

STRUCTURAL DRAWINGS AND DETAILS
Instructional Memorandum 704-STLINTDIA
STEEL INTERMEDIATE DIAPHRAGMS AND CROSS FRAMES
FOR PRESTRESSED CONCRETE I-BEAMS

June 27, 2024

General

The steel intermediate diaphragm and cross frame standard details are provided for standard prestressed concrete I-beams.

Instructions to Designer

The Engineer must determine if the standard design and details are adequate for project specific use. At a minimum, consider the following items:

- Wherever “X” or “#” is used, replace with project specific values.
- Detail scales are listed in the drawing model for each detail in the sheet models for reference. If an individual detail scale is to be revised in the drawing model, the setting called “Propagate Annotation Scale” in the drawing model property settings must be set to “off”. Otherwise, every detail will change scale when the drawing scale is revised.
- Intermediate diaphragm and cross-frame sheets are provided for non-skewed and skewed bridges for modified bulb tee beams, AASHTO I-beams, and Florida I-beams depending on beam size. Cross frames are detailed for Florida I-beams and modified bulb tee beams only.
- Once the correct sheet(s) are chosen, delete “-Alt ‘X’” from the title block. This additional text is required as a placeholder because model names within a DGN must be unique.
- Do not use steel intermediate diaphragms in locations where the lowest elevation of the span (at the bottom of the flange of the beam) is below elevation 20 MSL.
- For no skew, include Drawing No. 704-‘AASHTO/MBT/FIB’.Stlintdia.Chan.Sk000 (for channel diaphragms) or 704-‘MBT/FIB’.Stlintdia.Chan.Sk000 (for cross frames) in the plan set.
- For skews greater than 0° and less than or equal to 20°, include Drawing No. 704-‘AASHTO/MBT/FIB’.Stlintdia.Chan.Skunder20 (for channel diaphragms) or 704-‘MBT/FIB’.Stlintdia.Chan.Skunder20 (for cross frames) in the plan set.
- For skews greater than 20°, include Drawing No. 704-‘AASHTO/MBT/FIB’.Stlintdia.Chan.Skover20 (for channel diaphragms) or 704-‘MBT/FIB’.Stlintdia.Chan.Skover20 (for cross frames) in the plan set.
- Coordinate locations of bolt holes in the beam webs with the locations of the prestressing strands and reinforcing steel. Revise prestressed concrete beam drawings for consistency.
- Detail location of bolt holes in cross frame connection plate to account for deck cross slope without reducing adjustment provided by use of oversized and slotted holes.





South Carolina
Department of Transportation

Office of Engineering Support
803-737-1377 | 803-766-1022 Fax

Applicable Drawings

DGN File Name	Drawing Number	Sheet Title
704_STLINTDIA	704-AASHTO.STLINTDIA.CHAN.SK000	AASHTO I-Beam Steel Intermediate Diaphragm Details-Alt 1
	704-AASHTO.STLINTDIA.CHAN.SKUNDER20	AASHTO I-Beam Steel Intermediate Diaphragm Details-Alt 2
	704-AASHTO.STLINTDIA.CHAN.SKOVER20	AASHTO I-Beam Steel Intermediate Diaphragm Details-Alt 3
	704-MBT.STLINTDIA.CHAN.SK000	Modified Bulb Tee Beam Steel Intermediate Diaphragm Details-Alt 1
	704-MBT.STLINTDIA.CHAN.SKUNDER20	Modified Bulb Tee Beam Steel Intermediate Diaphragm Details-Alt 2
	704-MBT.STLINTDIA.CHAN.SKOVER20	Modified Bulb Tee Beam Steel Intermediate Diaphragm Details-Alt 3
	704-MBT.STLINTDIA.CROSS.SK000	Modified Bulb Tee Beam Steel Intermediate Cross Frame Details-Alt 1
	704-MBT.STLINTDIA.CROSS.SKUNDER20	Modified Bulb Tee Beam Steel Intermediate Cross Frame Details-Alt 2
	704-MBT.STLINTDIA.CROSS.SKOVER20	Modified Bulb Tee Beam Steel Intermediate Cross Frame Details-Alt 3
	704-FIB.STLINTDIA.CHAN.SK000	Florida I-Beam Steel Intermediate Diaphragm Details-Alt 1
	704-FIB.STLINTDIA.CHAN.SKUNDER20	Florida I-Beam Steel Intermediate Diaphragm Details-Alt 2
	704-FIB.STLINTDIA.CHAN.SKOVER20	Florida I-Beam Steel Intermediate Diaphragm Details-Alt 3
	704-FIB.STLINTDIA.CROSS.SK000	Florida I-Beam Steel Intermediate Cross Frame Details-Alt 1
	704-FIB.STLINTDIA.CROSS.SKUNDER20	Florida I-Beam Steel Intermediate Cross Frame Details-Alt 2
	704-FIB.STLINTDIA.CROSS.SKOVER20	Florida I-Beam Steel Intermediate Cross Frame Details-Alt 3

Post Office Box 191
955 Park Street, Room 409
Columbia, SC 29202-0191



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