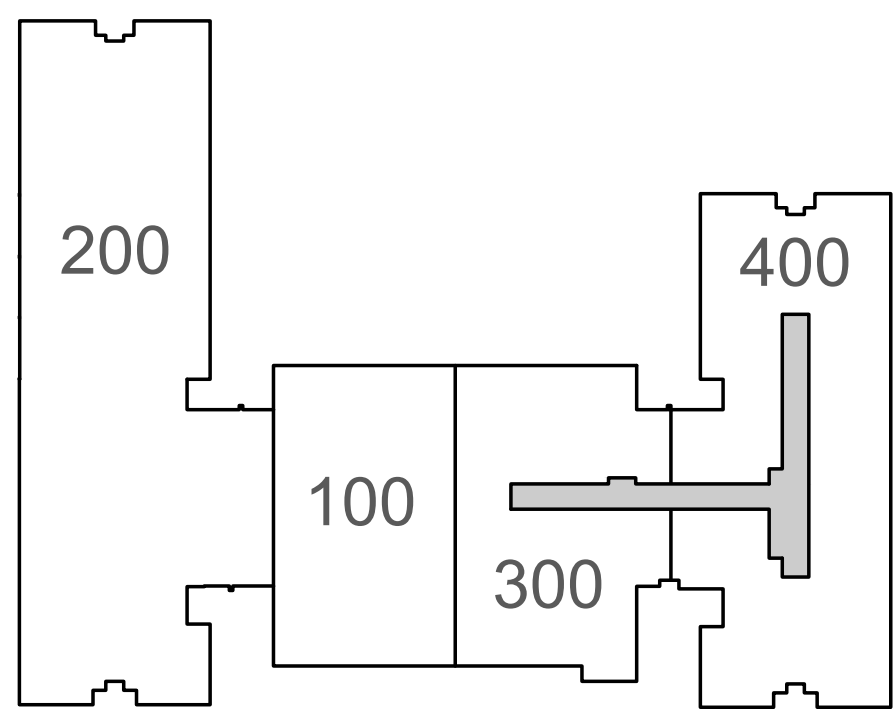
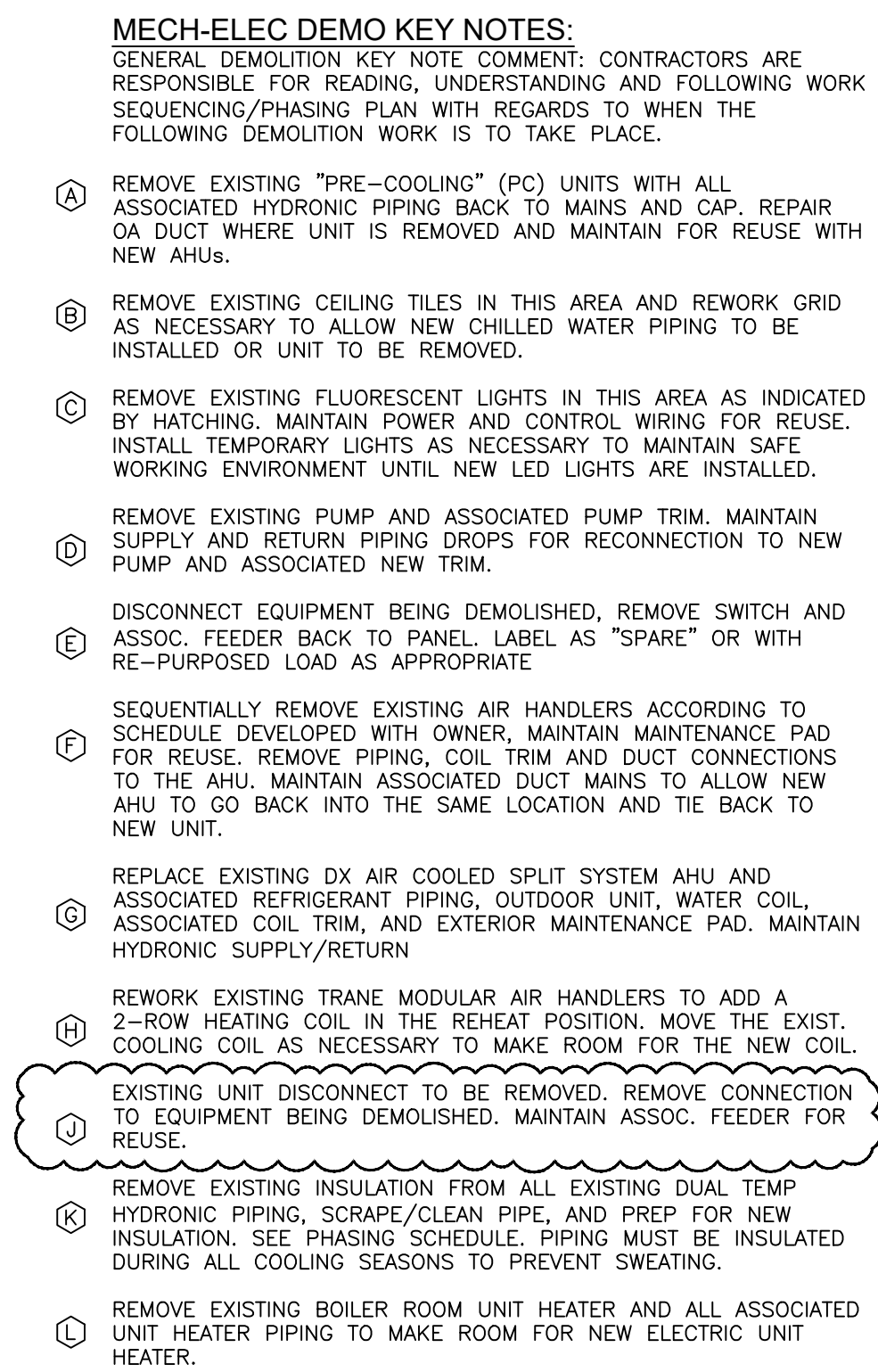
REWORK EXISTING TRANE MODULAR AIR HANDLERS TO A REFRIGERANT PIPING SPLIT IN THE REHEAT POSITION, MOVE THE EXIST. COOLING COIL AS NECESSARY TO MAKE ROOM FOR THE NEW COIL.

EXISTING UNIT DISCONNECT TO BE REMOVED, REMOVE CONNECTION TO EQUIPMENT BEING DEMOLISHED, MAINTAIN ASSOC. FEEDER FOR REUSE.

REMOVE EXISTING INSULATION FROM ALL EXISTING DUAL TEMP HYDRONIC PIPING, SUPPLY/OLEAN PIPING AND PREP FOR NEW INSULATION. SEEP PHASING SCHEDULE. PIPING MUST BE INSULATED DURING ALL COOLING SEASONS TO PREVENT SWEATING.

REMOVE EXISTING BOILER ROOM UNIT HEATER AND ALL ASSOCIATED BOILER EXISTING PIPING TO MAKE ROOM FOR NEW ELECTRIC UNIT HEATER.

KEY PLAN
SCALE: NTS




KEY PLAN

SCALE: NTS

ES24003


ENGINEERING

SOURCE OF NC, P.A.



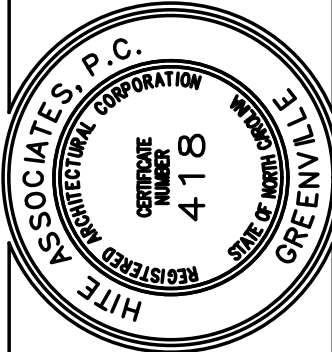
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ES Project Name: ES24003



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2600 Meridian Drive / Greenville, NC 27834 / tel (252) 757-0333



HVAC Renovations to
Bogue Elementary School
3355 Hwy. 24, Newport, NC 28570
Carteret County Schools / North Carolina

Project No.	22419
Date:	11 Nov 2024
Drawing no.	ME 401

MECHANICAL GENERAL NOTES:

1. REFERENCE THE FULL AND COMPLETE SET OF DRAWINGS, AND SPECIFICATIONS PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF WORK WITH OTHER CONTRACTORS ON SITE. CONTRACTOR SHALL VISIT SITE AND WALK THROUGH THE PROJECT SCOPE OF WORK AREA PRIOR TO SUBMITTING BID.
2. ALL WORK SHALL BE IN STRICT ACCORDANCE WITH THE NC BUILDING CODE & CONTR. SHALL NOTIFY ENGINEER IN WRITING REGARDING ANY CODE DISCREPANCIES FOUND ON PLANS. CONTR. IS RESPONSIBLE FOR PERMITS, INSPECTIONS AND FEES. THE CONTROLS CONTRACTOR (C.C.) SHALL PROVIDE ALL CONTROL VALVES, ACTUATORS, DAMPERS, FAN COIL COMBINATION STARTERS. C.C. SHALL PROVIDE ALL LOAD SIDE WIRING ASSOCIATED WITH ALL FAN COIL COMBINATION STARTERS, VALVE TAGS AND LABELING SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR (M.C.).
3. DO NOT SCALE THESE DRAWINGS; REFER TO LARGEST SCALE ARCHITECTURAL DRAWINGS. THESE DRAWINGS ARE DIAGRAMMATIC ONLY & ARE NOT INTENDED TO SHOW MINOR DETAILS & EXACT LOCATIONS. DESIGN ADJUSTMENTS SHALL BE ANTICIPATED BY THE CONTRACTORS TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
4. "PROVIDE" IS DEFINED AS FURNISH & INSTALL AS PER MANUFACTURERS RECOMMENDATIONS.
5. THE MECHANICAL & CONTROLS CONTRACTOR SHALL COORDINATE THE INSTALLATION OF HVAC EQUIPMENT & CONTROLS WITH EXISTING CONDITIONS, FIELD VERIFY PRIOR TO INSTALLATION TO AVOID CONFLICT. CONTACT ENGINEER IF ALTERNATE INSTALLATION METHOD IS REQUIRED.
6. SYSTEMS INDICATED ON PLANS ARE DIAGRAMMATIC IN NATURE. CONTRACTOR SHALL EXAMINE SITE CONDITIONS PRIOR TO DUCT CONSTRUCTION AND COORDINATE INSTALLATION WITH OTHER TRADES. CONTRACTOR SHALL PROVIDE NECESSARY HANGERS, FASTENERS ETC. TO PROVIDE A COMPLETE AND WORKING SYSTEM.
7. CONTRACTOR SHALL SEAL ALL DUCTWORK WITH A PAINT ON MASTIC. ALL WALL PENETRATIONS SHALL BE SEALED AIR TIGHT.
9. CONTRACTOR SHALL INSTALL BALANCING DAMPERS IN EACH MAIN RETURN AND VENTILATION AIR DUCT TO PROVIDE PROPER AIRFLOW BALANCE TO EACH UNIT.
10. LOCATE THERMOSTATS AND TEMPERATURE SENSORS AT 4'-0" A.F.F. (CENTER OF BOX FOR GYP BRD, TOP OF BOX FOR MASONRY) IN LOCATIONS INDICATED ON PLANS.
11. ALL DUCT DIMENSIONS ARE INSIDE CLEAR DIMENSIONS.
12. CONTRACTOR SHALL COORDINATE ALL WALL, ROOF AND FLOOR PENETRATION LOCATIONS AND SIZES. SEAL ALL OPENINGS, MAINTAIN WALL RATINGS WHEN PENETRATING FIRE OR SMOKE RATED WALLS.
13. FABRICATE AND INSTALL ALL DUCT WORK PER SMACNA 1.5" W.C. PRESSURE. ALL ELBOWS SHALL HAVE 1.5R CENTERLINE. ALL DUCT UNDER SLAB SHALL BE FIBERGLASS.
16. ALL SUPPLY AND RETURN DUCT SHALL BE INSULATED WITH A MINIMUM OF 2-3/16" 3/4 LB. OR 2" OF 1.0 LB. DENSITY FIBERGLASS WRAP. INSULATED DOUBLE WALLED SPIRAL DUCT SHALL HAVE A MINIMUM INSULATION THICKNESS OF 2" OF 1.5 LB. DENSITY. PIPING INSULATION (REFRIGERANT OR WATER) SHALL BE A MINIMUM OF 1-1/2" THICK OR PER LATEST NC ENERGY CODE, WHICHEVER IS GREATER.
18. CABLE TRAY HAS RIGHT-OF-WAY OVER DUCTWORK; SEE ELECTRICAL DRAWINGS FOR LOCATION.
20. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN CONNECTIONS TO HVAC UNITS.
21. PROVIDE AUXILIARY CONDENSATE DRAIN PAN FOR ALL AIR HANDLING UNITS, FAN COIL UNITS, FURNACE WITH COOLING COIL, ETC. CONTRACTOR SHALL PROVIDE AND INSTALL WATER LEVEL FLOAT SWITCH IN AUXILIARY DRAIN PAN. FLOAT SWITCH SHALL SHUT DOWN INDOOR AND ASSOCIATED OUTDOOR UNIT WHEN ACTIVATED.
22. CONDENSATE PIPE SHALL BE SCHEDULE 40 PVC OR HARD DRAWN COPPER. INSTALL WITH PROPER SLOPE AND NO SAGS. CONDENSATE PIPE SHALL BE INSULATED WITH 1/2" THICK CLOSED CELL INSULATION.
23. ALL DUCTWORK AND PIPING SHALL BE CONCEALED ABOVE CEILINGS, TRUSSES AND SOFFITS EXCEPT IN MECHANICAL ROOMS, UTILITY PLATFORMS, AREAS WITH EXPOSED STRUCTURE (NO CEILINGS), AND WHERE NOTED OTHERWISE.
24. CONTROLS CONTRACTOR IS RESPONSIBLE FOR ALL CONTROLLERS, CONTACTORS, PROGRAMMING, CONTROL WIRING, CONDUIT AND CONNECTIONS TO MECHANICAL EQUIPMENT AS REQUIRED TO MEET THE SEQUENCES OF OPERATION FOR ALL NEW AND EXISTING EQUIPMENT BEING CONTROLLED BY THE BMS.
25. MECHANICAL CONTRACTOR MAY REUSE EXISTING UNIT DISCONNECT SWITCHES WHERE THEY ARE IN GOOD WORKING ORDER AND THE CORRECT SIZE FOR THE UNIT. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL NEW DISCONNECTS THAT MAY BE REQUIRED FOR EQUIPMENT PROVIDED UNDER THIS CONTRACT. MECHANICAL CONTRACTOR SHALL FURNISH ALL REQUIRED FUSES FOR ALL FUSED DISCONNECT SWITCHES. COORDINATE DISCONNECT AND FUSE INSTALLATION WITH ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING DISCONNECT SWITCHES AND FUSES. ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL LINE SIDE WIRING AND CONDUIT TO EXTERNALLY OR INTERNALLY MOUNTED DISCONNECTS AND SHALL PROVIDE AND INSTALL LOAD SIDE WIRING AND CONDUIT FROM EXTERNALLY MOUNTED DISCONNECT SWITCHES TO MECHANICAL EQUIPMENT. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FINAL ELECTRICAL CONNECTIONS TO EQUIPMENT PROVIDED BY THE MECHANICAL CONTRACTOR. SEE "MECHANICAL EQUIPMENT ELECTRICAL CONNECTION DETAIL".
26. ALL EXPOSED GAS PIPE IN BOILER ROOM (NEW AND EXISTING) SHALL BE PAINTED OSHA YELLOW. ALL GAS PIPING SHALL BE LABELED WITH THE TYPE OF GAS AND SUPPLY PRESSURE. GAS PIPING CONCEALED IN WALL CAVITY SHALL NOT BE REQUIRED TO BE PAINTED YELLOW. CONTRACTOR SHALL INSTALL NEW GAS PIPE PER INSTALLATION STANDARD MSS SP-58. M.C. SHALL PROVIDE MAPA PRODUCTS PIPE SUPPORTS WITH E-6000 ADHESIVE OR APPROVED EQUALS.
28. MECHANICAL CONTRACTOR SHALL PROVIDE ENGR. WITH AN INDEPENDENT AIR AND WATER BALANCE REPORT. REPORT SHALL INDICATE INITIAL AND FINAL READINGS OF UNIT SUPPLY, RETURN AND VENT AIR CFM, AS WELL AS GPM PER UNIT, AND PER PUMP. INCLUDE IN DOCUMENTS PROVIDED TO OWNER AT JOB CLOSEOUT.
29. MECHANICAL CONTRACTOR SHALL LABEL ALL EQUIPMENT WITH ENGRAVED PLASTIC LAMINATE, SCREWED TO PIECE OF EQUIPMENT.
33. BMS UNIT CONTROLLER SHALL HAVE 7 DAY PROGRAMING, 2 DEGREE LOCAL ADJUSTMENT, LOCAL TIMED OVER-RIDE AND THE ABILITY TO RUN FANS IN OCCUP. MODE & CYCLE FANS IN UN-OCCUP. MODE.
34. THE M.C. & C.C. SHALL PROTECT EQUIPMENT DURING CONSTRUCTION, WELDING & BRAZING AS REQ'D. CLEAN ALL EQUIP. SURFACES OF GREASE, DIRT, DUST, & OTHER FOREIGN MATERIALS PRIOR TO PROJECT CLOSEOUT.
35. MECHANICAL CONTRACTOR SHALL CHANGE NEW UNIT FILTERS AFTER EACH MONTH OF RUN TIME, AND SHALL LEAVE ONE CHANGE OF FILTERS FOR EACH UNIT FOR OWNER TO USE FOR NEXT FILTER CHANGE.
36. MECHANICAL CONTRACTOR SHALL NOT ALLOW DUCTWORK TO CONTACT LAY-IN LIGHT FIXTURES. ROUTE ACCORDINGLY.

