

*Missouri  
Department  
of Transportation*



105 West Capitol Avenue  
P.O. Box 270  
Jefferson City, MO 65102  
(573) 751-2551  
Fax (573) 751-6555  
[www.modot.org](http://www.modot.org)

**Pete K. Rahn, Director**

---

August 20, 2009

**Addendum No. 001  
9-090828A**

To: Plans and Specifications Holders List for District – 4, Fabric Salt Storage Structure, Mulberry, KC, Missouri

All specifications, drawings, and reference; except for the electrical requirements are hereby replaced with the attached 6-page 650 Mulberry, Fabric Salt Storage Structure Specifications. All requirements including the fabric structure electrical remain unchanged.

The bid-opening schedule remains unchanged: 3:00 PM local time on August 28, 2009

- END SECTION -

650 MULBERRY  
FABRIC SALT STORAGE STRUCTURE  
SPECIFICATIONS

Construct a pre-engineered Fabric Structure in accordance with the specifications contained herein on 6' high concrete block stem-wall.

1. Size: nominal dimensions, 60' (+/- 2') wide x 100' long (+/- 5')
2. The building doors shall have two 18' x 18' fabric gather service doors with tracks and an interior mounted electric winch operating opening system on both end.
3. Dayton winch model # 3VJ63 from Grainger catalog. Adjust operating products and equipment to ensure smooth and unhindered operation.
4. The balance of the door ends not covered by the door shall be a stem-wall constructed with 3 courses of 2' x 2' x 6' blocks pre-cast concrete interlocking blocks; supplied by owner and set in place by the Contractor.
5. Fixed Ventilation Louvers – Supply and install two - 36" (+/-) fixed aluminum louver; one at each wall. Contractor to provide adequate blocking for louvers.
6. The upper portion of both ends shall be constructed of the same beige fabric as the cover.
7. The upper portion of the each end shall have steel or approved wood end support system.
8. Supply and install two (one on each end) manufactured walk-in doors; approximately 6 feet from the side.
9. Remove debris from project site and disposal.
10. Provide stamped engineered drawings, preventive maintenance schedule, & instructions.
11. The Contractor must provide a one-year warranty for parts and labor on all building material, and equipment or a standard manufacturer's warranty which ever is greater. All warranties, including extended service agreements shall begin on the date of Final Acceptance of this project.

## SECTION 13120

### PRE-ENGINEERED FABRIC STRUCTURE

#### PART 1 GENERAL

##### 1.1 SECTION INCLUDES

- A. Pre-engineered, shop fabricated structural steel building frame.
- B. Doors and Louvers.

##### 1.2 REFERENCES

- A. AISC - Specification for Structural Steel for Buildings - Allowable Stress Design and Plastic Design.
- B. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- C. ASTM A325 / A325M - High Strength Bolts for Structural Steel Joints.
- D. ASTM A653 / A653M – Sheet Steel, Zinc-Coated (Galvanized) or Zinc Iron Alloy Coated (Galvannealed) by the Hot Dip Process.
- E. ASTM A501 - Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
- F. ASTM A550 – Structural Steel with 60ksi Minimum Yield Point.
- G. AWS A2.0 - Standard Welding Symbols.
- H. AWS D1.1 - Structural Welding Code - Steel.

##### 1.3 SYSTEM DESCRIPTION

- A. Clear span truss-arch buildings, sizes and configurations as shown on the plans.

##### 1.4 DESIGN REQUIREMENTS

- A. Design members to withstand 20 psf nominal snow load, 12 psf live load and 3 psf collateral load (minimum) or as determined by the collaboration of equipment suppliers and 90 mph design loads due to pressure and suction of wind.
- B. Permit movement of components without buckling, failure of joint seals, undue stress on fasteners or other detrimental effects, when subject to temperature range of -15° to +115° F.
- C. No cable or building supports shall intrude in clear span area.
- D. Building plans to be sealed by a Professional Engineer, Licensed in the state of Missouri.
- E. At its sole discretion, the MHTC may accept or reject any deviation of the specifications contained herein.

## 1.5 SUBMITTALS FOR REVIEW

- A. Submit to General Service, Facilities Management, PO Box 270, Jefferson City, MO 65102.
- B. Shop Drawings: Indicate assembly dimensions, locations of structural members, connections, attachments, and openings; general construction details, anchorages and method of anchorage, method of installation; framing anchor bolt settings, sizes and locations from datum and foundation loads; indicate welded connections with AWS A2.0 welding symbols; provide professional seal and signature.
- B. Samples: Submit two samples of fabric covering for each color selected, 6x6 inch in size illustrating color and texture of finish.
- D. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- E. Erector Qualifications: Company specializing in performing the work of this section with minimum 5 years documented experience or approved by manufacturer.
- F. Design structural components, develop shop drawings, and perform shop and site work under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State of Missouri.

## 1.6 PRE-INSTALLATION MEETING

- A. Coordination and Meetings: Pre-installation meeting.
- B. Convene one week before starting work of this section.

## 1.7 WARRANTY

- A. Provide Detailed Warranty Information on Fabric Cover.
- B. Provide detailed warranty information on steel framing.
- C. At its sole discretion, the MHTC may reject bids that provide inferior warranties.

