# CITY OF HASTINGS

## NORTH DENVER STATION
## CONTROL ROOM HVAC REPLACEMENT

1228 NORTH DENVER AVENUE
HASTINGS, NEBRASKA

## CONSTRUCTION DOCUMENTS

### PROJECT CONTACTS

| TEAM LOGO | ARCHITECTURAL | STRUCTURAL | MECHANICAL | ELECTRICAL |
|---|---|---|---|---|
| Alvine<br>1201 Cass Street<br>Omaha, NE 68102 402.346.7007 | | | ALVINE<br>1201 Cass Street<br>Omaha, Nebraska<br>PHONE: (402) 346-7007<br>PROJECT CONTACT: CRAIG P. JOHNSON<br>DIRECT PHONE: (402) 233-7517<br>EMAIL ADDRESS: cjohnson@alvine.com | ALVINE<br>1201 Cass Street<br>Omaha, Nebraska<br>PHONE: (402) 346-7007<br>PROJECT CONTACT: SAMUEL J. HABERMAN<br>DIRECT PHONE: (402) 233-7523<br>EMAIL ADDRESS: shaberman@alvine.com |
| | | | | |
| | | | | |

### INDEX OF DRAWINGS


#### MECHANICAL

M0-0 MECHANICAL SYMBOLS, NOTES, AND ABBREVIATIONS
M0-1 PARTIAL FLOOR PLANS - MECHANICAL DEMOLITION
M1-0 PARTIAL FLOOR PLANS - MECHANICAL NEW WORK
M2-0 MECHANICAL SCHEDULES AND DETAILS

#### ELECTRICAL

E0-0 ELECTRICAL SYMBOLS, NOTES, AND ABBREVIATIONS
E0-1 PARTIAL FLOOR PLANS - ELECTRICAL DEMOLITION
E1-0 PARTIAL FLOOR PLANS - ELECTRICAL NEW WORK
E2-0 ELECTRICAL SCHEDULES AND PARTIAL RISER DIAGRAM





CA-2169 09/05/2025

I, CRAIG P. JOHNSON, AM THE COORDINATING PROFESSIONAL ON THE NORTH DENVER STATION CONTROL ROOM HVAC REPLACEMENT PROJECT.

| NO. | DESCRIPTION | DATE |
|---|---|---|


© COPYRIGHT 2025 Permission to reproduce all or part of this Drawing is hereby granted solely for the limited purpose of construction of this project or for archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine Engineering is prohibited by copyright law.


NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, shop and other appropriate drawing or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

ALVINE PROJECT NUMBER
20241598

DATE:
09/05/2025

ISSUE:
CONSTRUCTION DOCUMENTS

SHEET NAME:
COVER SHEET

SHEET NO.:
CS


September 5, 2025 4:16 PM Craig Johnson

# MECHANICAL SYMBOLS

## PLUMBING

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|---|---|---|---|---|---|
| AV | ACID VENT | 140° | HOT WATER 140° | GCO | GRADE CLEAN OUT |
| AW | ACID WASTE (ABOVE FLOOR) | 140° | HOT WATER CIRCULATING 140° | | DOUBLE GRADE CLEAN-OUT |
| AW | ACID WASTE (BELOW FLOOR) | G | NATURAL GAS | HB | HOSE BIBB |
| CW | COLD WATER (CW) | OF | OVERFLOW STORM DRAIN (ABOVE FLOOR) | WH | WALL HYDRANT (NON-FREEZE TYPE) |
| S | COLD SOFT WATER | OF | OVERFLOW STORM DRAIN (BELOW FLOOR) | Y.H. | YARD HYDRANT |
| A | COMPRESSED AIR | | SANITARY DRAIN (ABOVE FLOOR) | BFP | BACK FLOW PREVENTER |
| | EXISTING SANITARY DRAIN (ABOVE FLOOR) | | SANITARY SEWER (BELOW FLOOR) | FD-X | FLOOR DRAIN SIZE-TYPE |
| | EXISTING SANITARY SEWER (BELOW FLOOR) | SS | SITE STORM SEWER | FS-X | FLOOR SINK SIZE-TYPE |
| S | EXISTING STORM DRAIN (ABOVE FLOOR) | S | STORM DRAIN (ABOVE FLOOR) | RD-X | ROOF DRAIN SIZE-TYPE |
| S | EXISTING STORM DRAIN (BELOW FLOOR) | S | STORM DRAIN (BELOW FLOOR) | DS | DOWN SPOUT |
| SS | EXISTING SUB SOIL DRAIN | SS | SUB SOIL DRAIN | MH | MANHOLE |
| AW | EXISTING ACID WASTE (ABOVE FLOOR) | V | VENT | VTR | VENT THROUGH ROOF ON RISER |
| AW | EXISTING ACID WASTE (BELOW FLOOR) | W | SITE WATER PIPING | | |
| HW | HOT WATER (HW) | V | VACUUM BREAKER | 1 | PLUMBING RISER NUMBER |
| HWC | HOT WATER CIRCULATING (HWC) | | GAS COCK | | |
| S | HOT SOFT WATER | | RUNNING TRAP | SH | SHOWER |
| S | HOT SOFT WATER RECIRCULATING | CO OR CO | CLEAN OUT | | |

## HEATING - VENTILATING - AIR-CONDITIONING

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|---|---|---|---|---|---|
| CWS | CHILLED WATER SUPPLY | | AUTOMATIC CONTROL VALVE, 2-WAY | | TURNING VANES |
| CWR | CHILLED WATER RETURN | | AUTOMATIC CONTROL VALVE, 3-WAY | | SUPPLY, OUTDOOR, OR MIXED AIR DUCT END OR RISER (SA) (OA) (MA) |
| PC | CONDENSATE OR BOILER FEED PUMP DISCHARGE | | PRESSURE REGULATING VALVE (PRV) | | RETURN EXHAUST OR RELIEF AIR DUCT END OR RISER (RA) (EA) (RLFA) |
| CS | CONDENSER WATER SUPPLY FROM TOWER | | PIPE IN SLEEVE | X/X | RECTANGULAR DUCTWORK (FIRST NUMBER IS SIDE SHOWN) |
| CR | CONDENSER WATER RETURN TO TOWER | | VALVE IN VERTICAL PIPE | XØ | ROUND DUCT |
| CD | COIL OR EQUIPMENT DRAIN | | F AND T TRAP CAP LBS/HR | X/X | FLAT OVAL (FIRST NUMBER IS THE SIDE SHOWN) |
| GS | GLYCOL SUPPLY | | BUCKET TRAP CAP LBS/HR | | VOLUME DAMPER |
| GR | GLYCOL RETURN | AQ | AIR QUALITY SENSOR | M | MOTORIZED DAMPER |
| FOS | FUEL OIL SUPPLY | A | AQUASTAT | FRD | FIRE DAMPER WITH ACCESS DOOR |
| FOR | FUEL OIL RETURN | CO2 | C02 SENSOR | FSD M | COMBINATION FIRE AND SMOKE DAMPER WITH ACCESS DOOR |
| FOV | FUEL OIL VENT | H | HUMIDISTAT | SD M | SMOKE DAMPER WITH ACCESS DOOR |
| G | NATURAL GAS | S | REMOTE SENSOR | SA | SOUND ATTENUATOR |
| HPWS | HEAT PUMP WATER SUPPLY | T T | THERMOSTAT | | FLEX CONNECTION |
| HPWR | HEAT PUMP WATER RETURN | T RS | THERMOSTAT WITH REMOTE SENSOR | SIZE TYPE CFM | SUPPLY REGISTER OR GRILLE |
| HPR | HIGH PRESSURE CONDENSATE RETURN | | SOLENOID VALVE (REFRIGERANT) | SIZE TYPE CFM | RETURN REGISTER OR GRILLE |
| HPS | HIGH PRESSURE STEAM | | THERMOSTATIC EXPANSION VALVE (REFRIGERANT) | X X | TYP DIFFUSER — NECK SIZE, MARK, CFM |
| HWS | HOT WATER SUPPLY | | SIGHT GLASS | X X | TYP EXHAUST/RETURN GRILLE — NECK SIZE, MARK, CFM |
| HWR | HOT WATER RETURN | | MANUAL AIR VENT | | MECHANICAL EQUIPMENT WITH ELEC CONNECTION SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE |
| LPR | LOW PRESSURE CONDENSATE RETURN | P T | PRESSURE OR TEMPERATURE MEASURING POINTS | OR | BREAK / CONTINUATION |
| LPS | LOW PRESSURE STEAM | FS | FLOW SWITCH | | |
| MPR | MEDIUM PRESSURE CONDENSATE RETURN | 1 | HEATING RISER | | |
| MPS | MEDIUM PRESSURE STEAM | AD | ACCESS DOOR - SIZE AS SHOWN OR PER SPEC. | | |
| RL | REFRIGERANT LIQUID | E | EXPANSION LOOP, LENGTH AND DEPTH | | |
| RS | REFRIGERANT SUCTION | FT-1 MBH | FIN/TUBE-TYPE (SHADED AREA INDICATES CAPACITY MBH ELEMENT LOCATION) | | |
| RD | REFRIGERANT HOT GAS DISCHARGE | | | | |
| B.D.D. | BACK-DRAFT DAMPER (COUNTER BALANCED) | | NEW TO EXISTING CONNECTION | | |
| | | | POINT OF DISCONNECT | | |

## ABBREVIATIONS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| AFF | ABOVE FINISHED FLOOR | DIA | DIAMETER | GW | GARAGE WASTE | OFCI | OWNER FURNISHED CONTRACTOR INSTALLED |
| AHJ | AUTHORITY HAVING JURISDICTION | DISC | DISCONNECT | HGT | HEIGHT | PERP | PERPENDICULAR |
| ASHRAE | AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS | DIST | DISTRIBUTION | HP | HORSEPOWER | PIV | POST INDICATOR VALVE |
| | | DN | DOWN | HTG | HEATING | PLBG | PLUMBING |
| ASME | AMERICAN SOCIETY OF MECHANICAL ENGINEERS | DPAC | DRY PIPE AIR COMPRESSOR | HVAC | HEATING, VENTILATING AND AIR CONDITIONING | PNL | PANEL |
| | | DPV | DRY PIPE VALVE | HZ | HERTZ, HIGH ZONE WET STANDPIPE | PS | PLASTER SINK |
| ASTM | STANDARD SPECIFICATIONS OF THE AMERICAN SOCIETY FOR TESTING MATERIALS | DWG | DRAWING | IE | INVERT ELEVATION | PSF | POUNDS PER SQUARE FOOT |
| | | DX | DIRECT EXPANSION | IP | INTERNET PROTOCOL | PSI | POUNDS PER SQUARE INCH |
| AUX | AUXILIARY | EA | EXHAUST AIR | KW | KILOWATT | PVC | POLYVINYL CHLORIDE |
| AV | ACID VENT | EHC | ELECTRIC HEATING COIL | LBS | POUNDS | PWR | POWER |
| AVG | AVERAGE | EL | ELEVATION | LZ | LOW ZONE WET STANDPIPE | RA | RETURN AIR |
| AW | ACID WASTE | ELEC | ELECTRICAL | MA | MIXED AIR | REQD | REQUIRED |
| AWG | AMERICAN WIRE GAUGE | EMS | ENERGY MANAGEMENT SYSTEM | MAX | MAXIMUM | RGS | RIGID GALVANIZED STEEL |
| BMCS | BUILDING MANAGEMENT CONTROL SYSTEM | EOA | ECONOMIZER OUTDOOR AIR | MBH | 1000 BTU/HOUR | RH | RELATIVE HUMIDITY |
| BFP | DOUBLE CHECK BACKFLOW PREVENTER | EPO | EMERGENCY POWER OFF | MECH | MECHANICAL | RLFA | RELIEF AIR |
| BLDG | BUILDING | EQUIP | EQUIPMENT | MERV | MINIMUM EFFICIENCY REPORTING VALUE | RM | ROOM |
| BTU | BRITISH THERMAL UNIT | EXH | EXHAUST | MIN | MINIMUM | RO | REVERSE OSMOSIS WATER |
| BTUH | BRITISH THERMAL UNIT PER HOUR | EXIST | EXISTING | MISC | MISCELLANEOUS | RPZ | REDUCED PRESSURE ZONE BACKFLOW PREVENTER |
| CFH | CUBIC FEET PER HOUR | F | FIRE WATER | MOA | MINIMUM OUTDOOR AIR | SA | SUPPLY AIR |
| CFM | CUBIC FEET PER MINUTE | FA | FIRE ALARM | MTD | MOUNTED | SAN | SANITARY |
| CL | CENTER LINE | FCO | FLOOR CLEAN OUT | NC | NORMALLY CLOSED | SCHD | SCHEDULE |
| CLG | CEILING | FDC | FIRE DEPARTMENT CONNECTION | NFPA | NATIONAL FIRE PROTECTION ASSOCIATION | SCW | SOFT COLD WATER |
| CLR | CLEAR | FHC | FIRE HOSE CABINET | | | SHW | SOFT HOT WATER |
| CPVC | CHLORINATED POLYVINYL CHLORIDE | FHV | FIRE HOSE VALVE | NIC | NOT IN CONTRACT | SIM | SIMILAR |
| CRAC | COMPUTER ROOM AIR CONDITIONER | FL | FLOOR | NO | NORMALLY OPEN | SM | SPRINKLER MAIN |
| CV | CONSTANT VOLUME | FT | FEET | NOM | NOMINAL | SMACNA | SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION |
| DDCV | DOUBLE DETECTOR CHECK VALVE ASSEMBLY BACKFLOW PREVENTER | FW | FILTERED WATER | NPW | NON-POTABLE WATER | SPECS | SPECIFICATIONS |
| | | GA | GAUGE | NTS | NOT TO SCALE | SS | STAINLESS STEEL |
| | | GALV | GALVANIZED | OA | OUTDOOR AIR | STD | STANDARD |
| | | GC | GENERAL CONTRACTOR | OC | ON CENTER | TEMP | TEMPERATURE |
| | | GEN | GENERATOR | | | TYP | TYPICAL |
| | | GPM | GALLONS PER MINUTE | | | UG | UNDERGROUND |
| | | | | | | UL | UNDERWRITERS LABORATORY |
| | | | | | | UNO | UNLESS NOTED OTHERWISE |
| | | | | | | UPS | UNINTERRUPTIBLE POWER SUPPLY |
| | | | | | | VA | VOLT-AMPS |
| | | | | | | VERT | VERTICAL |
| | | | | | | VFC | VARIABLE FREQUENCY CONTROL |
| | | | | | | VTR | VENT THROUGH ROOF |
| | | | | | | W | WATT |
| | | | | | | WG | WATER GAUGE |
| | | | | | | WP | WEATHERPROOF |
| | | | | | | XFMR | TRANSFORMER |