KITCHEN-DINING & MULTI-PURPOSE UNIT CONTROL SEQUENCE

START/STOP: EMS shall index system during School's specified occupied and setback periods. Unit fans shall run continuously during occupied times and cycle during unoccupied times.

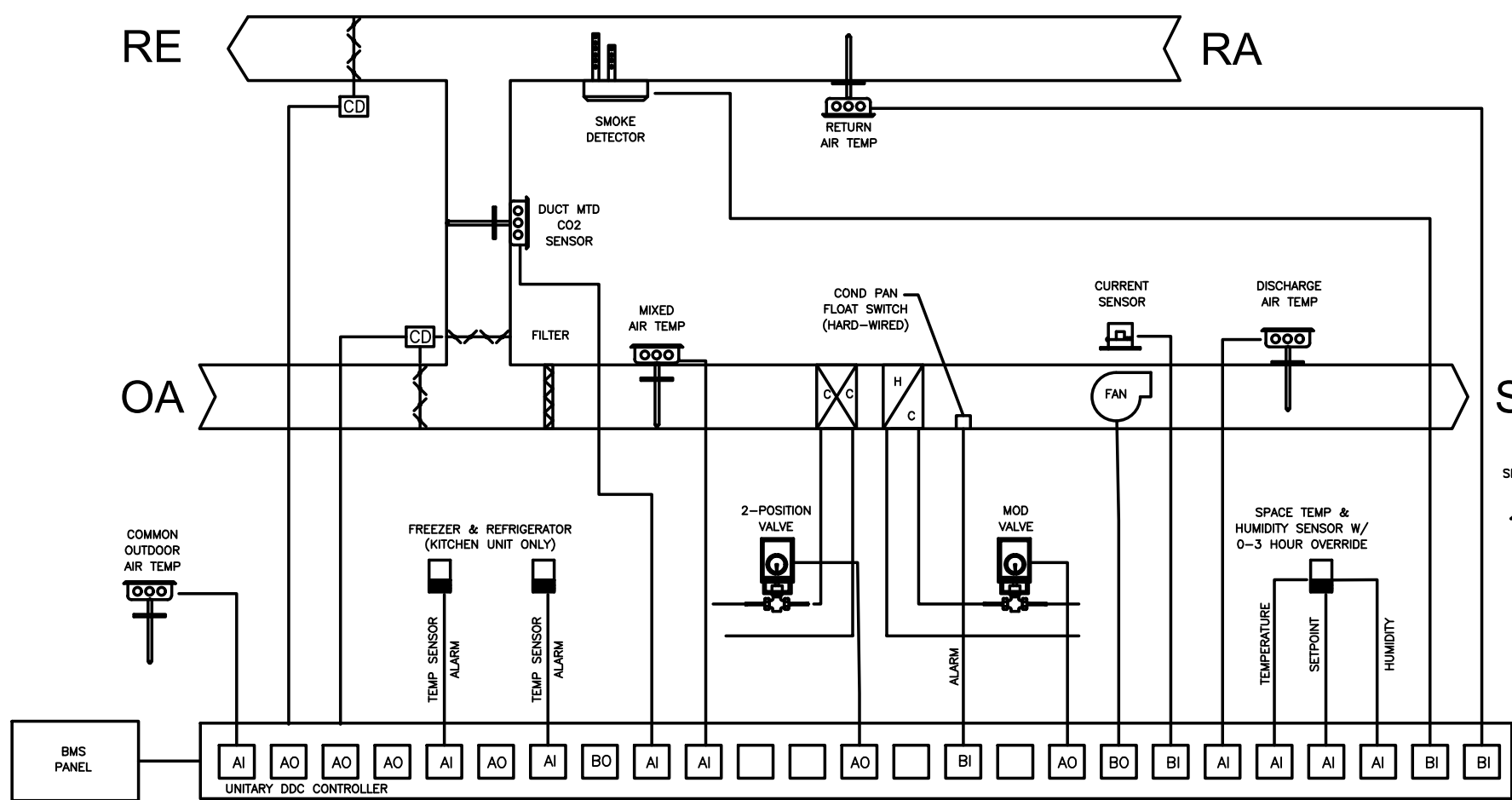
TEMPERATURE CONTROL: Each unit is provided with combination temp/humidity sensors w/temperature setpoint adjust capabilities and timed local over-ride in their respective zones. The EMS will monitor the supply air temperature. The space sensor controls, the modulating heating valve and the cooling valve to maintain temperature for scheduled hours and night setback setpoint after scheduled hours.

DEHUMIDIFICATION CYCLE: Upon the space temp being satisfied and sensing a humidity level above set point (60% RH) the supply air (SA) fan shall be set to heating CFM, the chilled water valve shall index open, and the hot water valve (coil in the re-heat position) shall modulate as required to maintain a 70°F discharge air temperature until space humidity falls below set point.

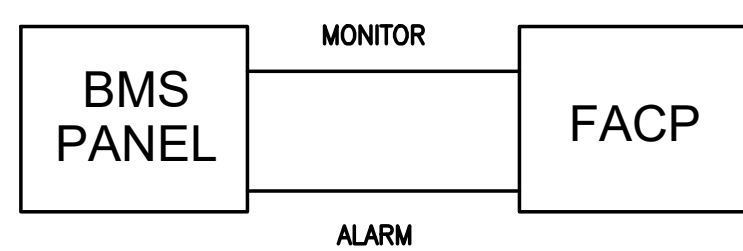
SAFETIES: The electrical contractor to provide duct type smoke detector to be installed in return air duct per NFPA 72 Item 5-10.5.3.2 for fan shut-down. M.C. shall provide float cut-off switch in each drain pan and a freeze stat (remote reset capable) at the chilled water coil to shut-down unit and place into alarm status. C.C. shall provide a freeze-stat reset and a fan status input to the BMS.

VENTILATION: (Dining & MP) EMS shall index common building outside air control damper open during occupied school hours. System fan shall run continuously during occupied hours. Unit damper shall start at minimum position. Unit damper shall drive to max position upon the CO2 monitor sensing a level above set point (700 PPM), after system start-up. Unit OA dampers shall close during night setback and morning warm-up (verify sched. w/Owner).

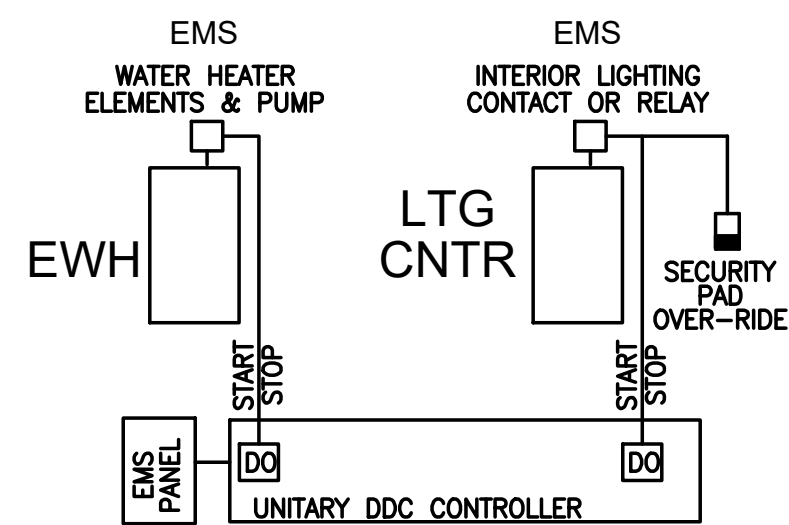
(Kitchen) System fan shall run continuously during occupied hours. Unit damper shall start at minimum position. Unit damper shall drive to max position upon the kitchen hood exhaust and make-up unit being energized and return to minimum upon hood being de-energized. Unit OA damper shall close during night setback and morning warm-up.



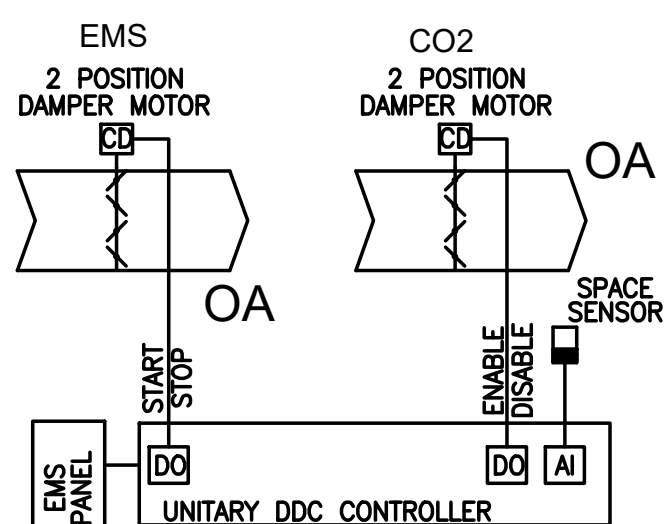
001.7 DINING CONTROL DIAGRAM
SCALE: N.T.S



001.6 GLOBAL FAN SHUT-DOWN
SCALE: N.T.S



001.5 EQUIPMENT ON TIME CLOCK CONTROL
SCALE: NONE



001.4 OUTSIDE AIR LOUVER DAMPER CONTROL
SCALE: NONE

OUTSIDE AIR DAMPER CONTROL SEQUENCES:

EMS CONTROL: EMS SHALL INDEX DAMPER OPEN DURING OWNER-SPECIFIED OCCUPIED HOURS AND DRIVE DAMPER CLOSED DURING UNOCCUPIED TIMES. MAINTAIN CLOSED POSITION DURING MORNING WARM-UP. (SEE ALSO UNIT SEQ.)

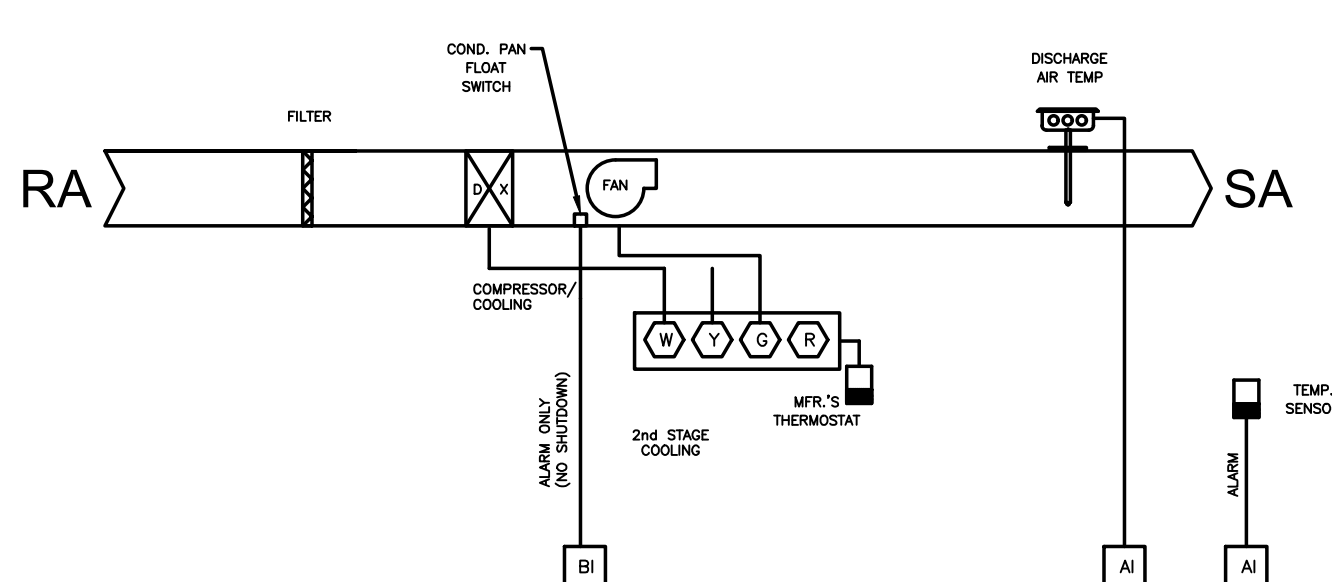
CO2 CONTROL: EMS SHALL INDEX DAMPER OPEN DURING OWNER-SPECIFIED OCCUPIED HOURS TO COINCIDE WITH UNIT OUTDOOR AIR DAMPER CONTROL AND DRIVE DAMPER CLOSED DURING UNOCCUPIED TIMES. DAMPER SHALL BE INDEXED OPEN REGARDLESS OF SCHEDULE UPON SPACE CO2 SENSOR SENSING A CO2 LEVEL ABOVE SET POINT (700 PPM).

