**SECTION 05 75 10**

 **PERFORATED METAL PANELS**

**\*\*\*\*\* 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 various perforated metal panels. These basic sheet materials have numerous uses and applications. Perforated panels can be specified as a separate section. However, it is more likely that they 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 perforated panels. \*\*\*\*\***

**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: Perforated metal sheet panels used to fabricate [fencing] [shade structures] [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 A283 - Low and Intermediate Tensile Strength Carbon Steel Plates.

 4. ASTM A653 - Steel Sheet, Zinc‑Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot‑Dip Process.

 5. ASTM B122 - Copper-Nickel-Tin Alloy, Copper-Nickel-Zinc Alloy (Nickel Silver), and Copper-Nickel Alloy Plate, Sheet, Strip, and Rolled Bar.

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

 7. ASTM B248 - Wrought Copper and Copper-Alloy Plate, Sheet, Strip, and Rolled Bar.

 8. ASTM B370 - Copper Sheet and Strip for Building Construction.

**1.3 SUBMITTALS**

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

 1. Product data for perforated metal panels and finish.

 2. Sample: [8 by 10 inches] [203 by 254 mm] minimum size sample in selected perforation pattern 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 PERFORATED METAL PANELS**

**\*\*\*\*\* Ametco® Manufacturing Corporation fabricates perforated steel, aluminum, brass, copper, monel, muntz, and stainless steel sheets and plates. Other metals can be provided by the customer for perforation and processing only. Edit the following paragraphs to indicate required metal. \*\*\*\*\***

 A. Material: [ASTM B209, Alloy 6063, Temper T-6 aluminum] [ASTM B248 brass] [ASTM B370 copper] [ASTM A653 galvanized steel] [ASTM B122 monel nickel-copper alloy] [ASTM B248 muntz copper-zinc alloy, ] [ASTM A167, Type 304 stainless steel.] [ASTM A283 steel] plates and sheets.

 1. Thickness: [\_\_\_\_\_] gage.

**\*\*\*\*\* Standard stock sheet sizes are listed in the following paragraph. Contact Ametco® Manufacturing Corporation for availability of other sizes and custom cut sheets. \*\*\*\*\***

 2. Sheet size: [[36 by 96] [36 by 120] [[48 by 96] [48 by 120] [[\_\_\_\_\_] by [\_\_\_\_\_]] [inches].] [[914 by 2438] [914 by 3048] [1219 by 2438] [1219 by 3048] [[\_\_\_\_\_] by [\_\_\_\_\_] mm].]

**\*\*\*\*\* Ametco® Manufacturing Corporation can provide full perforated sheets or can custom cut square, rectangular, round, triangular, or other shaped panels of various sizes. Include the following paragraph if factory cut perforated panels are required. \*\*\*\*\***

 B. Panel shape and size: Factory cut perforated sheets into [\_\_\_\_\_] by [\_\_\_\_\_] [inches] [mm] panels.

 C. Perforations:

**\*\*\*\*\* Refer to Ametco® Manufacturing Corporation product literature for listing and illustrations of standard perforation patterns. Select required perforation pattern from the following paragraphs. \*\*\*\*\***

 1. Round: [\_\_\_\_\_] [inch] [mm] diameter holes [spaced at [\_\_\_\_\_] [inch] [mm] centers] in [straight line] [[60] [45] degrees staggered] pattern and providing [\_\_\_\_\_] percent open area with [\_\_\_\_\_] holes per [square inch] [square mm].

 2. Square: [\_\_\_\_\_] [inch] [mm] square perforations placed in [straight line] [staggered] pattern and providing [\_\_\_\_\_] percent open area.

 3. Slotted: [\_\_\_\_\_] by [\_\_\_\_\_] [inch] [mm] slots with [round] [square] ends in [straight line] [end staggered] [side staggered] pattern with [\_\_\_\_\_] [inch] [mm] wide side bar and [\_\_\_\_\_] [inch] [mm] wide end bar and providing [\_\_\_\_\_] percent open area.

 4. Slotted airline: [1/4 by 1-1/2 inches] [6 by 38 mm] slots with square ends in straight line pattern with every third end bar [3/16 inch] [5 mm] wide and all other bars [3/32 inch] [3 mm] wide and providing 67 percent open area.

 5. Hexagonal: [\_\_\_\_\_] [inch] [mm] wide hexagons separated by [\_\_\_\_\_] [inch] [mm] thick bars and spaced at [\_\_\_\_\_] [inch] [mm] centers providing [\_\_\_\_\_] percent open area.

