

PennDOT e-Notification

Bureau of Business Solutions and Services
Highway/Engineering Applications Division



STLRFD

No. 011
September 15, 2014

Release of Version 2.3.0.0

The Department's LRFD Steel Girder Design and Rating (STLRFD) program has been revised as described in the attached "Summary of July 2014 Revisions – Version 2.3.0.0".

The new program has been placed on PennDOT servers for use by the Districts. Consultants and others, who have a current license agreement for **STLRFD Version 2.2.0.0**, 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 **STLRFD Version 2.1.0.0 or earlier** will require an **additional fee**. For STLRFD update fee details, refer to the following link: <http://penndot.engrprograms.com/home/Ordering/STLRFD.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: STLRFD v2.3.0.0 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 JULY 2014 REVISIONS - VERSION 2.3.0.0

Since the release of STLRFD Version 2.2.0.0 several revision requests and user requested enhancements have been received. This release of STLRFD Version 2.3.0.0 contains the following revisions and enhancements.

Programming 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, STLRFD 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. STLRFD will no longer work with EngAsst v2.4.0.0 and earlier (Request 625).**
2. The source code for CBA version 3.6.0.5 has been incorporated into STLRFD (Request 547).
3. The STLRFD program is now compiled with the Intel FORTRAN Composer XE 2013, SP1, Update 1 using Microsoft Visual Studio 2012 (Request 594).
4. The precision of a conversion factor has been increased to avoid an issue with a concentrated load placed at the last support of the girder being ignored (Request 600).
5. A program crash identified when running a rolled beam design run with concentrated loads has been resolved. This problem only occurred for a specific input file (Request 610).

Specification Related Revisions

6. When performing wind effect calculations during construction stages, the program will now include the haunch and deck thicknesses only for analysis points in the current deck pour and later stages. Previously, the program was including deck and haunch thickness for all locations for all stages (Request 483).
7. Analysis points are now placed immediately to the left and right of all bracing locations. The analysis points are then assumed to be in the bracing range on the given side of the analysis location, using the unbraced length on that side, along with the factored effects on that side. Previously, the program would only use one analysis point at a bracing location (Request 562).
8. A shear capacity check has been added to the rolled beam design algorithm to ensure that all designs will be adequate for shear resistance (Request 566).
9. The absolute value of the user input support skew angle is now used to determine the applicability of Appendix A for flexural capacity calculations and the consideration of radial fatigue shear in shear connector design. Previously, the program was not taking the absolute value of the skew angle causing the program to sometimes follow Appendix A when it should not have (Request 608).

10. When a plate or brace point transition occurs at the same location as the end of a deck pour, the analysis points immediately to the left and right will be considered in different deck pours. Previously, the program considered them to be in the same deck pour (Request 614).
11. The calculation of the depth of web in compression when both flanges have stresses of 0.0 has been set to be the depth to the neutral axis less the compression flange thickness (Request 617).

Program Output Revisions

12. The FATIGUE RESISTANCE output report now indicates if any of the fatigue details have finite life and warns the user that the details must be modified if this is a new bridge design (Request 480).
13. For rolled beams, the WEB CONCENTRATED LOAD CHECK output report now shows the required bearing length, N_{req} , resulting in web local yielding and web crippling resistances that are greater than the maximum factored load (Request 496).
14. The intermediate values previously printing on the MOMENT FLEXURAL CAPACITY output report have been moved to a new output report, INTERMEDIATE VALUES FOR MOMENT FLEXURAL CAPACITY, and the depth of web in compression (D_c), and yield moments for the top and bottom flanges (M_{yt} , M_{yb}) have been added to the output report (Request 564).
15. The code checks on the WEB CONCENTRATED LOAD CHECK output report have been modified so that only code check A will result in a specification check failure (and have the name of the output report show up on the SPECIFICATION CHECK FAILURES output report at the end of the program output). All other code checks for this output report are informational, and are now treated as specification check warnings (Request 611).
16. Two new tables have been added to the output. One table named "UNFACTORED FLEXURAL STRESSES" has been added to show the individual unfactored flexural stresses that make up the total factored stress reported by the program. The second table named "USER INPUT LATERAL STRESSES" has been added to show the individual unfactored lateral stresses that make up the total factored lateral stress (Request 612).

Program Input Revisions

17. The program will now stop with an error if the NUMBER OF HOLES parameter of the SHO command is entered without a corresponding HOLE SPACING. Previously, the program would keep running if a HOLE SPACING was not entered leading to erroneous results (Request 419).
18. An input parameter has been added to the ORF command to produce rating factors with and without Future Wearing Surface in a single run of the program. Previously, the user would need to run the program twice to obtain both sets of rating factors (Request 487).

19. The program has been enhanced to allow the user to enter stresses due to lateral loads for flexural resistance calculations for the girder. Either a single, constant lateral stress can be entered on the CTL command, or more detailed stresses can be entered by span on the LAS command. This enhancement has also resulted in numerous changes in the program output, usually adding new columns of data to existing output tables and moving other columns of data from existing tables to new tables. Additionally, a new example problem with lateral stresses (EX11.DAT) has been added (Requests 570, 632, 635, 637).

20. The limit on the total number of section holes entered on the SHO command has been removed. The user can enter up to 40 ranges. Each range can have up to 40 holes (Request 627).