



# Invitation for Bid

## Crossroads HVAC and Controls Upgrade

### Issued By:

Shane Jenkins  
Duchesne County Building & Grounds Director  
1621 North 900 East  
Duchesne, Utah 84021  
[sjenkins@duchesne.utah.gov](mailto:sjenkins@duchesne.utah.gov)

### Issue Date:

July 31, 2025

### Bid Due Date and Time:

August 15, 2025 by 3p.m. mountain standard time

### Project Name:

Crossroads HVAC and Controls Upgrade

### Project Location:

Crossroads Senior Center  
50 East 200 South,  
Roosevelt, Utah 84066

## 1. Introduction

Duchesne County is seeking competitive sealed Bid from qualified contractor to remove old HVAC equipment and provide and install New HVAC Equipment and Controls as outlined in provided design and in accordance with local, state, and federal regulations.

This Invitation for Bid outlines the scope of work, requirements, and submission guidelines for interested bidders.

This project is being funded by an energy grant that has **Buy America Build America** and **Davis-Bacon** Requirements.

## 2. Scope of Work\*

The scope of work for this project includes, but is not limited to:

1. **Remove:**
  - All old HVAC equipment as specified
2. **Provide:**
  - New HVAC equipment as specified
  - New BAS (Building Controls) as specified
3. **Install:**
  - New HVAC Equipment as specified
  - New BAS Controls as specified
  - Waste disposal and site cleanup.
4. **Project Management & Closeout:**
  - Apply for all permits and schedule all inspections
  - Schedule and conduct progress meetings with stakeholders.
  - Provide regular status reports and updates.
  - Conduct final inspections and obtain necessary approvals.
  - Deliver all as-built drawings, manuals, and warranties.

Any damage caused by contractor is there sole responsibility

## 3. Project Timeline

<b>Milestone</b>	<b>Estimated Completion Date</b>
IFB Issued	July 31, 2025
Bid Submission Due	August 15, 2025 by 3:00 P.M. Mountain Standard Time
Contract Award	August 18, 2025
Construction Begins	With Notice to Proceed
Project Completion	October 28, 2025

## 4. Bid Submission Requirements

Interested bidders must submit a sealed Bid containing the following:

1. **Cover Letter** – Brief introduction and statement of interest.
2. **Company Information** – Name, address, phone, email, and primary contact.
3. **Experience & Qualifications** – Portfolio of similar government projects with references.
4. **Team Composition** – Key personnel and subcontractors (if applicable).
5. **Project Schedule** – Detailed timeline with key milestones.
6. **Cost Proposal** – Itemized breakdown of design and construction costs.
7. **Licenses & Certifications** – Proof of required licenses, insurance, and bonding.
8. **Compliance Statement** – Acknowledgment of all legal and regulatory requirements.
9. **Addendum Acknowledgment** - List Number of Addendums received

All Bids must include **6 copies** and be submitted in a sealed envelope marked:  
**"Crossroads HVAC and Controls Upgrade"**

*Although not required, any potential cost saving strategies or suggestions for best practices in this process should be shown in Bid*

**Bids must be delivered or mailed to:**

Melissa Hughes  
Duchesne County  
Commission Executive Assistant  
734 North Center Street  
P.O. Box 270  
Duchesne, Utah 84021

Bids submissions due by August 15, 2025 by 3:00 p.m. mountain standard time.

Late submissions will not be accepted.

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Bids will be awarded to the lowest Bidder meeting the stated IFB requirements.

Duchesne County reserves the right to reject any or all bids or negotiate modifications to the proposed scope.

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## 5. Questions & Clarifications

All inquiries regarding this Invitation for bid (IFB) must be submitted in writing to:

Shane Jenkins  
Duchesne County Building & Grounds Director  
sjenkins@duchesne.utah.gov

**Questions must be submitted by:** August 12, 2025 by 3:00 P.M Mountain Standard Time

**Last addendum issued by:** August 13, 2025 by 11:00 A.M. Mountain Standard Time

Responses will be issued as an addendum to this Invitation for bid (IFB) and posted on [Duchesne County and Utah Department of Purchasing websites].

## 6. Terms & Conditions

- The selected contractor must comply with all local, state, and federal regulations.
- All work must be completed within the agreed-upon timeline and budget.
- Duchesne County reserves the right to terminate the contract if the contractor fails to meet project expectations.
- Duchesne County is not responsible for any costs incurred in Proposal preparation.
- Duchesne County is requiring selected contractor to obtain Payment Bond and Performance Bond.
- The selected contractor will be Required enter into Standard Contract Terms & Conditions. (Attachments B)

## 7. Attachments

- **Attachment A:** Crossroads HVAC and Controls Upgrade design prepared VBFA (14 pages)
- **Attachment B:** Standard Contract Terms & Conditions (9 pages)
- **Attachment C:** Buy America Build America and Davis-Bacon Requirements (8 pages)

Duchesne County appreciate your interest in this project and look forward to receiving your bid.

**Sincerely,**  
Shane Jenkins  
Duchesne County  
Building & Grounds Director

# **Attachment**

**A**

**14 Pages**



## 01-230050 HVAC DESIGN CRITERIA

- A. WORK INCLUDED: FURNISH ALL LABOR, MATERIALS, EQUIPMENT, APPLIANCES AND NECESSARY INCIDENTALS FOR THE COMPLETE INSTALLATION OF ALL HEATING AND VENTILATION AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.
- B. RELATED WORK INCLUDED IN THIS SECTION:
1. FURNISHING ELECTRICAL DEVICES NECESSARY FOR MECHANICAL WORK, EXCEPT DISCONNECTS UNLESS INDICATED OTHERWISE.
  2. LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS INCLUDING FINAL CONNECTIONS AS INDICATED ON WIRING DIAGRAMS.
  3. CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS INDICATED ON WIRING DIAGRAMS.
  4. RESPONSIBILITY FOR OBTAINING CLARIFICATION OF DISCREPANCIES BETWEEN MECHANICAL AND ELECTRICAL WORK FROM ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
  5. RESPONSIBILITY FOR PROPER OPERATION OF AUTOMATIC ELECTRICAL CONTROLS AND EQUIPMENT, AND OF ELECTRIC POWER DRIVEN EQUIPMENT FURNISHED UNDER THIS SECTION.
- C. RELATED WORK IN OTHER SECTIONS:
1. ELECTRICAL WORK AS FOLLOWS WILL BE PROVIDED UNDER ELECTRICAL DIVISION:
- D. CONDUIT FOR LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED EXCEPT CONDUIT FOR LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 23.
- E. LINE VOLTAGE WIRING FOR EQUIPMENT AND DEVICES AS INDICATED OR SPECIFIED HEREIN EXCEPT LINE AND LOW VOLTAGE WIRING FOR MECHANICAL CONTROLS AS SPECIFIED UNDER DIVISION 23.
- F. PROVIDING DISCONNECT SWITCHES.
- G. INSTALLING ELECTRICAL DEVICES SUCH AS STARTERS AND DISCONNECTS, AND WHEN INDICATED, FURNISHING ALL SUCH DEVICES.
- H. CODES AND STANDARDS:
1. IN ADDITION TO THE REQUIREMENTS OF ALL GOVERNING CODES, ORDINANCES AND AGENCIES, CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
    2. 2021 INTERNATIONAL MECHANICAL CODE.
    3. 2021 INTERNATIONAL BUILDING CODE.
    4. 2021 INTERNATIONAL PLUMBING CODE.
    5. 2021 INTERNATIONAL ENERGY CONSERVATION CODE.
    6. 2021 INTERNATIONAL FUEL AND GAS CODE.
    7. 2020 INTERNATIONAL ELECTRICAL CODE.
- F. DESIGN CONDITIONS
1. OUTSIDE DESIGN CONDITIONS.
    - a. ELEVATION, 5,095 FT
    - b. SUMMER DESIGN DRY BULB TEMP, 95°F
    - c. SUMMER MEAN COINCIDENT WEB BULB, 64°F
    - d. WINTER DESIGN DRY BULB TEMP, -20°F

## 01-230051 PRODUCT HANDLING

- A. PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE, DURING AND AFTER INSTALLATION.
- B. REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

## 01-230052 JOB CONDITIONS

- A. EXAMINATION OF SITE: EXAMINE THE SITE AND INCLUDE IN BID PROPOSAL ALL CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED.

## 01-230053 MISCELLANEOUS

- A. PERMIT AND FEES: ARRANGE, APPLY AND PAY FOR ALL NECESSARY PERMITS, INSPECTIONS, EXAMINATIONS AND FEES OR CHARGES REQUIRED BY PUBLIC AUTHORITIES HAVING JURISDICTION.
- B. LOCATIONS AND ACCESSIBILITY: CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATIONS OF SPACE AVAILABLE FOR INSTALLATION OF WORK UNDER THIS SECTION. VALVES, MOTORS, CONTROLS AND OTHER DEVICES REQUIRING SERVICE, MAINTENANCE AND ADJUSTMENT SHALL BE PLACED IN FULLY ACCESSIBLE POSITIONS AND LOCATIONS. PROVIDE ACCESS DOORS WHERE REQUIRED IN DUCTWORK AND/OR CONSTRUCTION WHETHER SPECIALLY DETAILED OR NOT, AND RENDER ALL SUCH DEVICES ACCESSIBLE.
- C. SCAFFOLDING: FURNISH ALL SCAFFOLDING, RIGGING AND HOISTING AS REQUIRED FOR THE PROPER EXECUTION OF THE WORK.
- D. DRAWINGS: DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF EQUIPMENT, AND OTHER ITEMS, AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. ALL OFFSETS AND INTERFERENCES MAY NOT BE SHOWN BECAUSE OF THE SCALE OF DRAWINGS. ASSUME THE RESPONSIBILITY FOR COORDINATING THE WORK WITH ALL OTHER TRADES. WORK SPECIFIED AND NOT CLEARLY DEFINED BY THE DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A MANNER SATISFACTORY TO THE ENGINEER. IN THE EVENT CHANGES IN INDICATED LOCATIONS AND ARRANGEMENTS ARE DEEMED NECESSARY BY ENGINEER, THEY SHALL BE MADE BY THIS CONTRACTOR WITHOUT ADDITIONAL CHARGES.
- E. ALL HVAC EQUIPMENT SHALL BE LABELED. INFORMATION ON LABELS SHALL INCLUDE: IDENTIFICATION NUMBER AND NAME SAME AS THE DRAWINGS, FLOW AND STATIC PRESSURE AND THE AREA TO WHICH THE UNIT SERVES. LABELS SHALL BE BLACK FACED FORMICA WITH WHITE ENGRAVED LETTERING AT LEAST 3/16 INCH HIGH.

## 01-230550 SUBMITTALS AND O&amp;M MANUALS

- A. SHOP DRAWINGS: WITHIN 15 DAYS AFTER AWARD OF CONTRACT, AND BEFORE ANY OF THE MATERIALS OF THIS SECTION ARE FABRICATED AND DELIVERED TO THE JOBSITE, SUBMIT COMPLETE SHOP DRAWINGS AND EQUIPMENT SUBMITTALS FOR ENGINEER TO REVIEW IN ACCORDANCE WITH THESE SPECIFICATIONS. SHOW ALL DETAILS OF ALL DUCTWORK, AND EQUIPMENT PADS.
- B. PRODUCT DATA:
1. SUBMIT ELECTRONIC COPIES OF ALL MANUFACTURER'S PRODUCT DATA SIMULTANEOUSLY WITH ALL SHOP DRAWING SUBMITTALS.
  2. PRODUCT DATA TO INCLUDE ALL AIR CONDITIONING EQUIPMENT, HANGERS, FANS AND OTHER STANDARD ITEMS AS REQUIRED TO COMPLEMENT SHOP DRAWINGS FOR A SUBMITTAL INDICATING PRODUCTS TO BE USED ON THIS WORK.
- C. RECORD DRAWINGS: MAINTAIN THROUGHOUT THE PROGRESS OF THE WORK PROJECT RECORD DRAWINGS AND SUBMIT TO THE OWNER.
- D. OPERATION AND MAINTENANCE MANUALS
1. PROVIDE AN ELECTRONIC FILE OF THE COMPLETE O&M IN PDF FORMAT. OPERATING AND MAINTENANCE MANUAL FOR THE (INSERT PROJECT NAME) YEAR VOLUME NO.(I) (INSERT MECHANICAL ENGINEER) MECHANICAL ENGINEER (INSERT ARCHITECT) ARCHITECT
  2. PROVIDE AN INDEX SHEET TYPED ON AICO GOLD-LINE INDEXES IN THE FRONT OF THE BINDER. THE MANUAL SHALL INCLUDE THE FOLLOWING.
    - a. SYSTEM DESCRIPTIONS AND BASIS OF DESIGN
    - b. START-UP PROCEDURE AND OPERATION OF SYSTEM
    - c. MAINTENANCE AND LUBRICATION TABLE
    - d. OPERATION AND MAINTENANCE BULLETINS
    - e. AUTOMATIC TEMPERATURE CONTROL SEQUENCE OF OPERATION, DESCRIPTION OF OPERATION, INTERLOCK AND CONTROL DIAGRAMS, AND CONTROL PANELS.
    - f. BALANCING REPORTS
    - g. SYSTEM COMMISSIONING REPORTS
    - h. EQUIPMENT START-UP CERTIFICATES
- E. WARRANTIES: IN ADDITION TO EQUIPMENT WARRANTIES, FURNISH A WRITTEN WARRANTIES AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR ONE YEAR. WARRANTIES SHALL INCLUDE REPAIR OF DAMAGE TO, OR REPLACEMENT OF, ANY PART OF EQUIPMENT OR PREMISES CAUSED BY LEAKS OR BREAKS IN PIPE OR EQUIPMENT PROVIDED UNDER THIS SECTION.

## 01-230553 HVAC PIPING AND EQUIPMENT IDENTIFICATION

- A. PIPE IDENTIFICATION:
1. LABEL AND COLOR CODE ALL PIPS WITH CONTENTS CLEARLY IDENTIFIED AND ARROW INDICATING DIRECTION OF FLOW. THIS APPLIES TO PIPING RUN ABOVE THE CEILINGS AS WELL AS PIPE EXPOSED IN EQUIPMENT ROOMS AND FINISHED AREAS. IDENTIFY PIPES AS THE FOLLOWING LOCATIONS.
    - a. ADJACENT TO EACH VALVE.
    - b. AT EVERY POINTS OF ENTRY AND EXIT WHERE PIPING PASSES THROUGH ALL WALL OR FLOOR.
    - c. ON EACH RISER AND JUNCTION
    - d. A MAXIMUM OF EVERY FIFTY FEET (50') ON LONG CONTENTIOUS LINES FULLY EXPOSED TO VIEW.
    - e. ADJACENT TO ALL SPECIAL FITTINGS OR DEVICES (REGULATING VALVES, ETC.).
    - f. CONNECTION TO EQUIPMENT.
    - g. APPLY MARKERS SO THEY CAN BE READ FROM THE FLOOR.
  2. PROVIDE ALL TEMPERATURE SELF-STICKING PERMANENT LABELS AND MARKERS AS MANUFACTURED BY W.H. BRADY CO 727 WEST GLENDALE AVE, MILWAUKEE, WISCONSIN; OR SETON NAME PLATE CORP, 592 BOULEVARD, NEW HAVEN, CONNECTICUT.
  3. PROVIDE UNIFORM PIP COLOR-CODING. PROVIDE BACKGROUND COLORS SHALL BE AS FOLLOWS:
    - a. BLACK: DANGEROUS MATERIALS (HIGH PRESSURE STEAM, NATURAL GAS, CONDENSATE, HIGH PRESSURE REFRIGERANT, HIGH VOLTAGE, ETC.)
  4. PROVIDE IDENTIFICATION LETTERS TWO INCH (2") HIGH FOR PIPES THREE INCH (3") AND LARGER, AND ONE INCH (1") HIGH FOR PIPES TWO AND ONE-HALF INCHES (2-1/2") AND UNDER.
- B. EQUIPMENT IDENTIFICATION
1. IDENTIFY ALL MECHANICAL EQUIPMENT AND ALL OTHER DEVICES WITH SIGNS MADE OF LAMINATED PLASTIC WITH ONE-EIGHTH INCH (1/8") OR LARGER ENGRAVED LETTERS. ATTACH SIGNS SECURELY WITH RUST PROOF SCREW OR SOME OTHER PERMANENT MEANS (NO ADHESIVES).
  2. INCLUDE THE FOLLOWING INFORMATION ON THE EQUIPMENT IDENTIFICATION SIGN: NAME OF EQUIPMENT, IDENTIFICATION ON PLANS AND SCHEDULES, DESIGN CAPACITY AND ANY OTHER IMPORTANT DATA NO INCLUDED ON FACTORY ATTACHED NAME PLATE.
  3. ATTACH SIGNS TO EQUIPMENT SO THEY CAN BE EASILY READ. ATTACH USING SCREW OR RIVETS.
  4. A SAMPLE IDENTIFICATION SIGN FOR EQUIPMENT IS AS FOLLOWS:
 

"SUPPLY FAN -AUDITORIUM F-2  
CAPACITY: 49,850 CFM @ 3.5" S.P. (AT 4775 FT. ELEV.)"