MOF UNIT CONTROL SEQUENCE:

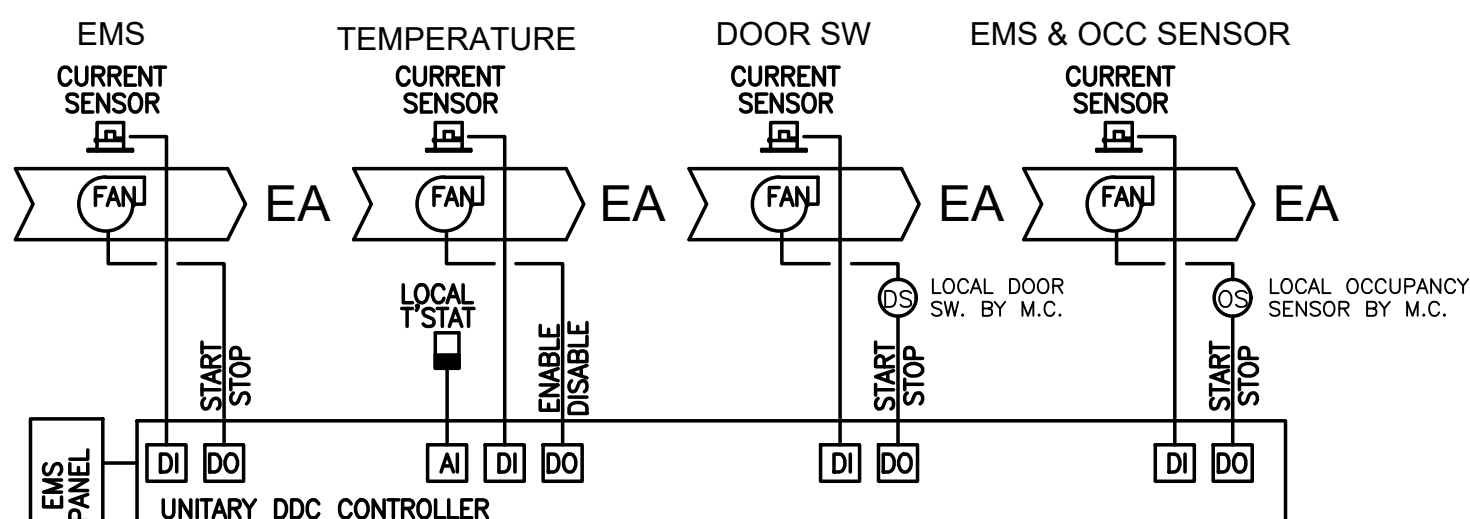
START/STOP: Unit shall run to maintain min. 68°F (adj) year-round temperature.

TEMPERATURE CONTROL: Unit is provided with manufacturer's thermostat which controls the DX condenser and SA fan to maintain space temperature.

SAFETIES: A condensate pan float switch will activate an alarm upon being activated; however the unit shall continue to operate.



001.3 MDF/IDF UNIT CONTROL DIAGRAM
SCALE: N.T.S



001.2 MISC FAN CONTROLS
SCALE: NONE

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

PREScriptive ENERGY COST BUDGET

CLIMATE ZONE: IBC - 4A (CARTERET CO.)

THERMAL ZONE

WINTER DRY BULB: 18.8°F

SUMMER DRY BULB: 91.7°F

INTERIOR DESIGN CONDITIONS

WINTER DRY BULB: 70°F

SUMMER DRY BULB: 75°F

RELATIVE HUMIDITY: 50%

BUILDING HEATING LOAD:

BUILDING COOLING LOAD:

MECHANICAL SPACE CONDITIONING SYSTEM

UNITARY

DESCRIPTION OF UNIT:

HEATING EFFICIENCY:

COOLING EFFICIENCY:

HEAT OUTPUT OF UNIT:

COOLING OUTPUT OF UNIT:

BOLLER

TOTAL BOLLER OUTPUT: 2,400 MBH (if oversized, state reason)

(EXISTING BOLLER TO REMAIN)

CHILLER

TOTAL CHILLER OUTPUT: 225 TONS (if oversized, state reason)

(EXISTING CHILLERS TO REMAIN)

LIST EQUIPMENT EFFICIENCIES

EQUIPMENT SCHEDULES WITH MOTORS (Not used for mechanical systems)

MOTOR HORSEPOWER:

NUMBER OF PHASES:

MINIMUM EFFICIENCY:

MOTOR TYPE:

OF POLES:

DESIGNER STATEMENT:

To the best of my knowledge and belief, the design of this building complies with the mechanical systems, service systems and equipment requirements of the 2012 North Carolina energy conservation code.

SIGNED: *D. Wilson*

NAME: D. WILSON, P.O.U., P.E.

TITLE: PRESIDENT

CONTROL SYSTEM GENERAL DESCRIPTION OF WORK**BASE BID:**

MECHANICAL CONTRACTOR SHALL INCLUDE ALL LABOR, MATERIALS, EQUIPMENT, PROGRAMMING, SOFTWARE AND WARRANTIES NECESSARY TO TIE THE NEW EQUIPMENT IN THE AREAS BEING RENOVATED BACK INTO THE EXISTING JCI CONTROL SYSTEM SUCH THAT IT WILL BE A FULLY FUNCTIONAL SINGLE SYSTEM. MODIFY EXISTING EQUIPMENT WITH EXPANSION CARDS, NEW GRAPHICS AND PROGRAMMING AS REQUIRED TO CONTROL NEW AHUS, PUMPS, ETC TO MEET THE NEW SEQUENCE OF OPERATIONS FOR SEAMLESS OPERATION.

CONTROLS ALTERNATE BID

MECHANICAL CONTRACTOR SHALL INCLUDE ALL DEMOLITION, LABOR, MATERIALS, EQUIPMENT, NECESSARY TO REMOVE THE EXISTING JCI SYSTEM COMPLETE, INCLUDING ALL ASSOCIATED WIRING, CABLING, CONTROLLERS, PROGRAMMING, SOFTWARE, ETC. DOWN TO EMPTY RACEWAY AND OUTLET BOXES. RACEWAY AND OUTLET BOXES MAY BE REUSED FOR PULLING NEW WIRING AND CABLING. PROVIDE A NEW TRIDIM NIAGARA FRONT END AND COMPATIBLE CONTROLS SYSTEM EQUIPMENT, HARDWARE, SOFTWARE, PROGRAMMING, ETC. BY SIEMENS, DISTECH, LYNKSPRING, TRANE OR RELIABLE TO CONTROL THE ENTIRE CAMPUS, SUCH THAT IT WILL BE A FULLY FUNCTIONAL SINGLE SYSTEM. SEE LIST OF EXISTING EQUIPMENT BELOW THAT WILL NEED TO BE CONTROLLED BY THE NEW SYSTEM.

EXISTING EQUIPMENT LIST: (INCLUDING BUT NOT LIMITED TO)

- 2 - CHILLERS (ENABLE/DISABLE)
- 1 - BOILER (ENABLE/DISABLE)
- 6 - PUMPS
- 34 - AIR HANDLERS (HOT AND CHILLED WATER COILS)
- 2 - MINI SPLITS
- 20 - FANS
- 2 - ELECTRIC UNIT HEATERS
- 3 - ELECTRIC WATER HEATERS AND ASSOCIATED RE-CIRCULATION PUMPS
- HIGH TEMPERATURE ALARMS FOR IT CLOSET/ROOM, FREEZER & REFRIGERATOR
- CORRIDOR AND BATHROOM LIGHTS
- BUILDING EXTERIOR LIGHTS
- PARKING LOT POLE LIGHTS (IF NOT DUSK TO DAWN LIGHTS)

- * THIS LIST WAS CREATED FROM RECORD DRAWINGS PROVIDED BY THE OWNER, IT MAY OR MAY NOT CONSTITUTE A COMPLETE LIST. IT IS THE MECHANICAL AND CONTROLS CONTRACTORS' RESPONSIBILITY TO FIELD VERIFY EXISTING CONDITIONS AND ALL EQUIPMENT TO BE CONTROLLED PRIOR TO BID.

PROPOSED CHILLED WATER PIPING AND AIR HANDLER REPLACEMENT PHASING

Fall 2024 Cooling Season (December): Contractor may work in any/all mechanical rooms, platforms, pump rooms, electrical rooms or boiler rooms during normal hours throughout the school year to install the new chilled water piping, replace the AHUs and Pumps. Any work located in the school occupied areas (Classrooms, Corridors, Offices, Cafeteria, etc.) may be run after school hours during the week, on weekends and/or on holidays. Work to accomplish during this period is as follows:

1. Removal of all existing Pre-Conditioning (PC) units and associated piping, circulators, and duct. Cap or blank off connections to piping and duct that is to remain.
2. Install Differential Pressure Sensor on the Dual Temp piping where indicated on plans. Sensor to be used to control Dual Temp Water Loop pumps.
3. Install new Chilled Water piping over vaulted area of entry lobby and insulate. Stub out on Mechanical platforms on each side of the entry lobby.
4. Hang New Chilled Water piping above Cafeteria ceiling and in Mechanical platforms to be fused/joined in Fall of 2024. Ceilings may remain open during school hours so long as the lighting is in place and functional.
5. Begin install of new LED Lights in Cafeteria, Electrical Room, Boiler Room and Mechanical Platforms.
6. Rework existing controls programming for minor changes (DP Sensors, VFD on Pumps, Etc).
7. Install new chiller pump CP-1 and change the chiller settings from a 10°F temperature change (45°F–55°F) to a 14°F temperature differential (42°F–56°F).
8. Remove and Replace existing Boiler pump (BP-1).
9. Remove existing DT Loop pumps and install new Chilled Water Pumps to temporarily flow water through the DT loop. Install associated VFDs to control new pump speed based on loop Diff Pressure (DP)
10. Maintain DT water loop to provide chilled water to the existing AHUs.
11. Complete install of chilled water system piping on mechanical platforms, over Cafeteria and into boiler room ready for connection to CHW pumps (CHW-1 & 2).
12. Install Hot Water loop Pumps (HW1 & 2), VDFs and maintenance pads in Boiler room. Prep for connection to Dual Temp Loop once New Chilled water loop piping is completely installed and ready to be connected to chilled water pumps.
13. Electrical lighting replacement/relocation may begin in Platform Areas.

The existing Dual Temp water systems must remain operational during cooling season. Contractor is responsible for patching/repairing any DT loop piping insulation that gets damaged during this phase of the project to maintain thermal protection and to prevent any of the piping from sweating during cooling season.

Fall 2024–2025 Heating Season (December through March): Contractor may work in any/all mechanical rooms, platforms, pump rooms, electrical rooms or boiler rooms during normal hours throughout the school year to install the new chilled water piping, replace the AHUs and Pumps. Any work located in the school occupied areas (Classrooms, Corridors, Offices, Cafeteria, etc.) may be run after school hours during the week, on weekends and/or on holidays. Work to accomplish during this period is as follows:

1. Continue work on Fall 2024 items listed above as necessary.
2. Temporarily shut–down the Dual Temp Loop (Coordinate shut–down with owner) to make pump change over to Hot Water Pumps (HW-1 & 2).
3. Bring Hot Water Loop back up to be fully operational.
4. Tie Chilled Water pumps into new chilled water loop piping system and have it ready for filling and activation once AHUs have been replaced.
5. Systematically remove and replace all existing air handlers and DX air cooled split system units with new (2) coil, 4 pipe hydronic air handlers. Coordinate with owner to free up rooms as required to replace (2) units per week. New units shall be fully functional in the heating mode when installed. Tie all new unit chilled water coils into the new empty chilled piping system.
6. Temporarily tie the new HW 2–way control valve to the existing controls system. Leave CHW 2–Way control valve to be connected to controls for cooling season.
7. Insulate all new chilled water main and branch line piping and wrap with PVC jacket (Blue) in Mechanical Platform and Boiler Room areas.
8. Fill, Treat and activate New Chilled water system loop.
9. Electrical work associated with AHU and Pump replacements as well as lighting relocations shall be done during this period.

Rooms being occupied by students and/or staff shall remain operational in heating mode during this period. Only unoccupied rooms given over to the contractor for AHU replacement may be without heat during the period of time required for unit switchout.

Spring of 2025 Cooling Season (April through June): Contractor may work in any/all mechanical rooms, platforms, pump rooms, electrical rooms or boiler rooms during normal hours throughout the school year to install the new chilled water piping, replace the AHUs and Pumps. Any work located in the school occupied areas (Classrooms, Corridors, Offices, Cafeteria, etc.) may be run after school hours during the week, on weekends and/or on holidays. Work to accomplish during this period is as follows:

1. Remove all existing piping insulation from the HW loop (Old DT Loop) and install new pipe insulation with PVC jacket (Red) in the Mechanical Platforms and Boiler Room per the specifications.
2. Complete removal of the existing Controls System and installation, programming and testing of the new Tridium Niagra based Controls system per specifications.
3. Install new lay–in ceiling tiles and repair any damaged ceiling grid or gyp. board ceilings in Cafeteria, Entry Lobby, Boiler Room or other areas damaged during construction.
4. Provide water and air TAB reports for final closeout of the mechanical re–piping and AHU replacement portion of the project.

Contractor is responsible for patching/repairing any HW or CHW loop piping insulation that gets damaged during this phase of the project to maintain thermal protection and to prevent any of the piping from sweating during cooling season. Project completion is expected by end of July of 2025. The summer months shall be available for Project closeout and final testing/verification of proper operation of new system and new controls.

All Hydronic (Hot & Chilled) water systems MUST be back online and fully operational before teachers report back to the school the first week of August of 2025.

When school is in session, only move materials and equipment into the building after schools hours, during weekends, nights, and holidays.

