

SECTION 05735

PERFORATED METAL

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\*\* NOTE TO SPECIFIER \*\* Syr-Tech Perforated & Roll Formed Metal.; perforated metal.
 This section is based on the products of Syr-Tech Perforated & Roll Formed Metal which is located at:
325 Windy Point Drive
Glendale Heights, IL 60139
Toll Free Tel: 800-638-5712
Email: request info (mzarnott@syrtech.com)
Web: www.syrtech.com
[ [Click Here](http://www.arcat.com/arcatcos/cos42/arc42017.html) ] for additional information.
 When it comes to perforated metal, plastic, and other materials, Syr-Tech Perforated & Roll Formed Metal has the experience and the resources to satisfy practically every requirement. Since 1985, Syr-Tech Perforated & Roll Formed Metal has been providing original equipment manufacturers (OEM's), job shops, and architectural firms with quality perforated material. To satisfy the varying needs of different customer types, Syr-Tech has to be very versatile. For this reason, Syr-Tech invests in tooling and machinery that can perforate an array of patterns, produce material in tolerances tighter than industry standard, and offer it as sheet, coil, tube, fabricated, or finished product. With these abilities, Syr-Tech is capable of satisfying a wide range of requirements.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Architectural metal.
		2. Decorative metal.
		3. Perforated ceiling panels.
		4. Perforated metal screens.
		5. Perforated wall panels.
		6. Railing infill panels.
		7. Sunshades.
		8. Guards.
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 03300 - Cast-in-Place Concrete: Installation of anchors.
		2. Section 04080 - Masonry Anchorage and Reinforcement: Installation of anchors.
		3. Section 05400 - Cold-Formed Metal Framing: Installation of anchors.
		4. Section 05500 - Metal Fabrications: Frames and supports.
		5. Section 05700 - Ornamental Metal: Frames and supports.
		6. Section 05520 - Handrails and Railings: Inserts.
		7. Section 06400 - Architectural Woodwork: Panel inserts.
		8. Section 06410 - Custom Cabinets: Panel inserts.
		9. Section 08110 - Steel Doors and Frames: Panel inserts.
		10. Section 08710 - Door Hardware: Cylinders for keyed locks.
		11. Section 09910 - Paints: Field applied paint finish.
		12. Section 14200 - Elevators: Interior walls and doors.
	1. SUBMITTALS
		1. Submit under provisions of Section 01300.
		2. Product Data: Manufacturer's data sheets on each product to be used, including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.
		3. Shop Drawings: Indicate opening dimensions and required tolerances, jamb connection details, anchorage spacing, hardware locations, installation details, and special conditions.
			1. Pattern and perforation type.
			2. Panel sizes.
			3. Panel thickness.

\*\* NOTE TO SPECIFIER \*\* Green Architecture and Design. Perforated metal minimizes resource depletion due to its recyclability, reduces energy in use, promotes sustainability, and invites innovation in terms of creative design and innovative engineering. Blending functionality and recyclability, perforated has numerous advantages when it comes to green design and construction. LEED Certification, the Leadership in Energy and Environmental Design Green Building Rating System, sets standards and awards points for specified uses of sustainable resources. \*\* NOTE TO SPECIFIER \*\* Include the following for projects requiring LEED certification. Credits are available for the use of materials with recycled content, and also for regional materials if the project is located within a 500 mile radius of the fabrication facility. Delete if not required.

* + 1. Sustainable Design Submittals:
			1. Recycled Products: Indicate percentage of recycled material used in manufacture of products, and percentage classified as post-consumer.
			2. Regional Products: Indicate location of product manufacturer and distance from manufacturer to project site.

\*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.

* + 1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
		2. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company engineering and fabrication of architectural perforated metal for a minimum of 15 years.
		2. Installer/Fabricator Qualifications: Company experienced in incorporating manufacturer's products into architectural fabrications.