"HEATING HOT WATER PUMP  
CLASSROOM AREA  
156 GPM @ 57 FT.HEAD"



181 East 5600 South  
Murray, UT 84107  
801.530.3148 T  
801.530.3150 F

Original drawings remain the property of the Engineer and as such the Engineer retains total ownership and control. The design represented by these drawings are sold to the client for a one time use, unless otherwise agreed upon in writing by the Engineer.  
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ROOSEVELT CROSSROADS  
HVAC UPGRADE  
ROOSEVELT, UTAH

## REVISIONS

NO.	DESCRIPTION	DATE

VBFA PROJECT #: 23530  
CHECKED BY: JJ  
DRAWN BY: NG  
CURRENT ISSUE DATE: 01.20.2025

SHEET CONTENTS  
MECHANICAL  
SPECIFICATIONS

ME002

## 02-230529 HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT.

- A. PROVIDE A RUST RESISTANT STEEL HANGERS, SUPPORTS, RODS AND ACCESSORIES.
- B. PROVIDE HANGERS TO ACCOMMODATE FULL SIZE INSULATION SYSTEM.

## 02-230548 VIBRATION AND SEISMIC CONTROLS FOR HVAC EQUIPMENT.

ALL ISOLATION MATERIALS, FLEXIBLE CONNECTORS AND SEISMIC RESTRAINTS SHALL BE OF THE SAME VENDOR AND SHALL BE SELECTED AND CERTIFIED USING PUBLISHED OR FACTORY CERTIFIED DATA. ANY VARIANCE OR NON-COMPLIANCE WITH THESE SPECIFICATION REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR IN AN APPROVED MANNER.

## A. DESCRIPTION

1. THE WORK IN THIS SECTION CONSISTS OF FURNISHING ENGINEERING AND MATERIALS NECESSARY FOR THE REQUIRED SEISMIC DESIGN OF SUPPORTS AND ATTACHMENTS FOR SYSTEMS AND EQUIPMENT CONTAINED HEREIN FOR THE PROJECT.
2. UNLESS OTHERWISE SPECIFIED, ALL MECHANICAL, ELECTRICAL, FIRE PROTECTION AND PLUMBING EQUIPMENT, PIPE, AND DUCT SHALL BE RESTRAINED TO RESIST SEISMIC FORCES. RESTRAINTS SHALL MAINTAIN EQUIPMENT, PIPING, AND DUCT WORK IN A CAPTIVE POSITION.
3. THE 2021 IBC/ASCE 7-05 REQUIRES THAT MECHANICAL & ELECTRICAL COMPONENTS BE ASSIGNED A COMPONENT IMPORTANCE FACTOR. THIS IMPORTANCE FACTOR IS USED TO DETERMINE WHICH EQUIPMENT MAY OR MAY NOT BE EXEMPT FROM SEISMIC DESIGN FORCE REQUIREMENTS. THE COMPONENT IMPORTANCE FACTOR IS DETERMINED AS FOLLOWS:

- $I_p = 1.5$  LIFE-SAFETY COMPONENT IS REQUIRED TO FUNCTION AFTER AN EARTHQUAKE.
- $I_p = 1.5$  COMPONENT CONTAINS HAZARDOUS OR FLAMMABLE MATERIAL.
- $I_p = 1.5$  STORAGE RACKS IN OCCUPANCIES OPEN TO THE GENERAL PUBLIC (E.G., WAREHOUSE RETAIL STORES).
- $I_p = 1.0$  ALL OTHER COMPONENTS.

## B. GENERAL SEISMIC DESIGN REQUIREMENTS:

1. PER IBC 1613.1, THE SEISMIC RESTRAINT OF NONSTRUCTURAL COMPONENTS SHALL MEET THE REQUIREMENTS OF ASCE 7. IF THE COMPONENT IN QUESTION IS EXEMPTED BY SECTION 13.1.4 OF ASCE 7, A SUBMITTAL NOTING THAT SEISMIC RESTRAINT OF THAT PARTICULAR COMPONENT IS NOT REQUIRED.
2. THE SEISMIC RESTRAINT DESIGN MUST MEET THE REQUIREMENTS LISTED IN TABLE 13.2-1 OF ASCE 7. THESE REQUIREMENTS MAY BE MET BY PROVIDING A PROJECT-SPECIFIC DESIGN PREPARED BY A REGISTERED DESIGN PROFESSIONAL IN THE STATE WHERE THE PROJECT IS BEING CONSTRUCTED, AND A MANUFACTURER'S CERTIFICATION THAT THE COMPONENT IS SEISMICALLY QUALIFIED.
3. ON PROJECTS WITH SEISMIC DESIGN CATEGORY C:
  - a. COMPONENTS WITH  $I_p = 1.0$  DO NOT REQUIRE SEISMIC DESIGN OR RESTRAINT.
  - b. DUCT: WHERE DUCT  $I_p > 1.0$ , BRACE ALL DUCT  $> 5$  LB/LF
  - c. PIPE: WHERE PIPE  $I_p > 1.0$ , BRACE ALL PIPE  $> 2$ " DIAMETER.
  - d. EQUIPMENT: WHERE EQUIPMENT  $I_p > 1.0$ , PROVIDE ANCHORAGE OR RESTRAINT DESIGN FOR ALL FLOOR, WALL MOUNTED OR SUSPENDED EQUIPMENT.
4. ON PROJECTS WITH SEISMIC DESIGN CATEGORY D:
  - e. SEISMIC ANCHORAGE DESIGN IS NOT REQUIRED FOR FLOOR MOUNTED MECHANICAL, ELECTRICAL, AND PLUMBING COMPONENTS WHERE  $I_p = 1.0$  AND FLEXIBLE CONNECTIONS BETWEEN THE COMPONENTS AND ASSOCIATED DUCT WORK, PIPING AND CONDUIT ARE PROVIDED, THE COMPONENTS ARE MOUNTED AT 4 FEET (1219 MM) OR LESS ABOVE A FLOOR LEVEL AND THEY WEIGH 400 POUNDS (1780 N) OR LESS.
5. SEISMIC ANCHORAGE OR BRACING IS NOT REQUIRED FOR HANGING, WALL MOUNTED, AND FLEXIBLY SUPPORTED MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS THAT WEIGH 20 POUNDS (89 N) OR LESS, WHERE  $I_p = 1.0$  AND FLEXIBLE CONNECTIONS ARE PROVIDED BETWEEN THE COMPONENTS AND ASSOCIATED DUCT WORK, PIPING AND CONDUIT.
6. WHERE EQUIPMENT  $I_p > 1.0$ , PROVIDE ANCHORAGE OR RESTRAINT DESIGN FOR ALL FLOOR, WALL MOUNTED OR SUSPENDED EQUIPMENT.
7. EQUIPMENT ITEMS INSTALLED IN-LINE AND RIGIDLY MOUNTED AT THE INLET AND OUTLET TO THE DUCT SYSTEM (E.G. FANS, HEAT EXCHANGERS AND HUMIDIFIERS) WITH AN OPERATING WEIGHT LESS THAN 75 POUNDS (334 N) NEED NOT BE BRACED IF THE DUCT RUN IT IS ATTACHED TO IS BRACED. EQUIPMENT WITH AN OPERATING WEIGHT GREATER THAN 75 LBS MUST BE BRACED AND SUPPORTED INDEPENDENT OF THE DUCT.

## 10. REGARDLESS OF SEISMIC DESIGN CATEGORY:

- a. SEISMIC RESTRAINTS ARE NOT REQUIRED ON PIPING SUPPORTED BY INDIVIDUAL CLEVIS HANGERS WHERE THE DISTANCE, AS MEASURED FROM THE TOP OF THE PIPE TO THE SUPPORTING STRUCTURE, IS LESS THAN 12 INCHES (305MM) FOR THE ENTIRE PIPE RUN AND THE PIPE CAN ACCOMMODATE THE EXPECTED DEFLECTIONS. TRAPEZE OR DOUBLE ROD HANGERS, WHERE THE DISTANCE FROM THE TOP OF THE TRAPEZE OR SUPPORT TO THE STRUCTURE IS LESS THAN 12 INCHES FOR THE ENTIRE RUN. HVAC DUCTS SUSPENDED FROM HANGERS THAT ARE 12 INCHES (305 MM) OR LESS IN LENGTH FROM THE TOP OF THE DUCT TO THE SUPPORTING STRUCTURE AND THE HANGERS ARE DETAILED TO AVOID SIGNIFICANT BENDING OF THE HANGERS AND THEIR CONNECTIONS. DUCT MUST BE POSITIVELY ATTACHED TO HANGER WITH MINIMUM #10 SCREWS WITHIN 2" FROM THE TOP OF THE DUCT. HANGER RODS SHALL NOT BE CONSTRUCTED IN A MANNER THAT WOULD SUBJECT THE ROD TO BENDING MOMENTS (SWIVEL, EYE BOLT, OR VIBRATION ISOLATION HANGER CONNECTION TO STRUCTURE ARE REQUIRED TO PREVENT BENDING MOMENTS WHEN UTILIZING THIS EXCLUSION). DISPLACEMENT OF THE COMPONENT SHALL NOT CAUSE DAMAGING IMPACT WITH OTHER UTILITIES OR THE STRUCTURE. FLEXIBLE CONNECTIONS ARE REQUIRED BETWEEN UNBRACED SYSTEMS AND EQUIPMENT TO ACCOMMODATE DIFFERENTIAL DISPLACEMENTS. WHERE HVAC SYSTEMS  $I_p > 1.0$ , THIS EXCLUSION SHALL NOT APPLY (PER ASCE 7, 13.6.7).

11. L. BRACE SPACING FOR LOW DEFORMABILITY PIPING AND DUCT (E.G., CAST IRON, PVC, FIBERGLASS, GLASS, ETC.) SHALL NOT EXCEED ONE HALF OF THE BRACE SPACING OF HIGH DEFORMABILITY PIPING OR DUCT.

12. WHEREVER SYSTEMS OR COMPONENTS ARE VIBRATION ISOLATED, SEISMIC RESTRAINTS MUST BE DESIGNED TO PREVENT SHORT CIRCUITING OF THE ISOLATION SYSTEMS.

## C. MANUFACTURER'S RESPONSIBILITIES:

1. THE FOLLOWING SEISMIC RESTRAINT MANUFACTURERS ARE ACCEPTED: INTERNATIONAL SEISMIC APPLICATION TECHNOLOGY (ISAT), AMBER / BOOTH, MASON INDUSTRIES INC. (M.I.), KINETICS NOISE CONTROL INC. (K.N.C.), VIBRATION MOUNTING & CONTROLS, INC. (V.M.C.) AND VIBRO ACOUSTICS.

## D. QUALITY CONTROL

1. ALL SEISMIC RESTRAINT COMPONENTS EXPOSED TO THE WEATHER OR INSIDE THE BARN SHALL BE ZINC OR CADMIUM-PLATED, EPOXY COAT OR PVC COATED, AND/OR GALVANIZED STEEL. NUTS, BOLTS AND WASHERS MAY BE ZINCELECTROPLATED. RESTRAINTS FOR OUTDOOR MOUNTED COMPONENTS SHALL PROVIDE ADEQUATE RESTRAINT FOR THE GREATER OF EITHER WIND OR SEISMIC LOADS REQUIRED BY LOCAL CODES OR WITHSTAND A MINIMUM OF 30 LB. / SQ. FT. APPLIED TO ANY EXPOSED SURFACE OF THE EQUIPMENT.

## E. SUBMITTALS

1. SUBMITTALS MUST INCLUDE SEISMIC BRACING LAYOUT DRAWINGS INDICATING THE LOCATION OF ALL SEISMIC RESTRAINTS. THE SUBMITTAL PACKAGE MUST INCLUDE SEISMIC RESTRAINT DETAILS PROVIDING SPECIFIC INFORMATION RELATING TO THE MATERIALS, TYPE, SIZE, AND LOCATIONS OF ANCHORAGES; MATERIALS USED FOR BRACING; ATTACHMENT REQUIREMENTS OF BRACING TO STRUCTURE AND COMPONENT; AND LOCATIONS OF TRANSVERSE AND LONGITUDINAL SWAY BRACING AND ROD STIFFENERS.

## 02-233113 METAL DUCTS

- A. PROVIDE DUCTS, PLENUMS, ACCESS DOORS, FRESH AIR INTAKES, AND EXHAUSTS AS INDICATED AND REQUIRED. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS, PROCEDURES DETAILED IN THE ASHRAE HANDBOOK OF FUNDAMENTALS OR THE APPLICABLE STANDARDS ADOPTED BY THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. PROVIDE PREFABRICATED SPIRAL LOCKSEAM DUCTS AND FITTINGS AND RECTANGULAR DUCTS OF GALVANIZED STEEL. ALUMINUM FLEXIBLE DUCTWORK OR GYPSUM BOARD DUCTWORK IS NOT ACCEPTABLE.
- B. ALL CONNECTIONS TO MAIN DUCTS SHALL BE MADE WITH LOW LOSS FITTINGS.
- C. TURNS SHALL BE MADE WITH A THROAT RADIUS OF NOT LESS THAN THE DUCT WIDTH.
- D. TURNING VANES SHALL BE INSTALLED IN ALL RECTANGULAR ELBOWS.

## 02-233300 AIR DUCT ACCESSORIES

- A. CONTROL DAMPERS: LOW LEAKAGE, HAT SHAPED 20 GA. GALVANIZED STEEL FRAME, MITERED AND WELDED CORNERS, 6" MAX BLADE WIDTH, PARALLEL BLADE, 20 GA. BLADES. DAMPERS SHALL BE SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING MANUFACTURERS:
  - A.A. GREENHECK
  - A.B. POTTORFF
  - A.C. RUSKIN
  - A.D. YOUNG
  - A.E. AIROLITE
- B. PROVIDE ACCESS FOR ALL DAMPERS.

## 02-233400 HVAC FANS

- A. PROVIDE ADEQUATE SERVICE ACCESS OF 30 INCHES MINIMUM WITH ACCESS DOORS TO ALL FANS, MOTORS, FILTERS, COILS AND ALL COMPONENTS.
- B. USE FAN MOTORS WITH 1750 RPM OR LESS. AVOID USING FANS WITH 3500 RPM MOTORS. PROVIDE BELT GUARDS FOR ALL BELT DRIVEN EQUIPMENT.

## 2.03 GRILLES, REGISTERS AND DIFFUSERS

1. FURNISH AND INSTALL ALL GRILLES, REGISTERS AND CEILING DIFFUSERS WHERE INDICATED AND OF THE SIZE AND TYPE NOTED IN THE DRAWINGS.
2. ALL GRILLES, REGISTERS, AND CEILING DIFFUSERS MUST BE SET FLUSH AND TRUE TO CEILING TO PREVENT AIR LEAKAGE AROUND EDGES. ALL UNITS SHALL BE PROVIDED WITH NEOPRENE GASKETING AROUND THE INSIDE OF THE FRAME.
3. ALL UNITS SHALL BE FACTORY FINISHED, OF COLOR SELECTED BY THE ARCHITECT, OR AS OTHERWISE INDICATED.
4. CEILING DIFFUSERS, GRILLES, AND REGISTERS SHALL BE INDEPENDENTLY SUPPORTED FROM THE STRUCTURE SO THAT THEY ARE NOT DEPENDING ON THE CEILING FOR SUPPORT.
5. CEILING DIFFUSERS MAY BE ROUND NECK OR EQUIVALENT SIZE SQUARE NECK. PROVIDE SQUARE TO ROUND NECK ADAPTER AS NECESSARY. FLEX DUCT SHALL TYPICALLY CONNECT DIRECTLY TO THE DIFFUSER USING A 1.5 DIAMETER RADIUS FLEXIBLE DUCT ELBOW. IF SPACE DOES NOT ALLOW THEN A LINED SHEET METAL BOOT SHALL BE PROVIDED. THE FLEXIBLE DUCT SHALL BE CONNECTED TO THE SIDE OF THE SHEET METAL BOOT.
6. APPROVED MANUFACTURERS FOR ALL AIR DISTRIBUTION PRODUCTS SHALL BE:
  - 6.a. KRUEGER
  - 6.b. NAILOR INDUSTRIES
  - 6.c. EH PRICE
  - 6.d. TITUS
  - 6.d. TUTTLE & BAILEY

## 2.04 THERMAL INSULATION

GENERAL: ALL SUPPLY AND RETURN DUCT LOCATED ABOVE CEILING SHALL BE INSULATED.  
1.02 DUCT LINER

- A. FIBROUS-GLASS DUCT LINER: COMPLY WITH ASTM C 1071, NFPA 90A, OR NFPA 90B; AND WITH NAIMA AH124, "FIBROUS GLASS DUCT LINER STANDARD."
1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
  - a. CERTAINTED CORPORATION; INSULATION GROUP.
  - b. JOHNS MANVILLE.
  - c. KNAUF INSULATION.
  - d. OWENS CORNING.
2. MAXIMUM THERMAL CONDUCTIVITY:
  - a. TYPE I, FLEXIBLE: 0.17 BTU X IN./H X SQ. FT. X DEG F AT 75 DEG F MEAN TEMPERATURE.
  - b. TYPE II, RIGID: 0.17 BTU X IN./H X SQ. FT. X DEG F AT 75 DEG F MEAN TEMPERATURE.
3. ANTIMICROBIAL EROSION-RESISTANT COATING: APPLY TO THE SURFACE OF THE LINER THAT WILL FORM THE INTERIOR SURFACE OF THE DUCT TO ACT AS A MOISTURE REPELLENT AND EROSION-RESISTANT COATING. ANTIMICROBIAL COMPOUND SHALL BE TESTED FOR EFFICACY BY AN NRTL AND REGISTERED BY THE EPA FOR USE IN HVAC SYSTEMS.
4. WATER-BASED LINER ADHESIVE:
  - a. COMPLY WITH NFPA 90A OR NFPA 90B AND WITH ASTM C 916.
  - b. FOR INDOOR APPLICATIONS, ADHESIVE SHALL HAVE A VOC CONTENT OF 80 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).
- B. FLEXIBLE ELASTOMERIC DUCT LINER: PREFORMED, CELLULAR, CLOSED-CELL, SHEET MATERIALS COMPLYING WITH ASTM C 534, TYPE II, GRADE 1; AND WITH NFPA 90A OR NFPA 90B.
  1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
    - a. AEROFLEX USA INC.
    - b. ARMACELL LLC.
    - c. RUBATEX INTERNATIONAL, LLC
  2. SURFACE-BURNING CHARACTERISTICS: MAXIMUM FLAME-SPREAD INDEX OF 25 AND MAXIMUM SMOKE-DEVELOPED INDEX OF 50 WHEN TESTED ACCORDING TO UL 723; CERTIFIED BY AN NRTL.
  3. LINER ADHESIVE: AS RECOMMENDED BY INSULATION MANUFACTURER AND COMPLYING WITH NFPA 90A OR NFPA 90B. FOR INDOOR APPLICATIONS, ADHESIVE SHALL HAVE A VOC CONTENT OF 50 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).



