



Conceptual Solution

Example 1_2020



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CONTENTS OF REPORT

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Note: The information contained in this document is not intended as a basis for structural design for this or any project. Rather, it is a conceptual approach to the project that demonstrates the viability of the steel framing system for project requirements, budget, and schedule.

This document has been prepared in accordance with information made available to the National Steel Bridge Alliance, a division of the American Institute of Steel Construction, at the time of its preparation. While it is believed to be accurate, it has not been prepared for conventional use as an engineering or construction document and should not be used or relied upon for any specific application without competent professional examination and verification of its accuracy, suitability and applicability by a licensed engineer, architect or other professional. AISC and NSBA disclaim any liability arising from information provided by others or from the unauthorized use of the information contained in this document.

INTRODUCTION

The conceptual solution and estimates for this project are based on parameters defined through bridge preliminary design information received on 10/21/2020 and GDOT Bridge and Structures Design Manual.

Number of Spans:	2
Span Lengths:	(175'-182')
Deck Out-to-Out Width:	66'-5"
Support Skew Angle:	23 degrees
Curvature:	None
Design Specification:	AASHTO LRFD BDS 9 th Edition
Other:	GDOT Bridge and Structures Design Manual-May 2020
Steel Grade:	A709 Gr50W
Design Analysis Method:	Line Girder Analysis using LRFD Simon

This conceptual study examined a continuous 2 - span steel bridge superstructure. Span lengths are summarized above. The conceptual design is based on the Load and Resistance Factor Design method in accordance with the AASHTO LRFD Bridge Design Specification, 9th Edition.

Design loading considered HL-93 loading and there were no state specific permit vehicles included for this conceptual solution. No curvature or skew as defined by AASHTO LRFD BDS were considered for



this conceptual solution. A live load deflection factor of $L/1000$ was considered for the presence of pedestrians in accordance with AASHTO LRFD BDS. In the design summary below a controlling performance ratio is given for the controlling girder location and loading action, this is the ratio of factored demand loading combination divided by the reduced girder capacity.

Field splices are not designed as part of this conceptual study. However, they are indicated on the girder framing plan and girder elevation details below at possible locations. Cross-frames and diaphragms are not designed as part of this conceptual study. Weights of these components are assumed for girder design purposes. NSBA Splice can be downloaded from our website to design and size the field splices and can be found at this [link](#).

DESIGN ASSUMPTIONS

The bridge steel conceptual solution for this project uses the following design assumptions:

1. ASTM A709 Grade 50W steel is used throughout.
2. A 6-girder cross section is used. Girders are spaced at 11.883', with constant deck overhangs on each side of 3' - 6". This gives an out-to-out deck width of 66'-5". This results in a deck overhang to girder spacing ratio of 0.29, which is in the range of providing a good deck span/cantilever balance (0.28 to 0.35).
3. A 9 1/4" thick concrete deck, including a 1/4" integral/sacrificial wearing surface is assumed per GDOT Bridge and Structures Design Manual Appendix 3C for 2 1/4" clear cover and a girder spacing of 11'-11". The concrete slab may be thinner or thicker based on location. The concrete deck weight includes a constant 3" thick concrete above the top flange in the haunch, and concrete in the overhang taper. The concrete weight was distributed evenly to all girders per GDOT BDS 2.2.1.2 with bridge decks less than or equal to 70'-0" out-to-out, the concrete weight distributed to each girder is taken as 1371.8 lb/ft.
4. An assumed uniform cross frame spacing is used along the length of the girder for design purposes. 7 spaces at a 25' - 0" is assumed for the girder design in span 1, and 8 spaces at a 22' - 9" in span 2, for the length of the 357' steel superstructure. A uniform cross-frame dead load weight of 15 lb/ft is assumed, and is placed along the interior girders, and 7.5 lb/ft along the exterior girders. This weight is computed for the cross-frame members only. A K - type configuration was assumed, with all members taken as angles.
5. Future wearing surface load is assumed to be 30 psf.
6. Metal stay-in-place deck forms are assumed to be used, with a weight of 16 psf.
7. Exterior bridge barriers with 6' - 0" wide sidewalks are located on each exterior face of the structure. Dead load is calculated as 1,437 lb/ft for each sidewalk including bridge railings and sidewalk dead load. The load of both bridge barrier/sidewalks is distributed equally over all girders.



8. Both sidewalks are loaded with 75 psf of pedestrian live load per AASHTO LRFD BDS Section 3.6.1.6 and distributed evenly to all girders.
9. A miscellaneous steel detail weight to account for stiffeners, field splices, cross-frame gussets, studs, and etc. is used. This weight is assumed as 5 lb/ft, and is placed on interior and exterior girders as a uniformly distributed load.
10. Infinite Fatigue life is assumed for the truck traffic level of this bridge.
11. The concrete deck is assumed to be placed all at once. A deck pour sequence is not considered.
12. The conceptual design only considers dead and live loads. Other loading conditions such as thermal, wind, braking, etc. are not considered.

DESIGN SUMMARY

- Design is governed by the interior girder applying the HL93 and Pedestrian LL loads to generate the moment and shear envelopes.
- Maximum performance ratio = 1.0, for flange proportion limits ($b/2t$) and 0.98 Bottom Flange Service Limit State for Permanent Deflections, Positive Flexure located at 64.19 ft. from the left support of span 1. This is located at 0.367L with the bottom flange in tension in this region of the bridge from the loading applied to the controlling girder.

Reactions:

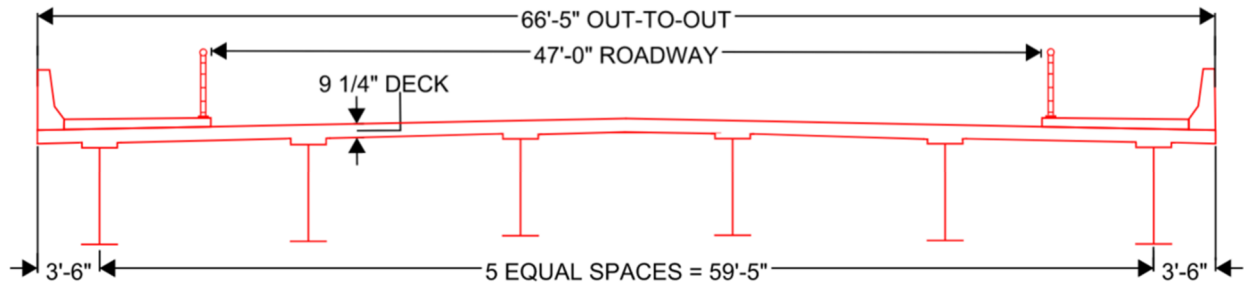
All reactions are unfactored, kips. HL93 reactions have LL+I included with distribution factors and dynamic load allowance.

Interior Girder:

Support	DC	DW	HL93 + Ped
Abutment 1	131.9	13.9	168.3
Pier 1	577.2	54.9	380.2
Abutment 2	144.3	15.0	172.1



BRIDGE TYPICAL SECTION

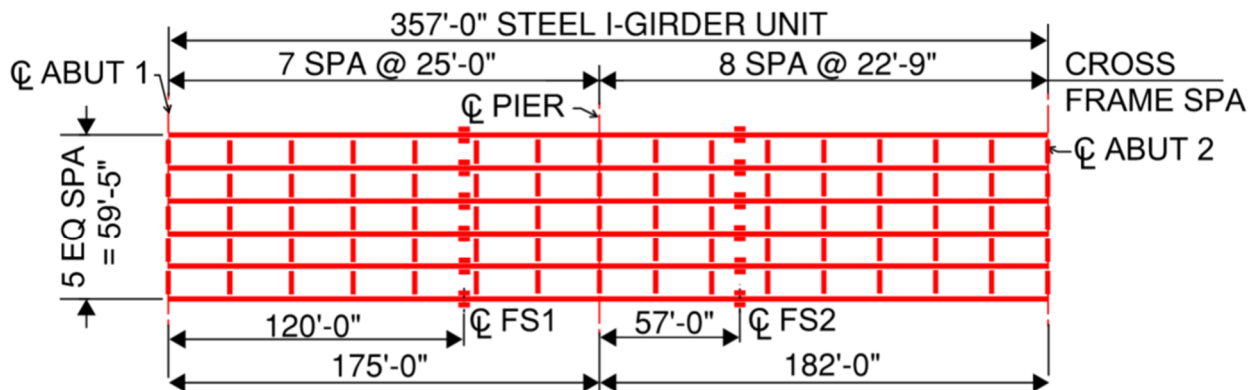


TYPICAL SECTION

Notes:

1. Cross-frames are not shown.
2. Deck out-to-out width, curb to curb, and barrier width are based on design information provided.

FRAMING PLAN



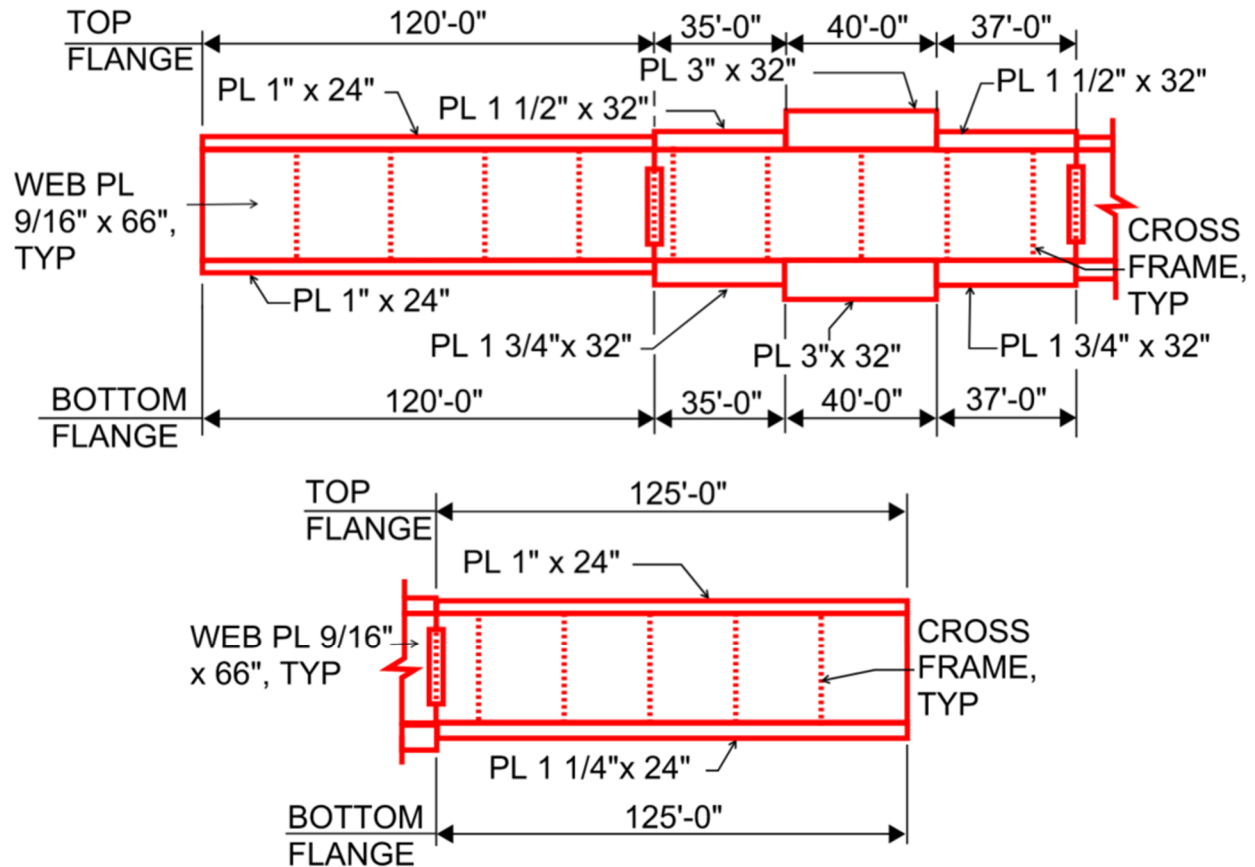
FRAMING PLAN

Notes:

1. Bridge stationing and profile grade line information is not shown.
2. Stiffeners are not shown for clarity but summarized in the table below.
3. Field Splice locations are labeled FS#.
4. Centerline of bearing is assumed to be centerline of pier/abutment.



GIRDER ELEVATION



GIRDER ELEVATION

Notes:

1. Cross-frame connection plates are not shown.
2. Shear studs are not provided.
3. Transverse stiffeners are needed on only one side of the girder web. There are 8-transverse stiffeners in span 1 and 11-transverse stiffeners in span 2. Transverse stiffener plates and their location are provided in the following table:

Span	Width (in)	Thickness (in)	Location (ft)	Location (ft)	Location (ft)	Location (ft)	Location (ft)	Location (ft)
1	6.00	0.375	8.25	25.00				
1	8.00	0.3125	108.50	125.00	136.50	150.00	157.00	166.75
2	8.00	0.50	8.00	17.25	22.75	35.00	45.50	
2	8.00	4.375	62.00	68.25				
2	6.00	0.3125	84.75	142.75	159.25	173.75		



4. Bearing stiffener sizes are as follows: Abutment 1 & 2: 11 ¼" x 1", Pier 2: 15 ¼" x 1 3/8".
5. Field splices are optional and shown for shipping and handling purposes. Field splices are not designed.
6. All steel is ASTM A709 Grade 50W.
7. The length and weight of the girder extensions beyond the centerline of bearing are not included in the weight computations.

STEEL QUANTITIES

The bridge steel conceptual solution for this project results in the following weights:

Girders, flanges, webs, and stiffeners	=	70.88 tons
Cross-frames, Field splices, misc. details (assumed to be 5% of girder weight)	=	3.54 tons
		<hr/> <hr/>
Girder Total (per girder line)	=	163.77 tons
Bridge Total	=	446.52 tons (37.6 psf of deck area)



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CONCEPTUAL SOLUTION: Example 1_2020
November 9, 2020

APPENDIX A – LRFD Simon Inputs



Project:	Example 1_2020	Computed:	Originator	Date:	10/30/20
Subject:	Steel Bridge Conceptual Solution	Checked:	Reviewer	Date:	11/07/20
Task:	Simon Model Inputs - Interior Girder	Page:		of:	
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SIMON Inputs (General Properties)

Superstructure Type	I-Girder	
Number of Spans	2	
Number of Girders	6	
Roadway Width	47.00	ft
Number of Lanes	4	
Run Option	LRFD Design	
Redesign Performance Ratio	0.90	
Maximum Performance Ratio	1.00	
Minimum Flange Thickness	1	in
Maximum Plate Thickness	3	in
Distance From Bottom of Slab to cg Rebar	4.6875	in
Distance From Bottom of Slab to Top of Web	3.75	in
ADTT (Single Lane)	1500	trucks/day
Fatigue Service Life	75	years



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SIMON Inputs (Distribution Factors)

Distribution Factors	Program Defined	
Girder Skew	23	degrees
Bridge Deck Out-to-Out Width	66.417	ft
Overhang Width	3.500	ft
Girder Spacing	11.883	ft
Rail Width (on controlling exterior side)	1.500	ft
Distance from Exterior Web to Face of Rail (de)	2.00	ft
Girder Location	Interior	
User Input Moment Distribution Factor		
Single Lane	NA	
Multiple Lane	NA	
User Input Shear Distribution Factor		
Single Lane	NA	
Multiple Lane	NA	

SIMON Inputs (Material Properties)

Concrete Slab Compressive Strength	4000	psi
Density of Concrete	0.145	kcf
Modulus of Concrete	3987	ksi
Modulus of Steel	29000	ksi
Modular Ratio, n	7.3	
Reinforcement Yield Strength	60	ksi
Longitudinal Stiffener Yield Strength	50	ksi
Transverse and Bearing Stiffener Yield Strength	50	ksi
Concrete Type	Normal Weight Concrete	
Steel Surface Condition	Weathering Steel	
Connection Plate Type	Welded Connection Plates	
Slab Meet AASHTO LRFD 6.10.1.7	Yes	



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SIMON Inputs (Loads Tab)

Composite Loads (DC2):

