



# Iowa Department of Transportation

## SPECIAL PROVISIONS FOR SANDBLAST PATTERNING ON ALUMINUM PANELS

Scott County  
BRFIM-074-1(153)0--05-82

Effective Date  
December 17, 2013

**THE STANDARD SPECIFICATIONS, SERIES 2012, ARE AMENDED BY THE FOLLOWING MODIFICATIONS AND ADDITIONS. THESE ARE SPECIAL PROVISIONS AND THEY SHALL PREVAIL OVER THOSE PUBLISHED IN THE STANDARD SPECIFICATIONS.**

### **120094.01 DESCRIPTION.**

This work includes sand blasting a visible pattern onto punched aluminum panels as shown on the plans. The work shall include all labor, materials, equipment, and transportation required to apply the patterns to all required panels.

### **120094.02 MATERIALS.**

#### **A. Blast Abrasive.**

Submit proposed abrasive for Engineer approval. Final approval of blast abrasive is contingent on approval of mockup. Extra-fine crushed glass with the following properties shall be used:

- No free silica,
- Non-ferrous,
- For light duty blasting, minimal etching, and
- Produces a surface profile of 1 to 1.5 mil.

#### **B. Substitutions.**

The use of products other than those specified will be considered providing that the Contractor requests its use in writing at least 14 days prior to bid date. This request shall be accompanied by the following:

- Certificate of compliance from material manufacturer stating that proposed products meet or exceed requirements of this specification.
- Documented proof that proposed materials have a 10 year proven record of performance confirmed by at least two local projects that the Engineer can examine.

**C. References.**

1. American Society of Testing and Materials (ASTM):
  - a. ASTM D4417-11 – Standard Test Methods for Field Measurement of Surface Profile of Blast Surfaces.
  - b. ASTM D 1730-09 – Standard Practices for Preparation of Aluminum and Aluminum-Alloy Surfaces for Painting.
2. The Aluminum Association (AA): Designation System for Aluminum Finishes.

**D. Submittals.**

1. Product Data: Submit manufacturer's complete technical data sheets for the blast abrasive material
2. Qualification Data: For firms indicated in Article 120094.02, E, including list of completed projects.

**E. Quality Assurance.**

1. Manufacturer's Qualifications: Manufacturer with 10 years of experience in manufacture of specified products.
2. Installer Qualifications: A contractor with 10 years of experience with work of similar scope and complexity. Contractor shall certify that all personnel involved in directing and performing work critical to the end result also meet the experience requirement.
3. Maintain high degree of consistency in workmanship throughout Project.
4. Blast pattern mockups.
  - a. At least 60 calendar days prior to production work and at location on project selected by Engineer, finish two adjacent panels to demonstrate blasted texture with anodized surface to show end result.
  - b. Mockup to include punch pattern and pattern blasted on both sides as designed.
  - c. Construct mockup using processes, details and techniques intended for use on permanent work. Mockup shall be produced by the individual workers who will perform the work for the project.
  - d. If mockup is rejected, construct another mockup at the direction of the Engineer.
  - e. Accepted mockup provides visual standard for production sandblasting work.
  - f. Mockups shall remain on site through completion of the work for use as a quality standard for finished work. Store mockup panels in a weather protected enclosure and protect mockup panels from damage during storage period.
  - g. Upon completion of the associated work and at the direction of the engineer, if the mockups are in satisfactory condition and are approved by the Engineer for use on the project, the panels shall be installed as part of the permanent work.

**120094.03 CONSTRUCTION.**

**A. Delivery, Storage, and Handling.**

Deliver products in original factory unopened, undamaged packaging bearing identification of product and manufacturer as applicable.

**B. Working Conditions.**

1. Verify aluminum panels are the grade, thickness, and finish of project panels.

2. Panels shall be dry at time of blasting.
3. Panels shall be free of any dust, dirt, or any other substances at time of blasting.
4. Protect surrounding surfaces not intended to be blasted.

**C. Aluminum Panel Finishing.**

1. Clean and prepare surface for blasting and self-adhesive masking. Remove all detrimental foreign matter such as oil, grease, dirt, soil, salts, drawing and cutting compounds, and other contaminants from surfaces by the use of solvents, emulsions, cleaning compounds, steam or other similar materials and methods which involve a solvent or cleaning action. Refer to ASTM D 1730-09 for requirements.
2. Apply self-adhesive, blast-resistant masking to form the shapes in the pattern/design. Masking is to be cut to pattern of vector artwork to provide consistent lines and smooth curves and transitions between curves.
3. Blast pattern onto panel to a surface profile of approximately 1 to 1.5 mils.
  - a. Recommended nozzle pressure: 60 to 80 psi.
  - b. Recommended working distance 12 to 24 inches.
4. Blasted surface shall have a Medium matte finish. Refer to Aluminum Association designation M43 for requirements. Finished surface shall have a uniform surface profile and appearance. Blasted surfaces shall have no discernible difference in color, texture, or reflectance when viewed from a distance of ten feet under normal daylight conditions.
5. Verify profile with a profilometer or testex tape to assure a match to the mockup approved by the Engineer. Refer to ASTM D4417-11 for requirements.
6. Anodize as specified.

**120094.04 METHOD OF MEASUREMENT.**

The work of sandblasting a visible pattern on the punched aluminum panels, as shown on the plans will not be measured.

**120094.05 BASIS OF PAYMENT.**

Payment for sandblasting a visible pattern on the punched aluminum panels will not be paid for separately but shall be considered incidental to the bid item Fence, Perforated Aluminum, Tall.