

ADDENDUM NO. CC-2

BCDM Architects  
1015 North 98th Street, Suite 300  
Omaha, Nebraska 68114

to the  
Bidding Documents

for

12 April 2012

Don D. Sherrill Education Center  
Lincoln Public Schools  
340 N. 56<sup>th</sup> Street  
Lincoln, Nebraska 68504  
BCDM Project No. 4891-00

**REMINDER: BID DATE AND TIME: 19 APRIL 2012 AT 2:00 P.M.**

NOTICE TO BIDDERS: The Project Manual and Drawings for the above referenced project are hereby amended as follows:

GENERAL INFORMATION: Attached is the sign-in sheet list from the Pre-Bid Conference held at the project site at 3:30 P.M. on April 10, 2012.

PROJECT MANUAL

2AS1. TABLE OF CONTENTS

- a. Page TC-4, Under Division 31 – Earthwork, change the Horizontal Drilling specification section to read “31 71 19”.

2AS1. SECTION 07 21 00 – THERMAL INSULATION

- a. Add this section (5 pages in total length - attached to this addendum).

2AS3. SECTION 08 81 00 – GLASS AND GLAZING

- a. Page 08 81 00-2 at line 42 add “Please note that all material and labor costs associated with the glass feature wall items noted hereafter as subsections F1 (Art Glass), F2 (Resin Panels) and F3 (U-Channel Aluminum Framing) shall be included solely within the GLASS FEATURE WALL ALLOWANCE under section 01 21 00. It is the intent that the cost of these items are exclusively included under section 01 21 00 and not this section 08 81 00. The materials are listed here for reference only.”

2AS4. SECTION 31 20 00 - EARTHWORK

- a. Page 31 20 00-1 at line 9 add “Contractor shall refer to the Geotechnical Report for this project included under Section 00 31 32 and adhere to all of this report’s recommendations”.

2MS1 SECTION 23 05 16 – EXPANSION FITTINGS AND LOOPS FOR HVAC PIPING

1. Add the following manufacturer to 2.02.A.1: Twin City Hose.
2. Add the following manufacturer to 2.02.B.1: Twin City Hose.

2MS2 SECTION 23 09 13 – VARIABLE FREQUENCY CONTROLLERS

1. Add the following manufacturers to 2.01.A: Emerson and Yaskawa.

2MS3 SECTION 23 21 13.11 – HYDRONIC PIPING

1. Add the following manufacturers to 2.01.A.1: Nexus, Patterson and Flow Design.

2. Add the following manufacturer to 2.01.A.5: Patterson.
3. Add the following manufacturer to 2.01.A.9: Twin City Hose.

2MS4 SECTION 23 31 13 – METAL DUCTS

1. Add the following manufacturers to 2.09.A: Spiral Pipe of Texas and Norlock.

2MS5 SECTION 23 33 00 – AIR DUCT ACCESSORIES

1. Add the following manufacturer to 2.04.A: Pottorff.

2MS6 SECTION 23 34 00 – POWER VENTILATORS

1. Add the following manufacturer to 2.01.A: ILG.

2MS7 SECTION 23 36 00 – AIR TERMINAL UNITS

1. Add this section entirely.

2MS8 SECTION 23 37 23 – LOUVERS, INTAKE AND RELIEF VENTILATORS

1. Add the following manufacturer to 2.04.A: Pottorff.

2MS9 SECTION 23 72 00 – AIR-TO-AIR ENERGY RECOVERY UNITS

1. Change the following to 1.06.A: Manufacturer shall provide a “parts only” warranty for a period of 5 years from the date of the Contract Substantial Completion.

### DRAWINGS

2SD1. SHEET S0-0 – STRUCTURAL NOTES

- a. Under GENERAL STRUCTURAL NOTES/F- Design Loading Conditions/3-Roof Live Loads: Change Ground Snow Load to 30 psf and Flat Roof Snow Load to 25 psf.
- b. Under GENERAL STRUCTURAL NOTES/F- Design Loading Conditions: Add “5. Design Soil Bearing Pressure = 2000 psf.

2SD2 SHEET S2-1 – CONCRETE SECTIONS AND DETAILS

- a. Detail 7/S2-1: Add “PROVIDE 9” EMBEDMENT” To note regarding (4) ¾” Anchor Bolts.
- b. Detail 8/S2-1: Add 4” dimension to thickness of stoop slab.
- c. Add general sheet note: “ALL EXTERIOR AND LOAD BTG INTERIOR STUDS TO BE 600 S 162-43 & TRACK TO BE 600 T 125-54”.

2SD3 SHEET S2-2 – CONCRETE SECTIONS AND DETAILS

- a. Detail 3/S2-2: Add “ATTACH TO METAL STUDS WITH #8 SCREWS @ 8” O.C.” To note regarding 5/8” plywood sheathing.
- b. Add general sheet note: “ALL EXTERIOR AND LOAD BTG INTERIOR STUDS TO BE 600 S 162-43 & TRACK TO BE 600 T 125-54”.

2SD4 SHEET S3-1 – MASONRY SECTIONS AND DETAILS

- a. Add general sheet note: “ALL EXTERIOR AND LOAD BTG INTERIOR STUDS TO BE 600 S 162-43 & TRACK TO BE 600 T 125-54”.

2SD5 SHEET S4-1 – CONCRETE SECTIONS AND DETAILS

- a. Detail 6/S4-1: Add “COORDINATE SIZE AND ATTACHMENT WITH JOIST MANUFACTURER”  
To note regarding additional web member.
- b. Add general sheet note: “ALL EXTERIOR AND LOAD BTG INTERIOR STUDS TO BE 600 S 162-43 & TRACK TO BE 600 T 125-54”.

2SD6 SHEET S5-1 – CONCRETE SECTIONS AND DETAILS

- a. Add general sheet note: “ALL EXTERIOR AND LOAD BTG INTERIOR STUDS TO BE 600 S 162-43 & TRACK TO BE 600 T 125-54”.

2MD1 SHEET M0-1 – MECHANICAL – SITE PLAN

1. Revise this sheet entirely.

2MD2 SHEET M0-2 – MECHANICAL – SITE PLAN DETAILS

1. Revise Detail 5 as shown on Mechanical Sketch Sheet MS-2.

2MD3 SHEET M2-1 – PLUMBING – FIRST FLOOR PLAN

1. Revise piping, GWH-1, MV-1 and WS-1 as shown on Mechanical Sketch Sheet MS-1.

2MD4 SHEET M2-2 – PLUMBING – ATTIC LEVEL PLAN

1. Add isolation valves at HB-1 in Mechanical 281M and 282M as shown on Mechanical Sketch Sheet MS-3 and MS-4.

2MD5 SHEET M3-0 – ENLARGED FIRST FLOOR PLAN – PIPING AND RISER DIAGRAMS

1. Add Detail 4 as shown on Mechanical Sketch Sheet MS-5 entirely.

2MD6 SHEET M5-1 – MECHANICAL DETAILS

1. Revise Detail 5 as shown on Mechanical Sketch Sheet MS-6.

2ED1 SHEET E0-0 – ELECTRICAL SYMBOLS AND ABBREVIATIONS

- a. Occupancy Sensor Schedule:
  - A. The following lighting control manufacturers are considered equivalent for bidding purposes if equal to the specified lighting control devices and are subject to final shop drawing review. Lighting control devices may be rejected during the shop drawing review process if the Architect, Owner or Engineers review does not find the submitted lighting control device(s) to be equivalent.
    - 1) Greengate

B. Audiovisual Symbol Legend.

- 1) Ceiling Mounted Loudspeaker. Symbol column. Delete the '#' inside the hexagon symbol and add the letter 'S' inside the hexagon symbol.
- 2) Ceiling Mounted Loudspeaker. Description column. Delete the following verbiage "'#' indicates device type in loudspeaker schedule".
- 3) Wall / Surface Mounted Loudspeaker. Symbol column. Delete the '#' inside the hexagon symbol and add the letter 'S' inside the hexagon symbol.
- 4) Wall / Surface Mounted Loudspeaker. Description column. Delete the following verbiage "'#' indicates device type in loudspeaker schedule".

