

Bureau of Design Engineering Computing Management Division

BRADD

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Release of Version 3.1.4.0

PennDOT's Bridge Automated Design and Drafting Software (BRADD) has been revised as described in the attached Summary of August 2009 Revisions - Version 3.1.4.0.

This version of BRADD will automatically be distributed as a free update to all existing licenses of BRADD Software.

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

SUMMARY OF AUGUST 2009 REVISIONS - VERSION 3.1.4.0

Since the release of BRADD Version 3.1.3.2, several problem reports and user perfective maintenance requests have been received. This release of BRADD Version 3.1.4.0 contains the following revisions:

1. A Superstructure Only for Integral Abutments option has been added to BRADD. (VI 3040)
2. An input option was added to the Beam Geometry & Layout menu to force Spread Box Beams to be vertical. This was done to assist users designing a bridge with Integral Abutments. (VI 3423)
3. Provided an input option to allow the deck rotation in superelevation to be about the PG line. (VI 2827)
4. Provided a new option under Tools / Options / Design/Quantities to produce PDF Files for output instead of text files. (VI 2659)
5. Version 1.7.0.0 of ABLRFD was incorporated into BRADD. (VI 3398)
6. Version 1.4.0.0 of BPLRFD was incorporated into BRADD. (VI 3399)
7. Version 2.2.0.0 of PSLRFD was incorporated into BRADD. (VI 3400)
8. Version 1.6.0.0 of STLRFD was incorporated into BRADD. (VI 3401)
9. DM-4 September 2007 Edition and Publication 408, Year 2007 Edition with Change No. 4 have been incorporated into BRADD. (VI 3403, 3486)
10. Revised BRADD to allow the user to input a unique uniform non-composite load and unique uniform composite load Input for each beam that is designed. (VI 2665)
11. Correction was made to BRADD to always epoxy coat the bars in the abutment corners above the bearing seat (construction joint), always epoxy coat the bars in the U-wings above the construction joint, and always epoxy coat the bars in the abutment seat bars where expansion dams are used (VI 3090)
12. The beam seat elevations are now shown for Superstructure-Only runs. (VI 3366)
13. BRADD was modified to retain the previous set of failed superstructure design output files (using .BAK extensions). For Jobs that end in a failed superstructure design the .BAK output files (which are for the previous design attempt) can be useful to diagnose why the superstructure cannot be designed. (VI 3407)
14. Documentation of the calculations for the minimum total haunch, variable F480, was added to the user manual. (VI 3432)
15. A new input option has been added on the superstructure Design Output menu to provide Detailed Output for the bearing pad design. (VI 3440)

16. BRADD was revised to print out of Maximum Edge of Deck Thickness in the geometry output file for spread beam superstructures as per User Manual Section 3.2.9. (VI 3441)
17. A discrepancy that would sometimes occur between the Safety Wing length and the Work Point coordinates on the stake out plan was corrected. Also, the Safety Wing length of 5.888' was change to the correct value of 5.778'. Information on how the 5.778' dimension was determined has been added to the user manual. (VI 3464)
18. Fixed a problem in which the DAP menus for User Defined Bearings would not print out when selected on the File / Print Input command. (VI 3467)
19. Revised BRADD so U-wing designs always use a Backfill Slope of 0.0 and an Exposed Stem Height of 0.0. (VI 3468)
20. The barrier plan details have been modified to show the deflection joints on the Misc. Deck and Barrier Details sheet. (VI 2273)
21. Revised the barrier plan details to show the reduced bar spacing at the ends of the barrier. (VI 2274)
22. For Prestress girders the beam projection length input item was moved from the User Defined Bearings input menus to the Strand Configuration menu. The user entered beam projection is then compared with the value calculated during the design and a warning is printed if they are not within 1/8". (VI 2948)
23. For Prestress plank beam superstructure the abutment detailing was revised to show the barrier on top of the wingwall section and the safety wing 10 degree flareback was revised so it is drawn properly. (VI 2958)
24. The lengths have been corrected for the horizontal abutment bars in the abutment corners for certain abutments. (VI 2988)
25. For some Prestress superstructures with full depth diaphragms, the section through the full depth diaphragm was corrected to show the rebars within the outline of the end diaphragm. (VI 3034)
26. An adjustment was made to the abutment horizontal stem reinforcement length. (VI 3104)
27. The number and spacing of horizontal cheekwall bars has been added to the Abutment Section C-C detail. (VI 3109)
28. New abutment corner Section C-C was added for Prestress Spread Box with flared wings and wall abutment to show a section through the cheekwall corner that shows the 1" neoprene sponge. (VI 3110)
29. Intermediate diaphragm cross section detail has been modified to show the 1.5" cover is typical, by adding (TYP.) after the dimension. (VI 3131)