## PART 2 PRODUCTS

### 2.1 FABRIC

- A. Minimum Exterior Fabric Material Cover including Fabric Doors:
  - 1. Fabric for entire building shall be furnished in beige color for awarded bid price.
  - 2. The fabric weight for entire building and doors shall be:
    - a. a minimum of 12.5 oz/square yard, with a Duraweave II double stack 16x16 weave with clear KDPE coating equivalent to 23 Mil thickness.

- b. Nova-Thene RU88X-6 (4 mil) Fabric or equivalent
- 3. UV protection with a minimum 4.0 mils average coating on interior and exterior side of fabric material cover.
- 4. COLOR BEIGE.
- 5. Approved Manufacturers for fabric:

Cover-All  
Winkler Canvas Ltd.  
American Shelters  
Accu-Steel  
McGary

Note: Other manufactures products may be approved at the sole discretion of the MHTC.

- 6. The fabric cover shall utilize a winch tie-down system with a series of 10,000 lb. with lashing winches and zero-stretch belting.
- 7. Provide Detailed Warranty Information on Fabric Cover.

## 2.2 Steel

### A. Steel Framework:

- 1. The steel framework shall be fabricated of tubing manufactured from cold-formed steel to meet ASTM A123. Inside and outside must be hot dipped galvanized zinc coating. All manufacture components shall have min 1.7502/ft<sup>2</sup> of zinc inside and outside.
- 2. Steel tubing shall be equivalent to 14-gauge, tensile strength of 55,000. Written certification verifying from the source of the zinc application that the coats meet 1,7502/ft<sup>2</sup> Gatorshield or equal can be used as a corrosion resistant.
  - a. All tubing shall follow the specifications below:
    - 1) Clear Span Structural Steel Tubing – ASTM A500 / ASTM A513
    - 2) Minimum allowable tubing thickness - 14 gauge or .083"
    - 3) Minimum 50 KSI Yield – 55 KSI Tensile ASTM A500
    - 4) End Wall Framework – Engineered Cold Formed "C", "Z", & "L"
    - 5) Minimum allowable thickness – 14 gauge or .083"
    - 6) Engineered Cold Formed Sections must be ordered to minimize splices and connections
    - 7) End Wall Framework - Galvanized Sheet G-90 Material
    - 8) Plate or Bar Stock – ASTM A36
    - 9) Bolts, Nuts, and Washers – ASTM A325
    - 10) All A325 Connections must use a Retaining Compound
    - 11) All Bolts, Anchors, Cables, and accessories to be made from Galvanized Steel

3. All welds on steel framework components shall be sandblasted and finished with a molten-zinc corrosion-resistant process to fully restore weld zones to original service life of the steel tubing. All Welds must conform to American Welding Standards.
4. Materials field welded, cut, or with exposed bare metal shall have three coats of cold galvanizing applied at the time of erection.

### 2.3 Building Installation

Construct a pre-engineered Fabric Structure in accordance with the specifications contained herein on 6' high concrete block stem-wall.

1. Size: nominal dimensions, 60' (+/- 2') wide x 100' long (+/- 5')
8. The building doors shall have two 18' x 18' fabric gather service doors with tracks and an interior mounted electric winch operating opening system on both end.
9. Dayton winch model # 3VJ63 from Grainger catalog. Adjust operating products and equipment to ensure smooth and unhindered operation.
10. The balance of the door ends not covered by the door shall be a stem-wall constructed with 3 courses of 2' x 2' x 6' blocks pre-cast concrete interlocking blocks; supplied by owner and set in place by the Contractor.
11. Fixed Ventilation Louvers – Supply and install two - 36" (+/-) fixed aluminum louver; one at each wall. Contractor to provide adequate blocking for louvers.
12. The upper portion of both ends shall be constructed of the same beige fabric as the cover.
13. The upper portion of the each end shall have steel or approved wood end support system.
12. Supply and install two (one on each end) manufactured walk-in doors; approximately 6 feet from the side.
13. Remove debris from project site and disposal.
14. Provide stamped engineered drawings, preventive maintenance schedule, & instructions.
15. The Contractor must provide a one-year warranty for parts and labor on all building material, and equipment or a standard manufacturer's warranty which ever is greater. All warranties, including extended service agreements shall begin on the date of Final Acceptance of this project.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Section 01039 - Coordination and Meetings: Verification of existing conditions before starting work.
- B. Verify that foundation, floor slab, mechanical and electrical utilities and placed anchors are in correct position

### 3.2 ERECTION - FRAMING

- A. Erect framing in accordance with AISC Specification.
- B. Provide for erection and wind loads. Provide temporary bracing to maintain structure plumb and in alignment until completion of erection and installation of permanent bracing. No permanent bracing shall intrude upon specified minimum clearance height.
- C. Set base plates with non-shrink grout to achieve full plate bearing.
- D. Do not field cut or alter structural members without approval.

### 3.3 ERECTION - WALL AND ROOFING SYSTEMS

- A. Install in accordance with manufacturer's instructions.
- B. Exercise care when cutting pre-finished material to ensure cuttings does not remain on finish surface.
- C. Fasten fabric system to structural supports, aligned level and plumb.

### 3.4 TOLERANCES

- A. Framing Members: 1/4 inch from level; 1/8 inch from plumb.

END OF SECTION