C. Miscellaneous Symbol Legend.

- 1) In the symbol column, add a square with a letter 'C' inside the square.
- 2) In the description column, add the following verbiage "Call In Switch"

2ED2 SHEET E0-2 – SITE PLAN

1. Reference (2) home runs for exterior pole lights, circuit G1-1 (Part). The 2 #16 dimmer control wires to each fixture LED driver shall be routed to junction box 'SLC' via a 3/4" conduit separate from the conduit used for the power circuit. The control wires shall also be installed in a separate raceway within the lighting poles.
2. Site Lighting Schedule:
  - A. The following lighting fixture manufacturers are considered equivalent for bidding purposes if equal to the specified lighting fixtures and are subject to final shop drawing review. Light fixtures may be rejected during the shop drawing review process if the Architect, Owner or Engineers review does not find the submitted lighting fixture(s) to be equivalent.

Type:	Manufacturer:
A	Kim Lighting
A-Pole	KW Poles
B	Kim Lighting
B-Pole	KW Poles
C	Kim Lighting
C-Pole	KW Poles
D	Kim Lighting
D-Pole	KW Poles
E	Kim Lighting
E-Pole	KW Poles

2ED3 SHEET E6-1 – ELECTRICAL SCHEDULES

1. Lighting Fixture Schedule:

- A. Light fixture Type #7, finish shall be Titanium Silver 'TS'. Catalog no. shall be revised to FV4S PL 3T8 1C 120 S C96 TS 16'.
- B. The following lighting fixture manufacturers are considered equivalent for bidding purposes if equal to the specified lighting fixtures and are subject to final shop drawing review. Light fixtures may be rejected during the shop drawing review process if the Architect, Owner or Engineers review does not find the submitted lighting fixture(s) to be equivalent.

Type:	Manufacturer:
1	Columbia, Cooper
2	Columbia, Cooper
3	Columbia, Cooper
4	Prescolite, Cooper
5	Columbia, Cooper
6	Columbia, Cooper
7	Finelite, Corelite
8	Dual-Lite, Cooper
9	Prescolite, Cooper
10	Columbia, Cooper
11	Emergi-Lite
13	Columbia, Cooper
14	Columbia, Cooper
15	Cooper, CD Lighting
16	Columbia, Cooper
17	Cooper

<b>Type:</b>	<b>Manufacturer:</b>
19	Columbia, Nulite
21	Columbia, Cooper
22	Columbia, Cooper
23	Finelite, Corelite

END OF ADDENDUM



Date: April 10, 2012

Project Name: Don D Sherrill Education Center

PRE-BID  
MEETING

PLEASE PRINT

NAME	REPRESENTING	PHONE	E-MAIL
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1 Perma-Foam  
2 R-Control EPS

Mid-America Industries  
ACH Foam Technologies

3  
4 Perimeter insulation where shown to be applied to the exterior face of exterior foundation  
5 walls shall be closed-cell extruded, polystyrene insulation board with an integral high-density  
6 skin, 2-inches thick, a minimum "R" value at 75 degrees mean temperature of 5.0 per inch,  
7 a minimum compressive strength of 25 psi, and shall be Stryfoam Square Edge by Dow  
8 Chemical or Foamular 250 Square Edge by Owens Corning.

9  
10 RIGID INSULATION

11  
12 RIGID INSULATION shall be 1-inch thick unless noted otherwise on the Drawings, and shall  
13 be rigid, closed-cell, extruded polystyrene insulation board with integral high-density skin, in  
14 24-inch by 96-inch boards. The insulation board shall have an "R" value for 1" thick material  
15 at 75-degrees mean temperature of 5, a compressive strength of 25 psi and shall be  
16 Foamular 250, T & G Edge by U.C Industries, a division of Owens Corning. Associated  
17 construction tape shall be manufacturer's recommended tape to provide long-term  
18 adhesion.

19  
20 INSULATED SHEATHING

21  
22 INSULATED SHEATHING shall be 2-inches thick unless noted otherwise on the Drawings,  
23 and shall be rigid, closed-cell, extruded polystyrene insulation board with integral high-  
24 density skin, in 24-inch by 96-inch boards. The insulation board shall have an "R" value for  
25 2" thick material at 75-degrees mean temperature of 10, a compressive strength of 25 psi  
26 and shall be Foamular 250, T & G Edge by U.C Industries, a division of Owens Corning.  
27 Associated construction tape shall be manufacturer's recommended tape to provide long-  
28 term adhesion.

29  
30 CAVITY WALL INSULATION

31  
32 CAVITY WALL INSULATION shall be 2-inches thick unless noted otherwise on the  
33 Drawings, and shall be rigid, closed-cell glass fiber reinforced polyisocyanurate foam plastic  
34 insulation board with bright foil facing on both sides. The insulation board shall have an "R"  
35 value at 75-degrees mean temperature of 6.5 per inch and shall be the following type and  
36 manufacturer:

37           Thermax Sheathign Insulation Board                           Dow Chemical Company

38  
39 Cavity wall insulation shall be supplied in 16-inch by 96-inch boards for installation between  
40 horizontal reinforcing.

41  
42 BATT AND BLANKET INSULATION

43  
44 BATT INSULATION shall be glass fibers formed with binders into resilient semirigid batts  
45 with integral foil vapor barriers (perm rating of 1.0 or less) laminated to the one face with 1-  
46 inch flanges on long edges. Batt insulation shall be the manufacturer's standard lengths  
47 and widths as required to coordinate with spaces to be insulated and shall have installed  
48 resistance of R-19 at 6-inch studs, R-13 at 3-5/8 inch studs, and shall be one of the  
49 following types and manufacturers:

50           FS-25 Building Insulation                                   Owens-Corning Fiberlgas  
51           Batt Insulation    Johns Manville  
52           FSK-25   CertainTeed Corporation

1 At Contractor's option, where insulation is covered by GWB in lieu of taping the vapor barrier  
2 joints he/she may use unfaced insulation covered by a 4-mil polyethylene vapor barrier and  
3 the GWB.  
4

5 BLANKET INSULATION, shall be the same as the batt insulation specified above except  
6 without facers. Thickness shall be as shown on the Drawings or outlined above.  
7

8 SOUND BATTS FOR VERTICAL AND HORIZONTAL INSTALLATION BETWEEN STUDS  
9 shall be unfaced R-11 batt insulation complying with the Batt Insulation specification outlined  
10 above. At 6-inch stud walls, use unfaced R-19 batts.  
11

12 BATTS AND BLANKETS shall be widths as required to tightly fit between studs, except that  
13 at all locations where gypsum drywall is not shown on both sides of the partition, blankets  
14 shall be supplied with foil on one face and stapling flanges of fastening the blankets in place.  
15

16 FIRE-RESISTANCE RATINGS. All batt and blanket insulation shall have maximum flame  
17 spread rating of 25, ASTM E 84. Where batt and blanket insulation is included in rated wall,  
18 ceiling, or floor construction, provide wool batts and blankets which have been tested and  
19 rated as required for the indicated assembly.  
20

21 SEE SECTION 04 20 00 PARAGRAPH "LAYING UP MASONRY" for requirements related  
22 to stuffing batt insulation into corrugations where metal deck ribs intersect perpendicular  
23 masonry exterior walls.  
24

#### 25 FIRE RESISTIVE INSULATION

26

27 SAFING INSULATION for use at fire-rated partitions as shown on the Drawings, specified in  
28 Section 04 20 00, and specified herein shall be Thermafiber Safing Insulation manufactured  
29 by Thermafiber, Inc., 1-888-834-2371, or approved equal. At tops of walls abutting metal  
30 deck where the wall is perpendicular to the flutes in the metal deck, provide Topstop Head-  
31 of-Wall insulation by Thermafiber, Inc.  
32

