

PRECAST COMPOSITE DECK SYSTEMS



EFFIDECK™ – A light weight composite bolt-down deck system.



PRECAST POST-TENSIONED DECK UNITS

A full thickness, non-composite concrete deck system.



STEWART AVENUE OVER CASCADILLA CREEK, ITHACA, NY

Effideck panels consisting of 5" of concrete cast compositely with 8" tubes span transverse floor beams of this steel arch bridge.

WITH ALL FORT MILLER DECK UNITS YOU GET:

- Long-lasting modular superstructure units
- High performance concrete
- "traffic-ready" surface
- Full composite action
 - Faster installation
 - All weather installation



PRECAST CONCRETE STEEL COMPOSITE DECK UNITS (PCSCD)

A full depth concrete deck composite with steel stringers. (A bolt down system.)

THE FORT MILLER CO., INC.

A FORT MILLER GROUP COMPANY

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YOUR IMAGINATION IS OUR ONLY LIMITATION

PCSCD MODULAR UNITS

TO FIT ANY NEED

EFFIDECK™

A PRECAST BOLT-DOWN DECK SYSTEM

EFFIDECK™ is a lightweight deck system consisting of a 5” (typically) concrete deck slab supported by closely spaced structural steel members cast compositely with the deck. Steel members rest directly on stringers or floor beams to which they are bolted. Full composite action with the stringers is achieved when the stud shear connectors are attached to the stringers through pockets in the deck.



Effideck voids out concrete between tubes where it is not needed. This makes this deck system lighter and as strong as it needs to be. Notice how the deck is

haunched down to the bottom of the tubes at stringers or floor beams as seen in these photos above and right.

LIGHTWEIGHT



This deck panel for Stewart Ave. in Ithaca, NY consists of a 5” deck supported by 8” deep tubes.

PRODUCT SPECIFICS

- 5” +/- Concrete Deck
- High-Strength, High Performance Concrete
- Weighs Approximately 75 lbs. per SF
- Steel Tubes – ASTM A-500 Shaped Grade B
- Tubes and Studs Hot-Dipped Galvanized, Inside and Out
- Deck Surface Smooth or Textured

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LEFT: This deck panel for the Swanton-Alberg, VT project consists of a 5” deck supported by 2” deep tubes so total deck thickness matches existing deck thickness.



TRANSVERSE EFFIDECK INSTALLATIONS



Effideck works especially well on wide stringer spacings as on this project in Lee, MA where 42' panels were placed on four stringers, 12'-0" center to center.



Crowned Effideck panels placed on new steel stringers proved to be the most cost effective alternative on this project in upstate Vermont.

TRANSVERSE APPLICATIONS (PLACED ACROSS STRINGERS)



**ROUTE NO. 8 OVER LITTLE
RIVER, STOWE, VT.**



New Effideck panels (photo taken from below) four years after installation. Notice wide tubes at panel boundaries provide superior panel to panel connection.

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Non-grouted Effideck panels provided a work platform for the crane that carried each panel across previously-set panels to set new panels.

**RT. 78 OVER MISSISQUOI BAY
TOWNS OF ALBURG AND SWANTON, VT.**



LONGITUDINAL EFFIDECK INSTALLATIONS

ROUTE NO. 7 OVER WALLOOMSAC RIVER, BENNINGTON, VT



Replacement of the deck on this through-girder bridge on busy Route 7 in Bennington, VT was completed in two stages as shown in photo on right. The longitudinal Effideck panels were erected in one day per stage.



LONGITUDINAL APPLICATIONS (FLOOR BEAM TO FLOOR BEAM)



Heavy-duty bolt-down connections provide positive composite action and superior hold down attachment to the floor beams.



This photo, taken from below shows longitudinal Effideck panels spanning floor beams.

EFFIDECK DESIGN

- Designed using AASHTO guidelines for composite beam and girder design
- Internal composite action between tubes and the deck is accomplished using headed studs welded directly to structural steel tubes
- External composite action (between Effideck panels and supporting stringers) accomplished using nested headed studs in grout pockets



Effideck panels were erected from both ends of the bridge. Total erection time was two days.

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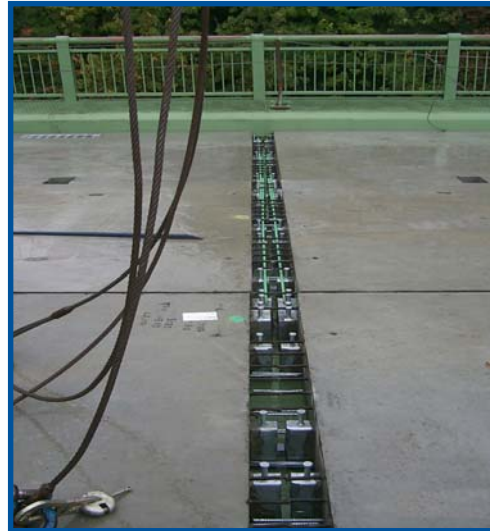
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STEWART AVENUE OVER CASCADILLA CREEK, ITHACA, NY



Stud shear connectors and threaded stud hold downs are attached directly to the stringer or floor beams from the top of the deck. Panel-to-panel connectors are attached to adjacent steel tubes (above), also from the top of the deck. All pockets are filled with non-shrink grout to achieve full composite action.



Steel shims between tubes and supporting floor beams constitute a steel-on-steel load path.

Using specially designed rebar connectors welded to weldable rebars allowed for deck continuity across the transverse floor beams on the Ithaca project.

EFFIDECK ADVANTAGES

- Positive Composite Action
- Steel-on-Steel Load Path
- Faster Installation
- Top-down Construction

Bolt-down and nested stud connection ensures composite action.

Ready to use upon erection – no waiting for grout to cure before using.

All work performed from the top of the deck.

Makes installation safer and faster without costly scaffolding.

PRECAST POST TENSIONED DECK UNITS

1-287 OVER SAW MILL RIVER
VIADUCT, WESTCHESTER CO. NY



Crowned transverse deck panels were set at the rate of over 15 per day.



Shear studs were welded to the beam flanges after longitudinal post tensioning was complete.



Deck panels were post tensioned longitudinally from one end of the bridge to the other end.

PRECAST CONCRETE STEEL COMPOSITE DECK UNITS



A special erection crane, designed by the Perini Corporation, was used to erect the panels.



PCSCD units were installed on the through trusses of the Bronx Approach to the Triborough Bridge in New York City, NY.



Steel bolstered connections to longitudinal stringers were designed to make new deck surface match the existing surface.

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SPECIAL DESIGN

