

APPENDIX C.21
CASE 10-T-0139
SITE PLANS AND CONSTRUCTION DRAWINGS
MECHANICAL DRAWINGS – AUXILIARY ENCLOSURES
ASTORIA HVDC CONVERTER STATION
SEGMENT 22



A 3D perspective rendering of a large, rectangular industrial building, likely a power plant or refinery. The building features a flat roof with several smaller structures, including what appears to be a control room or office building on the right side. The building is surrounded by a dark, irregularly shaped area representing the ground or water. The rendering is in a grayscale, wireframe-like style, showing the structural details of the building and its surroundings.

| | |
|-----------------------------------|------------|
| DATE | 12/12/2022 |
| PROJECT NO | 105121 |
| DRAWING BY | V. PATEL |
| CHECKED BY | E. KIDANE |
| DRAWING NO | M-001.00 |
| CADD FILE NO | |
| Autodesk Docs: iCtPE | |
| Autodesk iCtPE-001-00-M3H-001.pdf | |

FL FLOOD

- FL-1. THE SITE IS DEFINED AS A ZONE (NON-COASTAL).
- FL-2. BASE FLOOD ELEVATION, BFE, = 13 FEET NAVD 88.
- FL-3. RECOMMENDED FREE BOARD BY THE 2022 NYCBC-APPENDIX G IS 2.0 FEET.
- FL-4. RECOMMENDED DESIGN FLOOD ELEVATION, DFE = 15 FEET NAVD 88.
- FL-5. THE STRUCTURE IS NOT SUBJECTED TO HYDRODYNAMIC LOADS.

| | |
|-----------------------------|-----------------|
| DESIGN ELEVATION / DEPTH | FEET IN NAVD 88 |
| DESIGN BASE FLOOD ELEVATION | 13.0 |
| FINISH FLOOR ELEVATION | 15.0 |
| SEA LEVEL RISE | NOT CONSIDERED |



DRAWING LIST MECHANICAL

| SHEET NUMBER | SHEET NAME |
|--------------|--|
| 02-MECH | |
| M-001.00 | COVER SHEET |
| M-002.00 | SHEET INDEX |
| M-003.00 | OVERALL HVAC SITE PLAN |
| M-004.00 | HVAC GENERAL NOTES, SYMBOLS, LEGENDS & ABBREVIATIONS |
| M-116.00 | MVS ENCLOSURE - HVAC PLAN |
| M-117.00 | RELAY ENCLOSURE HVAC - PLAN |
| M-118.00 | STORAGE ENCLOSURE - HVAC PLAN |
| M-202.00 | HVAC - CONTROL DIAGRAMS |
| M-600.00 | HVAC - DETAILS |
| M-601.00 | HVAC - DETAILS |
| M-602.00 | HVAC - DETAILS |
| M-603.00 | HVAC - DETAILS |
| M-604.00 | HVAC - DETAILS |
| M-605.00 | HVAC - DETAILS |
| M-606.00 | HVAC - DETAILS |
| M-700.00 | HVAC - SCHEDULES |
| M-701.00 | HVAC - SCHEDULES |
| M-705.00 | HVAC - BUILDING MANAGEMENT SYSTEM RISER DIAGRAM |

ISSUED FOR PERMIT

K Engineering and
Land Surveying, P.C.

370 7th Avenue
SUITE 1604
New York, NY 10001

**SOWINSKI
SULLIVAN**
—ARCHITECTURE+ENGINEERING—

25 Mohawk Avenue
Sparta, NJ 07871

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| B | FINAL SUBMISSION | WP | SD | 12-12-22 |
| A | INTERIM SUBMISSION | WP | AZ | 09-13-22 |
| REV | DESCRIPTION | DRW BY | CHK BY | DATE |



Kiewit

470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677



Hitachi Energy

901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson
Power Express

**Astoria HVDC
Converter Station**

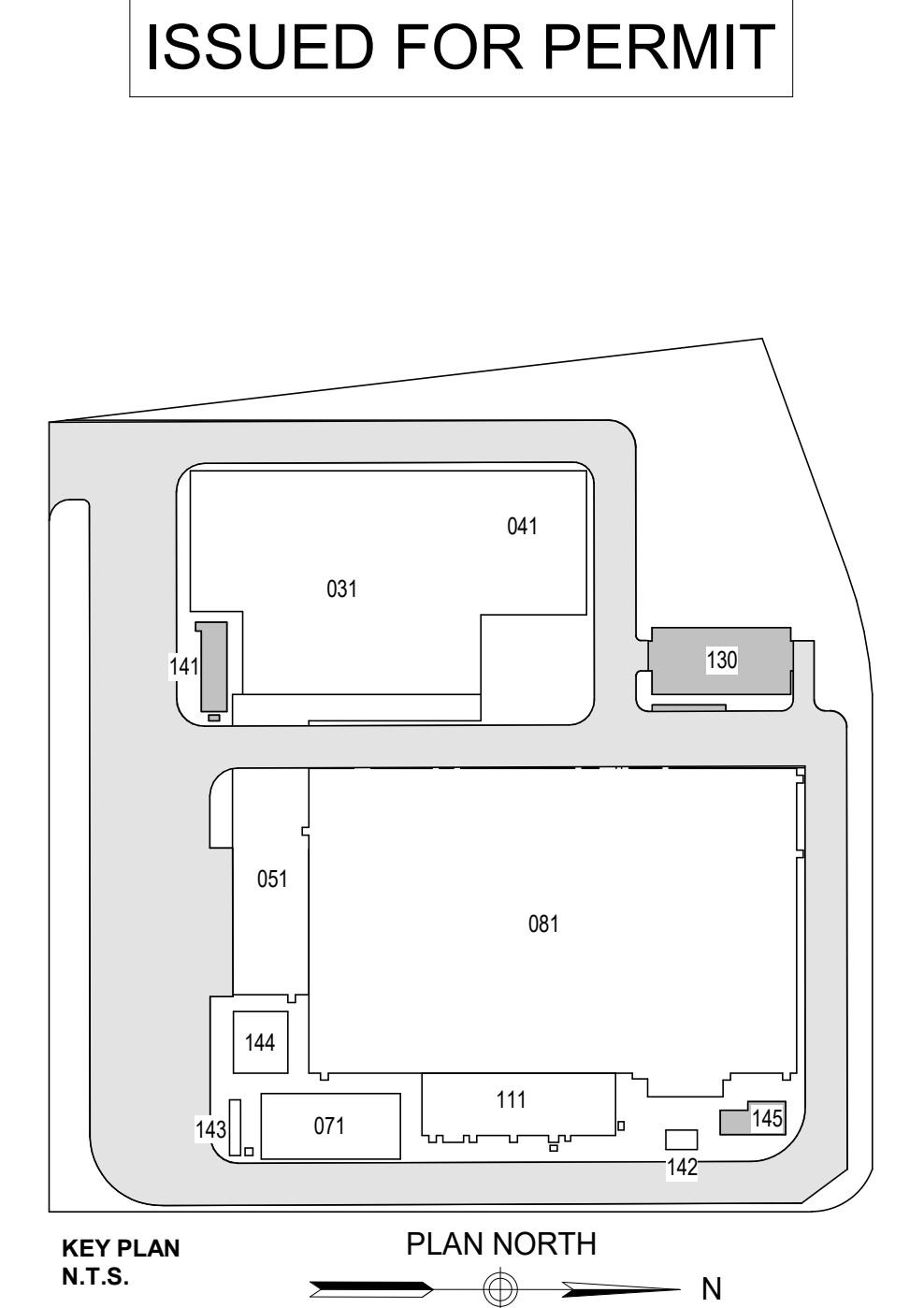
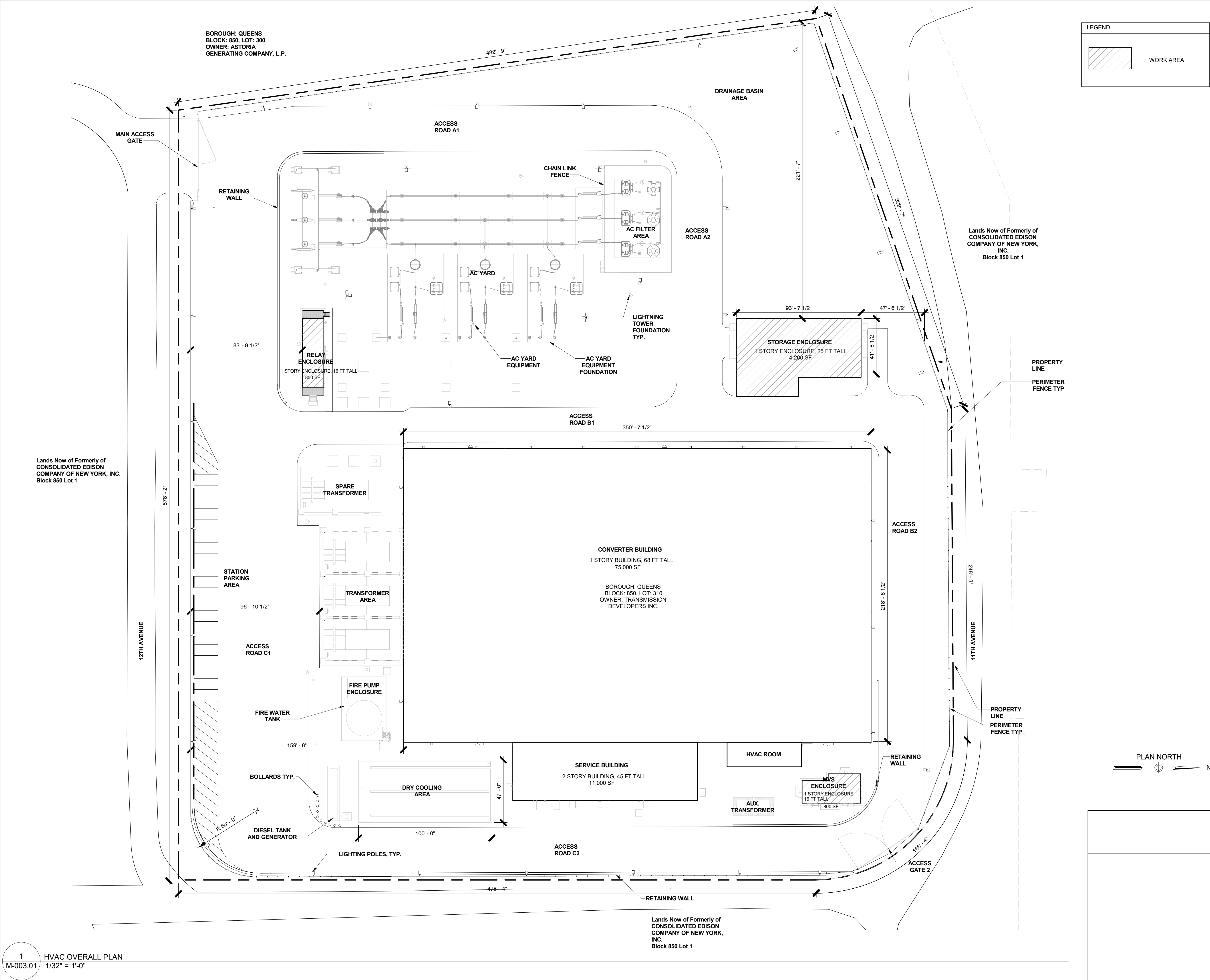
31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

SHEET INDEX



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|--------------|--|
| DATE | 12/12/2022 |
| PROJECT NO | 105121 |
| DRAWING BY | W.PENDLETON |
| CHECKED BY | A.ZABOLOSTSKY |
| DRAWING NO | M-002-00 |
| CADD FILE NO | Astoria-HVDC-CHPE Astoria-CHA-KIE-081-00-M3-H-001.rvt |

12/7/2022 5:18:45 PM



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PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

OVERALL HVAC SITE PLAN

STATE OF NEW YORK
ALEXANDER ZABOLOTSKY
REGISTERED PROFESSIONAL ENGINEER
071371

DATE: 12/12/2022
PROJECT NO: 105121
DRAWING BY: Author
CHECKED BY: Designer
DRAWING NO: **M-003.00**
CADD FILE NO:
Astoria\CHA-KIE-081-00-M03-H-001.rvt

HVAC GENERAL NOTES

1.

THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF DUCTWORK, REFRIGERANT PIPING AND EQUIPMENT. DO NOT SCALE DRAWINGS. THE EXACT LOCATION AND ROUTING OF EQUIPMENT DUCTWORK, REFRIGERANT PIPING, ETC., UNLESS SPECIFICALLY DIMENSIONED ON THE DRAWINGS, SHALL BE DETERMINED IN THE FIELD. MAKE REASONABLE MODIFICATIONS IN THE INSTALLATION SO ALL DUCTWORK FITS PROPERLY AND EQUIPMENT CAN BE SERVICED.
2.

MATERIALS AND EQUIPMENT SHALL BE NEW AND INSTALLED AS INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS. THEY SHALL BE INSTALLED PLUMB, LEVEL AND TRUE-TO-LINE WITH ADJACENT WORK WHERE INSTALLATION METHODS ARE NOT SPECIFICALLY COVERED BY THE DRAWINGS AND/OR SPECIFICATION, FIRST CLASS TRADE PRACTICES AND MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS SHALL GOVERN.
3.

CAREFULLY EXAMINE ALL ARCHITECTURAL, STRUCTURAL, PLUMBING, HVAC, FIRE PROTECTION, AND ELECTRICAL DRAWINGS PERTAINING TO CONSTRUCTION. COOPERATE WITH OTHER TRADES IN LOCATING DUCTWORK, REFRIGERANT PIPING, EQUIPMENT, ETC. IN ORDER TO AVOID CONFLICT WITH OTHER TRADE'S WORK. NO CLAIM FOR COSTS WILL BE ALLOWED FORE RELOCATING EQUIPMENT, REFRIGERANT PIPING, DUCTWORK, ETC. WHICH INTERFERES WITH OTHER TRADE'S WORK.
4.

FABRICATION AND INSTALLATION OF DUCTWORK SHALL BE IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS, NYC MECHANICAL CODE AND APPLICABLE NFPA STANDARDS.
5.

ALL DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
6.

PROVIDE AIR TURNING VANES IN ALL SQUARE ELBOWS.
7.

REFER TO TYPICAL DETAILS FOR REFRIGERANT PIPING AND INSTALLATION OF EQUIPMENT.
8.

FURNISH ALL LABOR, MATERIAL, TOOLS, AND EQUIPMENT TO INSTALL ALL HVAC SYSTEMS AS INDICATED ON THESE DRAWINGS.
9.

ARRANGE AND PAY FOR MECHANICAL PERMITS AND INSPECTIONS AS REQUIRED BY LOCAL ORDINANCES.
10.

DELIVER MATERIALS TO PROJECT IN GOOD CONDITION. STORE MATERIALS OFF OF GROUND AND PROTECT FROM WEATHER AND THE ELEMENTS.
11.

VERIFY DIMENSIONS IN THE FIELD. VERIFY STRUCTURAL DETAILS BEFORE INSTALLING DUCTWORK. NO EXTRA COMPENSATION WILL BE CONSIDERED BECAUSE OF DIFFERENCE BETWEEN ACTUAL MEASURED DIMENSIONS AND THOSE INDICATED ON THE DRAWINGS.
12.

ALL PENETRATIONS THROUGH WALLS SHALL BE PROVIDED WITH PROPERLY SIZED SLEEVES. SEAL ALL PIPE SLEEVES WITH APPROPRIATE CAULKING. ALL SIX (6) INCH AND SMALLER PIPE PENETRATIONS THROUGH FIRE RATED WALLS AND/OR FLOORS SHALL BE INSTALLED IN ACCORDANCE WITH APPROPRIATE 3M FIRESTOP SYSTEM (OR APPROVED EQUAL). ALL PIPING SLEEVES SHALL BE SCHEDULE 40, CARBON STEEL, ASTM A53, GRADE B.
13.

ANY CUTTING OR PATCHING OF NEW SURFACES THAT IS REQUIRED SHALL BE REPLACED WITH MATERIAL OF THE SAME QUALITY AND THICKNESS AS THE EXISTING SURFACE. ANY DAMAGES TO EXISTING MATERIALS SHALL BE REPAIRED OR REPLACED TO MATCH EXISTING.
14.

ALL DUCTWORK SHALL BE IDENTIFIED AFTER INSULATION WITH PLASTIC DUCT SIGNAGE/MARKERS. THESE MARKERS SHALL BE THE MANUFACTURER'S STANDARD LAMINATED PLASTIC IN THE FOLLOWING COLOR CODES INDICATING BACKGROUND COLOR THEN LETTER COLOR:

a.

BLUE / WHITE: SUPPLY AIR

b.

RED / WHITE: RETURN AIR

c.

GREEN / WHITE: OUTSIDE AIR / INTAKE AIR

d.

YELLOW / BLACK: RELIEF AIR / EXHAUST AIR
15.

ENGAGE AN INDEPENDENT TESTING, ADJUSTING AND BALANCING (TAB) AGENT CERTIFIED BY EITHER AABC OR NEBB FOR ALL TESTING, ADJUSTING AND BALANCING. SEE THE TAB SPECIFICATION FOR MORE INFORMATION.
16.

ALL MECHANICAL EQUIPMENT, REFRIGERANT PIPING AND DUCTWORK SHALL BE RESTRAINED TO RESIST SEISMIC FORCES PER THE LOCALE AS DICTATED BY THE LOCAL AND STATE AUTHORITIES. RESTRAINTS SHALL MAINTAIN EQUIPMENT, REFRIGERANT PIPING AND DUCTWORK IN A CAPTIVE POSITION. RESTRAINT DEVICES SHALL BE DESIGNED AND SELECTED TO MEET THE SEISMIC AS DEFINED IN THE LATEST ISSUE OF THE STATE BUILDING CODE OR LOCAL JURSDICTION BUILDING CODE.
17.

THE FINAL START-UP OF ALL HVAC EQUIPMENT SUPERVISED AND MONITORED BY A FACTORY AUTHORIZED TECHNICIAN.

EQUIPMENT SUBMITTAL NOTE:

ALL COORDINATED SUBMITTALS OF ALL HVAC INSTALLATION SHALL BE SUBMITTED FOR REVIEW. THIS SHALL BE DONE BEFORE THE INSTALLATION OF ANY PIPING / DUCTWORK OR EQUIPMENT. THE SUBMITTAL SHALL INCLUDE PIPE / DUCT ROUTING, SIZES, ELEVATIONS. THE DRAWINGS SHALL CONTAIN ALL THE INFORMATION NECESSARY FOR THE PROPER INSTALLATION OF THE JOB. THE SUBMITTAL SHALL BE COORDINATED WITH OTHER TRADES OR EQUIPMENT THAT MIGHT AFFECT THE INSTALLATION. THE DRAWINGS SHALL BE SUBMITTED AT A MIN. 3/8" SCALE OR AT A SCALE THAT IS EASILY LEGIBLE. THE DESIGN DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND ARE NOT INTENDED TO BE USED AS A SUBMITTAL. THEREFORE A COPY OF THE DESIGN DRAWING IS NOT ACCEPTABLE AS A SUBMITTAL. REFER TO SUBMITTAL PROCEDURES SPECIFICATION SECTION FOR ADDITIONAL INFORMATION. THE GENERAL CONTRACTOR SHALL SUBMIT A COORDINATED SUBMITTAL WHICH INCLUDES ALL THE TRADES. THIS INCLUDES GENERAL CONSTRUCTION, ELECTRICAL, HVAC, PLUMBING & STRUCTURAL TRADES. ALL CONFLICTS MUST BE IDENTIFIED ON THE COORDINATED SUBMITTAL.

REFERENCE SYMBOLS

| | |
|--|---|
| | DETAIL REFERENCE TOP DESIGNATES DETAIL NUMBER BOTTOM DESIGNATES SHEET NUMBER |
| | SECTION REFERENCE TOP DESIGNATES SECTION NUMBER BOTTOM DESIGNATES SHEET NUMBER |
| | ELEVATION SYMBOL |
| | EQUIPMENT NAME AND NUMBER |
| | PLAN NOTE NUMBER |
| | REVISION NUMBER |

REFRIGERANT PIPING

| | | |
|--|-----|-------------------------------------|
| | RL | REFRIGERANT LIQUID |
| | RS | REFRIGERANT SUCTION |
| | VRF | REFRIGERANT SUCTION AND LIQUID PIPE |

STANDARD ABBREVIATIONS

| | | | | | |
|--------|---------------------------------|--------|---------------------------|--------|------------------------|
| A | AMPS | F | FILTER | QTY | QUANTITY |
| AC | AIR CONDITIONING UNIT, | FAT | FINAL AIR TEMPERATURE | RA | RETURN AIR |
| | AIR COMPRESSOR | FBO | FURNISHED BY OTHERS | RC | REHEAT COIL |
| ACCU | AIR COOLED CONDENSING UNIT | FC | FLEXABLE CONNECTION | RCP | REFLECTED CEILING |
| ACU | AIR CONDITIONING UNIT | FCU | FAN COIL UNIT | | PLAN |
| AD | AIR DRYER, ACCESS DOOR | FCV | FLOW CONTROL VALVE | RF | RETURN FAN |
| ADA | AMERICANS WITH DISABILITIES ACT | FD | FIRE DAMPER, FLOOR DRAIN | RG | RETURN GRILLE |
| ADJ | ADJUSTABLE | FF | FINISHED FLOOR | RH | RELATIVE HUMIDITY, |
| AF | AIR FILTER | FFA | FROM FLOOR ABOVE | | RELIEF HOOD |
| AFC | ABOVE FINISHED CEILING | FFB | FROM FLOOR BELOW | RLA | RUNNING LOAD AMPS |
| AFF | ABOVE FINISHED FLOOR | FLA | FULL LOAD AMPS | RLFA | RELIEF AIR |
| AFG | ABOVE FINISHED GRADE | FLR | FLOOR | RMC | RIGID METAL CONDUIT |
| AHJ | AUTHORITY HAVING JURISDICTION | FPI | FINS PER INCH | RPM | REVOLUTIONS PER |
| AHU | AIR HANDLING UNIT | FPM | FEET PER MINUTE | | MINUTE |
| AL | ALUMINUM | FPS | FEET PER SECOND | RTU | ROOFTOP UNIT |
| AP | ACCESS PANEL | FSD | 3 HR FIRE/SMOKE DAMPER | | |
| APPROX | APPROXIMATELY | FT | FEET, FLASH TANK | | |
| ARCH | ARCHITECTURAL | | | S/S | STAINLESS STEEL |
| AS | AIR SEPARATOR | GAL | GALLON | SA | SUPPLY AIR |
| AT | AIR TERMINAL DEVICE | GALV | GALVANIZED | SD | SUCTION DIFFUSER, |
| ATL | ACROSS THE LINE | GC | GENERAL CONTRACTOR | | SMOKE DAMPER, |
| AVG | AVERAGE | GPH | GALLONS PER HOUR | | SMOKE DETECTOR |
| | | GPM | GALLONS PER MINUTE | SF | SUPPLY FAN |
| BMS | BUILDING MANAGEMENT SYSTEM | GV | GRAVITY VENTILATOR | SG | SUPPLY AIR GRILLE |
| BCO | BUILDING CLEAN OUT | | | SOV | SHUT OFF VALVE |
| BD | BALANCING DAMPER | H | HUMIDIFIER | SPEC | SPECIFICATION |
| BFF | BELOW FINISHED FLOOR | HC | HEATING COIL | SQ | SQUARE |
| BFG | BELOW FINISHED GRADE | HP | HORSEPOWER, HEAT PUMP | SQFT | SQUARE FEET |
| BLDG | BUILDING | HVAC | HEATING VENTILATION AND | STD | STANDARD |
| BOD | BOTTOM OF DUCT | | AIR CONDITIONING | | |
| BOP | BOTTOM OF PIPE | | HERTZ | T | TANK |
| BOS | BOTTOM OF STRUCTURE | HZ | | T STAT | THERMOSTAT |
| BTU | BRITISH THERMAL UNITS | IF | INLINE FAN | T&P | TEMPERATURE AND |
| BTUH | BRITISH THERMAL UNITS PER HOUR | | | | PRESSURE |
| BV | BALANCING VALVE | KV | KILOVOLT | TA | TRANSFER AIR |
| | | KVA | KILOVOLT-AMP | TBD | TO BE DETERMINED |
| CAT | CATEGORY | KW | KILOWATT | TEMP | TEMPERATURE |
| CAV | CONSTANT AIR VOLUME | | | TFA | TO FLOOR ABOVE |
| CC | COOLING COIL | LF | LINEAR FEET | TFB | TO FLOOR BELOW |
| CD | CONTROL DAMPER | LAT | LEAVING AIR TEMPERATURE | TG | TRANSFER GRILLE |
| CFM | CUBIC FEET PER MINUTE | LBR | POUNDS PER HOUR | TOB | TOP OF BEAM |
| CHV | CHECK VALVE | LVR | LOUVER | TOC | TOP OF CONCRETE |
| COND | CONDENSATE | | | TOP | TOP OF PIPE |
| CP | CONDENSATE PUMP | M | MOTOR | TOS | TOP OF SLAB |
| CPVC | CHLORINATED POLYVINYL CHLORIDE | MAU | MAKE-UP AIR UNIT | TP | TRAP PRIMER |
| CS | CARBON STEEL | MAX | MAXIMUM | TSP | TOTAL STATIC |
| CTR | CENTER | MBH | THOUSANDS OF BTU PER HOUR | | PRESSURE |
| CU | COPPER | MCO | MOTOR CONTROL CENTER | TTS | TIGHT TO STRUCTURE |
| CUH | CABINET UNIT HEATER | MD | MANUAL DAMPER | TYP | TYPICAL |
| | | MIN | MINIMUM | | |
| D | DAMPER | MOD | MOTOR OPERATED DAMPER | UIF | UNDERFLOOR |
| DB | DRY BULB | MUA | MAKE-UP AIR | UG | UNDERGROUND |
| DDC | DIRECT DIGITAL CONTROL | | | UH | UNIT HEATER |
| DEG | DEGREES | N/A | NOT APPLICABLE | UL | UNDERWRITERS |
| DIA | DIAMETER | NC | NORMALLY CLOSED, NOISE | | LABORATORIES |
| DN | DOWN | | CRITERIA | UV | UNIT VENTILATOR |
| DSD | DUCT SMOKE DETECTOR | NFPA | NATIONAL FIRE PROTECTION | | |
| DTG | DOOR TRANSFER GRILLE | NIC | NOT IN CONTRACT | V | VOLTS, VENTLINE, VALVE |
| DWG | DRAWING | NL | NIGHT LIGHT | VAV | VARIABLE AIR VOLUME |
| DX | DIRECT EXPANSION | NO | NORMALLY OPEN | VD | VOLUME DAMPER |
| | | NPS | NOMINAL PIPE SIZE | VFD | VARIABLE FREQUENCY |
| EA | EXHAUST AIR | NTS | NOT TO SCALE | DRIVE | |
| EAT | ENTERING AIR TEMPERATURE | | | VTR | VENT THRU ROOF |
| EF | EXHAUST FAN | OC | ON CENTER | | |
| EFF | EFFICIENCY | OA | OUTSIDE AIR | W/ | WITH |
| EG | EXHAUST GRILLE | OS | OCCUPANCY SENSOR | W/O | WITHOUT |
| EJ | EXPANSION JOINT | OSA | OCCUPATIONAL SAFETY AND | WB | WET BULB |
| ELEV | ELEVATION | | HEALTH ADMINISTRATION | WG | WATER GAUGE |
| EM | EMERGENCY | P | PUMP, PILOT LIGHT | WH | WATER HEATER |
| ESP | EXTERNAL STATIC PRESSURE | PD | PRESSURE DROP | WP | WEATHERPROOF |
| EUH | ELECTRIC UNIT HEATER | PH | PHASE | WR | WEATHER-RESISTANT |
| EXH | EXHAUST | PLBG | PLUMBING | | |
| | | PPH | POUNDS PER HOUR | XP | EXPLOSION PROOF |
| | | PROVID | FURNISH AND INSTALL | # | POUND OR NUMBER |
| | | PRV | PRESSURE RELIEF VALVE | & | AND |
| | | PSI | POUNDS PER SQUARE INCH | @ | AT |
| | | PSIA | POUNDS PER SQUARE INCH | +/- | PLUS OR MINUS |
| | | | ABSOLUTE | | |
| | | PSIG | POUNDS PER SQUARE INCH | | |
| | | | GAUGE | | |
| | | PVC | POLYVINYL CHLORIDE | | |

SHEET NOTES:

1.

REFER TO SHEETS A SERIES FOR ARCHITECTURAL DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
2.

REFER TO SHEETS E SERIES FOR BUILDING ELECTRICAL DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
3.

REFER TO SHEETS M SERIES FOR HVAC MECHANICAL DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
4.

REFER TO SHEETS P SERIES FOR PLUMBING DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
5.

REFER TO SHEETS S SERIES FOR BUILDING STRUCTURAL DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
6.

REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.

| | | | | | | | | | |
|--|-----------------------------------|--|-----------------------------------|--|-------------|--|---|--|---|
| | FAN, CENTRIFUGAL | | DAMPER, SHUT-OFF | | RECTANGULAR | | SUPPLY AIR DUCT OR AIR UNDER POSITIVE PRESSURE (CONDITIONED AIR) TURNING TOWARD/AWAY RESPECTIVELY | | DUCT SIZE TRANSITION FLAT ON ONE SIDE |
| | FAN CENTRIFUGAL WITH INLET VALVES | | DAMPER, CONTROL | | ROUND | | RETURN AIR/OUTSIDE AIR DUCT, AIR UNDER NEGATIVE PRESSURE (UNCONDITIONED AIR) TURNING TOWARD/AWAY RESPECTIVELY | | DUCT SIZE TRANSITION CONCENTRIC |
| | FAN PROPELLER OR VANEAXIAL | | BACKDRAFT DAMPER | | RECTANGULAR | | | | DUCT SIZE TRANSITION RECTANGULAR TO ROUND |
| | COIL, HEATING (ELECTRIC) | | DAMPER ACTUATOR | | ROUND | | | | TURNING VANES |
| | COIL, COOLING REFRIGERANT | | UNIT HEATER, HORIZONTAL DISCHARGE | | RECTANGULAR | | EXHAUST AIR DUCT, AIR UNDER NEGATIVE PRESSURE (UNCONDITIONED AIR) TURNING TOWARD/AWAY RESPECTIVELY | | ACCESS DOOR/ACCESS PANEL NEAR SIDE, FAR SIDE, AND SIDE OF DUCT RESPECTIVELY |
| | FLOW ARROW (DIRECT) | | FLOW ARROW (INDIRECT) | | ROUND | | RECTANGULAR DUCT SIZE FIRST NUMBER IS SIDESHOWN | | SPLITTER DAMPER |
| | FILTER, PREFILTER (THROWAWAY) | | THERMOSTAT | | 8" DIA | | ROUND DUCT DIMENSION | | CEILING SUPPLY DIFFUSER |
| | AIR MONITOR STATION | | TEMPERATURE TRANSMITTER | | 30"X20" | | OVAL DUCT DIMENSION FIRST DIMENSION IS SIDE SEEN. | | RETURN INLET, GRILLE OR REGISTER |
| | FILTER, FINAL | | HUMIDISTAT | | 12"X24" | | RECTANGULAR DUCT IN SECTION. FIRST NUMBER IS ARROW SIDE. | | EXHAUST INLET, GRILLE OR REGISTER |
| | LOUVER | | FREEZESTAT | | 20"X30" | | OVAL DUCT IN SECTION FIRST NUMBER IS ARROW SIDE. | | SUPPLY OUTLET, REGISTER OR GRILLE IN DUCTWORK (SIDE OR BOTTOM) |
| | DOOR LOUVER | | STATIC PRESSURE SENSOR | | | | INTERNALLY LINED DUCT | | RETURN INLET, REGISTER OR GRILLE IN DUCTWORK (SIDE OR BOTTOM) |
| | | | HVAC EMERGENCY SHUTOFF | | | | DROP IN ELEVATION OF DUCT (IN DIRECTION OF FLOW) | | EXHAUST INLET, REGISTER OR GRILLE IN DUCTWORK (SIDE OR BOTTOM) |
| | | | SMOKE DETECTOR | | | | RISE IN ELEVATION OF DUCT (IN DIRECTION OF FLOW) | | ROOF SUPPLY OR EXHAUST FAN |
| | | | | | | | DUCT TRANSITION FLAT ON BOTTOM | | VOLUME DAMPER (VD) |
| | | | | | | | DUCT TRANSITION FLAT ON TOP | | FIRE DAMPER (FD) W/ HOUR RATING |
| | | | | | | | MOTOR OPERATED DAMPER (MOD) HORIZONTAL DUCT | | MOTOR OPERATED DAMPER (MOD) VERTICAL DUCT |

ISSUED FOR PERMIT

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Converter Station

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Block #850 - Lot #310 - BIN #4624437

HVAC GENERAL NOTES, SYMBOLS, LEGENDS & ABBREVIATIONS

DATE

12/12/2022

PROJECT NO

105121

DRAWING BY

W.PENDLETON

CHECKED BY

A.ZABOLOTSKY

DRAWING NO

M-004.00

CADD FILE NO

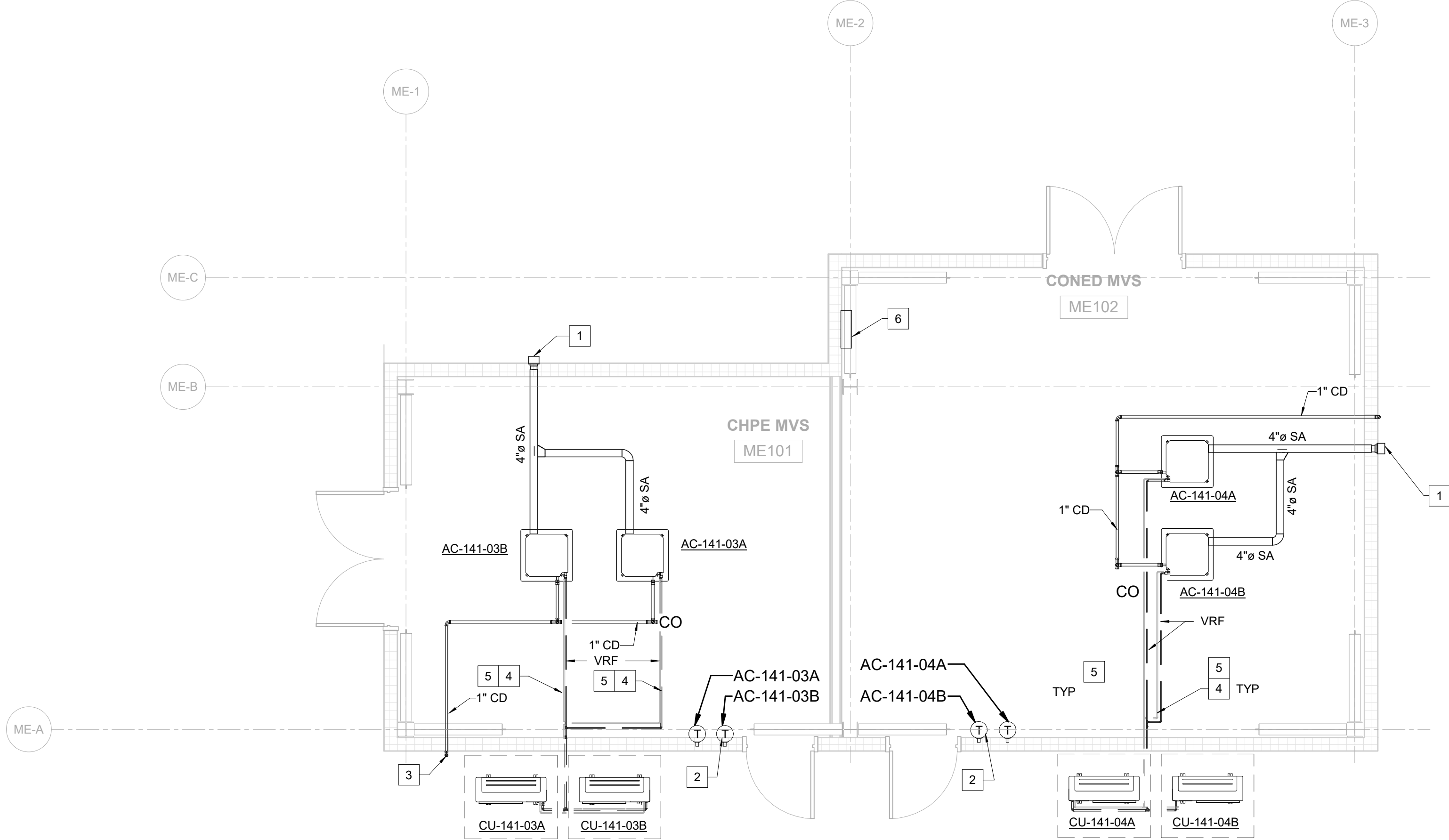
Astoria CHA-KIE-081-00-M04-H-001.rvt

SHEET NOTES:

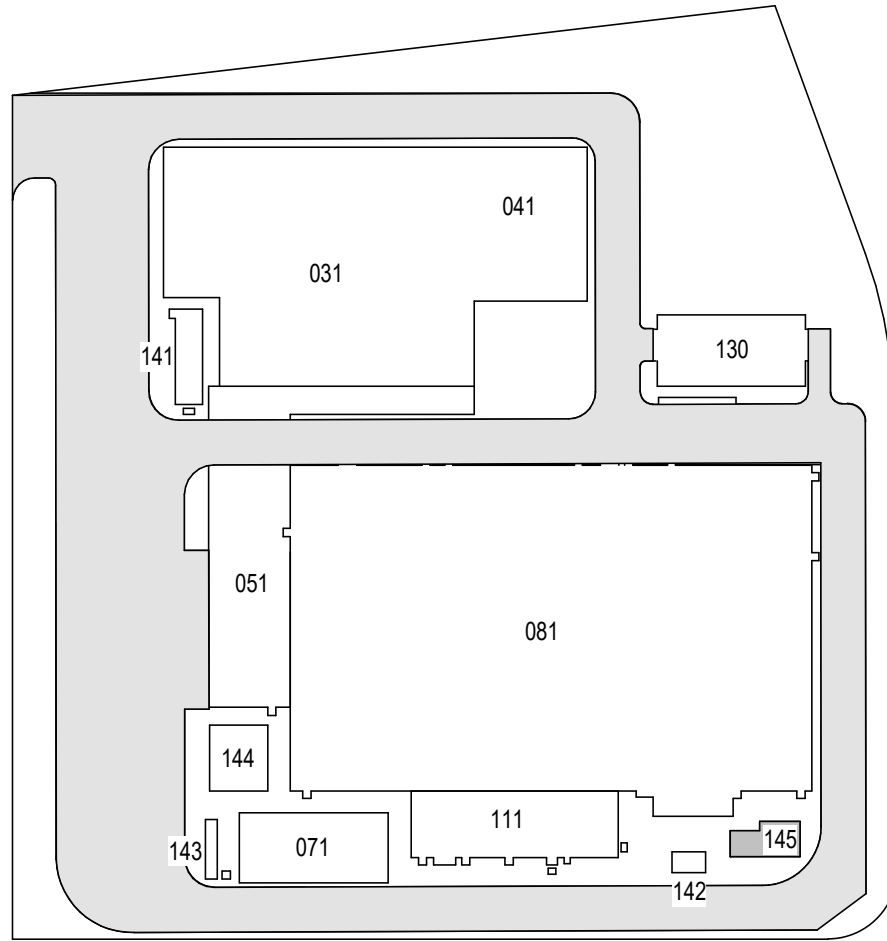
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6. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
7. ALL METALLIC HVAC EQUIPMENT & ACCESSORIES INSTALLED OUTSIDE SHALL BE BONDED TO GROUND. COORDINATE WITH ELECTRICAL PLANS AND CONTRACTOR FOR REQUIREMENTS.

MECHANICAL KEYNOTES

1. 4" INTAKE DUCT WITH WALL CAP AND INSECT SCREEN.
2. MOUNT WALL THERMOSTAT AT MINIMUM 4'-0" AFF. THERMOSTAT SHOULD NOT BE BLOCKED BY ANY EQUIPMENT.
3. 1" CONDENSATE DRAIN LINE WITH INSULATION. TERMINATE PIPE MINIMUM 6" ABOVE GRADE.
4. REFRIGERANT SUCTION AND LIQUID LINES FOLLOW MANUFACTURER'S PIPE SIZING RECOMMENDATIONS.
5. PIPES SHALL NOT BE ROUTED OVER ELECTRICAL EQUIPMENT. COORDINATE WITH ELECTRICAL CONTRACTOR. PROVIDE DRAIN PAN UNDER PIPES WHEN ROUTED OVER ELECTRICAL EQUIPMENT.
6. HVAC CONTROL PANEL. COORDINATE WITH ELECTRICAL EQUIPMENT IN THE SPACE.



ISSUED FOR PERMIT



KEY PLAN
N.T.S.

Engineering and
Land Surveying, P.C.

370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI
SULLIVAN
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| A | INTERM SUBMISSION | WP | AZ | 09-13-22 |

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson
Power Express

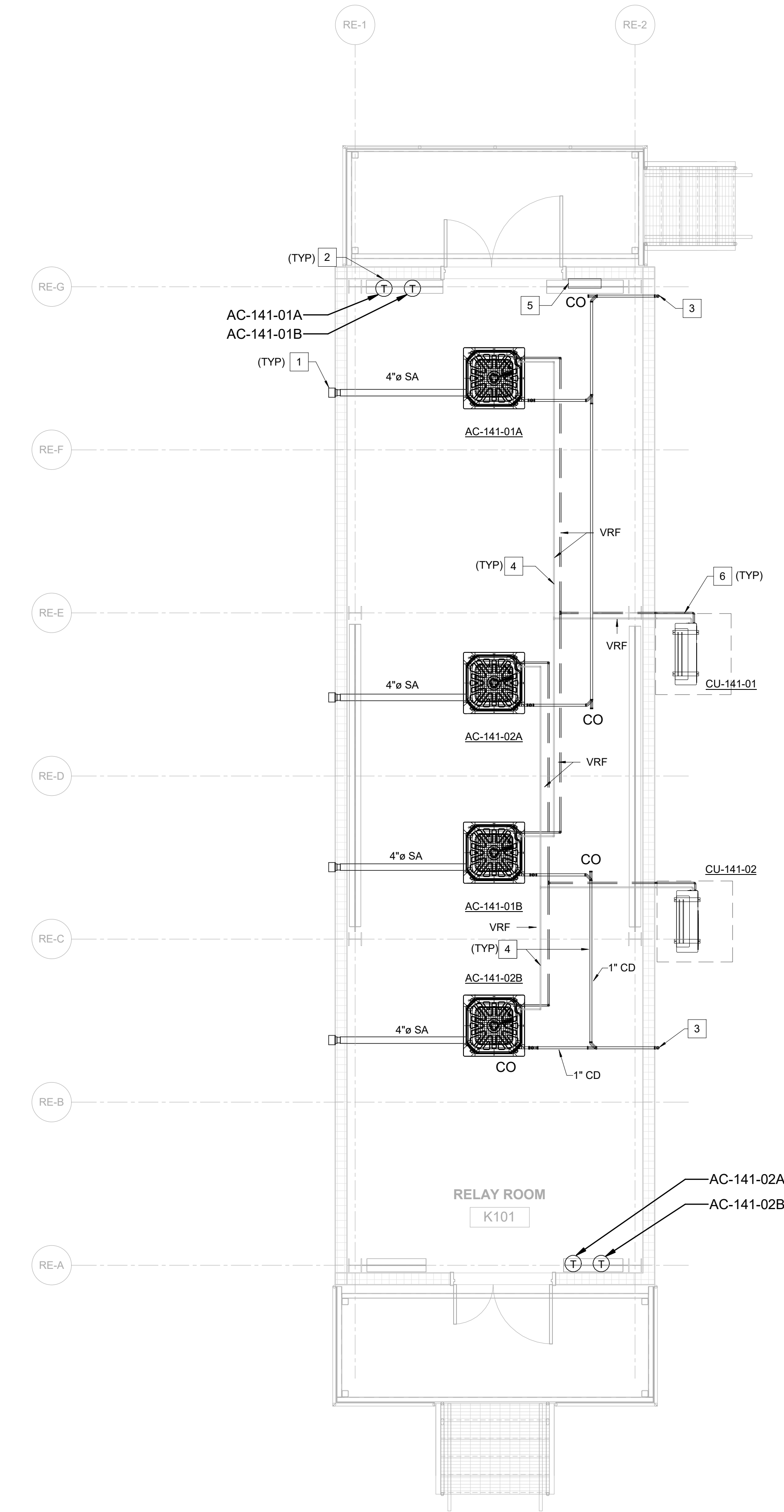
Astoria HVDC
Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

MVS ENCLOSURE - HVAC
PLAN



DATE 08/29/2022
PROJECT NO 105121
DRAWING BY W. PENDLETON
CHECKED BY A. ZABOLOSTSKY
DRAWING NO
M-116.00
CADD FILE NO
Astoria\CHA-KIE-141-00-M3-H-001.rvt



1 RELAY ENCLOSURE HVAC - PLAN
M-117.00 1/4" = 1'-0"

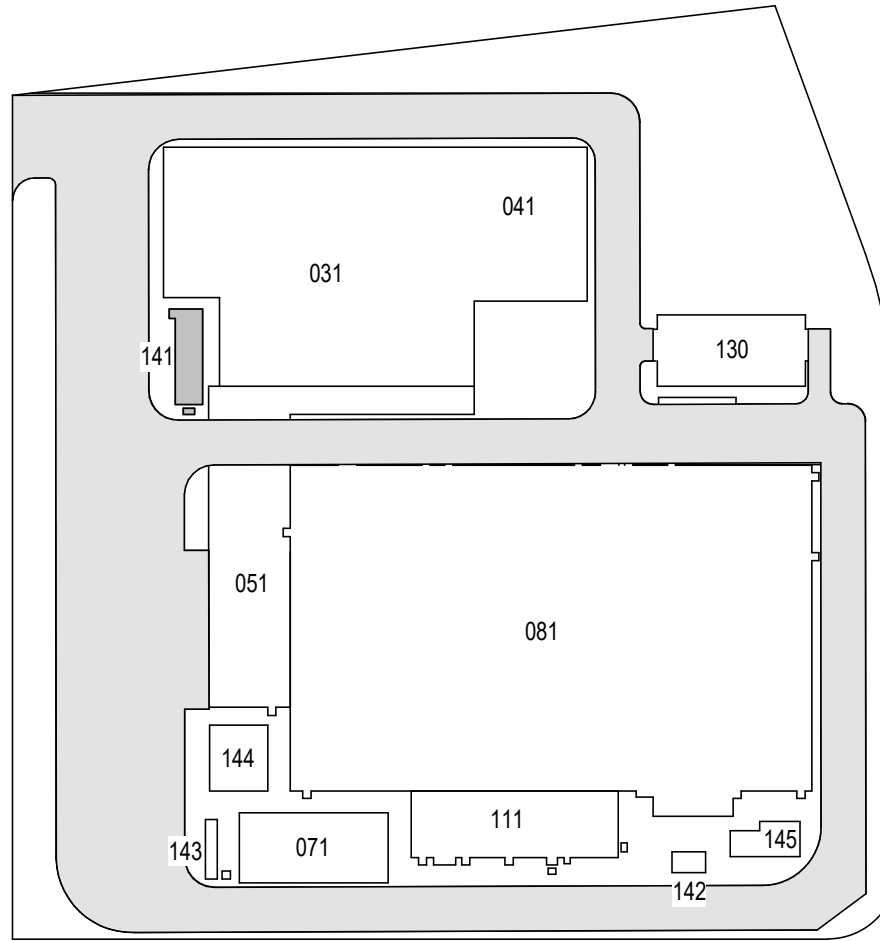
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MECHANICAL KEYNOTES

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- MOUNT WALL THERMOSTAT AT MINIMUM 4'-0" AFF. THERMOSTAT SHOULD NOT BE BLOCKED BY ANY EQUIPMENT.
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- HVAC CONTROL PANEL. COORDINATE WITH ELECTRICAL EQUIPMENT IN THE SPACE.
- REFRIGERANT SUCTION AND LIQUID LINES FOLLOW MANUFACTURER'S PIPE SIZING RECOMMENDATIONS.

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KEY PLAN
N.T.S.

K Engineering and
Land Surveying, P.C.

370 7th Avenue
SUITE 1604
New York, NY 10001

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Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson
Power Express

**Astoria HVDC
Converter Station**

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

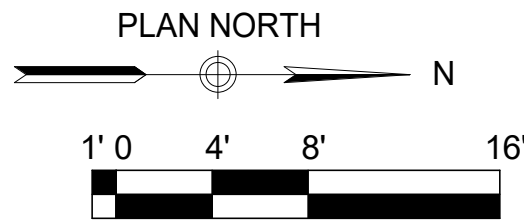
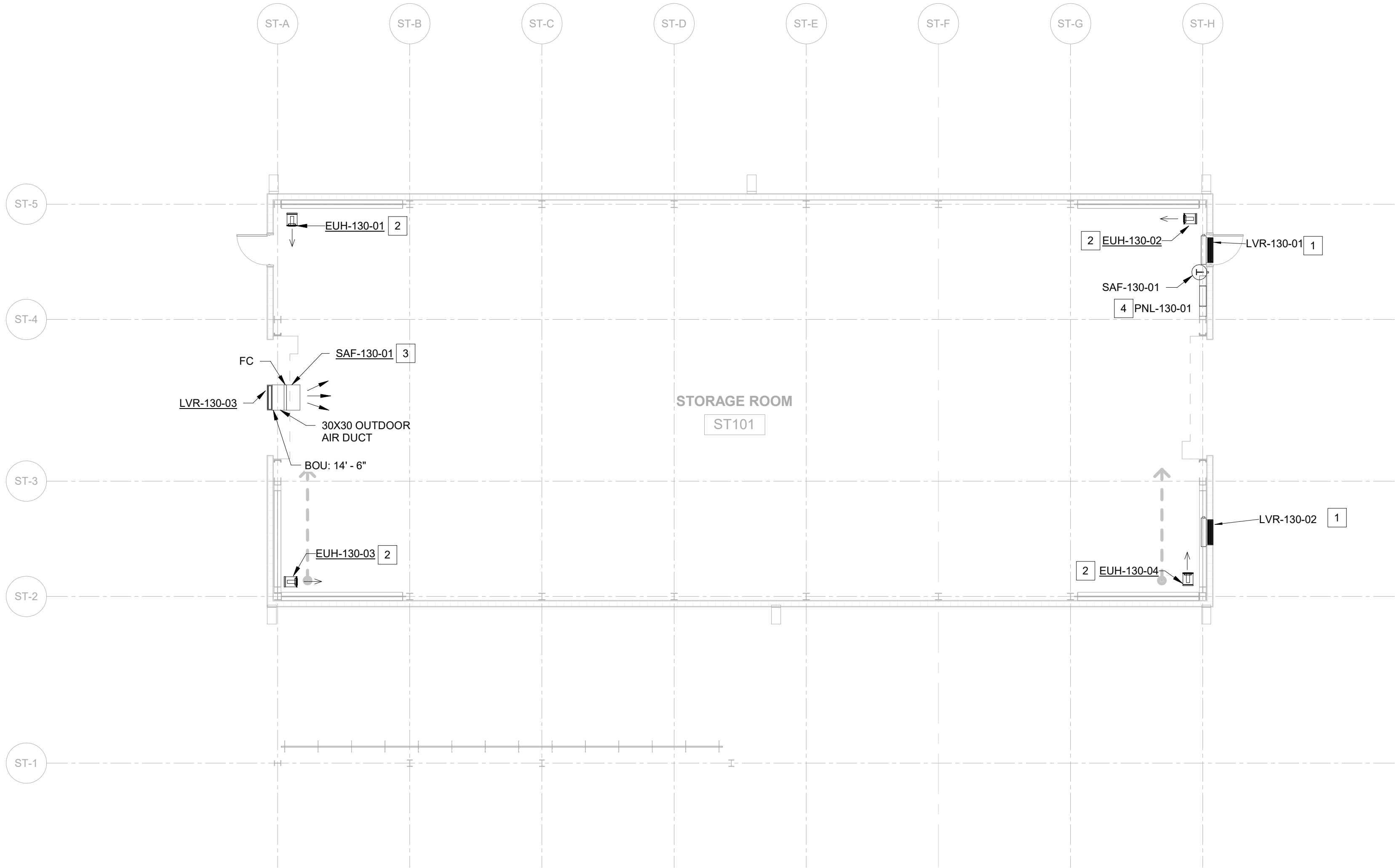
**RELAY ENCLOSURE HVAC
- PLAN**



DATE 08/29/2022
PROJECT NO 105121
DRAWING BY W. PENDLETON
CHECKED BY A. ZABOLOTSKY
DRAWING NO
M-117.00
CADD FILE NO
Astoria-CHPE-141-00-M3-H-001.rvt

12/7/2022 3:20:46 PM

1
M-118.00
STORAGE ENCLOSURE - HVAC PLAN
1/8" = 1'-0"



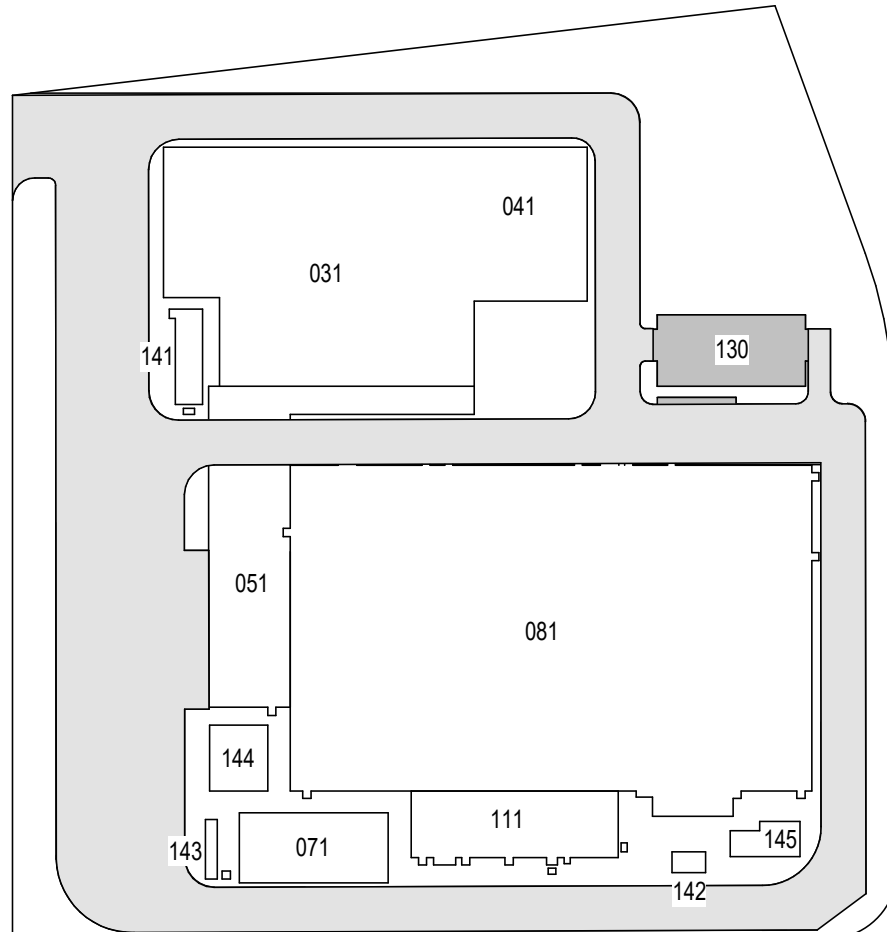
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MECHANICAL KEYNOTES

1. FURNISH AND INSTALL RELIEF LOUVER AND BACKDRAFT DAMPER OVER WALL OPENINGS AT 14'-10" AFF. PROVIDE DUCT/PLENUM EXTENSION BETWEEN LOUVERS AND DAMPER AS REQUIRED FOR PROPER BLADE OPERATION WITH A MINIMUM OF 10". REFER TO DETAIL AND SCHEDULES SHEET FOR ADDITIONAL INFORMATION.
2. COORDINATE MOUNTING HEIGHT AND LOCATION WITH THE STORAGE RACKS. MOUNT HEATERS CLOSE TO THE EXTERIOR WALL. COORDINATE WITH ELECTRICAL.
3. FURNISH AND INSTALL WALL MOUNTED SUPPLY FAN. REFER TO CONTROLS SHEETS FOR SEQUENCE OF OPERATIONS. COORDINATE THE MOTOR LOCATION AND FAN ORIENTATION PRIOR TO INSTALLATION. FAN TO BE INSTALLED 14'-0" AFF.
4. HVAC CONTROL PANEL SHALL INTEGRATE WITH TEMPERATURE SENSORS AND VENTILATION FANS. MOUNT PANEL AT 48" ABOVE FINISHED FLOOR. REFER TO CONTROLS SHEET M-705. COORDINATE EXACT PANEL LOCATION WITH OWNER PROVIDED STORAGE SHELVES.