#### 33 MISCELLANEOUS MATERIALS

34

35 PRESSURE-SENSITIVE TAPE shall be Zero Perm, 1-1/2-inch wide tape, manufactured by  
36 Alumiseal Corporation, and shall consist of aluminum foil 1.0 mils thick, laminated between  
37 2 sheets of polyester film, with a vapor transmission of 0.0134 perms or less in all  
38 conditions, and with a permanent pressure-sensitive adhesive on one face.  
39

40 MISCELLANEOUS ITEMS, including mechanical fastenings, adhesives and other  
41 accessories, shall meet the recommendations of the insulation manufacturer and the vapor  
42 barrier manufacturer, and shall comply with fire-resistance requirements.  
43

44 ADHESIVES FOR PERIMETER INSULATION shall be PL 300 manufactured by Chemrex,  
45 Inc. or other adhesives as may be necessary to bond the insulation to the concrete,  
46 waterproofing and other materials.  
47

48 MASTIC SEALER shall be the type recommended by the insulation manufacturer for  
49 bonding edge joints between units and filling voids in work.  
50

51 POLYETHYLENE VAPOR BARRIER for use over blanket insulation at exterior walls at the  
52 Contractor's option as noted earlier in this Section, shall be 4-mil polyethelene film, with a  
53 laboratory tested vapor transmission rating of 0.2 perms.  
54  
55

1 C. EXECUTION

2  
3 INSPECTION AND PREPARATION

4  
5 INSTALLER MUST EXAMINE substrates and conditions under which insulation work is to  
6 be performed, and must notify Contractor in writing of unsatisfactory conditions. Do not  
7 proceed with insulation work until unsatisfactory conditions have been corrected in manner  
8 acceptable to the installer.

9  
10 CLEAN SUBSTRATE of substances harmful to insulations and vapor barriers, including  
11 removal of projections which might puncture vapor barriers.

12  
13 GENERAL

14  
15 COMPLY WITH MANUFACTURER'S INSTRUCTIONS for particular conditions of  
16 installation in each case. If printed instructions are not available or do not apply to project  
17 conditions, consult manufacturer's technical representative for specific recommendations  
18 before proceeding with work.

19  
20 EXTEND INSULATION FULL THICKNESS as shown over entire area to be insulated. Cut  
21 and fit tightly around obstructions, and fill and close voids with insulation.

22  
23 APPLY INSULATION UNITS to substrate by method indicated, complying with  
24 manufacturer's recommendations. If no specific method is indicated, bond units to  
25 substrate with adhesive or use mechanical anchorage to provide permanent placement and  
26 support of units.

27  
28 INSTALLATION OF PERIMETER INSULATION

29  
30 INSTALL PERIMETER INSULATION at the following locations:

31 :

- 32 1. On the interior surface of exterior foundation walls where the exterior grade is at  
33 or below the interior floor elevations. Extend to a depth of 2'-8" below the interior  
34 floor elevation or 2'-0" below exterior grade, whichever is deeper.  
35  
36 2. Other minor locations as may be shown on the Drawings.

37  
38 APPLY WITH ADHESIVE where temporary support is required before backfilling.

39  
40 BACKFILL CAREFULLY to prevent damage or displacement of insulation. When backfill is  
41 completed, insulation shall be tight against the foundation walls or grade beams. In no case  
42 shall backfill material be allowed to be between the structure and the insulation.

43  
44 ON VERTICAL SURFACES, set units in adhesive applied in accordance with  
45 manufacturer's instructions. Use type adhesive recommended by manufacturer of  
46 insulation.

47  
48 INSTALLATION OF RIGID INSULATION

49  
50 APPLY RIGID INSULATION directly to the faces of steel, masonry or concrete substrates  
51 with adhesive or mechanical fastenings, in accord with the rigid insulation manufacturer's  
52 recommendations at all locations shown on the Drawings. Fit boards tightly against each  
53 other and around all openings. Install construction tape over all vertical and horizontal joints  
54 in the insulation in accord with the manufacturer's printed instructions.  
55

1 INSTALLATION OF INSULATED SHEATHING

2  
3 INSTALL INSULATED SHEATHING AT EXTERIOR WALLS ON COLD-FORMED METAL  
4 FRAMING with the long dimension perpendicular to the studs with the tongue up and groove  
5 down. Screw attach with self drilling, self-tapping steel screws with 1-inch diameter steel or  
6 plastic washers spaced 12-inches on center and ½-inch from ends and edges. Fit boards  
7 tightly against each other and around all openings. Install manufacturer's recommended  
8 tape over all joints in the insulated sheathing per the manufacturer's printed instructions.

9  
10 INSTALLATION OF CAVITY WALL INSULATION (INSTALLED UNDER SECTION 042000)

11  
12 APPLY CAVITY WALL INSULATION to inner wythe of cavity wall, with edges tightly butted  
13 both ways, using horizontal reinforcing to hold boards in place. Push tightly against the  
14 inner wythe to assure the max. air space between the brick and ext. face of the insulation.

15  
16 INSTALLATION OF THERMAL AND SOUND BATT INSULATION

17  
18 INSTALL BATT INSULATION at the locations specified above with vapor barriers on room  
19 or warm side. Tightly fit into place and push down in vertical spaces to assure avoidance of  
20 future settling. Securely staple in place as recommended by the insulation manufacturer.  
21 Tape all joints and perimeter in place to form a continuous vapor barrier, except where  
22 taping is not required in accord with the option for polyethylene vapor described earlier in  
23 this Section. Maintain all required minimum clearance between insulation and fans, lights,  
24 or other heat producing equipment items. At locations where the insulation space is less  
25 than 3-1/2-inches deep, strip part of the insulation off of the non-vapor barrier side to reduce  
26 the total thickness to 1/2-inch greater than the available space.

27  
28 INSTALLATION OF THERMAL AND SOUND BLANKETS

29  
30 INSTALL THERMAL AND SOUND BLANKETS with edges and ends tightly butted together  
31 at locations shown on the Drawings. Push down and adjust into place to avoid settlement.  
32 Maintain all required minimum clearances between insulation and fans, lights, and other  
33 heat producing equipment items. At sound walls, stuff into all penetrations at gypsum wall  
34 board and masonry partitions and at all open joints between those partitions and adjoining  
35 roof and wall elements as described in Section 04 20 00 and 09 29 00. Provide Topstop  
36 Head-of-Wall insulation previously specified at all voids between deck flutes at the top of  
37 exterior masonry walls where those flutes are perpendicular to the walls as stated in Section  
38 04 20 00.

39  
40 INSTALLATION OF FIRE RESISTIVE INSULATION

41  
42 INSTALL FIRE RESISTIVE INSULATION at the top of all non-masonry portions of fire rated  
43 walls and at the top of all non-bearing masonry fire-rated walls where required to seal  
44 around miscellaneous openings through these walls for pipes, ducts, structure, etc. Also  
45 install where such materials and partitions abut the roof deck, and at all penetrations through  
46 those partitions.

47  
48 PROTECTION

49  
50 GENERAL. Protect installed insulation and vapor barriers from harmful weather exposures  
51 and possible physical abuses, where possible by nondelayed installation of concealing work  
52 or, where not possible, by temporary covering or enclosure. Installer shall advise  
53 Contractor of exposure hazards, including possible sources of deterioration and fire  
54 hazards.

55  
END OF SECTION

**SECTION 23 36 00**  
**AIR TERMINAL UNITS**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Variable volume terminal units.

1.02 RELATED REQUIREMENTS

- A. Section 23 31 00 - HVAC Ducts and Casings.