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• Van Boerum & Frank Assoc., 2014

ROOSEVELT CROSSROADS  
HVAC UPGRADE  
ROOSEVELT, UTAH

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## SHEET CONTENTS

MECHANICAL  
SPECIFICATIONS

ME003

PART 2 - PRODUCTS (CONT'D)

C. INSULATION PINS AND WASHERS:

1. CUPPED-HEAD, CAPACITOR-DISCHARGE-WELD PINS: COPPER- OR ZINC-COATED STEEL PIN, FULLY ANNEALED FOR CAPACITOR-DISCHARGE WELDING, LENGTH TO SUIT DEPTH OF INSULATION INDICATED WITH INTEGRAL 1-1/2-INCH GALVANIZED CARBON-STEEL WASHER.
  - a. 0.135-INCH-DIAMETER SHANK.
2. INSULATION-RETAINING WASHERS: WITH BEVELED EDGE SIZED AS REQUIRED TO HOLD INSULATION SECURELY IN PLACE BUT NOT LESS THAN 1-1/2 INCHES IN DIAMETER.
  - a. SELF-LOCKING WASHERS FORMED FROM 0.016-INCH-THICK ALUMINUM.

D

D. SHOP APPLICATION OF DUCT LINER: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 7-11, "FLEXIBLE DUCT LINER INSTALLATION."

1. ADHERE A SINGLE LAYER OF INDICATED THICKNESS OF DUCT LINER WITH AT LEAST 90 PERCENT ADHESIVE COVERAGE AT LINER CONTACT SURFACE AREA. ATTAINING INDICATED THICKNESS WITH MULTIPLE LAYERS OF DUCT LINER IS PROHIBITED.
2. APPLY ADHESIVE TO TRANSVERSE EDGES OF LINER FACING UPSTREAM THAT DO NOT RECEIVE METAL NOSING.
3. BUTT TRANSVERSE JOINTS WITHOUT GAPS, AND COAT JOINT WITH ADHESIVE.
4. FOLD AND COMPRESS LINER IN CORNERS OF RECTANGULAR DUCTS OR CUT AND FIT TO ENSURE BUTTED-EDGE OVERLAPPING.
5. DO NOT APPLY LINER IN RECTANGULAR DUCTS WITH LONGITUDINAL JOINTS, EXCEPT AT CORNERS OF DUCTS, UNLESS DUCT SIZE AND DIMENSIONS OF STANDARD LINER MAKE LONGITUDINAL JOINTS NECESSARY.

E. SECURE LINER WITH MECHANICAL FASTENERS 4 INCHES FROM CORNERS AND AT INTERVALS NOT EXCEEDING 12 INCHES TRANSVERSELY; AT 3 INCHES FROM TRANSVERSE JOINTS AND AT INTERVALS NOT EXCEEDING 18 INCHES LONGITUDINALLY.

1. SECURE TRANSVERSELY ORIENTED LINER EDGES FACING THE AIRSTREAM WITH METAL NOSINGS THAT HAVE EITHER CHANNEL OR "Z" PROFILES OR ARE INTEGRALLY FORMED FROM DUCT WALL. FABRICATE EDGE FACINGS AT THE FOLLOWING LOCATIONS:
  - a. FAN DISCHARGES.
  - b. INTERVALS OF LINED DUCT PRECEDING UNLINED DUCT.

C

F. SECURE INSULATION BETWEEN PERFORATED SHEET METAL INNER DUCT OF SAME THICKNESS AS SPECIFIED FOR OUTER SHELL. USE MECHANICAL FASTENERS THAT MAINTAIN INNER DUCT AT UNIFORM DISTANCE FROM OUTER SHELL WITHOUT COMPRESSING INSULATION.

1. SHEET METAL INNER DUCT PERFORATIONS: 3/32-INCH DIAMETER, WITH AN OVERALL OPEN AREA OF 23 PERCENT.
2. TERMINATE INNER DUCTS WITH BUILDOUTS ATTACHED TO FIRE-DAMPER SLEEVES, DAMPERS, TURNING VANE ASSEMBLIES, OR OTHER DEVICES. FABRICATED BUILD-OUTS (METAL HAT SECTIONS) OR OTHER BUILDOUT MEANS ARE OPTIONAL; WHEN USED, SECURE BUILDOUTS TO DUCT WALLS WITH BOLTS, SCREWS, RIVETS, OR WELDS.

2.05 REFRIGERANT LINES

1. REFRIGERANT LINES ARE TO BE SIZED AS PER MANUFACTURER'S REQUIREMENTS. LINES TO BE FULLY INSULATED WITH 1 INCH FOAM FLEX OR EQUAL. INSULATION EXPOSED TO THE SUN SHALL BE ALUMINUM JACKETED. THE SYSTEM IS TO BE EVACUATED TO 200 MICRONS, HOLD VACUUM 24 HOURS, BREAK WITH FREON AND LEAK TEST WITH HALIDE DETECTOR. EACH SYSTEM TO BE PROVIDED WITH A REFRIGERANT LINE KIT.
2. PROVIDE STANDS, SUPPORTS, AND WEATHER COVERS FOR ALL REFRIGERANT PIPING.

PART 3 - EXECUTION

B

03-230500 COMMON WORK RESULTS FOR HVAC

- A. REPLACE OR REPAIR DAMAGE TO ANY EXISTING BUILDING WHERE REPAIR OR REPLACEMENT WORK IS PERFORMED BY A CONTRACTOR. PROVIDE PHOTO DOCUMENTS OF THE REMODEL AREA PRIOR TO START OF CONSTRUCTION.

03-230053 INSTALLATION REQUIREMENTS

- A. PROVIDE A MINIMUM CLEARANCE OF 30" OR MORE AT ALL EQUIPMENT AND CONNECTED PIPING. CODE REQUIRED CLEARANCE SHALL TAKE PRECEDENCE.
- B. INSTALL ALL VALVES, PIPING, AND EQUIPMENT WITH CLEARANCES TO PERMIT DISASSEMBLY FOR MAINTENANCE PURPOSES.
- C. INSTALL ALL SYSTEMS SUCH THAT NO EQUIPMENT, DUCTWORK, PIPING, CONDUIT, ETC. IS REQUIRED TO BE REMOVED TO SERVICE, REPAIR OR REPLACE EQUIPMENT.
- D. SCHEDULE ALL UTILITY SHUTDOWNS 7 DAYS IN ADVANCE.

03-230054 DISCREPANCIES

- A. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE OWNER.
- B. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED. SEE SECTION 2.

A

03-230055 EQUIPMENT IDENTIFICATION

ALL MAJOR EQUIPMENT SHALL BEAR FIRMLY ATTACHED METAL NAMEPLATES WHICH STATE NAME OF MANUFACTURER, MODEL NUMBER AND ELECTRICAL DATA.

2

03-230056 INITIAL LUBRICATION, ADJUSTING, AND FILLING SYSTEMS

BEFORE OPERATING ANY MECHANICAL SYSTEMS, EQUIPMENT BEARINGS SHALL BE LUBRICATED AND BOLTS, PULLEYS, AND OTHER MOVING PARTS CHECKED FOR ALIGNMENT AND TOLERANCES IN ACCORDANCE WITH MANUFACTURER'S OPERATING INSTRUCTIONS. VIBRATIONS AND NOISE SHALL BE SUPPRESSED.

03-230057 CLEANING OF EQUIPMENT, MATERIALS AND PREMISES

EQUIPMENT WILL BE PAINTED SMOOTH AND CLEAN, READY FOR PAINTERS. CLEAN ENTIRE PREMISES OF UNUSED MATERIALS, RUBBISH, DEBRIS, GREASE SPOTS AND DIRT LEFT BY SUBCONTRACTOR.

03-20058 EQUIPMENT AND MATERIAL

INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

03-230059 ACCESSIBILITY

INSTALL WORK READILY ACCESSIBLE FOR NORMAL OPERATION, READING OF INSTRUMENTS, ADJUSTMENT, SERVICE, INSPECTION AND REPAIR, PROVIDE ACCESS PANELS WHERE INDICATED AND REQUIRED. ACCESS PANELS SHALL BE THE RESPONSIBILITY OF RESPECTIVE SUBCONTRACTORS.

03-230593 HVAC TESTING, ADJUSTING, AND BALANCING

- A. BALANCING WORK INCLUDED:
  1. COMPLETE TESTING AND BALANCING OF THE HVAC SYSTEM AS HEREIN SPECIFIED.
- B. VERIFICATION OF CONDITIONS: PRIOR TO TESTING AND BALANCING, INSPECT EQUIPMENT AND MATERIALS AND ARRANGE WITH CONTRACTOR FOR SATISFACTORY CORRECTION OF ALL DEFECTS IN WORKMANSHIP AND/OR MATERIAL THAT COULD AFFECT THE WORK SPECIFIED HEREIN.
- C. PROTECTION: AS SPECIFIED HEREIN.
- D. SYSTEM OPERATION: CONTRACTOR SHALL PUT ALL PARTS OF SYSTEMS IN FULL OPERATION AND SHALL CONTINUE THE OPERATION OF SAME DURING EACH WORKING DAY OF TESTING AND BALANCING.
- E. TEST DATA: SUBMIT COPY OF TEST DATA TO OWNER ON COMPLETION OF WORK UNDER THIS SECTION.
- F. TEST AND BALANCE CONTRACTOR SHALL CERTIFY IN WRITING THAT SYSTEM HAS BEEN ADJUSTED AND BALANCED AND DESIGN CONDITIONS HAVE BEEN ATTAINED IN ALL AREAS OF THE BUILDING.
- G. INSTRUMENTS: INSTRUMENTS USED BY CONTRACTOR SHALL BE ACCURATELY CALIBRATED AND MAINTAINED IN GOOD WORKING ORDER.
- H. AIR DISTRIBUTION TESTING AND BALANCING:
  1. TEST AND RECORD MOTOR FULL LOAD AMPERS AND RPM.
  2. TEST AND RECORD SYSTEM STATIC PRESSURES, SUCTION AND DISCHARGE.
  3. ADJUST ALL EXHAUST AIR FLOWS TO PROPER DESIGN CFM.
  4. IN COOPERATION WITH THE CONTROL MANUFACTURER'S REPRESENTATIVE, THE SETTING ADJUSTMENT OF AUTOMATICALLY OPERATED CONTROLS TO OPERATE AS SPECIFIED, INDICATED AND/OR NOTED.
- I. WITNESS: NOTIFY OWNER IN WRITING TWO WEEKS PRIOR TO TESTING AND BALANCING OF ALL MAJOR EQUIPMENT IN ORDER TO ARRANGE THAT OWNER'S REPRESENTATIVE WILL WITNESS THE TESTS.
- J. BALANCE ALL AIR SYSTEMS UPON COMPLETION OF WORK. APPROVED TEST BALANCE CONTRACTORS ARE: BTC SERVICES, INC., CERTIFIED TEST AND BALANCE, QUALITY TEST AND BALANCE, DANIS TEST AND BALANCE, AND PAYSON SHEET METAL. OTHER BALANCING CONTRACTORS NEED TO BE APPROVED BY OWNER PRIOR TO BID.
- K. THE TEST AND BALANCING AGENT SHALL BE AABC OR NEBB CERTIFIED.
- L. THE TEST AND BALANCE REPORT SHALL BE COMPLETED, SUBMITTED, REVIEWED AND CORRECTED PRIOR TO BUILDING OCCUPANCY.

3

4

03-230900 BUILDING AUTOMATION SYSTEM

- A. THREE MANIFOLD FURNACE WITH DX COOLING (F-1 THRU F-6):
 

PROVIDE HONEYWELL CONTROLS (SEE PLANS FOR LOCATION). MOTORIZED ISOLATION DAMPERS THAT OPEN WHEN THE FURNACE FAN IS RUNNING AND CLOSED WHEN THE FURNACE FAN IS NOT RUNNING SHALL BE ACTUATED BY RELAYS INTERLOCKED WITH THE ASSOCIATED FURNACE. THE TWO RELIEF AIR BY-PASS DAMPERS SHALL BE OPEN AND THE OUTSIDE AIR DAMPER AND RETURN AIR DAMPER SHALL MODULATE IN ECONOMIZER MODE. THE ECONOMIZER SEQUENCING SHALL BE IN ACCORDANCE WITH THE 2021 IECC PART C403.5.1.

THE FURNACE CONTROLS SHALL HAVE MODULATING HEAT AND TWO STAGE COOLING. THE FIRST STAGE OF COOLING SHALL BE ECONOMIZER MODE. ECONOMIZER MODE SHALL BE ACTIVE WHEN THE OUTSIDE AIR TEMPERATURE IS BELOW 75F. THE SECOND STAGE OF COOLING SHALL BE MODULATING REFRIGERATED COOLING. PROVIDE AND INSTALL ALL NECESSARY SENSORS AND CONTROL DEVICES. SET POINTS SHALL ALL BE ADJUSTABLE AND VISIBLE IN THE BAS.

- B. ENERGY RECOVERY VENTILATOR (ERV-2, ERV-2):
 

ERV SHALL OPERATE WHEN CO2 LEVELS ARE ABOVE 1000 PPM AND THE ASSOCIATED FURNACES ARE OPERATING. ERV OA AND RA DAMPERS SHALL BE OPEN WHEN ERV FANS ARE ENERGIZED.

- C. INDIVIDUAL FURNACE (FC-1 THRU FC-8):
 

THE FURNACES CONTROLS SHALL OPERATE THE GAS FIRED HEATING AND DX COOLING AND CONTROL TO DISCHARGE AIR TEMPERATURE SET POINTS FOR HEATING AND COOLING. THE ELECTRIC DUCT HEATER (EC-1 THRU EC-8) IN THE OUTSIDE AIR DUCT TO EACH FURNACE SHALL MAINTAIN A DISCHARGE AIR TEMPERATURE TO A MINIMUM OF 55 DEGREES. SET POINTS SHALL ALL BE ADJUSTABLE AND VISIBLE IN THE BAS.

- D. EXHAUST FANS (EF-1 THRU EF-3):
 

EXHAUST FAN SHALL RUN WHEN THE BUILDING IS IN OCCUPIED MODE. EXHAUST FANS SHALL BE OFF WHEN THE BUILDING IS IN UNOCCUPIED MODE.

- E. KITCHEN MAKE-UP AIR AND EXHAUST:
 

THE EXISTING KITCHEN MAKE-UP AIR AND EXHAUST EQUIPMENT SHALL CONTINUE TO OPERATE AS IT IS CURRENTLY.

5



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SHEET CONTENTS

MECHANICAL  
SPECIFICATIONS

- END -

ME004

PART 1 - GENERAL

1.01 GENERAL CONDITIONS

THE GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS AND DIVISION 1, ARE A PART OF THIS SECTION AND THE CONTRACT FOR THIS WORK AND SHALL APPLY TO THIS SECTION AS FULLY AS IF REPEATED HEREIN.

1.02 SCOPE OF WORK

**D** FURNISH ALL LABOR, MATERIALS, EQUIPMENT, APPLIANCES AND NECESSARY INCIDENTALS FOR THE COMPLETE INSTALLATION OF ALL PLUMBING AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

A. WORK SPECIFIED IN THIS SECTION

1. FURNISH AND SET ALL SLEEVES FOR PIPES PASSING THROUGH WALLS AND FLOORS.
2. PIPE COVERING, INSULATION AND WRAPPING.
3. ROUGH-IN AND FINAL CONNECTIONS TO AIR CONDITIONING EQUIPMENT OF CONDENSATE DRAINS.
4. ALL MISCELLANEOUS ITEMS OR EQUIPMENT REQUIRED FOR A COMPLETE INSTALLATION.