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K Engineering and
Land Surveying, P.C.
370 7th Avenue
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New York, NY 10001

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Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT
CHPE
Champlain Hudson
Power Express

**Astoria HVDC
Converter Station**

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

**STORAGE ENCLOSURE -
HVAC PLAN**



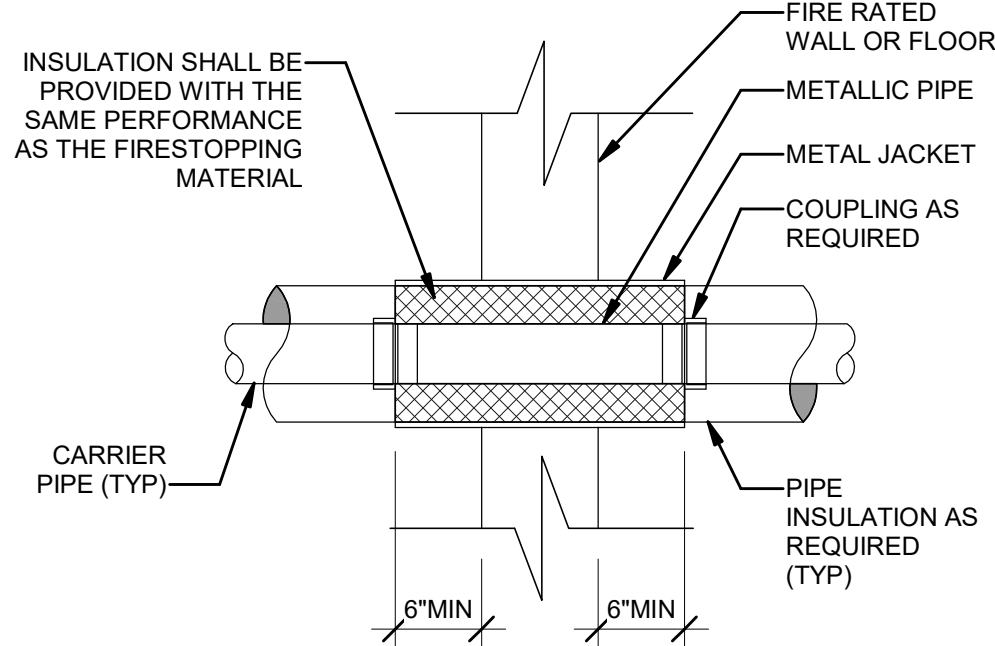
DATE 08/29/2022
PROJECT NO 105121
DRAWING BY W. PENDLETON
CHECKED BY A. ZABOLOSTSKY
DRAWING NO
M-118.00
CADD FILE NO
Astoria\CHA-KIE-130-00-M3-H-001.rvt



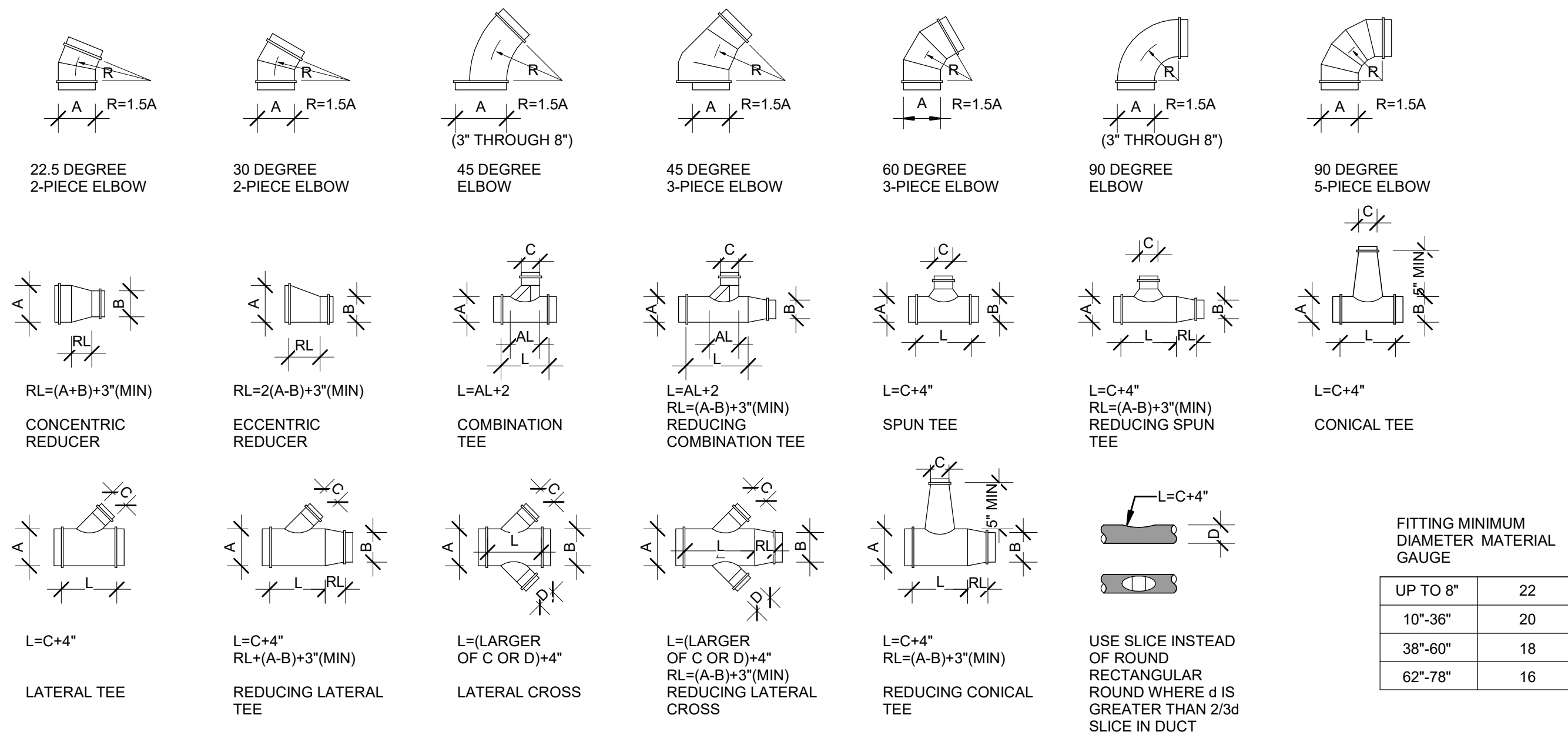
- NOTES:
1. REFER TO MECHANICAL PLANS FOR LOCATION OF FIRE/SMOKE AND SMOKE DAMPERS.
 2. FIRE/SMOKE AND SMOKE DAMPERS SHALL BE WIRED TO OPEN/CLOSE WITH NORMAL FAN START/STOP DURING THIS FUNCTIONAL TEST. THE FUNCTIONAL TEST SHALL BE PROVIDED BY THE BMS CONTRACTOR.
 3. FIRE/SMOKE AND SMOKE DAMPERS LOCATED DIRECTLY UPSTREAM OR DOWNSTREAM OF A FAN SHALL BE HARDWIRED INTERLOCKED TO THE FAN START/STOP SUCH THAT THE FAN OPENS WHEN THE FAN IS COMMANDED ON AND THE FAN DOES NOT START UNTIL THE DAMPER PROVES OPEN VIA AN END SWITCH.
 4. FIRE/SMOKE AND SMOKE DAMPERS NOT LOCATED DIRECTLY UPSTREAM OR DOWNSTREAM OF A FAN (I.E. LOCATED IN THE DISTRIBUTION DUCTWORK) SHALL BE CONTROLLED AND MONITORED BY THE BMS BUT ARE NOT REQUIRED TO BE HARDWIRED INTERLOCKED.
 5. THE FIRE ALARM CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROL OF THE FIRE/SMOKE AND SMOKE DAMPERS DURING AN ALARM CONDITION OR SMOKE PURGE/CONTROL.



6
M-600.00
TYPICAL FIRE RATED WALL/FLOOR PENETRATION
NTS

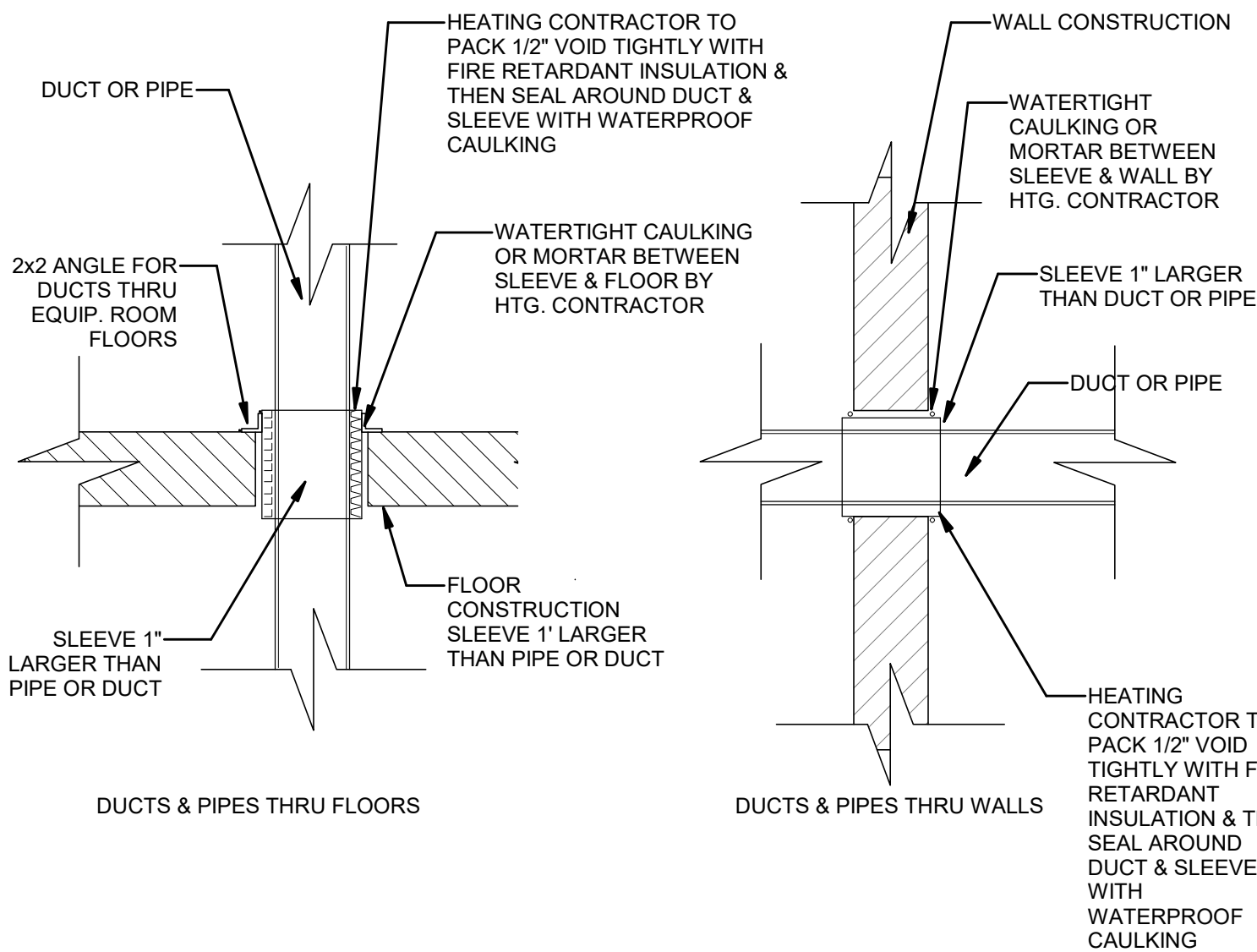


1
M-600.00
MEDIUM AND HIGH VELOCITY ROUND DUCT FITTINGS DETAIL
NTS

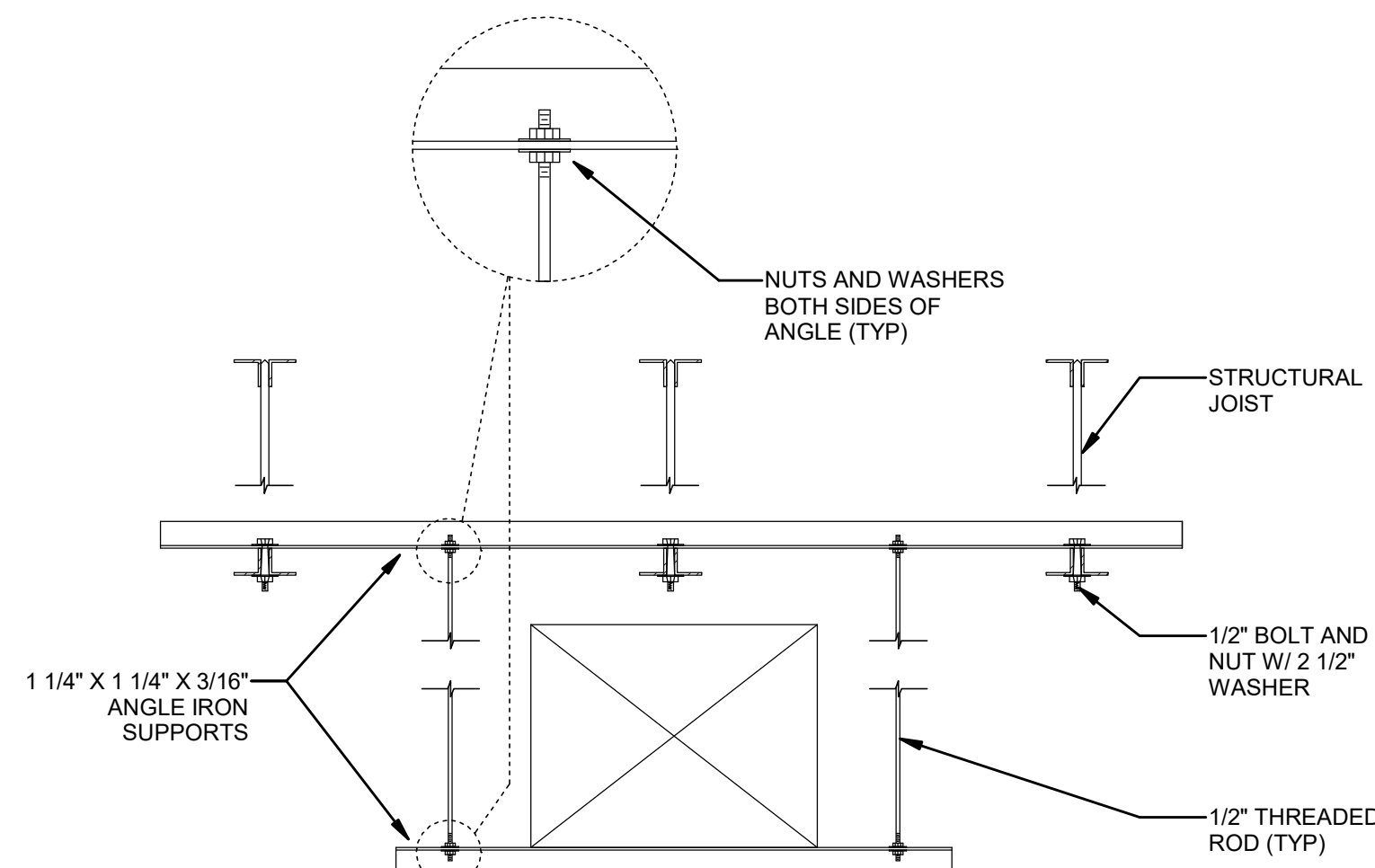


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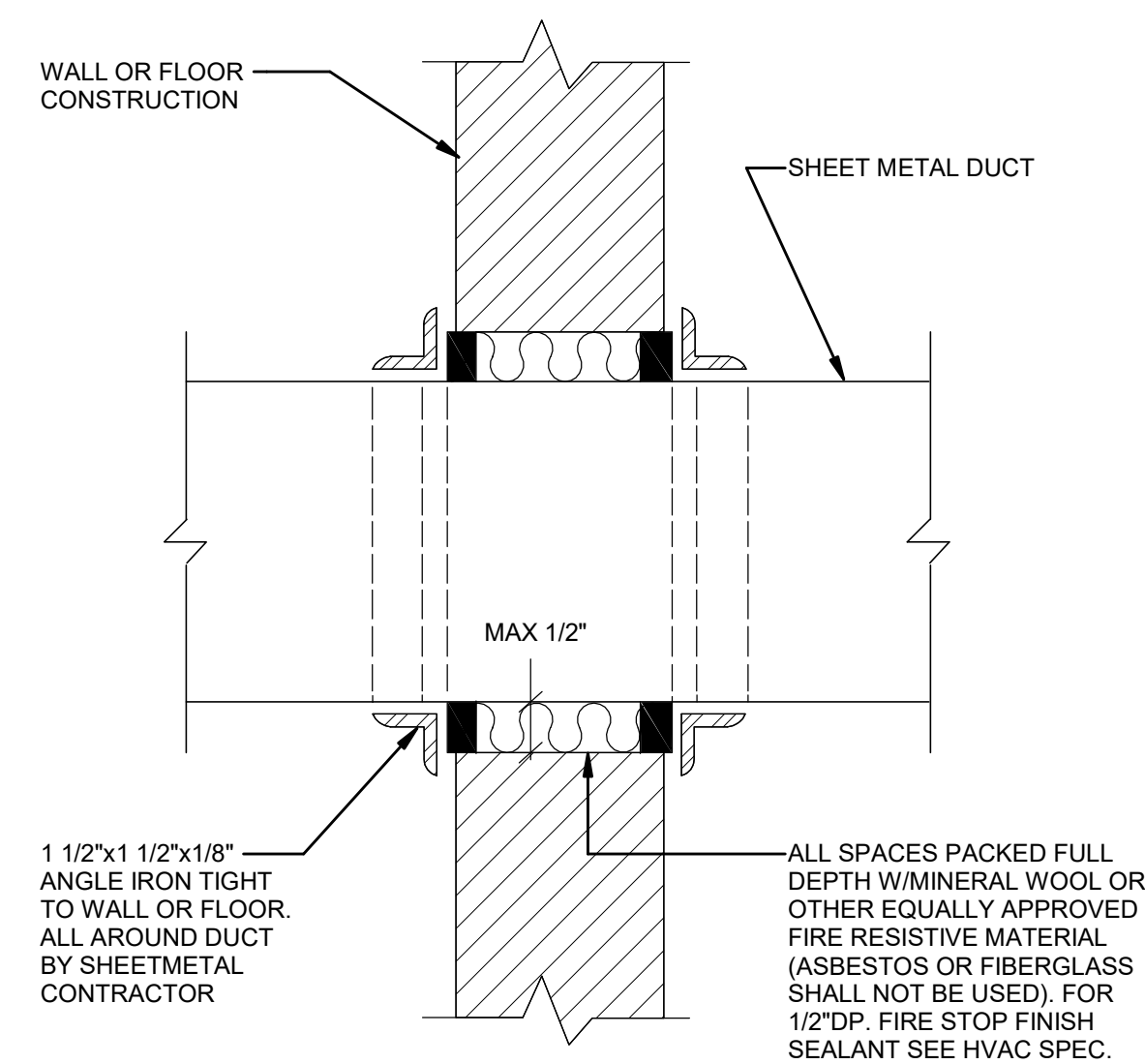
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DUCTS & PIPES THRU WALLS & FLOORS
NTS



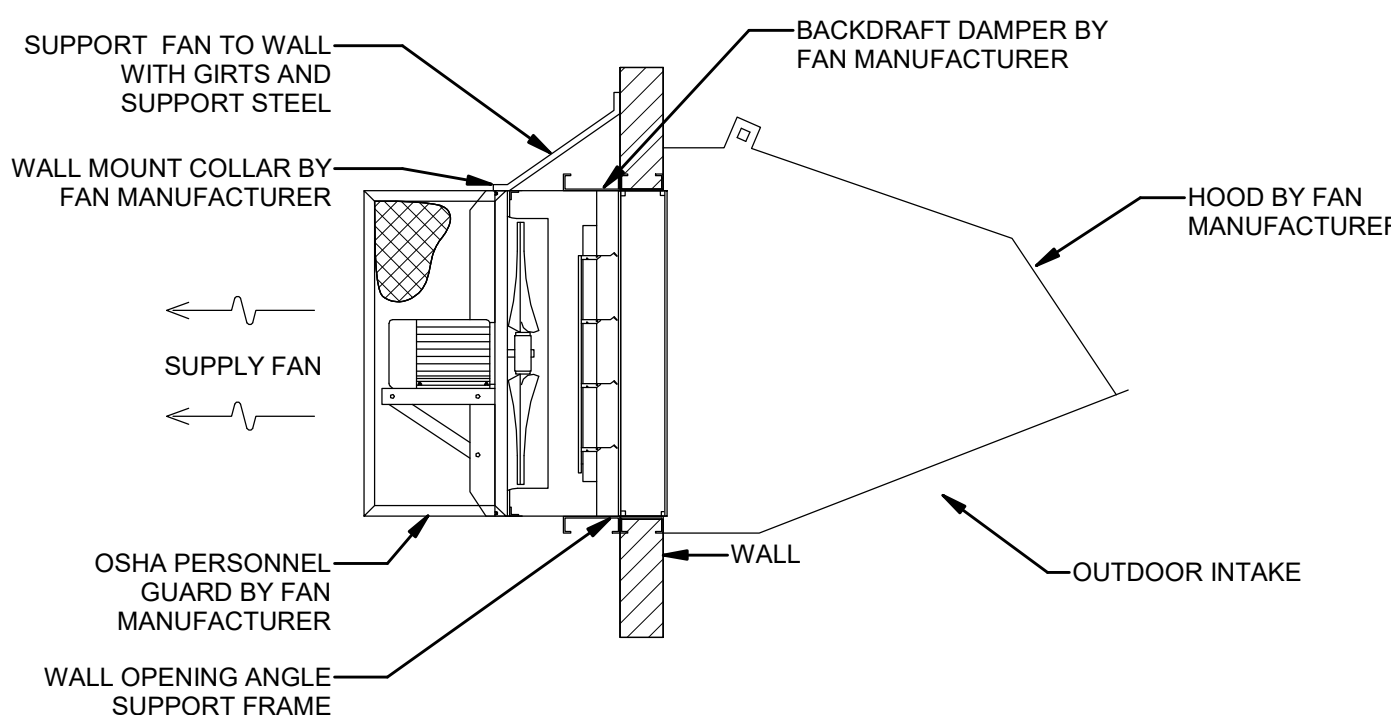
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M-600.00
DUCT HANGER DETAIL
NTS



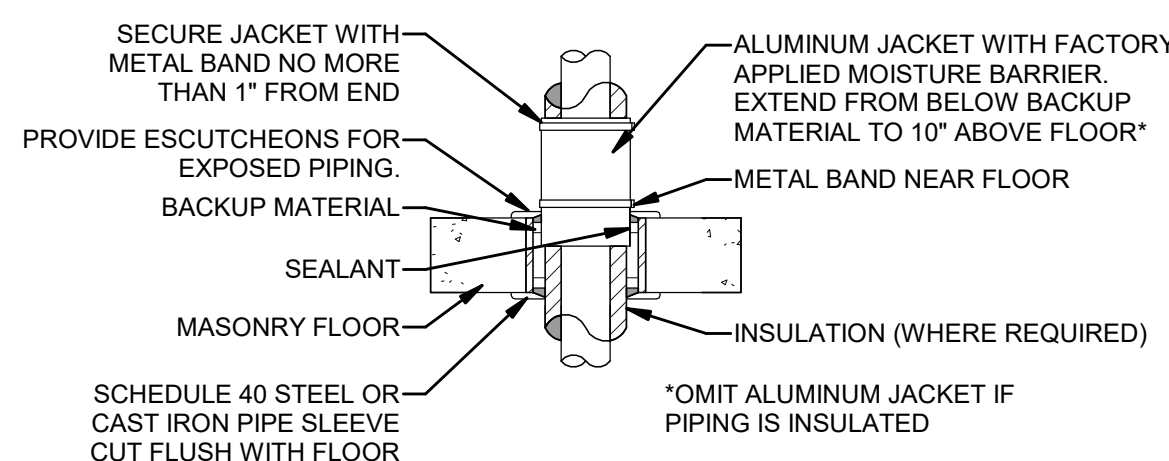
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M-600.00
DETAIL OF CAULKING OF DUCT PIERCING WALLS OR FLOORS WHERE FIRE DAMPERS ARE NOT REQUIRED
NTS



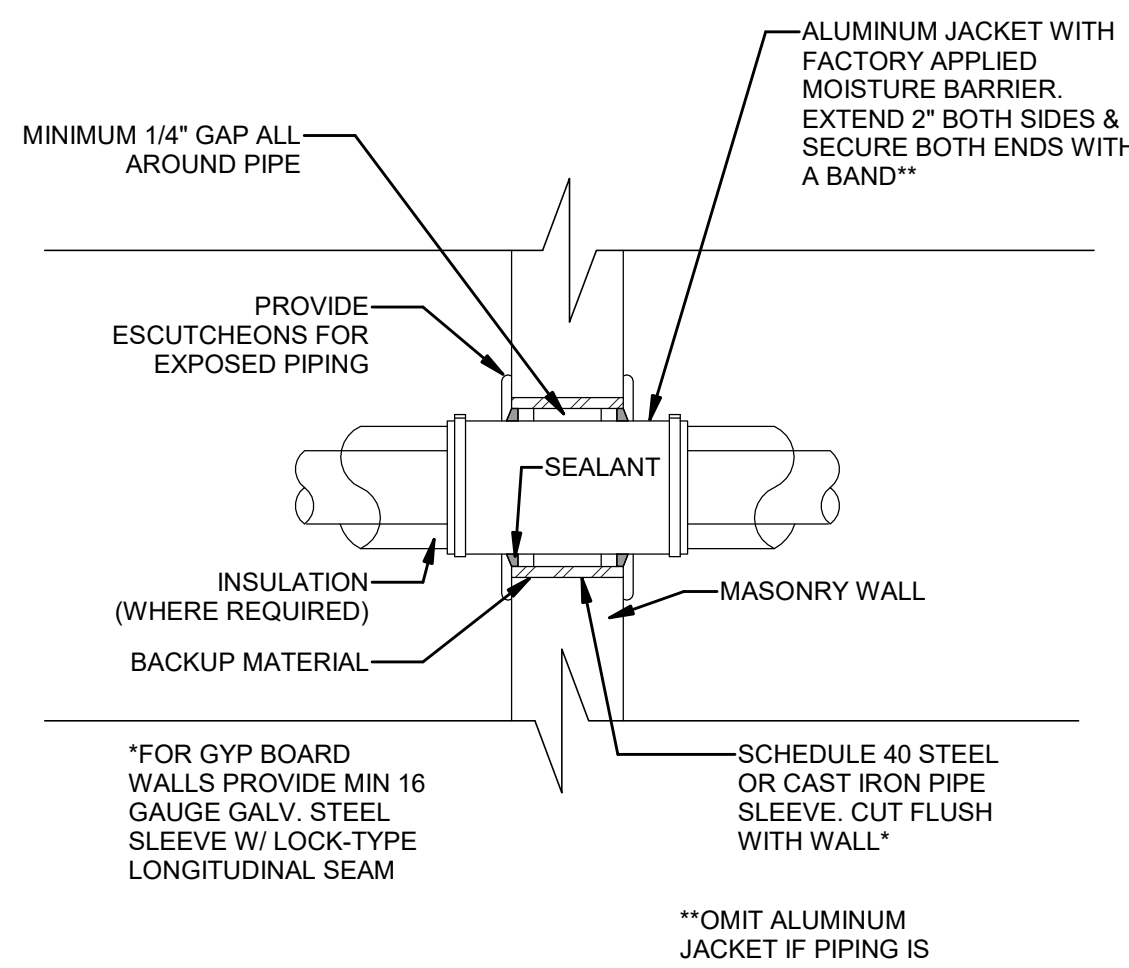
7
M-600.00
SMOKE PURGE WALL SUPPLY FAN DETAIL
NTS



5
M-600.00
FLOOR PIPE PENETRATION DETAIL
NTS



3
M-600.00
WALL PIPE PENETRATION
NTS



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Kiewit

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Hitachi Energy

901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

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Champlain Hudson
Power Express

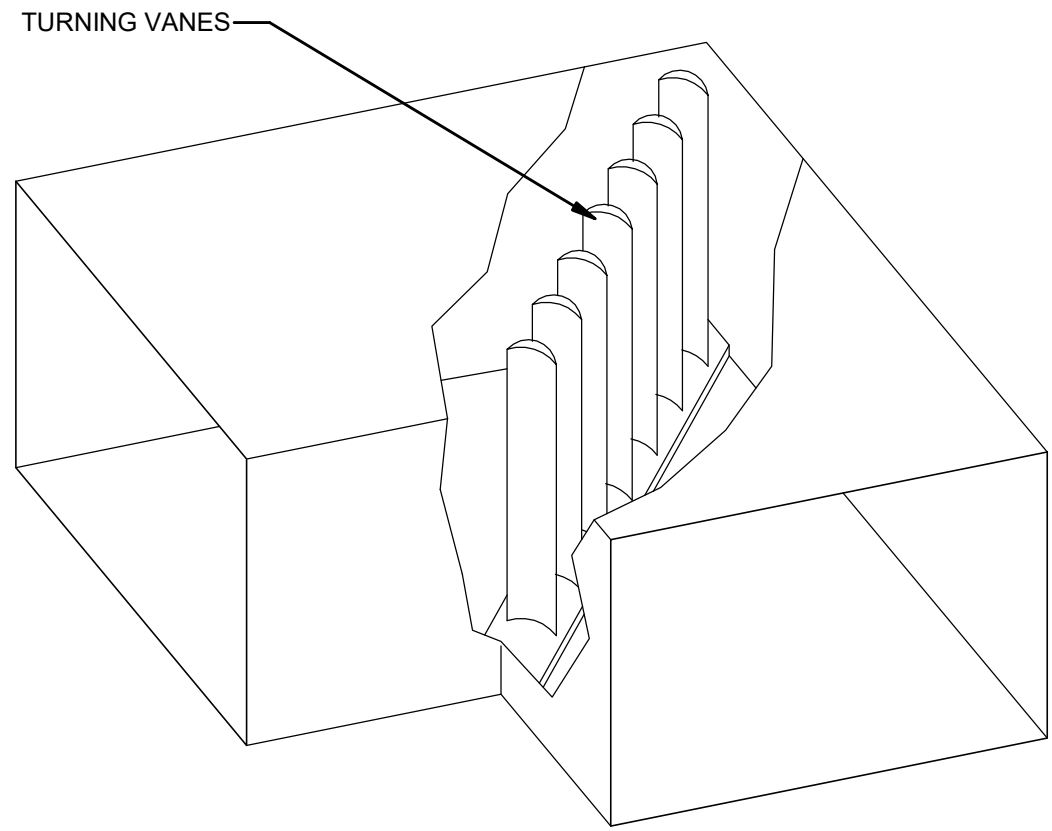
Astoria HVDC
Converter Station

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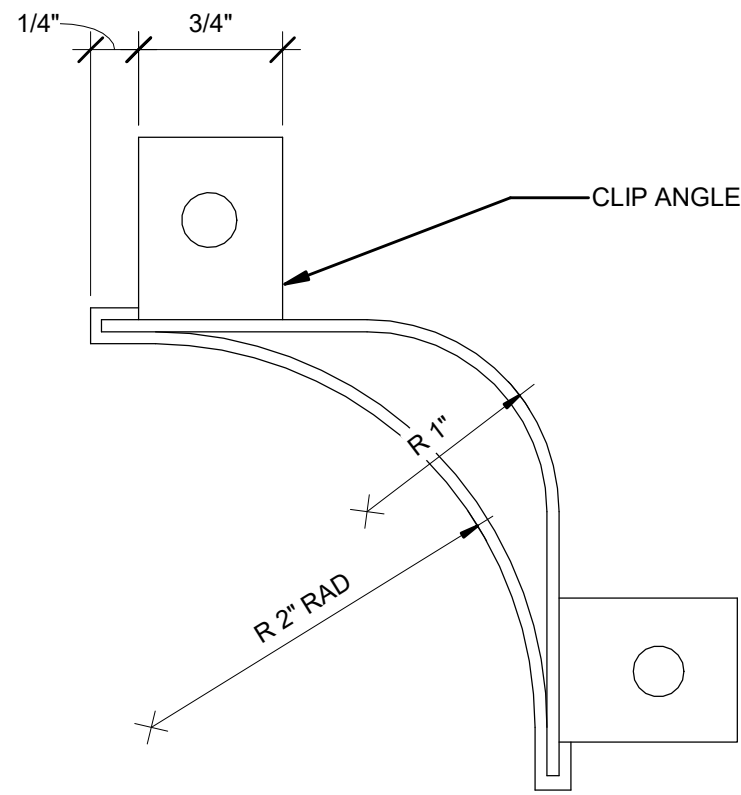
HVAC - DETAILS



