



**SPECIAL PROVISIONS
FOR
EXTERIOR SPECIALTY ITEMS**

**Johnson County
STP-U-5557(618)--70-52**

**Effective Date
February 20, 2018**

THE STANDARD SPECIFICATIONS, SERIES 2015, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. The Cherry Street Lighted Bridge Panels are defined as a series of shallow aluminum cabinets with backlit, hinged faces consisting of the following components:
 - 1. Panel Cabinet: Shall be constructed of aluminum with face panel that is perforated with Contracting Authority-provided, custom perforation that is hinged at the top. The face panel shall be hinged at the top and affixed at the bottom with an inconspicuous latch or vandal-resistant hardware. The face plate shall be backed with a translucent material.
 - 2. LED lighting, and all related electrical components: The lighting shall be color-changed RGB LED lighting that is uniformly controlled.
 - 3. Fasteners: Stainless steel fasteners to mount the cabinet directly to the face of the bridge wall.
 - 4. A discreet raceway to provide electrical services to each individual bridge panel shall run along the bottom of the cabinet. The face plate shall overlap the raceway.

- B. The Banners are defined as a permanent or a rigid banner comprised of aluminum with retroreflective sheeting applied to both sides bearing a digitally printed graphic to be installed on the pedestrian light fixtures. See P Sheets.
 - 1. Banners shall be made of 0.125 inch aluminum
 - 2. Graphics shall be applied to both side of the banners. Contracting Authority shall provide the artwork. The graphics shall be printed on retro-reflective sign sheeting material as specified in this section.

1.02 SUBMITTALS

- A. Shop drawings
 - 1. Submit shop drawings for fabrication and erection of bridge panels and banners. Include plans, elevations, and large-scale details of layout. Indicate anchorage and accessory

- items.
 - 2. Submit sample of a bridge panel. The sample shall be a 24 inch wide section of the entire panel to illustrate frame extrusions including a corner, back panel, hinge, and face panel with attachment method for translucent backing and perforations/cutting of pattern. The sample shall illustrate the overlap in the face panel.
 - 3. Submit location template for the bridge panels to be anchored to wall.
 - 3. Shop drawings shall be original information or drawings, prepared specifically for this project, solely by or for the fabricator or supplier.
 - 4. Provide samples of banner graphic printing on the retroreflective sheeting for approval of color. The fabricator is responsible for providing submittals until there are no changes or modifications required. Assume up to five submittals to ensure correct translation from Contracting Authority-provided artwork and printer calibrations and capabilities.
 - 5. Submit a record of all field verified dimensions.
- B. Product data
- 1. Submit manufacturer's technical data and installation instructions.
 - 2. Provide the Contracting Authority with written instructions for maintenance including a list of acceptable and prohibited cleaning products to use on all parts of the panels and banner.
- C. Samples
- 1. Submit color samples for all products requiring color for review by the Engineer. Samples will include actual paint color on the actual material with actual finish. Samples shall be a minimum of 12 inches by 12 inches. Concrete stain sample may be submitted on the piece of concrete or a plain concrete paver.
 - 2. Submit extrusion examples for review by Engineer.

1.03 QUALITY ASSURANCE

Structural and fabrication details on the drawing related to the bridge panel cabinet are for intent only. The structural and fabrication design and integrity of the bridge panels and anchors shall be the responsibility and liability of the fabricator.

1.04 MEASUREMENT AND PAYMENT

- A. Cherry Street Lighted Bridge Panels.
- 1. This is a lump sum item and no measurement will be made.
 - 2. Payment will be the lump sum contract price. Payment is full compensation for providing a complete installation of decorative, shallow cabinets constructed of aluminum and backlit with color changing led light fixtures and control system. The cabinets shall be permanently affixed to the roadside face of the Cherry Street bridge barrier wall, and the installation shall include the cabinet enclosure, light fixtures, wiring, conduit, boxes, control system and mounting hardware for a complete operating system.
- B. Lighting Pole Banner
- The lighting pole banner as detailed in the plans is incidental to the light assembly (L2 – Pedestrian Light w/ Receptacle). This item is not measured or paid separately.