SYMBOLS INDICATED HERE AND NOT USED IN THE CONTRACT DOCUMENTS DO NOT APPLY TO THIS PROJECT. ADDITIONAL SYMBOLS AND ABBREVIATIONS MAY BE INDICATED IN THE CONTRACT DOCUMENTS.

## DEMOLITION NOTES:

1. THE OWNER SHALL HAVE THE FIRST RIGHT OF SALVAGE FOR ALL MECHANICAL, ELECTRICAL, AND PLUMBING ITEMS BEING REMOVED. IF OWNER DECLINES, THE CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF PROPERLY. VERIFY OWNER'S INTENT PRIOR TO REMOVAL OR DEMOLITION.
2. INFORMATION PERTAINING TO THE EXISTING BUILDING HAS BEEN OBTAINED THROUGH THE BUILDINGS ORIGINAL DRAWINGS WHERE AVAILABLE. REPORT DISCREPANCIES TO THE ARCHITECT/ENGINEER PRIOR TO ANY DEMOLITION. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK.
3. COORDINATE SHUT DOWN OF ALL UTILITIES FOR DEMOLITION WORK WITH THE OWNER.
4. DISCONNECT AND REMOVE MECHANICAL SYSTEMS, EQUIPMENT, AND COMPONENTS AS INDICATED TO BE REMOVED.
   PIPING TO BE REMOVED: REMOVE PORTION OF PIPING INDICATED TO BE REMOVED AND CAP REMAINING PIPING WITH THE SAME OR COMPATIBLE PIPING MATERIAL.
   DUCTS TO BE REMOVED: REMOVE PORTIONS OF DUCT AND CAP REMAINING DUCTS WITH THE SAME OR COMPATIBLE DUCTWORK MATERIAL.
   EQUIPMENT TO BE REMOVED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT.
   EQUIPMENT TO BE REMOVED AND SALVAGED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT AND DELIVER TO OWNER.
5. IF PIPE OR EQUIPMENT INSULATION TO REMAIN IS DAMAGED IN APPEARANCE OR IS UNSERVICEABLE, REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF EQUAL CAPACITY AND QUALITY.
6. CONTRACTOR IS REQUIRED TO VISIT SITE AND FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO BIDDING PROJECT.
7. COORDINATE DEMOLITION WITH THE WORK OF OTHER TRADES. PROVIDE TEMPORARY UTILITIES AS REQUIRED TO ALLOW THE WORK OF OTHER TRADES TO PROCEED.
8. DUCTWORK, PIPING, PLUMBING, AND EQUIPMENT SHOWN BOLD AND HATCHED SHALL BE REMOVED TO THE EXTENTS INDICATED.

## DETAIL NOTE:

1. PROJECT DETAILS ARE PROVIDED ON DESIGNATED DETAIL SHEETS. DETAILS APPLY TO THE ENTIRE PROJECT IN ALL LOCATIONS WHERE DETAILED CONDITION EXISTS AND ARE ONLY REFERENCED TO PROVIDE CLARITY IF NECESSARY.

## GENERAL NOTES:

1. THIN LINE ITEMS INDICATE EXISTING TO REMAIN. BOLD LINE ITEMS INDICATE NEW WORK.
2. CONTRACTOR IS RESPONSIBLE FOR ANY CUTTING AND PATCHING NEEDED FOR MECHANICAL INSTALLATION. PATCHING MUST MATCH EXISTING.

## HVAC GENERAL NOTES:

1. DO NOT RUN DUCTWORK ABOVE ELECTRICAL PANELS OR IN CODE REQUIRED CLEARANCE SPACES. COORDINATE ALL ROUTING WORK WITH ALL OTHER TRADES.
2. DRAWINGS, PLANS, SCHEMATICS, AND DIAGRAMS INDICATE THE GENERAL LOCATIONS AND THE ARRANGEMENT OF SYSTEMS. WHEREVER PRACTICAL, INSTALL SYSTEMS AS INDICATED. PROVIDE OFFSETS AND ELEVATION CHANGES TO DUCTWORK, PIPING, AND PLUMBING AS REQUIRED TO COMPLETE THE LAYOUT AND COORDINATION PROCESS AS WELL AS MEET ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS.
3. CONTRACTOR SHALL COORDINATE LOCATION OF DUCTWORK IN CEILING SPACE WITH ALL TRADES PRIOR TO FABRICATION AND INSTALLATION OF DUCTWORK.
4. FOR GENERAL DUCTWORK CONSTRUCTION, SEE DUCT FITTING DETAILS.
5. DUCTWORK AND EQUIPMENT SHOWN WITH THIN LINES INDICATES EXISTING TO REMAIN. DUCTWORK AND EQUIPMENT SHOWN WITH BOLD LINES INDICATES NEW.
6. PROVIDE VOLUME DAMPER IN ALL BRANCH TAKEOFFS CONNECTING TO DIFFUSERS, REGISTERS, OR GRILLES AND IN LOCATIONS INDICATED.
7. PROVIDE REMOTE VOLUME DAMPER BALANCING POSITION CONTROL FOR ALL VOLUME DAMPERS MOUNTED ABOVE NON-ACCESSIBLE CEILINGS.
8. PROVIDE CLEARANCES TO ALL EQUIPMENT AS REQUIRED BY MANUFACTURERS' INSTALLATION AND OPERATION REQUIREMENTS AND/OR BY CODE.
9. CAP ENDS OF ALL INSTALLED DUCTWORK DURING CONSTRUCTION TO MINIMIZE DIRT, DEBRIS, AND FOREIGN OBJECTS FROM ENTERING THE DUCT SYSTEM.
10. COORDINATE SCHEDULE OF SHUTDOWN FOR EXISTING HVAC SYSTEMS. FOR INSTALLATION OF NEW HVAC SYSTEMS, WITH THE OWNER'S REPRESENTATIVE PRIOR TO SHUTDOWN.
11. ALL INSULATION SHALL MEET THE ENERGY CODE'S INSTALLED R VALUE REQUIREMENTS.


Alvine
1201 Cass st.
Omaha, NE 68102
402.346.7007


CITY OF HASTINGS

# NORTH DENVER STATION CONTROL ROOM HVAC REPLACEMENT

1228 NORTH DENVER AVENUE
HASTINGS, NEBRASKA

PROFESSIONAL MECHANICAL ENGINEER
CRAIG P. JOHNSON E-15444
STATE OF NEBRASKA
CA-2169 09/05/2025

| | | |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


© COPYRIGHT 2025 Permission to reproduce all or part of this Drawing is hereby granted solely for the limited purpose of construction of this project or for archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine is prohibited by copyright law.


NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, shop and other appropriate drawing or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