1.03 QUALITY ASSURANCE

A. CODES AND STANDARDS

1. ALL ITEMS INDICATED ON SITE, ARCHITECTURAL OR MECHANICAL DRAWINGS ARE TO BE PROVIDED COMPLETE FROM POINT OF CONNECTION TO FINISHED FIXTURE IN CONFORMANCE WITH ALL GOVERNING AUTHORITY REQUIREMENTS. NOTHING IN THESE DRAWINGS OR SPECIFICATIONS SHALL BE CONSTRUED TO PERMIT WORK IN VIOLATION OF GOVERNING CODES.
2. IN ADDITION TO THE REQUIREMENTS OF ALL GOVERNING CODES, ORDINANCES AND AGENCIES, CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
  - a. 2021 INTERNATIONAL PLUMBING CODE.
  - b. 2021 INTERNATIONAL BUILDING CODE.
  - c. 2021 INTERNATIONAL MECHANICAL CODE.
  - d. 2021 INTERNATIONAL ENERGY CONSERVATION CODE.

**C**

1.04 PRODUCT HANDLING

- A. PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIALS OF THIS SECTION BEFORE, DURING AND AFTER INSTALLATION.
- B. REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER, AT NO ADDITIONAL COST TO THE OWNER.

1.05 SUBMITTALS

- A. MANUFACTURER'S LITERATURE: WITHIN 35 DAYS AFTER AWARD OF CONTRACT AND BEFORE ANY OF THE MATERIALS OF THIS SECTION ARE DELIVERED TO THE JOB SITE, SUBMIT SEVEN COMPLETE BROCHURES OF ALL MATERIALS AND EQUIPMENT, PER DIVISION 1 OF THE SPECIFICATIONS.
- B. OTHER SUBMITTALS:
  1. SHOP DRAWINGS.
  2. STERILIZATION TEST REPORT.
  3. TEST DATA.
- C. RECORD DRAWINGS: KEEP AN ACCURATE DIMENSIONED RECORD OF AS-BUILT LOCATIONS AND ELEVATIONS OF PIPING AND EQUIPMENT. ELEVATION OF BURIED PIPING WILL BE IN REFERENCE TO THE APPROVED BASE DATUM LISTED ON THE PLAN DOCUMENTS.
- D. OPERATION AND MAINTENANCE INSTRUCTIONS: DELIVER TO ARCHITECT TWO COMPLETE SETS IN BOUND BOOKLET FORM OF WRITTEN OPERATING AND MAINTENANCE INSTRUCTIONS AND BROCHURES FOR EQUIPMENT SPECIFIED IN THIS SECTION. FULLY INSTRUCT OWNER'S MAIN PERSONNEL.

**B**

1.06 MISCELLANEOUS

- A. EXAMINATION OF THE SITE: EXERCISE CARE IN EXAMINING THE SITE AND COORDINATE ALL WORK INDICATED ON THE DRAWINGS WITH EXISTING CONDITIONS. REPORT TO ARCHITECT IN WRITING CONDITIONS THAT WILL PREVENT PROPER PROVISIONS OF THIS WORK. VERIFY DEPTH AND LOCATION OF ALL SERVICE LINES WITH SERVICING COMPANIES HAVING JURISDICTION BEFORE EXCAVATING. BY SUBMISSION OF THE BID, THE CONTRACTOR WARRANTS THAT HE HAS FAMILIARIZED HIMSELF WITH THE EXISTING CONDITIONS AND WILL PERFORM ALL WORK AS REQUIRED FOR HOOKUP AND AS REQUIRED BY THE CONTRACT DOCUMENTS AT NO ADDITIONAL.
- B. PERMITS AND FEES: ARRANGE AND PAY FOR ALL PERMITS, INSPECTIONS, EXAMINATIONS, AND FEES REQUIRED BY ALL GOVERNING AGENCIES. DELIVER ALL CERTIFICATES OF INSPECTION TO OWNER.
- C. SERVICE CONNECTIONS: MAKE ALL NECESSARY ARRANGEMENTS WITH APPLICABLE UTILITY COMPANY FOR CONNECTION TO EXISTING SERVICE LINES. PAY ALL FEES ASSOCIATED WITH WORK INCLUDING METERS AND HOOKUP CHARGE, UTILITY ASSESSMENT FEES, IF ANY, WILL.
- D. DRAWINGS: COORDINATE ALL SPACE REQUIREMENTS WITH OTHER TRADES. DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF PIPING, EQUIPMENT, AND OTHER ITEMS AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE.

**A**

PART 2 - PRODUCTS

2.01 GENERAL

- A. PIPE SLEEVES AND WRAPPING: PROVIDE POLISHED CHROMIUM PLATED AND BRASS SET SCREW FLANGES WHERE PLUMBING PIPING PASS THROUGH WALLS, FLOORS, CEILINGS, AND PARTITIONS IN FINISHED PORTIONS OF BUILDING INCLUDING FLANGES ON PIPES AT FIXTURES. ALL SLEEVES IN CONCEALED AND EXTERIOR WALLS SHALL BE 20 GA. GALVANIZED IRON ONE INCH O.D. LARGER THAN THE PIPE, CAULKED IF BELOW GRADE IN A MOISTURE PROOF MANNER. ALL PIPES PENETRATING THROUGH FIRE WALLS AND FLOORS SHALL BE PROPERLY SAFED WITH DOW CORNING 3-6548 SILICONE RTV FOAM OR EQUAL. INSTALL PER MANUFACTURE'S DIRECTION.
- B. PIPE IDENTIFICATION:
  1. PIPING IDENTIFICATION PER ANSI AND OSHA STANDARDS: EACH INDIVIDUAL PIPELINE SHALL BE MARKED FOR QUICK AND EASY IDENTIFICATION AS TO CONTENTS AND CHARACTER OF MATERIAL CARRIED IN THE PIPES BY SET ON SNA OR STR MARKER.
  2. MARKERS SHALL BE INSTALLED AND SPACED AT NOT MORE THAN 8 FT. INTERVALS AND SO LOCATED THAT MARKERS SHALL BE VISIBLE WHERE PIPING SYSTEM IS EXPOSED.
  3. COLOR SCHEME SHALL BE APPROVED. BASE COLOR FOR MARKERS SHALL BE AS FOLLOWS:
 

DOMESTIC HOT WATER -	YELLOW
DOMESTIC COLD WATER -	GREEN
SANITARY SEWER -	GREEN
SANITARY VENT -	GREEN
CONDENSATE DRAIN -	BLUE
- C. ONE MARKER SHALL BE INSTALLED AT EACH SIDE OF VALVES, SPECIAL FITTINGS AND AT BRANCH TAKE-OFF. IN FURRED SPACES INSTALL ONE BAND 2 FT. ABOVE FLOOR AND 19 IN. BELOW CEILING LINE.
- D. MATERIALS: MATERIALS WHEN NOT OTHERWISE DEFINITELY SPECIFIED SHALL CONFORM TO THE APPLICABLE ASTM, ASME, AGA, AND ASA STANDARDS.

2.02 PIPE AND FITTING SCHEDULE

PIPE AND FITTINGS:

- A. NO PIPE OF A FOREIGN MANUFACTURER WILL BE ACCEPTABLE.
- B. ALL PIPING, FITTINGS, FLANGES, ETC. SHALL BE FREE FROM DEFECTS AND SHALL COMPLY WITH THE APPROPRIATE ASTM SPECIFICATIONS.
- C. COPPER TUBING: ASTM B88, TYPE L OR K AS SPECIFIED.
- D. PVC PIPE AND FITTINGS: ASTM D1785 CLASS 150 WITH ASTM D 2853 SOLVENT CEMENT JOINTS UNLESS OTHERWISE SPECIFIED. SCHEDULE 40. PVC PLASTIC PIPE FITTINGS: ASTM F 628, SCHEDULE 40.
- E. ACRYLONITRILE BUTADIENE STYRENE (ABS) PLASTIC PIPE: ASTM D 2661, SCHEDULE 40, ASTM F 628, SCHEDULE 40. ABS PLASTIC PIPE FITTINGS: ASTM F 409, ACCESSIBLE AND REPLACEABLE, SOLVENT CEMENT AND THREADED TYPES, DRAIN PATTERN.
- F. CAST IRON SOIL PIPE AND FITTINGS: ASTM A74
- G. COPPER FITTINGS: WROUGHT COPPER, ANSI SPECIFICATION B16.22.
- H. ALL SOIL, WASTE, VENT PIPING SHALL BE ABS OR PVC PLASTIC PIPE, RATED FOR DOMESTIC WASTE AND VENT, WITH ABS OR PVC PLASTIC SOCKET TYPE DRAIN, WASTE AND VENT PATTERN FITTINGS. SOLVENT CEMENTED JOINTS. INSTALL ABS DRAINAGE PIPE AND FITTINGS ACCORDING TO ASTM D2661. INSTALL PVC DRAINAGE PIPE AND FITTINGS ACCORDING TO ASTM F891.
- I. BALL VALVES, DOMESTIC WATER: BRONZE, FULLPORT, CLASS 150, THREADED. GRINNELL 3750 OR 171N NIBCO T-585 JAMESBURY 300
- J. BALANCING COCKS 2 INCHES AND SMALLER SHALL BE CRANE NO 250 OR MILWAUKEE BUTTERBALL BB2-100 OR BB2-350 WITH MEMORY STOP.
- K. SOLDER:
  - K.1. JOINTS IN COPPER PIPING ABOVE GRADE SHALL BE STAY SAFE 50 SOLDER OR 95-5 SOLDER SHALL BE SILFOS OR SILVERFLW FOR ALL REFRIGERANT PIPING JOINTS.

2.04 PIPE SLEEVES

AT CONCRETE WALLS OR FLOORS, ADJUST-TO-CRETE, PARAMOUNT, HOLE-OUT OR SPERZEL CRETESLEEVE FLOOR SLEEVES SHALL EXTEND TO TOP OF CONCRETE CURBS FOR PIPING RISING THROUGH FLOORS. WALL SLEEVES SHALL BE FLUSH WITH FINISHED SURFACE. SLEEVES SHALL BE SIZED TO ALLOW 1/2 IN. CLEARANCE AROUND PIPE INSULATION. INSULATION AND COVERING SHALL BE CONTINUOUS THROUGH WALL AND FLOOR SLEEVES.

2.07 PIPE HANGERS

HANGERS SHALL BE SUPPLIED WITH FACTORY INSTALLED ISOLATION AND DI-CHROMATE FINISH.

PIPE 2 IN. AND SMALLER: GRINNEL F69. PIPE 2-1/2 IN. AND LARGER: GRINNEL F65. CONCRETE INSERTS: GRINNEL 281 ANAD 282. RISER CLAMPS FOR COPPER PIPING: GRINNEL 261P, PLASTIC COATED. RISER CLAMPS FOR OTHER PIPING: GRINNELR 261.

HANGER RODS SHALL CONFORM TO THE FOLLOWING: PIPE SIZE 2 IN. AND SMALLER: 3/8 IN. RODS. PIPE SIZE 2-1/2 IN. AND 3 IN.: 1/2 IN. RODS. PIPE SIZES LARGER THAN 3 INCHES: 5/8 IN. RODS.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

- A. INSPECTION: ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING AUTHORITIES, THE ORIGINAL DESIGN, AND THE REFERENCED STANDARDS.
- B. DISCREPANCIES
  1. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE ARCHITECT.
  2. DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED.
  3. INTERFERENCES BETWEEN INSTALLED WORK OF VARIOUS TRADES DUE TO LACK OF COORDINATION SHALL BE RESOLVED BY ARCHITECT WHOSE DECISION IS FINAL. RELOCATE OR OFFSET ANY WORK AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES AT NO EXTRA COST TO THE OWNER WHEN SO DIRECTED BY THE ARCHITECT.

3.02 LOCATIONS AND SPACE REQUIREMENTS

- A. CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATIONS OF SPACES AVAILABLE FOR INSTALLATION OF WORK UNDER THIS DIVISION. DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF PIPING, EQUIPMENT AND OTHER ITEMS, AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. WORK SPECIFIED AND NOT CLEARLY DEFINED BY DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A MANNER SATISFACTORY TO ARCHITECT. IN EVENT CHANGES IN INDICATED LOCATIONS AND ARRANGEMENTS ARE DEEMED NECESSARY BY ARCHITECT, THEY SHALL BE MADE BY CONTRACTOR WITHOUT ADDITIONAL CHARGE PROVIDED THE CHANGE IS ORDERED BEFORE WORK IS INSTALLED AND NO EXTRA MATERIALS ARE REQUIRED.
- B. VERIFY ALL SPACES, DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- C. OBTAIN ALL NECESSARY ROUGH IN DATA AND DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- D. MAINTAIN AMPLE HEADROOM CLEARANCES AND ACCESSIBILITY. MAINTAIN CEILING HEIGHTS.
- E. CONSTANTLY CHECK WORK OF OTHER TRADES TO PREVENT INTERFERENCE WITH THIS INSTALLATION.

3.07 HANGERS AND SUPPORTS

HOLD HORIZONTAL PIPE RUNS FIRMLY IN PLACE USING APPROVED STEEL AND IRON HANGERS, SUPPORTS, AND/OR PIPE RESTS UNLESS OTHERWISE INDICATED. SUSPEND HANGER RODS FROM CONCRETE INSERTS OR FROM APPROVED BRACKETS, CLAMPS OR CLIPS. HANG PIPES INDIVIDUALLY OR IN GROUPS IF SUPPORTING STRUCTURE IS ADEQUATE TO SUPPORT WEIGHT OF PIPING AND FLUID. EXCEPT FOR BURIED PIPING, HANG OR SUPPORT PIPE RUNS SO THAT THEY MAY EXPOSED OR CONTRACT FREELY WITHOUT STRAIN TO PIPE OR EQUIPMENT.

1. HORIZONTAL STEEL PIPING: PROVIDE HANGERS OR SUPPORTS EVERY 10 FT. EXCEPT EVERY 8 FT. FOR PIPING 1-1/4 IN. AND SMALLER.
2. HORIZONTAL COPPER TUBING: FOR 2 IN. DIAMETER AND OVER, PROVIDE HANGERS EVERY 10 FT.; FOR 1-1/2 IN. DIAMETER AND SMALLER, EVERY 6 FT.
3. VERTICAL PIPING: SUPPORT AT FLOOR WITH IRON PIPE CLAMPS.

BRANCHES: PROVIDE SEPARATE HANGERS OR SUPPORTS FOR BRANCH LINES 6 FT. OR MORE IN LENGTH.

SOUND AND ELECTROLYSIS ISOLATORS: PROVIDE AT ALL HANGERS AND SUPPORTS FOR HOT AND COLD DOMESTIC WATER LINES. SECURELY ATTACH PIPE TO WALLS, STUDS, ETC. ALL SUCH PIPING ISOLATED FROM STRUCTURE BY "TRISOLATORS".

3.10 PIPE INSTALLATION

MAKE PIPE RUNS STRAIGHT AND TRUE. SPRINGING OR FORCING PIPING INTO PLACE IS NOT PERMITTED. INSTALL IN MANNER TO PREVENT ANY UNDUE STRAIN ON EQUIPMENT. MAKE JOINTS SMOOTH AND UNOBSTRUCTED INSIDE AND OUT, AND REAM PIPE ENDS THOROUGHLY TO REMOVE BURRS. CONCEAL PIPING IN FINISHED PORTIONS OF THE BUILDINGS EXCEPT AS OTHERWISE DIRECTED OR INDICATED. CAP OR PLUG ENDS AND OPENINGS IN PIPE AND FITTINGS IMMEDIATELY TO EXCLUDE DIRT UNTIL EQUIPMENT IS INSTALLED OR FINAL CONNECTIONS ARE MADE.

INSTALL PIPING TO CLEAR BEAMS UNLESS SLEEVING IS INDICATED. CONSTANTLY CHECK WORK OF OTHER TRADES TO PREVENT INTERFERENCE WITH THIS INSTALLATION. OBTAIN APPROVAL FROM ARCHITECT IF CORING OR CUTTING OF CONCRETE WORK IS NECESSARY. DUE TO FAILURE TO INSTALL REQUIRED SLEEVES PRIOR TO THE TIME OF CONCRETE POUR, COST OF CORING AND CUTTING WORK SHALL BE BORNE BY THE SUBCONTRACTOR.

EXPOSED PLATED OR ENAMELED PIPE: MAKE CONNECTIONS TO EQUIPMENT WITH SPECIAL CARE. SHOW NO TOOL MARKS OR THREADS.

DIELECTRIC UNIONS: MAKE CONNECTIONS BETWEEN TWO DISSIMILAR METAL PIPES WITH DIELECTRIC UNIONS.

UNIONS: PROVIDE A UNION ON ONE SIDE OF EACH SHUTOFF VALVE, AT BOTH SIDES OF AUTOMATIC VALVES, AT EQUIPMENT CONNECTIONS AND ELSEWHERE INDICATED OR REQUIRED, UNLESS FLANGES ARE INDICATED.

FLOOR, WALL AND CEILING PLATES: PROVIDE WHERE PIPES PIERCE FINISHED SURFACES.

SHUTOFF VALVES: PROVIDE WHERE INDICATED AND REQUIRED FOR ADEQUATE CONTROL OF SYSTEMS AND FOR ISOLATION OF FIXTURE GROUPS AND EQUIPMENT.

