

One Beam at a Time

Bridge Components Built in Advance

Construction season might start to wrap up as the temperatures outside turn cold, but work on repairing and replacing bridges and roadways throughout the region never stops.

When winter weather doesn't demand their time with plowing, members of District 1 Maintenance Bridge Unit specialize in making channel beams, hybrid boxes and inlet boxes.

Maintenance units in Crawford, Mercer, and Warren counties can make beams, while the Venango County crew makes inlet boxes. All four can make hybrid boxes. The components are created at the county facilities and moved to the work sites as needed. It is a process known as precasting.

Since 2010, members of the District 1 Maintenance Bridge Unit precast program have helped complete more than 60 bridge replacements and 125 preservation projects.



A precast channel beam is lifted from a form at the Crawford County Maintenance facility.

Production of the precast concrete beams is done through a five step process.

Step 1: After the measurements of the needed beams are determined, a form is built. This step must be done

carefully, and is individualized for each project. This step is crucial. Therefore, it can take some time to build the form to ensure it is correct.

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Covered in this issue:

Embedded Tech and Engineering Topics — Channel beams, compressive strength

Vocabulary Terms — Precast, rebar, restrained

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The newsletter is also available online at www.penndot.gov/RegionalOffices/district-1.

Five-Step Process Used to Build Channel Beams

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Step 2: With the form complete, the crews can start to build the rebar cages for the beams. The cages are built one at a time.

Step 3: As each cage is finished, it is loaded into the form and ready for concrete.

Step 4: After the concrete is poured, it is covered with damp burlap and insulated blankets. The concrete cures for seven days and is only removed from the form when the concrete meets the required compressive strength, which is the ability to withstand heavy loads.

Step 5: Once the concrete has set, the beam is removed from the form. It takes two loaders to move the beam. Each one is taken to a storage area, where it is kept until it is time to load the beams onto a truck and haul them to the job site.



DID YOU KNOW...

The District 1 Maintenance Bridge Unit in Crawford County built eight channel beams for the Hatchtown Road Bridge replacement project in 2016. Each beam measured 34.5 feet long and weighted 10.5 tons.

Buckle Up — It's the Law

Drivers and passengers under 18 years of age must buckle up every time they ride in a vehicle.

Children under 8 must be properly restrained in a car seat. This is a primary law. Police can pull drivers over for infractions and issue tickets.

To learn more about the Pennsylvania seat belt laws by going online to www.penndot.gov/safety.

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