

| HVAC PIPE LEGEND | | |
|------------------|--------|--|
| SYMBOL | ABBREV | DESCRIPTION |
| ---CD--- | CD | CONDENSATE DRAIN |
| --- | CW | DOMESTIC COLD WATER |
| --- | HW | DOMESTIC HOT WATER |
| ---CHWR--- | CHWR | CHILLED WATER RETURN |
| ---CHWS--- | CHWS | CHILLED WATER SUPPLY |
| ---HWR--- | HWR | HEATING HOT WATER RETURN |
| ---HWS--- | HWS | HEATING HOT WATER SUPPLY |
| ---RS/RL--- | RS/RL | REFRIGERANT SUCTION / REFRIGERANT LIQUID * |

* RS/RL LINES TYPICALLY TO BE SIZED PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS UNLESS NOTED OTHERWISE.

ITR SET NOTE:
 THESE ITR SET DRAWINGS HAVE BEEN MARKED UP WITH KNOWN MARKUPS/REVISIONS IN PROCESS AS NOT TO BE RE-COMMENTED ON VIA THE ITR PROCESS & ADVISE ITR REVIEWER OF KNOWN FORTCOMING CHANGES. THESE MARKUPS HAVE BEEN DONE / IDENTIFIED WITH YELLOW BACKGROUND TEXT BOXES. PLEASE USE ALTERNATE COLOR FOR ITR COMMENTS WHICH I WILL REVIEW / TAKE INTO CONSIDERATION BEFORE CADD/DESIGN IS TO EXECUTE.

NOTE: LEGEND AND ABBREVIATIONS ARE ALL INCLUSIVE, SOME SYMBOLS OR ABBREVIATIONS SHOWN MAY NOT BE INCLUDED IN THIS PROJECT

| MECHANICAL SYMBOLS LEGEND | | | | | | | | | | | |
|---------------------------------|---|---------------------------------|---|--|---|--|--|--|---|--|--|
| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
| [ATFP] -OR- [ATFP] | ATFP SHUTDOWN SWITCH | [A/B] | DUCTWORK - DIMENSIONS - FLAT OVAL (SIDE SHOWN / SIDE NOT SHOWN) | [MV] | DUCTWORK - FLEXIBLE CONNECTION | [Piping - Air Vent (Manual)] | PIPING - AIR VENT (MANUAL) | [Piping - Expansion Joint] | PIPING - EXPANSION JOINT | [Piping - Tee Down] | PIPING - TEE DOWN |
| [NOTE TAG CFM] | AIR DEVICE | [AØ] | DUCTWORK - DIMENSIONS - ROUND | [Piping - Exhaust or Return Duct Down] | DUCTWORK - EXHAUST OR RETURN DUCT DOWN (SLASH MAY BE FLIPPED) | [Piping - Angle Globe Valve] | PIPING - ANGLE GLOBE VALVE | [Piping - Union] | PIPING - UNION | [Piping - Tee Up] | PIPING - TEE UP |
| [Access Panel] | ACCESS PANEL | [DN] | DUCTWORK - DUCT ELEVATION DROP | [Piping - Exhaust or Return Duct Up] | DUCTWORK - EXHAUST OR RETURN DUCT UP (SLASH MAY BE FLIPPED) | [Piping - Ball Valve] | PIPING - BALL VALVE | [Piping - Flexible Connection] | PIPING - FLEXIBLE CONNECTION | [Piping - Temperature Sensor] | PIPING - TEMPERATURE SENSOR |
| [CO2] | CARBON DIOXIDE SENSOR | [UP] | DUCTWORK - DUCT ELEVATION RISE | [Piping - Supply Duct Down] | DUCTWORK - SUPPLY DUCT DOWN | [Piping - Butterfly Valve] | PIPING - BUTTERFLY VALVE | [Piping - Flowmeter - Orifice] | PIPING - FLOWMETER - ORIFICE | [Piping - Thermometer] | PIPING - THERMOMETER |
| [CO] | CARBON MONOXIDE SENSOR | [DN] | DUCTWORK - DUCT ELEVATION DROP (ROUND OR FLAT OVAL) | [Piping - Supply Duct Up] | DUCTWORK - SUPPLY DUCT UP | [Piping - Calibrated Balance Valve] | PIPING - CALIBRATED BALANCE VALVE | [Piping - Flowmeter - Venturi] | PIPING - FLOWMETER - VENTURI | [Piping - Pressure Gauge with Gauge Cock] | PIPING - PRESSURE GAUGE WITH GAUGE COCK |
| [Connect to Existing] | CONNECT TO EXISTING | [UP] | DUCTWORK - DUCT ELEVATION RISE (ROUND OR FLAT OVAL) | [Piping - Cap] | PIPING - CAP | [Piping - Flow Switch] | PIPING - FLOW SWITCH | [Piping - Gate Valve] | PIPING - GATE VALVE | [Piping - PT (Pressure & Temperature) Test Port] | PIPING - PT (PRESSURE & TEMPERATURE) TEST PORT |
| [Door Louver] | DOOR LOUVER | [DSD] | DUCTWORK - DUCT SMOKE DETECTOR | [Piping - Check Valve (Spring)] | PIPING - CHECK VALVE (SPRING) | [Piping - Gate Valve] | PIPING - GATE VALVE | [Piping - Pump (Arrow is Direction of Flow)] | PIPING - PUMP (ARROW IS DIRECTION OF FLOW) | [Piping - Reducer] | PIPING - REDUCER |
| [Door Undercut] | DOOR UNDERCUT | [Exhaust Fan] | DUCTWORK - ELBOW 90° UP | [Piping - Check Valve (Swing Gate)] | PIPING - CHECK VALVE (SWING GATE) | [Piping - Globe Valve] | PIPING - GLOBE VALVE | [Return or Exhaust Air Device] | RETURN OR EXHAUST AIR DEVICE (SLASH MAY BE FLIPPED) | [Remove Existing to] | REMOVE EXISTING TO |
| [DDCP] | DIRECT DIGITAL CONTROL PANEL | [Humidistat] | DUCTWORK - ELBOW 90° DOWN | [Piping - Control Valve (2-Way)] | PIPING - CONTROL VALVE (2-WAY) | [Piping - Pipe Anchor] | PIPING - PIPE ANCHOR | [Revision] | REVISION | [Starter (Equipment Served)] | STARTER (EQUIPMENT SERVED) |
| [AFS] | DUCTWORK - AIRFLOW MEASUREMENT STATION | [Hydrogen Sensor] | DUCTWORK - FIRE DAMPER | [Piping - Control Valve (3-Way)] | PIPING - CONTROL VALVE (3-WAY) | [Piping - Pipe Guide] | PIPING - PIPE GUIDE | [Switch] | SWITCH | [Square Supply Air Diffuser] | SQUARE SUPPLY AIR DIFFUSER |
| [BDD] | DUCTWORK - BACKDRAFT DAMPER | [Keynote] | DUCTWORK - SMOKE DAMPER | [Piping - Direction of Water Flow] | PIPING - DIRECTION OF WATER FLOW | [Piping - Plug Valve] | PIPING - PLUG VALVE | [Thermostat (Dashed Line Runs to Controlled Device)] | THERMOSTAT (DASHED LINE RUNS TO CONTROLLED DEVICE) | | |
| [Direction of Airflow - Return] | DUCTWORK - DIRECTION OF AIRFLOW - RETURN | [Louver] | DUCTWORK - COMBINATION FIRE / SMOKE DAMPER | [Piping - Elbow 90° Down] | PIPING - ELBOW 90° DOWN | [Piping - Pressure Reducing Valve] | PIPING - PRESSURE REDUCING VALVE | | | | |
| [Direction of Airflow - Supply] | DUCTWORK - DIRECTION OF AIRFLOW - SUPPLY | [Nitrogen Oxide Sensor] | DUCTWORK - MANUAL VOLUME DAMPER | [Piping - Elbow 90° Up] | PIPING - ELBOW 90° UP | [Piping - Pressure Relief Valve] | PIPING - PRESSURE RELIEF VALVE | | | | |
| [DP] | DUCTWORK - DIFFERENTIAL PRESSURE | [Phase] | DUCTWORK - MOTOR OPERATED DAMPER | [Piping - Elbow 90°] | PIPING - ELBOW 90° | [Piping - Solenoid Valve] | PIPING - SOLENOID VALVE | | | | |
| [Ax/B] | DUCTWORK - DIMENSIONS (SIDE SHOWN x SIDE NOT SHOWN) | [Piping - Air Vent (Automatic)] | DUCTWORK - FLEXIBLE DUCT | [Piping - Elbow 45°] | PIPING - ELBOW 45° | [Piping - Strainer with Valved and Capped Blow Down] | PIPING - STRAINER WITH VALVED AND CAPPED BLOW DOWN | | | | |

| MECHANICAL ABBREVIATIONS | | | | | | | | | |
|--------------------------|--|-----------|------------------------------|---------|--|--------------------|---------------------------|--------|------------------------------------|
| ABBREV | DESCRIPTION | ABBREV | DESCRIPTION | ABBREV | DESCRIPTION | ABBREV | DESCRIPTION | ABBREV | DESCRIPTION |
| AC | AIR CONDITIONER, AIR CURTAIN | CONTR | CONTRACTOR | (F) | FUTURE | L | LOUVER | PTAC | PACKAGED TERMINAL AIR CONDITIONER |
| ACCU | AIR COOLED CONDENSING UNIT | CONV | CONVECTOR | F | FAHRENHEIT | L/s | LITERS PER SECOND | QTY | QUANTITY |
| ACU | AIR CONDITIONING UNIT | CU FT | CUBIC FEET | FAI | FRESH AIR INTAKE | LAT | LEAVING AIR TEMPERATURE | RA | RETURN AIR |
| AD | ACCESS DOOR | CUH | CABINET UNIT HEATER | FCU | FAN COIL UNIT | LBS | POUNDS | REQ'D | REQUIRED |
| AFF | ABOVE FINISHED FLOOR | CWBT | CHILLED WATER BUFFER TANK | FDB | DEGREES FAHRENHEIT DRY BULB | LWT | LEAVING WATER TEMPERATURE | RF | RETURN FAN |
| AHU | AIR HANDLING UNIT | CWP | CONDENSER WATER PUMP | FIN FLR | FINISHED FLOOR | m | METERS | RH | RELATIVE HUMIDITY |
| AP | ACCESS PANEL | CWR | CONDENSER WATER RETURN | FLEX | FLEXIBLE | MAG | MAGNETIC | RM | ROOM |
| APD | AIR PRESSURE DROP | CWS | CONDENSER WATER SUPPLY | FPM | FEET PER MINUTE | MAINT | MAINTENANCE | RPM | REVOLUTIONS PER MINUTE |
| APPROX | APPROXIMATE(LY) | DB | DRY BULB | FT | FOOT, FEET | MAU | MAKE-UP AIR UNIT | RTU | ROOFTOP AIR HANDLING UNIT |
| ARCH | ARCHITECT OR ARCHITECTURAL | DDC | DIRECT DIGITAL CONTROL | FWB | DEGREES FAHRENHEIT WET BULB | MAX | MAXIMUM | SA | SUPPLY AIR |
| AS | AIR SEPARATOR | DEG | DEGREE(S) | GA | GAUGE | MBH | 1,000 BTUH | SAR | SUPPLY AIR REGISTER |
| ASD | ADJUSTABLE SPEED DRIVE (VFD / VSD SIMILAR) | DEH | DEHUMIDIFIER | GC | GENERAL CONTRACTOR | MECH | MECHANICAL | SF | SUPPLY FAN |
| B | BOILER | DIA | DIAMETER | GMU | GLYCOL MAKEUP UNIT | MFR / MFRG / MANUF | MANUFACTURER | SOV | SHUT-OFF VALVE |
| BCU | BLOWER COIL UNIT | DIFF | DIFFUSER | GPM | GALLONS PER MINUTE | MIN | MINIMUM | SP | STATIC PRESSURE (INCHES OF WATER) |
| BHP | BREAK HORSEPOWER | DISC | DISCONNECT | GV | GRAVITY VENTILATOR | MISC | MISCELLANEOUS | SPECS | SPECIFICATIONS |
| BI | BINARY INPUT | DOAS | DEDICATED OUTDOOR AIR SYSTEM | GWR | GLYCOL WATER RETURN | mm | MILLIMETERS | SQ | SQUARE |
| BLDG | BUILDING | DWG | DRAWING | GWS | GLYCOL WATER SUPPLY | MUA | MAKE-UP AIR | SSCU | SPLIT SYSTEM CONDENSING UNIT |
| BOT | BOTTOM | DWH | DOMESTIC WATER HEATER | HC | HEATING COIL | NC | NORMALLY CLOSED | SSHP | SPLIT SYSTEM HEAT PUMP |
| BTU | BRITISH THERMAL UNIT | EA | EXHAUST AIR | HOA | HAND-OFF-AUTOMATIC | NIC | NOT IN CONTRACT | STRUC | STRUCTURAL |
| BTUH | BRITISH THERMAL UNIT PER HOUR | EAG | EXHAUST AIR GRILLE | HP | HORSE POWER | NO | NORMALLY OPEN | TA | TRANSFER AIR |
| C | CELSIUS | EAR | EXHAUST AIR REGISTER | HPU | HEAT PUMP UNIT | NTS | NOT TO SCALE | TEMP | TEMPERATURE |
| CAP | CAPACITY | EAT | ENTERING AIR TEMPERATURE | HTG | HEATING | OA | OUTSIDE AIR | TXV | THERMAL EXPANSION VALVE |
| CCFC | CLOSED CIRCUIT FLUID COOLER | EF | EXHAUST FAN | HTR | HEATER | OD | OUTSIDE DIAMETER | TYP | TYPICAL |
| CFM | CUBIC FEET PER MINUTE | ELEC | ELECTRIC(AL) | HVAC | HEATING VENTILATION / AIR CONDITIONING | OED | OPEN END DUCT | UH | UNIT HEATER |
| CH | CHILLER | ERU | ENERGY RECOVERY UNIT | HWR | HEATING HOT WATER RETURN | P | PUMP | UNO | UNLESS NOTED OTHERWISE |
| CHWR | CHILLED WATER RETURN | ERV | ENERGY RECOVERY VENTILATOR | HWS | HEATING HOT WATER SUPPLY | PLBG | PLUMBING | VAV | VARIABLE AIR VOLUME |
| CHWS | CHILLED WATER SUPPLY | ERW | ENERGY RECOVERY WHEEL | ID | INSIDE DIAMETER | POC | POINT OF CONNECTION | VEF | VEHICLE EXHAUST FAN |
| CLG | CEILING, COOLING CONNECTION | ESP | EXTERNAL STATIC PRESSURE | IN | INCH(ES) | PRESS | PRESSURE | VEL | VELOCITY |
| CON | CONCRETE | ET | EXPANSION TANK | INSUL | INSULATE(D), INSULATION | PRV | PRESSURE RELIEVING VALVE | VENT | VENTILATION, VENTILATOR |
| CONC | CONCRETE | EWT | ENTERING WATER TEMPERATURE | Kg | KILOGRAM(S) | PSI | POUNDS PER SQUARE INCH | VER | VEHICLE EXHAUST REEL |
| CONT | CONTINUOUS, CONTINUATION | EXH | EXHAUST | KW | KILOWATTS | PSIG | PSI GAUGE | VERT | VERTICAL |
| | | EXIST, EX | EXISTING | | | | | | |

EMB ITR COMMENTS

COMPLETE (TYP)

| | |
|--|-------------|
| DATE | APPR |
| SYMBOL | DESCRIPTION |
| | |
| <p>PRELIMINARY NOT FOR CONSTRUCTION</p> | |
| | |
| <p>100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 A/E I/N/P/Q APPROVED</p> | |
| <p>FOR COMMANDER NAVFAC ACTIVITY MARINE CORPS BASE CAMP LEJEUNE</p> | |
| DES | DRW |
| PM | CHK |
| <p>CHIEF ENGINEER FIRE PROTECTION</p> | |
| <p>NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC JACKSONVILLE, NC</p> | |
| <p>ROIC FLORENCE CAMP LEJEUNE M/CB CAMP LEJEUNE P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT MECHANICAL - SYMBOLS AND ABBREVIATIONS</p> | |
| <p>DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ROIC FLORENCE CAMP LEJEUNE M/CB CAMP LEJEUNE P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT MECHANICAL - SYMBOLS AND ABBREVIATIONS</p> | |
| <p>SCALE: AS NOTED PROJECT NO.: 1509092 CONSTR. CONTR. NO.: N40085-20-C-0059 NAVFAC DRAWING NO.: SHEET OF</p> | |
| <p>M-001</p> | |

FILE NAME: BIM_360/HF PACKAGE_3P1338_MEF_S1M_CTR-1509092-M.rvt

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DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

UNCLASSIFIED

Looks a little messy. Suggest aligning the borders across the HF packages.

GENERAL NOTES

1.0 GENERAL
1.1 CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY. DO NOT SCALE DRAWINGS. CONTRACTOR MUST BE RESPONSIBLE TO FIELD SURVEY ACTUAL SITE CONDITIONS AND ACCOMMODATE ACTUAL SITE CONDITIONS AS PART OF SCOPE OF WORK AT NO ADDITIONAL COST TO GOVERNMENT.
1.2 PROVIDE WORK INDICATED OR IMPLIED ON THE DRAWINGS UNLESS SPECIFICALLY NOTED OTHERWISE.
1.3 PROVIDE MATERIALS, EQUIPMENT AND PERFORM LABOR REQUIRED TO PROVIDE COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED, AND AS REQUIRED BY CODE.
1.4 WORK SHOWN ON THE DRAWINGS MUST BE PERFORMED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
1.5 EQUIPMENT SUBMITTALS AND SHOP DRAWINGS REQUIRED BY THE SPECIFICATIONS MUST BE APPROVED IN ACCORDANCE WITH CONTRACT REQUIREMENTS PRIOR TO PURCHASE, FABRICATION, AND INSTALLATION.
1.6 WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCTS OF A SINGLE MANUFACTURER MUST BE USED.
1.7 VERIFY EXISTING CONDITIONS AT THE SITE AND REPORT DISCREPANCIES TO THE CONTRACTING OFFICER BEFORE PROCEEDING WITH WORK.
1.8 LIMITS OF WORK ARE SHOWN FOR GENERAL REFERENCE AND DO NOT ESTABLISH PRECISE BOUNDARIES OF WORK FOR TRADES THAT MAY BE REQUIRED TO COMPLETE THE PROJECT.
1.9 THE VERBIAGE ON THE DRAWING INDICATING TYPES OF MATERIALS IS INTENDED TO AID THE CONTRACTOR IN UNDERSTANDING THE VARIOUS CONDITIONS LIKELY TO BE ENCOUNTERED.
1.10 THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING QUANTITIES OF MATERIALS REQUIRED TO COMPLETE THE PROJECT.
1.11 REFER TO DETAILS FOR ADDITIONAL REQUIREMENTS REGARDING SIZES AND ARRANGEMENTS.
1.12 PAINT COLORS AND OTHER FINISHES ARE SUBJECT TO CHANGE FROM THOSE LISTED IN THE CONTRACT DOCUMENTS WITHOUT NOTICE. CONTRACTOR TO SUBMIT SAMPLES OF COLORS AND FINISHES TO CONTRACTING OFFICER FOR REVIEW AND APPROVAL BEFORE THE INSTALLATION/FINISHING OF SURFACES.
1.13 IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE AND TO MAINTAIN THE BUILDING'S STRUCTURAL INTEGRITY DURING PHASES OF DEMOLITION AND NEW WORK. PROVIDE REQUIRED SUPPORT, SHORING, PINNING, ETC. TO ASSURE THIS REQUIREMENT.
1.14 MAINTAIN BUILDING IN WEATHERPROOF AND WATERTIGHT CONDITIONS THROUGHOUT THE DURATION OF CONSTRUCTION.
1.15 FIRE STOP FLOOR/CEILING PENETRATIONS AND PENETRATIONS THROUGH RATED PARTITIONS/WALLS.
1.16 LEGALLY DISPOSE OF DEMOLISHED MATERIALS OFF-SITE PER REGULATIONS OF AUTHORITIES HAVING JURISDICTION OVER THIS PROJECT.
1.17 WORK SHOWN ON DRAWINGS INVOLVES THE REMOVAL, REPLACEMENT, DEMOLITION, CUTTING, PATCHING AND PLASTERING OF EXISTING SURFACES IN ROOMS ABOVE AND BELOW THE CONSTRUCTION AREA. THE CONTRACTOR MUST RESTORE SURFACES AND FLOORS THAT ARE AFFECTED BY THEIR WORK. THE CONTRACTOR MUST COORDINATE THE PATCHING AND REPAIR OF THEIR WORK WITH THE WORK OF THE GENERAL CONTRACTOR'S FINAL FINISHES.
1.18 MAINTAIN A MINIMUM OF 6'-8" CLEARANCE TO UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, SUPPORTS, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
1.19 COORDINATE FINAL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE DUCTWORK AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS. FIELD VERIFY AND COORDINATE DUCTWORK AND PIPING DIMENSIONS BEFORE FABRICATION.
1.20 PROVIDE MISCELLANEOUS STEEL REQUIRED TO ENSURE INSTALLATION AND SUPPORT OF MECHANICAL WORK AS SHOWN IN DETAILS FOR PIPING, DUCTWORK AND EQUIPMENT (UNLESS OTHERWISE NOTED) AT NO ADDITIONAL COST TO THE GOVERNMENT.
1.21 EQUIPMENT, PIPING, DUCTWORK, ETC., MUST BE SUPPORTED AS DETAILED AND SPECIFIED TO PROVIDE A VIBRATION FREE INSTALLATION.
1.22 PROVIDE FLEXIBLE CONNECTIONS IN DUCTWORK SYSTEMS CONNECTED TO FANS AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS MUST BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.
2.0 COORDINATION
2.1 SEVERAL PROJECTS MAY OCCUR AT THE SITE SIMULTANEOUSLY WITH THIS PROJECT. COORDINATE WORK REQUIREMENTS UNDER THIS CONTRACT WITH THESE PROJECTS.
2.2 THE CONTRACTOR MUST REVIEW DRAWINGS AND INCORPORATE PHASING REQUIREMENTS IN BID.
2.3 MECHANICAL CONTRACTOR MUST REFER TO AND COORDINATE WITH OTHER DISCIPLINE DRAWINGS (INCLUDING ARCHITECTURAL, INTERIORS, TELECOMMUNICATIONS, STRUCTURAL, CIVIL, PLUMBING, ELECTRICAL AND FIRE PROTECTION).
2.4 COORDINATE WITH THE ELECTRICAL CONTRACTOR:
2.4.1 LOCATION AND POWER REQUIREMENTS OF EQUIPMENT, CONTROL PANELS AND DEVICES.
2.4.2 MECHANICAL CONTRACTOR MUST FURNISH MOTOR CONTROL DEVICES TO ELECTRICAL CONTRACTOR FOR INSTALLATION. MOTOR CONTROL DEVICES INCLUDE BUT ARE NOT LIMITED TO FUSED DISCONNECTS, DISCONNECTS, MOTOR STARTING SWITCHES, PUSH BUTTON STATIONS, FRACTIONAL HORSEPOWER MANUAL MOTOR STARTERS WITH THERMAL OVERLOADS, 3 PHASE MOTOR CONTACTORS, COMBINATION MOTOR STARTERS, VARIABLE FREQUENCY DRIVES, SINGLE PHASE MOTOR SPEED ADJUSTMENT DEVICES.
2.4.3 COORDINATE ELECTRICAL REQUIREMENTS AND LOCATIONS OF EQUIPMENT WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING AND INSTALLATION.

2.4.4 LOCATIONS AND SIZES OF FLOOR, WALL AND ROOF OPENINGS MUST BE COORDINATED WITH OTHER TRADES INVOLVED.
2.4.5 PROVIDE CONTROL WIRING FROM REMOTE DISCONNECTS TO VFDs. PROVIDE FAST ACTING AUXILIARY CONTACT IN DISCONNECT CONNECTED TO LOGIC/DIGITAL INPUT ON VFD TO TRIGGER FREEWHEEL STOP.
3.0 WORK AREA
3.1 PROVIDE CONSTRUCTION AND DUST BARRICADES AS INDICATED AND AS DIRECTED BY THE CONTRACTING OFFICER TO ISOLATE WORK AREAS FROM OTHER PARTS OF THE BUILDING AND TO MAINTAIN EGRESS PATHWAYS. PROVIDE TEMPORARY EXIT SIGNAGE, WALK-OFF MATS AND DOORS.
3.2 BARRICADES MUST HAVE LOCKABLE DOOR TO PREVENT UNAUTHORIZED ENTRY. PROVIDE "WIPE OFF" MATS TO MINIMIZE TRACKING DUST AND DEBRIS.
3.3 DEVELOP, POST, AND IMPLEMENT NEW, SAFE PATHS OF EGRESS IF BARRICADES BLOCK NORMAL PATHS OF EGRESS.
3.4 PROVIDE TEMPORARY EXIT SIGNS.
3.5 DUST-PROOF PARTITIONS MUST HAVE LOCKABLE PRE-HUNG DOOR 3'-0" X 7'-0" TO PREVENT UNAUTHORIZED ENTRY. FIRE-PROOF OR METAL STUDS AND PLYWOOD. "WIPE OFF" MATS TO MINIMIZE TRACKING DUST AND DEBRIS TO ADJOINING SPACES, AND TEMPORARY EXIT SIGNS IF PARTITIONS INTERFERE WITH PATHS OF EGRESS.
3.6 IF DUST-PROOF PARTITIONS BLOCKS NORMAL PATHS OF EGRESS, THE CONTRACTOR MUST DEVELOP, POST, AND IMPLEMENT NEW, SAFE PATHS OF EGRESS.
3.7 RETURN ADJACENT AREAS DISTURBED BY THIS PROJECT'S CONSTRUCTION TO THE CONDITION PRIOR TO CONSTRUCTION.
4.0 HVAC WORK
4.1 COORDINATE THE LOCATIONS OF GRILLES, REGISTERS AND DIFFUSERS WITH THE CEILING GRID, LIGHTING, AUDIO VISUAL EQUIPMENT, AND SPRINKLER HEAD LAYOUTS.
4.2 HEATING DEVICES AND SURFACES WITH ELEVATED TEMPERATURES WHICH CAN BE ACCESSED OR COME IN CONTACT WITH BUILDING OCCUPANTS AND MAINTENANCE PERSONNEL MUST BE PROTECTED, INSULATED, OR CONTROLLED TO REMAIN BELOW 120°F.
4.3 PIPING AND DUCTWORK MUST CLEAR DOORS, WINDOWS, EQUIPMENT CLEARANCES, MAINTENANCE REQUIREMENTS, CODE SETBACKS, ETC. TO ASSURE OPERATION, INSPECTION, AND MAINTENANCE.
4.4 WELDING TO STRUCTURAL MEMBERS MUST NOT BE PERMITTED. ATTACHMENTS MUST BE MADE USING CLAMPS MEETING MSS STANDARDS AS SPECIFIED.
4.5 MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING MUST NOT BE SUPPORTED FROM ROOF OR DECK ASSEMBLY. SUPPORTS MUST ATTACH TO STRUCTURAL MEMBERS.
4.6 PROVIDE VIBRATION ISOLATION FOR MECHANICAL EQUIPMENT TO PREVENT VIBRATION TRANSMISSION TO BUILDING STRUCTURE.
4.7 PROVIDE ACCESS DOORS AT EVERY LOCATION THAT A VOLUME DAMPER, FIRE DAMPER, VALVE OR OTHER CONTROL/BALANCING ITEM WILL BE INSTALLED ABOVE AN INACCESSIBLE CEILING.
5.0 DUCTWORK
5.1 PROVIDE RADIUS TYPE ELBOWS WITH A CENTERLINE RADIUS OF 1.5 TIMES THE WIDTH OR DIAMETER OF THE DUCT WHERE SPACE PERMITS. OTHERWISE, ELBOWS HAVING A MINIMUM RADIUS EQUAL TO THE WIDTH OR DIAMETER OF THE DUCT OR SQUARE ELBOWS WITH FACTORY FABRICATED SINGLE WIDTH TURNING VANES ARE ALLOWED PROPERLY INSTALLED AND SPACED PER SMACNA GUIDELINES. PROVIDE 90 DEGREE SQUARE DUCT ELBOWS WITH TURNING VANES UNLESS OTHERWISE INDICATED OR SPECIFIED. PROVIDE ACCESS DOORS UPSTREAM OF ELBOWS CONTAINING TURNING VANES.
5.2 DUCTS MUST BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS MUST BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.
5.3 WHERE DUCT BRANCHES OR TERMINAL DEVICES ARE REMOVED FROM EXISTING DUCTS, THE CONTRACTOR MUST PATCH THE MAIN WITH LIKE THICKNESS SHEET METAL. EXTEND PATCH TO DUCT EDGES. PATCHES MUST BE MADE WITH HEMMED EDGES. PAINT PATCHES TO MATCH DUCTWORK.
5.4 COORDINATE DUCT ROUTING AND ELEVATION WITH LIGHTING, CEILING GRID, PIPING, CABLE TRAYS, CONDUIT, AND OTHER ITEMS REQUIRED FOR THE COMPLETION OF THIS PROJECT.
5.5 PROVIDE OFFSETS IN DUCTWORK AS REQUIRED TO COORDINATE WITH OTHER TRADES AND FIELD INSTALLED CONDITIONS. DUCTWORK OFFSETS MUST BE MADE WITH GRADUAL TRANSITIONS (NO GREATER THAN 30 DEGREES) AND MAINTAIN EQUIVALENT CROSS-SECTIONAL AREAS.
6.0 PIPING
6.1 PROVIDE PIPING SO THAT VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER APPURTENANCES REQUIRING ACCESS ARE ACCESSIBLE.
6.2 ISOLATION VALVES MUST BE PROVIDED IN A LOCATION AND ELEVATION WHICH ALLOWS FOR EQUIPMENT AND BRANCH PIPING REMOVAL, WHILE MAINTAINING SERVICE UPSTREAM OF THE ISOLATION VALVE.
6.3 VALVES MUST BE ADJUSTED FOR SMOOTH AND EASY OPERATION.
6.4 BALANCING VALVES AND ISOLATION VALVES USED TO ADJUST FLOW RATES MUST BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).
6.5 ISOLATION VALVES (EXCEPT CONTROL VALVES) AND PIPING SPECIALTIES AND STRAINERS MUST BE FULL LINE SIZE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
6.6 PROVIDE MECHANICAL JOINTS SUCH AS UNIONS, FLANGES, OR THREADED FITTINGS AT EACH EQUIPMENT CONNECTION, IN BYPASSES, AT FLOOR PENETRATIONS, AT CONTROL DEVICES, AND IN LONG PIPE RUNS (100 FEET OR MORE) TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS.

6.7 MEASURE, CUT, AND INSTALL PIPE LENGTH ACCURATELY TO MINIMIZE MISALIGNMENT. INSTALL PIPING WITHOUT FORCING OR SPRINGING.
7.0 EQUIPMENT
7.1 PROVIDE EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, APPLICABLE BUILDING, STATE, AND LOCAL CODES, ENERGY CODES, ASHRAE AND NFPA STANDARDS, AND INSURANCE UNDERWRITER REQUIREMENTS.
8.0 CONTROLS
8.1 COORDINATE AUXILIARY CONTACT AND RELAY REQUIREMENTS WITH SEQUENCES OF OPERATION.
8.2 COORDINATE MOTOR AND MOTOR CONTROL REQUIREMENTS WITH EQUIPMENT SCHEDULES AND SEQUENCES OF OPERATION.
8.3 HARDWIRE SAFETIES TO SHUTDOWN HVAC EQUIPMENT.
8.4 LOCATE TEMPERATURE, PRESSURE AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH A STRAIGHT SECTION OF PIPE OR DUCT UPSTREAM AND DOWNSTREAM, AS RECOMMENDED BY THE MANUFACTURER FOR ACCURACY.
8.5 CONTROL WIRE AND CONDUIT MUST COMPLY WITH THE NATIONAL ELECTRIC CODE, DIVISION 26 OF THE SPECIFICATIONS, AND LOCAL CODES.
8.6 UNLESS OTHERWISE SHOWN, LOCATE ROOM THERMOSTATS WITH CONTROLS BETWEEN 42"-48" ABOVE FINISHED FLOOR IN ACCORDANCE WITH ADA AND ABA REQUIREMENTS. NOTIFY THE CONTRACTING OFFICER OF ROOMS WHERE THE ABOVE LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.

9.0 TEST AND INSPECTION
9.1 TESTING ADJUSTING AND BALANCING (TAB) AGENCY MUST BE A MEMBER OF THE ASSOCIATED AIR BALANCING COUNCIL (AABC), THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB), OR THE TESTING, ADJUSTING AND BALANCING BUREAU (TABB). THE TAB FIRM MUST BE A SUBCONTRACTOR HIRED DIRECTLY BY THE GENERAL CONTRACTOR. TAB FIRM MUST HAVE A MINIMUM OF 5 YEARS EXPERIENCE ON SIMILAR PROJECTS. PERFORM TAB IN ACCORDANCE WITH THE REQUIREMENTS OF THE TAB PROCEDURAL STANDARD RECOMMENDED BY THE TAB TRADE ASSOCIATION THAT APPROVED THE TAB FIRM'S QUALIFICATIONS. COMPLY WITH REQUIREMENTS OF AABC MN-1, NEBB PROCEDURAL STANDARDS, OR SMACNA HVAC TAB(TABB) AS SUPPLEMENTED AND MODIFIED BY SPECIFICATION SECTIONS.

MECHANICAL - HVAC REQUIRED CODES, STANDARDS, & REFERENCES

- INTERNATIONAL BUILDING CODE 2018
INTERNATIONAL MECHANICAL CODE 2018
ASHRAE 62.1-2016, VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY
ASHRAE 90.1-2013, ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS
ASHRAE HANDBOOKS: 2017 FUNDAMENTALS, 2018 REFRIGERATION, 2019 HVAC APPLICATIONS, 2020 HVAC SYSTEMS AND EQUIPMENT
ASHRAE 189.1-2014, STANDARD FOR THE DESIGN OF HIGH-PERFORMANCE GREEN BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS
ASHRAE TC 9.9 / TIA-589-D
ALL OTHER APPLICABLE ASHRAE HANDBOOKS AND GUIDELINES.
EPACT 2005
ALL APPLICABLE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODES AND STANDARDS
SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE
SMACNA, HVAC SYSTEMS - TESTING, ADJUSTING, AND BALANCING
CAMP LEJEUNE MECHANICAL DESIGN GUIDANCE
ASTM - AMERICAN SOCIETY FOR TESTING AND MATERIALS
UFC 1-200-01, DoD BUILDING CODE - (8 OCTOBER 2019)
UFC 1-200-02, HIGH PERFORMANCE AND SUSTAINABLE BUILDING REQUIREMENTS - (CHANGE 04, 01 OCTOBER 2019)
UFC 3-101-01, ARCHITECTURE - (CHANGE 5, 25 SEPTEMBER 2019)
UFC 3-400-02, DESIGN: ENGINEERING WEATHER DATA - (20 SEPTEMBER 2018)
UFC 3-410-01, HEATING, VENTILATING, AND AIR CONDITIONING SYSTEMS - (CHANGE 6, 30 MARCH 2020)
UFC 3-450-01, NOISE AND VIBRATION CONTROL - (15 MAY 2013)
UFC 3-580-01, TELECOMMUNICATIONS INTERIOR INFRASTRUCTURE PLANNING AND DESIGN - (CHANGE 1, 01 JUNE 2016)
UFC 3-600-01 FIRE PROTECTION ENGINEERING FOR FACILITIES - (CHANG 4, 7 FEBRUARY 2020)
UFC 4-010-01, DoD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS - (12 DECEMBER 2018)
UFC 4-010-06, CYBERSECURITY OF FACILITY-RELATED CONTROL SYSTEMS - (CHANGE 1, 18 JANUARY 2017)

DESIGN CONDITIONS

CONDITIONS AS INDICATED IN THE RFP
OUTSIDE DESIGN CONDITIONS:
SUMMER: 91°F DB / 79°F MCWB
WINTER: 26°F DB
INSIDE CONDITIONS:
SUMMER: 78°F DB / 50% RH
WINTER: 68°F DB
OUTDOOR CONDITIONS FOR AIR-COOLED EQUIPMENT: 95°F DB
HEATING & VENTILATING INSIDE CONDITIONS:
SUMMER: 10°F DB ABOVE AMBIENT
WINTER: 60°F DB
COMMUNICATION, IT ROOMS AND ELECTRICAL ROOMS INSIDE CONDITIONS:
SUMMER: 78°F DB, 55°F DEWPOINT
WINTER: 68°F DB
MECH ROOM WITH HEAT PRODUCING EQUIPMENT INSIDE CONDITIONS:
SUMMER: 10°F DB ABOVE AMBIENT
WINTER: 55°F DB
COLD MECHANICAL ROOMS INSIDE CONDITONS:
SUMMER: N/A DB, 55°F DEWPOINT
WINTER: 55° DB
UNOCCUPIED MODE (NIGHT SETBACK):
SUMMER: 5°F DB HIGHER THAN INDOOR COOLING DESIGN CONDITIONS BUT NO HIGHER THAN 85°F DB.
WINTER: 10°F DB LOWER THAN INDOOR HEATING DESIGN CONDITIONS BUT NO LOWER THAN 55°F DB.

Vertical sidebar containing logos for NAVFAC, Michael Baker International, and project information including 'NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC', 'P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT', and 'MECHANICAL - GENERAL NOTES'. Includes a 'PRELIMINARY NOT FOR CONSTRUCTION' stamp and a 'DEPARTMENT OF THE NAVY' header.

FILE NAME: BIM_360/HF PACKAGE_3P1338_MEF_SIM CTR-1590892-M.dwg
PLOTTED: 5/28/2021 4:20:51 PM

UNCLASSIFIED

DP2 SUBMISSION - P1338 BUILDING -PRE-FINAL SUBMISSION
PRE-FINAL ITR SET 2021-05-28

1

2

3

4

5

UNCLASSIFIED

D

C

B

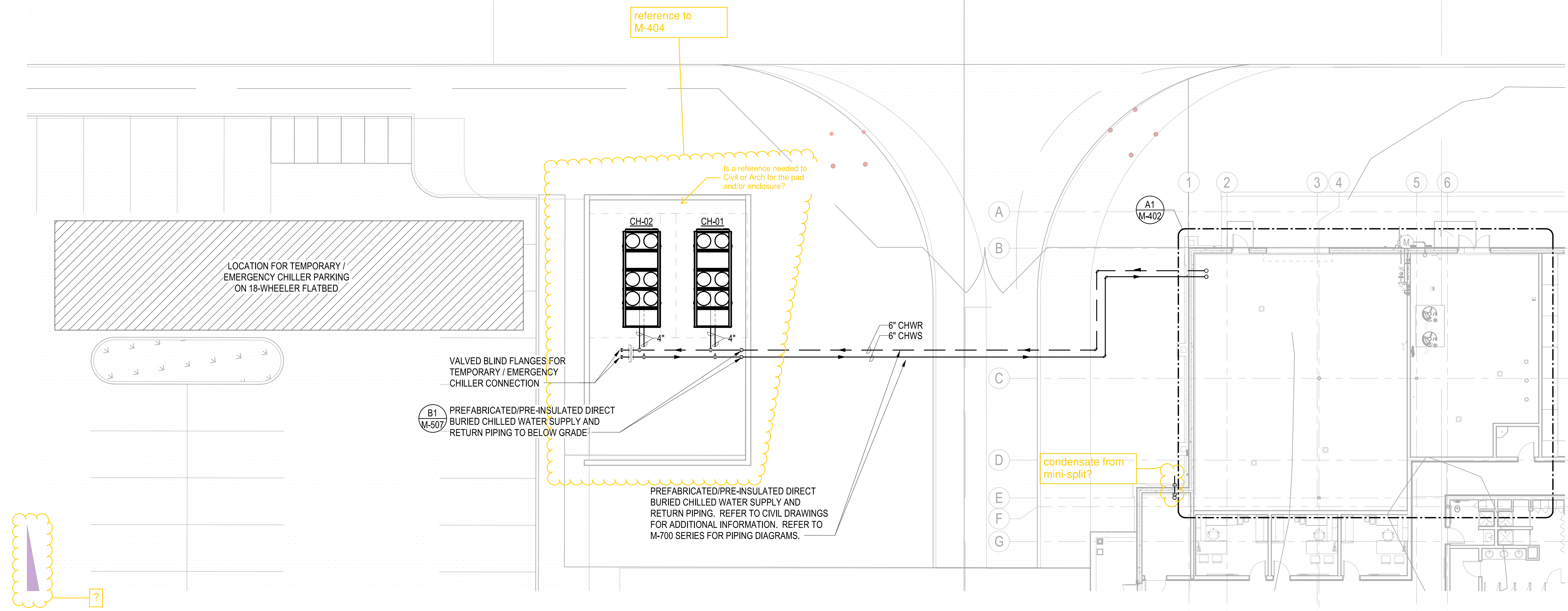
A

D

C

B



A



MECHANICAL - SITE PLAN
 SCALE: 3/32" = 1'-0"

PLOTTED: 5/28/2021 4:27:47 PM

FILE NAME: BIM_360/HF PACKAGE 3P11338_MEF_S1M_CTR-1590892-M.rvt

| | | |
|---|-------------|--|
| APPR | DATE | |
| SYN | DESCRIPTION | |
|  PRELIMINARY NOT FOR CONSTRUCTION | | |
|  Michael Baker INTERNATIONAL 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 APPROVED | | |
| FOR COMMANDER NAVFAC ACTIVITY MARINE CORPS BASE CAMP LEJEUNE | | |
| SATISFACTORY TO DATE DES DRW CHK PM BRANCH MANAGER CHIEF ENGINEER FIRE PROTECTION | | |
| DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC JACKSONVILLE, NC MCB CAMP LEJEUNE JACKSONVILLE, NC P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT MECHANICAL - SITE PLAN | | |
| SCALE: AS NOTED EPROJECT NO.: 1590892 CONSTR. CONTR. NO. N40085-20-C-0059 NAVFAC DRAWING NO. SHEET OF | | |
| MS101 | | |

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

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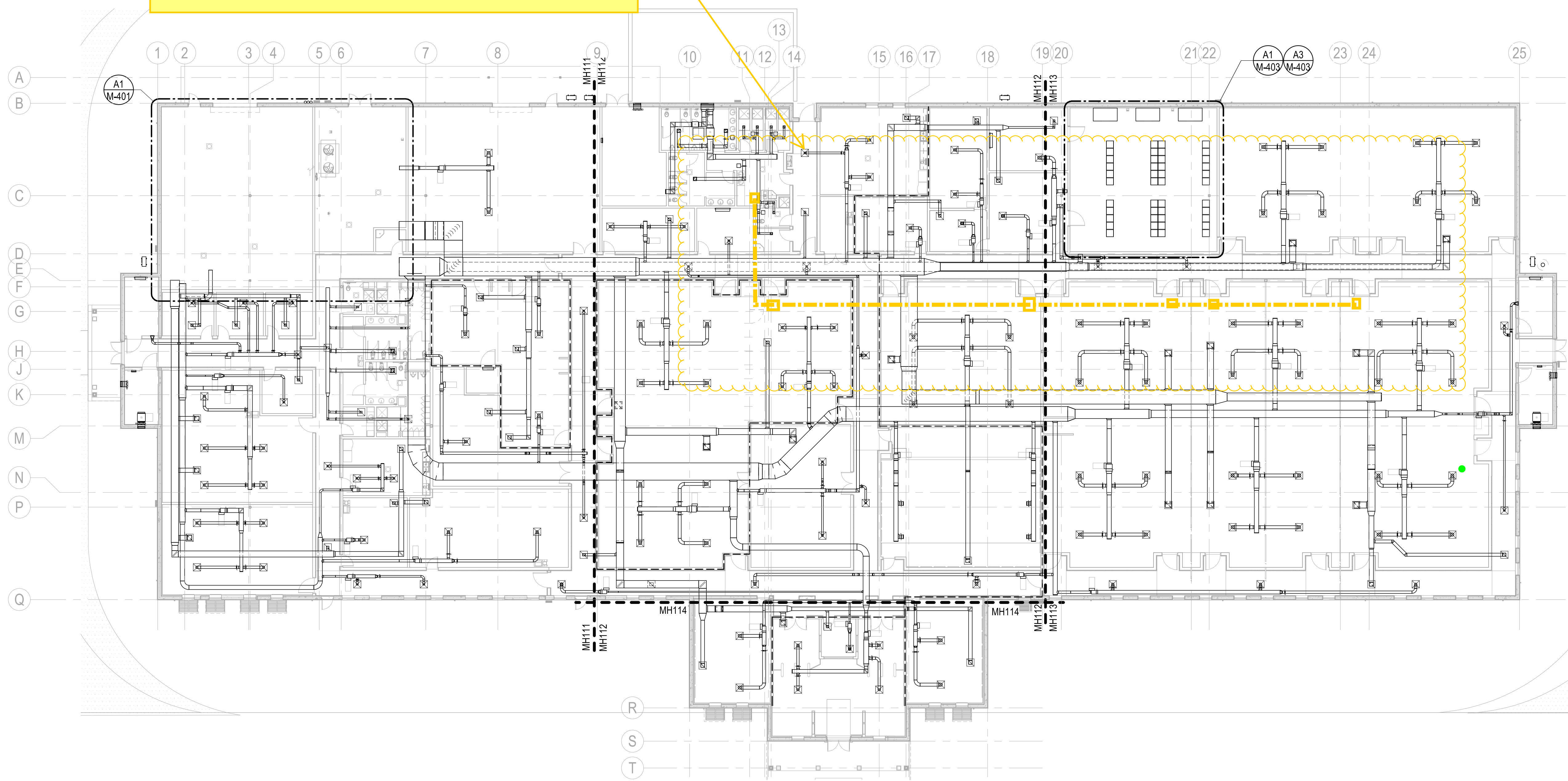
DUCT CONSTRUCTION SCHEDULE

| DUCT SYSTEM | MIN PRESS CLASS | MIN. SEAL CLASS | SMACNA DUCT LEAKAGE CLASS (CL) | | | DUCT TEST PRESS |
|----------------------------------|-----------------|-----------------|--------------------------------|-------|-----------|-----------------|
| | | | RECT | ROUND | FLAT OVAL | |
| VAV SUPPLY - UPSTREAM OF BOXES | 3" W.C. | A | 4 | 2 | 2 | 3" W.C. |
| VAV SUPPLY - DOWNSTREAM OF BOXES | 2" W.C. | A | 4 | 2 | 2 | 2" W.C. |
| EXHAUST DUCTS | ±1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| RETURN DUCTS | ±1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| OUTSIDE AIR DUCTS | -1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| TRANSFER AIR DUCTS | 1" W.C. | A | NA | NA | NA | NA |

PROVIDE TRANSFER AIR DUCT SYSTEM CONNECTED TO TRAINING SPACES TO TRANSFER/PULL THE 1650 CFM EXHAUST REQUIRED IN SECURE AREA TOILETS; SIZE DUCT @ 0.05" = 24x12 or 18x18 (whatever can be routed easiest). ALL DEVICES CONNECTED SHALL BE TAG "D" AS CURRENTLY SCHEDULED

INDICATE DUCT RUN-OUT SIZES TO "D" GRILLES ON THE PLANS

D
C
B
A



HVAC - 1ST FLOOR PLAN - OVERALL
SCALE: 1/16" = 1'-0"

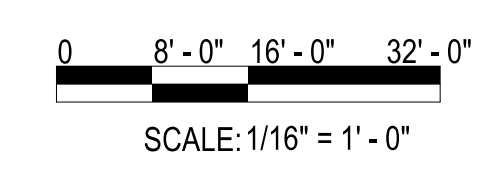
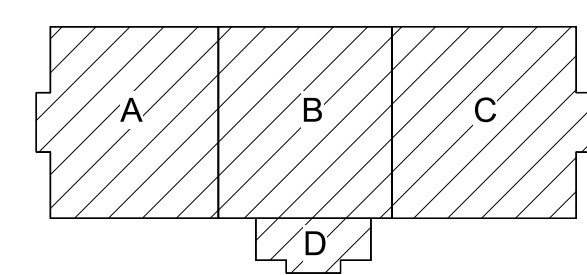
GENERAL NOTES

1. PROVIDE MANUAL VOLUME DAMPERS IN ALL RUN-OUTS TO DIFFUSERS, AT ALL BRANCH TAKE-OFFS FROM MAIN SUPPLY DUCT, AND IN ALL OTHER AREAS AS REQUIRED TO PROVIDE PROPER SYSTEM BALANCING.
2. ALL SUPPLY AIR DUCT RUN-OUTS TO DIFFUSERS AND VAV BOXES SHALL BE SIZED TO MATCH DIFFUSER NECK SIZE OR VAV BOX INLET SIZE UNLESS OTHERWISE INDICATED.
3. SHEET METAL FABRICATOR MAY SUBSTITUTE EQUIVALENT ROUND OR FLAT OVAL DUCTWORK FOR RECTANGULAR SIZES INDICATED. DUCTWORK BETWEEN AHU AND VAV BOXES SHALL BE SIZED TO 0.2" STATIC PRESSURE LOSS PER 100' OF DUCT RUN, DUCTWORK DOWNSTREAM OF VAV BOXES, RETURN, EXHAUST AND TRANSFER AIR DUCTS SHALL BE SIZED TO 0.05"/100' OF DUCT RUN. ALL REVISIONS MUST BE COORDINATED WITH ALL OTHER TRADES AND ILLUSTRATED IN DUCTWORK SHOP DRAWINGS FOR APPROVAL.
4. PLAN DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT ILLUSTRATE ALL SPECIFIC DUCT TAKE-OFF CONFIGURATIONS, TAPS, ETC. REFER TO PROJECT SPECIFICATIONS AND DETAILS FOR SPECIFIC REQUIREMENTS.
5. ALL EQUIPMENT SHALL BE INSTALLED WITH MANUFACTURER'S REQUIRED ACCESS SPACE BETWEEN UNIT AND FULL HEIGHT WALLS AND OTHER OBSTRUCTIONS.

These don't appear to be current with what was coordinated b/w AH/DM/EMB in 3/23/2021 email. See below.

1. PROVIDE MANUAL VOLUME DAMPERS IN ALL RUN-OUTS TO DIFFUSERS, AT ALL BRANCH TAKE-OFFS FROM MAIN SUPPLY DUCTS, AND WHERE DEEMED NECESSARY BY TAB SUB-CONTRACTOR TO ACHIEVE PROPER SYSTEM BALANCING.
2. ALL DUCT RUN-OUTS TO DIFFUSERS, REGISTERS AND GRILLES NOT INDICATED ON THE PLANS SHALL BE SIZED TO MATCH THE NECK SIZE INDICATED ON THE DIFFUSER, REGISTER AND GRILLE SCHEDULE.
3. ALL SUPPLY DUCT RUN-OUTS TO VAV BOXES NOT INDICATED ON THE PLANS SHALL BE SIZED TO MATCH THE VAV BOX INLET SIZE INDICATED ON THE VARIABLE AIR VOLUME (VAV) BOX SCHEDULE.
4. SHEET METAL FABRICATOR MAY SUBSTITUTE EQUIVALENT ROUND OR FLAT OVAL DUCTWORK FOR RECTANGULAR SIZES INDICATED. DUCTWORK BETWEEN AHU AND VAV BOXES SHALL BE SIZED TO 0.2" STATIC PRESSURE LOSS PER 100' OF DUCT RUN. DUCTWORK DOWNSTREAM OF VAV BOXES SHALL BE SIZED TO 0.08" STATIC PRESSURE LOSS PER 100' OF DUCT RUN. RETURN, EXHAUST AND TRANSFER AIR DUCTS SHALL BE SIZED TO 0.05"/100' OF DUCT RUN. ALL REVISIONS MUST BE COORDINATED WITH ALL OTHER TRADES AND ILLUSTRATED IN DUCTWORK SHOP DRAWINGS FOR APPROVAL.

KEYPLAN



APPR DATE

SYN DESCRIPTION

PRELIMINARY
NOT FOR CONSTRUCTION

Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
APPROVED

FOR COMMANDER NAVFAC

ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

SATISFACTORY TO DATE

DES DRW CHK

PM

BRANCH MANAGER

CHIEF ENGINEER

FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
JACKSONVILLE, NC

P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
OVERALL 1ST FLOOR PLAN

SCALE: AS NOTED
EPROJCT NO.: 1590892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:
SHEET OF

MH110

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

| Room | Approx Sqft | Exhaust Needs/Basis | Req'd | Design |
|------------------------------------|-------------|----------------------------|-------|--------|
| G012 UNISEX | 70 | 1 Toilet 1 shower (75 cfm) | -75 | -100 |
| G011 Womens (Toilet & Locker area) | 285 | 5 Toilets | -250 | -350 |
| G011 Womens Showers | 85 | 2 showers @ 75 cfm ea | -150 | -150 |
| G010 Mens (Toilet & Locker area) | 285 | 5 toilet fixtures | -250 | -350 |
| G010 Mens Showers | 85 | 2 showers @ 75 cfm ea | -150 | -150 |
| 110 Mothers Room | 70 | 1 cfm/sqft | -75 | -100 |
| 118 Janitor | 48 | 1 cfm/sqft | -50 | -50 |
| | | | -1000 | -1250 |

One 100 cfm between Shwr & Toilet
 Two 125 cfm over toilets, One 100 cfm in locker area
 Two 75 cfm Exhaust registers - 1 per shower
 Two 125 cfm over toilets, One 100 cfm in locker area
 Two 75 cfm Exhaust registers - 1 per shower
 Provide Single Exhaust Register @ 100 cfm
 Provide Single Exhaust Register @ 50 cfm

REVISE EXHAUST LAYOUT

MOVE SSHP TO EAST WALL SO CONDENSATE CAN BE PUMPED EASILY TO FLOOR DRAIN IN MECH ROOM (POSSIBLY GRAVITY DRAINED. LABEL INDOOR UNIT

TAG > cfm?
 625-(3*125-150)=100?