1.03 REFERENCE STANDARDS

- A. NFPA 90A - Standard for the Installation of Air-Conditioning and Ventilation Systems; National Fire Protection Association; 2009.
- B. UL 181 - Standard for Factory-Made Air Ducts and Air Connectors; Underwriters Laboratories Inc.; Current Edition, Including All Revisions.

1.04 SUBMITTALS

- A. Product Data: Provide data indicating configuration, general assembly, and materials used in fabrication. Include catalog performance ratings that indicate air flow, static pressure, and NC designation. Include electrical characteristics and connection requirements.
- B. Shop Drawings: Indicate configuration, general assembly, and materials used in fabrication, and electrical characteristics and connection requirements.
  - 1. Include schedules listing discharge and radiated sound power level for each of second through sixth octave bands at inlet static pressures of 1 to 4 inch wg.
- C. Manufacturer's Installation Instructions: Indicate support and hanging details, and service clearances required.
- D. Project Record Documents: Record actual locations of units.
- E. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, maintenance and repair data, and parts lists. Include directions for resetting constant volume regulators.
- F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this section, with minimum three years of documented experience.
- B. Products Requiring Electrical Connection: Listed and classified by Underwriters Laboratories Inc. as suitable for the purpose specified and indicated.

1.06 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Provide five year manufacturer warranty for air terminal units.

**PART 2 PRODUCTS**

2.01 MANUFACTURERS

- A. Titus
- B. Krueger
- C. Price

## 2.02 MANUFACTURED UNITS

- A. Ceiling mounted variable air volume supply air control terminals for connection to single duct, central air systems, with electric variable volume controls, .
- B. Identify each terminal unit with clearly marked identification label and air flow indicator. Include unit nominal air flow, maximum factory set airflow, minimum factory set air flow, and coil type.

## 2.03 SINGLE DUCT VARIABLE VOLUME UNITS

- A. Basic Assembly:
  - 1. Casings: Minimum 22 gage galvanized steel.
  - 2. Lining: Minimum 1/2 inch thick neoprene or vinyl coated fibrous glass insulation, 1.5 lb/cu ft density, meeting NFPA 90A requirements and UL 181 erosion requirements. Face lining with mylar film.
  - 3. Plenum Air Inlets: Round stub connections for duct attachment.
  - 4. Plenum Air Outlets: S slip and drive connections.
- B. Basic Unit:
  - 1. Configuration: Air volume damper assembly inside unit casing. Locate control components inside protective metal shroud.
  - 2. Volume Damper: Construct of galvanized steel with peripheral gasket and self lubricating bearings; maximum damper leakage: 2 percent of design air flow at 1 inches rated inlet static pressure.
  - 3. Mount damper operator to position damper normally open.
- C. Automatic Damper Operator:
  - 1. Electric Actuator: 24 volt with high limit.

## PART 3 EXECUTION

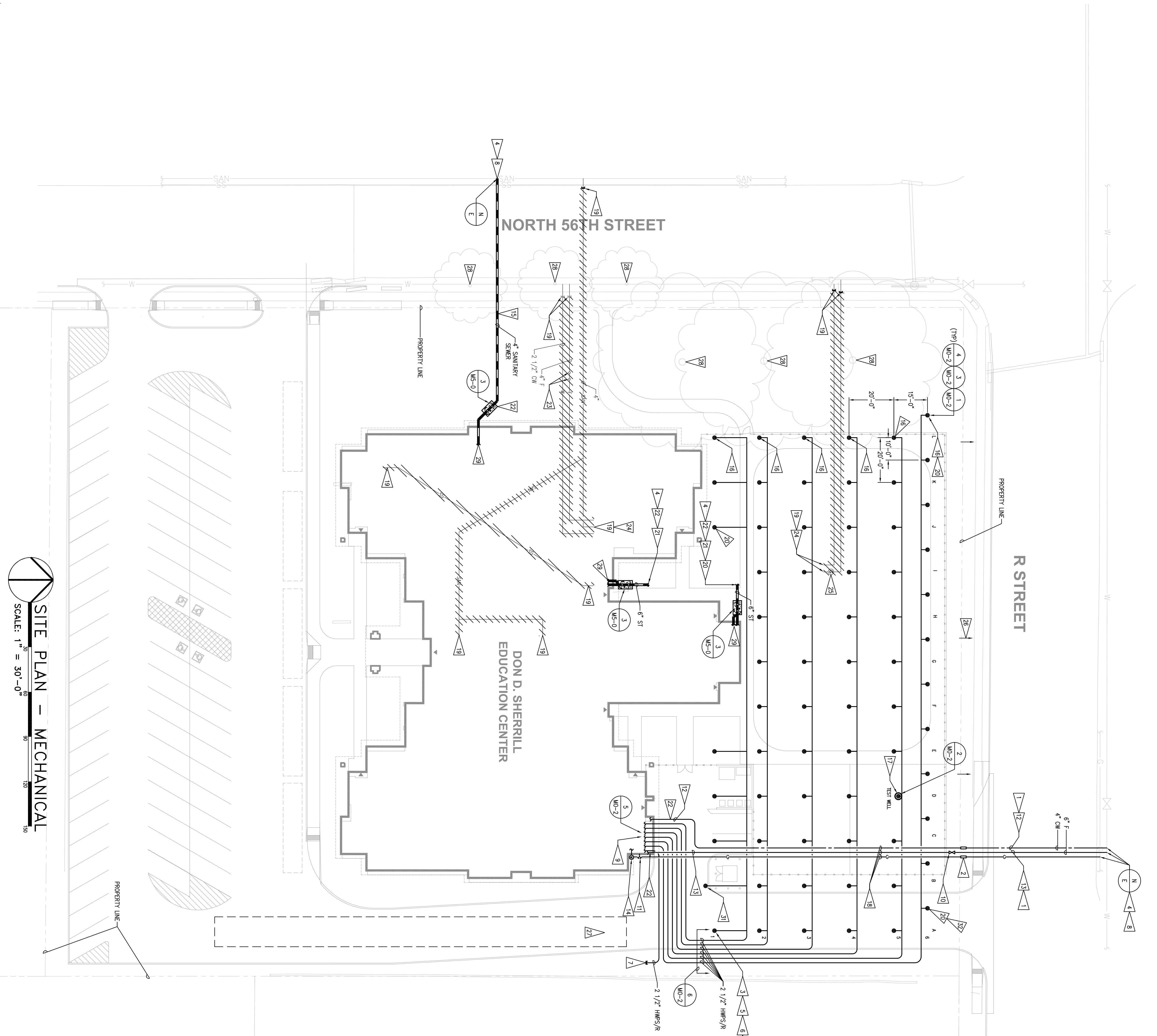
### 3.01 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Support units individually from structure. Do not support from adjacent ductwork.
- C. Connect to ductwork in accordance with Section 23 31 00.
- D. Provide minimum of 5 ft of 1 inch thick lined ductwork downstream of units.
- E. Verify that electric power is available and of the correct characteristics.

### 3.02 ADJUSTING

- A. Reset volume with damper operator attached to assembly allowing flow range modulation from 100 percent of design flow to 0 percent full flow.

