

PennDOT e-Notification

Bureau of Business Solutions and Services
Highway/Engineering Applications Division



BXLRFD

No. 015
July 17, 2014

Release of Version 2.6.0.0

The Department's LRFD Box Culvert Design and Rating (BXLRFD) program has been revised as described in the attached "Summary of May 2014 Revisions – Version 2.6.0.0".

The new program has been placed on PennDOT servers for use by the Districts. Consultants and others, who have a current license agreement for **BXLRFD Version 2.5.0.0**, can obtain the updated version by submitting an Update Request form along with the **update fee of \$300 for private organizations and \$50 for governmental agencies**. Updates for **BXLRFD Version 2.4.0.0 or earlier** will require an **additional fee**. For BXLRFD update fee details, refer to the following link: <http://penndot.engrprograms.com/home/Ordering/BXLRFD.htm>. The update fee is waived for federal and state transportation agencies.

The Software Update Request form can be obtained on the PennDOT Engineering Software Support website at <http://penndot.engrprograms.com> by clicking on "Ordering/Updating" and, then on "Update Form".

NOTE: BXLRFD v2.6.0.0 is not compatible with Windows XP.

Please note that the software will no longer be provided on a CD. Once payment is received, an e-mail will be sent with download instructions. The new installation will require a License Key that will be provided in the e-mail. A valid e-mail address must be provided on the Update Form in order to receive the download instructions.

Please direct any questions concerning the above to:

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Attachment

Archived copies of all previously distributed e-Notifications can be obtained from the PennDOT LRFD and Engineering Programs website at <http://penndot.engrprograms.com/home> and clicking on "e-Notification" and then "Mailing List Archives."

SUMMARY OF MAY 2014 REVISIONS - VERSION 2.6.0.0

Since the release of BXLRFD Version 2.5.0.0 several revision requests and user requested enhancements have been received. This release of BXLRFD Version 2.6.0.0 contains the following revisions and enhancements.

General Program Revisions

- 1. The method of calling the engineering program DLL from the Engineering Assistant has been changed for compatibility with EngAsst v2.5.0.0 which uses Microsoft's .NET Framework, version 4.5. Because of this, BXLRFD will no longer work with EngAsst v2.4.0.6 or v2.4.0.9 unless the EngAsst "Edit / Run EXE – Command Window" option is selected. BXLRFD will no longer work with EngAsst v2.4.0.0 and earlier. (Request 230)**
2. The BXLRFD program has been updated to compile with Intel Fortran XE 2013 SP1 Update 1 using Visual Studio 2012 Update 4. (Request 226)
3. The BXLRFD program finite element model generation has been revised so the results more closely match those found in STAAD.Pro V8i. Previously, the results of the BXLRFD finite element models had been set up to replicate the force results for PennDOT's BOX5 culvert analysis program. (Request 201)

Input Revisions

4. The concrete density has been converted into a user specified input item. The user now has the ability to specify two concrete densities. One for calculating the Modulus of Elasticity and the other for calculating the concrete dead load. Previously the program always used a concrete density of 150 pcf for deal load and 145 pcf for Modulus of Elasticity. (Request 033)
5. The program has been revised to allow for the analysis of a single axle load input through the SLL command. Previously, the program would require a minimum of two axle loads. (Request 159)
6. A new input for Backfill Type has been added to the LDC command. The Backfill Type input is used by the program per A3.6.1.2.6 to determine the distribution of wheel loads through earth fills. For select granular backfill the wheel load is distributed by the tire contact area increased by 1.15 times the depth of fill. For other backfill materials the wheel load is distributed by the tire contact area increased by 1.0 times the depth of fill. Previously, the program never considered select granular backfill material when calculation the wheel distribution through earth fills. (Request 221)

Output Revisions

7. A new Geometry Output table has been added to the Additional Information section of the output. The new table displays a concise list of all final component thicknesses for both analysis and design runs. Previously, the user would have to search the Gross Section Properties table to assemble a list of the same information. (Request 194)
8. The Flexure Design Output Tables have been modified to now provide the Factored Resisting Thrust and Moment based on the Design Area of Steel. In addition, the table now provides the applicable bending Phi Factor controlling zone used to calculate the Resisting Moment. Previously, the program would only show the Applied Factored Forces and the Designed Area of Steel.(Request 220)
9. The Live Load Ratings and Dead Load Effects and Capacities Output tables for analysis runs have been revised to now check that the provided area of steel, for each POI, is not less than the minimum required area of steel. Previously, the program would only show the Provided Area of Steel in the output and would not perform any minimum area of steel check for analysis runs. (Request 223)

User Manual Revisions

10. The Height of Fill parameter description on the LDC command in Chapter 5 and the Overlay Weight/Density and Overlay Thickness input parameter descriptions on the LDC command in Chapter 6 have been updated to provide more information on the modeling of an Overlay slab in the BXLRFD program. Previously, the command descriptions did not address how to model an Overlay slab within BXLRFD.(Request 196)