\*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
			1. Finish areas designated by Architect.
			2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
			3. Refinish mock-up area as required to produce acceptable work.
	1. DELIVERY, STORAGE, AND HANDLING
		1. Store products in manufacturer's unopened packaging until ready for installation.
		2. Store products wrapped or otherwise protected and under clean and dry storage conditions until required for installation.
	2. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
	3. COORDINATION
		1. Coordinate fabrication of perforated metal components with fabrication of work on or in which the panels will be installed.
		2. Providing final size measurements to manufacturer in time to avoid delay in the construction schedule.
	4. WARRANTY
		1. Provide manufacturer's standard limited warranty against defects in materials and workmanship.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Syr-Tech Perforated & Roll Formed Metal which is located at: 325 Windy Point Drive; Glendale Heights, IL 60139; Toll Free Tel: 800-638-5712; Email: request info (mzarnott@syrtech.com); Web: www.syrtech.com

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01600.

\*\* NOTE TO SPECIFIER \*\* Perforated Sheets: Perforated sheets can be supplied either as flat, fabricated, and/or finished product. Typically produced from coil, perforated sheets can be produced in widths up to 60 inches (1524 mm) and in any length (typically under 250 inches (6350 mm) for shipping purposes). Supplied either fully perforated or with margins and/or blank areas, perforated sheets can be produced to meet your design and production requirements. Delete if not required.
 \*\* NOTE TO SPECIFIER \*\* Perforated Coils: Ideal for original equipment manufacturers (OEMs) with automated production operations, perforated coils enable faster production by reducing handling of sheet material.
 Supplied either fully perforated or as paneled sections either with or without precisely placed locator holes, perforated coil up to 60 inches (1524 mm) wide can be produced in 16 gauge and thinner material to meet your design and production requirements. Delete if not required.

\*\* NOTE TO SPECIFIER \*\* Delete types and options not required. Delete this paragraph if types and patterns are specified with specific information in the following paragraphs, or if specific type and patterns are indicated on the Drawings.

* + 1. Type and Pattern:
			1. Round Hole, Staggered Centers, 60 degree.
			2. Round Hole, Staggered Centers, 45 degree.
			3. Round Hole, Straight Centers.
			4. Square Hole, Staggered Centers.
			5. Square Hole, Straight Centers.
			6. Round End Slot, Staggered Centers.
			7. Round End Slot, Straight Centers.
			8. Square End Slot, Staggered Centers.
			9. Square End Slot, Straight Centers.
			10. Hexagon Hole.
			11. Decorative Hole.
			12. Customer Designed Pattern.

\*\* NOTE TO SPECIFIER \*\* Delete material not required.

* + 1. Material Type:
			1. Stainless Steel.
			2. Aluminum.
			3. Carbon Steel.
			4. Galvanized Steel.
			5. Brass.
			6. Copper.
			7. Plastics.
			8. Bronze.
			9. Zinc.
			10. Titanium.
			11. Composites.

\*\* NOTE TO SPECIFIER \*\* While materials of varying thickness can be perforated, full width perforating presses are designed to handle materials that range between .016 inch (0.40 mm) to .125 inch (3 mm) thick. As the limits are approached, the stiffness and hardness of the material dictates what can be perforated and in which patterns.

* + 1. Material Type: \_\_\_\_\_\_\_\_.
		2. Material Thickness: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* While a wide range of hole sizes can be perforated, the ability to produce them is dependent on the thickness of the material. As a rule of thumb, a greater than 1 to 1 ratio should be maintained (i.e. 1/8 inch (3 mm) holes in 1/16 (1.5 mm) thick material). In the event that the hole size is close to, equal to, or less than the thickness of the material, the greater the likelihood that punches may break - resulting in either imperfect or missing holes in the material. For this reason, where applications require the 1 to 1 ratio to be either pushed or exceeded, it is best to discuss with a Customer Service Representative the level of allowance for imperfect or missing holes and the cost associated with meeting that level.

* + 1. Hole Size: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* While using a hole shape (i.e. round, square, slot, etc.) and configuration (i.e. staggered or straight) that provides the best solution for the application is important, choosing one that can be produced with existing tooling minimizes costs and enables faster delivery. Delete if pattern selected above. Retain for custom patterns.