EQUIPMENT AND MATERIALS: INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

ACCESSIBILITY: INSTALL WORK READILY ACCESSIBLE FOR NORMAL OPERATION, READING OF INSTRUMENTS, ADJUSTMENT, SERVICE, INSPECTION AND REPAIR. PROVIDE ACCESS PANELS WHERE INDICATED AND REQUIRED.

PIPE JOINTS: MAKE SCREWED JOINTS WITH A MINIMUM AMOUNT OF COMPOUND APPLIED TO THE MALE THREAD ONLY. ALL JOINTS SHALL BE MADE PER CODE REQUIREMENTS.

PROVIDE PIPE ISOLATION AT ALL HANGERS FOR NON-INSULATED MATERIALS.



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ROOSEVELT CROSSROADS  
HVAC UPGRADE  
ROOSEVELT, UTAH

REVISIONS

NO.	DATE	DESCRIPTION

VBFA PROJECT #: 23530  
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SHEET CONTENTS

MECHANICAL  
SPECIFICATIONS

ME005





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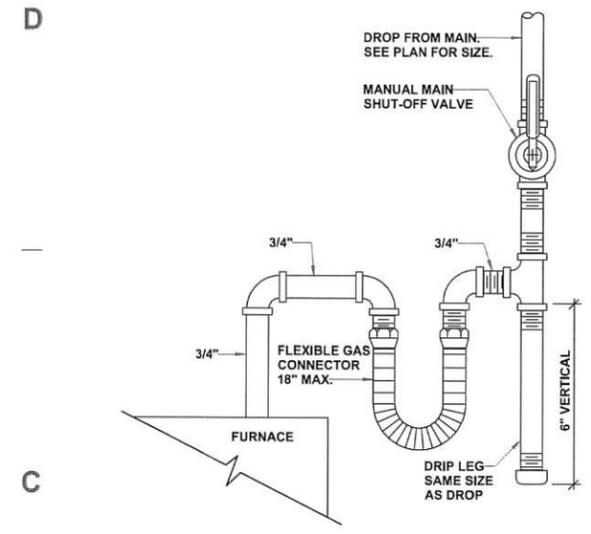
**ROOSEVELT CROSSROADS  
HVAC UPGRADE**  
ROOSEVELT, UTAH

REVISIONS

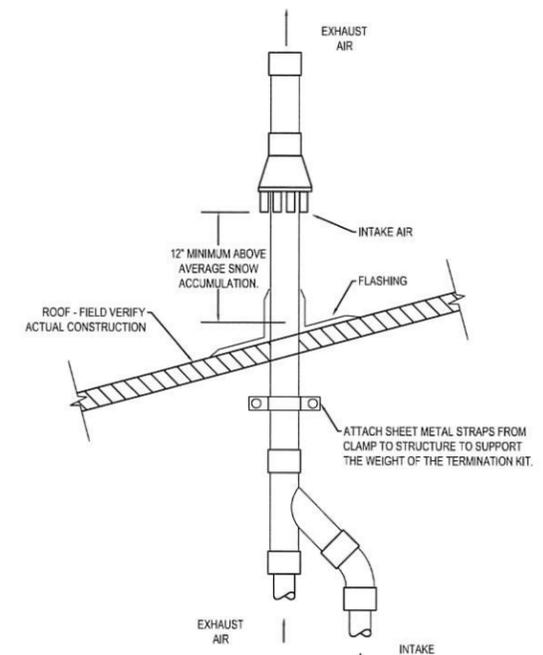
VBFA PROJECT #: 23530  
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SHEET CONTENTS  
**MECHANICAL  
DETAILS**

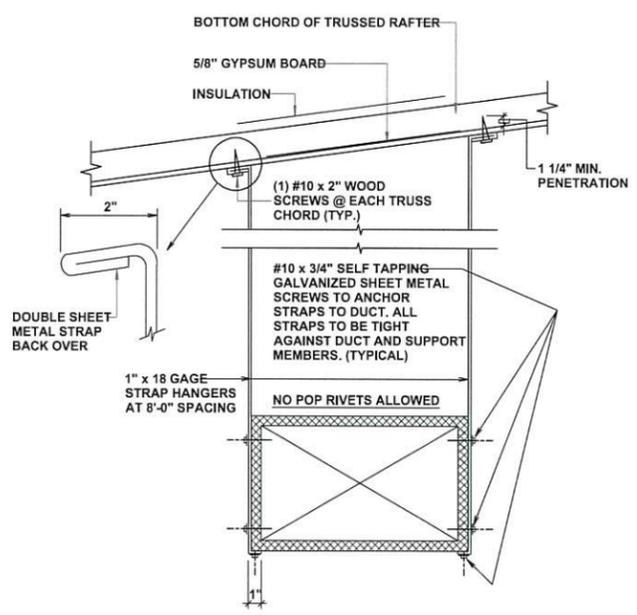
**ME501**



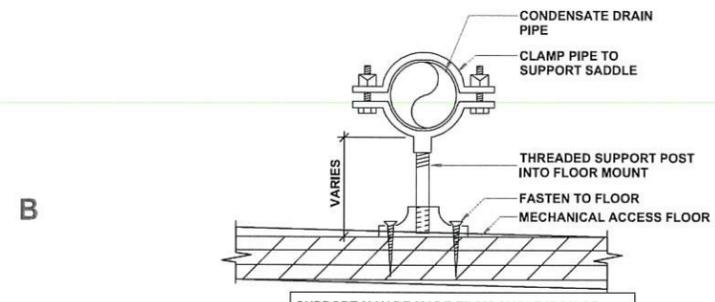
**8 GAS LINE CONNECTION DETAIL**  
ME501 NO SCALE



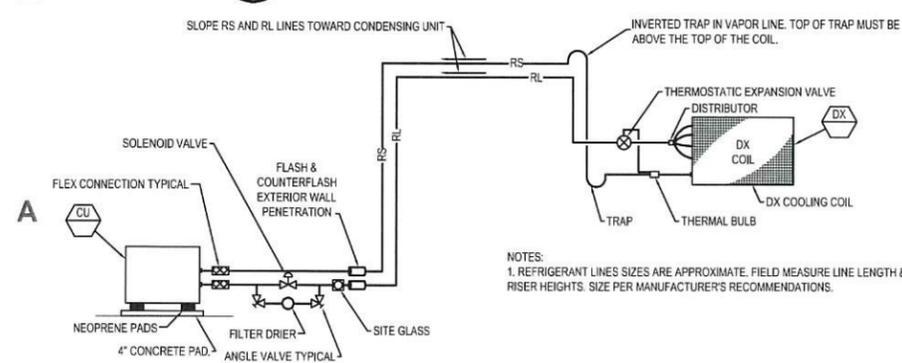
**7 CONCENTRIC ROOF/WALL  
TERMINATION FOR CONDENSING FURNACES**  
ME501 NO SCALE



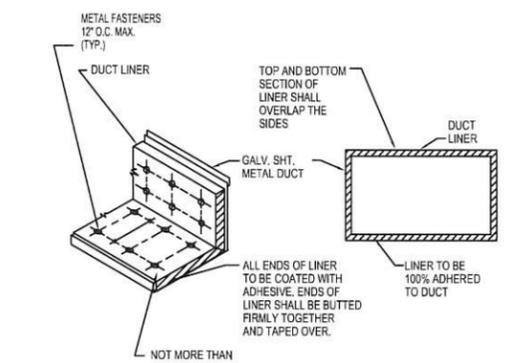
**6 DUCT STRAP HANGER DETAIL**  
ME501 NO SCALE



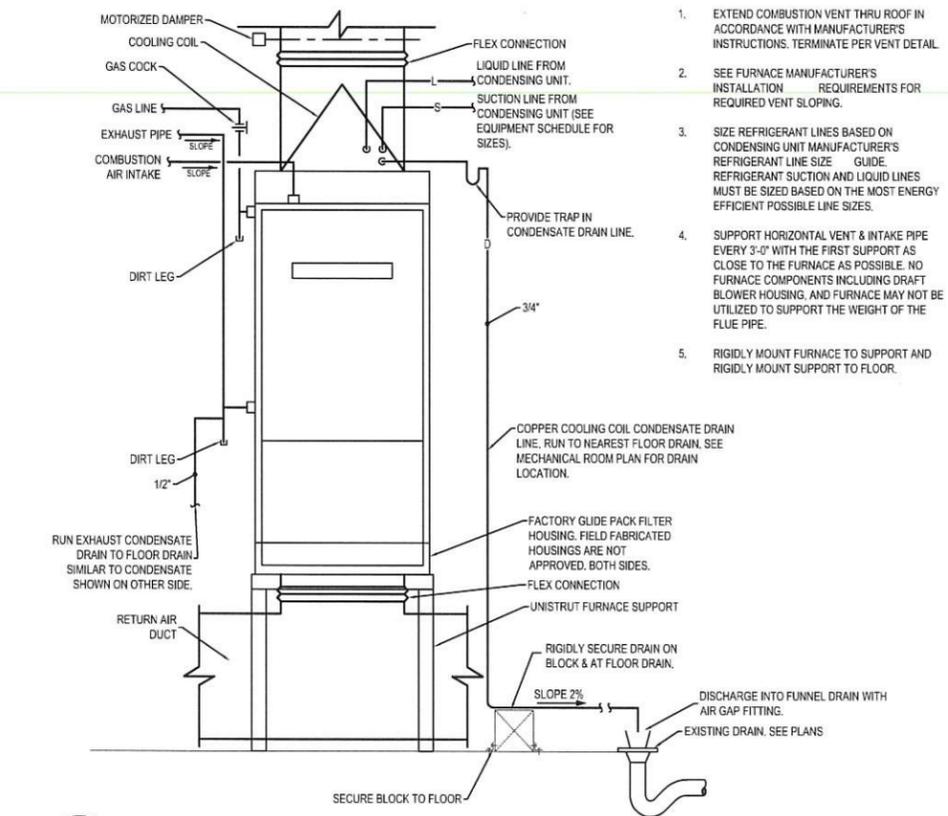
**4 CONDENSATE DRAIN PIPE SUPPORT DETAIL**  
ME501 NO SCALE



**3 CONDENSING UNIT/COOLING COIL DETAIL**  
ME501 NO SCALE



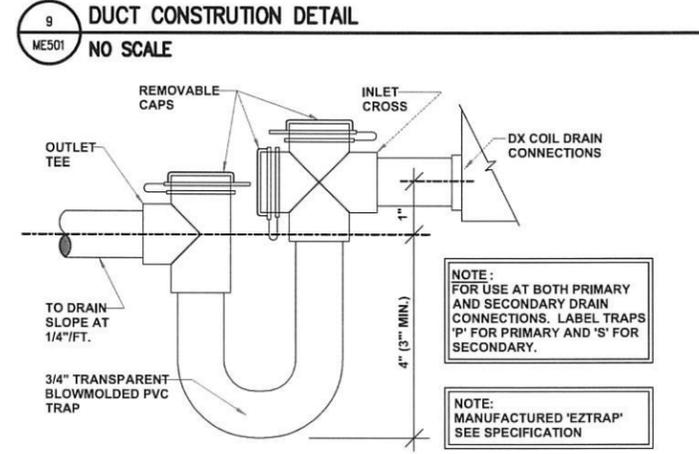
**2 DUCT LINER DETAIL**  
ME501 NO SCALE



**1 FURNACE PIPING**  
ME501 NO SCALE

DIMENSION OF LONGEST SIDE (INCHES)	SHEET METAL GAGE (ALL FOUR SIDES)	MINIMUM REINFORCING ANGLE SIZE AND MAXIMUM LONGITUDINAL SPACING BETWEEN TRANSVERSE JOINTS AND/OR INTERMEDIATE REINFORCING	TRANSVERSE REINFORCING (1)				
			AT JOINTS				
			DRIVE SLIP	PLAIN 'S' SLIP	HEMMEDED 'S' SLIP	ALTERN' BAR SLIP	REIN-FORCED BAR SLIP
UP THRU 12	26	NONE REQUIRED	1	26	26	24	24
13 - 18	24	NONE REQUIRED	1	24	24	24	24
19 - 30	24	1"x1"x1/8" @ 60 IN	1	-	24	24	24
31 - 36	22	1"x1"x1/8" @ 60 IN	1	-	-	22	22

1. TRANSVERSE REINFORCING SIZE IS DETERMINED BY DIMENSION OF SIDE TO WHICH ANGLE IS APPLIED.
2. LONGITUDINAL JOINTS TO BE PITTSBURG OR SNAP LOCK TYPE.



**9 DUCT CONSTRUCTION DETAIL**  
ME501 NO SCALE

**5 DX COIL CONDENSATE DRAIN DETAIL**  
ME501 NO SCALE

- NOTES:
1. EXTEND COMBUSTION VENT THRU ROOF IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. TERMINATE PER VENT DETAIL.
  2. SEE FURNACE MANUFACTURER'S INSTALLATION REQUIREMENTS FOR REQUIRED VENT SLOPING.
  3. SIZE REFRIGERANT LINES BASED ON CONDENSING UNIT MANUFACTURER'S REFRIGERANT LINE SIZE GUIDE. REFRIGERANT SUCTION AND LIQUID LINES MUST BE SIZED BASED ON THE MOST ENERGY EFFICIENT POSSIBLE LINE SIZES.
  4. SUPPORT HORIZONTAL VENT & INTAKE PIPE EVERY 3'-0" WITH THE FIRST SUPPORT AS CLOSE TO THE FURNACE AS POSSIBLE. NO FURNACE COMPONENTS INCLUDING DRAFT BLOWER HOUSING, AND FURNACE MAY NOT BE UTILIZED TO SUPPORT THE WEIGHT OF THE FLUE PIPE.
  5. RIGIDLY MOUNT FURNACE TO SUPPORT AND RIGIDLY MOUNT SUPPORT TO FLOOR.

GRILLES, REGISTERS AND DIFFUSERS

Table with columns: ID, MANUFACTURER, MODEL, APPLICATION, SIZE, CFM, DESCRIPTION. Includes details for RG-1 grille.

HEAT RECOVERY UNIT

Table with columns: SYMBOL, MANUFACTURER, LOCATION, QTY, MODEL NO., SUPPLY CFM, EXHAUST CFM, SF / EF ESP (W.C.), VOLT/PHASE/HZ, MOCP, MCA A, DIM (IN), WEIGHT (LBS), COMMENTS. Includes details for ERV-1 and ERV-2.

- (1) UNIT COMPLETE WITH MOTOR STARTER, NON-FUSED DISCONNECT, VFD FOR BOTH FANS, SHAFT GROUNDING RINGS, CO2 SENSOR, MOTORIZED ISOLATION DAMPERS FOR OUTSIDE AIR AND RETURN AIR STREAMS, (QTY 2) MERV 8 FILTERS.
(2) CONTROL: ERV SHALL OPERATE WHEN CO2 LEVELS ARE ABOVE 1000 PPM AND THE ASSOCIATED FURNACES FANS ARE OPERATING. ERV OA DAMPER AND RA DAMPER SHALL BE OPEN WHEN ERV FANS ARE ENERGIZED.
(3) UNIT COMPLETE WITH WATERLESS CONDENSATE TRAPS.
(4) INSTALL PER MANUFACTURER'S REQUIREMENTS.

GAS FIRED FURNACE SCHEDULE

Table with columns: ID, MANUFACTURER AND MODEL NUMBER, LOCATION, ORIENTATION, MAX INPUT LOAD, MAX OUTPUT LOAD, AIRFLOW RATE, OUTSIDE AIRFLOW RATE, EXTERNAL STATIC PRESSURE DROP, FLUE SIZE, AFUE EFFICIENCY, ASSOCIATED COOLING COIL, ASSOCIATED CONDENSING UNIT, ELECTRICAL (UNIT AMPACITY, MAX FUSE CKT BKR AMPS, MAX INPUT AMPS, MOTOR SIZE HP), PHYSICAL (WIDTH/DEPTH/HEIGHT IN, WEIGHT LBS), NOTES. Includes details for F-1 through F-6.

- (1) ALL CONDITIONS RATED AT 5,000 FEET ELEVATION.
(2) POWER VENT, SIZE INTAKE AND EXHAUST PER MANUFACTURER'S REQUIREMENTS.
(3) FURNACES SHALL OPERATE IN GROUPS OF THREE. SEE PLANS.
(4) EACH FURNACE SHALL HAVE A MOTORIZED ISOLATION DAMPER. THE DAMPER SHALL BE OPEN WHEN THE FURNACE FAN IS RUNNING AND CLOSED WHEN THE FURNACE FAN IS OFF.
(5) FURNACE CONTROLS SHALL BE CAPABLE OF DRY-BULB ECONOMIZER CONTROL. THE TWO BY-PASS ECONOMIZER DAMPERS SHALL BE OPEN AND THE OUTSIDE AIR ECONOMIZER DAMPER AND THE RETURN AIR DAMPER SHALL MODULATE IN ECONOMIZER MODE. SEE CONTROLS SEQUENCES OF OPERATION AND CONTROLS DIAGRAM.

DX COIL SCHEDULE

Table with columns: ID, MANUFACTURER AND MODEL NUMBER, LOCATION, AIRFLOW RATE, NOMINAL CAPACITY, ENTERING TEMP. DB/WB, LEAVING TEMP. DB, EFFICIENCY SEER, REFRIGERANT, PHYSICAL (WIDTH/DEPTH/HEIGHT IN, WEIGHT LBS), NOTES. Includes details for DX-1 through DX-6.

