**SECTION 05 75 11**

 **EXPANDED METAL**

**\*\*\*\*\* Ametco® Manufacturing Corporation manufacturers several basic construction materials including perforated metal and plastic panels, expanded metal panels, wire cloth, steel and aluminum bar gratings, safety gratings, stair treads, and ladder rungs. Ametco® Manufacturing Corporation also manufactures several types of ornamental metal fencing.**

**This guide specification can be used to specify steel, stainless steel, and aluminum expanded metal sheets. These basic sheet materials have numerous uses and applications. Expanded metal can be specified as a separate section. However, it is more likely that it would be specified as part of another building element. Hence, paragraphs from this guide specification would be inserted into the section specifying the element constructed with expanded metal. \*\*\*\*\***

**The specifier will need to edit this guide specification to reflect the options and applications being used. Most editing can be accomplished by deleting unnecessary requirements. Options are indicated by [ ]. Notes to assist the specifier in selecting options and editing the guide specification are printed in bold and indicated with \*\*\*\*\*. For final editing, all brackets and notes will need to be deleted from the guide.**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

**PART 1 - GENERAL**

**1.1 SUMMARY**

 A. Section includes: Expanded metal sheets used to fabricate [gratings] [stair treads] [catwalks] [grilles] [security screens] [\_\_\_\_\_] specified in Section [\_\_\_\_\_] - [\_\_\_\_\_].

**1.2 REFERENCES**

**\*\*\*\* List by number and full title reference standards referred to in remainder of the specification section. Delete non-applicable references. \*\*\*\*\***

 A. ASTM International (ASTM):

 1. ASTM A123 - Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

 2. ASTM A167 - Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.

 3. ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.

 B. Military Specifications (MIL):

 1. MIL-G-18015A: Expanded Metal Grating and Catwalk.

 2. MIL-M-1794C: Metal, Expanded, Carbon Steel.

 3. MIL-M-1799B: Metal, Expanded, Aluminum.

 4. MIL-S-46044A: Metal, Expanded, Stainless Steel.

**1.3 SUBMITTALS**

 A. Provide in accordance with Section 01 33 00 - Submittal Procedures:

 1. Product data for expanded metal.

 2. Sample: [8 by 10 inches] [203 by 254 mm] minimum size sample in selected style and finish.

**PART 2 - PRODUCTS**

**2.1 ACCEPTABLE MANUFACTURERS**

 A. Ametco Manufacturing Corporation, 4326 Hamann Parkway, P.O. Box 1210, Willoughby, Ohio 44096; 800-362-1360.

 B. Requests to use equivalent products of other manufacturers shall be submitted in accordance with Section 01 25 13 - Product Substitution Procedures.

**2.2 EXPANDED METAL**

**\*\*\*\*\* Ametco® Manufacturing Corporation fabricates expanded metal from carbon steel, stainless steel, and aluminum. Expanded steel sheets can be galvanized. Applicable reference standards for expanded metal are as follows:**

 **Carbon steel: MIL-M-1794C**

 **Stainless steel: MIL-S-46044A.**

 **Aluminum: MIL-M-1799B.**

 **Structural expanded carbon steel for catwalks and gratings: MIL-G-18015A.**

**Expanded metal can be provided as "standard" with surface variations resulting from fabrication process or "flattened" with expanded metal passed through rollers to create a flat surface. Military Standard types are as follows:**

 **Type I - Standard.**

 **Type II - Flattened.**

**Class refers to finish. Military Specification finish types are as follows:**

 **Class I: Uncoated or mill finish.**

 **Class II: Galvanized.**

 **Class III: Corrosion resisting stainless steel.**

**Edit the following paragraph to reflect type of expanded metal required. Refer to Ametco® Manufacturing Corporation product literature for specific style numbers, weights, and dimensions. \*\*\*\*\***

 A. Type: Expanded [carbon steel] [galvanized carbon steel] [stainless steel] [aluminum], [standard] [flattened] sheet [designed for catwalks and gratings] and complying with [MIL-M-1794C] [MIL-S-46044A] [MIL-M-1799B] [MIL-G-18015A], Type [I] [II], Class [I] [II] [III]; Style No. [\_\_\_\_\_] as manufactured by Ametco® Manufacturing Corporation.

**\*\*\*\*\* Typically expanded carbon steel sheets are supplied with a light oil finish. Galvanized steel, stainless steel, and aluminum are other material and finish options. \*\*\*\*\***

 1. Material and finish: [Carbon steel lightly oiled.] [Hot-dip galvanized zinc coating applied in accordance with ASTM A123.] [Stainless steel, ASTM A167, Types 304 and 316] [Aluminum, ASTM B209, Type 3003 - H14 with mill finish.]

**\*\*\*\*\* Refer to Ametco® product literature for weights of various expanded metal sheets and load capacities for grating and catwalk expanded metal. \*\*\*\*\***

 2. Weight: [\_\_\_\_\_] [pounds per square foot] [kg per square meter].

**\*\*\*\*\* Typical expanded metal sheet size is 48 by 96 inches (1219 by 2438 mm). Sheet can be factory cut to custom sizes. Short dimension always precedes long dimension. \*\*\*\*\***

 3. Sheet size: [48 by 96 inches] [1219 by 2438 mm] [\_\_\_\_\_].

**\*\*\*\*\* Design size refers to dimension of diamond shaped expanded metal pattern. It is defined by short way of design (SWD) and long way of design (LWD) measured from one point on diamond to corresponding point on the following design. When a manufacturer's type or style is named by a dimension and a number (for instance 1/4"-#20), the dimension is the SWD. \*\*\*\*\***

 4. Design size: [[\_\_\_\_\_] inch] [[\_\_\_\_\_] mm] SWD by [[\_\_\_\_\_] inch] [[\_\_\_\_\_] mm] LWD.

**\*\*\*\*\* Strands are the sides of the expanded metal design. Refer to Ametco® product literature for strand width, thickness, and open area. \*\*\*\*\***

 5. Strand size: [\_\_\_\_\_] [inch] [mm] wide by [\_\_\_\_\_] [inch] [mm] thick.

 6. Overall expanded metal thickness: [\_\_\_\_\_] [inch] [mm].

 7. Open area: [\_\_\_\_\_] percent.

**\*\*\*\*\* Cut expanded metal panels can be either "random sheared" or "bond sheared". Bond shearing occurs where two strands intersect and eliminates prongs and jagged edges. Random shearing will leave prongs and jagged edges. \*\*\*\*\***

 8. Shearing: [Random with jagged edges.] [Bond without jagged edges.]

**PART 3 - EXECUTION**

**\*\*\*\*\* Expanded metal manufactured by Ametco® Manufacturing Corporation have many uses. Applications include gratings, stair treads, catwalks, grilles, and security screens. If expanded metal is specified in a separate section, this article should cross reference to other sections where expanded metal will be used. As an alternative, the material requirements can be inserted into the section specifying the expanded metal application. \*\*\*\*\***

**3.1 INSTALLATION**

 A. Preparation: Prior to sheet fabrication, field verify required dimensions.

 B. Provide perforated metal sheets specified in this Section for fabrication of [grating] [stair treads] [grilles] [security screens] [\_\_\_\_\_] as specified in Section [05 50 00 [\_\_\_\_\_] - [Metal Fabrications] [\_\_\_\_\_].

 C. Install in accordance with manufacturer's installation instructions and approved shop drawings.

 **END OF SECTION**