* + 1. Hole Shape: \_\_\_\_\_\_\_\_.
		2. Staggered or Straight Dimension: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* While choosing a pattern that offers the required percent open area is of great importance, patterns with extreme open area proportions (i.e. 60% and higher) increase material distortion and can adversely affect quality and/or increase costs resulting from efforts to minimize the distortion. This is especially true when the perforated area is surrounded with margins on all four sides. . Delete if pattern selected above. Retain for custom patterns.

* + 1. Open Area: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* While they can be made in practically any size and can omit the need for having to weld perforated material to non-perforated material, margins can increase the difficulty in getting material within a desired flatness tolerance and can cause camber. This is especially true when: margins are wide (i.e. 3 inches (76 mm) or more) margins are unequal margins are on all four sides the material type is hard (i.e. Stainless Steel 300 series, 1/2, 3/4, and full hard aluminum) material is thick (i.e. 11 ga or more) the perf pattern is of a high open area (i.e. 40% and higher) To minimize the amount of work and the associated cost required to get the material flat and without camber, either reduce or change one or more of these attributing factors. If unable to do so, consideration may have to be given to allow for less stringent tolerances.

* + 1. Side Margins: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Unfinished and Finished. While it is considered industry standard practice to produce perforated areas with unfinished ends when enclosed within margins, finished ends can be produced providing that the tool is capable of doing so. In most cases, producing finished ends requires the employment of special production techniques. For this reason, finished ends may increase costs. To view the difference between unfinished and finished ends, click here. To find out if a desired pattern can be produced with finished ends, contact one of our Customer Service Representatives. Unless otherwise specified, unfinished ends are quoted and produced.

* + 1. End Margins: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* While it is likely that blank areas and/or locator holes can be made in any pattern, the ability to do so is dependent on the versatility of the tool (i.e. center spacing). To find out if either desired blank areas and/or locator holes can be provided with existing tooling or if tooling would have to be modified or developed, provide us with a drawing of the part and a member of our staff will advise you.

* + 1. Blank Areas and/or Locator Holes: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* While measures are taken to keep surface blemishes to a minimum, imperfections resulting from perforating, roller leveling, and shearing do occur and are therefore considered standard and acceptable. If material surface finish is critical, then it should be indicated on the request for quote so additional precautions (i.e. use of vinyl coated material, paper interleaving, etc.) are planned for and the cost is adjusted to consider the additional detail. Delete if not required.

* + 1. Surface Protection: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* While perforated product can be supplied degreased, fabricated or finished, unless requested, these secondary operations are neither quoted nor performed. Although they may prolong delivery, secondary operations add value to your perforated product. While they increase the cost per part, letting Diamond perform these operations is easier and often costs less than what it would be if done by the customer.

* 1. METAL FINISHING
		1. Anodizing: \_\_\_\_\_\_\_\_.
		2. Degreasing: \_\_\_\_\_\_\_\_.
		3. Painting: \_\_\_\_\_\_\_\_.
		4. Polishing: \_\_\_\_\_\_\_\_.
		5. Powder Coating: \_\_\_\_\_\_\_\_.
		6. Post Galvanizing: \_\_\_\_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete if not required.

1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until openings and substrates have been properly prepared to receive the products of this section.
		2. Verify dimensions, tolerances, and method of attachment with other work on-site.
		3. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions.
		2. Provide suitable means of anchorage acceptable to manufacturer such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles.
		3. Anchor supports securely with allowance for necessary thermal movement and structural support.
		4. Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.
		5. Do not install component parts that are observed to be defective, including warped, bowed, dented, abraded and broken members.
		6. Do not cut, trim, weld or braze component parts during erection in manner that would damage finish, decrease strength, or result in visual imperfection or failure in performance. Return component parts that require alteration to shop for re-fabrication, if possible, or for replacement with new parts.
		7. Separate dissimilar metals and use gasket fasteners, isolation shim, or isolation tape where needed to eliminate possibility of corrosive or electrolytic action between metals.
	4. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION