
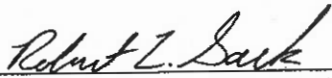


To: SUPERSEDED BY EB 21-057 EFFECTIVE 11/24/21		<i>New York State Department of Transportation</i> ENGINEERING INSTRUCTION	EI 02-038
Title: NOISE BARRIER SYSTEM - STRUCTURAL PLANKS OR PANELS FILLED WITH RECYCLED MATERIAL			
Distribution: <input type="checkbox"/> Manufacturers (18) <input type="checkbox"/> Surveyors (33) <input checked="" type="checkbox"/> Main Office (30) <input checked="" type="checkbox"/> Consultants (34) <input type="checkbox"/> Local Govt. (31) <input type="checkbox"/> Contractors (39) <input checked="" type="checkbox"/> Regions/Agencies (32) <input type="checkbox"/> _____ ()	Approved:  R. Sack, Deputy Chief Engineer Technical Services Division 8 Nov 02 Date		

ADMINISTRATIVE INFORMATION:

- **Effective Date:** This Engineering Instruction (EI) is effective with projects submitted for the letting of 05/08/2003.
- **Superseded Issuances:** This EI does not supersede any previous issuances.

PURPOSE:

The purpose of this EI is to issue a special specification for noise barriers utilizing Recycled Material Filled, Structural Planks or Panels and to make the Department aware of the availability of this item.

TECHNICAL INFORMATION:

This type of noise wall may be used in addition to or as a substitute for other types of noise barriers such as wood or precast-concrete, especially where aesthetics or accessibility are an issue. This noise barrier is composed of hollow plastic planks or panels filled with recycled post consumer tire rubber and/or plastic materials. The planks or panels can be made in various colors to meet landscaping requirements. This specification covers the design, approval and installation of this type of noise barrier. Cost of design, material, and installation is comparable to existing noise barrier items.

Contract proposals must include appropriate subsurface information and site limits (heights, lengths etc.) in order to design an acceptable foundation.

IMPLEMENTATION:

DQAB will add the following special specification to the system.

Item 18607.9909 M Noise Barrier System - Structural Planks or Panels Filled with Recycled Material

Ongoing Construction projects may use this item by Order-on-Contract at the discretion of the Region if a reasonable cost reduction is provided to the State.

TRANSMITTED MATERIALS:

Special Specification 18607.9909

BACKGROUND:

Various types of noise barriers, from wood to concrete, have been used throughout the state. Recently the Department has been looking at recycled products and post consumer scrap plastic and rubber as viable construction materials and fillers for noise barriers. The particular type of noise wall covered by the attached special specification takes advantage of the use of these materials.

VENDOR: Information on vendors can be accessed through the Materials Bureau.

CONTACT: Direct any questions concerning this specification to the General Engineering section of the Materials Bureau at (518) 457-4285.

ITEM 18607.9909 M - NOISE BARRIER SYSTEM - STRUCTURAL PLANKS OR PANELS FILLED WITH RECYCLED MATERIAL

DESCRIPTION:

Design and install a noise barrier system made of composite planks or panels filled with recycled post consumer tire rubber and/or plastics, of the size, color and at the location indicated in the contract documents. The Engineer may direct that certain modifications be made to the barrier to fit the location and terrain, as approved by the Regional Landscape Architect.

MATERIALS:

Portland Cement Concrete: Footings	501
Bar Reinforcement, Grade 420	709-01
Structural Steel: Columns	564-2
High Strength Bolts, Nuts, and Washers (and other connecting hardware), Galvanized	715-14
Galvanized Coatings and Repair Methods	719-01

Noise Barrier System Requirements:

Provide manufacturer's certification that the materials meet or exceed the following materials requirements, to the Engineer. Acceptance of the materials at the job site is at the discretion of the Engineer.

- A. Composed of stacked structural planks or panels meeting the following requirements:
 - Designed to be stacked or placed with no openings visible between the planks or panels.
 - Shell constructed of durable, flame retardant materials.
 - Ultraviolet resistant additives incorporated in the manufacture of the shell to inhibit fading and cracking of the panel during its service life.
 - Resistant to freeze/thaw damage and degradation from ozone and hydrocarbons.
 - Pigmented throughout the shell cross section to produce a uniform color.
 - Filled with uniformly distributed, recycled post consumer scrap tire rubber and/or post consumer scrap plastics so that the panel or plank is a minimum of 50% these post consumer products by weight.
 - All planks or panels to be used on the project be of a uniform color and texture.
- B. Plank or Panel density: 19.5 kg/m² minimum (exclusive of uprights).
- C. Mounted on a galvanized steel structure.
- D. Capable of withstanding a wind load of 1274 Pa.
- E. Minimum Plank or Panel service life of 20 years.
- F. Free of noise leaks and excessive headlight or solar glare.
- G. Weather resistant to all natural elements.
- H. Have the same appearance on front and back unless otherwise specified on the plans.
- H. Capable of being cleaned of graffiti and other surface contamination using detergents or mineral spirits, without compromising the effectiveness or appearance of the barrier system.

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DESIGN DETAILS:

Based on the limits, height, minimum post spacing and subsurface information indicated on the plans and specifications, prepare and submit for Department review/approval to the Regional Design Engineer the following: structural plans, foundation designs, shop drawings, and fabrication details approved and stamped by a currently registered New York State Professional Engineer. Submit four sets of the submission package for review/approval at least 60 days before work begins. The submission package will be reviewed as follows:

- A. Structural Design and Fabrication: will be reviewed by the Regional Design Unit
- B. Foundation Design: will be reviewed by the Geotechnical Engineering Bureau.

The Regional Design Engineer will coordinate the review and be responsible for the final submission approval. Delays resulting from incomplete or incorrect information in the submission package will be at the Contractor's expense.

Fabricate planks or panels that are uniform in color and texture to the shapes and sizes shown in the contract documents. Seal the plank or panel ends so that the filling does not leak out during delivery or construction of the barrier. Provide appropriate end covers to allow cutting and sealing of planks or panels in the field.

Fabricate structural steel columns and other hardware as indicated in the approved submission package, and in accordance with the provisions of the plans and specifications. Before galvanization, drill or punch holes in the flanges, webs and any other required areas of the columns, at locations shown on the plans.

Panels may be preassembled before shipping to the project site, subject to approval of the Engineer. Any pre assembly fasteners or other hardware may not be visible after erection of the barrier.

CONSTRUCTION DETAILS:

Auger holes for column foundations at locations approved by the Engineer, to the diameter and depths indicated in the approved submission package. Take precautions to protect the holes from collapse. Carry out any remedial work at this time as ordered by the Engineer. Backfill and compact around noise barrier footings prior to erection of the posts and panels.

Employ a method, approved by the Engineer, to set structural columns in the foundations to assure proper center to center spacing and plumb of columns with a deviation from proper spacing, and a deviation from a plumb in any direction of no more than 13mm per 3.0 M. Place steel columns at the positions and depths indicated in the approved submission package, and fill in with concrete. Do not place concrete into holes with standing water. Consolidate the concrete and finish to the elevations shown on the plans. Cure concrete in accordance to specifications for a minimum of seven curing days.

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The Engineer will inspect the base units for any damage before backfilling around bottom panel of barrier system.

Perform any required grading between the columns to provide a continuous and smooth ground line which will produce no openings between the bottom of the panel and the ground surface.

Handle and install all components in accordance with the approved submission package, the plans and specifications, and manufacturer's instructions. Use manufacturer's suggested material and techniques to prevent noise leaks (i.e., gaps, spaces, or holes capable of allowing light to pass from one side of the barrier to the other) between all joints within the barrier system and between the wall units and the columns.

Repair or replace any noise barrier components damaged during transportation or installation at no cost to the Department.

METHOD OF MEASUREMENT:

The noise barrier system will be measured by the number of square meters of barrier satisfactorily completed in accordance with this specification and as approved by the Engineer. The Engineer will compute the total number of square meters of each section, using the following payment lines:

- Upper payment lines will be the top of the highest plank or panel set or as ordered by the Engineer.
- Lower payment limits will be the bottom of the lowest plank or panel set.
- Longitudinal payment lines will be the outer extremities of each section.
- Only one side of the barrier will be measured for payment.

BASIS OF PAYMENT:

Include the cost of designing, furnishing all labor, materials, excavation, backfill, equipment and tools necessary to complete the work in the unit bid price. Also, include disposal of surplus materials in the unit bid price of this item.