30. For abutments with a backwall and a paving notch, a section through the top of the backwall beyond the area between the two barriers has been added. Also, a new bar mark has been added for the top bar in the section to account for the horizontal length that runs the full width of the backwall. Previously BRADD always detailed the bars as if a paving notch was present. (VI 3136)
31. Revised the calculation of the backwall rear face vertical bar length to prevent it from sometimes projecting into the paving notch area. (VI 3138)
32. Corrected the length of the footing in the wingwall elevation view so the footing extends to the end of the wingwall. Previously wingwall elevations with a construction joint would sometimes show the length of the footing stopping short of the length of the wingwall. (VI 3140)
33. Revised BRADD so 3/8" (1:50 SI) is the minimum scale for Abutment Section details, Barrier Section details, and Wingwall Section details. (VI 3149)
34. Corrected the calculations of the horizontal cheekwall bars. Previously, the horizontal cheekwall bars count would sometimes be incorrect and sometimes the horizontal cheekwall bar would be shown as a straight bar when it should be a bent bar. Both of these issues have been corrected. (VI 3150)
35. The U-wing footing reinforcement has been changed to extend the full length of the wingwall. Previously, the U-wing footing reinforcement stopped at the back of the abutment footing. (VI 3163)
36. BRADD has been modified to provide a new input option to show both the work point coordinates and the work point station/offsets. Previously, BRADD would only show either the work point coordinates or the work point stations/offsets but not both. (VI 3169)
37. Support for MicroStation J has been removed from BRADD. (VI 3178)
38. The Project ID menu help for the State Route Number, Legislative Route Number, Section Number, and Structure Number has been revised to instruct the user to enter a certain number of characters. Previously, the help text indicated the string may be entered from a select list of values, but did not provide a list. (VI 3191)
39. The slab corner details have been revised to show the slab extension at the corner when necessary. (VI 3235)
40. A note has been added to User Manual, Chapter 6, ABLRFD LYA command to indicate that the pile spacings used in the ABLRFD Analysis Runs match those produced by the ABLRFD Design Runs, but may not match the final distances on the BRADD drawings due to the BRADD pile layout calculations and procedures described in Chapter 3 of the User Manual. (VI 3272)

41. Revised BRADD drawings to refer to Left Wingwall Panels 1 & 2 and Right Wingwall Panels 1 & 2 to match the descriptions shown in the BRADD menus. Previously, the drawings referred to Wingwall Panels 1 to 4 which were inconsistent with the BRADD menus. (VI 3287)
42. A note has been added to the BRADD help menus where a sound barrier uniform load is entered to indicate that BRADD follows the deck design procedure given in Note 28 on Sheet 1 of BD-601M when a sound barrier is present. (VI 3313)
43. The process of exporting BRADD job data to a BRT file has been enhanced to warn the user when exporting a BRADD job, if the selected job is incomplete. It then provides a prompt to select the missing geometry, superstructure or abutment components. (VI 3315)
44. The two different vertical cheekwall bars are now clearly identified in the Abutment Section C-C detail. (VI 3316)
45. A new Interior Diaphragm detail was added for spread box beams to show the location of the interior diaphragms. (VI 3329)
46. The .BRD and .BRT file types are now registered with Windows to run BRADD whenever a file with these extensions is opened in Windows Explorer. (VI 3393)
47. The maximum dead load reaction for abutment design has been corrected for adjacent beam superstructures to distribute the barrier, fence or sound barrier to the nearest three exterior beams. (VI 3394)
48. A utility was added to the Tools menu named "BRADD Input (standalone)" that can be used to produce a side-by-side comparison of the input for several BRADD Job's (VI 3396)
49. A problem was fixed to prevent BRADD from crashing. In earlier versions of BRADD, if one were to open a completed Job (one that had already been Designed, Quantities calculated, and Drawings Generated) and then immediately tried to Generate drawings again, selecting "No" to not delete the previous design drawings, BRADD would crash. This problem has now been fixed. (VI 3397)
50. Fixed a problem with BRADD generating drawings in a directory that begins with a 3 digit number (i.e. c:\018...). Previously, certain numeric combinations at the beginning of the subdirectory name could cause the generate process to stop prematurely. (VI 3404)
51. Fixed a problem with generating MicroStation Design Files for MicroStation Version XM, where some details do not display on the drawing. The details are actually placed, but the level is inadvertently turned off. This problem only occurs for MicroStation XM. (VI 3405)
52. The top horizontal bar in the full depth diaphragm for prestress I-Beams is now called out in the full depth diaphragm section view. (VI 3409)

