PennDOT District 5-0
Bridge Load Rating and Analysis

BMS No.: 48 7208 0684 9041
Type: Two Span Simply Supported Encased I-Beam
Description: Little Creek Road over Little Martins Creek

Pennoni Associates Inc.
December 14, 2015

pennsylvania
DEPARTMENT OF TRANSPORTATION

By:	JMF	Date:	11/24/15
Checked:	MDR	Date:	12/8/15
Sheet:	1	of:	1

PennDOT District 5-0
Bridge Load Rating and Analysis

BMS No.: 48 7208 0684 9041
Type: Two Span Simply Supported Encased I-Beam
Description: Little Creek Road over Little Martins Creek

Rating Summary

Method of Analysis: LRFR
Program(s) Used: STLRFD, Version 2.3.0.0

Beam	Type	Rating Factor		Tons		Controlling Location	Limit State
		Inv	Op	Inv	Op		
Exterior	H20	1.07	1.39	21.4	27.8	21'	Str I/II
	HS20	0.81	1.05	29.2	37.9	18.9'	Str I/II
	ML80	0.63	0.82	23.2	30.1	21'	Str I/II
	TK527	0.68	0.88	27.2	35.3	21'	Str I/II
Interior	H20	1.26	1.63	25.2	32.7	21'	Str I/II
	HS20	0.95	1.24	34.3	44.5	18.9'	Str I/II
	ML80	0.75	0.97	27.3	35.4	21'	Str I/II
	TK527	0.80	1.04	32.0	41.5	21'	Str I/II
Controlling	**H20**	**1.07**	**1.39**	**21.4**	**27.8**	**Ext 21'**	**Str I/II**
	HS20	**0.81**	**1.05**	**29.2**	**37.9**	**Ext 18.9'**	**Str I/II**
	ML80	**0.63**	**0.82**	**23.2**	**30.1**	**Ext 21'**	**Str I/II**
	TK527	**0.68**	**0.88**	**27.2**	**35.3**	**Ext 21'**	**Str I/II**

Rating Summary

Notes: No plans or field measurements were available for this load rating analysis; therefore, the previous LFD Load Rating Analysis by STV (attached for reference) was used in lieu of plans.
Warnings in the STLRFD output files are due to changing design standards and do not affect the ratings. Input files accurately reflect the existing condition of the structure.

Rating Assumptions: ADTT is not available and assumed to be 100.

References: AASHTO LRFD Bridge Design Specifications
AASHTO Manual for Bridge Evaluation
AASHTO Standard Specifications for Highway Bridges
PennDOT Design Manual Part 4
PennDOT Bridge Safety Inspection Manual (Pub 238)
Previous LFD Load Rating Analysis (9/23/2013)

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*************************************************************************
*                                                                       *
*  Program Title       LRFD Steel Girder Design and Rating              *
*  Program Name        STLRFD                                           *
*  Version             2.3.0.0                                          *
*  Last Updated        07/24/2014                                       *
*  Documentation       07/2014                                          *
*  License No.         333529                                           *
*                                                                       *
*************************************************************************
*                                                                       *
*  9041 EXTERIOR BEAM                                                   *
*  BMS NO.: 48 7208 0684 9041                                           *
*  FEATURE CARRIED: LITTLE CREEK ROAD                                   *
*  FEATURE INTERSECTED: LITTLE MARTINS CREEK                            *
*                                                                       *
*************************************************************************
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9041 EXTERIOR BEAM
INPUT

%WARNING - <Input Post Processor>:
The specified yield strength of the web should
be greater than the maximum of 36 ksi or 70 percent
of the specified yield strength of the higher
strength flange. (LRFD 6.10.1.3)
For Material ID No. 1:
Web yield of 33. ksi is less than 36. ksi
- 1 warning was issued.
- Please verify that the input is correct.
- The program will continue running.

CONTROL PARAMETERS

Units	Design/ Analysis	Type of Beam	Exterior/ Interior	No. Beams	No. Spans	Symmetry	Deck Pour Symmetry
US	ANALYSIS	ROLLED BEAM	EXTERIOR	8	1	NO	NO

Single Lane ADTT	Multiple Presence Adj. Factor	Live Load Code	Dynamic Load Allowance	Fatigue Dynamic Load Allowance	PA Traffic Factor	Redist. Neg. Moments
100	1.000	A	1.330	1.150	1.200	NO

Impor. Factor	Duct. Factor	Redun. Factor	Redundant Load Path	Analysis Points	P-82 Dynamic Load Allowance	Skew Angle Designation	Constant Lateral Bending Stress (ksi)
1.000	1.000	1.000	R	2	1.200	N/A*	0.00

*NOTE: Since this input file uses the COMPUTED DISTRIBUTION FACTOR
command, the skew angle designation is set via the CDF command.

BEAM GEOMETRY

Beam/ Stringer Spacing (ft)	Deck Overhang (ft)	Staggered Diaphragms	Number of Design Lanes	Deflection Distribution Factor
3.350	0.775	NO	2	0.250

9041 EXTERIOR BEAM
INPUT (cont.)

COMPUTED DISTRIBUTION FACTORS

Skew Ang. Desn.	Brace Type	Design Lane Width (ft)	Gage Distance (ft)	Passing Distance (ft)	Two Girder Spacing (ft)
P	C	12.000	6.000	4.000	

Centerline Girder to Curb (ft)	Distance to Outermost Wheel (ft)
-0.475	-2.475

SKEW ANGLES

Support	1	2
Angle (deg)	30.000	30.000
Apply skew	R	N

SPAN LENGTHS

Span No.	1	
Length (ft)	42.000	

MATERIAL PROPERTIES

Matl. ID No.	Noncomposite/ Composite	Rolled Beam Fy (ksi)	Rolled Beam Fu (ksi)	Cover Plate Top Fy (ksi)	Cover Plate Bottom Fy (ksi)
1	NONCOMPOSITE	33.0	60.0	36.0	36.0

ROLLED BEAM DIMENSIONS, PART 1 of 2

Designation	Nominal Depth (in)	Nominal Weight (lbm/ft)	Moment of Inertia (in^4)	Area (in^2)
W27X90	27	90	2958.	26.34

ROLLED BEAM DIMENSIONS, PART 2 of 2

Designation	Flange Width (in)	Flange Thickness (in)	Beam Depth (in)	Web Thickness (in)	Distance "k" (in)
W27X90	9.000	0.7075	27.000	0.5240	1.3600

9041 EXTERIOR BEAM
INPUT (cont.)

ROLLED BEAM PROPERTIES, PART 1 of 2

End Span No.	End Span Dist.* (ft)	Matl. ID No.	L O S	H O L E	Rolled Beam Designat.	Top Cover Plate Width (in)	Top Cover Plate Thick. (in)	Bottom Cover Plate Width (in)	Bottom Cover Plate Thick. (in)
1	42.000	1			W 27x 90	0.0000	0.0000	0.0000	0.0000

* The properties given on each line of this table are for the range of the beam to the LEFT of the span and the distance given.

ROLLED BEAM PROPERTIES, PART 2 of 2

End Span No.	End Span Dist.* (ft)	Haunch Depth (in)	Deck Reinf. Area (in^2/ft)	Reinf. C.G. Dist. (in)
1	42.000	0.000	0.000	0.000

* The properties given on each line of this table are for the range of the beam to the LEFT of the span and the distance given.

SLAB PROPERTIES, PART 1 OF 2

Slab Thickness Actual (in)	Slab Thickness Effective (in)	Concrete Strength (ksi)	Concrete Density Loads (lbf/ft^3)	Concrete Density Ec (lbf/ft^3)	Deck Reinforcement Strength (ksi)
12.000	11.500	2.500	150.00	145.00	33.

SLAB PROPERTIES, PART 2 OF 2

Modular Ratio	Steel E (ksi)	Transverse Reinforcement Size	Development Length Factor for Slabs
10.000	29000.	5	1.000

DISTRIBUTED LOADS (DC2)

Start Span No.	Span Dist. (ft)	End Span No.	Span Dist. (ft)	Start Magnitude (kips/ft)	End Magnitude (kips/ft)
1	0.000	1	42.000	0.103	0.103

DISTRIBUTED LOADS (DC1S)

Start Span No.	Span Dist. (ft)	End Span No.	Span Dist. (ft)	Start Magnitude (kips/ft)	End Magnitude (kips/ft)
1	0.000	1	42.000	0.518	0.518

9041 EXTERIOR BEAM
INPUT (cont.)

WIND USER DEFINED

Additional Wind Cross Section (in)	Construction Load Path	Construction Wind Pressure (ksf)	Permanent Load Path	Permanent Wind Pressure (ksf)
0.000	L	0.000	L	0.000

BRACE POINTS

Start Span No.	Start Span Dist. (ft)	End Span No.	End Span Dist. (ft)	Brace Spacing (ft)
1	0.000	1	42.000	21.000

CONTINUOUS BRACE

Continuously Braced Span Numbers
1

SYSTEM SETTINGS

Steel Weight (lbf/ft^3)	Construction Modular Ratio
490.00	14.000

9041 EXTERIOR BEAM
ANALYSIS

LOAD FACTORS AND COMBINATIONS

Limit State	DC1	DC2	FWS	LL	PL	WND	MC1	MC2
STR-I	1.25	1.25	1.50	1.75	0.00	0.00	1.25	1.25
STR-IA	1.25	1.25	1.50	1.35	0.00	0.00	1.25	1.25
STR-II	1.25	1.25	1.50	1.35	0.00	0.00	1.25	1.25
STR-III	1.25	1.25	1.50	0.00	0.00	1.40	1.25	1.25
STR-IV	1.50	1.50	1.50	0.00	0.00	0.00	1.50	1.50
STR-V	1.25	1.25	1.50	1.35	0.00	0.40	1.25	1.25
SERV-I	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
SERV-II	1.00	1.00	1.00	1.30	0.00	0.00	1.00	1.00
SERV-IIA	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
SERV-IIB	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
FATG-I	1.00	1.00	1.00	1.80	0.00	0.00	1.00	1.00
FATG-II	1.00	1.00	1.00	0.90	0.00	0.00	1.00	1.00
DEFL	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
CONSTR	1.25	1.25	1.50	1.50	0.00	1.25	1.25	1.25

LIVE LOADING SUMMARY

Limit State	Design/Analysis Loading	Rating Loading	Rating Loading	Rating Loading	Rating Loading
STR-I	PHL-93	ML-80	HS20	H20	TK527
STR-IA	PHL-93	---	---	---	---
STR-II	P-82	ML-80	HS20	H20	TK527
STR-III	---	---	---	---	---
STR-IV	---	---	---	---	---
STR-V	PHL-93	---	---	---	---
SERV-I	PHL-93	---	---	---	---
SERV-II	PHL-93	ML-80	HS20	H20	TK527
SERV-IIA	PHL-93	ML-80	HS20	H20	TK527
SERV-IIB	P-82	---	---	---	---
FATG-I	FATIGUE	---	---	---	---
FATG-II	FATIGUE	---	---	---	---
DEFL	DEFLECT	---	---	---	---

LOAD MODIFIER

Importance Factor Ni	Ductility Factor Nd	Redundancy Factor Nr	Calculated Ni*Nd*Nr	Load Modifier Used	Fatigue Load Modifier Used
1.00	1.00	1.00	1.000	1.000	1.000

RESISTANCE FACTORS

Flexure	Shear	Axial Compression	Bearing on Pins	Shear Connector	Shear on Fillet Weld Throat	Web Crippling
1.00	1.00	0.90	1.00	0.85	0.80	0.80

9041 EXTERIOR BEAM
ANALYSIS (cont.)

DISTRIBUTION FACTORS FOR DESIGN LIVE LOADING (LANE FRACTION, INCL. SKEW)

	Moment		Shear			Code
Span No.	DF1	DF2	DF1	DF2	Deflection	Check*
1	0.337(1)**	0.000(0)	0.515(1)**	0.337(1)**	0.250	A

* - Lever rule controls
** - Cross-frame action controls
NOTE: The value in parentheses is the number of lanes loaded to produce the controlling live load distribution factor.
The shear distribution factors reported include the Shear Skew Correction factors.

DISTRIBUTION FACTORS FOR FATIGUE VEHICLE (LANE FRACTION, INCL. SKEW)

	Moment		Shear			Code
Span No.	DF1	DF2	DF1	DF2	Deflection	Check*
1	0.280	0.000	0.429	0.280	1.000	A

NOTE: The shear distribution factors reported include the Shear Skew Correction factors.

* Legend of code checks:
A. Beam spacing is outside the range of applicability
B. Slab thickness is outside the range of applicability
C. Span length is outside the range of applicability
D. Number of beams is less than the lower bound of applicability
E. Longitudinal stiffness parameter is outside range of applicability
F. Skew angle is outside the range of applicability
G. Distance from exterior web to curb (de) is outside the range of applicability

%WARNING: **THIS MUST BE APPROVED BY CHIEF BRIDGE ENGINEER**

SHEAR SKEW CORRECTION FACTORS

Span No.	LEFT	RIGHT
1	1.531	1.000

DISTRIBUTION FACTORS FOR DESIGN LIVE LOAD REACTIONS

Support No.	Reaction Distribution Factor	Comment*	Rotation Distribution Factor
1	0.515	A	0.337
2	0.337		0.337

DISTRIBUTION FACTORS FOR FATIGUE LIVE LOAD REACTIONS

Support No.	Reaction Distribution Factor	Comment*	Rotation Distribution Factor
1	0.429	A	0.280
2	0.280		0.280

9041 EXTERIOR BEAM
ANALYSIS (cont.)

DISTRIBUTION FACTORS FOR FATIGUE LIVE LOAD REACTIONS (cont.)

* Legend of Comments:
A. The distribution factor reported includes the Shear Skew Correction factor.
B. Shear Skew Correction factor applied to abutments at both ends. Not compatible with DM-4. Refer to DM-4 Article 4.6.2.2.3C.

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	0.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
1	2.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-9.0	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.7	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-3.1	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-3.7	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	9.0	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.7	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	3.1	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	3.7	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.7	J	
1	4.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.1	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.3	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-5.9	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.0	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.1	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.3	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	5.9	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.0	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.5	J	
1	6.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.2	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-22.7	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.3	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-10.0	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.2	J	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	6.300	BOT	STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	22.7	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.3	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	10.0	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.5	J	
1	8.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.3	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.2	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-10.4	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.5	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.3	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.2	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	10.4	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.5	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.7	J	
1	10.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.4	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.1	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.8	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.2	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.7	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.1	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.4	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.1	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.8	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.2	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.7	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.1	J	
1	12.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.5	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.6	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-37.0	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.7	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.4	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.6	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.5	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.6	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	37.0	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.7	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.4	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.6	J	A
1	14.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-42.7	D	A

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	14.700	TOP	STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.3	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-40.1	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.8	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.8	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.3	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	42.7	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.3	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	40.1	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.8	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.8	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.3	J	A
1	16.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-44.9	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-42.3	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.6	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.8	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.2	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	44.9	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	42.3	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.6	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.8	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.2	J	A
1	18.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-46.1	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-43.5	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.1	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.3	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.2	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	46.1	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	43.5	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.1	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.3	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.2	J	A
1	21.000L	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-46.3	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.4	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-43.7	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.3	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.5	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.4	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	46.3	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.4	J	A

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	21.000L	BOT	STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	43.7	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.3	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.5	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.4	J	A
1	21.000R	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-46.3	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.4	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-43.7	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.3	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.5	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.4	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	46.3	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.4	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	43.7	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.3	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.5	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.4	J	A
1	23.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-46.1	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-43.5	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.1	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.3	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.2	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	46.1	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	43.5	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.1	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.3	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.2	J	A
1	25.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-44.9	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-42.3	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.6	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.8	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.2	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	44.9	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	42.3	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.6	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.8	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.2	J	A
1	27.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-42.7	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.3	D	A

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	27.300	TOP	STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-40.1	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.8	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.8	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.3	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	42.7	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.3	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	40.1	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.8	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.8	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.3	J	A
1	29.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.5	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.6	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-37.0	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.7	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.4	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.6	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.5	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.6	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	37.0	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.7	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.4	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.6	J	A
1	31.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.4	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.1	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.8	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.2	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.7	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.1	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.4	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.1	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.8	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.2	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.7	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.1	J	
1	33.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.3	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.2	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-10.4	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.5	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.3	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.2	J	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	33.600	BOT	STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	10.4	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.5	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.7	J	
1	35.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.2	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-22.7	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.3	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-10.0	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.2	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	22.7	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.3	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	10.0	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.5	J	
1	37.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.1	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.3	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-5.9	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.0	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.1	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.3	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	5.9	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.0	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.5	J	
1	39.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-9.0	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.7	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-3.1	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-3.7	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	9.0	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.7	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	3.1	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	3.7	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.7	J	
1	42.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	42.000	TOP	STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	

* Legend of General Notes:
rt = Effective radius of gyration for lateral torsional buckling
Dc = Total depth of the web in compression, per Appendix D6.3.1
Rh = Hybrid factor
Rb = Load shedding factor (only applies to compression flange)
An/Ag = Net Area / Gross Area for net section fracture, A6.10.1.8-1
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fr
F+ = fbu + (1/3)*fl, total factored flexural + lateral stress due to wind (per A6.10.7.2.1-2, A6.10.8.1.1-1, or A6.10.8.1.2-1) and/or user input lateral effects

** Legend of Resistance Calculation:
A. Composite, noncompact, compression flange, Fr calculated using A6.10.7.2.2-1
B. Composite, noncompact, tension flange, Fr calculated using A6.10.7.2.2-2
C. Noncompos or neg. flexure, compression flange, Fr calculated using A6.10.8.1.3-1
D. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-1
E. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-2
F. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-1
G. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-2
H. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-3
I. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.1.3-1
J. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.3-1
K. Tension flange, Fr calculated using net section fracture, A6.10.1.8-1
X. SKW has not been entered. App. A provisions have been skipped but may be applicable.