			Girder DF%
Traffic Barrier 1	1437	plf	Equal
Traffic Barrier 2	1437	plf	Equal
Median	0	plf	0.0
Trail Walkway	0	plf	0.0
Bridge Composite DL	2874.0	plf	
Girder Composite DL	479.0	plf	
Bridge Utility DL	0	plf	
Girder Utility DL	0	plf	
Initial Wearing Surface	None		
Pressure Magnitude	0	psf	
Thickness	0	in	
Density	NA	kcf	
Pressure	0.0	psf	
Future Wearing Surface	Pressure		
Pressure Magnitude	30	psf	
Thickness	0	in	
Density	NA	kcf	
Pressure	30.0	psf	
Bridge Composite DW	1410.0	plf	
Method of Distribution	Spread Evenly		
Wearing Surface Total	235.0	plf	
Design Vehicle Option	HL93/User Defined Design Vehicle (envelope)		
Live Load Deflection Factor	1000		
Pedestrian Live Load	150	plf	
Design Vehicle IM	1.33		
Fatigue Vehicle IM	1.15		



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SIMON Inputs (User Defined Design Vehicle Properties)

SIMON Inputs (Transverse Stiffener Properties)

Maximum Transverse Stiffener Spacing	300	in
One Sided Transverse Stiffeners	Yes	

SIMON Inputs (Shear Stud Properties)

Shear Connector Design	Yes	
Distance From Interior Support to Nearest Shear Connector	0	ft
Concrete Weight Used to Calculate Concrete Elastic Modulus	145	pcf
Desirable Pitch Increment	3	in
Stud Properties		
Diameter	0.75	in
Length	5	in
Studs Per Row	3	



Project:	Example 1_2020	Computed:	Originator	Date:	10/30/20
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SIMON Inputs (Span 1)

Symmetrical Span	No	
Span Length	175.00	ft
Hinge Location		ft
Non-Composite Uniform Dead Load (DC1):		
Deck, Xframes, & Misc.		
Concrete Density	150	pcf
Typical Thickness	9.25	in
Edge of Deck Thickness	9.5	in
Concrete Deck Haunch Thickness	3	in
Concrete Deck Haunch Width	24.00	in
Stay-in-Place Forms	16	psf
Cross-Frames	15	plf
Miscellaneous Method	5	plf
	Spread Evenly	
Bridge Deck DC1	9127	plf
Girder DC1	1521.1	plf
Non-Composite Partial Dead Load, A1		plf
Distance to End of A1 Load, X1		ft
Non-Composite Partial Dead Load, A2		plf
Distance to Beginning of A2 Load, X2		ft
Bottom Flange Cross Frame Spacing	25.000	ft
Top Flange Fully Braced for Non-Composite Loads	No	
Non-Composite Top Flange Cross Frame Spacing	25.000	ft
Top Flange Fully Braced for Final State	Yes	
Final State Top Flange Cross Frame Spacing	25.00	ft
Construction Lateral Moment	0.00	kip*ft



Project:	Example 1_2020	Computed:	Originator	Date:	10/30/20
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SIMON Inputs (Span 2)

Symmetrical Span	No	
Span Length	182.00	ft
Hinge Location		ft
Non-Composite Uniform Dead Load (DC1):		
Deck, Xframes, & Misc.		
Concrete Density	150	pcf
Typical Thickness	9.250	in
Edge of Deck Thickness	9.500	in
Concrete Deck Haunch Thickness	3	in
Concrete Deck Haunch Width	24	in
Stay-in-Place Forms	16	psf
Cross-Frames	15	plf
Miscellaneous Method	5 Spread Evenly	plf
Bridge Deck DC1	9127	plf
Girder DC1	1521.1	plf
Non-Composite Partial Dead Load, A1		plf
Distance to End of A1 Load, X1		ft
Non-Composite Partial Dead Load, A2		plf
Distance to Beginning of A2 Load, X2		ft
Bottom Flange Cross Frame Spacing	22.75	ft
Top Flange Fully Braced for Non-Composite Loads		
Non-Composite Top Flange Cross Frame Spacing	22.75	ft
Top Flange Fully Braced for Final State		
Final State Top Flange Cross Frame Spacing	22.75	ft
Construction Lateral Moment	0.00	kip*ft



Project:	Example 1_2020	Originator	Date:	10/30/20
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SIMON Inputs (Span 1)

SIMON Inputs (Web Cross Section Information)

End Location (ft)	Vertical Web Depth, Left (in)	Vertical Web Depth, Right (in)	Web Fy (ksi)	Web Thickness (in)	Transversely Stiffened	Top	Top	Bottom	Bottom	Reduce Web Thickness	Min Transverse Stiffener Spacing (in)
						Longitudinal Stiffener Width (in)	Longitudinal Stiffener Thickness (in)	Longitudinal Stiffener Width (in)	Longitudinal Stiffener Thickness (in)		
25.00	66.00	66.00	50	0.5625	Yes					No	24
50.00	66.00	66.00	50	0.5625	Yes					No	24
75.00	66.00	66.00	50	0.5625	Yes					No	24
100.00	66.00	66.00	50	0.5625	Yes					No	24
125.00	66.00	66.00	50	0.5625	Yes					No	24
150.00	66.00	66.00	50	0.5625	Yes					No	24
175.00	66.00	66.00	50	0.5625	Yes					No	24

SIMON Inputs (Top Flange Cross Section Information)

End Location (ft)	Top Flange Width (in)	Top Flange Thickness (in)	Top	
			Flange Fy (ksi)	Flange Fu (ksi)
120.00	24.00	1.00	50	70
155.00	32.00	1.50	50	70
175.00	32.00	3.00	50	70

SIMON Inputs (Bottom Flange Cross Section Information)

End Location (ft)	Bottom Flange Width (in)	Bottom Flange Thickness (in)	Bottom Flange Fy (ksi)	Bottom Flange Fu (ksi)
120.00	24.00	1.00	50	70
155.00	32.00	1.75	50	70
175.00	32.00	3.000	50	70



Project:	Example 1_2020	Originator	Date:	10/30/20
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SIMON Inputs (Slab Cross Section Information)

End Location (ft)	Effective Composite Slab Width (in)	Effective Composite Slab Thickness (in)	Rebar Area (in^2)	Composite
120.00	142.60	9.00	0.00	Yes
175.00	142.60	9.00	13.95	Yes

Deck Rebar cg:

Deck Thickness	9	in
Cover Top	2	in
Cover Bottom	1	in
Rebar Dia	0.625	in
cg	4.6875	in

SIMON Inputs (Field Splice)

Field Splice Location (ft)
120.00

SIMON Inputs (Deck Pours)

Pour Number	Pour Start Location (ft)	Pour End Location (ft)

SIMON Inputs (Span 2)

SIMON Inputs (Web Cross Section Information)

End Location (ft)	Vertical Web Depth, Left (in)	Vertical Web Depth, Right (in)	Web Fy (ksi)	Web Thickness (in)	Transversely Stiffened	Top	Top	Bottom	Bottom	Reduce Web Thickness	Min Transverse Stiffener Spacing (in)
						Longitudinal Stiffener Width (in)	Longitudinal Stiffener Thickness (in)	Longitudinal Stiffener Width (in)	Longitudinal Stiffener Thickness (in)		
22.75	66.00	66.00	50	0.5625	Yes						24
45.50	66.00	66.00	50	0.5625	Yes						24
68.25	66.00	66.00	50	0.5625	Yes						24
91.00	66.00	66.00	50	0.5625	Yes						24
113.75	66.00	66.00	50	0.5625	Yes						24
136.50	66.00	66.00	50	0.5625	Yes						24
159.25	66.00	66.00	50	0.5625	Yes						24
182.00	66.00	66.00	50	0.5625	Yes						24

SIMON Inputs (Top Flange Cross Section Information)

End Location (ft)	Top Flange Width (in)	Top Flange Thickness (in)	Top	
			Flange Fy (ksi)	Flange Fu (ksi)
20.00	32.00	3.00	50	70
57.00	32.00	1.50	50	70
182.00	24.00	1.00	50	70



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SIMON Inputs (Bottom Flange Cross Section Information)

End Location (ft)	Bottom Flange Width (in)	Bottom Flange Thickness (in)	Bottom Flange Fy (ksi)	Bottom Flange Fu (ksi)
20.00	32.00	3.00	50	70
57.00	32.00	1.75	50	70
130.00	24.00	1.25	50	70
182.00	24.00	1.25	50	70

SIMON Inputs (Slab Cross Section Information)

End Location (ft)	Effective Composite Slab Width (in)	Effective Composite Slab Thickness (in)	Rebar Area (in^2)	Composite
57.00	142.60	9.00	13.95	Yes
182.00	142.60	9.00	0.00	Yes

Deck Rebar cg:

Deck Thickness	9	in
Cover Top	2	in
Cover Bottom	1	in
Rebar Dia	0.625	in
cg	4.6875	in

SIMON Inputs (Field Splice)

Field Splice
Location (ft)

SIMON Inputs (Deck Pours)

Pour Number	Pour Start Location (ft)	Pour End Location (ft)



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CONCEPTUAL SOLUTION: Example 1_2020
November 9, 2020

APPENDIX B – LRFD Simon Outputs



LRFD Simon

Version 10.3.0.0

2020-11-11 15:28

Vehicle library: NSBA_Vehicle_Data.txt
 Program library: NSBA_simon_library_data.txt
 Agency library: NSBA_library_data.txt

Job Name:
 Project Name:
 Description:

Interior Girder - Spacing 11.883 ft - 3.5 ft Overhangs
 2-spans (175'-182'), 6 - Girders
 See NSBA Conceptual Solution Disclaimer - Not for Design or Construction

National Steel Bridge Alliance
 American Institute of Steel Construction
 130 East Randolph Street
 Suite 2000
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For assistance contact: The National Steel Bridge Alliance: nsbasimon@steelbridges.org

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LICENSEE: ID# U0360
 Note: License expires on 2028-Jan-01 (in 2608 days).
 National Steel Bridge Alliance - Perpetual
 130 East Randolph, Suite 2000
 Chicago IL 60601 United States

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SECONDARY LEVEL INPUT PARAMETERS ↑

Beam Type:	I-Girder
Number of Spans:	2
Number of Girders:	6
Number of Traffic Lanes:	4
Run Option:	LRFD Analysis
Redesign Performance Ratio:	0.900
Maximum Performance Ratio:	1.000
Minimum Flange Thickness:	1.000 in
Maximum Plate Thickness:	3.000 in
Distance from Slab Bottom to C.G. of Reinforcement:	4.688 in

Distance from Slab Bottom to Web Top:	3.750	in
Average Daily Truck Traffic, Single Lane:	1500	
Fatigue Service Life:	75.00	years
User Input Moment Distribution Factor, Single Lane:	0.000	axles
User Input Moment Distribution Factor, Multiple Lane:	0.000	axles
User Input Shear Distribution Factor, Single Lane:	0.000	axles
User Input Shear Distribution Factor, Multiple Lane:	0.000	axles
Girder Skew:	23.000	degrees
Girder Spacing:	11.883	ft
Distance From Web to Curb, de:	2.000	ft
Girder Location:	Interior	
Modular Ratio, n:	7.300	
Slab Compressive Strength:	4000.000	psi
Reinforcement Yield Strength:	60.000	ksi
Longitudinal Stiffener Yield Strength:	50.000	ksi
Transverse and Bearing Stiffener Yield Strength:	50.000	ksi
Concrete Type:	Normal Weight	
Steel Surface Condition:	Weathering Steel	
Connection Plate Type:	Welded	
Slab Meet 6.10.1.7 Criteria:	Yes	
Uniform Dead Loads, Composite (DC):	479.000	lb/ft
Uniform Dead Loads, Utility (DW):	0.000	lb/ft
Uniform Dead Loads, Future Wearing Surface (DW):	235.000	lb/ft
Analysis Vehicle Option:	HL93/User Defined	
Live Load Deflection Factor:	1000	
Pedestrian Live Load (PL):	150.000	lb/ft
Dynamic Load Allowance, Design Vehicle:	1.330	
Dynamic Load Allowance, Fatigue Vehicle:	1.150	
Maximum Transverse Stiffener Spacing:	300.00000	in
One Sided Transverse Stiffeners:	Yes	
Shear Connector Design:	Design	
Distance from Interior Reaction to Nearest Shear Connector:	0.000	ft
Web Optimization:	No	
Number of Variations Below Start:	N/A	
Number of Variations Above Start:	N/A	
Depth Variation Type:	N/A	
Depth Increment:	N/A	
Frequency of Cycles after which Results are Printed:	Last Only	
Performance Ratio Above Which Messages are Output:	0.100	

PRIMARY LEVEL INPUT INFORMATION for CYCLE: 1 ↑

INPUT DATA for SPAN 1

Span Length:	175.00	ft
Hinge Location:	none	
Field Splice Location:	120.00	ft
Bottom Flange Cross Frame Spacing (Equal Spacing):	25.00	ft
Bottom Flange Cross Frame Spacing (User Input):	25.00	ft
Bracing status of Top Flange for DL1:	Discretely Braced	
Noncomposite Top Flange Cross Frame Spacing (Equal Spacing):	25.00	ft
Noncomposite Top Flange Cross Frame Spacing (User Input):	25.00	ft
Bracing status of Top Flange for Final:	Fully Braced	
Construction Lateral Moment:	0.000	kips-ft
Non Composite Uniform Dead Load:	1521.100	lb/ft
Non Composite Partial Dead Load:	No	

Type	Range To (ft)	L Depth (in)	R Depth or Width (in)	Thickness (in)	Yield Stress (ksi)	Tee Stf / Rebar A (in ²)
Web Depth	25.00	66.000	66.000		50.0	
Web Depth	50.00	66.000	66.000		50.0	
Web Depth	75.00	66.000	66.000		50.0	
Web Depth	100.00	66.000	66.000		50.0	
Web Depth	125.00	66.000	66.000		50.0	
Web Depth	150.00	66.000	66.000		50.0	
Web Depth	175.00	66.000	66.000		50.0	
Top Flange	120.00		24.000	1.0000	50.0	Fu = 70.0 ksi
Top Flange	155.00		32.000	1.5000	50.0	Fu = 70.0 ksi
Top Flange	175.00		32.000	3.0000	50.0	Fu = 70.0 ksi
Bot Flange	50.00		24.000	1.0000	50.0	Fu = 70.0 ksi
Bot Flange	120.00		24.000	1.0000	50.0	Fu = 70.0 ksi
Bot Flange	155.00		32.000	1.7500	50.0	Fu = 70.0 ksi
Bot Flange	175.00		32.000	3.0000	50.0	Fu = 70.0 ksi
Conc Slab	125.00		142.600	9.0000	effective	0.00
Conc Slab	175.00		142.600	9.0000	effective	13.95
Web Thick	25.00			0.5625	yes T.S.	no L.S.
Web Thick	50.00			0.5625	yes T.S.	no L.S.
Web Thick	75.00			0.5625	yes T.S.	no L.S.
Web Thick	100.00			0.5625	yes T.S.	no L.S.
Web Thick	125.00			0.5625	yes T.S.	no L.S.
Web Thick	150.00			0.5625	yes T.S.	no L.S.
Web Thick	175.00			0.5625	yes T.S.	no L.S.
Web T.S.	25.00	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	50.00	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	75.00	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	100.00	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	125.00	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	150.00	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	175.00	Minimum spacing = 24.000			Reduce web? no	

INPUT DATA for SPAN 2

Span Length:	182.00	ft
Hinge Location:	none	
Field Splice Location:	57.00	ft
Bottom Flange Cross Frame Spacing (Equal Spacing):	22.75	ft
Bottom Flange Cross Frame Spacing (User Input):	22.75	ft
Bracing status of Top Flange for DL1:	Discretely Braced	
Noncomposite Top Flange Cross Frame Spacing (Equal Spacing):	22.75	ft
Noncomposite Top Flange Cross Frame Spacing (User Input):	22.75	ft
Bracing status of Top Flange for Final:	Fully Braced	
Construction Lateral Moment:	0.000	kips-ft
Non Composite Uniform Dead Load:	1521.100	lb/ft
Non Composite Partial Dead Load:	No	

Type	Range To (ft)	L Depth (in)	R Depth or Width (in)	Thickness (in)	Yield Stress (ksi)	Tee Stf / Rebar A (in ²)
Web Depth	22.75	66.000	66.000		50.0	
Web Depth	45.50	66.000	66.000		50.0	
Web Depth	68.25	66.000	66.000		50.0	
Web Depth	91.00	66.000	66.000		50.0	
Web Depth	113.75	66.000	66.000		50.0	
Web Depth	136.50	66.000	66.000		50.0	

Web Depth	159.25	66.000	66.000		50.0	
Web Depth	182.00	66.000	66.000		50.0	
Top Flange	20.00		32.000	3.0000	50.0	Fu = 70.0 ksi
Top Flange	57.00		32.000	1.5000	50.0	Fu = 70.0 ksi
Top Flange	182.00		24.000	1.0000	50.0	Fu = 70.0 ksi
Bot Flange	20.00		32.000	3.0000	50.0	Fu = 70.0 ksi
Bot Flange	57.00		32.000	1.7500	50.0	Fu = 70.0 ksi
Bot Flange	130.00		24.000	1.2500	50.0	Fu = 70.0 ksi
Bot Flange	182.00		24.000	1.2500	50.0	Fu = 70.0 ksi
Conc Slab	57.00		142.600	9.0000	effective	13.95
Conc Slab	182.00		142.600	9.0000	effective	0.00
Web Thick	22.75			0.5625	yes T.S.	no L.S.
Web Thick	45.50			0.5625	yes T.S.	no L.S.
Web Thick	68.25			0.5625	yes T.S.	no L.S.
Web Thick	91.00			0.5625	yes T.S.	no L.S.
Web Thick	113.75			0.5625	yes T.S.	no L.S.
Web Thick	136.50			0.5625	yes T.S.	no L.S.
Web Thick	159.25			0.5625	yes T.S.	no L.S.
Web Thick	182.00			0.5625	yes T.S.	no L.S.
Web T.S.	22.75	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	45.50	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	68.25	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	91.00	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	113.75	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	136.50	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	159.25	Minimum spacing = 24.000			Reduce web? no	
Web T.S.	182.00	Minimum spacing = 24.000			Reduce web? no	

ANALYSIS RESULTS (for Unfactored Loads = D and L+I) [↑](#)

Live Load Distribution Factors

Effect	Single Lane	Multi Lane
Moment	0.496	0.771
Shear	0.899	1.156

Dead Load Moments at tenth points - Units: kips-ft

Note: 'Other DC1' includes partial loads A1 and A2.