ALVINE PROJECT NUMBER
20241598

DATE:
09/05/2025

ISSUE:
CONSTRUCTION DOCUMENTS

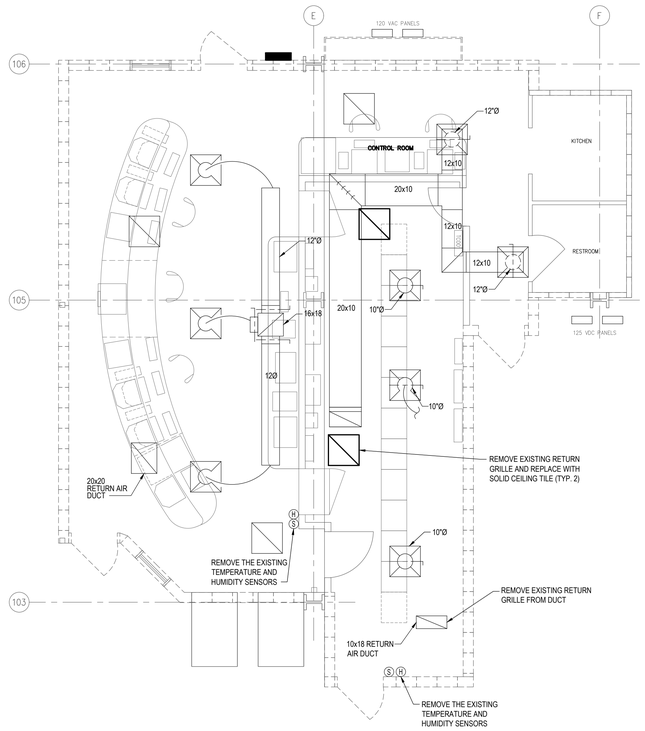
SHEET NAME:
MECHANICAL SYMBOLS, NOTES, AND ABBREVIATIONS

SHEET NO.:
M0-0


M-Cg Mechanical 2025-05-23

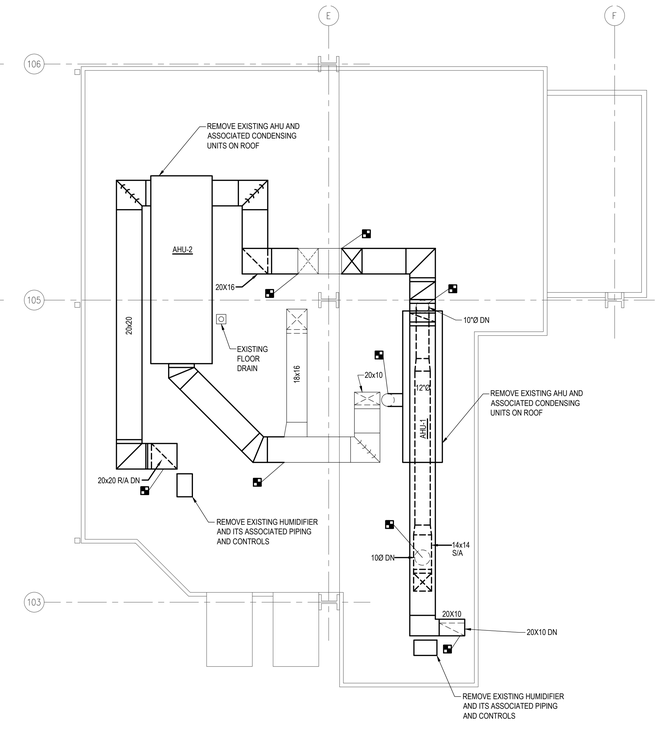


September 5, 2025 4:16 PM Craig Johnson



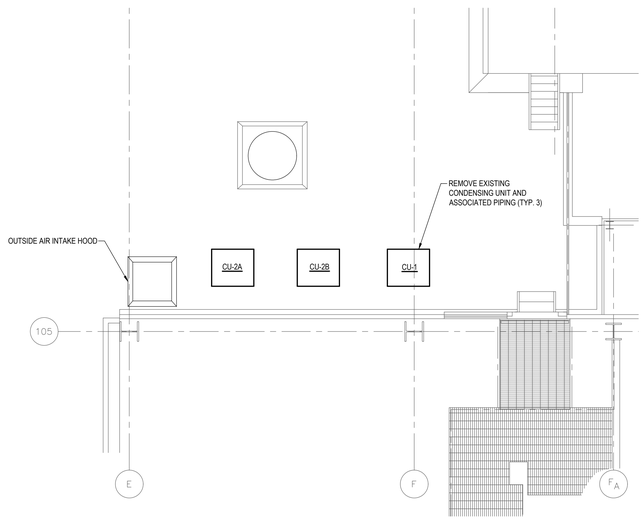

## PARTIAL GROUND FLOOR PLAN - MECHANICAL DEMOLITION

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




## PARTIAL MEZZANINE PLAN - MECHANICAL DEMOLITION

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




## PARTIAL ROOF PLAN - MECHANICAL DEMOLITION

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

Alvine
1201 Cass st.
Omaha, NE 68102
402.346.7007

CITY OF HASTINGS

# NORTH DENVER STATION
# CONTROL ROOM HVAC REPLACEMENT

1228 NORTH DENVER AVENUE
HASTINGS, NEBRASKA

PROFESSIONAL MECHANICAL ENGINEER
CRAIG P. JOHNSON
E-15444
STATE OF NEBRASKA

CA-2169 09/05/2025

| | | |
|---|---|---|
| | | |

© COPYRIGHT 2025 Permission to reproduce all or part of this Drawing is hereby granted solely for the limited purpose of construction of this project or for archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine is prohibited by copyright law.

NOTE:

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, shop and other appropriate drawing or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

ALVINE PROJECT NUMBER
20241598

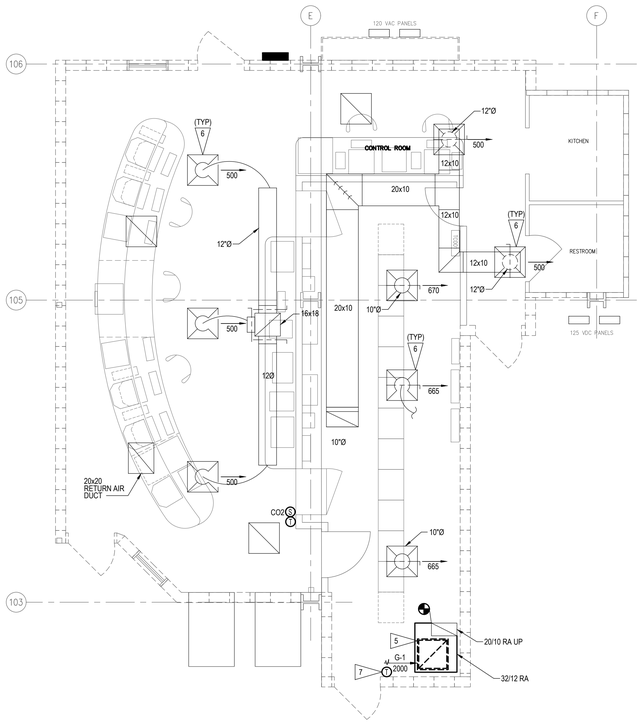
DATE:
09/05/2025

ISSUE:
CONSTRUCTION DOCUMENTS

SHEET NAME:
PARTIAL FLOOR PLANS - MECHANICAL DEMOLITION

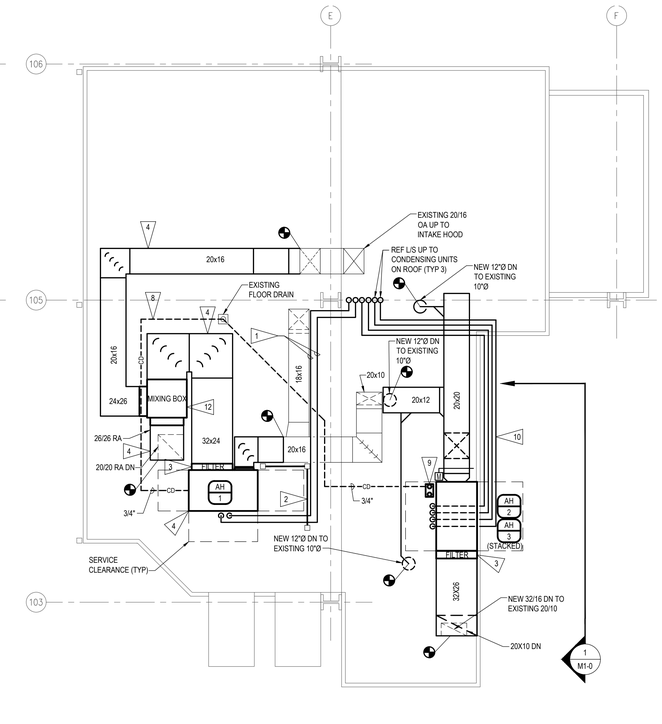
SHEET NO.:
M0-1

September 5, 2025 4:18 PM Craig Johnson



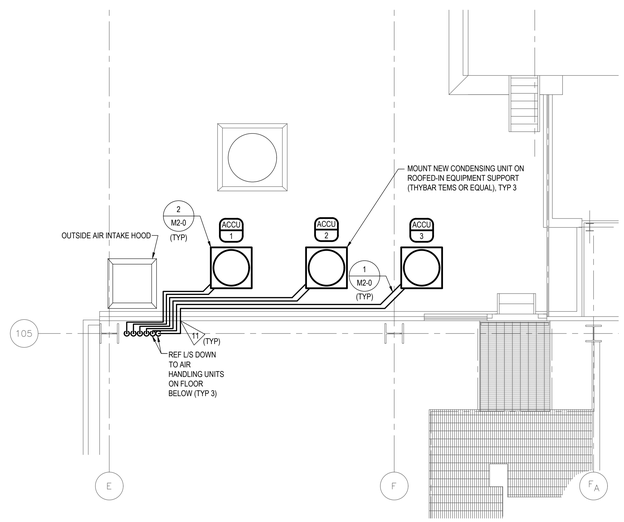

## PARTIAL GROUND FLOOR PLAN - MECHANICAL NEW WORK

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



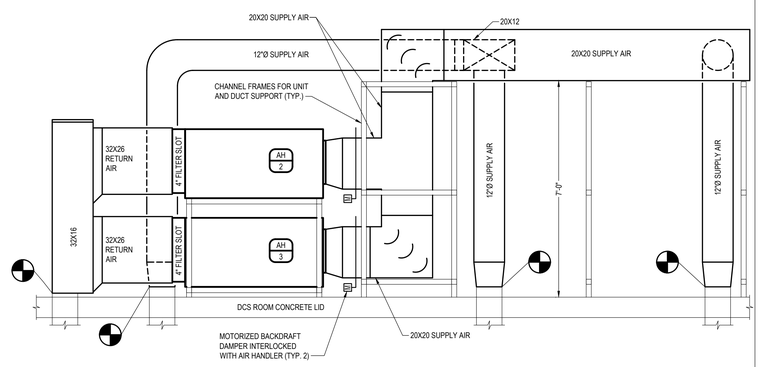

## PARTIAL MEZZANINE PLAN - MECHANICAL NEW WORK

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




## PARTIAL ROOF PLAN - MECHANICAL NEW WORK

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




## AHU-2/AHU-3 STACK ELEVATION

1/2" = 1'-0"

1 M1-0

### FLAG NOTES

1. ROUTE REFRIGERANT LIQUID AND SUCTION LINES ALONG MEZZANINE FLOOR BELOW CRANE RAIL BEAM.
2. PROVIDE AN ANCHORED 42" HIGH, TWO RAIL GUARD RAIL SYSTEM WITH ONE 36" SIDE AND ONE 48" SIDE (BASIS OF DESIGN: CISCO EAGLE RIBBED RAIL "STAND GUARD", WWW.CISCO-EAGLE.COM) TO LIMIT ACCESS TO THE NEARBY EXISTING CRANE POWER RAIL. COORDINATE THE GUARD RAIL WITH THE AIR HANDLER AH-1 CLEARANCES.
3. PROVIDE THE MANUFACTURER-PROVIDED 4" FILTER SLOT AT THE RETURN INLET TO THE AIR HANDLING UNIT.
4. NO HVAC EQUIPMENT OR DUCT SURFACE (INCLUDING INSULATION) MAY EXTEND MORE THAN 42 INCHES ABOVE THE MEZZANINE FLOOR SURFACE. THIS WILL ALLOW THE EXISTING BRIDGE CRANE TO PASS OVER THE HVAC SYSTEM.
5. THE NEW RETURN AIR CEILING GRILLE IN THE DCS ROOM SHALL BE HARD-DUCTED TO THE RETURN AIR DUCT.
6. REBALANCE THE EXISTING CEILING DIFFUSERS TO THE NEW AIRFLOWS INDICATED ON PLAN.
7. PROVIDE SEPARATE SPACE TEMPERATURE SENSORS FOR AIR HANDLING UNITS AH-2 AND AH-3, STACKING THEM ON THE WALL AT THE LOCATION SHOWN.
8. ROUTE 3/4" CONDENSATE DRAIN LINE FROM AIR HANDLING UNIT TO EXISTING FLOOR DRAIN ON MEZZANINE FLOOR.
9. ROUTE 3/4" PUMPED CONDENSATE DRAIN LINE FROM CONDENSATE PUMP (LITTLE GIANT MODEL VCMA-15, LITTLEGIANT.COM, OR EQUAL) BELOW AIR HANDLING UNITS TO EXISTING FLOOR DRAIN ON MEZZANINE FLOOR.
10. RACK THE REFRIGERANT PIPING FROM AIR HANDLING UNITS AH-2 AND AH-3 ALONG THE NEW SUPPLY AIR DUCTWORK SUPPORTS.
11. SEAL REFRIGERANT PIPE PENETRATIONS WITH WALL ENCLOSURE SYSTEMS (AIREX TITAN OUTLET TRS SERIES, AIREXMFG.COM, OR EQUAL).
12. INSTALL A DUCT MOUNTED OUTSIDE AIR AND RETURN AIR MIXING BOX WITH MODULATING DAMPERS, WHICH WILL BE FURNISHED BY THE AIR HANDLING UNIT MANUFACTURER AND CONTROLLED BY THE CO2-BASED DEMAND CONTROL VENTILATION SEQUENCE OF THE MANUFACTURER'S PACKAGED CONTROLS.

Alvine
1201 Cass st.
Omaha, NE 68102
402.346.7007

CITY OF HASTINGS

# NORTH DENVER STATION
# CONTROL ROOM HVAC REPLACEMENT

1228 NORTH DENVER AVENUE
HASTINGS, NEBRASKA

PROFESSIONAL MECHANICAL ENGINEER
CRAIG P. JOHNSON
E-15444
STATE OF NEBRASKA

CA-2169 09/05/2025

| | | |
|---|---|---|
| | | |

© COPYRIGHT 2025 Permission to reproduce all or part of this Drawing is hereby granted solely for the limited purpose of construction of this project or for archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine is prohibited by copyright law.