*** Legend of Code Check:
A. Insufficient flexural resistance
B. Based on the total stress in the bottom flange, this section is analyzed for positive flexure, so the top flange capacity is based on compression. However, the total factored stress (F+) in the top flange is tensile. The user should verify the acceptability of the section by comparing the top flange stress (F+) to the flexural resistance (Fr) of the top flange in negative flexure.

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

FLANGE LATERAL CAPACITY

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Lateral Resistance 0.6*Fyf* (ksi)	Factored Lateral Stress fl (ksi)	Code Check**
1	0.000	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	2.100	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	4.200	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	6.300	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	8.400	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	10.500	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	12.600	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

FLANGE LATERAL CAPACITY (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Lateral Resistance 0.6*Fyf* (ksi)	Factored Lateral Stress fl (ksi)	Code Check**
1	12.600	BOT	STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	14.700	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	16.800	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	18.900	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	21.000L	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	21.000R	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	23.100	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	25.200	BOT	STR-I	POS.	19.80	0.00	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

FLANGE LATERAL CAPACITY (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Lateral Resistance 0.6*Fyf* (ksi)	Factored Lateral Stress fl (ksi)	Code Check**
1	25.200	BOT	STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	27.300	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	29.400	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	31.500	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	33.600	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	35.700	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	37.800	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

FLANGE LATERAL CAPACITY (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Lateral Resistance 0.6*Fyf* (ksi)	Factored Lateral Stress fl (ksi)	Code Check**
1	37.800	BOT	STR-V	POS.	19.80	0.00	
1	39.900	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	
1	42.000	BOT	STR-I	POS.	19.80	0.00	
			STR-IA	POS.	19.80	0.00	
			STR-II	POS.	19.80	0.00	
			STR-III	POS.	19.80	0.00	
			STR-IV	POS.	19.80	0.00	
			STR-V	POS.	19.80	0.00	

* Legend of General Notes:
Fyf = Yield stress of flange
NOTE: Lateral stress check is not applicable to the top flange because the deck is assumed to provide the horizontal diaphragm action for wind loads, whether the girder is composite or noncomposite in the final state.

NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

SERVICE LIMIT STATE - FLEXURAL RESISTANCE

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	0.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIB	POS.	1.000	482.1	26.4	0.0	C	
1	2.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-6.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.9	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-6.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	6.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.9	C	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	2.100	BOT	SERV-IIB	POS.	1.000	482.1	26.4	6.6	C	
1	4.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-13.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-11.1	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-12.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	13.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	11.1	C	
			SERV-IIB	POS.	1.000	482.1	26.4	12.4	C	
1	6.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-18.4	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-15.7	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-17.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	18.4	C	
			SERV-IIA	POS.	1.000	482.1	26.4	15.7	C	
			SERV-IIB	POS.	1.000	482.1	26.4	17.3	C	
1	8.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-23.1	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.7	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-21.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	23.1	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.7	C	
			SERV-IIB	POS.	1.000	482.1	26.4	21.5	C	
1	10.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.0	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.0	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-25.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.0	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	23.0	C	
			SERV-IIB	POS.	1.000	482.1	26.4	25.0	C	
1	12.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-30.2	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.7	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-28.2	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	30.2	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.7	C	
			SERV-IIB	POS.	1.000	482.1	26.4	28.2	C	A
1	14.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-32.6	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.8	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-30.6	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	32.6	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.8	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	30.6	C	A
1	16.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-34.2	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-29.2	C	A

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	16.800	TOP	SERV-IIB	POS.	1.000	482.1	-26.4	-32.3	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	34.2	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	29.2	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	32.3	C	A
1	18.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-35.2	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-30.0	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-33.2	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	35.2	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	30.0	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	33.2	C	A
1	21.000L	TOP	SERV-II	POS.	1.000	482.1	-26.4	-35.3	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-30.2	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-33.3	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	35.3	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	30.2	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	33.3	C	A
1	21.000R	TOP	SERV-II	POS.	1.000	482.1	-26.4	-35.3	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-30.2	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-33.3	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	35.3	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	30.2	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	33.3	C	A
1	23.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-35.2	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-30.0	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-33.2	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	35.2	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	30.0	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	33.2	C	A
1	25.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-34.2	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-29.2	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-32.3	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	34.2	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	29.2	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	32.3	C	A
1	27.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-32.6	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.8	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-30.6	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	32.6	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.8	C	A

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	27.300	BOT	SERV-IIB	POS.	1.000	482.1	26.4	30.6	C	A
1	29.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-30.2	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.7	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-28.2	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	30.2	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.7	C	
			SERV-IIB	POS.	1.000	482.1	26.4	28.2	C	A
1	31.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.0	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.0	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-25.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.0	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	23.0	C	
			SERV-IIB	POS.	1.000	482.1	26.4	25.0	C	
1	33.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-23.1	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.7	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-21.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	23.1	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.7	C	
			SERV-IIB	POS.	1.000	482.1	26.4	21.5	C	
1	35.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-18.4	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-15.7	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-17.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	18.4	C	
			SERV-IIA	POS.	1.000	482.1	26.4	15.7	C	
			SERV-IIB	POS.	1.000	482.1	26.4	17.3	C	
1	37.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-13.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-11.1	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-12.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	13.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	11.1	C	
			SERV-IIB	POS.	1.000	482.1	26.4	12.4	C	
1	39.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-6.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.9	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-6.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	6.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.9	C	
			SERV-IIB	POS.	1.000	482.1	26.4	6.6	C	
1	42.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	42.000	TOP	SERV-IIB	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIB	POS.	1.000	482.1	26.4	0.0	C	

* Legend of General Notes:
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from the stress flexural resistance, Fr
Fu = For bottom flanges of composite sections or both flanges of noncomposite sections, this value includes lateral stresses when input by the user (A6.10.4.2.2)

** Legend of Resistance Calculation:
A. Composite, top flange, Fr calculated using A6.10.4.2.2-1
B. Composite, bottom flange, Fr calculated using A6.10.4.2.2-2
C. Noncomposite, Fr calculated using A6.10.4.2.2-3

*** Legend of Code Check:
A. Insufficient flexural resistance

SERVICE LIMIT STATE - WEB BEND-BUCKLING

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	0.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	0.0	
1	2.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-6.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.9	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-6.6	
1	4.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-13.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-11.1	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-12.4	
1	6.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-18.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-15.7	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-17.3	
1	8.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-23.1	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	8.400	TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.7	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-21.5	
1	10.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.0	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-25.0	
1	12.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-30.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.7	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-28.2	
1	14.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-32.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.8	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-30.6	
1	16.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-34.2	A
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-29.2	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-32.3	
1	18.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-35.2	A
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-30.0	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-33.2	A
1	21.000L	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-35.3	A
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-30.2	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-33.3	A
1	21.000R	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-35.3	A
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-30.2	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-33.3	A
1	23.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-35.2	A
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-30.0	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-33.2	A
1	25.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-34.2	A
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-29.2	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-32.3	
1	27.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-32.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.8	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-30.6	
1	29.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-30.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.7	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	29.400	TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-28.2	
1	31.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.0	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-25.0	
1	33.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-23.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.7	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-21.5	
1	35.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-18.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-15.7	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-17.3	
1	37.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-13.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-11.1	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-12.4	
1	39.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-6.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.9	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-6.6	
1	42.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	0.0	

* Legend of Intermediate Calculations:
Dc = Depth of web in compression
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fcrw
Fcrw = Nominal bend-buckling resistance, LRFD Specifications 6.10.4.2.2-4
fc = Compression-flange stress calculated without flange lateral bending
N/A = This check is not required for composite sections in positive flexure in which the web satisfies the requirement of LRFD Specifications Article 6.10.2.1.1

** Legend of Code Check:
A. Insufficient bend-buckling resistance

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	0.000	STR-I	256.60	111.80	U	
		STR-IA	256.60	92.71	U	
		STR-II	256.60	109.86	U	
		STR-III	256.60	28.31	U	
		STR-IV	256.60	33.97	U	
		STR-V	256.60	92.71	U	
1	2.100	STR-I	256.60	104.04	U	
		STR-IA	256.60	86.08	U	
		STR-II	256.60	100.32	U	
		STR-III	256.60	25.48	U	
		STR-IV	256.60	30.58	U	
		STR-V	256.60	86.08	U	
1	4.200	STR-I	256.60	96.34	U	
		STR-IA	256.60	79.50	U	
		STR-II	256.60	91.86	U	
		STR-III	256.60	22.65	U	
		STR-IV	256.60	27.18	U	
		STR-V	256.60	79.50	U	
1	6.300	STR-I	256.60	88.70	U	
		STR-IA	256.60	72.96	U	
		STR-II	256.60	83.55	U	
		STR-III	256.60	19.82	U	
		STR-IV	256.60	23.78	U	
		STR-V	256.60	72.96	U	
1	8.400	STR-I	256.60	81.12	U	
		STR-IA	256.60	66.46	U	
		STR-II	256.60	76.22	U	
		STR-III	256.60	16.99	U	
		STR-IV	256.60	20.38	U	
		STR-V	256.60	66.46	U	
1	10.500	STR-I	256.60	73.61	U	
		STR-IA	256.60	60.02	U	
		STR-II	256.60	68.88	U	
		STR-III	256.60	14.16	U	
		STR-IV	256.60	16.99	U	
		STR-V	256.60	60.02	U	
1	12.600	STR-I	256.60	66.15	U	
		STR-IA	256.60	53.62	U	
		STR-II	256.60	61.54	U	
		STR-III	256.60	11.32	U	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	12.600	STR-IV	256.60	13.59	U	
		STR-V	256.60	53.62	U	
1	14.700	STR-I	256.60	58.75	U	
		STR-IA	256.60	47.27	U	
		STR-II	256.60	54.20	U	
		STR-III	256.60	8.49	U	
		STR-IV	256.60	10.19	U	
		STR-V	256.60	47.27	U	
1	16.800	STR-I	256.60	51.42	U	
		STR-IA	256.60	40.96	U	
		STR-II	256.60	46.87	U	
		STR-III	256.60	5.66	U	
		STR-IV	256.60	6.79	U	
		STR-V	256.60	40.96	U	
1	18.900	STR-I	256.60	44.14	U	
		STR-IA	256.60	34.70	U	
		STR-II	256.60	39.53	U	
		STR-III	256.60	2.83	U	
		STR-IV	256.60	3.40	U	
		STR-V	256.60	34.70	U	
1	21.000L	STR-I	256.60	36.93	U	
		STR-IA	256.60	28.49	U	
		STR-II	256.60	32.19	U	
		STR-III	256.60	0.00	U	
		STR-IV	256.60	0.00	U	
		STR-V	256.60	28.49	U	
1	21.000R	STR-I	256.60	36.93	U	
		STR-IA	256.60	28.49	U	
		STR-II	256.60	32.19	U	
		STR-III	256.60	0.00	U	
		STR-IV	256.60	0.00	U	
		STR-V	256.60	28.49	U	
1	23.100	STR-I	256.60	-29.82	U	
		STR-IA	256.60	-23.65	U	
		STR-II	256.60	-26.81	U	
		STR-III	256.60	-2.83	U	
		STR-IV	256.60	-3.40	U	
		STR-V	256.60	-23.65	U	
1	25.200	STR-I	256.60	-35.56	U	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	25.200	STR-IA	256.60	-28.72	U	
		STR-II	256.60	-32.58	U	
		STR-III	256.60	-5.66	U	
		STR-IV	256.60	-6.79	U	
		STR-V	256.60	-28.72	U	
1	27.300	STR-I	256.60	-41.33	U	
		STR-IA	256.60	-33.82	U	
		STR-II	256.60	-38.36	U	
		STR-III	256.60	-8.49	U	
		STR-IV	256.60	-10.19	U	
		STR-V	256.60	-33.82	U	
1	29.400	STR-I	256.60	-47.14	U	
		STR-IA	256.60	-38.96	U	
		STR-II	256.60	-44.13	U	
		STR-III	256.60	-11.32	U	
		STR-IV	256.60	-13.59	U	
		STR-V	256.60	-38.96	U	
1	31.500	STR-I	256.60	-53.00	U	
		STR-IA	256.60	-44.12	U	
		STR-II	256.60	-49.91	U	
		STR-III	256.60	-14.16	U	
		STR-IV	256.60	-16.99	U	
		STR-V	256.60	-44.12	U	
1	33.600	STR-I	256.60	-58.89	U	
		STR-IA	256.60	-49.31	U	
		STR-II	256.60	-55.68	U	
		STR-III	256.60	-16.99	U	
		STR-IV	256.60	-20.38	U	
		STR-V	256.60	-49.31	U	
1	35.700	STR-I	256.60	-64.82	U	
		STR-IA	256.60	-54.53	U	
		STR-II	256.60	-61.46	U	
		STR-III	256.60	-19.82	U	
		STR-IV	256.60	-23.78	U	
		STR-V	256.60	-54.53	U	
1	37.800	STR-I	256.60	-70.79	U	
		STR-IA	256.60	-59.79	U	
		STR-II	256.60	-67.86	U	
		STR-III	256.60	-22.65	U	
		STR-IV	256.60	-27.18	U	

9041 EXTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	37.800	STR-V	256.60	-59.79	U	
1	39.900	STR-I	256.60	-76.80	U	
		STR-IA	256.60	-65.07	U	
		STR-II	256.60	-74.38	U	
		STR-III	256.60	-25.48	U	
		STR-IV	256.60	-30.58	U	
		STR-V	256.60	-65.07	U	
1	42.000	STR-I	256.60	-82.86	U	
		STR-IA	256.60	-70.39	U	
		STR-II	256.60	-81.59	U	
		STR-III	256.60	-28.31	U	
		STR-IV	256.60	-33.97	U	
		STR-V	256.60	-70.39	U	

UNCURED SLAB NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

9041 EXTERIOR BEAM
ML-80 - SPECIFICATION CHECKING

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	0.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
1	2.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.3	J	
1	4.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.7	J	
1	6.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-22.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	22.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.2	J	
1	8.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.9	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.9	J	
1	10.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.8	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.8	J	
1	12.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.1	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.1	J	
1	14.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.3	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.7	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.3	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.7	J	A
1	16.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-41.4	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.5	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	41.4	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.5	J	A
1	18.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-42.5	D	A

9041 EXTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	18.900	TOP	STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.5	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	42.5	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.5	J	A
1	21.000L	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-42.6	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.6	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	42.6	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.6	J	A
1	21.000R	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-42.6	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.6	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	42.6	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.6	J	A
1	23.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-42.5	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.5	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	42.5	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.5	J	A
1	25.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-41.4	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.5	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	41.4	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.5	J	A
1	27.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.3	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.7	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.3	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.7	J	A
1	29.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.1	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.1	J	
1	31.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.8	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.8	J	
1	33.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.9	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.9	J	
1	35.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-22.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.2	D	

9041 EXTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	35.700	BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	22.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.2	J	
1	37.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.7	J	
1	39.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.3	J	
1	42.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	

* Legend of General Notes:
- rt = Effective radius of gyration for lateral torsional buckling
- Dc = Total depth of the web in compression, per Appendix D6.3.1
- Rh = Hybrid factor
- Rb = Load shedding factor (only applies to compression flange)
- An/Ag = Net Area / Gross Area for net section fracture, A6.10.1.8-1
- Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fr
- F+ = fbu + (1/3)*fl, total factored flexural + lateral stress due to wind (per A6.10.7.2.1-2, A6.10.8.1.1-1, or A6.10.8.1.2-1) and/or user input lateral effects

** Legend of Resistance Calculation:
- A. Composite, noncompact, compression flange, Fr calculated using A6.10.7.2.2-1
- B. Composite, noncompact, tension flange, Fr calculated using A6.10.7.2.2-2
- C. Noncompos or neg. flexure, compression flange, Fr calculated using A6.10.8.1.3-1
- D. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-1
- E. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-2
- F. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-1
- G. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-2
- H. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-3
- I. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.1.3-1
- J. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.3-1
- K. Tension flange, Fr calculated using net section fracture, A6.10.1.8-1
- X. SKW has not been entered. App. A provisions have been skipped but may be applicable.

9041 EXTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

*** Legend of Code Check:
A. Insufficient flexural resistance
B. Based on the total stress in the bottom flange, this section is analyzed for positive flexure, so the top flange capacity is based on compression. However, the total factored stress (F+) in the top flange is tensile. The user should verify the acceptability of the section by comparing the top flange stress (F+) to the flexural resistance (Fr) of the top flange in negative flexure.

FLANGE LATERAL CAPACITY

This output report is not applicable because wind loads do not apply to this vehicle.

NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

SERVICE LIMIT STATE - FLEXURAL RESISTANCE

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	0.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
1	2.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-6.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	6.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.6	C	
1	4.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-12.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-10.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	12.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	10.5	C	
1	6.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-17.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-14.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	17.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	14.7	C	
1	8.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-21.4	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-18.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	21.4	C	
			SERV-IIA	POS.	1.000	482.1	26.4	18.3	C	
1	10.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.3	C	

9041 EXTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	10.500	BOT	SERV-II	POS.	1.000	482.1	26.4	24.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.3	C	
1	12.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.7	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.7	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	23.8	C	
1	14.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-30.1	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	30.1	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.9	C	
1	16.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-31.7	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.3	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	31.7	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.3	C	A
1	18.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-32.5	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-28.0	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	32.5	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	28.0	C	A
1	21.000L	TOP	SERV-II	POS.	1.000	482.1	-26.4	-32.6	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-28.1	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	32.6	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	28.1	C	A
1	21.000R	TOP	SERV-II	POS.	1.000	482.1	-26.4	-32.6	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-28.1	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	32.6	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	28.1	C	A
1	23.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-32.5	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-28.0	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	32.5	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	28.0	C	A
1	25.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-31.7	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.3	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	31.7	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.3	C	A
1	27.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-30.1	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	30.1	C	A

9041 EXTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	27.300	BOT	SERV-IIA	POS.	1.000	482.1	26.4	25.9	C	
1	29.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.7	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.7	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	23.8	C	
1	31.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.3	C	
1	33.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-21.4	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-18.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	21.4	C	
			SERV-IIA	POS.	1.000	482.1	26.4	18.3	C	
1	35.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-17.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-14.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	17.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	14.7	C	
1	37.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-12.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-10.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	12.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	10.5	C	
1	39.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-6.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	6.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.6	C	
1	42.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	

* Legend of General Notes:
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from the stress flexural resistance, Fr
Fu = For bottom flanges of composite sections or both flanges of noncomposite sections, this value includes lateral stresses when input by the user (A6.10.4.2.2)

9041 EXTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

** Legend of Resistance Calculation:
A. Composite, top flange, Fr calculated using A6.10.4.2.2-1
B. Composite, bottom flange, Fr calculated using A6.10.4.2.2-2
C. Noncomposite, Fr calculated using A6.10.4.2.2-3

*** Legend of Code Check:
A. Insufficient flexural resistance

SERVICE LIMIT STATE - WEB BEND-BUCKLING

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	0.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
1	2.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-6.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.6	
1	4.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-12.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-10.5	
1	6.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-17.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-14.7	
1	8.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-21.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-18.3	
1	10.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.3	
1	12.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.8	
1	14.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-30.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.9	
1	16.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-31.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.3	
1	18.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-32.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-28.0	
1	21.000L	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-32.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-28.1	
1	21.000R	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-32.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-28.1	

9041 EXTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	23.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-32.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-28.0	
1	25.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-31.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.3	
1	27.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-30.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.9	
1	29.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.8	
1	31.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.3	
1	33.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-21.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-18.3	
1	35.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-17.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-14.7	
1	37.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-12.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-10.5	
1	39.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-6.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.6	
1	42.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	

* Legend of Intermediate Calculations:
Dc = Depth of web in compression
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fcrw
Fcrw = Nominal bend-buckling resistance, LRFD Specifications 6.10.4.2.2-4
fc = Compression-flange stress calculated without flange lateral bending
N/A = This check is not required for composite sections in positive flexure in which the web satisfies the requirement of LRFD Specifications Article 6.10.2.1.1

9041 EXTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	0.000	STR-I	256.60	104.73	U	
		STR-II	256.60	87.26	U	
1	2.100	STR-I	256.60	97.37	U	
		STR-II	256.60	80.94	U	
1	4.200	STR-I	256.60	90.01	U	
		STR-II	256.60	74.62	U	
1	6.300	STR-I	256.60	82.66	U	
		STR-II	256.60	68.29	U	
1	8.400	STR-I	256.60	75.30	U	
		STR-II	256.60	61.97	U	
1	10.500	STR-I	256.60	67.95	U	
		STR-II	256.60	55.65	U	
1	12.600	STR-I	256.60	60.59	U	
		STR-II	256.60	49.33	U	
1	14.700	STR-I	256.60	53.23	U	
		STR-II	256.60	43.01	U	
1	16.800	STR-I	256.60	45.88	U	
		STR-II	256.60	36.68	U	
1	18.900	STR-I	256.60	38.52	U	
		STR-II	256.60	30.36	U	
1	21.000L	STR-I	256.60	31.16	U	
		STR-II	256.60	24.04	U	
1	21.000R	STR-I	256.60	31.16	U	
		STR-II	256.60	24.04	U	
1	23.100	STR-I	256.60	-26.15	U	
		STR-II	256.60	-20.82	U	
1	25.200	STR-I	256.60	-31.94	U	
		STR-II	256.60	-25.93	U	
1	27.300	STR-I	256.60	-37.72	U	
		STR-II	256.60	-31.04	U	
1	29.400	STR-I	256.60	-43.51	U	

9041 EXTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	29.400	STR-II	256.60	-36.15	U	
1	31.500	STR-I	256.60	-49.30	U	
		STR-II	256.60	-41.27	U	
1	33.600	STR-I	256.60	-55.09	U	
		STR-II	256.60	-46.38	U	
1	35.700	STR-I	256.60	-60.87	U	
		STR-II	256.60	-51.49	U	
1	37.800	STR-I	256.60	-66.66	U	
		STR-II	256.60	-56.60	U	
1	39.900	STR-I	256.60	-72.45	U	
		STR-II	256.60	-61.71	U	
1	42.000	STR-I	256.60	-78.24	U	
		STR-II	256.60	-66.82	U	

9041 EXTERIOR BEAM
HS20 - SPECIFICATION CHECKING

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	0.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
1	2.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.8	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.8	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.7	J	
1	4.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.6	J	
1	6.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.7	J	
1	8.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-22.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	22.0	J	
1	10.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.4	J	
1	12.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.0	J	
1	14.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-34.5	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	34.5	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.0	J	
1	16.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.5	J	
1	18.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.9	D	A

9041 EXTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	18.900	TOP	STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.9	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.2	J	
1	21.000L	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.7	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.7	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.0	J	
1	21.000R	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.7	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.7	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.0	J	
1	23.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.9	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.9	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.2	J	
1	25.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.5	J	
1	27.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-34.5	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	34.5	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.0	J	
1	29.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.0	J	
1	31.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.4	J	
1	33.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-22.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	22.0	J	
1	35.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.7	D	

9041 EXTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	35.700	BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.7	J	
1	37.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.6	J	
1	39.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.8	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.8	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.7	J	
1	42.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	

* Legend of General Notes:
- rt = Effective radius of gyration for lateral torsional buckling
- Dc = Total depth of the web in compression, per Appendix D6.3.1
- Rh = Hybrid factor
- Rb = Load shedding factor (only applies to compression flange)
- An/Ag = Net Area / Gross Area for net section fracture, A6.10.1.8-1
- Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fr
- F+ = fbu + (1/3)*fl, total factored flexural + lateral stress due to wind (per A6.10.7.2.1-2, A6.10.8.1.1-1, or A6.10.8.1.2-1) and/or user input lateral effects

** Legend of Resistance Calculation:
- A. Composite, noncompact, compression flange, Fr calculated using A6.10.7.2.2-1
- B. Composite, noncompact, tension flange, Fr calculated using A6.10.7.2.2-2
- C. Noncompos or neg. flexure, compression flange, Fr calculated using A6.10.8.1.3-1
- D. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-1
- E. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-2
- F. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-1
- G. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-2
- H. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-3
- I. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.1.3-1
- J. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.3-1
- K. Tension flange, Fr calculated using net section fracture, A6.10.1.8-1
- X. SKW has not been entered. App. A provisions have been skipped but may be applicable.

9041 EXTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

*** Legend of Code Check:
A. Insufficient flexural resistance
B. Based on the total stress in the bottom flange, this section is analyzed for positive flexure, so the top flange capacity is based on compression. However, the total factored stress (F+) in the top flange is tensile. The user should verify the acceptability of the section by comparing the top flange stress (F+) to the flexural resistance (Fr) of the top flange in negative flexure.

FLANGE LATERAL CAPACITY

This output report is not applicable because wind loads do not apply to this vehicle.

NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

SERVICE LIMIT STATE - FLEXURAL RESISTANCE

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	0.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
1	2.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-6.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.2	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	6.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.2	C	
1	4.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-11.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-9.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	11.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	9.7	C	
1	6.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-15.7	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-13.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	15.7	C	
			SERV-IIA	POS.	1.000	482.1	26.4	13.6	C	
1	8.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-19.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-16.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	19.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	16.9	C	
1	10.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.5	C	

9041 EXTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	10.500	BOT	SERV-II	POS.	1.000	482.1	26.4	22.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.5	C	
1	12.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.6	C	
1	14.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-26.5	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	26.5	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	23.1	C	
1	16.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.8	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.8	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.3	C	
1	18.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-28.4	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	28.4	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.8	C	
1	21.000L	TOP	SERV-II	POS.	1.000	482.1	-26.4	-28.2	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	28.2	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.7	C	
1	21.000R	TOP	SERV-II	POS.	1.000	482.1	-26.4	-28.2	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	28.2	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.7	C	
1	23.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-28.4	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	28.4	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.8	C	
1	25.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.8	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.8	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.3	C	
1	27.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-26.5	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	26.5	C	A

9041 EXTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	27.300	BOT	SERV-IIA	POS.	1.000	482.1	26.4	23.1	C	
1	29.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.6	C	
1	31.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	22.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.5	C	
1	33.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-19.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-16.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	19.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	16.9	C	
1	35.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-15.7	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-13.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	15.7	C	
			SERV-IIA	POS.	1.000	482.1	26.4	13.6	C	
1	37.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-11.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-9.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	11.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	9.7	C	
1	39.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-6.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.2	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	6.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.2	C	
1	42.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	

* Legend of General Notes:
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from the stress flexural resistance, Fr
Fu = For bottom flanges of composite sections or both flanges of noncomposite sections, this value includes lateral stresses when input by the user (A6.10.4.2.2)

9041 EXTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

** Legend of Resistance Calculation:
A. Composite, top flange, Fr calculated using A6.10.4.2.2-1
B. Composite, bottom flange, Fr calculated using A6.10.4.2.2-2
C. Noncomposite, Fr calculated using A6.10.4.2.2-3

*** Legend of Code Check:
A. Insufficient flexural resistance

SERVICE LIMIT STATE - WEB BEND-BUCKLING

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	0.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
1	2.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-6.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.2	
1	4.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-11.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-9.7	
1	6.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-15.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-13.6	
1	8.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-19.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-16.9	
1	10.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.5	
1	12.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.6	
1	14.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-26.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.1	
1	16.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.3	
1	18.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-28.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.8	
1	21.000L	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-28.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.7	
1	21.000R	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-28.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.7	

9041 EXTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	23.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-28.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.8	
1	25.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.3	
1	27.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-26.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.1	
1	29.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.6	
1	31.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.5	
1	33.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-19.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-16.9	
1	35.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-15.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-13.6	
1	37.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-11.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-9.7	
1	39.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-6.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.2	
1	42.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	

* Legend of Intermediate Calculations:
Dc = Depth of web in compression
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fcrw
Fcrw = Nominal bend-buckling resistance, LRFD Specifications 6.10.4.2.2-4
fc = Compression-flange stress calculated without flange lateral bending
N/A = This check is not required for composite sections in positive flexure in which the web satisfies the requirement of LRFD Specifications Article 6.10.2.1.1

9041 EXTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	0.000	STR-I	256.60	95.46	U	
		STR-II	256.60	80.11	U	
1	2.100	STR-I	256.60	88.31	U	
		STR-II	256.60	73.95	U	
1	4.200	STR-I	256.60	81.16	U	
		STR-II	256.60	67.79	U	
1	6.300	STR-I	256.60	74.01	U	
		STR-II	256.60	61.63	U	
1	8.400	STR-I	256.60	66.87	U	
		STR-II	256.60	55.46	U	
1	10.500	STR-I	256.60	59.72	U	
		STR-II	256.60	49.30	U	
1	12.600	STR-I	256.60	52.57	U	
		STR-II	256.60	43.14	U	
1	14.700	STR-I	256.60	45.58	U	
		STR-II	256.60	37.11	U	
1	16.800	STR-I	256.60	38.92	U	
		STR-II	256.60	31.31	U	
1	18.900	STR-I	256.60	32.25	U	
		STR-II	256.60	25.52	U	
1	21.000L	STR-I	256.60	25.58	U	
		STR-II	256.60	19.73	U	
1	21.000R	STR-I	256.60	25.58	U	
		STR-II	256.60	19.73	U	
1	23.100	STR-I	256.60	-22.05	U	
		STR-II	256.60	-17.66	U	
1	25.200	STR-I	256.60	-27.39	U	
		STR-II	256.60	-22.42	U	
1	27.300	STR-I	256.60	-32.73	U	
		STR-II	256.60	-27.19	U	
1	29.400	STR-I	256.60	-38.27	U	

9041 EXTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	29.400	STR-II	256.60	-32.11	U	
1	31.500	STR-I	256.60	-43.92	U	
		STR-II	256.60	-37.12	U	
1	33.600	STR-I	256.60	-49.57	U	
		STR-II	256.60	-42.13	U	
1	35.700	STR-I	256.60	-55.23	U	
		STR-II	256.60	-47.13	U	
1	37.800	STR-I	256.60	-60.88	U	
		STR-II	256.60	-52.14	U	
1	39.900	STR-I	256.60	-66.53	U	
		STR-II	256.60	-57.15	U	
1	42.000	STR-I	256.60	-72.18	U	
		STR-II	256.60	-62.15	U	

9041 EXTERIOR BEAM
H20 - SPECIFICATION CHECKING

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	0.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
1	2.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-5.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	5.5	J	
1	4.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-11.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-10.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	11.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	10.5	J	
1	6.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.8	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.8	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.8	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.8	J	
1	8.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.6	J	
1	10.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.7	J	
1	12.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.2	J	
1	14.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-26.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	26.2	J	
1	16.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.5	J	
1	18.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.8	D	

9041 EXTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Code Calc.**	Chk***
1	18.900	TOP	STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.8	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.2	J	
1	21.000L	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.3	J	
1	21.000R	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.3	J	
1	23.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.8	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.8	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.2	J	
1	25.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.5	J	
1	27.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-26.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	26.2	J	
1	29.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.2	J	
1	31.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.7	J	
1	33.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.6	J	
1	35.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.8	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.8	D	

9041 EXTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Code Calc.**	Chk***
1	35.700	BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.8	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.8	J	
1	37.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-11.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-10.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	11.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	10.5	J	
1	39.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-5.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	5.5	J	
1	42.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	

* Legend of General Notes:
- rt = Effective radius of gyration for lateral torsional buckling
- Dc = Total depth of the web in compression, per Appendix D6.3.1
- Rh = Hybrid factor
- Rb = Load shedding factor (only applies to compression flange)
- An/Ag = Net Area / Gross Area for net section fracture, A6.10.1.8-1
- Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fr
- F+ = fbu + (1/3)*fl, total factored flexural + lateral stress due to wind (per A6.10.7.2.1-2, A6.10.8.1.1-1, or A6.10.8.1.2-1) and/or user input lateral effects

** Legend of Resistance Calculation:
- A. Composite, noncompact, compression flange, Fr calculated using A6.10.7.2.2-1
- B. Composite, noncompact, tension flange, Fr calculated using A6.10.7.2.2-2
- C. Noncompos or neg. flexure, compression flange, Fr calculated using A6.10.8.1.3-1
- D. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-1
- E. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-2
- F. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-1
- G. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-2
- H. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-3
- I. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.1.3-1
- J. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.3-1
- K. Tension flange, Fr calculated using net section fracture, A6.10.1.8-1
- X. SKW has not been entered. App. A provisions have been skipped but may be applicable.

9041 EXTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

FLANGE LATERAL CAPACITY

This output report is not applicable because wind loads do not apply to this vehicle.

NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

SERVICE LIMIT STATE - FLEXURAL RESISTANCE

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	0.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
1	2.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-4.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-4.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	4.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	4.3	C	
1	4.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-9.1	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-8.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	9.1	C	
			SERV-IIA	POS.	1.000	482.1	26.4	8.1	C	
1	6.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-12.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-11.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	12.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	11.5	C	
1	8.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-16.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-14.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	16.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	14.4	C	
1	10.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-18.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-16.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	18.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	16.8	C	
1	12.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-21.1	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-18.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	21.1	C	
			SERV-IIA	POS.	1.000	482.1	26.4	18.8	C	
1	14.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-20.3	C	

9041 EXTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	14.700	BOT	SERV-II	POS.	1.000	482.1	26.4	22.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	20.3	C	
1	16.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-23.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	23.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.3	C	
1	18.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.8	C	
1	21.000L	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.6	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.6	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.9	C	
1	21.000R	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.6	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.6	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.9	C	
1	23.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.8	C	
1	25.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-23.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	23.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.3	C	
1	27.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-20.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	22.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	20.3	C	
1	29.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-21.1	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-18.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	21.1	C	
			SERV-IIA	POS.	1.000	482.1	26.4	18.8	C	
1	31.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-18.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-16.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	18.9	C	

9041 EXTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	31.500	BOT	SERV-IIA	POS.	1.000	482.1	26.4	16.8	C	
1	33.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-16.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-14.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	16.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	14.4	C	
1	35.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-12.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-11.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	12.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	11.5	C	
1	37.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-9.1	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-8.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	9.1	C	
			SERV-IIA	POS.	1.000	482.1	26.4	8.1	C	
1	39.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-4.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-4.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	4.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	4.3	C	
1	42.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	

* Legend of General Notes:
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from the stress flexural resistance, Fr
Fu = For bottom flanges of composite sections or both flanges of noncomposite sections, this value includes lateral stresses when input by the user (A6.10.4.2.2)

** Legend of Resistance Calculation:
A. Composite, top flange, Fr calculated using A6.10.4.2.2-1
B. Composite, bottom flange, Fr calculated using A6.10.4.2.2-2
C. Noncomposite, Fr calculated using A6.10.4.2.2-3

9041 EXTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	0.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
1	2.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-4.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-4.3	
1	4.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-9.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-8.1	
1	6.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-12.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-11.5	
1	8.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-16.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-14.4	
1	10.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-18.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-16.8	
1	12.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-21.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-18.8	
1	14.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-20.3	
1	16.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-23.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.3	
1	18.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.8	
1	21.000L	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.9	
1	21.000R	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.9	
1	23.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.8	
1	25.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-23.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.3	
1	27.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-20.3	
1	29.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-21.1	

9041 EXTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	29.400	TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-18.8	
1	31.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-18.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-16.8	
1	33.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-16.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-14.4	
1	35.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-12.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-11.5	
1	37.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-9.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-8.1	
1	39.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-4.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-4.3	
1	42.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	

* Legend of Intermediate Calculations:
Dc = Depth of web in compression
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fcrw
Fcrw = Nominal bend-buckling resistance, LRFD Specifications 6.10.4.2.2-4
fc = Compression-flange stress calculated without flange lateral bending
N/A = This check is not required for composite sections in positive flexure in which the web satisfies the requirement of LRFD Specifications Article 6.10.2.1.1

SHEAR CAPACITY

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	0.000	STR-I	256.60	75.60	U	
		STR-II	256.60	64.79	U	
1	2.100	STR-I	256.60	69.64	U	
		STR-II	256.60	59.55	U	
1	4.200	STR-I	256.60	63.76	U	

9041 EXTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	4.200	STR-II	256.60	54.36	U	
1	6.300	STR-I	256.60	57.96	U	
		STR-II	256.60	49.24	U	
1	8.400	STR-I	256.60	52.24	U	
		STR-II	256.60	44.18	U	
1	10.500	STR-I	256.60	46.93	U	
		STR-II	256.60	39.44	U	
1	12.600	STR-I	256.60	41.70	U	
		STR-II	256.60	34.76	U	
1	14.700	STR-I	256.60	36.47	U	
		STR-II	256.60	30.08	U	
1	16.800	STR-I	256.60	31.24	U	
		STR-II	256.60	25.39	U	
1	18.900	STR-I	256.60	26.01	U	
		STR-II	256.60	20.71	U	
1	21.000L	STR-I	256.60	20.78	U	
		STR-II	256.60	16.03	U	
1	21.000R	STR-I	256.60	20.78	U	
		STR-II	256.60	16.03	U	
1	23.100	STR-I	256.60	-17.98	U	
		STR-II	256.60	-14.51	U	
1	25.200	STR-I	256.60	-22.37	U	
		STR-II	256.60	-18.55	U	
1	27.300	STR-I	256.60	-26.77	U	
		STR-II	256.60	-22.59	U	
1	29.400	STR-I	256.60	-31.17	U	
		STR-II	256.60	-26.63	U	
1	31.500	STR-I	256.60	-35.57	U	
		STR-II	256.60	-30.67	U	
1	33.600	STR-I	256.60	-40.02	U	

9041 EXTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	33.600	STR-II	256.60	-34.75	U	
1	35.700	STR-I	256.60	-44.74	U	
		STR-II	256.60	-39.04	U	
1	37.800	STR-I	256.60	-49.51	U	
		STR-II	256.60	-43.37	U	
1	39.900	STR-I	256.60	-54.33	U	
		STR-II	256.60	-47.74	U	
1	42.000	STR-I	256.60	-59.21	U	
		STR-II	256.60	-52.14	U	

9041 EXTERIOR BEAM
TK527 - SPECIFICATION CHECKING

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	0.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
1	2.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.2	J	
1	4.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.4	J	
1	6.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.8	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.8	J	
1	8.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.1	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.1	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.3	J	
1	10.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.0	J	
1	12.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.0	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.1	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.0	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.1	J	
1	14.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.0	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.0	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.7	J	
1	16.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.9	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-34.4	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.9	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	34.4	J	A
1	18.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-40.9	D	A

9041 EXTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	18.900	TOP	STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.2	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	40.9	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.2	J	A
1	21.000L	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-40.8	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.2	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	40.8	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.2	J	A
1	21.000R	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-40.8	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.2	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	40.8	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.2	J	A
1	23.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-40.9	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.2	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	40.9	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.2	J	A
1	25.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.9	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-34.4	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.9	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	34.4	J	A
1	27.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.0	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.0	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.7	J	
1	29.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.0	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.1	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.0	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.1	J	
1	31.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.0	J	
1	33.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.1	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.1	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.3	J	
1	35.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.8	D	

9041 EXTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	35.700	BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.8	J	
1	37.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.4	J	
1	39.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.2	J	
1	42.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	

* Legend of General Notes:
- rt = Effective radius of gyration for lateral torsional buckling
- Dc = Total depth of the web in compression, per Appendix D6.3.1
- Rh = Hybrid factor
- Rb = Load shedding factor (only applies to compression flange)
- An/Ag = Net Area / Gross Area for net section fracture, A6.10.1.8-1
- Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fr
- F+ = fbu + (1/3)*fl, total factored flexural + lateral stress due to wind (per A6.10.7.2.1-2, A6.10.8.1.1-1, or A6.10.8.1.2-1) and/or user input lateral effects

** Legend of Resistance Calculation:
- A. Composite, noncompact, compression flange, Fr calculated using A6.10.7.2.2-1
- B. Composite, noncompact, tension flange, Fr calculated using A6.10.7.2.2-2
- C. Noncompos or neg. flexure, compression flange, Fr calculated using A6.10.8.1.3-1
- D. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-1
- E. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-2
- F. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-1
- G. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-2
- H. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-3
- I. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.1.3-1
- J. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.3-1
- K. Tension flange, Fr calculated using net section fracture, A6.10.1.8-1
- X. SKW has not been entered. App. A provisions have been skipped but may be applicable.

9041 EXTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

*** Legend of Code Check:
A. Insufficient flexural resistance
B. Based on the total stress in the bottom flange, this section is analyzed for positive flexure, so the top flange capacity is based on compression. However, the total factored stress (F+) in the top flange is tensile. The user should verify the acceptability of the section by comparing the top flange stress (F+) to the flexural resistance (Fr) of the top flange in negative flexure.

FLANGE LATERAL CAPACITY

This output report is not applicable because wind loads do not apply to this vehicle.

NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

SERVICE LIMIT STATE - FLEXURAL RESISTANCE

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	0.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
1	2.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-6.4	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	6.4	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.5	C	
1	4.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-12.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-10.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	12.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	10.3	C	
1	6.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-16.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-14.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	16.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	14.4	C	
1	8.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-20.7	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-17.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	20.7	C	
			SERV-IIA	POS.	1.000	482.1	26.4	17.9	C	
1	10.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-20.8	C	

9041 EXTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	10.500	BOT	SERV-II	POS.	1.000	482.1	26.4	24.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	20.8	C	
1	12.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-26.8	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	26.8	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	23.1	C	
1	14.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-29.0	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	29.0	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.1	C	
1	16.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-30.5	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-26.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	30.5	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	26.4	C	
1	18.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-31.3	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.0	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	31.3	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.0	C	A
1	21.000L	TOP	SERV-II	POS.	1.000	482.1	-26.4	-31.3	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.1	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	31.3	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.1	C	A
1	21.000R	TOP	SERV-II	POS.	1.000	482.1	-26.4	-31.3	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.1	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	31.3	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.1	C	A
1	23.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-31.3	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.0	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	31.3	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.0	C	A
1	25.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-30.5	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-26.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	30.5	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	26.4	C	
1	27.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-29.0	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	29.0	C	A

9041 EXTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	27.300	BOT	SERV-IIA	POS.	1.000	482.1	26.4	25.1	C	
1	29.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-26.8	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	26.8	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	23.1	C	
1	31.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-20.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	20.8	C	
1	33.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-20.7	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-17.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	20.7	C	
			SERV-IIA	POS.	1.000	482.1	26.4	17.9	C	
1	35.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-16.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-14.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	16.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	14.4	C	
1	37.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-12.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-10.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	12.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	10.3	C	
1	39.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-6.4	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	6.4	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.5	C	
1	42.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	

* Legend of General Notes:
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from the stress flexural resistance, Fr
Fu = For bottom flanges of composite sections or both flanges of noncomposite sections, this value includes lateral stresses when input by the user (A6.10.4.2.2)

9041 EXTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

** Legend of Resistance Calculation:
A. Composite, top flange, Fr calculated using A6.10.4.2.2-1
B. Composite, bottom flange, Fr calculated using A6.10.4.2.2-2
C. Noncomposite, Fr calculated using A6.10.4.2.2-3

*** Legend of Code Check:
A. Insufficient flexural resistance

SERVICE LIMIT STATE - WEB BEND-BUCKLING

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	0.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
1	2.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-6.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.5	
1	4.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-12.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-10.3	
1	6.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-16.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-14.4	
1	8.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-20.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-17.9	
1	10.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-20.8	
1	12.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-26.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.1	
1	14.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-29.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.1	
1	16.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-30.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-26.4	
1	18.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-31.3	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.0	
1	21.000L	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-31.3	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.1	
1	21.000R	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-31.3	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.1	

9041 EXTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	23.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-31.3	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.0	
1	25.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-30.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-26.4	
1	27.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-29.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.1	
1	29.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-26.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.1	
1	31.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-20.8	
1	33.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-20.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-17.9	
1	35.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-16.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-14.4	
1	37.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-12.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-10.3	
1	39.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-6.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.5	
1	42.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	

* Legend of Intermediate Calculations:
Dc = Depth of web in compression
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fcrw
Fcrw = Nominal bend-buckling resistance, LRFD Specifications 6.10.4.2.2-4
fc = Compression-flange stress calculated without flange lateral bending
N/A = This check is not required for composite sections in positive flexure in which the web satisfies the requirement of LRFD Specifications Article 6.10.2.1.1

9041 EXTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	0.000	STR-I	256.60	103.59	U	
		STR-II	256.60	86.38	U	
1	2.100	STR-I	256.60	95.82	U	
		STR-II	256.60	79.74	U	
1	4.200	STR-I	256.60	88.04	U	
		STR-II	256.60	73.10	U	
1	6.300	STR-I	256.60	80.27	U	
		STR-II	256.60	66.45	U	
1	8.400	STR-I	256.60	72.60	U	
		STR-II	256.60	59.89	U	
1	10.500	STR-I	256.60	65.32	U	
		STR-II	256.60	53.62	U	
1	12.600	STR-I	256.60	58.04	U	
		STR-II	256.60	47.36	U	
1	14.700	STR-I	256.60	50.77	U	
		STR-II	256.60	41.10	U	
1	16.800	STR-I	256.60	43.49	U	
		STR-II	256.60	34.84	U	
1	18.900	STR-I	256.60	36.21	U	
		STR-II	256.60	28.58	U	
1	21.000L	STR-I	256.60	28.93	U	
		STR-II	256.60	22.32	U	
1	21.000R	STR-I	256.60	28.93	U	
		STR-II	256.60	22.32	U	
1	23.100	STR-I	256.60	-24.64	U	
		STR-II	256.60	-19.65	U	
1	25.200	STR-I	256.60	-30.38	U	
		STR-II	256.60	-24.73	U	
1	27.300	STR-I	256.60	-36.11	U	
		STR-II	256.60	-29.80	U	
1	29.400	STR-I	256.60	-41.85	U	

9041 EXTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	29.400	STR-II	256.60	-34.87	U	
1	31.500	STR-I	256.60	-47.58	U	
		STR-II	256.60	-39.94	U	
1	33.600	STR-I	256.60	-53.32	U	
		STR-II	256.60	-45.01	U	
1	35.700	STR-I	256.60	-59.32	U	
		STR-II	256.60	-50.29	U	
1	37.800	STR-I	256.60	-65.37	U	
		STR-II	256.60	-55.61	U	
1	39.900	STR-I	256.60	-71.43	U	
		STR-II	256.60	-60.93	U	
1	42.000	STR-I	256.60	-77.49	U	
		STR-II	256.60	-66.25	U	

9041 EXTERIOR BEAM
SUMMARY - OVERALL REACTIONS

REACTIONS & ROTATIONS PER GIRDER (UNFACTORED, W/O IMPACT, W/ DISTRIBUTION)
FOR ELASTOMERIC BEARING PAD DESIGN

Support No.		Minimum Reaction (kips)	LC	Maximum Reaction (kips)	LC	Live Load Rotation (radians)	LC
1	Total DC1	20.49		20.49			
	Total DC2	2.16		2.16			
	Total DL	22.65		22.65			
	LL (PHL-93)	0.00		37.59	1	0.004597	5
2	Total DC1	20.49		20.49			
	Total DC2	2.16		2.16			
	Total DL	22.65		22.65			
	LL (PHL-93)	0.00		24.56	1	0.004597	5

Note: Rotation is about an axis normal to the centerline of the beam.
The rotation value given is the larger of the positive rotation and absolute value of the negative rotation due to live load.

LC (PHL-93 Loading Codes):
1 - Tandem + Lane Governs
2 - Truck + Lane Governs
3 - Tandem Pair + Lane Governs
4 - Truck Pair + Lane Governs
5 - Truck Alone Governs
6 - 25% Truck + Lane Governs
7 - 90% (Truck Pair + Lane) Governs

9041 EXTERIOR BEAM
SUMMARY - OVERALL REACTIONS (cont.)

REACTIONS & ROTATIONS PER GIRDER (UNFACTORED, W/ IMPACT, W/ DISTRIBUTION)
FOR POT, STEEL OR DISC BEARING DESIGN

Support No.		Minimum Reaction (kips)	LC	Maximum Reaction (kips)	LC	Rotation (radians)	LC
1	Total DC1	20.49		20.49		-0.005042	
	Total DC2	2.16		2.16		-0.000532	
	Total DL	22.65		22.65		-0.005574	
	LL (PHL-93)	0.00		47.71	1	-0.006113	5
2	Total DC1	20.49		20.49		0.005042	
	Total DC2	2.16		2.16		0.000532	
	Total DL	22.65		22.65		0.005574	
	LL (PHL-93)	0.00		31.17	1	0.006113	5

Note: Rotation is about an axis normal to the centerline of the beam.

LC (PHL-93 Loading Codes):
1 - Tandem + Lane Governs
2 - Truck + Lane Governs
3 - Tandem Pair + Lane Governs
4 - Truck Pair + Lane Governs
5 - Truck Alone Governs
6 - 25% Truck + Lane Governs
7 - 90% (Truck Pair + Lane) Governs

9041 EXTERIOR BEAM
SUMMARY - OVERALL REACTIONS (cont.)

REACTIONS (UNFACTORED) FOR ABUTMENT DESIGN

DL REACTIONS (UNFACTORED) PER GIRDER

Support No.		Minimum Reaction (kips)	Maximum Reaction (kips)
1	Total DC1	20.49	20.49
	Total DC2	2.16	2.16
	Total DL	22.65	22.65
2	Total DC1	20.49	20.49
	Total DC2	2.16	2.16
	Total DL	22.65	22.65

LL REACTIONS PER LANE (UNFACTORED, W/O IMPACT)

Support No.		Minimum Reaction (kips)	LC	Maximum Reaction (kips)	LC
1	PHL-93	0.00		72.96	1
2	PHL-93	0.00		72.96	1

Note: These values are to be used only if the end supports are abutments. Do not use these values for the pier design at a discontinuous superstructure.

LC (PHL-93 Loading Codes):
1 - Tandem + Lane Governs
2 - Truck + Lane Governs
3 - Tandem Pair + Lane Governs
4 - Truck Pair + Lane Governs
5 - Truck Alone Governs
6 - 25% Truck + Lane Governs
7 - 90% (Truck Pair + Lane) Governs

9041 EXTERIOR BEAM
SUMMARY - OVERALL REACTIONS (cont.)

REACTIONS (UNFACTORED) FOR PIER DESIGN

DL REACTIONS (UNFACTORED) PER GIRDER

Support No.		Minimum Reaction (kips)	Maximum Reaction (kips)
1	Total DC1	20.49	20.49
	Total DC2	2.16	2.16
	Total DL	22.65	22.65
2	Total DC1	20.49	20.49
	Total DC2	2.16	2.16
	Total DL	22.65	22.65

LL REACTIONS PER LANE (UNFACTORED, W/O IMPACT)

Support No.		Minimum Reaction Vehicle (kips)	LC	Minimum Reaction Lane (kips)	LC	Maximum Reaction Vehicle (kips)	LC	Maximum Reaction Lane (kips)	LC
1	PHL-93	0.00		0.00		59.52	1	13.44	1
	P-82	0.00				97.71			
2	PHL-93	0.00		0.00		59.52	1	13.44	1
	P-82	0.00				97.71			

Note: Impact must be added for pier cap design

LC (PHL-93 Loading Codes):
1 - Tandem + Lane Governs
2 - Truck + Lane Governs
3 - Tandem Pair + Lane Governs
4 - Truck Pair + Lane Governs
5 - Truck Alone Governs
6 - 25% Truck + Lane Governs
7 - 90% (Truck Pair + Lane) Governs

9041 EXTERIOR BEAM
SUMMARY - RATING FACTORS W/O FWS

RATING FACTORS - OVERALL SUMMARY W/O FWS

	Governs	T/B	Rating Factor	Rating Tonnage (tons)	Span No.	Dist. (ft)	Limit State
PHL-93							
Inventory	Flexure	T	0.557		1	21.000L	STR-I
Operating	Flexure	T	0.722		1	21.000L	STR-IA
P-82							
Operating	Flexure	T	0.610	62.2	1	21.000L	STR-II
ML-80							
Inventory	Flexure	T	0.634	23.2	1	21.000L	STR-I
Operating	Flexure	T	0.822	30.1	1	21.000L	STR-II
HS20							
Inventory	Flexure	T	0.811	29.2	1	18.900	STR-I
Operating	Flexure	T	1.051	37.9	1	18.900	STR-II
H20							
Inventory	Flexure	T	1.071	21.4	1	21.000L	STR-I
Operating	Flexure	T	1.388	27.8	1	21.000L	STR-II
TK527							
Inventory	Flexure	T	0.681	27.2	1	21.000L	STR-I
Operating	Flexure	T	0.882	35.3	1	21.000L	STR-II

9041 EXTERIOR BEAM
SUMMARY - SPECIFICATION CHECKS

SPECIFICATION CHECK WARNINGS

For the live loadings input by the user, the program encountered one or more specification check warnings. Specification check warnings indicate conditions that do not fail a specification check, but may need to be reviewed by the user. The following is a list of output table headings, listed separately for each live loading for which warnings have occurred. It should be noted that the program does not perform specification checking corresponding to commands that have not been input by the user.