53. For spread box superstructures the paving notch bars were eliminated from the Full Depth End Diaphragm detail when a paving notch is not present. (VI 3412)
54. The General Elevation detail was revised to fix a problem that sometimes occurs where the wingwalls are not drawn completely. (VI 3415)
55. The Typical I-Beam Section detail was revised to label the bar from the beam to the deck as an epoxy coated bar. Also, an adjustment was made to always print the note "TO BE DETAILED ON SHOP DRAWINGS" for the bar from the beam to deck. (VI 3416)
56. The Abutment Elevation detail was revised to fix a problem that sometimes occurs where the barrier/cheekwall is drawn at the wrong vertical location in the detail. (VI 3418)
57. BRADD was revised to eliminate an error message that would occur when Excel 2000 was on a PC and BRADD tried to open the Designers Checklist spreadsheet. (VI 3419)
58. The rebar shape of the bar between the barrier and the backwall in the Backwall Barrier detail was corrected in the bar schedule to be a Type 4 bar for the case of a vertical barrier (alternate sidewalk) on a wall abutment. (VI 3420)
59. A note "TO BE DETAILED ON SHOP DRAWINGS" was added for the bar between the beam and the deck to the Typical Beam Section detail for Spread Box Beams. (VI 3421)
60. The rebar schedule Remarks section was revised to specify 2 sets of bars are required for the varying length transverse bars at the end of a skewed slab plan. (VI 3422)
61. Eliminated two errors from occurring during the generation of DXF drawings on PC's that do not have MicroStation installed. (VI 3424)
62. Added the corner stirrup bars to the Abutment Elevation view and also added a callout for the corner stirrup bar in the Abutment Section C-C detail. (VI 3427)
63. Replaced item "1091-0332 EPOXY INJECTION CRACK SEAL FOR BRIDGE DECKS" in the Quantity Table with item "1091-0331 EPOXY INJECTION CRACK SEAL", and deleted item "1019-0010 PROTECTIVE COATING FOR REINFORCED CONCRETE SURFACES (BOILED LINSEED OIL)". (VI 3431)
64. The superstructure controller log file was revised to show dap dimensions in inches instead of feet when the error message "BEAM SLOPE EXCEEDS DAPPING LIMITS" appears. (VI 3433)
65. The callout for the beam angle on The "Beam End Transverse Reinforcement" detail and the "Beam End Longitudinal Reinforcement" detail was revised to refer to the "Beam Schedule Table" for the beam angle for each beam. (VI 3456)

66. Shortcut keys were added to the Design/Quantities Output window. Ctrl+C, Ctrl+P, and Ctrl+O were added for Copy, Paste and Open. (VI 3458)
67. Corrected a problem where BRADD was not assigning unique Graphic Group numbers for elements in MicroStation V8. (VI 3465)
68. Fixed a problem in which the Wing Length displayed on the General Plan and Stakeout Plan is sometimes inconsistent. (VI 3466)
69. The PSLRFD input file that BRADD produces was revised so the Deck Width on the CDF Command will always use the default value. (VI 3469)
70. Corrected the skew angle used to draw the Intermediate Diaphragm detail because sometimes it was incorrect. (VI 3473)
71. The BRADD User Manual was updated to explain that the "Rating Tables" on the design drawings contain the ratings from the STLRFD or PSLRFD Analysis runs and not from the STLRFD or PSLRFD Design runs. (VI 3480)
72. A problem was corrected to prevent BPLRFD from crashing when trying to open the BPLRFD history file on subsequent design runs. (VI 3487)
73. A problem was corrected in which BRADD would sometimes produce a Dapping Error message in the Superstructure Controller Log file, but report "Design Success" for the Design Status. BRADD was corrected so it will now produce a status of Design Failure when a Dapping Error occurs. (VI 3491)
74. Strike-Off Letters 431-08-17 and 431-06-01 have been added to the BRADD Help menu. (VI 3493)
75. The Beam Seat Detail and the note below it were revised to clarify where the "Beam Offset" dimension is measured from. (VI 3495)