PENNDOT e-Notification

Bureau of Information Systems
Application Development Division
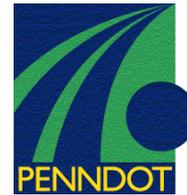
STLRFD	
STLRFD No. 003 April 16, 2007	**Release of Version 1.5.0.0**

The Department's LRFD Steel Girder Design and Rating Program (STLRFD) has been revised as described on the attached Summary of February 2007 Revisions – Version 1.5.0.0.

The new program has been placed on PENNDOT servers for use by the Districts. Consultants and others, who have a current license agreement for STLFRD Version 1.4.0.0, can obtain the updated version for a license update fee of $500 for private organizations and $50 for local governmental agencies and educational institutions. Updates for STLRFD Version 1.3.0.0 will require an update fee of $1,000 for private organizations and $100 for local governmental agencies and educational institutions. Updates for STLRFD Version 1.0, Version 1.1 and Version 1.2 will require an update fee of $1,500 (not $2,000) for private organizations and $100 (not $150 or $200) for local governmental agencies and educational institutions. No update fee is required for Federal and State Transportation Agencies. The forms for Software Update Request and Request for PennDOT's Engineering Software License can be downloaded from the web site at http://penndot.engrprograms.com.

Please direct any questions concerning the above to:

Shyh-hann Ji, P.E.
PENNDOT Bureau of Information Systems
Application Development Division
Phone: (717)783-8822 | Fax: (717) 705-5529
e-mail: sji@state.pa.us

Attachment

SUMMARY OF FEBRUARY 2007 REVISIONS–VERSION 1.5.0.0

Since the release of STLRFD Version 1.4.0.0, several error reports and user requested enhancements have been received. This release of STLRFD Version 1.5.0.0 contains the following revisions:

Cross Section Property Revisions

1. The program has been enhanced to now compute section properties on both sides of the user defined analysis points using the depth of web at the user defined analysis point. Previously, for varying depth girders, the program would compute web depths at each analysis point, and use the web depth from the next analysis point to compute the section properties if it resulted in a smaller moment of inertia (Request 231).

2. The gross section property calculations have been revised to compute the actual gross section properties at the mid-length of a range. Previously the program would calculate the average of the section properties at each end of the range, which sometimes lead to incorrect results especially for varying depth girders.   The net section property calculations were revised to compute the net section properties at the left and right side of a transition point and to use both the left and right section properties for all specification check calculations and report them in the output (Request 321).

Specification Related Revisons

3. For field splice locations, the program has been enhanced to report the Factored Flexural Resistance in terms of moment for the Strength-I and Strength-IP limit states because this is required input for designing or analyzing a splice with the SPLRFD program. Previously the program would report the Factored Flexural Resistance in terms of stress which required hand calculations to be done prior to running the SPLRFD program (Request 138).

4. The Service Limit State Control of Permanent Deflection output table has been revised to report the results in terms of stress. Previously, this table reported the results in terms of moment (Request 296).

5. An investigation has been done to locate a design input file using load codes D or E (which designs for an envelope of specified live load vehicles) that results in the maximum Moment and maximum corresponding Shear from two different vehicles. A total of 164 design input files have been run and all the maximum Moments and corresponding maximum Shears

were computed from the same vehicle. Because no examples could be located to demonstrate the need for this revision request or to test any program revisions, this request has been put on Hold (Request 325).

6. CBA Version 3.5.0.25 has been incorporated into the program. It contains improved interpolation and extrapolation procedures for intermediate points which now provides correct results for certain input files. In addition the Fatigue Reaction Distribution Factors have now been added to the output, and the Fatigue Reactions now properly consider the skew correction factor (Requests 333, 339).

7. The program has been enhanced to check the overhang against the girder depth and provide a warning for analysis runs and an error for design runs when the overhang is greater than the girder depth as per DM-4 9.7.1.5.1P (Request 334).

Input Revisions

8. Multiple SAL commands can now be entered for each special live load to define large number of axles. The number of special live load axles entered on the SAL command has been increased from 24 to 80 (Request 332).

9. The program has now been revised to allow up to 100 section holes to be entered and if the number of section holes exceeds 100 an error message is displayed and the program exits. Previously, the program would crash when this condition occurred (Request 340).

Output Revisions

10. The HL-93 Loading Code 3 displayed in the program output has been changed to "Tandem Pair + Lane Governs". Previously, HL-93 Loading Code 3 displayed "90% Tandem Pair + Lane Governs" which was inconsistent with the CBA program (Request 341).

User Manual Revisions

11. The LRFD and ML-80 Live Loading figure in Chapter 2 has been modified to reflect the correct front axle load for the ML-80 vehicle (Request 335).

Programming Revisions

12. The program has been converted to the Intel Visual Fortran compiler v9.0.029 (Request 329).

13. The simplified OTTITLE subroutines that were recently incorporated into the GNDLL generic libraries for the PSLRFD program have been incorporated into STLRFD (Request 337).

14. The GNDLL generic source code libraries GNDLL DIGITAL and GNDLL PADIGITAL have been renamed to GNDLL INTEL and GNDLL PAINTEL to reflect that the program has been converted to the Intel Visual Fortran compiler (Request 338).

15. The program was fixed to properly terminate when debug level 5 is turned on in routine STL008.FOR. Previously, the program would continue and find a design even though not all the specification checks were satisfied (Request 342).