Span: 1

Point	Girder	Other DC1	Comp DL	Utility	FWS
0.0	0.0	0.0	0.0	0.0	0.0
0.1	245.3	1287.1	423.8	0.0	207.9
0.2	402.0	2108.3	700.9	0.0	343.9
0.3	469.9	2463.8	831.3	0.0	407.8
0.4	449.1	2353.3	815.0	0.0	399.9
0.5	339.6	1777.1	652.1	0.0	319.9
0.6	141.4	735.0	342.4	0.0	168.0
0.7	-146.2	-773.0	-114.0	0.0	-55.9
0.8	-559.3	-2746.7	-717.0	0.0	-351.8
0.9	-1122.0	-5186.3	-1466.8	0.0	-719.6
1.0	-1888.2	-8091.8	-2363.2	0.0	-1159.4

Span: 2

Point	Girder	Other DC1	Comp DL	Utility	FWS
0.0	-1888.2	-8091.8	-2363.2	0.0	-1159.4
0.1	-1063.0	-5015.3	-1412.9	0.0	-693.2
0.2	-456.9	-2442.6	-621.3	0.0	-304.8
0.3	-9.2	-373.8	11.7	0.0	5.8
0.4	300.7	1191.1	486.0	0.0	238.5

0.5	507.3	2252.2	801.7	0.0	393.3
0.6	611.3	2809.5	958.7	0.0	470.3
0.7	612.5	2862.9	957.0	0.0	469.5
0.8	511.1	2412.4	796.7	0.0	390.8
0.9	306.9	1458.1	477.7	0.0	234.3
1.0	0.0	0.0	0.0	0.0	0.0

Live Load Moments at 10th points - Units: kips-ft

Span: 1

Point	HL93		USER DEFINED DESIGN VEHICLE		ENVELOPE		FATIGUE		PED	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.1	1589.7	-279.1	0.0	0.0	1589.7	-279.1	437.8	-70.1	170.3	-37.4
0.2	2694.5	-558.3	0.0	0.0	2694.5	-558.3	726.6	-140.3	294.8	-74.8
0.3	3346.8	-837.4	0.0	0.0	3346.8	-837.4	898.4	-210.4	373.2	-112.1
0.4	3591.3	-1116.6	0.0	0.0	3591.3	-1116.6	945.3	-280.6	405.8	-149.5
0.5	3462.4	-1395.7	0.0	0.0	3462.4	-1395.7	905.5	-350.7	392.4	-186.9
0.6	3001.5	-1674.9	0.0	0.0	3001.5	-1674.9	796.8	-420.9	333.0	-224.3
0.7	2240.3	-2344.8	0.0	0.0	2240.3	-2344.8	610.2	-491.0	227.8	-261.7
0.8	1288.8	-2747.2	0.0	0.0	1288.8	-2747.2	366.6	-561.2	97.0	-319.5
0.9	468.1	-3488.9	0.0	0.0	468.1	-3488.9	138.9	-631.3	23.5	-480.5
1.0	0.0	-5011.8	0.0	0.0	0.0	-5011.8	0.0	-708.3	0.0	-737.5

Span: 2

Point	HL93		USER DEFINED DESIGN VEHICLE		ENVELOPE		FATIGUE		PED	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
0.0	0.0	-5011.8	0.0	0.0	0.0	-5011.8	0.0	-708.3	0.0	-737.5
0.1	505.5	-3465.2	0.0	0.0	505.5	-3465.2	149.1	-637.4	26.6	-466.7
0.2	1419.3	-2718.9	0.0	0.0	1419.3	-2718.9	405.8	-566.6	112.6	-305.1
0.3	2459.7	-2338.3	0.0	0.0	2459.7	-2338.3	663.4	-495.8	260.0	-254.6
0.4	3265.3	-1667.4	0.0	0.0	3265.3	-1667.4	858.9	-425.0	371.9	-218.2
0.5	3742.4	-1389.5	0.0	0.0	3742.4	-1389.5	969.9	-354.1	434.2	-181.8
0.6	3862.5	-1111.6	0.0	0.0	3862.5	-1111.6	1007.3	-283.3	446.7	-145.5
0.7	3584.2	-833.7	0.0	0.0	3584.2	-833.7	952.9	-212.5	409.6	-109.1
0.8	2875.5	-555.8	0.0	0.0	2875.5	-555.8	767.7	-141.7	322.7	-72.7
0.9	1690.9	-277.9	0.0	0.0	1690.9	-277.9	460.9	-70.8	186.2	-36.4
1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Dead Load Reactions - Negative equals Uplift - Units: kips

Support	Girder	Other DC1	Comp DL	Utility	FWS
1	16.6	86.9	28.4	0.0	13.9
2	103.0	362.2	112.0	0.0	54.9
3	19.7	94.0	30.6	0.0	15.0

Dead Load Shears at tenth points - Units: kips

Span: 1

Point	Girder	Other DC1	Comp DL	Utility	FWS
0.0	16.6	86.9	28.4	0.0	13.9
0.1	11.5	60.2	20.0	0.0	9.8
0.2	6.4	33.6	11.6	0.0	5.7
0.3	1.3	7.0	3.3	0.0	1.6
0.4	-3.7	-19.6	-5.1	0.0	-2.5

0.5	-8.8	-46.2	-13.5	0.0	-6.6
0.6	-13.9	-72.9	-21.9	0.0	-10.7
0.7	-19.4	-99.5	-30.3	0.0	-14.9
0.8	-27.8	-126.1	-38.7	0.0	-19.0
0.9	-37.0	-152.7	-47.0	0.0	-23.1
1.0	-50.6	-179.3	-55.4	0.0	-27.2

Span: 2

Point	Girder	Other DC1	Comp DL	Utility	FWS
0.0	52.4	182.9	56.6	0.0	27.8
0.1	38.2	155.2	47.9	0.0	23.5
0.2	29.0	127.5	39.1	0.0	19.2
0.3	20.2	99.8	30.4	0.0	14.9
0.4	14.2	72.1	21.7	0.0	10.6
0.5	8.5	44.5	13.0	0.0	6.4
0.6	2.9	16.8	4.3	0.0	2.1
0.7	-2.8	-10.9	-4.5	0.0	-2.2
0.8	-8.4	-38.6	-13.2	0.0	-6.5
0.9	-14.0	-66.3	-21.9	0.0	-10.7
1.0	-19.7	-94.0	-30.6	0.0	-15.0

HL93 LIVE LOAD REACTIONS (Negative = Uplift) - Units: kips

NOTE: Vehicle reactions include distribution factors and dynamic load allowance

NOTE: Truck and lane reactions DO NOT include distribution factors or dynamic load allowance

Support	Maximum Vehicle	Minimum Vehicle	Maximum Truck	Minimum Truck	Maximum Lane	Minimum Lane
1	157.3	-23.9	66.9	-8.7	47.1	-9.1
2	345.2	0.0	123.2	0.0	134.6	0.0
3	160.5	-22.9	67.1	-8.5	49.5	-8.5

USER_DEFINED DESIGN VEHICLE LIVE LOAD REACTIONS (Negative = Uplift) - Units: kips

NOTE: Vehicle reactions include distribution factors and dynamic load allowance

NOTE: Truck and lane reactions DO NOT include distribution factors or dynamic load allowance

Support	Maximum Vehicle	Minimum Vehicle	Maximum Truck	Minimum Truck	Maximum Lane	Minimum Lane
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0

ENVELOPE LIVE LOAD REACTIONS (Negative = Uplift) - Units: kips

NOTE: Vehicle reactions include distribution factors and dynamic load allowance

NOTE: Truck and lane reactions DO NOT include distribution factors or dynamic load allowance

Support	Maximum Vehicle	Minimum Vehicle	Maximum Truck	Minimum Truck	Maximum Lane	Minimum Lane
1	157.3	-23.9	66.9	-8.7	47.1	-9.1
2	345.2	0.0	123.2	0.0	134.6	0.0
3	160.5	-22.9	67.1	-8.5	49.5	-8.5

FATIGUE LIVE LOAD REACTIONS (Negative = Uplift) - Units: kips

NOTE: Vehicle reactions include distribution factors and dynamic load allowance

NOTE: Truck and lane reactions DO NOT include distribution factors or dynamic load allowance

Support	Maximum Vehicle	Minimum Vehicle	Maximum Truck	Minimum Truck	Maximum Lane	Minimum Lane
1	53.4	-7.3	62.0	-8.4	0.0	0.0
2	61.5	0.0	71.4	0.0	0.0	0.0
3	53.9	-7.1	62.6	-8.2	0.0	0.0

PED LIVE LOAD REACTIONS (Negative = Uplift) - Units: kips

NOTE: Vehicle reactions include distribution factors and dynamic load allowance

NOTE: Truck and lane reactions DO NOT include distribution factors or dynamic load allowance

Support	Maximum Vehicle	Minimum Vehicle	Maximum Truck	Minimum Truck	Maximum Lane	Minimum Lane
1	11.0	-2.1	0.0	0.0	11.0	-2.1
2	35.0	0.0	0.0	0.0	35.0	0.0
3	11.6	-2.0	0.0	0.0	11.6	-2.0

Live Load Shears at tenth points - Units: kips

Span: 1

Point	HL93		USER DEFINED DESIGN VEHICLE		ENVELOPE		FATIGUE		PED	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
0.0	157.3	-23.9	0.0	0.0	157.3	-23.9	53.4	-7.3	11.0	-2.1
0.1	130.6	-24.8	0.0	0.0	130.6	-24.8	45.3	-7.3	8.6	-2.3
0.2	105.9	-35.6	0.0	0.0	105.9	-35.6	37.6	-8.4	6.5	-2.8
0.3	83.6	-54.2	0.0	0.0	83.6	-54.2	30.2	-16.0	4.7	-3.7
0.4	63.8	-73.8	0.0	0.0	63.8	-73.8	23.4	-23.8	3.3	-4.9
0.5	46.6	-93.9	0.0	0.0	46.6	-93.9	17.4	-31.2	2.2	-6.4
0.6	32.2	-114.3	0.0	0.0	32.2	-114.3	12.0	-38.0	1.3	-8.2
0.7	20.4	-134.5	0.0	0.0	20.4	-134.5	7.4	-44.2	0.7	-10.2
0.8	10.8	-154.4	0.0	0.0	10.8	-154.4	3.7	-49.6	0.3	-12.4
0.9	4.0	-173.9	0.0	0.0	4.0	-173.9	1.6	-54.2	0.1	-14.8
1.0	0.0	-193.1	0.0	0.0	0.0	-193.1	0.0	-58.2	0.0	-17.3

Span: 2

Point	HL93		USER DEFINED DESIGN VEHICLE		ENVELOPE		FATIGUE		PED	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
0.0	194.9	0.0	0.0	0.0	194.9	0.0	58.3	0.0	17.7	0.0
0.1	175.2	-4.1	0.0	0.0	175.2	-4.1	54.2	-1.6	15.0	-0.1
0.2	155.0	-11.2	0.0	0.0	155.0	-11.2	49.5	-3.8	12.6	-0.3
0.3	134.6	-21.1	0.0	0.0	134.6	-21.1	44.1	-7.7	10.3	-0.7
0.4	114.0	-33.4	0.0	0.0	114.0	-33.4	37.9	-12.5	8.2	-1.4
0.5	93.3	-48.2	0.0	0.0	93.3	-48.2	31.1	-17.9	6.4	-2.3
0.6	73.0	-65.7	0.0	0.0	73.0	-65.7	23.8	-24.1	4.8	-3.5
0.7	53.5	-85.9	0.0	0.0	53.5	-85.9	16.1	-30.9	3.6	-5.0
0.8	35.0	-108.5	0.0	0.0	35.0	-108.5	8.5	-38.2	2.7	-6.9
0.9	23.8	-133.4	0.0	0.0	23.8	-133.4	7.1	-45.9	2.2	-9.0
1.0	22.9	-160.5	0.0	0.0	22.9	-160.5	7.1	-53.9	2.0	-11.6

Dead Load Deflections at tenth points - Units: in

Note: 'Other DC1' includes partial loads A1 and A2.

Span: 1

Point	(A) Steel Only	(B) Other Noncomp DL	(C) Composite DL (no DW)	(B+C) Total (No Steel)	(A+B+C) Total (w/ steel)
0.0	0.000	0.000	0.000	0.000	0.000
0.1	0.329	1.737	0.321	2.058	2.387
0.2	0.594	3.139	0.583	3.722	4.316
0.3	0.753	3.982	0.747	4.729	5.482
0.4	0.787	4.171	0.795	4.966	5.753
0.5	0.702	3.735	0.729	4.464	5.166
0.6	0.527	2.831	0.572	3.403	3.930

0.7	0.316	1.739	0.368	2.107	2.422
0.8	0.127	0.762	0.174	0.936	1.064
0.9	0.013	0.151	0.040	0.191	0.205
1.0	0.000	0.000	0.000	0.000	0.000

Span: 2

Point	(A) Steel Only	(B) Other Noncomp DL	(C) Composite DL (no DW)	(B+C) Total (No Steel)	(A+B+C) Total (w/ steel)
0.0	0.000	0.000	0.000	0.000	0.000
0.1	0.115	0.408	0.081	0.489	0.603
0.2	0.332	1.297	0.258	1.555	1.887
0.3	0.615	2.537	0.492	3.030	3.644
0.4	0.897	3.830	0.724	4.555	5.452
0.5	1.103	4.821	0.892	5.713	6.817
0.6	1.177	5.224	0.951	6.175	7.352
0.7	1.090	4.890	0.881	5.771	6.861
0.8	0.842	3.806	0.680	4.486	5.328
0.9	0.461	2.091	0.372	2.463	2.923
1.0	0.000	0.000	0.000	0.000	0.000

MAXIMUM LIVE LOAD DEFLECTION per Span

Live load = HL93

(Distribution Factor for Equal Girder Loading: 0.433 axles)

Span	Max Deflection (in)	Location from Left End of Span (Fraction)	Deflection At Hinge (in)
1	1.031	0.450	
2	1.053	0.550	

MAXIMUM LIVE LOAD DEFLECTION per Span

Live load = USER_DEFINED_DESIGN_VEHICLE

(Distribution Factor for Equal Girder Loading: 0.433 axles)

Span	Max Deflection (in)	Location from Left End of Span (Fraction)	Deflection At Hinge (in)
1	0.000	0.550	
2	0.000	0.550	

MAXIMUM LIVE LOAD DEFLECTION per Span

Live load = ENVELOPE

(Distribution Factor for Equal Girder Loading: 0.433 axles)

Span	Max Deflection (in)	Location from Left End of Span (Fraction)	Deflection At Hinge (in)
1	1.031	0.450	
2	1.053	0.550	

MAXIMUM LIVE LOAD DEFLECTION per Span

Live load = FATIGUE

(Distribution Factor for Equal Girder Loading: 0.433 axles)

Span	Max Deflection (in)	Location from Left End of Span (Fraction)	Deflection At Hinge (in)
1	0.854	0.450	
2	0.876	0.550	

MAXIMUM LIVE LOAD DEFLECTION per Span

Live load = PED

(Distribution Factor for Equal Girder Loading: 0.433 axles)

Span	Max Deflection (in)	Location from Left End of Span (Fraction)	Deflection At Hinge (in)
1	0.398	0.450	
2	0.423	0.550	

SECTION EVALUATION using: ** LOAD AND RESISTANCE FACTOR DESIGN ** ↑

Only behavior constraints above a performance ratio of 0.100 are listed.