PHL-93/P-82

%WARNING: **THIS MUST BE APPROVED BY CHIEF BRIDGE ENGINEER** on Page 7
USER-DEFINED WIND LOAD AND PRESSURE
ECONOMIC FEASIBILITY CHECKS

9041 EXTERIOR BEAM
SUMMARY - SPECIFICATION CHECKS (cont.)

SPECIFICATION CHECK FAILURES

For the live loadings input by the user, the program encountered one or more specification check failures. The following is a list of output table headings, listed separately for each live loading for which failures have occurred. It should be noted that the program does not perform specification checking corresponding to commands that have not been input by the user.

PHL-93/P-82

DISTRIBUTION FACTORS FOR DESIGN LIVE LOADING (LANE FRACTION, INCL. SKEW)
DISTRIBUTION FACTORS FOR FATIGUE VEHICLE (LANE FRACTION, INCL. SKEW)
STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)
SERVICE LIMIT STATE - FLEXURAL RESISTANCE
SERVICE LIMIT STATE - WEB BEND-BUCKLING
BEARING STIFFENER CHECK
WEB CONCENTRATED LOAD CHECK
DEFLECTION LIMITS FOR LIVE LOAD
RATING FACTORS - STRESS FLEXURAL CAPACITY

ML-80

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)
SERVICE LIMIT STATE - FLEXURAL RESISTANCE
BEARING STIFFENER CHECK
WEB CONCENTRATED LOAD CHECK
RATING FACTORS - STRESS FLEXURAL CAPACITY

HS20

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)
SERVICE LIMIT STATE - FLEXURAL RESISTANCE
BEARING STIFFENER CHECK
WEB CONCENTRATED LOAD CHECK
RATING FACTORS - STRESS FLEXURAL CAPACITY

TK527

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)
SERVICE LIMIT STATE - FLEXURAL RESISTANCE
BEARING STIFFENER CHECK
WEB CONCENTRATED LOAD CHECK
RATING FACTORS - STRESS FLEXURAL CAPACITY

