

History of Significant Changes made to the PCI Northeast NEXT Beam Typical Guide Details since March 2015.

Date: January 22, 2021

In January 2021, the PCI Northeast Bridge Technical Committee issued significant changes to the NEXT Beam Typical Guide Details. A decision was made to issue the revised details as a second edition. In this process, the revision blocks on each sheet were cleared to make room for future revisions. This document includes both historical information to major changes made to NEXT Beam Details between March 2015 and January 2021 and major changes made with the issuance of the second edition.

Notes:

1. The first NEXT Beam Guide Details were developed in 2009. The first details were broken into separate files in 8 ½"x11" format.
2. The NEXT Beam details were combined into one document in March 2015. The listing below does not include changes made prior to March 2015.
3. Format changes and re-ordering of details or sheets are not included below.

The following are a synopsis of technical changes made between March 2015 and January 2021

Changes made in October 2015	
Change	Description
Changed railing to concrete barrier	This change affected all bridge sections depicting barriers

Changes made in March 2016	
Change	Description
Changed Location of Top Strand	All details depicting strand locations. Change was made to eliminate a reinforcing conflict with NEXT D Beam deck reinforcing.
NEXT D Beams: Removed extra deck bars, added j bars, added notes	Details depicting end zone reinforcing details for NEXT D beams. This was done to address potential issues with end cracking in these beams.

Changes made in November 2017	
Change	Description
Added span length tables and note regarding span lengths	This was done to address issues with maximum span lengths. The common use of concrete barriers reduces the maximum span length limits. Assumptions were added to clarify the factors that affect the span lengths.

The following are changes made in January 2021

Changes made in the Second edition: January 2021	
Change	Description
Created cover sheet	Listing of committee members and document information
Added pages with Frequently Asked Questions.	The previous FAQ sheets were a separate file. In addition to adding these to the typical guide details, the FAQs were updated and enhanced based on common questions that have come in.
Added detail showing the “Design Section” on Sheet NEXT 01	This is to clarify the dimensions and limitations of the actual beam form.
Added details and notes regarding debonding for all beam types	This was done to address recent changes in the AASHTO LRFD Bridge Design Specifications. The details include the interpretation of the new provisions for NEXT Beams.
Modified Deck Flange Joint Details for NEXT D and E Beams	<p>The details were modified to be consistent with the recent Full Depth Deck Panel details. The details now include tolerances and alternate fill materials.</p> <p>The changes are now consistent with the 2018 AASHTO LRFD Guide Specifications for Accelerated Bridge Construction.</p> <p>This affected the joint details and the typical bridge sections, as now the beam spacing is affected by the variable joint width.</p>
Beam end skew details and notes were modified for all beam types.	<p>This was done to address problems with fabrication and design.</p> <p>The maximum skew limit for NEXT D beams was increased to 30 degrees due to the limited potential for skew related cracking on the heavily reinforced deck.</p> <p>The layout of deck bars in NEXT D and E Beams was squared at the ends. There is no need to splay the bars if the deck end is supported by an end diaphragm (as required in the AASHTO LRFD Bridge Design Specifications).</p>
Added top flange longitudinal bars to beam end details and notes for all beam types	This was to address common issues with beam end cracking where designers were not properly following the requirements of the AASHTO LRFD Bridge Design Specifications.

Changes made in the Second edition: January 2021

Change	Description
Modified End Diaphragm Details	<p>Eliminated the dapping of the top flange. Changed end diaphragm to be attached to the end of the beam. This was changed to address cracking issues at the dapped top flange. If designers choose to have the diaphragm between the stems, they can use the integral abutment details.</p>
Modified Integral Abutment Details	<p>Eliminated the dapping of the top flange in lieu of port holes to vent air and place concrete. This was changed to address cracking issues at the dapped top flange.</p> <p>Added notes regarding elimination of bars passing through the stems due to conflicts with end zone reinforcing and strands.</p>
Added a detail for adjustable bearings	<p>This was done to address seating issues with beams on skew, especially NEXT D Beams, which are relatively stiff in torsion.</p>
Modified Utility Support Details	<p>Added option to support the utilities via inserts in the stem as opposed to the top flange. This was done to address issues with certain utility companies that prefer support via a steel cross member.</p> <p>The detail of the utility was removed as it only represented one type of utility. The details are now more generic.</p>