- (1) CAPACITIES BASED ON 5,000 FT. ELEVATION.
(2) COMPLETE WITH FACTORY BOX AND COIL AND TXV KIT.
(3) COMPLETE WITH MANUFACTURERS TWINNING KIT TO ALLOW THREE FURNACES TO OPERATE AS A SINGLE UNIT.
(4) DX COIL, CONDENSING UNIT, AND FURNACE SHALL BE PROVIDED BY THE SAME MANUFACTURER / SUPPLIER.
(5) SEE CONDENSING UNIT SCHEDULE FOR CORRESPONDING CONDENSING UNIT.

AIR COOLED CONDENSING UNIT SCHEDULE

Table with columns: ID, MANUFACTURER AND MODEL NUMBER, LOCATION, REFRIGERANT, NOMINAL CAPACITY, EFFICIENCY SEER, ELECTRICAL (VOLT/PH, MINIMUM CIRCUIT AMPACITY, MAXIMUM OVERCURRENT PROTECTION), PHYSICAL (LENGTH/WIDTH/HEIGHT IN, WEIGHT LBS), NOTES. Includes details for ACC-1 through ACC-6.

- (1) ALL CONDITIONS RATED AT 5,000 FEET ELEVATION.
(2) COOLING CAPACITY RATED AT 97DB/62WB WB AMBIENT TEMPERATURE.
(3) CONDENSING UNITS RATED CAPACITY.
(4) SEE COOLING COIL SCHEDULE.



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ROOSEVELT CROSSROADS
HVAC UPGRADE
ROOSEVELT, UTAH

Table with columns: REVISIONS, VBFA PROJECT #, CHECKED BY, DRAWN BY, CURRENT/ISSUE DATE. Includes project details and revision tracking.

SHEET CONTENTS
MECHANICAL
SCHEDULES

ME601

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2

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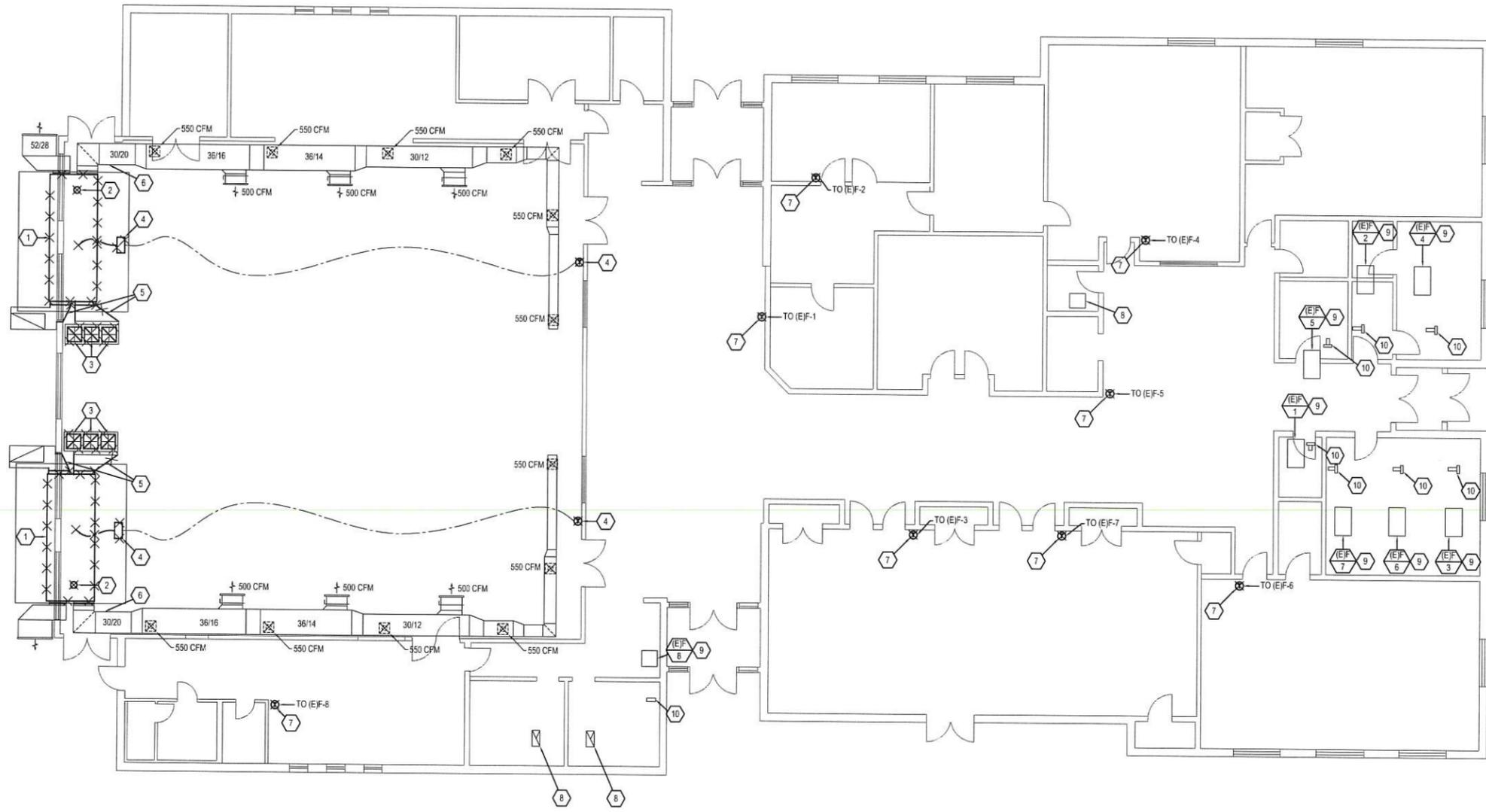
**# KEYED NOTES**

1. DEMOLISH AND REMOVE EXISTING AIR HANDLER. AIR HANDLER MUST BE DISASSEMBLED FOR REMOVAL. DISCONNECT GAS AND ELECTRICAL SERVICES.
2. DEMOLISH AND REMOVE EXISTING FLUE THRU ROOF. PATCH AND REPAIR ROOF TO MATCH EXISTING.
3. DEMOLISH AND REMOVE EXISTING RETURN AIR GRILLES. PREPARE FOR INSTALLATION OF NEW GRILLES.
4. DEMOLISH AND REMOVE EXISTING CONTROLS.
5. REWORK DUCTWORK FOR NEW DUCT CONNECTIONS. SEE MECHANICAL PLANS.
6. DEMOLISH AND REMOVE EXISTING DUCT SMOKE DETECTOR. PATCH DUCT AIR TIGHT.
7. DEMOLISH AND REMOVE EXISTING THERMOSTAT. PREPARE LOCATION FOR INSTALLATION OF NEW THERMOSTAT.
8. EXISTING EXHAUST FAN TO REMAIN.
9. EXISTING FURNACE TO REMAIN.
10. EXISTING ELECTRIC DUCT HEATER TO REMAIN.



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**ROOSEVELT CROSSROADS  
HVAC UPGRADE**  
ROOSEVELT, UTAH

REVISIONS

NO.	DESCRIPTION	DATE

VBFA PROJECT #: 23530  
CHECKED BY: JJ  
DRAWN BY: NG  
CURRENT/ISSUE DATE: 01.20.2025

SHEET CONTENTS  
**LEVEL 1 DEMO  
MECHANICAL PLAN**

**1 LEVEL 1 DEMO MECHANICAL PLAN**  
MD101 SCALE: 1/8" = 1'-0"  
0' 8' 16'

**MD101**

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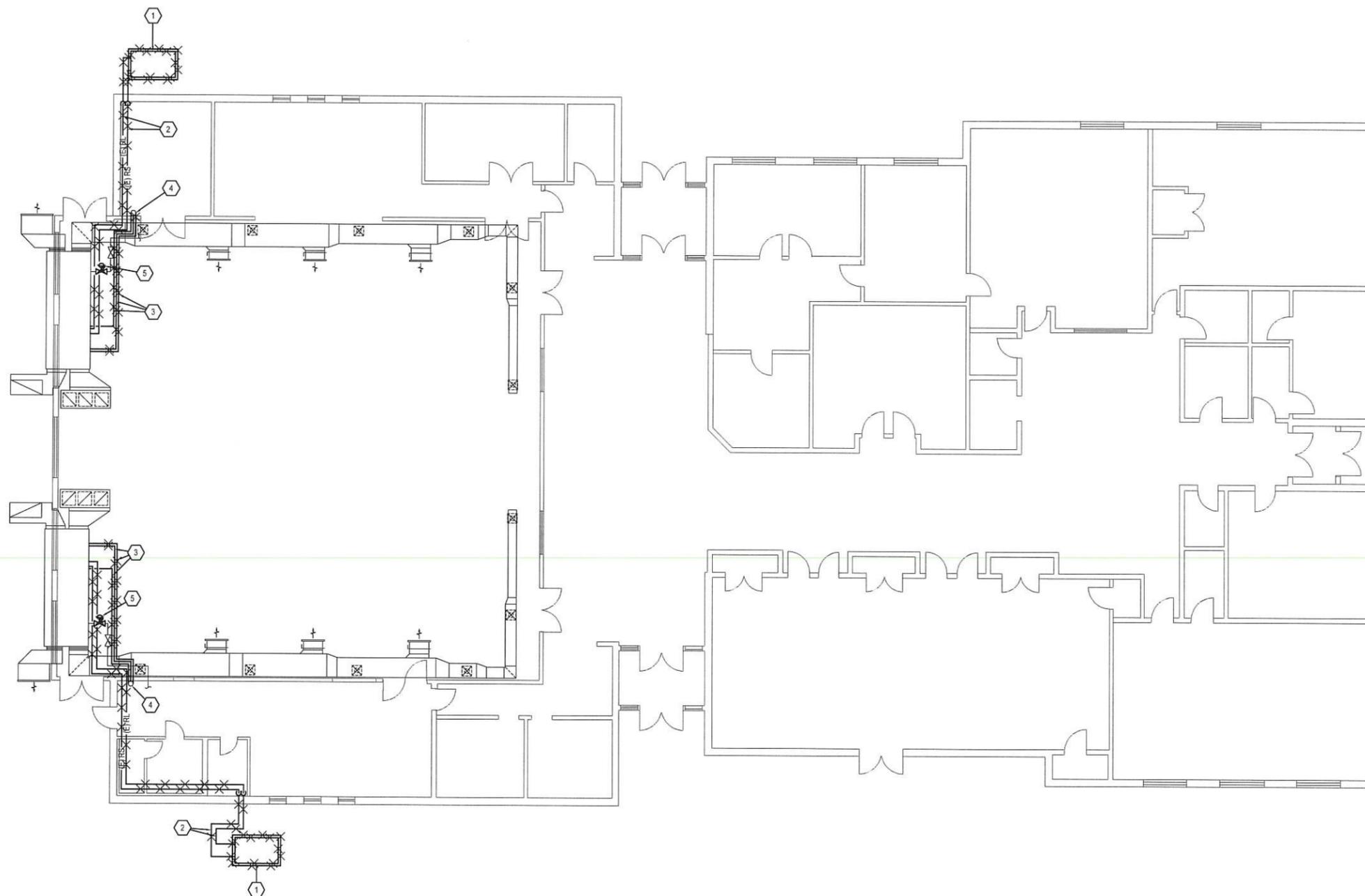
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#	KEYED NOTES
1.	DEMOLISH AND REMOVE EXISTING CONDENSING UNIT AND PAD. DISCONNECT ELECTRICAL SERVICE.
2.	DEMOLISH AND REMOVE EXISTING REFRIGERANT PIPING. PREPARE PIPE ROUTE FOR INSTALLATION OF NEW REFRIGERANT PIPING. SEAL ANY UNUSED PENETRATIONS WEATHER TIGHT.
3.	DEMOLISH AND REMOVE EXISTING CONDENSATE DRAIN PIPING FROM AIR HANDLER TO CUP DRAIN.
4.	EXISTING CUP DRAIN TO REMAIN.
5.	DEMOLISH AND REMOVE EXISTING GAS PIPE AND REGULATOR TO ISOLATION VALVE AND PREPARE FOR NEW CONNECTION.



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SHEET CONTENTS  
**LEVEL 1 DEMO  
MECHANICAL PIPING  
PLAN**

**MD102**



**1** LEVEL 1 DEMO MECHANICAL PIPING PLAN  
MD102 SCALE: 1/8" = 1'-0"



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### # KEYED NOTES

1. PROVIDE AND INSTALL MOTORIZED DAMPER AS PART OF THE CONTROLS SYSTEM.
2. NEW 7-DAY PROGRAMMABLE THERMOSTAT. CONNECT TO NEW CONTROLS. USE EXISTING WIRE IF POSSIBLE.
3. NEW HONEYWELL CONTROLLER. SEE FURNACE SCHEDULE CONTROLS DETAIL. AND SPECIFICATIONS. INSTALL AND WIRE TO ALL DEVICES PER MANUFACTURER'S REQUIREMENTS.
4. NEW CARBON DIOXIDE SENSOR.
5. FLUE THRU ROOF. SEE DETAIL.
6. PROVIDE AND INSTALL NEW DUCT SMOKE DETECTOR. CONNECT TO BUILDING FIRE ALARM SYSTEM AND ADJACENT FURNACES FOR SHUT DOWN.
7. PROVIDE AND INSTALL NEW HONEYWELL SPYDER BACNET CONTROLLER TO CONTROL AND MONITOR THE EXISTING FURNACE. PROVIDE AND INSTALL ADDITIONAL MIXED AIR AND DISCHARGE AIR TEMPERATURE SENSORS AND WIRING. PROVIDE AND INSTALL 120/160 TO 24 VAC TRANSFORMER PER CONTROLLER REQUIREMENTS.
8. LOCATION FOR NEW ATC PANEL. PROVIDE POWER FROM NEAREST ELECTRICAL PANEL. SIZE BREAKER FOR PANEL REQUIREMENTS. PROVIDE AND INSTALL 120/160 TO 24 VAC TRANSFORMER PER CONTROLLER REQUIREMENTS.
9. PROVIDE AND INSTALL RELAY AND CT SWITCH TO CONTROL EXISTING EXHAUST FAN AND MONITOR RUNNING STATUS.
10. PROVIDE AND INSTALL A CT SWITCH FOR MONITORING THE RUN STATUS OF THE ELECTRIC DUCT HEATER.



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# ROOSEVELT CROSSROADS HVAC UPGRADE

ROOSEVELT, UTAH

#### REVISIONS

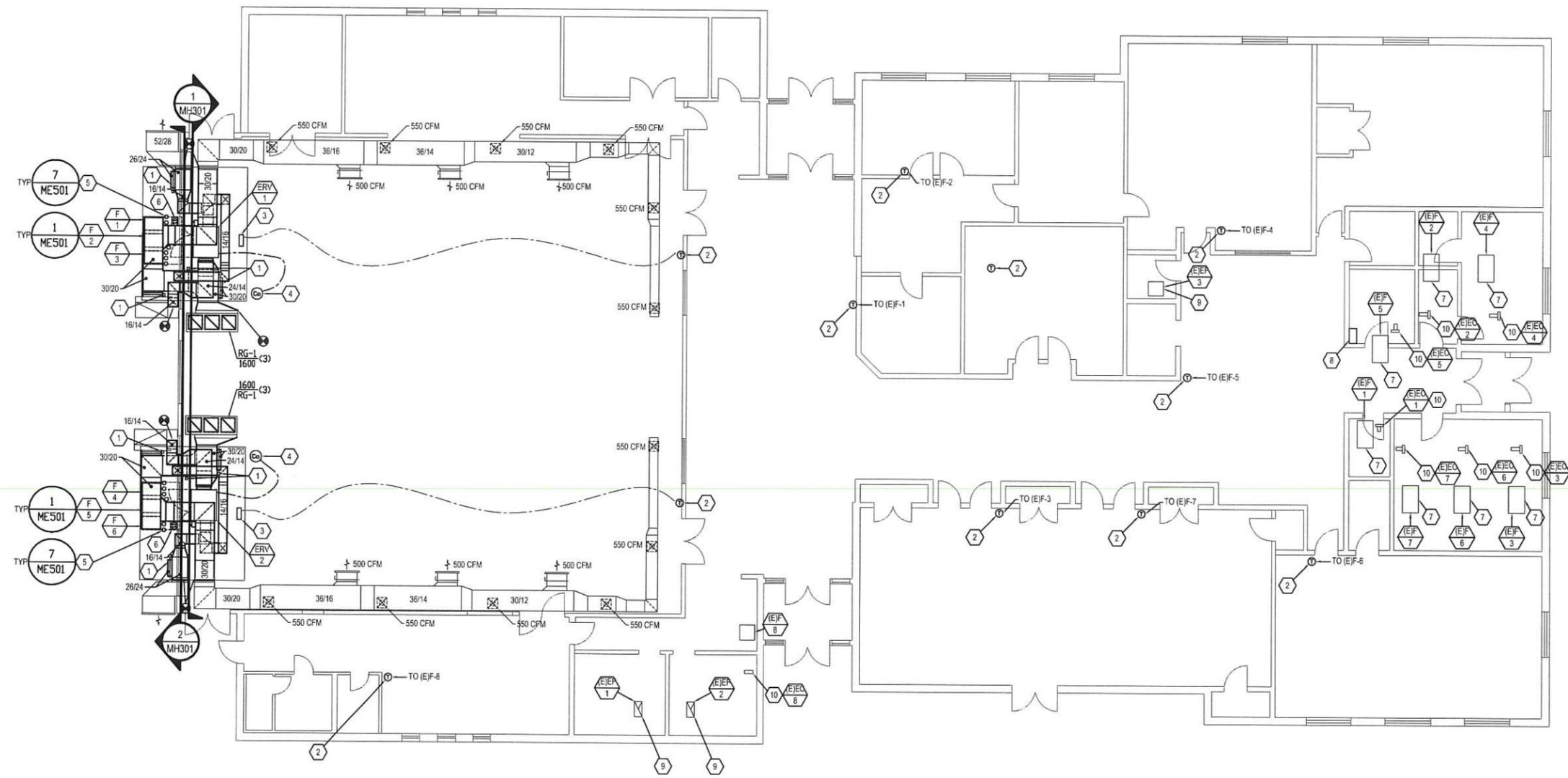
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#### SHEET CONTENTS

**LEVEL 1  
MECHANICAL PLAN**

# MH101



**1** LEVEL 1 MECHANICAL PLAN  
MH101 SCALE: 1/8" = 1'-0"

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# KEYED NOTES

1. PIPE FURNACE CONDENSATE DRAIN TO EXISTING CUP DRAIN AND DISCHARGE WITH AND AIR GAP FITTING. SLOPE 2% TO CUP DRAIN.
2. PROVIDER AND INSTALL NEW REFRIGERANT PIPING BETWEEN EACH FURNACE AND CONDENSING UNIT. SIZE PIPING PER MANUFACTURER'S REQUIREMENTS.
3. CORE DRILL NEW WALL PENETRATIONS FOR NEW REFRIGERANT LINES. SEAL ALL WALL PENETRATIONS WEATHER TIGHT.
4. CONNECT TO EXISTING GAS ISOLATION VALVE.
5. NEW 2PSIG GAS PIPING.
6. NEW 2PSIG TO 40Z GAS PRESSURE REGULATOR. VENT PER CODE. SET TO 66 CFH.
7. INSTALL 4' CONCRETE PAD. RIGIDLY MOUNT CONDENSING UNITS TO CONCRETE PAD.