UP/DN? (TYP)

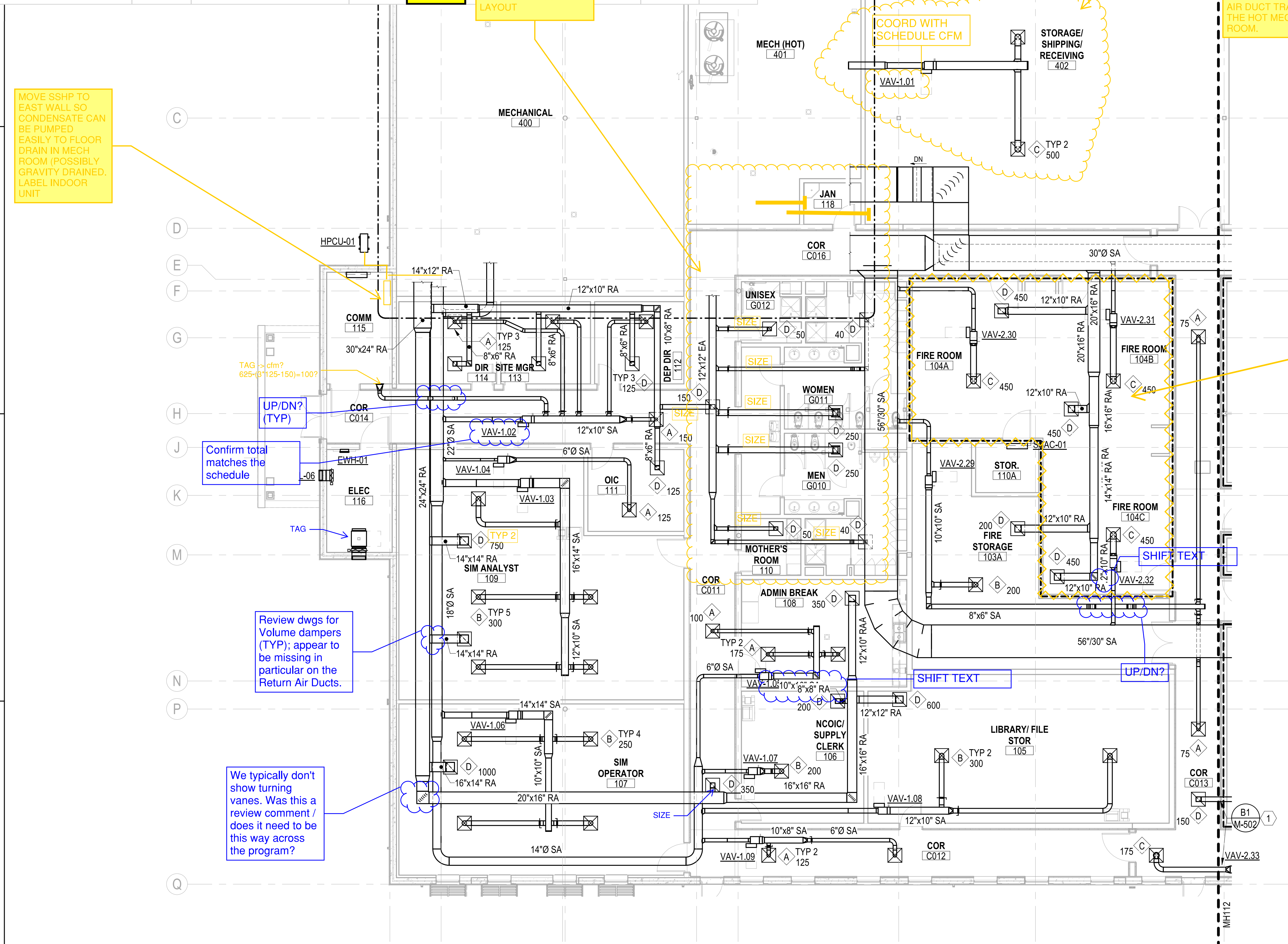
Confirm total matches the schedule

Review dwgs for Volume dampers (TYP); appear to be missing in particular on the Return Air Ducts.

We typically don't show turning vanes. Was this a review comment / does it need to be this way across the program?

IS THERE CEILING IN HERE? IF NOT PROVIDE DRUM LOUVERS OFF ROUND DUCT HIGH IN SPACE; NEED VAV BELOW 12'. DON'T LIKE THIS ONE COLD AIR DUCT THAT PASSES OVER "HOT MECH" - SO CANNOT LOCATE BOX OVER HOT MECH, ONLY DUCTWORK (ADD NOTE WHERE DUCT CROSSES HOT MECH TO PROVIDE OUTDOOR RATED VAPOR BARRIER ON INSULATION OF COLD AIR DUCT TRAVERSING THE HOT MECHANICAL ROOM.

REVISE DUCT LAYOUT - ONE BRANCH IN FOR VAV'S 2.30, 2.31, 2.32, ONE RETURN OUT - THE FIRE ROOM WALL PERIMETER IS "SECURE WALL" - CALL OUT TO DETAIL REQ'D. DON'T CROSS WALL WITH SUPPLY OR RETURN ASSOCIATED WITH VAV 2.29

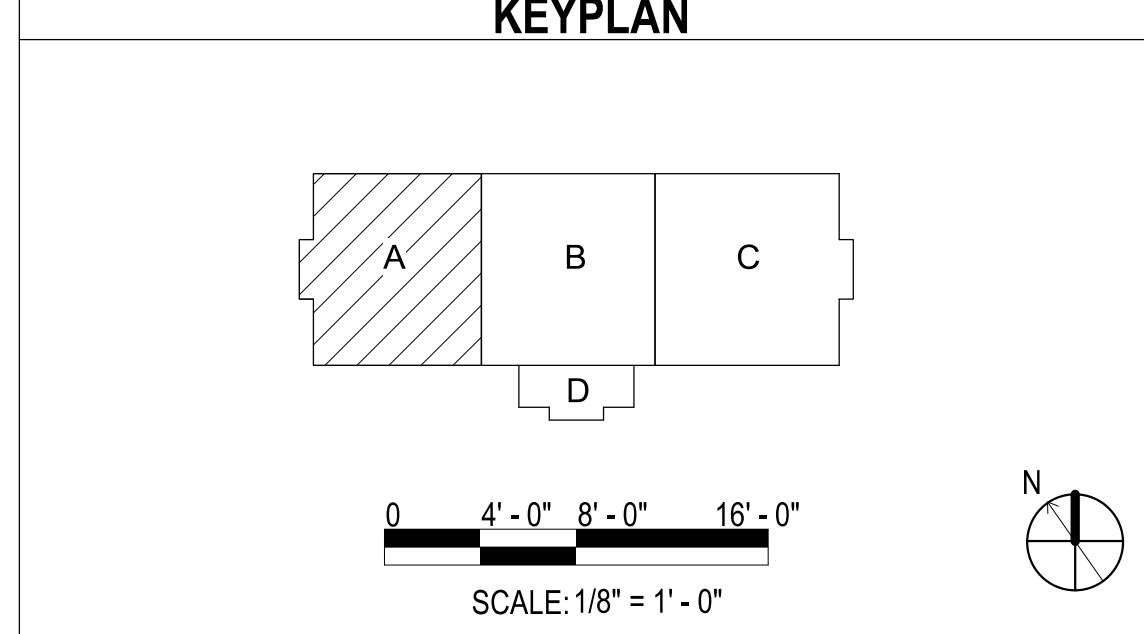


- ### GENERAL NOTES
- PROVIDE MANUAL VOLUME DAMPERS IN ALL RUN-OUTS TO DIFFUSERS, AT ALL BRANCH TAKE-OFFS FROM MAIN SUPPLY DUCT, AND IN ALL OTHER AREAS AS REQUIRED TO PROVIDE PROPER SYSTEM BALANCING.
 - ALL SUPPLY AIR DUCT RUN-OUTS TO DIFFUSERS AND VAV BOXES SHALL BE SIZED TO MATCH DIFFUSER NECK SIZE OR VAV BOX INLET SIZE UNLESS OTHERWISE INDICATED.
 - SHEET METAL FABRICATOR MAY SUBSTITUTE EQUIVALENT ROUND OR FLAT OVAL DUCTWORK FOR RECTANGULAR SIZES INDICATED. DUCTWORK BETWEEN AHU AND VAV BOXES SHALL BE SIZED TO 0.2" STATIC PRESSURE LOSS PER 100' OF DUCT RUN, DUCTWORK DOWNSTREAM OF VAV BOXES, RETURN, EXHAUST AND TRANSFER AIR DUCTS SHALL BE SIZED TO 0.05"/100' OF DUCT RUN. ALL REVISIONS MUST BE COORDINATED WITH ALL OTHER TRADES AND ILLUSTRATED IN DUCTWORK SHOP DRAWINGS FOR APPROVAL.
 - PLAN DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT ILLUSTRATE ALL SPECIFIC DUCT TAKE-OFF CONFIGURATIONS, TAPS, ETC. REFER TO PROJECT SPECIFICATIONS AND DETAILS FOR SPECIFIC REQUIREMENTS.
 - ALL EQUIPMENT SHALL BE INSTALLED WITH MANUFACTURER'S REQUIRED ACCESS SPACE BETWEEN UNIT AND FULL HEIGHT WALLS AND OTHER OBSTRUCTIONS.

- ### KEYNOTES
- SECURE AREA PENETRATION. PROVIDE INTRUSION PREVENTION BARS IN ALL DUCTWORK WITH OPENINGS GREATER THAN 96 SQ IN, REFER TO DETAILS.

DUCT CONSTRUCTION SCHEDULE

| DUCT SYSTEM | MIN PRESS CLASS | MIN. SEAL CLASS | SMACNA DUCT LEAKAGE CLASS (CL) | | | DUCT TEST PRESS |
|----------------------------------|-----------------|-----------------|--------------------------------|-------|-----------|-----------------|
| | | | RECT | ROUND | FLAT OVAL | |
| VAV SUPPLY - UPSTREAM OF BOXES | 3" W.C. | A | 4 | 2 | 2 | 3" W.C. |
| VAV SUPPLY - DOWNSTREAM OF BOXES | 2" W.C. | A | 4 | 2 | 2 | 2" W.C. |
| EXHAUST DUCTS | ±1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| RETURN DUCTS | ±1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| OUTSIDE AIR DUCTS | -1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| TRANSFER AIR DUCTS | 1" W.C. | A | NA | NA | NA | NA |



HVAC - 1ST FLOOR PLAN - AREA A
 SCALE: 1/8" = 1'-0"

UNCLASSIFIED

APPROVAL TABLE:

| SYMBOL | DESCRIPTION | DATE | APP'R |
|--------|-------------|------|-------|
| | | | |

SEAL

PRELIMINARY NOT FOR CONSTRUCTION

Michael Baker INTERNATIONAL
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 APPROVED

FOR COMMANDER NAVFAC
 ACTIVITY: MARINE CORPS BASE CAMP LEJEUNE
 SATISFACTORY TO DATE: _____
 DES: _____ DRW: _____ CHK: _____
 PM: _____
 BRANCH MANAGER: _____
 CHIEF ENGINEER: _____
 FIRE PROTECTION: _____

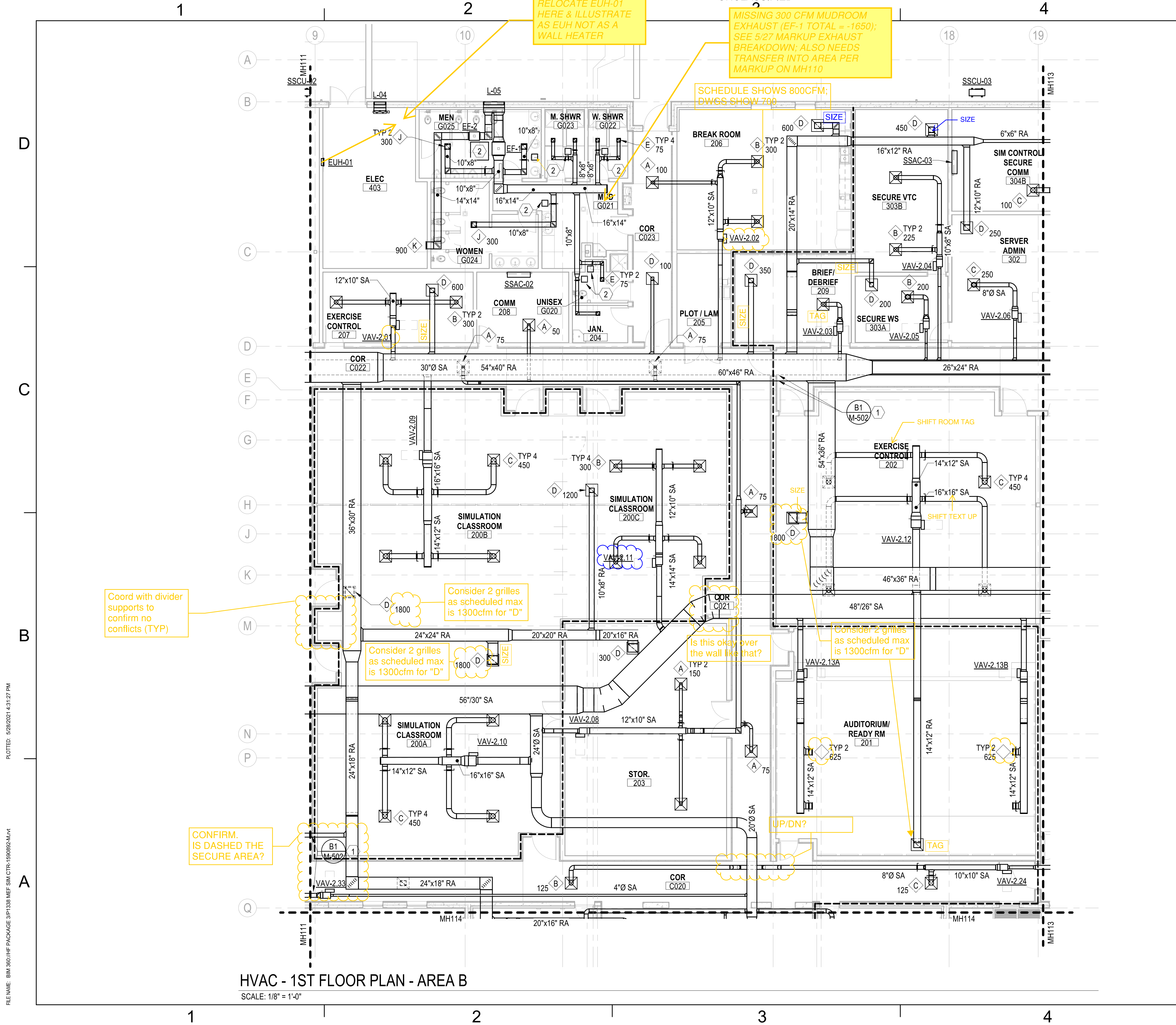
DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
 JACKSONVILLE, NC
 ROIC FLORENCE CAMP LEJEUNE
 MCB CAMP LEJEUNE
 JACKSONVILLE, NC
 P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT
 HVAC - 1ST FLOOR PLAN - AREA A

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION
 PRE-FINAL ITR SET 2021-05-28

SCALE: AS NOTED
 EPROJCT NO.: 1590892
 CONSTR. CONTR. NO.: N40085-20-C-0059
 NAVFAC DRAWING NO.: _____
 SHEET _____ OF _____

MH111

FILE NAME: BIM360/HF PACKAGE 3P1338.MEF SIM CTR-1590892-M1.rvt
 PLOTTED: 5/28/2021 4:31:16 PM



FILE NAME: BIM 360/HF PACKAGE 3P11338.MEF SIM CTR-1590892-M.rvt
 PLOTTED: 5/28/2021 4:31:27 PM

HVAC - 1ST FLOOR PLAN - AREA B
 SCALE: 1/8" = 1'-0"

GENERAL NOTES

- 1 PROVIDE MANUAL VOLUME DAMPERS IN ALL RUN-OUTS TO DIFFUSERS, AT ALL BRANCH TAKE-OFFS FROM MAIN SUPPLY DUCT, AND IN ALL OTHER AREAS AS REQUIRED TO PROVIDE PROPER SYSTEM BALANCING.
- 2 ALL SUPPLY AIR DUCT RUN-OUTS TO DIFFUSERS AND VAV BOXES SHALL BE SIZED TO MATCH DIFFUSER NECK SIZE OR VAV BOX INLET SIZE UNLESS OTHERWISE INDICATED.
- 3 SHEET METAL FABRICATOR MAY SUBSTITUTE EQUIVALENT ROUND OR FLAT OVAL DUCTWORK FOR RECTANGULAR SIZES INDICATED. DUCTWORK BETWEEN AHU AND VAV BOXES SHALL BE SIZED TO 0.2" STATIC PRESSURE LOSS PER 100' OF DUCT RUN, DUCTWORK DOWNSTREAM OF VAV BOXES, RETURN, EXHAUST AND TRANSFER AIR DUCTS SHALL BE SIZED TO 0.05"/100' OF DUCT RUN. ALL REVISIONS MUST BE COORDINATED WITH ALL OTHER TRADES AND ILLUSTRATED IN DUCTWORK SHOP DRAWINGS FOR APPROVAL.
- 4 PLAN DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT ILLUSTRATE ALL SPECIFIC DUCT TAKE-OFF CONFIGURATIONS, TAPS, ETC. REFER TO PROJECT SPECIFICATIONS AND DETAILS FOR SPECIFIC REQUIREMENTS.
- 5 ALL EQUIPMENT SHALL BE INSTALLED WITH MANUFACTURER'S REQUIRED ACCESS SPACE BETWEEN UNIT AND FULL HEIGHT WALLS AND OTHER OBSTRUCTIONS.

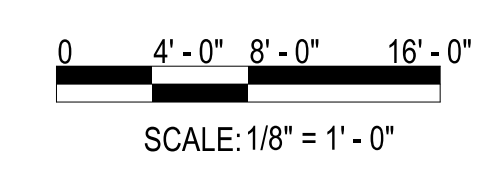
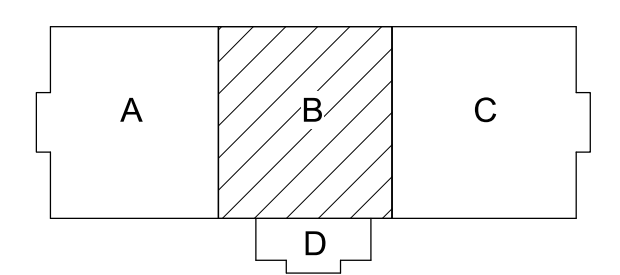
KEYNOTES

- 1 SECURE AREA PENETRATION. PROVIDE INTRUSION PREVENTION BARS IN ALL DUCTWORK WITH OPENINGS GREATER THAN 96 SQ IN, REFER TO DETAILS.
- 2 ACCESS PANEL, REFER TO ARCHITECTURAL REFLECTED CEILING PLANS.

DUCT CONSTRUCTION SCHEDULE

| DUCT SYSTEM | MIN PRESS CLASS | MIN. SEAL CLASS | SMACNA DUCT LEAKAGE CLASS (CL) | | | DUCT TEST PRESS |
|----------------------------------|-----------------|-----------------|--------------------------------|-------|-----------|-----------------|
| | | | RECT | ROUND | FLAT OVAL | |
| VAV SUPPLY - UPSTREAM OF BOXES | 3" W.C. | A | 4 | 2 | 2 | 3" W.C. |
| VAV SUPPLY - DOWNSTREAM OF BOXES | 2" W.C. | A | 4 | 2 | 2 | 2" W.C. |
| EXHAUST DUCTS | ±1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| RETURN DUCTS | ±1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| OUTSIDE AIR DUCTS | -1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| TRANSFER AIR DUCTS | 1" W.C. | A | NA | NA | NA | NA |

KEYPLAN



UNCLASSIFIED

APPROVAL TABLE:

| DATE | DESCRIPTION | SYMBOL |
|------|-------------|--------|
| | | |

PRELIMINARY
NOT FOR CONSTRUCTION

Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
APPROVED

FOR COMMANDER NAVFAC
ACTIVITY: MARINE CORPS BASE CAMP LEJEUNE

SATISFACTORY TO DATE

DES: DRW: CHK:

PM: BRANCH MANAGER: CHIEF ENGINEER: FIRE PROTECTION:

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
ROSC CAMP LEJEUNE
JACKSONVILLE, NC
JACKSONVILLE, NC

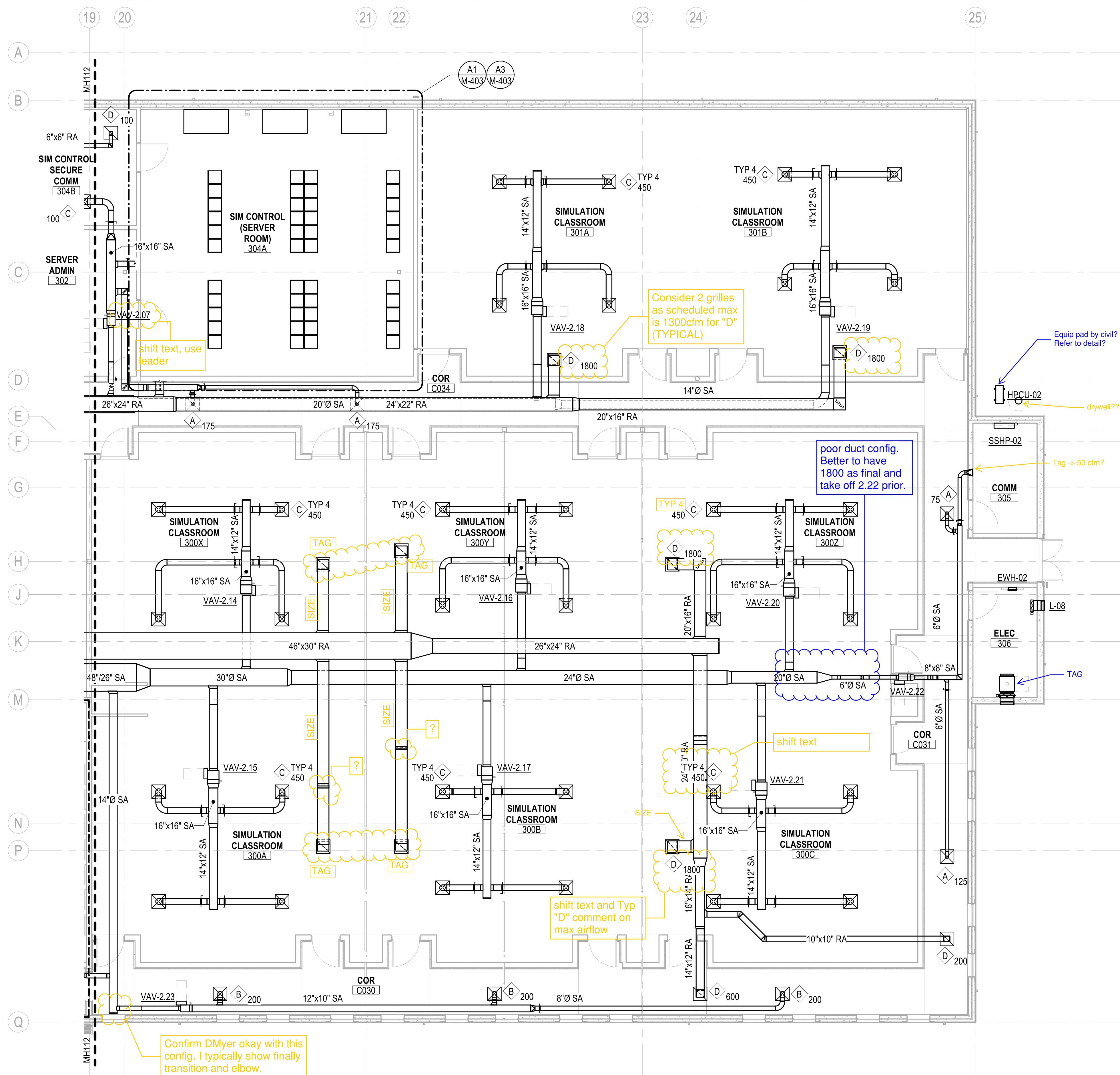
P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT
HAYC - 1ST FLOOR PLAN - AREA B

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

SCALE: AS NOTED
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CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:
SHEET OF

MH112

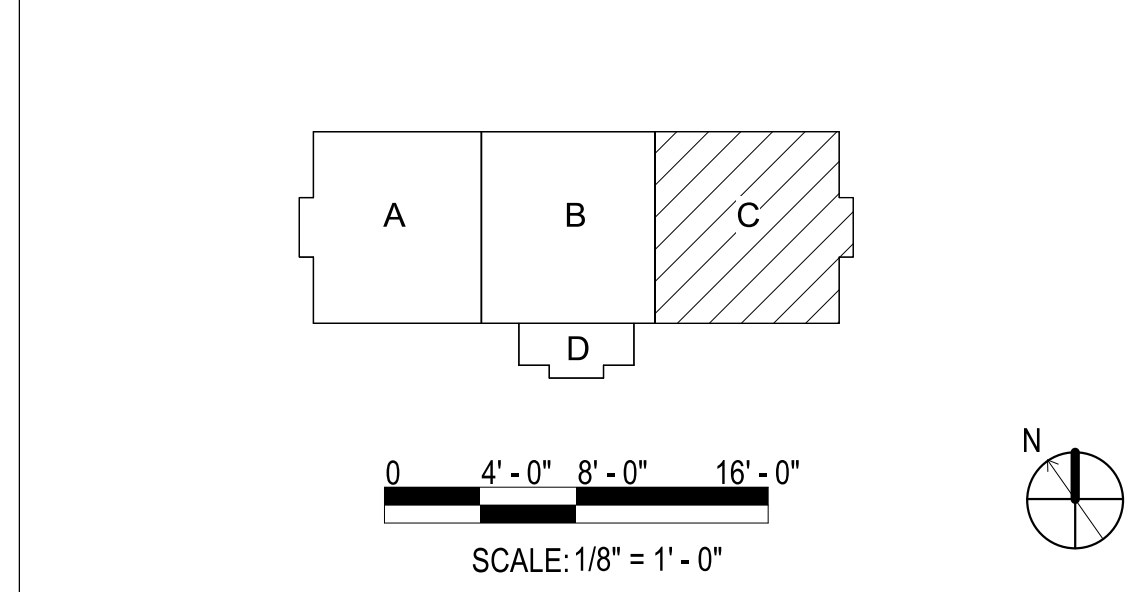
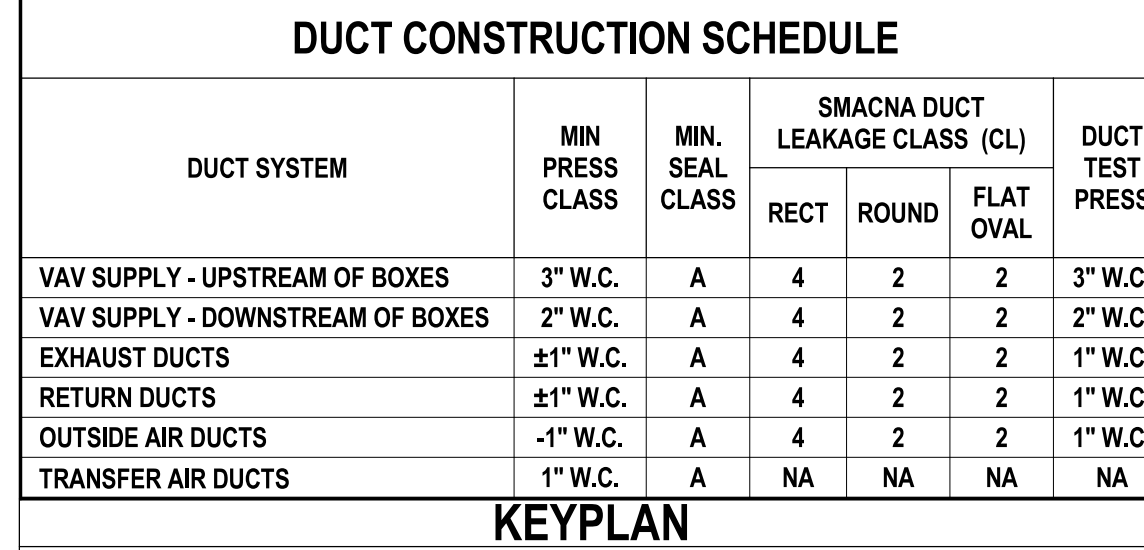
PRE-FINAL ITR SET 2021-05-28



- ### GENERAL NOTES
- 1 PROVIDE MANUAL VOLUME DAMPERS IN ALL RUN-OUTS TO DIFFUSERS, AT ALL BRANCH TAKE-OFFS FROM MAIN SUPPLY DUCT, AND IN ALL OTHER AREAS AS REQUIRED TO PROVIDE PROPER SYSTEM BALANCING.
 - 2 ALL SUPPLY AIR DUCT RUN-OUTS TO DIFFUSERS AND VAV BOXES SHALL BE SIZED TO MATCH DIFFUSER NECK SIZE OR VAV BOX INLET SIZE UNLESS OTHERWISE INDICATED.
 - 3 SHEET METAL FABRICATOR MAY SUBSTITUTE EQUIVALENT ROUND OR FLAT OVAL DUCTWORK FOR RECTANGULAR SIZES INDICATED. DUCTWORK BETWEEN AHU AND VAV BOXES SHALL BE SIZED TO 0.2" STATIC PRESSURE LOSS PER 100' OF DUCT RUN, DUCTWORK DOWNSTREAM OF VAV BOXES, RETURN, EXHAUST AND TRANSFER AIR DUCTS SHALL BE SIZED TO 0.05"/100' OF DUCT RUN. ALL REVISIONS MUST BE COORDINATED WITH ALL OTHER TRADES AND ILLUSTRATED IN DUCTWORK SHOP DRAWINGS FOR APPROVAL.
 - 4 PLAN DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT ILLUSTRATE ALL SPECIFIC DUCT TAKE-OFF CONFIGURATIONS, TAPS, ETC. REFER TO PROJECT SPECIFICATIONS AND DETAILS FOR SPECIFIC REQUIREMENTS.
 - 5 ALL EQUIPMENT SHALL BE INSTALLED WITH MANUFACTURER'S REQUIRED ACCESS SPACE BETWEEN UNIT AND FULL HEIGHT WALLS AND OTHER OBSTRUCTIONS.

KEYNOTES

| DUCT CONSTRUCTION SCHEDULE | | | | | | |
|----------------------------------|-----------------|-----------------|--------------------------------|-------|-----------|-----------------|
| DUCT SYSTEM | MIN PRESS CLASS | MIN. SEAL CLASS | SMACNA DUCT LEAKAGE CLASS (CL) | | | DUCT TEST PRESS |
| | | | RECT | ROUND | FLAT OVAL | |
| VAV SUPPLY - UPSTREAM OF BOXES | 3" W.C. | A | 4 | 2 | 2 | 3" W.C. |
| VAV SUPPLY - DOWNSTREAM OF BOXES | 2" W.C. | A | 4 | 2 | 2 | 2" W.C. |
| EXHAUST DUCTS | ±1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| RETURN DUCTS | ±1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| OUTSIDE AIR DUCTS | -1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| TRANSFER AIR DUCTS | 1" W.C. | A | NA | NA | NA | NA |



APPROVED: [Signature]

DATE: []

SYMBOL DESCRIPTION

PRELIMINARY
NOT FOR CONSTRUCTION

SEAL

Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
APPROVED

FOR COMMANDER NAVFAC
ACTIVITY: MARINE CORPS BASE CAMP LEJEUNE

SATISFACTORY TO DATE

DES: [] DRW: [] CHK: []

PM: []

BRANCH MANAGER: []

CHIEF ENGINEER: []

FIRE PROTECTION: []

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
ROSC FLORENCE CAMP LEJEUNE
MCCB CAMP LEJEUNE
JACKSONVILLE, NC

P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT
HVAC - 1ST FLOOR PLAN - AREA C

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

SCALE: AS NOTED
EPROJCT NO.: 1590892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.: []

SHEET [] OF []

MH113

UNCLASSIFIED

PLOTTED: 5/28/2021 4:31:35 PM
 FILE NAME: BIM360/HF PACKAGE 3P1338.MEF SIM CTR-1590892-MH113

HVAC - 1ST FLOOR PLAN - AREA C
SCALE: 1/8" = 1'-0"

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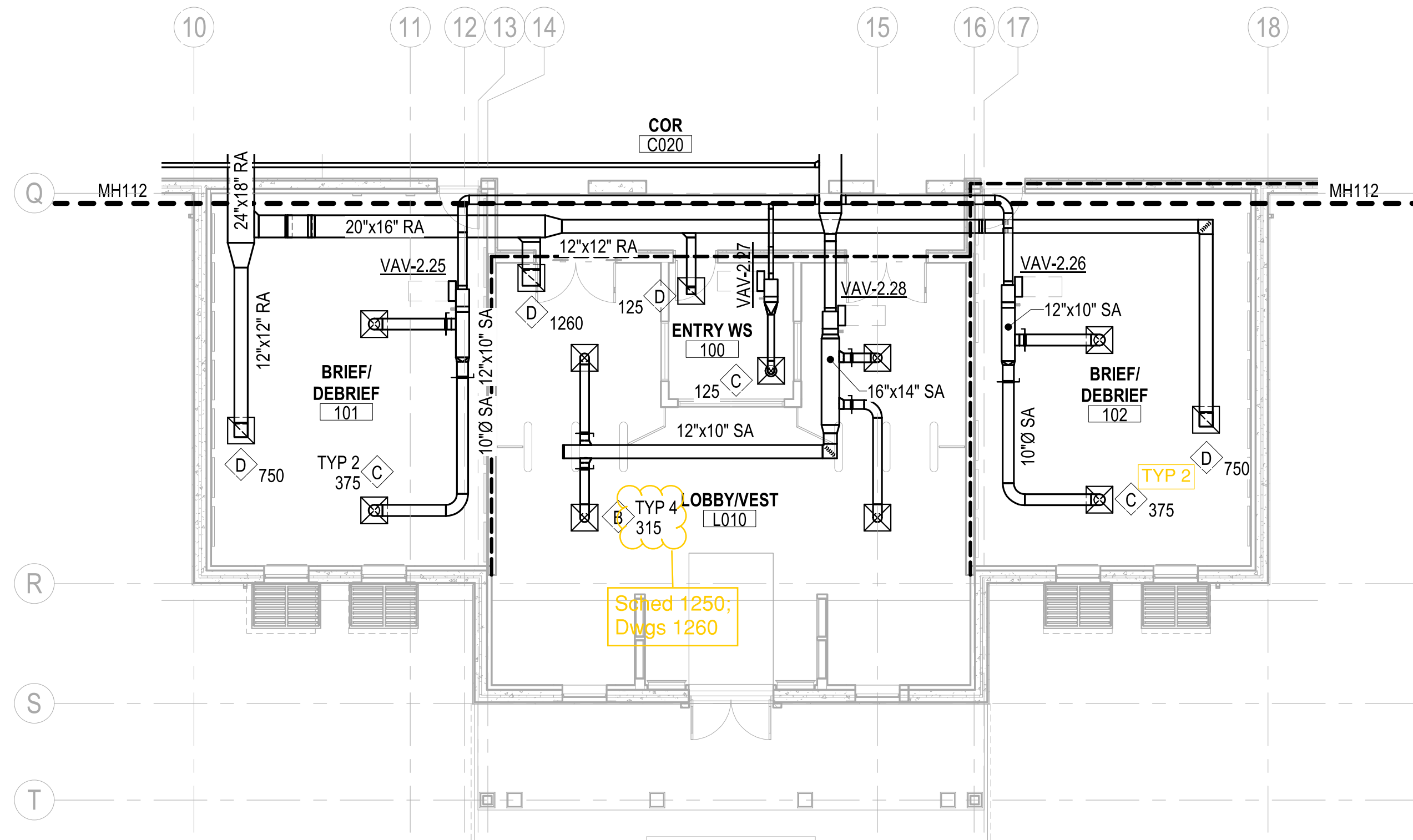
UNCLASSIFIED

D

C

B

A



HVAC - 1ST FLOOR PLAN - AREA D

SCALE: 1/8" = 1'-0"

GENERAL NOTES

- 1 PROVIDE MANUAL VOLUME DAMPERS IN ALL RUN-OUTS TO DIFFUSERS, AT ALL BRANCH TAKE-OFFS FROM MAIN SUPPLY DUCT, AND IN ALL OTHER AREAS AS REQUIRED TO PROVIDE PROPER SYSTEM BALANCING.
- 2 ALL SUPPLY AIR DUCT RUN-OUTS TO DIFFUSERS AND VAV BOXES SHALL BE SIZED TO MATCH DIFFUSER NECK SIZE OR VAV BOX INLET SIZE UNLESS OTHERWISE INDICATED.
- 3 SHEET METAL FABRICATOR MAY SUBSTITUTE EQUIVALENT ROUND OR FLAT OVAL DUCTWORK FOR RECTANGULAR SIZES INDICATED. DUCTWORK BETWEEN AHU AND VAV BOXES SHALL BE SIZED TO 0.2" STATIC PRESSURE LOSS PER 100' OF DUCT RUN, DUCTWORK DOWNSTREAM OF VAV BOXES, RETURN, EXHAUST AND TRANSFER AIR DUCTS SHALL BE SIZED TO 0.05"/100' OF DUCT RUN. ALL REVISIONS MUST BE COORDINATED WITH ALL OTHER TRADES AND ILLUSTRATED IN DUCTWORK SHOP DRAWINGS FOR APPROVAL.
- 4 PLAN DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT ILLUSTRATE ALL SPECIFIC DUCT TAKE-OFF CONFIGURATIONS, TAPS, ETC. REFER TO PROJECT SPECIFICATIONS AND DETAILS FOR SPECIFIC REQUIREMENTS.
- 5 ALL EQUIPMENT SHALL BE INSTALLED WITH MANUFACTURER'S REQUIRED ACCESS SPACE BETWEEN UNIT AND FULL HEIGHT WALLS AND OTHER OBSTRUCTIONS.

KEYNOTES



PRELIMINARY
NOT FOR CONSTRUCTION



Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108

| | | |
|--------------------------------|-----|-----|
| FOR COMMANDER NAVFAC | | |
| ACTIVITY | | |
| MARINE CORPS BASE CAMP LEJEUNE | | |
| SATISFACTORY TO DATE | | |
| DES | DRW | CHK |
| PM | | |
| BRANCH MANAGER | | |
| CHIEF ENGINEER | | |
| FIRE PROTECTION | | |

NAVAL FACILITIES ENGINEERING COMMAND
MID-ATLANTIC JACKSONVILLE, NC
P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT
HVAC - 1ST FLOOR PLAN - AREA D

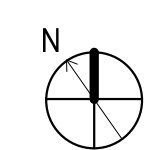
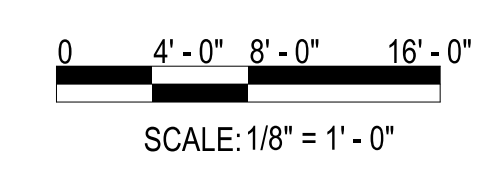
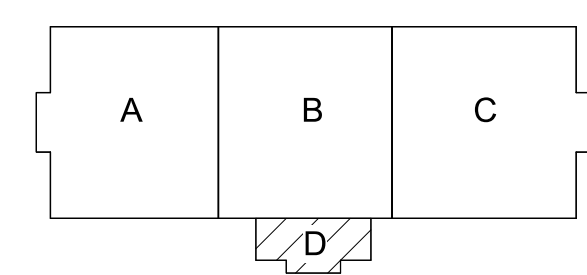
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|---------------------|------------------|
| SCALE: | AS NOTED |
| EPROJCT NO.: | 1590892 |
| CONSTR. CONTR. NO.: | N40085-20-C-0059 |
| NAVFAC DRAWING NO.: | |
| SHEET | OF |

MH114

DUCT CONSTRUCTION SCHEDULE

| DUCT SYSTEM | MIN PRESS CLASS | MIN. SEAL CLASS | SMACNA DUCT LEAKAGE CLASS (CL) | | | DUCT TEST PRESS |
|----------------------------------|-----------------|-----------------|--------------------------------|-------|-----------|-----------------|
| | | | RECT | ROUND | FLAT OVAL | |
| VAV SUPPLY - UPSTREAM OF BOXES | 3" W.C. | A | 4 | 2 | 2 | 3" W.C. |
| VAV SUPPLY - DOWNSTREAM OF BOXES | 2" W.C. | A | 4 | 2 | 2 | 2" W.C. |
| EXHAUST DUCTS | ±1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| RETURN DUCTS | ±1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| OUTSIDE AIR DUCTS | -1" W.C. | A | 4 | 2 | 2 | 1" W.C. |
| TRANSFER AIR DUCTS | 1" W.C. | A | NA | NA | NA | NA |

KEYPLAN



PLOTTED: 5/28/2021 4:31:36 PM

FILE NAME: BIM360/HF PACKAGE 3P1338.MEF SIM CTR-1590892-M.dwg

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UNCLASSIFIED

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

UNCLASSIFIED

1 2 3 4 5

D

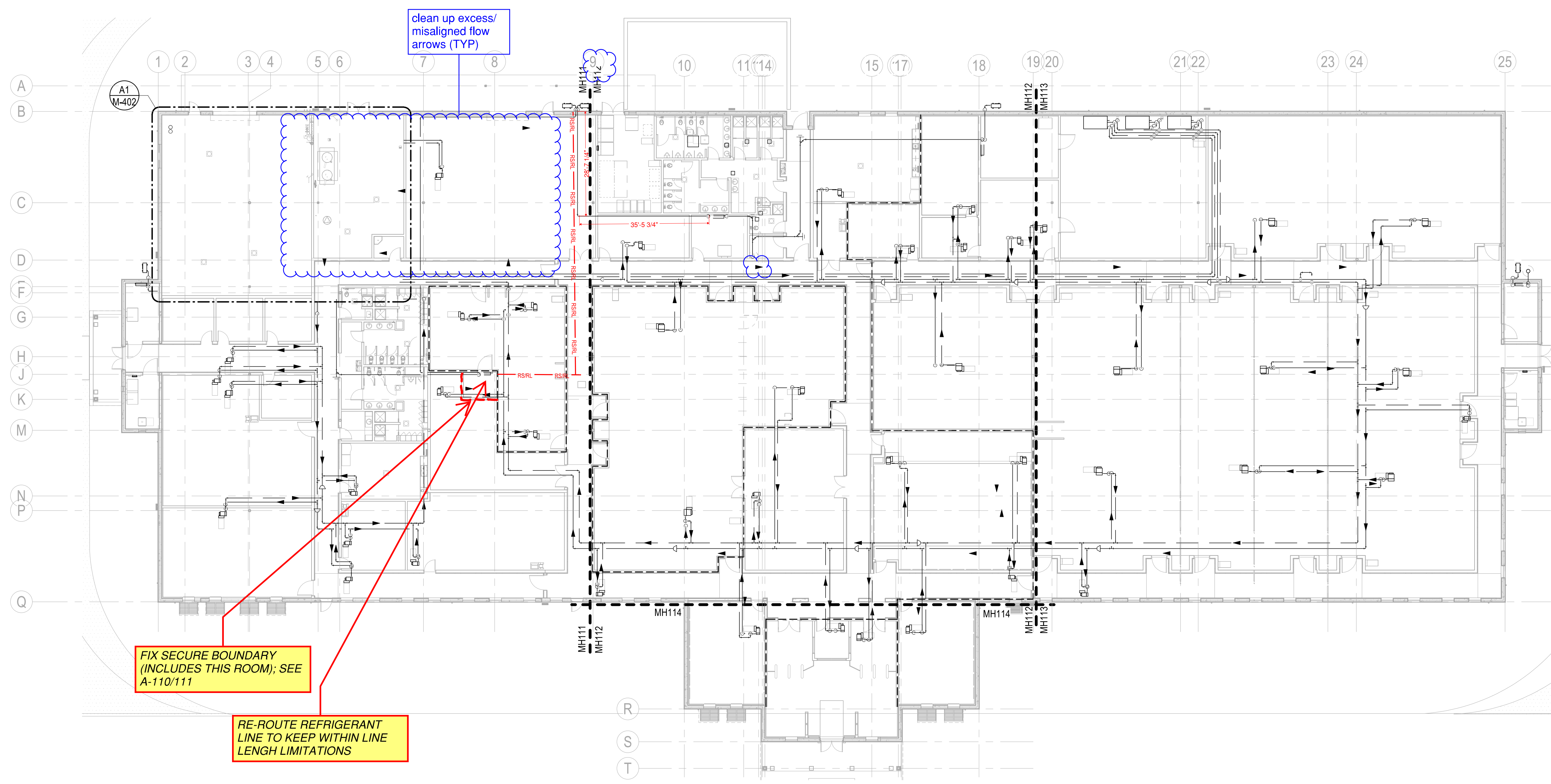
C

B

D

C

B

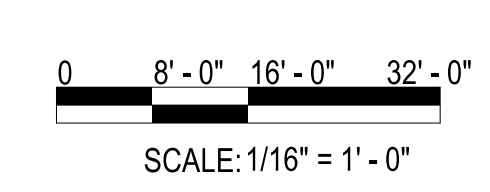
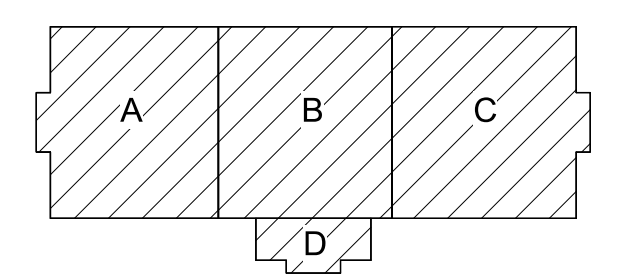


PIPING - 1ST FLOOR PLAN - OVERALL
 SCALE: 1/16" = 1'-0"

GENERAL NOTES

- 1 ALL HWS & HWR BRANCHES ARE 3/4" UNLESS NOTED OTHERWISE.
- 2 PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE HEATING AND CHILLED WATER PIPING SYSTEMS. ALL PIPING SHALL GRADE TO THE LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
- 3 INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES REQUIRING ACCESS ARE EASILY ACCESSIBLE. ALL VALVES SHALL BE INSTALLED SO THAT THE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (AKA "MEMORY STOPS"). ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
- 4 INSTALL PIPING WITHOUT FORCING OR SPRINGING. DO (TYPICAL ALL GEN NOTES)
- 5 PLAN DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT ILLUSTRATE ALL SPECIFIC DUCT TAKE-OFF CONFIGURATIONS, TAPS, ETC. REFER TO PROJECT SPECIFICATIONS AND DETAILS FOR SPECIFIC REQUIREMENTS.

KEYPLAN



| SYMBOL | DESCRIPTION | DATE | APPROVED |
|--------|-------------|------|----------|
| | | | |



PRELIMINARY
 NOT FOR CONSTRUCTION



Michael Baker INTERNATIONAL
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 APPROVED

FOR COMMANDER NAVFAC
 ACTIVITY
 MARINE CORPS BASE
 CAMP LEJEUNE

SATISFACTORY TO DATE
 DES DRW CHK
 PM
 BRANCH MANAGER
 CHIEF ENGINEER
 FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND
 NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
 JACKSONVILLE, NC
 JACKSONVILLE, NC
 P1338 II MEF SIMULATION/TRAINING CENTER
 REPLACEMENT
 PIPING - OVERALL 1ST FLOOR PLAN

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND
 ROIC FLORENCE CAMP LEJEUNE
 MCB CAMP LEJEUNE
 JACKSONVILLE, NC
 P1338 II MEF SIMULATION/TRAINING CENTER
 REPLACEMENT
 PIPING - OVERALL 1ST FLOOR PLAN

SCALE: AS NOTED
 PROJECT NO.: 1590892
 CONSTR. CONTR. NO.: N40085-20-C-0059
 NAVFAC DRAWING NO.:
 SHEET OF
MP110

PLOTTED: 5/28/2021 4:23:10 PM

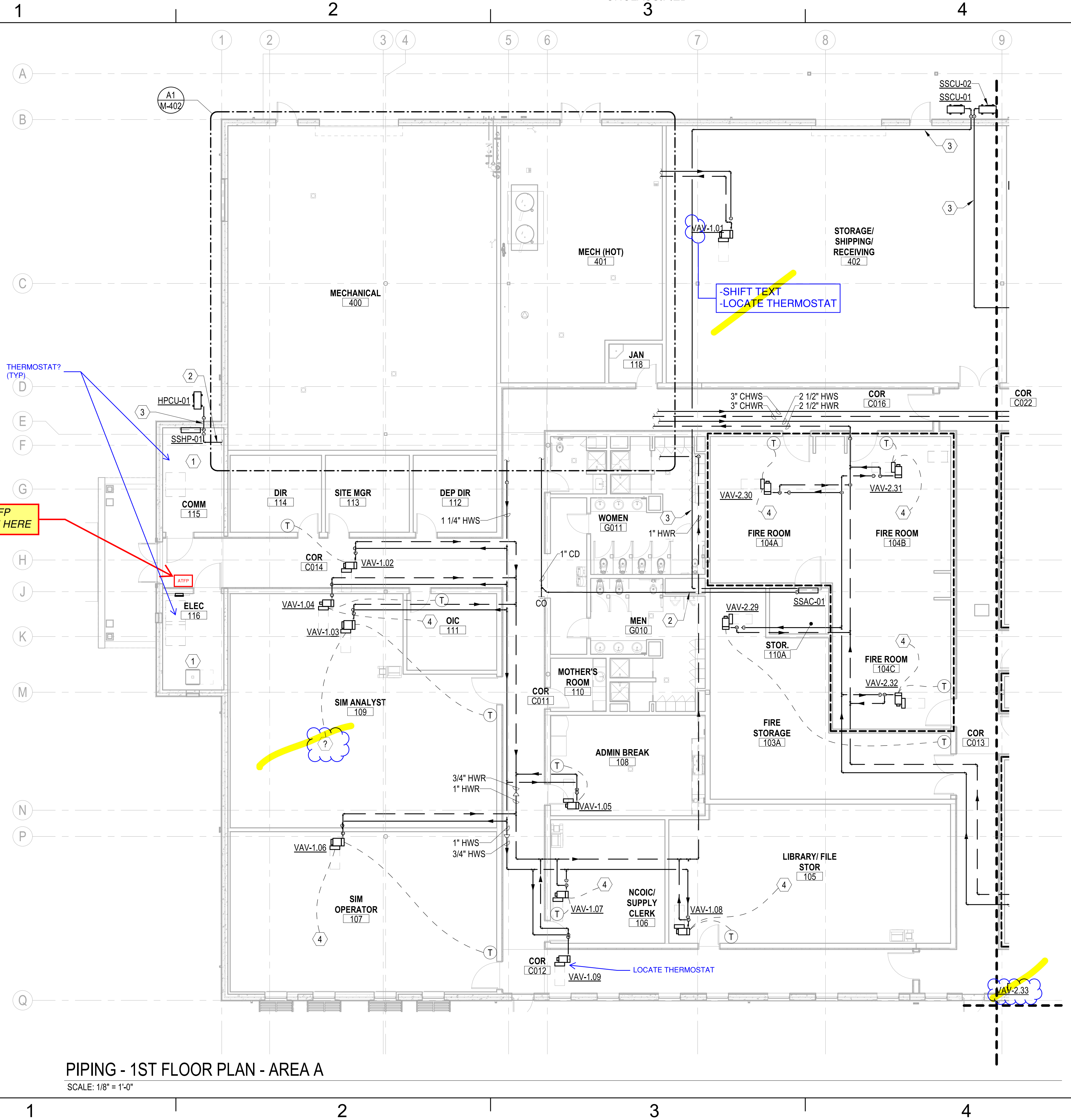
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DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

1 2 3 4 5

FILE NAME: BIM360/HF PACKAGE 3P11338.MEF SIM CTR-150982-2A.rvt
 PLOTTED: 5/28/2021 4:23:28 PM



PIPING - 1ST FLOOR PLAN - AREA A
 SCALE: 1/8" = 1'-0"

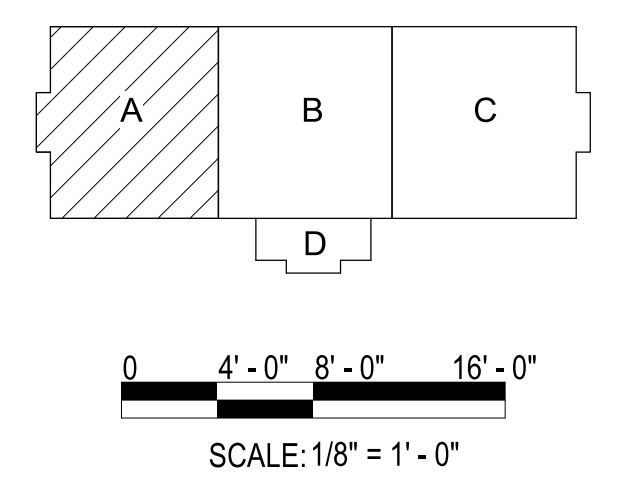
GENERAL NOTES

- 1 ALL HWS & HWR BRANCHES ARE 3/4" UNLESS NOTED OTHERWISE.
- 2 PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE HEATING AND CHILLED WATER PIPING SYSTEMS. ALL PIPING SHALL GRADE TO THE LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
- 3 INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES REQUIRING ACCESS ARE EASILY ACCESSIBLE. ALL VALVES SHALL BE INSTALLED SO THAT THE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (AKA "MEMORY STOPS"). ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
- 4 INSTALL PIPING WITHOUT FORCING OR SPRINGING.
- 5 PLAN DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT ILLUSTRATE ALL SPECIFIC DUCT TAKE-OFF CONFIGURATIONS, TAPS, ETC. REFER TO PROJECT SPECIFICATIONS AND DETAILS FOR SPECIFIC REQUIREMENTS.

KEYNOTES

- 1 THERE SHALL NOT BE ANY EQUIPMENT (PIPING, DUCTWORK, MACHINERY, ETC.) THAT DOES NOT SERVE THIS SPACE INSTALLED ABOVE OR WITHIN THIS SPACE, NOR SHALL EQUIPMENT NOT SERVING THIS SPACE PASS THROUGH OR ENTER THIS SPACE.
- 2 ROUTE ALL CONDENSATE PIPING AT 1/8" PER 1'-0" SLOPE TOWARD POINT OF TERMINATION. PROVIDE CLEANOUT AT ALL CHANGES OF DIRECTION GREATER THAN 45°.
- 3 ROUTE PAIR OF REFRIGERANT LINES FROM INDOOR UNIT TO ASSOCIATED OUTDOOR CONDENSING UNIT. SIZE PER MANUFACTURER'S RECOMMENDATIONS.
- 4 CONTROL WIRING TO OCCUPANCY SENSOR IN SPACE SERVED FOR SHUT-OFF DURING UNOCCUPIED PERIODS. REFER TO ELECTRICAL DRAWINGS FOR LOCATION OF OCCUPANCY SENSOR.

