

**REVISION OF SECTION 607
FENCE (METAL)(SOUND BARRIER)(60 INCH)**

PERMANENT CHANGES TO PROJECT DATED SPECIAL PROVISIONS

REVISION OF SECTION 607 FENCE (METAL)(SOUND BARRIER)(60 INCH)

<u>DATE</u>	<u>AUTHOR</u>	<u>DESCRIPTION OF CHANGE</u>
09/19/90	MARK LEONARD	SPELLING ERRORS CORRECTED
12/18/91	M. Dodson	Subsections were added, spelling errors corrected.
9/30/1999	M.Nord	Converted to Microsoft Word 97 SR-2 Added September 30, 1999, to header line on pages 1,2 & 3. Revised the specification references to conform with the <i>1999 Colorado DOT Standard Specifications for Road and Bridge Construction</i> as follows: On page three, changed 509.20 to 509.17 because inspection is covered under 509.17.
04.11.2023	M. Kayen	Revisions to make spec online ADA-compliant. 5.22.23 Additional ADA.

**REVISION OF SECTION 607
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Revise Section 607 of the Standard Specifications for this project as follows:

Subsection 607.01 shall include the following:

This work shall consist of furnishing and installing metal sound barrier per these specifications and in reasonably close conformity with the dimensions and details shown on the plans or established.

Subsection 607.02 shall include the following:

The metal sound barrier panels, hereafter referred to as panels, shall conform to the following:

- (a) When tested per test procedure ASTM E 90-75, the panels shall show A-weighted transmission loss of 22 DBA, based on a generalized spectrum of diesel truck noise from NCHRP 78. This acoustical test shall be performed by a recognized acoustical consultant and the contractor will submit copies of the test results to the Department before bidding.
- (b) Each panel shall be of a laminate construction of aluminum sheets, aluminum frame, and paper honeycomb core.
- (c) The aluminum sheets shall be fabricated in one piece from .063 inch aluminum porcelain enameling sheet of Alclad alloy 6061-H-11 with an alloy 1100 cladding of approximately 5 percent on both sides.
- (d) The aluminum sheets shall be treated, per the current Porcelain Enameling Institute specifications, to produce maximum adherence of the porcelain enamel. Adherence of the porcelain enamel coating shall be checked by an accelerated spall test per the current PEI specifications.
- (e) The exterior faces of the aluminum sheets shall be porcelain enameled a minimum of .002 inch in thickness. The porcelain enamel shall be applied in two coats by automatic spray equipment that conforms to current Porcelain Enamel Institute specifications.

The porcelain enamel shall have a gloss reading of 50 to 70 units at a 45 degree angle when measured on the photovolt meter. Reference test ASTM designation C

**REVISION OF SECTION 607
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346-76. Color variation to be within, plus or minus, 2 N.B.S. units. The color shall be Federal Standard 515a, Number 3011.

- (f) Each panel section shall have a perimeter frame made of aluminum alloy 6063-T6 or 6063-T52. This frame shall be assembled by heliarc welding or self-tapping hex head stainless steel screws. A sealant will be required at corners to prevent moisture penetration.
- (g) Core material shall be phenolic impregnated 80 pound kraft paper honeycomb. Core material shall meet specification MIL-STD-810C for fungus resistance. The cell size of the honeycomb shall be 1/2 inch and shall be impregnated 18 percent by weight minimum. The thickness of the core material shall conform to the dimensions indicated on the plans.
- (h) The honeycomb laminate construction shall have a minimum tensile strength of 50 psi. Reference ASTM test method C 297-61 and ASTM C 481-61.
- (i) The laminating adhesive shall be of the thermo-setting type and shall produce a permanent oil and water resistant bond. Bonding of the panels shall be performed in a heated flat plated press capable of exerting 10 psi over the entire panel area at one time. Interior faces of the sheets shall be cleaned before laminating.
- (j) The contractor shall furnish to the Department certification of prior testing of the adhesive laminate according to test method ASTM E 72-80 and ASTM C 273-61. Test shall be performed by an independent testing laboratory.
- (k) All laminated panels shall have exterior faces of such flatness that when measured at temperatures of 70o to 80o F, the maximum wave slope shall not exceed one per- cent. Wave slope shall be computed in the following manner: Measure the distance between high points (DIM. A). Place a straight edge across these points and measure depth of slope (DIM. B). Divide one-half of A into B to determine percent of wave slope.
- (l) On the perimeter of the finished panel, a 1/8 inch tolerance from flush between the frame and sheets will be allowed and all edges shall be straight within 1/8 inch from a straight plane.

The sound and alignment tube shall be solely manufactured from either neoprene or EPDM. This elastomer shall be 60 durometer hardness, verifiable per ASTM D 2240-81. When tested per ASTM D 1171-68 for ozone cracking, the elastomer shall

**REVISION OF SECTION 607
FENCE (METAL)(SOUND BARRIER)(60 INCH)**

have minimum ratings of 2 and 80 percent for exposure and quality retention, respectively. The ozone chamber exposure method A shall be used for test condition.

All structural tubes and the attached tabs shall be painted per Section 509. All blemishes, discontinuities, bare edges, or other imperfections shall be repainted before the installation of the panels. The color shall be the same as the panels.

The anchorage assembly for the structural tube shall be galvanized.

Subsection 607.03 shall include the following:

The contractor shall furnish shop drawings for the panels, structural steel, and sound and alignment tube elastomer bid under this item as specified in subsection 105.02.

Mill and shop inspection of structural steel shall be per subsection 509.17.

Mill and shop inspection of the panels shall also follow the requirements of subsection 509.17 but may be waived and complete inspection made when fabricated panels are delivered to the work site.

Subsection 607.04 shall include the following:

Metal sound barrier will be measured by the linear foot. Measurement will be along the base of the metal sound barrier from outside to outside of end structural tubes for each continuous run of sound barrier.

Subsection 607.05 shall include the following:

The accepted quantity of metal sound barrier will be paid for at the contract unit price.

Payment will be made under:

<u>Pay Item</u>	<u>Pay Unit</u>
Fence (Metal)(Sound Barrier)(60 Inch)	Linear Foot

Payment will be full compensation for all work necessary to complete the item including furnishing and installing all structural tubes, panels, anchorage assemblies, sound and alignment tube, angles, and other miscellaneous hardware required.