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HS20 - SPECIFICATION CHECKING	40
H20 - SPECIFICATION CHECKING	50
TK527 - SPECIFICATION CHECKING	60
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SUMMARY - SPECIFICATION CHECKS	75

```
*************************************************************************
*                                                                       *
*  Program Title       LRFD Steel Girder Design and Rating              *
*  Program Name        STLRFD                                           *
*  Version             2.3.0.0                                          *
*  Last Updated        07/24/2014                                       *
*  Documentation       07/2014                                          *
*  License No.         333529                                           *
*                                                                       *
*************************************************************************
*                                                                       *
*  9041 INTERIOR BEAM                                                   *
*  BMS NO.: 48 7208 0684 9041                                           *
*  FEATURE CARRIED: LITTLE CREEK ROAD                                   *
*  FEATURE INTERSECTED: LITTLE MARTINS CREEK                            *
*                                                                       *
*************************************************************************
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*************************************************************************
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9041 INTERIOR BEAM
INPUT

%WARNING - <Input Post Processor>:
The specified yield strength of the web should
be greater than the maximum of 36 ksi or 70 percent
of the specified yield strength of the higher
strength flange. (LRFD 6.10.1.3)
For Material ID No. 1:
Web yield of 33. ksi is less than 36. ksi
- 1 warning was issued.
- Please verify that the input is correct.
- The program will continue running.

CONTROL PARAMETERS

Units	Design/ Analysis	Type of Beam	Exterior/ Interior	No. Beams	No. Spans	Symmetry	Deck Pour Symmetry
US	ANALYSIS	ROLLED BEAM	INTERIOR	8	1	NO	NO

Single Lane ADTT	Multiple Presence Adj. Factor	Live Load Code	Dynamic Load Allowance	Fatigue Dynamic Load Allowance	PA Traffic Factor	Redist. Neg. Moments
100	1.000	A	1.330	1.150	1.200	NO

Impor. Factor	Duct. Factor	Redun. Factor	Redundant Load Path	Analysis Points	P-82 Dynamic Load Allowance	Skew Angle Designation	Constant Lateral Bending Stress (ksi)
1.000	1.000	1.000	R	2	1.200	N/A*	0.00

*NOTE: Since this input file uses the COMPUTED DISTRIBUTION FACTOR
command, the skew angle designation is set via the CDF command.

BEAM GEOMETRY

Beam/ Stringer Spacing (ft)	Deck Overhang (ft)	Staggered Diaphragms	Number of Design Lanes	Deflection Distribution Factor
3.350		NO	2	0.250

9041 INTERIOR BEAM
INPUT (cont.)

COMPUTED DISTRIBUTION FACTORS

Skew Ang. Desn.	Brace Type	Design Lane Width (ft)	Gage Distance (ft)	Passing Distance (ft)	Two Girder Spacing (ft)
P	C	12.000	6.000	4.000	

	Centerline Girder to Curb (ft)	Distance to Outermost Wheel (ft)

SKEW ANGLES

Support	1	2
Angle (deg)	30.000	30.000
Apply skew	N	N

SPAN LENGTHS

Span No.	1
Length (ft)	42.000

MATERIAL PROPERTIES

Matl. ID No.	Noncomposite/ Composite	Rolled Beam Fy (ksi)	Rolled Beam Fu (ksi)	Cover Plate Top Fy (ksi)	Cover Plate Bottom Fy (ksi)
1	NONCOMPOSITE	33.0	60.0	36.0	36.0

ROLLED BEAM DIMENSIONS, PART 1 of 2

Designation	Nominal Depth (in)	Nominal Weight (lbm/ft)	Moment of Inertia (in^4)	Area (in^2)
W27X90	27	90	2958.	26.34

ROLLED BEAM DIMENSIONS, PART 2 of 2

Designation	Flange Width (in)	Flange Thickness (in)	Beam Depth (in)	Web Thickness (in)	Distance "k" (in)
W27X90	9.000	0.7075	27.000	0.5240	1.3600

9041 INTERIOR BEAM
INPUT (cont.)

ROLLED BEAM PROPERTIES, PART 1 of 2

End Span No.	End Span Dist.* (ft)	Matl. ID No.	L O S	H O L E	Rolled Beam Designat.	Top Cover Plate Width (in)	Top Cover Plate Thick. (in)	Bottom Cover Plate Width (in)	Bottom Cover Plate Thick. (in)
1	42.000	1			W 27x 90	0.0000	0.0000	0.0000	0.0000

* The properties given on each line of this table are for the range of the beam to the LEFT of the span and the distance given.

ROLLED BEAM PROPERTIES, PART 2 of 2

End Span No.	End Span Dist.* (ft)	Haunch Depth (in)	Deck Reinf. Area (in^2/ft)	Reinf. C.G. Dist. (in)
1	42.000	0.000	0.000	0.000

* The properties given on each line of this table are for the range of the beam to the LEFT of the span and the distance given.

SLAB PROPERTIES, PART 1 OF 2

Slab Thickness Actual (in)	Slab Thickness Effective (in)	Concrete Strength (ksi)	Concrete Density Loads (lbf/ft^3)	Concrete Density Ec (lbf/ft^3)	Deck Reinforcement Strength (ksi)
12.000	11.500	2.500	150.00	145.00	33.

SLAB PROPERTIES, PART 2 OF 2

Modular Ratio	Steel E (ksi)	Transverse Reinforcement Size	Development Length Factor for Slabs
10.000	29000.	5	1.000

DISTRIBUTED LOADS (DC2)

Start Span No.	Span Dist. (ft)	End Span No.	Dist. (ft)	Start Magnitude (kips/ft)	End Magnitude (kips/ft)
1	0.000	1	42.000	0.103	0.103

DISTRIBUTED LOADS (DC1S)

Start Span No.	Span Dist. (ft)	End Span No.	Dist. (ft)	Start Magnitude (kips/ft)	End Magnitude (kips/ft)
1	0.000	1	42.000	0.365	0.365

9041 INTERIOR BEAM
INPUT (cont.)

BRACE POINTS

Start Span No.	Start Span Dist. (ft)	End Span No.	End Span Dist. (ft)	Brace Spacing (ft)
1	0.000	1	42.000	21.000

CONTINUOUS BRACE

Continuously Braced Span Numbers
1

SYSTEM SETTINGS

Steel Weight (lbf/ft^3)	Construction Modular Ratio
490.00	14.000

9041 INTERIOR BEAM
ANALYSIS

LOAD FACTORS AND COMBINATIONS

Limit State	DC1	DC2	FWS	LL	PL	WND	MC1	MC2
STR-I	1.25	1.25	1.50	1.75	0.00	0.00	1.25	1.25
STR-IA	1.25	1.25	1.50	1.35	0.00	0.00	1.25	1.25
STR-II	1.25	1.25	1.50	1.35	0.00	0.00	1.25	1.25
STR-III	1.25	1.25	1.50	0.00	0.00	1.40	1.25	1.25
STR-IV	1.50	1.50	1.50	0.00	0.00	0.00	1.50	1.50
STR-V	1.25	1.25	1.50	1.35	0.00	0.40	1.25	1.25
SERV-I	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
SERV-II	1.00	1.00	1.00	1.30	0.00	0.00	1.00	1.00
SERV-IIA	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
SERV-IIB	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
FATG-I	1.00	1.00	1.00	1.80	0.00	0.00	1.00	1.00
FATG-II	1.00	1.00	1.00	0.90	0.00	0.00	1.00	1.00
DEFL	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
CONSTR	1.25	1.25	1.50	1.50	0.00	1.25	1.25	1.25

LIVE LOADING SUMMARY

Limit State	Design/Analysis Loading	Rating Loading	Rating Loading	Rating Loading	Rating Loading
STR-I	PHL-93	ML-80	HS20	H20	TK527
STR-IA	PHL-93	---	---	---	---
STR-II	P-82	ML-80	HS20	H20	TK527
STR-III	---	---	---	---	---
STR-IV	---	---	---	---	---
STR-V	PHL-93	---	---	---	---
SERV-I	PHL-93	---	---	---	---
SERV-II	PHL-93	ML-80	HS20	H20	TK527
SERV-IIA	PHL-93	ML-80	HS20	H20	TK527
SERV-IIB	P-82	---	---	---	---
FATG-I	FATIGUE	---	---	---	---
FATG-II	FATIGUE	---	---	---	---
DEFL	DEFLECT	---	---	---	---

LOAD MODIFIER

Importance Factor Ni	Ductility Factor Nd	Redundancy Factor Nr	Calculated Ni*Nd*Nr	Load Modifier Used	Fatigue Load Modifier Used
1.00	1.00	1.00	1.000	1.000	1.000

RESISTANCE FACTORS

Flexure	Shear	Axial Compression	Bearing on Pins	Shear Connector	Shear on Fillet Weld Throat	Web Crippling
1.00	1.00	0.90	1.00	0.85	0.80	0.80

9041 INTERIOR BEAM
ANALYSIS (cont.)

DISTRIBUTION FACTORS FOR DESIGN LIVE LOADING (LANE FRACTION, INCL. SKEW)

Span No.	Moment DF1	Moment DF2	Shear DF1	Shear DF2	Deflection	Code Check*
1	0.291(2)	0.000(0)	0.494(1)	0.494(1)	0.250	A

NOTE: The value in parentheses is the number of lanes loaded to produce the controlling live load distribution factor.

DISTRIBUTION FACTORS FOR FATIGUE VEHICLE (LANE FRACTION, INCL. SKEW)

Span No.	Moment DF1	Moment DF2	Shear DF1	Shear DF2	Deflection	Code Check*
1	0.202	0.000	0.412	0.412	1.000	A

* Legend of code checks:
A. Beam spacing is outside the range of applicability
B. Slab thickness is outside the range of applicability
C. Span length is outside the range of applicability
D. Number of beams is less than the lower bound of applicability
E. Longitudinal stiffness parameter is outside range of applicability
F. Skew angle is outside the range of applicability
G. Distance from exterior web to curb (de) is outside the range of applicability

%WARNING: **THIS MUST BE APPROVED BY CHIEF BRIDGE ENGINEER**

SHEAR SKEW CORRECTION FACTORS

Span No.	LEFT	RIGHT
1	1.000	1.000

DISTRIBUTION FACTORS FOR DESIGN LIVE LOAD REACTIONS

Support No.	Reaction Distribution Factor	Comment*	Rotation Distribution Factor
1	0.494		0.291
2	0.494		0.291

DISTRIBUTION FACTORS FOR FATIGUE LIVE LOAD REACTIONS

Support No.	Reaction Distribution Factor	Comment*	Rotation Distribution Factor
1	0.412		0.202
2	0.412		0.202

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	0.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
1	2.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.2	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.9	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-3.0	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-3.6	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.2	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.9	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	3.0	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	3.6	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.0	J	
1	4.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.5	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.7	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-5.8	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.9	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.5	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.7	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	5.8	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.9	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.3	J	
1	6.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.9	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.6	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.2	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-9.8	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.9	J	

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	6.300	BOT	STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.6	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.2	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	9.8	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.7	J	
1	8.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.4	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.6	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-10.2	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.3	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.4	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.6	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	10.2	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.3	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.5	J	
1	10.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.0	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.8	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.0	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.4	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.0	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.8	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.0	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.4	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.5	J	
1	12.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.8	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.6	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.4	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.1	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.8	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.6	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.4	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.1	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.7	J	
1	14.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.7	D	A

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	14.700	TOP	STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.5	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.6	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.5	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.2	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.7	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.5	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.6	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.5	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.2	J	A
1	16.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-40.6	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-34.9	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.4	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.4	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.4	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-34.9	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	40.6	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	34.9	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.4	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.4	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.4	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	34.9	J	A
1	18.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-41.7	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.8	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.5	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.8	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.0	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.8	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	41.7	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.8	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.5	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.8	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.0	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.8	J	A
1	21.000L	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-41.9	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.0	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.7	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.0	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.2	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.0	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	41.9	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.0	J	A

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	21.000L	BOT	STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.7	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.0	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.2	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.0	J	A
1	21.000R	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-41.9	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.0	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.7	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.0	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.2	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.0	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	41.9	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.0	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.7	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.0	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.2	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.0	J	A
1	23.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-41.7	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.8	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-39.5	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.8	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.0	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.8	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	41.7	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.8	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	39.5	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.8	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.0	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.8	J	A
1	25.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-40.6	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-34.9	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.4	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.4	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.4	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-34.9	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	40.6	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	34.9	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.4	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.4	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.4	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	34.9	J	A
1	27.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.7	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.2	D	A

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	27.300	TOP	STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.5	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.6	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.5	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.2	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.7	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.5	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.6	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.5	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.2	J	A
1	29.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.8	D	A
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.6	D	A
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.4	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.1	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.8	J	A
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.6	J	A
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.4	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.1	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.7	J	
1	31.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.0	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.8	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.0	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.4	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.0	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.8	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.0	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.4	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.5	J	
1	33.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.4	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.6	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-10.2	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.3	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.4	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.6	J	

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Code Calc.**	Chk***
1	33.600	BOT	STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	10.2	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.3	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.5	J	
1	35.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.9	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.6	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.2	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-9.8	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.9	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.6	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.2	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	9.8	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.7	J	
1	37.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.5	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.7	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-5.8	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.9	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.5	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.7	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	5.8	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.9	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.3	J	
1	39.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-8.2	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.9	D	
			STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-3.0	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-3.6	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	8.2	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.9	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	3.0	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	3.6	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.0	J	
1	42.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-IA	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Code Calc.**	Chk***
1	42.000	TOP	STR-III	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-IV	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-V	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-IA	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-III	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-IV	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-V	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	

* Legend of General Notes:
- rt = Effective radius of gyration for lateral torsional buckling
- Dc = Total depth of the web in compression, per Appendix D6.3.1
- Rh = Hybrid factor
- Rb = Load shedding factor (only applies to compression flange)
- An/Ag = Net Area / Gross Area for net section fracture, A6.10.1.8-1
- Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fr
- F+ = fbu + (1/3)*fl, total factored flexural + lateral stress due to wind (per A6.10.7.2.1-2, A6.10.8.1.1-1, or A6.10.8.1.2-1) and/or user input lateral effects

** Legend of Resistance Calculation:
- A. Composite, noncompact, compression flange, Fr calculated using A6.10.7.2.2-1
- B. Composite, noncompact, tension flange, Fr calculated using A6.10.7.2.2-2
- C. Noncompos or neg. flexure, compression flange, Fr calculated using A6.10.8.1.3-1
- D. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-1
- E. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-2
- F. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-1
- G. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-2
- H. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-3
- I. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.1.3-1
- J. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.3-1
- K. Tension flange, Fr calculated using net section fracture, A6.10.1.8-1
- X. SKW has not been entered. App. A provisions have been skipped but may be applicable.

*** Legend of Code Check:
- A. Insufficient flexural resistance
- B. Based on the total stress in the bottom flange, this section is analyzed for positive flexure, so the top flange capacity is based on compression. However, the total factored stress (F+) in the top flange is tensile. The user should verify the acceptability of the section by comparing the top flange stress (F+) to the flexural resistance (Fr) of the top flange in negative flexure.

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PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

FLANGE LATERAL CAPACITY

This output report is not applicable because no lateral loads (wind or user input lateral loads) have been entered.

NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

SERVICE LIMIT STATE - FLEXURAL RESISTANCE

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	0.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIB	POS.	1.000	482.1	26.4	0.0	C	
1	2.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-6.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.4	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-6.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	6.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.4	C	
			SERV-IIB	POS.	1.000	482.1	26.4	6.0	C	
1	4.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-11.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-10.2	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-11.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	11.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	10.2	C	
			SERV-IIB	POS.	1.000	482.1	26.4	11.3	C	
1	6.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-16.7	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-14.4	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-15.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	16.7	C	
			SERV-IIA	POS.	1.000	482.1	26.4	14.4	C	
			SERV-IIB	POS.	1.000	482.1	26.4	15.7	C	
1	8.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-20.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-18.0	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-19.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	20.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	18.0	C	
			SERV-IIB	POS.	1.000	482.1	26.4	19.6	C	
1	10.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.1	C	

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	10.500	TOP	SERV-IIB	POS.	1.000	482.1	-26.4	-22.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.1	C	
			SERV-IIB	POS.	1.000	482.1	26.4	22.8	C	
1	12.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.4	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.5	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-25.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.4	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	23.5	C	
			SERV-IIB	POS.	1.000	482.1	26.4	25.7	C	
1	14.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-29.5	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.4	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-27.9	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	29.5	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.4	C	
			SERV-IIB	POS.	1.000	482.1	26.4	27.9	C	A
1	16.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-31.1	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-26.7	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-29.4	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	31.1	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	26.7	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	29.4	C	A
1	18.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-31.9	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.5	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-30.2	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	31.9	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.5	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	30.2	C	A
1	21.000L	TOP	SERV-II	POS.	1.000	482.1	-26.4	-32.1	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.6	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-30.3	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	32.1	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.6	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	30.3	C	A
1	21.000R	TOP	SERV-II	POS.	1.000	482.1	-26.4	-32.1	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.6	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-30.3	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	32.1	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.6	C	A

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	21.000R	BOT	SERV-IIB	POS.	1.000	482.1	26.4	30.3	C	A
1	23.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-31.9	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-27.5	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-30.2	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	31.9	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	27.5	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	30.2	C	A
1	25.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-31.1	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-26.7	C	A
			SERV-IIB	POS.	1.000	482.1	-26.4	-29.4	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	31.1	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	26.7	C	A
			SERV-IIB	POS.	1.000	482.1	26.4	29.4	C	A
1	27.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-29.5	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.4	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-27.9	C	A
		BOT	SERV-II	POS.	1.000	482.1	26.4	29.5	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.4	C	
			SERV-IIB	POS.	1.000	482.1	26.4	27.9	C	A
1	29.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.4	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.5	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-25.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.4	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	23.5	C	
			SERV-IIB	POS.	1.000	482.1	26.4	25.7	C	
1	31.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.1	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-22.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.1	C	
			SERV-IIB	POS.	1.000	482.1	26.4	22.8	C	
1	33.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-20.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-18.0	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-19.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	20.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	18.0	C	
			SERV-IIB	POS.	1.000	482.1	26.4	19.6	C	
1	35.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-16.7	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-14.4	C	

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	35.700	TOP	SERV-IIB	POS.	1.000	482.1	-26.4	-15.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	16.7	C	
			SERV-IIA	POS.	1.000	482.1	26.4	14.4	C	
			SERV-IIB	POS.	1.000	482.1	26.4	15.7	C	
1	37.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-11.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-10.2	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-11.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	11.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	10.2	C	
			SERV-IIB	POS.	1.000	482.1	26.4	11.3	C	
1	39.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-6.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.4	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	-6.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	6.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.4	C	
			SERV-IIB	POS.	1.000	482.1	26.4	6.0	C	
1	42.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIB	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIB	POS.	1.000	482.1	26.4	0.0	C	

* Legend of General Notes:
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from the stress flexural resistance, Fr
Fu = For bottom flanges of composite sections or both flanges of noncomposite sections, this value includes lateral stresses when input by the user (A6.10.4.2.2)

** Legend of Resistance Calculation:
A. Composite, top flange, Fr calculated using A6.10.4.2.2-1
B. Composite, bottom flange, Fr calculated using A6.10.4.2.2-2
C. Noncomposite, Fr calculated using A6.10.4.2.2-3

*** Legend of Code Check:
A. Insufficient flexural resistance

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	0.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	0.0	
1	2.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-6.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.4	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-6.0	
1	4.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-11.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-10.2	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-11.3	
1	6.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-16.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-14.4	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-15.7	
1	8.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-20.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-18.0	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-19.6	
1	10.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.1	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-22.8	
1	12.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.5	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-25.7	
1	14.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-29.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.4	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-27.9	
1	16.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-31.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-26.7	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-29.4	
1	18.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-31.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.5	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-30.2	
1	21.000L	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-32.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.6	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-30.3	
1	21.000R	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-32.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.6	

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	21.000R	TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-30.3	
1	23.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-31.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-27.5	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-30.2	
1	25.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-31.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-26.7	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-29.4	
1	27.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-29.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.4	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-27.9	
1	29.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.5	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-25.7	
1	31.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.1	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-22.8	
1	33.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-20.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-18.0	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-19.6	
1	35.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-16.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-14.4	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-15.7	
1	37.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-11.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-10.2	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-11.3	
