

SECTION 09 84 13

2" - 3" or 4" THICK PERFORATED STEEL SOUND ABSORPTION PANEL

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

- A. Drawings and general provisions of the Contract, including general and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY:

- A. Acoustic Absorption Panels (AAP) field installed using 2+, 3+or 4+thick (refer to drawings) pre-manufactured components. The following components/systems are included and specified herein:

1. Acoustic Absorption Panels
2. Bottom mounting channels
3. Middle mounting channels (where applicable)
4. Top mounting channels

- B. Provide labor, material, tools, equipment, scaffolding, transportation, inspection, certificates, and temporary protection necessary to:

1. Provide Acoustic Absorption Panels and mounting channels as shown on Drawings and as specified in these specifications. Provide accessories and appurtenances required for complete working installation.
2. Connectors and flashing shall make holes in Acoustic Absorption Panels neat and with no exposed sharp edges in accordance with AAP manufacturer's instructions.

1.3 SUBMITTALS:

- A. Product Data: Manufacturer's product specifications, standard details, certified product test results, installation instructions and general recommendations, as applicable to materials and finishes for each component and for total panel system.
- B. Samples: Sample panels minimum 12 inches square, in the profile, style, color and texture indicated. Include applicable clips, battens, fasteners, closures and other panel accessories.
- C. Shop Drawings: Showing layouts of panels on walls and/or ceilings and panels supported by steel structure, details of edge conditions, joints, corners, panel construction, panel profiles, supports, anchorages, trim, closures and special details. Distinguish between factory and field assembly work. Incorporate information derived from field measurements and inspection where it affects panel configuration.

D. Test Reports: Provide certified test results by recognized testing laboratory or agency in accordance with specified test methods for each system. Test Reports must be submitted at bid date.

E. Finish: 6" square samples on steel substrate to match Architect's sample.

1.4 QUALITY ASSURANCE:

A. Regulatory Requirements:

1. Acoustical performance: Minimum NRC (Noise Reduction Coefficient) rating of (refer to drawing as NRC varies depending upon thickness) after panel fabrication.
2. Reference Standards:
 - a. ASTM C-423-02, Sound Absorption by the Reverberation Room Method.

B. Field Measurements:

1. Prior to shop drawing preparation and fabrication of the panels, take field measurements of structure and substrates to receive panel system. Incorporate measurements and show adjustments to panels to accommodate actual conditions.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver panels and other components so they will not be damaged or deformed. Package panels for protection against transportation damage.

B. Handling: Exercise care in unloading, storing, and erecting panels to prevent bending, warping, twisting and surface damage.

C. Stack materials on platforms or pallets, covered with tarpaulins or other suitable weathertight covering. Store metal panels so that they will not accumulate water. Do not store panels in contact with other materials that might cause staining, denting or other surface damage.

1.6 WARRANTY:

A. Provide manufacturer's warranty covering failures of materials and workmanship for a period of two (2) years from installation. Acts of nature, misuse, or abuse are not covered.

B. Finish Warranty: Furnish panel manufacturer's written warranty covering failure of the factory-applied finish on metal panels within the warranty period. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

Finish Warranty Period: 10 years

1.7 EXPERIENCE:

A. Acoustical Panel supplier must provide a list of ten (10) similar successful installations of acoustical panels supplied within the last five years.

- B. Materials requiring testing shall be manufactured in the same location, with the same equipment for at least five (5) years and have 3rd party, independent testing results no more than five (5) years old.

PART 2 - PRODUCTS

2.1 MATERIALS:

- A. Acoustic absorption panels shall be “**QuietPerf**” Model NBV-II, NB-III or NB-IV Sound Absorbing Panels as manufactured by **Noise Barriers, LLC.**, Libertyville, IL

Manufacturer:

Noise Barriers, LLC
2001 Kelly Court
Libertyville, IL 60048

Phone: (847) 843-0500

www.noisebarriers.com

Contact:

John Finnegan
Email: info@noisebarriers.com

Phone: (315) 682-3821

2.2 PANEL CONSTRUCTION:

- A. Panels will be constructed using Commercial Quality Galvanized Perforated Steel Sheet: Comply with ASTM A525. Provide minimum sizes shown and as required to meet structural requirements. All sizes, mountings, and finishes are per the architectural drawings.
 1. Minimum thickness for perforated face sheet: 22 gauge.
 2. Perforation pattern to be 3/32"x 3/16". 22% open area.
 3. Utilize as many identical panel sizes as possible.
 4. Panel sizes shall be up to 14', 18', 24', 30', 42', and 48' width and up to 144' long. Custom sizes are available.