Unless Noted, the 8th Edition (2017) of the AASHTO LRFD Specification is used.

No interims are evaluated.

Span 1SECTION at Span 1, 0.0 Percent (0.00 ft) - [no plate change]

Unfactored Shears (kips) -	DL1 (beam):	16.6	DL1 (other):	86.9
	DL2:	28.4	DW:	13.9
	+LL:	168.3	-LL:	-26.0
	+fatigue LL:	53.4	-fatigue LL:	-7.3

Year	AASHTO Article	Perf Ratio	Description
17	6.10.9.3.3	0.446	Nominal Shear Resistance of Stiffened Web End Panel
		informational	Minimum User Bottom Flange Thickness Encountered.
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 1, 14.3 Percent (25.00 ft) - [left side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	323.3	DL1 (other):	1696.1
	DL2:	560.5	DW:	275.0
	+LL:	2351.8	-LL:	-452.2
	+fatigue LL:	579.8	-fatigue LL:	-100.2

Unfactored Shears (kips) -	DL1 (beam):	9.3	DL1 (other):	48.8
	DL2:	16.4	DW:	8.0
	+LL:	127.4	-LL:	-30.7
	+fatigue LL:	42.0	-fatigue LL:	-7.6

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	67344	166626	127815	67344	166626	127815
neutral_axis_from_bottom_of_beam	in	34.00	62.05	51.20	34.00	62.05	51.20
S to_top_of_top_flange	in ³	-1981	-27989	-7608	-1981	-27989	-7608
S to_bottom_of_bottom_flange	in ³	1981	2685	2496	1981	2685	2496
S to_top_of_slab	in ³		-9412	-4477	N/A	-9412	-4477
S to_cg_of_reinforcement	in ³		N/A	N/A	N/A		
longit_stiffness_parameter	in ⁴	1548986					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	-18.81	39.03	-0.91	0.00	positive
SERVICE_II	1.00	1.00	-14.86	29.91	-0.68	0.00	positive

CONSTRUCTION	1.40	0.00	-17.13	17.13	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-13.55	-0.44	0.08	0.51	16.25	4.53	-0.78	5.32
FATIGUE_II	-13.55	-0.20	0.03	0.23	16.25	2.07	-0.36	2.43

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(positive)	1.000	1.000	N/A	21.1	10207.03	7753.1	328.20	18.57
SERVICE_II	(positive)	1.000	N/A	N/A	21.6	N/A	5912.3	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-175.3	155.96*	69.18*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1014.7	155.96*	69.18*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-80.1	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	463.9	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.107	33.0	10183.57	2827.2	81.34	52.29

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.343	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.390	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.348	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.343	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.313	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.630	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.7.1.2	0.584	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.262	Flexure - Composite, Positive Flexure, Ductility
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	1.000	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.619	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.305	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.5.3	0.145	Special Fatigue Requirement for Webs
17	6.6.1.2	0.332	Fatigue-I: Bottom Flange Base Metal - Cat B
17	6.6.1.2	0.327	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.413	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.436	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'

	informational	Minimum User Bottom Flange Thickness Encountered.
	informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 1, 28.6 Percent (50.00 ft) - [left side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	465.6	DL1 (other):	2441.5
	DL2:	821.7	DW:	403.1
	+LL:	3643.4	-LL:	-904.3
	+fatigue LL:	881.5	-fatigue LL:	-200.4

Unfactored Shears (kips) -	DL1 (beam):	2.0	DL1 (other):	10.8
	DL2:	4.5	DW:	2.2
	+LL:	91.6	-LL:	-55.0
	+fatigue LL:	31.2	-fatigue LL:	-14.9

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in^4	67344	166626	127815	67344	166626	127815
neutral_axis_from_bottom_of_beam	in	34.00	62.05	51.20	34.00	62.05	51.20
S to_top_of_top_flange	in^3	-1981	-27989	-7608	-1981	-27989	-7608
S to_bottom_of_bottom_flange	in^3	1981	2685	2496	1981	2685	2496
S to_top_of_slab	in^3		-9412	-4477	N/A	-9412	-4477
S to_cg_of_reinforcement	in^3		N/A	N/A	N/A		
longit_stiffness_parameter	in^4	1548986					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	-27.32	58.35	-1.40	0.00	positive
SERVICE_II	1.00	1.00	-21.58	44.66	-1.04	0.00	positive
CONSTRUCTION	1.40	0.00	-24.66	24.66	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-19.54	-0.66	0.15	0.81	23.50	6.89	-1.57	8.46
FATIGUE_II	-19.54	-0.30	0.07	0.37	23.50	3.15	-0.72	3.87

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(positive)	1.000	1.000	N/A	20.7	9772.89	11641.6	185.16	-79.31
SERVICE_II	(positive)	1.000	N/A	N/A	21.1	N/A	8868.3	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-350.7	74.14*	-6.58*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1542.6	74.14*	-6.58*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-160.3	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	705.2	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.000	33.0	9741.33	4070.1	17.95	11.54

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.493	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.562	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.555	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.493	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.454	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.940	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.7.1.2	0.916	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.262	Flexure - Composite, Positive Flexure, Ductility
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	1.000	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.619	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.172	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.6.1.2	0.529	Fatigue-I: Bottom Flange Splice - Cat B
17	6.6.1.2	0.520	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.657	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.694	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
		informational	Minimum User Bottom Flange Thickness Encountered.
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 1, 36.7 Percent (64.19 ft) - [no plate change]

Unfactored Moments (kips-ft) -	DL1 (beam):	465.8	DL1 (other):	2441.6
	DL2:	836.7	DW:	410.5
	+LL:	3951.6	-LL:	-1161.0
	+fatigue LL:	939.3	-fatigue LL:	-257.3

Unfactored Shears (kips) -	DL1 (beam):	-2.0	DL1 (other):	-10.8
	DL2:	-2.3	DW:	-1.1
	+LL:	73.8	-LL:	-71.7
	+fatigue LL:	25.6	-fatigue LL:	-21.3

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	67344	166626	127815	67344	166626	127815
neutral_axis_from_bottom_of_beam	in	34.00	62.05	51.20	34.00	62.05	51.20
S to_top_of_top_flange	in ³	-1981	-27989	-7608	-1981	-27989	-7608
S to_bottom_of_bottom_flange	in ³	1981	2685	2496	1981	2685	2496
S to_top_of_slab	in ³		-9412	-4477	N/A	-9412	-4477
S to_cg_of_reinforcement	in ³		N/A	N/A	N/A		
longit_stiffness_parameter	in ⁴	1548986					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	-27.60	60.91	-1.50	0.00	positive
SERVICE_II	1.00	1.00	-21.78	46.56	-1.12	0.00	positive
CONSTRUCTION	1.40	0.00	-24.66	24.66	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-19.58	-0.70	0.19	0.90	23.61	7.35	-2.01	9.36
FATIGUE_II	-19.58	-0.32	0.09	0.41	23.61	3.36	-0.92	4.28

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(positive)	1.000	1.000	N/A	20.2	9770.49	12211.3	114.85	-146.07
SERVICE_II	(positive)	1.000	N/A	N/A	20.7	N/A	9291.8	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-450.3	28.50*	-53.44*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1643.9	28.50*	-53.44*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-205.8	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	751.5	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.000	33.0	9741.18	4070.5	-11.52	-17.91

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.493	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.562	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.555	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.493	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.459	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.980	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.7.1.2	0.961	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.262	Flexure - Composite, Positive Flexure, Ductility
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	1.000	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.619	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.136	Nominal Shear Resistance of Stiffened Web Interior Panel

17	6.6.1.2	0.585	Fatigue-I: Bottom Flange Base Metal - Cat B
17	6.6.1.2	0.575	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.726	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.767	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
		informational	Minimum User Bottom Flange Thickness Encountered.
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 1, 42.9 Percent (75.00 ft) - [left side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	426.9	DL1 (other):	2236.2
	DL2:	783.4	DW:	384.4
	+LL:	3999.2	-LL:	-1356.5
	+fatigue LL:	942.8	-fatigue LL:	-300.6

Unfactored Shears (kips) -	DL1 (beam):	-5.1	DL1 (other):	-27.2
	DL2:	-7.5	DW:	-3.7
	+LL:	61.6	-LL:	-84.8
	+fatigue LL:	21.6	-fatigue LL:	-26.0

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in^4	67344	166626	127815	67344	166626	127815
neutral_axis_from_bottom_of_beam	in	34.00	62.05	51.20	34.00	62.05	51.20
S to_top_of_top_flange	in^3	-1981	-27989	-7608	-1981	-27989	-7608
S to_bottom_of_bottom_flange	in^3	1981	2685	2496	1981	2685	2496
S to_top_of_slab	in^3		-9412	-4477	N/A	-9412	-4477
S to_cg_of_reinforcement	in^3		N/A	N/A	N/A		
longit_stiffness_parameter	in^4	1548986					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	-25.62	58.92	-1.49	0.00	positive
SERVICE_II	1.00	1.00	-20.20	44.98	-1.11	0.00	positive
CONSTRUCTION	1.40	0.00	-22.59	22.59	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-17.98	-0.71	0.23	0.93	21.75	7.37	-2.35	9.72
FATIGUE_II	-17.98	-0.32	0.10	0.43	21.75	3.37	-1.07	4.44

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

	Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)	
STRENGTH_I	(positive)	1.000	1.000	N/A	19.6	9887.21	11883.4	69.51	-203.70
SERVICE_II	(positive)	1.000	N/A	N/A	20.1	N/A	9029.9	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-526.1	-5.71*	-88.94*

FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1649.9	-5.71*	-88.94*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-240.5	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	754.2	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.235	33.0	9862.94	3728.3	-29.11	-45.29

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.452	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.515	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.452	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.452	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.425	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.947	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.7.1.2	0.925	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.262	Flexure - Composite, Positive Flexure, Ductility
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	1.000	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.619	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.189	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.6.1.2	0.608	Fatigue-I: Bottom Flange Base Metal - Cat B
17	6.6.1.2	0.598	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.755	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.797	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
	informational		Minimum User Bottom Flange Thickness Encountered.
	informational		Minimum User Top Flange Thickness Encountered.

SECTION at Span 1, 57.1 Percent (100.00 ft) - [right side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	207.2	DL1 (other):	1080.3
	DL2:	445.9	DW:	218.7
	+LL:	3518.5	-LL:	-1768.9
	+fatigue LL:	835.8	-fatigue LL:	-400.9

Unfactored Shears (kips) -	DL1 (beam):	-12.4	DL1 (other):	-65.3
	DL2:	-19.5	DW:	-9.5
	+LL:	37.6	-LL:	-116.2
	+fatigue LL:	13.5	-fatigue LL:	-36.1

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment of inertia	in ⁴	67344	166626	127815	67344	166626	127815
neutral axis from bottom of beam	in	34.00	62.05	51.20	34.00	62.05	51.20
S to top of top flange	in ³	-1981	-27989	-7608	-1981	-27989	-7608
S to bottom of bottom flange	in ³	1981	2685	2496	1981	2685	2496

S to_top_of_slab	in^3		-9412	-4477	N/A	-9412	-4477
S to_cg_of_reinforcement	in^3		N/A	N/A	N/A		
longit_stiffness_parameter	in^4	1548986					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	0.90	0.65	8.44	-8.44	0.45	0.00	negative
STRENGTH_II	1.25	1.50	-13.79	41.52	-1.23	0.00	positive
SERVICE_II	1.00	1.00	-10.81	31.43	-0.91	0.00	positive
CONSTRUCTION	1.40	0.00	-10.92	10.92	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-8.85	-0.63	0.30	0.93	10.99	6.54	-3.13	9.67
FATIGUE_II	-8.85	-0.29	0.14	0.42	10.99	2.99	-1.43	4.42

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(negative)	1.000	1.000	1.000	33.0	8252.99	-1393.4	-27.90	-339.03
STRENGTH_II	(positive)	1.000	1.000	N/A	16.0	10549.83	8652.1	-27.90	-339.03
SERVICE_II	(positive)	1.000	N/A	N/A	16.4	N/A	6526.1	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-701.5	-83.14*	-169.91*
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	1462.7	-83.14*	-169.91*
FATIGUE_III	(negative)	N/A	N/A	N/A	N/A	N/A	-320.7	N/A	N/A
FATIGUE_IV	(positive)	N/A	N/A	N/A	N/A	N/A	668.6	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.000	33.0	10548.19	1802.4	-69.92	-108.76

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.218	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.249	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.246	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.218	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.228	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.662	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.7.1.2	0.631	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.262	Flexure - Composite, Positive Flexure, Ductility
17	6.10.8.2.2	0.192	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure

17	6.10.8.2.3	0.190	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure
17	6.10.8.1.3	0.169	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	1.000	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.619	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.315	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.101	Shear (Constructibility)
17	6.10.5.3	0.158	Special Fatigue Requirement for Webs
17	6.6.1.2	0.604	Fatigue-I: Bottom Flange Base Metal - Cat B
17	6.6.1.2	0.595	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.751	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.793	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
		informational	Minimum User Bottom Flange Thickness Encountered.
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 1, 68.6 Percent (120.00 ft) - [field splice location, left side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	-97.4	DL1 (other):	-529.1
	DL2:	-39.8	DW:	-19.5
	+LL:	2605.1	-LL:	-2520.6
	+fatigue LL:	640.3	-fatigue LL:	-481.0

Unfactored Shears (kips) -	DL1 (beam):	-18.4	DL1 (other):	-95.7
	DL2:	-29.1	DW:	-14.3
	+LL:	22.7	-LL:	-141.5
	+fatigue LL:	8.0	-fatigue LL:	-43.4

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	67344	166626	127815	67344	166626	127815
neutral_axis_from_bottom_of_beam	in	34.00	62.05	51.20	34.00	62.05	51.20
S to_top_of_top_flange	in ³	-1981	-27989	-7608	-1981	-27989	-7608
S to_bottom_of_bottom_flange	in ³	1981	2685	2496	1981	2685	2496
S to_top_of_slab	in ³		-9412	-4477	N/A	-9412	-4477
S to_cg_of_reinforcement	in ³		N/A	N/A	N/A		
longit_stiffness_parameter	in ⁴	1548986					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	31.95	-31.95	0.78	0.00	negative
STRENGTH_I	0.90	0.65	1.54	16.72	-0.79	0.00	positive
SERVICE_II	1.00	1.00	5.29	-18.72	0.58	0.00	negative
SERVICE_II	1.00	1.00	2.44	11.05	-0.58	0.00	positive
CONSTRUCTION	1.40	0.00	5.31	-5.31	0.00	0.00	negative
CONSTRUCTION		Lateral	0.00	0.00			negative

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	3.89	-0.48	0.36	0.84	-4.08	5.01	-3.76	8.77
FATIGUE_II	3.89	-0.22	0.16	0.38	-4.08	2.29	-1.72	4.01

Legend:

DL = Total unfactored dead load stress
 LL+ = Factored positive live load stress
 LL- = Factored negative live load stress
 Range = Total factored live load stress range
 Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(negative)	1.000	1.000	1.000	33.0	8252.99	-5273.2	-98.44	-448.19
STRENGTH_I	(positive)	1.000	1.000	N/A	4.7	11393.81	3946.5	-98.44	-448.19
SERVICE_II	(negative)	1.000	N/A	N/A	52.0	N/A	-3962.6	N/A	N/A
SERVICE_II	(positive)	1.000	N/A	N/A	11.3	N/A	2700.8	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-841.7	-143.54*	-233.43*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1120.6	-143.54*	-233.43*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-384.8	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	512.3	N/A	N/A
CONSTRUCTION	(negative)	1.000	N/A	1.000	33.0	8252.99	-877.1	-102.72	-159.79

Legend:

Rh = Hybrid factor
 Rb = Web load-shedding factor
 Cb = Moment gradient factor
 Dc = Depth of web in compression
 My = Yield moment
 Mu = Total factored moment
 Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)
 * = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.106	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.121	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.116	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.106	Tension Flange Nominal Yielding (Constructibility)
17	6.10.1.8	0.106	Net Section Fracture; Check Tension Flange stress against Fy ONLY (Construction)
17	6.10.1.8	warning	LRFD Simon does not check $0.84 * (A_n / A_g) * F_u$ (Construction)
		informational	After field splice design, the user must ensure that the A_n / A_g of the
		informational	tension flange exceeds $0.090 = ft / (0.84 * F_u)$
17	6.10.4.2.2	0.233	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.111	Top Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.394	Bottom Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.681	Compression Flange Service Limit State Bend-Buckling, Negative Flexure
17	6.10.7.1.2	0.271	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.262	Flexure - Composite, Positive Flexure, Ductility
17	6.10.1.8	0.334	Net Section Fracture; Check Tension Flange stress against Fy ONLY (Strength-I)
17	6.10.1.8	warning	LRFD Simon does not check $0.84 * (A_n / A_g) * F_u$ (Strength-I)
		informational	After field splice design, the user must ensure that the A_n / A_g of the
		informational	tension flange exceeds $0.284 = ft / (0.84 * F_u)$
17	6.10.8.2.2	0.728	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure
17	6.10.8.2.3	0.718	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure
17	6.10.8.1.3	0.639	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.1.8	0.639	Net Section Fracture; Check Tension Flange stress against Fy ONLY (Strength-I)
17	6.10.1.8	warning	LRFD Simon does not check $0.84 * (A_n / A_g) * F_u$ (Strength-I)
		informational	After field splice design, the user must ensure that the A_n / A_g of the
		informational	tension flange exceeds $0.543 = ft / (0.84 * F_u)$
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$

17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	1.000	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.619	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.416	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.148	Shear (Constructibility)
17	6.10.5.3	0.217	Special Fatigue Requirement for Webs
17	6.6.1.2	0.548	Fatigue-I: Bottom Flange Splice - Cat B
17	6.6.1.2	0.539	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.681	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.719	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
		informational	Minimum User Bottom Flange Thickness Encountered.
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 1, 71.4 Percent (125.00 ft) - [right side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	-197.5	DL1 (other):	-1026.4
	DL2:	-191.2	DW:	-93.8
	+LL:	2326.7	-LL:	-2687.4
	+fatigue LL:	578.9	-fatigue LL:	-501.0

Unfactored Shears (kips) -	DL1 (beam):	-20.4	DL1 (other):	-103.3
	DL2:	-31.5	DW:	-15.5
	+LL:	19.5	-LL:	-147.9
	+fatigue LL:	6.8	-fatigue LL:	-45.0

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	131869	281013	211594	155781	281013	211594
neutral_axis_from_bottom_of_beam	in	32.79	57.17	45.87	36.69	57.17	45.87
S to_top_of_top_flange	in ³	-3617	-23261	-9050	-4785	-23261	-9050
S to_bottom_of_bottom_flange	in ³	4022	4915	4613	4246	4915	4613
S to_top_of_slab	in ³		-12045	-6110	N/A	-12045	-6110
S to_cg_of_reinforcement	in ³		-14776	-6979	-3944		
longit_stiffness_parameter	in ⁴	2886404					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	17.82	-18.93	0.69	15.46	negative
STRENGTH_I	0.90	0.65	1.86	6.05	-0.52	-2.91	positive
SERVICE_II	1.00	1.00	6.24	-12.92	0.52	3.33	negative
SERVICE_II	1.00	1.00	2.88	2.99	-0.37	-1.97	positive
CONSTRUCTION	1.40	0.00	5.69	-5.11	0.00	0.00	negative
CONSTRUCTION		Lateral	0.00	0.00			negative

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	4.44	-0.52	0.45	0.97	-4.39	2.47	-2.14	4.61
FATIGUE_II	4.44	-0.24	0.21	0.45	-4.39	1.13	-0.98	2.11

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc	My	Mu	Vu, max	Vu, min
					(in)	(kips-ft)	(kips-ft)	(kips)	(kips)
STRENGTH_I	(negative)	1.000	1.000	1.337	34.9	17775.59	-6612.5	-115.60	-476.03
STRENGTH_I	(positive)	1.000	1.000	N/A	14.8	20741.15	2737.2	-115.60	-476.03
SERVICE_II	(negative)	1.000	N/A	N/A	44.9	N/A	-5002.5	N/A	N/A
SERVICE_II	(positive)	1.000	N/A	N/A	32.5	N/A	1515.8	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-876.8	-158.79*	-249.50*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1013.1	-158.79*	-249.50*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-400.8	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	463.1	N/A	N/A
CONSTRUCTION	(negative)	1.000	N/A	1.508	31.0	17785.80	-1713.6	-111.35	-173.21

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.102	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.102	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.102	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.114	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.131	Top Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.272	Bottom Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.351	Compression Flange Service Limit State Bend-Buckling, Negative Flexure
17	6.10.7.1.2	0.119	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.358	Flexure - Composite, Positive Flexure, Ductility
17	6.10.8.2.2	0.379	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure
17	6.10.8.2.3	0.379	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure
17	6.10.8.1.3	0.356	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.2.2-1	0.889	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Top flange $b \geq D/6$
17	6.10.2.2-3	0.413	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	0.762	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.354	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.442	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.161	Shear (Constructibility)
17	6.10.5.3	0.232	Special Fatigue Requirement for Webs

SECTION at Span 1, 85.7 Percent (150.00 ft) - [right side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	-855.9	DL1 (other):	-4083.7
	DL2:	-1127.5	DW:	-553.2
	+LL:	825.5	-LL:	-3475.1
	+fatigue LL:	225.6	-fatigue LL:	-600.4

Unfactored Shears (kips) -	DL1 (beam):	-32.5	DL1 (other):	-141.3
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	DL2:	-43.4	DW:	-21.3
	+LL:	6.7	-LL:	-179.3
	+fatigue LL:	2.4	-fatigue LL:	-52.3

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	131869	281013	211594	155781	N/A	N/A
neutral_axis_from_bottom_of_beam	in	32.79	57.17	45.87	36.69	N/A	N/A
S to_top_of_top_flange	in ³	-3617	-23261	-9050	-4785	N/A	N/A
S to_bottom_of_bottom_flange	in ³	4022	4915	4613	4246	N/A	N/A
S to_top_of_slab	in ³		-12045	-6110	N/A	N/A	N/A
S to_cg_of_reinforcement	in ³		-14776	-6979	-3944		
longit_stiffness_parameter	in ⁴	2886404					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	41.36	-41.94	1.14	25.31	negative
SERVICE_II	1.00	1.00	20.95	-30.14	0.85	6.56	negative
CONSTRUCTION	1.40	0.00	22.95	-20.63	0.00	0.00	negative
CONSTRUCTION	Lateral		0.00	0.00			negative

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	18.62	-0.20	0.54	0.75	-19.11	0.96	-2.57	3.53
FATIGUE_II	18.62	-0.09	0.25	0.34	-19.11	0.44	-1.17	1.61

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

	Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(negative)	1.000	1.000	1.276	34.9	18033.99	-14495.1	-197.59
SERVICE_II	(negative)	1.000	N/A	N/A	39.1	N/A	-11137.9	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-1050.7	-234.32*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	394.8	-234.32*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-480.3	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	180.5	N/A
CONSTRUCTION	(negative)	1.000	N/A	1.304	31.0	18075.21	-6915.5	-156.44

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

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Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.413	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.413	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.413	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.459	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.441	Top Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.635	Bottom Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.620	Compression Flange Service Limit State Bend-Buckling, Negative Flexure
17	6.10.8.2.2	0.839	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure
17	6.10.8.2.3	0.839	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure
17	6.10.8.1.3	0.827	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.2.2-1	0.889	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Top flange $b \geq D/6$
17	6.10.2.2-3	0.413	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	0.762	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.354	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.573	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.226	Shear (Constructibility)
17	6.10.5.3	0.307	Special Fatigue Requirement for Webs

SECTION at Span 1, 88.6 Percent (155.00 ft) - [left side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	-1029.2	DL1 (other):	-4809.3
	DL2:	-1350.7	DW:	-662.6
	+LL:	594.7	-LL:	-3786.7
	+fatigue LL:	166.0	-fatigue LL:	-620.9

Unfactored Shears (kips) -	DL1 (beam):	-35.4	DL1 (other):	-148.9
	DL2:	-45.8	DW:	-22.5
	+LL:	4.9	-LL:	-185.6
	+fatigue LL:	1.9	-fatigue LL:	-53.6

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	131869	281013	211594	155781	N/A	N/A
neutral_axis_from_bottom_of_beam	in	32.79	57.17	45.87	36.69	N/A	N/A
S to_top_of_top_flange	in ³	-3617	-23261	-9050	-4785	N/A	N/A
S to_bottom_of_bottom_flange	in ³	4022	4915	4613	4246	N/A	N/A
S to_top_of_slab	in ³		-12045	-6110	N/A	N/A	N/A
S to_cg_of_reinforcement	in ³		-14776	-6979	-3944		
longit_stiffness_parameter	in ⁴	2886404					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	47.56	-48.09	1.27	28.32	negative
SERVICE_II	1.00	1.00	24.58	-34.67	0.95	7.46	negative
CONSTRUCTION	1.40	0.00	27.12	-24.39	0.00	0.00	negative
CONSTRUCTION	Lateral		0.00	0.00			negative

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	22.04	-0.15	0.56	0.71	-22.66	0.71	-2.65	3.36
FATIGUE_II	22.04	-0.07	0.26	0.32	-22.66	0.32	-1.21	1.54

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(negative)	1.000	1.000	1.276	34.9	18096.49	-16607.2	-213.13	-646.20
SERVICE_II	(negative)	1.000	N/A	N/A	38.8	N/A	-12774.5	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-1086.5	-249.37*	-346.40*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	290.5	-249.37*	-346.40*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-496.7	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	132.8	N/A	N/A
CONSTRUCTION	(negative)	1.000	N/A	1.304	31.0	18145.21	-8173.8	-165.88	-258.04

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.488	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.488	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.488	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.542	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.518	Top Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.730	Bottom Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.701	Compression Flange Service Limit State Bend-Buckling, Negative Flexure
17	6.10.8.2.2	0.962	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure
17	6.10.8.2.3	0.962	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure
17	6.10.8.1.3	0.951	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.2.2-1	0.889	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Top flange $b \geq D/6$
17	6.10.2.2-3	0.413	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	0.762	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.354	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.600	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.240	Shear (Constructibility)
17	6.10.5.3	0.322	Special Fatigue Requirement for Webs

SECTION at Span 1, 100.0 Percent (175.00 ft) - [no plate change]

Unfactored Moments (kips-ft) -	DL1 (beam):	-1888.2	DL1 (other):	-8091.8
	DL2:	-2363.2	DW:	-1159.4
	+LL:	0.0	-LL:	-5749.3
	+fatigue LL:	0.0	-fatigue LL:	-708.3

Unfactored Shears (kips) -	DL1 (beam):	-50.6	DL1 (other):	-179.3
	DL2:	-55.4	DW:	-27.2
	+LL:	0.0	-LL:	-210.4
	+fatigue LL:	0.0	-fatigue LL:	-58.2

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	242004	413572	322661	264583	N/A	N/A
neutral_axis_from_bottom_of_beam	in	36.00	54.06	44.51	38.38	N/A	N/A
S to_top_of_top_flange	in ³	-6722	-23051	-11736	-7869	N/A	N/A
S to_bottom_of_bottom_flange	in ³	6722	7651	7250	6894	N/A	N/A
S to_top_of_slab	in ³		-14935	-8664	N/A	N/A	N/A
S to_cg_of_reinforcement	in ³		-17690	-9798	-6774		
longit_stiffness_parameter	in ⁴	4612687					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	44.77	-47.95	1.62	26.14	negative
SERVICE_II	1.00	1.00	34.58	-36.96	1.21	19.48	negative
CONSTRUCTION	1.40	0.00	24.94	-24.94	0.00	0.00	negative
CONSTRUCTION	Lateral		0.00	0.00			negative

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	21.42	0.00	0.65	0.65	-23.65	0.00	-1.94	1.94
FATIGUE_II	21.42	0.00	0.29	0.29	-23.65	0.00	-0.89	0.89

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(negative)	1.000	1.000	1.276	35.4	29044.22	-27229.4	-274.45	-765.62
SERVICE_II	(negative)	1.000	N/A	N/A	35.4	N/A	-20976.7	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-1239.5	-312.50*	-414.35*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	0.0	-312.50*	-414.35*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-566.6	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	0.0	N/A	N/A
CONSTRUCTION	(negative)	1.000	N/A	1.304	33.0	29082.47	-13972.0	-206.91	-321.86

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.499	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.499	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.499	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.499	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.728	Top Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.778	Bottom Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.739	Compression Flange Service Limit State Bend-Buckling, Negative Flexure
17	6.10.8.2.2	0.959	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure
17	6.10.8.2.3	0.959	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure
17	6.10.8.1.3	0.895	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.2.2-1	0.444	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Top flange $b \geq D/6$
17	6.10.2.2-3	0.206	Top flange $t \geq 1.1*t_w$
17	6.10.2.2-1	0.444	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.206	Bottom flange $t \geq 1.1*t_w$
17	6.10.9.3.2	0.711	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.299	Shear (Constructibility)
17	6.10.5.3	0.385	Special Fatigue Requirement for Webs

Span 2

SECTION at Span 2, 0.0 Percent (0.00 ft) - [no plate change]

Unfactored Moments (kips-ft) -	DL1 (beam):	-1888.2	DL1 (other):	-8091.8
	DL2:	-2363.2	DW:	-1159.4
	+LL:	0.0	-LL:	-5749.3
	+fatigue LL:	0.0	-fatigue LL:	-708.3

Unfactored Shears (kips) -	DL1 (beam):	52.4	DL1 (other):	182.9
	DL2:	56.6	DW:	27.8
	+LL:	212.6	-LL:	0.0
	+fatigue LL:	58.3	-fatigue LL:	0.0

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	242004	413572	322661	264583	N/A	N/A
neutral_axis_from_bottom_of_beam	in	36.00	54.06	44.51	38.38	N/A	N/A
S to_top_of_top_flange	in ³	-6722	-23051	-11736	-7869	N/A	N/A
S to_bottom_of_bottom_flange	in ³	6722	7651	7250	6894	N/A	N/A
S to_top_of_slab	in ³		-14935	-8664	N/A	N/A	N/A
S to_cg_of_reinforcement	in ³		-17690	-9798	-6774		
longit_stiffness_parameter	in ⁴	4612687					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	44.77	-47.95	1.62	26.14	negative
SERVICE_II	1.00	1.00	34.58	-36.96	1.21	19.48	negative
CONSTRUCTION	1.40	0.00	24.94	-24.94	0.00	0.00	negative
CONSTRUCTION		Lateral	0.00	0.00			negative

Fatigue Stresses (ksi) -

	Top Flange	Bottom Flange

	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	21.42	0.00	0.65	0.65	-23.65	0.00	-1.94	1.94
FATIGUE_II	21.42	0.00	0.29	0.29	-23.65	0.00	-0.89	0.89

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(negative)	1.000	1.000	1.257	35.4	29044.22	-27229.4	778.62	280.78
SERVICE_II	(negative)	1.000	N/A	N/A	35.4	N/A	-20976.7	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-1239.5	421.72*	319.70*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	0.0	421.72*	319.70*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-566.6	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	0.0	N/A	N/A
CONSTRUCTION	(negative)	1.000	N/A	1.283	33.0	29082.47	-13972.0	329.42	211.77

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.499	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.499	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.499	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.499	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.728	Top Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.778	Bottom Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.739	Compression Flange Service Limit State Bend-Buckling, Negative Flexure
17	6.10.8.2.2	0.959	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure
17	6.10.8.2.3	0.959	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure
17	6.10.8.1.3	0.895	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.2.2-1	0.444	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Top flange $b \geq D/6$
17	6.10.2.2-3	0.206	Top flange $t \geq 1.1*t_w$
17	6.10.2.2-1	0.444	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.206	Bottom flange $t \geq 1.1*t_w$
17	6.10.9.3.2	0.723	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.306	Shear (Constructibility)
17	6.10.5.3	0.392	Special Fatigue Requirement for Webs

SECTION at Span 2, 11.0 Percent (20.00 ft) - [right side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	-993.3	DL1 (other):	-4738.4
	DL2:	-1327.5	DW:	-651.3
		610.1		-3801.6

