

**VIRGINIA DEPARTMENT OF TRANSPORTATION  
MANUAL OF THE STRUCTURE AND BRIDGE DIVISION**

**VOLUME V – PART 4  
PRESTRESSED CONCRETE BEAM STANDARDS**

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PRESTRESSED CONCRETE BEAM STANDARDS**

The prestressed concrete beam standards (pcb-series and pcbt-series) include both the AASHTO/PCI Prestressed Concrete Beams, Types II through VI (PCB-series) as well as the Virginia Prestressed Concrete Bulb-T's (PCEF-series). The latter standards were developed using the Bulb-T sections adopted by the Prestressed Concrete Committee for Economic Fabrication (PCEF), a joint committee of FHWA bridge engineers, mid-Atlantic State DOT engineers and precast, prestressed concrete supplies.

Standards have been developed for both simple spans (-S after the file number) and for continuous for live load spans (-C after the file number). There is no AASHTO Type II beam for continuous spans.

The Bulb-T's range from 29" in depth to 93" in depth (in 8" multiples). At this time Virginia DOT is utilizing a 7" web to allow for two rows of harped strands. For section properties, weights, etc., see Manual of the Structure and Bridge Division, Volume V – Part 2. Charts are being developed to assist the designer in selecting economic beam sizes.

Refer to NOTES TO DESIGNER for specific comments on each standard sheet. If the standard sheet is modified by the designer, the letters "MOD." (without quotes) shall be added behind the standard designation in the lower left portion of the border, e.g., PCBT-29S MOD. In general, in the title block (lower right corner of sheet), Designed, Drawn and Checked are left blank. For standard sheets that are intended to be insertable sheets without any design or detailing requirements Designed, Drawn and Checked are already filled in with "S&B DIV". If the design or details are modified, these fields should be filled in with initials as appropriate.

The CADD standard details are located in the Falcon bridge-standards/str and bridge/pcb directory (central office environment). The name of the standard sheet corresponds with the file number (name) as listed in the Table of Contents (minus the dash). For example, standard PCB-3C is drawing pcb3c.dgn and standard PCBT-29S is drawing pcbt29s.dgn.

Standards for diaphragms for simple spans have been developed for the following: for cast-in-place concrete end diaphragms for both AASHTO/PCI beams and Bulb-T's; for cast-in-place concrete intermediate diaphragms for AASHTO/PCI beams; insertable sheets for galvanized steel intermediate diaphragms for both AASHTO/PCI beams and Bulb-T's. Closure (continuity) diaphragms will be developed in the future. The end diaphragm details may be placed on the TRANSVERSE SECTION sheet if there is enough room. For the cast-in-place concrete diaphragms, the reinforcing steel details (bar designations, sizes, lengths, weights, etc.) must be added to the REINFORCING STEEL SCHEDULE under SUPERSTRUCTURE. Under LOCATION, note as END DIAPHRAGMS, CLOSURE DIAPHRAGMS, etc. For the galvanized steel intermediate diaphragms, the steel quantities are included in price bid for prestressed concrete beams and should be so noted under the GENERAL NOTES on the front sheet of plans.

A cell library is included with the standards to allow the designer to modify/replace details. To attach the cell library, key in: rc=pcb.cel. The PCBCELLS-series sheets are not standard sheets for inclusion into a plan assembly but rather provide for the names of individual cells, origin of cell, etc.

**PRESTRESSED CONCRETE BEAM STANDARDS  
GENERAL INSTRUCTIONS**

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