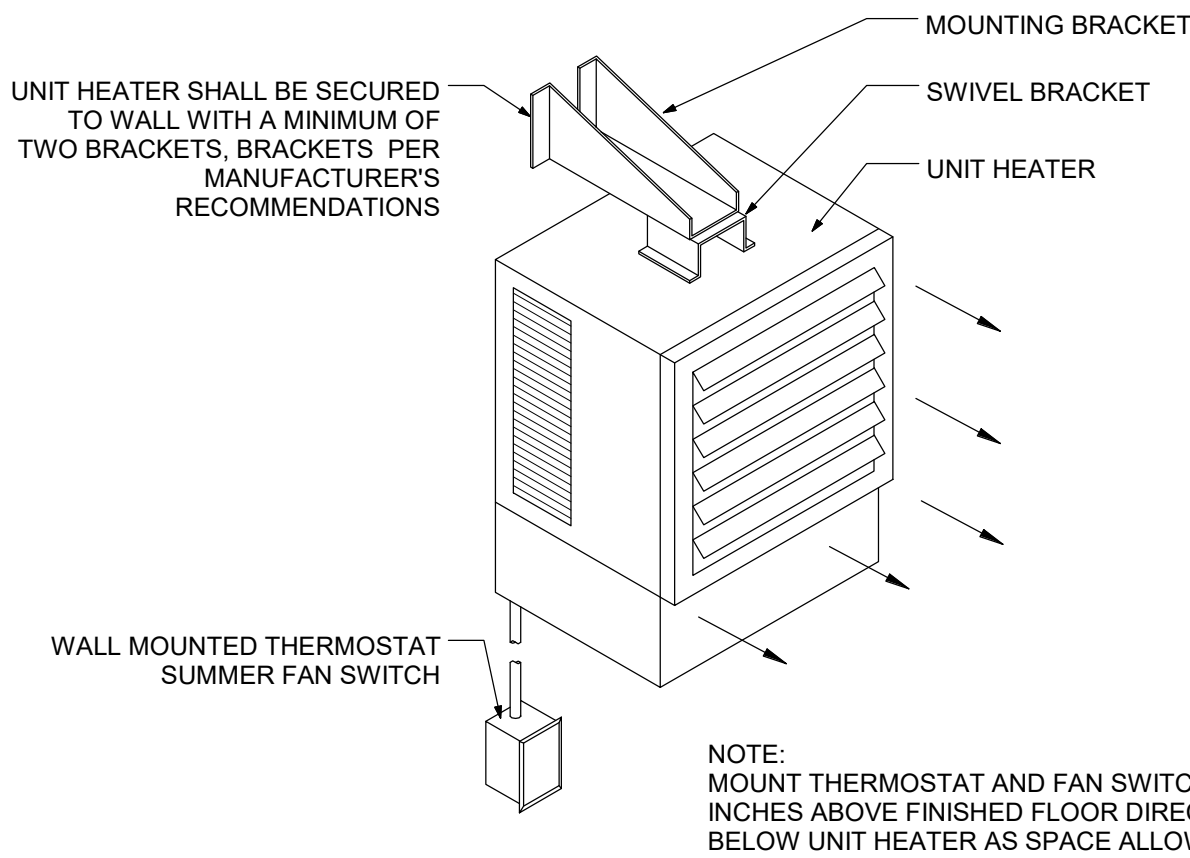
DATE 12/12/2022
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DRAWING BY W. PENDELETON
CHECKED BY A. ZABOLOTSKY
DRAWING NO
M-600.00
CADD FILE NO
Astoria\CHPE-081-00-M3-H-001.rvt



8
M-601.00
TYPICAL ELBOW DETAIL
NTS



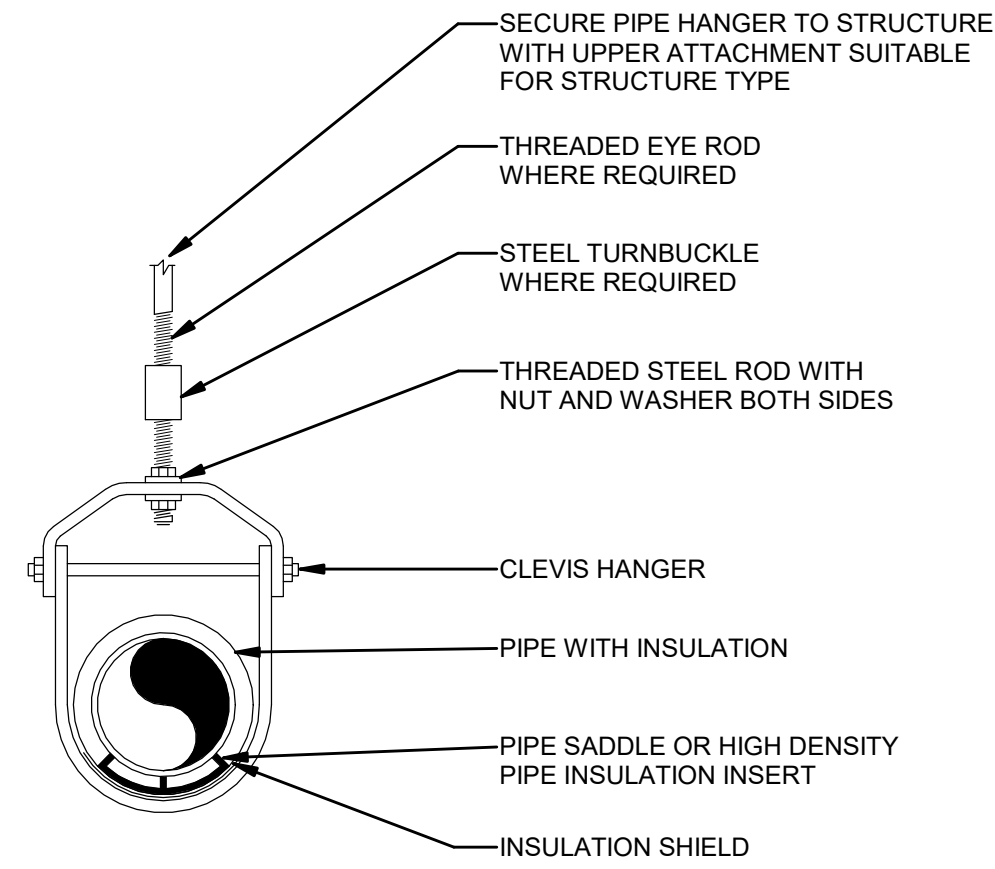
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M-601.00
TYPICAL TURNING VANE
NTS



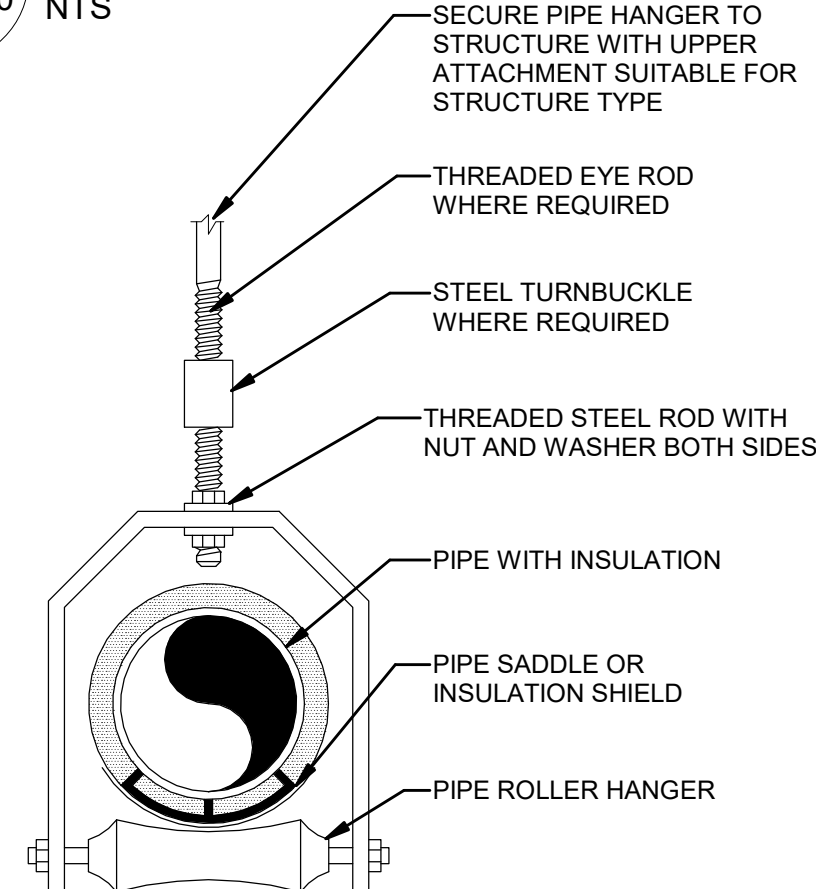
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ELECTRIC UNIT HEATER DETAIL (HORIZONTAL THROW)
NTS

SHEET NOTES:

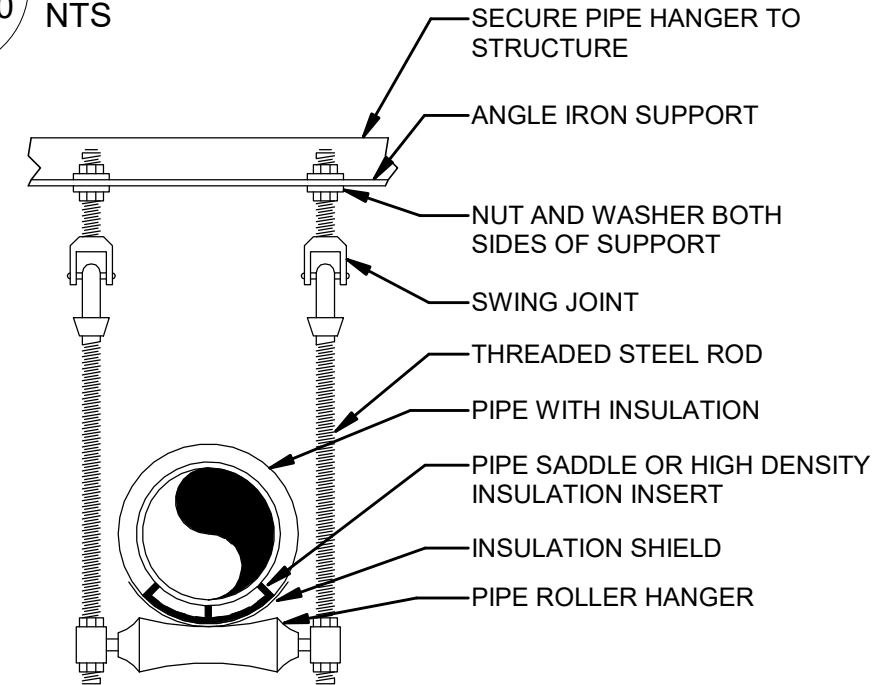
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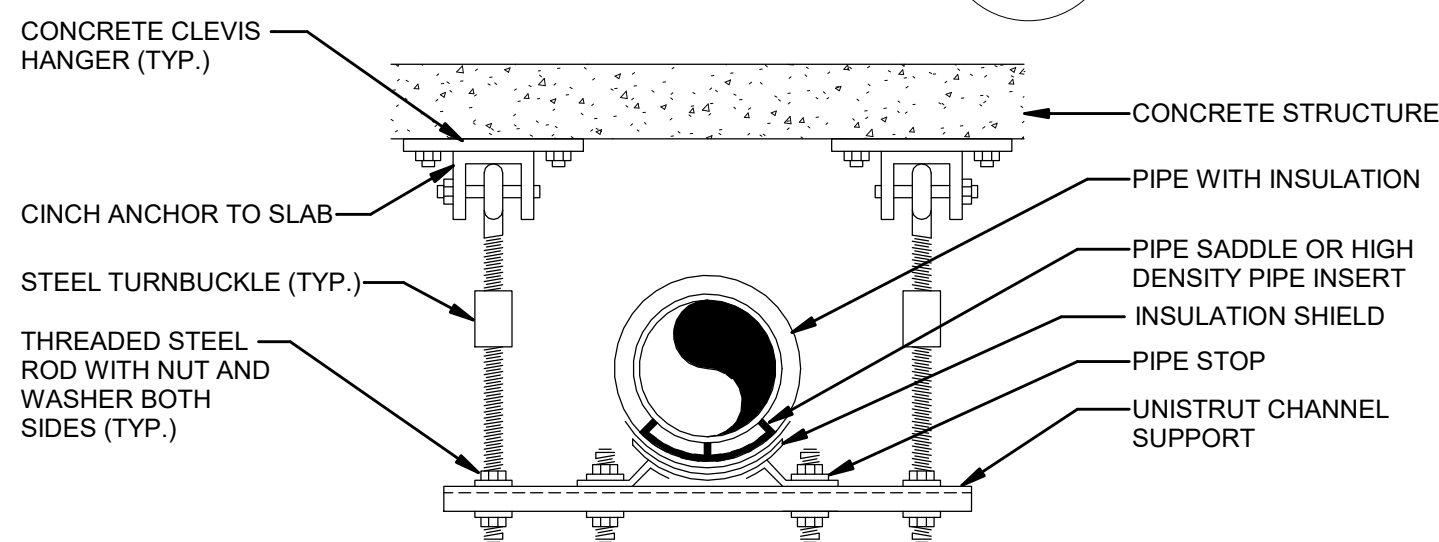
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M-601.00
INSULATED CLEVIS PIPE HANGER DETAIL
NTS



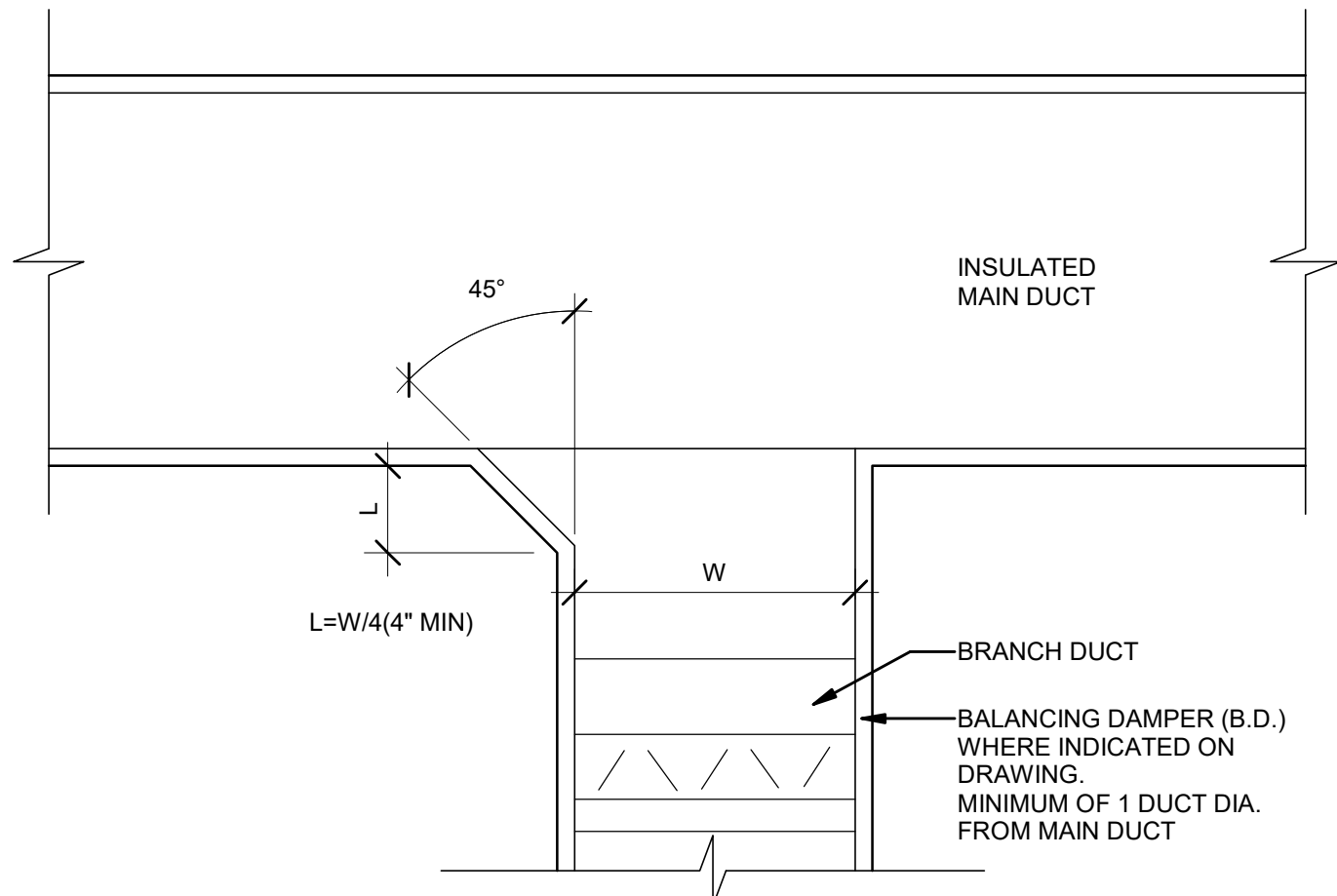
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M-601.00
INSULATED ROLLER PIPE HANGER DETAIL
NTS



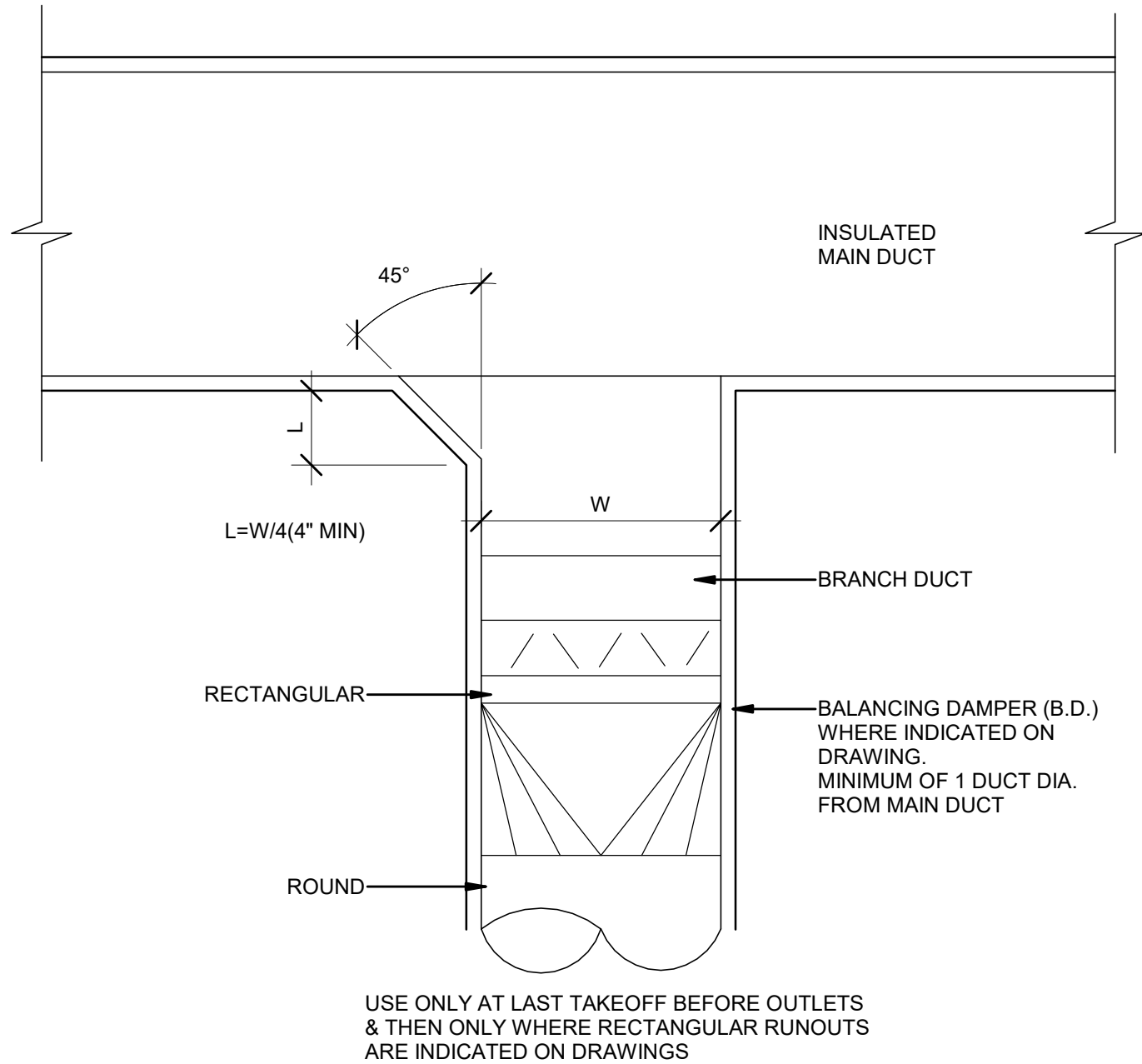
3
M-601.00
INSULATED DUAL ROD ROLLER PIPE HANGER DETAIL
NTS



4
M-601.00
UNISTRUT INSULATED PIPE HANGER DETAIL
NTS



6
M-601.00
TYPICAL BRANCH CONNECTION
NTS



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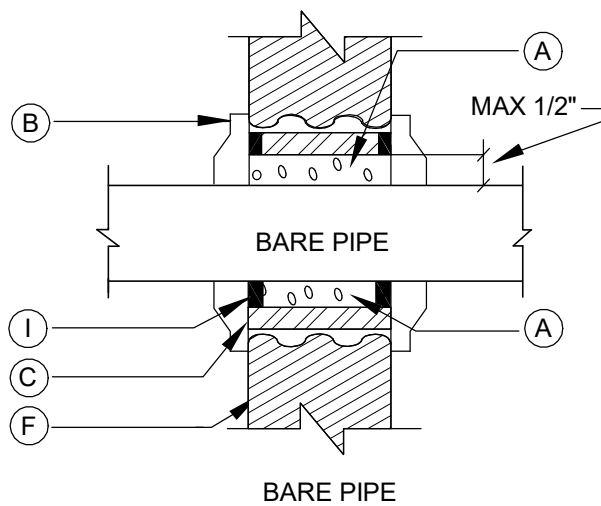
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Block #850 - Lot #310 - BIN #4624437

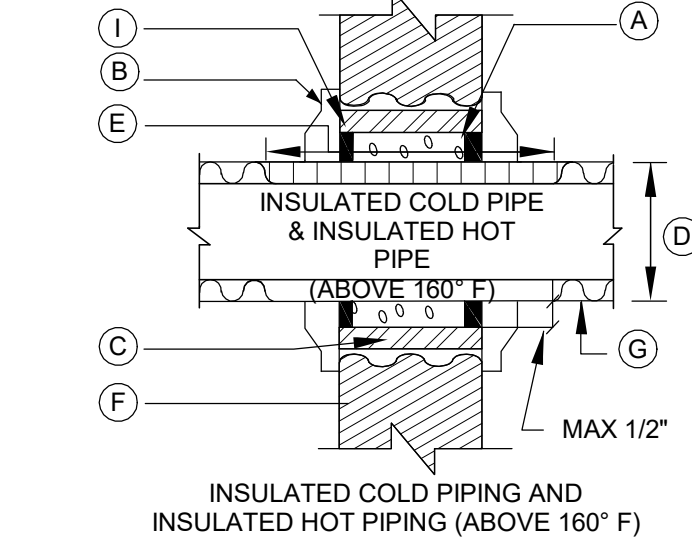
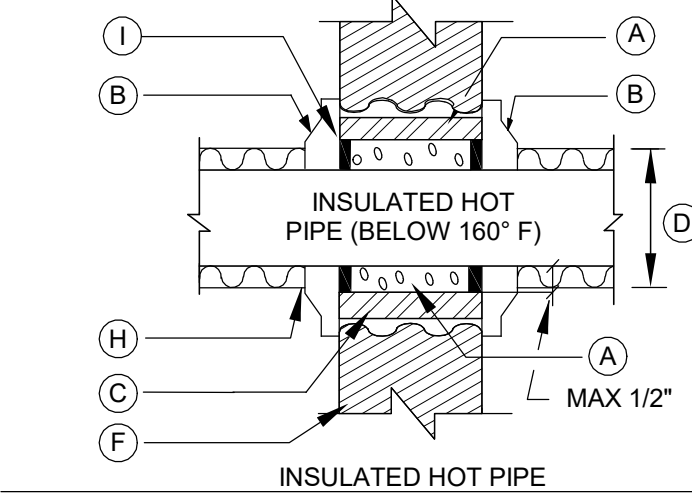
HVAC - DETAILS



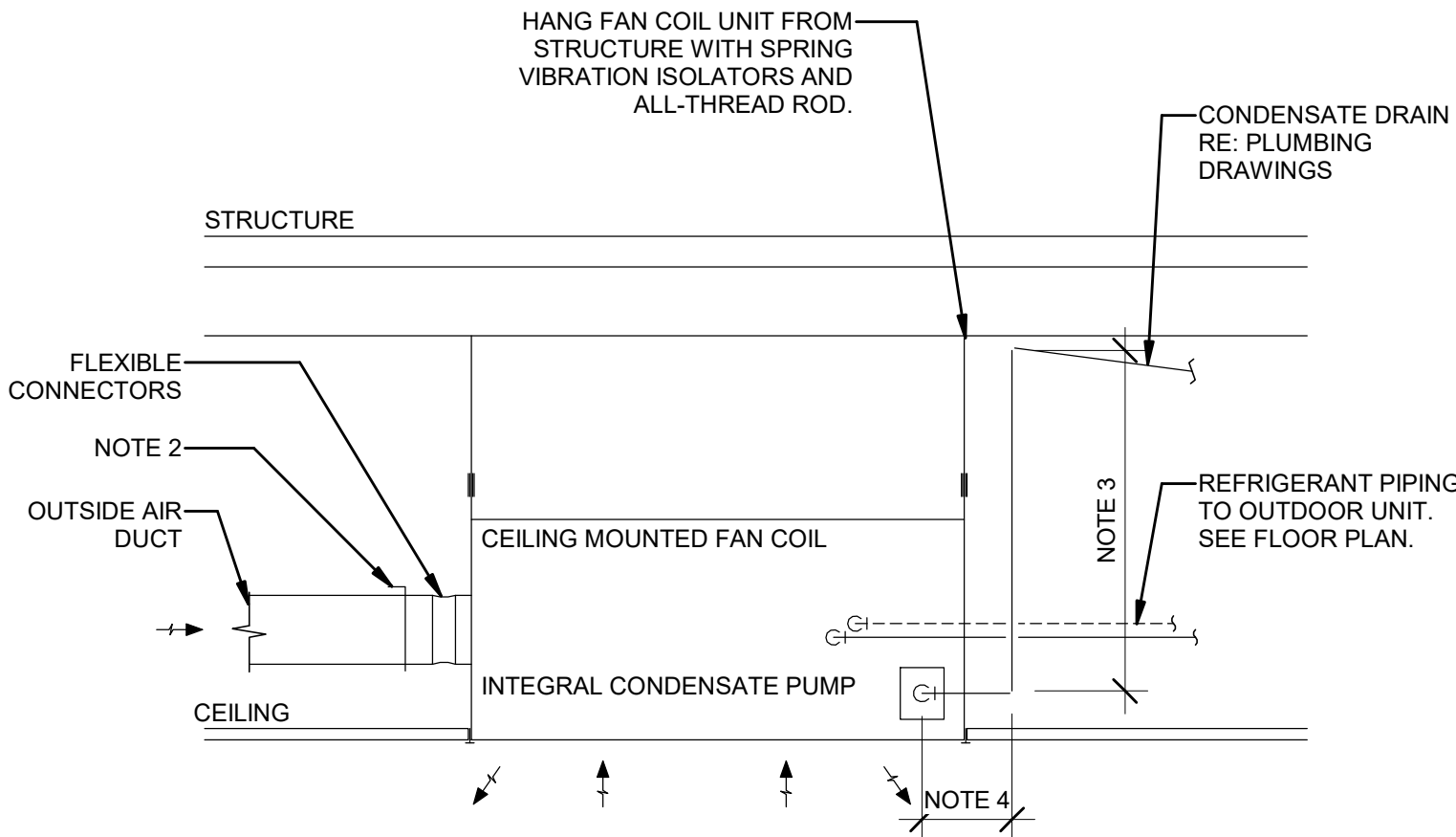
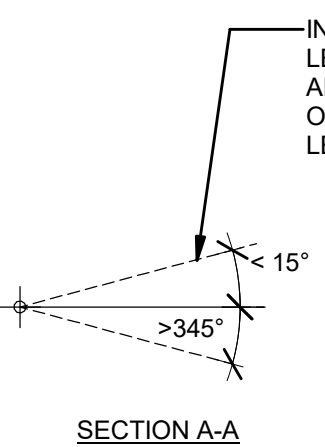
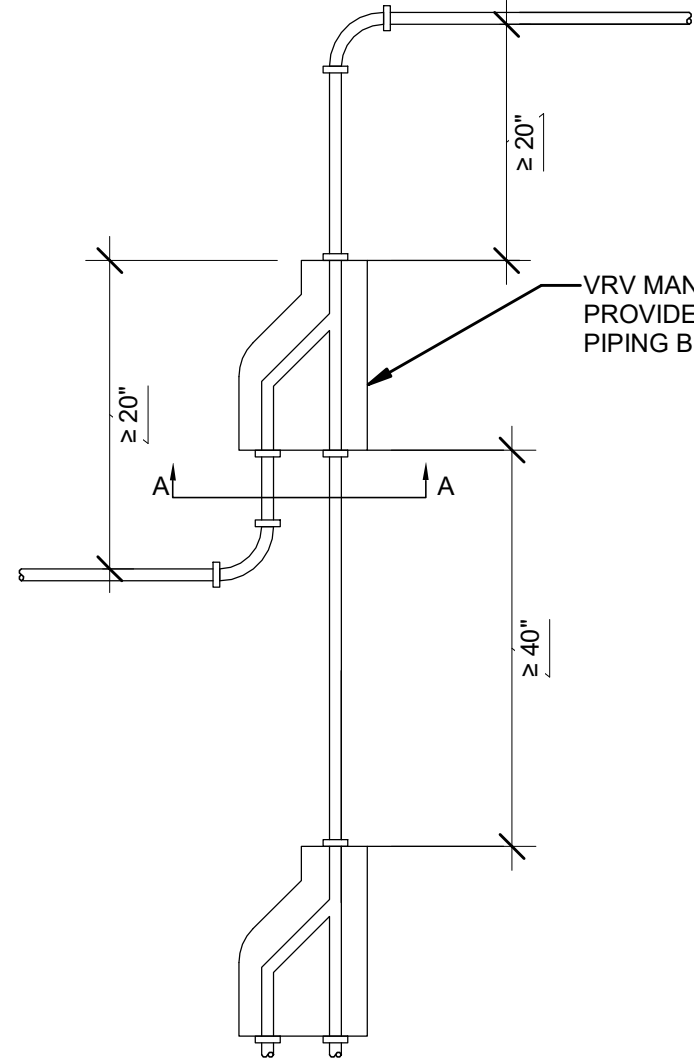
DATE 12/12/2022
PROJECT NO 105121
DRAWING BY W. PENDLETON
CHECKED BY A. ZABOLOTSKY
DRAWING NO
M-601.00
CADD FILE NO
Astoria CHA-KIE-081-00-M314-001.rvt