	+LL:		-LL:	
	+fatigue LL:	169.7	-fatigue LL:	-630.4

Unfactored Shears (kips) -	DL1 (beam):	37.1	DL1 (other):	152.5
	DL2:	47.0	DW:	23.1
	+LL:	188.0	-LL:	-4.8
	+fatigue LL:	53.8	-fatigue LL:	-1.8

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	131869	281013	211594	155781	N/A	N/A
neutral_axis_from_bottom_of_beam	in	32.79	57.17	45.87	36.69	N/A	N/A
S to_top_of_top_flange	in ³	-3617	-23261	-9050	-4785	N/A	N/A
S to_bottom_of_bottom_flange	in ³	4022	4915	4613	4246	N/A	N/A
S to_top_of_slab	in ³		-12045	-6110	N/A	N/A	N/A
S to_cg_of_reinforcement	in ³		-14776	-6979	-3944		
longit_stiffness_parameter	in ⁴	2886404					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	47.07	-47.63	1.27	28.26	negative
SERVICE_II	1.00	1.00	24.19	-34.31	0.94	7.42	negative
CONSTRUCTION	1.40	0.00	26.63	-23.94	0.00	0.00	negative
CONSTRUCTION	Lateral		0.00	0.00			negative

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	21.64	-0.15	0.57	0.72	-22.25	0.72	-2.69	3.42
FATIGUE_II	21.64	-0.07	0.26	0.33	-22.25	0.33	-1.23	1.56

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(negative)	1.000	1.000	1.257	34.9	18089.07	-16453.8	659.27	219.53
SERVICE_II	(negative)	1.000	N/A	N/A	38.9	N/A	-12652.6	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-1103.2	353.72*	256.50*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	297.0	353.72*	256.50*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-504.3	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	135.8	N/A	N/A
CONSTRUCTION	(negative)	1.000	N/A	1.283	31.0	18136.90	-8024.4	265.34	170.57

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.479	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.479	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.479	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.533	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.509	Top Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.722	Bottom Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.697	Compression Flange Service Limit State Bend-Buckling, Negative Flexure
17	6.10.8.2.2	0.953	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure
17	6.10.8.2.3	0.953	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure
17	6.10.8.1.3	0.941	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.2.2-1	0.889	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Top flange $b \geq D/6$
17	6.10.2.2-3	0.413	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	0.762	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.354	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.612	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.246	Shear (Constructibility)
17	6.10.5.3	0.329	Special Fatigue Requirement for Webs

SECTION at Span 2, 12.5 Percent (22.75 ft) - [left side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	-890.9	DL1 (other):	-4324.9
	DL2:	-1200.1	DW:	-588.8
	+LL:	738.2	-LL:	-3619.7
	+fatigue LL:	203.2	-fatigue LL:	-619.7

Unfactored Shears (kips) -	DL1 (beam):	35.4	DL1 (other):	148.3
	DL2:	45.7	DW:	22.4
	+LL:	184.6	-LL:	-5.7
	+fatigue LL:	53.1	-fatigue LL:	-2.1

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	131869	281013	211594	155781	N/A	N/A
neutral_axis_from_bottom_of_beam	in	32.79	57.17	45.87	36.69	N/A	N/A
S to_top_of_top_flange	in ³	-3617	-23261	-9050	-4785	N/A	N/A
S to_bottom_of_bottom_flange	in ³	4022	4915	4613	4246	N/A	N/A
S to_top_of_slab	in ³		-12045	-6110	N/A	N/A	N/A
S to_cg_of_reinforcement	in ³		-14776	-6979	-3944		
longit_stiffness_parameter	in ⁴	2886404					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	43.50	-44.09	1.19	26.52	negative
SERVICE_II	1.00	1.00	22.11	-31.70	0.89	6.90	negative
CONSTRUCTION	1.40	0.00	24.23	-21.79	0.00	0.00	negative
CONSTRUCTION		Lateral	0.00	0.00			negative

Fatigue Stresses (ksi) -

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	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	19.68	-0.18	0.56	0.74	-20.22	0.87	-2.65	3.52
FATIGUE_II	19.68	-0.08	0.26	0.34	-20.22	0.40	-1.21	1.61

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(negative)	1.000	1.000	1.310	34.9	18053.20	-15237.6	643.40	211.02
SERVICE_II	(negative)	1.000	N/A	N/A	39.1	N/A	-11710.3	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-1084.5	344.73*	248.18*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	355.6	344.73*	248.18*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-495.8	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	162.6	N/A	N/A
CONSTRUCTION	(negative)	1.000	N/A	1.463	31.0	18096.72	-7302.2	257.19	165.34

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.436	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.436	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.436	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.485	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.465	Top Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.667	Bottom Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.650	Compression Flange Service Limit State Bend-Buckling, Negative Flexure
17	6.10.8.2.2	0.882	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure
17	6.10.8.2.3	0.882	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure
17	6.10.8.1.3	0.870	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.2.2-1	0.889	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Top flange $b \geq D/6$
17	6.10.2.2-3	0.413	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	0.762	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.354	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.598	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.239	Shear (Constructibility)
17	6.10.5.3	0.320	Special Fatigue Requirement for Webs

SECTION at Span 2, 25.0 Percent (45.50 ft) - [left side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	-215.8	DL1 (other):	-1345.2
		-285.0		-139.8

	DL2:		DW:	
	+LL:	2159.6	-LL:	-2843.0
	+fatigue LL:	542.4	-fatigue LL:	-531.2

Unfactored Shears (kips) -	DL1 (beam):	24.3	DL1 (other):	113.7
	DL2:	34.8	DW:	17.1
	+LL:	156.3	-LL:	-16.3
	+fatigue LL:	46.9	-fatigue LL:	-5.6

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	131869	281013	211594	155781	281013	211594
neutral_axis_from_bottom_of_beam	in	32.79	57.17	45.87	36.69	57.17	45.87
S to_top_of_top_flange	in ³	-3617	-23261	-9050	-4785	-23261	-9050
S to_bottom_of_bottom_flange	in ³	4022	4915	4613	4246	4915	4613
S to_top_of_slab	in ³		-12045	-6110	N/A	-12045	-6110
S to_cg_of_reinforcement	in ³		-14776	-6979	-3944		
longit_stiffness_parameter	in ⁴	2886404					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	20.37	-21.48	0.76	16.86	negative
STRENGTH_I	0.90	0.65	3.17	4.13	-0.47	-2.47	positive
SERVICE_II	1.00	1.00	7.65	-14.79	0.56	3.73	negative
SERVICE_II	1.00	1.00	4.29	1.09	-0.33	-1.55	positive
CONSTRUCTION	1.40	0.00	7.25	-6.52	0.00	0.00	negative
CONSTRUCTION	Lateral		0.00	0.00			negative

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	5.74	-0.49	0.48	0.97	-5.76	2.32	-2.27	4.59
FATIGUE_II	5.74	-0.22	0.22	0.44	-5.76	1.06	-1.04	2.10

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(negative)	1.000	1.000	1.000	34.9	17799.03	-7492.4	514.83	137.92
STRENGTH_I	(positive)	1.000	1.000	N/A	28.6	20816.05	2027.0	514.83	137.92
SERVICE_II	(negative)	1.000	N/A	N/A	43.9	N/A	-5681.6	N/A	N/A
SERVICE_II	(positive)	1.000	N/A	N/A	53.7	N/A	821.7	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-929.6	271.77*	179.83*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	949.1	271.77*	179.83*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-425.0	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	433.9	N/A	N/A
CONSTRUCTION	(negative)	1.000	N/A	1.000	31.0	17812.06	-2185.5	193.06	124.11

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.130	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.130	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.143	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.145	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.161	Top Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.311	Bottom Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.383	Compression Flange Service Limit State Bend-Buckling, Negative Flexure
17	6.10.7.3	0.358	Flexure - Composite, Positive Flexure, Ductility
17	6.10.8.2.2	0.430	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure
17	6.10.8.2.3	0.471	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure
17	6.10.8.1.3	0.407	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.2.2-1	0.889	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Top flange $b \geq D/6$
17	6.10.2.2-3	0.413	Top flange $t \geq 1.1*t_w$
17	6.10.2.2-1	0.762	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.344	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.354	Bottom flange $t \geq 1.1*t_w$
17	6.10.9.3.2	0.478	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.179	Shear (Constructibility)
17	6.10.5.3	0.252	Special Fatigue Requirement for Webs

SECTION at Span 2, 31.3 Percent (57.00 ft) - [field splice location, right side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	39.6	DL1 (other):	-138.6
	DL2:	83.3	DW:	40.9
	+LL:	2856.2	-LL:	-2515.4
	+fatigue LL:	692.7	-fatigue LL:	-486.5

Unfactored Shears (kips) -	DL1 (beam):	19.2	DL1 (other):	96.1
	DL2:	29.3	DW:	14.3
	+LL:	141.9	-LL:	-23.4
	+fatigue LL:	43.3	-fatigue LL:	-8.3

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	73870	189311	142998	73870	189311	142998
neutral_axis_from_bottom_of_beam	in	32.00	60.95	49.43	32.00	60.95	49.43
S to_top_of_top_flange	in ³	-2038	-25916	-7600	-2038	-25916	-7600
S to_bottom_of_bottom_flange	in ³	2308	3106	2893	2308	3106	2893
S to_top_of_slab	in ³		-9935	-4678	N/A	-9935	-4678
S to_cg_of_reinforcement	in ³		N/A	N/A	N/A		
longit_stiffness_parameter	in ⁴	1797818					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure

STRENGTH_I	1.25	0.65	25.88	-22.85	0.71	0.00	negative
STRENGTH_I	0.90	1.50	-2.00	19.41	-0.85	0.00	positive
SERVICE_II	1.00	1.00	1.90	-12.63	0.52	0.00	negative
SERVICE_II	1.00	1.00	-1.33	14.34	-0.63	0.00	positive
CONSTRUCTION	1.40	0.00	0.82	-0.72	0.00	0.00	negative
CONSTRUCTION	Lateral		0.00	0.00			negative

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	0.39	-0.56	0.39	0.96	0.00	4.68	-3.29	7.97
FATIGUE_II	0.39	-0.26	0.18	0.44	0.00	2.14	-1.50	3.64

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(negative)	1.000	1.000	1.000	30.8	8491.48	-4395.1	450.65	98.62
STRENGTH_I	(positive)	1.000	1.000	N/A	5.4	12928.70	5045.6	450.65	98.62
SERVICE_II	(negative)	1.000	N/A	N/A	58.1	N/A	-3244.8	N/A	N/A
SERVICE_II	(positive)	1.000	N/A	N/A	4.8	N/A	3738.2	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-851.3	234.81*	144.49*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1212.3	234.81*	144.49*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-389.2	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	554.2	N/A	N/A
CONSTRUCTION	(negative)	1.000	N/A	1.000	30.8	8491.47	-138.7	161.55	103.86

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.1.8	warning	LRFD Simon does not check $0.84 * (A_n / A_g) * F_u$ (Construction)
		informational	After field splice design, the user must ensure that the A_n / A_g of the
		informational	tension flange exceeds $0.014 = ft / (0.84 * F_u)$
17	6.10.4.2.2	0.302	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.266	Bottom Flange Service Limit State Permanent Deflections, Negative Flexure
17	6.10.4.2.2	0.573	Compression Flange Service Limit State Bend-Buckling, Negative Flexure
17	6.10.7.1.2	0.318	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.352	Flexure - Composite, Positive Flexure, Ductility
17	6.10.1.8	0.388	Net Section Fracture; Check Tension Flange stress against F_y ONLY (Strength-I)
17	6.10.1.8	warning	LRFD Simon does not check $0.84 * (A_n / A_g) * F_u$ (Strength-I)
		informational	After field splice design, the user must ensure that the A_n / A_g of the
		informational	tension flange exceeds $0.330 = ft / (0.84 * F_u)$
17	6.10.8.2.2	0.466	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure
17	6.10.8.2.3	0.501	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure

17	6.10.8.1.3	0.518	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.1.8	0.518	Net Section Fracture; Check Tension Flange stress against Fy ONLY (Strength-I)
17	6.10.1.8	warning	LRFD Simon does not check $0.84 * (A_n / A_g) * F_u$ (Strength-I)
		informational	After field splice design, the user must ensure that the A_n / A_g of the
		informational	tension flange exceeds $0.440 = f_t / (0.84 * F_u)$
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	0.800	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.495	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.419	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.150	Shear (Constructibility)
17	6.10.5.3	0.218	Special Fatigue Requirement for Webs
17	6.6.1.2	0.498	Fatigue-I: Bottom Flange Splice - Cat B
17	6.6.1.2	0.488	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.615	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.651	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 2, 37.5 Percent (68.25 ft) - [left side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	232.9	DL1 (other):	847.1
	DL2:	382.3	DW:	187.6
	+LL:	3443.3	-LL:	-2025.6
	+fatigue LL:	817.9	-fatigue LL:	-442.7

Unfactored Shears (kips) -	DL1 (beam):	15.7	DL1 (other):	79.0
	DL2:	23.9	DW:	11.7
	+LL:	127.9	-LL:	-31.3
	+fatigue LL:	39.5	-fatigue LL:	-11.2

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	73870	189311	142998	73870	189311	142998
neutral_axis_from_bottom_of_beam	in	32.00	60.95	49.43	32.00	60.95	49.43
S to_top_of_top_flange	in ³	-2038	-25916	-7600	-2038	-25916	-7600
S to_bottom_of_bottom_flange	in ³	2308	3106	2893	2308	3106	2893
S to_top_of_slab	in ³		-9935	-4678	N/A	-9935	-4678
S to_cg_of_reinforcement	in ³		N/A	N/A	N/A		
longit_stiffness_parameter	in ⁴	1797818					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	0.90	0.65	12.40	-10.95	0.51	0.00	negative
STRENGTH_II	1.25	1.50	-11.94	33.45	-1.12	0.00	positive
SERVICE_II	1.00	1.00	-6.04	-2.19	0.34	0.00	negative
SERVICE_III	1.00	1.00	-9.33	25.27	-0.83	0.00	positive
CONSTRUCTION	1.40	0.00	-8.90	7.86	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-7.26	-0.66	0.36	1.02	7.98	5.53	-2.99	8.52

FATIGUE_II	-7.26	-0.30	0.16	0.47	7.98	2.53	-1.37	3.90
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Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(negative)	1.000	1.000	1.750	30.8	8491.47	-2106.7	389.45	59.52
STRENGTH_I	(positive)	1.000	1.000	N/A	17.0	12419.93	8135.1	389.45	59.52
SERVICE_II	(negative)	1.000	N/A	N/A	16.9	N/A	-983.3	N/A	N/A
SERVICE_II	(positive)	1.000	N/A	N/A	17.4	N/A	6126.2	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-774.7	199.36*	110.55*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1431.4	199.36*	110.55*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-354.2	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	654.4	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.317	35.2	12419.97	1512.0	132.56	85.22

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.178	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.203	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.178	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.157	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.196	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.532	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.161	Compression Flange Service Limit State Bend-Buckling, Negative Flexure
17	6.10.7.1.2	0.513	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.352	Flexure - Composite, Positive Flexure, Ductility
17	6.10.8.2.2	0.223	Flex Resist: discretely braced flange in comp, local buckling, Negative Flexure
17	6.10.8.2.3	0.219	Flex Resist: discretely braced flange in comp, LT buckling, Negative Flexure
17	6.10.8.1.3	0.248	Flexural Resistance: continuously braced flange in tension, Negative Flexure
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	0.800	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.495	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.362	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.3.3	0.123	Shear (Constructibility)
17	6.10.5.3	0.185	Special Fatigue Requirement for Webs
17	6.6.1.2	0.533	Fatigue-I: Bottom Flange Base Metal - Cat B
17	6.6.1.2	0.522	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.658	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.696	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'

informational	Minimum User Top Flange Thickness Encountered.
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SECTION at Span 2, 50.0 Percent (91.00 ft) - [right side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	507.3	DL1 (other):	2252.2
	DL2:	801.7	DW:	393.3
	+LL:	4176.6	-LL:	-1571.3
	+fatigue LL:	969.9	-fatigue LL:	-354.1

Unfactored Shears (kips) -	DL1 (beam):	8.5	DL1 (other):	44.5
	DL2:	13.0	DW:	6.4
	+LL:	99.7	-LL:	-50.5
	+fatigue LL:	31.1	-fatigue LL:	-17.9