AIR HANDLER UNIT EQUIPMENT SCHEDULE

SYSTEM		AIR DATA		COOLING DATA									HEATING DATA									MOTOR DATA				EQUIPMENT DATA				
TAG	ZONE	CFM	OA	TCL	SC	EATdb	LATdb	ΔTdb	GPM	LWT	CONN	PD	CFM	HEAT	EAT	LAT	LWT	GPM	CONN	PD	ESP	MAX HP	FLA	MOCp	ELECT	DESCRIPTION	MFR./MODEL NO.	ROWS	NOTES	WEIGHT
AHU-218	CLASSRM 217 & 218	3000	500	110	73.2	77.5	55.0	22.5	16	55.8	1-1/2"	10	2400	112.0	62.0	105.0	140.5	11.5	1-1/4"	10	0.75	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-214	CLASSRM 214 & 215	3050	500	115	74.3	77.4	55.0	22.4	16.5	55.9	1-1/2"	10	2400	111.6	62.1	105.0	140.6	11.5	1-1/4"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-213	CLASSRM 213 & 216	2700	500	105	67.1	77.9	55.0	22.9	15	56.0	1-1/2"	10	2200	104.8	61.1	105.0	140.0	10.5	1-1/4"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-212	RM 203-207 & 211-212	1450	325	60	37.3	78.7	55.0	23.7	9	55.3	1-1/4"	10	1200	59.6	59.2	105.0	140.1	6	1"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-3	6/2		
AHU-208	CLASSRM 208	1700	250	60	40.7	77.1	55.0	22.1	9	55.3	1-1/4"	10	1400	63.9	62.9	105.0	140.3	6.5	1-1/4"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-3	6/2		
AHU-257	CLASSRM 257 & 261	3400	500	120	81.5	77.1	55.0	22.1	17.5	55.7	1-1/2"	10	2700	123.2	62.9	105.0	140.3	12.5	1-1/4"	10	0.65	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-269	CLASSRM 266 & 269	3700	500	125	87.7	76.8	55.0	21.8	18	55.9	1-1/2"	10	3000	135.0	63.5	105.0	140.7	14	1-1/2"	10	0.75	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-8	6/2		
AHU-255	RM 252-255 & 262-263	1575	175	50	36.5	76.3	55.0	21.3	7.5	55.3	1-1/4"	10	1300	56.9	64.7	105.0	141.0	6	1"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-3	6/2		
AHU-200	CLASSRM 119 & 200	1700	250	60	40.7	77.1	55.0	22.1	9	55.3	1-1/4"	10	1400	63.9	62.9	105.0	140.3	6.5	1-1/4"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-3	6/2		
AHU-250	CLASSRM 250	2200	250	80	51.0	76.4	55.0	21.4	11.5	55.9	1-1/4"	10	1800	79.0	64.5	105.0	140.2	8	1-1/4"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-4	6/2		
AHU-110	RM 101-105 & 110	1600	175	48	37.0	76.3	55.0	21.3	7	55.7	1-1/4"	10	1300	56.8	64.8	105.0	141.1	6	1"	10	0.65	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-3	6/2		
AHU-114	RM 107-116	1200	100	36	27.0	75.8	55.0	20.8	5.5	55.1	1"	10	1000	42.3	66.0	105.0	141.2	4.5	1"	10	0.65	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-3	6/2		
AHU-122A	MULTI-PURPOSE 122	2725	375	90	64.7	76.9	55.0	21.9	13	55.8	1-1/4"	10	2200	99.3	63.4	105.0	140.1	10	1-1/4"	10	0.9	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-122B	MULTI-PURPOSE 122	2725	375	90	64.7	76.9	55.0	21.9	13	55.8	1-1/4"	10	2200	99.3	63.4	105.0	140.1	10	1-1/4"	10	0.9	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-410	FRONT ENTRY	1100	200	30	27.2	77.8	55.0	22.8	4.5	55.3	1"	10	900	42.7	61.3	105.0	141.0	4.5	1"	10	0.75	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-3	6/2		
AHU-307A	CAFÉ 307	3000	650	122	76.7	78.6	55.0	23.6	17.5	55.9	1-1/2"	10	2400	118.2	59.6	105.0	140.3	12	1-1/4"	10	1	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-307B	CAFÉ 307	3000	650	122	76.7	78.6	55.0	23.6	17.5	55.9	1-1/2"	10	2400	118.2	59.6	105.0	140.3	12	1-1/4"	10	1	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-300	MEDIA CENTER 300	3600	550	130	86.7	77.2	55.0	22.2	19	55.7	1-1/2"	10	2900	133.2	62.7	105.0	140.3	13.5	1-1/2"	10	0.9	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-8	6/2		
AHU-310B	-	2275	2275	180	98.7	95.0	55.0	40.0	26	55.8	2"	10	1800	162.1	22.0	105.0	140.4	16.5	1-1/2"	10	1	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-310A	KITCHEN 310	3000	750	100	78.9	79.3	55.0	24.3	14.5	55.8	1-1/2"	10	2400	122.4	58.0	105.0	140.4	12.5	1-1/4"	10	0.75	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-302	WORKRM 302	1000	125	34	23.5	76.6	55.0	21.6	5	55.6	1"	10	800	35.6	64.0	105.0	142.2	4	1"	10	0.7	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-3	6/2		
AHU-306	COMPUTER LAB 306	2200	250	70	51.0	76.4	55.0	21.4	10	56.0	1-1/4"	10	1800	79.0	64.5	105.0	140.2	8	1-1/4"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-455	CLASSRM 455	1575	175	50	36.5	76.3	55.0	21.3	7.5	55.3	1-1/4"	10	1300	56.9	64.7	105.0	141.0	6	1"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-3	6/2		
AHU-410	CLASSRM 410 & 411	3000	500	110	73.2	77.5	55.0	22.5	16	55.8	1-1/2"	10	2400	112.0	62.0	105.0	140.5	11.5	1-1/4"	10	0.75	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-409	CLASSRM 406 & 409	2700	500	105	67.1	77.9	55.0	22.9	15	56.0	1-1/2"	10	2200	104.8	61.1	105.0	140.0	10.5	1-1/4"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-407	CLASSRM 407 & 408	2700	500	105	67.1	77.9	55.0	22.9	15	56.0	1-1/2"	10	2200	104.8	61.1	105.0	140.0	10.5	1-1/4"	10	0.65	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-403	CLASSRM 403 & BOOK STORAGE	1450	325	60	37.3	78.7	55.0	23.7	9	55.3	1-1/4"	10	1200	59.6	59.2	105.0	140.1	6	1"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-3	6/2		
AHU-400	CLASSRM 400 & 405	2700	500	105	67.1	77.9	55.0	22.9	15	56.0	1-1/2"	10	2150	102.4	61.1	105.0	140.5	10.5	1-1/4"	10	0.65	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-450	CLASSRM 450	1350	250	50	33.5	77.9	55.0	22.9	7.5	55.3	1-1/4"	10	1100	52.4	61.1	105.0	141.0	5.5	1"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-3	6/2		
AHU-451	CLASSRM 451 & 457	2700	500	105	67.1	77.9	55.0	22.9	15	56.0	1-1/2"	10	2150	102.4	61.1	105.0	140.5	10.5	1-1/4"	10	0.6	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-6	6/2		
AHU-461	CLASSRM 458 & 461	3700	500	125	87.7	76.8	55.0	21.8	18	55.9	1-1/2"	10	3000	135.0	63.5	105.0	140.7	14	1-1/2"	10	0.75	7.5	11	20	480/3	MODULAR AIR HANDLING UNIT	TRANE UCCA-8	6/2		

NOTES:
1) TOTAL COOLING LOAD, SENSIBLE COOLING LOAD, AND HEATING LOAD UNITS ARE MBH/TA.
COOLING LOADS INCLUDES VENTILATION, HEAT PAIN, & PLENUM HEAT GAIN DURING NON-SIMULTANEOUS PEAK OPERATION w/o INCLUSION OF ZONE DENSITY.
EXTERIOR DESIGN CONDITIONS, WINTER DRY BULB = 18°F; SUMMER DRY BULB = 83°F; MEAN COINCIDENT WET BULB = 75°F
2) REFERENCE SPECIFICATION SECTIONS 10850, 10860, 10867 FOR EQUIPMENT AND ACCESSORIES.
3) M.C. SHALL PROVIDE MANUFACTURERS COMBINATION STARTER WHEN AVAILABLE. SEE ALSO EQUIPMENT INSTALLATION DETAILS FOR ACCESSORIES, OPTIONS, ETC.
4) CHILLED WATER: DWT = 42.0, LWT = 56.0
5) HOT WATER: DWT = 180.0, LWT = 140.0, EXTERIOR AIR TEMP. = 35 F (avg.) (INSTALL IN REHEAT POSITION)
6) CONTRACTOR RESPONSIBLE FOR LEFT OR RIGHT HAND COIL CONNECTION AND MOTOR/BLOWER ASSY SELECTION
7) PROVIDE MIXING BOX FOR THIS UNIT
8) FAN COIL UNITS, CHILLED WATER VALVES PROVIDED AS TWO POSITION, HOT WATER VALVES PROVIDED AS MODULATING FOR RE-HEAT
9) SEE FORM OF PROPOSAL FOR ALTERNATE BIDS.
10) PROVIDE UNIT WITH AUXILIARY EMERGENCY DRAIN PAN AND CONDENSATE FLOAT SWITCH MOUNTED TO DRAIN PAN. FLOAT SWITCH SHALL SHUT DOWN UNIT FAN AND CLOSE HYDRONIC VALVES UPON ACTIVATION.

ABBREVIATIONS:
DTS = SYSTEM
TCL = TOTAL COOLING LOAD (MBH/TA)
SC = SENSIBLE COOLING (MBH/TA)
EATdb = HEAT LOAD (MBH/TA)
GPM = GALLONS PER MINUTE
CONN = PIPE SIZE (in.) / SEE MANUF. FOR FINAL CONN SIZE
FLA = RATED LOAD AMPS
LWA = LOCKED ROTOR AMPS
FLA = FAN MOTOR FULL LOAD AMPS
CFM = CUBIC FEET PER MINUTE
OA = OUTSIDE AIR (cfm)
MCA = MINIMUM CIRCUIT AMPACITY (AMPS)

LATdb = LEAVING DRY BULB AIR TEMP (°F)
LWdb = LEAVING WET BULB AIR TEMP (°F)
EATdb = ENTERING DRY BULB AIR TEMP (°F)
EWdb = ENTERING WET BULB AIR TEMP. (°F)
FC = FAN COIL UNIT
AHU = AIR HANDLER UNIT
ESP = EXTERNAL STATIC PRESSURE (IN WG)
LWT = ESTIMATED LEAVING WATER TEMP (°F)
HP = AHU MFR STD MOTOR
ROWS = No. COIL ROWS C/FW
HORZ = HORIZONTAL UNIT POSITION
KW = POWER INPUT (WATTS X 1000)
1/HP = QUANTITY OF TWO

PUMP SCHEDULE

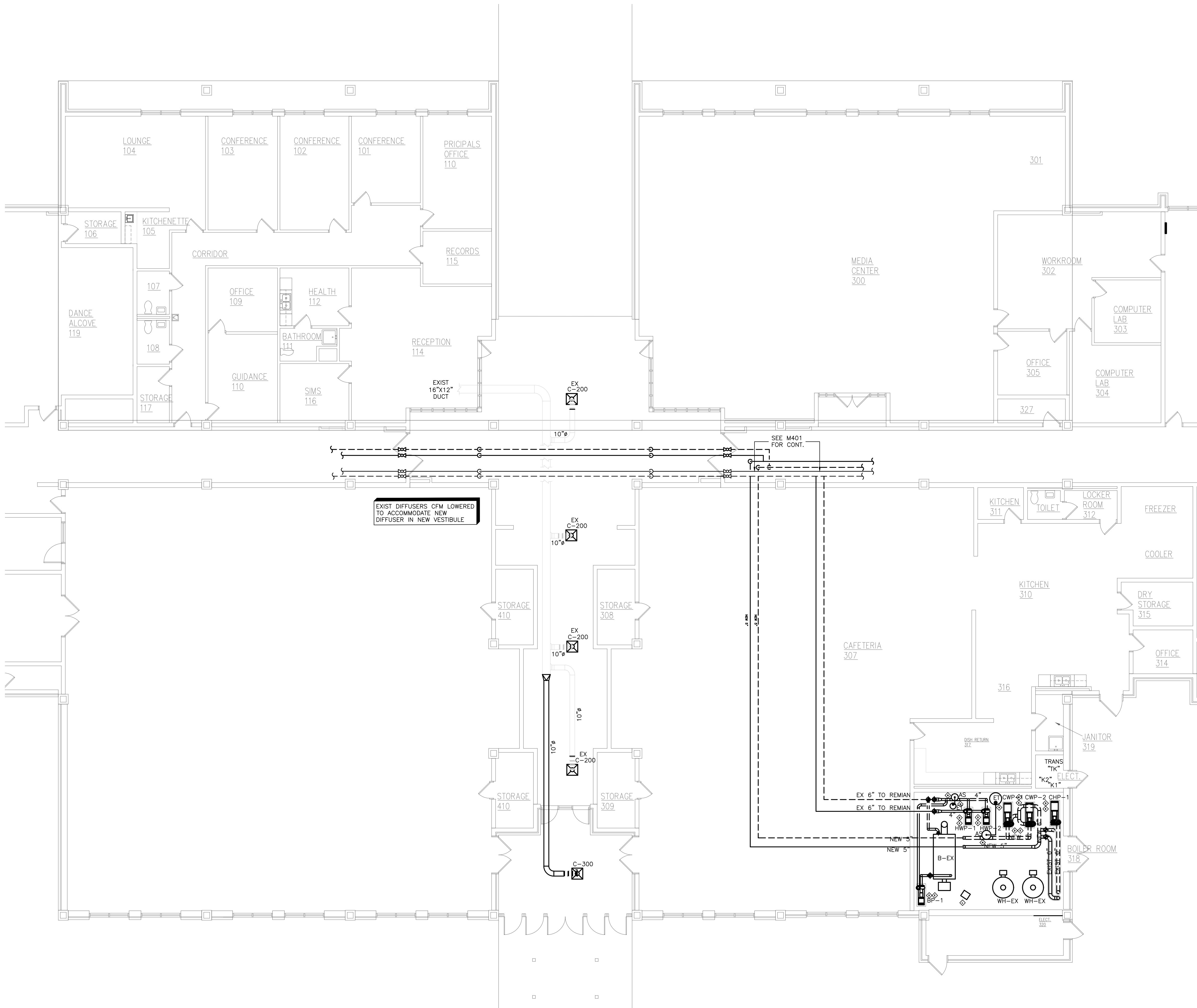
TAG	TYPE	SERVICE	GPM	HEAD	% EFF	HP	RPM	ELECT	FLA	CONTROL	MFR./MODEL	NOTES
CWP-1	END SUCTION CENTRIFUGAL	CW SYSTEM PUMP	180	50	55.8	3.0	1750	480V/3PH	4.8	VAR. SPEED	B&G SERIES 1510 2BD	1-4
CWP-2	END SUCTION CENTRIFUGAL	CW SYSTEM PUMP	180	50	55.8	3.0	1750	480V/3PH	4.8	VAR. SPEED	B&G SERIES 1510 2BD	1-4
HWP-1	END SUCTION CENTRIFUGAL	HW SYSTEM PUMP	120	37	56.0	0.75	1750	480V/3PH	1.6	VAR. SPEED	B&G 1510 1.25AD-es	1-4
HWP-2	END SUCTION CENTRIFUGAL	HW SYSTEM PUMP	120	37	56.0	0.75	1750	480V/3PH	1.6	VAR. SPEED	B&G 1510 1.25AD-es	1-4