KEYPLAN



| | | | |
|--------|-------------|------|----------|
| SYMBOL | DESCRIPTION | DATE | APPROVED |
| | | | |
| | | | |
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PRELIMINARY
NOT FOR CONSTRUCTION

Michael Baker INTERNATIONAL
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 APPROVED

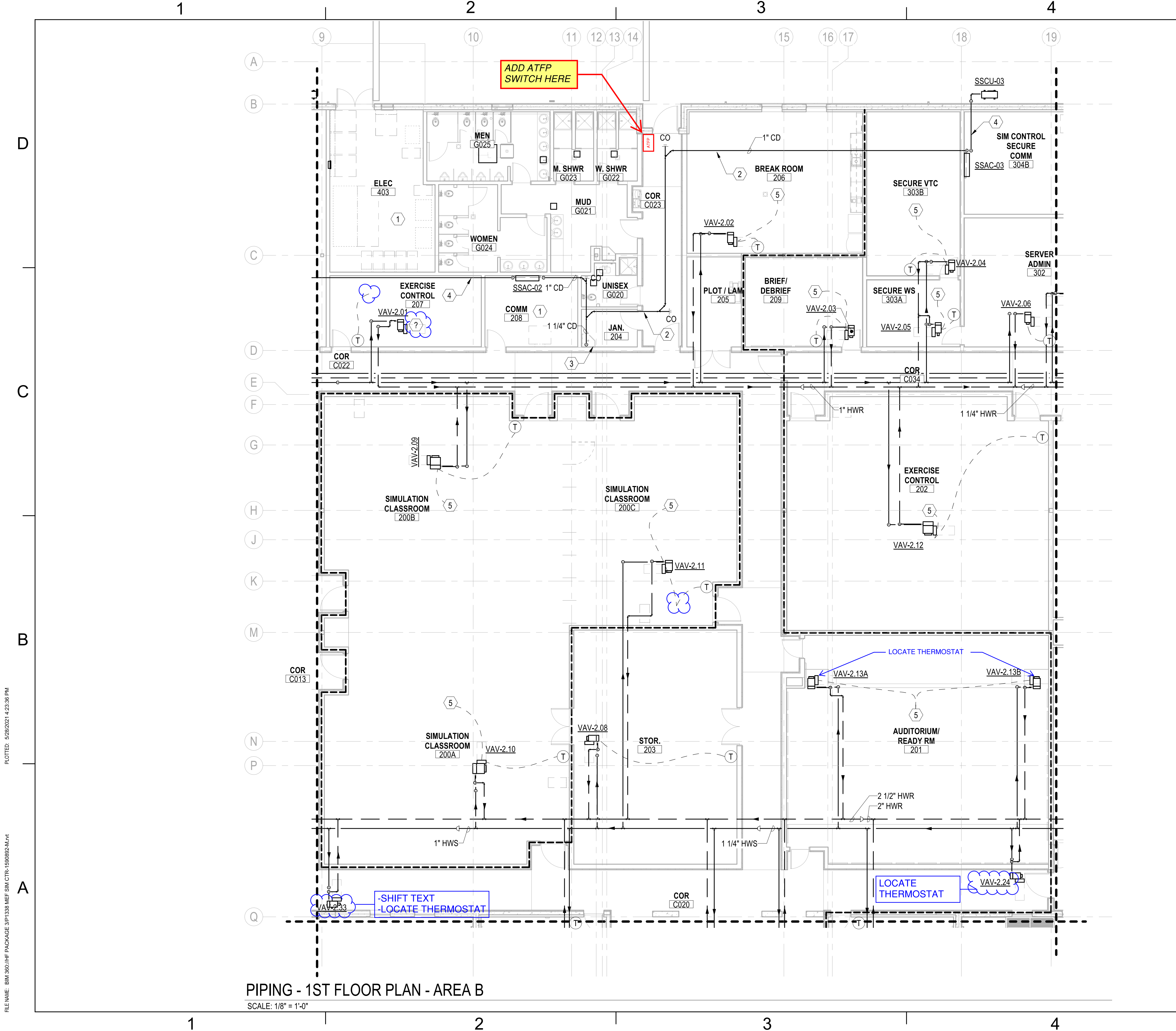
| | |
|----------------------|--------------------------------|
| FOR COMMANDER NAVFAC | |
| ACTIVITY | MARINE CORPS BASE CAMP LEJEUNE |
| SATISFACTORY TO DATE | DES DRW CHK |
| PM | BRANCH MANAGER |
| CHIEF ENGINEER | FIRE PROTECTION |

DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
 ROIC FLORENCE CAMP LEJEUNE
 JACKSONVILLE, NC
P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT
 PIPING - 1ST FLOOR PLAN - AREA A

| | |
|---------------------|------------------|
| SCALE: | AS NOTED |
| EPROJCT NO.: | 1509892 |
| CONSTR. CONTR. NO.: | N40085-20-C-0059 |
| NAVFAC DRAWING NO.: | |
| SHEET | OF |

MP111

UNCLASSIFIED



FILE NAME: BIM 360/HF PACKAGE 3P11338.MEF SIM CTR-1590892-M.rvt
PLOTTED: 5/28/2021 4:23:36 PM

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
ROIC FLORENCE CAMP LEJEUNE
MCCB CAMP LEJEUNE
JACKSONVILLE, NC

PIPING - 1ST FLOOR PLAN - AREA B
SCALE: 1/8" = 1'-0"

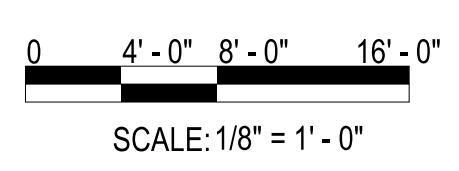
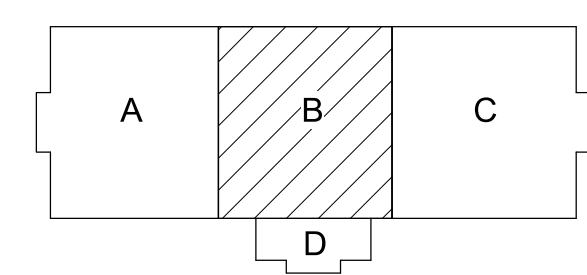
GENERAL NOTES

- 1 ALL HWS & HWR BRANCHES ARE 3/4" UNLESS NOTED OTHERWISE.
- 2 PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE HEATING AND CHILLED WATER PIPING SYSTEMS. ALL PIPING SHALL GRADE TO THE LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
- 3 INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES REQUIRING ACCESS ARE EASILY ACCESSIBLE. ALL VALVES SHALL BE INSTALLED SO THAT THE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (AKA "MEMORY STOPS"). ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
- 4 INSTALL PIPING WITHOUT FORCING OR SPRINGING.
- 5 PLAN DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT ILLUSTRATE ALL SPECIFIC DUCT TAKE-OFF CONFIGURATIONS, TAPS, ETC. REFER TO PROJECT SPECIFICATIONS AND DETAILS FOR SPECIFIC REQUIREMENTS.

KEYNOTES

- 1 THERE SHALL NOT BE ANY EQUIPMENT (PIPING, DUCTWORK, MACHINERY, ETC.) THAT DOES NOT SERVE THIS SPACE INSTALLED ABOVE OR WITHIN THIS SPACE. NOR SHALL EQUIPMENT NOT SERVING THIS SPACE PASS THROUGH OR ENTER THIS SPACE.
- 2 ROUTE ALL CONDENSATE PIPING AT 1/8" PER 1'-0" SLOPE TOWARD POINT OF TERMINATION. PROVIDE CLEANOUT AT ALL CHANGES OF DIRECTION GREATER THAN 45°
- 3 1-1/4" CD DOWN TO MOP RECEPTOR. TERMINATE PIPE OPEN ENDED APPROXIMATELY 3" ABOVE RECEPTOR.
- 4 ROUTE PAIR OF REFRIGERANT LINES FROM INDOOR UNIT TO ASSOCIATED OUTDOOR CONDENSING UNIT. SIZE PER MANUFACTURER'S RECOMMENDATIONS.
- 5 CONTROL WIRING TO OCCUPANCY SENSOR IN SPACE SERVED FOR SHUT-OFF DURING UNOCCUPIED PERIODS. REFER TO ELECTRICAL DRAWINGS FOR LOCATION OF OCCUPANCY SENSOR.

KEYPLAN



| | | |
|-------------|-------------|--------|
| APPROVED | DATE | APPR |
| DESCRIPTION | DATE | APPR |
| SYMBOL | DESCRIPTION | SYMBOL |

PRELIMINARY
NOT FOR CONSTRUCTION

Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
AVE INFO
APPROVED

FOR COMMANDER NAVFAC
ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

| | | |
|-----------------|-----|-----|
| DES | DRW | CHK |
| PM | | |
| BRANCH MANAGER | | |
| CHIEF ENGINEER | | |
| FIRE PROTECTION | | |

NAVAL FACILITIES ENGINEERING COMMAND
JACKSONVILLE, NC

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
JACKSONVILLE, NC

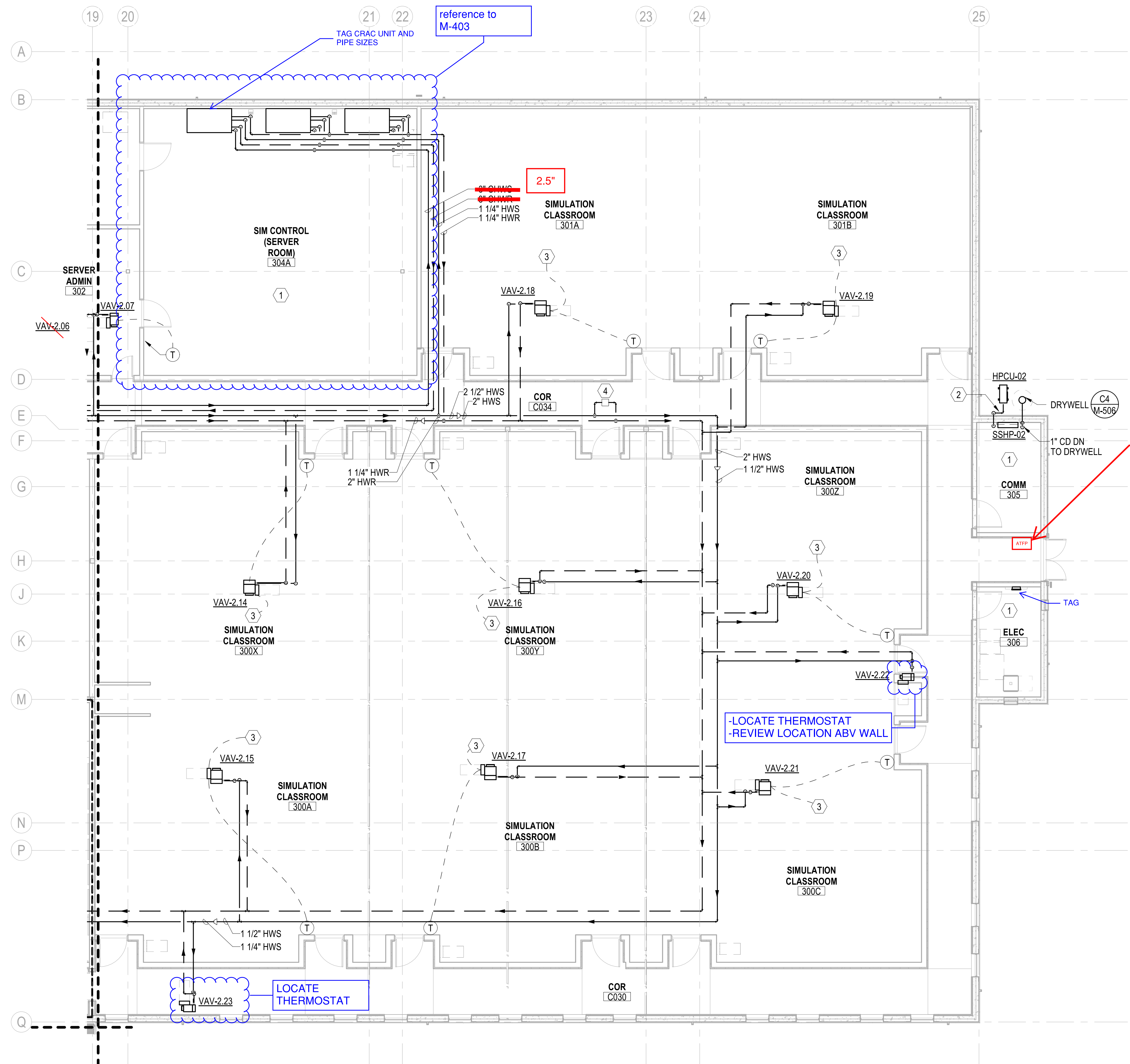
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
PIPING - 1ST FLOOR PLAN - AREA B

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

SCALE: AS NOTED
EPROJCT NO.: 1590892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:
SHEET OF

MP112

PRE-FINAL ITR SET 2021-05-28



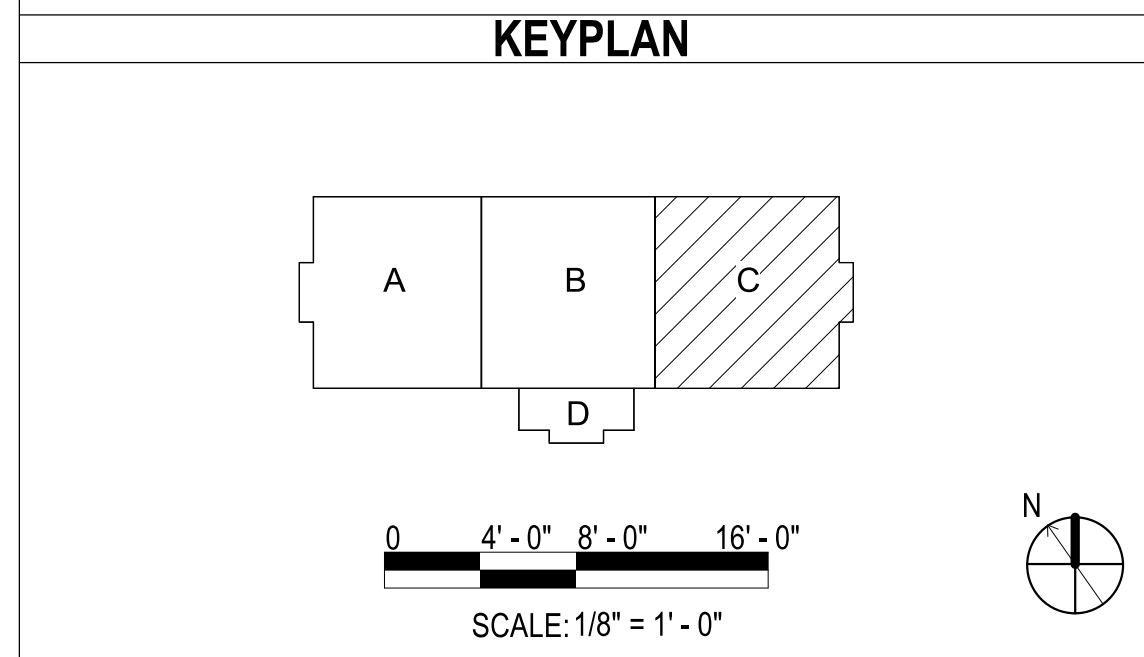
- GENERAL NOTES**
- 1 ALL HWS & HWR BRANCHES ARE 3/4" UNLESS NOTED OTHERWISE.
 - 2 PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE HEATING AND CHILLED WATER PIPING SYSTEMS. ALL PIPING SHALL GRADE TO THE LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
 - 3 INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES REQUIRING ACCESS ARE EASILY ACCESSIBLE. ALL VALVES SHALL BE INSTALLED SO THAT THE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (AKA "MEMORY STOPS"). ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
 - 4 INSTALL PIPING WITHOUT FORCING OR SPRINGING.
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- KEYNOTES**
- 1 THERE SHALL NOT BE ANY EQUIPMENT (PIPING, DUCTWORK, MACHINERY, ETC.) THAT DOES NOT SERVE THIS SPACE INSTALLED ABOVE OR WITHIN THIS SPACE, NOR SHALL EQUIPMENT NOT SERVING THIS SPACE PASS THROUGH OR ENTER THIS SPACE.
 - 2 ROUTE PAIR OF REFRIGERANT LINES FROM INDOOR UNIT TO ASSOCIATED OUTDOOR CONDENSING UNIT. SIZE PER MANUFACTURER'S RECOMMENDATIONS.
 - 3 CONTROL WIRING TO OCCUPANCY SENSOR IN SPACE SERVED FOR SHUT-OFF DURING UNOCCUPIED PERIODS. REFER TO ELECTRICAL DRAWINGS FOR LOCATION OF OCCUPANCY SENSOR.
 - 4 MINIMUM FLOW BYPASS AND DP SENSOR. LOCATE DP SENSOR AND ALL VALVES NO MORE THAN 12'-0" AFF.

ADD ATFP SWITCH HERE

-LOCATE THERMOSTAT
-REVIEW LOCATION ABV WALL

LOCATE THERMOSTAT



PIPING - 1ST FLOOR PLAN - AREA C
SCALE: 1/8" = 1'-0"

| | | | |
|--------|-------------|------|----------|
| SYMBOL | DESCRIPTION | DATE | APPROVED |
| | | | |
| | | | |
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PRELIMINARY
NOT FOR CONSTRUCTION

Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
APPROVED

FOR COMMANDER NAVFAC
ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

| | | | |
|----------------------|-----|-----|-----|
| SATISFACTORY TO DATE | DES | DRW | CHK |
| | | | |

BRANCH MANAGER
CHIEF ENGINEER
FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
ROIC FLORENCE CAMP LEJEUNE
JACKSONVILLE, NC
JACKSONVILLE, NC
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
PIPING - 1ST FLOOR PLAN - AREA C

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ROIC FLORENCE CAMP LEJEUNE
JACKSONVILLE, NC
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
PIPING - 1ST FLOOR PLAN - AREA C

SCALE: AS NOTED
EPROJCT NO.: 1590892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:
SHEET OF

MP113

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION
PRE-FINAL ITR SET 2021-05-28

PLOTTED: 5/28/2021 4:23:42 PM

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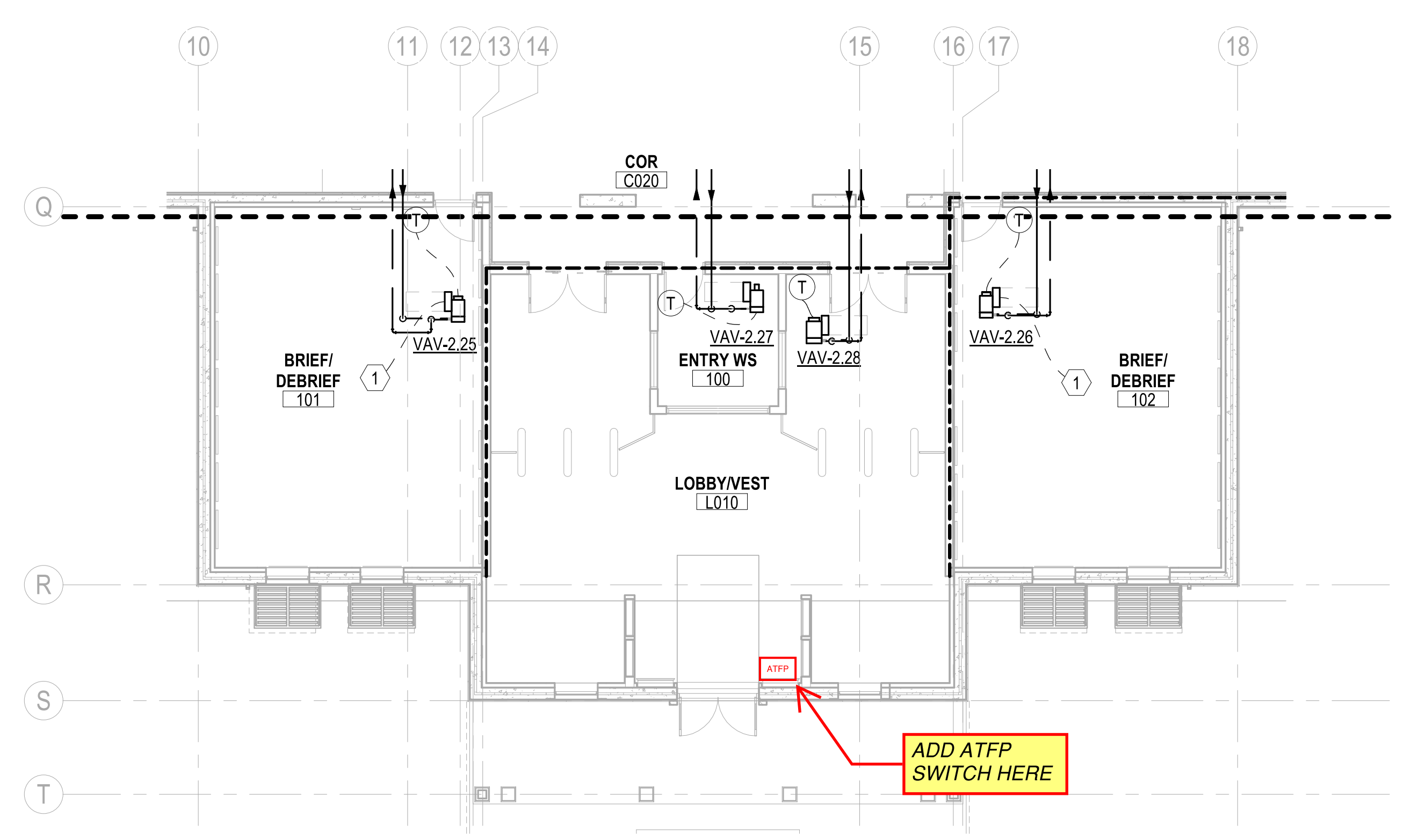
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PIPING - 1ST FLOOR PLAN - AREA D
 SCALE: 1/8" = 1'-0"

GENERAL NOTES

- 1 ALL HWS & HWR BRANCHES ARE 3/4" UNLESS NOTED OTHERWISE.
- 2 PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE HEATING AND CHILLED WATER PIPING SYSTEMS. ALL PIPING SHALL GRADE TO THE LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
- 3 INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES REQUIRING ACCESS ARE EASILY ACCESSIBLE. ALL VALVES SHALL BE INSTALLED SO THAT THE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (AKA "MEMORY STOPS"). ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
- 4 INSTALL PIPING WITHOUT FORCING OR SPRINGING.
- 5 PLAN DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT ILLUSTRATE ALL SPECIFIC DUCT TAKE-OFF CONFIGURATIONS, TAPS, ETC. REFER TO PROJECT SPECIFICATIONS AND DETAILS FOR SPECIFIC REQUIREMENTS.

KEYNOTES

- 1 CONTROL WIRING TO OCCUPANCY SENSOR IN SPACE SERVED FOR SHUT-OFF DURING UNOCCUPIED PERIODS. REFER TO ELECTRICAL DRAWINGS FOR LOCATION OF OCCUPANCY SENSOR.

| SYN | DESCRIPTION | DATE | APPR |
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PRELIMINARY
 NOT FOR CONSTRUCTION



Michael Baker INTERNATIONAL
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 APPROVED

FOR COMMANDER NAVFAC
 ACTIVITY
 MARINE CORPS BASE
 CAMP LEJEUNE

SATISFACTORY TO DATE

DES DRW CHK

PM

BRANCH MANAGER

CHIEF ENGINEER

FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND
 NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
 JACKSONVILLE, NC
 JACKSONVILLE, NC

ROIC FLORENCE CAMP LEJEUNE
 MCB CAMP LEJEUNE
 P1338 II MEF SIMULATION/TRAINING CENTER
 REPLACEMENT
 PIPING - 1ST FLOOR PLAN - AREA D

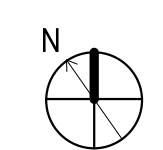
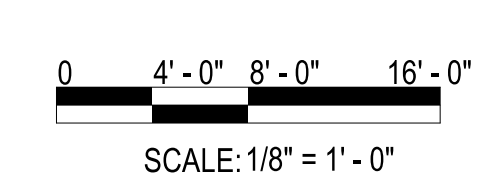
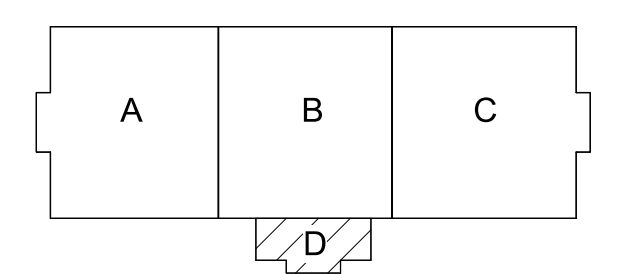
DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND
 ROIC FLORENCE CAMP LEJEUNE
 MCB CAMP LEJEUNE
 P1338 II MEF SIMULATION/TRAINING CENTER
 REPLACEMENT
 PIPING - 1ST FLOOR PLAN - AREA D

SCALE: AS NOTED
 EPROJECT NO.: 1590892
 CONSTR. CONTR. NO.
 N40085-20-C-0059
 NAVFAC DRAWING NO.

SHEET OF

MP114

KEYPLAN



FILE NAME: BIM_360/HF PACKAGE 3P11338.MEF SIM CTR-1590892-M.rvt

PLOTTED: 5/28/2021 4:23:47 PM

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NEED SOME M-900 SHEETS OF ISOMETRIC VIEWS TO FULLY ILLUSTRATE DESIGN.

GENERAL NOTES

- 1 PROVIDE MANUAL VOLUME DAMPERS IN ALL RUN-OUTS TO DIFFUSERS, AT ALL BRANCH TAKE-OFFS FROM MAIN SUPPLY DUCT, AND IN ALL OTHER AREAS AS REQUIRED TO PROVIDE PROPER SYSTEM BALANCING.
- 2 ALL SUPPLY AIR DUCT RUN-OUTS TO DIFFUSERS AND VAV BOXES SHALL BE SIZED TO MATCH DIFFUSER NECK SIZE OR VAV BOX INLET SIZE UNLESS OTHERWISE INDICATED.
- 3 SHEET METAL FABRICATOR MAY SUBSTITUTE EQUIVALENT ROUND OR FLAT OVAL DUCTWORK FOR RECTANGULAR SIZES INDICATED. DUCTWORK BETWEEN AHU AND VAV BOXES SHALL BE SIZED TO 0.2" STATIC PRESSURE LOSS PER 100' OF DUCT RUN, DUCTWORK DOWNSTREAM OF VAV BOXES, RETURN, EXHAUST AND TRANSFER AIR DUCTS SHALL BE SIZED TO 0.05"/100' OF DUCT RUN. ALL REVISIONS MUST BE COORDINATED WITH ALL OTHER TRADES AND ILLUSTRATED IN DUCTWORK SHOP DRAWINGS FOR APPROVAL.
- 4 PLAN DRAWINGS ARE DIAGRAMMATIC IN NATURE AND NOT ILLUSTRATE ALL SPECIFIC DUCT TAKE-OFF CONFIGURATIONS, TAPS, ETC. REFER TO PROJECT SPECIFICATIONS AND DETAILS FOR SPECIFIC REQUIREMENTS.
- 5 ALL EQUIPMENT SHALL BE INSTALLED WITH MANUFACTURER'S REQUIRED ACCESS SPACE BETWEEN UNIT AND FULL HEIGHT WALLS AND OTHER OBSTRUCTIONS.

KEYNOTES

- 1 PLUMBING EQUIPMENT - REFER TO PLUMBING DRAWINGS.
- 2 CONCRETE MECHANICAL EQUIPMENT PAD ON LEVEL SURFACE. EXTEND PAD 6" BEYOND THE EDGE OF THE EQUIPMENT IN ALL DIRECTIONS.
- 3 CONNECTION TO LOUVER TO BE SPLIT TO SERVE AHU-1 AND SF-1. TOP CONNECTION: 48x20 CONNECTION, TRANSITION TO 24x20 TO SERVE SF-1. BOTTOM CONNECTION: 48x16 CONNECTION, TRANSITION TO 36x16 TO SERVE AHU-1.
- 4 CONNECTION TO LOUVER TO BE SPLIT TO SERVE AHU-1 AND AHU-2. LEFT CONNECTION: 20x24 CONNECTION, TRANSITION TO 16x16 TO EXHAUST AHU-1. RIGHT CONNECTION: 76x24 CONNECTION, TRANSITION TO 60x24 TO EXHAUST AHU-2.



PRELIMINARY NOT FOR CONSTRUCTION



Michael Baker INTERNATIONAL

FOR COMMANDER NAVFAC
ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

SATISFACTORY TO DATE

DES DRW CHK

BRANCH MANAGER
CHIEF ENGINEER
FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
JACKSONVILLE, NC

ROIC FLORENCE CAMP LEJEUNE
MCB CAMP LEJEUNE
JACKSONVILLE, NC

P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL - ENLARGED PLANS

MECHANICAL - ENLARGED PLANS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
JACKSONVILLE, NC

ROIC FLORENCE CAMP LEJEUNE
MCB CAMP LEJEUNE
JACKSONVILLE, NC

P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL - ENLARGED PLANS

MECHANICAL - ENLARGED PLANS

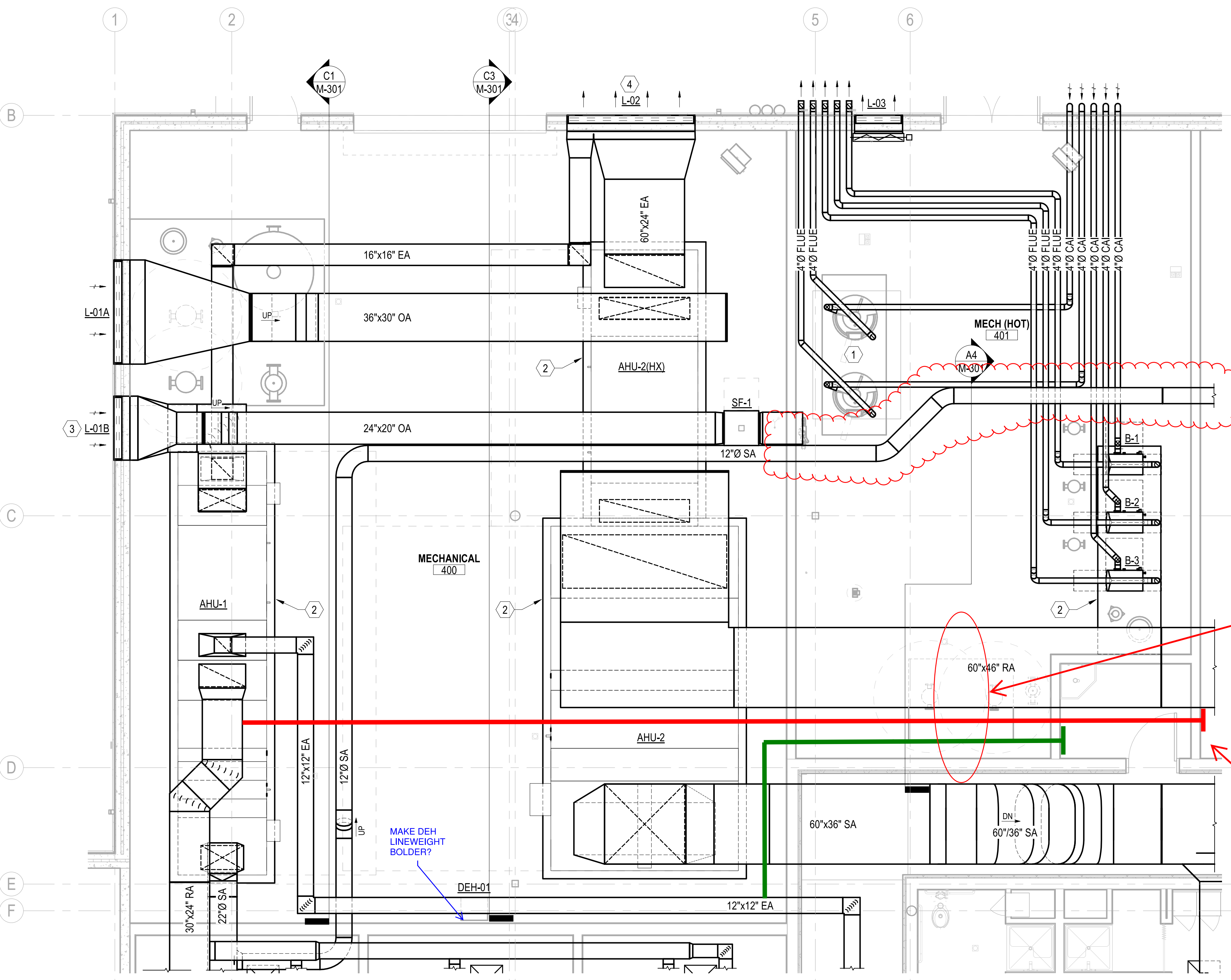
SCALE: AS NOTED
EPROJCT NO.: 1509092
CONSTR. CONTR. NO.
N40085-20-C-0059
NAVFAC DRAWING NO.

SHEET OF
M-401

IF WE CAN FIND ANY WAY TO AVOID TAKING COLD SUPPLY DUCT THROUGH THIS "HOT" MECHANICAL ROOM THAT WOULD BE GOOD, THIS NEEDS TO BE LAST RESORT; IF UNAVOIDABLE, WILL NEED TO ANNOTATE AND BE CLEAR TO PROVIDE AN OUTDOOR RATED VAPOR BARRIER/PROTECTIVE COVERING OR SOMETHING TO ABSOLUTELY PREVENT ANY CHANCE OF CONDENSATION CONCERNS (THIS IS WHY THEY HAVE THE HOT & COLD ROOMS SEPARATE!)

RETURN AND EXHAUST AIR THROUGH THE HOT MECHANICAL NOT AS MUCH CONCERN, BUT STILL MAY NEED TO KEYNOTE SOMETHING TO BE EXTRA CERTAIN VAPOR BARRIER IS SUFFICIENT.

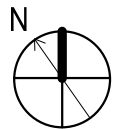
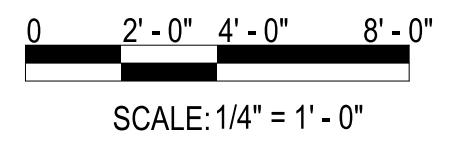
RETURN AIR DUCT FROM ROOM 402 / VAV 1.01 (RETURN REGISTER IN WALL WILL NEED SCHEDULED



ENLARGED HVAC MECHANICAL ROOM DUCTWORK

SCALE: 1/4" = 1'-0"

MH110 A1



FILE NAME: BIM_360/HF PACKAGE 3P1338_MEF_SIM_CTR-1509092-M.rvt

PLOTTED: 5/28/2021 4:41:05 PM

UNCLASSIFIED

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION
PRE-FINAL ITR SET 2021-05-28

NEED SOME M-900 SHEETS OF ISOMETRIC VIEWS TO FULLY ILLUSTRATE DESIGN.



GENERAL NOTES

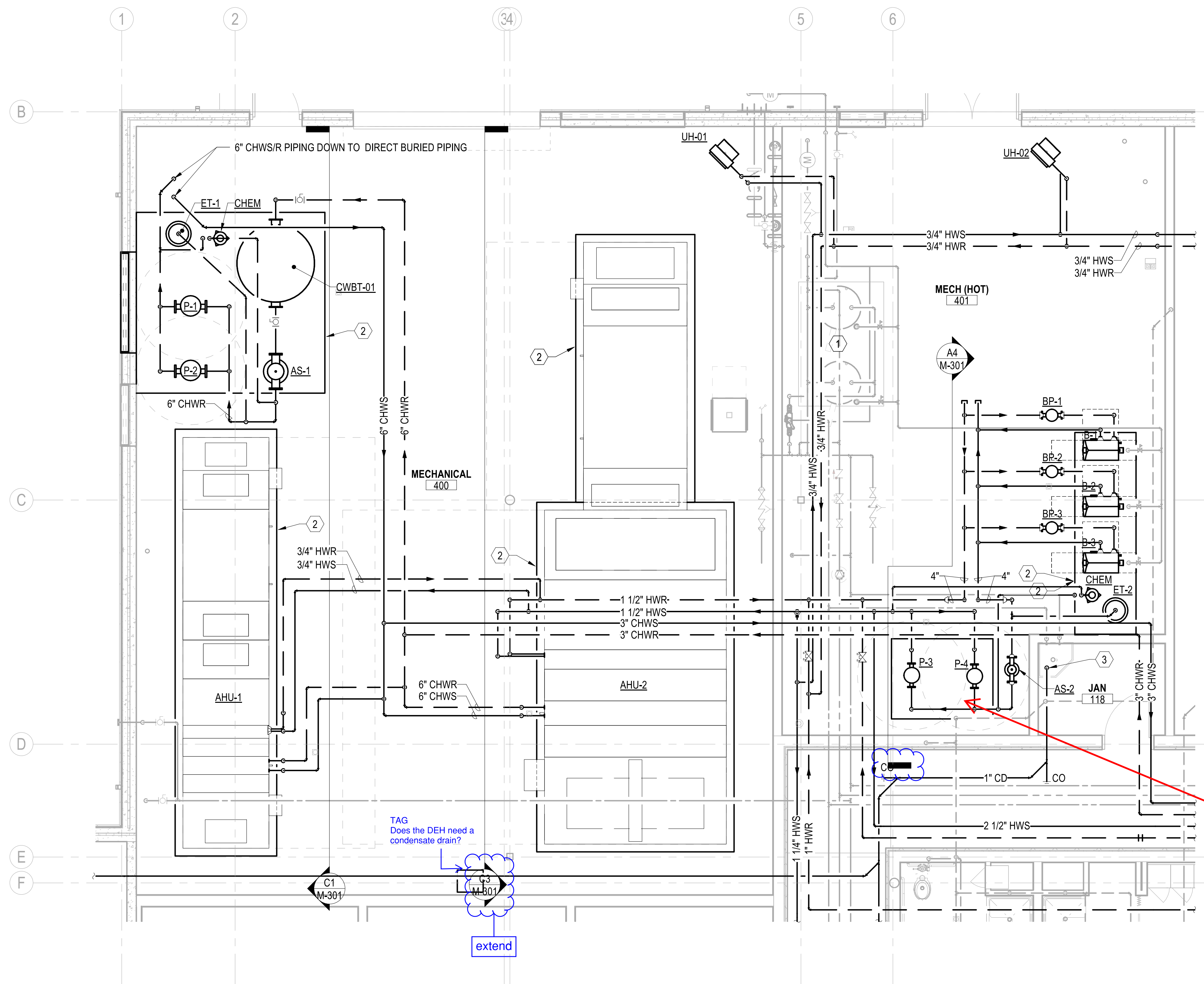
- 1 PROVIDE MANUAL VOLUME DAMPERS IN ALL RUN-OUTS TO DIFFUSERS, AT ALL BRANCH TAKE-OFFS FROM MAIN SUPPLY DUCT, AND IN ALL OTHER AREAS AS REQUIRED TO PROVIDE PROPER SYSTEM BALANCING.
- 2 ALL SUPPLY AIR DUCT RUN-OUTS TO DIFFUSERS AND VAV BOXES SHALL BE SIZED TO MATCH DIFFUSER NECK SIZE OR VAV BOX INLET SIZE UNLESS OTHERWISE INDICATED.
- 3 SHEET METAL FABRICATOR MAY SUBSTITUTE EQUIVALENT ROUND OR FLAT OVAL DUCTWORK FOR RECTANGULAR SIZES INDICATED. DUCTWORK BETWEEN AHU AND VAV BOXES SHALL BE SIZED TO 0.2" STATIC PRESSURE LOSS PER 100' OF DUCT RUN. DUCTWORK DOWNSTREAM OF VAV BOXES, RETURN, EXHAUST AND TRANSFER AIR DUCTS SHALL BE SIZED TO 0.08"/100' OF DUCT RUN. ALL REVISIONS MUST BE COORDINATED WITH ALL OTHER TRADES AND ILLUSTRATED IN DUCTWORK SHOP DRAWINGS FOR APPROVAL.
- 4 PLAN DRAWINGS ARE DIAGRAMMATIC IN NATURE AND DO NOT ILLUSTRATE ALL SPECIFIC DUCT TAKE-OFF CONFIGURATIONS, TAPS, ETC. REFER TO PROJECT SPECIFICATIONS AND DETAILS FOR SPECIFIC REQUIREMENTS.
- 5 ALL EQUIPMENT SHALL BE INSTALLED WITH MANUFACTURER'S REQUIRED ACCESS SPACE BETWEEN UNIT AND FULL HEIGHT WALLS AND OTHER OBSTRUCTIONS.
- 6 ALL HWS & HWR BRANCHES ARE 3/4" UNLESS NOTED OTHERWISE.
- 7 PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE HEATING AND CHILLED WATER PIPING SYSTEMS. ALL PIPING SHALL GRADE TO THE LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
- 8 INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES AND OTHER APPURTENANCES REQUIRING ACCESS ARE EASILY ACCESSIBLE. ALL VALVES SHALL BE INSTALLED SO THAT THE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED. ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (AKA "MEMORY STOPS"). ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
- 9 INSTALL PIPING WITHOUT FORCING OR SPRINGING.

KEYNOTES

- 1 PLUMBING EQUIPMENT - REFER TO PLUMBING DRAWINGS.
- 2 CONCRETE MECHANICAL EQUIPMENT PAD ON LEVEL SURFACE. EXTEND PAD 6" BEYOND THE EDGE OF THE EQUIPMENT IN ALL DIRECTIONS.
- 3 1" CD DOWN TO MOP RECEPTOR. TERMINATE PIPE OPEN ENDED APPROXIMATELY 3" ABOVE RECEPTOR.

PUT THESE ON THE WALL, ON A RACK, REFER TO DETAIL C-1 M-507

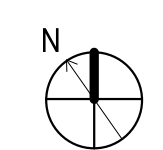
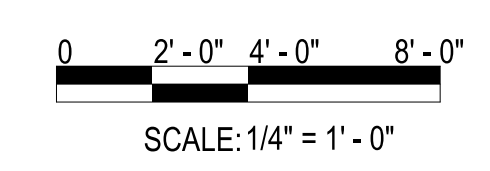
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| PRELIMINARY NOT FOR CONSTRUCTION | | | |
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| Michael Baker INTERNATIONAL 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 APPROVED | | | |
| FOR COMMANDER NAVFAC | | | |
| ACTIVITY | | | |
| MARINE CORPS BASE CAMP LEJEUNE | | | |
| SATISFACTORY TO DATE | | | |
| DES | DRW | CHK | |
| PM | | | |
| BRANCH MANAGER | | | |
| CHIEF ENGINEER | | | |
| FIRE PROTECTION | | | |
| DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC ROICC FLORENCE CAMP LEJEUNE MCB CAMP LEJEUNE JACKSONVILLE, NC P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT MECHANICAL - ENLARGED PLANS | | | |
| SCALE: AS NOTED | | | |
| EPROJCT NO.: 1509892 | | | |
| CONSTR. CONTR. NO. N40085-20-C-0059 | | | |
| NAVFAC DRAWING NO. | | | |
| SHEET | OF | | |
| M-402 | | | |



ENLARGED HVAC MECHANICAL ROOM PIPING

SCALE: 1/4" = 1'-0"

MP110 A1



PLOTTED: 5/28/2021 4:21:12 PM

FILE NAME: BIM 360/HF PACKAGE 3P1338.MEF SIM CTR-1509892.Mxd

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

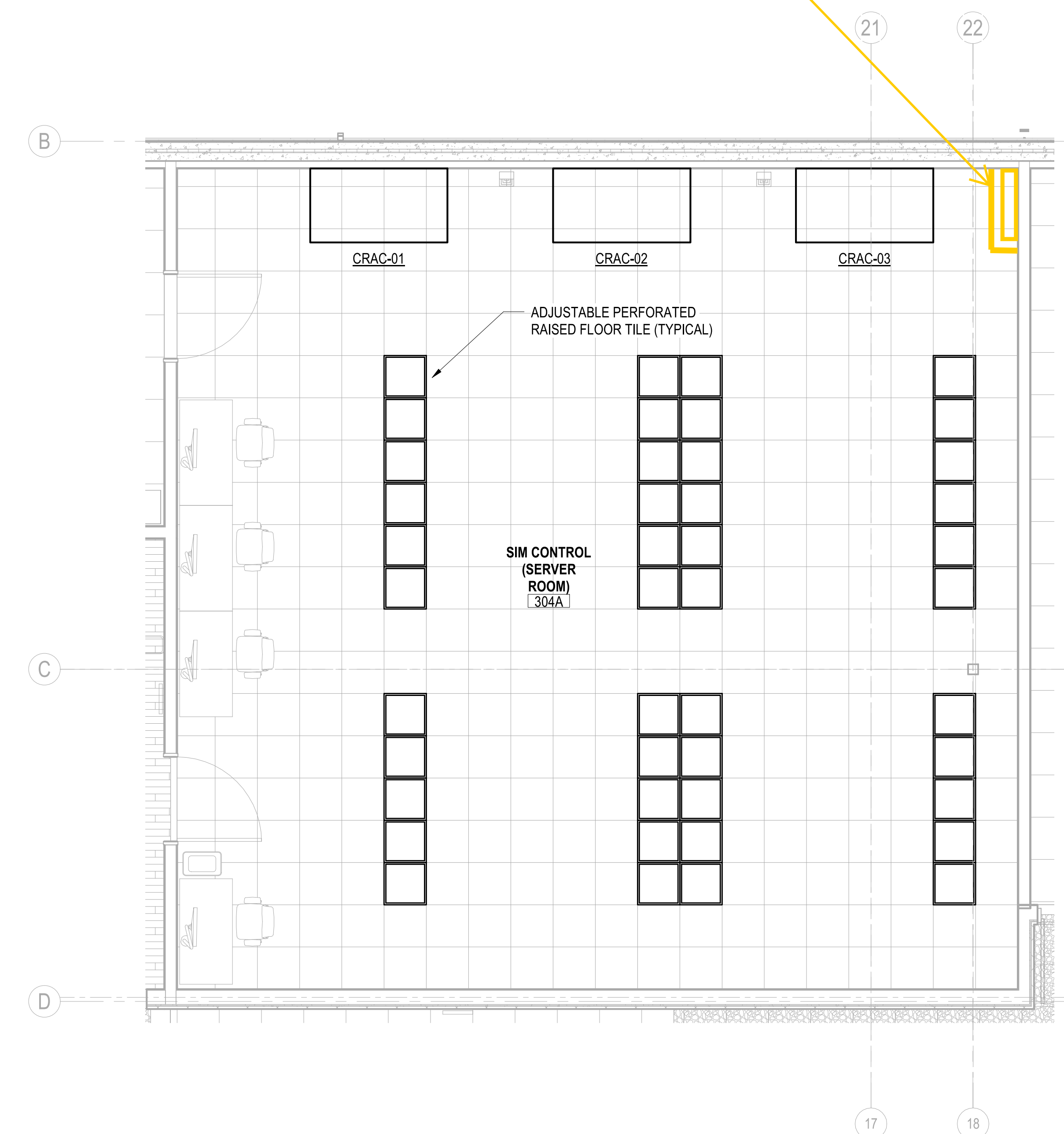
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SHOW PIPES DOWN WALL HERE (WILL ASK ARCH/TELECOM OF A CHASE CAN BE PROVIDED OR IF EXPOSURE IN ROOM IS ACCEPTABLE). PIPING FOR CRACKS IS BELOW GRADE.

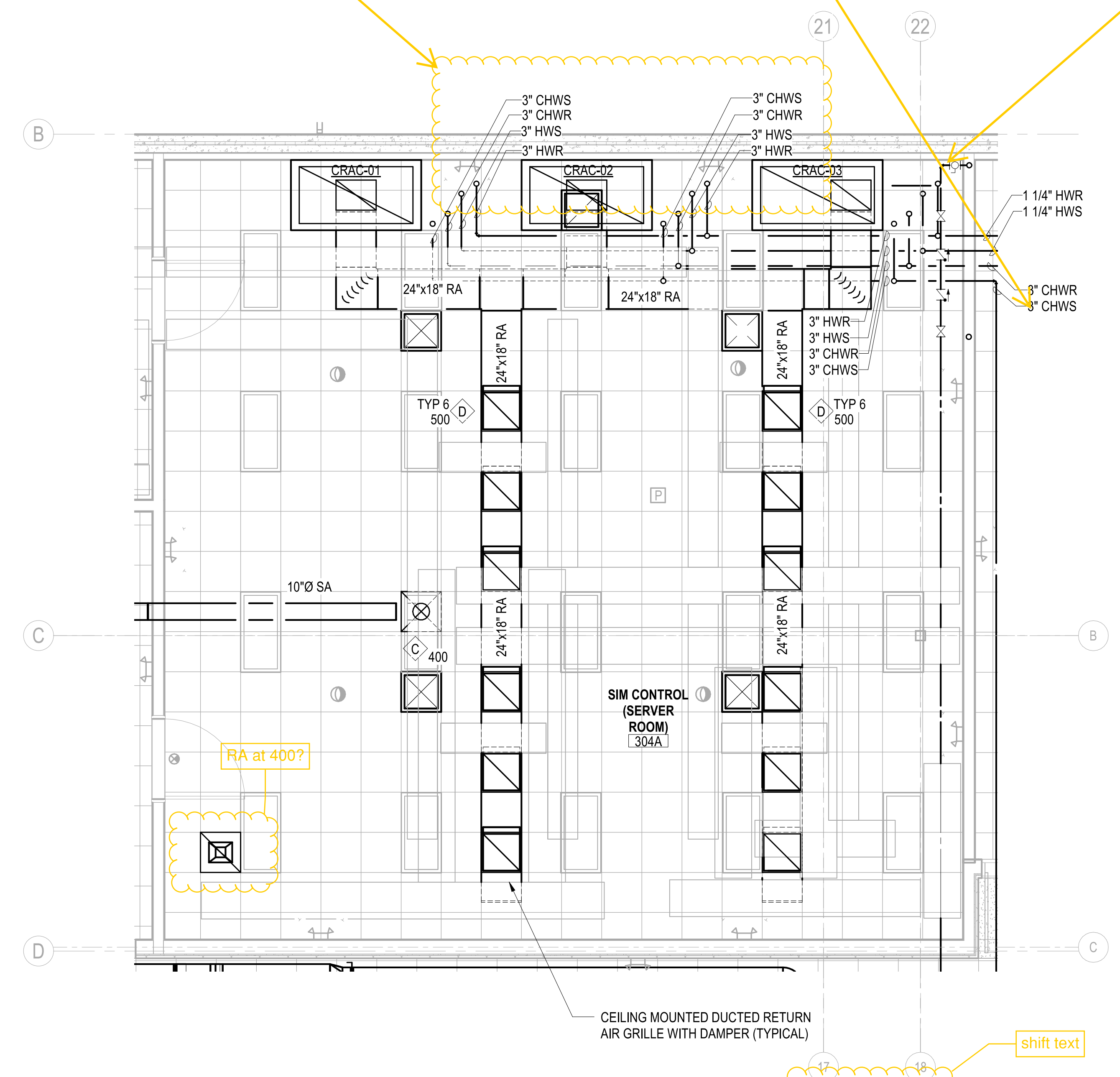
PERHAPS DON'T SHOW PIPE SIZES, JUST NOTE "REFER TO CHILLED WATER FLOW DIAGRAM ON SHEET M-702 FOR PIPING SIZES AND REVERSE RETURN CONFIGURATION SERVING CRAC UNITS.

3" IS NOT CORRECT PIPE SIZE; ONLY 2 UNITS ARE TO RECEIVE FLOW AT ANY GIVEN TIME - TOTAL FLOW-62.6 GPM=2.5" PIPE=

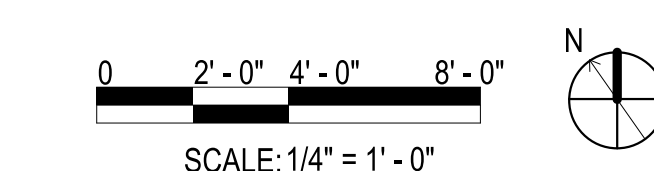
KEYNOTE THIS "DOMESTIC WATER FOR CRAC HUMIDIFICATION - REFER TO PLUMBING DRAWINGS (IS THIS COMING FROM ABOVE OR BELOW, HOW DOES IT DROP DOWN?)