**NOTE:**

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, shop and other appropriate drawing or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

ALVINE PROJECT NUMBER
20241598

DATE:
09/05/2025

ISSUE:
CONSTRUCTION DOCUMENTS

SHEET NAME:
PARTIAL FLOOR PLANS - MECHANICAL NEW WORK

SHEET NO.:
M1-0

September 5, 2025 4:18 PM Craig Johnson

## INDOOR UNIT SCHEDULE DIRECT EXPANSION COOLING ELECTRIC REHEAT

| MARK | SERVES | LOCATION | NOMINAL CAPACITY (TONS) | SPACE OPER. CONDITIONS DB (°F)/RH | AIRFLOW (CFM) | OUTDOOR AIRFLOW (CFM) | ESP (IN. W.G.) | COOLING COIL | | | | | | | | REHEAT DATA | | FAN DATA | | FILTER DATA | | | DIMENSIONS (LxWxH) (IN) | OPERATING WEIGHT (LBS) | MANUFACTURER | MODEL | REFERENCE SPECIFICATION | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | ENTERING AIR CONDITIONS | | LEAVING AIR CONDITIONS | | TOTAL CAPACITY (MBH) | SENSIBLE CAPACITY (MBH) | ROWS | FPI | KW | STEPS | MOTOR KW | TYPE | SIZE (IN) | QTY | MERV RATING | | | | | | |
| | | | | | | | | DB (°F) | WB (°F) | DB (°F) | WB (°F) | | | | | | | | | | | | | | | | | |
| AH-1 | CONTROL RM | SEE PLANS | 5 | 72 / 50 | 2,500 | 250 | 1.0 | 75.3 | 61.8 | 56.2 | 54.6 | 54.9 | 51.6 | 4 | 12 | 15 | SCR | 4.4 | BI, ECM | 16x24x4 | 2 | 13 | 60x38x28 | 340 | ABOVEAIR TECHNOLOGY | HKH-018S | 23 81 26.13 | 1,2,4 |
| AH-2 | DCS | SEE PLANS | 4 | 69 / 50 | 2,000 | 0 | 1.0 | 69.0 | 57.0 | 49.5 | 48.5 | 46.4 | 42.1 | 4 | 12 | NONE | N/A | 3.7 | BI, ECM | 16x24x4 | 2 | 8 | 60x38x28 | 340 | ABOVEAIR TECHNOLOGY | HKH-014S | 23 81 26.13 | 1,3,5 |
| AH-3 | DCS | SEE PLANS | 4 | 69 / 50 | 2,000 | 0 | 1.0 | 69.0 | 57.0 | 49.5 | 48.5 | 46.4 | 42.1 | 4 | 12 | NONE | N/A | 3.7 | BI, ECM | 16x24x4 | 2 | 8 | 60x38x28 | 340 | ABOVEAIR TECHNOLOGY | HKH-014S | 23 81 26.13 | 1,3,5 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |

REMARKS:

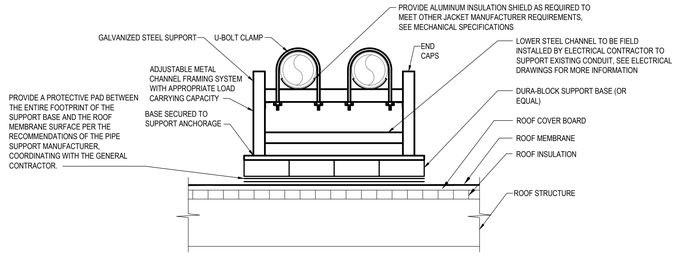
1. SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE ON SHEET E2-0 FOR ELECTRICAL DATA.
2. PROVIDE WITH A DUCT MOUNTED OUTSIDE AIR AND RETURN AIR MIXING BOX WITH MODULATING DAMPERS FOR FIELD INSTALLATION. PROVIDE THE MANUFACTURER'S STANDALONE CONTROLLER AND SPACE TEMPERATURE AND CO2 SENSORS FOR SINGLE ZONE VARIABLE AIR VOLUME AND DEMAND CONTROLLED VENTILATION OPERATION.
3. PROVIDE MANUFACTURER'S STANDALONE CONTROLS FOR OPERATING AH-2 AND AH-3 AS REDUNDANT UNITS IN LEAD/LAG MODE WITH AUTOMATIC RUN-TIME ROTATION AND FAIL-OVER SWITCHING. PROVIDE SEPARATE SPACE TEMPERATURE SENSORS FOR THE TWO UNITS.
4. PROVIDE WITH VARIABLE SPEED ECM FAN, SCR-CONTROLLED ELECTRIC REHEAT/HEAT, AND A DIGITAL SCROLL COMPRESSOR.
5. PROVIDE WITH VARIABLE SPEED ECM FAN AND A DIGITAL SCROLL COMPRESSOR.

## AIR COOLED CONDENSING UNIT SCHEDULE

| MARK | SERVES | LOCATION | CAPACITY (TONS) | COMPRESSOR TYPE | NO. COMPRESSORS | STEPS UNLOADING | REFRIGERANT | AMBIENT TEMP | | SOUND POWER | MIN EER | DIMENSIONS (LxWxH) (IN) | OPERATING WEIGHT (LBS) | MANUFACTURER | MODEL | REFERENCE SPECIFICATION | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | HIGH TEMP (°F) | LOW TEMP (°F) | | | | | | | | |
| ACCU-1 | AH-1 | ROOF | 5 | DIGITAL SCROLL | 1 | MODULATING | R-454B | 105 | -20 | - | | 31x31x29 | 210 | ABOVEAIR TECHNOLOGY | XPU-018S | 23 81 26.13 | 1,2 |
| ACCU-2 | AH-2 | ROOF | 4 | DIGITAL SCROLL | 1 | MODULATING | R-454B | 105 | -20 | - | | 31x31x36 | 200 | ABOVEAIR TECHNOLOGY | XPU-014S | 23 81 26.13 | 1,2 |
| ACCU-3 | AH-3 | ROOF | 4 | DIGITAL SCROLL | 1 | MODULATING | R-454B | 105 | -20 | - | | 31x31x36 | 200 | ABOVEAIR TECHNOLOGY | XPU-014S | 23 81 26.13 | 1,2 |
| | | | | | | | | | | | | | | | | | |

REMARKS:

1. SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE ON SHEET E2-0 FOR ELECTRICAL DATA.
2. MOUNT NEW CONDENSING UNIT ON ROOFED-IN EQUIPMENT SUPPORT (THYBAR TEMS OR EQUAL).



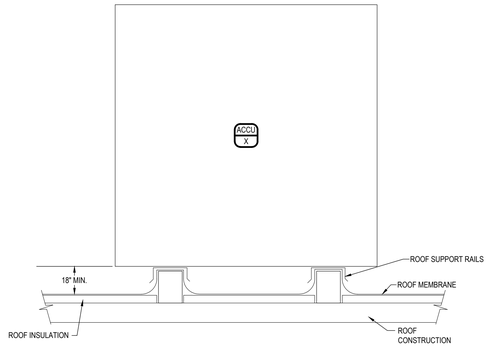

NOTES:

1. LOCATE PIPE SUPPORTS MAXIMUM 8'-0" O.C. AND AT ALL CHANGES IN DIRECTION.
2. PIPE SUPPORT MATERIAL, METHOD AND LOCATIONS SHALL BE APPROVED BY ENGINEER BEFORE INSTALLATION.
3. PREFABRICATED SUPPORT BASED ON DURA-BLOK , ANVIL H-BLOCK, OR CADDY PYRAMID RECYCLED RUBBER, UV RESISTANT BASE WITH GALVANIZED CHANNEL AND ADJUSTABLE STRUT SUPPORT.
4. SUPPORT TO BE USED FOR A MAXIMUM OF TWO (2) PIPES FOR ALL PIPING 4"Ø AND LESS.
5. COORDINATE MAXIMUM ALLOWABLE WEIGHT WITH SUPPORT MANUFACTURER. IN NO CASE SHALL THE SUPPORT IMPOSE A COMPRESSIVE LOAD ON THE ROOF GREATER THAN 2PSI.
6. MAINTAIN A MINIMUM 24" CLEARANCE FROM BOTTOM OF PIPE SUPPORT TO ROOF MEMBRANE FOR NEW PIPE INSTALLATION UNLESS OTHERWISE NOTED.
7. ALL METALLIC COMPONENTS SHALL BE HOT-DIPPED GALVANIZED STEEL UNLESS OTHERWISE NOTED.

### SMALL DIAMETER PIPE SUPPORT DETAIL

1 / M2.0

NO SCALE




NOTES:

1. THE EQUIPMENT SUPPORT RAILS SHALL BE PREFABRICATED SHEET STEEL STRUCTURAL MEMBERS (THYBAR MODEL TEMS OR EQUAL) AND SHALL BE SECURELY FASTENED TO STRUCTURE AND FLASHED TO THE ROOF RUNNING PERPENDICULAR TO AT LEAST TWO WOODEN ROOF JOISTS PER THE OWNER'S ROOFER'S REQUIREMENTS. SEE THE SPECIFICATIONS FOR MORE INFORMATION.

### ROOF CONDENSING UNIT SUPPORT DETAIL

2 / M2.0

NO SCALE


Alvine
1201 Cass st.
Omaha, NE 68102
402.346.7007


CITY OF HASTINGS

# NORTH DENVER STATION
# CONTROL ROOM HVAC REPLACEMENT

1228 NORTH DENVER AVENUE
HASTINGS, NEBRASKA

PROFESSIONAL MECHANICAL ENGINEER
CRAIG P. JOHNSON
E-15444
STATE OF NEBRASKA

CA-2169 09/05/2025

| | | |
|---|---|---|
| | | |


© COPYRIGHT 2025 Permission to reproduce all or part of this Drawing is hereby granted solely for the limited purpose of construction of this project or for archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine is prohibited by copyright law.


**NOTE:**

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, shop and other appropriate drawing or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