MECH-ELEC NEW WORK KEY NOTES:

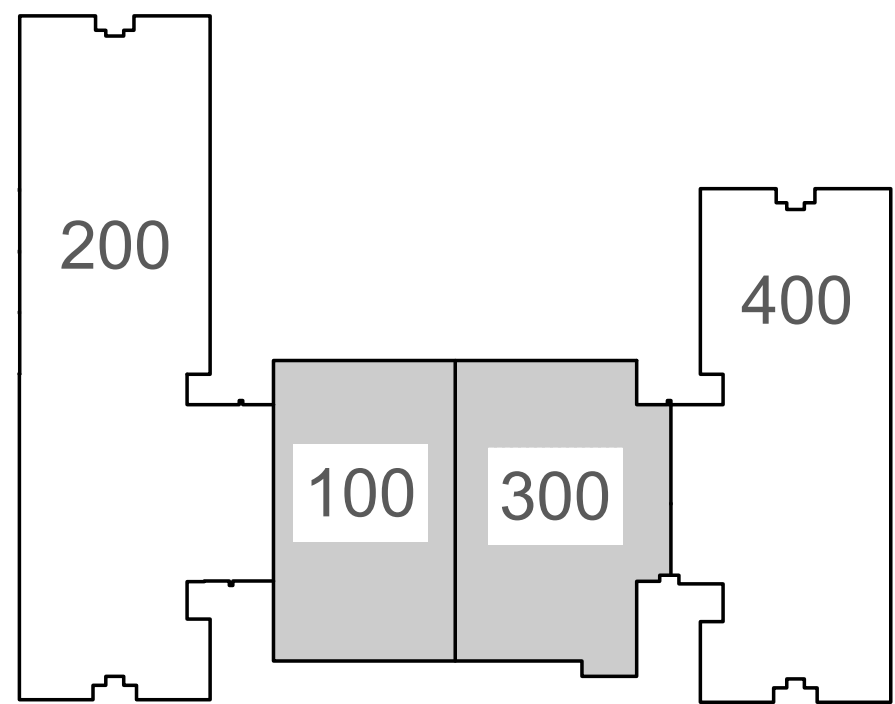
GENERAL NOTE COMMENT: CONTRACTORS ARE RESPONSIBLE FOR READING, UNDERSTANDING AND FOLLOWING WORK SEQUENCING/PHASING PLAN WITH REGARDS TO WHEN THE FOLLOWING WORK IS TO BE SCHEDULED, COMPLETED AND OPERATIONAL.

- ◆ TIE EXISTING OA DUCT WHERE PRE-CONDITIONING UNIT WAS REMOVED INTO NEW AHU MIXING BOX OR RETURN AIR DUCT IF IT DOESN'T HAVE A MIXING BOX. INSTALL DAMPERS FOR AIR BALANCE IF MIXING BOX IS NOT PRESENT.
- ◆ REPLACE CEILING TILES IN THIS AREA AFTER NEW CHILLED WATER PIPING IS INSTALLED, INSULATED, INSPECTED AND ACCEPTED. INSTALL NEW LIGHTS IN GRID AND TIE BACK TO LOCAL POWER & CONTROL CIRCUITS AS INDICATED.
- ◆ INSTALL NEW FLUORESCENT LIGHTS IN THIS AREA AS INDICATED. CONNECT BACK TO EXISTING POWER AND CONTROL WIRING AS SHOWN. MODIFY SWITCH-LEG AS NECESSARY. REMOVE ANY TEMPORARY LIGHTS THAT WERE INSTALLED ONCE NEW LIGHTS ARE INSTALLED AND FUNCTIONING.
- ◆ INSTALL NEW PUMP AND ASSOCIATED PUMP TRIM BACK TO EXISTING SUPPLY AND RETURN PIPING DROPS MAINTAINED FOR RECONNECTION DURING DEMOLITION.
- ◆ RECONNECT NEW EQUIPMENT BACK TO EXISTING DISCONNECT SWITCH AND FEEDER MAINTAINED FOR REUSE. LABEL PANEL DIRECTORY WITH NEW EQUIPMENT ID AS APPROPRIATE.
- ◆ SEQUENTIALLY INSTALL NEW AIR HANDLERS ACCORDING TO SCHEDULE DEVELOPED WITH OWNER. REUSE EXISTING MAINTENANCE PAD WHERE POSSIBLE. EXPAND OR INSTALL NEW PADS AS REQUIRED FOR NEW UNITS IN NEW LOCATIONS. CONNECT NEW UNIT BACK TO RETURN AND SUPPLY MAINTAINED FOR REUSE.
- ◆ INSTALL NEW HYDRONIC UNIT IN PLACE OF EXISTING DX AIR COOLED SPLIT SYSTEM REMOVED. PROVIDE NEW HYDRONIC SUPPLY & RETURN PIPING BACK TO MAINS WITH ASSOCIATED COIL TRIM.
- ◆ REWORK EXISTING TRANE MODULAR AIR HANDLERS TO ADD A 2-ROW HEATING COIL IN THE REHEAT POSITION. MOVE THE EXIST. COOLING COIL AS NECESSARY TO MAKE ROOM FOR THE NEW COIL.
- ◆ CONNECT NEW EQUIPMENT BACK TO EXISTING DISCONNECT SWITCH MAINTAINED FOR REUSE. PROVIDE NEW FUSES AS REQUIRED TO MATCH NEW EQUIPMENT DATA PLATE. LABEL PANEL DIRECTORY WITH NEW AHU NUMBER AS NECESSARY.
- ◆ INSTALL NEW INSULATION ON ALL EXISTING HYDRONIC PIPING THAT HAD INSULATION REMOVED AND HAD EXISTING PIPE PREPARED FOR NEW INSULATION. COLD/CHILLED WATER PIPING MUST BE INSULATED DURING ALL COOLING SEASONS TO PREVENT SWEATING.
- ◆ INSTALL NEW ELECTRIC UNIT HEATER AS INDICATED.
- ◆ REMOVE EXISTING RECESSED CAN LIGHTS IN THIS AREA. MAINTAIN POWER AND CONTROL TO ALL UP AND DOWN STREAM LIGHTING TO REMAIN. TIE NEW LAY-IN LIGHTS TO UNSWITCHED LEG OF EXISTING CORRIDOR LIGHTS. (OCT L-12 PER RECORD DWGS.)

◆ HW & CHW EXP TANKS SHALL BE EQUAL TO A B&G MODEL B-500. AIR SEPARATORS SHALL BE EQUAL TO B&G AIRTROL. SIZE EQUAL TO CONNECTING PIPE SIZE.



101.1 100 & 300 WING MECHANICAL PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN
SCALE: NTS

ES Project No. ES24005

ENGINEERING
SOURCE OF NC, P.A.

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WILSON COUNTY
NORTH CAROLINA
02/23/24
11/22/24
D. Wilson, P.E.
WILSON COUNTY
NORTH CAROLINA

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No.	Date	Revision
1	11/22/24	PRE-BID MTG & ADDEN #1

Hite associates
ARCHITECTURE / PLANNING / TECHNOLOGY
2600 Meridian Drive / Greenville, NC 27834 / tel (252) 757-0333

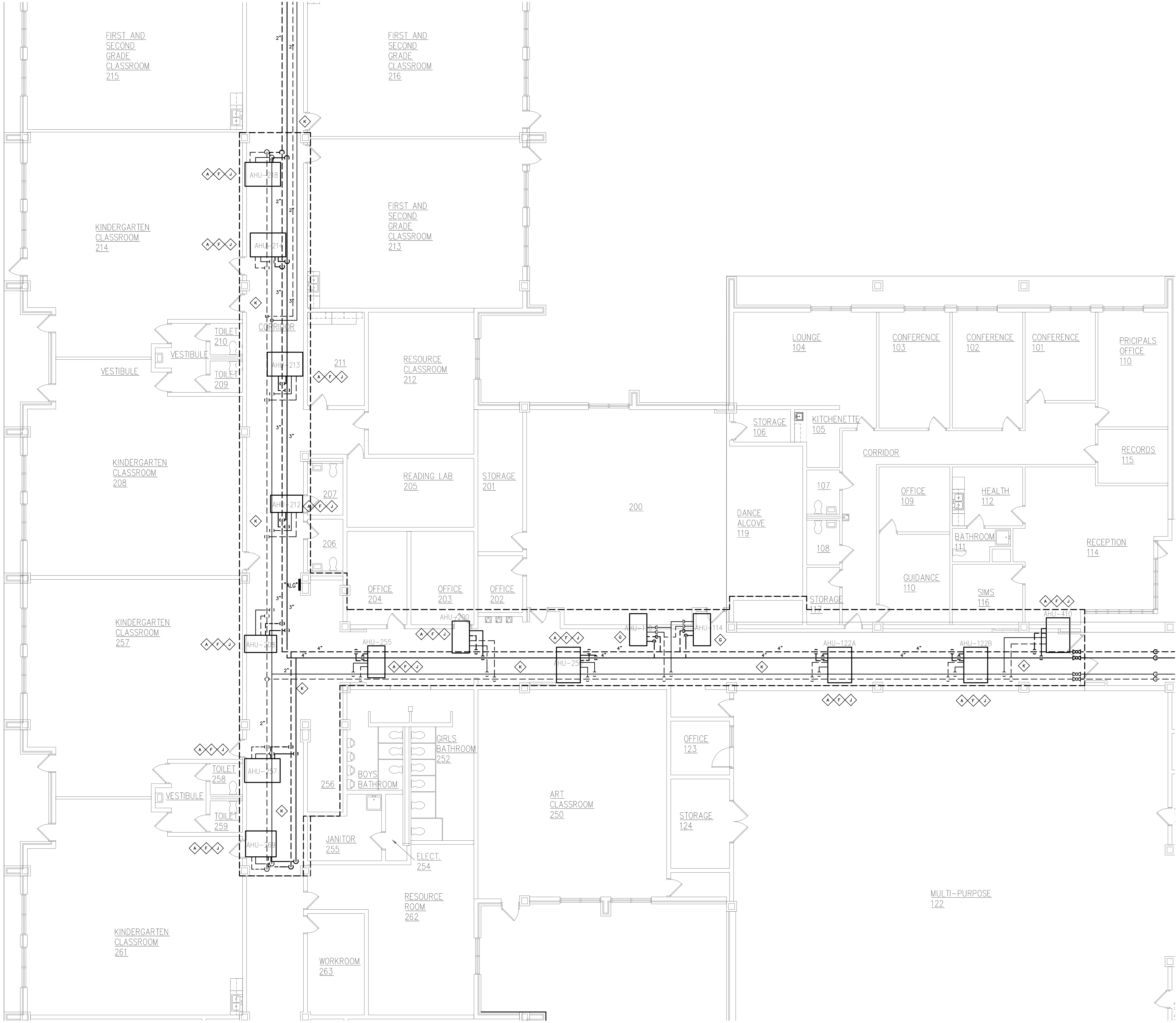
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SOURCE OF NC, P.A.
4/18
HITE ASSOCIATES, P.C.
GREENVILLE, NC

HVAC Renovations to
Bogue Elementary School
3355 Hwy. 24, Newport, NC 28570
Carteret County Schools / North Carolina

Project No. 22419

Date: 11 Nov 2024

Drawing no. **M 101**



201.1 100 & 200 WING PLATFORM MECHANICAL PLAN


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KEY PLAN
SCALE: NTS

ES Project Name: ES24005

ENGINEERING

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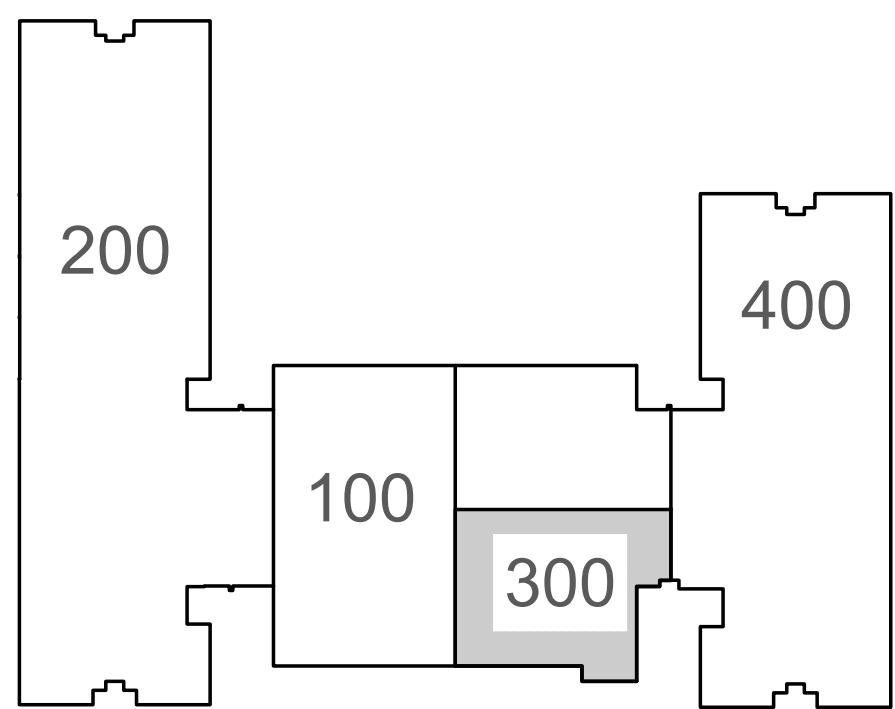
E-Mail Address: generalinfo@engsource.com

Voice (252) 439-0338 • Fax (252) 439-0482 • Fm (3) 36-1873

MECH-ELEC NEW WORK KEY NOTES:

GENERAL NOTE: COMMENT: CONTRACTORS ARE RESPONSIBLE FOR READING, UNDERSTANDING AND FOLLOWING WORK ORDER, SPECIFICATIONS, PERMITS, AND ALL APPLICABLE CODES. WHEN THE FOLLOWING WORK IS TO BE SCHEDULED, COMPLETED AND OPERATIONAL:


- THE EXISTING OA DUCT WHERE PRE-EXISTING CONDITION WAS REMOVED INTO NEW AHU MIXING BOX OR RETURN AIR DUCT IF IT DOESN'T HAVE A MIXING BOX, INSTALL DAMPERS FOR AIR BALANCE IF MIXING BOX IS NOT PRESENT.
- REPLACE CEILING LIGHTS IN THIS AREA AFTER NEW CHILLED WATER PIPING IS INSTALLED. VERIFY ALL WIRING IS PROPERLY ACCEPTED. INSTALL NEW LIGHTS IN GRID AND THE BACK TO LOCAL POWER & CONTROL. CIRCULATES AS INDICATED.
- INSTALL NEW FLOURENTS IN THIS AREA AS INDICATED. CONNECT BACK EXISTING EQUIPMENT AND CONTROL WIRING AS SHOWN. MODIFY SWITCH-LEG AS NECESSARY. REMOVE ANY EXISTING LIGHTS THAT ARE NOT INSTALLED ONCE NEW LIGHTS ARE INSTALLED AND FUNCTIONING.
- INSTALL NEW PUMP AND ASSOCIATED PUMP TRIM BACK TO EXISTING SUPPLY AND RETURN PIPING DROPS MAINTAINED FOR RECONNECTION DURING REUSE.
- RECONNECT NEW EQUIPMENT BACK TO EXISTING DISCONNECT SWITCH AND FEEDER MAINTAINED FOR REUSE. LABEL PANEL DIRECTORY WITH NEW EQUIPMENT ID AS APPROPRIATE.
- SEQUENTIALLY INSTALL NEW AIR HANDLERS ACCORDING TO SCHEDULE DEVELOPED WITH OWNER. REUSE EXISTING MAINTENANCE ACCESS WHERE POSSIBLE. EXPOSED OR IMPROVED NEW PDS AS REQUIRED FOR NEW UNITS IN NEW LOCATIONS. CONNECT NEW UNITS TO RETURN AND SUPPLY AIRWAYS AS REQUIRED FOR REUSE.
- INSTALL NEW HYDRONIC UNIT IN PLACE OF EXISTING DX AIR COOLED SPLIT SYSTEM REMOVED. PROVIDE NEW HYDRONIC SUPPLY & RETURN PIPING BACK TO MAINS WITH ASSOCIATED COIL TAP.
- REWORK EXISTING TRANE MODULAR AIR HANDLERS TO ADD A 2" COIL DRAINING COIL IN THE EXISTING POSITION. MOVE THE EXIST COOLING COIL AS NECESSARY TO MAKE ROOM FOR THE NEW COIL.
- CONNECT NEW EQUIPMENT BACK TO EXISTING DISCONNECT SWITCH MAINTAINED FOR REUSE. PROVIDE NEW FUSES AS REQUIRED TO MAINTAIN NEW EQUIPMENT. LABEL PANEL DIRECTORY WITH NEW AHU NUMBER AS NECESSARY.
- INSTALL NEW INSULATION ON ALL EXISTING HYDRONIC PIPING THAT HAD INSULATION REMOVED AND HAD EXISTING PIPE PREPARED FOR RECONNECTION. ON NEW PIPING, INSULATE ALL PIPING TO BE INSULATED DURING ALL COOLING SEASONS TO PREVENT SWEATING.
- INSTALL NEW ELECTRIC UNIT HEATER AS INDICATED.
- REMOVE EXISTING RECESSED CAN LIGHTS IN THIS AREA. MAINTAIN POWER AND CONTROL TO ALL UP AND DOWN STREAM LIGHTING TO REMAIN. THE NEW LAY-IN'S TO UNWITCHED LEGS OF EXISTING CANTILEVER LIGHTS. VERIFY ALL WIRING IS PROPERLY ACCEPTED.
- PW & CWV EXP TANKS SHALL BE EQUAL TO A B&G MODEL PW-8-B500, AIR SEPARATORS SHALL BE EQUAL TO B&G AIRTRAP, SIZE EQUAL TO CONNECTING PIPE SIZE.




KEY PLAN
SCALE: NTS

ES Project Name: ES24003

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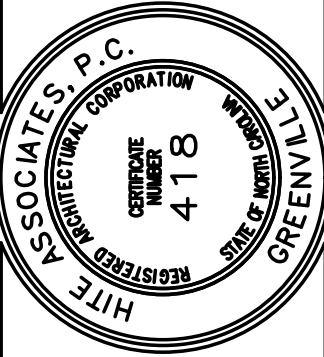


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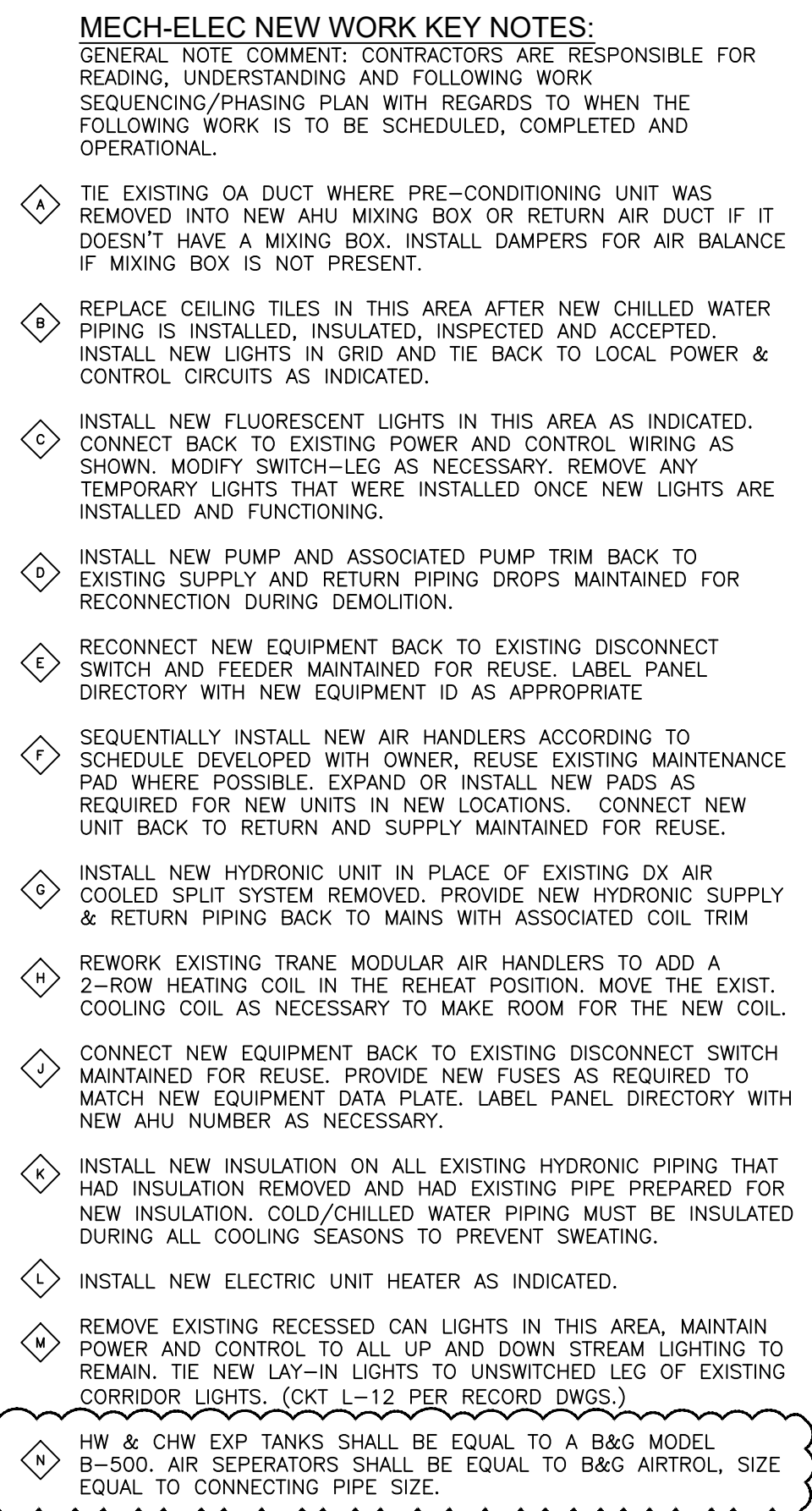
				No.	Date	Revision
				1	11/22/24	PRE-BID MTG & ADDEN #1

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HVAC Renovations to
Bogue Elementary School
3355 Hwy. 24, Newport, NC 28570
Carteret County Schools / North Carolina

Project No. 22419
Date: 11 Nov 2024
Drawing no. M 301




KEY PLAN

SCALE: NTS

ES24003


ENGINEERING

SOURCE OF NC, P.A.



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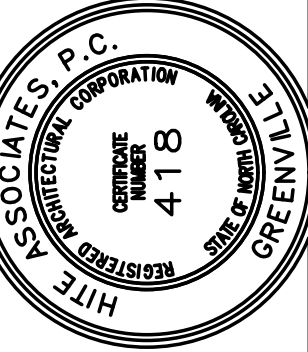
ES Project Name: ES24003



D. Wilson
02159
11/22/24
ENGINEER
D. WILSON F001

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HVAC Renovations to
Bogue Elementary School
3355 Hwy. 24, Newport, NC 28570
Carteret County Schools / North Carolina

Project No.
22419

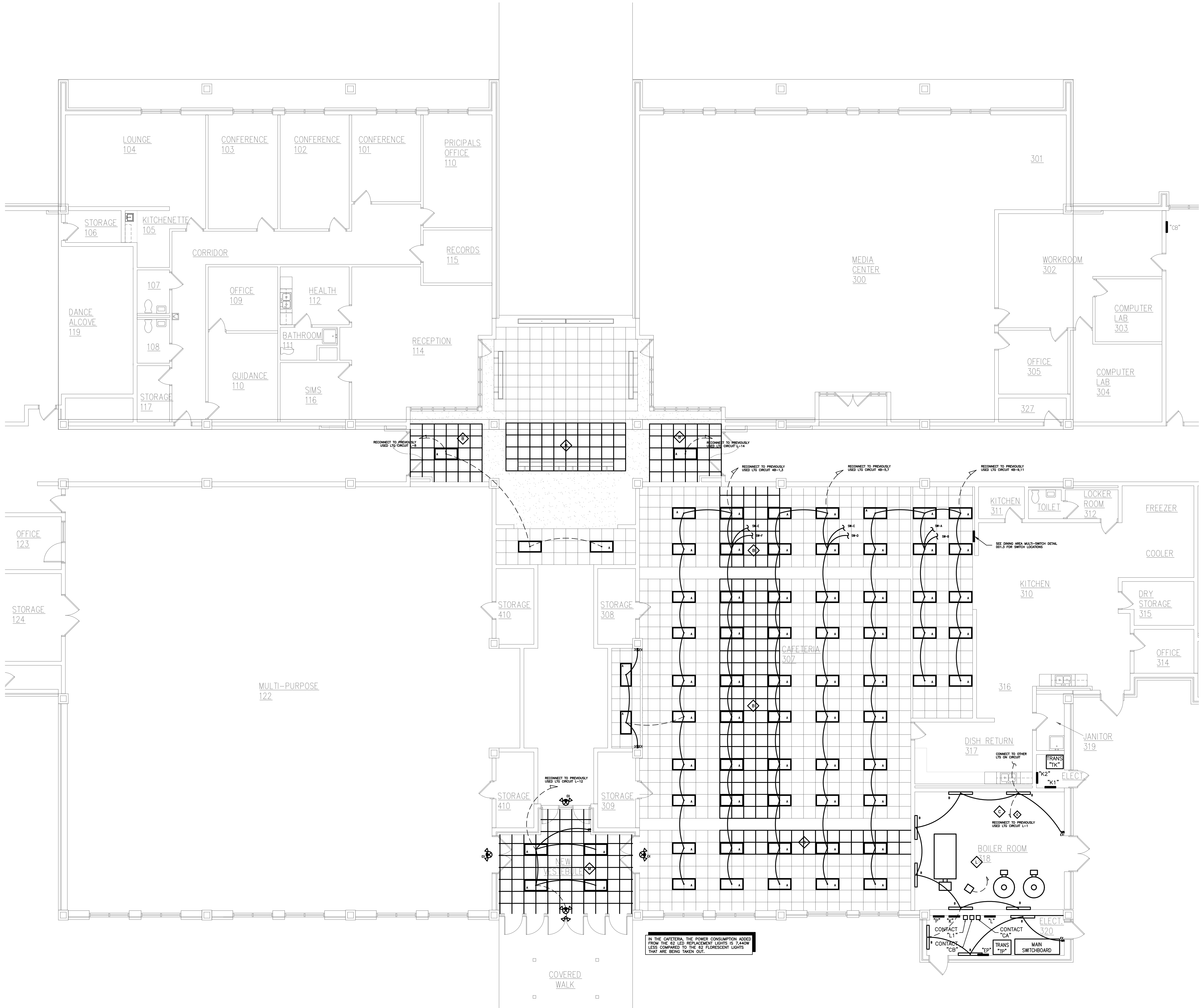
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11 Nov 2024

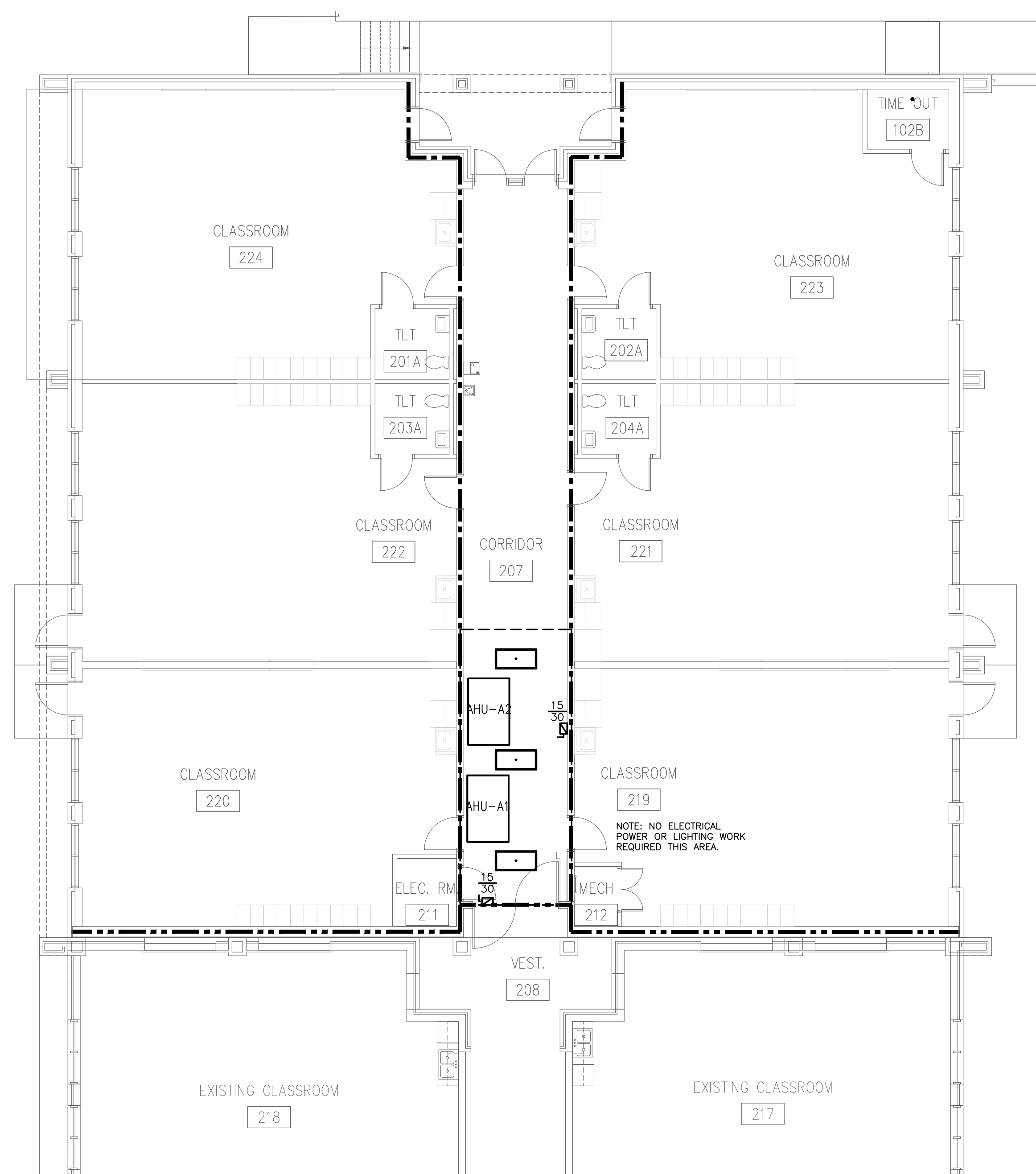
Drawing no.
**M
401**

MECH-ELEC NEW WORK KEY NOTES:

GENERAL NOTE COMMENT: CONTRACTORS ARE RESPONSIBLE FOR READING, UNDERSTANDING AND FOLLOWING WORK SEQUENCING/PHASING PLAN WITH REGARDS TO WHEN THE FOLLOWING WORK IS TO BE SCHEDULED, COMPLETED AND OPERATIONAL.

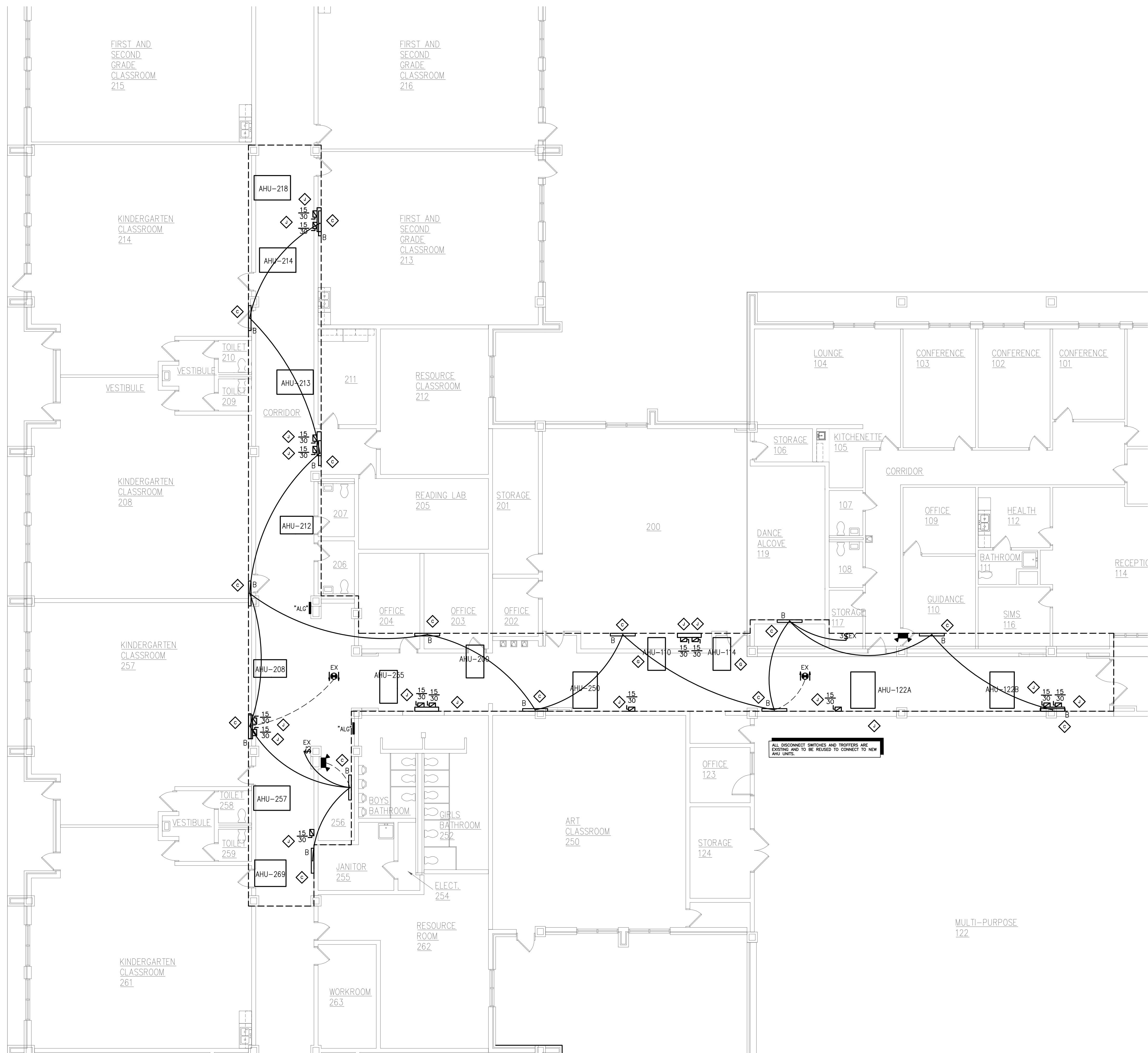
- ◇ TIE EXISTING OA DUCT WHERE PRE-CONDITIONING UNIT WAS REMOVED INTO NEW AHU MIXING BOX OR RETURN AIR DUCT IF IT DOESN'T HAVE A MIXING BOX. INSTALL DAMPERS FOR AIR BALANCE IF MIXING BOX IS NOT PRESENT.
- ◇ REPLACE CEILING TILES IN THIS AREA AFTER NEW CHILLED WATER PIPING IS INSTALLED, INSULATED, INSPECTED AND ACCEPTED. INSTALL NEW LIGHTS IN GRID AND TIE BACK TO LOCAL POWER & CONTROL CIRCUITS AS INDICATED.
- ◇ INSTALL NEW FLUORESCENT LIGHTS IN THIS AREA AS INDICATED. CONNECT BACK TO EXISTING POWER AND CONTROL WIRING AS SHOWN. MODIFY SWITCH-LEG AS NECESSARY. REMOVE ANY TEMPORARY LIGHTS THAT WERE INSTALLED ONCE NEW LIGHTS ARE INSTALLED AND FUNCTIONING.
- ◇ INSTALL NEW PUMP AND ASSOCIATED PUMP TRIM BACK TO EXISTING SUPPLY AND RETURN PIPING DROPS MAINTAINED FOR RECONNECTION DURING DEMOLITION.
- ◇ RECONNECT NEW EQUIPMENT BACK TO EXISTING DISCONNECT SWITCH AND FEEDER MAINTAINED FOR REUSE. LABEL PANEL DIRECTORY WITH NEW EQUIPMENT ID AS APPROPRIATE.
- ◇ SEQUENTIALLY INSTALL NEW AIR HANDLERS ACCORDING TO SCHEDULE DEVELOPED WITH OWNER. REUSE EXISTING MAINTENANCE PAD WHERE POSSIBLE. EXPAND OR INSTALL NEW PADS AS REQUIRED FOR NEW UNITS IN NEW LOCATIONS. CONNECT NEW UNIT BACK TO RETURN AND SUPPLY MAINTAINED FOR REUSE.
- ◇ INSTALL NEW HYDRONIC UNIT IN PLACE OF EXISTING DX AIR COOLED SPLIT SYSTEM REMOVED. PROVIDE NEW HYDRONIC SUPPLY & RETURN PIPING BACK TO MAINS WITH ASSOCIATED COIL TRIM.
- ◇ REWORK EXISTING TRANE MODULAR AIR HANDLERS TO ADD A 2-ROW HEATING COIL IN THE REHEAT POSITION. MOVE THE EXIST. COOLING COIL AS NECESSARY TO MAKE ROOM FOR THE NEW COIL.
- ◇ INSTALL NEW DISCONNECT (BY MC) AND BACK TO EXISTING CIRCUIT MAINTAINED FOR REUSE. MC TO PROVIDE NEW FUSES AS REQUIRED TO MATCH NEW EQUIPMENT DATA PLATE. LABEL PANEL DIRECTORY WITH NEW AHU NUMBER AS NECESSARY.
- ◇ INSTALL NEW INSULATION ON ALL EXISTING HYDRONIC PIPING THAT HAD INSULATION REMOVED AND HAD EXISTING PIPE PREPARED FOR NEW INSULATION. COLD/CHILLED WATER PIPING MUST BE INSULATED DURING ALL COOLING SEASONS TO PREVENT SWEATING.
- ◇ INSTALL NEW ELECTRIC UNIT HEATER AS INDICATED.
- ◇ REMOVE EXISTING RECESSED CAN LIGHTS IN THIS AREA, MAINTAIN POWER AND CONTROL TO ALL UP AND DOWN STREAM LIGHTING TO REMAIN. THE NEW LAY-IN LIGHTS TO UNSWITCHED LEG OF EXISTING CORRIDOR LIGHTS. (CKT L-12 PER RECORD DWGS.)



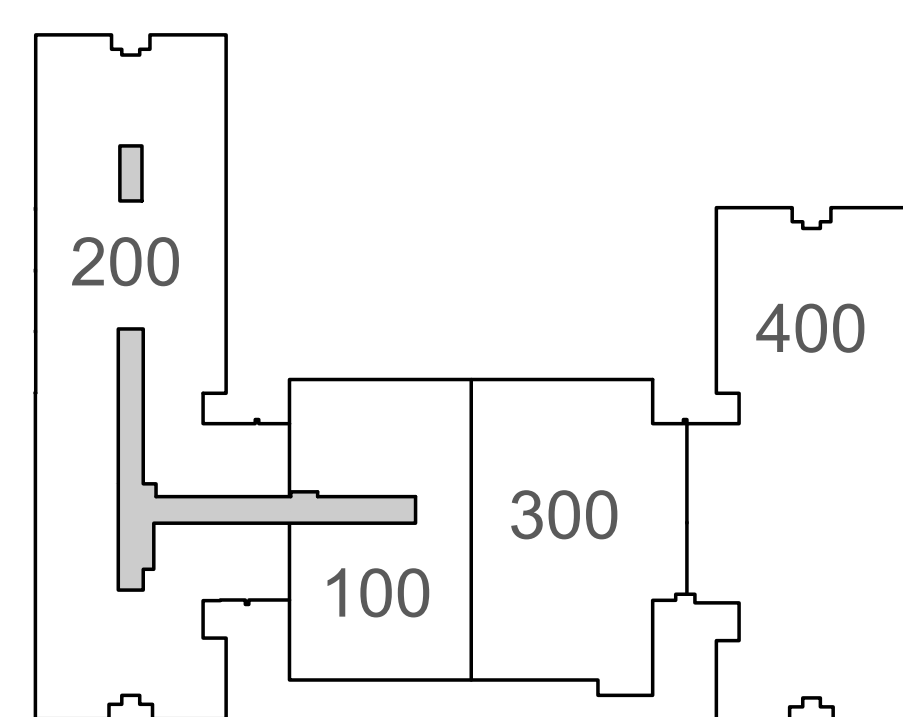


201.2 UPPER 200 WING PLATFORM ELECTRICAL PLAN

- ## MECH-ELEC NEW WORK KEY NOTES:
- GENERAL NOTE: COMMENT: CONTRACTORS ARE RESPONSIBLE FOR FOLLOWING, UNDERSTANDING AND FOLLOWING WORK ORDER/PHASING AND SEQUENCING OF WORK. WHEN THE FOLLOWING WORK IS TO BE SCHEDULED, COMPLETED AND OPERATIONAL.
- ◆ THE EXISTING GUA DUCT WHERE PRE-CONDITIONING UNIT WAS REMOVED, TO NEW AIR MIXING BOX OR RETURN AIR DUCT IF IT DOESN'T HAVE A MIXING BOX. INSTALL DAMPERS FOR AIR BALANCE IF MIXING BOX IS NOT PRESENT.
 - ◆ REPLACE CEILING TILES IN THIS AREA AFTER NEW CHILLED WATER PIPING IS INSTALLED, INSULATED, INSURED AND ACCEPTED.
 - ◆ REPLACE CEILING TILES IN GRID AND THE BACK TO LOCAL POWER & CONTROL CIRCUITS AS INDICATED.
 - ◆ INSTALL NEW FLUORESCENT LIGHTS IN THIS AREA AS INDICATED.
 - ◆ RECONNECT TO EXISTING POWER AND/OR WIRING AS APPROPRIATE. NOW, MODIFY SWITCH-LEG IS NECESSARY. REMOVE ANY TEMPORARY LIGHTS THAT WERE INSTALLED ONCE NEW LIGHTS ARE INSTALLED AND FUNCTIONAL.
 - ◆ INSTALL NEW PUMP AND ASSOCIATED PUMP TRIM BACK TO EXISTING SUPPLY AND RETURN PIPING DRAIN MAINTAINED FOR RECONNECTION DURING DEMOLITION.
 - ◆ RECONNECT NEW EQUIPMENT BACK TO EXISTING DISCONNECT SWITCH AND FEEDER MAINTAINED FOR REUSE. LABEL PANEL DIRECTLY WITH NEW AIR HANDLER AS APPROPRIATE.
 - ◆ SEQUENTIALLY INSTALL NEW AIR HANDLERS ACCORDING TO SCHEDULE DEVELOPED WITH OWNER, REUSE EXISTING MAINTENANCE PAD WHERE POSSIBLE. EXPAND OR INSTALL NEW PADS AS REQUIRED FOR NEW UNIT. REUSE EXISTING DISCONNECT NEW UNIT BACK TO RETURN AND SUPPLY MAINTAINED FOR REUSE.
 - ◆ INSTALL NEW HYDRONIC UNIT IN PLACE OF EXISTING DX AIR COOLED SPLIT SYSTEM REMOVED. PROVIDE NEW HYDRONIC SUPPLY AND RETURN PIPING BACK TO EXISTING CHILLED WATER TRIM.
 - ◆ REMOVE EXISTING TRANE MODULAR AIR HANDLERS TO ADD A 2-ROW HEATING COIL IN THE REHEAT POSITION. MOVE THE EXIST. HEATING COIL AS NECESSARY TO MAKE ROOM FOR THE NEW COIL.
 - ◆ INSTALL NEW DISCONNECT (BY MC) AND BACK TO EXISTING CIRCUIT MAINTAINED FOR REUSE. MC TO PROVIDE NEW FUSES AS REQUIRED FOR NEW EQUIPMENT. LABEL PANEL DIRECTLY WITH NEW AIR HANDLER AS NECESSARY.
 - ◆ INSTALL NEW INSULATION ON ALL EXISTING HYDRONIC PIPING THAT HAS INSULATION REMOVED AND EXISTING PIPE PREPARED FOR INSULATION. COILS TO BE INSULATED AND PIPING TO BE INSULATED DURING ALL COOLING SEASONS TO PREVENT SWEATING.
 - ◆ INSTALL NEW ELECTRIC UNIT HEATER AS INDICATED.
 - ◆ REMOVE EXISTING RECESSED CAN LIGHTS IN THIS AREA. MAINTAIN POWER AND CONTROL TO ALL UP AND DOWN STREAM LIGHTING TO REMAIN. THE NEW LIGHTS TO UNWITNESSED LEG OF EXISTING LINE. NEW LIGHTS, GOIT TO BE REPLACED WITH NEW LIGHTS.