1	39.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-6.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.4	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	-6.0	
1	42.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIB	POS.	12.79	1.000	602.6	-33.0	0.0	

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

* Legend of Intermediate Calculations:
Dc = Depth of web in compression
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fcrw
Fcrw = Nominal bend-buckling resistance, LRFD Specifications 6.10.4.2.2-4
fc = Compression-flange stress calculated without flange lateral bending
N/A = This check is not required for composite sections in positive flexure in which the web satisfies the requirement of LRFD Specifications Article 6.10.2.1.1

SHEAR CAPACITY

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	0.000	STR-I	256.60	107.90	U	
		STR-IA	256.60	89.60	U	
		STR-II	256.60	106.04	U	
		STR-III	256.60	27.84	U	
		STR-IV	256.60	33.41	U	
		STR-V	256.60	89.60	U	
1	2.100	STR-I	256.60	100.39	U	
		STR-IA	256.60	83.17	U	
		STR-II	256.60	96.82	U	
		STR-III	256.60	25.05	U	
		STR-IV	256.60	30.07	U	
		STR-V	256.60	83.17	U	
1	4.200	STR-I	256.60	92.94	U	
		STR-IA	256.60	76.78	U	
		STR-II	256.60	88.64	U	
		STR-III	256.60	22.27	U	
		STR-IV	256.60	26.72	U	
		STR-V	256.60	76.78	U	
1	6.300	STR-I	256.60	85.54	U	
		STR-IA	256.60	70.44	U	
		STR-II	256.60	80.61	U	
		STR-III	256.60	19.49	U	
		STR-IV	256.60	23.38	U	
		STR-V	256.60	70.44	U	
1	8.400	STR-I	256.60	78.21	U	
		STR-IA	256.60	64.15	U	
		STR-II	256.60	73.50	U	
		STR-III	256.60	16.70	U	

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	8.400	STR-IV	256.60	20.04	U	
		STR-V	256.60	64.15	U	
1	10.500	STR-I	256.60	70.93	U	
		STR-IA	256.60	57.90	U	
		STR-II	256.60	66.39	U	
		STR-III	256.60	13.92	U	
		STR-IV	256.60	16.70	U	
		STR-V	256.60	57.90	U	
1	12.600	STR-I	256.60	63.71	U	
		STR-IA	256.60	51.69	U	
		STR-II	256.60	59.29	U	
		STR-III	256.60	11.14	U	
		STR-IV	256.60	13.36	U	
		STR-V	256.60	51.69	U	
1	14.700	STR-I	256.60	56.55	U	
		STR-IA	256.60	45.53	U	
		STR-II	256.60	52.18	U	
		STR-III	256.60	8.35	U	
		STR-IV	256.60	10.02	U	
		STR-V	256.60	45.53	U	
1	16.800	STR-I	256.60	49.45	U	
		STR-IA	256.60	39.42	U	
		STR-II	256.60	45.08	U	
		STR-III	256.60	5.57	U	
		STR-IV	256.60	6.68	U	
		STR-V	256.60	39.42	U	
1	18.900	STR-I	256.60	42.40	U	
		STR-IA	256.60	33.35	U	
		STR-II	256.60	37.97	U	
		STR-III	256.60	2.78	U	
		STR-IV	256.60	3.34	U	
		STR-V	256.60	33.35	U	
1	21.000L	STR-I	256.60	35.41	U	
		STR-IA	256.60	27.32	U	
		STR-II	256.60	30.87	U	
		STR-III	256.60	0.00	U	
		STR-IV	256.60	0.00	U	
		STR-V	256.60	27.32	U	
1	21.000R	STR-I	256.60	35.41	U	

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	21.000R	STR-IA	256.60	27.32	U	
		STR-II	256.60	30.87	U	
		STR-III	256.60	0.00	U	
		STR-IV	256.60	0.00	U	
		STR-V	256.60	27.32	U	
1	23.100	STR-I	256.60	-42.40	U	
		STR-IA	256.60	-33.35	U	
		STR-II	256.60	-37.97	U	
		STR-III	256.60	-2.78	U	
		STR-IV	256.60	-3.34	U	
		STR-V	256.60	-33.35	U	
1	25.200	STR-I	256.60	-49.45	U	
		STR-IA	256.60	-39.42	U	
		STR-II	256.60	-45.08	U	
		STR-III	256.60	-5.57	U	
		STR-IV	256.60	-6.68	U	
		STR-V	256.60	-39.42	U	
1	27.300	STR-I	256.60	-56.55	U	
		STR-IA	256.60	-45.53	U	
		STR-II	256.60	-52.18	U	
		STR-III	256.60	-8.35	U	
		STR-IV	256.60	-10.02	U	
		STR-V	256.60	-45.53	U	
1	29.400	STR-I	256.60	-63.71	U	
		STR-IA	256.60	-51.69	U	
		STR-II	256.60	-59.29	U	
		STR-III	256.60	-11.14	U	
		STR-IV	256.60	-13.36	U	
		STR-V	256.60	-51.69	U	
1	31.500	STR-I	256.60	-70.93	U	
		STR-IA	256.60	-57.90	U	
		STR-II	256.60	-66.39	U	
		STR-III	256.60	-13.92	U	
		STR-IV	256.60	-16.70	U	
		STR-V	256.60	-57.90	U	
1	33.600	STR-I	256.60	-78.21	U	
		STR-IA	256.60	-64.15	U	
		STR-II	256.60	-73.50	U	
		STR-III	256.60	-16.70	U	
		STR-IV	256.60	-20.04	U	

9041 INTERIOR BEAM
PHL-93/P-82 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	33.600	STR-V	256.60	-64.15	U	
1	35.700	STR-I	256.60	-85.54	U	
		STR-IA	256.60	-70.44	U	
		STR-II	256.60	-80.61	U	
		STR-III	256.60	-19.49	U	
		STR-IV	256.60	-23.38	U	
		STR-V	256.60	-70.44	U	
1	37.800	STR-I	256.60	-92.94	U	
		STR-IA	256.60	-76.78	U	
		STR-II	256.60	-88.64	U	
		STR-III	256.60	-22.27	U	
		STR-IV	256.60	-26.72	U	
		STR-V	256.60	-76.78	U	
1	39.900	STR-I	256.60	-100.39	U	
		STR-IA	256.60	-83.17	U	
		STR-II	256.60	-96.82	U	
		STR-III	256.60	-25.05	U	
		STR-IV	256.60	-30.07	U	
		STR-V	256.60	-83.17	U	
1	42.000	STR-I	256.60	-107.90	U	
		STR-IA	256.60	-89.60	U	
		STR-II	256.60	-106.04	U	
		STR-III	256.60	-27.84	U	
		STR-IV	256.60	-33.41	U	
		STR-V	256.60	-89.60	U	

UNCURED SLAB NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

9041 INTERIOR BEAM
ML-80 - SPECIFICATION CHECKING

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	0.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
1	2.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.6	J	
1	4.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.5	J	
1	6.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.6	J	
1	8.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.9	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.9	J	
1	10.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.5	J	
1	12.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.5	J	
1	14.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.8	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.9	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.8	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.9	J	
1	16.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-37.7	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	37.7	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.6	J	
1	18.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.7	D	A

9041 INTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	18.900	TOP	STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.5	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.7	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.5	J	A
1	21.000L	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.8	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.6	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.8	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.6	J	A
1	21.000R	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.8	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.6	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.8	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.6	J	A
1	23.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-38.7	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.5	D	A
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	38.7	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.5	J	A
1	25.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-37.7	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	37.7	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.6	J	
1	27.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-35.8	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.9	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	35.8	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.9	J	
1	29.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.5	J	
1	31.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.5	J	
1	33.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.9	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.9	J	
1	35.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.6	D	

9041 INTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	35.700	BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.6	J	
1	37.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.5	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.5	J	
1	39.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.6	J	
1	42.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	

* Legend of General Notes:
rt = Effective radius of gyration for lateral torsional buckling
Dc = Total depth of the web in compression, per Appendix D6.3.1
Rh = Hybrid factor
Rb = Load shedding factor (only applies to compression flange)
An/Ag = Net Area / Gross Area for net section fracture, A6.10.1.8-1
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fr
F+ = fbu + (1/3)*fl, total factored flexural + lateral stress due to wind (per A6.10.7.2.1-2, A6.10.8.1.1-1, or A6.10.8.1.2-1) and/or user input lateral effects

** Legend of Resistance Calculation:
A. Composite, noncompact, compression flange, Fr calculated using A6.10.7.2.2-1
B. Composite, noncompact, tension flange, Fr calculated using A6.10.7.2.2-2
C. Noncompos or neg. flexure, compression flange, Fr calculated using A6.10.8.1.3-1
D. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-1
E. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-2
F. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-1
G. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-2
H. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-3
I. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.1.3-1
J. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.3-1
K. Tension flange, Fr calculated using net section fracture, A6.10.1.8-1
X. SKW has not been entered. App. A provisions have been skipped but may be applicable.

9041 INTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

*** Legend of Code Check:
A. Insufficient flexural resistance
B. Based on the total stress in the bottom flange, this section is analyzed for positive flexure, so the top flange capacity is based on compression. However, the total factored stress (F+) in the top flange is tensile. The user should verify the acceptability of the section by comparing the top flange stress (F+) to the flexural resistance (Fr) of the top flange in negative flexure.

FLANGE LATERAL CAPACITY

This output report is not applicable because no lateral loads (wind or user input lateral loads) have been entered.

NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

SERVICE LIMIT STATE - FLEXURAL RESISTANCE

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	0.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
1	2.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-5.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	5.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.1	C	
1	4.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-11.1	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-9.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	11.1	C	
			SERV-IIA	POS.	1.000	482.1	26.4	9.6	C	
1	6.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-15.6	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-13.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	15.6	C	
			SERV-IIA	POS.	1.000	482.1	26.4	13.5	C	
1	8.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-19.4	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-16.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	19.4	C	
			SERV-IIA	POS.	1.000	482.1	26.4	16.8	C	
1	10.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.6	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.6	C	

9041 INTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	10.500	BOT	SERV-II	POS.	1.000	482.1	26.4	22.6	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.6	C	
1	12.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-25.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	25.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.9	C	
1	14.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.4	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.4	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	23.8	C	
1	16.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-28.9	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	28.9	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.0	C	
1	18.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-29.6	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	29.6	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.7	C	
1	21.000L	TOP	SERV-II	POS.	1.000	482.1	-26.4	-29.7	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	29.7	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.8	C	
1	21.000R	TOP	SERV-II	POS.	1.000	482.1	-26.4	-29.7	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	29.7	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.8	C	
1	23.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-29.6	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	29.6	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.7	C	
1	25.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-28.9	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-25.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	28.9	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	25.0	C	
1	27.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.4	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.4	C	A

9041 INTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	27.300	BOT	SERV-IIA	POS.	1.000	482.1	26.4	23.8	C	
1	29.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-25.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	25.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.9	C	
1	31.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.6	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	22.6	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.6	C	
1	33.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-19.4	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-16.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	19.4	C	
			SERV-IIA	POS.	1.000	482.1	26.4	16.8	C	
1	35.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-15.6	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-13.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	15.6	C	
			SERV-IIA	POS.	1.000	482.1	26.4	13.5	C	
1	37.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-11.1	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-9.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	11.1	C	
			SERV-IIA	POS.	1.000	482.1	26.4	9.6	C	
1	39.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-5.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	5.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.1	C	
1	42.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	

* Legend of General Notes:
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from the stress flexural resistance, Fr
Fu = For bottom flanges of composite sections or both flanges of noncomposite sections, this value includes lateral stresses when input by the user (A6.10.4.2.2)

9041 INTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

** Legend of Resistance Calculation:
A. Composite, top flange, Fr calculated using A6.10.4.2.2-1
B. Composite, bottom flange, Fr calculated using A6.10.4.2.2-2
C. Noncomposite, Fr calculated using A6.10.4.2.2-3

*** Legend of Code Check:
A. Insufficient flexural resistance

SERVICE LIMIT STATE - WEB BEND-BUCKLING

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	0.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
1	2.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-5.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.1	
1	4.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-11.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-9.6	
1	6.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-15.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-13.5	
1	8.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-19.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-16.8	
1	10.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.6	
1	12.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-25.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.9	
1	14.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.8	
1	16.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-28.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.0	
1	18.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-29.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.7	
1	21.000L	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-29.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.8	
1	21.000R	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-29.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.8	

9041 INTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	23.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-29.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.7	
1	25.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-28.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-25.0	
1	27.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.8	
1	29.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-25.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.9	
1	31.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.6	
1	33.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-19.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-16.8	
1	35.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-15.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-13.5	
1	37.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-11.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-9.6	
1	39.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-5.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.1	
1	42.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	

* Legend of Intermediate Calculations:
Dc = Depth of web in compression
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fcrw
Fcrw = Nominal bend-buckling resistance, LRFD Specifications 6.10.4.2.2-4
fc = Compression-flange stress calculated without flange lateral bending
N/A = This check is not required for composite sections in positive flexure in which the web satisfies the requirement of LRFD Specifications Article 6.10.2.1.1

9041 INTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	0.000	STR-I	256.60	101.12	U	
		STR-II	256.60	84.37	U	
1	2.100	STR-I	256.60	93.99	U	
		STR-II	256.60	78.24	U	
1	4.200	STR-I	256.60	86.87	U	
		STR-II	256.60	72.10	U	
1	6.300	STR-I	256.60	79.75	U	
		STR-II	256.60	65.97	U	
1	8.400	STR-I	256.60	72.62	U	
		STR-II	256.60	59.84	U	
1	10.500	STR-I	256.60	65.50	U	
		STR-II	256.60	53.71	U	
1	12.600	STR-I	256.60	58.38	U	
		STR-II	256.60	47.58	U	
1	14.700	STR-I	256.60	51.25	U	
		STR-II	256.60	41.45	U	
1	16.800	STR-I	256.60	44.13	U	
		STR-II	256.60	35.32	U	
1	18.900	STR-I	256.60	37.01	U	
		STR-II	256.60	29.19	U	
1	21.000L	STR-I	256.60	29.88	U	
		STR-II	256.60	23.05	U	
1	21.000R	STR-I	256.60	29.88	U	
		STR-II	256.60	23.05	U	
1	23.100	STR-I	256.60	-37.01	U	
		STR-II	256.60	-29.19	U	
1	25.200	STR-I	256.60	-44.13	U	
		STR-II	256.60	-35.32	U	
1	27.300	STR-I	256.60	-51.25	U	
		STR-II	256.60	-41.45	U	
1	29.400	STR-I	256.60	-58.38	U	

9041 INTERIOR BEAM
ML-80 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	29.400	STR-II	256.60	-47.58	U	
1	31.500	STR-I	256.60	-65.50	U	
		STR-II	256.60	-53.71	U	
1	33.600	STR-I	256.60	-72.62	U	
		STR-II	256.60	-59.84	U	
1	35.700	STR-I	256.60	-79.75	U	
		STR-II	256.60	-65.97	U	
1	37.800	STR-I	256.60	-86.87	U	
		STR-II	256.60	-72.10	U	
1	39.900	STR-I	256.60	-93.99	U	
		STR-II	256.60	-78.24	U	
1	42.000	STR-I	256.60	-101.12	U	
		STR-II	256.60	-84.37	U	

9041 INTERIOR BEAM
HS20 - SPECIFICATION CHECKING

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	0.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
1	2.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.1	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.1	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.2	J	
1	4.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-11.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	11.6	J	
1	6.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.3	J	
1	8.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.2	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.2	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.2	J	
1	10.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-26.8	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	26.8	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.4	J	
1	12.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.8	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.8	J	
1	14.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.6	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.6	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.7	J	
1	16.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.1	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.1	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.1	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.1	J	
1	18.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.8	D	A

9041 INTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	18.900	TOP	STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.8	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.7	J	
1	21.000L	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.6	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.6	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.6	J	
1	21.000R	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.6	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.6	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.6	J	
1	23.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.8	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.8	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.7	J	
1	25.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-33.1	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.1	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	33.1	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.1	J	
1	27.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.6	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.6	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.7	J	
1	29.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.8	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.8	J	
1	31.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-26.8	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	26.8	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.4	J	
1	33.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-23.2	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	23.2	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.2	J	
1	35.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-18.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-16.3	D	

9041 INTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	35.700	BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	18.7		J
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	16.3		J
1	37.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.4		D
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-11.6		D
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.4		J
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	11.6		J
1	39.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.1		D
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.2		D
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.1		J
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.2		J
1	42.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0		D
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0		D
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0		J
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0		J

* Legend of General Notes:
rt = Effective radius of gyration for lateral torsional buckling
Dc = Total depth of the web in compression, per Appendix D6.3.1
Rh = Hybrid factor
Rb = Load shedding factor (only applies to compression flange)
An/Ag = Net Area / Gross Area for net section fracture, A6.10.1.8-1
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fr
F+ = fbu + (1/3)*fl, total factored flexural + lateral stress due to wind (per A6.10.7.2.1-2, A6.10.8.1.1-1, or A6.10.8.1.2-1) and/or user input lateral effects

** Legend of Resistance Calculation:
A. Composite, noncompact, compression flange, Fr calculated using A6.10.7.2.2-1
B. Composite, noncompact, tension flange, Fr calculated using A6.10.7.2.2-2
C. Noncompos or neg. flexure, compression flange, Fr calculated using A6.10.8.1.3-1
D. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-1
E. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-2
F. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-1
G. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-2
H. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-3
I. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.1.3-1
J. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.3-1
K. Tension flange, Fr calculated using net section fracture, A6.10.1.8-1
X. SKW has not been entered. App. A provisions have been skipped but may be applicable.

9041 INTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

*** Legend of Code Check:
A. Insufficient flexural resistance
B. Based on the total stress in the bottom flange, this section is analyzed for positive flexure, so the top flange capacity is based on compression. However, the total factored stress (F+) in the top flange is tensile. The user should verify the acceptability of the section by comparing the top flange stress (F+) to the flexural resistance (Fr) of the top flange in negative flexure.

FLANGE LATERAL CAPACITY

This output report is not applicable because no lateral loads (wind or user input lateral loads) have been entered.

NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

SERVICE LIMIT STATE - FLEXURAL RESISTANCE

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	0.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
1	2.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-5.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-4.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	5.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	4.8	C	
1	4.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-10.3	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-9.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	10.3	C	
			SERV-IIA	POS.	1.000	482.1	26.4	9.0	C	
1	6.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-14.4	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-12.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	14.4	C	
			SERV-IIA	POS.	1.000	482.1	26.4	12.6	C	
1	8.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-17.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-15.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	17.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	15.6	C	
1	10.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-20.6	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-18.1	C	

9041 INTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	10.500	BOT	SERV-II	POS.	1.000	482.1	26.4	20.6	C	
			SERV-IIA	POS.	1.000	482.1	26.4	18.1	C	
1	12.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.7	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	22.7	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.9	C	
1	14.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.3	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.3	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.4	C	
1	16.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-25.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-22.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	25.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	22.4	C	
1	18.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-26.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	26.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	23.0	C	
1	21.000L	TOP	SERV-II	POS.	1.000	482.1	-26.4	-25.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-22.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	25.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	22.9	C	
1	21.000R	TOP	SERV-II	POS.	1.000	482.1	-26.4	-25.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-22.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	25.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	22.9	C	
1	23.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-26.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	26.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	23.0	C	
1	25.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-25.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-22.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	25.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	22.4	C	
1	27.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.3	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.3	C	

9041 INTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	27.300	BOT	SERV-IIA	POS.	1.000	482.1	26.4	21.4	C	
1	29.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.7	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	22.7	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.9	C	
1	31.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-20.6	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-18.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	20.6	C	
			SERV-IIA	POS.	1.000	482.1	26.4	18.1	C	
1	33.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-17.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-15.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	17.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	15.6	C	
1	35.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-14.4	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-12.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	14.4	C	
			SERV-IIA	POS.	1.000	482.1	26.4	12.6	C	
1	37.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-10.3	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-9.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	10.3	C	
			SERV-IIA	POS.	1.000	482.1	26.4	9.0	C	
1	39.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-5.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-4.8	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	5.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	4.8	C	
1	42.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	

* Legend of General Notes:
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from the stress flexural resistance, Fr
Fu = For bottom flanges of composite sections or both flanges of noncomposite sections, this value includes lateral stresses when input by the user (A6.10.4.2.2)

9041 INTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

** Legend of Resistance Calculation:
A. Composite, top flange, Fr calculated using A6.10.4.2.2-1
B. Composite, bottom flange, Fr calculated using A6.10.4.2.2-2
C. Noncomposite, Fr calculated using A6.10.4.2.2-3

SERVICE LIMIT STATE - WEB BEND-BUCKLING

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	0.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
1	2.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-5.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-4.8	
1	4.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-10.3	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-9.0	
1	6.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-14.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-12.6	
1	8.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-17.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-15.6	
1	10.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-20.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-18.1	
1	12.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.9	
1	14.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.3	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.4	
1	16.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-25.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-22.4	
1	18.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-26.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.0	
1	21.000L	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-25.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-22.9	
1	21.000R	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-25.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-22.9	
1	23.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-26.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.0	

9041 INTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	25.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-25.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-22.4	
1	27.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.3	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.4	
1	29.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.9	
1	31.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-20.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-18.1	
1	33.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-17.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-15.6	
1	35.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-14.4	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-12.6	
1	37.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-10.3	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-9.0	
1	39.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-5.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-4.8	
1	42.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	

* Legend of Intermediate Calculations:
Dc = Depth of web in compression
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fcrw
Fcrw = Nominal bend-buckling resistance, LRFD Specifications 6.10.4.2.2-4
fc = Compression-flange stress calculated without flange lateral bending
N/A = This check is not required for composite sections in positive flexure in which the web satisfies the requirement of LRFD Specifications Article 6.10.2.1.1

9041 INTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	0.000	STR-I	256.60	92.23	U	
		STR-II	256.60	77.51	U	
1	2.100	STR-I	256.60	85.30	U	
		STR-II	256.60	71.53	U	
1	4.200	STR-I	256.60	78.38	U	
		STR-II	256.60	65.55	U	
1	6.300	STR-I	256.60	71.46	U	
		STR-II	256.60	59.58	U	
1	8.400	STR-I	256.60	64.53	U	
		STR-II	256.60	53.60	U	
1	10.500	STR-I	256.60	57.61	U	
		STR-II	256.60	47.62	U	
1	12.600	STR-I	256.60	50.69	U	
		STR-II	256.60	41.65	U	
1	14.700	STR-I	256.60	43.92	U	
		STR-II	256.60	35.79	U	
1	16.800	STR-I	256.60	37.45	U	
		STR-II	256.60	30.17	U	
1	18.900	STR-I	256.60	30.99	U	
		STR-II	256.60	24.54	U	
1	21.000L	STR-I	256.60	24.53	U	
		STR-II	256.60	18.92	U	
1	21.000R	STR-I	256.60	24.53	U	
		STR-II	256.60	18.92	U	
1	23.100	STR-I	256.60	-30.99	U	
		STR-II	256.60	-24.54	U	
1	25.200	STR-I	256.60	-37.45	U	
		STR-II	256.60	-30.17	U	
1	27.300	STR-I	256.60	-43.92	U	
		STR-II	256.60	-35.79	U	
1	29.400	STR-I	256.60	-50.69	U	

