Missouri Department of Transportation

Bridge Division

Bridge Design Manual

Section 3.1

Revised 03/01/2000

Click Here for Index

BRIDGE MANUAL
DESIGN AND DETAIL PRACTICE

SECTION 3.1 GENERAL DESIGN DATA

SECTION 3.20 CULVERTS
1. Design
2. Dimensions
3. Reinforcement
4. Design Examples
5. Standards
6. Details

SECTION 3.30 GENERAL SUPERSTRUCTURE
1. Concrete Slabs
2. Timber Floor
3. Curb-Parapet-End Post (Brush Curb)
4. Safety Barrier Bridge Curb
5. Parapet Rail
6. W-Beam Bridge Rail
7. Expansion Devices
8. Bearings
9. Miscellaneous Bearing Connections
10. Chain Link Fence

SECTION 3.40 COMPOSITE DESIGN
1. Design Assumptions
2. Design Procedure
3. Preliminary Design Charts
4. Preliminary Design Charts
5. Preliminary Design Charts
6. Charts
7. Shear Connector - Design
8. Shear Connector - Design Examples
9. Deflection

SECTION 3.41 WIDE FLANGE BEAM SPANS
1. Design
2. Details
3. Bracing Details
4. Miscellaneous Details
5. Quantities

SECTION 3.42 WELDED PLATE GIRDER
1. Design
2. Details
3. Bracing Details
4. Miscellaneous Details
5. Quantities

SECTION 3.50 CONCRETE DECK GIRDER
1. Design
2. Bearings

SECTION 3.51 CONCRETE PRECAST SLABS
1. General
2. Superstructure
3. Substructure
4. Quantities

SECTION 3.52 CONTINUOUS CONCRETE SLAB BRIDGES
1. Slabs
2. End Bents
3. Intermediate Bents
4. Miscellaneous

SECTION 3.53 CONCRETE BOX GIRDER
1. Design
2. Dimensions
3. Reinforcement
4. Miscellaneous Details

*SECTION 3.54 RIGID FRAMES

SECTION 3.55 PRE-TENSIONED & PRE-STRESSED CONCRETE GIRDERS
1. Design
2. Bearings
3. Details
4. Substructure
5. Precast Prestressed Concrete Box Girders

SECTION 3.60 TRUSSES
1. Slabs
2. Bearings

*SECTION 3.61 PEDESTRIAN STRUCTURES

SECTION 3.62 RETAINING WALLS
1. Design
2. Dimensions
3. Reinforcement
4. Details - General

*SECTION 3.63 MISCELLANEOUS STRUCTURES

SECTION 3.70 OPEN CONCRETE END BENTS
1. Design
2. Dimensions (Wide Flange Beams - Plate Girders)
3. Dimensions (Precast Slabs)
4. Dimensions (Deck Girders)
5. Reinforcement(Wide Flange Beams - Plate Girder
6. Reinforcement(Precast Slabs)
7. Reinforcement (Deck Girders)

SECTION 3.71 OPEN CONCRETE INTERMEDIATE BENTS
1. Design
2. Dimensions
3. Reinforcement
4. Footings - Design, Dimensions & Reinforcement

* Sections not Published

SECTION 3.72 CONCRETE PILE CAP BENTS
1. Design
2. Dimensions - End Bents
3. Dimensions - Intermediate Bents
4. Reinforcement - End Bents
5. Reinforcement - Intermediate Bents

SECTION 3.73 PIERS
1. Design
2. Dimensions
3. Reinforcement
4. Pile Footings
5. Spread Footings

SECTION 3.74 PILING
1. Design
2. Details for Plans
3. Concrete Piles

SECTION 3.75 CONCRETE SEMI-DEEP ABUTMENTS
1. Design
2. Dimensions
3. Reinforcement
4. Details

GENERAL DESIGN DATA - BRIDGES							
STANDARD ROADWAYS	LOADING	MIN. SLAB THICKNESS		NO. STRINGER	STRINGER SPA.	30# W.S.	½" Int. W.S.
		STEEL STR.	BOX GIR.				
26'	HS20	8"	7"	4	7'-6"	See Design Layout	Use ↓
28'	H15	7½"	7"	4	8'-2"		
34'	H20	8"	7"	5	7'-8"		
34'	H20	8"	7"	4-Gdr.*	10'-2"		
38'	H20-HS20	8"	7"	5	8'-8"		
39'-5"	HS20	8"	7"	5	9'-0"		
40'	H20-HS20	8"	7"	5	9'-2"		
44'	HS20	8"	7"	6	8'-1"		
44'	HS20	8"	7"	5-Gdr.*	10'-2"		

* Applicable to bridges having a span or spans exceeding 120'-0".

GENERAL DESIGN DATA - STEEL AND PRESTRESS "I" GIRDER STRUCTURES						
STANDARD ROADWAYS	LOADING	SLAB THICKNESS	NUMBER STRINGER	STRINGER SPACING	FUTURE WEARING SURFACE	INTEGRAL WEARING SURFACE
24'-10"	HS20	8½"	4	7'-2"	15 Lbs. /ft.^{2}	I"
28'	H15	8"	4	8'-2"		
34'	H20	8½"	5	7'-8"		
34'	H20	8½"	4-Gdr.*	10'-2"		
38'	H20-HS20	8½"	5	8'-8"		
39'-5"	HS20	8½"	5	9'-0"		
40'	H20-HS20	8½"	5	9'-2"		
44'	HS20	8½"	6	8'-1"		
44'	HS20	8½"	5-Gdr.*	10'-2"		

* Applicable to bridges having a span or spans exceeding 120'-0".

Note: The span lengths for steel and prestressed structures as given in the Design Layout are horizontal dimensions and the actual girder length should be adjusted according to grade.