ENLARGED SIM CONTROL (SERVER ROOM) ROOM 304A FLOOR PLAN
SCALE: 1/4" = 1'-0"
MH110 A1



ENLARGED SIM CONTROL (SERVER ROOM) ROOM 304A REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"
M-301 A3



FILE NAME: BIM360/HF PACKAGE 3P1338 MEF SIM CTR-1509092-M.rvt
PLOTTED: 5/28/2021 4:21:16 PM

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Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
APPROVED

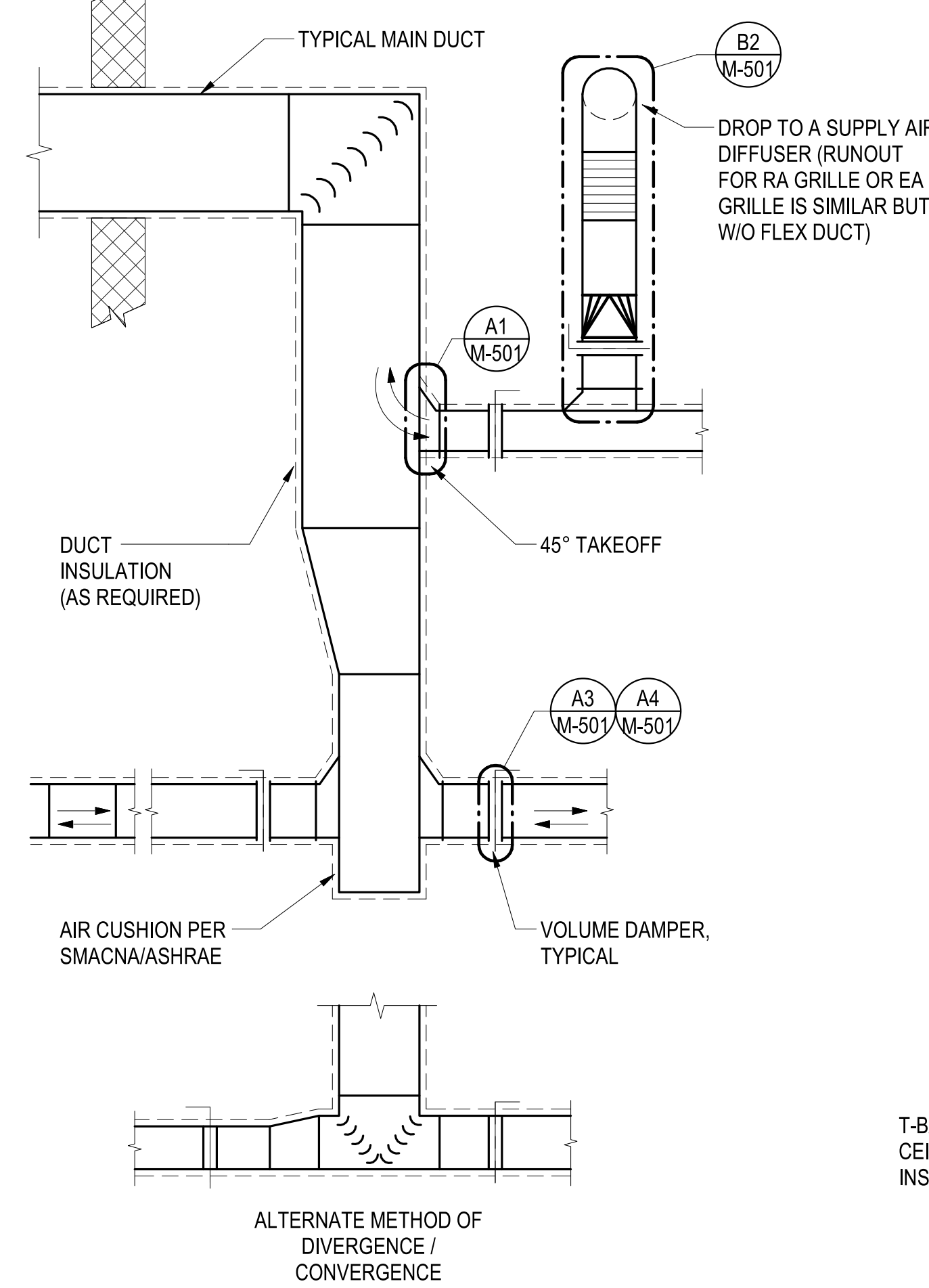
FOR COMMANDER NAVFAC
ACTIVITY: MARINE CORPS BASE CAMP LEJEUNE
SATISFACTORY TO DATE: []
DES: [] DRW: [] CHK: []
PM: []
BRANCH MANAGER: []
CHIEF ENGINEER: []
FIRE PROTECTION: []

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
ROICC FLORENCE CAMP LEJEUNE
M/CB CAMP LEJEUNE JACKSONVILLE, NC
P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT
MECHANICAL - ENLARGED PLANS

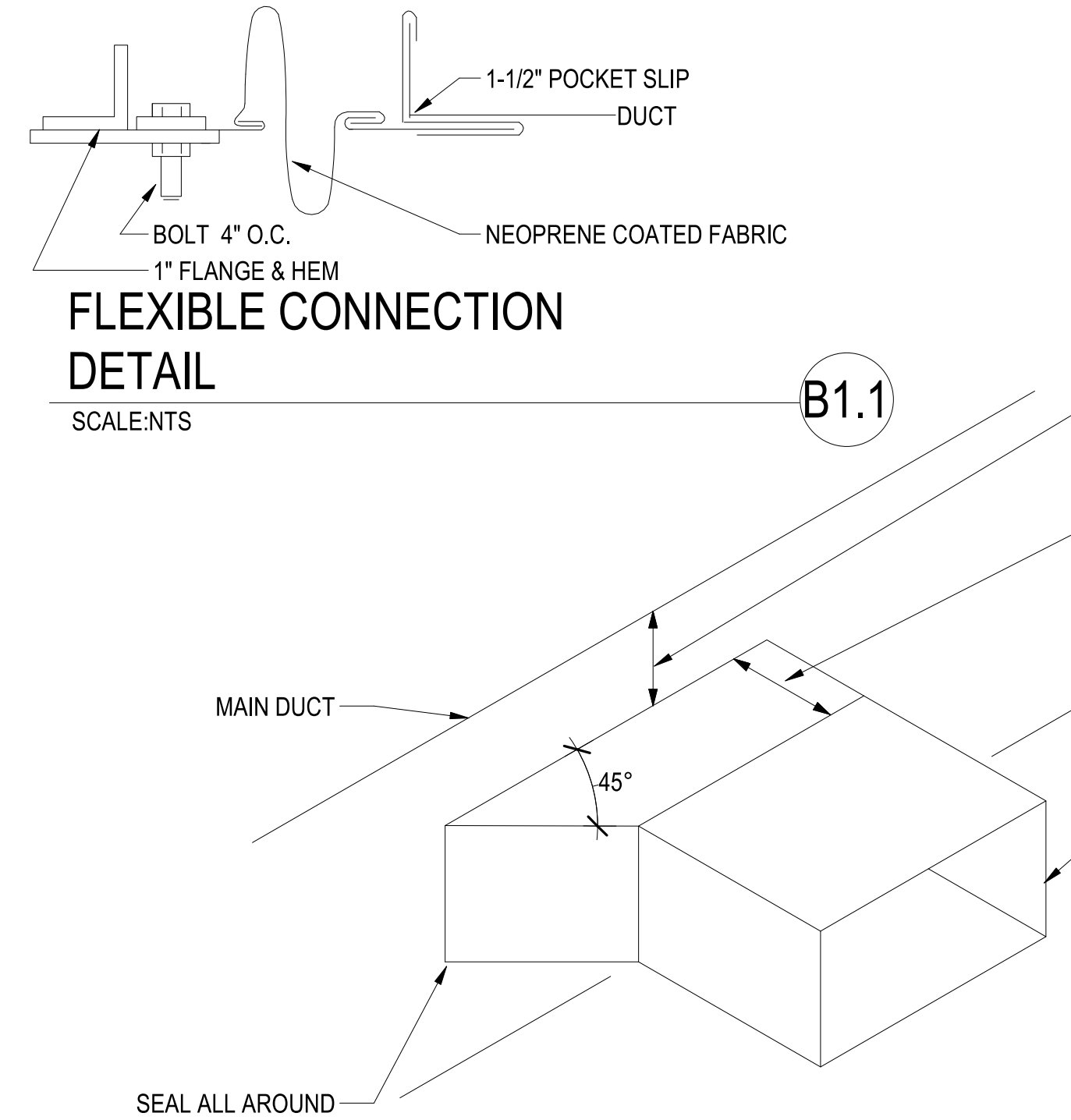
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NAVFAC DRAWING NO.: []
SHEET [] OF []

M-403

DP2 SUBMISSION - P1338 BUILDING -PRE-FINAL SUBMISSION
PRE-FINAL ITR SET 2021-05-28

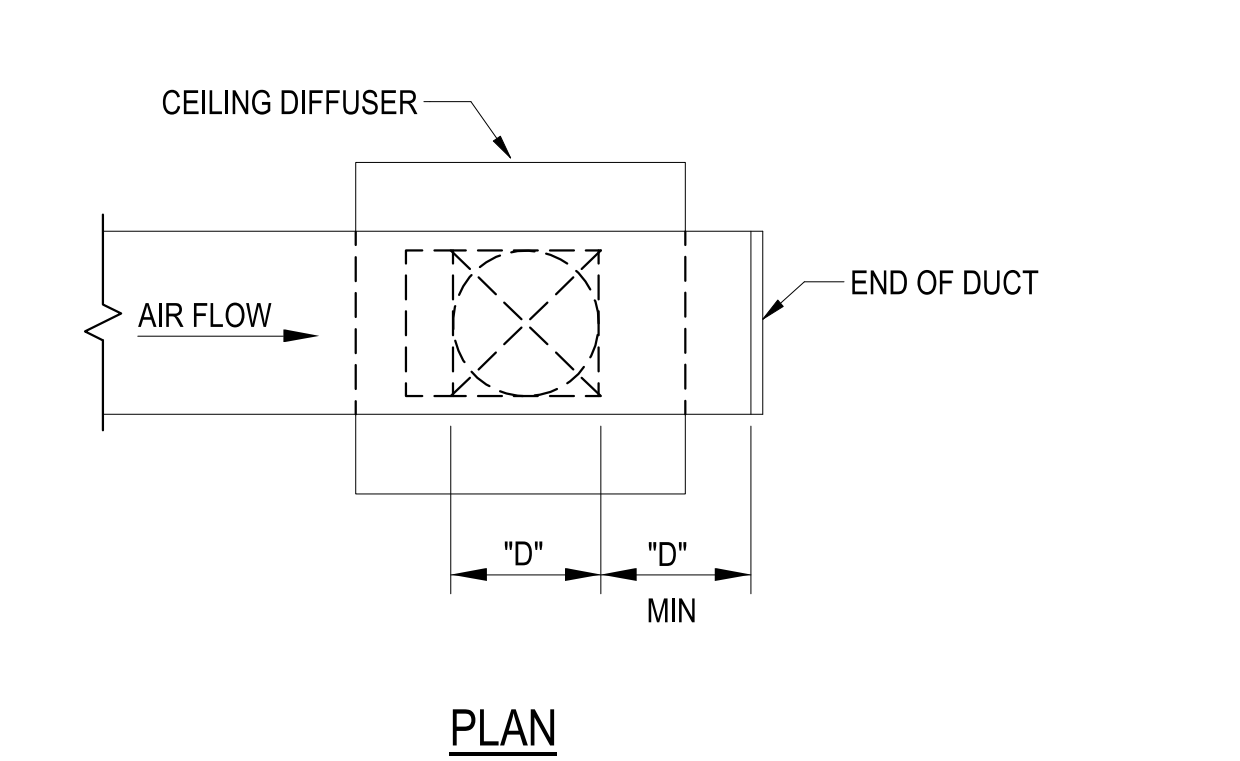


TYPICAL SUPPLY OR RETURN DUCT DETAIL
SCALE: NTS

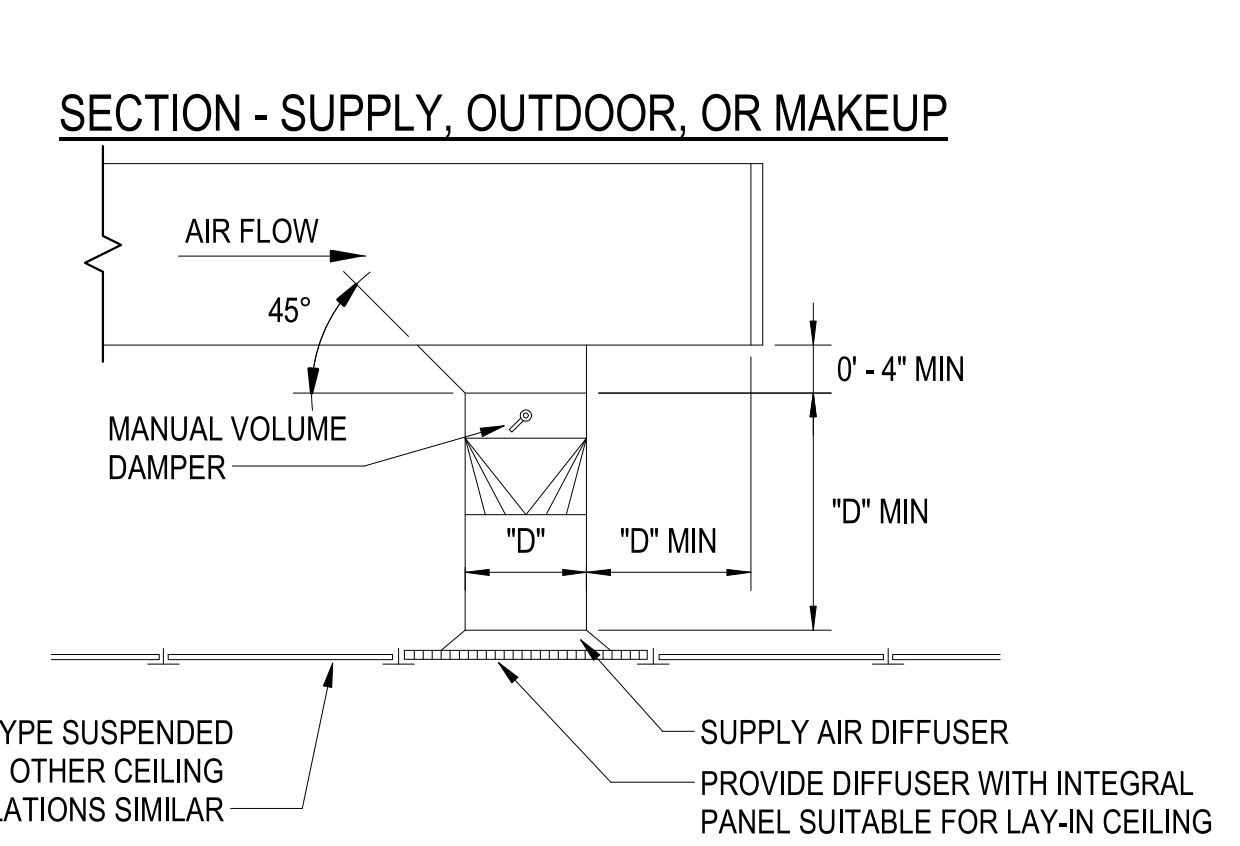


FLEXIBLE CONNECTION DETAIL
SCALE: NTS

TYPICAL BRANCH DUCT TAKEOFF FITTING DETAIL
SCALE: NTS

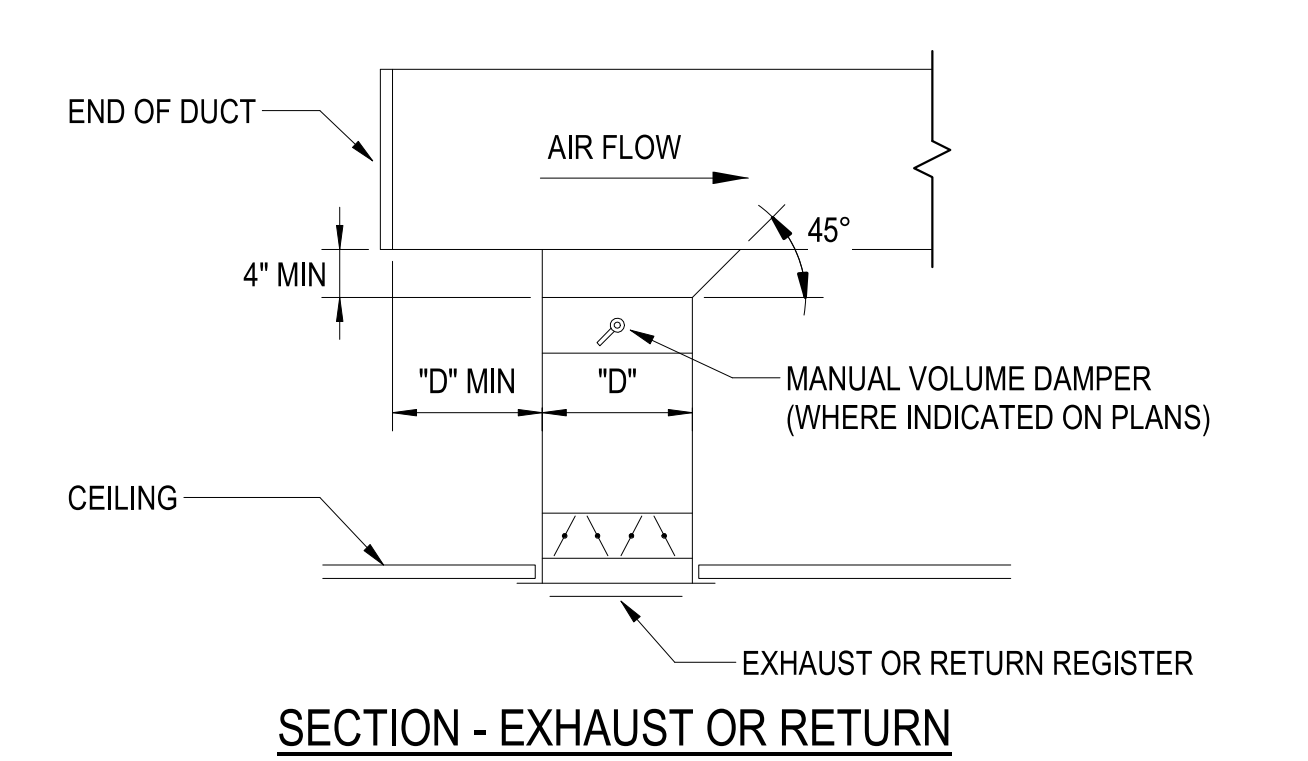


PLAN

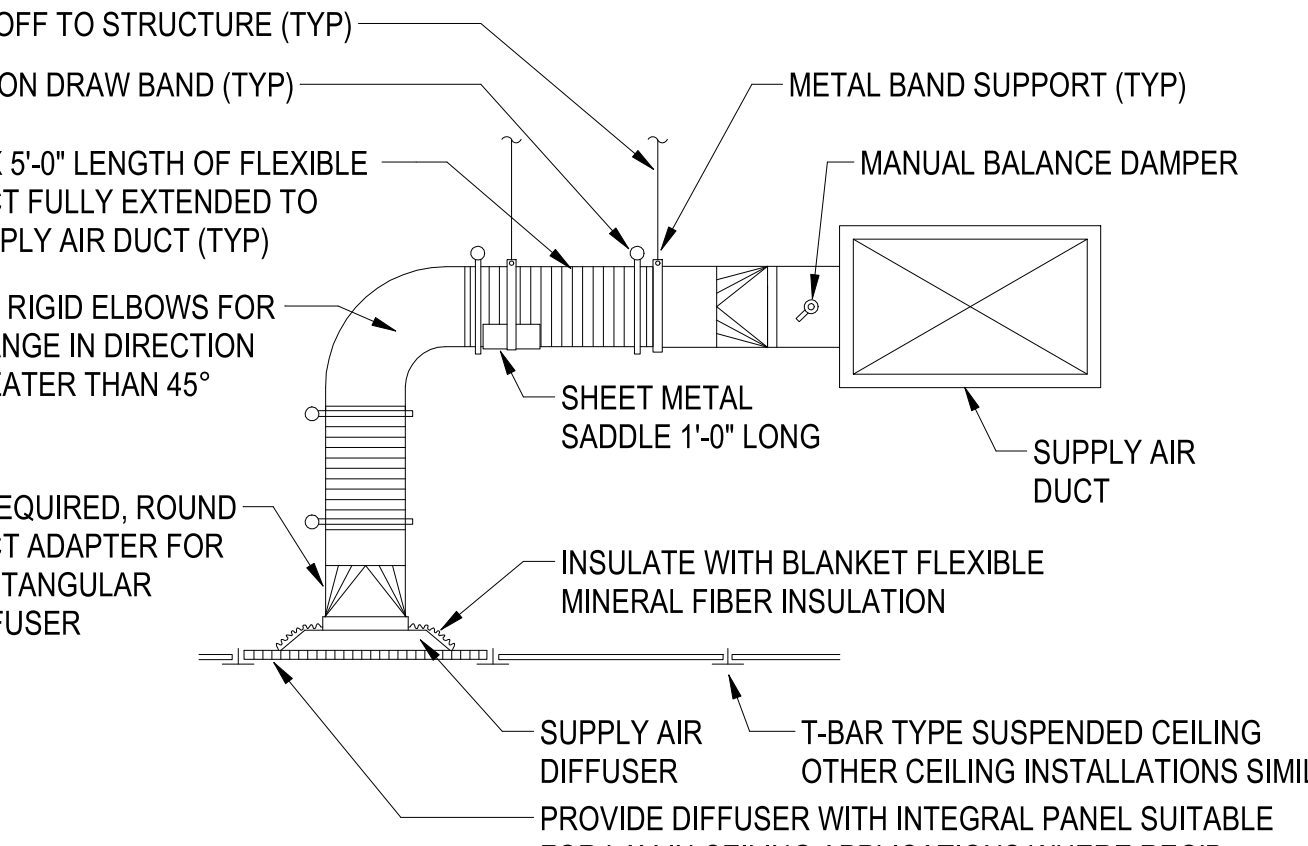


NOTES:
1. "D" IS THROAT DIA OR SIDE DIM. OF SQUARE CONN.
2. MIN LENGTH OF STRAIGHT DUCT ABOVE CD IS "D".
3. ABOVE DETAILS ARE REPRESENTATIVE OF STANDARD DUCT CONNECTIONS, ONLY. THESE DETAILS ARE NOT INTENDED TO SHOW ALL POSSIBLE DUCT CONNECTIONS.

DUCT CONNECTION DETAILS
SCALE: NTS

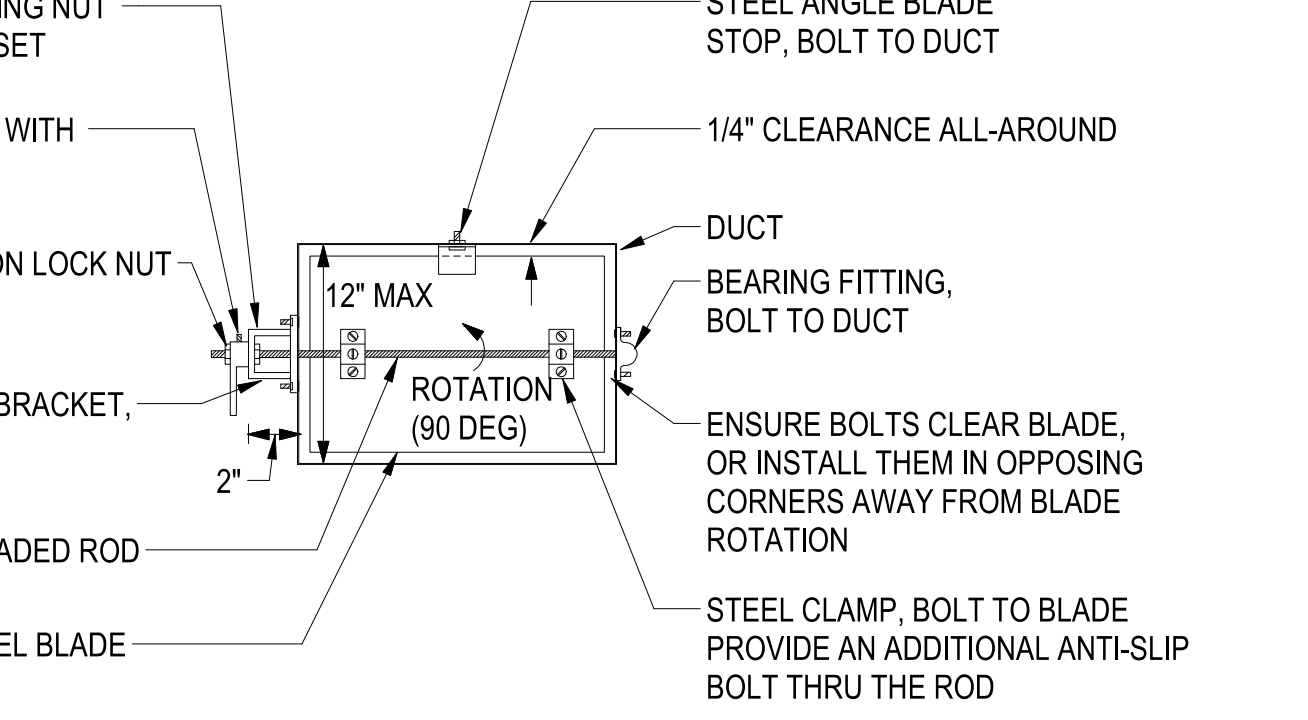


SECTION - EXHAUST OR RETURN



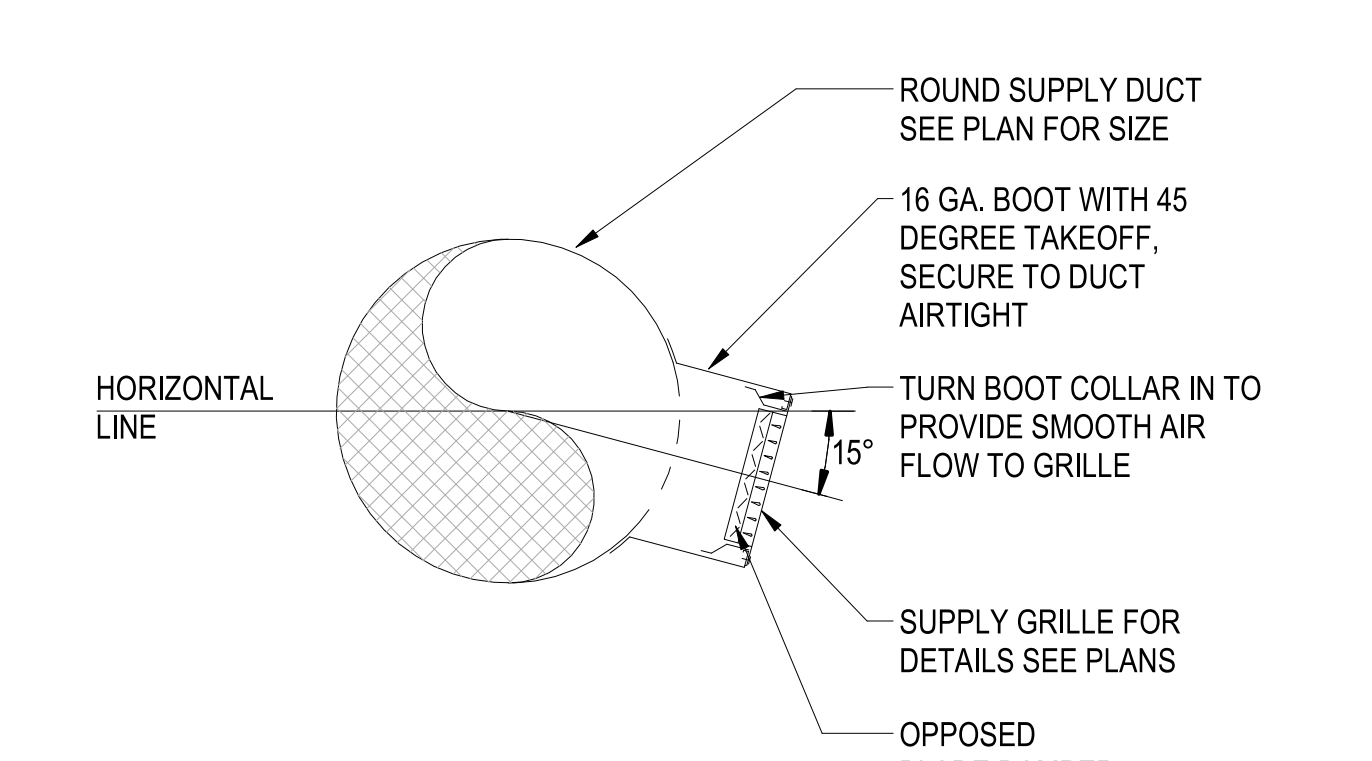
NOTES:
1. SQUARE MAIN DUCT SHOWN. INSTALLATION WITH ROUND MAIN DUCT IS SIMILAR
2. IF SPIN-IN TAKE-OFFS ARE NOT USED AND EXPANDED TAKE-OFFS ARE USED, INSTALL DAMPER AFTER TAKE-OFF PER SMACNA
3. PROVIDE PROPER INSTALLATION OF RADIUS AND SUPPORT PER SMACNA AND FLEX DUCT PER MFG'R'S RECOMMENDATIONS FOR NO KINKING OR SIGNIFICANT AREA REDUCTION

MANUAL VOLUME DAMPER DETAIL - 12" OR LESS
SCALE: NTS

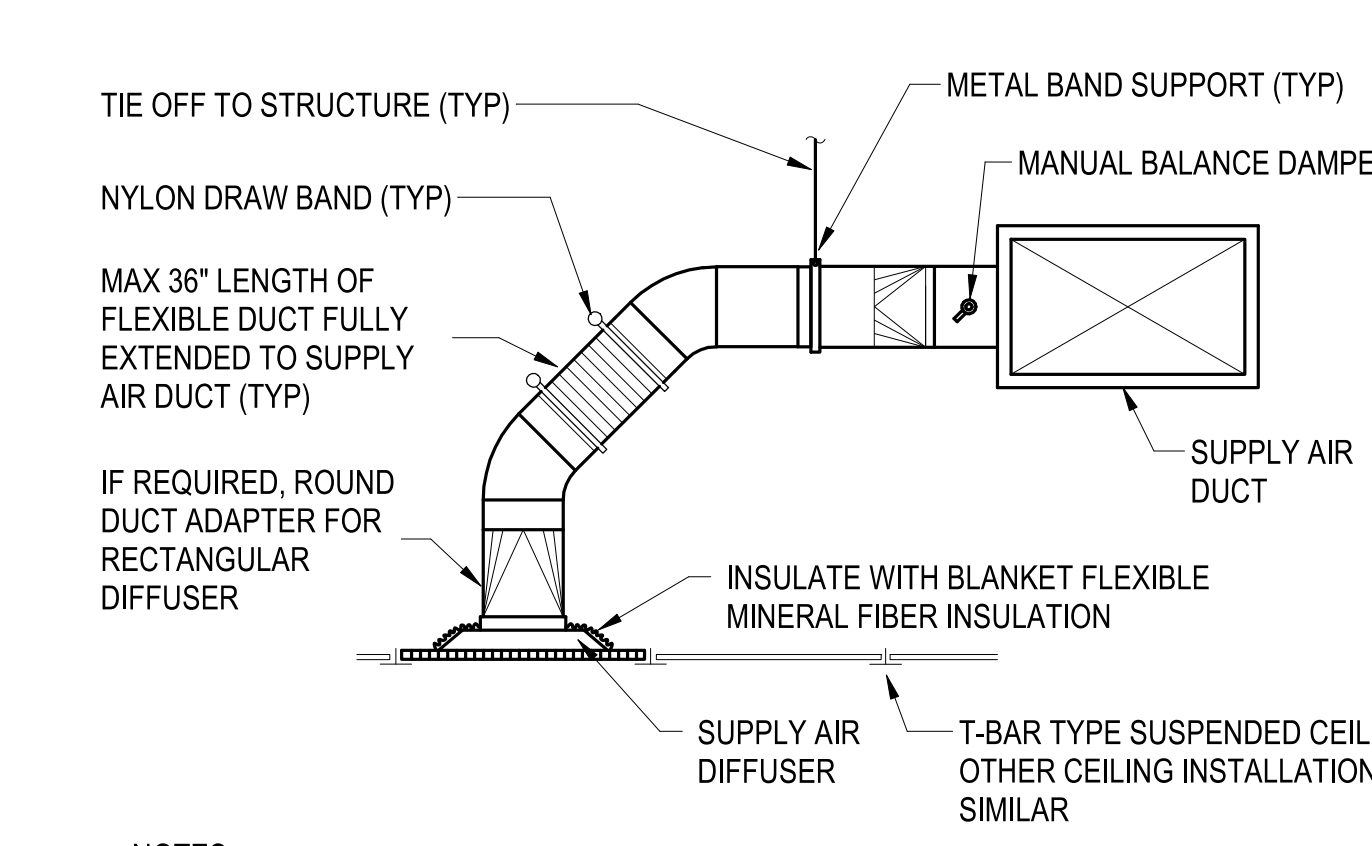


NOTES:
1. DAMPERS FOR ROUND DUCTS SHALL BE SIMILAR TO THE DAMPER SHOWN ABOVE
2. ENSURE THAT FULL 90 DEGREE DAMPER BLADE MOVEMENT IS UNOBSTRUCTED
3. FOR DUCT HEIGHTS MORE THAN 12" PROVIDE FACTORY-FABRICATED OPPOSED BLADE DAMPERS

MANUAL VOLUME DAMPER DETAIL - 12" OR MORE
SCALE: NTS



SECTION - EXHAUST OR RETURN



NOTES:
1. SQUARE MAIN DUCT SHOWN. INSTALLATION WITH ROUND MAIN DUCT IS SIMILAR
2. IF SPIN-IN TAKE-OFFS ARE NOT USED AND EXPANDED TAKE-OFFS ARE USED, INSTALL DAMPER AFTER TAKE-OFF PER SMACNA

MANUAL VOLUME DAMPER DETAIL - 12" OR MORE
SCALE: NTS

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| PRELIMINARY NOT FOR CONSTRUCTION | | |
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| Michael Baker INTERNATIONAL 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 | | |
| FOR COMMANDER NAVFAC ACTIVITY MARINE CORPS BASE CAMP LEJEUNE | | |
| SATISFACTORY TO DATE DES: _____ DRAW: _____ CHK: _____ | | |
| PM: _____ BRANCH MANAGER: _____ CHIEF ENGINEER: _____ FIRE PROTECTION: _____ | | |
| DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC JACKSONVILLE, NC ROIC FLORENCE CAMP LEJEUNE MCB CAMP LEJEUNE P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT MECHANICAL - DETAILS | | |
| SCALE: AS NOTED EPROJCT NO.: 1590892 CONSTR. CONTR. NO.: N40085-20-C-0059 NAVFAC DRAWING NO.: 17250094 SHEET 240 OF | | |
| M-501 | | |

PLOTTED: 5/28/2021 4:21:10 PM
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 DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

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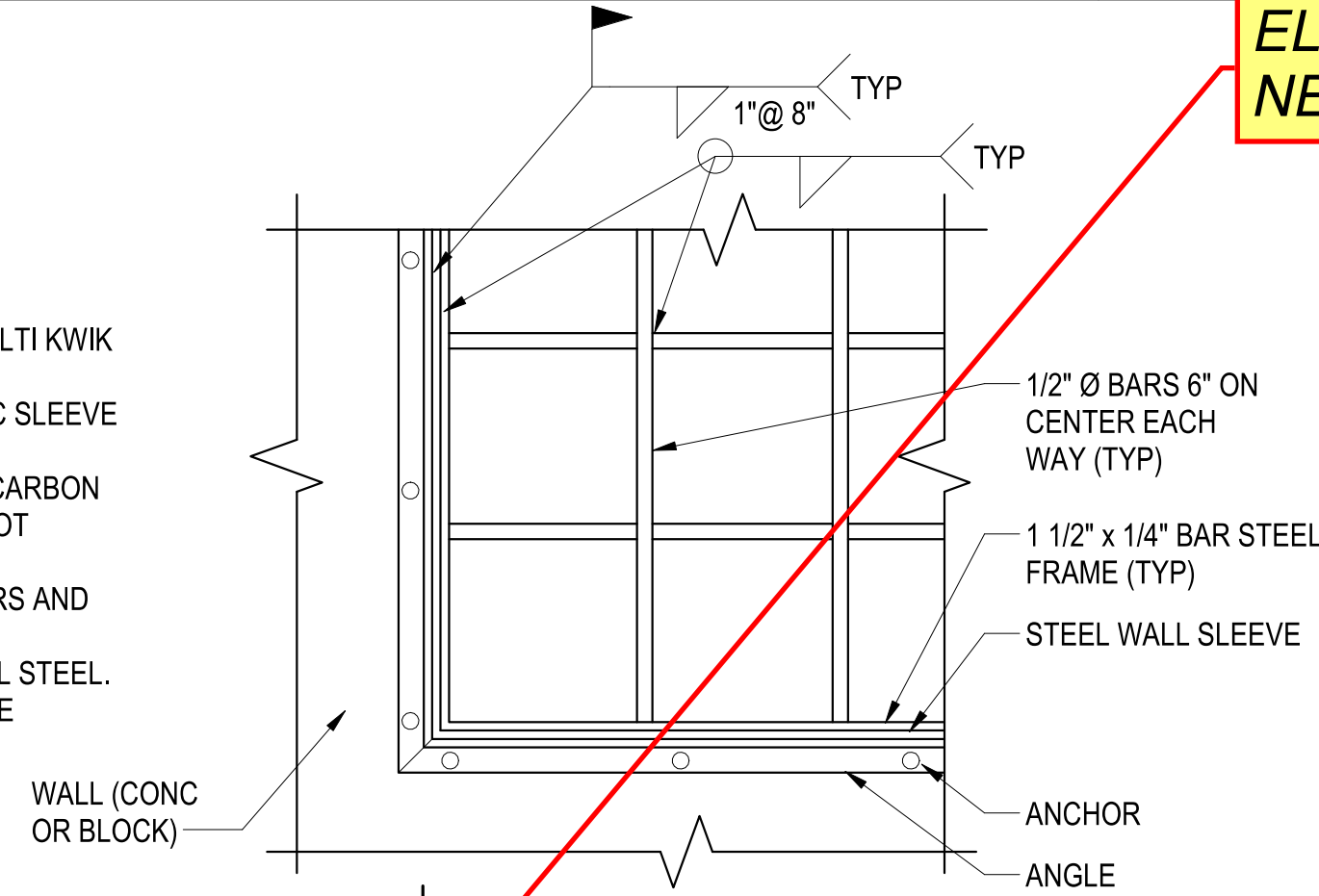
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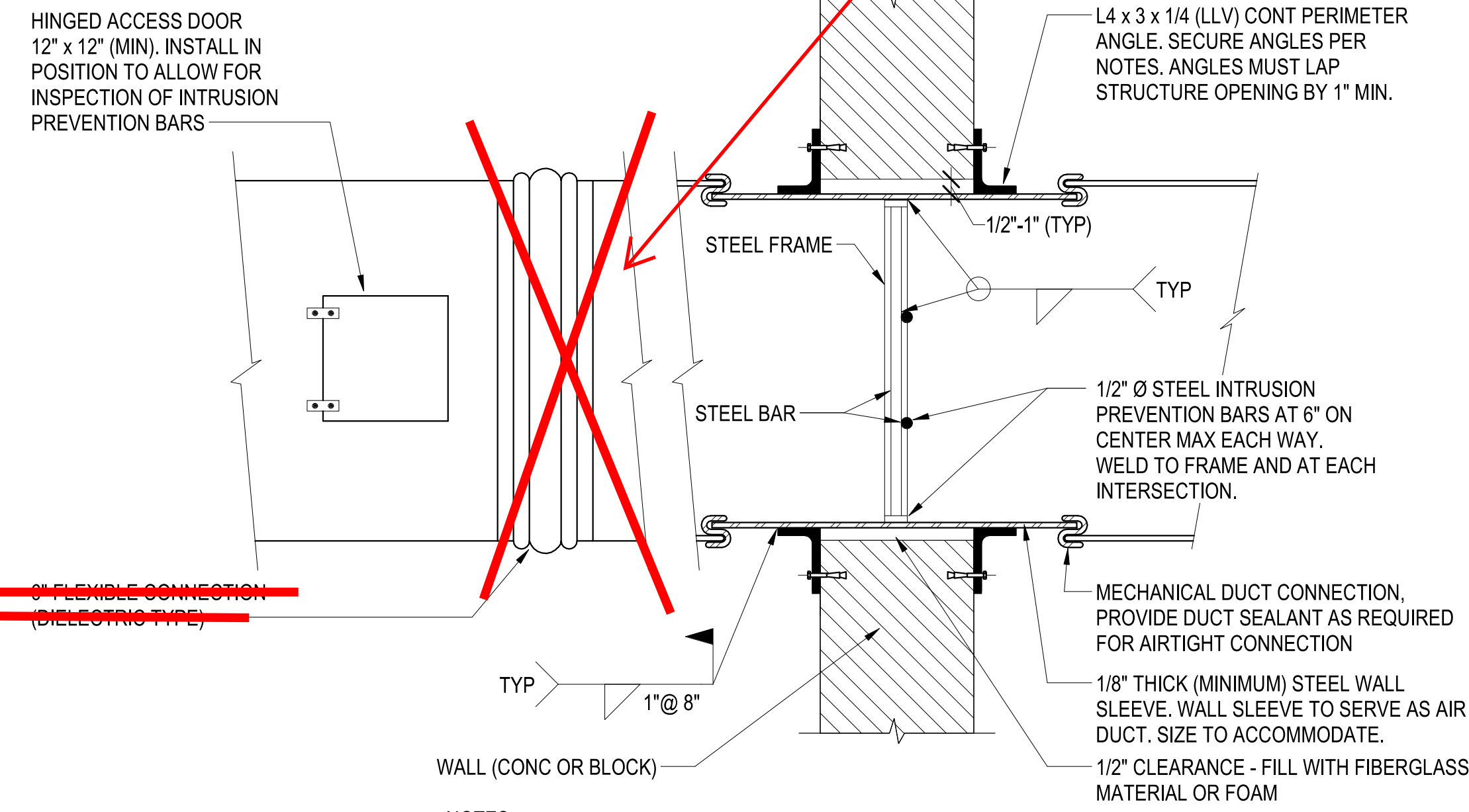
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ELIMINATE FLEX CONNECTION - ONLY PHYSICAL SECURITY NEEDED.

- GENERAL NOTES:**
1. ANCHORAGE TO CONCRETE WALL OR SOLID BLOCK, USE HILTI KWIK BOLT 3 EXPANSION ANCHORS 3/8" Ø @ 3" OC (MIN)
 2. ANCHORAGE TO HOLLOW CONCRETE BLOCK, USE HILTI HLC SLEEVE ANCHOR 3/8" Ø @ 3" OC (MIN)
 3. ANCHORAGE TO METAL STUDS & GYP BOARD WALLS, USE CARBON STEEL THROUGH BOLT 3/8" (MIN), STUD WALL CONDITION NOT SHOWN BUT SIMILAR.
 4. PROVIDE CARBON STEEL STRUCTURAL STEEL ANGLES, BARS AND SHEET PER ASTM A36.
 5. WELD PER AMERICAN WELDING SOCIETY D1.1, STRUCTURAL STEEL.
 6. GALVANIZED ANGLES AND ANCHORS MUST BE USED ON THE EXTERIOR SIDE OF EXTERIOR WALLS.



SECURE SIDE NON-SECURE SIDE



- NOTES:**
1. INTRUSION PREVENTION BARS SHALL BE PROVIDED FOR ANY PENETRATION LARGER THAN 96 in² OF ANY PERIMETER WALLS OR ROOFS IN SECURE AREA.

SECURE AREA DUCT WALL PENETRATION DETAIL

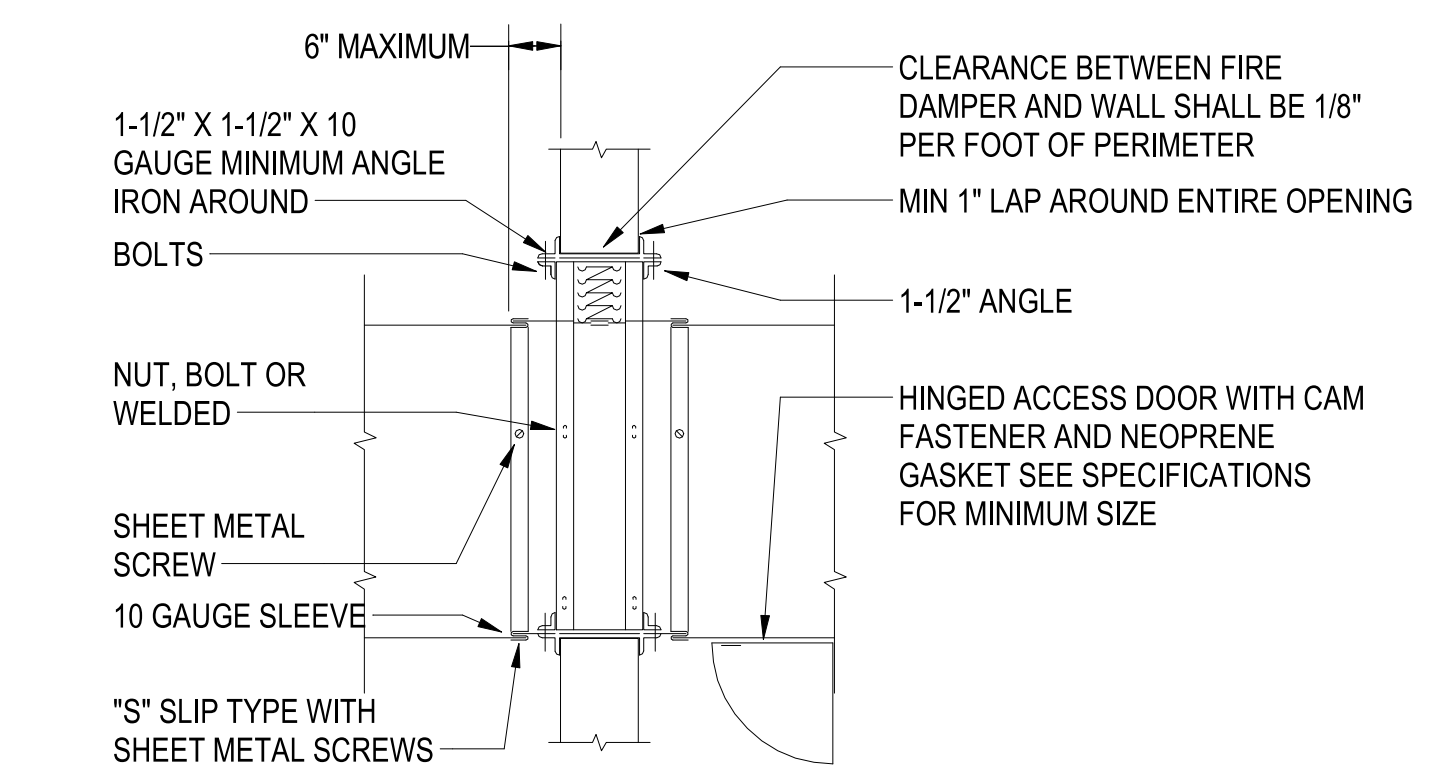
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B1

DUCT PENETRATION THRU WALL DETAIL

SCALE: NTS

C3

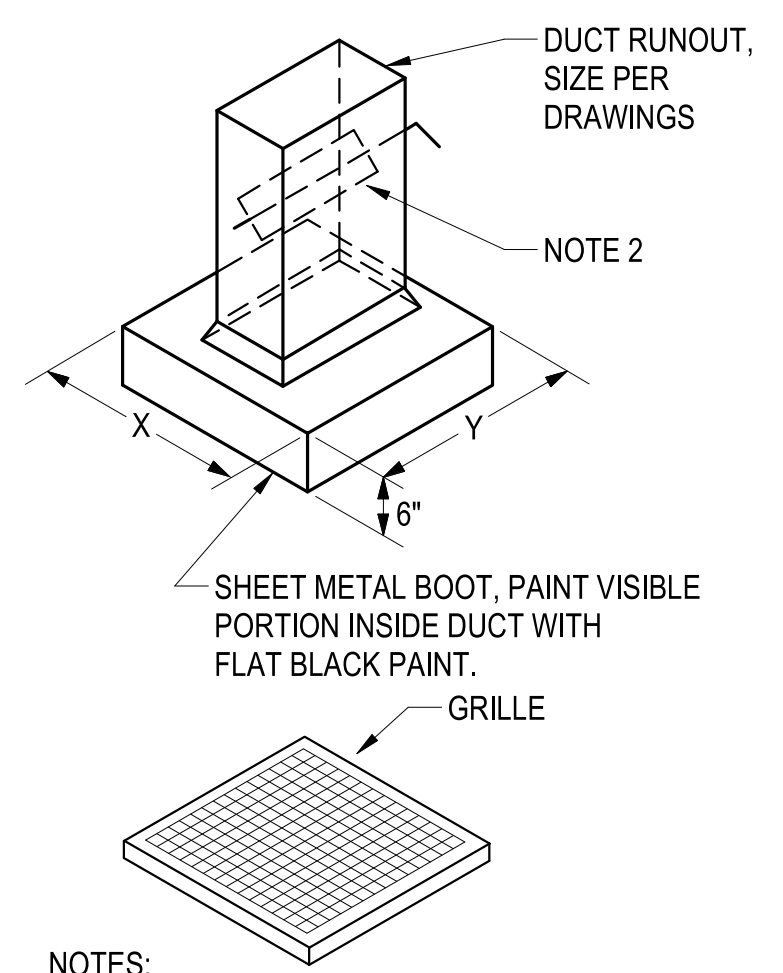


- NOTE:**
1. PROVIDE FIRE DAMPER FOR ROUND DUCT OR USE TRANSITION FOR ROUND TO SQUARE DUCT.

FIRE DAMPER DETAIL

SCALE: NTS

B3

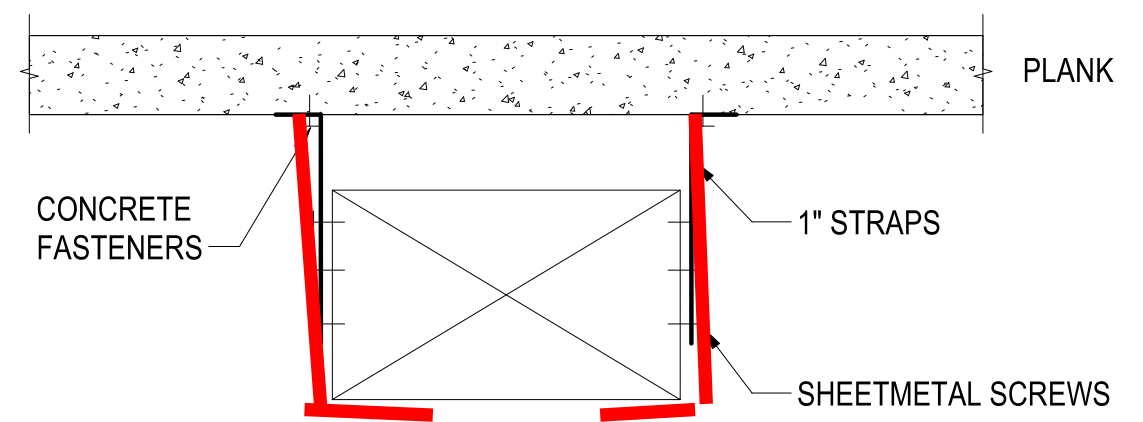


- NOTES:**
1. REFER TO GRILL, REGISTER AND DIFFUSER SCHEDULE FOR X & Y DUCT NECK SIZE CONNECTION TO RETURN GRILLE/REGISTER.
 2. WHERE CFM IS SHOWN ON PLANS, DAMPER SHALL BE PLACED IN RETURN/EXHAUST DUCTWORK IN LOCATION SHOWN ON PLANS

DUCTED RETURN AIR CONNECTION DETAIL

SCALE: NTS

C4



- NOTE:**
1. FOR MEDIUM PRESSURE DUCTWORK SUPPORT STRAPS MAY BE BOLTED THROUGH AT REINFORCING ANGLE BOLT

DUCT HANGER DETAIL

SCALE: NTS

A4

AS IF THE ITR, THE LIFE SAFETY PLANS DO NOT INDICATE ANY 2 HOUR RATED WALLS NOR DO WE HAVE TRANSFER OPENINGS THROUGH ANY 1 HOUR RATED WALLS, SO THIS DETAIL IS PROBABLY NOT REQUIRED. KEEP FOR NOW, WOULD PREFER IF IT'S NOT NEEDED IT WON'T BE USED THAN TO REMOVE.

FIX; I BELEIVE THIS IS ALREADY UPDATED ON P1509

| | |
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| APPR | |
| DATE | |
| DESCRIPTION | |
| SYN | |
| | |
| PRELIMINARY NOT FOR CONSTRUCTION | |
| | |
| FOR COMMANDER NAVFAC ACTIVITY MARINE CORPS BASE CAMP LEJEUNE | |
| SATISFACTORY TO DATE DES _____ DRW _____ CHK _____ PM _____ BRANCH MANAGER _____ CHIEF ENGINEER _____ FIRE PROTECTION _____ | |
| DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND MID-ATLANTIC JACKSONVILLE, NC MCB CAMP LEJEUNE JACKSONVILLE, NC P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT MECHANICAL - DETAILS | |
| SCALE: AS NOTED EPROJECT NO.: 1590892 CONSTR. CONTR. NO. N40085-20-C-0059 NAVFAC DRAWING NO. 17250095 SHEET 241 OF | |
| M-502 | |

PLOTTED: 5/28/2021 4:21:22 PM

FILE NAME: BIM_360/IFB PACKAGE 3P11338.MEF_S1M CTR-1590892.dwg

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

UNCLASSIFIED

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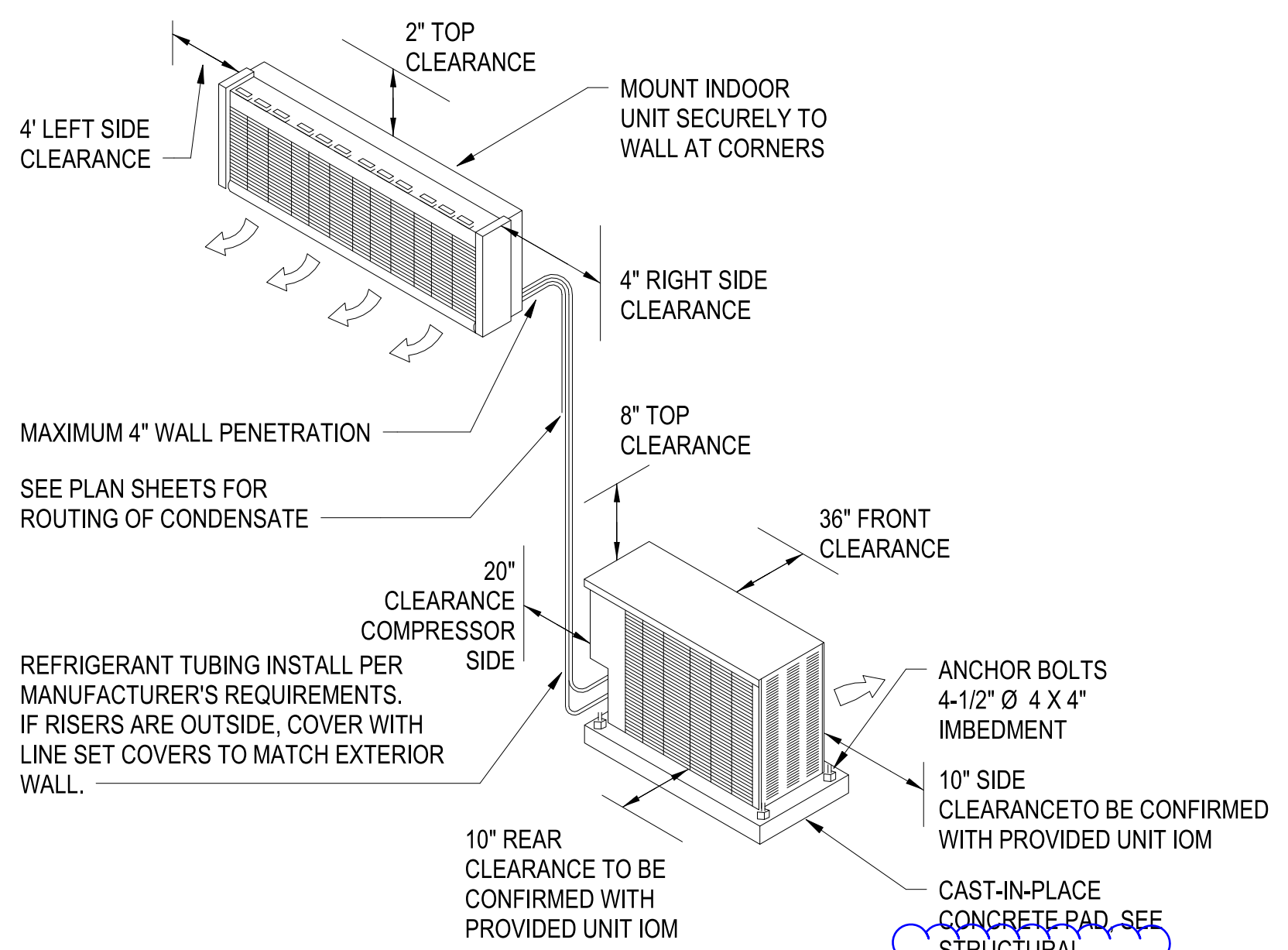
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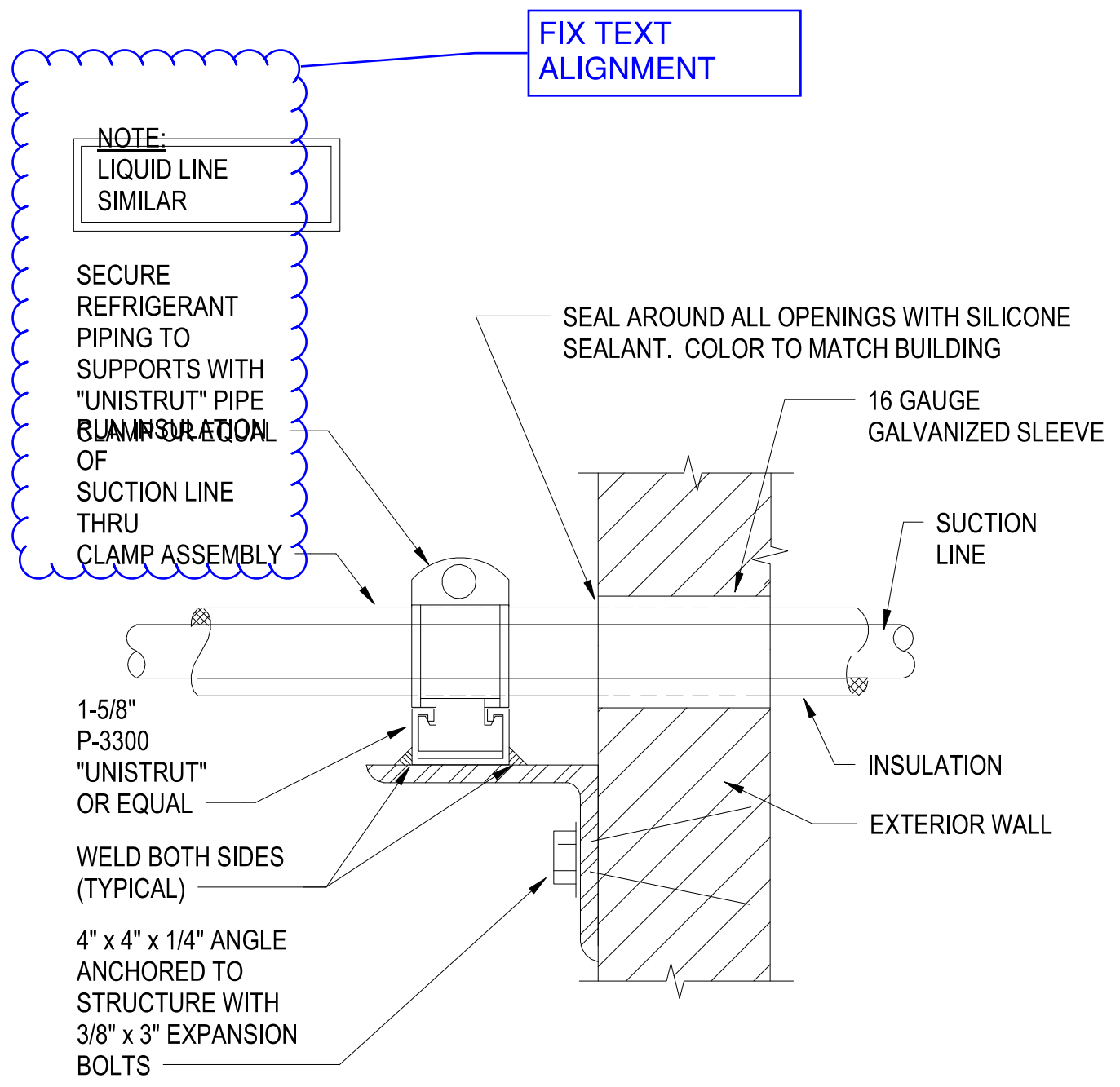
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SPLIT SYSTEM AIR CONDITIONING UNIT (DUCTLESS)
SCALE: NTS