ALVINE PROJECT NUMBER
20241598

DATE:
09/05/2025

ISSUE:
CONSTRUCTION DOCUMENTS

SHEET NAME:
MECHANICAL SCHEDULES AND DETAILS

SHEET NO.:
M2-0

September 5, 2025 4:16 PM Craig Johnson

# ELECTRICAL SYMBOLS

## LIGHTING AND POWER

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|---|---|---|---|---|---|
| S | SINGLE POLE SWITCH | | SIMPLEX RECEPTACLE | | LIGHTING PANEL - FLUSH MOUNTED |
| $ | LOW VOLTAGE SWITCH/CONTROL | G,T,U | DUPLEX RECEPTACLE<br>"G" SUBSCRIPT INDICATES GFCI, "T" SUBSCRIPT INDICATES TAMPER RESISTANT TYPE, "U" SUBSCRIPT INDICATES COMBINATION USB CHARGING STATION | | LIGHTING PANEL - SURFACE MOUNTED |
| $_2$ | DOUBLE POLE SWITCH | | | | DIMMING/RELAY PANEL |
| $_3$ | 3-WAY SWITCH | | AUTOMATICALLY CONTROLLED DUPLEX RECEPTACLE | | DISTRIBUTION PANEL, SWITCHBOARD, OR MOTOR CONTROL CENTER |
| $_4$ | 4-WAY SWITCH | | ISOLATED GROUND DUPLEX RECEPTACLE | T | TRANSFORMER |
| $_D$ | DOOR SWITCH | | HOSPITAL GRADE DUPLEX RECEPTACLE | ATS | AUTOMATIC TRANSFER SWITCH |
| $_{MC}$ | MOMENTARY CONTACT SWITCH | | RED DUPLEX RECEPTACLE | | ENCLOSED CIRCUIT BREAKER |
| $_T$ | TIMER SWITCH | | DUPLEX RECEPTACLE - SPLIT WIRED | | SINGLE PHASE MAGNETIC MOTOR STARTER |
| $_{TE}$ | SINGLE POLE MANUAL MOTOR STARTER WITH THERMAL OVERLOAD AND PILOT LIGHT | | AUTOMATICALLY CONTROLLED DUPLEX RECEPTACLE - SPLIT WIRED | | THREE PHASE MAGNETIC MOTOR STARTER |
| | SWITCH AND FUSE | | DRYER RECEPTACLE NEMA 14-30 (125/250V 30A) | | COMBINATION MAGNETIC STARTER/DISCONNECT |
| | SWITCH AND FUSTAT | | SPECIAL PURPOSE RECEPTACLE (NEMA CONFIGURATION AS NOTED) | A/B/C/D | SAFETY SWITCH (FUSED UNLESS OTHERWISE NOTED) "A"=AMP RATING, "B"=POLES, "C"=FUSE SIZE, "D"=NEMA ENCLOSURE; FOR FUSE SIZE, "MR"=MFGR RECOMMENDATIONS AND "NF"=NON-FUSE |
| F | MANUAL DIMMER OR FAN SPEED CONTROL ("F" INDICATES FAN SPEED CONTROL) | | HORIZONTAL MOUNTED DUPLEX RECEPTACLE | | |
| #, | CEILING MOUNTED OCCUPANCY SENSOR (# INDICATES FIXTURE NUMBER IN SCHEDULE) | | RANGE RECEPTACLE NEMA 14-50 (125/250V 50A) | M | MOTOR |
| #, | WALL MOUNTED OCCUPANCY SENSOR/SWITCH (# INDICATES FIXTURE NUMBER IN SCHEDULE) | W | WELDER RECEPTACLE NEMA 6-50 (250V 50A) | PB | PULL BOX |
| | PUSH BUTTON STATION | | DOUBLE DUPLEX RECEPTACLE | | WALL MOUNTED JUNCTION BOX |
| P | PHOTOCELL CEILING MOUNTED | | (1) DUPLEX, (1) DUPLEX AUTOMATICALLY CONTROLLED | J, # | JUNCTION BOX ("#" INDICATES FLOOR, "C" INDICATES CEILING) |
| P | PHOTOCELL WALL MOUNTED | | ISOLATED GROUND DOUBLE DUPLEX RECEPTACLE | | BRANCH CIRCUIT |
| | TIME SWITCH | | RED DOUBLE DUPLEX RECEPTACLE | | BRANCH CIRCUIT - CONCEALED BELOW FLOOR (UNDERGROUND IF EXTERIOR) |
| R | RELAY | | RECEPTACLE IN AV BACKBOX | | HOMERUN TO PANEL (NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS) |
| ER | EMERGENCY LIGHTING RELAY | | WALL CLOCK HANGER RECEPTACLE | | SPECIAL PURPOSE HOMERUN AS INDICATED |
| K | LIGHTING CONTACTOR | | CEILING MOUNTED DUPLEX RECEPTACLE | | CONDUIT SEAL |
| #, | POWER AND/OR DATA FLOOR OUTLET ("#" INDICATES DEVICE TYPE IN SCHEDULE) | | CEILING MOUNTED DOUBLE DUPLEX RECEPTACLE | | CIRCUIT DOWN |
| IP | TECHNOLOGY INFRASTRUCTURE POWER WALL MOUNTED JUNCTION BOX | | CEILING MOUNTED RED DUPLEX RECEPTACLE | | CIRCUIT UP |
| IP, | TECHNOLOGY INFRASTRUCTURE POWER CEILING MOUNTED JUNCTION BOX | | CEILING MOUNTED SPECIAL PURPOSE RECEPTACLE | | CONDUIT STUB-OUT |
| TD, | COMBINATION POWER/DATA/AV TABLETOP OUTLET ("#" INDICATES DEVICE TYPE IN SCHEDULE) | | CEILING MOUNTED SIMPLEX RECEPTACLE | | CIRCUIT BREAK |
| | MULTI-OUTLET ASSEMBLY<br>~ LENGTH AS INDICATED | | POWER FLOOR OUTLET ("#" INDICATES DEVICE TYPE IN SCHEDULE) | | CORD AND PLUG |
| | MECH EQUIPMENT WITH ELEC CONNECTION SEE MECHANICAL/ELECTRICAL COORDINATION SCHEDULE | | RECEPTACLE IN CEILING AV BACKBOX | # | BRANCH CIRCUIT/FEEDER TAG<br>SEE BRANCH CIRCUIT/FEEDER SCHEDULE |

## FIRE DETECTION AND ALARM

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|---|---|---|---|---|---|
| | SMOKE DETECTOR | CM | CONTROL MODULE | | SPEAKER AND STROBE COMBINATION - WALL |
| SB SB | SMOKE DETECTOR WITH SOUNDER BASE | MM | MONITOR MODULE | | SPEAKER - WALL |
| SA SA | SMOKE ALARM | TS | FIRE SPRINKLER VALVE TAMPER SWITCH | | SPEAKER AND STROBE COMBINATION - CEILING |
| BT BT | BEAM SMOKE DETECTOR SYSTEM - TRANSMITTER/REFLECTOR | FS | FIRE SPRINKLER FLOW SWITCH | | SPEAKER - CEILING |
| | DUCT SMOKE DETECTOR - SAMPLING TUBE TYPE | PV | FIRE SPRINKLER POST INDICATOR VALVE | FACP | FIRE ALARM CONTROL PANEL |
| | DUCT SMOKE DETECTOR - IN-DUCT TYPE | H | HORN AND STROBE COMBINATION - WALL | FAA | FIRE ALARM ANNUNCIATOR PANEL |
| | HEAT DETECTOR - FIXED TEMPERATURE + RATE-OF-RISE | H | HORN - WALL | FVCC | FIRE ALARM VOICE COMMAND CENTER |
| F F | HEAT DETECTOR - FIXED TEMPERATURE ONLY | S | STROBE - WALL | F | FIRE FIGHTER'S TELEPHONE JACK |
| CO CO | CARBON MONOXIDE DETECTOR | S | HORN AND STROBE COMBINATION - CEILING | DH | MAGNETIC DOOR HOLD OPEN |
| CO CO | COMBINATION CARBON MONOXIDE/SMOKE DETECTOR | H | HORN - CEILING | FS D M | COMBINATION FIRE/SMOKE DAMPER |
| AS AS | AIR SAMPLING SMOKE DETECTION SYSTEM | S | STROBE - CEILING | S.D M | SMOKE DAMPER |
| SP AS | ASPIRATING SMOKE DETECTION SYSTEM - POINT ADDRESSABLE; SP = SAMPLE PORT | F | MANUAL PULL STATION | # = | INDICATES CANDELA RATING WHERE INDICATED |

## MISCELLANEOUS

| SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION | SYMBOL | DESCRIPTION |
|---|---|---|---|---|---|
| S | COMBINATION CLOCK / SPEAKER UNIT | C | CHIME | AQ | AQUASTAT |
| ARCM | AREA OF RESCUE COMMUNICATION SYSTEM MASTER UNIT | B | CHIME BUTTON | T | THERMOSTAT |
| ARCR | AREA OF RESCUE COMMUNICATION SYSTEM REMOTE UNIT | | ELECTRIC SOLENOID VALVE | | BELL |
| EV EA | ELECTRIC VEHICLE CHARGING STATION DASHED LINES INDICATE FUTURE | | | | |

SYMBOLS INDICATED HERE AND NOT USED IN THE CONTRACT DOCUMENTS DO NOT APPLY TO THIS PROJECT. ADDITIONAL SYMBOLS AND ABBREVIATIONS MAY BE INDICATED IN THE CONTRACT DOCUMENTS.

## ABBREVIATIONS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | AMP | ELEC | ELECTRICAL | LTG | LIGHTING | REQD | REQUIRED |
| AC | ALTERNATING CURRENT | EMD | ESTIMATED MAXIMUM DEMAND | MATV | MASTER ANTENNA TELEVISION | RM | ROOM |
| AFF | ABOVE FINISHED FLOOR | EMI | ELECTROMAGNETIC INTERFERENCE | MAX | MAXIMUM | SBB | SECONDARY BONDING BUSBAR |
| AHJ | AUTHORITY HAVING JURISDICTION | EPO | EMERGENCY POWER OFF | MCB | MAIN CIRCUIT BREAKER | SCHD | SCHEDULE |
| APPROX | APPROXIMATELY | EQUIP | EQUIPMENT | MECH | MECHANICAL | SIM | SIMILAR |
| ATS | AUTOMATIC TRANSFER SWITCH | EXIST | EXISTING | MGB | MAIN GROUND BAR | SPD | SURGE PROTECTIVE DEVICE |
| AUX | AUXILIARY | FA | FIRE ALARM | MIN | MINIMUM | SPECS | SPECIFICATIONS |
| AV | AUDIOVISUAL | FAA | FIRE ALARM ANNUNCIATOR PANEL | MISC | MISCELLANEOUS | SS | STAINLESS STEEL |
| AVG | AVERAGE | FACP | FIRE ALARM CONTROL PANEL | MLO | MAIN LUGS ONLY | STD | STANDARD |
| AWG | AMERICAN WIRE GAUGE | FB | FLOOR BOX | MTD | MOUNTED | SW | SWITCH |
| BMCS | BUILDING MANAGEMENT CONTROL SYSTEMS | FL | FLOOR | MTG | MOUNTING | SWBD | SWITCHBOARD |
| BLDG | BUILDING | FLA | FULL LOAD AMPS | N1 | NEMA 1 ENCLOSURE | SWGR | SWITCHGEAR |
| C | CONDUIT | FT | FEET | N3R | NEMA 3R ENCLOSURE | TELECOM | TELECOMMUNICATIONS |
| CATV | CABLE TELEVISION | FSAE | FIRE SERVICE ACCESS ELEVATOR | N4X | NEMA 4X ENCLOSURE | TEMP | TEMPERATURE |
| CB | CIRCUIT BREAKER | GALV | GALVANIZED | NC | NORMALLY CLOSED | TTB | TELEPHONE TERMINAL BOARD |
| CCTV | CLOSED CIRCUIT TELEVISION | GC | GENERAL CONTRACTOR | NIC | NOT IN CONTRACT | TV | TELEVISION |
| CKT | CIRCUIT | GEC | GROUNDING ELECTRODE CONDUCTOR | NO | NORMALLY OPEN | TYP | TYPICAL |
| CL | CENTER LINE | GEN | GENERATOR | NTS | NOT TO SCALE | UG | UNDERGROUND |
| CLG | CEILING | GFCI | GROUND FAULT CIRCUIT INTERRUPTER | OC | ON CENTER | UNO | UNLESS NOTED OTHERWISE |
| CRAC | COMPUTER RM AIR CONDITIONER | GND | GROUND | OFCI | OWNER FURNISHED CONTRACTOR INSTALLED | UPS | UNINTERRUPTIBLE POWER SUPPLY |
| DIA | DIAMETER | HP | HORSEPOWER | PB | PULLBOX | VA | VOLT-AMPS |
| DISC | DISCONNECT | HZ | HERTZ | PBB | PRIMARY BONDING BUSBAR | W | WATT |
| DIST | DISTRIBUTION | IC | INTERCOM | PDU | POWER DISTRIBUTION UNIT | XFMR | TRANSFORMER |
| DN | DOWN | JB | JUNCTION BOX | PERP | PERPENDICULAR | | |
| DWG | DRAWING | KCMIL | THOUSAND CIRCULAR MILS | PIV | POST INDICATOR VALVE | | |
| EC | ELECTRICAL CONTRACTOR | KV | KILOVOLT | PNL | PANEL | | |
| EGB | ELECTRICAL GROUND BAR | KVA | KILOVOLT AMPERE | PWR | POWER | | |
| | | KW | KILOWATT | | | | |

## GENERAL NOTES

A. INSTALL GREEN INSULATED GROUND WIRE WITH EACH LIGHTING, RECEPTACLE, AND EQUIPMENT BRANCH CIRCUIT.

B. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT REQUIRING A NEUTRAL, UNLESS OTHERWISE NOTED.

C. IN FINISHED AREAS WITH EXPOSED STRUCTURE, COORDINATE ROUTING OF CONDUITS AT STRUCTURE WITH ARCHITECT. CONCEAL CONDUITS FROM VIEW AS MUCH AS POSSIBLE. CONDUIT SHALL NOT BE ROUTED PERPENDICULAR TO BOTTOM CHORD OF STRUCTURE.

D. INSTALL CONDUIT AND BOXES LOCATED NEAR METAL ROOF DECKS SO THAT THE NEAREST OUTER SURFACE OF THE CONDUIT OR BOX IS NOT LESS THAN 2 INCHES FROM THE NEAREST SURFACE OF THE ROOF DECKING. PROVIDE SPACERS AND SUPPORTS AS REQUIRED. RIGID METAL CONDUIT AND INTERMEDIATE METAL CONDUIT ARE NOT REQUIRED TO MAINTAIN THIS CLEARANCE.

E. REPAIR OR REPLACE BUILDING ELEMENTS THAT ARE DAMAGED AS PART OF ELECTRICAL WORK.

F. SPECIFICATIONS LIST ACCEPTABLE WIRING METHODS AND MATERIALS. OTHER WIRING METHODS AND MATERIALS NOT LISTED IN THE SPECIFICATIONS (SUCH AS MC CABLE, ETC.) ARE NOT ACCEPTABLE.