**END OF SECTION**



**SITE PLAN - MECHANICAL**  
 SCALE: 1" = 30'-0"

**SHEET NOTES**  
 1. SEE SHEET M0-0 FOR ADDITIONAL GENERAL NOTES.

- FLAG NOTES**
- 1. MAINTAIN A MINIMUM OF 3'-0" BETWEEN WATER AND FIRE PROTECTION PIPING.
  - 2. MOUNT GAS SERVICE STOP BOX A MINIMUM OF 3'-0" FROM SIDEWALK.
  - 3. WELL FIELD OF 68 WELLS EACH AT 200' DEEP. TOTAL VOLUME IS 5,500 GALLONS. TOTAL INSIDE VOLUME IS 1,500 GALLONS. CONTRACTOR SHALL PROVIDE 14 GALLON TRUCKS WHEEL ALONG ENTIRE LENGTH OF PIPING.
  - 4. THE WELL FIELD CONTRACTOR SHALL FLUSH THE ENTIRE HEAT PUMP SYSTEM AT THE TIME. NOT PERMIT GENERAL CONTRACTOR SHALL FLUSHING AS SPECIFIED. SEE SPECIFICATION SECTION 2201.13.5 FOR THE DETAILED FLUSHING PROCEDURE. COORDINATE WITH PRELIMINARY NOTES.
  - 5. CONTRACTOR SHALL PROVIDE RECORD DOCUMENTS WITH A MINIMUM OF 14 GALLON TRUCKS WHEEL ALONG ENTIRE LENGTH OF PIPING.
  - 6. PROVIDE 2 1/2" HWS/R TO THIS POINT FOR FUTURE WELL FIELD CAP AND/OR FUTURE PIPING SUBSTITUTION WITH CONTRACTOR'S APPROVAL.
  - 7. COORDINATE WITH THE CITY OF LINCOLN FOR CONNECTION TO THE CITY MAIN. COORDINATE WITH THE GENERAL CONTRACTOR FOR CUTTING AND PATCHING. BORE PIPING UNDER STREET SEE SPECIFICATION SECTION 2201.13.5.
  - 8. SEE SHEET M0-0 FOR CONNECTION.
  - 9. MOUNT FV A MINIMUM OF 5'-0" FROM SIDEWALK AND NORTH OF FENCE.
  - 10. FIRE DEPARTMENT CONNECTION.
  - 11. USE PVC C-900 PIPING FOR 4" WATER SERVICE.
  - 12. 4" FIRE SERVICE.
  - 13. GAS SERVICE SIZED FOR 100A MFT CONNECTED LOAD AT 80 EQUIVALENT FEET. PROVIDE NEW GAS METERS.
  - 14. OFFSET SANITARY SEWER TO AVOID TREES THAT ARE TO REMAIN.
  - 15. COORDINATE WITH CONTRACTOR TO AVOID OR TRIM TREES THAT ARE TO REMAIN.
  - 16. EXISTING 300 FOOT DEEP TEST WELL WITH 1" BORE HOLE PIPING. IF WELL FIELD CONTRACTOR IS UNABLE TO LOCATE TEST WELL, CONTRACTOR SHALL PROVIDE RECORD DOCUMENTS WITH A MINIMUM OF 14 GALLON TRUCKS WHEEL ALONG ENTIRE LENGTH OF PIPING. THE WELL FIELD CONTRACTOR SHALL PRESERVE TEST THE EXISTING PIPING IN THE TEST WELL IN THE PRESENCE OF THE ENGINEER OF RECORD. CONTRACTOR SHALL PRESERVE TEST THE WELL FIELD CONTRACTOR WILL ACCEPT THE EXISTING WELL AND ASSUME RESPONSIBILITY FOR ITS PERFORMANCE AS PART OF THIS PROJECT. DO NOT ORIENTATE WELL FIELD ON THE TEST WELL.
  - 17. ROUTE WATER, GAS AND FIRE PROTECTION PIPING OVER HORIZONTAL ROUTE PIPING CENTERED BETWEEN WELLS.
  - 18. DEMONISH AND CAP ALL EXISTING WATER, GAS AND SANITARY SEWER OF ALL DISTURBED AREAS. REMOVE PER CITY REQUIREMENTS.
  - 19. MAINTAIN A MINIMUM OF 10'-0" FROM VERTICAL WELLS COORDINATE WITH CIVIL. ROUTE STORM OVER HORIZONTAL WELL FIELD PIPING. COORDINATE WITH CONTRACTOR.
  - 20. SEE CIVIL UTILITIES FOR CONNECTION.
  - 21. COORDINATE WITH CIVIL UTILITIES FOR STORM SEWER AROUND PERIMETER OF BUILDING.
  - 22. DEMONISH EXISTING FV AND SMOKE CONNECTION.
  - 23. REMOVE EXISTING WATER METERS AND FIRE PROTECTION SERVICE. COORDINATE WITH CITY.
  - 24. REMOVE EXISTING GAS METERS. COORDINATE WITH BLACK HILLS ENERGY.
  - 25. GRADE CHANGE. SEE CIVIL FOR CONNECTION.
  - 26. FUTURE WELL FIELD ZONE 7.
  - 27. EXISTING TREES TO REMAIN.
  - 28. SEE SHEET M0-0 FOR CONNECTION.
  - 29. COORDINATE WITH CIVIL AND CONTRACTOR FOR FENCING, BOLLARDS AND OTHER PIPS OR FOUNDATIONS.
  - 30. OFFSET THIS WELL TO AVOID ELECTRICAL PAD.
  - 31. STAGGER ROW 6 TO AVOID STORM SEWER.

**REVISIONS**

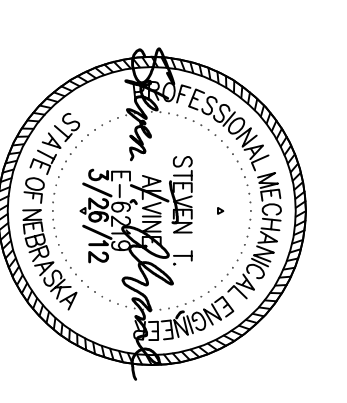
No.	Description	By	Date
2	Addendum #2	JDH	2012-04-13

**NOTE:**  
 CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND DEPARTURES FROM ARCHITECTURAL, STRUCTURAL, AND OTHER APPROPRIATE DRAWING OR AT SITE. LAY OUT AND CONSTRUCTION OF THIS PROJECT OR PORTION THEREOF SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND CODES AND VERIFY NOT-INTERFERENCE WITH OTHER WORK. DO NOT PERFORM ANY WORK TO VERIFY OR CORRECT DEPARTURES FROM ALL DIMENSIONS AND DEPARTURES.

