

2.2.7.2 Commercial Structural Programs

The following computer software has been utilized by the Authority's Engineering Department. It shall not be construed as an endorsement of any particular software by the Authority's Engineering Department and Engineers shall be fully responsible for the use of such software. It is recommended that Engineers refer to the corresponding manuals for more detailed instructions, specifications, and limitations.

PENNDOT Programs:

ABLRFD: LRFD Abutment and Retaining Wall Analysis and Design

BPLRFD: LRFD Bearing Pad Design and Analysis

BXLRFD: LRFD Box Culvert Design and Rating

FBLRFD: LRFD Floorbeam Analysis and Rating

PSLRFD: LRFD Prestressed Concrete Girder Design and Rating

SPLRFD: LRFD Steel Girder Splice Design and Analysis

STLRFD: LRFD Steel Girder Design and Rating

ABUT5: Abutment and Retaining Wall

BAR7: Bridge Analysis and Rating

BOX5: Box Culvert Design and Rating

BSP: Beam Section Properties

CBA: Continuous Beam Analysis

PS3: Analysis And Design Of Prestressed Concrete Girder, Box Beams And Voided Slabs.

Note: PENNDOT programs are written by and for the Pennsylvania Dept. of Transportation and as such, there are defaults that are built into the programs which apply to PENNDOT's design criteria. The Engineer is advised to review and evaluate these defaults of the program and make the necessary modifications to ensure that bridge components are designed in accordance with the AASHTO design criteria as modified by this Section.

CONSPAN LA: Analysis and design program for prestressed concrete girders, box beams and voided slabs bridges. The bridge can be single-span or multiple-span bridges, constructed as simply supported beams and made continuous by reinforcing the cast-in-place top deck and diaphragms. The Engineer can specify LFD or LRF design.

DESCUS I: Analysis and design (partial design) software for horizontally curved composite or noncomposite steel I-girder bridges. The Engineer can specify WSD, LFD or LRF design methodologies. The bridge can be continuous and skewed over supports.

DESCUS II: Same description as **DESCUS I**, but was specifically written to analyze a horizontally curved structure composed of steel box sections.

MERLIN-DASH: Analysis and Design program for tangent steel beam and plate girder bridges. The Engineer can specify WSD, LFD or LRF design methodologies.

RC-Pier LA: Analysis and design of reinforced concrete piers based on AASHTO LFD and LRFD codes. Wall, multi-column and hammerhead piers are all handled by the program. Footings can be either isolated, combined or strap and they can be either spread or on piles. The program can easily switch between English and metric unit systems.

SEISAB: Analysis of simply-supported or continuous deck girder-type bridges for seismic response with no practical limitation on the number of spans or the number of columns at a bent/pier. SEISAB contains both the single mode and multi-mode response spectrum analysis techniques included in AASHTO.

GTStrudl: Structural analysis program for static, dynamic, p-delta, nonlinear, buckling or cable analysis. The program accepts truss, plane, floor, and space structural types. GTStrudl is capable of steel, concrete and timber design. The program uses a common language-based input format which can be created through an editor, a graphics input generator, or through CADD-based input generators.

STAAD-PRO: Structural analysis program for static, dynamic, p-delta, nonlinear, buckling or cable analysis. The program accepts truss, plane, floor, and space structural types. STAAD is capable of steel, concrete and timber design. The program uses a common language-based input format which can be created through an editor, a graphics input generator, or through CADD-based input generators.

MDX Software Curved & Straight Steel Bridge Design & Rating:
Analysis and design software for straight and curved steel bridge plate girders, box girders or rolled shapes. The Engineer can specify ASD, LFD or LRFD design methodologies. The Engineer can perform girder ratings in accordance with ASD, LFD or LRFD.