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HVAC UPGRADE**  
ROOSEVELT, UTAH

REVISIONS	

VBFA PROJECT #: 23530  
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 CURRENT/ISSUE DATE: 01.20.2025

SHEET CONTENTS  
**LEVEL 1  
MECHANICAL PIPING  
PLAN**

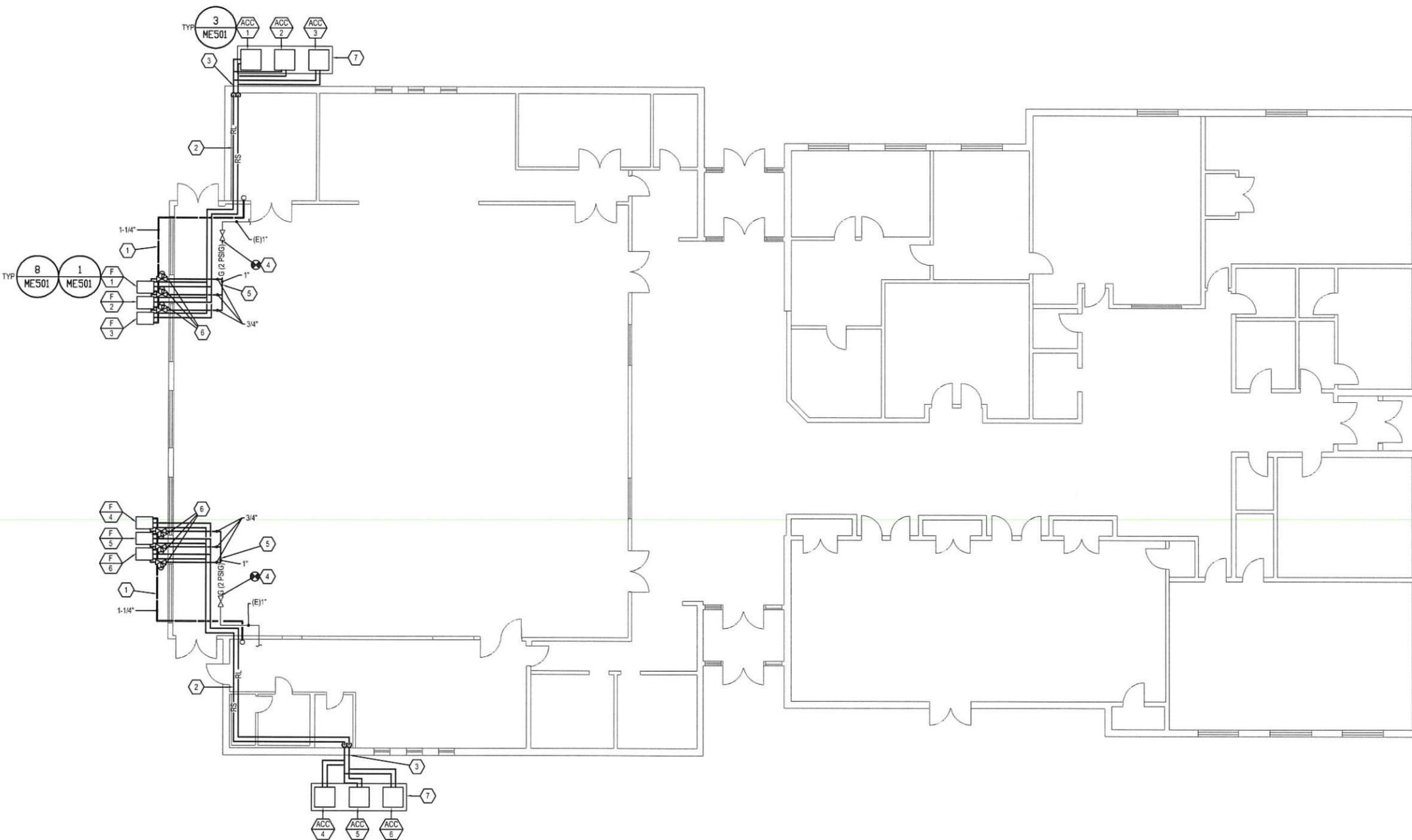
**MH102**

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**1 LEVEL 1 MECHANICAL PIPING PLAN**

MH102 SCALE: 1/8" = 1'-0"



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# KEYED NOTES

1. FURNACE FLIES. INSULATE PER MANUFACTURER'S GUIDELINES.
2. MOTORIZED DAMPER.
3. NEW HONEYWELL CONTROLLER.



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HVAC UPGRADE**  
ROOSEVELT, UTAH

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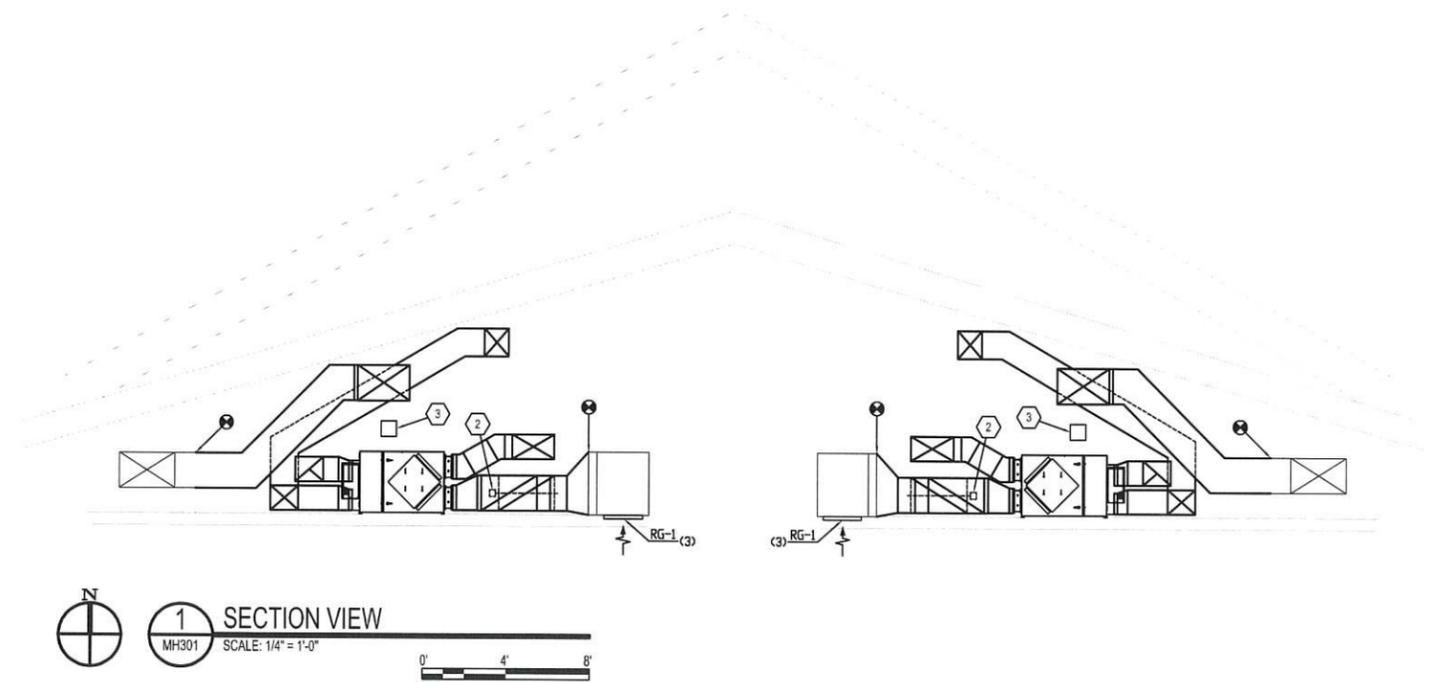
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SHEET CONTENTS  
**MECHANICAL  
SECTION PLAN**

**MH301**

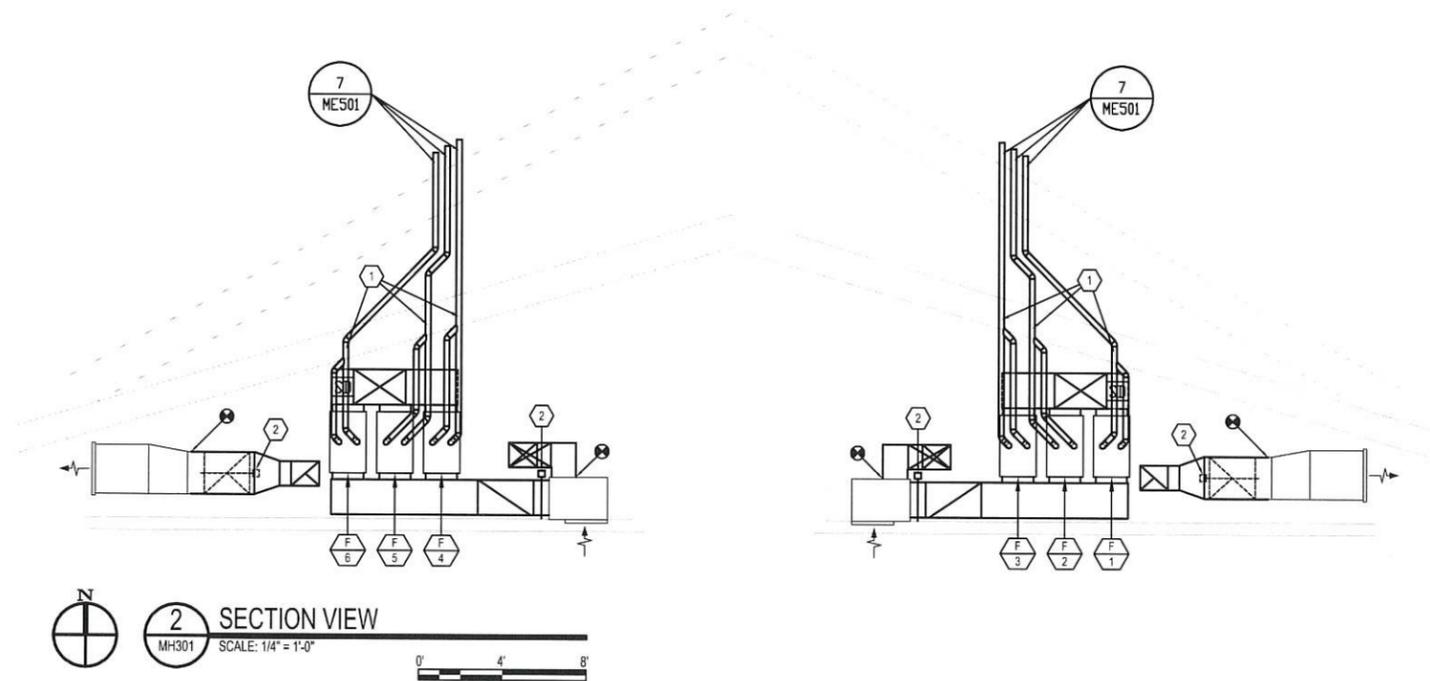
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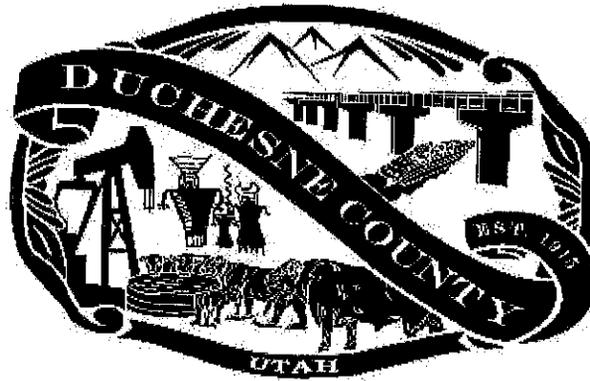
A



# **Attachment**

**B**

**9 Pages**



DUCHESNE COUNTY  
CONTRACT  
FOR  
CROSSROADS HVAC & CONTROLS  
UPGRADE

PREPARED BY:

DUCHESNE COUNTY

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# CONTRACT

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## PART 1 GENERAL

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### 1.1 CONTRACT NAME

A. Name of Project: Crossroads HVAC & Controls Upgrade

### 1.2 CONTRACTOR

A. Name and Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

B. Telephone Number: \_\_\_\_\_

Email: \_\_\_\_\_

### 1.3 OWNER

A. Duchesne County, a political subdivision of the State of Utah (referred to hereafter as "County" or "Owner")

B. The County's agency for this Project is: Building and Grounds.

C. The Department Head and Contact Person of the County's Agency is Shane Jenkins.

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## PART 2 PAYMENT TERMS

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### 2.1 CONTRACT PRICE

A. The contract price includes the cost for the Work specified in the Request for Bid, Plans, Specifications, Bid, Contract Award, and this Agreement, collectively referred to

hereafter as Contract Documents; plus the cost of all bonds, insurance, premiums, fees required, and all charges, expenses or assessments of whatever kind or character.

B. The schedule of Prices awarded from the Bid Form submitted by Contractor are as follows:

Item	Classification of Work	Amount
1		\$
2		\$
3		\$
<b>TOTAL</b>		\$
NOTES:		

C. Based upon the above-awarded schedules, the Contract Price awarded is:

\_\_\_\_\_ Dollars

(\$\_\_\_\_\_).

## 2.2 PAYMENT PROCEDURES

A. Progress Payments: Contractor shall submit applications for payment on a monthly basis. Applications for payments will be processed by the County within thirty (30) days of County's receipt of the Contractor's invoice. Payment shall not become due or payable for any contract item not provided or installed by the Contractor exactly as indicated in the Contract Documents.

1. Withholding payment: The County reserves the right to withhold payment from Contractor for non-compliance with any provision of the Contract Documents.

2. Final Payment: After completion of all Work, and acceptance thereof by the County, County shall pay the Contract Price due, after deducting therefrom all previous payments, liquidated damages, and other amounts to be withheld by County. All prior progress payments shall be subject to correction in the final payment. Contractor must make a written request for the final payment and it shall not be due and payable until the expiration of thirty (30) days from receipt by the County of the request for final payment.

B. Extra Work: No money will be paid to the Contractor for any additions, deletions or revision in the Work required by the Contract Documents unless a contract Change Order for such has been made in writing and executed by the County and the Contractor.

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### **PART 3 CONTRACT TIME**

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#### **3.1 CONTRACT TIME**

A. Contract time will start the day the Contractor receives Notice to Proceed from Duchesne County.

B. Contract time will end on October 28, 2025.

C. Any time specified in the work sequences set forth in the Project's schedule, as prepared by Contractor, shall be part of the Contract Time.

D. Time is of the essence.

E. **POTENTIALLY TIME AND PRICE-IMPACTED MATERIAL.** As of the date of this Agreement, certain markets providing essential materials to the Project may experience significant, industry-wide economic fluctuation, including but not limited to the imposition of tariffs, that may impact price, availability and delivery time frames of certain goods and materials ("Potentially Time and Price-Impacted Material"). If during the course of the Project a Potentially Time and Price-Impacted Material item experiences an increase in its baseline price, either Party may notify the other in writing within thirty (30) Days from the date the basis an equitable adjustment to the Contract Price arises and shall provide appropriate documentation substantiating such adjustment. If Contractor is delayed at any time in the commencement or progress of the Work due to a delay in the delivery of, or unavailability of, a Potentially Time and Price-Impacted Material, beyond the control of and without the fault of the Contractor, Contractor shall be entitled to an equitable extension of the Contract Time and an equitable adjustment of the Contract Price.