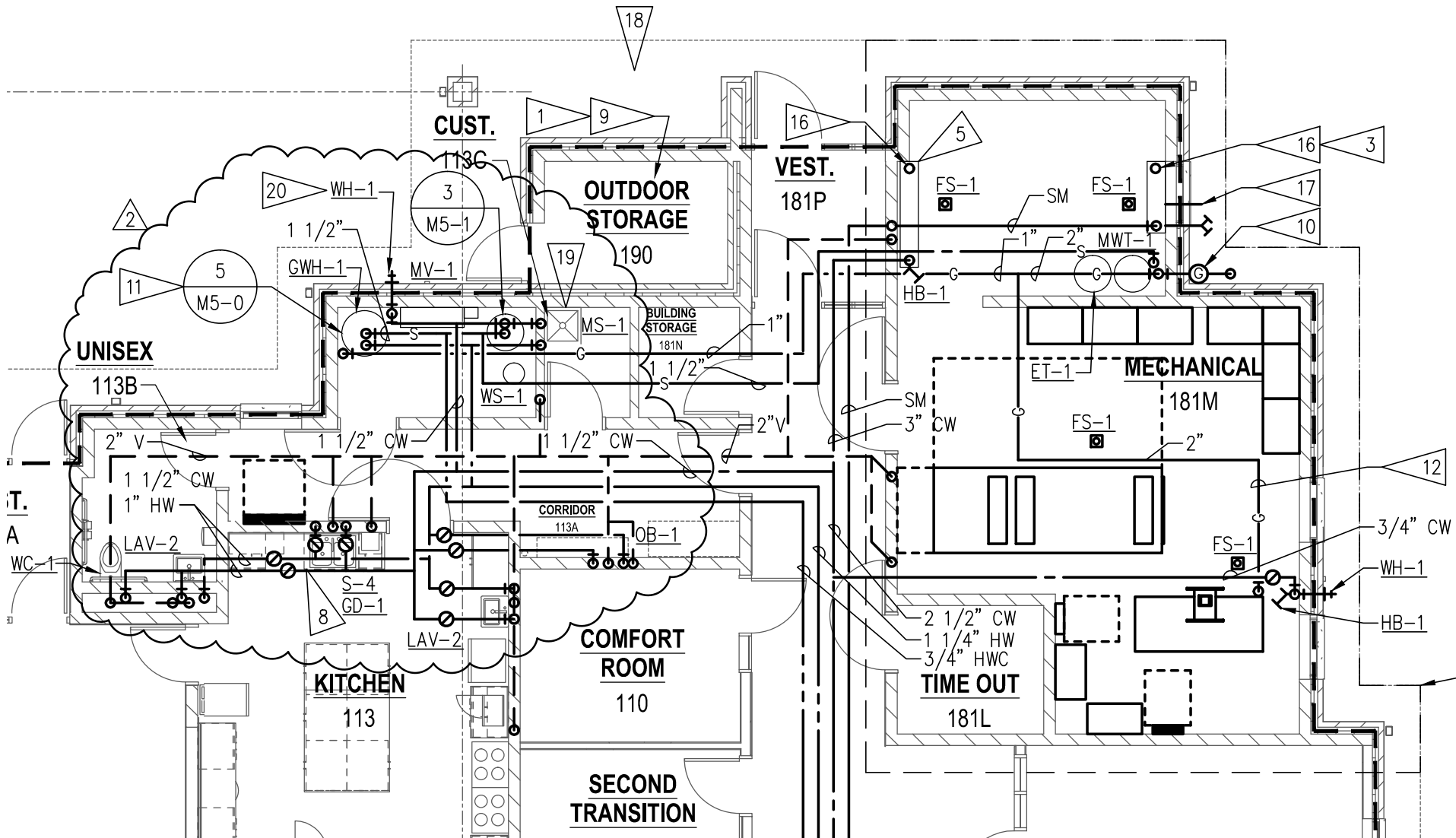
**ALVINE Engineering**  
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**CONSTRUCTION DOCUMENTS**  
**DON D. SHERRILL EDUCATION CENTER**  
 LINCOLN PUBLIC SCHOOLS - 340 NORTH 96TH STREET, LINCOLN, NE, 68504  
 ARCHITECTURE, LANDSCAPE ARCHITECTURE, INTERIOR DESIGN, CONSTRUCTION MANAGEMENT

**M0-1**  
 26 MARCH 2012  
 BCDM NO 4891-00

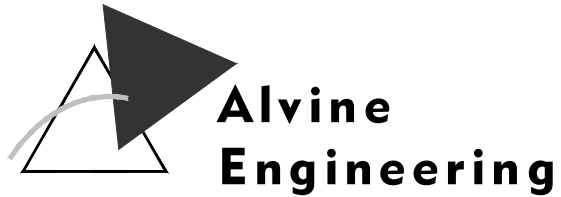


Revision Schedule			
No.	Description	By	Date
2	Addendum #2	JDH	2012-04-13

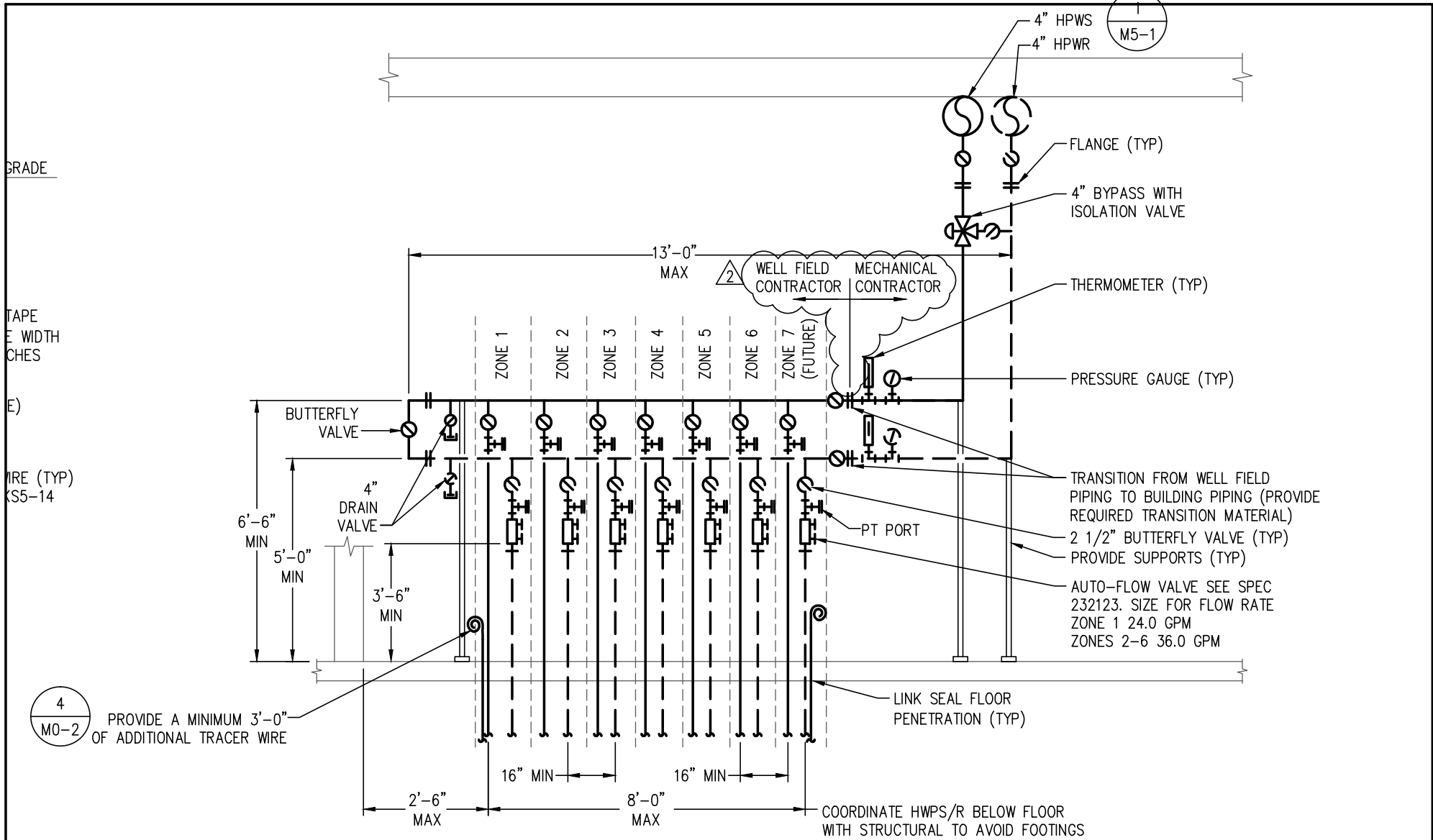


20 PROVIDE SHUT OFF VALVES FOR WH-1.

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PROJECT NO. 20112177	DATE 04/13/2012	DRAWING REFERENCED:	M2-1	SKETCH <b>MS-1</b>
		ADDENDUM NO.:	2	