- (A) ALL SPACES PACKED FULL OR DEPTH OF MINERAL WOOL OTHER EQUALLY APPROVED FIRE RESISTIVE MATERIAL (ASBESTOS OR FIBERGLASS SHALL NOT BE USED)
- FIRE RESISTANT FOAM SEAL ANT CHASE FOAM CTC P2-855 (NYC MEA#58-79 M#1&11 MAY BE USED. INSTALLATION AS PER MANUFAC-TURER.
- (B) ESCUTCHEON BOTH SIDES
- (C) SLEEVE
- (D) DIAMETER OF INSULATED PIPE
- (E) ANHYDROUS CALCIUM SILICATE INSULATION THRU SLEEVE
- (F) FIRE RATED PARTITION WALL OR FLOOR
- (G) FIBERGLASS INSULATION
- (H) TERMINATE INSULATION AT ESCUTCHEON
- (I) 1/2" DEPTH FIRE STOP FINISH SEALANT (SEE HVAC SPEC)

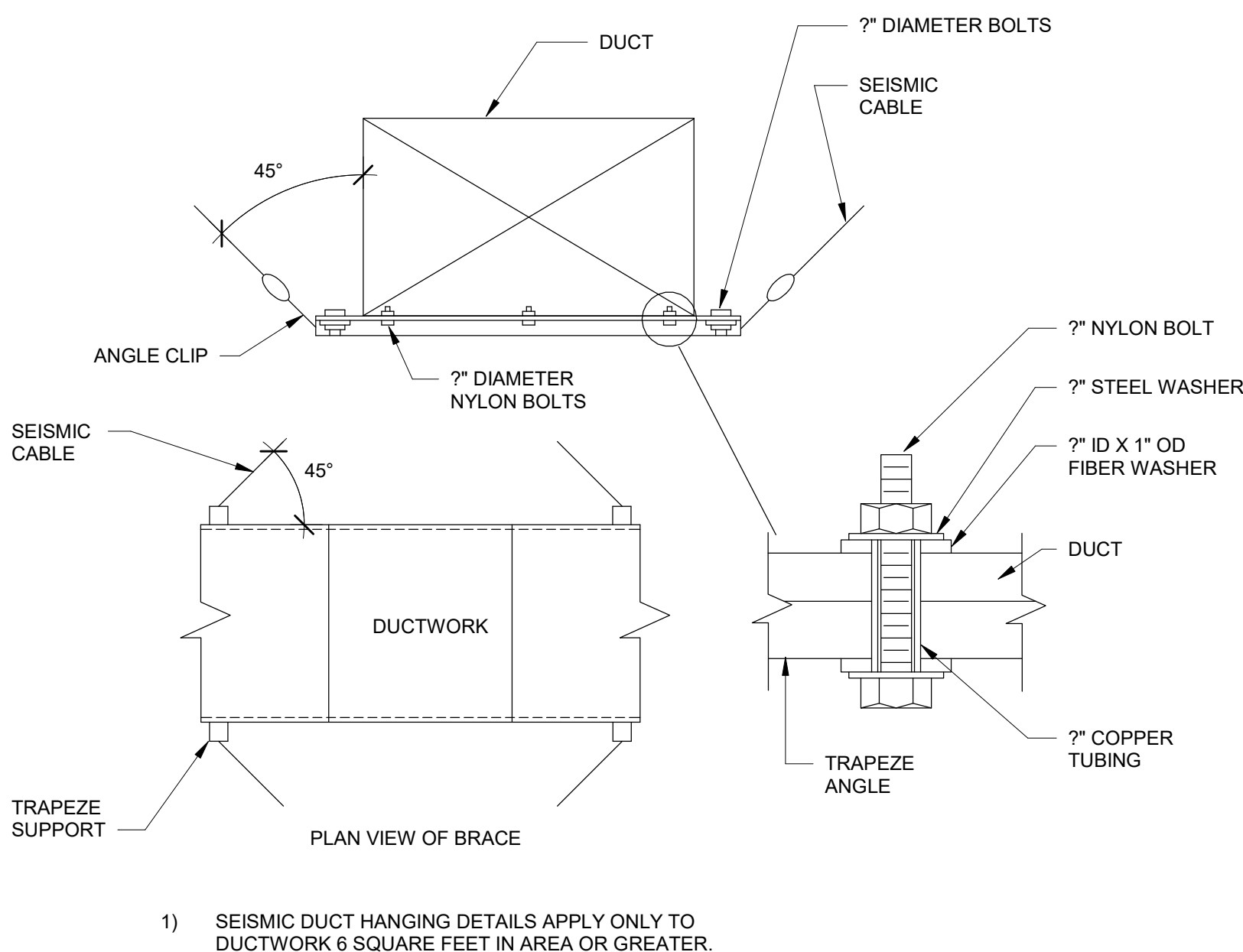


4 M-602.00 NTS
DETAIL OF PIPING PIERCING FIRE RATED PARTITIONS, WALLS AND FLOORS



- NOTES:
- ARRANGEMENT SHOWN IS SCHEMATIC, ADJUST TO SUIT FIELD CONDITIONS OR MEET LOCAL CODE REQUIREMENTS.
 - SET DAMPER TO DELIVER SCHEDULED OUTSIDE AIRFLOW.
 - REFER TO MANUFACTURER'S RECOMMENDATIONS FOR MAXIMUM CONDENSATE DRAIN LIFT LENGTHS.
 - REFER TO MANUFACTURER'S RECOMMENDATIONS FOR HORIZONTAL CONDENSATE DRAIN CONNECTION FROM THE UNIT.

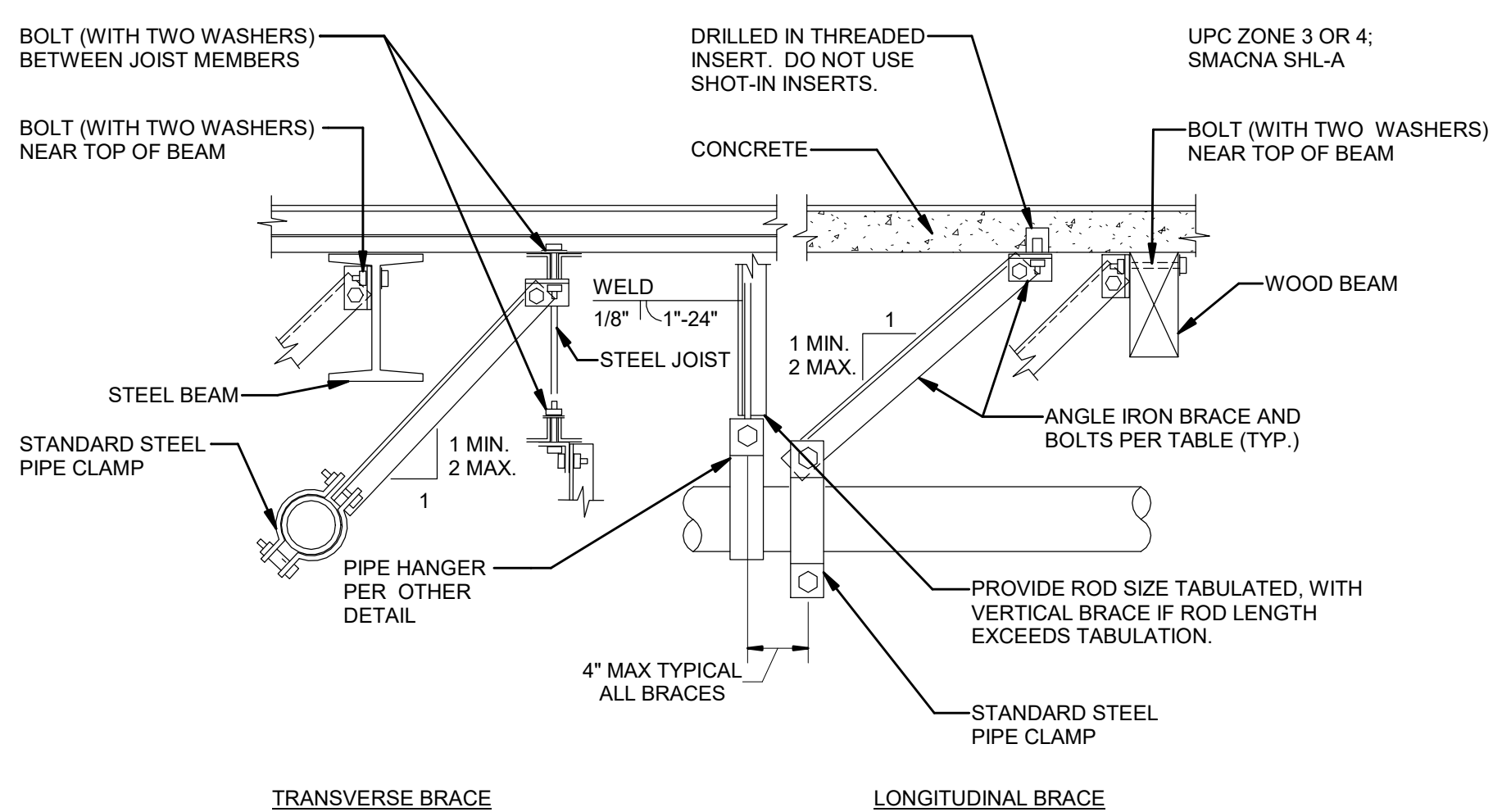
5 M-602.00 NTS
VRF CEILING CASSETTE FAN COIL UNIT



NOTE: THIS IS A SEISMIC ZONE 2A PROJECT.

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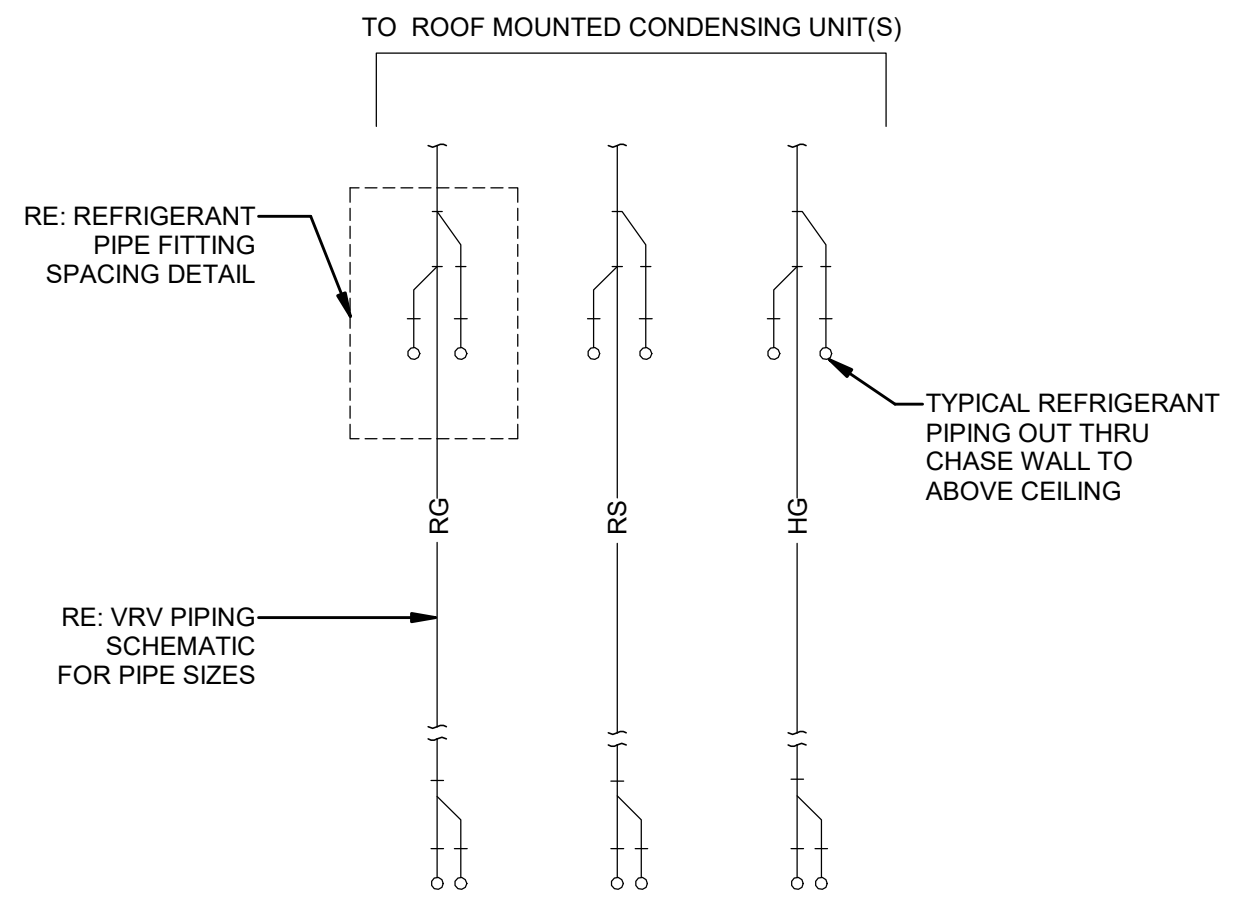
7 M-602.00 NTS
SEISMIC RESTRAINT DETAIL FOR DUCT BETWEEN FIRE DAMPER CONNECTIONS



| PIPE SIZE | SPACING TR. | SPACING LO. | TRANSVERSE BRACE | LONGITUDINAL BRACE | BOLT SIZE | ROD SIZE | MAX ROD LENGTH | VERTICAL BRACE |
|-----------|-------------|-------------|------------------|--------------------|-----------|----------|----------------|----------------|
| 1"-2" | 20" | 40" | 2"x2"x18GA | 2"x2"x18GA | 1/4" | 3/8" | 20" | 2"x2"x18GA |
| 2-1/2"-3" | 40" | 80" | 2-1/2x2-1/2x16 | 2-1/2x2-1/2x16 | 3/8" | 1/2" | 25" | 2"x2"x16GA |
| 4"-5" | " | " | " | " | 1/2" | 5/8" | 31" | " |
| 6" | 40" | 40" | 2-1/2x2-1/2x12 | " | 3/4" | 37" | 2-1/2x2-1/2x16 | " |
| 8" | " | " | " | " | 5/8" | 7/8" | 43" | 2-1/2x2-1/2x12 |
| 10" | 20" | 20" | " | " | 3/4" | " | " | " |
| 12" | " | " | 3"x3"x12GA | 3"x3"x12GA | " | " | " | " |
| 14" | " | " | " | " | " | 1" | 50" | " |

DO NOT BRACE ANY PIPE WHERE TOP OF PIPE TO BOTTOM OF UPPER ATTACHMENT IS < 12". BRACE GAS, OIL AND AIR PIPE 1" AND LARGER. BRACE ALL PIPE IN EQUIPMENT ROOMS 1-1/4" AND LARGER. BRACE ALL OTHER PIPE 2-1/2" AND LARGER. BRACE HUBLESS CAST IRON PIPE ON EACH SIDE OF ANY CHANGE IN DIRECTION OF 90 DEGREES OR MORE. MAXIMUM HANGER ROD LENGTH IS 6 FEET. WHERE LENGTH OF RUN EXCEEDS LONGITUDINAL BRACE SPACING, PROVIDE 2' OFFSET IN PIPE AND LOCATE BRACE AT MID RUNS. REFER TO SMACNA "SEISMIC RESTRAINT MANUAL" CURRENT EDITION FOR ALTERNATIVE ATTACHMENTS AND ADDITIONAL INFORMATION AND REQUIREMENTS. (THIS DETAIL APPLIES IN THE ABSENCE OF OTHER LOCAL CODE REQUIREMENTS.)

6 M-602.00 NTS
SEISMIC BRACING FOR PIPE DETAIL



1 M-602.00 NTS
TYPICAL VRV UNIT PIPING DETAIL

2 M-602.00 NTS
TYPICAL REFRIGERANT PIPING SYSTEM RISER

- SHEET NOTES:
- REFER TO SHEETS A SERIES FOR ARCHITECTURAL DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
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Engineering and Land Surveying, P.C.
370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN
ARCHITECTURE+ENGINEERING
25 Mohawk Avenue
Sparta, NJ 07871

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Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

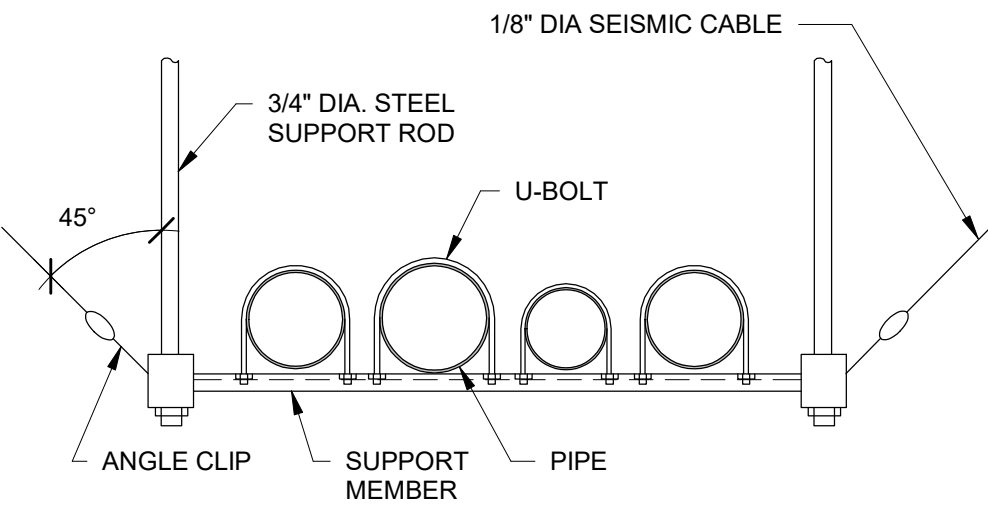
Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

HVAC - DETAILS

STATE OF NEW YORK
ALEXANDER ZABOLOTSKY
REGISTERED PROFESSIONAL ENGINEER
071371

DATE 12/12/2022
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CHECKED BY A. ZABOLOTSKY
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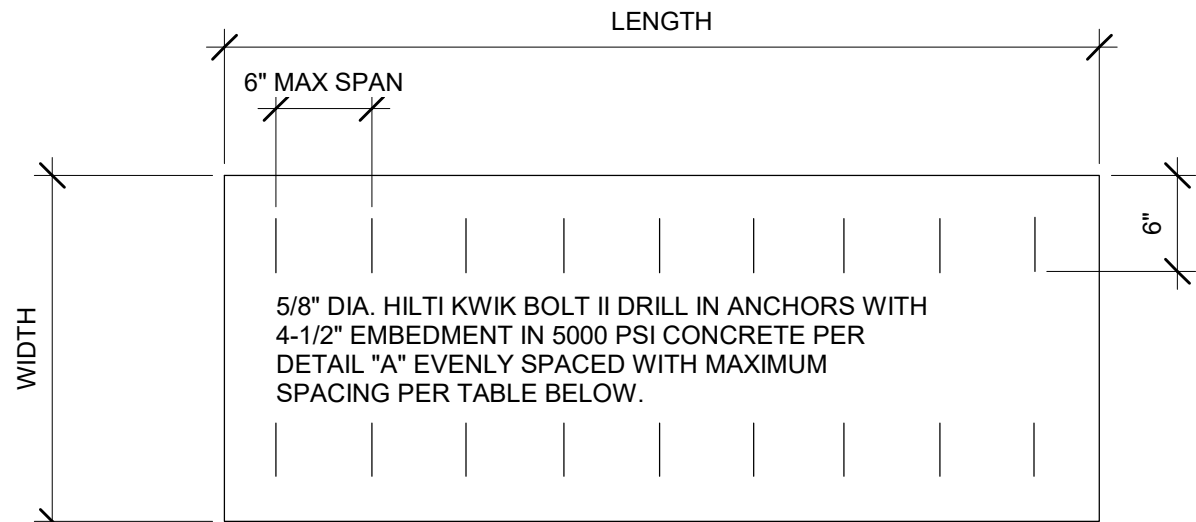


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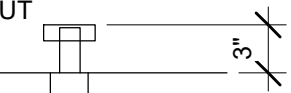
BRACE
LONGITUDINAL CABLE

TRANSVERSE CABLE BRACE

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STUD FLUSH
W/JAM NUT



STUD EXTENSIONS ARE
BASED ON 4\"/>

5/8\"/>

DETAIL "A"

| PAD WIDTH | | MAX. EQUIPMENT WT. LBS./LIN. FT. | MAX. TIEDOWN SPACING(IN.) | |
|-----------|------|-------------------------------------|---------------------------|--------|
| FROM | TO | | 1"G" | 1/2"G" |
| 36" | 59" | 500# | 12" | 24" |
| 60" | 95" | 800# | 10" | 20" |
| 96" | 120" | 950# | 18" | 36" |

NOTES:

- 1) THIS PLAN IS VALID IF THE CONTRACT DOCUMENTS DO NOT SPECIFY REINFORCING OF TIE DOWN REQUIREMENTS.
- 2) ALL HOUSEKEEPING PAD REINFORCING SHOULD CONFORM TO ACI STANDARDS FOR MINIMUM AREA & CONCRETE COVERAGE.
- 3) HIGH CONCENTRATED LOADS OF POINT SUPPORTED EQUIPMENT REQUIRE SPECIAL TIEDOWN CONSIDERATIONS NOT COVERED BY THIS DETAIL.

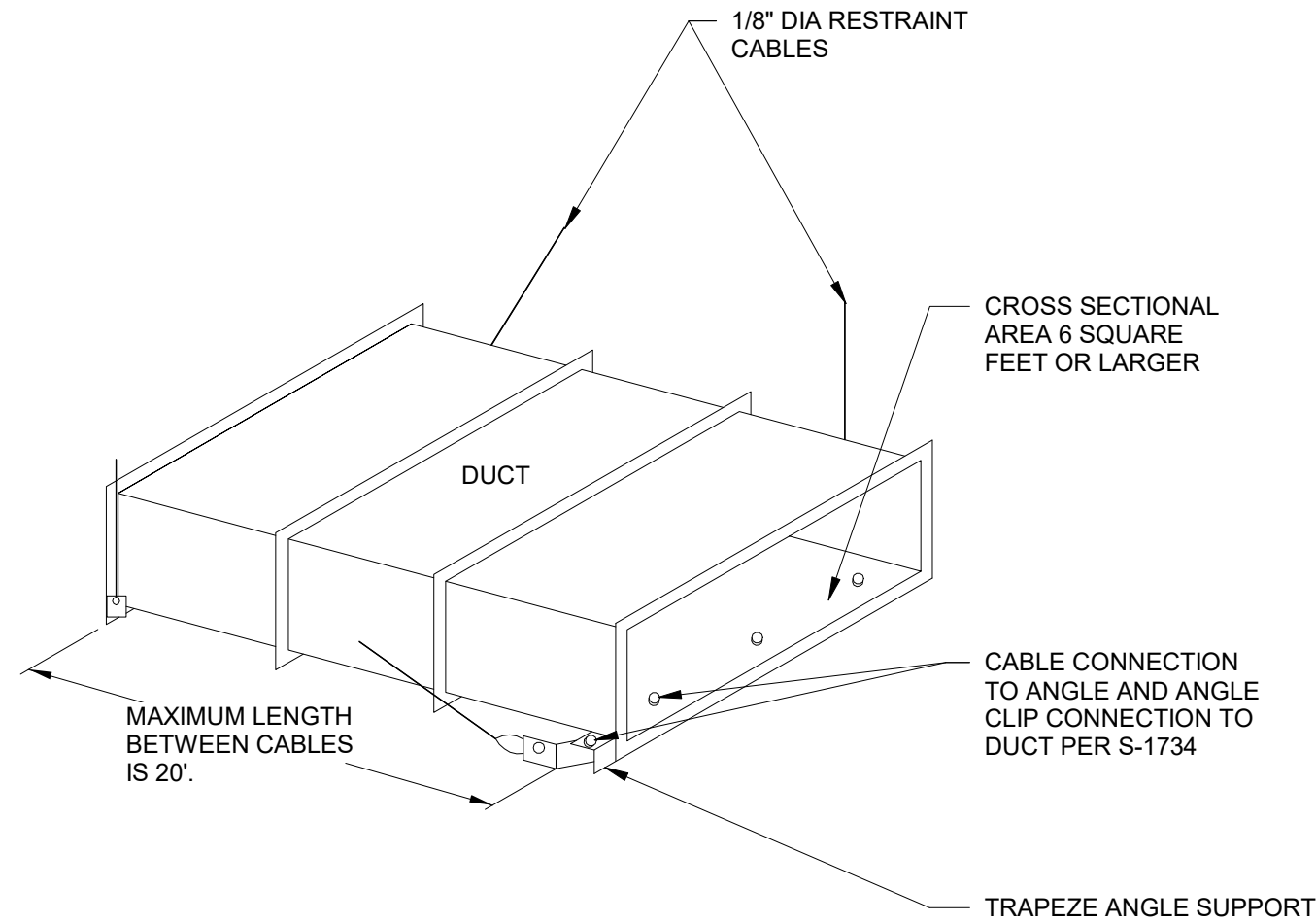
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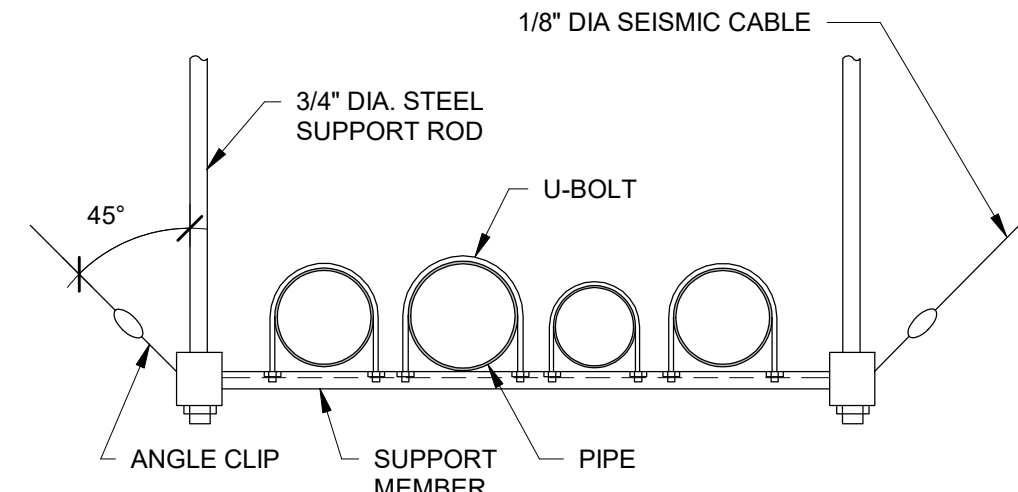


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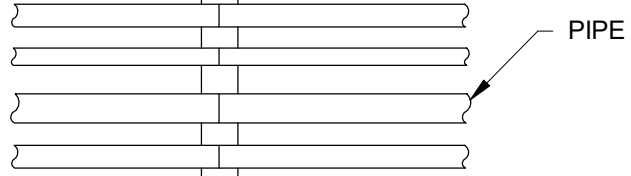
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SEISMIC RESTRAINT OF DUCT BETWEEN FIRE DAMPER CONNECTIONS



PLAN VIEW OF BRACE

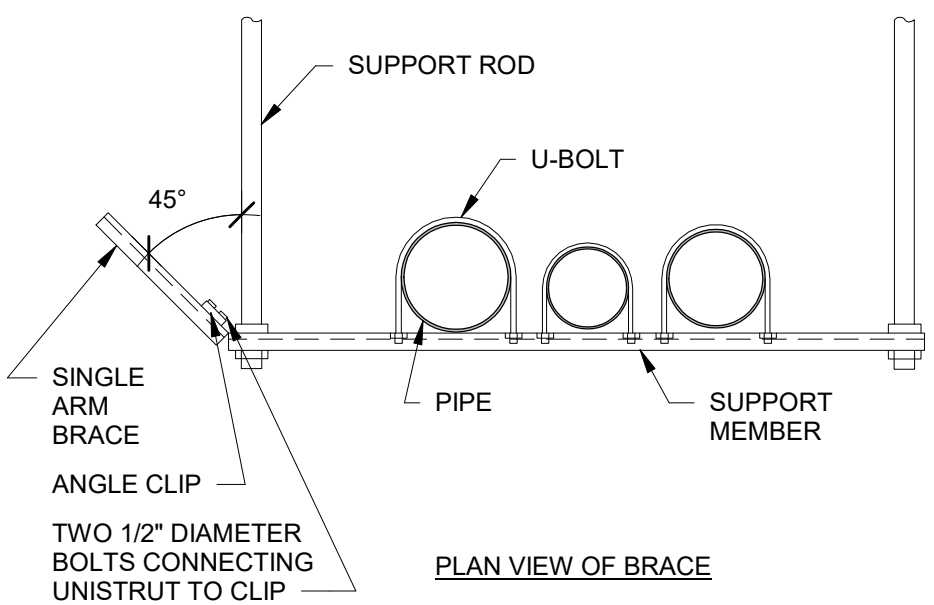


TRANSVERSE CABLE BRACE

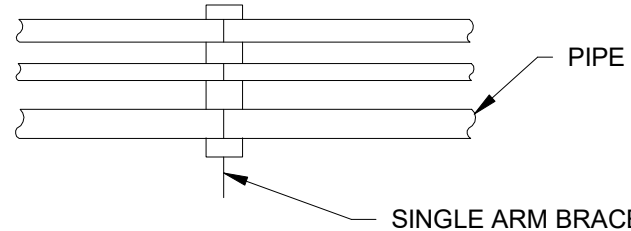
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TRANSVERSE CABLE BRACE FOR TRAPEZE HUNG REFRIGERATION AND CONDENSATE PIPING

NTS



PLAN VIEW OF BRACE



SINGLE ARM BRACE

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SINGLE ARM BRACE FOR TRAPEZE HUNG REFRIGERATION AND CONDENSATE PIPING

NTS

ISSUED FOR PERMIT

K Engineering and
Land Surveying, P.C.