PART 2 PRODUCTS

2.01 PRODUCTS

- A. The contractor is responsible for the accuracy of all field verified dimensions. Stated dimensions on the drawings shall take precedence over scale dimensions. Do not scale any drawings or details.

- B. The graphic configuration of bridge panel pattern and banner graphic is ultimately governed by original art for each panel generated and submitted by the Contractor for approval.
- C. Electronic artwork provided by the Engineer will not be accepted as shop drawings.
- D. Original art shall conform to the dimensions and general configurations shown on plans. Digital artwork shall be provided to successful bidder and shall not be made available during the bidding processes.
- E. Bridge panels shall be constructed of vandal-resistant construction materials, methods and equipment. Components shall be properly insulated to prevent corrosion between aluminum and non-aluminum metallic surfaces. Joints and seams shall be sealed and weatherproofed.
- F. No piece shall carry any manufacturer's code or other identification signs on any area or part of which may be visible in the normal condition, attitude or use of the sign item.
- G. Each bridge panel face shall be fabricated as a singular piece with a modular-type fabrication techniques to allow for changeability. There shall be no exposed fasteners other than those few at the bottom required to secure the face plate closed.
- I. Perforations shall be sharp and clean, with no edge build-up or bleeding.
- H. Cutting shall be executed in such a manner that all edges and corners of perforations are true and clean. Perforations with rounded positive or negative corners, nicked, cut or ragged edges shall not be accepted.
- J. Aluminum:
 - 1. Aluminum plate, angles, channels, extrusions and other structural items shall be fabricated from alloy 606 I-T6, 6063-T5 or other alloy as required for applicable function and use.
 - 2. Aluminum used for the cabinet of bridge panels shall be a minimum thickness of 0.080 inch, with a mill finish. The face plate of the bridge panel cabinet shall be aluminum with a thickness of 0.125 inch, all with a mill finish.
 - 3. The banners shall be constructed of a single pieces of aluminum with a minimum thickness of 0.125 inch, with a mill finish.
 - 3. All aluminum shall be of the best commercial quality and their various forms shall be straight and true. There shall be no scratches, scars, creases or buckles.
 - 4. Welded joints shall be heliarc welded in conformance with the American Welding Society and the Aluminum Association's specifications.
- K. Fasteners: Fasteners, anchors, and hardware shall be of the best commercial quality
 - 1. Hardware shall be non-corrosive type and shall be non-conductive and/or insulated when joining non-compatible material. Paint for shop coating and field touch-up of dissimilar metal connecting members, including anchors and clips, shall be alkali-resistant bituminous paint.
 - 2. Vandal-resistant fasteners shall be used whenever possible.
 - 3. Exposed fasteners shall be countersunk, filled, sanded flush, and painted out.
- L. Anchors and Inserts:
 - 1. Use epoxy anchors for exterior installations and elsewhere as indicated. Epoxy shall be two component 100% solids, high aspect ceramic blend amine-based. Anchor shall withstand freezing and thawing climate cycles. Epoxy anchors shall be sized appropriately for tensile loads and shear.
 - 2. Use toothed steel or lead expansion bolt devices for drilled-in-place anchors.
 - 3. Furnish inserts, as required, to be set into concrete or masonry work.
 - 4. Galvanized steel anchors are required.

M. Paint:

1. All paints required shall be a two part polyurethane based paint. Exact identification of all paint shall be noted on the shop drawings, together with data describing the method of application, if other than "air" drying.
2. Paint shall have UV inhibitors that will prevent fade, discoloring or delamination as a result of proximity to light source or heat.
3. All paints shall be evenly applied and without pinholes, scratches, orange peeling, application marks, etc. Workmanship in connection with finishes and formation of letters shall conform to the standards of the trade and shall be acceptable to the Designer.
4. All inks and paints shall be evenly applied and without pinholes, scratches, orange peeling, application marks, etc.
5. Prime coats or other surface pre-treatments, where recommended by the manufacturer for inks and paints, shall be included in the work as part of the finished surface work at no extra cost to the Contracting Authority.