G. SEAL ELECTRICAL PENETRATIONS IN MECHANICAL AND ELECTRICAL ROOMS ABOVE OCCUPIED SPACES TO REDUCE NOISE TRANSMISSION.

H. SEAL PENETRATIONS IN FIRE RATED CONSTRUCTION TO MAINTAIN RATINGS.

I. LABELING FOR PANELBOARD DIRECTORIES, FIRE ALARM PANEL PROGRAMMING, ETC., SHALL USE ROOM NUMBERS ASSIGNED BY OWNER AND NOT ROOM NUMBERS LISTED ON DRAWINGS. LABELS ON PANELBOARD DIRECTORY SHALL INCLUDE A DESCRIPTION OF LOAD SUCH AS LIGHTS, RECEPTACLES, MECHANICAL UNIT LOCATIONS, ETC.

## POWER GENERAL NOTES:

A. PROVIDE POWER CONNECTION TO CONTROL PANELS, TRANSFORMERS AND OTHER ITEMS FURNISHED BY MECHANICAL CONTRACTOR. COORDINATE LOCATIONS OF DEVICES REQUIRING POWER CONNECTIONS WITH MECHANICAL CONTRACTOR.

## DEMOLITION NOTES:

A. THE OWNER SHALL HAVE FIRST SALVAGE RIGHTS TO ALL FIXTURES, DEVICES AND EQUIPMENT REMOVED. COORDINATE WITH OWNER PRIOR TO DEMOLITION.

B. WHERE EXISTING CIRCUITS ARE NOT REUSED, REMOVE CONDUCTORS AND ASSOCIATED ACCESSIBLE RACEWAYS BACK TO THE SOURCE. WHERE AN EXISTING DEVICE IS REMOVED FROM AN EXISTING CIRCUIT, PROVIDE NEW WIRING AS REQUIRED TO MAINTAIN CONTINUITY OF EXISTING CIRCUIT, UNLESS NOTED OTHERWISE. ABANDON CONCEALED CONDUITS IN WALLS WHICH ARE NOT REMOVED. WHERE AN EXISTING RACEWAY TO BE REMOVED IS STUBBED FROM A CONCRETE FLOOR OR WALL, CHISEL 2 INCHES BELOW SURFACE OF FLOOR, CUT CONDUIT, AND GROUT FLOOR TO MATCH ADJACENT SURFACE. PROVIDE BLANK PLATES FOR ABANDONED BOXES.

C. REPAIR OR REPLACE BUILDING ELEMENTS WHICH ARE DAMAGED AS PART OF DEMOLITION WORK.

D. DEMOLITION DRAWINGS INDICATE FIXTURES, DEVICES AND MAJOR PIECES OF EQUIPMENT WHICH ARE TO BE REMOVED OR RECONNECTED. REMOVE INDICATED ITEMS AND ASSOCIATED ITEMS NOT INDICATED BUT WHICH MUST BE REMOVED TO ACCOMMODATE REMODELING. THE ITEMS INDICATED SPECIFICALLY ON THE DRAWINGS TO BE REMOVED ARE ONLY TO INDICATE IN GENERAL TO THE CONTRACTOR THE AMOUNT OF DEMOLITION WORK REQUIRED. THE CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE EXTENT OF DEMOLITION REQUIRED AND SHALL BECOME FAMILIAR WITH EXISTING CONDITIONS PRIOR TO THE BID DATE. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

E. ABANDON CONCEALED CONDUITS WHERE WALLS ARE NOT REMOVED. REUSE CONDUITS WHERE POSSIBLE. DEMOLITION IS NOT INDICATED ON THE ELECTRICAL DRAWINGS. THE CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE EXTENT OF DEMOLITION REQUIRED AND SHALL BECOME FAMILIAR WITH EXISTING CONDITIONS PRIOR TO THE BID DATE. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

F. DISCONNECT MECHANICAL EQUIPMENT BEING REMOVED BY MECHANICAL CONTRACTOR. COORDINATE EQUIPMENT REMOVAL LOCATIONS WITH MECHANICAL DRAWINGS.

G. POWER TO EXISTING AREAS NOT BEING REMODELED SHALL BE MAINTAINED AT ALL TIMES EXCEPT FOR SHORT TERM OUTAGES NECESSARY FOR RECONNECTION OF EXISTING CIRCUITS. COORDINATE AND SCHEDULE OUTAGES WITH THE OWNER.

H. COORDINATE DEMOLITION WITH THE WORK OF OTHER TRADES. PROVIDE TEMPORARY POWER AS REQUIRED TO ALLOW THE WORK OF OTHER TRADES TO PROCEED OR AS REQUIRED TO ALLOW THE OWNER TO OCCUPY THE SPACE.

I. MODIFY FIRE ALARM SYSTEM CONFIGURATION, PROGRAMMING, ETC. AS REQUIRED FOR REMOVED OR RELOCATED DEVICES.

J. REMOVE DEMOLISHED ITEMS FROM PROJECT SITE. PROPERLY DISPOSE OF ITEMS INCLUDING LAMPS AND BALLASTS.


Alvine
1201 Cass st.
Omaha, NE 68102
402.346.7007


CITY OF HASTINGS

NORTH DENVER STATION
CONTROL ROOM HVAC REPLACEMENT

1228 NORTH DENVER AVENUE
HASTINGS, NEBRASKA

PROFESSIONAL ELECTRICAL ENGINEER
SAMUEL J. HABERMAN
E-14224
STATE OF NEBRASKA

CA-2169 09/05/2025

| | | |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


© COPYRIGHT 2025 Permission to reproduce all or part of this Drawing is hereby granted solely for the limited purpose of construction of this project or for archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine is prohibited by copyright law.


NOTE:

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, shop and other appropriate drawing or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

ALVINE PROJECT NUMBER
20241598

DATE:
09/05/2025

ISSUE:
CONSTRUCTION DOCUMENTS

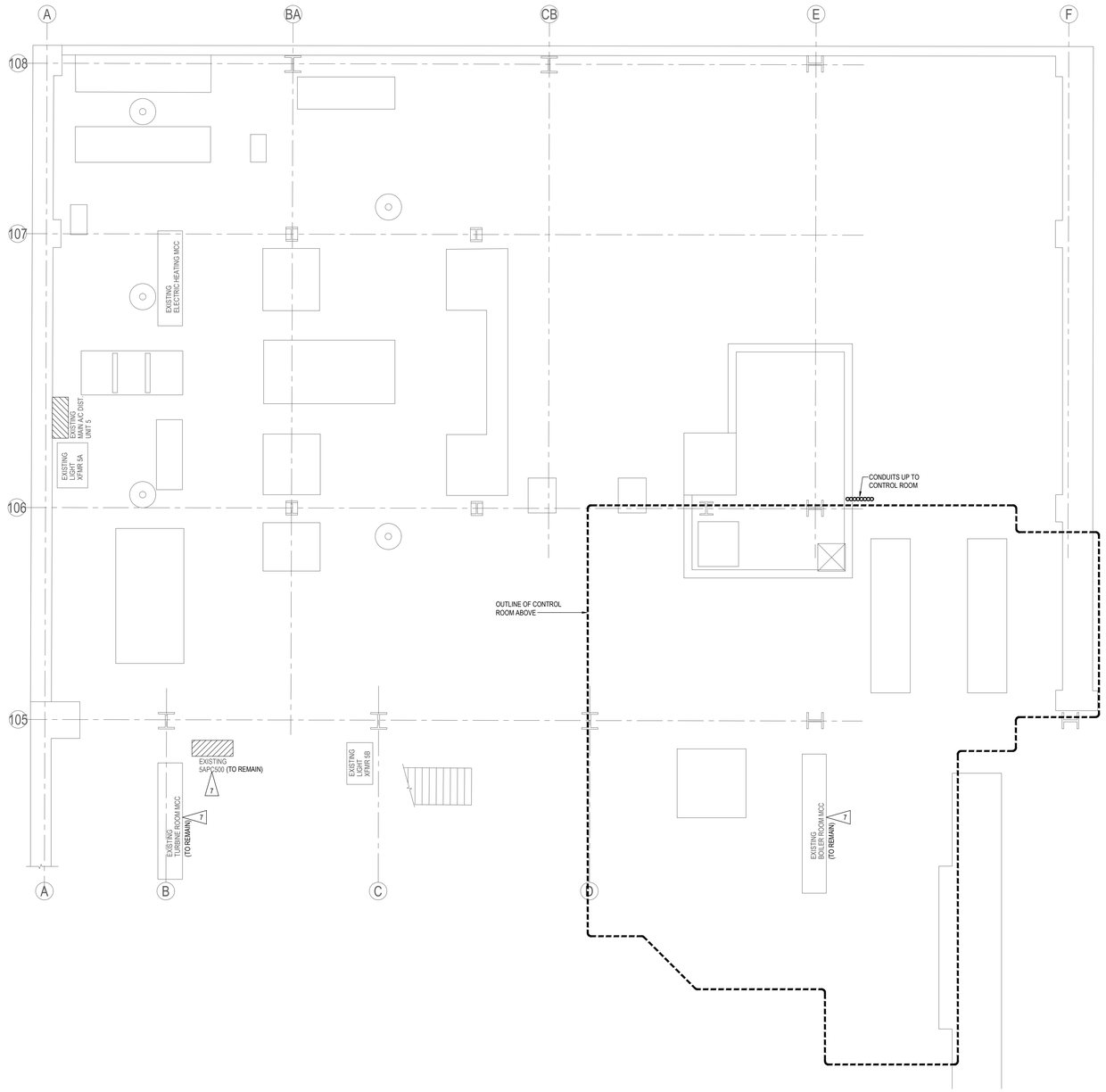
SHEET NAME:
ELECTRICAL SYMBOLS, NOTES, AND ABBREVIATIONS

SHEET NO.:
E0-0


September 5, 2025 10:17 AM Josh Konen

## FLAG NOTES

1. DISCONNECT POWER TO AHU-2 DUCT HEATER AND HUMIDIFIER. REMOVE DISCONNECT, RACEWAY AND CONDUCTORS TO SOURCE. DUCT HEATER AND HUMIDIFIER ARE FED FROM BASEMENT 480V TURBINE ROOM MCC BUCKET 5-3B.
2. DISCONNECT POWER TO AHU-2 STARTER. REMOVE DISCONNECT, RACEWAY AND CONDUCTORS TO SOURCE. STARTER IS FED FROM BASEMENT PANEL 5APC500.
3. DISCONNECT POWER TO CU-2A AND CU-2B. REMOVE DISCONNECT, RACEWAY AND CONDUCTORS TO SOURCE. BOTH CONDENSING UNITS ARE FED FROM 480V TURBINE ROOM MCC BUCKET 5-3A.
4. DISCONNECT POWER TO AHU-1 DUCT HEATER AND HUMIDIFIER. REMOVE DISCONNECT, RACEWAY AND CONDUCTORS TO SOURCE. DUCT HEATER AND HUMIDIFIER ARE BOTH FED FROM 480V BOILER ROOM MCC BUCKET 6-2A.
5. DISCONNECT POWER TO AHU-1 STARTER. REMOVE DISCONNECT, RACEWAY AND CONDUCTORS TO SOURCE. STARTER IS FED FROM 480V BOILER ROOM MCC BUCKET 4-3A.
6. DISCONNECT POWER TO CU-1. REMOVE DISCONNECT, RACEWAY AND CONDUCTORS TO SOURCE. CONDENSING UNIT IS FED FROM 480V BOILER ROOM MCC BUCKET 6-2B.
7. SEE SCHEDULES AND RISERS ON SHEET E2-0 FOR MORE INFORMATION.
8. DISCONNECT POWER TO HUMIDIFIER AND CONTROLS. REMOVE ASSOCIATED CONDUIT AND WIRING.