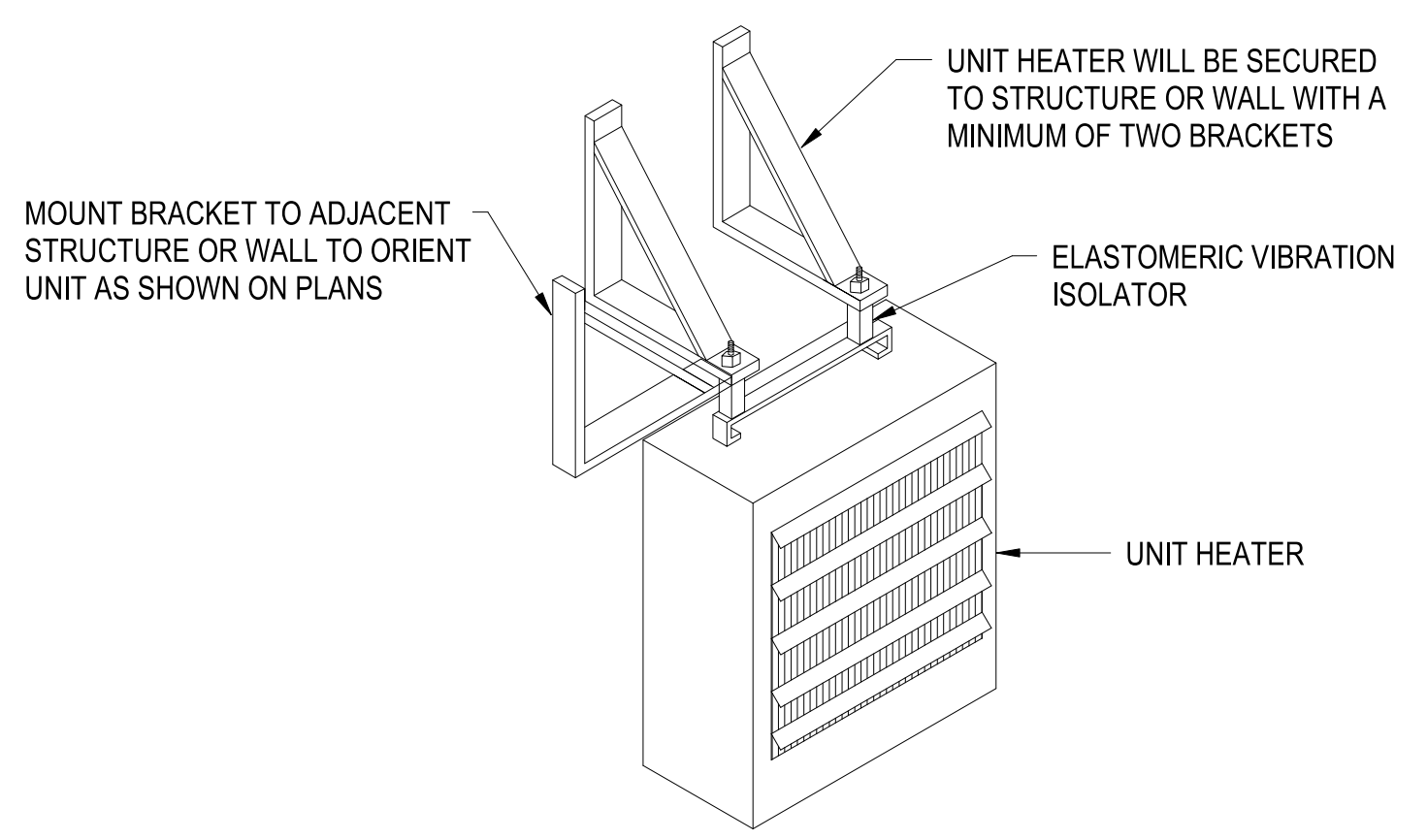
C1

OR HEAT PUMP



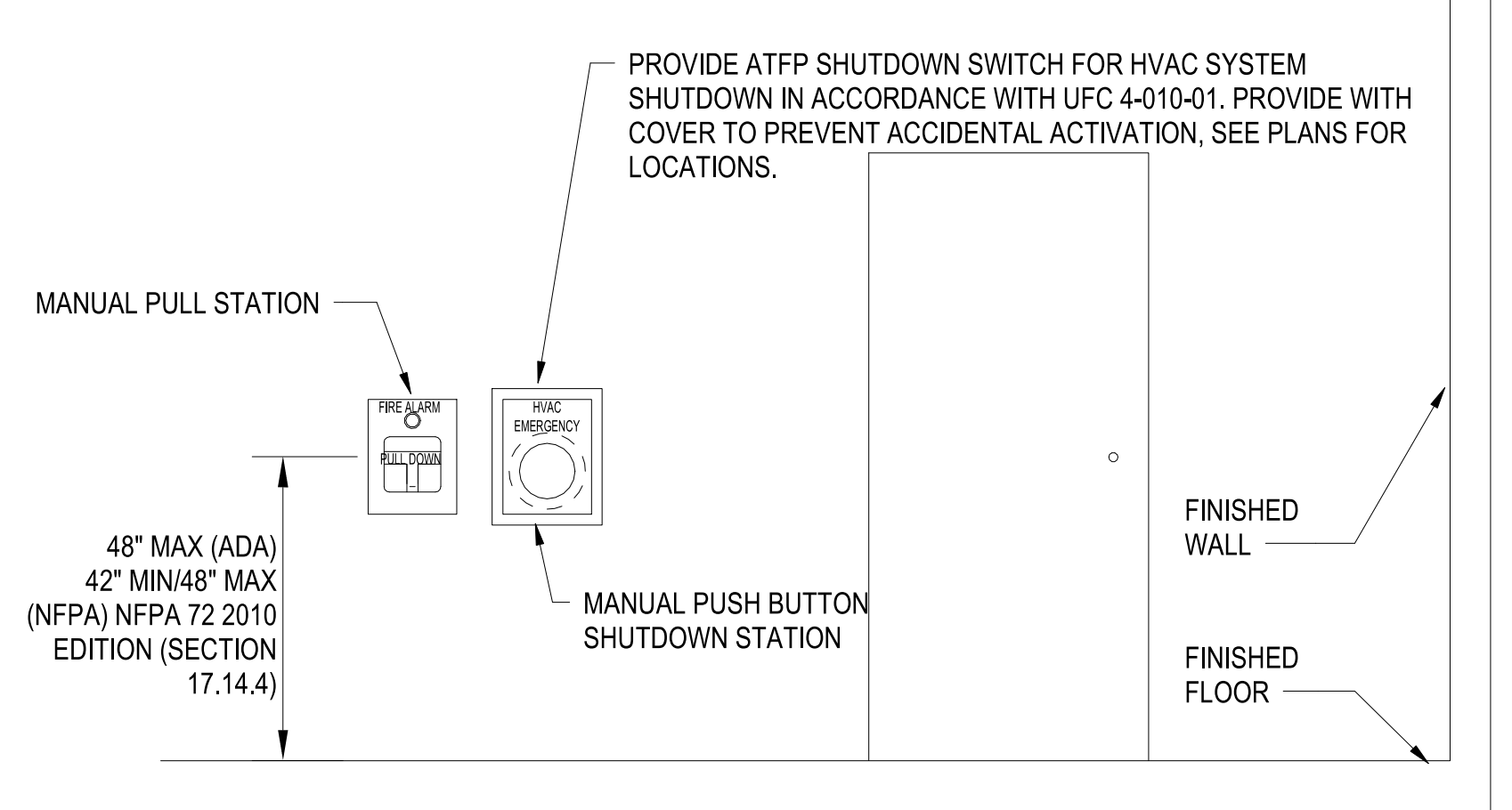
EXTERIOR WALL PENETRATION DETAIL
SCALE: NTS

C2



ELECTRIC UNIT HEATER DETAIL
SCALE: NTS

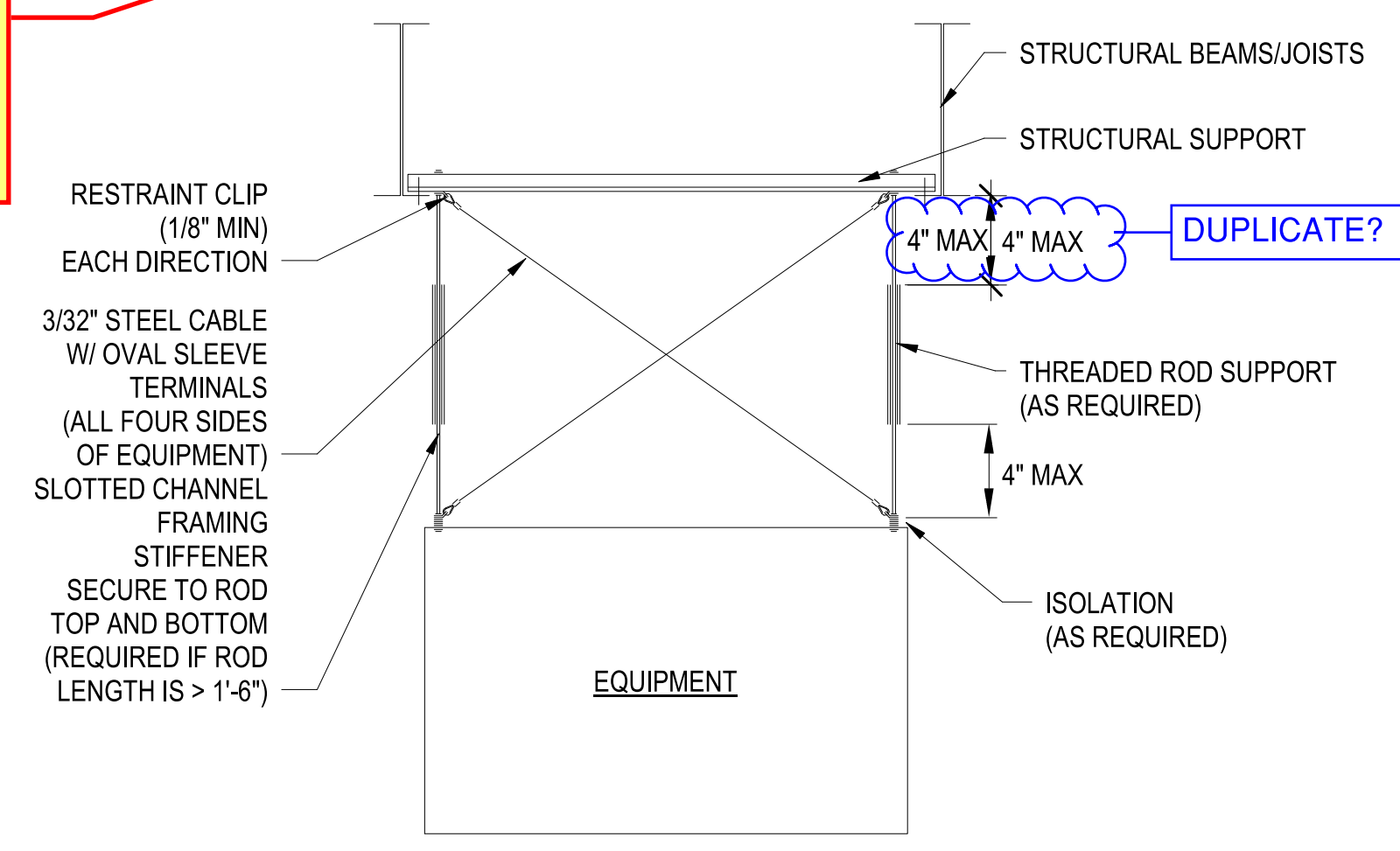
B2



HVAC SHUTDOWN STATION INSTALLATION DETAIL
SCALE: NTS

C4

KEEP FOR NOW; CONFIRM WITH JASON MILLER



ATFP EQUIPMENT BRACING DETAIL
SCALE: NTS

B4

- NOTES:
1. LOCATE ADJACENT TO FIRE ALARM MANUAL PULL STATION IF APPLICABLE.
2. INTERLOCK WITH DDC SYSTEM, SEE SEQUENCE OF CONTROLS.
3. INTERLOCK WITH FIRE ALARM SYSTEM.
4. PROVIDE LABEL ON SWITCH AS FOLLOWS: "HVAC EMERGENCY"

CONFIRM. ON P427 THIS REQ'T WAS DETERMINED TO BE AN OVERINTERPRETATION OF THE UFC AND NOT PROVIDED.

| | |
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| APPR | DATE |
| SYN | DESCRIPTION |
| | |
| PRELIMINARY NOT FOR CONSTRUCTION | |
| | |
| Michael Baker INTERNATIONAL 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 A/E/IN/P APPROVED | |
| FOR COMMANDER NAVFAC ACTIVITY MARINE CORPS BASE CAMP LEJEUNE | |
| SATISFACTORY TO DATE DES DRW CHK | |
| PM BRANCH MANAGER CHIEF ENGINEER FIRE PROTECTION | |
| NAVAL FACILITIES ENGINEERING COMMAND NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC ROICC FLORENCE CAMP LEJEUNE JACKSONVILLE, NC JACKSONVILLE, NC P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT MECHANICAL - DETAILS | |
| SCALE: | AS NOTED |
| EPROJCT NO.: | 1590892 |
| CONSTR. CONTR. NO.: | N40085-20-C-0059 |
| NAVFAC DRAWING NO.: | |
| SHEET | OF |
| M-504 | |

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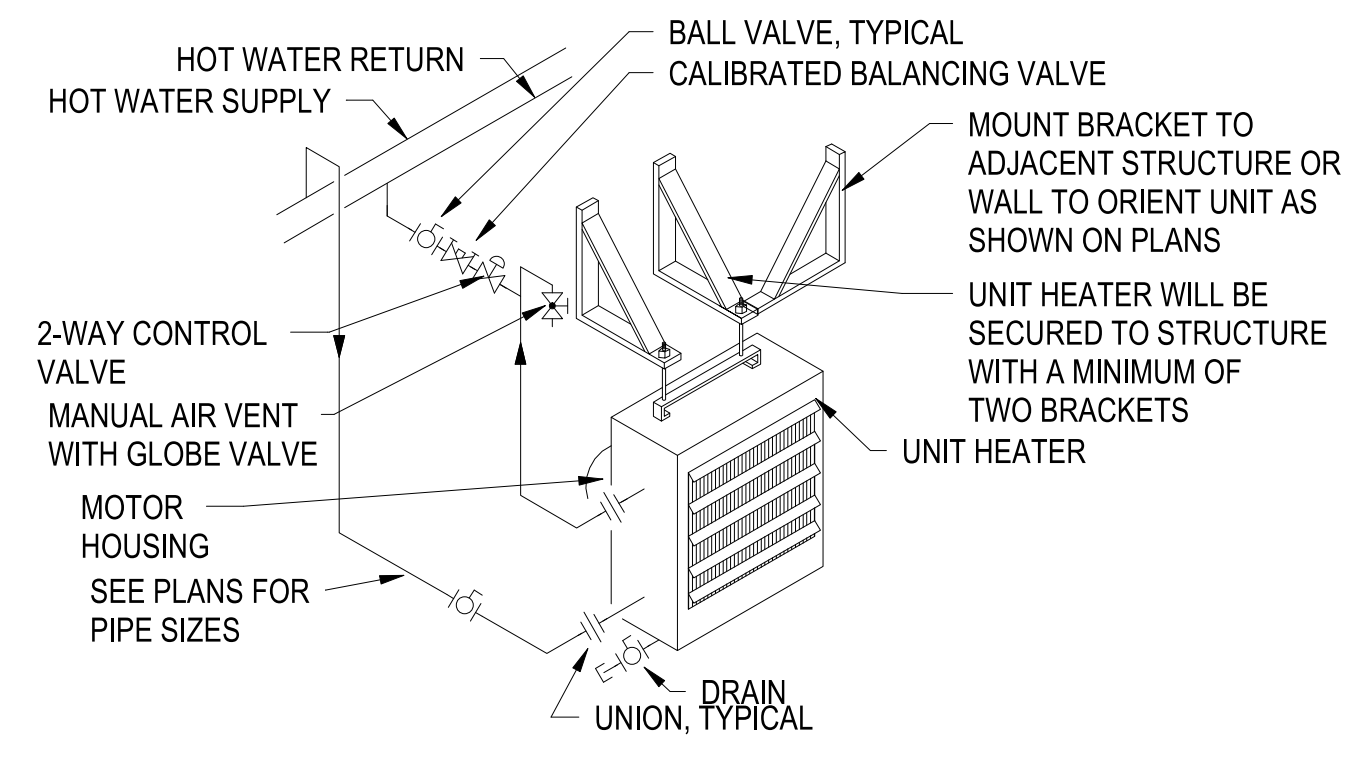
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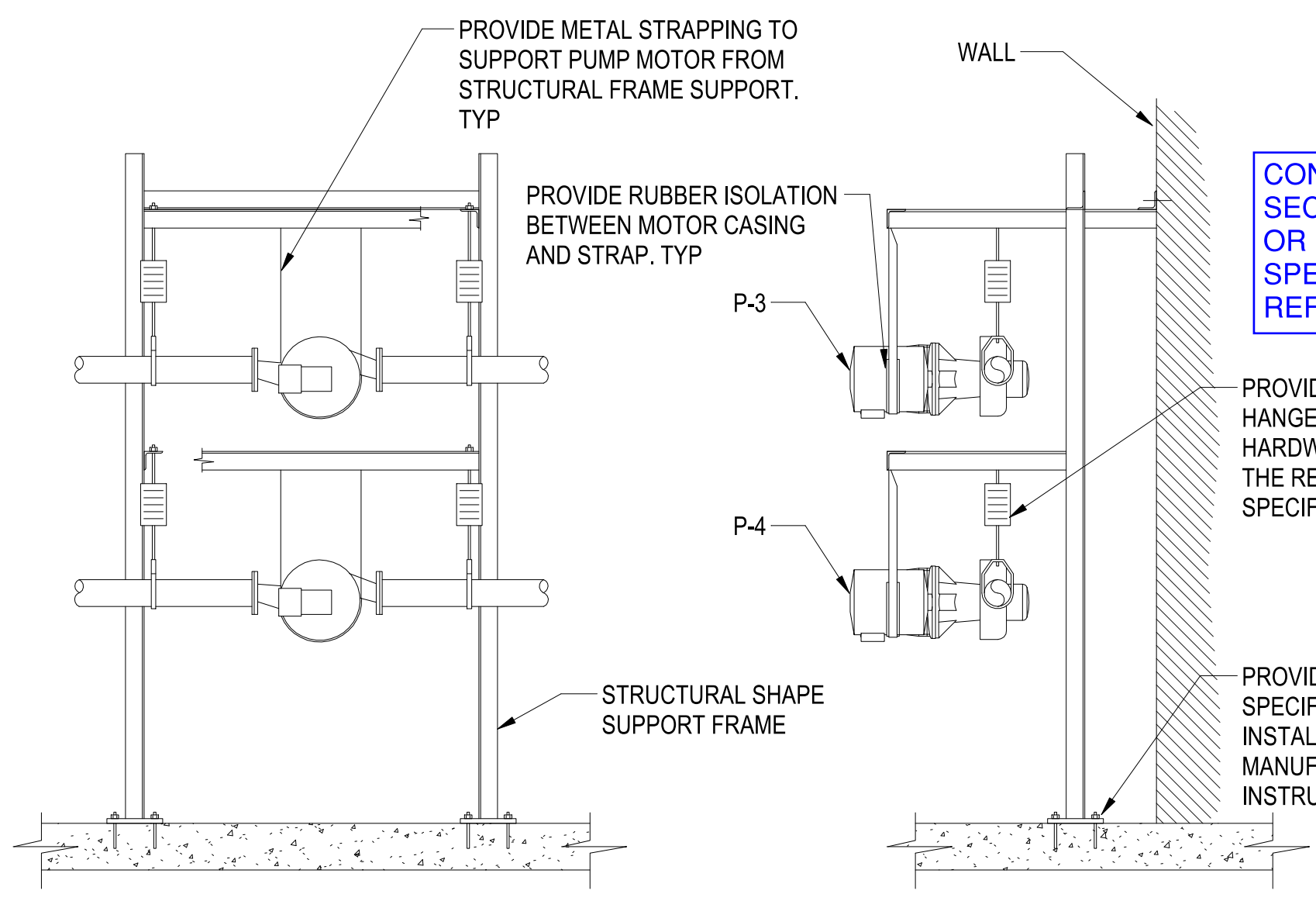
UNCLASSIFIED



HOT WATER UNIT HEATER DETAIL

SCALE: NTS

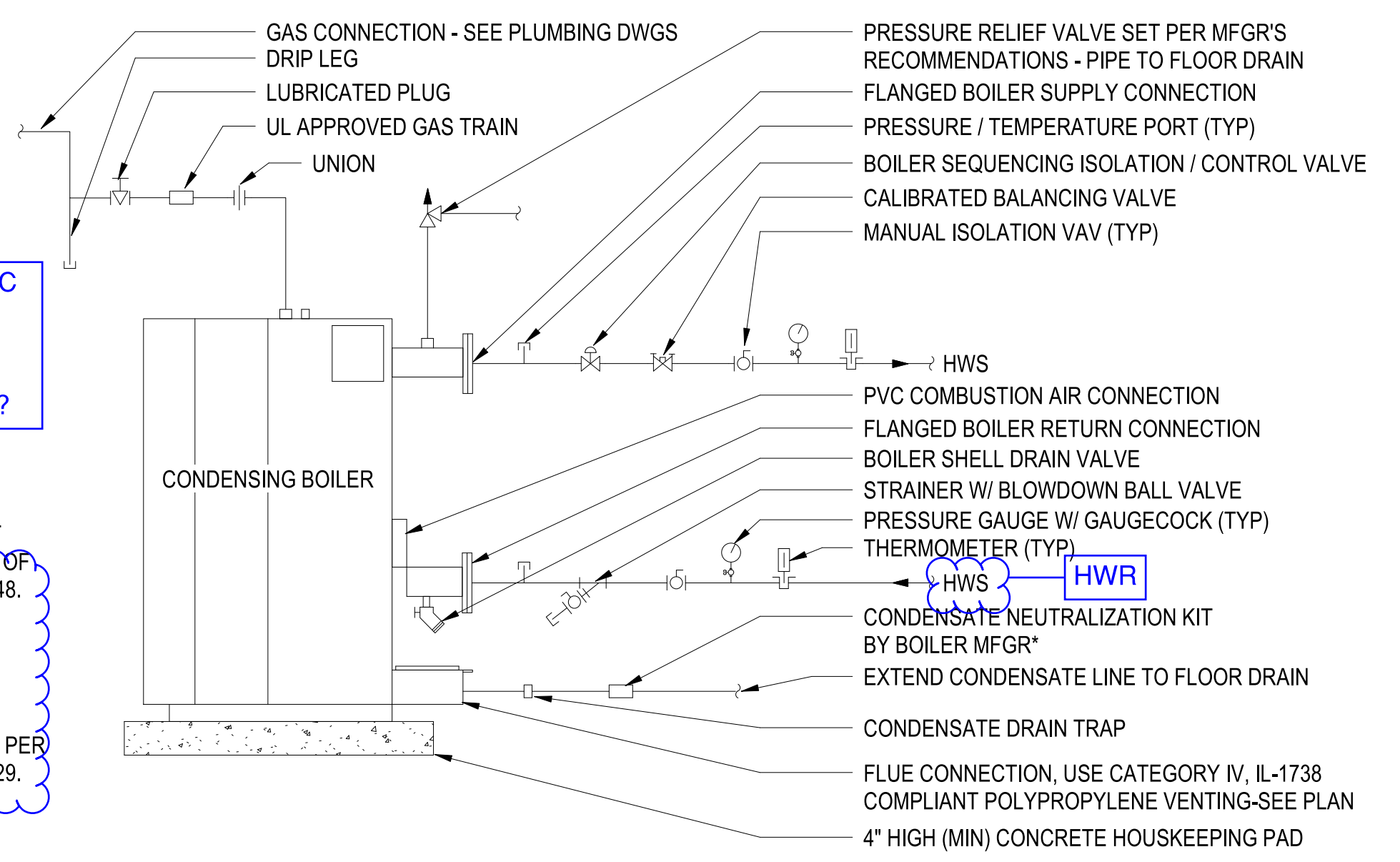
C1



PUMP SUPPORT DETAIL

SCALE: NTS

C2

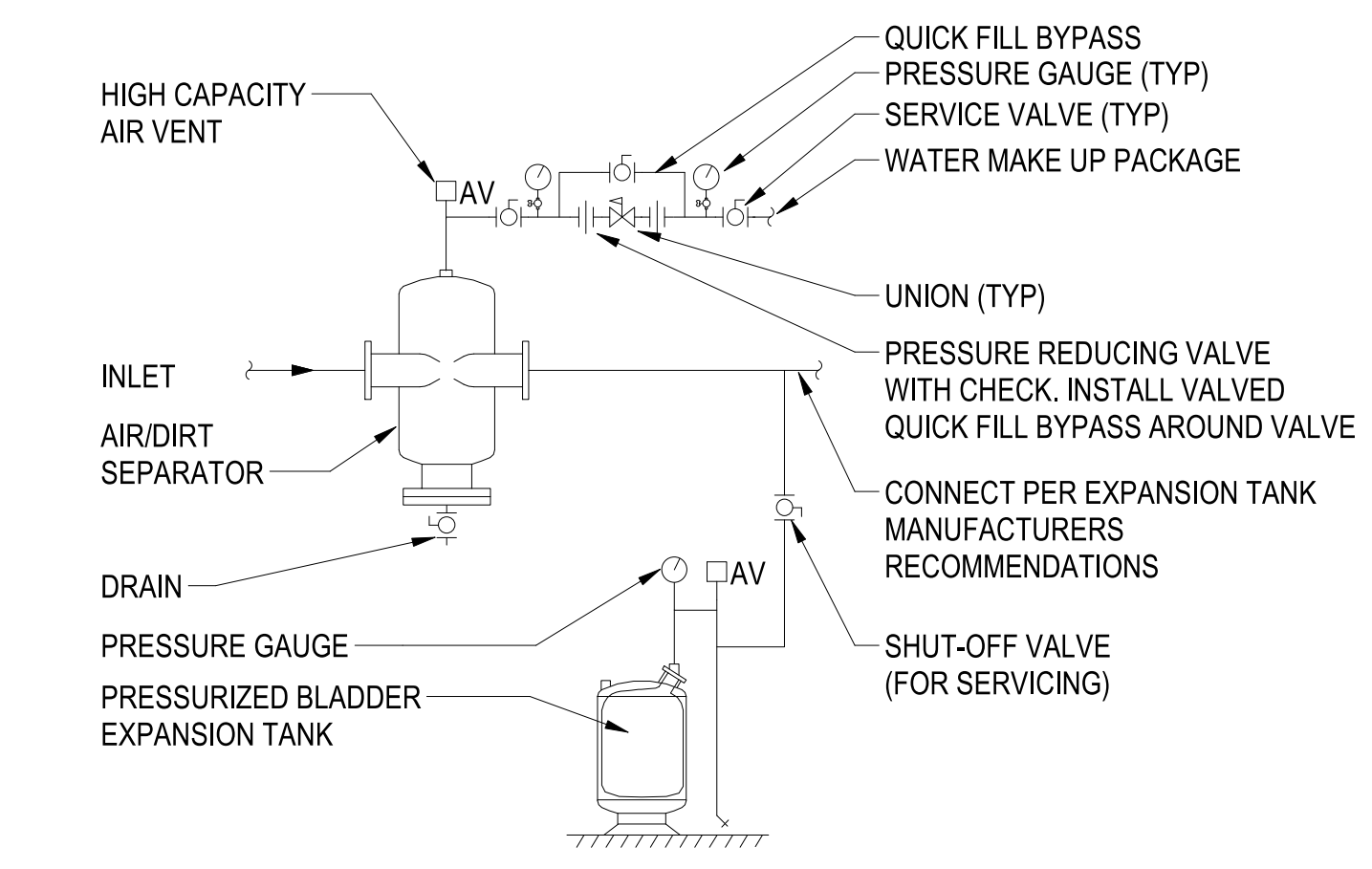


BOILER PIPING DETAIL

SCALE: NTS

M-703

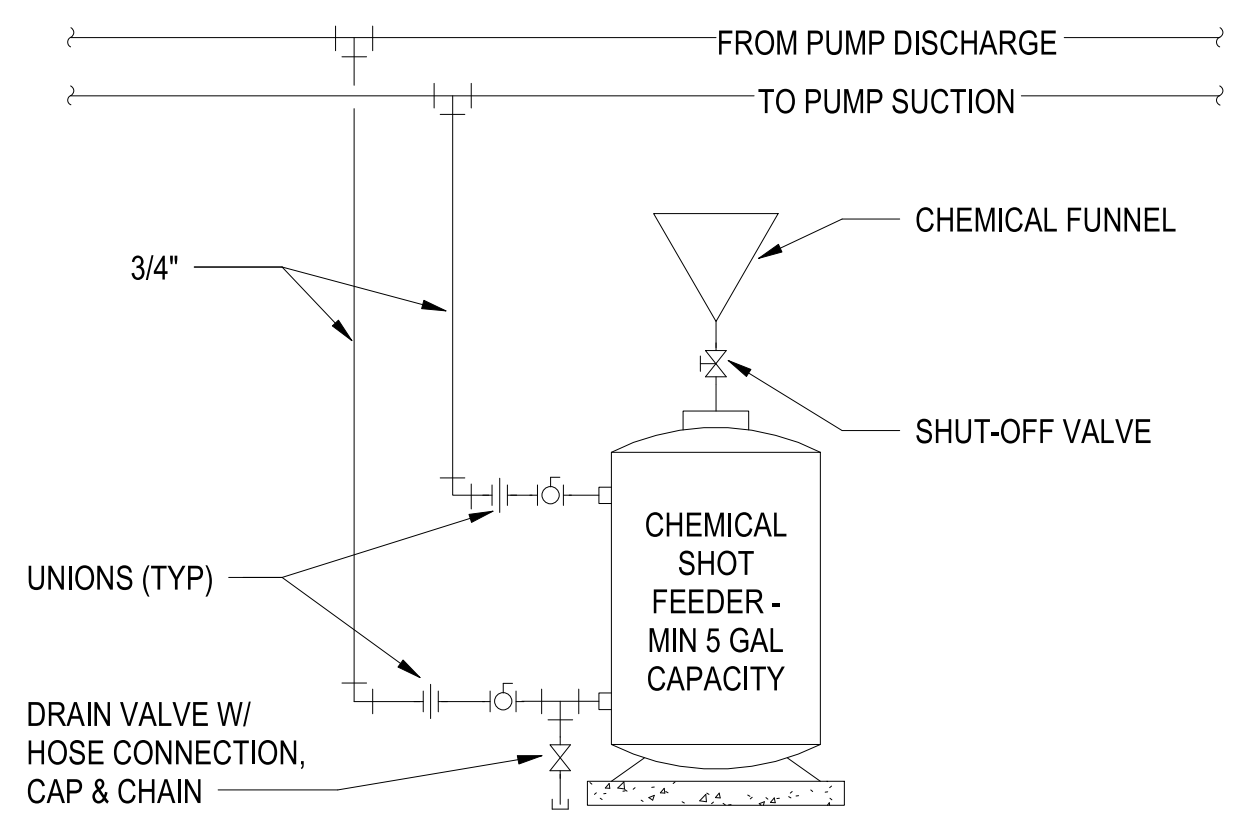
C4



HYDRONICS SYSTEM AIR SEPARATOR & EXPANSION TANK SYSTEM CONNECTION

SCALE: NTS

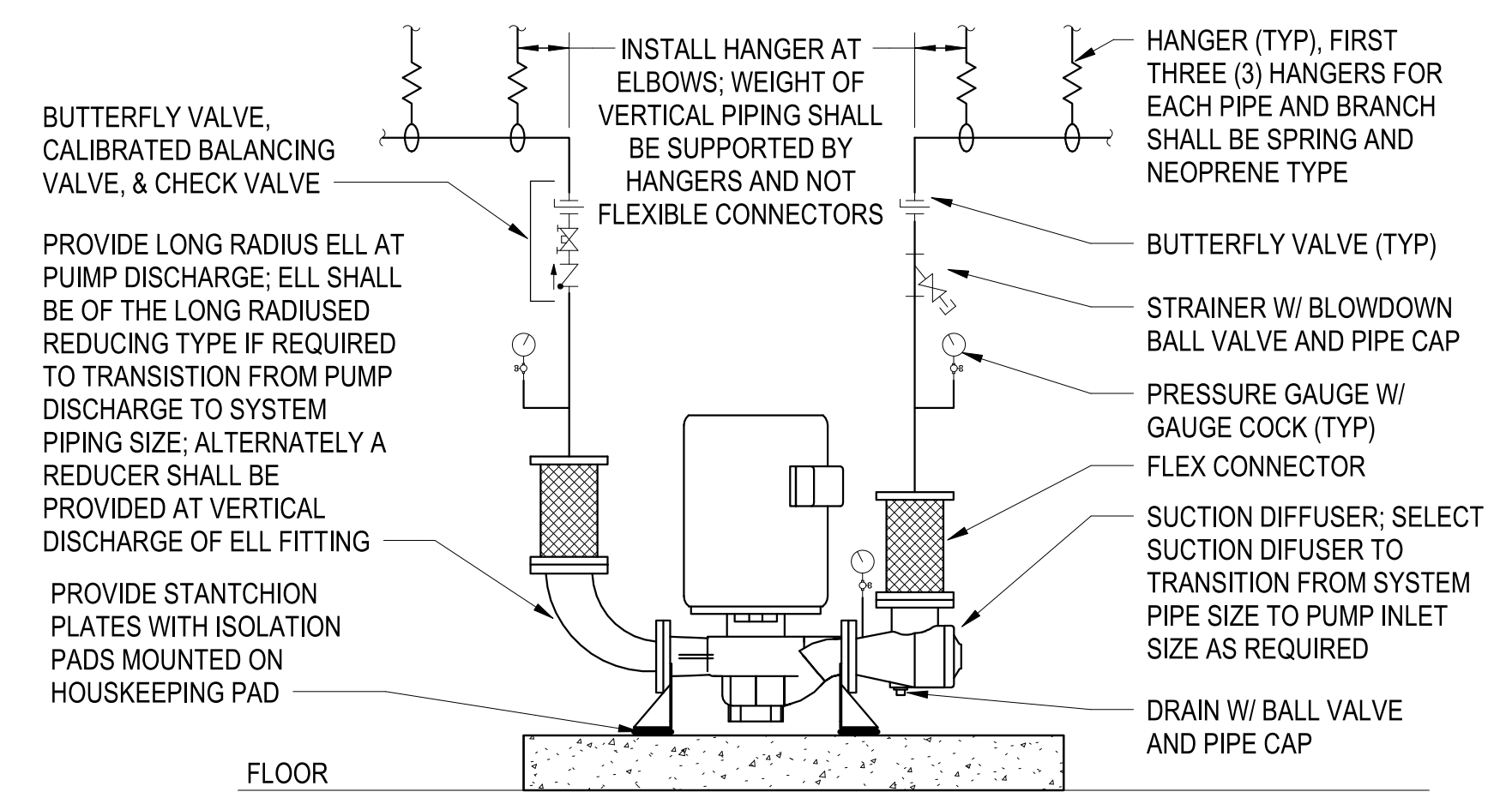
B1



CHEMICAL SHOT FEEDER DETAIL

SCALE: 12" = 1'-0"

B2



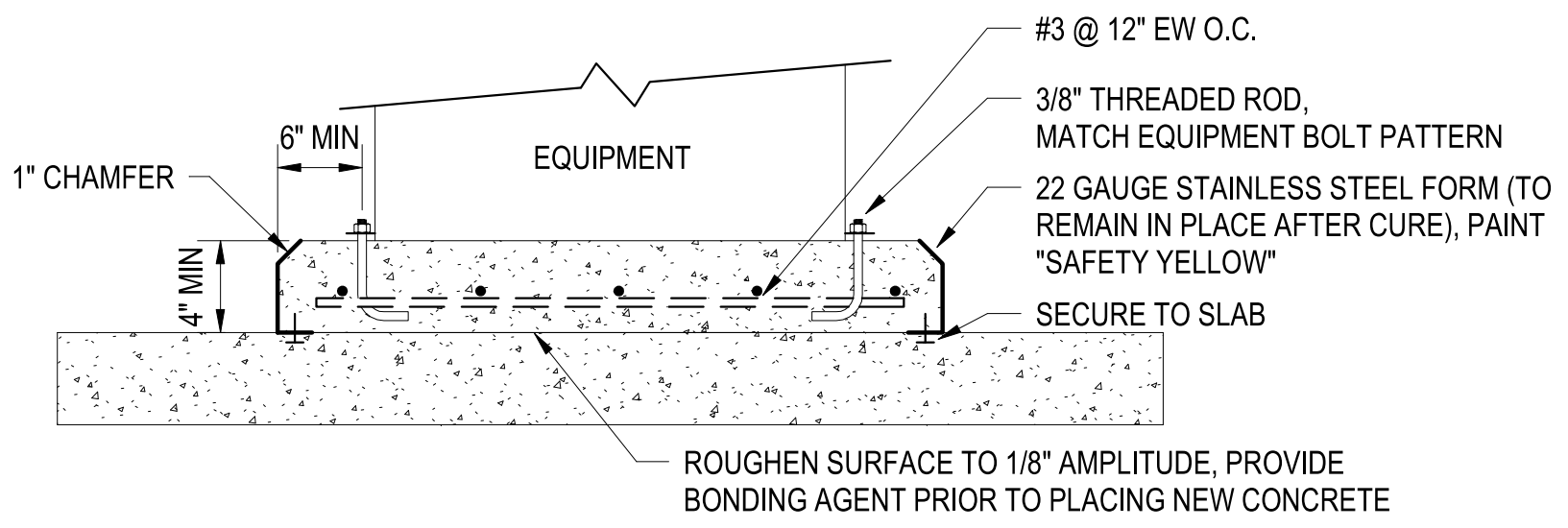
FLOOR SUPPORTED INLINE PUMP DETAIL

SCALE: NTS

M-702

B4

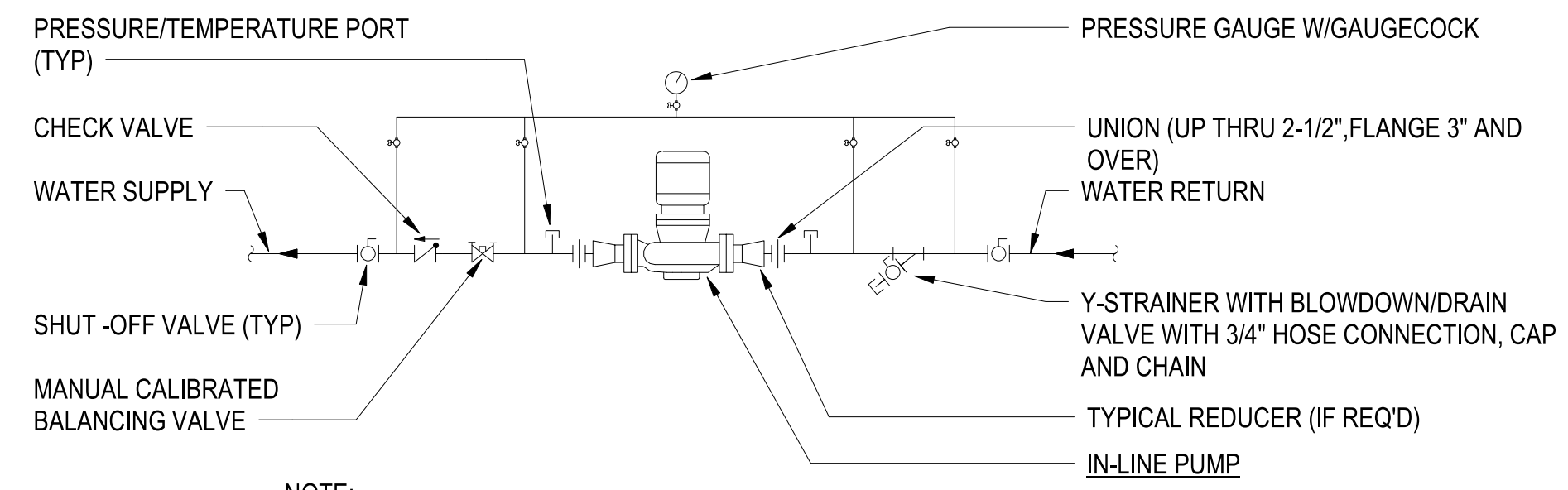
UPDATE PER LOCHINVAR FXTL IOM ARRANGEMENT, SHOW BP-# CIRCULATOR PUMP



EQUIPMENT PAD DETAIL

SCALE: NTS

A2



IN-LINE PUMP DETAIL

SCALE: NTS

M-703

A4

NOTE:
SUPPORT PUMP FROM WALL, FLOOR, OR ROOF STEEL, DO NOT PIPE SUPPORT.

PLOTTED: 5/28/2021 4:21:27 PM

FILE NAME: BIM 360://HF PACKAGE 3P11338.MEF_S1M CTR-1590892-M.rvt

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| APPR | DATE |
| SYN | DESCRIPTION |
| | |
| PRELIMINARY NOT FOR CONSTRUCTION | |
| | |
| Michael Baker INTERNATIONAL 100 AIRSIDE DRIVE MOON TOWNSHIP, PA 15108 APPROVED | |
| FOR COMMANDER NAVFAC ACTIVITY MARINE CORPS BASE CAMP LEJEUNE | |
| SATISFACTORY TO DATE | CHK |
| DES | DRW |
| PM | |
| BRANCH MANAGER | |
| CHIEF ENGINEER | |
| FIRE PROTECTION | |
| NAVAL FACILITIES ENGINEERING COMMAND | JACKSONVILLE, NC |
| NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC | JACKSONVILLE, NC |
| ROIC FLORENCE CAMP LEJEUNE | JACKSONVILLE, NC |
| MCB CAMP LEJEUNE | JACKSONVILLE, NC |
| P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT MECHANICAL - DETAILS | |
| DEPARTMENT OF THE NAVY | |
| PROJECT NO.: 1590892 | |
| CONSTR. CONTR. NO. N40085-20-C-0059 | |
| NAVFAC DRAWING NO. | |
| SHEET | OF |
| M-505 | |

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

UNCLASSIFIED

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FIX HEADER

AIR HANDING UNIT SCHEDULE (AHU-1 & 2) - P1338...

| TAG | UNIT AIRFLOWS | | | | CHILLED WATER COOLING COIL | | | | | | | | HOT WATER HEATING COIL | | | | | | ENERGY RECOVERY SECTION | | | | SUPPLY FAN DATA | | | | EXHAUST FAN DATA | | | | ELECTRICAL | | | | BASIS OF DESIGN | | NOTES | | |
|-------|------------------|----------------------|----------|------------------|----------------------------|------------|---------------|--------------|--------------|---------------------|-----------------|-----------------|------------------------|------------|---------------|--------------|--------------|-----------|-------------------------|---------------------------------------|-------------------|----------------------------------|-----------------|---------|-------------|----------------|------------------|---------|-------------|----------------|----------------|---------|----------------------|------|-----------------|-----|-------|--------------------------------|-------|
| | MAX SUPPLY (CFM) | MIN HTG SUPPLY (CFM) | OA (CFM) | EXH/RELIEF (CFM) | ROWS/ (FINS PER FT) | FLOW (GPM) | EWT/ LWT (°F) | WPD (FT H2O) | APD (IN H2O) | CAP SENS/ TOT (MBH) | EAT DB/ WB (°F) | LAT DB/ WB (°F) | ROWS/ (FINS PER FT) | FLOW (GPM) | EWT/ LWT (°F) | WPD (FT H2O) | APD (IN H2O) | CAP (MBH) | EAT/ LAT (°F) | SUMMER | | WINTER | | FAN QTY | FAN HP (EA) | TOT SP (IN WG) | EXT SP (IN WG) | FAN QTY | FAN HP (EA) | TOT SP (IN WG) | EXT SP (IN WG) | CIRCUIT | VOLT / PHASE / HERTZ | FLA | MCA | MOP | | MANUF | MODEL |
| | | | | | | | | | | | | | | | | | | | | ENT AIR (TOP) LVG AIR (BOT) (°F/°Fwb) | RET/EXH (°F/°Fwb) | ENT AIR (TOP) LVG AIR (BOT) (°F) | RET/EXH (°F) | | | | | | | | | | | | | | | | |
| AHU-1 | 5,750 | 2,300 | 1,500 | 1,250 | 8(105) | 49.9 | 42/56 | 18.9 | 1.26 | 207.3/350.5 | 83.6/70.4 | 51.0/50.9 | 1(80) | 3.7 | 140/110 | 0.1 | 0.02 | 56 | 40.6/62.9 | 91.0/79.0 | 81.0/67.0 | 26.0 | 68.0 | 1 | 10 | 5.90 | 2.00 | 1 | 1.5 | 1.54 | 0.75 | 1-SF | 460/3/60 | 14.0 | 17.5 | 30 | TRANE | CSAA012 | 1-4 |
| AHU-2 | 33,500 | 13,400 | 7,500 | 5,000 | 8(112) | 281.8 | 42/56 | 11.7 | 1.15 | 1194/1980 | 83.2/70 | 51.0/50.9 | 1(80) | 26.3 | 140/110 | 0.7 | 0.02 | 394 | 44.9/71.6 | 91.0/79.0 | 81.0/67.0 | 26.0 | 68.0 | 4 | 15 | 7.99 | 2.25 | 1 | 5 | 2.89 | 1.50 | 1-SF | 460/3/60 | 80.0 | 100.0 | 175 | TRANE | CSAA025 (ERU) / CSAA080 (MAIN) | 1-4 |

REMOVE ITALIC FONT ONCE FINALIZED (TYP ALL SCHEDULES)

SCHEDULED

ADD TO SCHEDULE NOTES OR CONFIRM RFP ITEMS COVERED IN THE SPECS (FROM P1527 DR CHECK BUT APPLIES TO P1338 RFP AS WELL:
-2 SETS OF SPARE FILTERS
-DIFF PRESS GAUGES
-24" ACCESS SECTIONS ON BOTH SIDES OF CHW COIL
-ALL INTERIOR CASING PANELS ARE SS

NOTES:
1. HEATING AND COOLING COIL SIZING BASED ON REMOVAL/FAILURE OF ENERGY RECOVERY SECTION.
2. UNIT SHALL BE FACTORY WIRED BY MANUFACTURER; CIRCUIT CONNECTIONS AS SCHEDULED FOR SUPPLY/EXHAUST FAN SECTIONS.
3. UNIT COILS SHALL BE COPPER TUBE ALUMINUM FIN WITH ELECTROFIN COATING
4. PROVIDE WITH MERV 13 FILTERS ON UNIT SUPPLY; FILTERS AS RECOMMENDED BY MANUFACTURER FOR HX PROTECTION ON UNIT EXHAUST.

28/2021 16:55

COMPUTER ROOM AIR CONDITIONER (CRAC) SCHEDULE

| TAG | SPACE SERVED | UNIT TYPE | ECM FAN DATA | | | COOLING CAPACITY | | | | | HEATING CAPACITY | | | | HUMIDIFIER CAPACITY (lb/h) | ELECTRICAL | | | BASIS OF DESIGN | | NOTES | |
|---------|----------------------------------|-----------|----------------|-------------|-----------|------------------------|---------------|------|---------|----------------|------------------|----------------|---------------|-----|----------------------------|------------|--------------------|------|-----------------|--------|--------------------|-------|
| | | | AIR FLOW (CFM) | ESP (IN WG) | FAN (HP) | TOTAL / SENSIBLE (MBH) | EWT /LWT (°F) | GPM | PD (FT) | EAT DB/WB (°F) | LAT DB (°F) | CAPACITY (MBH) | EWT/ LWT (°F) | GPM | | PD (FT) | VOLT/ PHASE/ HERTZ | MCA | MFS | MANUF. | | MODEL |
| CRAC-01 | 304A - SIM CONTROL (SERVER ROOM) | DOWNFLOW | 11000 | 0.5 | (2) @ 3.9 | 219.2 / 215.5 | 42 / 56 | 31.3 | 13.4 | 70 / 58.5 | 53.5 | 42.5 | 140 / 110 | 2.5 | <10 | 15.0 | 460 / 3 / 60 | 21.8 | 25 | STULZ | TR-CFU-060-C1L-040 | 1-7 |
| CRAC-02 | 304A - SIM CONTROL (SERVER ROOM) | DOWNFLOW | 11000 | 0.5 | (2) @ 3.9 | 219.2 / 215.5 | 42 / 56 | 31.3 | 13.4 | 70 / 58.5 | 53.5 | 42.5 | 140 / 110 | 2.5 | <10 | 15.0 | 460 / 3 / 60 | 21.8 | 25 | STULZ | TR-CFU-060-C1L-040 | 1-7 |
| CRAC-03 | 304A - SIM CONTROL (SERVER ROOM) | DOWNFLOW | 11000 | 0.5 | (2) @ 3.9 | 219.2 / 215.5 | 42 / 56 | 31.3 | 13.4 | 70 / 58.5 | 53.5 | 42.5 | 140 / 110 | 2.5 | <10 | 15.0 | 460 / 3 / 60 | 21.8 | 25 | STULZ | TR-CFU-060-C1L-040 | 1-7 |

NOTES:
1. PROVIDE WITH MANUFACTURER'S 24" HIGH FLOOR STAND TO INSTALL LEVEL WITH RAISED FLOOR; BASIS OF DESIGN UNIT DIMENSIONS ARE 77.4" WIDTH X 40.3" DEPTH X 76.2" HEIGHT.
2. CRAC UNITS FOR SIM CONTROL (SERVER ROOM) 304A HAVE BEEN SELECTED BASED ON PROVIDING "N+1" SERVICE TO THE SPACE.
4. PROVIDE WITH 4" MERV-8 PRE-FILTERS.
5. CONDENSATE PAN SHALL BE DOUBLE SLOPED AND CONSTRUCTED OF NON-CORROSIVE MATERIALS.
6. PROVIDE AN AUXILIARY DRAIN CONNECTION AT CONDENSATE DRAIN.
7. PROVIDE WITH MANUFACTURER'S STANDARD INFRARED HUMIDIFIER.