N. All adhesives and adhesive tapes required for plastic and metal shall be a type recommended for the particular usage by the manufacturer and guaranteed to meet the general and structural support criteria shown on the drawings.

O. Electrical components:

1. LED lights shall be a performance near exterior wall grazer fixture (120V) modules with spacing to create even illumination. Provide remote concealed data and power controller mounted in the electrical box.
2. Quick connect cable connector leaders shall be provided at all enclosures to interconnect each linear lighting element.
3. All electrical components shall be UL approved.
4. All electrical components shall conform to North Liberty and Iowa building code.
5. Signs controlled with a lighting controller for on/off control and color changing of the LED elements from a touch panel.
6. Bridge panel enclosures shall be interconnected by one 1 inch RGS conduit penetrating the bottom sides of each enclosure as shown on plans.

P. Extrusions:

1. Extrusions shall conform to shape and structural requirements for each specific application. Shapes other than shown on drawings shall be approved prior to bid with substitution request.
2. Owner's Representative approved system.

Q. Retroreflective Sheeting:

1. Banners shall receive ASTM Type XI Sheeting on both sides.
2. Classification and Conformance:
 - a. The sheeting shall conform to ASTM D 4956 as modified by this specification. For digitally printed transparent colored areas or transparent colored overlay films (Auxiliary Signs only) on white sheeting, the coefficients of retro-reflection shall not be less than 70% of the values for the corresponding color in ASTM D4956.
 - b. The sheeting shall meet the requirements of AASHTO M 268 and the supplementary requirements for fungus resistance of AASHTO M 268.

2.02 ELECTRICAL

- A. Provide all labor and materials and all equipment to illuminate the bridge panel enclosure faceplates as required in compliance with specifications.
- B. Location plans are to be considered as schematic, written dimensions shall govern. Successful bidder will be responsible for coordinating the power requirements and stubbed in power

locations with Contracting Authority's electrical contractor. Successful bidder will be responsible for connecting each bridge panel lighting elements to electrical service.

- C. Contractor shall obtain and pay for all licenses and permits. The contractor shall comply with all laws, ordinances, regulations, and code requirements applicable to his work. It is assumed that the Contractor is familiar with all codes; laws and ordinances governing his work, and that all work done by him will be approved by authorities having jurisdiction over his work.
- D. Bridge panels shall be controlled with by a system controller and touch panel. The controller shall be programmed to apply power to LEDs for a preset period of time. After the preset period has expired, the controller shall turn off power to LEDs. The controller shall set the LED "color" as programmed for the time of year. Color of LEDs in each panel enclosure shall be able to be manually adjusted per each panel independently.

2.03 FABRICATION

- A. Fabricate exterior bridge panels and banners to comply with requirements indicated for materials, thicknesses, finishes, colors, designs, shapes, sizes and details of construction.
- B. Produce smooth, even, level surfaces, constructed to remain flat under installed conditions within a tolerance of $\pm 1/16$ inch measured diagonally from corner to corner. There shall not be any sharp or abrasive edges. All exposed corners shall be eased to radius.

2.04 FINISHES

- A. For exposed materials which require selection of materials with integral color, applied color, or surface texture related to appearance, provide color matches indicated.
- B. Aluminum Finishes:
Painted Coating, factory application: Acrylic Polyurethane: Prime with metal pre-treat or spray bond. Finish with ultraviolet inhibited aliphatic isocyanate acrylic system topcoat.
- C. Panel Color:
Color is assumed to be a bright, brushed aluminum color. 12 inch by 12 inch samples with options for approvals shall be submitted.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install the bridge panels level, plumb, and square with curb, with surfaces free from distortion or other defects of appearance.
- B. Bridge Panels:
 1. The Contractor shall familiarize themselves with existing and site conditions prior to fabrication. The contractor shall be responsible for field verification of all existing conditions and infrastructure provided by others including, but not necessarily limited to, electrical stub-outs, power provisions, and existing conditions impacting mounting.
 3. Bridge panels shall be rigidly attached, mounted plumb and level.
 4. Special care shall be taken during installation to assure that bridge panels are not damaged or scratched. Bridge panels showing damage shall be repaired or replaced, as directed by the Engineer.
 5. Installation shall conform to all city electrical codes.
 6. Coating for shop coating and field touch-up of dissimilar metal connecting members, including anchors and clips shall be alkali-resistant, bituminous paint.
 7. All components shall be complete and free from visual, structural or mechanical flaws.