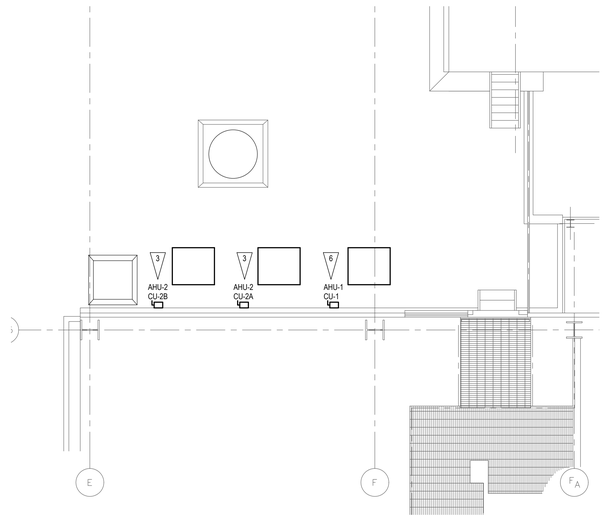

PARTIAL BASEMENT FLOOR PLAN - ELECTRICAL LOCATION PLAN

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




PARTIAL MEZZANINE PLAN - ELECTRICAL DEMOLITION

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




PARTIAL ROOF PLAN - ELECTRICAL DEMOLITION

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


Alvine
1201 Cass st.
Omaha, NE 68102
402.346.7007


CITY OF HASTINGS

# NORTH DENVER STATION CONTROL ROOM HVAC REPLACEMENT

1228 NORTH DENVER AVENUE
HASTINGS, NEBRASKA

PROFESSIONAL ELECTRICAL ENGINEER
SAMUEL J. HABERMAN
E-14224
STATE OF NEBRASKA
CA-2169 09/05/2025


© COPYRIGHT 2025 Permission to reproduce all or part of this Drawing is hereby granted solely for the limited purpose of construction of this project or for archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine is prohibited by copyright law.


NOTE:

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, shop and other appropriate drawing or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

ALVINE PROJECT NUMBER
20241598

DATE:
09/05/2025

ISSUE:
CONSTRUCTION DOCUMENTS

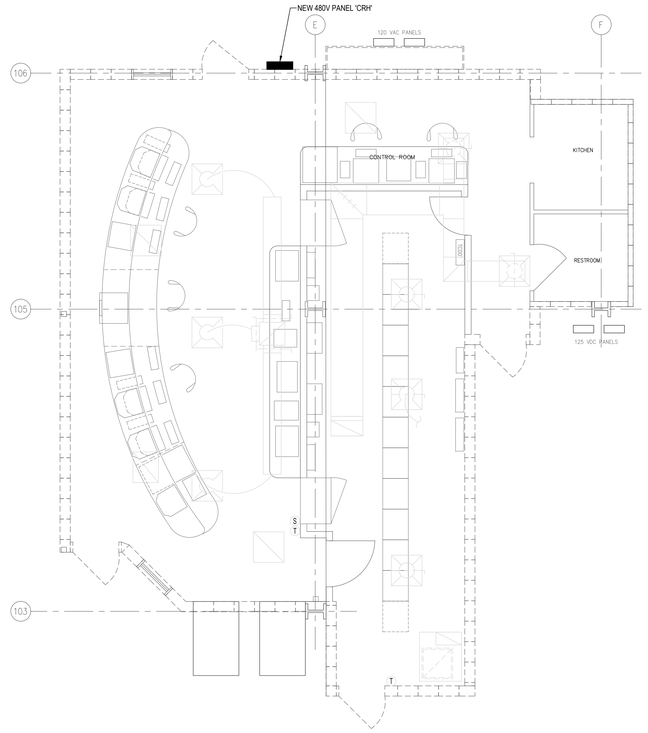
SHEET NAME:
PARTIAL FLOOR PLANS - ELECTRICAL DEMOLTION

SHEET NO.:
E0-1


September 5, 2025 10:17 AM Joel Konwin

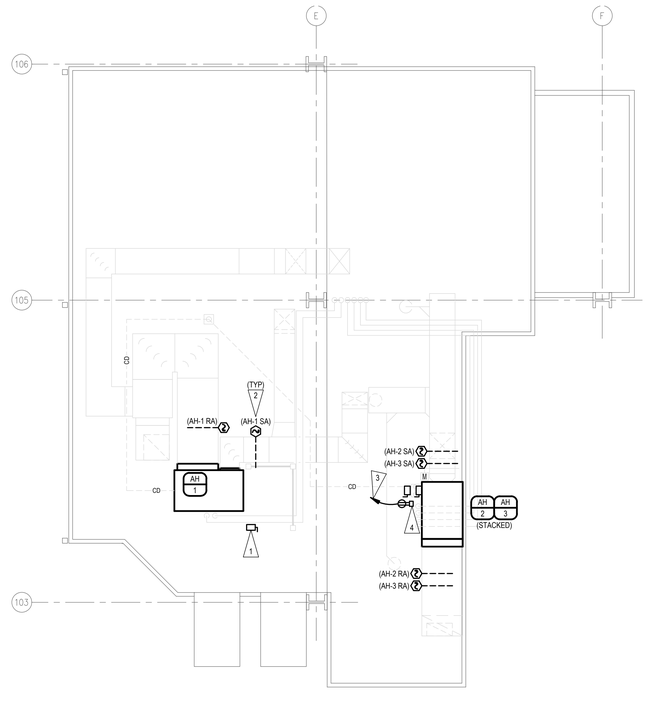
FLAG NOTES

1. MOUNT DISCONNECT ON UNISTRUT FRAME WORK. TOP OF DISCONNECT SHALL BE MOUNTED LOW ENOUGH TO CLEAR CRANE.
2. PROVIDE DUCT DETECTORS AND RELAYS TO SHUTDOWN UNITS AS REQUIRED. PROVIDE PROGRAMMING FOR NEW DEVICES TO TIE INTO EXISTING SIEMENS FIRE ALARM SYSTEM. NEW DEVICES TO MATCH EXISTING.
3. CONNECT TO NEARBY EXISTING 120V RECEPTACLE CIRCUIT.
4. PROVIDE UNISTRUT RACKING FOR DISCONNECTS AND RECEPTACLE. LOCATE RECEPTACLE NEAR CONDENSATE PUMP. COORDINATE WITH MECHANICAL CONTRACTOR.



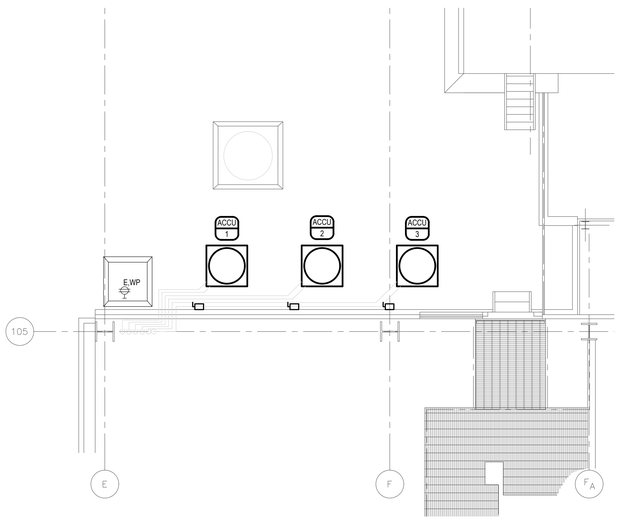

PARTIAL GROUND FLOOR PLAN - ELECTRICAL NEW WORK

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




PARTIAL MEZZANINE PLAN - ELECTRICAL NEW WORK

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




PARTIAL ROOF PLAN - ELECTRICAL NEW WORK

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


Alvine
1201 Cass st.
Omaha, NE 68102
402.346.7007


CITY OF HASTINGS

# NORTH DENVER STATION CONTROL ROOM HVAC REPLACEMENT

1228 NORTH DENVER AVENUE
HASTINGS, NEBRASKA

PROFESSIONAL ELECTRICAL ENGINEER
SAMUEL J. HABERMAN
E-14224
STATE OF NEBRASKA
CA-2169 09/05/2025


© COPYRIGHT 2025 Permission to reproduce all or part of this Drawing is hereby granted solely for the limited purpose of construction of this project or for archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine is prohibited by copyright law.


NOTE:

DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, shop and other appropriate drawing or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

ALVINE PROJECT NUMBER
20241598

DATE:
09/05/2025

ISSUE:
CONSTRUCTION DOCUMENTS

SHEET NAME:
PARTIAL FLOOR PLANS - ELECTRICAL NEW WORK

SHEET NO.:
E1-0


September 5, 2025 10:18 AM Joe Koven

## PANEL 5APC500 - EXST

480V 3 PHASE 3 WIRE W/ GND BAR — SURFACE MOUNTED — EXISTING SIEMENS TYPE S4
400 AMP MLO
10000 AMPS AVAIL FAULT
30 POLES ONE SECTION

| DESCRIPTION | LOAD VA | REMARKS | O/C | CKT # | PH | CKT # | O/C | REMARKS | LOAD VA | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|
| HTR 5-A | | | 15/3 | 1 | A | 2 | 15/3 | | | HTR 5-B |
| – | | | – | 3 | B | 4 | – | | | – |
| – | | | – | 5 | C | 6 | – | | | – |
| HTR 5-C | | | 15/3 | 7 | A | 8 | 15/3 | | | HTR 5-D |
| – | | | – | 9 | B | 10 | – | | | – |
| – | | | – | 11 | C | 12 | – | | | – |
| UNIT 5 UPS FEED | | | 35/3 | 13 | A | 14 | 15/3 | | | HTR 5-B TO HTR 5-C BLK VLV |
| – | | | – | 15 | B | 16 | – | | | – |
| – | | | – | 17 | C | 18 | – | | | – |
| AHU-2 STARTER – CONTROL RM | | 1 | 20/3 | 19 | A | 20 | 15/3 | | | HTR 5-D TO HTR 5-C BLK VLV |
| – | | | – | 21 | B | 22 | – | | | – |
| – | | | – | 23 | C | 24 | – | | | – |
| SPARE | | OFF | 20/3 | 25 | A | 26 | – | | | SPACE |
| – | | | – | 27 | B | 28 | – | | | – |
| – | | | – | 29 | C | 30 | – | | | – |
| | | | | | | | | | | |

REMARKS
1. DISCONNECT LOAD FROM CIRCUIT BREAKER. PROVIDE NEW NAMEPLATE WITH LABEL "SPARE".

## PANEL CRH

480V 3 PHASE 3 WIRE W/ GND BAR — SURFACE MOUNTED
100 AMP MCB — INTEGRAL SPD
10000 AIC
30 POLES ONE SECTION

| DESCRIPTION | LOAD VA | REMARKS | O/C | CKT # | PH | CKT # | O/C | REMARKS | LOAD VA | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|
| ACCU-1 | 7978 | | 20/3 | 1 | A | 2 | 20/3 | | 8560 | ACCU-2 |
| – | | | – | 3 | B | 4 | – | | | – |
| – | | | – | 5 | C | 6 | – | | | – |
| AH-1 | 20526 | | 35/3 | 7 | A | 8 | 15/3 | | 4071 | AH-2 |
| – | | | – | 9 | B | 10 | – | | | – |
| – | | | – | 11 | C | 12 | – | | | – |
| SPARE | | | 20/3 | 13 | A | 14 | 20/3 | | 8560 | ACCU-3 |
| – | | | – | 15 | B | 16 | – | | | – |
| – | | | – | 17 | C | 18 | – | | | – |
| SPARE | | | 15/3 | 19 | A | 20 | 15/3 | | 4079 | AH-3 |
| – | | | – | 21 | B | 22 | – | | | – |
| – | | | – | 23 | C | 24 | – | | | – |
| | | | | 25 | A | 26 | | | | |
| | | | | 27 | B | 28 | | | | |
| | | | | 29 | C | 30 | | | | |
| | | | | | | | | | | |

| LOAD TYPE | CONNECTED | DEMAND FACTOR | DEMAND | | | | |
|---|---|---|---|---|---|---|---|
| RECEPT | 0 | NEC | 0 | | | 46267 | EMD |
| LIGHTING | 0 | 125% | 0 | | | 9253 | 20% SPARE |
| MISC | 0 | 100% | 0 | | | 55520 | TOTAL VA |
| MTR/HTR | 20609 | 100% | 20609 | | | 67 | MIN. FEEDER AMPS |
| NONCONC | 12639 | 0% | 0 | | | | |
| LGST MTR | 20526 | 125% | 25657.5 | | | | |
| | | | | | | | |

## FEEDER AND BRANCH CIRCUIT SCHEDULE

| MARK | CONDUCTORS AND CONDUIT |
|---|---|
| | 3 WIRE PLUS GROUND |
| 20F3 | 3 #12, #12 GND. 1/2" C. |
| 30F3 | 3 #10, #10 GND. 1/2" C. |
| 40F3 | 3 #8, #10 GND. 3/4" C. |
| 100F3 | 3 #3, #8 GND. 1-1/4" C. |