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment of inertia	in ⁴	73870	189311	142998	73870	189311	142998
neutral axis from bottom of beam	in	32.00	60.95	49.43	32.00	60.95	49.43
S to top of top flange	in ³	-2038	-25916	-7600	-2038	-25916	-7600
S to bottom of bottom flange	in ³	2308	3106	2893	2308	3106	2893
S to top of slab	in ³		-9935	-4678	N/A	-9935	-4678
S to cg of reinforcement	in ³		N/A	N/A	N/A		
longit stiffness parameter	in ⁴	1797818					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	-26.21	52.77	-1.47	0.00	positive
SERVICE_II	1.00	1.00	-20.65	40.28	-1.10	0.00	positive
CONSTRUCTION	1.40	0.00	-22.75	20.08	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-18.14	-0.79	0.29	1.07	19.30	6.56	-2.39	8.95
FATIGUE_II	-18.14	-0.36	0.13	0.49	19.30	3.00	-1.09	4.09

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(positive)	1.000	1.000	N/A	21.6	11632.59	12350.5	266.58	-24.82
SERVICE_II	(positive)	1.000	N/A	N/A	22.1	N/A	9384.1	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-619.7	126.82*	41.08*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1697.3	126.82*	41.08*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-283.3	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	775.9	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.070	35.2	11607.02	3863.3	74.20	47.70

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.455	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.519	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.469	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.402	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.435	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.848	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.7.1.2	0.817	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.352	Flexure - Composite, Positive Flexure, Ductility
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*t_w$
17	6.10.2.2-1	0.800	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.495	Bottom flange $t \geq 1.1*t_w$
17	6.10.9.3.2	0.248	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.5.3	0.118	Special Fatigue Requirement for Webs
17	6.6.1.2	0.559	Fatigue-I: Bottom Flange Base Metal - Cat B
17	6.6.1.2	0.548	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.691	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.731	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 2, 62.4 Percent (113.53 ft) - [no plate change]

Unfactored Moments (kips-ft) -	DL1 (beam):	620.9	DL1 (other):	2867.9
	DL2:	972.7	DW:	477.2
	+LL:	4274.8	-LL:	-1182.4
	+fatigue LL:	1002.7	-fatigue LL:	-266.5

Unfactored Shears (kips) -	DL1 (beam):	1.6	DL1 (other):	10.2
	DL2:	2.2	DW:	1.1
	+LL:	72.8	-LL:	-74.1
	+fatigue LL:	22.0	-fatigue LL:	-25.7

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	73870	189311	142998	73870	189311	142998
neutral_axis_from_bottom_of_beam	in	32.00	60.95	49.43	32.00	60.95	49.43
S to_top_of_top_flange	in ³	-2038	-25916	-7600	-2038	-25916	-7600
S to_bottom_of_bottom_flange	in ³	2308	3106	2893	2308	3106	2893
S to_top_of_slab	in ³		-9935	-4678	N/A	-9935	-4678
S to_cg_of_reinforcement	in ³		N/A	N/A	N/A		
longit_stiffness_parameter	in ⁴	1797818					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	-32.19	59.58	-1.56	0.00	positive
SERVICE_II	1.00	1.00	-25.41	45.62	-1.16	0.00	positive
CONSTRUCTION	1.40	0.00	-28.76	25.39	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-22.83	-0.81	0.22	1.03	24.15	6.78	-1.80	8.58
FATIGUE_II	-22.83	-0.37	0.10	0.47	24.15	3.10	-0.82	3.92

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(positive)	1.000	1.000	N/A	22.9	11292.35	13773.5	146.44	-116.37
SERVICE_II	(positive)	1.000	N/A	N/A	23.4	N/A	10495.9	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-466.3	53.57*	-29.85*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1754.7	53.57*	-29.85*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-213.2	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	802.2	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.070	35.2	11254.02	4884.3	16.47	10.59

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.575	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.656	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.592	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.508	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.535	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.960	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.7.1.2	0.938	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.352	Flexure - Composite, Positive Flexure, Ductility
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	0.800	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.495	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.136	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.6.1.2	0.536	Fatigue-I: Bottom Flange Base Metal - Cat B

17	6.6.1.2	0.525	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.662	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.700	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 2, 62.5 Percent (113.75 ft) - [right side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	621.2	DL1 (other):	2870.1
	DL2:	973.2	DW:	477.4
	+LL:	4272.4	-LL:	-1178.5
	+fatigue LL:	1002.3	-fatigue LL:	-265.6

Unfactored Shears (kips) -	DL1 (beam):	1.5	DL1 (other):	9.9
	DL2:	2.1	DW:	1.0
	+LL:	72.5	-LL:	-74.3
	+fatigue LL:	21.9	-fatigue LL:	-25.7

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in^4	73870	189311	142998	73870	189311	142998
neutral_axis_from_bottom_of_beam	in	32.00	60.95	49.43	32.00	60.95	49.43
S to_top_of_top_flange	in^3	-2038	-25916	-7600	-2038	-25916	-7600
S to_bottom_of_bottom_flange	in^3	2308	3106	2893	2308	3106	2893
S to_top_of_slab	in^3		-9935	-4678	N/A	-9935	-4678
S to_cg_of_reinforcement	in^3		N/A	N/A	N/A		
longit_stiffness_parameter	in^4	1797818					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	-32.21	59.59	-1.56	0.00	positive
SERVICE_II	1.00	1.00	-25.42	45.62	-1.16	0.00	positive
CONSTRUCTION	1.40	0.00	-28.78	25.41	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-22.85	-0.81	0.22	1.03	24.17	6.78	-1.80	8.57
FATIGUE_II	-22.85	-0.37	0.10	0.47	24.17	3.10	-0.82	3.92

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(positive)	1.000	1.000	N/A	22.9	11291.17	13773.3	145.27	-117.31
SERVICE_II	(positive)	1.000	N/A	N/A	23.4	N/A	10495.9	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-464.8	52.84*	-30.56*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1754.0	52.84*	-30.56*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-212.5	N/A	N/A

FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	801.8	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.000	35.2	11252.78	4887.9	15.90	10.22

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.576	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.656	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.634	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.508	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.535	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.961	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.7.1.2	0.938	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.352	Flexure - Composite, Positive Flexure, Ductility
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*t_w$
17	6.10.2.2-1	0.800	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.495	Bottom flange $t \geq 1.1*t_w$
17	6.10.9.3.2	0.135	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.6.1.2	0.536	Fatigue-I: Bottom Flange Base Metal - Cat B
17	6.6.1.2	0.525	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.662	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.700	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 2, 71.4 Percent (130.00 ft) - [right side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	604.3	DL1 (other):	2829.4
	DL2:	943.8	DW:	463.0
	+LL:	3909.5	-LL:	-897.9
	+fatigue LL:	934.5	-fatigue LL:	-202.4

Unfactored Shears (kips) -	DL1 (beam):	-3.6	DL1 (other):	-14.9
	DL2:	-5.7	DW:	-2.8
	+LL:	54.2	-LL:	-94.2
	+fatigue LL:	15.0	-fatigue LL:	-31.9

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	73870	189311	142998	73870	189311	142998
neutral_axis_from_bottom_of_beam	in	32.00	60.95	49.43	32.00	60.95	49.43
S to_top_of_top_flange	in ³	-2038	-25916	-7600	-2038	-25916	-7600
S to_bottom_of_bottom_flange	in ³	2308	3106	2893	2308	3106	2893
S to_top_of_slab	in ³		-9935	-4678	N/A	-9935	-4678
S to_cg_of_reinforcement	in ³		N/A	N/A	N/A		
longit_stiffness_parameter	in ⁴	1797818					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	-31.40	56.52	-1.44	0.00	positive
SERVICE_II	1.00	1.00	-24.79	43.32	-1.07	0.00	positive
CONSTRUCTION	1.40	0.00	-28.31	24.99	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-22.44	-0.76	0.16	0.92	23.69	6.32	-1.37	7.69
FATIGUE_II	-22.44	-0.35	0.07	0.42	23.69	2.89	-0.63	3.51

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(positive)	1.000	1.000	N/A	23.4	11320.38	13008.1	71.32	-199.39
SERVICE_II	(positive)	1.000	N/A	N/A	23.8	N/A	9922.9	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-354.2	-0.76*	-82.87*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1635.3	-0.76*	-82.87*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-161.9	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	747.6	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.000	35.2	11280.68	4807.2	-16.62	-25.85

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.566	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.645	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.624	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.500	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.522	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.912	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.7.1.2	0.884	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.352	Flexure - Composite, Positive Flexure, Ductility
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	0.800	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.495	Bottom flange $t \geq 1.1*tw$

17	6.10.9.3.2	0.185	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.6.1.2	0.480	Fatigue-I: Bottom Flange Splice - Cat B
17	6.6.1.2	0.471	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.593	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.627	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 2, 75.0 Percent (136.50 ft) - [right side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	574.7	DL1 (other):	2700.6
	DL2:	896.7	DW:	439.9
	+LL:	3661.7	-LL:	-785.6
	+fatigue LL:	875.5	-fatigue LL:	-177.1

Unfactored Shears (kips) -	DL1 (beam):	-5.6	DL1 (other):	-24.8
	DL2:	-8.9	DW:	-4.4
	+LL:	46.4	-LL:	-102.8
	+fatigue LL:	11.5	-fatigue LL:	-34.5

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in^4	73870	189311	142998	73870	189311	142998
neutral_axis_from_bottom_of_beam	in	32.00	60.95	49.43	32.00	60.95	49.43
S to_top_of_top_flange	in^3	-2038	-25916	-7600	-2038	-25916	-7600
S to_bottom_of_bottom_flange	in^3	2308	3106	2893	2308	3106	2893
S to_top_of_slab	in^3		-9935	-4678	N/A	-9935	-4678
S to_cg_of_reinforcement	in^3		N/A	N/A	N/A		
longit_stiffness_parameter	in^4	1797818					

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	-29.89	53.43	-1.35	0.00	positive
SERVICE_II	1.00	1.00	-23.60	40.96	-1.01	0.00	positive
CONSTRUCTION	1.40	0.00	-27.00	23.84	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-21.40	-0.71	0.14	0.85	22.57	5.92	-1.20	7.12
FATIGUE_II	-21.40	-0.32	0.07	0.39	22.57	2.71	-0.55	3.25

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

	Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(positive)	1.000	1.000	N/A	23.5	11395.76	12282.7	43.15
SERVICE_II	(positive)	1.000	N/A	N/A	23.9	N/A	9372.0	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-310.0	-23.39*

FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	1532.1	-23.39*	-103.94*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-141.7	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	700.4	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.151	35.2	11357.36	4585.4	-27.31	-42.49

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.540	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.615	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.540	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.477	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.497	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.862	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.7.1.2	0.829	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.352	Flexure - Composite, Positive Flexure, Ductility
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*tw$
17	6.10.2.2-1	0.800	Bottom flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.495	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.219	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.6.1.2	0.445	Fatigue-I: Bottom Flange Base Metal - Cat B
17	6.6.1.2	0.436	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.549	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.581	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 2, 87.5 Percent (159.25 ft) - [right side checked]

Unfactored Moments (kips-ft) -	DL1 (beam):	367.6	DL1 (other):	1743.9
	DL2:	572.3	DW:	280.7
	+LL:	2259.5	-LL:	-392.9
	+fatigue LL:	552.0	-fatigue LL:	-88.5

Unfactored Shears (kips) -	DL1 (beam):	-12.6	DL1 (other):	-59.4
	DL2:	-19.7	DW:	-9.6
	+LL:	27.9	-LL:	-135.4
	+fatigue LL:	7.3	-fatigue LL:	-43.9

Property	Unit	Plate	Plate+nSlab (Other LS)	Plate+3nSlab (Other LS)	Plate+Rebar	Plate+nSlab (Strength LS)	Plate+3nSlab (Strength LS)
moment_of_inertia	in ⁴	73870	189311	142998	73870	189311	142998
neutral_axis_from_bottom_of_beam	in	32.00	60.95	49.43	32.00	60.95	49.43
S_to_top_of_top_flange	in ³	-2038	-25916	-7600	-2038	-25916	-7600
S_to_bottom_of_bottom_flange	in ³	2308	3106	2893	2308	3106	2893
S_to_top_of_slab	in ³		-9935	-4678	N/A	-9935	-4678

S to cg of reinforcement	in ³		N/A	N/A	N/A	
longit_stiffness_parameter	in ⁴	1797818				

Factored Stresses (ksi) -

	DC LF	DW LF	Top Flange	Bottom Flange	Slab	Reinf	Flexure
STRENGTH_I	1.25	1.50	-19.17	33.71	-0.84	0.00	positive
SERVICE_II	1.00	1.00	-15.14	25.86	-0.63	0.00	positive
CONSTRUCTION	1.40	0.00	-17.41	15.37	0.00	0.00	positive
CONSTRUCTION/DECK POUR	Lateral		0.00	0.00	N/A	N/A	positive

Fatigue Stresses (ksi) -

	Top Flange				Bottom Flange			
	DL	LL+	LL-	Range	DL	LL+	LL-	Range
FATIGUE_I	-13.78	-0.45	0.07	0.52	14.52	3.73	-0.60	4.33
FATIGUE_II	-13.78	-0.20	0.03	0.24	14.52	1.71	-0.27	1.98

Legend:

DL = Total unfactored dead load stress

LL+ = Factored positive live load stress

LL- = Factored negative live load stress

Range = Total factored live load stress range

Negative stresses are compressive

Detailed Information -

		Rh	Rb	Cb	Dc (in)	My (kips-ft)	Mu (kips-ft)	Vu, max (kips)	Vu, min (kips)
STRENGTH_I	(positive)	1.000	1.000	N/A	23.7	11946.29	7730.0	-39.91	-366.02
SERVICE_II	(positive)	1.000	N/A	N/A	24.2	N/A	5901.9	N/A	N/A
FATIGUE_I	(negative)	N/A	N/A	N/A	N/A	N/A	-154.9	-88.52*	-178.24*
FATIGUE_I	(positive)	N/A	N/A	N/A	N/A	N/A	966.1	-88.52*	-178.24*
FATIGUE_II	(negative)	N/A	N/A	N/A	N/A	N/A	-70.8	N/A	N/A
FATIGUE_II	(positive)	N/A	N/A	N/A	N/A	N/A	441.6	N/A	N/A
CONSTRUCTION	(positive)	1.000	N/A	1.636	35.2	11920.69	2956.1	-64.77	-100.75

Legend:

Rh = Hybrid factor

Rb = Web load-shedding factor

Cb = Moment gradient factor

Dc = Depth of web in compression

My = Yield moment

Mu = Total factored moment

Vu, max = Maximum total factored shear (NOTE: this value does not depend on the flexure of the section)

* = This value includes unfactored permanent dead load shear

Year	AASHTO Article	Perf Ratio	Description
17	6.10.3.2.1	0.348	Compression Flange Nominal Yielding (Constructibility)
17	6.10.3.2.1	0.397	Compression Flange Local Buckling (Constructibility)
17	6.10.3.2.1	0.348	Compression Flange Lateral Torsional Buckling (Constructibility)
17	6.10.3.2.2	0.307	Tension Flange Nominal Yielding (Constructibility)
17	6.10.4.2.2	0.319	Top Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.4.2.2	0.545	Bottom Flange Service Limit State Permanent Deflections, Positive Flexure
17	6.10.7.1.2	0.498	Flexure - Compact, Composite, Positive Flexure
17	6.10.7.3	0.352	Flexure - Composite, Positive Flexure, Ductility
17	6.10.2.2-1	1.000	Top flange $b/(2*t) \leq 12.0$
17	6.10.2.2-2	0.458	Top flange $b \geq D/6$
17	6.10.2.2-3	0.619	Top flange $t \geq 1.1*t_w$
17	6.10.2.2-1	0.800	Bottom flange $b/(2*t) \leq 12.0$

17	6.10.2.2-2	0.458	Bottom flange $b \geq D/6$
17	6.10.2.2-3	0.495	Bottom flange $t \geq 1.1*tw$
17	6.10.9.3.2	0.340	Nominal Shear Resistance of Stiffened Web Interior Panel
17	6.10.5.3	0.166	Special Fatigue Requirement for Webs
17	6.6.1.2	0.271	Fatigue-I: Bottom Flange Base Metal - Cat B
17	6.6.1.2	0.265	Fatigue-I: Bottom Flange/Web Fillet Weld - Cat B
17	6.6.1.2	0.334	Fatigue-I: Trans Stiff Weld near Bottom Flange - Cat C'
17	6.6.1.2	0.353	Fatigue-I: Conn Pl at Bot Flange (Welded) - Cat C'
		informational	Minimum User Top Flange Thickness Encountered.