5/28/2021 16:5

ALIGN RIGHT

PLOTTED: 5/28/2021 4:57:18 PM

FILE NAME: BIM_360/HF PACKAGE 3P1338_MEF_SIM_CTR-1590892-M.rvt

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APPR DATE


DESCRIPTION

SYMBOL



PRELIMINARY
NOT FOR CONSTRUCTION

SEAL



Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108 A/E/IN/P
APPROVED

FOR COMMANDER NAVFAC

ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

SATISFACTORY TO DATE

DES DRW CHK

PM

BRANCH MANAGER

CHIEF ENGINEER

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
ROICC FLORENCE CAMP LEJEUNE
MBC CAMP LEJEUNE
JACKSONVILLE, NC
JACKSONVILLE, NC
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL - SCHEDULES

SCALE: AS NOTED
EPROJECT NO.: 1590892
CONSTR. CONTR. NO. N40085-20-C-0059
NAVFAC DRAWING NO.
SHEET OF

M-601

DP2 SUBMISSION - P1338 BUILDING -PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

VARIABLE AIR VOLUME (VAV) BOX SCHEDULE

| TAG | SPACE SERVED | COOLING CFM | | INLET DUCT SIZE (DIA) | REHEAT COIL DATA | | | | | | | BASIS OF DESIGN | | NOTES | |
|-----------|--|-------------|-----|-----------------------|-------------------|------|-----|-----------|--------------|-----|------------------|-----------------|-------|-------|-------|
| | | MAX | MIN | | HTG AIRFLOW (CFM) | MBH | GPM | COIL ROWS | HW TEMP (°F) | | MAX WPD (FT H2O) | LAT (°F) | MANUF | | MODEL |
| | | | | | | | | | EWT | LWT | | | | | |
| VAV-1.01 | 402 - STORAGE / SHIPPING / RECEIVING | 1,000 | 300 | 10 | 350 | 14.9 | 1.0 | 2 | 140 | 110 | 0.2 | 94 | TRANE | VCWF | 1 - 4 |
| VAV-1.02 | 114, 113, 112, C014, C016 - OFFICES & CORRIDOR, 115 COMM | 625 | 200 | 8 | 200 | 9.2 | 1.0 | 2 | 140 | 121 | 0.10 | 97 | TRANE | VCWF | 1 - 4 |
| VAV-1.03 | 109 - SIM ANALYST | 1,500 | 400 | 12 | 400 | 14.9 | 1.0 | 2 | 140 | 110 | 0.10 | 89 | TRANE | VCWF | 1 - 5 |
| VAV-1.04 | 111 - OIC OFFICE | 125 | 40 | 4 | 60 | 3.2 | 0.5 | 1 | 140 | 127 | 0.52 | 105 | TRANE | VCWF | 1 - 5 |
| VAV-1.05 | 108 - ADMIN BREAK ROOM & C011 CORRIDOR | 450 | 150 | 6 | 200 | 7.8 | 0.5 | 2 | 140 | 109 | 0.20 | 91 | TRANE | VCWF | 1 - 4 |
| VAV-1.06 | 107 - SIM OPERATOR | 1,000 | 300 | 10 | 600 | 24.1 | 2.0 | 2 | 140 | 115 | 0.70 | 92 | TRANE | VCWF | 1 - 5 |
| VAV-1.07 | 106 - NCOIC / SUPPLY CLERK | 200 | 80 | 5 | 100 | 4.1 | 0.5 | 1 | 140 | 123 | 0.60 | 93 | TRANE | VCWF | 1 - 5 |
| VAV-1.08 | 105 - LIBRARY / FILE STORAGE | 600 | 200 | 8 | 200 | 8.8 | 0.5 | 3 | 140 | 104 | 0.10 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-1.09 | C012 - CORRIDOR | 250 | 80 | 5 | 200 | 7.8 | 0.5 | 2 | 140 | 108 | 0.20 | 91 | TRANE | VCWF | 1 - 4 |
| VAV-2.01 | 207 - EXERCISE CONTROL | 600 | 200 | 8 | 200 | 8.8 | 0.5 | 3 | 140 | 104 | 0.10 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.02 | 206 - BREAK ROOM; C023 - COR | 800 | 200 | 8 | 300 | 11.0 | 1.0 | 2 | 140 | 118 | 0.10 | 89 | TRANE | VCWF | 1 - 5 |
| VAV-2.03 | 209 - BRIEF / DEBRIEF | 350 | 100 | 5 | 100 | 4.1 | 0.5 | 1 | 140 | 123 | 0.60 | 93 | TRANE | VCWF | 1 - 5 |
| VAV-2.04 | 303B - SECURE VTC | 450 | 150 | 6 | 150 | 6.9 | 0.5 | 2 | 140 | 112 | 0.20 | 97 | TRANE | VCWF | 1 - 5 |
| VAV-2.05 | 303A - SECURE WS | 200 | 50 | 5 | 100 | 4.1 | 0.5 | 1 | 140 | 123 | 0.60 | 93 | TRANE | VCWF | 1 - 5 |
| VAV-2.06 | 302 - SERVER ADMIN | 250 | 100 | 5 | 100 | 4.1 | 0.5 | 1 | 140 | 123 | 0.60 | 93 | TRANE | VCWF | 1 - 4 |
| VAV-2.07 | 304B/304A/C034 - SIM CONTROL (SERVERVAULT); CORR | 850 | 600 | 10 | 600 | 9.7 | 1.0 | 1 | 140 | 110 | 0.60 | 70 | TRANE | VCWF | 1 - 4 |
| VAV-2.08 | 203/C021/C022 - STORAGE AND CORRIDOR, 208 COMM | 650 | 200 | 8 | 200 | 9.3 | 1.0 | 2 | 140 | 121 | 0.10 | 98 | TRANE | VCWF | 1 - 4 |
| VAV-2.09 | 200B - CLASSIFIED SIMULATION CLASSROOM | 1,800 | 500 | 14 | 500 | 21.6 | 1.5 | 2 | 140 | 111 | 0.15 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.10 | 200A - CLASSIFIED SIMULATION CLASSROOM | 1,800 | 500 | 14 | 500 | 21.6 | 1.5 | 2 | 140 | 111 | 0.15 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.11 | 200C - SIMULATION CLASSROOM | 1,200 | 300 | 10 | 300 | 13.9 | 1.0 | 2 | 140 | 112 | 0.15 | 90 | TRANE | VCWF | 1 - 5 |
| VAV-2.12 | 202 - EXERCISE CONTROL | 1,800 | 500 | 14 | 500 | 21.6 | 1.5 | 2 | 140 | 111 | 0.15 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.13A | 201 - AUDITORIUM/READY RM (WEST) | 1,250 | 200 | 10 | 400 | 15.7 | 1.0 | 2 | 140 | 108 | 0.20 | 91 | TRANE | VCWF | 1 - 5 |
| VAV-2.13A | 201 - AUDITORIUM/READY RM (EAST) | 1,250 | 200 | 10 | 400 | 15.7 | 1.0 | 2 | 140 | 108 | 0.20 | 91 | TRANE | VCWF | 1 - 5 |
| VAV-2.14 | 300X - SIMULATION CLASSROOM | 1,800 | 500 | 14 | 500 | 21.6 | 1.5 | 2 | 140 | 111 | 0.15 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.15 | 300A - SIMULATION CLASSROOM | 1,800 | 500 | 14 | 500 | 21.6 | 1.5 | 2 | 140 | 111 | 0.15 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.16 | 300Y - SIMULATION CLASSROOM | 1,800 | 500 | 14 | 500 | 21.6 | 1.5 | 2 | 140 | 111 | 0.15 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.17 | 300B - SIMULATION CLASSROOM | 1,800 | 500 | 14 | 500 | 21.6 | 1.5 | 2 | 140 | 111 | 0.15 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.18 | 301A - SIMULATION CLASSROOM | 1,800 | 500 | 14 | 500 | 21.6 | 1.5 | 2 | 140 | 111 | 0.15 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.19 | 301B - SIMULATION CLASSROOM | 1,800 | 500 | 14 | 500 | 21.6 | 1.5 | 2 | 140 | 111 | 0.15 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.20 | 300Z - SIMULATION CLASSROOM | 1,800 | 500 | 14 | 500 | 21.6 | 1.5 | 2 | 140 | 111 | 0.15 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.21 | 300C - SIMULATION CLASSROOM | 1,800 | 500 | 14 | 500 | 21.6 | 1.5 | 2 | 140 | 111 | 0.15 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.22 | C031 - COR, 305 COMM | 250 | 80 | 5 | 200 | 7.8 | 0.5 | 2 | 140 | 108 | 0.20 | 91 | TRANE | VCWF | 1 - 4 |
| VAV-2.23 | C030 - CORRIDOR | 600 | 150 | 8 | 400 | 15.7 | 1.0 | 2 | 140 | 108 | 0.20 | 91 | TRANE | VCWF | 1 - 4 |
| VAV-2.24 | C020 - COR | 250 | 80 | 5 | 200 | 7.8 | 0.5 | 2 | 140 | 108 | 0.20 | 91 | TRANE | VCWF | 1 - 4 |
| VAV-2.25 | 101 - BRIEF/DEBRIEF | 750 | 200 | 8 | 200 | 8.8 | 0.5 | 3 | 140 | 104 | 0.10 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.26 | 102 - BRIEF/DEBRIEF | 750 | 200 | 8 | 200 | 8.8 | 0.5 | 3 | 140 | 104 | 0.10 | 95 | TRANE | VCWF | 1 - 5 |
| VAV-2.27 | 100 - ENTRY WS | 125 | 40 | 4 | 60 | 3.2 | 0.5 | 1 | 140 | 127 | 0.52 | 105 | TRANE | VCWF | 1 - 4 |
| VAV-2.28 | L010 - MAIN ENTRY LOBBY | 1,250 | 300 | 10 | 600 | 21.8 | 1.5 | 2 | 140 | 110 | 0.40 | 88 | TRANE | VCWF | 1 - 4 |
| VAV-2.29 | 103A - FIRE STORAGE & CORRIDOR C013 | 350 | 150 | 6 | 150 | 6.9 | 0.5 | 2 | 140 | 112 | 0.20 | 97 | TRANE | VCWF | 1 - 4 |
| VAV-2.30 | 104A - FIRE ROOM | 450 | 150 | 6 | 125 | 6.3 | 0.5 | 2 | 140 | 114 | 0.20 | 102 | TRANE | VCWF | 1 - 5 |
| VAV-2.31 | 104B - FIRE ROOM | 450 | 150 | 6 | 125 | 6.3 | 0.5 | 2 | 140 | 114 | 0.20 | 102 | TRANE | VCWF | 1 - 5 |
| VAV-2.32 | 104C - FIRE ROOM | 450 | 150 | 6 | 125 | 6.3 | 0.5 | 2 | 140 | 114 | 0.20 | 102 | TRANE | VCWF | 1 - 5 |
| VAV-2.33 | C010 - CORRIDOR | 175 | 40 | 4 | 60 | 3.3 | 0.5 | 1 | 140 | 127 | 0.60 | 105 | TRANE | VCWF | 1 - 4 |

NOTES: 1. MAXIMUM ALLOWABLE STATIC PRESSURE LOSS ACROSS THE BOX = 0.5 INCHES WATER GAUGE.
 2. MAXIMUM DISCHARGE STATIC PRESSURE DOWNSTREAM = 0.5 INCHES WATER GAUGE.
 3. MAXIMUM ALLOWABLE DISCHARGE OR RADIATED NOISE CRITERIA (NC) = 30.
 4. HOT WATER COIL PERFORMANCE DATA IS BASED ON A 140 DEGREE EWT - MFG TO PROVIDE SPECIFIC COIL PARAMETERS (FPI, ETC.) TO MEET ALL REQUIRED PERFORMANCE CRITERIA (MBH @ 140° INPUT; TOTAL APD ACROSS BOX & COIL)
 5. ROOM TO CONTAIN OCCUPANCY SENSOR TIED TO VAV BOX TO ALLOW FOR SHUT-OFF MINIMUM AIRFLOW DURING PERIODS OF UNOCCUPANCY (VS. SCHEDULED MINIMUM).

5/28/2021 16:58

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DEPARTMENT OF THE NAVY
 NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
 ROIC FLORENCE CAMP LEJEUNE
 MCB CAMP LEJEUNE
 JACKSONVILLE, NC
 P1338 II MEF SIMULATION/TRAINING CENTER
 REPLACEMENT
 MECHANICAL - SCHEDULES

Michael Baker INTERNATIONAL
 100 AIRSIDE DRIVE
 MOON TOWNSHIP, PA 15108
 APPROVED

FOR COMMANDER NAVFAC
 ACTIVITY
 MARINE CORPS BASE
 CAMP LEJEUNE

SATISFACTORY TO DATE

DES: _____
 DRW: _____
 CHK: _____

PM: _____
 BRANCH MANAGER: _____
 CHIEF ENGINEER: _____
 FIRE PROTECTION: _____

SCALE: AS NOTED
 EPROJCT NO.: 1590892
 CONSTR. CONTR. NO.: N40085-20-C-0059
 NAVFAC DRAWING NO.: _____
 SHEET _____ OF _____

M-602

DP2 SUBMISSION - P1338 BUILDING -PRE-FINAL SUBMISSION
 PRE-FINAL ITR SET 2021-05-28

UNCLASSIFIED

FILE NAME: BIM360/HF PACKAGE 3P1338.MEF SIM CTR-1590892-M.rvt
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5 CONSISTENT. EITHER INCLUDE ON ALL SCHEDULES OR DONT.

DUCTLESS MINI-SPLIT AIR CONDITIONER (SSAC/SSCU) & HEAT PUMP (SSHHP/HPCU) SYSTEM SCHEDULE - P1338

| TAG (INDOOR / OUTDOOR UNIT) | SPACE SERVED | ARI COOLING CAPACITY | | HEATING CAPACITY | | ARI MATCHED PAIR EFFICIENCY | | | INDOOR UNIT | | | | OUTDOOR UNIT | | | | REFRIGERANT PIPING | | | | BASIS OF DESIGN | | NOTES | |
|-----------------------------|-------------------------------------|----------------------|------------|--------------------|---------------|-----------------------------|------|------|---------------------------|----------|---------------------------------------|--------------|-------------------------|------------|------------|---------------------------------------|--------------------|---------------|--------------|------------------------|--------------------|------------|----------------|-------------------------------|
| | | TOTAL (MBH) | MIN. (MBH) | @ AHRI 47° OUTDOOR | @ 17° OUTDOOR | SEER | EER | HSPF | FAN AIRFLOW MIN-MAX (CFM) | TYPE | SIZE LENGTH X HEIGHT X DEPTH (INCHES) | WEIGHT (LBS) | ELECTRICAL (SEE NOTE 1) | | | SIZE LENGTH X WIDTH X HEIGHT (INCHES) | WEIGHT (LBS) | LIQUID LINE Ø | VAPOR LINE Ø | MAX PIPING LENGTH (FT) | MAX ELEVATION (FT) | MANUF | | MODEL (INDOOR / OUTDOOR UNIT) |
| | | | | | | | | | | | | | VOLTS/ PHASE/ HERTZ | MCA (AMPS) | MOC (AMPS) | | | | | | | | | |
| SSAC-01 / SSCU-01 | 110A - STOR | 18 | 8 | - | - | 18.5 | 9.9 | - | 320 - 425 | WALL MTD | 36 x 10 x 12 | 30 | 208 / 1 / 60 | 11 | 28 | 32 x 11 x 25 | 100 | 1/4 | 1/2 | 165 | 100 | MITSUBISHI | PKA/PUY-A18-BS | 1-3,5-10 |
| SSAC-02 / SSCU-02 | 208 - COMM | 30 | 9 | - | - | 19.8 | 9.5 | - | 635 - 775 | WALL MTD | 46 x 12 x 15 | 50 | 208 / 1 / 60 | 19 | 26 | 38 x 14 x 38 | 155 | 3/8 | 5/8 | 225 | 100 | MITSUBISHI | PKA/PUY-A30-BS | 1-3,5-10 |
| SSAC-03 / SSCU-03 | 304B - SIM CTRL SECURE COMM (VAULT) | 36 | 16 | - | - | 18.8 | 10.8 | - | 705 - 920 | WALL MTD | 46 x 12 x 15 | 50 | 208 / 1 / 60 | 25 | 31 | 42 x 14 x 53 | 215 | 3/8 | 5/8 | 225 | 100 | MITSUBISHI | PKA/PUY-A36-BS | 1-3,5-10 |
| SSHHP-01 / HPCU-01 | 115 - COMM | 18 | 8 | 19 | 11.3 | 18.5 | 9.9 | 10.2 | 320 - 425 | WALL MTD | 36 x 10 x 12 | 30 | 208 / 1 / 60 | 11 | 28 | 32 x 11 x 25 | 100 | 1/4 | 1/2 | 100 | 100 | MITSUBISHI | PKA/PUY-A18-BS | 1 - 10 |
| SSHHP-02 / HPCU-02 | 305 - COMM | 18 | 8 | 19 | 11.3 | 18.5 | 9.9 | 10.2 | 320 - 425 | WALL MTD | 36 x 10 x 12 | 30 | 208 / 1 / 60 | 11 | 28 | 32 x 11 x 25 | 100 | 1/4 | 1/2 | 100 | 100 | MITSUBISHI | PKA/PUY-A18-BS | 1 - 10 |

D303002 DIRECT EXPANSION SYSTEMS
 Provide a dedicated air-cooled DX ductless split system cooling only unit for IT closets, telecom rooms, and server rooms and any other space requiring independent conditioning. If the unit does not have a BACnet system interface, provide a room temperature sensor and a current sensor, tied to the building DDC system, to determine the operating status of the system. Size DX cooling equipment at 120% of IT equipment load. Provide low ambient cooling.

Confirm equip sized per RFP

Suggest 15°F similar to chiller RFP req't.

- NOTES: 1. INDOOR UNIT SHALL BE POWERED BY THE OUTDOOR UNIT. POWER AND CONTROL WIRING BETWEEN INDOOR AND OUTDOOR UNITS PROVIDED BY MECHANICAL CONTRACTOR.
 2. PROVIDE WITH LOCAL DISCONNECT, OVERCURRENT PROTECTION, AND STARTER.
 3. ARI COOLING RATED CAPACITIES ARE BASED ON 80°F DB/67°F WB INDOOR TEMPERATURES AND 95°F DB/75°F WB OUTDOOR TEMPERATURES.
 4. ARI HEATING RATED CAPACITIES ARE BASED ON 70°F DB/60°F WB INDOOR TEMPERATURES AND 47°F DB/43°F WB OUTDOOR TEMPERATURES.
 5. PROVIDE UNIT WITH LOW AMBIENT COOLING CAPABILITY DOWN TO 0°F OR LESS.
 6. PROVIDE WITH CONDENSATE PUMP AS REQUIRED TO PROVIDE NECESSARY LIFT TO ACCOMMODATE GRAVITY CONDENSATE DRAINAGE TO POINT OF TERMINATION AS INDICATED ON PLANS.
 7. PROVIDE WITH COMPONENTS FULLY CHARGED WITH R-410A REFRIGERANT AND INTERCONNECTING REFRIGERANT PIPING FOR FIELD INSTALLATION.
 8. PROVIDE WITH MANUFACTURER'S STANDARD WASHABLE AIR FILTER/FILTRATION SYSTEM.
 9. UNIT TO BE PROVIDED WITH BACNET CONTROLLER FOR CONNECTION AND CONTROL FROM BUILDING DDC SYSTEM
 10. OUTDOOR UNIT TO BE PROVIDED WITH MANUFACTURER'S STANDARD SEACOAST PROTECTION SYSTEM FOR CORROSION RESISTANCE WHEN INSTALLED IN A COASTAL ENVIRONMENT.

5/28/2021 16:56

EXHAUST (EF-) & SUPPLY (SF-) FAN SCHEDULE - P1338

| TAG | SERVICE | LOCATION / SPACE SERVED | FAN TYPE | WHEEL TYPE | DRIVE TYPE | AIR FLOW (CFM) | ESP (IN. WG.) | FAN RPM | MAX SOUND (SONES) | MOTOR DATA | | | BASIS OF DESIGN | | NOTES |
|------|---------|--------------------------------|-----------|------------|------------|----------------|---------------|---------|-------------------|-----------------|-----------|---------------------|-----------------|---------------|----------|
| | | | | | | | | | | MOTOR SIZE (HP) | MOTOR RPM | VOLTS/ PHASE/ HERTZ | MANUF | MODEL | |
| SF-1 | SUPPLY | 401 - MECHANICAL (HOT) | INLINE | BI | DIRECT | 2,000 | 0.5 | 1011 | 8.8 | 1/2 | 1140 | 115 / 1 / 60 | GREENHECK | SQ-160-B | 1 - 3, 6 |
| EF-1 | EXHAUST | 101 - CLASSIFIED AREA RR, ETC. | INLINE | BI | DIRECT | 1,650 | 0.5 | 870 | 6.7 | 1/2 | 1140 | 115 / 1 / 60 | GREENHECK | SQ-160-B | 1,2,4 |
| EF-2 | EXHAUST | 403 - ELECTRICAL ROOM | INLINE | BI | DIRECT | 900 | 0.35 | 1323 | 7.4 | 1/4 | 1725 | 115 / 1 / 60 | GREENHECK | SQ-100-VG | 1 - 3 |
| EF-3 | EXHAUST | 116 - ELECTRICAL ROOM | WALL PROP | PROP | DIRECT | 300 | 0.25 | 979 | 4.0 | 1/4 | 1725 | 115 / 1 / 60 | GREENHECK | SE1-12-432 VG | 1 - 3, 5 |
| EF-4 | EXHAUST | 306 - ELECTRICAL ROOM | WALL PROP | PROP | DIRECT | 300 | 0.25 | 979 | 4.0 | 1/4 | 1725 | 115 / 1 / 60 | GREENHECK | SE1-12-432 VG | 1 - 3, 5 |

- NOTES: 1. PROVIDE WITH LOCAL DISCONNECT SWITCH FOR FIELD MOUNTING AND INSTALLATION. PROVIDE WITH MOTOR STARTER AND OVERCURRENT PROTECTION.
 2. PROVIDE UNIT WITH SOLID STATE SPEED CONTROLLER TO BE MOUNTED ON UNIT (SF 1, EF-1,2) OR ECM WITH DIAL (EF 3,4) - FIELD ADJUSTABLE TO SCHEDULED AIRFLOW.
 3. CONTROL: CONTROL SHALL BE BY SPACE MOUNTED THERMOSTAT FOR VENTILATION ROOM COOLING - SEE CONTROL DRAWINGS.
 4. CONTROL: INTERLOCK TO OPERATE CONTINUOUSLY IN CONJUNCTION WITH ASSOCIATED AHU-2 (SECURE AREA) OCCUPATION - SEE CONTROL DRAWINGS.
 5. PROVIDE WITH LOW LEAKAGE INSULATED DAMPER W/END SWITCH, 45° WALL HOOD DISCHARGE ASSEMBLY WITH INTEGRAL BIRDSCREEN.
 6. PROVIDE WITH FILTER SECTION UTILIZING 1" PLEATED MERV 8 FILTERS (SIZE 20x20x1).

WITH END

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APPR DATE


DESCRIPTION

SYN



PRELIMINARY
NOT FOR CONSTRUCTION

SEAL



Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
A/E/IN/P/O

APPROVED

FOR COMMANDER NAVFAC

ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

SATISFACTORY TO DATE

DES DRW CHK

PM

BRANCH MANAGER

CHIEF ENGINEER

FIRE PROTECTION

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
ROICC FLORENCE CAMP LEJEUNE
JACKSONVILLE, NC
JACKSONVILLE, NC
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL - SCHEDULES

SCALE: AS NOTED
EPROJCT NO.: 1590892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:
SHEET OF

M-603

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

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DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

ALIGN

DIFFUSER, REGISTER AND GRILLE SCHEDULE - B1338

Table with columns: TAG, MAX CFM, SERVICE, TYPE, SIZE (INCHES), MAX NC, BASIS OF DESIGN, NOTES. Rows A through X.

NOTES: 1. REFER TO DRAWINGS FOR ACTUAL AIR BALANCE QUANTITIES IN SPECIFIC LOCATIONS. 2. CONTRACTOR TO VERIFY CEILING TYPE AND PROVIDE PROPER FRAME AND BORDER TYPE. 3. ALL DIFFUSERS, REGISTERS AND GRILLES ARE TO BE OF ALUMINUM CONSTRUCTION AND PROVIDED WITH MANUFACTURER'S STANDARD ENAMEL PAINT FINISH...

5/28/2021 16:55

TYPO

PACKAGED AIR COOLED CHILLER SCHEDULE (CH-01,02) - P1338

Table with columns: TAG, NOMINAL CAPACITY (TONS), NET CAPACITY @95° OAT (TONS), EFFICIENCY, EVAPORATOR, CONDENSER FANS, COMPRESSOR, ELECTRICAL, BASIS OF DESIGN, NOTES.

NOTES: 1. UNIT PERFORMANCE INDICATED BASED ON 95° AMBIENT AIR TEMPERATURE. 2. CHILLER PHYSICAL DATA: LENGTH = 230"; WIDTH = 87"; HEIGHT = 98"; OPERATING WEIGHT = 8631 LBS; REFRIGERANT CHARGE = 86.6 + 84.9 = 171.5 LB. 3. CHILLER TO BE EQUIPPED WITH LOW SOUND FANS; SHELL AND TUBE TYPE EVAPORATOR HEAT EXCHANGER; MICROCHANNEL CONDENSER WITH CORROSION RESISTANT COATING...

5/28/2021 16:55

IN ACCORDANCE WITH

TYPO

HYDRONIC UNIT HEATER (UH) SCHEDULE - P1338

Table with columns: TAG, SPACE SERVED, AIRFLOW (CFM), GPM, EWT/LWT (°F), MBH, MAX WPD (FT H2O), ELECTRICAL DATA, BASIS OF DESIGN, NOTES.

NOTES: 1. PROVIDE WITH LOCAL DISCONNECT, OVERCURRENT PROTECTION, AND STARTER.

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HOT WATER BOILER (B-) SCHEDULE - B1338

Table with columns: TAG, TYPE, MAX OUTPUT (MBH), MAX GAS INPUT (MBH), MIN GAS INPUT (MBH), MIN GAS PRESS (IN WG), WATER DATA, PUMP, BASIS OF DESIGN, NOTES.

NOTES: 1. PROVIDE WITH MULTIPLE BOILER CONTROLLER AND INTERFACE TO BUILDING DDC SYSTEM (BACNET COMPATIBLE). 2. PROVIDE WITH DIRECT SPARK IGNITION SYSTEM, MODULATING GAS VALVE AND BURNER CAPABLE OF 5:1 TURNDOWN. 3. BOILER SHALL ACHIEVE 95% THERMAL EFFICIENCY & MEET ALL CURRENT LOW NOx REGULATIONS. 4. BOILER TO BE SUPPLIED WITH FORCED COMBUSTION AIR DRAFT SYSTEM...

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LOUVER (L-) SCHEDULE - B1338

Table with columns: TAG, SERVING, SERVICE, SIZE WxH (IN), DESIGN CFM, FREE AREA (SQFT), MAX PRESSURE DROP (IN WG), BASIS OF DESIGN, NOTES.

NOTES: 1. PROVIDE MANUFACTURER'S STANDARD COLOR AND FINISH CHART WITH SUBMITTAL FOR SELECTION BY ARCHITECT. 2. LOUVER SHALL BE AMCA LISTED TO MEET AMCA 550 (HIGH VELOCITY WIND DRIVEN RAIN RESISTANT) AND MIAMI-DADE COUNTY APPROVED. 3. PROVIDE WITH LOW LEAKAGE MOTORIZED DAMPER(S) FOR ATFP COMPLIANCE (3 CFM/SQFT AGAINST 1" DIFFERENTIAL PRESSURE) INTERNAL OR EXTERNAL TO LOUVER. SEE DRAWINGS FOR LOCATION OF MOTORIZED DAMPERS...

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ADD "*"

DEHUMIDIFIER (DEH) SCHEDULE - P1338

Table with columns: TAG, AREA SERVED, AMBIENT TEMP OPERATING RANGE, CAPACITY (PINTS PER DAY), ELECTRICAL, BASIS OF DESIGN, NOTES.

NOTES: 1. UNIT SHALL BE PROVIDED WITH FULL CHARGE OF R-410A REFRIGERANT. 2. UNIT WEIGHT = 110 LBS; DIMENSIONS (L x W x H inches): 20 x 17 x 36. 3. MOUNT UNIT ON WALL BRACKET TO PERMIT HARD PIPED GRAVITY DRAINAGE TO FLOOR DRAIN. 4. CAPACITY RATINGS BASED ON STANDARD DEHUMIDIFIER RATING CONDITIONS OF 80°F, 60% RH. 5. UNIT SHALL HARD WIRED WITH DISCONNECT (NO PIGTAIL PLUG) TO DISCOURAGE THEFT/RELOCATION. 6. UNIT SHALL BE WALL MOUNTED WITHIN THE MECHANICAL ROOMS AS INDICATED ON PLANS.

5/28/2021 16:55

DRAINAGE

ELECTRIC WALL (EWH) & UNIT HEATER (EUH) SCHEDULE - P1338

Table with columns: TAG, AREA (ROOM) SERVED, AIR FLOW (CFM), HEATER DATA, BASIS OF DESIGN, NOTES.

NOTES: 1. UNIT SHALL BE CONTROLLED BY BUILDING DDC SYSTEM THERMOSTAT; PROVIDE WITH DISCONNECT.

5/28/2021 16:55

NEEDS DRAWN PROPERLY ON PLANS

Vertical sidebar containing project information: DEPARTMENT OF THE NAVY, NAVAL FACILITIES ENGINEERING COMMAND, PROJECT NO. 1590892, CONSTRUCTION CONTRACT NO. N40085-20-C-0059, NAVFAC DRAWING NO., SHEET OF, M-604, and various logos and stamps.

FILE NAME: BIM_360/HF PACKAGE 3P1338_MEF_SIM CTR-1590892-M-01

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PUMP (P-) SCHEDULE - P1338

| TAG | PUMP TYPE | SERVICE | LOCATION | FLUID TYPE | FLUID TEMP (°F) | GPM | HEAD (FT H2O) | NSPH REQD (FT) | IMPELLER DIAMETER (IN) | MIN EFF. (%) | ELECTRICAL DATA | | | BASIS OF DESIGN | | NOTES |
|----------|------------------------------|----------------------|------------------|------------|-----------------|-----|---------------|----------------|------------------------|--------------|-----------------|-------------------|---------------------|-----------------|-------------------|-------|
| | | | | | | | | | | | MTR HP | NOMINAL MOTOR RPM | VOLTS/ PHASE/ HERTZ | MANUF | MODEL | |
| P-1 | FLOOR MTD, HORIZONTAL INLINE | CHW - PRIMARY (CH-1) | 402-MECHANICAL | WATER | 56 | 395 | 60 | 6 | 8.375 | 75 | 10 | 1800 | 480 / 3 / 60 | B & G | e-80 4x4x9.5B | 1, 2 |
| P-2 | FLOOR MTD, HORIZONTAL INLINE | CHW-PRIMARY (CH-1) | 402-MECHANICAL | WATER | 56 | 395 | 60 | 6 | 8.375 | 75 | 10 | 1800 | 480 / 3 / 60 | B & G | e-80 4x4x9.5B | 1, 2 |
| P-3 | FLOOR MTD, HORIZONTAL INLINE | HW - SECONDARY | 401 - MECH (HOT) | WATER | 140 | 65 | 65 | 6 | 8.75 | 53 | 3 | 1800 | 480 / 3 / 60 | B & G | e-80 1.5x1.5x9.5B | 1, 3 |
| P-4 | FLOOR MTD, HORIZONTAL INLINE | HW - SECONDARY | 401 - MECH (HOT) | WATER | 140 | 65 | 65 | 6 | 8.75 | 53 | 3 | 1800 | 480 / 3 / 60 | B & G | e-80 1.5x1.5x9.5B | 1, 3 |
| BP-1,2,3 | INLINE, BOILER CIRC | HOT WATER | 401 - MECH (HOT) | WATER | 110 | 22 | 10 | 3.97 | 6 | 54 | 3/4 | 1200 | 480 / 3 / 60 | B & G | e-80 | 1,3 |

NOTES: 1. MOTORS SHALL BE PREMIUM EFFICIENCY TYPE.
 2. INLINE TYPE PUMP - PROVIDE WITH ACCESSORIES NECESSARY FOR FLOOR MOUNTING IN HORIZONTAL INLINE FASHION ; PROVIDE RIGGING POINTS FOR PUMPS 5HP AND GREATER.
 3. INLINE TYPE PUMP - TO BE MOUNTED ON PIPING / INLINE PUMP SUPPORT RACK AS INDICATED ON PLANS

AIR SEPARATION & SEDIMENT REMOVAL TANK (AS) SCHEDULE -P1338

| TAG | LOCATION | SERVICE | TYPE | GPM | CONNECTION SIZE | INSTALLED WEIGHT (LBS) | BASIS OF DESIGN | | NOTES |
|------|------------------|--------------------|--------------|-----|-----------------|------------------------|-----------------|----------|-------|
| | | | | | | | MANUF | MODEL | |
| AS-1 | 401 - MECH (HOT) | HYDRONIC HOT WATER | COALSCENCING | 65 | 2-1/2" FLANGED | 110 | B & G | CRS - 6F | 1 - 3 |
| AS-2 | 402 - MECHANICAL | CHILLED WATER | COALSCENCING | 400 | 6" FLANGED | 500 | B & G | CRS - 3F | 1 - 3 |

NOTES: 1. REFER TO PIPING DIAGRAMS FOR INSTALLATION LOCATION IN HYDRONIC SYSTEM.
 2. PROVIDE WITH BLOW DOWN CONNECTION AND MANUAL BLOW DOWN VALVE.
 3. PROVIDE WITH AUTOMATIC AIR VENT FROM SAME MFG.

EXPANSION TANK (ET-) SCHEDULE - P1338

| TAG | LOCATION | SERVICE | TYPE | SIZE | VOLUME (GALLON) | | BASIS OF DESIGN | | NOTES |
|------|------------------|--------------------|--------------------|-------------------|-----------------|-------------|-----------------|--------|---------|
| | | | | | TANK | ACCEP-TANCE | MANUF | MODEL | |
| ET-1 | 401 - MECH (HOT) | HYDRONIC HOT WATER | VERTICAL - FLR MTD | 16" DIA X 34.5" H | 22 | 8.2 | B & G | B-85LA | 1, 2, 3 |
| ET-2 | 402 - MECHANICAL | CHILLED WATER | VERTICAL - FLR MTD | 16" DIA X 34.5" H | 22 | 9.8 | B & G | B-85LA | 1, 2, 3 |

NOTES: 1. HEAVY DUTY BUTYL RUBBER BLADDER TYPE; PRE-CHARGED TO 10 PSI; 125 PSI RATED DESIGN PRESSURE.
 2. TANK ACCEPTANCE VOLUME SHALL BE NO GREATER THAN 50% OF TANK VOLUME REGARDLESS OF MANUFACTURER'S LITERATURE INDICATING BLADDER TANKS WITH 100% TANK VOLUME ACCEPTANCE CAPACITY.
 3. CONNECTION SIZE SHALL BE 1" NPT

CONTROL VALVE SCHEDULE (CV) - P1338

| VALVE | MAX FLOW (GPM) | DESIGN FLOW COEFFICIENT (Cv) | CONFIGURATION (2 WAY OR 3 WAY) | ACTION (MODULATING OR 2 POSITION) | NOTES |
|------------------------|----------------|------------------------------|--------------------------------|-----------------------------------|----------|
| VAV BOXES<0.5 GPM | 0.5 | 0.25 | 2 WAY | MODULATING | 1 - 4 |
| VAV BOXES<1.0 GPM | 1.0 | 0.50 | 2 WAY | MODULATING | 1 - 4 |
| VAV BOXES<1.5 GPM | 1.5 | 0.75 | 2 WAY | MODULATING | 1 - 4 |
| AHU-01 CHW | 49.9 | 24.95 | 3 WAY | MODULATING | 1 - 3 |
| AHU-02 CHW | 281.8 | 140.90 | 3 WAY | MODULATING | 1 - 3 |
| AHU-01 HW | 3.7 | 1.85 | 2 WAY | MODULATING | 1 - 3 |
| AHU-02 HW | 26.3 | 13.15 | 2 WAY | MODULATING | 1 - 3 |
| CRAC-1-3 CHW ISOLATION | 31.3 | 15.65 | 2 WAY | 2 POSITION | 1 - 3 |
| CRAC-1-3 CHW FLOW | 31.3 | 15.65 | 3 WAY | MODULATING | 1 - 3, 5 |
| CRAC-1-3 HW FLOW | 2.5 | 1.25 | 2 WAY | MODULATING | 1 - 3, 5 |

NOTES: 1. THE INFORMATION IN THIS SCHEDULE IS BASED ON EQUIPMENT SELECTIONS MADE DURING THE DESIGN. THE CONTRACTOR SHALL VERIFY THE VALVE REQUIREMENTS FOR THE ACTUAL EQUIPMENT PROVIDED.
 2. THE FLOW COEFFICIENT C (OR FLOW-CAPACITY RATING OF VALVE) IS $C = Q \sqrt{SG/\Delta P}$ WHERE: Q IS THE RATE OF FLOW (GPM); SG IS THE SPECIFIC GRAVITY OF THE FLUID (FOR WATER = 1); ΔP IS THE PRESSURE DROP ACROSS THE VALVE (AT 4 PSI IN THIS SCHEDULE). CONTRACTOR MAY SELECT A DIFFERENT PRESSURE DROP TO SUIT EQUIPMENT REQUIREMENTS IF REQUIRED.
 3. TWO POSITION ON/OFF CONTROL VALVE BODIES SHALL BE LINE SIZED. MODULATING VALVE BODIES SHALL BE LINE SIZED WITH CHARACTERIZED PORTING OR ONE TO TWO SIZES SMALLER TO ENSURE CONTROLLABILITY OVER FULL ACTUATOR RANGE. C VALUES INDICATED ARE BASED ON FULL FLOW.
 4. VAV BOXES SHALL BE PROVIDE WITH MANUFACTURER'S VALVE PACKAGE INCLUDING TWO WAY MODULATING CONTROL VALVE IN ACCORDANCE WITH MANUFACTURER'S EQUIPMENT REQUIREMENTS.
 5. CRAC UNITS SHALL BE PROVIDED WITH MANUFACTURER'S PROVIDED 3-WAY CHILLED WATER VALVES AND 2-WAY HEATING VALVES.

CHILLED WATER BUFFER TANK (CWBT) SCHEDULE - P1338

| TAG | TYPE | SERVICE | LOCATION | SIZE DIA x HT (IN) | CONN. SIZE (IN) | CAPACITY (GAL) | FACTORY HEAT TRACING | | BASIS OF DESIGN | | NOTES |
|--------|----------|---------------|-----------|--------------------|-----------------|----------------|----------------------|----------|-----------------|--------------|-------|
| | | | | | | | VOLT/ PHASE/ HERTZ | MCA/ MOP | MANUF | MODEL | |
| CWBT-1 | VERTICAL | CHILLED WATER | MECH ROOM | 60 x 96 | 6" FLANGE | 1040 | 120/1/60 | <12 / 15 | CEMLINE | V-CWB-F-C-2I | 1 - 2 |

NOTES: 1. TANK TO BE PROVIDED WITH 2" FLEXIBLE ELASTOMERIC INSULATION; INTERNAL BAFFLE; 6" FLANGED CONNECTIONS & AIR VENT.
 2. UNIT SHALL BE ASME RATED PRESSURE VESSEL - RATED TO 125PSIG @ 375°F; BUILT TO ASME SECTION VIII, DIVISION 1.


VIBRATION ISOLATION SCHEDULE - P1338

| EQUIPMENT TYPE | TAG | HP | BASE TYPE | ISOLATOR TYPE | MINIMUM LOADED STATIC DEFLECTION (INCHES) | NOTES |
|------------------------------|------------|---------|-----------------------|-----------------|---|---------|
| AIR HANDLING UNIT | AHU-1, 2 | ANY | 4" HOUSEKEEPING PAD | NA (SEE NOTE 2) | NA (SEE NOTE 2) | 1 - 4 |
| COMPUTER ROOM AC | CRAC-1,2,3 | ANY | MFR FLOOR STAND | NA (SEE NOTE 2) | NA (SEE NOTE 2) | 1 - 4 |
| PUMPS (INLINE/FLOOR MOUNTED) | P-1,2 | 5 TO 25 | DIRECT | SPRING | 0.75 | 1, 4 |
| FANS; INLINE ≤ 22" DIA | EF, SF# | ANY | MFG RECOMMENDED | SPRING HANGAR | 0.75 | 1, 3 |
| BOILERS; FIRE TUBE | B-1,2,3 | ALL | DIRECT | RUBBER PAD | 0.25 | 1, 2, 4 |
| AIR COOLED CHILLER | CH-# | ANY | OUTDOOR EQUIPMENT PAD | NA (SEE NOTE 2) | NA (SEE NOTE 2) | 1, 2, 4 |


NOTES: 1. REFER TO SPECIFICATION SECTION 22 05 48.00 20 MECHANICAL SOUND, VIBRATION AND SEISMIC CONTROL
 2. FANS, PUMPS, COMPRESSORS, ETC. WITHIN MANUFACTURER SUPPLIED EQUIPMENT SHALL BE PROVIDED WITH MANUFACTURER'S RECOMMENDED VIBRATION ISOLATION
 3. FLEXIBLE DUCT CONNECTIONS SHALL BE PROVIDED AT CONNECTIONS TO DUCTWORK.
 4. FLEXIBLE PIPING CONNECTIONS SHALL BE PROVIDED AT CONNECTIONS TO SYSTEM PIPING.
 4. SUSPENSION HANGER FOR SEISMIC BRACING AND RESTRAINTS REFER TO DETAIL XX.

FIXED PRINT AREAS IN EXCEL - TRY AGAIN

Confirm Div 22 spec section vs 23 05 48.19 BRACING FOR HVAC (P1527 DR CHECK #1525958)



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MOON TOWNSHIP, PA 15108

FOR COMMANDER NAVFAC
ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

SATISFACTORY TO DATE

DES _____ DRW _____ CHK _____

PM _____

BRANCH MANAGER _____

CHIEF ENGINEER _____

FIRE PROTECTION _____

NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
JACKSONVILLE, NC
JACKSONVILLE, NC
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL - SCHEDULES

SCALE: AS NOTED
PROJECT NO.: 1509892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:
SHEET _____ OF _____

M-605

VENTILATION SCHEDULE - AHU-1

Table with columns: ROOM NUMBER, ROOM NAME, AREA (FT2), OCCUPANCY (# PEOPLE), CALCULATED REQUIRED OUTSIDE AIR (OA), EXHAUST AIR (EA), NOTES. Includes a large text block: 'THE VENTILATION REQUIREMENT FOR THIS AIR HANDLING SYSTEM HAS BEEN DETERMINED BY UTILIZING THE ASHRAE 62.1 MULTI-ZONE CALCULATION SPREADSHEET...'

VENTILATION SCHEDULE - AHU-2

Table with columns: ROOM NUMBER, ROOM NAME, AREA (FT2), OCCUPANCY (# PEOPLE), CALCULATED REQUIRED OUTSIDE AIR (OA), EXHAUST AIR (EA), NOTES. Includes a large text block: 'THE VENTILATION REQUIREMENT FOR THIS AIR HANDLING SYSTEM HAS BEEN DETERMINED BY UTILIZING THE ASHRAE 62.1 MULTI-ZONE CALCULATION SPREADSHEET...'

UPDATE - USE ERIN'S SPREADSHEET FOR BETTER PRESENTATION? VERIFY ROOM NUMBERS. VERIFY AIRFLOWS WITH REVISED VAV PER LOAD UPDATE FROM 4/30 ROOM CHECKSUMS

UPDATE EXHAUST PROVIDED VALUES ("SPECIFIED EA")

Summary table with columns: Room, Approx Sqft, Exhaust Needs/Basis, Req'd, Design. Lists exhaust requirements for rooms like G025 Mens, G023 Mens Shower, etc.

Vertical sidebar containing logos (NAVAC, Jordan Company, Michael Baker International), project title 'P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT MECHANICAL - SCHEDULES', and drawing information.

FILE NAME: BIM_360/HF PACKAGE 3P1338_MEF_SIM_CTR-1509092-M.rvt PLOTTED: 5/28/2021 4:57:26 PM

UPDATED SINCE ITR SET PRINTED BLUEBEAM SCHEDULE AND DIAGRAM INSERTS SHOWN HEREIN; PLEASE UPDATE REVIT WITH CURRENT EXCEL AND AUTOCAD FILE REFERENCES

AIR BALANCE CALCULATION - P1338

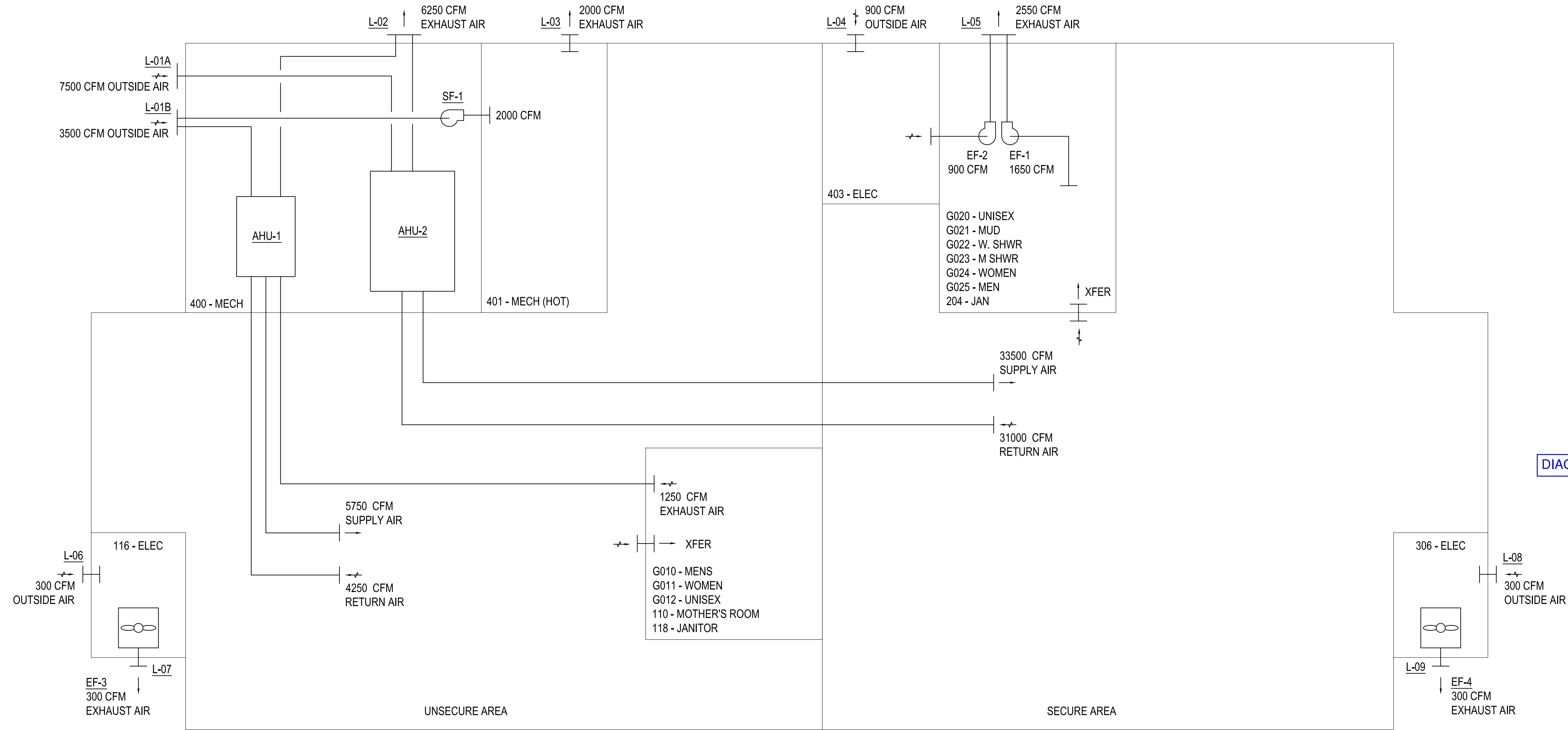
| DEVICE | ROOM OR AREA SERVED | SECURE AREA AIRFLOWS (CFM) | | | | | NON-SECURE AREA AIRFLOWS | | | | | MECH & ELEC AREAS (EXCLUDED FROM AIR BARRIER) | | | NOTES | |
|---------------------|---|----------------------------|------------------------|------------------|------------|------------|--------------------------|---------------|------------------------|------------|------------|---|-------|-----|-------|-----------|
| | | SA (VARIABLE) | RA (RECIRC) (VARIABLE) | AHU HX | | EA (CONST) | +/- PRESS | SA (VARIABLE) | RA (RECIRC) (VARIABLE) | AHU HX | | +/- PRESS | SA | EA | | +/- PRESS |
| | | | | RA (EXH) (CONST) | OA (CONST) | | | | | OA (CONST) | EA (CONST) | | | | | |
| AHU-01 | NON-SECURE BUILDING AREA | | | | | | | 5750 | (4250) | 1500 | (1250) | | | | | |
| AHU-02 | SECURE BUILDING AREA | 33500 | (26000) | (5000) | 7500 | | | | | | | | | | | |
| SF-01 | 127 - MECHANICAL ROOM (HEATING EQUIPMENT) | | | | | | | | | | | 2000 | | POS | 1, 2 | |
| EF-01 | CLASSIFIED AREA RESTROOMS, ETC. | | | | | (1650) | | | | | | | | | | |
| EF-02 | 127 - MAIN ELECTRICAL ROOM | | | | | | | | | | | | (900) | NEG | 1 | |
| EF-03 | 122 - ELECTRICAL ROOM (WEST) | | | | | | | | | | | | (300) | NEG | 1 | |
| EF-04 | 155 - ELECTRICAL ROOM (EAST) | | | | | | | | | | | | (300) | NEG | 1 | |
| AREA TOTALS: | | 33500 | (26000) | (5000) | 7500 | (1650) | 850 | 5750 | (4250) | 1500 | (1250) | 250 | | | | |

NOTES

- EF/SF SHALL OPERATE INTERMITTENTLY BY THERMOSTATIC CONTROL (TSTAT SET AT 85°F - ADJ.) TO PROVIDE VENTILATION BASED COOLING/AIR CHANGES TO MAINTAIN SPACE WITHIN +10°F OF OUTDOOR AMBIENT.
- SF-01 SHALL PUSH AIR THROUGH MECHANICAL ROOM WITH GAS FIRED EQUIPMENT TO MAINTAIN SPACE POSITIVE PRESSURE IAW RFP.

DEFINITIONS

- SA:** SUPPLY AIR, CONDITIONED AND DELIVERED THROUGH VAV FOR SPACE CONDITIONING AND VENTILATION
- RA (RECIRC):** RETURN AIR, RETURNED TO AHU FOR RE-MIXING WITH OA AND REDISTRIBUTION
- RA (EXH):** RETURN AIR, RETURNED TO AHU FROM SPACE; THEN EXHAUSTED-RELIEVED AT/FROM AHU (USED FOR HX ENERGY RECOVERY)
- OA:** OUTSIDE AIR, FRESH OUTSIDE AIR FILTERED / PRECONDITIONED BY HX & DELIVERED AS COMPONENT OF SUPPLY AIR TO SPACES SERVED.
- EA:** EXHAUST AIR, AIR REMOVED FROM BLDG IN BALANCED CONSTANT QTY BY FAN ON NORMAL BASIS DURING OCCUPIED HRS
- EA(I):** EXHAUST AIR (INTERMITTENT), AIR REMOVED FROM BUILDING BY EXHAUST FAN NOT REGULARLY IN USE, NOT INCLUDED IN AIR BALANCE DETERMINATION



AIR BALANCE DIAGRAM
SCALE: NTS



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100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108

FOR COMMANDER NAVFAC
ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

NAVAL FACILITIES ENGINEERING COMMAND
MID-ATLANTIC
JACKSONVILLE, NC

ROIC FLORENCE CAMP LEJEUNE
MCB CAMP LEJEUNE

P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL SCHEDULES

DIAGRAMS?

SCALE: AS NOTED
EPROJCT NO.: 1590892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:

SHEET OF

M-701

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

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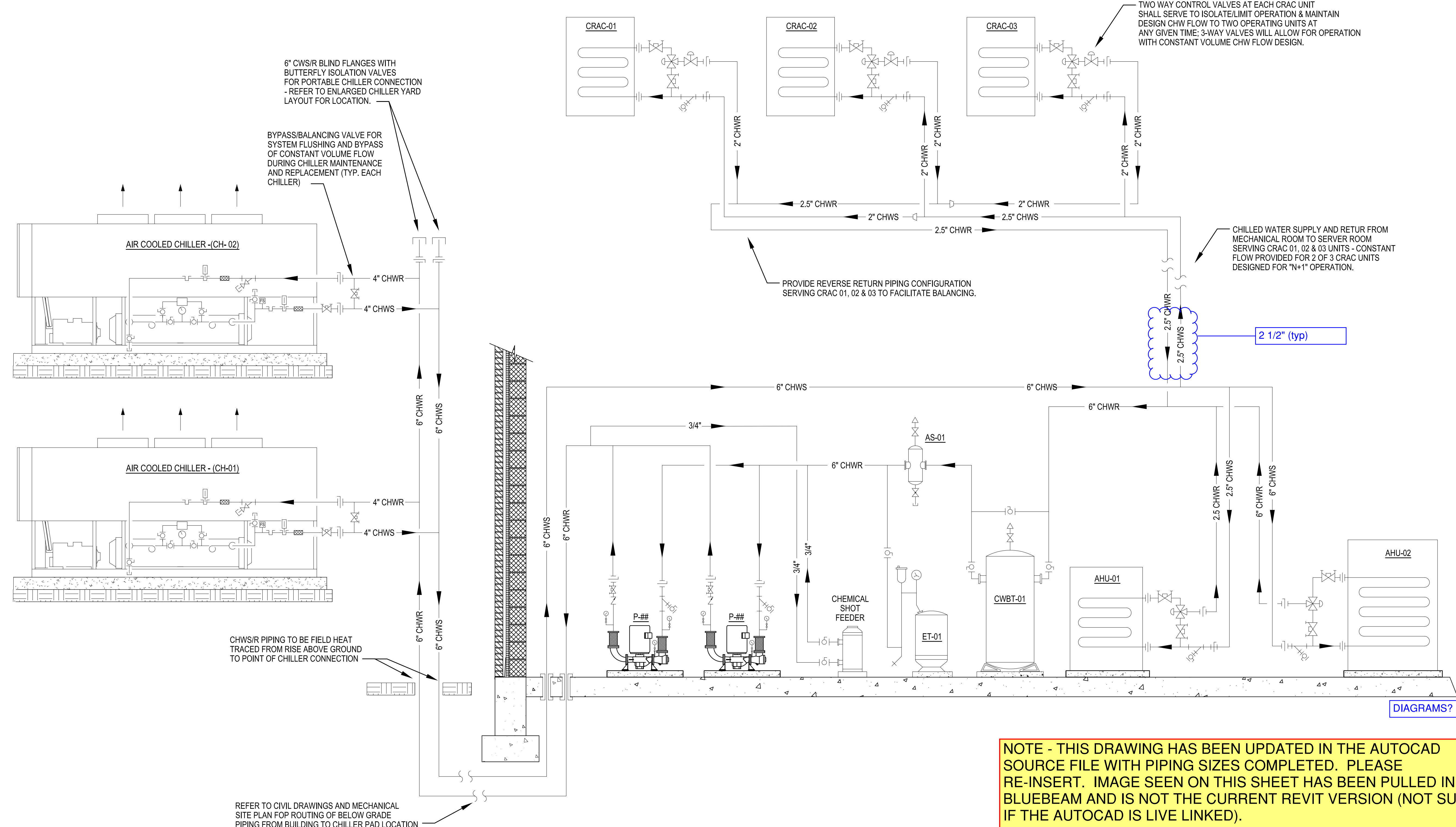
A

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A



6" CWS/R BLIND FLANGES WITH BUTTERFLY ISOLATION VALVES FOR PORTABLE CHILLER CONNECTION - REFER TO ENLARGED CHILLER YARD LAYOUT FOR LOCATION.

BYPASS/BALANCING VALVE FOR SYSTEM FLUSHING AND BYPASS OF CONSTANT VOLUME FLOW DURING CHILLER MAINTENANCE AND REPLACEMENT (TYP. EACH CHILLER)

TWO WAY CONTROL VALVES AT EACH CRAC UNIT SHALL SERVE TO ISOLATE/LIMIT OPERATION & MAINTAIN DESIGN CHW FLOW TO TWO OPERATING UNITS AT ANY GIVEN TIME; 3-WAY VALVES WILL ALLOW FOR OPERATION WITH CONSTANT VOLUME CHW FLOW DESIGN.

PROVIDE REVERSE RETURN PIPING CONFIGURATION SERVING CRAC 01, 02 & 03 TO FACILITATE BALANCING.

CHILLED WATER SUPPLY AND RETURN FROM MECHANICAL ROOM TO SERVER ROOM SERVING CRAC 01, 02 & 03 UNITS - CONSTANT FLOW PROVIDED FOR 2 OF 3 CRAC UNITS DESIGNED FOR 'N+1' OPERATION.

CHWS/R PIPING TO BE FIELD HEAT TRACED FROM RISE ABOVE GROUND TO POINT OF CHILLER CONNECTION

REFER TO CIVIL DRAWINGS AND MECHANICAL SITE PLAN FOR ROUTING OF BELOW GRADE PIPING FROM BUILDING TO CHILLER PAD LOCATION

CHILLED WATER FLOW DIAGRAM
SCALE: NTS

NOTE - THIS DRAWING HAS BEEN UPDATED IN THE AUTOCAD SOURCE FILE WITH PIPING SIZES COMPLETED. PLEASE RE-INSERT. IMAGE SEEN ON THIS SHEET HAS BEEN PULLED IN VIA BLUEBEAM AND IS NOT THE CURRENT REVIT VERSION (NOT SURE IF THE AUTOCAD IS LIVE LINKED).

A1

| SYMBOL | DESCRIPTION | DATE | APPROVED |
|--------|-------------|------|----------|
| | | | |
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100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
APPROVED

FOR COMMANDER NAVFAC
ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

SATISFACTORY TO DATE
DES: DRW: CHK:

BRANCH MANAGER
CHIEF ENGINEER
FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND - MID-ATLANTIC
ROSC FLORENCE CAMP LEJEUNE
MBC CAMP LEJEUNE
JACKSONVILLE, NC
JACKSONVILLE, NC

P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL SCHEDULES

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ROSC FLORENCE CAMP LEJEUNE
MBC CAMP LEJEUNE
JACKSONVILLE, NC
JACKSONVILLE, NC

SCALE: AS NOTED
EPROJCT NO.: 1590892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:
SHEET OF

M-702

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION
PRE-FINAL ITR SET 2021-05-28

FILE NAME: BIM_360/HF PACKAGE_3P1338_MEF_SIM_CTR-1590892-M-01

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UNCLASSIFIED

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CONTROLS - GENERAL NOTES

TERMS USED WITHIN THE SEQUENCES OF OPERATION:
ADJ.: ADJUSTABLE BY THE END USER, THROUGH THE SUPPLIED USER INTERFACE.
AI: ANALOG INPUT. A PHYSICAL INPUT TO THE CONTROL MODULE.
AO: ANALOG OUTPUT. A PHYSICAL OUTPUT FROM THE CONTROL MODULE.
AV: ANALOG VALUE. AN INTERMEDIATE (SOFTWARE) POINT THAT MAY BE EDITABLE OR READ-ONLY.

TRIM AND RESPOND, OR SETPOINT OPTIMIZATION:
A CONTROL STRATEGY THAT OPTIMIZES THE SETPOINT OF A SOURCE PIECE OF EQUIPMENT THAT SUPPLIES ONE OR MORE RECEIVING UNITS - SUCH AS AN AIR HANDLER UNIT SUPPLYING ZONE TERMINAL UNITS WITH HEATING, COOLING, VENTILATION, OR SIMILAR SERVICE.
THE SOURCE UNIT COMMUNICATES WITH RECEIVING UNITS TO DETERMINE HEATING, COOLING, AND OTHER REQUIREMENTS, AND THEN ADJUSTS ITS SETPOINT.
FOR EXAMPLE, IF ALL ZONES ARE COMFORTABLE AND DO NOT REQUEST COOLING, THE AHU WILL GRADUALLY INCREASE (TRIM) ITS SUPPLY AIR SETPOINT.