# VALVE HEADER SECTION – MECHANICAL

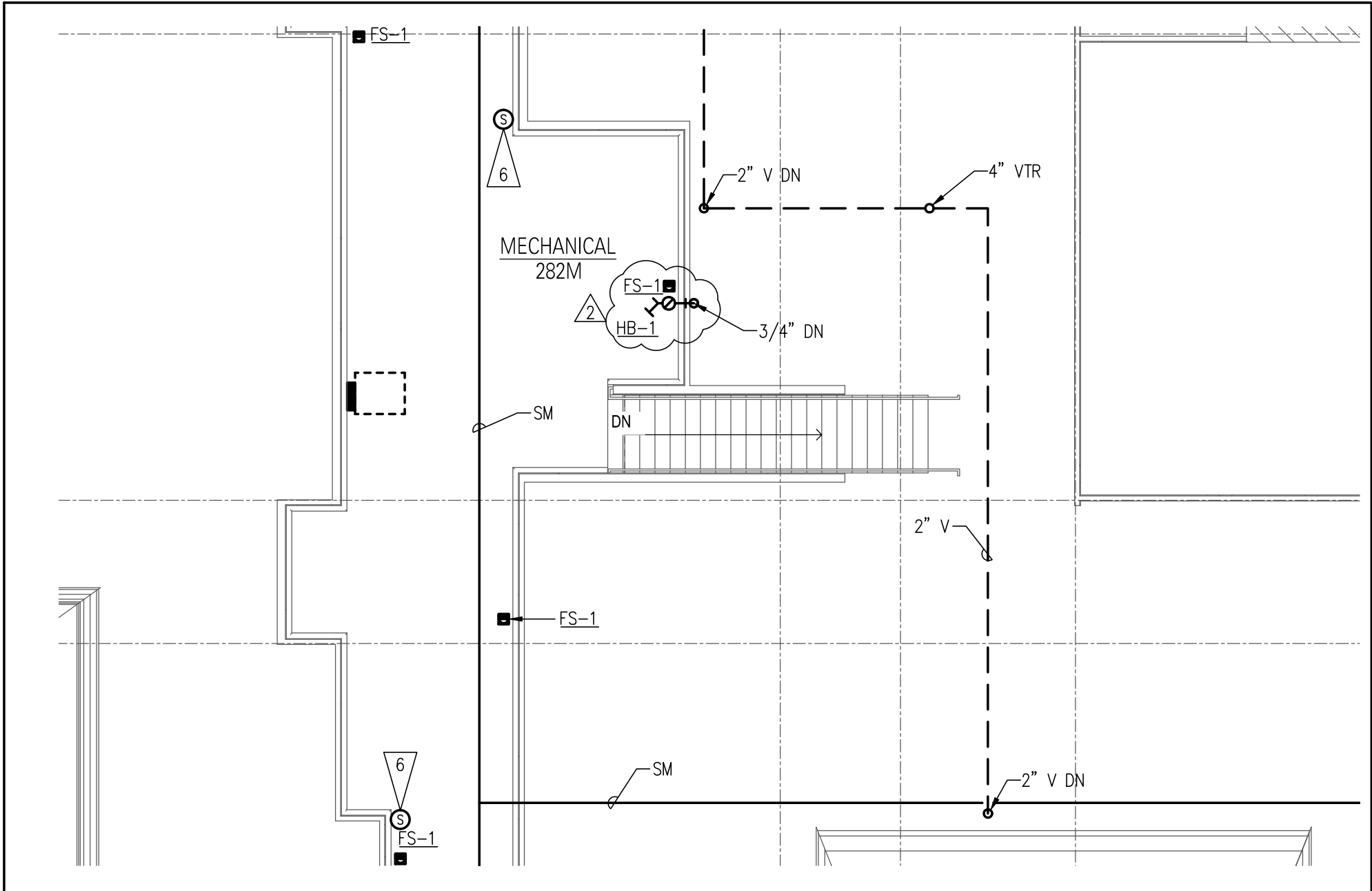
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5  
MO-2

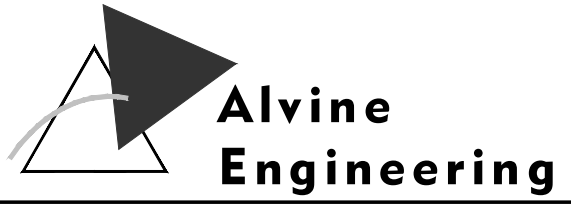
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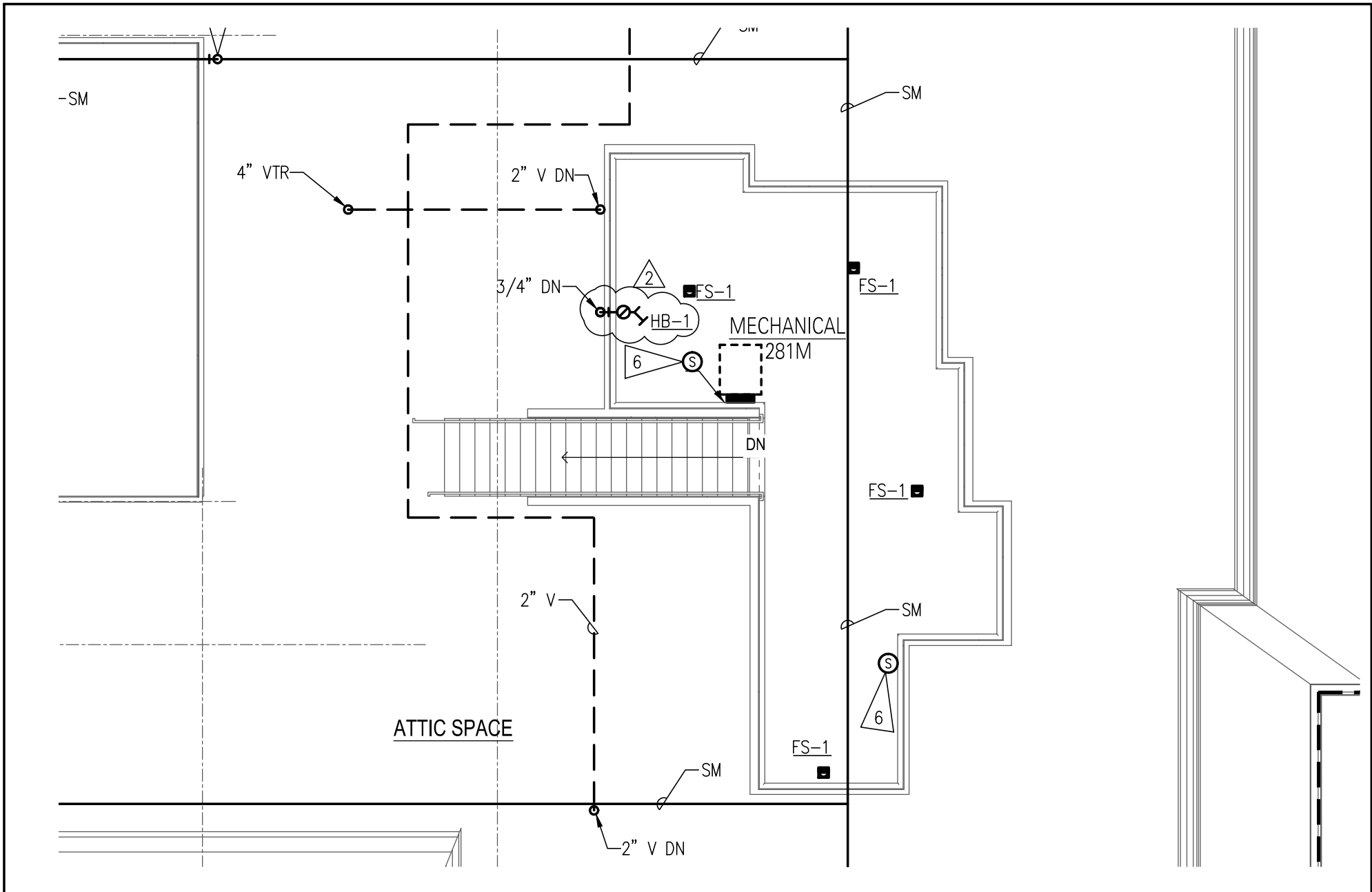
PROJECT NO. 20112177	DATE 04/13/2012	DRAWING REFERENCED:	MO-2	SKETCH MS-2
		ADDENDUM NO.:	2	



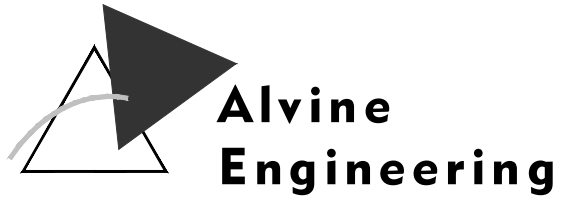
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PROJECT NO. 20112177	DATE 04/13/2012	DRAWING REFERENCED:	M2-2	SKETCH
		ADDENDUM NO.:	2	MS-3