SECTION at Span 2, 100.0 Percent (182.00 ft) - [no plate change]

Unfactored Shears (kips) -	DL1 (beam):	-19.7	DL1 (other):	-94.0
	DL2:	-30.6	DW:	-15.0
	+LL:	24.9	-LL:	-172.1
	+fatigue LL:	7.1	-fatigue LL:	-53.9

Year	AASHTO Article	Perf Ratio	Description
17	6.10.9.3.3	0.468	Nominal Shear Resistance of Stiffened Web End Panel
		informational	Minimum User Top Flange Thickness Encountered.

The Maximum Performance Ratio for Cycle 1 is 1.000

The Design for Cycle 1 is acceptable.

Steel Plate Weight per I-Girder = 69.576 tons
(Excluding Bearing and Transverse Stiffeners)

This is the first acceptable design

BILL OF MATERIALS ↑

The design considered is that from Cycle Number 1 (the last cycle)

WEB TRANSVERSE STIFFENER DESIGN

SPAN 1

Section	Quantity	Type	Width (in)	Thickness (in)	Location (ft)	
Web Section 1	2	One Sided	6.00000	0.37500	8.25	25.00
Web Section 2	0					
Web Section 3	0					
Web Section 4	0					
Web Section 5	2	One Sided	8.00000	0.31250	108.50	125.00
Web Section 6	2	One Sided	8.00000	0.31250	135.75	150.00
Web Section 7	2	One Sided	8.00000	0.31250	156.50	166.50

SPAN 2

Section	Quantity	Type	Width (in)	Thickness (in)	Location (ft)		
Web Section 1	3	One Sided	8.00000	0.50000	8.25	18.00	22.75
Web Section 2	2	One Sided	8.00000	0.50000	35.50	45.50	
Web Section 3	2	One Sided	8.00000	0.43750	62.00	68.25	
Web Section 4	1	One Sided	6.00000	0.31250	84.75		
Web Section 5	0						
Web Section 6	0						
Web Section 7	2	One Sided	6.00000	0.31250	142.75	159.25	
Web Section 8	1	One Sided	6.00000	0.31250	173.75		

TRANSVERSE STIFFENER TOTALS FOR ONE GIRDER

Number of Web T.S.: 19

Weight of Web T.S.: 0.490 tons

Yield Strength of Web T.S.: 50.000 ksi

BEARING STIFFENER DESIGN

(Bearing stiffeners are in pairs)

Support Number	Width (in)	Thickness (in)
1	11.250	1.000
2	15.250	1.375
3	11.250	1.000

NOTE: Bearing Stiffeners are Designed to LRFD Provisions - AASHTO Article 6.10.11.2

BEARING STIFFENER TOTALS FOR ONE GIRDER

Weight of bearing stiff: 0.813 tons

Yield Strength of brg stif: 50.000 ksi

WEB, FLANGE, LONGITUDINAL-STIFFENER DESIGNSPAN 1

Component	Range (ft)	Yield Strength (ksi)	Approx Weight (tons)	Length (ft)	Thickness (in)	Width (in)
web	25.00	50.0	1.58	25.000	0.5625	66.00
web	50.00	50.0	1.58	25.000	0.5625	66.00
web	75.00	50.0	1.58	25.000	0.5625	66.00
web	100.00	50.0	1.58	25.000	0.5625	66.00
web	125.00	50.0	1.58	25.000	0.5625	66.00
web	150.00	50.0	1.58	25.000	0.5625	66.00
web	175.00	50.0	1.58	25.000	0.5625	66.00
top flange	120.00	50.0	4.90	120.000	1.0000	24.00
top flange	155.00	50.0	2.86	35.000	1.5000	32.00
top flange	175.00	50.0	3.26	20.000	3.0000	32.00
bottom flange	50.00	50.0	2.04	50.000	1.0000	24.00
bottom flange	120.00	50.0	2.86	70.000	1.0000	24.00
bottom flange	155.00	50.0	3.33	35.000	1.7500	32.00
bottom flange	175.00	50.0	3.26	20.000	3.0000	32.00

SPAN 2

Component	Range (ft)	Yield Strength (ksi)	Approx Weight (tons)	Length (ft)	Thickness (in)	Width (in)
web	22.75	50.0	1.44	22.750	0.5625	66.00
web	45.50	50.0	1.44	22.750	0.5625	66.00
web	68.25	50.0	1.44	22.750	0.5625	66.00
web	91.00	50.0	1.44	22.750	0.5625	66.00
web	113.75	50.0	1.44	22.750	0.5625	66.00
web	136.50	50.0	1.44	22.750	0.5625	66.00
web	159.25	50.0	1.44	22.750	0.5625	66.00
web	182.00	50.0	1.44	22.750	0.5625	66.00
top flange	20.00	50.0	3.26	20.000	3.0000	32.00
top flange	57.00	50.0	3.02	37.000	1.5000	32.00
top flange	182.00	50.0	5.10	125.000	1.0000	24.00
bottom flange	20.00	50.0	3.26	20.000	3.0000	32.00
bottom flange	57.00	50.0	3.52	37.000	1.7500	32.00
bottom flange	130.00	50.0	3.72	73.000	1.2500	24.00
bottom flange	182.00	50.0	2.65	52.000	1.2500	24.00

NOTE: AASHTO Article C6.11.11.2 suggests using flange transverse stiffeners if 2 or more flange longitudinal stiffeners are used. Flange transverse stiffeners are NOT included in LRFD Simon.

TOTAL TONNAGE SUMMARY

Web, Flanges, L.S.: 69.58 tons
 Transverse Stiffeners: 0.49 tons
 Bearing Stiffeners: 0.81 tons
 Total (One Girder): 70.88 tons

Bridge Total (Girder Wgt x # of Girders): 425.27 tons

COST INDICATORS ↑

Assumed Unit Costs

Fy: 36 42 50 70 90-100 Ksi
 Cost: 600.00 600.00 600.00 600.00 600.00 \$/tons

Assumed Fabrication Factors

Web: 1.00
 Flanges: 1.00
 Web L.S.: 1.00
 Web T.S.: 1.00
 Flange Tees: 1.00

ESTIMATED GIRDER COST (\$)

Span	Web	Flanges	Web L.S.	Web T.S.	Flange Tees	Totals
1	6632	13516	0	106	0	20254
2	6898	14739	0	188	0	21824
Bearing stiffeners						488
Totals	13530	28255	0	294	0	
Girder Cost						42566
Total Estimated Bridge Cost						255399

STUD SHEAR-CONNECTOR DESIGN ↑

Stud Diameter: 0.750 in
 Stud Length: 5.000 in
 Studs Per Row: 3
 Concrete Unit Weight (for EsubC) 145.000 pcf
 Desirable Pitch Increment: 3.000 in

SPAN 1

The leftmost row of studs is 0.000 feet from the left reaction.

Spaces	Stud Pitch (in)	Range Length (ft)
245	6.00	122.50
16	27.00	36.00
2	45.00	7.50
2	42.00	7.00

The rightmost row of studs is 2.000 feet from the right reaction.

SPAN 2

The leftmost row of studs is 1.500 feet from the left reaction.

Spaces	Stud Pitch (in)	Range Length (ft)
3	42.00	10.50
1	45.00	3.75
1	30.00	2.50
12	27.00	27.00
273	6.00	136.50
1	3.00	0.25

WARNING: Stud Pitch less than 6 Stud Diameters (3.000 in) violates AASHTO 6.10.10.1.2 in this span.

The rightmost row of studs is 0.000 feet from the right reaction.

Approximate number of studs per girder: 1674

Approximate number of studs per bridge: 10044

FIELD SPLICE DESIGN INFORMATION (NSBA SPLICE INPUT INFORMATION) ↑

Span 1

Field Splice Location: 120.000 ft

AASHTO LRFD Distributed, Unfactored Loads at the Splice Centerline (Moments)

Noncomposite Loads, Beam Only (DC1)*	-97.431	kips-ft
Noncomposite Loads, Other (DC1 and DC0)*	-529.060	kips-ft
Construction Loads (CL)	Not available	kips-ft
Additional Dead Load AFTER Deck Hardening (DC2)	-39.825	kips-ft
Utility (DW)**	0.000	kips-ft
Future Wearing Surface (DW)**	-19.506	kips-ft
Positive Live Load Including Impact (LL+ +I)	2605.090	kips-ft
Negative Live Load Including Impact (LL- +I)	-2520.586	kips-ft
Positive Fatigue Load Including 15% Dynamic Load Allowance (LL+ +I)	640.347	kips-ft
Negative Fatigue Load Including 15% Dynamic Load Allowance (LL+ +I)	-480.980	kips-ft

AASHTO LRFD Distributed, Unfactored Loads at the Splice Centerline (Shears)

Noncomposite Loads, Beam Only (DC1)*	-18.437	kips
Noncomposite Loads, Other (DC1 and DC0)*	-95.700	kips
Construction Loads (CL)	Not available	kips
Additional Dead Load AFTER Deck Hardening (DC2)	-29.100	kips
Utility (DW)**	0.000	kips
Future Wearing Surface (DW)**	-14.306	kips
Positive Live Load Including Impact (LL+ +I)	22.724	kips
Negative Live Load Including Impact (LL- +I)	-141.535	kips
Positive Fatigue Load Including 15% Dynamic Load Allowance (LL+ +I)	8.002	kips
Negative Fatigue Load Including 15% Dynamic Load Allowance (LL- +I)	-43.363	kips

*NOTE LRFD Simon does not distinguish between dead loads acting on the girder before deck hardening and dead loads acting on the girder during deck casting, only between self weight and other noncomposite dead load.

**NOTE The Utility and Future Wearing Surface loads should be evaluated and combined into a single DW value to be entered into the NSBA Splice program

Girder Properties (Left Girder)

Top flange yield stress*	50.000	ksi
Bottom flange yield stress*	50.000	ksi
Top flange tensile strength*	70.000	ksi
Bottom flange tensile strength*	70.000	ksi
Web yield stress*	50.000	ksi
Top flange thickness	1.000	in
Top flange width	24.000	in
Bottom flange thickness	1.000	in
Bottom flange width	24.000	in

Web thickness	0.563	in
Web depth	66.000	in
Factored shear resistance**	1076.625	kips

Girder Properties (Right Girder)

Top flange yield stress*	50.000	ksi
Bottom flange yield stress*	50.000	ksi
Top flange tensile strength*	70.000	ksi
Bottom flange tensile strength*	70.000	ksi
Web yield stress*	50.000	ksi
Top flange thickness	1.500	in
Top flange width	32.000	in
Bottom flange thickness	1.750	in
Bottom flange width	32.000	in
Web thickness	0.563	in
Web depth	66.000	in
Factored shear resistance**	Not available	kips

*NOTE LRFD Simon does not accept the steel grade as a program input for either flanges or web. The engineer should use the yield and ultimate strengths (when available) to determine the steel grade to be used for flange and web input.

**NOTE LRFD Simon only computes the shear strength for the weaker side of the splice. The engineer should determine the value to input for the stronger side.

Additional Properties

Minimum Clearances		
Assembly Clearance	Not Available	in
Web Clearance	Not Available	in
Alignment Details		
Girder Clear Gap	Not Available	in
Web	Not Available	in
Traffic Frequency		
Average Daily Truck Traffic*	1500.000	trucks
Number of Lanes Available to Trucks	Not Available	lanes
Connection Bolts		
Bolt Type	Not Available	
Web Bolt Threads	Not Available	
Flange Bolt Threads	Not Available	
Faying Surface Class	Not Available	
Reinforced Concrete Slab		
Reinforced Concrete Slab	Composite	
Lightweight Concrete	No	
Reinforcing Steel Area	0.000	in ²
Reinforcing Steel Centroid Location	4.688	in
Reinforcing Steel Fy	60.000	ksi
Compressive Strength fc'	4.000	ksi
Slab Thickness	9.000	in
Effective Width	142.600	in
Haunch Depth	3.750	in
Span Details		
Span Length	175.000	ft
Splice Location		
	Elsewhere	

*NOTE LRFD Simon only accepts the single-lane ADTT, and that value is reported here

Span 2

Field Splice Location: 57.000 ft

AASHTO LRFD Distributed, Unfactored Loads at the Splice Centerline (Moments)

Noncomposite Loads, Beam Only (DC1)*	39.553	kips-ft
Noncomposite Loads, Other (DC1 and DC0)*	-138.597	kips-ft

Construction Loads (CL)	Not available	kips-ft
Additional Dead Load AFTER Deck Hardening (DC2)	83.329	kips-ft
Utility (DW)**	0.000	kips-ft
Future Wearing Surface (DW)**	40.945	kips-ft
Positive Live Load Including Impact (LL+ +I)	2856.160	kips-ft
Negative Live Load Including Impact (LL- +I)	-2515.439	kips-ft
Positive Fatigue Load Including 15% Dynamic Load Allowance (LL+ +I)	692.735	kips-ft
Negative Fatigue Load Including 15% Dynamic Load Allowance (LL+ +I)	-486.464	kips-ft

AASHTO LRFD Distributed, Unfactored Loads at the Splice Centerline (Shears)

Noncomposite Loads, Beam Only (DC1)*	19.249	kips
Noncomposite Loads, Other (DC1 and DC0)*	96.147	kips
Construction Loads (CL)	Not available	kips
Additional Dead Load AFTER Deck Hardening (DC2)	29.253	kips
Utility (DW)**	0.000	kips
Future Wearing Surface (DW)**	14.333	kips
Positive Live Load Including Impact (LL+ +I)	141.907	kips
Negative Live Load Including Impact (LL- +I)	-23.360	kips
Positive Fatigue Load Including 15% Dynamic Load Allowance (LL+ +I)	43.328	kips
Negative Fatigue Load Including 15% Dynamic Load Allowance (LL- +I)	-8.281	kips

***NOTE** LRFD Simon does not distinguish between dead loads acting on the girder before deck hardening and dead loads acting on the girder during deck casting, only between self weight and other noncomposite dead load.

****NOTE** The Utility and Future Wearing Surface loads should be evaluated and combined into a single DW value to be entered into the NSBA Splice program

Girder Properties (Left Girder)

Top flange yield stress*	50.000	ksi
Bottom flange yield stress*	50.000	ksi
Top flange tensile strength*	70.000	ksi
Bottom flange tensile strength*	70.000	ksi
Web yield stress*	50.000	ksi
Top flange thickness	1.500	in
Top flange width	32.000	in
Bottom flange thickness	1.750	in
Bottom flange width	32.000	in
Web thickness	0.563	in
Web depth	66.000	in
Factored shear resistance**	Not available	kips

Girder Properties (Right Girder)

Top flange yield stress*	50.000	ksi
Bottom flange yield stress*	50.000	ksi
Top flange tensile strength*	70.000	ksi
Bottom flange tensile strength*	70.000	ksi
Web yield stress*	50.000	ksi
Top flange thickness	1.000	in
Top flange width	24.000	in
Bottom flange thickness	1.250	in
Bottom flange width	24.000	in
Web thickness	0.563	in
Web depth	66.000	in
Factored shear resistance**	1076.625	kips

***NOTE** LRFD Simon does not accept the steel grade as a program input for either flanges or web. The engineer should use the yield and ultimate strengths (when available) to determine the steel grade to be used for flange and web input.

****NOTE** LRFD Simon only computes the shear strength for the weaker side of the splice. The engineer should determine the value to input for the stronger side.

Additional Properties

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Minimum Clearances		
Assembly Clearance	Not Available	in
Web Clearance	Not Available	in
Alignment Details		
Girder Clear Gap	Not Available	in
Web	Not Available	in
Traffic Frequency		
Average Daily Truck Traffic*	1500.000	trucks
Number of Lanes Available to Trucks	Not Available	lanes
Connection Bolts		
Bolt Type	Not Available	
Web Bolt Threads	Not Available	
Flange Bolt Threads	Not Available	
Faying Surface Class	Not Available	
Reinforced Concrete Slab		
Reinforced Concrete Slab	Composite	
Lightweight Concrete	No	
Reinforcing Steel Area	0.000	in ²
Reinforcing Steel Centroid Location	4.688	in
Reinforcing Steel Fy	60.000	ksi
Compressive Strength fc'	4.000	ksi
Slab Thickness	9.000	in
Effective Width	142.600	in
Haunch Depth	3.750	in
Span Details		
Span Length	182.000	ft
Splice Location	Elsewhere	

*NOTE LRFD Simon only accepts the single-lane ADTT, and that value is reported here