INTERFACE
THE PHYSICAL DEVICE REQUIRED TO PROVIDE INTEGRATION CAPABILITIES FROM AN EQUIPMENT VENDOR'S PRODUCT TO THE CONTROL SYSTEM. THE EQUIPMENT VENDOR MOST NORMALLY FURNISHES THE INTERFACE DEVICE. AN EXAMPLE OF AN INTERFACE IS THE CHILLED WATER TEMPERATURE RESET INTERFACE CARD PROVIDED BY THE CHILLER MANUFACTURER IN ORDER TO ALLOW THE CONTROL SYSTEM TO INTEGRATE THE CHILLED WATER TEMPERATURE RESET FUNCTION INTO THE CONTROL SYSTEM.
INTEGRATE
THE PHYSICAL CONNECTIONS FROM A CONTROL SYSTEM TO ALL SPECIFIED EQUIPMENT THROUGH AN INTERFACE AS REQUIRED TO ALLOW THE SPECIFIED CONTROL AND MONITORING FUNCTIONS OF THE EQUIPMENT TO BE PERFORMED VIA THE CONTROL SYSTEM.

LOOP: A CONTROL LOOP. MOST COMMONLY A PID CONTROL LOOP. TYPICALLY A CONTROL LOOP WILL INCLUDE A SETPOINT, AN INPUT WHICH IS COMPARED TO THE SETPOINT, AND AN OUTPUT WHICH CONTROLS SOME ACTION BASED UPON THE DIFFERENCE BETWEEN THE INPUT AND THE SETPOINT. A PID CONTROL LOOP WILL ALSO INCLUDE GAINS FOR THE PROPORTIONAL, INTEGRAL, AND DERIVATIVE RESPONSE AS WELL AS AN INTERVAL WHICH CONTROLS HOW FREQUENTLY THE CONTROL LOOP UPDATES ITS OUTPUT. THESE GAINS MAY BE ADJUSTABLE BY THE END USER FOR CONTROL LOOP "TUNING," BUT IN SELF-TUNING CONTROL LOOPS OR LOOPS WHICH HAVE BEEN OPTIMIZED FOR A SPECIFIC APPLICATION THE GAINS MAY NOT BE ADJUSTABLE

SCHED: SCHEDULE. THE CONTROL ALGORITHM FOR THIS EQUIPMENT SHALL INCLUDE A USER EDITABLE SCHEDULE.

TREND: THE CONTROL SYSTEM SHALL BE CONFIGURED TO COLLECT AND DISPLAY A TREND LOG OF THIS OBJECT. THE TRENDING INTERVAL SHALL BE NO LESS THAN ONE SAMPLE EVERY 5 MINUTES. (CHANGE OF VALUE TRENDING, WHERE A SAMPLE IS TAKEN EVERY TIME THE VALUE CHANGES BY MORE THAN A USER-DEFINED MINIMUM, IS AN ACCEPTABLE ALTERNATIVE.) THE CONTROL SYSTEM SHALL BE CONFIGURED TO GENERATE AN ALARM WHEN THIS OBJECT EXCEEDS USER DEFINABLE LIMITS, AS DESCRIBED IN THE SEQUENCE OF CONTROLS.

NOTE: ALL OF THE ABOVE SHALL BE PROVIDED AS LONWORKS NETWORK VARIABLES. BACNET

OCCUPANT OVERRIDE SWITCH, OR TIMED LOCAL OVERRIDE:
A CONTROL OPTION THAT ALLOWS BUILDING OCCUPANTS TO OVERRIDE THE PROGRAMMED HVAC SCHEDULE FOR A LIMITED PERIOD OF TIME.

WHEN THE OVERRIDE TIME EXPIRES, THE ZONE RETURNS TO ITS UNOCCUPIED STATE.

OCCUPANT SETPOINT ADJUSTMENT:
A CONTROL OPTION THAT ALLOWS BUILDING OCCUPANTS TO ADJUST - WITHIN LIMITS SET BY THE HVAC CONTROL SYSTEM - THE HEATING AND COOLING SETPOINTS OF SELECTED ZONES. TYPICALLY THE USER INTERFACE FOR THIS FUNCTION IS BUILT INTO THE ZONE SENSOR.

OPTIMAL START-UP:
A CONTROL STRATEGY THAT AUTOMATICALLY STARTS AN HVAC SYSTEM AT THE LATEST POSSIBLE TIME YET ENSURES COMFORT CONDITIONS BY THE TIME THE BUILDING BECOMES OCCUPIED.

IN A TYPICAL IMPLEMENTATION, A CONTROLLER MEASURES THE TEMPERATURE OF THE ZONE AND THE OUTSIDE AIR. THEN, USING DESIGN HEATING OR COOLING CAPACITY AT THE DESIGN OUTSIDE AIR TEMPERATURE, THE SYSTEM COMPUTES HOW LONG A UNIT MUST RUN AT MAXIMUM CAPACITY TO BRING THE ZONE TEMPERATURE TO ITS OCCUPIED SETPOINT.

THE OPTIMAL START ALGORITHM OFTEN INCLUDES A SELF-LEARNING FEATURE TO ADJUST FOR VARIATIONS FROM DESIGN CAPACITY.

A DISTRIBUTED SYSTEM MUST USE RUN ON REQUEST WITH OPTIMAL START. (SEE BELOW.)

REQUESTED, OR RUN ON REQUEST:
A CONTROL STRATEGY THAT OPTIMIZES THE RUNTIME OF A SOURCE PIECE OF EQUIPMENT THAT SUPPLIES ONE OR MORE RECEIVING UNITS - SUCH AS AN AIR HANDLER UNIT SUPPLYING ZONE TERMINAL UNITS WITH HEATING, COOLING, VENTILATION, OR SIMILAR SERVICE. SOURCE EQUIPMENT RUNS ONLY WHEN NEEDED, NOT ON A FIXED SCHEDULE.

THE SOURCE EQUIPMENT RUNS WHEN ONE OR MORE RECEIVING UNITS REQUEST ITS SERVICES. AN OPERATOR DETERMINES HOW MANY REQUESTS ARE REQUIRED TO START THE SOURCE EQUIPMENT.
FOR EXAMPLE, IF ALL THE ZONES IN A BUILDING ARE UNOCCUPIED AND THE ZONE TERMINAL UNITS DO NOT NEED HEATING OR COOLING, THE AHU WILL SHUT DOWN. HOWEVER, IF A ZONE BECOMES OCCUPIED OR NEEDS COOLING, THE TERMINAL UNIT WILL SEND A RUN REQUEST TO THE AHU TO INITIATE THE START-UP SEQUENCE. IF THIS AHU DEPENDS ON A CENTRAL CHILLER, IT CAN SEND A RUN REQUEST TO THE CHILLER.

THE RUN ON REQUEST ALGORITHM ALSO ALLOWS AN OPERATOR TO SCHEDULE OCCUPANCY FOR INDIVIDUAL ZONES BASED ON THE NEEDS OF THE OCCUPANTS WITHOUT HAVING TO ADJUST THE SCHEDULES OF RELATED AHUS AND CHILLERS.

ABBREVIATIONS / ACRONYMS
ADJ. - ADJUSTABLE
AI - ANALOG INPUT
AO - ANALOG OUTPUT
AV - ANALOG VARIABLE
BI - BINARY INPUT
BO - BINARY OUTPUT
BV - BINARY VARIABLE
DX - DIRECT EXPANSION
EC - ELECTRICAL CONTRACTOR
MC - MECHANICAL CONTRACTOR
NC - NORMALLY CLOSED
NO - NORMALLY OPEN

CONTROL DIAGRAM SYMBOLS
SF SUPPLY FAN
EF EXHAUST FAN
RF RELIEF/RETURN FAN
EH ELECTRIC HEATING COIL
S SMOKE DETECTOR
CO2 CO2 SENSOR
AIRFLOW SENSOR
CP CONTROL PANEL
DC POWER DISCONNECT SWITCH
MS MOTOR STARTER/SWITCH
VFD VARIABLE FREQUENCY DRIVE MOTOR STARTER
NC NO NORMALLY CLOSED OR OPEN MOTORIZED DAMPER WITH DAMPER ACTUATOR
AIR FILTER
DT DUCT THERMOSTAT
DIFFERENTIAL PRESSURE SENSOR
DIFFERENTIAL PRESSURE SENSOR WITH HIGH AND LOW
AF AIRFLOW PRESSURE SWITCH
PB PUSH BUTTON SWITCH
TEMPERATURE SENSOR

CONTROL DIAGRAM SYMBOLS
VAV DAMPER
CSR CURRENT SENSOR RELAY
M MOTOR
CO2 WALL MOUNTED CARBON DIOXIDE SENSOR
TS WALL MOUNTED TEMPERATURE SENSOR
T LINE OR LOW-VOLTAGE WALL MOUNTED THERMOSTAT
CONTROL VALVE WITH MOTORIZED ACTUATOR
FLOW SENSOR
CURRENT TRANSMITTER
WATER TEMP SENSOR
FLOW METER
FLOW DIRECTION
PUMP ID P.# PUMP
ROOM HUMIDITY SENSOR
ROOM TEMPERATURE SENSOR
ROOM THERMOSTAT
OUTDOOR AIR TEMPERATURE SENSOR
DUCT HUMIDITY SENSOR
DAMPER STATUS SWITCH
SCR SILICON CONTROLLER RECEPTOR
BACKDRAFT DAMPER
HUMIDITY SENSOR

ALIGN TEXT

FILE NAME: BIM_360/HF PACKAGE 3P1338.MEF_SIM CTR-1590892.Mxd

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Project information block including: DEPARTMENT OF THE NAVY, NAVAL FACILITIES ENGINEERING COMMAND, PROJECT NO. 1590892, CONSTRUCTION CONTRACT NO. N40085-20-C-0059, NAVFAC DRAWING NO. M-801, and various approval signatures and dates.

ELECTRIC METER

ELECTRIC METER:
THE CONTROLLER SHALL MONITOR THE ELECTRIC METER FOR ELECTRIC CONSUMPTION ON A CONTINUAL BASIS. THESE VALUES SHALL BE MADE AVAILABLE TO THE SYSTEM AT ALL TIMES.

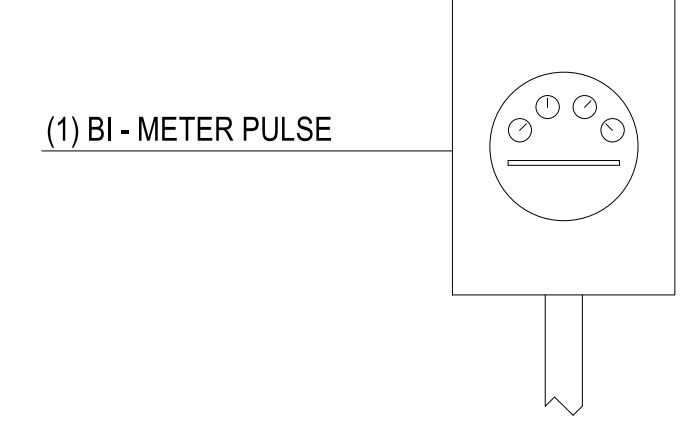
ALARM SHALL BE GENERATED AS FOLLOWS:

- METER FAILURE: SENSOR READING INDICATES A LOSS OF PULSE OUTPUT FROM THE ELECTRIC METER.

PEAK DEMAND HISTORY:
THE CONTROLLER SHALL MONITOR AND RECORD THE PEAK (HIGH AND LOW) DEMAND READINGS FROM THE ELECTRIC METER. PEAK READINGS SHALL BE RECORDED ON A DAILY, MONTH-TO-DATE, AND YEAR-TO-DATE BASIS.

USAGE HISTORY:
THE CONTROLLER SHALL MONITOR AND RECORD ELECTRIC METER READINGS SO AS TO PROVIDE A POWER CONSUMPTION HISTORY. USAGE READINGS SHALL BE RECORDED ON A DAILY, MONTH-TO-DATE, AND YEAR-TO-DATE BASIS.

NOTE: THIS METER IS SEPARATE AND DISTINCT FROM THE METER INDICATED ON THE ELECTRICAL DRAWINGS. ATC SUB-CONTRACTOR TO PROVIDE.



ELECTRIC METER CONTROL DIAGRAM
SCALE: NTS

| POINT NUMBER | SYSTEM POINT DESCRIPTION | COLOR GRAPHIC | ANALOG | | DIGITAL (BINARY) | | SYSTEMS FEATURES | | NOTES |
|--------------|----------------------------------|---------------|------------|-------------|------------------|----------------|------------------|----------|-------|
| | | | INPUT (AI) | OUTPUT (AO) | INPUT (BI) | OUTPUT (BO) | ALARMS | PROGRAMS | |
| | | | VALUE | PULSE | COMM. FAIL | LEVEL EXCEEDED | TREND | | |
| | DDC CONTROL PANEL SYSTEM GRAPHIC | ● | | | | | | | |
| 1 | PULSE INPUT | | | ● | | | | | |
| 2 | CURRENT DEMAND LEVEL | | ● | | | | | | |
| 3 | KW DEMAND | | | | | | | ● | |
| 4 | KW PEAK MONTH-TO-DATE | | | | | | | ● | |
| 5 | KW PEAK TODAY | | | | | | | ● | |
| 6 | KW PEAK YEAR-TO-DATE | | | | | | | ● | |
| 7 | KWh TODAY | | | | | | | ● | |
| 8 | MWh MONTH-TO-DATE | | | | | | | ● | |
| 9 | MWh YEAR-TO-DATE | | | | | | | ● | |
| 10 | DEMAND LEVEL 1 | | | | | | | ● | |
| 11 | DEMAND LEVEL 2 | | | | | | | ● | |
| 12 | DEMAND LEVEL 3 | | | | | | | ● | |
| 13 | METER FAILURE | | | | | | | ● | |
| 14 | RESERVED FOR FUTURE | | | | | | | | |
| 15 | RESERVED FOR FUTURE | | | | | | | | |

C1

FIX BORDERS (TYP)

SUGGEST SHADING UNUSED COLUMNS TO IMPROVE READABILITY / ELIMINATE CONFUSION THAT INFO IS MISSING. (TYP) MAKING COLUMNS BOLDER BETWEEN AI / AO / BI / BO MAY HELP TOO.

WATER FLOW METER

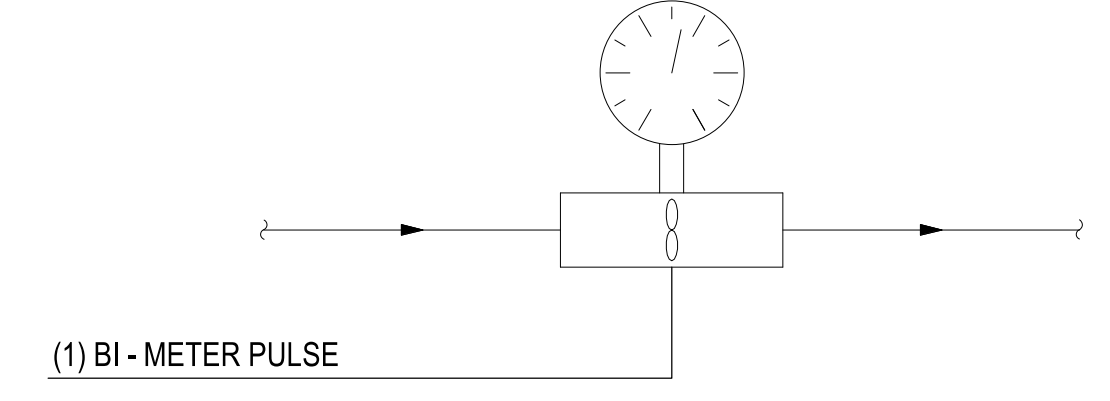
WATER METER:
THE CONTROLLER SHALL MONITOR THE WATER METER FOR WATER CONSUMPTION ON A CONTINUAL BASIS. THESE VALUES SHALL BE MADE AVAILABLE TO THE SYSTEM AT ALL TIMES.

ALARM SHALL BE GENERATED AS FOLLOWS:

- METER FAILURE: SENSOR READING INDICATES A LOSS OF PULSE OUTPUT FROM THE WATER METER.

PEAK DEMAND HISTORY:
THE CONTROLLER SHALL MONITOR AND RECORD THE PEAK (HIGH AND LOW) DEMAND READINGS FROM THE WATER METER. THESE READINGS SHALL BE RECORDED ON A DAILY, MONTH-TO-DATE, AND YEAR-TO-DATE BASIS.

USAGE HISTORY:
THE CONTROLLER SHALL MONITOR AND RECORD WATER METER READINGS SO AS TO PROVIDE A WATER CONSUMPTION HISTORY. USAGE READINGS SHALL BE RECORDED ON A DAILY, MONTH-TO-DATE, AND YEAR-TO-DATE BASIS.



WATER FLOW METER CONTROL DIAGRAM
SCALE: NTS

| POINT NUMBER | SYSTEM POINT DESCRIPTION | COLOR GRAPHIC | ANALOG | | DIGITAL (BINARY) | | SYSTEMS FEATURES | | NOTES |
|--------------|----------------------------------|---------------|------------|-------------|------------------|----------------|------------------|----------|-------|
| | | | INPUT (AI) | OUTPUT (AO) | INPUT (BI) | OUTPUT (BO) | ALARMS | PROGRAMS | |
| | | | VALUE | PULSE | COMM. FAIL | LEVEL EXCEEDED | TREND | | |
| | DDC CONTROL PANEL SYSTEM GRAPHIC | ● | | | | | | | |
| 1 | PULSE INPUT | | | ● | | | | | |
| 2 | CURRENT DEMAND LEVEL | | ● | | | | | | |
| 3 | DEMAND | | | | | | | ● | |
| 4 | PEAK MONTH-TO-DATE | | | | | | | ● | |
| 5 | PEAK TODAY | | | | | | | ● | |
| 6 | PEAK YEAR-TO-DATE | | | | | | | ● | |
| 7 | USAGE TODAY | | | | | | | ● | |
| 8 | USAGE MONTH-TO-DATE | | | | | | | ● | |
| 9 | USAGE YEAR-TO-DATE | | | | | | | ● | |
| 10 | METER FAILURE | | | | | | | ● | |
| 11 | RESERVED FOR FUTURE | | | | | | | | |
| 12 | RESERVED FOR FUTURE | | | | | | | | |

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DELETE

DELETE

GAS METER

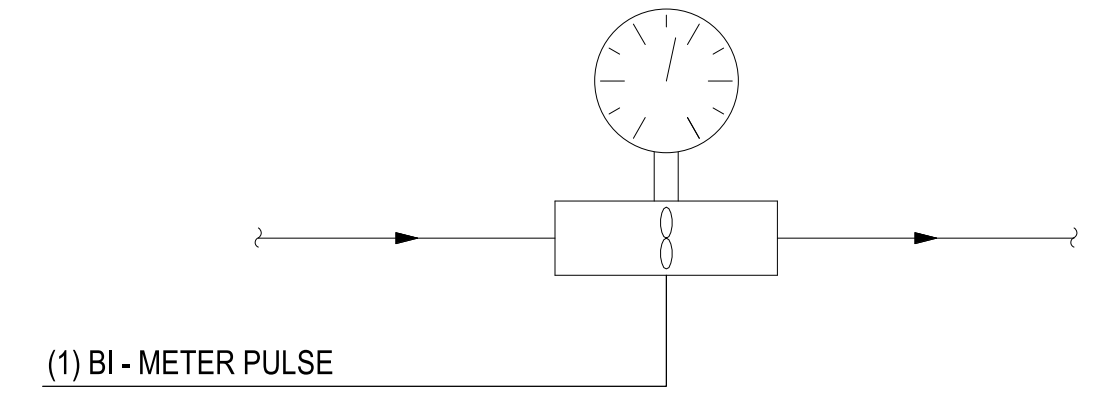
GAS METER:
THE CONTROLLER SHALL MONITOR THE GAS METER FOR GAS CONSUMPTION ON A CONTINUAL BASIS. THESE VALUES SHALL BE MADE AVAILABLE TO THE SYSTEM AT ALL TIMES.

ALARM SHALL BE GENERATED AS FOLLOWS:

- METER FAILURE: SENSOR READING INDICATES A LOSS OF PULSE OUTPUT FROM THE GAS METER.

PEAK DEMAND HISTORY:
THE CONTROLLER SHALL MONITOR AND RECORD THE PEAK (HIGH AND LOW) DEMAND READINGS FROM THE GAS METER. PEAK READINGS SHALL BE RECORDED ON A DAILY, MONTH-TO-DATE, AND YEAR-TO-DATE BASIS.

USAGE HISTORY:
THE CONTROLLER SHALL MONITOR AND RECORD GAS METER READINGS SO AS TO PROVIDE A GAS CONSUMPTION HISTORY. USAGE READINGS SHALL BE RECORDED ON A DAILY, MONTH-TO-DATE, AND YEAR-TO-DATE BASIS.



GAS METER CONTROL DIAGRAM
SCALE: NTS

| POINT NUMBER | SYSTEM POINT DESCRIPTION | COLOR GRAPHIC | ANALOG | | DIGITAL (BINARY) | | SYSTEMS FEATURES | | NOTES |
|--------------|----------------------------------|---------------|------------|-------------|------------------|----------------|------------------|----------|-------|
| | | | INPUT (AI) | OUTPUT (AO) | INPUT (BI) | OUTPUT (BO) | ALARMS | PROGRAMS | |
| | | | VALUE | PULSE | COMM. FAIL | LEVEL EXCEEDED | TREND | | |
| | DDC CONTROL PANEL SYSTEM GRAPHIC | ● | | | | | | | |
| 1 | PULSE INPUT | | | ● | | | | | |
| 2 | CURRENT DEMAND LEVEL | | ● | | | | | | |
| 3 | DEMAND | | | | | | | ● | |
| 4 | PEAK MONTH-TO-DATE | | | | | | | ● | |
| 5 | PEAK TODAY | | | | | | | ● | |
| 6 | PEAK YEAR-TO-DATE | | | | | | | ● | |
| 7 | USAGE TODAY | | | | | | | ● | |
| 8 | USAGE MONTH-TO-DATE | | | | | | | ● | |
| 9 | USAGE YEAR-TO-DATE | | | | | | | ● | |
| 10 | METER FAILURE | | | | | | | ● | |
| # | RESERVED FOR FUTURE | | | | | | | | |

A1

PLOTTED: 5/28/2021 4:21:58 PM

FILE NAME: BIM_360/HF PACKAGE 3P11338_MEF_SIM CTR-1590892-M.rvt

APPR DATE

SYN DESCRIPTION

PRELIMINARY
NOT FOR CONSTRUCTION

SEAL

Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108 A/E/INF/APP/PROV

FOR COMMANDER NAVFAC

ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

SATISFACTORY TO DATE

DES DRW CHK

PM

BRANCH MANAGER

CHIEF ENGINEER

FIRE PROTECTION

NAVFACILITIES ENGINEERING COMMAND
JACKSONVILLE, NC

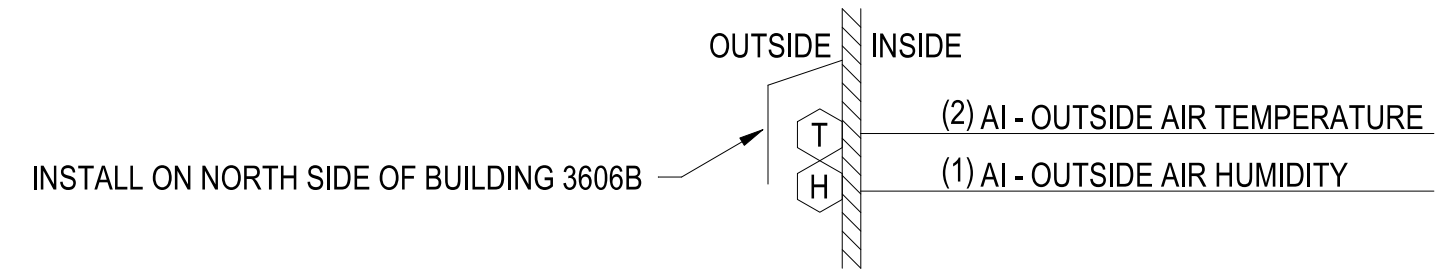
DEPARTMENT OF THE NAVY
NAVFACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
ROICC FLORENCE CAMP LEJEUNE
M/CB CAMP LEJEUNE
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL - CONTROLS

SCALE: AS NOTED
EPROJECT NO.: 1590892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.

SHEET OF

M-802

DP2 SUBMISSION - P1338 BUILDING -PRE-FINAL SUBMISSION
PRE-FINAL ITR SET 2021-05-28



THE CONTROLLER SHALL MONITOR THE OUTSIDE AIR TEMPERATURE AND HUMIDITY AND CALCULATE THE OUTSIDE AIR ENTHALPY ON A CONTINUAL BASIS. THESE VALUES SHALL BE MADE AVAILABLE TO THE SYSTEM AT ALL TIMES.

ALARM SHALL BE GENERATED AS FOLLOWS:

- SENSOR FAILURE: SENSOR READING INDICATES SHORTE~~NED~~ OR DISCONNECTED SENSOR. IN THE EVENT OF A SENSOR FAILURE, AN ALTERNATE OUTSIDE AIR CONDITIONS SENSOR (SUCH AS ERU OA SENSOR) SHALL BE MADE AVAILABLE TO THE SYSTEM WITHOUT INTERRUPTION IN SENSOR READINGS.

IF NO OA TEMP SENSOR CAN BE READ, A DEFAULT VALUE OF 65°F WILL BE USED.

IF NO OA HUMIDITY SENSOR CAN BE READ, A DEFAULT VALUE OF 50 % WILL BE USED.

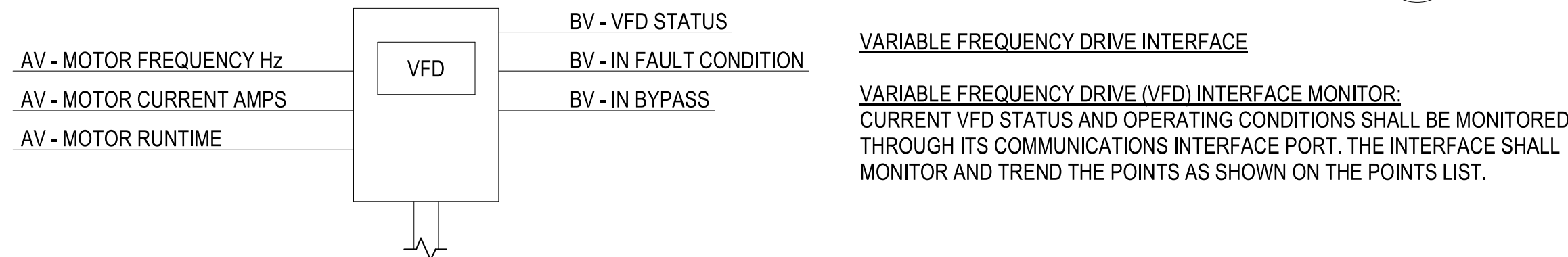
OUTSIDE AIR TEMPERATURE HISTORY:
THE CONTROLLER SHALL MONITOR AND RECORD THE HIGH AND LOW TEMPERATURE READINGS FOR THE OUTSIDE AIR. THESE READINGS SHALL BE RECORDED ON A DAILY, MONTH-TO-DATE, AND YEAR-TO-DATE BASIS.

OUTDOOR AIR CONDITIONS POINT LIST

| POINT NUMBER | SYSTEM POINT DESCRIPTION | ANALOG | | DIGITAL (BINARY) | | SYSTEM FEATURES | | NOTES |
|--------------|--------------------------|------------|-------------|------------------|-------------|-----------------|----------|-------|
| | | INPUT (AI) | OUTPUT (AO) | INPUT (BI) | OUTPUT (BO) | ALARMS | PROGRAMS | |
| | OUTDOOR AIR CONDITIONS | | | | | | | |
| 1 | OUTSIDE AIR HUMIDITY | | | | | | | |
| 2 | OUTSIDE AIR TEMP | | | | | | | |
| 3 | OUTSIDE AIR ENTHALPY | | | | | | | |
| 4 | HIGH TEMP MONTH-TO-DATE | | | | | | | |
| 5 | HIGH TEMP TODAY | | | | | | | |
| 6 | HIGH TEMP YEAR-TO-DATE | | | | | | | |
| 7 | LOW TEMP MONTH-TO-DATE | | | | | | | |
| 8 | LOW TEMP TODAY | | | | | | | |
| 9 | LOW TEMP YEAR-TO-DATE | | | | | | | |
| 10 | SENSOR FAILURE | | | | | | | |
| ## | RESERVED FOR FUTURE | | | | | | | |

OUTSIDE AIR CONDITIONS CONTROL DIAGRAM

SCALE: NTS

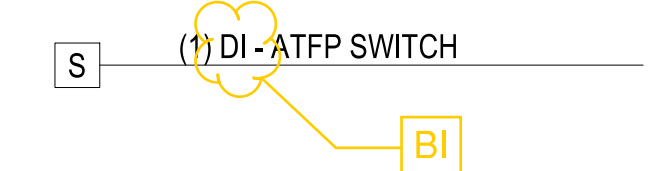


VARIABLE FREQUENCY DRIVE POINTS LIST

| POINT NUMBER | SYSTEM POINT DESCRIPTION | ANALOG | | DIGITAL (BINARY) | | SYSTEM FEATURES | | NOTES |
|--------------|--------------------------|------------|-------------|------------------|-------------|-----------------|----------|-------|
| | | INPUT (AI) | OUTPUT (AO) | INPUT (BI) | OUTPUT (BO) | ALARMS | PROGRAMS | |
| | SUB-TITLE | | | | | | | |
| 1 | MOTOR CURRENT AMPS | | | | | | | |
| 2 | MOTOR FREQUENCY HERTZ | | | | | | | |
| 3 | MOTOR RUNTIME | | | | | | | |
| 4 | IN BYPASS | | | | | | | |
| 5 | IN FAULT CONDITION | | | | | | | |
| 6 | VFD STATUS | | | | | | | |
| ## | RESERVED FOR FUTURE | | | | | | | |

VARIABLE FREQUENCY DRIVE (VFD)

SCALE: NTS



THE CONTROLLER SHALL MONITOR THE ANTI-TERRORISM FORCE PROTECTION SHUTDOWN SWITCHES.

UPON ACTIVATION OF A SHUTDOWN SWITCH THE FOLLOWING SHALL OCCUR WITHIN 30 SECONDS (IN NORMAL OCCUPIED SPACES):

- ALL FANS SHALL SHUTDOWN (EXCEPT AS INDICATED)
- ALL OUTDOOR AIR DAMPERS SHALL CLOSE
- ALL EXHAUST AIR DAMPERS SHALL CLOSE
- AN ALARM SHALL BE GENERATED

SYSTEMS SHALL SHUTDOWN AND DAMPERS SHALL CLOSE REGARDLESS OF THE POSITION OF HAND-OFF-AUTO SWITCHES.

SYSTEMS EXCLUDED FROM ATFP SHUTDOWN
DOAS-01 AND DOAS-02 EXHAUST

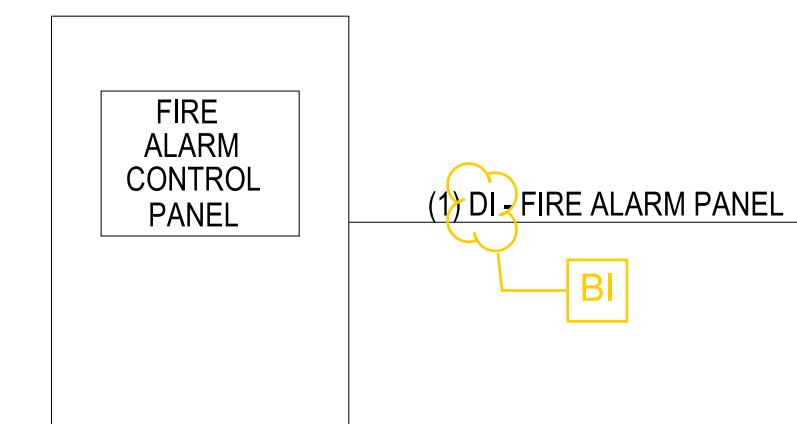
COMPUTER ROOM AIR CONDITIONING UNITS (CRAC-01 THRU CRAC-12)

ATFP SHUTDOWN POINT LIST

| POINT NUMBER | SYSTEM POINT DESCRIPTION | ANALOG | | DIGITAL (BINARY) | | SYSTEM FEATURES | | NOTES |
|--------------|--------------------------|------------|-------------|------------------|-------------|-----------------|----------|-------|
| | | INPUT (AI) | OUTPUT (AO) | INPUT (BI) | OUTPUT (BO) | ALARMS | PROGRAMS | |
| | ATFP SHUTDOWN | | | | | | | |
| 1 | ATFP SWITCH | | | | | | | |
| ## | RESERVED FOR FUTURE | | | | | | | |

ATFP SHUTDOWN CONTROL DIAGRAM

SCALE: NTS



THE CONTROLLER SHALL MONITOR THE FIRE ALARM SYSTEM. CONNECT TO RELAY MODULE.

UPON ACTIVATION OF FIRE ALARM SYSTEM THE FOLLOWING SHALL OCCUR WITHIN 30 SECONDS:

- ALL FANS SHALL SHUTDOWN
- ALL OUTDOOR AIR DAMPERS SHALL CLOSE
- ALL EXHAUST AIR DAMPERS SHALL CLOSE
- AN ALARM SHALL BE GENERATED

SYSTEMS SHALL SHUTDOWN AND DAMPERS SHALL CLOSE REGARDLESS OF THE POSITION OF HAND-OFF-AUTO SWITCHES.

SYSTEMS EXCLUDED FROM FIRE ALARM SHUTDOWN

- COMPUTER ROOM AIR CONDITIONING UNITS (CRAC-01 THRU CRAC-12)

FIRE ALARM SYSTEM

| POINT NUMBER | SYSTEM POINT DESCRIPTION | ANALOG | | DIGITAL (BINARY) | | SYSTEM FEATURES | | NOTES |
|--------------|--------------------------|------------|-------------|------------------|-------------|-----------------|----------|-------|
| | | INPUT (AI) | OUTPUT (AO) | INPUT (BI) | OUTPUT (BO) | ALARMS | PROGRAMS | |
| | FIRE ALARM SYSTEM | | | | | | | |
| 1 | FIRE ALARM PANEL | | | | | | | |
| ## | RESERVED FOR FUTURE | | | | | | | |

FIRE ALARM SYSTEM CONTROL DIAGRAM

SCALE: NTS

APPR DATE

DESCRIPTION

SYN

PRELIMINARY
NOT FOR CONSTRUCTION

SEAL

RO Jordan
COMPANY
- A JOINT VENTURE -

Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108 A/E IN/P/O
APPROVED

FOR COMMANDER NAVFAC

ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

SATISFACTORY TO DATE

| | | |
|-----|-----|-----|
| DES | DRW | CHK |
|-----|-----|-----|

PM

BRANCH MANAGER

CHIEF ENGINEER

FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC JACKSONVILLE, NC

JACKSONVILLE, NC

P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT MECHANICAL - CONTROLS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC JACKSONVILLE, NC
ROIC FLORENCE CAMP LEJEUNE
MCB CAMP LEJEUNE

SCALE: AS NOTED

PROJECT NO.: 1509092

CONSTR. CONTR. NO. N40085-20-C-0059

NAVFAC DRAWING NO.

SHEET OF

M-803

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

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FILE NAME: BIM360/HF PACKAGE 3P11338.MEF SIM CTR-1590892-M.rvt
PLOTTED: 5/28/2021 4:22:03 PM

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
ROICC FLORENCE CAMP LEJEUNE
MBC CAMP LEJEUNE
JACKSONVILLE, NC
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL - CONTROLS


AHU-01 THROUGH -06 SYSTEM POINT LIST

| POINT NUMBER | SYSTEM POINT DESCRIPTION | SYSTEM / SOFTWARE FEATURES | | | | | | | | | | | | | | NOTES | | | | | | | | | | | | |
|---------------|---|----------------------------|---------------|--------------------|-----------|---------------|------------|------------------|-------|----------------|------------|------------|------|-------------|------------|-------------|-----------|------------|----------------|-----------------|-----------------|-------|----------------|----------|------------|--------------|--|--|
| | | ANALOG | | | | | | DIGITAL (BINARY) | | | | ALARMS | | | | | PROGRAMS | | | | | | | | | | | |
| | | INPUT (AI) | | OUTPUT (AO) | | INPUT (BI) | | OUTPUT (BO) | | ALARMS | | PROGRAMS | | PROGRAMS | | | | | | | | | | | | | | |
| COLOR GRAPHIC | TEMPERATURE | RELATIVE HUMIDITY | AIRFLOW (CFM) | % OPEN / FREQUENCY | VOC LEVEL | STATUS ON/OFF | OPEN/CLOSE | FILTER STATUS | SMOKE | STATUS (FAULT) | START/STOP | OPEN/CLOSE | MODE | HIGH ANALOG | LOW ANALOG | SENSOR FAIL | FLOW FAIL | COMM. FAIL | SMOKE DETECTOR | TIME SCHEDULING | OPT. START/STOP | EVENT | ALARM INSTRUCT | RUN TIME | ECONOMIZER | AUTO RESTART | | |
| | DDC CONTROL PANEL | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | SYSTEM GRAPHIC | ● | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01A-D | SUPPLY FAN VFD | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02A-D | EXHAUST FAN VFD | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | SUPPLY FAN DP | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04 | EXHAUST FAN DP | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05 | AFMS - OUTSIDE AIR (OA) AIRFLOW | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06 | AFMS - EXHAUST AIRFLOW | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 07 | AFMS - SUPPLY AIR (SA) AIRFLOW | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 08 | HOT WATER HEATING (HW) VALVE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 09 | CHILLED WATER COOLING (CHW) VALVE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | OUTSIDE AIR (OA) DAMPER | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | OUTSIDE AIR (OA) DAMPER END SWITCH | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | EXHAUST AIR (EA) DAMPER | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | EXHAUST AIR (EA) DAMPER END SWITCH | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | HX BYPASS DAMPER | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | RETURN AIR DAMPER | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | OUTSIDE AIR (OA) FILTER DP SWITCH (DPS) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | EXHAUST AIR (EA) FILTER DP SWITCH | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | PRE-FILTER DP SWITCH | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | PRIMARY FILTER DP SWITCH | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | OUTSIDE AIR (OA) TEMPERATURE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | EXHAUST AIR (EA) BEFORE HX TEMP | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | EXHAUST AIR (EA) AFTER HX TEMP | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | HX LEAVING (HX-LVG) OA TEMP | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | MIXED AIR (MA) TEMPERATURE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | SUPPLY AIR (SA) TEMPERATURE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | OUTSIDE AIR (OA) HUMIDITY | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | EXHAUST AIR (EA) BEFORE HX HUMIDITY | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | EXHAUST AIR (EA) AFTER HX HUMIDITY | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | HX LEAVING (HX-LA) OA AIR HUMIDITY | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | SUPPLY AIR (SA) STATIC PRESSURE | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | HIGH STATIC SHUTDOWN SWITCH | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 32 | RETURN AIR (RA) SMOKE DETECTOR | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 33 | SUPPLY AIR (SA) SMOKE DETECTOR | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 34 | FREEZESTAT | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ## | RESERVED FOR FUTURE | | | | | | | | | | | | | | | | | | | | | | | | | | | |

NOTES: 1. SUPPLY AND EXHAUST FAN & VFD'S AS INDICATED ON THESE DRAWINGS MAY REFER TO FAN-WALL ARRAYS CONSISTING OF MULTIPLE FANS AND VFD'S; FAN WALL SHALL MODULATE PER...



PRELIMINARY
NOT FOR CONSTRUCTION



Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108
AVE INFO
APPROVED

FOR COMMANDER NAVFAC
ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

SATISFACTORY TO DATE
DES DRW CHK
PM
BRANCH MANAGER
CHIEF ENGINEER
FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
ROICC FLORENCE CAMP LEJEUNE
MBC CAMP LEJEUNE
JACKSONVILLE, NC
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL - CONTROLS

SCALE: AS NOTED
EPROJCT NO.: 1590892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:
SHEET OF

M-805

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION
PRE-FINAL ITR SET 2021-05-28

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A

FILE NAME: BIM360/HF PACKAGE 3P1338.MEF SIM CTR-1509092-M.rvt PLOTTED: 5/28/2021 4:22:05 PM

| POINT NUMBER | SYSTEM POINT DESCRIPTION | AHU-2 SYSTEM POINT LIST | | | | | | | | | | | | | | NOTES | | |
|--------------|--------------------------------------|-------------------------|-------------|-------------------|---------------|--------------------|------------------|-------------|------------|-------------|----------------------------|----------|--|--|--|-------|--|---|
| | | ANALOG | | | | | DIGITAL (BINARY) | | | | SYSTEM / SOFTWARE FEATURES | | | | | | | |
| | | COLOR GRAPHIC | TEMPERATURE | RELATIVE HUMIDITY | AIRFLOW (CFM) | % OPEN / FREQUENCY | INPUT (AI) | OUTPUT (AO) | INPUT (BI) | OUTPUT (BO) | ALARMS | PROGRAMS | | | | | | |
| | DDC CONTROL PANEL | ● | | | | | | | | | | | | | | | | |
| | SYSTEM GRAPHIC | ● | | | | | | | | | | | | | | | | |
| 01A-D | SUPPLY FAN (FANWALL) VFD | | | | | | | | | | | | | | | | | 1 |
| 02A-D | EXHAUST (RELIEF) FAN VFD | | | | | | | | | | | | | | | | | 1 |
| 03 | SUPPLY FAN (FANWALL) WALL DP | | ● | | | | | | | | | | | | | | | |
| 04 | EXHAUST (RELIEF) FAN DP | | ● | | | | | | | | | | | | | | | |
| 05 | AFMS - OUTSIDE AIR (OA) AIRFLOW | | | ● | | | | | | | | | | | | | | |
| 06 | AFMS - RELIEF AIR (REL-A) AIRFLOW | | | ● | | | | | | | | | | | | | | |
| 07 | AFMS - RETURN AIR (RA) AIRFLOW | | | ● | | | | | | | | | | | | | | |
| 08 | AFMS - SUPPLY AIR (SA) AIRFLOW | | | ● | | | | | | | | | | | | | | |
| 09 | HOT WATER HEATING (HW) VALVE | | | | | | | | | | | | | | | | | |
| 10 | CHILLED WATER COOLING (CHW) VALVE | | | | | | | | | | | | | | | | | |
| 11 | OUTSIDE AIR (OA) DAMPER | | | | | | | | | | | | | | | | | |
| 12 | OUTSIDE AIR (OA) DAMPER END SWITCH | | | | | | | | | | | | | | | | | |
| 13 | RELIEF AIR (REL-A) DAMPER | | | | | | | | | | | | | | | | | |
| 14 | RELIEF AIR (REL-A) DAMPER END SWITCH | | | | | | | | | | | | | | | | | |
| 15 | HX BYPASS DAMPER | | | | | | | | | | | | | | | | | |
| 16 | RETURN AIR (RA) DAMPER | | | | | | | | | | | | | | | | | |
| 17 | OA FILTER DPS | | | | | | | | | | | | | | | | | |
| 18 | REL-A FILTER DPS | | | | | | | | | | | | | | | | | |
| 19 | PRE-FILTER DPS | | | | | | | | | | | | | | | | | |
| 20 | PRIMARY FILTER DPS | | | | | | | | | | | | | | | | | |
| 21 | OUTSIDE AIR (OA) TEMPERATURE | | ● | | | | | | | | | | | | | | | |
| 22 | RETURN AIR (RA) TEMPERATURE | | ● | | | | | | | | | | | | | | | |
| 23 | RELIEF AIR (REL-A) TEMPERATURE | | ● | | | | | | | | | | | | | | | |
| 24 | HX LEAVING (HX-LA) AIR TEMPERATURE | | ● | | | | | | | | | | | | | | | |
| 25 | MIXED AIR (MA) TEMPERATURE | | ● | | | | | | | | | | | | | | | |
| 26 | SUPPLY AIR (SA) TEMPERATURE | | ● | | | | | | | | | | | | | | | |
| 27 | OUTSIDE AIR (OA) HUMIDITY | | | ● | | | | | | | | | | | | | | |
| 28 | RETURN AIR (OA) HUMIDITY | | | ● | | | | | | | | | | | | | | |
| 29 | RELIEF AIR (OA) HUMIDITY | | | ● | | | | | | | | | | | | | | |
| 30 | HX LEAVING (HX-LA) AIR HUMIDITY | | | ● | | | | | | | | | | | | | | |
| 31 | SUPPLY AIR (SA) STATIC PRESSURE | | | ● | | | | | | | | | | | | | | |
| 32 | HIGH STATIC SHUTDOWN SWITCH | | | | | | | | | | | | | | | | | |
| 33 | RETURN AIR (RA) SMOKE DETECTOR | | | | | | | | | | | | | | | | | |
| 34 | SUPPLY AIR (SA) SMOKE DETECTOR | | | | | | | | | | | | | | | | | |
| 35 | FREEZESTAT | | | | | | | | | | | | | | | | | |
| ## | RESERVED FOR FUTURE | | | | | | | | | | | | | | | | | |

NOTES: 1. SUPPLY AND EXHAUST FAN & VFD'S AS INDICATED ON THESE DRAWINGS MAY REFER TO FAN-WALL ARRAYS CONSISTING OF MULTIPLE FANS AND VFD'S; FAN WALL SHALL MODULATE PER MANUFACTURER'S PROVIDED CONTROLS FOR OPTIMUM PERFORMANCE AND EFFICIENCY BASED ON COMMON ANALOG OUTPUT SIGNAL.

FINISH EDITS

RELIEF

DELETE

DELETE, FIX BORDERS (TYP)

DELETE

DELETE

DELETE



PRELIMINARY NOT FOR CONSTRUCTION



Michael Baker INTERNATIONAL

FOR COMMANDER NAVFAC ACTIVITY MARINE CORPS BASE CAMP LEJEUNE

SATISFACTORY TO DATE DES DRW CHK PM

BRANCH MANAGER CHIEF ENGINEER FIRE PROTECTION

DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC JACKSONVILLE, NC MCB CAMP LEJEUNE JACKSONVILLE, NC P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT MECHANICAL - CONTROLS

SCALE: AS NOTED EPROJECT NO.: 1509092 CONSTR. CONTR. NO. N40085-20-C-0059 NAVFAC DRAWING NO. SHEET OF M-807

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION PRE-FINAL ITR SET 2021-05-28

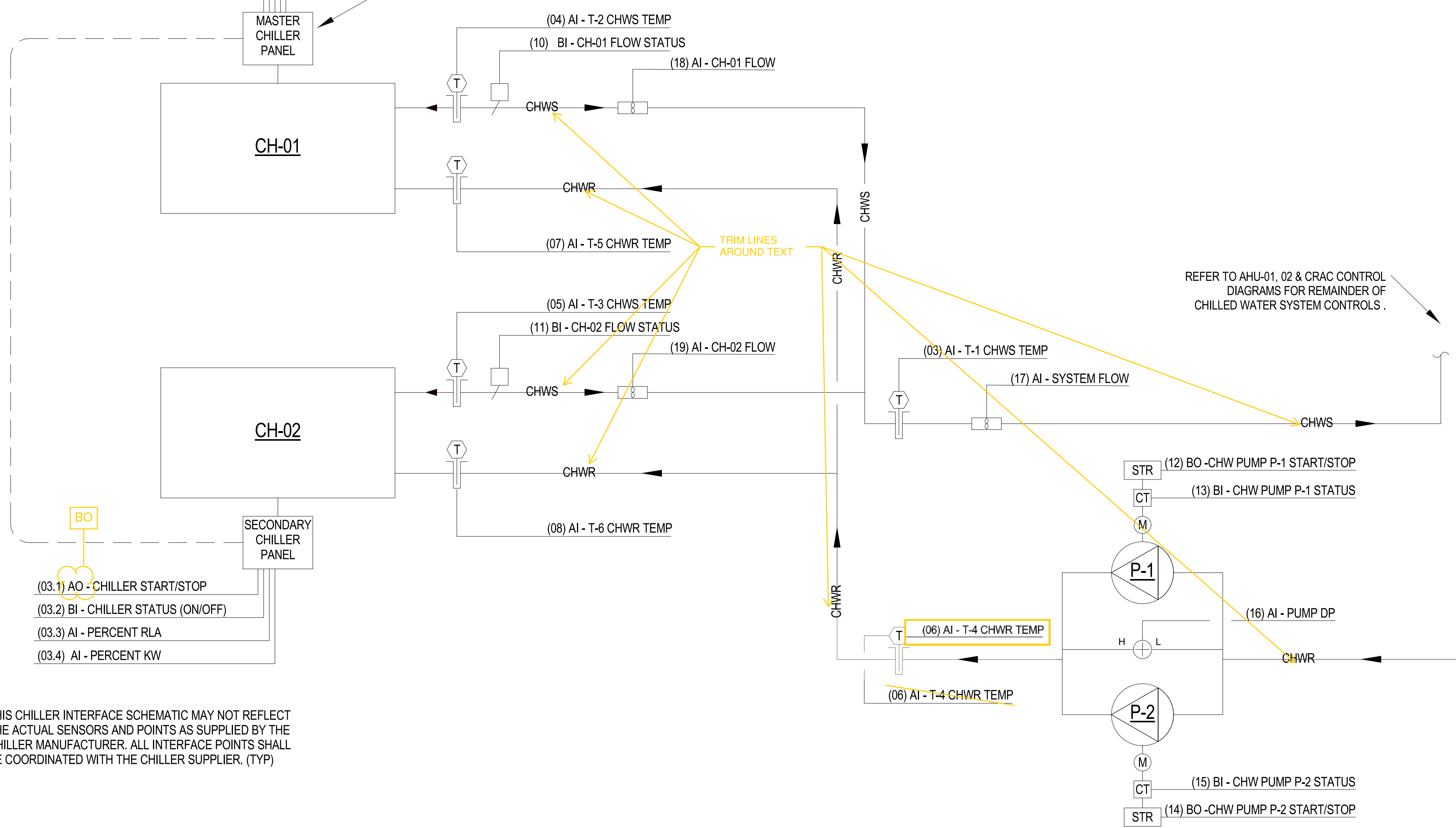
| POINT NUMBER | SYSTEM POINT DESCRIPTION | CHILLED WATER SYSTEM SYSTEM POINT LIST | | | | | | | | | | | | NOTES | | | | | | | | | | | | | | |
|--------------|-------------------------------|--|-------------|----------|-------------------|----|-------------|------------------|--------------|-------------|---------------|------------------|------------|-------|------------|------------|-------------|------------|-------------|-----------|------------|---------------|-----------------|--------------------|-------|----------------|----------|-------------------|
| | | ANALOG | | | | | | DIGITAL (BINARY) | | | | SYSTEMS FEATURES | | | | | | | | | | | | | | | | |
| | | INPUT (AI) | | | OUTPUT (AO) | | | INPUT (BI) | | OUTPUT (BO) | | ALARMS | PROGRAMS | | | | | | | | | | | | | | | |
| | AIR COOLED CHILLER | COLOR GRAPHIC | TEMPERATURE | PRESSURE | RELATIVE HUMIDITY | KW | PERCENT RLA | FLOW (GPM) | SETPOINT ADJ | OPEN/CLOSE | STATUS ON/OFF | FILTER STATUS | STATUS O/C | SMOKE | START/STOP | OPEN/CLOSE | HIGH ANALOG | LOW ANALOG | SENSOR FAIL | FLOW FAIL | COMM. FAIL | CHILLER PANEL | TIME SCHEDULING | OPTIMUM START/STOP | EVENT | ALARM INSTRUCT | RUN TIME | AUTOMATIC RESTART |
| 01 | CHILLED WATER SETPOINT | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02.1-4 | CHILLER CH-01 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03.1-4 | CHILLER CH-02 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | CHWS TEMP (MAIN) SENSOR T-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04 | CHWS TEMP (CH-01) SENSOR T-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05 | CHWS TEMP (CH-02) SENSOR T-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06 | CHWR TEMP (MAIN) SENSOR T-4 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 07 | CHWR TEMP (CH-01) SENSOR T-5 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 08 | CHWR TEMP (CH-02) SENSOR T-6 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | CH-01 FLOW SWITCH FS-1 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | CH-02 FLOW SWITCH FS-2 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | PUMP P-1 START/STOP | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | PUMP P-1 STATUS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | PUMP P-2 START/STOP | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | PUMP P-2 STATUS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | PUMP P-1,2 DIFFERENTIAL PRESS | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | SYSTEM FLOW (TOTAL) | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | CH-01 FLOW | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | CH-02 FLOW | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| - | RESERVED FOR FUTURE | | | | | | | | | | | | | | | | | | | | | | | | | | | |

SKIPPED "09"

- (02.1) AO - CHILLER START/STOP
- (02.2) BI - CHILLER STATUS (ON/OFF)
- (02.3) AI - PERCENT RLA
- (02.4) AI - PERCENT KW

(01) AO - TEMP SETPOINT

CHILLERS 01 & 02 SHALL BE CONTROLLED BY CHILLER MANUFACTURER'S MASTER CONTROLLER TO OPERATE/FUNCTION AS A COMMON CHILLER TO OPTIMALLY PROVIDE THE REQUIRED COMMON SUPPLY WATER TEMPERATURE.