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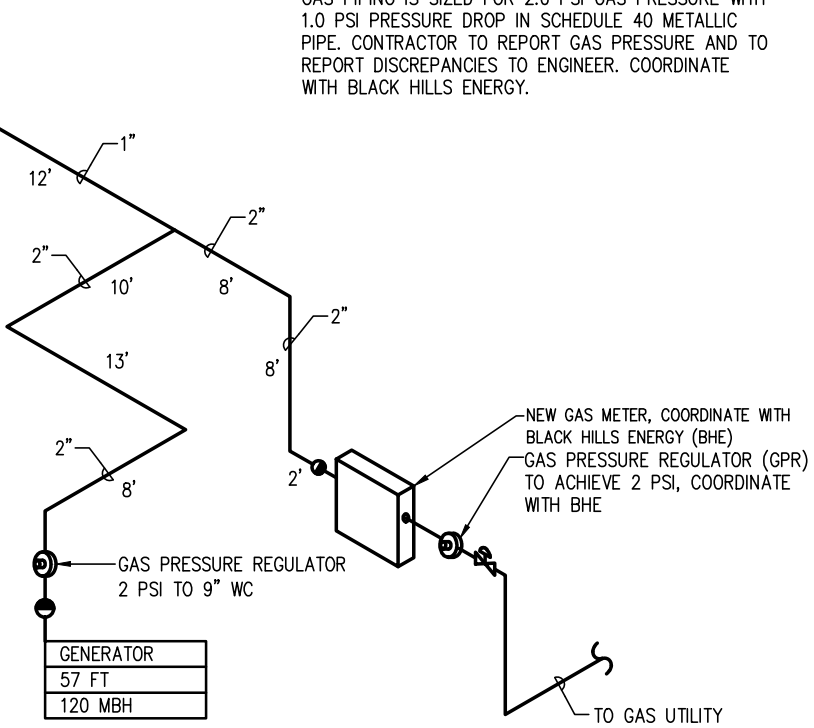


PROJECT NO. 20112177	DATE 04/13/2012	DRAWING REFERENCED:	M2-2	SKETCH
		ADDENDUM NO.:	2	<b>MS-4</b>

GAS PRESSURE REGULATOR  
2 PSI TO 9" WC

GWH-1
60 FT
120 MBH

**GAS PIPING NOTE:**  
GAS PIPING IS SIZED FOR 2.0 PSI GAS PRESSURE WITH 1.0 PSI PRESSURE DROP IN SCHEDULE 40 METALLIC PIPE. CONTRACTOR TO REPORT GAS PRESSURE AND TO REPORT DISCREPANCIES TO ENGINEER. COORDINATE WITH BLACK HILLS ENERGY.

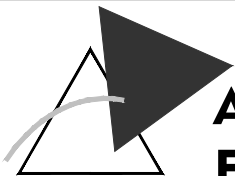


## GAS PIPING RISER DIAGRAM

SCALE: NO SCALE

4  
M3-0

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PROJECT NO.  
20112177

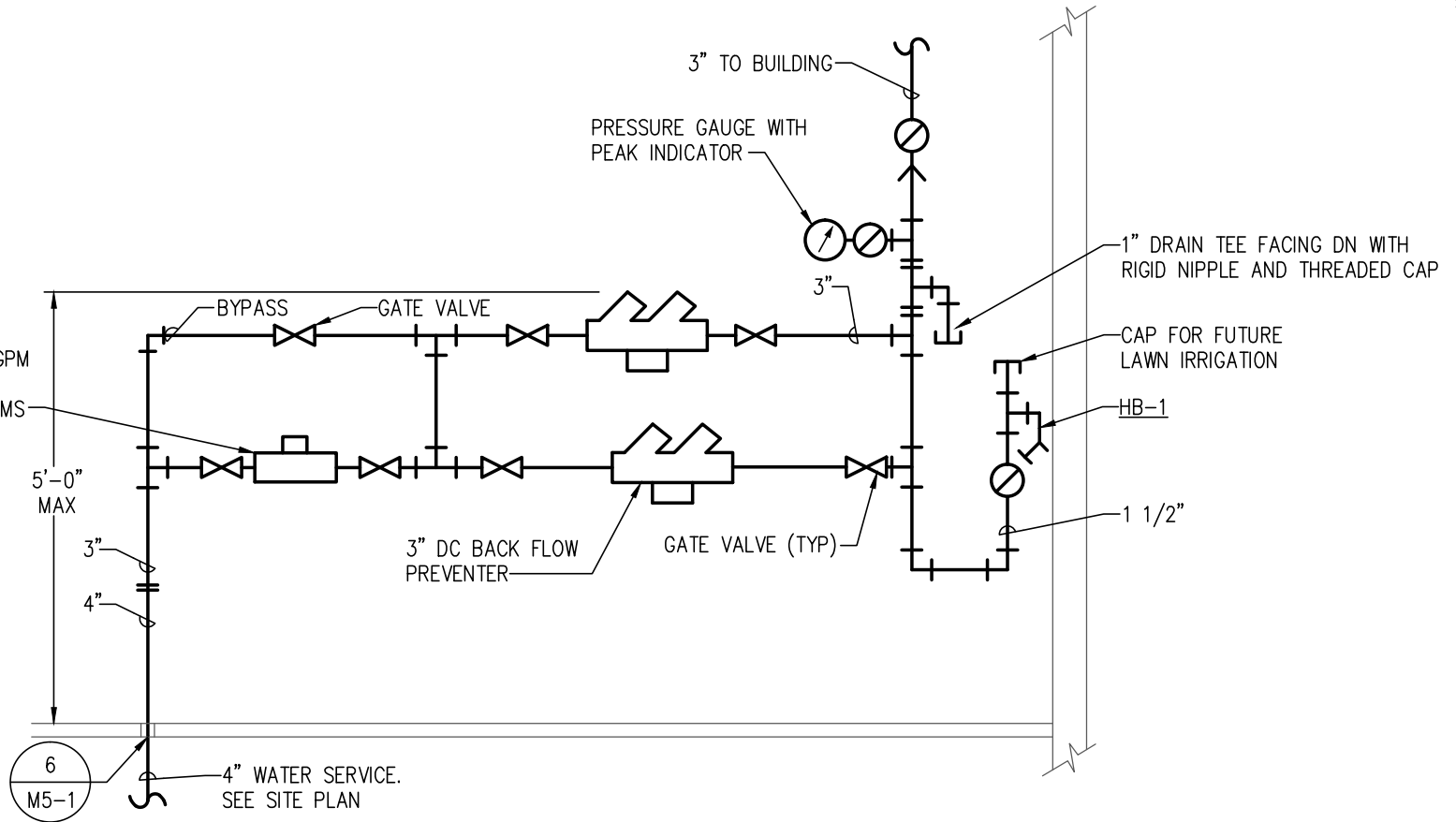
DATE  
04/13/2012

DRAWING REFERENCED:  
ADDENDUM NO.:

M3-0  
2

SKETCH  
**MS-5**

3" BUILDING WATER METER 70 GPM DEMAND @ 10 P.S.I. P.D. WITH REMOTE READER CONNECT TO BMS



# LINCOLN WATER METER DETAIL

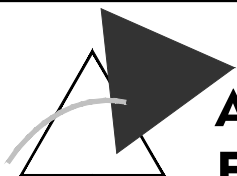
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PL\_H2OMeterLincoln 10/18/06

5

M5-1

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PROJECT NO.  
20112177

DATE  
04/13/2012

DRAWING REFERENCED:  
ADDENDUM NO.:

M5-1  
2

SKETCH  
**MS-6**