370 7th Avenue
SUITE 1604
New York, NY 10001

**SOWINSKI
SULLIVAN**
ARCHITECTURE * ENGINEERING

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Kiewit

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Hitachi Energy

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PROJECT

CHPE
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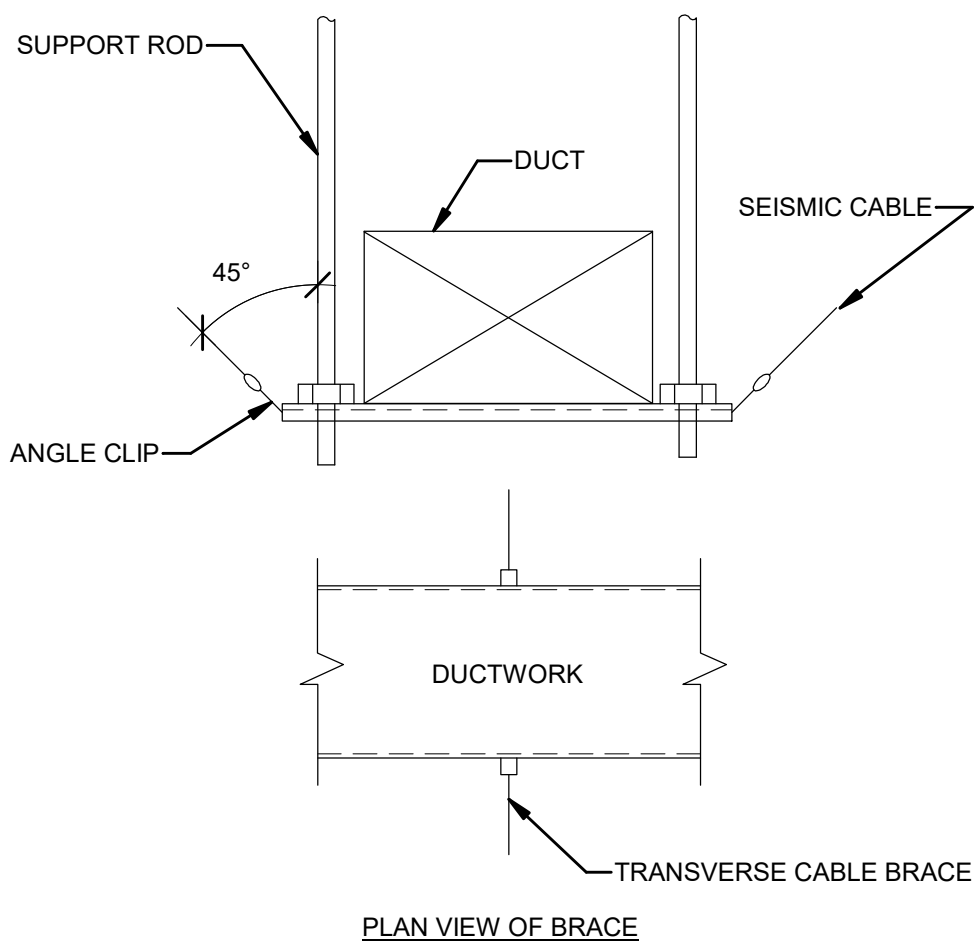
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HVAC - DETAILS

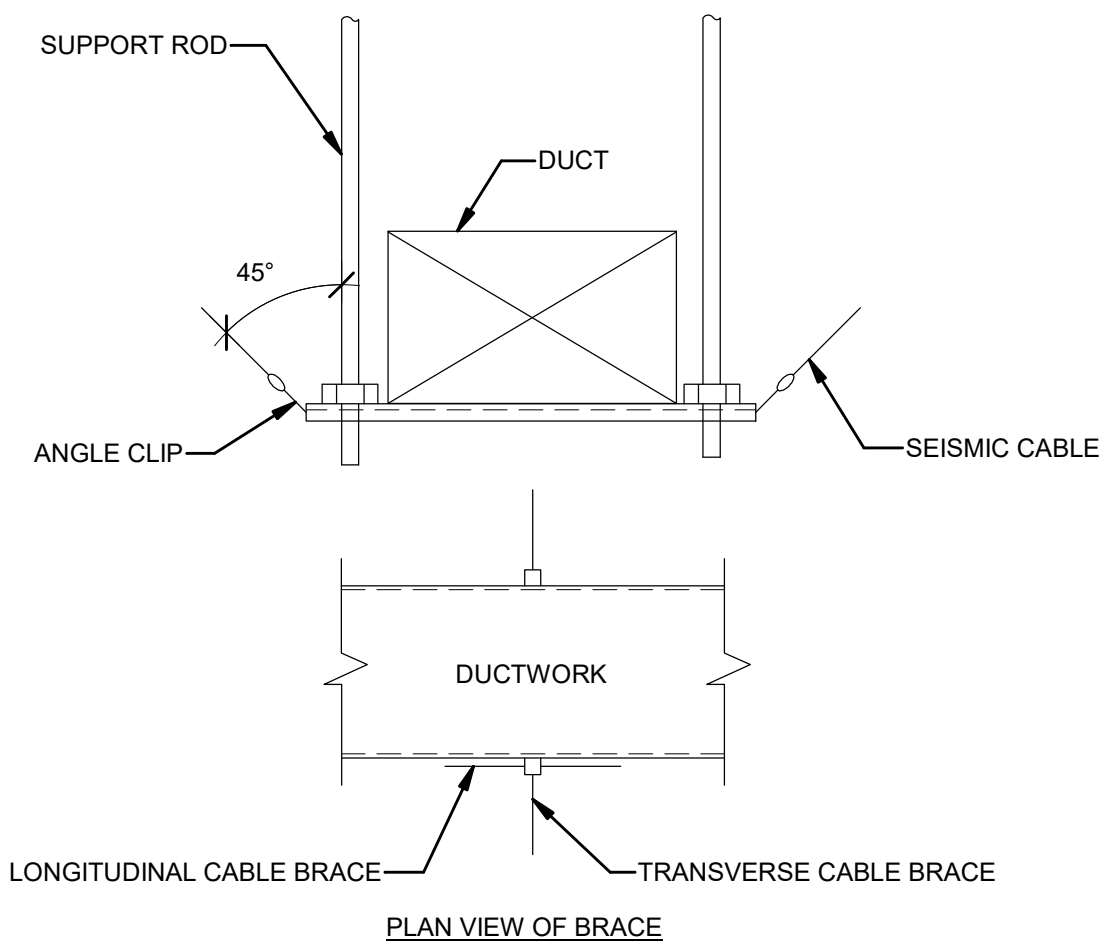


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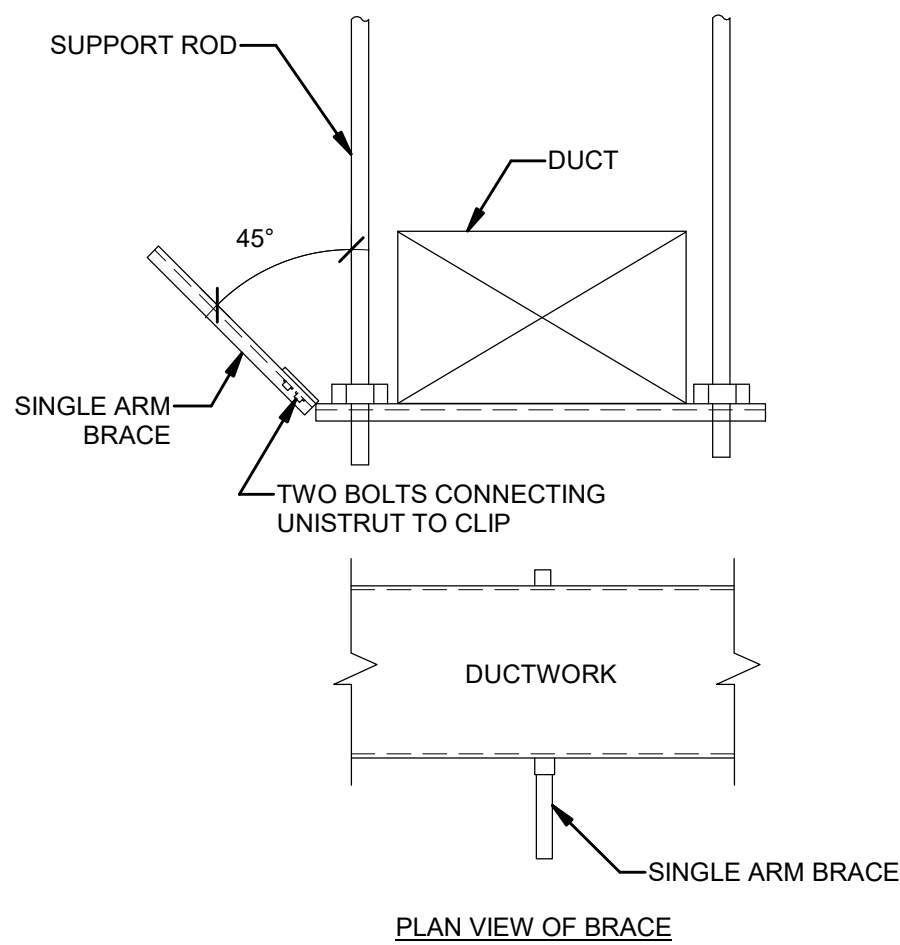
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1
M-604.00
TRANSVERSE CABLE BRACE FOR DUCTWORK
NTS



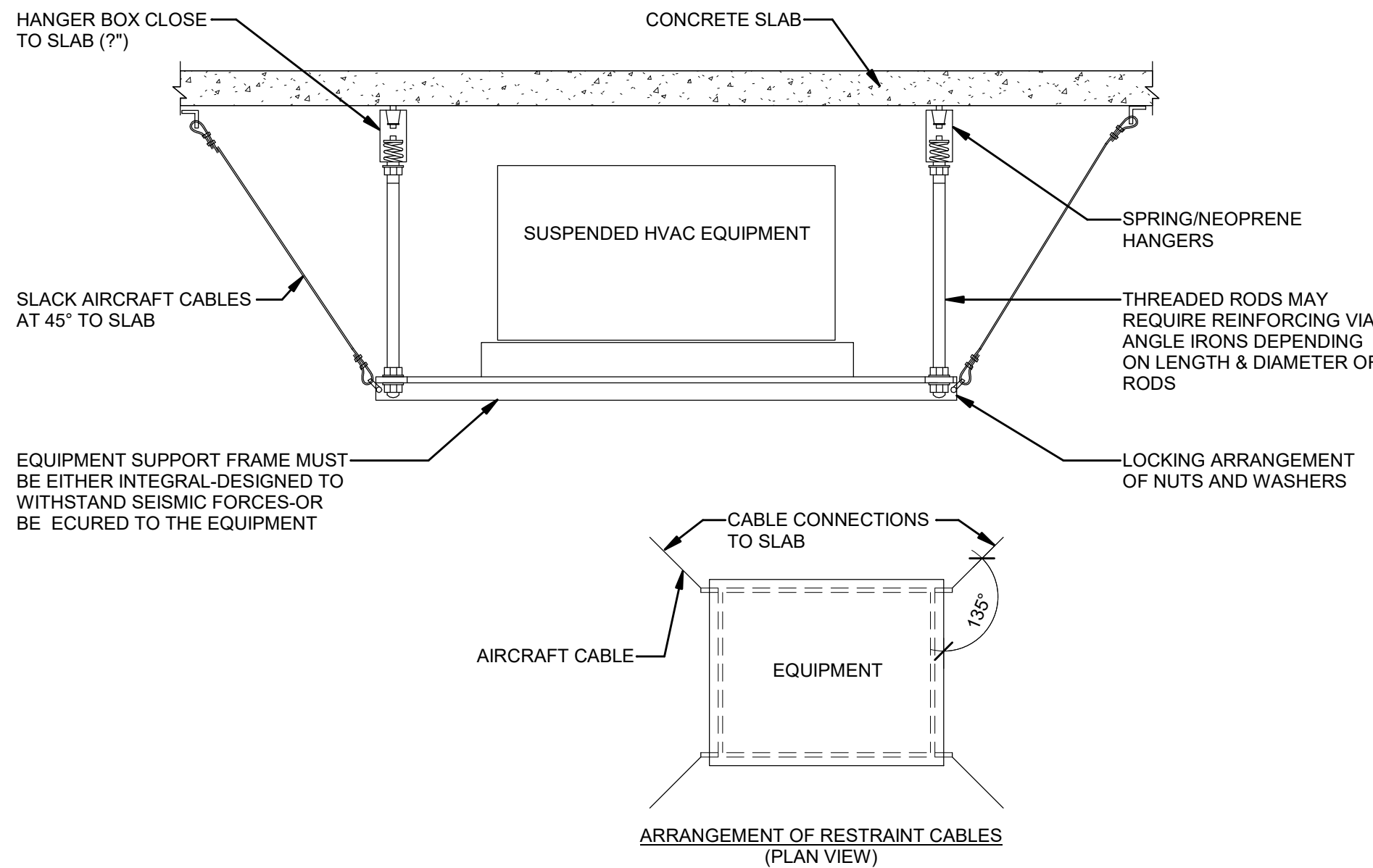
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2
M-604.00
TRANSVERSE AND LONGITUDINAL CABLE BRACE FOR DUCT
NTS



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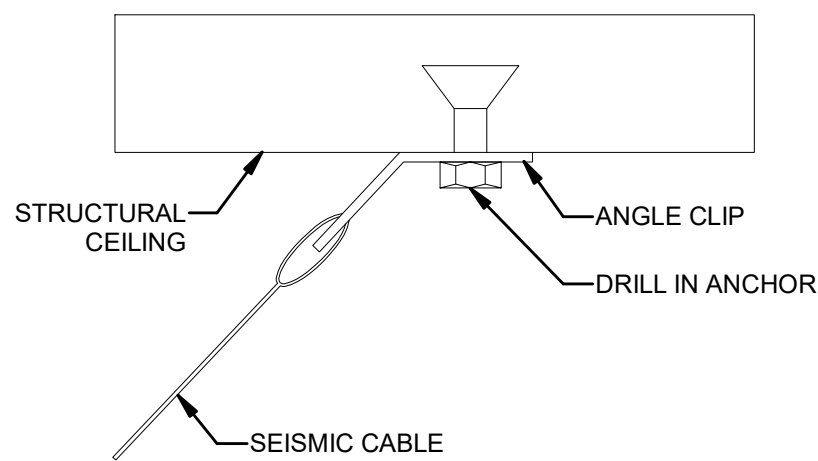
3
M-604.00
SINGLE ARM BRACE FOR DUCT
NTS



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4
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SEISMIC RESTRAINT DETAIL FOR SUSPENDED EQUIPMENT TYPE III
NTS



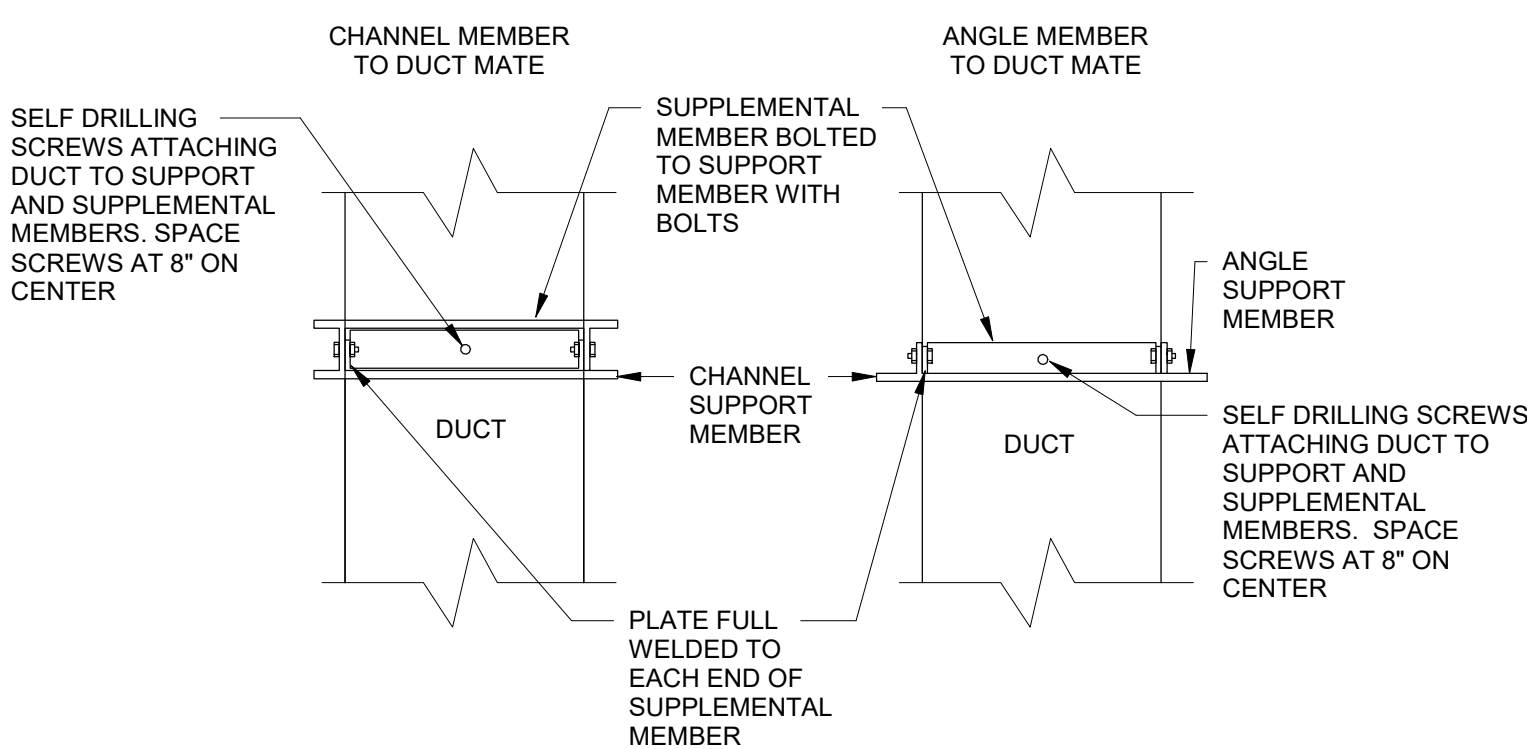
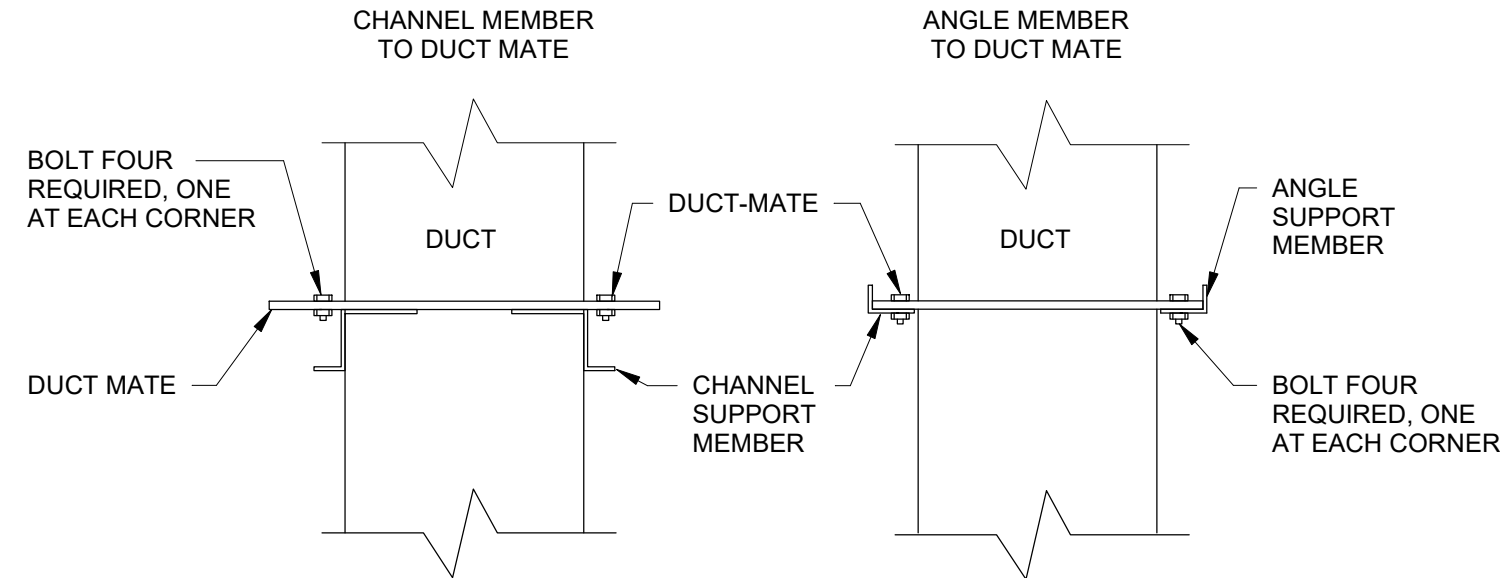
MAXIMUM LATERAL SEISMIC LOAD FOR CABLE AND ANCHOR RESTRAINTS

| CABLE DIAMETER (IN) | DRILL IN ANCHOR DIAMETER (IN) | ANCHOR EMBEDMENT | MAXIMUM LATERAL LOAD (LBS)* |
|---------------------|-------------------------------|------------------|-----------------------------|
| 1/8" | 3/8" | 2 1/2" | 390 |
| 3/16" | 5/8" | 4" | 935 |
| 1/4" | 1" | 4 1/2" | 1500 |

*MAXIMUM LOADS BASED ON HILTI KWIK BOLT II DRILL IN ANCHORS FOR SUSPENDED EQUIPMENT SUBJECT TO 1' G' ACCELERATION. THIS MAXIMUM LOAD REPRESENTS THE MAXIMUM EQUIPMENT WEIGHT REQUIRING FOUR CABLES. (FOR 0.5' G' ACCELERATION, WEIGHT CAN BE DOUBLED.)

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5
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SEISMIC CABLE ATTACHMENT DETAIL TO STRUCTURAL CEILING DECK
NTS



SECTION A-A

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6
M-604.00
ATTACHMENT OPTIONS FOR DUCT CONNECTION TO SUPPORT MEMBERS
NTS

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Engineering and
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370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI
SULLIVAN
ARCHITECTURE+ENGINEERING

25 Mohawk Avenue
Sparta, NJ 07871

CONFIDENTIAL

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| | | | | |
|-----|--------------------|--------|--------|----------|
| B | FINAL SUBMISSION | WP | SD | 12-12-22 |
| A | INTERIM SUBMISSION | WP | AZ | 09-13-22 |
| REV | DESCRIPTION | DRW BY | CHK BY | DATE |

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson
Power Express

**Astoria HVDC
Converter Station**

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

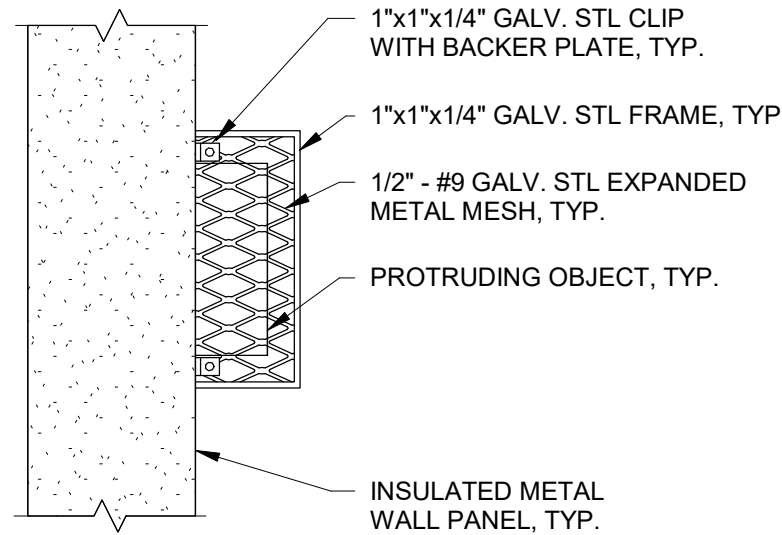
HVAC - DETAILS



DATE 12/12/2022
PROJECT NO 105121
DRAWING BY W. PENDELTON
CHECKED BY A. ZABOLOTSKY
DRAWING NO
M-605.00
CADD FILE NO
Astoria\CHA-KIE-081-00-M3-H-001.rvt

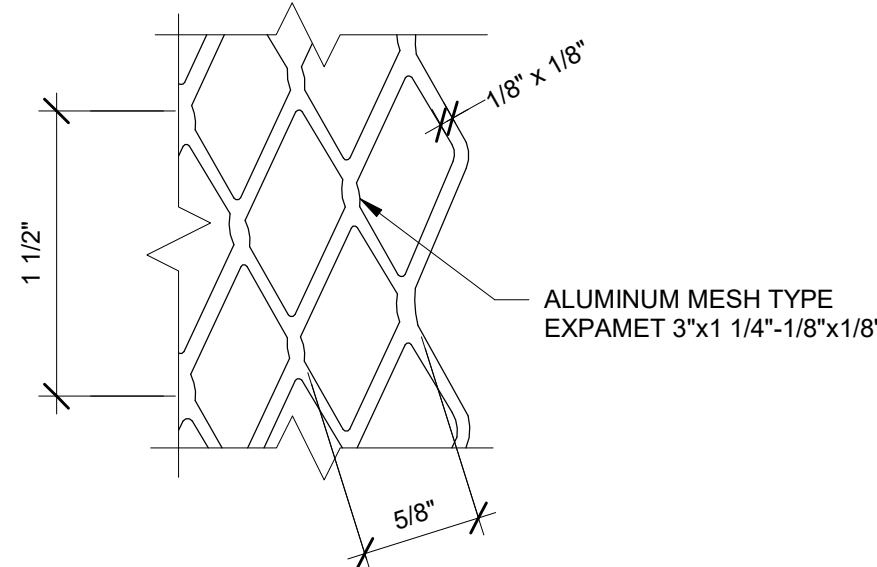
SHEET NOTES:

- REFER TO SHEETS A SERIES FOR ARCHITECTURAL DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
- REFER TO SHEETS E SERIES FOR BUILDING ELECTRICAL DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
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- REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
- ALL HVAC METALLIC COMPONENTS INSIDE CONVERTOR BUILDING SHALL BE BONDED TO THE BUILDING OR BUILDING RING CONDUCTOR. COORDINATE WITH ELECTRICAL PLANS AND CONTRACTOR FOR REQUIREMENTS.
- ALL HVAC METALLIC COMPONENTS SHALL BE BONDED TO GROUND. COORDINATE WITH ELECTRICAL PLANS AND CONTRACTOR FOR REQUIREMENTS.