**\*\*\*\*\* In additional to the above standard perforation patterns, Ametco® Manufacturing Corporation can provide other patterns and custom shaped perforations such as cloverleaf, windsor, cane, and grecian. Contact Ametco® Manufacturing Corporation for available options and assistance in specifying. \*\*\*\*\***

 6. Custom shaped perforations: Shape as indicated on Drawings and spaced at [\_\_\_\_\_] [inch] [mm] providing [\_\_\_\_\_] percent open area.

**\*\*\*\*\* Staggered hole patterns are referred to as "unfinished" when pattern is not complete on panel ends and are called "finished" when pattern is complete on panel ends. \*\*\*\*\***

 D. End pattern: [Unfinished] [Finished].

**\*\*\*\*\* "Margin" is defined as distance from panel edge to first perforation. "No margin" implies perforation pattern extends off panel edge.**

 E. Margins: Provide perforated panels with [minimum width margins.] [no margins and pattern extending to perimeter.] [[\_\_\_\_\_] [inch] [mm] end margin and [\_\_\_\_\_] [inch] [mm] side margin.]

**\*\*\*\*\* Ametco® Manufacturing Corporation can provide perforated metal panels with perimeter welded metal frames, return edges, borders, mounting holes, brackets, penetrations, and other fabricated items. Include and edit the following paragraph to specify special panel conditions.**

 F. Equip panels with [perimeter welded metal frames] [return edges] [borders] [mounting holes] [attachment brackets]] [clips] [penetrations] [\_\_\_\_\_] as detailed and dimensioned on Drawings and approved shop drawings.

**2.3 FACTORY FINISH**

**\*\*\*\*\* Typically perforated metal sheets are supplied with a light oil finish. Ungreased sheets are also available. Various other finishes can be factory applied to perforated metal sheets and panels. Select required finish from the following options and as appropriate for type of metal. \*\*\*\*\***

 A. Provide perforated metal [sheets] [fabricated panels] with:

 **\*\*\*\*\* Steel sheets can be supplied with bare galvanized finish or galvanized sheets and panels can be coated with either polyester powder or polyurethane color coating. \*\*\*\*\***

 1. Hot-dip galvanized zinc coating in accordance with ASTM A123.

**\*\*\*\*\* Polyester powder color coating is applicable for steel, galvanized steel, stainless steel, and aluminum sheets. \*\*\*\*\***

 2. Polyester powder coating:

 a. Electrostatically applied colored polyester powder coating heat cured to chemically bond finish to metal substrate.

 b. Color: [\_\_\_\_\_] [Selected by Architect from manufacturer's standard range.] [Custom color as selected by Architect.]

**\*\*\*\*\* Polyurethane color coating is applicable for steel, galvanized steel, stainless steel, and aluminum sheets. \*\*\*\*\***

 3. Polyurethane coating:

 a. Thermoset enamel with 1.0 mil dry film thickness.

 b. Color: [\_\_\_\_\_] [Selected by Architect from manufacturer's standard range.] [Custom color as selected by Architect.]

**\*\*\*\*\* In addition to polyester powder and thermoset polyurethane color coatings, the following finishes are applicable to aluminum**. \*\*\*\*\*

 4. [Clear] [Bronze] [Black] [Gold] anodized.] [Mill finished aluminum.]

**\*\*\*\*\* Satin and polished surfaces are applicable to brass, monel, muntz, and stainless steel metals. \*\*\*\*\***

 5. [No. 4 stain brushed finish.] [No. 8 reflective polished finish.]

**PART 3 - EXECUTION**

**\*\*\*\*\* Perforated metal panels manufactured by Ametco® Manufacturing Corporation have unlimited uses. Applications include fences, gates, screens, casework, grilles, and acoustical wall and ceiling panels. If perforated metal panels are specified in a separate section, this article should cross reference to other sections where the panels will be used. As an alternative, the material requirements can be inserted into the section specifying the perforated panel application. \*\*\*\*\***

**3.1 INSTALLATION**

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

 B. Provide perforated metal panels specified in this Section for fabrication of [shade canopy] [fence panel] [gate] [screen wall] [\_\_\_\_\_] as specified in Section [05 50 00 [\_\_\_\_\_] - [Metal Fabrications] [\_\_\_\_\_].

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

 D. After installation, touch-up damaged finish with paint supplied by manufacturer and matching original coating.

 **END OF SECTION**