

PennDOT e-Notification

Bureau of Solutions Management
Highway Applications Division



PSLRFD

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Release of Version 2.13.0.0

The Department's LRFD Prestressed Concrete Girder Design and Rating (PSLRFD) program has been revised as described in the attached "Summary of November 2019 Revisions – Version 2.13.0.0".

The new version has been placed on PennDOT servers for use by the Districts. Consultants and others, who have a current license agreement for **PSLRFD Version 2.12.0.0**, can obtain the updated version by submitting an [Update Request Form](#) along with the **update fee of \$500 for private organizations and \$50 for governmental agencies**. Updates for **PSLRFD Version 2.11.0.0 or earlier** will require an **additional fee**. For update fee details, refer to the [PSLRFD Fee Schedule](#). The update fee is waived for federal and state transportation agencies.

Once payment is received, an e-mail will be sent with download instructions. A valid e-mail address must be provided on the Update Form to receive the download instructions.

Please direct any questions concerning the above to:

Robert F. Yashinsky, P.E.

PA Office of Administration | Infrastructure and Economic Development

Bureau of Solutions Management | Highway Applications Division

Phone: (717) 787-8407 | Fax: (717) 705-5529

e-mail: ryashinsky@pa.gov

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 NOVEMBER 2019 REVISIONS - VERSION 2.13.0.0

Since the release of PSLRFD Version 2.12.0.0 several revision requests and user requested enhancements have been received. This release of PSLRFD Version 2.13.0.0 contains the following revisions and enhancements.

New Features

1. Girder stability checks can now be analyzed by the program for a girder lifted from the top with devices attached to the web or embedded in its top near each end of the girder. The girder stability checks can be made for "I" shaped cross sections (PennDOT and AASHTO I-beams and PA Bulb Tee beams). (Request 631, 679)

Input Revisions

2. The Special Live Load command (SLL) now includes a Vehicle Type parameter to identify the Dynamic Load Allowance (Impact Factor) to be used for the vehicle. The Dynamic Load Allowance type can be either Design or Permit. (Request 624, 671)
3. The Load Factor command (LDF) now allows the first parameter to identify a specific Special Live Load vehicle by numbers 1 through 5. Previously, the Load Factors for Special Live Load vehicles were specified by SLL for parameter one of the LDF command and were applied to all Special Live Load vehicles. This allows different Load Factors to be specified for each Special Live Load vehicle. (Request 625)

Output Revisions

4. The debonding warning messages now displays the full message. Previously, for some of the messages part of the text was missing. (Request 623)
5. The range of applicability variables reported in the output for the NEXT Beam shear distribution factor and the skew correction were not being reported correctly. This has been fixed. This issue did not affect the value of the distribution factor. (Request 700)

Continuous Beam Analysis Revisions

6. Three vehicles specified as part of the FAST Act (EV2, EV3, and SU6TV) have been added as a live load option to the program (Analysis Live Load Code H). The program now uses version 3.7.0.0 of CBA which contains the FAST Act vehicles. (Request 613, 672)
7. The program can now analyze a second permit design vehicle, the PA2016-13 which has 13 axles and two sets of variable axle spaces (Design Live Load Code F, Analysis Live Load Codes I, J, and K). The program now uses version 3.7.0.1 of CBA which allows PSLRFD to control the axle spacing increments used for the two sets of variable axle spaces. (Request 614, 674)

Analysis Revisions

8. Analysis Live Load Code A on the CTL command now considers three analysis vehicles, PHL-93, ML-80, and TK527, like the way Design Live Load Code E considers these three vehicles. Previously, for some analysis runs the Final Tensile Stresses-Design Loads would not have any failures, but the Service III rating factors for ML-80 and TK527 would be less than 1.0 because the ML-80 and TK527 vehicles were not considered when computing the final tensile stresses. Now that the three analysis vehicles are included with Analysis Live Load Code A, the Final Tensile Stresses-Design Loads output table now shows the failures that correspond to the ratings being less than 1.0. (Request 626, 656, 675)
9. The multiple presence factor is now applied to the pedestrian deflection distribution factor. Additionally, the multiple presence factor for analysis with sidewalks now adds one to the number of loaded lanes with sidewalk when computing the multiple presence factor. (Request 659, 676)

Shear Rating Revisions

10. The Shear Design/Analysis output table now considers a tolerance when comparing the Factored Shear Resistance to the Factored Shear. The shear design/analysis now uses consistence tolerances with the shear rating routines to avoid inconsistent results between shear design/analysis and shear rating. The shear rating iteration process was revised to reduce the number of iterations and increase the precision of the computed shear resistance. (Request 629, 673)

Plank Beam Revisions

11. The effective overhang for Plank beams (measured from the beam edge) is now used when checking DM-4 9.7.1.5.1P (Overhang of Deck Slab on Concrete and Steel Girder Bridges). Previously, the overhang used for plank beams was being computed from the centerline of the beam. (Request 665)
12. For composite plank beams the horizontal shear area now defaults to 0.80 in², which corresponds to the four locations where the horizontal stirrup bar extends through the top of the plank beam, as shown on the Plank Beam detail on BD-661M, Sheet 7. Previously, the horizontal shear area defaulted to 0.40 in². (Request 701)

User Manual Revisions

13. Chapter 9 of the User Manual now has a combined Technical Question and Revision Request form with up to date contact information, and the form was updated to request input data of more than 4 or 5 lines to be provided as a file attachment to an e-mail. (Requests 655, 666)
14. The User Manual example problems now use the PennDOT skew angles designation. Previously, the AASHTO skew angle designation was used. (Request 630)

15. The User Manual now presents the data in Tables 2.5-1 (Live Loadings for Design) and 2.5-2 (Live Loadings for Analysis) in a manner consistent with similar tables in the STLRFD User Manual. The revised tables identify which vehicles are Design, Rating and Analysis vehicles for each limit state. (Request 653)