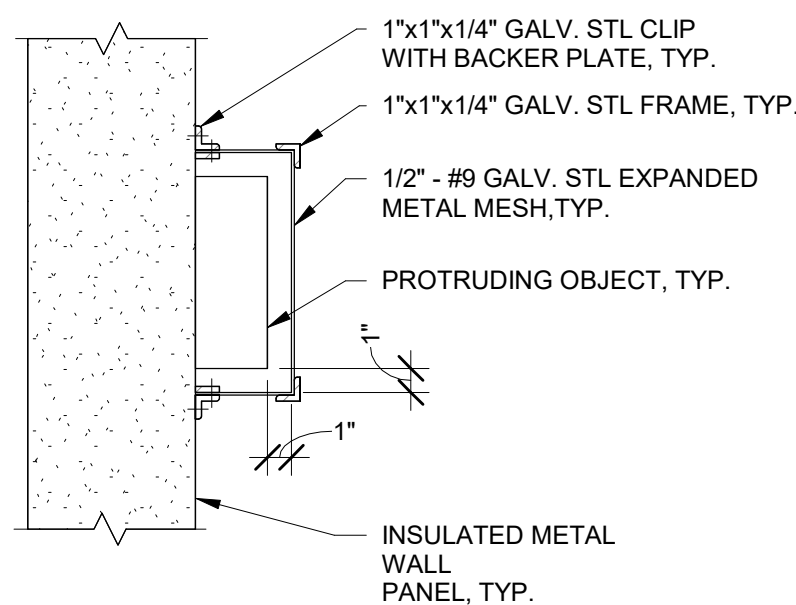


3 FARADAY CAGE ELEVATION DETAIL
1 1/2" = 1'-0"

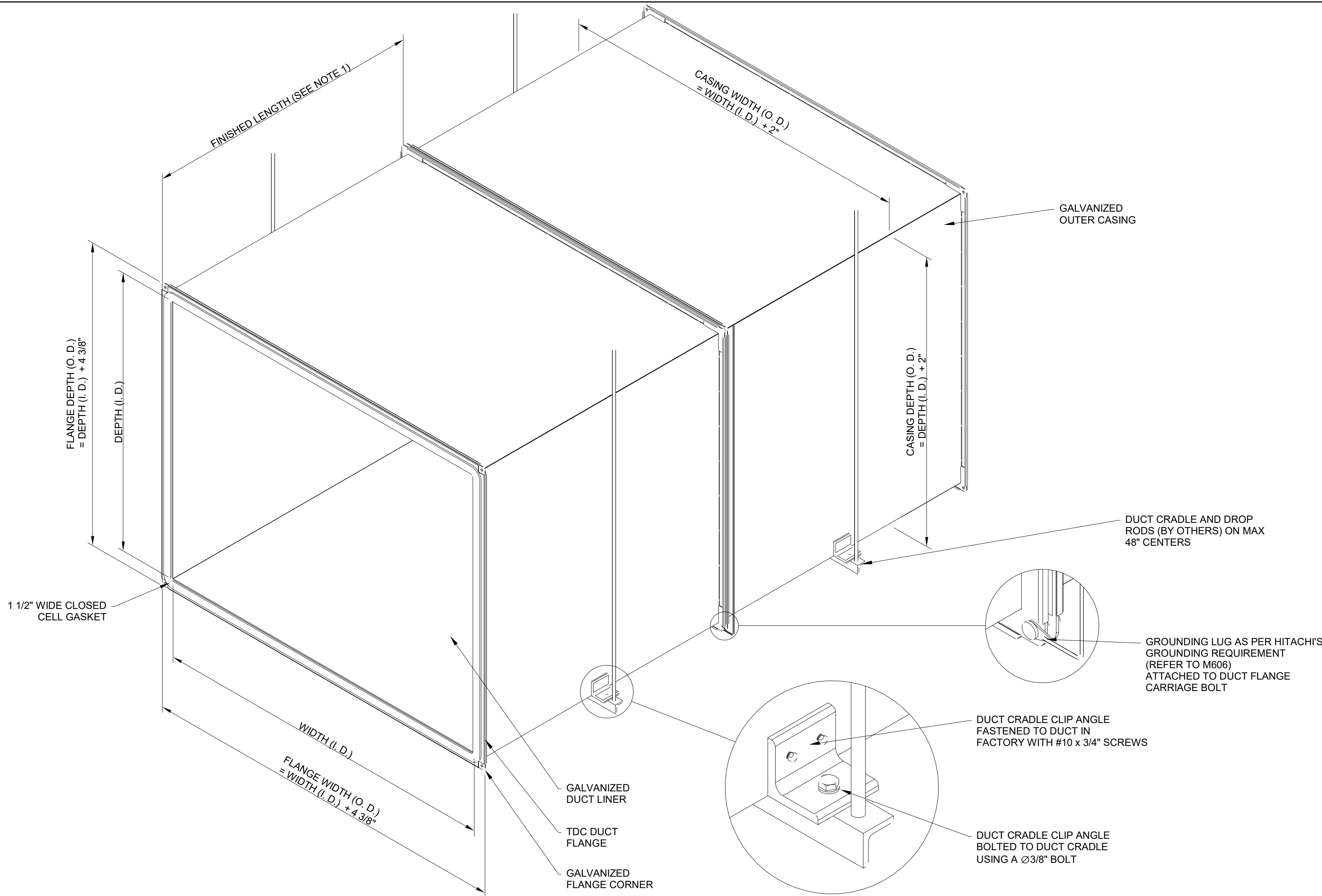
IF DETAILS CANNOT BE ACHIEVED WHEN USING SANDWICH PANELS, AN EXPANDED METAL MESH SHOULD BE USED INSTEAD, PROVIDING A FARADAYS CAGE WITH THE BELOW CHARACTERISTICS:



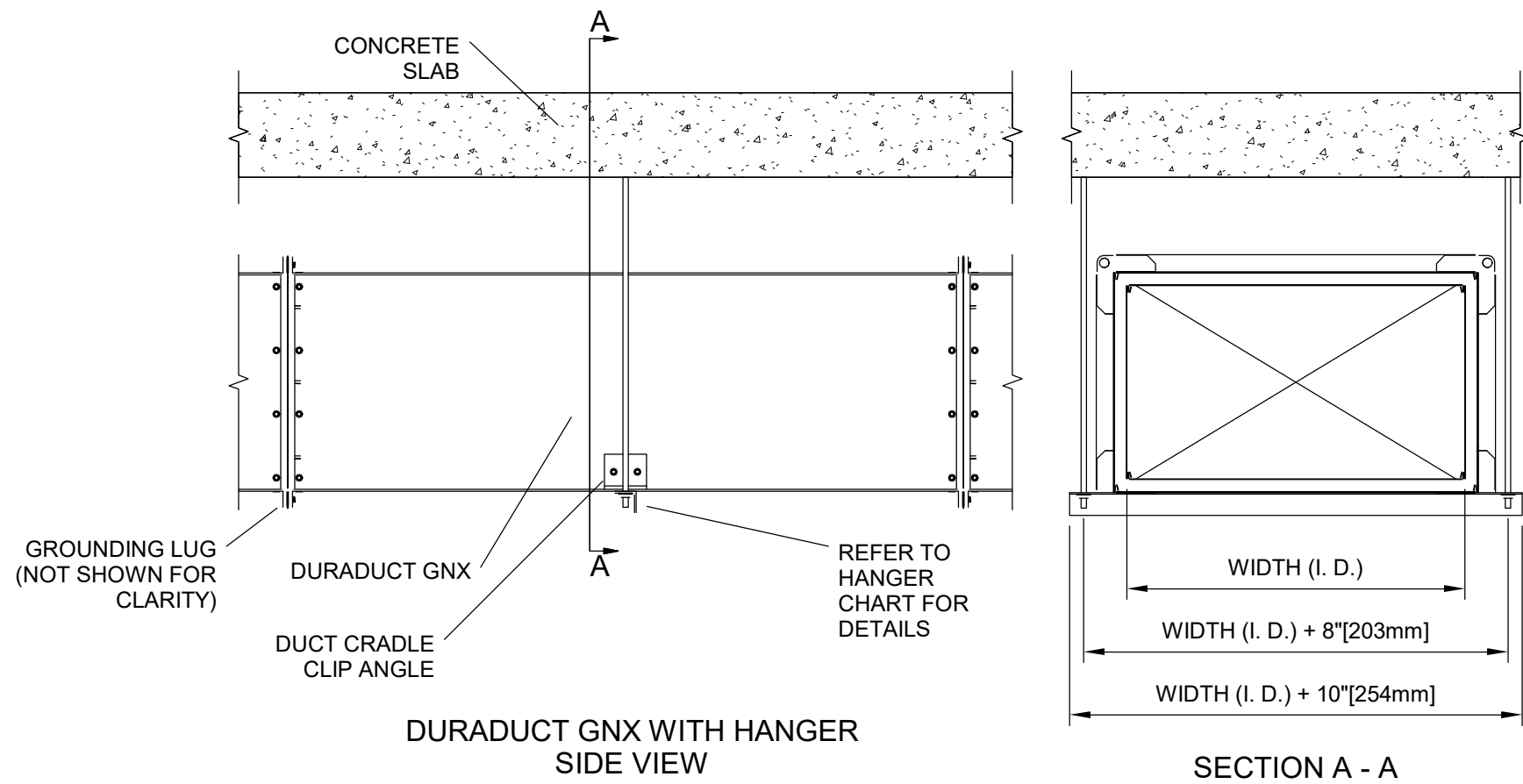
4 FARADAY CAGE GROUNDING DETAIL
12" = 1'-0"



5 FARADAY CAGE SECTION DETAIL
1 1/2" = 1'-0"



1 GNX HANGER & GROUNDING DETAIL
M-605.00 NTS

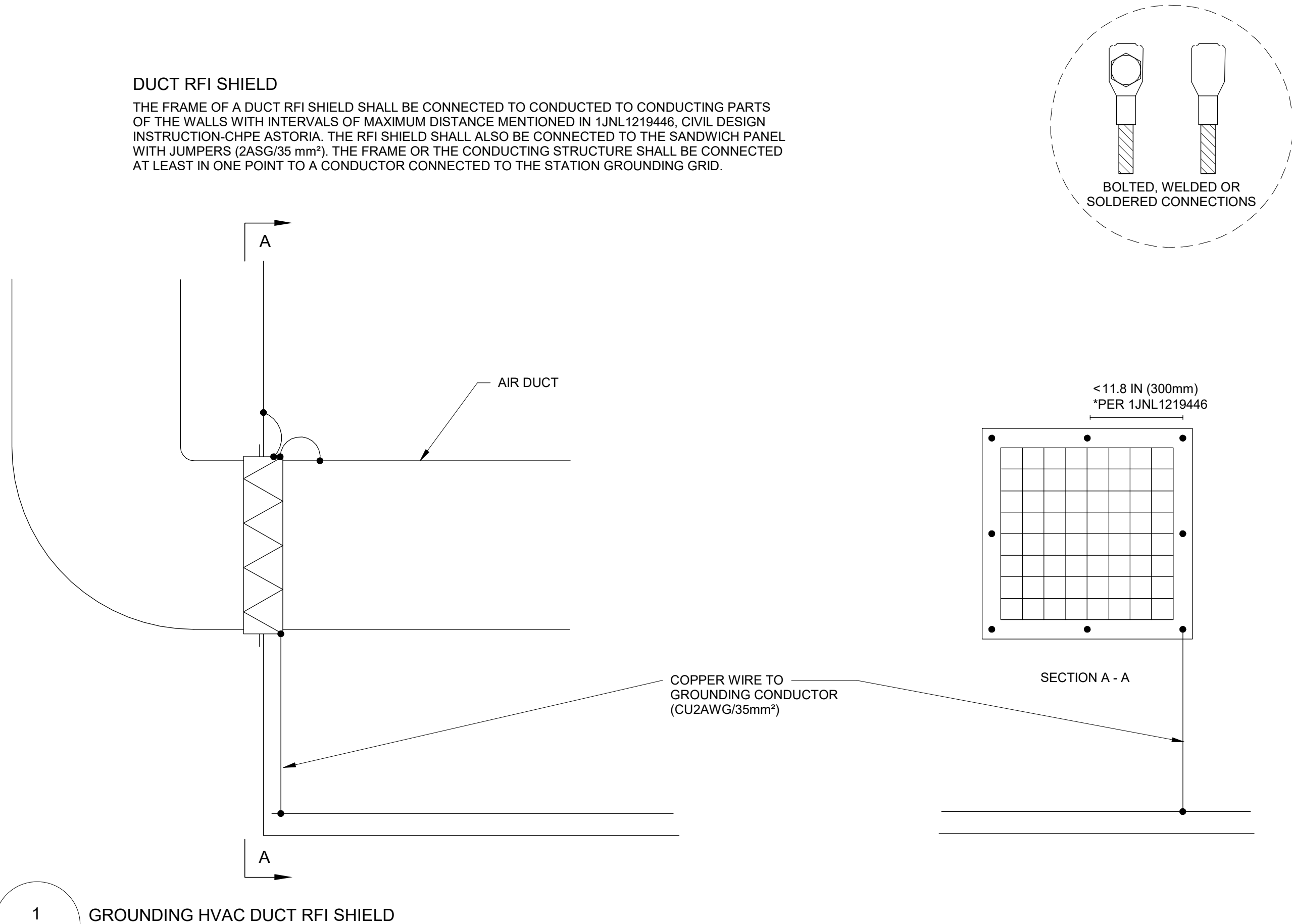


DURADUCT GNX HORIZONTAL DUCT SUPPORT CHART

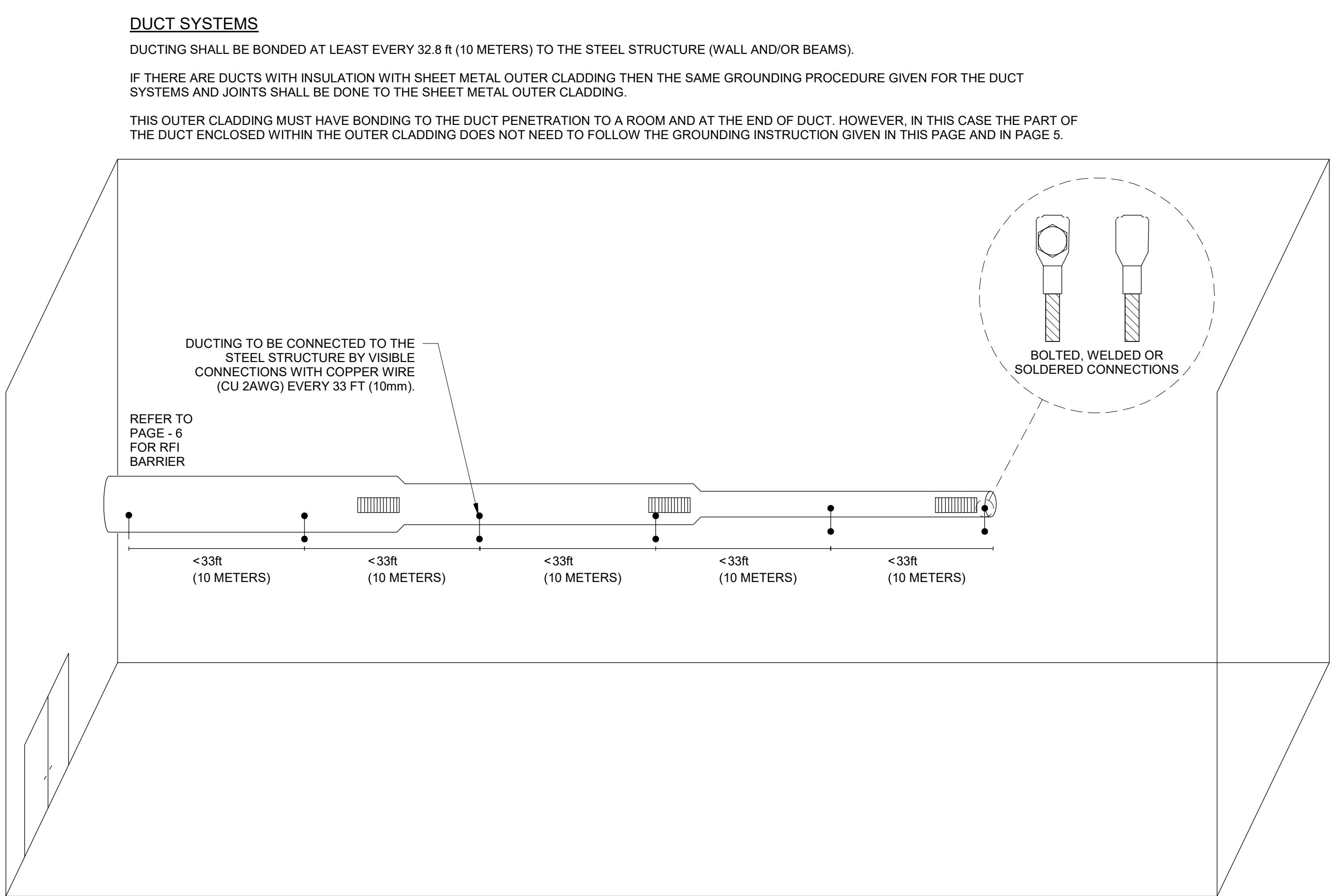
| DUCT WIDTH | DUCT HEIGHT | STEEL ANGLE SIZE | ROD SIZE | SPACING |
|------------|-------------|-------------------------|----------|---------|
| 24" | 24" | 1 1/2" x 1 1/2" x 1/8" | 3/8" | 48" |
| 36" | 36" | 1 1/2" x 1 1/2" x 3/16" | 1/2" | 48" |
| 42" | 42" | 1 1/2" x 1 1/2" x 3/16" | 1/2" | 48" |
| 60" | 48" | 1 1/2" x 1 1/2" x 1/4" | 1/2" | 48" |
| 60" | 60" | 2" x 2" x 1/4" | 1/2" | 48" |
| 72" | 36" | 1 1/2" x 1 1/2" x 1/4" | 1/2" | 48" |
| 72" | 48" | 2" x 2" x 1/4" | 1/2" | 48" |
| 84" | 24" | 2" x 2" x 1/4" | 1/2" | 48" |

- NOTES:
- STEEL ANGLES ARE BASED ON FORMED A653 GRADE 33 STEEL WITH A MINIMUM 33,000 PSI YIELD STRENGTH.
 - VERTICAL RODS ARE BASED ON 36,000 PSI YIELD STRENGTH.
 - VERTICAL ROD LOCATION SHALL BE MAXIMUM 3" FROM THE OUTER SIDE WALL OF THE DUCT.
 - PLEASE CONTACT DURASYSTEMS IF DUCT SUPPORTS ARE TO DEVIATE FROM THE GUIDELINES LISTED ABOVE FOR REVIEW PRIOR TO INSTALLATION.

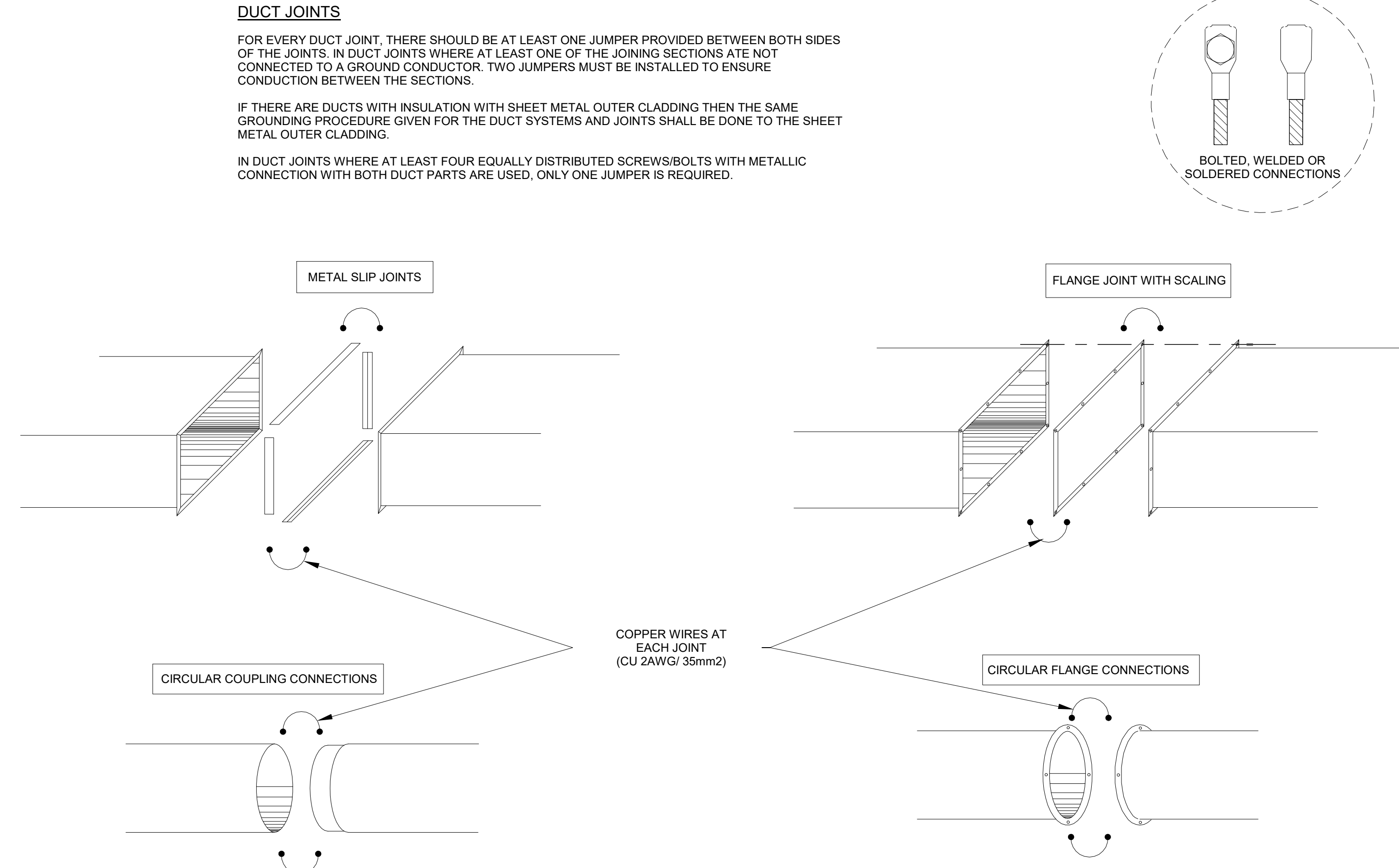
2 SUPPORT DETAIL AND HANGER CHART.dwg
M-605.00 NTS



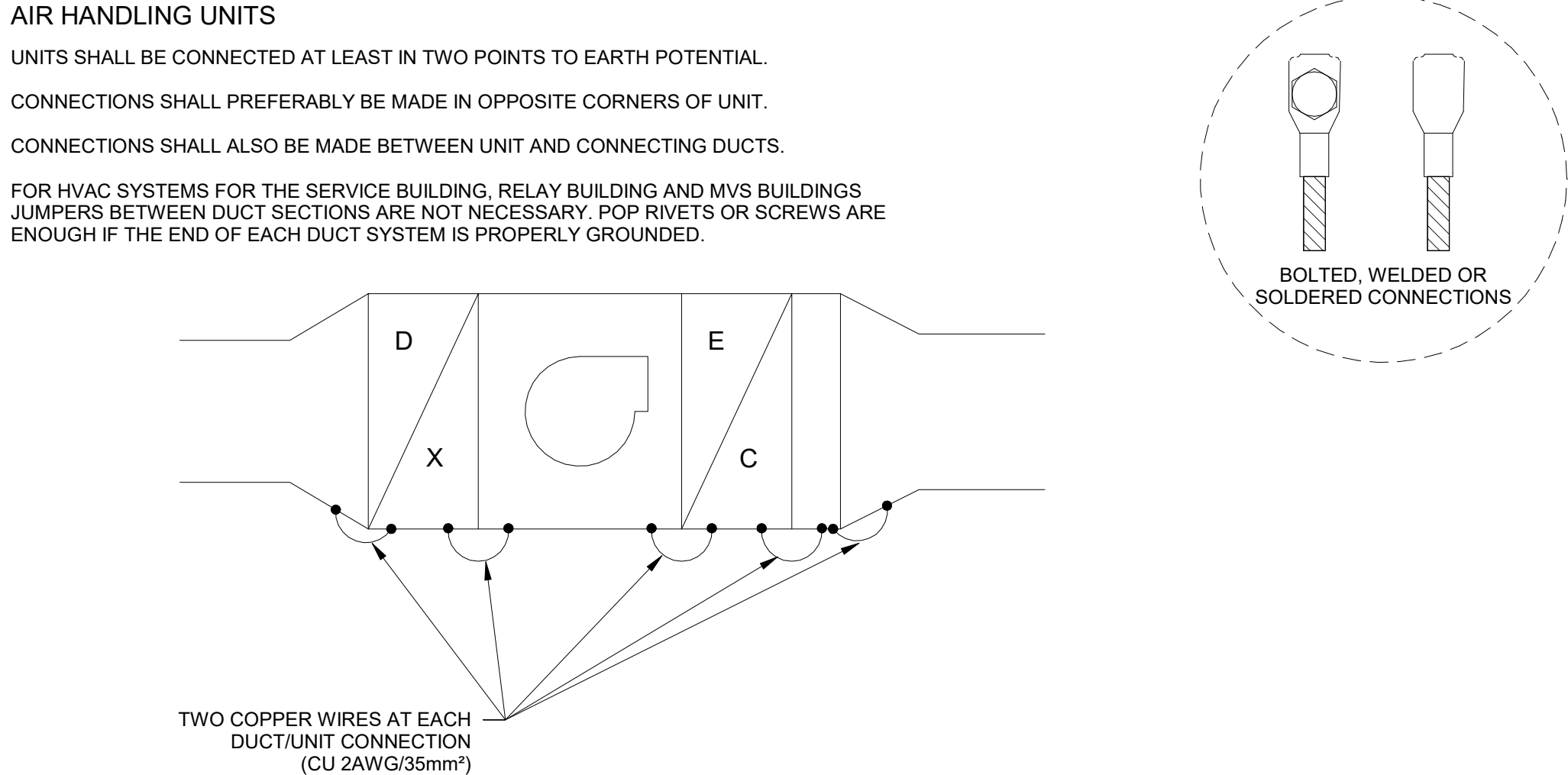
1
M-606.00
GROUNDING HVAC DUCT RFI SHIELD
NTS



3
M-606.00
GROUNDING HVAC DUCT SYSTEMS
NTS



2
M-606.00
GROUNDING HVAC DUCT JOINTS
NTS



4
M-606.00
GROUNDING HVAC AIR HANDLING UNITS
NTS

- SHEET NOTES:**
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ISSUED FOR PERMIT

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370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI SULLIVAN
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| REV | DESCRIPTION | DRW BY | CHK BY | DATE |
|-----|--------------------|--------|--------|----------|
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| A | INTERIM SUBMISSION | WP | AZ | 09-13-22 |

Kiewit
470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy
901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson
Power Express

Astoria HVDC Converter Station

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

HVAC - DETAILS

STATE OF NEW YORK
ALEXANDER ZABOLOSKY
071371
REGISTERED PROFESSIONAL ENGINEER


DATE: 12/12/2022
PROJECT NO: 105121
DRAWING BY: W. PENDLETON
CHECKED BY: A. ZABOLOSKY
DRAWING NO: **M-606.00**
CADD FILE NO: Astoria/CHA-KIE-081-00-M314-001.rvt

| ELECTRIC UNIT HEATER (EUH) SCHEDULE | | | | | | | | | | | |
|--|----------|-----------|--------------|-------|--------------------------|----------------------|--------------|-----------------|------|--------------|-------|
| EQUIPMENT TAG | BUILDING | MOUNTING | MANUFACTURER | MODEL | MOUNTING HEIGHT (FT AFF) | ELECTRIC HEATER (KW) | FAN/MOTOR HP | ELECTRICAL DATA | | WEIGHT (LBS) | NOTES |
| | | | | | | | | V/PH/HZ | AMPS | | |
| EUH-130-01 | STORGAE | SUSPENDED | INDEECO | IUH | NA | 7.5 | 1/4 | 480/3/60 | 11 | 45 | 1-4 |
| EUH-130-02 | STORAGE | SUSPENDED | INDEECO | IUH | NA | 7.5 | 1/4 | 480/3/60 | 11 | 45 | 1-4 |
| EUH-130-03 | STORAGE | SUSPENDED | INDEECO | IUH | NA | 7.5 | 1/4 | 480/3/60 | 11 | 45 | 1-4 |
| EUH-130-04 | STORAGE | SUSPENDED | INDEECO | IUH | NA | 7.5 | 1/4 | 480/3/60 | 11 | 45 | 1-4 |
| EUH-111-01 | SERVICE | SUSPENDED | INDEECO | IUH | 8 | 5.0 | 1/4 | 480/3/60 | 8 | 45 | 1-4 |
| EUH-111-02 | SERVICE | SUSPENDED | INDEECO | IUH | 8 | 5.0 | 1/4 | 480/3/60 | 8 | 45 | 1-4 |
| EUH-111-03 | SERVICE | SUSPENDED | INDEECO | IUH | 8 | 5.0 | 1/4 | 480/3/60 | 8 | 45 | 1-4 |
| NOTES: 1. FURNISH AND INSTALL WITH MANUFACTURER PROVIDED MOUNTING BRACKET AND HARDWARE. 2. PROVIDE DISCONNECT SWITCH TO EACH UNIT HEATERS IN ACCORDANCE WITH DIVISION 26 SPECIFICATIONS. 3. FURNISH AND INSTALL THERMOSTAT; TO BE MOUNTED ON UNIT HEATER. 4. COORDINATE THE EXACT UNIT HEATER ELEVATION WITH OTHER UTILITIES AND EQUIPMENT WITHIN THE BUILDING PRIOR TO AND AFTER INSTALLATION. RELOCATED AS REQUIRED TO MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES. | | | | | | | | | | | |

| VARIABLE REFRIGERANT FLOW (VRF) INDOOR UNIT SCHEDULE | | | | | | | | | | | |
|---|-----------------|----------|--------------|-------------|--------------------------|---------|--------------------|-----------------|------|--------------|-------|
| EQUIPMENT TAG | CONDENSING UNIT | BUILDING | MANUFACTURER | MODEL | NOMINAL CAPACITY (BTU/H) | | FAN AIR FLOW (CFM) | ELECTRICAL DATA | | WEIGHT (LBS) | NOTES |
| | | | | | TOTAL COOLING | HEATING | | V/PH/HZ | RLA | | |
| AC-141-01A | CU-141-01 | RELAY | LG | ARNU243TNA4 | 24,200 | 27,300 | 742 | 208/1/60 | 0.56 | 54 | 1 |
| AC-141-01B | CU-141-01 | RELAY | LG | ARNU243TNA4 | 24,200 | 27,300 | 742 | 208/1/60 | 0.56 | 54 | 1 |
| AC-141-02A | CU-141-02 | RELAY | LG | ARNU243TNA4 | 24,200 | 27,300 | 742 | 208/1/60 | 0.56 | 54 | 1,2 |
| AC-141-02B | CU-141-02 | RELAY | LG | ARNU243TNA4 | 24,200 | 27,300 | 742 | 208/1/60 | 0.56 | 54 | 1,2 |
| AC-141-03A | CU-141-03A | MVS | LG | LCN188HV4 | 18,459 | 10,890 | 459 | 208/1/60 | 0.25 | 32 | 1 |
| AC-141-03B | CU-141-03B | MVS | LG | LCN188HV4 | 18,459 | 10,890 | 459 | 208/1/60 | 0.25 | 32 | 1,2 |
| AC-141-04A | CU-141-04A | MVS | LG | LCN188HV4 | 18,459 | 10,890 | 459 | 208/1/60 | 0.25 | 32 | 1 |
| AC-141-04B | CU-141-04B | MVS | LG | LCN188HV4 | 18,459 | 10,890 | 459 | 208/1/60 | 0.25 | 32 | 1,2 |
| AC-111-01A | CU-111-01A | SERVICE | LG | LCN188HV4 | 18,459 | 10,890 | 459 | 208/1/60 | 0.25 | 32 | 1 |
| AC-111-01B | CU-111-01B | SERVICE | LG | LCN188HV4 | 18,459 | 10,890 | 459 | 208/1/60 | 0.25 | 32 | 1,2 |
| AC-111-02 | CU-111-03 | SERVICE | LG | ARNU283TAA4 | 28,000 | 31,500 | 855 | 208/1/60 | 1.67 | 60 | 1 |
| AC-111-03 | CU-111-03 | SERVICE | LG | ARNU283TAA4 | 28,000 | 31,500 | 855 | 208/1/60 | 1.67 | 60 | 1 |
| AC-111-04 | CU-111-02 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-05 | CU-111-02 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-06 | CU-111-02 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-07 | CU-111-02 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-08 | CU-111-02 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-09 | CU-111-02 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-10 | CU-111-02 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-11 | CU-111-02 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-12 | CU-111-03 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-13 | CU-111-03 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-14 | CU-111-03 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-15 | CU-111-02 | SERVICE | LG | ARNU123TRD4 | 12,300 | 13,600 | 307 | 208/1/60 | 0.2 | 32 | 1 |
| AC-111-16 | CU-111-04 | SERVICE | LG | LCN188HV4 | 18,459 | 10,890 | 459 | 208/1/60 | 0.25 | 32 | 1 |
| NOTES: 1. ELECTRICAL DISCONNECTS TO BE FURNISHED AND INSTALLED BY THE DIVISION 26 CONTRACTOR. COORDINATE ALL ELECTRICAL AND DISCONNECT REQUIREMENTS WITH THE DIVISION 26 CONTRACTOR. 2. AC-141-02A, AC-141-02B, AC-141-03B, AC-141-04B, AND AC-111-01B ARE STANDBY-UNITS. | | | | | | | | | | | |