2.3 PANEL COMPONENTS:

- A. All accessory trim items shall be of 16 ga. minimum galvanized steel, type G90 or galvanized steel, type A60 and shall be furnished in factory standard lengths to be field cut to specified dimensions. Location and quantity of sheet metal screws and trim requirements shall be in accordance with the barrier wall system manufacturer's installation details.

2.4 ACOUSTICAL INSULATION:

- A. Acoustical panel core insulation shall be flexible, resilient, noncombustible mineral wool or glass fiber, complying with ASTM C665.

2.5 PANEL SUPPORTS AND ANCHORAGE:

- A. Provide the following installation mounting shapes per the architectural drawings:
 1. Z-channel and U-channel.
 2. U-channel and opposing U-channel.
 3. Z-channel and Z-channel.
 4. Hat channel between panels.
 5. Exposed or concealed brackets.
 6. Direct mount, in the case of framed panels.

- B. Panel mounting shapes shall be minimum 18 gauge.

2.6 MISCELLANEOUS MATERIALS:

- A. Fabricate and finish panels and accessories at the factory to greatest extent possible, by manufacturer's standard procedures and processes, as required to fulfill indicated performance requirements and accommodate site constraints. Comply with indicated profiles and dimensional requirements and with structural requirements.
- B. Fabricate face sheet of perforated steel sheet in manufacturer's standard pattern to meet sound absorption requirements. Provide manufacturer's standard acoustical insulation containment system. Finish panels before, during and after fabrication as required to provide maximum performance from coating system, and to fully coat exposed edges of construction, including perforations.

2.7 PANEL SYSTEM ACOUSTICAL PERFORMANCE CHARACTERISTICS:

- A. Panel system shall be tested by a recognized and approved laboratory in accordance with ASTM standards.
 - 1. Submit certified laboratory test including absorption values for special panel type and construction of not less than following:

SOUND ABSORPTION COEFFICIENTS

Octave Band

Center Frequencies (Hz)	<u>125</u>	<u>250</u>	<u>500</u>	<u>1K</u>	<u>2K</u>	<u>4K</u>	<u>NRC</u>
2" Thick Panel NB-II	0.27	0.63	1.09	1.06	1.04	1.03	0.95
3+Thick Panel NB-III	0.87	1.26	1.18	1.04	1.08	1.00	1.15
4+Thick Panel NB-IV	0.88	1.16	1.34	1.25	1.20	1.13	1.25

2.8 FINISH PAINT and PACKAGING:

- A. Manufacturer's high performance Polyester Powder coating is standard and shall meet warranty requirements.
- B. Apply coatings before, during, or after forming and fabricating panels, as required by coating process and as required for maximum coating performance capability. Fully coat all edges of perforations in face sheet. Protect coating either by application of strippable film or by packing plastic film or other suitable material between panels to protect the finish during shipment.

Color: Architect will select from manufacturer's standard color chart.

- C. Provide sufficient paint to touch-up panels after installation of AAP.
- D. All materials shall be shipped in covered wooden crates.

PART 3 – EXECUTION

1.1 PANEL INSTALLATION:

- A. Install panels according to manufacturer's instructions and recommendations, as applicable to project conditions and supporting substrates. Anchor panels and other components of the work securely in place, with provisions for thermal and structural movement.
 - 1. Field cutting of exterior panels is not permitted.
 - 2. Field cutting of interior panels is permitted, a flashing or dressing is recommended.
 - 3. Install panels with exposed fasteners finished to match panel finishes.
 - 4. Any cutting of bagged material must be resealed with approved Mylar tape.
- B. Accessories: Install components required for a complete acoustical absorption panel system, including trim, coping, supports and attachments, connections between panels, seam covers, sealants, fillers, closures strips and similar items.

1.2 CLEANING AND ADJUSTMENT:

- A. Damaged units: Replace panels and other components of the work that have been damaged or have deteriorated beyond successful repair by means of finish touch up or similar minor repair procedures.
- B. Cleaning: Remove temporary protective coverings and strippable films (if any) as soon as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction.

END OF SECTION