201.1 100 & 200 WING PLATFORM ELECTRICAL PLAN




KEY PLAN
SCALE: NTS


ES3 Project No: ES244005

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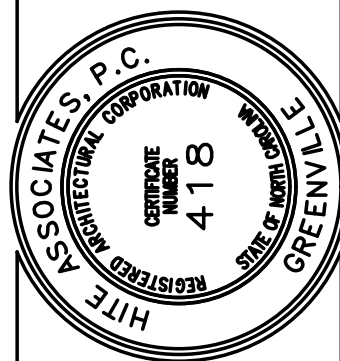


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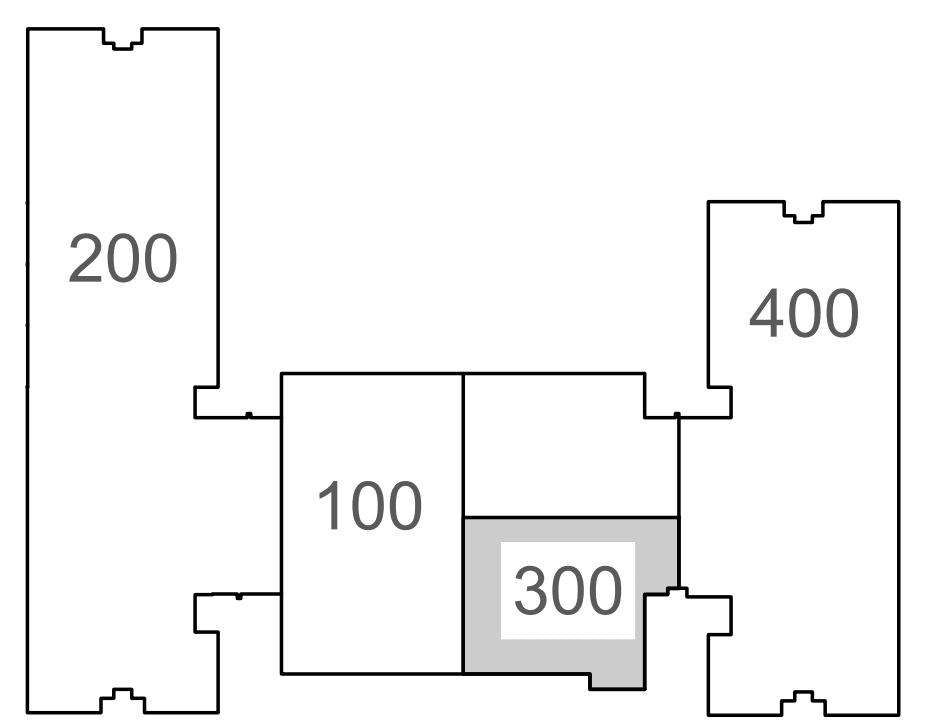
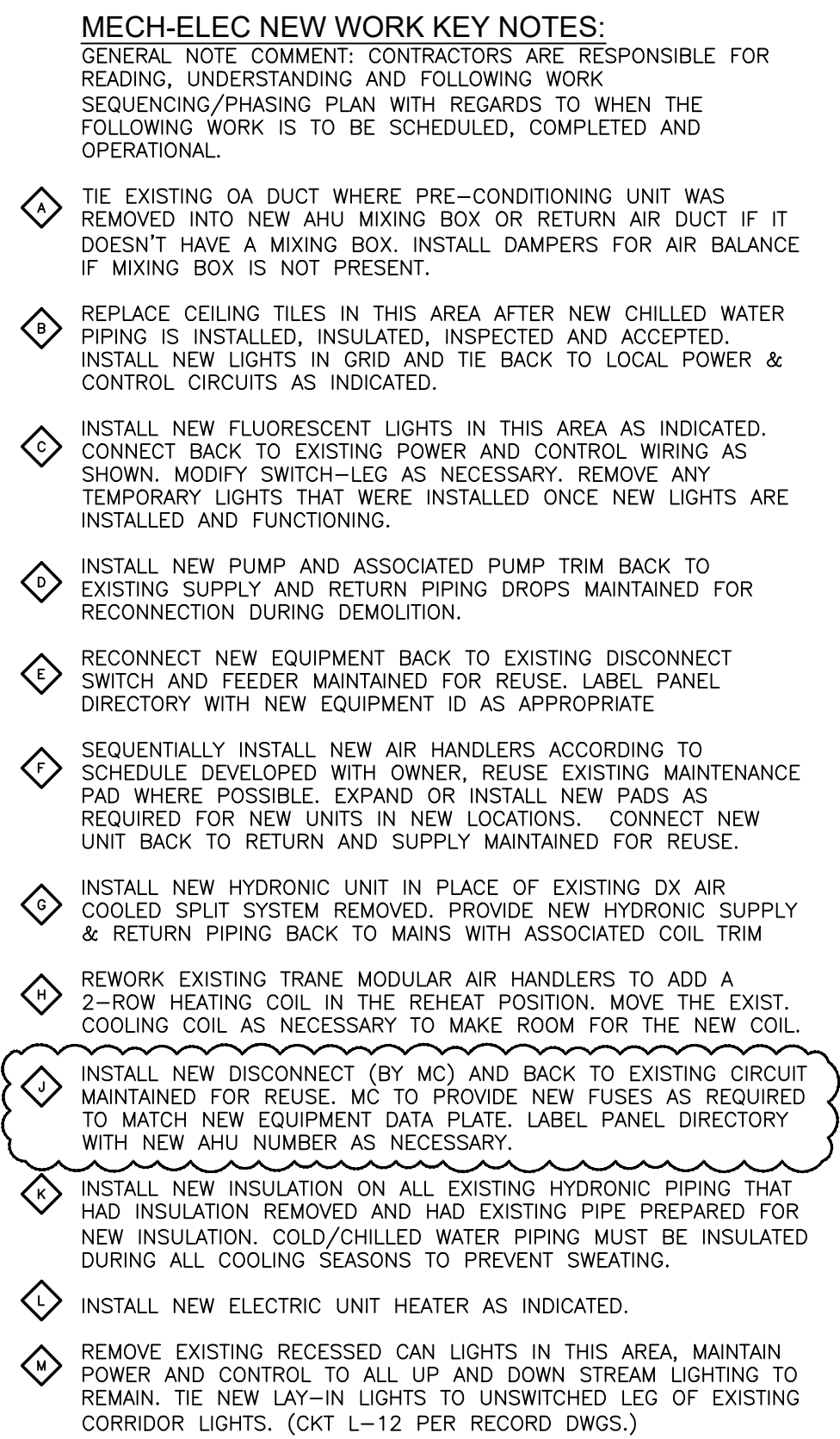
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HVAC Renovations to
Bogue Elementary School
3355 Hwy. 24, Newport, NC 28570
Carteret County Schools / North Carolina

Project No.	22419
Date:	11 Nov 2024
Drawing no.	E 201

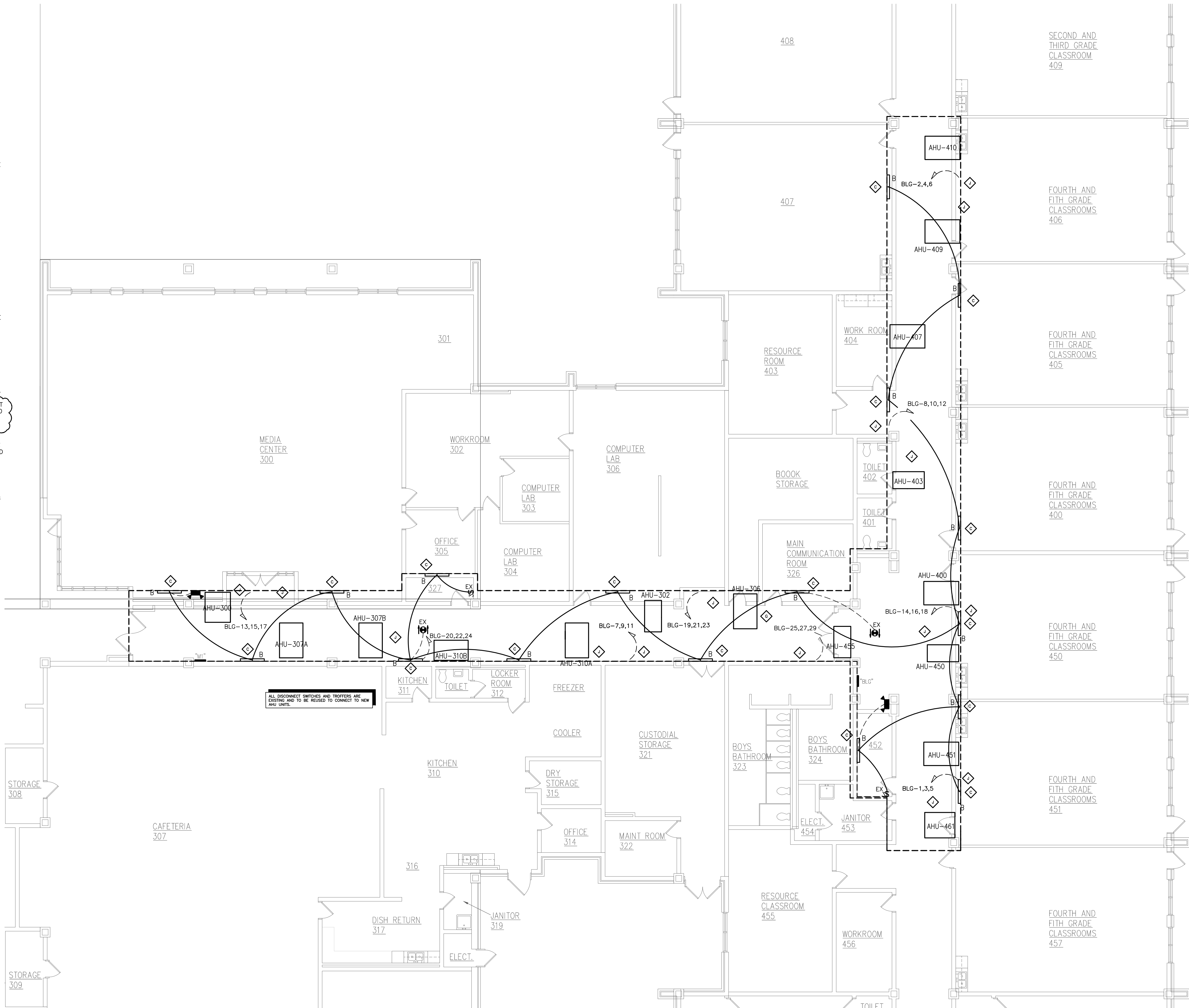


KEY PLAN
SCALE: NTS

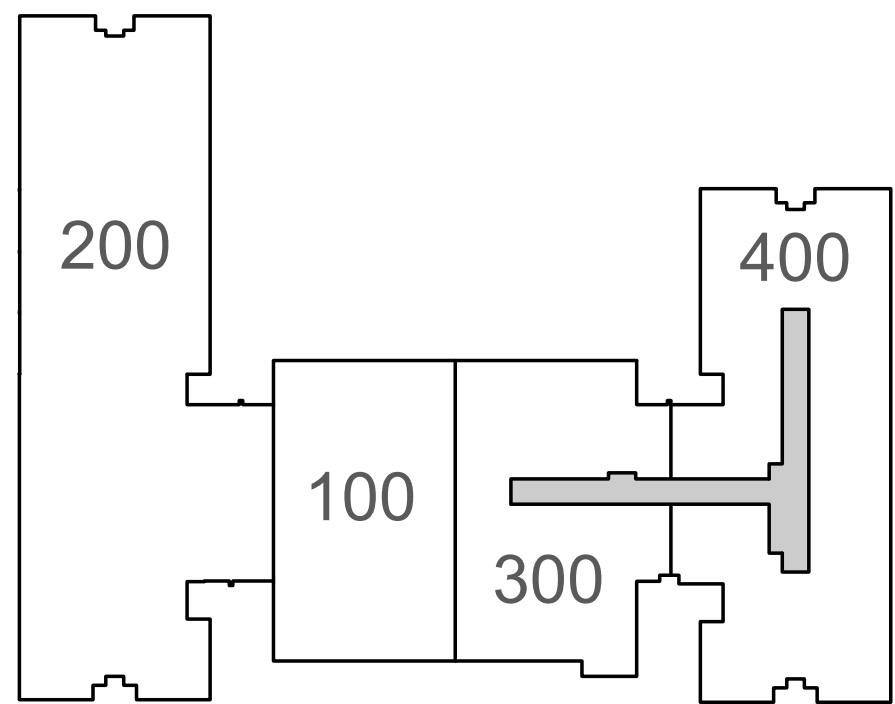
MECH-ELEC NEW WORK KEY NOTES:

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401.1 300 & 400 WING PLATFORM ELECTRICAL PLAN
SCALE: 1/8" = 1'-0"



KEY PLAN
SCALE: NTS

ES Project No: ES24005

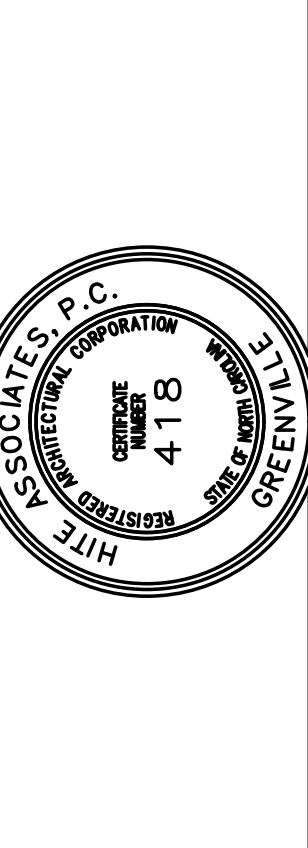
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11/22/24
D. Wilson
11/22/24

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No.	Date	Revision
1	11/22/24	PRE-BID MTC & ADDEN #1

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HVAC Renovations to
Bogue Elementary School
3355 Hwy. 24, Newport, NC 28570
Carteret County Schools / North Carolina

Project No: 22419

Date: 11 Nov 2024

Drawing no: E 401