| VARIABLE REFRIGERANT FLOW (VRF) CONDENSING UNIT SCHEDULE | | | | | | | | | | | | | | | | | |
|---|--------------|-------------|----------|------------------------|------------------|--------------------------|---------------|---------------|------------------------|-----------------------|-----------------|-----------------|-----|-----|--------------|-----------------|-------|
| TAG | MANUFACTURER | MODEL | BUILDING | TOTAL CAPACITY (BTU/H) | | OUTDOOR TEMPERATURE (°F) | | | EFFICIENCY | | REFRIGERAN T | ELECTRICAL DATA | | | SOUND dBA | WEIGHT (LBS) | NOTES |
| | | | | TOTAL COOLING | TOTAL HEATING | COOLING DB | COOLING WB | HEATING DB | COOLING IEER (SEER) | HEATING COP (HSPF) | | V/PH/HZ | MOP | MCA | | | |
| CU-141-01 | LG | ARUM048GSS5 | RELAY | 48,000 | 54,000 | 91.9 | 73.9 | 10.9 | (23) | (12) | R410A | 208/1/60 | 40 | 24 | 67 | 263 | 2-7 |
| CU-141-02 | LG | ARUM048GSS5 | RELAY | 48,000 | 54,000 | 91.9 | 73.9 | 10.9 | (23) | (12) | R410A | 208/1/60 | 40 | 24 | 67 | 263 | 2-7 |
| CU-141-03A | LG | LUU189HV | MVS | 18,000 | 18,500 | 91.9 | 73.9 | 10.9 | (20) | (10) | R410A | 208/1/60 | 30 | 20 | 48 | 129 | 2-7 |
| CU-141-03B | LG | LUU189HV | MVS | 18,000 | 18,500 | 91.9 | 73.9 | 10.9 | (20) | (10) | R410A | 208/1/60 | 30 | 20 | 48 | 129 | 2-7 |
| CU-141-04A | LG | LUU189HV | MVS | 18,000 | 18,500 | 91.9 | 73.9 | 10.9 | (20) | (10) | R410A | 208/1/60 | 30 | 20 | 48 | 129 | 2-7 |
| CU-141-04B | LG | LUU189HV | MVS | 18,000 | 18,500 | 91.9 | 73.9 | 10.9 | (20) | (10) | R410A | 208/1/60 | 30 | 20 | 48 | 129 | 2-7 |
| CU-111-01A | LG | LUU189HV | SERVICE | 18,000 | 18,500 | 91.9 | 73.9 | 10.9 | (20) | (10) | R410A | 208/1/60 | 30 | 20 | 48 | 129 | 1-5 |
| CU-111-01B | LG | LUU189HV | SERVICE | 18,000 | 18,500 | 91.9 | 73.9 | 10.9 | (20) | (10) | R410A | 208/1/60 | 30 | 20 | 48 | 129 | 1-5 |
| CU-111-02 | LG | ARUM121BTE5 | SERVICE | 119,700 | 135,000 | 91.9 | 73.9 | 10.9 | 29.6 | 4.0 | R410A | 208/3/60 | 40 | 31 | 79 | 507 | 1-5 |
| CU-111-03 | LG | ARUM096BTE5 | SERVICE | 96,000 | 108,000 | 91.9 | 73.9 | 10.9 | 33.0 | 4.3 | R410A | 208/3/60 | 40 | 29 | 78 | 507 | 1-5 |
| CU-111-04 | LG | LUU189HV | SERVICE | 18,000 | 18,500 | 91.9 | 73.9 | 10.9 | (20) | (10) | R410A | 208/1/60 | 30 | 20 | 48 | 129 | 1-5 |
| NOTES: | | | | | | | | | | | | | | | | | |
| 1. FURNISH AND INSTALL CONDENSING UNIT ON THE INSTALLED CONCRETE EQUIPMENT PAD. UNIT SHALL BE INSTALLED TO RESIST CONTINUAL 185 MPH WIND SPEED. | | | | | | | | | | | | | | | | | |
| 2. DISCONNECTS TO BE FURNISHED AND INSTALLED BY THE DIVISION 26 CONTRACTOR. COORDINATE ALL DISCONNECT REQUIREMENTS WITH THE DIVISION 26 CONTRACTOR. | | | | | | | | | | | | | | | | | |
| 3. FURNISH AND INSTALL INTERLOCK WITH THE BUILDING AUTOMATIC TRANSFER SWITCH. UNIT TO SHUT DOWN IN THE EVENT OF LOSS OF POWER AND DELAY 30 SECONDS PRIOR TO RE-STARTING. COORDINATE REQUIREMENTS WITH DIVISION 26 CONTRACTOR AND UNIT MANUFACTURER. | | | | | | | | | | | | | | | | | |
| 4. PROVIDE VOLTAGE & PHASE LOSS MONITOR INSTALLED PER MANUFACTURER'S REQUIREMENTS. | | | | | | | | | | | | | | | | | |
| 5. UNITS SHALL BE PROVIDED WITH LOW AMBIENT TEMPERATURE KIT. | | | | | | | | | | | | | | | | | |
| 6. UNITS TO BE INSTALLED 12" ABOVE CONCRETE PAD ON PRE-FABRICATED METAL FRAME. UNIT SHALL BE INSTALLED TO RESIST CONTINUAL 185 MPH WIND SPEED. | | | | | | | | | | | | | | | | | |
| 7. CU-141-02, CU-141-03B, CU-141-04B, CU-111-01B, AND CU-111-02C ARE STAND-BY UNITS. | | | | | | | | | | | | | | | | | |


ISSUED FOR PERMIT


 Engineering and Land Surveying, P.C. 370 7th Avenue SUITE 1604 New York, NY 10001

 SOWINSKI SULLIVAN ARCHITECTURE*ENGINEERING 25 Mohawk Avenue Sparta, NJ 07871

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| A | INTERIM SUBMISSION | WP | AZ | 09-13-22 |
| REV | DESCRIPTION | DRW BY | CHK BY | DATE |

 **Kiewit** 470 Chestnut Ridge Rd # 2, Woodcliff Lake, NJ 07677

 **Hitachi Energy** 901 Main Campus Drive Raleigh, North Carolina 27606

PROJECT  **CHPE** Champlain Hudson Power Express

Astoria HVDC Converter Station
31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

HVAC - SCHEDULES



DATE 12/12/2022
PROJECT NO 105121
DRAWING BY W.PENDLETON
CHECKED BY A.ZABOLOTSKY
DRAWING NO **M-700.00**
CADD FILE NO Astoria-HVAC-KIE-081-00-M3-H-001.rvt

| FAN SCHEDULE | | | | | | | | | | | | | | | | | | | |
|---------------|------------|--------------|-------------|-------------|--------------------------|----------------|-----------------|-----------------------------------|-------------------------------------|--------------|----------------------------------|---------------------------|------------------|----------------------|-------------------------------|----------|-----------------|------------|------------|
| EQUIPMENT TAG | BUILDING | MANUFACTURER | MODEL | APPLICATION | TYPE | AIR FLOW (CFM) | FAN SPEED (RPM) | OVERALL DIMENSIONS (LxWxH INCHES) | ROOF/WALL/DUCT OPENING (LxW INCHES) | WEIGHT (LBS) | EXTERNAL STATIC PRESSURE (IN WG) | SOUND POWER LEVEL (SONES) | ELECTRICAL DATA | | | | INTERLOCK WITH | DRIVE TYPE | NOTES |
| | | | | | | | | | | | | | MOTOR POWER (HP) | MOTOR STARTER OR VFD | COMBINATION MOTOR STARTER TAG | V/PH/HZ | | | |
| SAF-130-01 | STORAGE | TCF | DSI-165-ANE | VENTILATION | INLINE CENTRIFUGAL | 2,400 | 1130 | 26X26X26 | 30 x 30 | 364 | 0.04 | 10.7 | 1.0 | EC | -- | 115/1/60 | THERMOSTAT | DIRECT | 1-8 |
| SAF-081-01 | VALVE HALL | TCF | WPD-42E4 | VENTILATION | SIDEWALL VENTILATION FAN | 17,500 | 866 | 48x48x24 | 48 x 48 | 412 | 0.75 | 36.0 | 5.0 | MOTOR STARTER | BY ELECTRICAL | 460/3/60 | FIRE ALARM SYS. | DIRECT | 1,11,12,13 |
| SAF-081-02 | VALVE HALL | TCF | WPD-42E4 | VENTILATION | SIDEWALL VENTILATION FAN | 17,500 | 866 | 48x48x24 | 48 x 48 | 412 | 0.75 | 36.0 | 5.0 | MOTOR STARTER | BY ELECTRICAL | 460/3/60 | FIRE ALARM SYS. | DIRECT | 1,11,12,13 |
| SAF-081-03 | VALVE HALL | TCF | WPD-42E4 | VENTILATION | SIDEWALL VENTILATION FAN | 17,500 | 866 | 48x48x24 | 48 x 48 | 412 | 0.75 | 36.0 | 5.0 | MOTOR STARTER | BY ELECTRICAL | 460/3/60 | FIRE ALARM SYS. | DIRECT | 1,11,12,13 |
| SAF-081-04 | VALVE HALL | TCF | WPD-42E4 | VENTILATION | SIDEWALL VENTILATION FAN | 17,500 | 866 | 48x48x24 | 48 x 48 | 412 | 0.75 | 36.0 | 5.0 | MOTOR STARTER | BY ELECTRICAL | 460/3/60 | FIRE ALARM SYS. | DIRECT | 1,11,12,13 |
| SAF-081-05 | VALVE HALL | TCF | WPD-42E4 | VENTILATION | SIDEWALL VENTILATION FAN | 17,500 | 866 | 48x48x24 | 48 x 48 | 412 | 0.75 | 36.0 | 5.0 | MOTOR STARTER | BY ELECTRICAL | 460/3/60 | FIRE ALARM SYS. | DIRECT | 1,11,12,13 |
| SAF-081-06 | VALVE HALL | TCF | WPD-42E4 | VENTILATION | SIDEWALL VENTILATION FAN | 17,500 | 866 | 48x48x24 | 48 x 48 | 412 | 0.75 | 36.0 | 5.0 | MOTOR STARTER | BY ELECTRICAL | 460/3/60 | FIRE ALARM SYS. | DIRECT | 1,11,12,13 |
| SAF-081-07 | VALVE HALL | TCF | WPD-42E4 | VENTILATION | SIDEWALL VENTILATION FAN | 17,500 | 866 | 48x48x24 | 48 x 48 | 412 | 0.75 | 36.0 | 5.0 | MOTOR STARTER | BY ELECTRICAL | 460/3/60 | FIRE ALARM SYS. | DIRECT | 1,11,12,13 |
| SAF-081-08 | VALVE HALL | TCF | WPD-42E4 | VENTILATION | SIDEWALL VENTILATION FAN | 17,500 | 866 | 48x48x24 | 48 x 48 | 412 | 0.75 | 36.0 | 5.0 | MOTOR STARTER | BY ELECTRICAL | 460/3/60 | FIRE ALARM SYS. | DIRECT | 1,11,12,13 |
| EF-111-01A | SERVICE | TCF | BSI-080A | EXHAUST | INLINE EXHAUST | 300 | 1374 | 16x16x19 | 12x12 | 90 | 0.50 | 6.1 | 1/4 | VFD | -- | 460/3/60 | PACU-111-01A/B | BELT | 4,9,10 |
| EF-111-01B | SERVICE | TCF | BSI-080A | EXHAUST | INLINE EXHAUST | 300 | 1374 | 16x16x19 | 12x12 | 90 | 0.50 | 6.1 | 1/4 | VFD | -- | 460/3/60 | PACU-111-01A/B | BELT | 4,9,10 |
| EF-111-02A | SERVICE | TCF | BSI-080A | EXHAUST | INLINE EXHAUST | 300 | 1374 | 16x16x19 | 12x12 | 90 | 0.50 | 6.1 | 1/4 | VFD | -- | 460/3/60 | PACU-111-01A/B | BELT | 4,9,10 |
| EF-111-02B | SERVICE | TCF | BSI-080A | EXHAUST | INLINE EXHAUST | 300 | 1374 | 16x16x19 | 12x12 | 90 | 0.50 | 6.1 | 1/4 | VFD | -- | 460/3/60 | PACU-111-01A/B | BELT | 4,9,10 |
| EF-111-03A | SERVICE | TCF | BSI-080A | EXHAUST | INLINE EXHAUST | 75 | 1337 | 16x16x19 | 12x12 | 90 | 0.50 | 4.0 | 1/4 | VFD | -- | 115/1/60 | PACU-111-01A/B | BELT | 4,9,10 |
| EF-111-03B | SERVICE | TCF | BSI-080A | EXHAUST | INLINE EXHAUST | 75 | 1337 | 16x16x19 | 12x12 | 90 | 0.50 | 4.0 | 1/4 | VFD | -- | 115/1/60 | PACU-111-01A/B | BELT | 4,9,10 |
| EF-111-04 | SERVICE | TCF | T100 | EXHAUST | INLINE EXHAUST | 70 | 650 | 14x14x12 | 6" ROUND | 90 | 0.50 | 2.0 | 87 WATTS | -- | -- | 115/1/60 | CLEAN AGENT SYS | DIRECT | 1 |
| EF-111-05 | SERVICE | TCF | BSI-090A | EXHAUST | INLINE EXHAUST | 630 | 1535 | 16x16x19 | 12x12 | 94 | 0.50 | 9.3 | 0.11 | VFD | -- | 115/1/60 | CLEAN AGENT SYS | BELT | 4,9,10 |
| EF-111-06 | SERVICE | TCF | BSI-150A | EXHAUST | INLINE EXHAUST | 1,720 | 994 | 24x24x24 | 20x20 | 144 | 0.50 | 10.5 | 0.33 | VFD | -- | 115/1/60 | CLEAN AGENT SYS | BELT | 4,9,10 |
| EF-111-07 | SERVICE | TFC | BSI-120A | EXHAUST | INLINE EXHAUST | 1,060 | 1161 | 20x20x21 | 16x16 | 111 | 0.50 | 9.2 | 0.19 | VFD | -- | 115/1/60 | CLEAN AGENT SYS | BELT | 4,9,10 |
| EF-111-08 | SERVICE | TCF | T100 | EXHAUST | INLINE EXHAUST | 70 | 650 | 14x14x12 | 6" ROUND | 90 | 0.50 | 2.0 | 87 WATTS | -- | -- | 115/1/60 | CLEAN AGENT SYS | DIRECT | 1 |
| EF-111-09 | SERVICE | TCF | T100 | EXHAUST | INLINE EXHAUST | 70 | 650 | 14x14x12 | 6" ROUND | 90 | 0.50 | 2.0 | 87 WATTS | -- | -- | 115/1/60 | CLEAN AGENT SYS | DIRECT | 1 |

NOTES:
1. PROVIDE FACTORY MOUNTED AND WIRED STARTER/DISCONNECT WITH SINGLE POINT POWER CONNECTION.
2. PROVIDE MOTORIZED LOW LEAKAGE OUTSIDE AIR DAMPER.
3. DELETED
4. PROVIDE WITH FACTORY SUPPLY FAN VFD.
5. PROVIDE WITH WEATHER INTAKE HOOD WITH BIRDSCREEN.
6. PROVIDE WITH MERV-13 FILTER AND FILTER RACK.
7. PROVIDE HORIZONTAL DISCHARGE UNIT.
8. PROVIDE WITH 4 WAY SUPPLY AIR DIFFUSER.
9. FAN SHALL BE SPARK B RESISTANT CONTRUCTION.
10. PROVIDE WITH VARIABLE SPEED V-BELT DRIVE, 1.5 SF.
11. PROVIDE WITH POTTORFF 3-HR FIRE-SMOKE DAMPER AND LOUVER.
12. PROVIDE WITH TAMCO CONTROL DAMPER.
13. PROVIDE WITH OSHA MOTOR SIDE GUARD, HINGED - FOR USE WITH WALL COLLAR.

| LOUVER (LVR) SCHEDULE | | | | | | | | | | | | | |
|-----------------------|--------------------|--------------|------------|-------------|------------|-------------|------------|----------------|---------------------------|-----------------------------|---------------|-------------------|---------------|
| EQUIPMENT TAG | BUILDING | MANUFACTURER | MODEL | APPLICATION | WIDTH (IN) | HEIGHT (IN) | DEPTH (IN) | AIR FLOW (CFM) | MAX PRESSURE DROP (IN WG) | FREE AREA VELOCITY (FT/MIN) | FREE AREA (%) | FREE AREA (SQ FT) | NOTES |
| GV-081-01 | CONVERTER BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 96 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-081-02 | CONVERTER BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 96 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-081-03 | CONVERTER BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 96 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-081-04 | CONVERTER BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 96 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-081-05 | CONVERTER BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 96 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-081-06 | CONVERTER BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 96 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-081-07 | CONVERTER BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 96 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-081-08 | CONVERTER BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 96 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-111-01 | SERVICE BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 54 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-111-02 | SERVICE BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 54 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-111-03 | SERVICE BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 54 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-111-04 | SERVICE BUILDING | POTTORFF | ECV-645-PH | RELIEF | 78 | 40 | 48 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-111-05 | SERVICE BUILDING | POTTORFF | ECV-645-PH | RELIEF | 78 | 40 | 48 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| GV-111-06 | SERVICE BUILDING | POTTORFF | ECV-645-PH | RELIEF | 96 | 40 | 42 | 17,667 | 0.01 | 358 | 49.4 | 49.4 | 1-9 |
| LVR-081-01 | CONVERTER BUILDING | POTTORFF | ECV-645 | RELIEF | 210 | 72 | 6 | 70,000 | 0.03 | 1409 | 47.3 | 49.69 | 1-9, 11,13 |
| LVR-081-02 | CONVERTER BUILDING | POTTORFF | ECV-645 | RELIEF | 210 | 72 | 6 | 70,000 | 0.03 | 1409 | 47.3 | 49.69 | 1-9, 11,13 |
| LVR-081-03 | CONVERTER BUILDING | POTTORFF | ECV-645 | INTAKE | 204 | 120 | 6 | 104,000 | 0.16 | 1250 | 49.4 | 83.4 | 1-9, 11 |
| LVR-081-04 | CONVERTER BUILDING | POTTORFF | ECV-645 | INTAKE | 204 | 120 | 6 | 104,000 | 0.16 | 1250 | 49.4 | 83.4 | 1-9, 11 |
| LVR-111-01 | SERVICE BUILDING | POTTORFF | ECV-645 | INTAKE | 1512 | 72 | 6 | 453,000 | 0.16 | 1250 | 48.4 | 363.1 | 1-9, 11 |
| LVR-111-02 | SERVICE BUILDING | POTTORFF | ECV-645 | INTAKE | 504 | 72 | 6 | 150,000 | 0.16 | 1250 | 48.4 | 120.4 | 1-9, 11 |
| LVR-111-03 | SERVICE BUILDING | POTTORFF | ECV-645 | INTAKE | 504 | 72 | 6 | 150,000 | 0.16 | 1250 | 48.4 | 120.4 | 1-9, 11 |
| LVR-111-04 | SERVICE BUILDING | POTTORFF | EXA-645 | RELIEF | 12 | 12 | 6 | 200 | 0.1 | 400 | 49.4 | 0.49 | 1-8, 10,11,12 |
| LVR-111-05 | SERVICE BUILDING | POTTORFF | EXA-645 | RELIEF | 12 | 12 | 6 | 200 | 0.1 | 400 | 49.4 | 0.49 | 1-8, 10,11,12 |
| LVR-130-01 | STORAGE BUILDING | POTTORFF | EXA-645 | RELIEF | 30 | 24 | 6 | 1,200 | 0.04 | 550 | 52.0 | 2.27 | 1-8, 10,11,12 |
| LVR-130-02 | STORAGE BUILDING | POTTORFF | EXA-645 | RELIEF | 30 | 24 | 6 | 1,200 | 0.04 | 550 | 52.0 | 2.27 | 1-8, 10,11,12 |
| LVR-130-03 | STORAGE BUILDING | POTTORFF | EXA-645 | INTAKE | 30 | 30 | 6 | 2,400 | 0.04 | 800 | 49.4 | 3.09 | 1-8, 10,11,12 |

NOTES:
1. COORDINATE STRUCTURAL OPENING, FRAMING, AND MOUNTING REQUIREMENTS WITH CONTRACTORS PRIOR TO PURCHASE AND INSTALLATION.
2. FURNISH AND INSTALL BIRD SCREEN ON THE OUTSIDE OF THE LOUVER.
3. REFER TO ARCHIECTURAL DRAWINGS FOR DETAILS. COLOR AND FINISH TO BE SELECTED BY ARCHITECT.
4. PROVIDE LOUVER WITH 37.5" TO 45" COMBINATION BLADE.
5. PRESSURE DROP DOES NOT INCLUDE THE LOSS FOR THE BIRD SCREEN.
6. PROVIDE AMCA CERTIFIED FOR WATER PENETRATION, AIR PERFORMANCE AND WIND-DRIVEN RAIN.
8. PROVIDE LOUVER WITH 6063 T EXTRUDED ALUMINUM MATERIAL.
9. PROVIDE LOUVER WITH AMCA 540 AND AMCA 550 LISTED.
10. PROVIDE WITH BACKDRAFT DAMPER.
11. COORDINATE THE BOTTOM OF LOUVER HEIGHT WITH ARCHITECTURAL DRAWINGS.
12. PROVIDE LOUVER WITH AMCA 511 LISTED.
13. PROVIDE WITH LOW LEAK MOTORIZED DAMPER. COORDINATE DAMPER BLADE DEPTH, LOUVER SIZE & FIRE-RATED SLEEVE.

ISSUED FOR PERMIT

Engineering and
Land Surveying, P.C.

370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI
SULLIVAN
ARCHITECTURE*ENGINEERING

25 Mohawk Avenue
Sparta, NJ 07871

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| | | | | |
|-----|--------------------|--------|--------|----------|
| B | FINAL SUBMISSION | WP | SD | 12-12-22 |
| A | INTERIM SUBMISSION | WP | AZ | 09-13-22 |
| REV | DESCRIPTION | DRW BY | CHK BY | DATE |



Kiewit

470 Chestnut Ridge Rd # 2,
Woodcliff Lake, NJ 07677

Hitachi Energy

901 Main Campus Drive
Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson
Power Express

Astoria HVDC
Converter Station

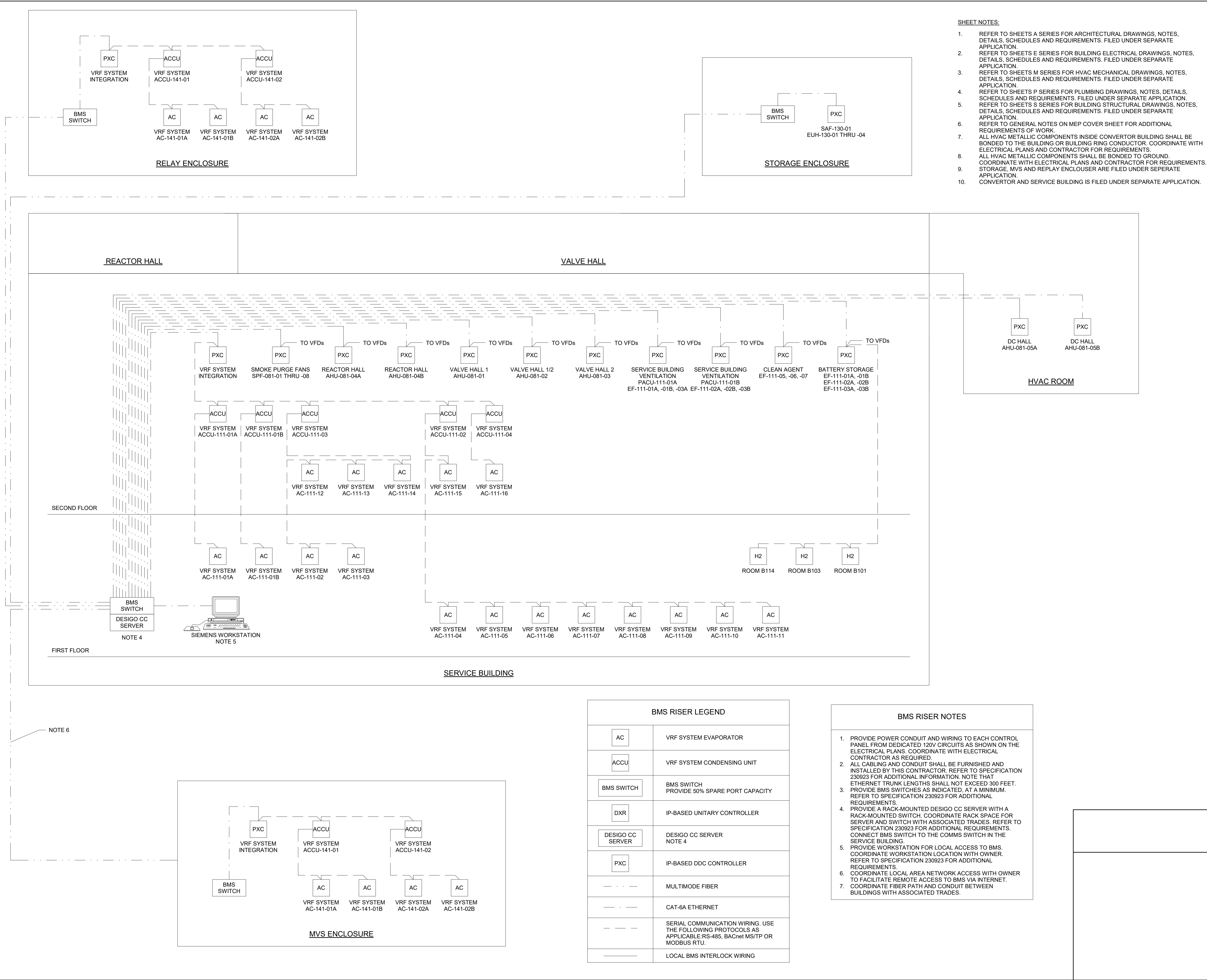
31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

HVAC - SCHEDULES



DATE 12/12/2022
PROJECT NO 105121
DRAWING BY W.PENDLETON
CHECKED BY A.ZABOLOTSKY
DRAWING NO
M-701.00
CADD FILE NO
Astoria\CHA-KIE-081-00-M514-001.rvt

12/7/2022 4:58:57 PM



SHEET NOTES:

- REFER TO SHEETS A SERIES FOR ARCHITECTURAL DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
- REFER TO SHEETS E SERIES FOR BUILDING ELECTRICAL DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
- REFER TO SHEETS M SERIES FOR HVAC MECHANICAL DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
- REFER TO SHEETS P SERIES FOR PLUMBING DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
- REFER TO SHEETS S SERIES FOR BUILDING STRUCTURAL DRAWINGS, NOTES, DETAILS, SCHEDULES AND REQUIREMENTS. FILED UNDER SEPARATE APPLICATION.
- REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
- ALL HVAC METALLIC COMPONENTS INSIDE CONVERTOR BUILDING SHALL BE BONDED TO THE BUILDING OR BUILDING RING CONDUCTOR. COORDINATE WITH ELECTRICAL PLANS AND CONTRACTOR FOR REQUIREMENTS.
- ALL HVAC METALLIC COMPONENTS SHALL BE BONDED TO GROUND. COORDINATE WITH ELECTRICAL PLANS AND CONTRACTOR FOR REQUIREMENTS.
- STORAGE, MVS AND REPLAY ENCLOUSER ARE FILED UNDER SEPERATE APPLICATION.
- CONVERTOR AND SERVICE BUILDING IS FILED UNDER SEPARATE APPLICATION.

ISSUED FOR PERMIT

Engineering and
Land Surveying, P.C.

370 7th Avenue
SUITE 1604
New York, NY 10001

SOWINSKI
SULLIVAN
ARCHITECTURE*ENGINEERING

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| REV | DESCRIPTION | DRW BY | CHK BY | DATE |
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| B | FINAL SUBMISSION | WP | SD | 12-12-22 |
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Champlain Hudson
Power Express

**Astoria HVDC
Converter Station**

31-45 20th Avenue, Astoria, Queens NY 11105
Block #850 - Lot #310 - BIN #4624437

**HVAC - BUILDING
MANAGEMENT SYSTEM
RISER DIAGRAM**



DATE 12/12/2022
PROJECT NO 105121
DRAWING BY W. PENDELETON
CHECKED BY A. ZABOLOSTSKY
DRAWING NO
M-705.00
CADD FILE NO
Astoria\CHPE\CHPE-081-00-M314-001.rvt