## MECHANICAL / ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A | AMPS | C | COMBINATION STARTER AND SAFETY SWITCH | S | SWITCH | N1 | NEMA 1 |
| ENCL | ENCLOSURE | CB | CIRCUIT BREAKER | SF | SWITCH AND FUSTAT | N3R | NEMA 3R |
| HP | HORSEPOWER | CP | CONTROL PANEL | SS | SAFETY SWITCH | N4X | NEMA 4X |
| KW | KILOWATTS | C+P | CORD AND PLUG | T | LINE VOLTAGE THERMOSTAT | | |
| PH | PHASE | I | INTEGRAL WITH EQUIPMENT | VFC | VARIABLE FREQUENCY CONTROLLER | SCCR | SHORT CIRCUIT CURRENT RATING |
| V | VOLTAGE | NF | NON-FUSED | | | | |
| W | WATTS | OS | OCCUPANCY SENSOR | EC | ELECTRICAL CONTRACTOR | | |
| | | | | MC | MECHANICAL CONTRACTOR | | |

| EQUIPMENT | | | ELECTRICAL SYSTEM | | | | DISCONNECT | | | | LINE VOLTAGE CONTROLLER | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MARK | DESCRIPTION | LOAD | V | PH | FEEDER OR BRANCH CIRCUIT | PANEL - CIRCUIT | FURNISHED BY/ INSTALLED BY | TYPE | RATING (AMPS) | ENCL | FURNISHED BY/ INSTALLED BY | TYPE | ENCL | AVAILABLE FAULT CURRENT (AMPS) | REMARKS |
| ACCU-1 | CONDENSING UNIT | 11.8 MCA | 480 | 3 | 20F3 | CRH-1 | EC/EC | SS, NF | 30 | N3R | MC/– | – | – | <5,000 | 1 |
| AH-1 | AIR HANDLING UNIT | 30.9 MCA | 480 | 3 | 40F3 | CRH-7 | EC/EC | SS, NF | 60 | N1 | MC/– | – | – | – | 1 |
| ACCU-2 | CONDENSING UNIT | 12.6 MCA | 480 | 3 | 20F3 | CRH-2 | EC/EC | SS, NF | 30 | N3R | MC/– | – | – | <5,000 | 1 |
| AH-2 | AIR HANDLING UNIT | 6.1 MCA | 480 | 3 | 20F3 | CRH-8 | EC/EC | SS, NF | 30 | N1 | MC/– | – | – | – | 1 |
| ACCU-3 | CONDENSING UNIT | 12.6 MCA | 480 | 3 | 20F3 | CRH-14 | EC/EC | SS, NF | 30 | N3R | MC/– | – | – | <5,000 | 1 |
| AH-3 | AIR HANDLING UNIT | 6.1 MCA | 480 | 3 | 20F3 | CRH-20 | EC/EC | SS, NF | 30 | N1 | MC/– | – | – | – | 1 |

GENERAL NOTES:
A. VERIFY/COORDINATE RATINGS FOR EQUIPMENT SUPPLIED BY THE SELECTED MANUFACTURER. WHERE RATINGS ARE OTHER THAN AS REQUIRED FOR SPECIFIED UNIT, DISCONNECTS, MOTOR STARTERS, OVERCURRENT DEVICES AND RELATED REVISIONS SHALL BE PROVIDED ACCORDINGLY. THE CONTRACTOR THAT FURNISHES EQUIPMENT WITH RATINGS OTHER THAN AS NOTED SHALL BE RESPONSIBLE FOR COORDINATION AND COSTS FOR REVISIONS TO ACCOMMODATE SELECTED EQUIPMENT.
B. SHORT CIRCUIT CURRENT RATING (SCCR) OF EQUIPMENT SHALL BE EQUAL TO OR GREATER THAN THE AVAILABLE FAULT CURRENT LISTED. SHORT CIRCUIT CURRENT RATING APPLIES TO EQUIPMENT AND DISCONNECT.
C. FRACTIONAL HORSEPOWER SINGLE PHASE MOTORS SHALL BE PROVIDED WITH INTEGRAL OVERLOAD PROTECTION.
D. DISCONNECTS SHALL BE FUSIBLE UNLESS NOTED OTHERWISE.
E. ELECTRICAL CONTRACTOR SHALL PROVIDE CIRCUIT TO EQUIPMENT AS INDICATED.
F. WHERE DISCONNECT IS NOT INDICATED ON PLANS, LOCATE AT EQUIPMENT PER NEC.

REMARKS
1 PROVIDE CONTROL WIRING IN 1/2" CONDUIT BETWEEN INDOOR UNIT AND ASSOICATED OUTDOOR UNIT.

## TURBINE ROOM MCC (480V)

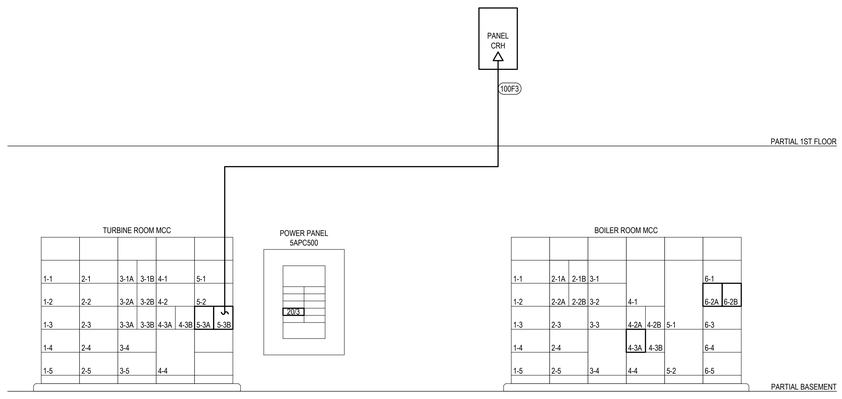
| BUCKET | DESCRIPTION | STATUS | AMPS | REMARKS |
|---|---|---|---|---|
| 1-1 | TURNING GEAR OIL PUMP | ON | 50 | |
| 1-2 | BEARING DRAIN EXHAUST | ON | 3 | |
| 1-3 | GLAND STEM COND EXHAUST | ON | 10 | |
| 1-4 | TURNING GEAR | ON | 5 | |
| 1-5 | VAPOR EXTRACTOR | ON | 3 | |
| 2-1 | WEST SCANNER AIR PUMP | ON | 10 | |
| 2-2 | TURBINE BASEMENT VENT FAN | ON | 40 | |
| 2-3 | TURBINE ROOM FAN NO 3 | ON | 10 | |
| 2-4 | TURBINE ROOM FAN NO 4 | ON | 10 | |
| 2-5 | UNASSIGNED | OFF - LOCKED | 10 | |
| 3-1A | UNKNOWN - VERIFY | ON | 70 | |
| 3-1B | TURBINE OIL PURIFIER HEATER | OFF - LOCKED | 40 | |
| 3-2A | AUX FEED UNIT AUX TRANSFORMER | ON | 15 | |
| 3-2B | TURBINE OIL PURIFIER | OFF - LOCKED | 15 | |
| 3-3A | OFFICE AIR CONDITIONER | ON | 40 | |
| 3-3B | SOUTH BATTERY CHARGER | OFF | 15 | |
| 3-4 | SOUTH ELECTRIC BOILER FEED PUMP | ON | 25 | |
| 3-5 | BLANK | - | - | |
| 4-1 | UNASSIGNED | OFF - LOCKED | 25 | |
| 4-2 | UNASSIGNED | OFF - LOCKED | 70 | |
| 4-3A | UNASSIGNED | OFF - LOCKED | 30 | |
| 4-3B | CONTROL PWR TRANSFORMER 5A | ON | 40 | |
| 4-4 | BLANK | - | - | |
| 5-1 | BLANK | - | - | |
| 5-2 | FEED FOR 5APC500 480V AC | ON | 100 | |
| 5-3A | CU 2A-2B COMPRESSORS | ON | 40 | 1,2 |
| 5-3B | AHU-2 CNTRL ROOM DUCT HEATER & HUM. | ON | 100 | 1,3,4 |

REMARKS
1. DISCONNECT EXISTING LOAD FROM BUCKET CIRCUIT BREAKER.
2. PROVIDE NEW NAMEPLATE, LABEL "SPARE".
3. CONNECT NEW PANEL TO EXISTING BUCKET CIRCUIT BREAKER. SEE POWER RISER DIAGRAM.
4. PROVIDE NEW NAMEPLATE, LABEL "480V PANEL CRH".

## BOILER ROOM MCC (480V)

| BUCKET | DESCRIPTION | STATUS | AMPS | REMARKS |
|---|---|---|---|---|
| 1-1 | AIR PREHEATER DRIVE | ON | 10 | |
| 1-2 | AIR HEATER LUBE OIL PUMP | ON | 3 | |
| 1-3 | AIR PREHEAT CLEANER | OFF - LOCKED | 3 | |
| 1-4 | SCANNER FAN 5-1 (EAST) | ON | 25 | |
| 1-5 | BLANK | - | - | |
| 2-1A | NORTH BATTERY CHARGER | ON | 15 | |
| 2-1B | UNASSIGNED | OFF - LOCKED | 15 | |
| 2-2A | #2 AUX #5 MAIN PWR XFMR | ON | 70 | |
| 2-2B | AUX FEED RESER. AUX. XFMR | ON | 5 | |
| 2-3 | TURBINE ROOM FAN NO 1 | ON | 10 | |
| 2-4 | TURBINE ROOM FAN NO 2 | ON | 10 | |
| 2-5 | EAST CHEMICAL PUMP | ON | 3 | |
| 3-1 | WEST CHEMICAL PUMP | ON | 3 | |
| 3-2 | DEMINERALIZ. RECYCLING PUMP | OFF | 10 | |
| 3-3 | CAUSTIC PUMP | OFF | 3 | |
| 3-4 | ACID PUMP | OFF | 3 | |
| 4-1 | CONTROL PWR. DISTRIB. PANEL | - | - | |
| 4-2A | BLANK | OFF - LOCKED | 30 | |
| 4-2B | CONTROL PWR. TRANSF. 5B | ON | 40 | |
| 4-3A | AHU-1 FAN MOTOR | ON | 30 | 1 |
| 4-3B | AIR DRYER | OFF | 30 | |
| 4-4 | AIR HEATER LUBE OIL CLR RADIATOR FAN | ON | 25 | |
| 5-1 | CONTROL PWR. AUTO-TRANS. SWITCH | - | - | |
| 5-2 | CONTROL PWR. TRANSF. 5B | - | - | |
| 6-1 | BLANK | - | - | |
| 6-2A | AHU-1 DUCT HEATER HUM. DCS ROOM | ON | 40 | 1 |
| 6-2B | CU-1 COMPRESSOR DCS ROOM | ON | 30 | 1 |
| 6-3 | BLANK | - | - | |
| 6-4 | BLANK | - | - | |
| 6-5 | BLANK | - | - | |

REMARKS
1. DISCONNECT EXISTING LOAD. PROVIDE NEW NAMEPLATE, LABEL "SPARE".




PARTIAL POWER RISER DIAGRAM — 1 / E2-1
NOT TO SCALE


Alvine
1201 Cass st.
Omaha, NE 68102
402.346.7007


CITY OF HASTINGS

# NORTH DENVER STATION CONTROL ROOM HVAC REPLACEMENT

1228 NORTH DENVER AVENUE
HASTINGS, NEBRASKA

PROFESSIONAL ELECTRICAL ENGINEER
SAMUEL J. HABERMAN
E-14224
STATE OF NEBRASKA
CA-2169 09/05/2025

| | | |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |


© COPYRIGHT 2025 Permission to reproduce all or part of this Drawing is hereby granted solely for the limited purpose of construction of this project or for archiving. Unauthorized copying, disclosure or construction use without written permission of Alvine is prohibited by copyright law.


NOTE:
DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS and clearances from ARCHITECTURAL, STRUCTURAL, shop and other appropriate drawing or at site. Lay out and coordinate all work prior to installation to provide clearances required for operation, maintenance, and codes and verify non-interference with other work. DO NOT FABRICATE PRIOR TO VERIFICATION OF CLEARANCE FOR ALL TRADES. READ SPECIFICATIONS.

ALVINE PROJECT NUMBER
20241598

DATE:
09/05/2025

ISSUE:
CONSTRUCTION DOCUMENTS

SHEET NAME:
ELECTRICAL SCHEDULES AND PARTIAL RISER DIAGRAM

SHEET NO.:
E2-0


September 5, 2025 10:18 AM Joe Kirven