F. **EVENTS DELAY.** If Duchesne County delays or disrupts the commencement or progress of the Work, without the fault or responsibility of Contractor, the Contract Time shall be extended by Change Order, the Contract Amount equitably adjusted, and the Project schedule shall be revised accordingly.

G. OTHER EVENTS OF DELAY. If Contractor is delayed at any time in the commencement or progress of the Work by any cause beyond the control of Contractor, Contractor shall be entitled to an equitable adjustment of the date of completion of the Work and, as applicable, the Contract Price. Examples of causes beyond the control of Contractor include, but are not limited to, the following: (a) acts or omissions of Duchesne County or others for whom Duchesne County is responsible; (b) changes in the Work or the sequencing of the Work ordered by Duchesne County or arising from decisions of Duchesne County that impact the time of performance of the Work; (c) encountering hazardous materials, or concealed or unknown conditions; (d) delay authorized by Duchesne County pending dispute resolution or suspension by Duchesne County; (e) transportation delays not reasonably foreseeable; (f) labor disputes not involving Contractor; (g) general labor disputes impacting the Project but not specifically related to the worksite; (h) fire; (i) terrorism; (j) epidemics and pandemics; (k) adverse governmental actions; (l) unavoidable accidents or circumstances; (m) adverse weather conditions the impact the progress of the Work; (n) other force majeure events.

### **3.2 EFFECT OF TIME EXTENSION**

A. Permitting the Contractor to continue and finish the Work or any part of the Work after the time fixed for its completion, or after the date to which the time for completion may have been from time to time extended, whether or not a new completion date is established, shall not operate as a waiver by County of any of County's right under this Agreement.

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## **PART 4 LEGAL PROVISIONS**

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### **4.1 CONTRACT JURISDICTION, CHOICE OF LAW, AND VENUE**

The provisions of this Contract shall be governed by the laws of the State of Utah, Duchesne County, and Duchesne City. The parties will submit to the jurisdiction of the courts of the State of Utah for any dispute arising out of this Contract or the breach thereof. Venue shall be in Duchesne County, in the Eighth Judicial District, Duchesne Department. Vendor agrees to be bound by the decision of Duchesne County in case of any dispute arising from the interpretation or application of the Terms and Conditions.

### **4.2 LAWS AND REGULATIONS**

The Parties signing below under this Contract and any and all supplies, services, equipment, and construction furnished under this Contract will comply fully with all applicable Federal, and

State, and local laws, codes, rules, regulations, and ordinances, including applicable licensure and certification requirements.

#### **4.3 INDEPENDENT CONTRACTOR**

The Contractor shall be an independent Contractor, and as such, shall have no authorization, express or implied, to bind Duchesne County, or its members, to any agreements, settlements, liability, or understanding whatsoever, and agrees not to perform any acts as agent for Duchesne County, or its representatives, except as herein expressly set forth. Compensation stated herein shall be the total amount payable by Duchesne County. The Vendor shall be responsible for the payment of all income tax and Social Security amounts due as a result of payments received from Duchesne County for these Contract services. Persons employed by Duchesne County and acting under the direction of Duchesne County shall not be deemed to be employees or agents of the Contractor.

#### **4.4 INDEMNITY**

The Contractor agrees to indemnify, save harmless, and release Duchesne County, and all their officers, agents, volunteers, and employees from and against any and all claims, loss, damages, injury, liability, suits, and proceedings arising out of the performance of the Contract which are caused in whole or in part by the acts or negligence of (a) the Contractor, (b) the Contractor's officers, agents, volunteers, or employees, (c) the Contractor's subcontractors, or (d) anyone for whom Contractor may be liable but not for claims arising from Duchesne County's sole negligence. The parties agree that if there are any Limitations of the Contractor's Liability, including a limitation of liability for anyone for whom the Contractor is responsible, such Limitations of Liability will not apply to injuries to persons, including death, or to damages to property. The Contractor's duties contained within this provision do not expire upon the expiration of this contract and will continue until such time all such statute of limitations have expired.

Nothing in this contract shall waive the Governmental Immunity provisions within Utah State Code.

#### **4.5 DEFAULT**

Any of the following events will constitute cause for Duchesne County to declare Contractor in default of this Contract: (1) Nonperformance of contractual requirements; or (2) A material breach of any term or condition of this Contract.

#### **4.6 AVAILABLE REMEDIES**

Duchesne County may do one or more of the following: (1) Exercise any remedy provided by law; (2) Terminate this Contract and any related contracts or portions thereof; (3) Impose liquidated damages, if liquidated damages are listed in the Contract; or (4) Suspend Contractor from receiving future solicitations. County shall be entitled to deduct and retain liquidated damages or other damages out of any money, which may be due or become due the Contractor under this Agreement. To the extent that the liquidated damages exceed any amounts that would otherwise be due the Contractor, the Contractor shall be liable for such amounts and shall promptly pay said amounts to the County.

#### **4.7 LIQUIDATED DAMAGES FOR LATE COMPLETION**

A. **Late Completion.** Time is of the essence of the Contract Documents. Contractor agrees that County will suffer financial loss/damages if the Work is not completed within the Contract Time or within any time extensions. Contractor and Duchesne County agree that said financial loss/damages will occur from additional administrative costs to County and for disruption and delay in the County's provision of services to the public, and further agree that the amount of said financial loss/damages is difficult to determine with certainty. Accordingly, instead of requiring proof of specific financial loss or damages for late completion of the Work, Contractor agrees to pay the following sums to the County as liquidated damages and not as a penalty:

1. Late Contract Time Completion: Five Hundred dollars (\$500.00) for each day or part thereof that expires after the Contract Time until the Work is accepted as Substantially Complete by Duchesne County.

2. Reasons for Liquidated Damages, Provision for Other Damages: The liquidated damages described above are established to provide for administrative costs and damage to County's ability to provide public services and convenience thereof to the public which it serves. Liquidated damages shall be Duchesne County's sole and exclusive remedy, and the payment of such liquidated damages shall be the sole and exclusive liability of Contractor, for delay in achieving completion date set forth herein, as may be amended from time to time. Except for liquidated damages set forth herein, The Parties mutually waive all claims against each other for consequential damages, including but not limited to, incidental damages, indirect damages, exemplary damages, special damages, enhanced punitive damages, damages for loss of business, loss of profit (except anticipated profit arising directly from the Work), loss of use, loss of revenue, loss of financing, loss of bonding capacity, loss of reputation, insolvency, or any other consequential damages regardless of whether such Party was advised of the possibility of such losses or damages or such losses or damages were otherwise foreseeable.

#### **4.8 INTERPRETATION OF CONTRACT**

Any ambiguities in the contract language shall be liberally construed against Duchesne County.

#### **4.9 SEVERABILITY**

Any invalidation of any sections or provisions of this contract will not affect the validity of the remainder of the provision or other provisions in the contract.

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### **PART 5 MODIFICATIONS AND TERMINATION**

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#### **5.1 MODIFICATION**

This agreement may be supplemented, amended or modified only by the mutual agreement of the parties. No supplement, amendment, or modification of this Agreement shall be binding unless it is in writing and signed by all parties.

#### **5.2 TERMINATION**

Either non-breaching party may terminate the Contract or suspend performance upon a material breach by the breaching party.

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### **PART 6 MISCELLANEOUS PROVISIONS**

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#### **6.1 ASSIGNMENT AND SUBCONTRACT**

The parties agree that Contractor will not delegate performance obligations under this Agreement, in whole or in part, without the prior written approval by the County. Authorization must come from Duchesne County.

Any such delegation of responsibilities is declared as void and will not relieve Contractor from any liability or performance obligations under this Agreement.

**6.2 ENTIRETY OF CONTRACT**

This Agreement supersedes all other Agreements that may have been signed between the Parties prior to date of the Parties signing of this Agreement. This Agreement incorporates by reference all Contract Documents noted above.

**6.3 ACKNOWLEDGMENT**

The parties understand and have read this agreement and have been provided sufficient time to review it with an independent attorney, or have otherwise refused or elected not to seek legal review. By signing this Agreement, I certify that I am authorized to sign it for the party I am signing it for. I certify that I am capable of understanding this contract and hereby fully understand or have had the opportunity to inquire further into any provision of this contract I do not fully understand and hereby waive any future claim of misunderstanding such terms.

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Duchesne County Commission Chair

\_\_\_\_\_  
Duchesne County Department Head

# **Attachment**

**C**

**8 Pages**

## **BUY AMERICAN REQUIREMENTS FOR INFRASTRUCTURE PROJECTS**

**(MARCH 2023)**

### A. Definitions

Components are defined as the articles, materials, or supplies incorporated directly into the end manufactured product(s).

Construction Materials are an article, material, or supply—other than an item primarily of iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives—that is used in an infrastructure project and is or consists primarily of non-ferrous metals, plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables), glass (including optic glass), lumber, drywall, coatings (paints and stains), optical fiber, clay brick; composite building materials; or engineered wood products.

Domestic Content Procurement Preference Requirement - means a requirement that no amounts made available through a program for federal financial assistance may be obligated for an infrastructure project unless—

- (A) all iron and steel used in the project are produced in the United States;
- (B) the manufactured products used in the project are produced in the United States; or
- (C) the construction materials used in the project are produced in the United States.

Also referred to as the Buy America Requirement. Infrastructure includes, at a minimum, the structures, facilities, and

equipment located in the United States, for:

- roads, highways, and bridges;
- public transportation;
- dams, ports, harbors, and other maritime facilities;
- intercity passenger and freight railroads;

- freight and intermodal facilities;
- airports;
- water systems, including drinking water and wastewater systems;
- electrical transmission facilities and systems;
- utilities;
- broadband infrastructure; and
- buildings and real property;
- generation, transportation, and distribution of energy - including electric vehicle (EV) charging.

The term "infrastructure" should be interpreted broadly, and the definition provided above should be considered as illustrative and not exhaustive.

Manufactured Products are items used for an infrastructure project made up of components that are not primarily of iron or steel; construction materials; cement and cementitious materials' aggregates such as stone, sand, or gravel; or aggregate binding agents or additives.

Primarily of iron or steel means greater than 50% iron or steel, measured by cost.

Project - means the construction, alteration, maintenance, or repair of infrastructure in the United States.

Public - The Buy America Requirement does not apply to non-public infrastructure. For purposes of this guidance, infrastructure should be considered "public" if it is: (1) publicly owned or (2) privately owned but utilized primarily for a public purpose. Infrastructure should be considered to be "utilized primarily for a public purpose" if it is privately operated on behalf of the public or is a place of public accommodation.

#### B. Buy America Requirement

None of the funds provided under this award (federal share or recipient cost-share) may be used for a project for infrastructure unless:

1. All iron and steel used in the project is produced in the United States—this means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
2. All manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and
3. All construction materials are manufactured in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America Requirement only applies to articles, materials, and supplies that are consumed in, incorporated into, or permanently affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought into the construction site and removed at or before the completion of the infrastructure project. Nor does a Buy America Requirement apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

Recipients are responsible for administering their award in accordance with the terms and conditions, including the Buy America Requirement. The recipient must ensure that the Buy America Requirement flows down to all subawards and that the subawardees and subrecipients comply with the Buy America Requirement. The Buy America Requirement term and condition must be

included all sub-awards, contracts, subcontracts, and purchase orders for work performed under the infrastructure project.

#### C. Certification of Compliance

The Recipient must certify or provide equivalent documentation for proof of compliance that a good faith effort was made to solicit bids for domestic products used in the infrastructure project under this Award.

The Recipient must also maintain certifications or equivalent documentation for proof of compliance that those articles, materials, and supplies that are consumed in, incorporated into, affixed to, or otherwise used in the infrastructure project, not covered by a waiver or exemption, are produced in the United States. The certification or proof of compliance must be provided by the suppliers or manufacturers of the iron, steel, manufactured products and construction materials and flow up from all sub-awardees, contractors and vendors to the Recipient. The Recipient must keep these certifications with the award/project files and be able to produce them upon request from DOE, auditors or Office of Inspector General.

#### D. Waiver

When necessary, the Recipient may apply for, and DOE may grant, a waiver from the Buy America Requirement. Requests to waive the application of the Buy America Requirement must be in writing to the Contracting Officer.

Waiver requests are subject to review by DOE and the Office of Management and Budget, as well as a public comment period of no less than 15 calendar days. Waivers must be based on one of the following justifications:

1. Public Interest - Applying the Buy America Requirement would be inconsistent with the public interest;
2. Non-Availability - The types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality; or
3. Unreasonable Cost - The inclusion of iron, steel, manufactured products, or

construction materials produced in the United States will increase the cost of the overall project by more than 25 percent.

Requests to waive the Buy America Requirement must include the following:

- Waiver type (Public Interest, Non-Availability, or Unreasonable Cost);
- Recipient name and Unique Entity Identifier (UEI);
- Award information (Federal Award Identification Number, Assistance Listing number);
- A brief description of the project, its location, and the specific infrastructure involved;
- Total estimated project cost, with estimated federal share and recipient cost share breakdowns;
- Total estimated infrastructure costs, with estimated federal share and recipient cost share breakdowns;
- List and description of iron or steel item(s), manufactured goods, and/or construction material(s) the recipient seeks to waive from the Buy America Preference, including name, cost, quantity(ies), country(ies) of origin.

#### **DAVIS-BACON REQUIREMENTS (MARCH 2023)**

This award is funded under Division D of the Bipartisan Infrastructure Law (BIL). All laborers and mechanics employed by the recipient, subrecipients, contractors or subcontractors in the performance of construction, alteration, or repair work in excess of \$2000 on an award funded directly by or assisted in whole or in part by funds made available under this award shall be paid wages at rates not less than those prevailing on similar projects in the locality, as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code commonly referred to as the "Davis-Bacon Act" (DBA). Recipients shall provide written assurance acknowledging the DBA requirements for the award or project and confirming that all of the laborers and mechanics performing construction, alteration, or repair work in excess of \$2000 on

projects funded directly by or assisted in whole or in part by and through funding under the award are paid or will be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by Subchapter IV of Chapter 31 of Title 40, United States Code (Davis-Bacon Act).

The Recipient must comply with all of the Davis-Bacon Act requirements, including but not limited to:

1. Ensuring that the wage determination(s) and appropriate Davis-Bacon clauses and requirements are flowed down to and incorporated into any applicable subcontracts or subrecipient awards.
2. Being responsible for compliance by any subcontractor or subrecipient with the Davis-Bacon labor standards.
3. Receiving and reviewing certified weekly payrolls submitted by all subcontractors and subrecipients for accuracy and to identify potential compliance issues.
4. Maintaining original certified weekly payrolls for 3 years after the completion of the project and must make those payrolls available to the DOE or the Department of Labor upon request, as required by 29 CFR 5.6(a)(2).
5. Conducting payroll and job-site reviews for construction work, including interviews with employees, with such frequency as may be necessary to assure compliance by its subcontractors and subrecipients and as requested or directed by the DOE.
6. Cooperating with any authorized representative of the Department of Labor in their inspection of records, interviews with employees, and other actions undertaken as part of a Department of Labor investigation.
7. Posting in a prominent and accessible place the wage determination(s) and Department of Labor Publication: WH-1321, Notice to Employees Working on Federal or Federally Assisted Construction Projects.

8. Notifying the Contracting Officer of all labor standards issues, including all complaints regarding incorrect payment of prevailing wages and/or fringe benefits, received from the recipient, subrecipient, contractor, or subcontractor employees; significant labor standards violations, as defined in 29 CFR 5.7; disputes concerning labor standards pursuant to 29 CFR parts 4, 6, and 8 and as defined in FAR 52.222-14; disputed labor standards determinations; Department of Labor investigations; or legal or judicial proceedings related to the labor standards under this Contract, a subcontract, or subrecipient award.

9. Preparing and submitting to the Contracting Officer, the Office of

Management and Budget Control Number 1910-5165, Davis Bacon Semi-Annual Labor Compliance Report, by April 21 and October 21 of each year.

Form submittal will be administered through the Benefits system (<https://doeibenefits2.energy.gov>) or its successor system.

The Recipient must undergo Davis-Bacon Act compliance training and must maintain competency in Davis-Bacon Act compliance. The Contracting Officer will notify the Recipient of any DOE sponsored Davis-Bacon Act compliance trainings. The Department of Labor offers free Prevailing Wage Seminars several times a year that meet this requirement, at DOL Prevailing Wage Seminars. The Department of Energy has contracted with, a third-party DBA electronic payroll compliance software application. The Recipient must ensure the timely electronic submission of weekly certified payrolls as part of its compliance with the Davis-Bacon Act unless a waiver is granted to a particular contractor or subcontractor because they are unable or limited in their ability to use or access the software.

Davis Bacon Act Electronic Certified Payroll Submission Waiver

A waiver must be granted before the award starts. The applicant does not have

the right to appeal DOE's decision concerning a waiver request.

For additional guidance on how to comply with the Davis-Bacon provisions and clauses, see DOL Government Contracts Construction and DOL Protections for Workers in Construction.