8. Care shall be taken to not damage the bridge wall during bridge panel installation. Surfaces damaged by installation shall be restored to original conditions by the contractor at no additional cost to the project.
 9. No fabrication or installation materials or procedures shall be used that will in any way change the visual quality or in any manner have an adverse effect on the materials and surfaces on the structure.
 10. Provide all labor, materials and equipment to make a complete operating illuminated bridge panel. Place bridge panel in initial operation; make all initial tests to ensure compliance with specifications. Installer shall be responsible for final connection to electrical service.
 11. All work must be coordinated with other trades: adjustments as a result of this coordination shall be at no expense to the Contracting Authority.
 12. All install work must maintain UL listing.
- C. Staining Patterned Wall
1. Prior to installation of the aluminum panels, stain the patterned wall as per detail with concrete stain to provide a consistent appearance. The stain is only intended to disguise the lower, exposed portion of the patterned stone wall imprint and is not intended to be used on the smooth surface in between panels.
 2. Refer to Paints and Coatings Special Provision for materials.
 3. The color of the stain shall be a standard color. Provide color options to the Engineer for selection. Provide a sample of the selected color for approval.

3.02 CLEANING AND PROTECTION

- A. At completion of installation, clean soiled surfaces in accordance with paint manufacturer's instructions. Protect units from damage until acceptance by Engineer.
- B. Provide the Contracting Authority with written instructions for maintenance including a list of acceptable and prohibited cleaning products to use on all parts.

3.03 FABRICATION OF BANNERS

- A. General: Fabrication of all signs shall be in accordance with the transmitted EPS files. Any departure from the files shall be submitted in the form of shop drawings. Work shall be done in a uniform, workmanlike manner.
- B. Before application of sheeting, degrease and etch the aluminum surface according to the sheeting manufacturer's recommendations. A non-chromate conversion coating conforming to ASTM B 921 may be applied to the aluminum according to the sheeting manufacturer's recommendations. Remove all white rust present on the aluminum prior to application of the sheeting according to the sheeting manufacturer's recommendations.
- C. Preparation of signs surfaces shall conform to the requirements of Article 4186.02, A, 2 of the Standard Specifications with the following modifications and/or additions:
 1. Preliminary Cleaning: A complete submersion in a 6% solution of an inhibited alkaline cleaner at 160°F to 180°F for 3 minutes followed by a cold water rinse.
 2. Etching: Preliminary cleaning shall be followed by a surface etch by immersion for 3 minutes in a 6% to 8% dilute phosphoric acid solution followed by spraying with a cold water rinse and immersion for 1 minute in circulating hot water at 180°F.
 3. Handling: No metal shall be handled, except by device or clean canvas gloves, between all cleaning and etching operations and the application of paint and/or reflective sheeting. There shall be no opportunity for metal to come in contact with grease, oils, or other contaminating substances after cleaning and etching and prior to the application of paint and/or reflective sheeting.

D. Sheet Application:

Application: Reflective sheeting shall be applied to properly treated base panels with mechanical equipment in a manner specified for the manufacturing of traffic signs by the sheeting manufacturer.

E. Digital Printing:

1. All images on banners shall be digitally printed direct to sign sheeting before the sheeting is attached to the panels, unless otherwise approved by the Engineer. All digital printing shall be done in a workmanlike manner and as recommended by the manufacturer of the sign sheeting.
2. Appropriate manufacturer's recommended overlamine films must be used in digital printing. Any noticeable deviation from the shades shall be cause for rejection of any sign.
3. Opaque or transparent inks shall be of the type and quality recommended by the retro-reflective sheeting manufacturer.