AIR COOLED CHILLED WATER SYSTEM SEQUENCE OF OPERATION

- CHILLED WATER CONTROL
 - UPON COMMAND FOR CHILLED WATER BY ANY SERVED AHU/CRAC UNIT; ENABLE LEAD CHILLED WATER PUMP AND CHILLED WATER PLANT.
 - THE COOLING PLANT WILL BE ENERGIZED BY FIRST ENERGIZING LEAD CHW PUMP (P-1 OR P-2) AT FULL SYSTEM CONSTANT VOLUME FLOWRATE. FLOW SHALL BE EQUALLY BALANCED (VIA MANUAL BALANCING VALVES) FOR EQUAL CONSTANT VOLUME FLOWRATE (50% OF SYSTEM FLOW) THROUGH EACH CHILLER.
 - EACH CHILLER SHALL BE PROVIDED WITH AN INTEGRAL FLOW SWITCH TO ASSURE PROOF OF FLOW AND ENABLE CHILLER OPERATION.
 - MANUFACTURER'S CHILLER CONTROLLERS SHALL BE TIED TOGETHER TO ALLOW THE DUAL CHILLER PLANT TO OPERATE / STAGE / SEQUENCE INDIVIDUAL CHILLER CAPACITIES FROM A SINGLE STAGE/SINGLE CHILLER (MINIMUM COOLING CAPACITY) OPERATION TO ALL STAGES/BOTH CHILLERS (MAXIMUM COOLING CAPACITY). CHILLERS SHALL OPERATE IN TANDEM VIA THE CHILLER MASTER CONTROLLER TO DELIVER CHILLED WATER SUPPLY TEMPERATURE (42°F, ADJ.) IN MOST ENERGY EFFICIENT COMBINATION OF CHILLERS/CHILLER STAGING AS DETERMINED BY THE MANUFACTURER'S MASTER CHILLER CONTROLLER.
- CHILLED WATER SYSTEM ALARM
 - A LOW TEMPERATURE (36°F ADJUSTABLE) OR HIGH TEMPERATURE (48°F ADJUSTABLE) SENSED AT T-1 SHALL SIGNAL AN ALARM AT DDC.
 - AN ALARM CONDITION AT THE CHILLER MASTER CONTROL PANEL SHALL SIGNAL AN ALARM CONDITION.
- ADDITIONAL MONITORING AND ALARMS:
 - PUMP (P-1, P-2) STATUS: ON/OFF/FAULT
 - CHILLER STATUS: ENABLED/DISABLED/FAULT
 - BUILDING CHILLED WATER SUPPLY TEMPERATURE: MONITOR/LOW ALARM (38°F, ADJ.)/HIGH ALARM (46°F, ADJ.)
 - BUILDING CHILLED WATER RETURN TEMPERATURE: MONITOR/LOW ALARM (44°F, ADJ.)/HIGH ALARM (60°F, ADJ.)
 - CHILLER (CH-1, CH-2) LEAVING WATER TEMPERATURE: MONITOR
 - CHILLER (CH-1, CH-2) ENTERING WATER TEMPERATURE: MONITOR

1 CHILLED WATER SYSTEM CONTROL DIAGRAM SCALE: NOT TO SCALE

APPROVED

SYMBOL DESCRIPTION DATE

PRELIMINARY
NOT FOR CONSTRUCTION

FOR COMMANDER NAVFAC

ACTIVITY: MARINE CORPS BASE CAMP LEJEUNE

SATISFACTORY TO DATE

DES: DRW: CHK:

PM:

BRANCH MANAGER: JACKSONVILLE, NC

CHIEF ENGINEER: JACKSONVILLE, NC

FIRE PROTECTION:

DEPARTMENT OF THE NAVY
NAVFACILITIES ENGINEERING COMMAND - MID-ATLANTIC
ROIC FLORENCE CAMP LEJEUNE
MBC CAMP LEJEUNE
P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT
MECHANICAL - CONTROLS

SCALE: AS NOTED
EPROJCT NO.: 1500892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:

SHEET OF

M-808

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION
PRE-FINAL ITR SET 2021-05-28

PLOTTED: 5/28/2021 4:22:07 PM

FILE NAME: BIM_360/HF PACKAGE 3P1338_MEF_SIM CTR-1500892-M.dwg

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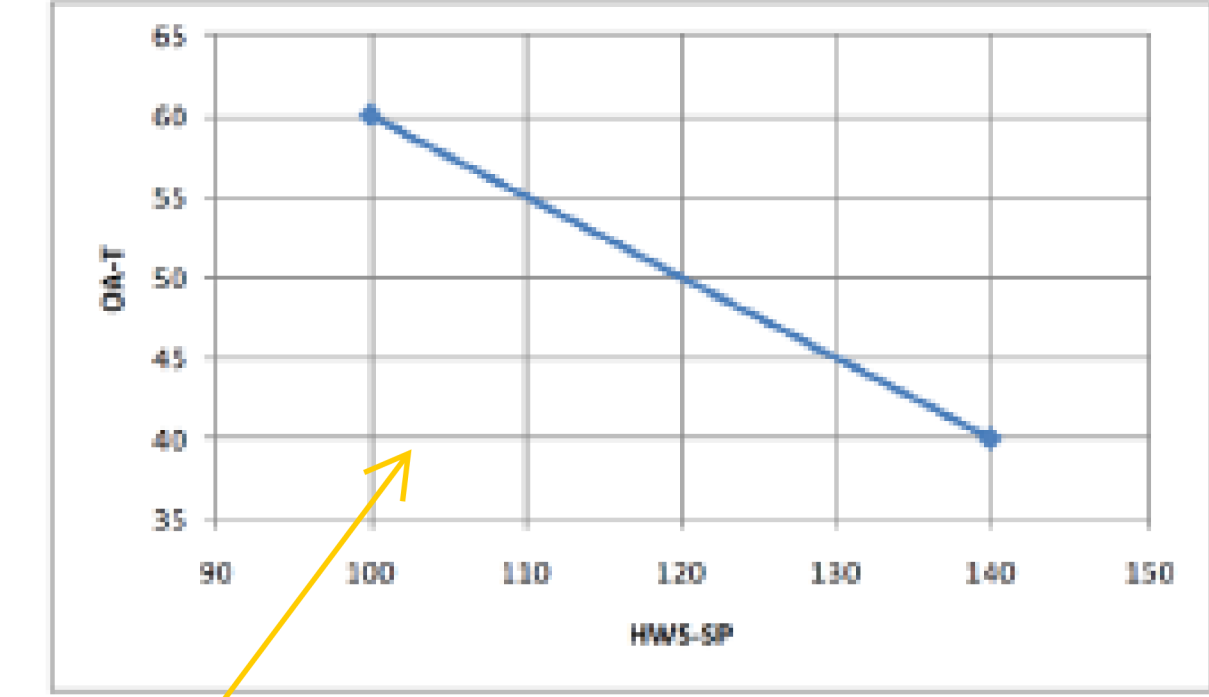
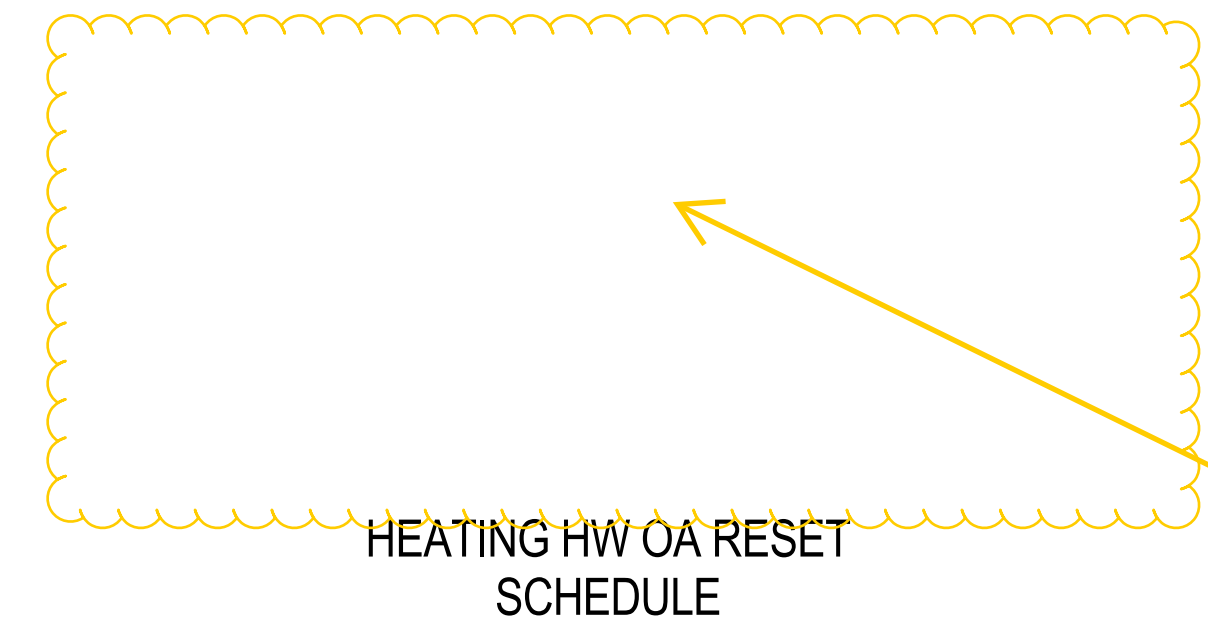
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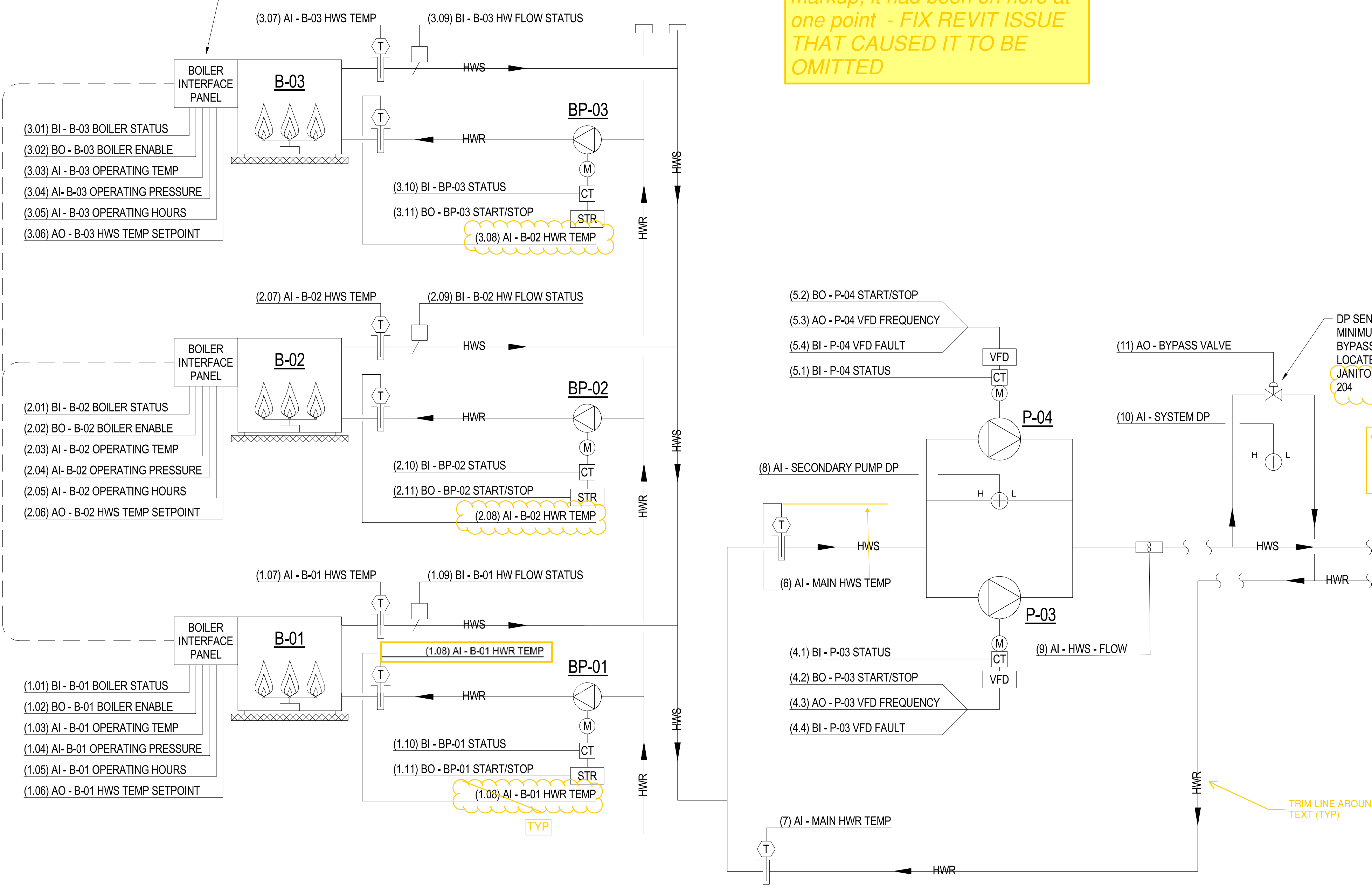
UNCLASSIFIED



MISSING!

This is what the schedule should be, not sure where the .jpg went, this is screnclip of old markup; it had been on here at one point - FIX REVIT ISSUE THAT CAUSED IT TO BE OMITTED

THIS TYPICAL BOILER INTERFACE SCHEMATIC MAY NOT REFLECT THE ACTUAL SENSORS AND POINTS AS SUPPLIED BY THE BOILER MANUFACTURER. ALL INTERFACE POINTS SHALL BE COORDINATED WITH THE BOILER SUPPLIER. BOILER CONTROL PANELS SHALL BE INTERFACED AND CONTROLLED AS A SINGLE OPERATING BOILER PLANT



DP SENSOR AND MINIMUM FLOW BYPASS VALVE LOCATED ABOVE JANITORS ROOM 204

CONFIRM LOCATION; DON'T SEE ON MP112

TRIM LINE AROUND TEXT (TYP)

| SYN | DESCRIPTION | DATE | APPR |
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| | | | |



PRELIMINARY
NOT FOR CONSTRUCTION



Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108

FOR COMMANDER NAVFAC
ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

NAVAL FACILITIES ENGINEERING COMMAND
~ MID-ATLANTIC
JACKSONVILLE, NC

ROIC FLORENCE CAMP LEJEUNE
MCB CAMP LEJEUNE
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL - CONTROLS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
~ MID-ATLANTIC
JACKSONVILLE, NC

SCALE: AS NOTED
PROJECT NO.: 1509892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:
SHEET OF
M-809

PLOTTED: 5/28/2021 4:22:08 PM

FILE NAME: BIM_360/HF PACKAGE 3P11338.MEF_SIM_CTR-1509892-M-01

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

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PLOTTED: 5/28/2021 4:22:10 PM

FILE NAME: BIM 360/HF PACKAGE 3P11338.MEF SIM CTR-1590892.Mxd

HOT WATER BOILER / HEATING SYSTEM POINT LIST

| POINT NUMBER | SYSTEM POINT DESCRIPTION | ANALOG | | | | | | | | | | | | | DIGITAL (BINARY) | | | | SYSTEMS FEATURES | | | | NOTES | | |
|--------------|----------------------------------|---------------|-------------|----------|-----------|----------------|------|---------------|--------------|-----------|-------------|---------------|-------------|----------------|------------------|------------|-------------|------------|------------------|-----------|------------|-----------------|-------|----------------|----------|
| | | INPUT (AI) | | | | | | OUTPUT (AO) | | | | | | | INPUT (BI) | | OUTPUT (BO) | | ALARMS | | PROGRAMS | | | | |
| | | COLOR GRAPHIC | TEMPERATURE | PRESSURE | FREQUENCY | FLOWRATE (GPM) | INFO | SETPOINT ADJ. | % OPEN/CLOSE | FREQUENCY | TEMPERATURE | STATUS ON/OFF | FLOW STATUS | STATUS (FAULT) | OFF/ON (ENABLE) | OPEN/CLOSE | HIGH ANALOG | LOW ANALOG | SENSOR FAIL | FLOW FAIL | COMM. FAIL | TIME SCHEDULING | | ALARM INSTRUCT | RUN TIME |
| | DDC CONTROL PANEL SYSTEM GRAPHIC | ● | | | | | | | | | | | | | | | | | | | | | | | |
| 1.01 | B-01, BOILER STATUS | | | | | | | | | | ● | | | | | | | | | | | | | | |
| 1.02 | B-01, BOILER ENABLE | | | | | | | | | | | | | ● | | | | | | | | | | | |
| 1.03 | B-01, OPERATING TEMP | | ● | | | | | | | | | | | | | ● | ● | | | | | | | | |
| 1.04 | B-01, OPERATING PRESSURE | | | ● | | | | | | | | | | | | | | | | | | | | | |
| 1.05 | B-01, OPERATING HOURS | | | | | | ● | | | | | | | | | | | | | | | | | | |
| 1.06 | B-01, HWS TEMP SETPOINT | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.07 | B-01, HWS (LEAVING) TEMP | | ● | | | | | | | | | | | | | | | | | | | | | | |
| 1.08 | B-01, HWR (ENTERING) TEMP | | ● | | | | | | | | | | | | | | | | | | | | | | |
| 1.09 | B-01, HW FLOW STATUS | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.10 | BP-01, STATUS | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.11 | BP-01, START/STOP (ENABLE) | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.01 | B-02, BOILER STATUS | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.02 | B-02, BOILER ENABLE | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.03 | B-02, OPERATING TEMP | | ● | | | | | | | | | | | | | | | | | | | | | | |
| 2.04 | B-02, OPERATING PRESSURE | | | ● | | | | | | | | | | | | | | | | | | | | | |
| 2.05 | B-02, OPERATING HOURS | | | | | | ● | | | | | | | | | | | | | | | | | | |
| 2.06 | B-02, HWS TEMP SETPOINT | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.07 | B-02, HWS (LEAVING) TEMP | | ● | | | | | | | | | | | | | | | | | | | | | | |
| 2.08 | B-02, HWR (ENTERING) TEMP | | ● | | | | | | | | | | | | | | | | | | | | | | |
| 2.09 | B-02, HW FLOW STATUS | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.10 | BP-02, STATUS | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.11 | BP-02, START/STOP (ENABLE) | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.01 | B-03, BOILER STATUS | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.02 | B-03, BOILER ENABLE | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.03 | B-03, OPERATING TEMP | | ● | | | | | | | | | | | | | | | | | | | | | | |
| 3.04 | B-03, OPERATING PRESSURE | | | ● | | | | | | | | | | | | | | | | | | | | | |
| 3.05 | B-03, OPERATING HOURS | | | | | | ● | | | | | | | | | | | | | | | | | | |
| 3.06 | B-03, HWS TEMP SETPOINT | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.07 | B-03, HWS (LEAVING) TEMP | | ● | | | | | | | | | | | | | | | | | | | | | | |
| 3.08 | B-03, HWR (ENTERING) TEMP | | ● | | | | | | | | | | | | | | | | | | | | | | |
| 3.09 | B-03, HW FLOW STATUS | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.10 | BP-03, STATUS | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.11 | BP-03, START/STOP (ENABLE) | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.1 | P-03, STATUS | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.2 | P-03, START/STOP | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.3 | P-03, VFD FREQUENCY | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.4 | P-03, VFD FAULT | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.1 | P-04, STATUS | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.2 | P-04, START/STOP | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.3 | P-04, VFD FREQUENCY | | | | | | | | | | | | | | | | | | | | | | | | |
| 5.4 | P-04, VFD FAULT | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | SECONDARY MAIN HWS TEMP | | ● | | | | | | | | | | | | | | | | | | | | | | |
| 7 | SECONDARY MAIN HWR TEMP | | | ● | | | | | | | | | | | | | | | | | | | | | |
| 8 | SECONDARY PUMPING PRESS | | | | ● | | | | | | | | | | | | | | | | | | | | |
| 9 | SECONDARY PUMPING FLOW | | | | | ● | | | | | | | | | | | | | | | | | | | |
| 10 | REMOTE SYSTEM DP | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | MIN FLOW BYPASS VALVE | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | OUTSIDE AIR TEMPERATURE | | | | | | | | | | | | | | | | | | | | | | | | 1, 3 |
| 13 | HW SUPPLY TEMP | | | | | | | | | | | | | | | | | | | | | | | | 2, 3 |
| ## | RESERVED FOR FUTURE | | | | | | | | | | | | | | | | | | | | | | | | |
| ## | RESERVED FOR FUTURE | | | | | | | | | | | | | | | | | | | | | | | | |

NOTES: 1. OUTSIDE AIR TEMPERATURE TO BE PROVIDED TO DDC SYSTEM FROM COMMON OAT TEMPERATURE SENSOR (GENERAL CONTROL DIAGRAMS PAGE)
 2. SUPPLY WATER TEMPERATURE SHALL RESET LINEARLY FROM A SUPPLY TEMPERATURE OF 140° AT OAT < 40° (ADJ.) TO 100° AT OAT > 60°F (ADJ.)
 3. THESE POINTS MAY BE PROVIDED BY THE BOILER MANUFACTURER AND DIRECTLY INTEGRATED TO THE BOILER CONTROLLER, IF DONE THIS WAY, BOILER CONTROLLER SHALL SEND THESE POINTS AS ANALOG INPUTS (AI) TO THE DDC SYSTEM FOR REMOTE OBSERVATION & TROUBLESHOOTING PURPOSES.

change to START/STOP

SYSTEM

DELETE

BOILER & HEATING HOT WATER PRIMARY/SECONDARY SYSTEM SEQUENCE OF OPERATION

- HEATING HOT WATER CONTROL
 - UPON COMMAND FOR HOT WATER BY ANY SERVED DEVICE; ENABLE LEAD SECONDARY HEATING HOT WATER PUMP AND BOILER PLANT.
 - THE 3-BOILER PLANT SHALL STAGE AND MODULATE THE BOILERS IN THE MOST ENERGY EFFICIENCY COMBINATION OF ACTIVE BOILERS AND FIRING RATES AS DETERMINED BY THE BOILER MANUFACTURER'S INTEGRAL CONTROL SEQUENCE TO MAINTAIN THE MAIN HWS TEMPERATURE AT THE HW SUPPLY TEMPERATURE SETPOINT COMMANDED BY THE DDC SYSTEM IN RESPONSE TO THE OUTDOOR AIR CONDITIONS PER THE HEATING HW OA RESET SCHEDULE. BOILER MASTER CONTROLLER SHALL ALTERNATE LEAD BOILER TO PROVIDE EQUALIZED RUN TIME.
 - TO PREVENT SHORT CYCLING; THE BOILER SYSTEM SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE), UNLESS SHUTDOWN ON SAFETIES.
 - THE BOILER(S) SHALL RUN SUBJECT TO THEIR OWN INTERNAL SAFETIES AND CONTROLS.
 - STANDBY SECONDARY HW PUMP SHALL BE ENABLED UPON A FAILURE OF THE LEAD PUMP. THE LEAD PUMP SHALL BE THE PUMP WITH THE LEAST RUNTIME HOURS; SECONDARY PUMPS SHALL CYCLE BETWEEN LEAD/STANDBY ON A WEEKLY BASIS.
- SECONDARY PUMP DIFFERENTIAL PRESSURE CONTROL:
 - THE OPERATING SECONDARY PUMP VFD SHALL MODULATE THE PUMP SPEED TO MAINTAIN THE DIFFERENTIAL PRESSURE (DP) AS MEASURED AT THE REMOTE SYSTEM DP SENSOR. DP SETPOINT SHALL BE AS DETERMINED/RECOMMENDED BY TAB AGENT TO ACHIEVE SYSTEM BALANCING.
 - MINIMUM SYSTEM FLOW SHALL BE BASED UPON MINIMUM PERMISSIBLE VFD SPEED AS INDICATED BY THE VFD MANUFACTURER'S IOM. AT MINIMUM ALLOWABLE FLOW, UPON RISE IN REMOTE SYSTEM DIFFERENTIAL PRESSURE ABOVE DESIGN DP SETPOINT THE 2-WAY MODULATING BYPASS VALVE SHALL MODULATE OPEN TO ALLOW SYSTEM FLOW BYPASS AND PREVENT SYSTEM DIFFERENTIAL PRESSURE FROM EXCEEDING THE DESIGN SYSTEM DP BY 10% (ADJUSTABLE).
- ALARMS AND SYSTEM MONITORING:
 - ALARMS SHALL BE PROVIDED AS INDICATED ON THE POINTS LIST AND AS FOLLOWS:
 - SECONDARY HW PUMP FAILURE: COMMANDED ON, BUT STATUS IS OFF.
 - SECONDARY HW PUMP RUNNING IN HAND; COMMANDED OFF, BUT STATUS IS ON.
 - SECONDARY HW PUMP RUNTIME EXCEEDED; STATUS RUNTIME EXCEEDS 168 HOURS (ADJ.)
 - HIGH SECONDARY HW SUPPLY TEMP; IF GREATER THAN 160°F (ADJ.)
 - LOW SECONDARY HW RETURN TEMP; IF LESS THAN 100° OR 15° BELOW SUPPLY WATER TEMPERATURE (WHICHEVER IS LOWER TO ACCOUNT FOR HW RESET)
 - HIGH SYSTEM PRESSURE IF REMOTE DP SENSOR IS 25% (ADJ.) ABOVE SETPOINT.
 - LOW SYSTEM PRESSURE IF REMOTE DP SENSOR IS 25% (ADJ.) BELOW SETPOINT.
 - SYSTEM MONITORING POINTS SHALL BE AS INDICATED ON THE POINTS LIST, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - SECONDARY HWS FLOWRATE (UFC 3-410-01 REQUIRED POINT)
 - SECONDARY HWS/R TEMPERATURES
 - DIFFERENTIAL PRESSURE ACROSS SECONDARY PUMPS (UFC 3-410-01 REQUIRED POINT)
 - BOILER FAILURE ALARMS NOT OTHERWISE INDICATED BUT PROVIDED WITH BOILER CONTROLLER / BOILER BACNET INTERFACE.



PRELIMINARY NOT FOR CONSTRUCTION



Michael Baker INTERNATIONAL

FOR COMMANDER NAVFAC

ACTIVITY MARINE CORPS BASE CAMP LEJEUNE

SATISFACTORY TO DATE

DES DRW CHK

PM

BRANCH MANAGER

CHIEF ENGINEER

FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND JACKSONVILLE, NC

ROIC FLORENCE CAMP LEJEUNE

MCB CAMP LEJEUNE JACKSONVILLE, NC

P1338 II MEF SIMULATION/TRAINING CENTER REPLACEMENT

MECHANICAL - CONTROLS

DEPARTMENT OF THE NAVY

NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC JACKSONVILLE, NC

SCALE: AS NOTED

EPROJCT NO.: 1590892

CONSTR. CONTR. NO. N40085-20-C-0059

NAVFAC DRAWING NO. SHEET OF M-810

DF2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

COMPUTER ROOM AIR CONDITIONER (CRAC) SYSTEM - SEQUENCE OF OPERATION

- GENERAL:** THE SYSTEM SERVING THE SIM CONTROL SERVER ROOM SHALL CONSIST OF 3 CRAC UNITS OPERATING IN AN N+1 FASHION, WITH NO MORE THAN 2 CRAC UNITS OPERATING AT ANY GIVEN TIME. CRAC UNIT CONTROLLERS SHALL BE INTERCONNECTED AND CONTROLLED BY THE CRAC MANUFACTURER'S INTEGRAL CONTROL SEQUENCE TO MODULATE AND STAGE 2 ACTIVE UNITS TO MEET ROOM TEMPERATURE AND HUMIDITY REQUIREMENTS WHILE THIRD UNIT IS IN STANDBY MODE. MANUFACTURER'S CONTROLS SHALL ROTATE ACTIVE / STANDBY UNIT STATUS BETWEEN THE THREE UNITS ON A WEEKLY (ADJUSTABLE) BASIS TO MAINTAIN EQUAL RUNTIMES.
 - HIGH ZONE TEMPERATURE: IF THE ZONE TEMPERATURE IS GREATER THAN THE SPACE SETPOINT BY 5°F (ADJ.)
 - LOW ZONE TEMPERATURE: IF THE ZONE TEMPERATURE IS LESS THAN 65° (ADJ.)
 - HIGH ZONE HUMIDITY: IF THE ZONE DEWPOINT EXCEEDS 59°F
 - LOW ZONE HUMIDITY: IF THE ZONE DEWPOINT FALLS BELOW 42°F
 - HIGH UNIT DISCHARGE AIR TEMPERATURE: IF THE DISCHARGE AIR TEMPERATURE EXCEEDS 120°F (ADJ.)
 - LOW UNIT DISCHARGE AIR TEMPERATURE: IF THE DISCHARGE AIR TEMPERATURE IS LESS THAN 40°F (ADJ.)
- RUN CONDITIONS:** THE CRAC SYSTEM SHALL OPERATE CONTINUOUSLY AND SHALL MAINTAIN THE SPACE AT A MAXIMUM 78°F TEMPERATURE AND MAXIMUM HUMIDITY LEVEL (55°F DEWPOINT). PROVIDE ALARMS AS FOLLOWS:
 - FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF
 - FAN IN HAND: COMMANDED OFF, BUT THE FAN IS ON
 - FAN RUNTIME EXCEEDED: FAN STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.)
- ATFP / SMOKE DETECTION SHUTDOWN:** UNITS SERVING INFORMATION TECHNOLOGY AND COMMUNICATIONS EQUIPMENT SHALL CONTINUE TO OPERATE UPON A BUILDING WIDE FIRE ALARM OR ATFP HVAC SHUTDOWN INITIATION. THE CRAC UNITS SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A LOCAL UNIT SMOKE DETECTOR STATUS.
- FAN / FAN STATUS:** THE ACTIVE CRAC UNIT FANS SHALL OPERATE CONTINUOUSLY WHEN THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON INTERNAL SAFETIES. THE UNIT CONTROLLER SHALL MONITOR THE FAN STATUS AND PROVIDE ALARMS AS FOLLOWS:
 - FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF
 - FAN IN HAND: COMMANDED OFF, BUT THE FAN IS ON
 - FAN RUNTIME EXCEEDED: FAN STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.)
- FILTER DIFFERENTIAL PRESSURE MONITOR:** THE CRAC UNIT CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER; THIS INFORMATION SHALL BE AVAILABLE ON THE UNIT CONTROLLER INTERFACE AND PROVIDED TO THE DDC SYSTEM FOR INFORMATIONAL PURPOSES ONLY. CAMP LEJEUNE MECHANICAL POLICIES DO NOT DESIRE FILTER ALARMS (FILTER SHALL BE CHANGED ON REGULAR MAINTENANCE INTERVALS).
- COOLING COIL ISOLATION (2-WAY) AND MODULATING FLOW (3-WAY) CONTROL VALVES:**

2-WAY UNIT ISOLATION VALVES: THE TWO ACTIVE CRAC UNITS SHALL HAVE THEIR CHILLED WATER SYSTEM COIL ISOLATION VALVES OPEN TO FLOW FROM THE CONSTANT VOLUME CHILLED WATER PUMPING SYSTEM, WHILE THE STANDBY (N+1 REDUNDANT) UNIT'S ISOLATION VALVE SHALL BE CLOSED IN ORDER TO MAINTAIN THE CONSTANT CHILLED WATER FLOW SYSTEM BALANCE (SERVICE TO TWO ACTIVE CRAC UNITS).

3-WAY MODULATING CHILLED WATER CONTROL VALVES: THE TWO ACTIVE CRAC UNIT'S FACTORY INSTALLED 3-WAY CONTROL VALVES SHALL MODULATE TO CONTROL CHILLED WATER FLOW TO THE CRAC UNIT COOLING COILS AS REQUIRED FOR COOLING AND HUMIDITY CONTROL; REMAINDER OF FLOW SHALL BYPASS THE CHILLED WATER COIL.
- HEATING COIL CONTROL VALVES (REHEAT/DEHUMIDIFICATION):** THE FACTORY INSTALLED 2-WAY CONTROL VALVE SHALL MODULATE THE FLOW OF HOT WATER FOR AUTOMATIC SENSIBLE REHEATING MODE DURING THE DEHUMIDIFICATION CYCLE AND AUTOMATIC HEATING MODE AS REQUIRED THROUGH THE CRAC UNIT FACTORY CONTROLLER.
- HUMIDITY CONTROL:** THE CRAC UNIT'S INTERNAL MICROPROCESSOR/CONTROLLER SHALL DETERMINE THE MOISTURE CONTENT OF THE ROOM AIR AND PREVENT UNNECESSARY HUMIDIFICATION AND DEHUMIDIFICATION CYCLES BY RESPONDING TO CHANGES IN DEWPOINT TEMPERATURE. ON A RISE IN SPACE HUMIDITY ABOVE UPPER LIMIT SETPOINT OF 55°F DEWPOINT THE DEHUMIDIFICATION CYCLE SHALL BE ENABLED, UPON A FALL IN SPACE HUMIDITY BELOW 55° DEWPOINT THE DEHUMIDIFICATION CYCLE SHALL BE DISABLED. ON A FALL IN SPACE HUMIDITY BELOW LOWER LIMIT SETPOINT OF 42°F DEWPOINT, THE HUMIDIFICATION CYCLE SHALL BE ENABLED UNTIL SPACE REACHES SETPOINT.
- DEHUMIDIFICATION CYCLE:** EACH CRAC UNIT SHALL BE PROVIDED WITH A CHILLED WATER / HOT WATER BASED DEHUMIDIFICATION CYCLE TO CONDENSE EXCESS MOISTURE ON THE COOLING COIL TO DISCHARGE THROUGH THE CONDENSATE DRAIN, WITH HOT WATER REHEATING PROVIDED TO OFFSET EXCESS SENSIBLE COOLING INCURRED DURING THE DEHUMIDIFICATION CYCLE TO PREVENT SUBCOOLING OF THE SPACE BEYOND 5°F (ADJUSTABLE) BELOW THE ROOM TEMPERATURE SETPOINT. CRAC SYSTEM CONTROLLER SHALL ENABLE/MODULATE DEHUMIDIFICATION CYCLE AS REQUIRED TO MAINTAIN SPACE HUMIDITY LEVELS AT OR BELOW 55°F DEWPOINT.
- HUMIDIFICATION CYCLE:** EACH CRAC UNIT SHALL BE PROVIDED WITH A FACTORY INSTALLED SELF-CONTAINED ATMOSPHERIC STEAM GENERATOR UTILIZING BUILDING POTABLE WATER. CRAC SYSTEM CONTROLLER SHALL ENABLE/MODULATE STEAM SUPPLY TO MAINTAIN SPACE HUMIDITY LEVELS ABOVE 42°F DEWPOINT PER TIA-569.

Confirm Req't.

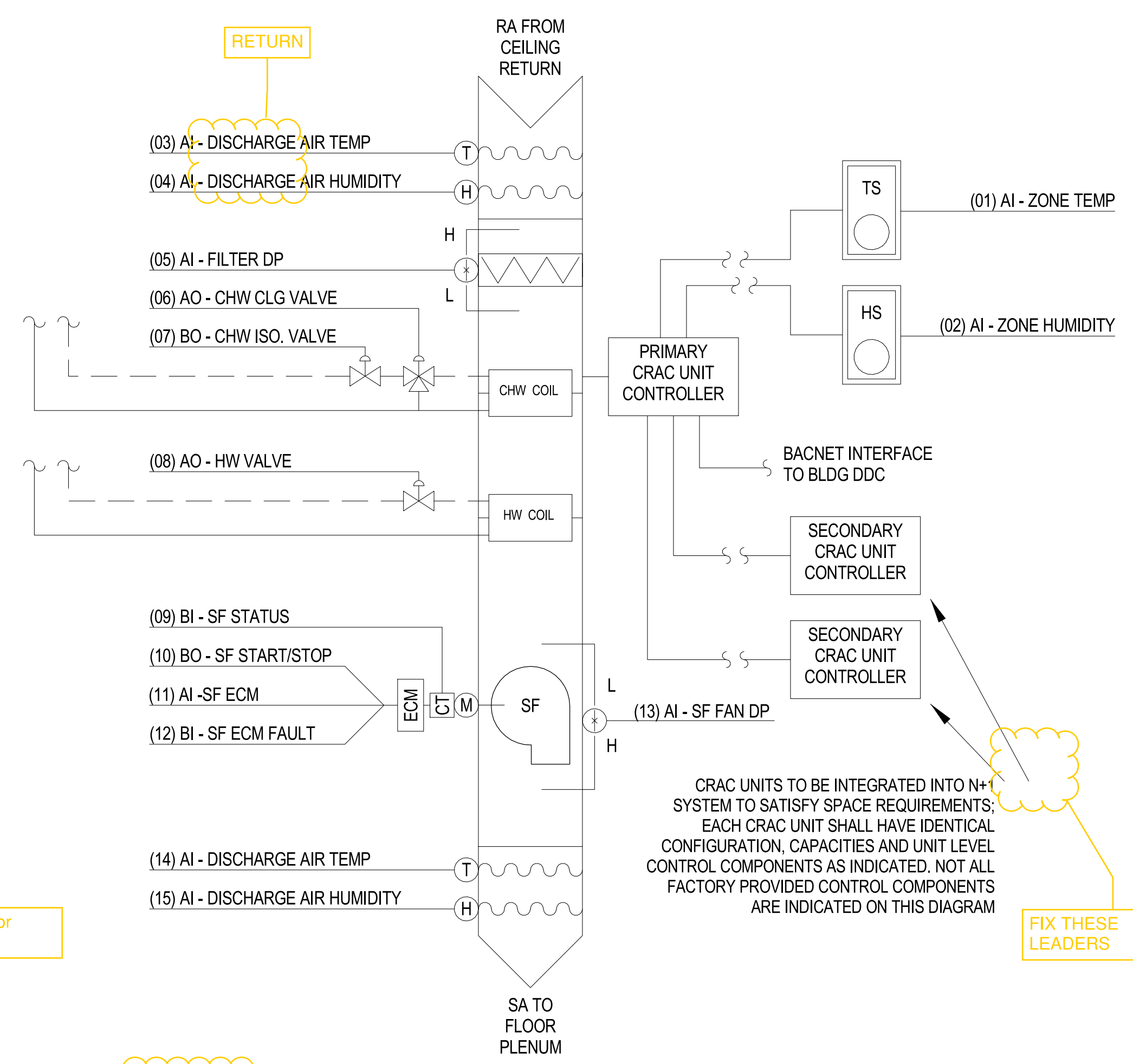
DEWPOINT

DEWPOINT for consistency

DEWPOINT for consistency

| POINT NUMBER | SYSTEM POINT DESCRIPTION | ANALOG | | | | | | DIGITAL (BINARY) | | | SYSTEMS FEATURES | | NOTES | | | |
|--------------|------------------------------|-------------|-------------------|----------|--------------|--------------|------------------------|------------------|-----------------|-------------|------------------|-------------|-------|------------|-----------------|----------------|
| | | INPUT (AI) | | | OUTPUT (AO) | | | INPUT (BI) | | OUTPUT (BO) | ALARMS | PROGRAMS | | | | |
| | | TEMPERATURE | RELATIVE HUMIDITY | PRESSURE | % OPEN/CLOSE | % OPEN/CLOSE | FAN % MODULATION (ECM) | STATUS ON/OFF | OFF/ON (ENABLE) | OPEN/CLOSE | START/STOP | SENSOR FAIL | | COMM. FAIL | TIME SCHEDULING | ALARM INSTRUCT |
| | CRAC UNIT CONTROLLER(S) | ● | | | | | | | | | ● | ● | ● | ● | ● | 1 |
| 01 | ZONE TEMPERATURE | ● | | | | | | | | | | | | | | |
| 02 | ZONE HUMIDITY | | ● | | | | | | | | | | | | | |
| 03 | RETURN AIR TEMPERATURE | ● | | | | | | | | | | | | | | |
| 04 | RETURN AIR HUMIDITY | | ● | | | | | | | | | | | | | |
| 05 | FILTER DIFFERENTIAL PRESSURE | | | ● | | | | | | | | | | | | |
| 06 | CHW COOLING VALVE (3-WAY) | | | | ● | | | | | | | | | | | |
| 07 | CHW ISOLATION VALVE (2-WAY) | | | | | ● | | | | | | | | | | |
| 08 | HW REHEAT VALVE | | | | | | ● | | | | | | | | | |
| 09 | SUPPLY FAN STATUS | | | | | | ● | | | | | | | | | |
| 10 | SUPPLY FAN START/STOP | | | | | | | ● | | | | | | | | |
| 11 | SUPPLY FAN ECM SETPOINT | | | | | | | | ● | | | | | | | |
| 12 | SUPPLY FAN ECM FAULT | | | | | | | | | ● | | | | | | |
| 13 | SUPPLY FAN PRESSURE | | | | | | | | | | | | | | | |
| 14 | DISCHARGE AIR TEMPERATURE | | ● | | | | | | | | | | | | | |
| 15 | DISCHARGE AIR HUMIDITY | | | ● | | | | | | | | | | | | |
| ## | RESERVED FOR FUTURE | | | | | | | | | | | | | | | |

1. NOT ALL FACTORY PROVIDED CONTROL POINTS INDICATED - REFER TO CRAC UNIT IOM AND PROJECT SPECIFICATIONS FOR COMPLETE INTERNAL UNIT CONTROL DEVICES AND SEQUENCES INCLUDING INTEGRAL HUMIDIFIER CONTROL, SUBFLOOR WATER DETECTION, ETC.



CONTROL, SUBFLOOR...

FIX THESE LEADERS

1 CRAC SYSTEM CONTROL DIAGRAM SCALE: NTS

APPR DATE

SYN DESCRIPTION

PRELIMINARY
NOT FOR CONSTRUCTION

SEAL

RO Jordan COMPANY
- A JOINT VENTURE -

Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108 A/E/IN/P/O
APPROVED

FOR COMMANDER NAVFAC
ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

SATISFACTORY TO DATE

DES DRW CHK

PM

BRANCH MANAGER

CHIEF ENGINEER

FIRE PROTECTION

NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND ~ MID-ATLANTIC
JACKSONVILLE, NC
JACKSONVILLE, NC
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL - CONTROLS

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
ROICC FLORENCE CAMP LEJEUNE
MCB CAMP LEJEUNE
JACKSONVILLE, NC

SCALE: AS NOTED
EPROJECT NO.: 1590892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.

SHEET OF

M-812

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION

PRE-FINAL ITR SET 2021-05-28

NEED SUPPLY VERSION FOR "HOT" MECH ROOM W/ RELIEF DAMPER IN LIEU OF OA INTAKE

MECHANICAL/ELECTRICAL ROOM FAN FORCED VENTILATION COOLING/HYDRONIC HEATING - SEQUENCE OF OPERATION

- ROOM TO BE THERMOSTATICALLY CONTROLLED BY COMMON THERMOSTAT CONNECTED TO THE DDC SYSTEM FOR SPACE HEATING AND EXHAUST (OR SUPPLY) BASED FORCED OUTSIDE AIR VENTILATION COOLING TO MAINTAIN TEMPERATURES WITH 10°F OF AMBIENT OUTDOOR CONDITIONS.
- ON RISE IN SPACE TEMPERATURE ABOVE 80°F (ADJ.) DAMPERS ASSOCIATED WITH THE ROOM INTAKE AND EXHAUST LOUVERS SHALL OPEN AND THE EXHAUST (OR SUPPLY) FAN SHALL OPERATE CONTINUOUSLY. UPON FALL IN SPACE TEMPERATURE BELOW 80°F (ADJ.) THE REVERSE SHALL OCCUR.
- UPON FALL IN SPACE TEMPERATURE BELOW HEATING SETPOINT OF 55°F (ADJ.) HYDRONIC UNIT HEATER SERVING SPACE SHALL ENERGIZE BY STARTING FAN AND MODULATING HOT WATER VALVE TO MAINTAIN SPACE HEATING SETPOINT.

MAINTAIN

SPLIT DX HEAT PUMP - SEQUENCE OF OPERATION

- REMOTE CONTROL PANEL BY UNIT/SYSTEM MANUFACTURER SHALL BE WALL MOUNTED AND CONTROL COOLING AND HEATING MODES OF OPERATION. TEMPERATURE AND HUMIDITY SENSORS SHALL BE INTEGRAL TO THE CONTROL PANEL (IF AVAILABLE FROM MANUFACTURER) OR MOUNTED SEPARATELY ADJACENT TO THE CONTROL PANEL BY THE CONTROLS CONTRACTOR.
- MANUFACTURER'S CONTROL PANEL SHALL INCLUDE AUTOMATIC UNIT SWITCHING OPERATIONS (HEATING / COOLING) AND DISPLAY NORMAL FUNCTIONS, MALFUNCTIONS AND SERVICE DIAGNOSTICS ON AN INTEGRAL LCD DISPLAY. BACNET INTERFACE MODULE SHALL BE PROVIDED (IF AVAILABLE FROM MANUFACTURER) TO INTEGRATE INTO BUILDING DDC SYSTEM.
- ALARM CONDITIONS, IN ADDITION TO BEING DISPLAYED ON THE LOCAL LCD CONTROL PANEL SHALL BE RELAYED TO THE DDC SYSTEM. IF BACNET INTERFACE IS AVAILABLE, ALARM SPECIFICS SHALL BE SENT TO THE DDC SYSTEM, OTHERWISE A BASIC ALARM RELAY SHALL BE PROVIDED TO SIGNAL AN ALARM CONDITION TO THE DDC TO ALERT BUILDING OPERATOR OF CONDITION.
- IF MANUFACTURER'S CONTROLLER IS NOT AVAILABLE WITH DDC INTERFACE, A SPACE TEMPERATURE AND HUMIDITY SENSOR PROVIDED SEPARATELY WHEN SPACE CONDITIONS FALL OUTSIDE THE SET HEATING (68°F) AND COOLING (78°F) SETPOINTS BY 2°F; OR SPACE HUMIDITY EXCEEDS 60%RH. ALL ALARM POINTS SHALL BE ADJUSTABLE.
- CONTROL CONTRACTOR SHALL PROVIDE ALL INTERCONNECTING WIRING, RELAYS AND CONNECTIONS BETWEEN MANUFACTURER'S CONTROL PANEL, INDOOR UNIT AND OUTDOOR CONDENSING UNIT AND INTERFACE TO BUILDING DDC SYSTEM.

Suggest... THE UNIT SHALL OPERATE CONTINUOUSLY. THE HEATING TEMPERATURE SETPOINT IS 68°F DB (ADJ). THE COOLING TEMPERATURE SETPOINT IS 78°F DB (ADJ). ALARMS SHALL BE PROVIDED WHEN SPACE CONDITIONS FALL OUTSIDE THE HEATING AND COOLING SETPOINTS BY 2°F OR WHEN SPACE HUMIDITY EXCEEDS 60%. ALL ALARM POINTS SHALL BE ADJUSTABLE.

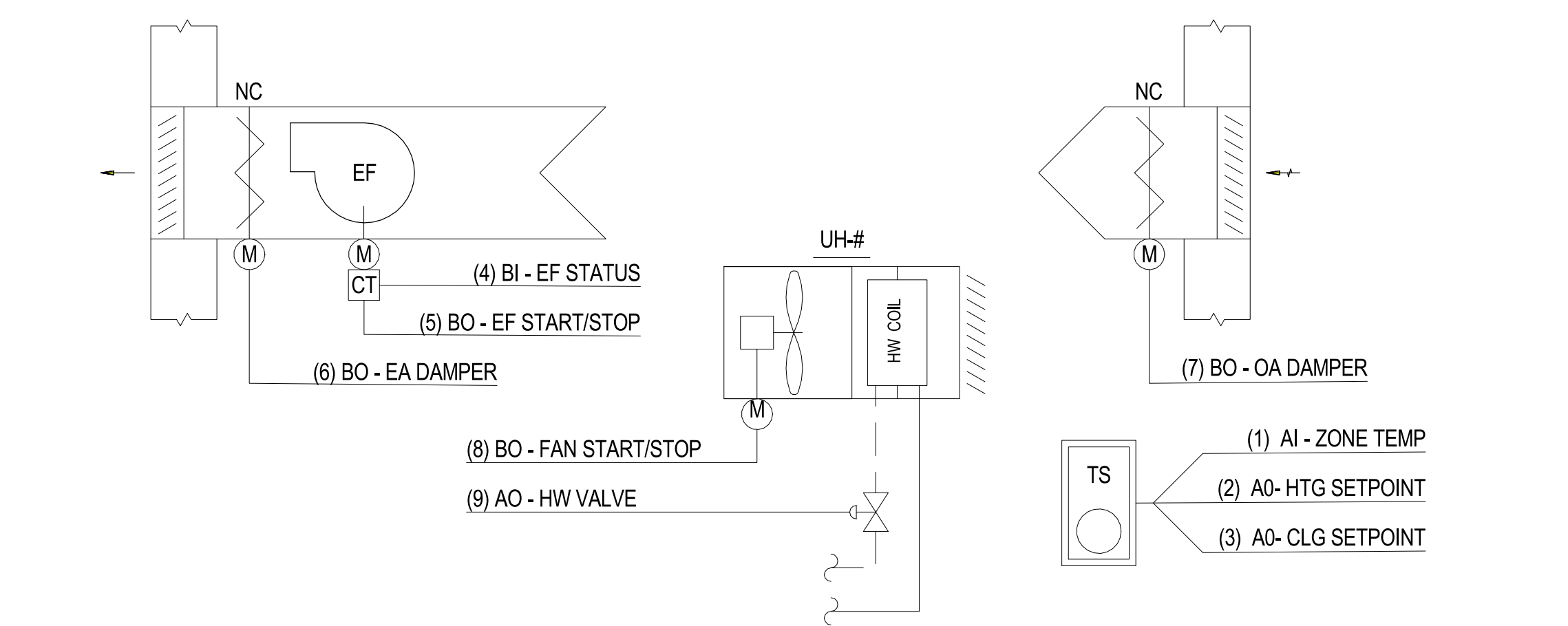
already stated in #1

Suggest naming consistent with Schedule / Equip. P1338 also has both cooling only and heat pump.

DUCTLESS MINI-SPLIT AIR CONDITIONER (SSAC/SSCU) & HEAT PUMP (SSHP/HPCU) SYSTEM SCHEDULE - P1338

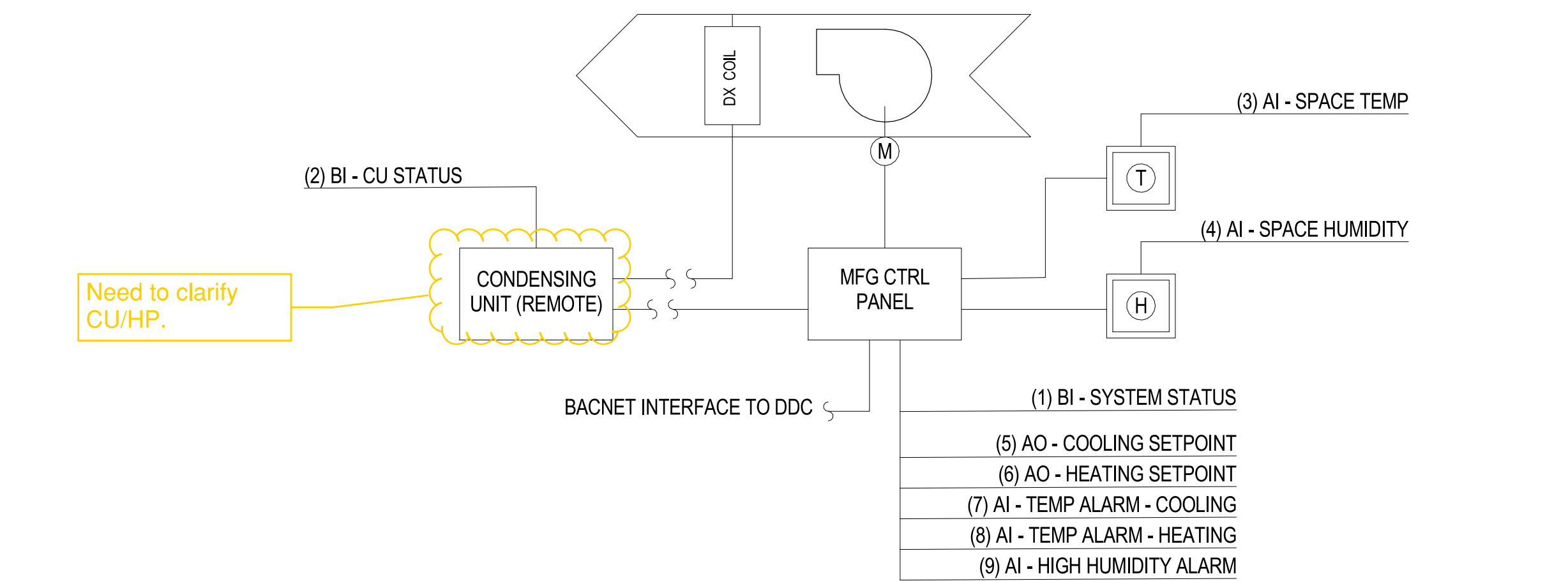
| POINT NUMBER | SYSTEM POINT DESCRIPTION | ANALOG | | DIGITAL (BINARY) | | SYSTEM FEATURES | | | | NOTES | | | | | |
|--------------|---|---------------------------|---------------------------------|------------------|-------------|-----------------|--------|----------|---------|------------------|------------|--------------------|----------------|---------------------|----------------|
| | | INPUT (AI) | OUTPUT(AO) | INPUT (BI) | OUTPUT (BO) | ALARMS | | PROGRAMS | | | | | | | |
| | | | | | | | | | | | | | | | |
| | EXHAUST FAN / VENTILATION COOLING & ASSOCIATED LOUVERS / HYDRONIC HEATERS | COLOR GRAPHIC TEMPERATURE | SETPOINT ADJ. POSITION / % OPEN | STATUS | START/STOP | OPEN/CLOSED | ON/OFF | FAILURE | IN HAND | RUNTIME EXCEEDED | LOW ANALOG | TREND - START/STOP | TREND - STATUS | TREND - OPEN/CLOSED | TREND - HEATER |
| 1 | ZONE TEMP | ● | | | | | | | | | | | | | |
| 2 | HEATING SETPOINT | | ● | | | | | | | | | | | | |
| 3 | COOLING (VENTILATION) SETPOINT | | ● | | | | | | | | | | | | |
| 4 | EXHAUST FAN STATUS | ● | | | | ● | | | | | | | | | |
| 5 | EXHAUST FAN START/STOP | ● | | | | | | | | | | | | | |
| 6 | EXHAUST DAMPER | ● | | | | | | | | | | | | | |
| 7 | OUTDOOR AIR DAMPER | ● | | | | | | | | | | | | | |
| 8 | UNIT HEATER FAN START/STOP | ● | | | | | | | | | | | | | |
| 9 | UNIT HEATER HW VALVE | ● | | | | | | | | | | | | | |
| ## | RESERVED FOR FUTURE | | | | | | | | | | | | | | |

| POINT NUMBER | SYSTEM POINT DESCRIPTION | ANALOG | | DIGITAL (BINARY) | | SYSTEM FEATURES | | | | NOTES | | | | |
|--------------|-----------------------------|----------------------|-------------|------------------|-------------|-----------------|-------------|------------|-------------|------------|-------------|-----------|------------|-------|
| | | INPUT (AI) | OUTPUT (AO) | INPUT (BI) | OUTPUT (BO) | ALARMS | | PROGRAMS | | | | | | |
| | | | | | | | | | | | | | | |
| | SPLIT DX HEAT PUMP | COLOR GRAPHIC STATUS | TEMPERATURE | HUMIDITY | TEMPERATURE | HUMIDITY | UNIT STATUS | START/STOP | HIGH ANALOG | LOW ANALOG | SENSOR FAIL | FLOW FAIL | COMM. FAIL | TREND |
| | DDC SYSTEM BACNET INTERFACE | | | | | | | | | | | | | |
| | SYSTEM GRAPHIC | ● | | | | | | | | | | | | |
| 1 | SYSTEM STATUS | | | | | | | ● | | | | | | |
| 2 | CONDENSING UNIT STATUS | | | | | | | ● | | | | | | |
| 3 | SPACE TEMPERATURE | | | | | | | | | | | | | |
| 4 | SPACE HUMIDITY | | | | | | | | | | | | | |
| 5 | COOLING SETPOINT | | ● | | | | | | | | | | | |
| 6 | HEATING SETPOINT | | ● | | | | | | | | | | | |
| 7 | ZONE TEMP ALARM - COOLING | | | | | | | | | | | | | |
| 8 | ZONE TEMP ALARM - HEATING | | | | | | | | | | | | | |
| 9 | ZONE HIGH HUMIDITY ALARM | | | | | | | | | | | | | |
| ## | RESERVED FOR FUTURE | | | | | | | | | | | | | |



1 MECH/ELEC ROOM FAN FORCED VENTILATION COOLING/HYDRONIC HEATING - CONTROL DIAGRAM SCALE: NTS

ELEC SHOULDN'T HAVE HYDRONIC HEAT



2 SPLIT DX HEAT PUMP - CONTROL DIAGRAM SCALE: NTS

Need to clarify CU/HP.

APPR DATE

SYN DESCRIPTION

SEAL

PRELIMINARY
NOT FOR CONSTRUCTION

RO Jordan
CORPORATION
- A JOINT VENTURE -

Michael Baker INTERNATIONAL
100 AIRSIDE DRIVE
MOON TOWNSHIP, PA 15108 A/E/IN/P/O APPROVED

FOR COMMANDER NAVFAC
ACTIVITY
MARINE CORPS BASE
CAMP LEJEUNE

SATISFACTORY TO DATE

DES DRW CHK

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FIRE PROTECTION

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MID-ATLANTIC
JACKSONVILLE, NC
MBC CAMP LEJEUNE
P1338 II MEF SIMULATION/TRAINING CENTER
REPLACEMENT
MECHANICAL - CONTROLS

SCALE: AS NOTED
EPROJCT NO.: 1590892
CONSTR. CONTR. NO.: N40085-20-C-0059
NAVFAC DRAWING NO.:
SHEET OF

M-813

DP2 SUBMISSION - P1338 BUILDING - PRE-FINAL SUBMISSION
PRE-FINAL ITR SET 2021-05-28

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