9041 INTERIOR BEAM
HS20 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	29.400	STR-II	256.60	-41.65	U	
1	31.500	STR-I	256.60	-57.61	U	
		STR-II	256.60	-47.62	U	
1	33.600	STR-I	256.60	-64.53	U	
		STR-II	256.60	-53.60	U	
1	35.700	STR-I	256.60	-71.46	U	
		STR-II	256.60	-59.58	U	
1	37.800	STR-I	256.60	-78.38	U	
		STR-II	256.60	-65.55	U	
1	39.900	STR-I	256.60	-85.30	U	
		STR-II	256.60	-71.53	U	
1	42.000	STR-I	256.60	-92.23	U	
		STR-II	256.60	-77.51	U	

9041 INTERIOR BEAM
H20 - SPECIFICATION CHECKING

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	0.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
1	2.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-5.8	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-5.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	5.8	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	5.2	J	
1	4.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-11.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-9.8	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	11.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	9.8	J	
1	6.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.8	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.8	J	
1	8.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.3	J	
1	10.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-22.6	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	22.6	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.2	J	
1	12.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-22.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	22.6	J	
1	14.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.4	J	
1	16.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.6	J	
1	18.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.4	D	

9041 INTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	18.900	TOP	STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-26.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	26.3	J	
1	21.000L	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-26.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	26.4	J	
1	21.000R	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-26.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	26.4	J	
1	23.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-29.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-26.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	29.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	26.3	J	
1	25.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.6	J	
1	27.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.4	J	
1	29.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-25.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-22.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	25.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	22.6	J	
1	31.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-22.6	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-20.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	22.6	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	20.2	J	
1	33.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.4	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.4	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.3	J	
1	35.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-15.5	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-13.8	D	

9041 INTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	35.700	BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	15.5	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	13.8	J	
1	37.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-11.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-9.8	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	11.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	9.8	J	
1	39.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-5.8	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-5.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	5.8	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	5.2	J	
1	42.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	

* Legend of General Notes:
rt = Effective radius of gyration for lateral torsional buckling
Dc = Total depth of the web in compression, per Appendix D6.3.1
Rh = Hybrid factor
Rb = Load shedding factor (only applies to compression flange)
An/Ag = Net Area / Gross Area for net section fracture, A6.10.1.8-1
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fr
F+ = fbu + (1/3)*fl, total factored flexural + lateral stress due to wind (per A6.10.7.2.1-2, A6.10.8.1.1-1, or A6.10.8.1.2-1) and/or user input lateral effects

** Legend of Resistance Calculation:
A. Composite, noncompact, compression flange, Fr calculated using A6.10.7.2.2-1
B. Composite, noncompact, tension flange, Fr calculated using A6.10.7.2.2-2
C. Noncompos or neg. flexure, compression flange, Fr calculated using A6.10.8.1.3-1
D. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-1
E. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-2
F. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-1
G. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-2
H. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-3
I. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.1.3-1
J. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.3-1
K. Tension flange, Fr calculated using net section fracture, A6.10.1.8-1
X. SKW has not been entered. App. A provisions have been skipped but may be applicable.

9041 INTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

FLANGE LATERAL CAPACITY

This output report is not applicable because no lateral loads (wind or user input lateral loads) have been entered.

NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

SERVICE LIMIT STATE - FLEXURAL RESISTANCE

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	0.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
1	2.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-4.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-4.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	4.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	4.0	C	
1	4.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-8.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-7.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	8.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	7.6	C	
1	6.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-12.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-10.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	12.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	10.7	C	
1	8.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-15.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-13.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	15.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	13.4	C	
1	10.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-17.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-15.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	17.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	15.7	C	
1	12.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-19.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-17.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	19.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	17.5	C	
1	14.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-21.1	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-18.9	C	

9041 INTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	14.700	BOT	SERV-II	POS.	1.000	482.1	26.4	21.1	C	
			SERV-IIA	POS.	1.000	482.1	26.4	18.9	C	
1	16.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	22.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.9	C	
1	18.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.7	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-20.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	22.7	C	
			SERV-IIA	POS.	1.000	482.1	26.4	20.4	C	
1	21.000L	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-20.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	22.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	20.5	C	
1	21.000R	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-20.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	22.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	20.5	C	
1	23.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.7	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-20.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	22.7	C	
			SERV-IIA	POS.	1.000	482.1	26.4	20.4	C	
1	25.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-22.2	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	22.2	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.9	C	
1	27.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-21.1	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-18.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	21.1	C	
			SERV-IIA	POS.	1.000	482.1	26.4	18.9	C	
1	29.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-19.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-17.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	19.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	17.5	C	
1	31.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-17.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-15.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	17.5	C	

9041 INTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	31.500	BOT	SERV-IIA	POS.	1.000	482.1	26.4	15.7	C	
1	33.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-15.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-13.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	15.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	13.4	C	
1	35.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-12.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-10.7	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	12.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	10.7	C	
1	37.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-8.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-7.6	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	8.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	7.6	C	
1	39.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-4.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-4.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	4.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	4.0	C	
1	42.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	

* Legend of General Notes:
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from the stress flexural resistance, Fr
Fu = For bottom flanges of composite sections or both flanges of noncomposite sections, this value includes lateral stresses when input by the user (A6.10.4.2.2)

** Legend of Resistance Calculation:
A. Composite, top flange, Fr calculated using A6.10.4.2.2-1
B. Composite, bottom flange, Fr calculated using A6.10.4.2.2-2
C. Noncomposite, Fr calculated using A6.10.4.2.2-3

9041 INTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	0.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
1	2.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-4.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-4.0	
1	4.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-8.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-7.6	
1	6.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-12.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-10.7	
1	8.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-15.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-13.4	
1	10.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-17.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-15.7	
1	12.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-19.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-17.5	
1	14.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-21.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-18.9	
1	16.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.9	
1	18.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-20.4	
1	21.000L	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-20.5	
1	21.000R	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-20.5	
1	23.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.7	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-20.4	
1	25.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-22.2	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.9	
1	27.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-21.1	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-18.9	
1	29.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-19.5	

9041 INTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	29.400	TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-17.5	
1	31.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-17.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-15.7	
1	33.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-15.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-13.4	
1	35.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-12.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-10.7	
1	37.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-8.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-7.6	
1	39.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-4.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-4.0	
1	42.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	

* Legend of Intermediate Calculations:
Dc = Depth of web in compression
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fcrw
Fcrw = Nominal bend-buckling resistance, LRFD Specifications 6.10.4.2.2-4
fc = Compression-flange stress calculated without flange lateral bending
N/A = This check is not required for composite sections in positive flexure in which the web satisfies the requirement of LRFD Specifications Article 6.10.2.1.1

SHEAR CAPACITY

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	0.000	STR-I	256.60	73.19	U	
		STR-II	256.60	62.82	U	
1	2.100	STR-I	256.60	67.40	U	
		STR-II	256.60	57.72	U	
1	4.200	STR-I	256.60	61.69	U	

9041 INTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	4.200	STR-II	256.60	52.68	U	
1	6.300	STR-I	256.60	56.06	U	
		STR-II	256.60	47.70	U	
1	8.400	STR-I	256.60	50.51	U	
		STR-II	256.60	42.78	U	
1	10.500	STR-I	256.60	45.35	U	
		STR-II	256.60	38.16	U	
1	12.600	STR-I	256.60	40.26	U	
		STR-II	256.60	33.61	U	
1	14.700	STR-I	256.60	35.18	U	
		STR-II	256.60	29.05	U	
1	16.800	STR-I	256.60	30.10	U	
		STR-II	256.60	24.49	U	
1	18.900	STR-I	256.60	25.01	U	
		STR-II	256.60	19.93	U	
1	21.000L	STR-I	256.60	19.93	U	
		STR-II	256.60	15.37	U	
1	21.000R	STR-I	256.60	19.93	U	
		STR-II	256.60	15.37	U	
1	23.100	STR-I	256.60	-25.01	U	
		STR-II	256.60	-19.93	U	
1	25.200	STR-I	256.60	-30.10	U	
		STR-II	256.60	-24.49	U	
1	27.300	STR-I	256.60	-35.18	U	
		STR-II	256.60	-29.05	U	
1	29.400	STR-I	256.60	-40.26	U	
		STR-II	256.60	-33.61	U	
1	31.500	STR-I	256.60	-45.35	U	
		STR-II	256.60	-38.16	U	
1	33.600	STR-I	256.60	-50.51	U	

9041 INTERIOR BEAM
H20 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	33.600	STR-II	256.60	-42.78	U	
1	35.700	STR-I	256.60	-56.06	U	
		STR-II	256.60	-47.70	U	
1	37.800	STR-I	256.60	-61.69	U	
		STR-II	256.60	-52.68	U	
1	39.900	STR-I	256.60	-67.40	U	
		STR-II	256.60	-57.72	U	
1	42.000	STR-I	256.60	-73.19	U	
		STR-II	256.60	-62.82	U	

9041 INTERIOR BEAM
TK527 - SPECIFICATION CHECKING

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	0.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
1	2.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.6	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.6	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.6	J	
1	4.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.3	J	
1	6.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.2	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.2	J	
1	8.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.4	J	
1	10.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.6	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.8	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.6	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.8	J	
1	12.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.7	J	
1	14.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-34.6	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	34.6	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.0	J	
1	16.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.4	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.4	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.6	J	
1	18.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-37.2	D	A

9041 INTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	18.900	TOP	STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	37.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.4	J	
1	21.000L	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-37.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	37.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.4	J	
1	21.000R	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-37.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	37.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.4	J	
1	23.100	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-37.2	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-32.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	37.2	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	32.4	J	
1	25.200	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-36.4	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	36.4	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.6	J	
1	27.300	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-34.6	D	A
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-30.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	34.6	J	A
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	30.0	J	
1	29.400	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-31.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-27.7	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	31.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	27.7	J	
1	31.500	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-28.6	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.8	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	28.6	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.8	J	
1	33.600	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-24.7	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-21.4	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	24.7	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	21.4	J	
1	35.700	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-19.9	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-17.2	D	

9041 INTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations rt* (in)	Dc* (in)	Rh*	Rb*	An/Ag*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flex+Lat Stress F+* (ksi)	Resist. Calc.**	Code Chk***
1	35.700	BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	19.9	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	17.2	J	
1	37.800	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-14.3	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-12.3	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	14.3	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	12.3	J	
1	39.900	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-7.6	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	-6.6	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	7.6	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	6.6	J	
1	42.000	TOP	STR-I	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
			STR-II	POS.	2.2	12.8	1.000	1.000	N/A	602.6	-33.0	0.0	D	
		BOT	STR-I	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	
			STR-II	POS.	2.2	12.8	1.000	N/A	N/A	602.6	33.0	0.0	J	

* Legend of General Notes:
rt = Effective radius of gyration for lateral torsional buckling
Dc = Total depth of the web in compression, per Appendix D6.3.1
Rh = Hybrid factor
Rb = Load shedding factor (only applies to compression flange)
An/Ag = Net Area / Gross Area for net section fracture, A6.10.1.8-1
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fr
F+ = fbu + (1/3)*fl, total factored flexural + lateral stress due to wind (per A6.10.7.2.1-2, A6.10.8.1.1-1, or A6.10.8.1.2-1) and/or user input lateral effects

** Legend of Resistance Calculation:
A. Composite, noncompact, compression flange, Fr calculated using A6.10.7.2.2-1
B. Composite, noncompact, tension flange, Fr calculated using A6.10.7.2.2-2
C. Noncompos or neg. flexure, compression flange, Fr calculated using A6.10.8.1.3-1
D. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-1
E. Noncompos or neg. flexure, compression flange, Fr calculated using FLB, A6.10.8.2.2-2
F. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-1
G. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-2
H. Noncompos or neg. flexure, compression flange, Fr calculated using LTB, A6.10.8.2.3-3
I. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.1.3-1
J. Noncompos or neg. flexure, tension flange, Fr calculated using A6.10.8.3-1
K. Tension flange, Fr calculated using net section fracture, A6.10.1.8-1
X. SKW has not been entered. App. A provisions have been skipped but may be applicable.

9041 INTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT) (c

*** Legend of Code Check:
A. Insufficient flexural resistance
B. Based on the total stress in the bottom flange, this section is analyzed for positive flexure, so the top flange capacity is based on compression. However, the total factored stress (F+) in the top flange is tensile. The user should verify the acceptability of the section by comparing the top flange stress (F+) to the flexural resistance (Fr) of the top flange in negative flexure.

FLANGE LATERAL CAPACITY

This output report is not applicable because no lateral loads (wind or user input lateral loads) have been entered.

NET SECTION FRACTURE CHECK

Not applicable due to absence of section holes

SERVICE LIMIT STATE - FLEXURAL RESISTANCE

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	0.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	
1	2.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-5.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	5.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.0	C	
1	4.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-10.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-9.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	10.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	9.5	C	
1	6.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-15.3	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-13.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	15.3	C	
			SERV-IIA	POS.	1.000	482.1	26.4	13.3	C	
1	8.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-18.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-16.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	18.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	16.4	C	
1	10.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-21.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.1	C	

9041 INTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	10.500	BOT	SERV-II	POS.	1.000	482.1	26.4	21.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.1	C	
1	12.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.3	C	
1	14.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-26.5	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	26.5	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	23.1	C	
1	16.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.9	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.9	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.3	C	
1	18.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-28.6	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	28.6	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.9	C	
1	21.000L	TOP	SERV-II	POS.	1.000	482.1	-26.4	-28.6	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	28.6	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.9	C	
1	21.000R	TOP	SERV-II	POS.	1.000	482.1	-26.4	-28.6	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	28.6	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.9	C	
1	23.100	TOP	SERV-II	POS.	1.000	482.1	-26.4	-28.6	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.9	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	28.6	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.9	C	
1	25.200	TOP	SERV-II	POS.	1.000	482.1	-26.4	-27.9	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-24.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	27.9	C	A
			SERV-IIA	POS.	1.000	482.1	26.4	24.3	C	
1	27.300	TOP	SERV-II	POS.	1.000	482.1	-26.4	-26.5	C	A
			SERV-IIA	POS.	1.000	482.1	-26.4	-23.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	26.5	C	A

9041 INTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculation Rh*	Flexural Resistance Mr(e)* (kip-ft)	Flexural Resistance Fr (ksi)	Factored Flexural Stress Fu* (ksi)	Resist. Calc.**	Code Check***
1	27.300	BOT	SERV-IIA	POS.	1.000	482.1	26.4	23.1	C	
1	29.400	TOP	SERV-II	POS.	1.000	482.1	-26.4	-24.5	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-21.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	24.5	C	
			SERV-IIA	POS.	1.000	482.1	26.4	21.3	C	
1	31.500	TOP	SERV-II	POS.	1.000	482.1	-26.4	-21.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-19.1	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	21.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	19.1	C	
1	33.600	TOP	SERV-II	POS.	1.000	482.1	-26.4	-18.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-16.4	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	18.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	16.4	C	
1	35.700	TOP	SERV-II	POS.	1.000	482.1	-26.4	-15.3	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-13.3	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	15.3	C	
			SERV-IIA	POS.	1.000	482.1	26.4	13.3	C	
1	37.800	TOP	SERV-II	POS.	1.000	482.1	-26.4	-10.9	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-9.5	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	10.9	C	
			SERV-IIA	POS.	1.000	482.1	26.4	9.5	C	
1	39.900	TOP	SERV-II	POS.	1.000	482.1	-26.4	-5.8	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	-5.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	5.8	C	
			SERV-IIA	POS.	1.000	482.1	26.4	5.0	C	
1	42.000	TOP	SERV-II	POS.	1.000	482.1	-26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	-26.4	0.0	C	
		BOT	SERV-II	POS.	1.000	482.1	26.4	0.0	C	
			SERV-IIA	POS.	1.000	482.1	26.4	0.0	C	

* Legend of General Notes:
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from the stress flexural resistance, Fr
Fu = For bottom flanges of composite sections or both flanges of noncomposite sections, this value includes lateral stresses when input by the user (A6.10.4.2.2)

9041 INTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - FLEXURAL RESISTANCE (cont.)

** Legend of Resistance Calculation:
A. Composite, top flange, Fr calculated using A6.10.4.2.2-1
B. Composite, bottom flange, Fr calculated using A6.10.4.2.2-2
C. Noncomposite, Fr calculated using A6.10.4.2.2-3

*** Legend of Code Check:
A. Insufficient flexural resistance

SERVICE LIMIT STATE - WEB BEND-BUCKLING

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	0.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	
1	2.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-5.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.0	
1	4.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-10.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-9.5	
1	6.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-15.3	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-13.3	
1	8.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-18.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-16.4	
1	10.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-21.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.1	
1	12.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.3	
1	14.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-26.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.1	
1	16.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.3	
1	18.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-28.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.9	
1	21.000L	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-28.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.9	
1	21.000R	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-28.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.9	

9041 INTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SERVICE LIMIT STATE - WEB BEND-BUCKLING (cont.)

Span No.	Dist. (ft)	T/B	Limit State	Flex.	Intermediate Calculations Dc* (in)	Rh*	Flexural Resistance Mr(e)* (kip-ft)	Fcrw* (ksi)	Factored Flexural Stress fc* (ksi)	Code Check**
1	23.100	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-28.6	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.9	
1	25.200	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-27.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-24.3	
1	27.300	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-26.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-23.1	
1	29.400	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-24.5	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-21.3	
1	31.500	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-21.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-19.1	
1	33.600	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-18.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-16.4	
1	35.700	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-15.3	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-13.3	
1	37.800	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-10.9	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-9.5	
1	39.900	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	-5.8	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	-5.0	
1	42.000	TOP	SERV-II	POS.	12.79	1.000	602.6	-33.0	0.0	
		TOP	SERV-IIA	POS.	12.79	1.000	602.6	-33.0	0.0	

* Legend of Intermediate Calculations:
Dc = Depth of web in compression
Rh = Hybrid factor
Mr(e) = Flexural resistance in terms of moment, back-calculated from from the stress flexural resistance, Fcrw
Fcrw = Nominal bend-buckling resistance, LRFD Specifications 6.10.4.2.2-4
fc = Compression-flange stress calculated without flange lateral bending
N/A = This check is not required for composite sections in positive flexure in which the web satisfies the requirement of LRFD Specifications Article 6.10.2.1.1

9041 INTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	0.000	STR-I	256.60	100.02	U	
		STR-II	256.60	83.52	U	
1	2.100	STR-I	256.60	92.50	U	
		STR-II	256.60	77.09	U	
1	4.200	STR-I	256.60	84.98	U	
		STR-II	256.60	70.65	U	
1	6.300	STR-I	256.60	77.46	U	
		STR-II	256.60	64.21	U	
1	8.400	STR-I	256.60	70.03	U	
		STR-II	256.60	57.84	U	
1	10.500	STR-I	256.60	62.98	U	
		STR-II	256.60	51.77	U	
1	12.600	STR-I	256.60	55.93	U	
		STR-II	256.60	45.69	U	
1	14.700	STR-I	256.60	48.89	U	
		STR-II	256.60	39.62	U	
1	16.800	STR-I	256.60	41.84	U	
		STR-II	256.60	33.55	U	
1	18.900	STR-I	256.60	34.79	U	
		STR-II	256.60	27.48	U	
1	21.000L	STR-I	256.60	27.75	U	
		STR-II	256.60	21.40	U	
1	21.000R	STR-I	256.60	27.75	U	
		STR-II	256.60	21.40	U	
1	23.100	STR-I	256.60	-34.79	U	
		STR-II	256.60	-27.48	U	
1	25.200	STR-I	256.60	-41.84	U	
		STR-II	256.60	-33.55	U	
1	27.300	STR-I	256.60	-48.89	U	
		STR-II	256.60	-39.62	U	
1	29.400	STR-I	256.60	-55.93	U	

9041 INTERIOR BEAM
TK527 - SPECIFICATION CHECKING (cont.)

SHEAR CAPACITY (cont.)

Span No.	Dist. (ft)	Limit State	Factored Shear Resistance Vr (kips)	Maximum Factored Shear Vu (kips)	Stiffened/ Unstiffened	Code Check*
1	29.400	STR-II	256.60	-45.69	U	
1	31.500	STR-I	256.60	-62.98	U	
		STR-II	256.60	-51.77	U	
1	33.600	STR-I	256.60	-70.03	U	
		STR-II	256.60	-57.84	U	
1	35.700	STR-I	256.60	-77.46	U	
		STR-II	256.60	-64.21	U	
1	37.800	STR-I	256.60	-84.98	U	
		STR-II	256.60	-70.65	U	
1	39.900	STR-I	256.60	-92.50	U	
		STR-II	256.60	-77.09	U	
1	42.000	STR-I	256.60	-100.02	U	
		STR-II	256.60	-83.52	U	

9041 INTERIOR BEAM
SUMMARY - OVERALL REACTIONS

REACTIONS & ROTATIONS PER GIRDER (UNFACTORED, W/O IMPACT, W/ DISTRIBUTION)
FOR ELASTOMERIC BEARING PAD DESIGN

Support No.		Minimum Reaction (kips)	LC	Maximum Reaction (kips)	LC	Live Load Rotation (radians)	LC
1	Total DC1	20.11		20.11			
	Total DC2	2.16		2.16			
	Total DL	22.27		22.27			
	LL (PHL-93)	0.00		36.04	1	0.003972	5
2	Total DC1	20.11		20.11			
	Total DC2	2.16		2.16			
	Total DL	22.27		22.27			
	LL (PHL-93)	0.00		36.04	1	0.003972	5

Note: Rotation is about an axis normal to the centerline of the beam.
The rotation value given is the larger of the positive rotation and absolute value of the negative rotation due to live load.

LC (PHL-93 Loading Codes):
1 - Tandem + Lane Governs
2 - Truck + Lane Governs
3 - Tandem Pair + Lane Governs
4 - Truck Pair + Lane Governs
5 - Truck Alone Governs
6 - 25% Truck + Lane Governs
7 - 90% (Truck Pair + Lane) Governs

9041 INTERIOR BEAM
SUMMARY - OVERALL REACTIONS (cont.)

REACTIONS & ROTATIONS PER GIRDER (UNFACTORED, W/ IMPACT, W/ DISTRIBUTION)
FOR POT, STEEL OR DISC BEARING DESIGN

Support No.		Minimum Reaction (kips)	LC	Maximum Reaction (kips)	LC	Rotation (radians)	LC
1	Total DC1	20.11		20.11		-0.004949	
	Total DC2	2.16		2.16		-0.000532	
	Total DL	22.27		22.27		-0.005481	
	LL (PHL-93)	0.00		45.75	1	-0.005282	5
2	Total DC1	20.11		20.11		0.004949	
	Total DC2	2.16		2.16		0.000532	
	Total DL	22.27		22.27		0.005481	
	LL (PHL-93)	0.00		45.75	1	0.005282	5

Note: Rotation is about an axis normal to the centerline of the beam.

LC (PHL-93 Loading Codes):
1 - Tandem + Lane Governs
2 - Truck + Lane Governs
3 - Tandem Pair + Lane Governs
4 - Truck Pair + Lane Governs
5 - Truck Alone Governs
6 - 25% Truck + Lane Governs
7 - 90% (Truck Pair + Lane) Governs

9041 INTERIOR BEAM
SUMMARY - OVERALL REACTIONS (cont.)

REACTIONS (UNFACTORED) FOR ABUTMENT DESIGN

DL REACTIONS (UNFACTORED) PER GIRDER

Support No.		Minimum Reaction (kips)	Maximum Reaction (kips)
1	Total DC1	20.11	20.11
	Total DC2	2.16	2.16
	Total DL	22.27	22.27
2	Total DC1	20.11	20.11
	Total DC2	2.16	2.16
	Total DL	22.27	22.27

LL REACTIONS PER LANE (UNFACTORED, W/O IMPACT)

Support No.		Minimum Reaction (kips)	LC	Maximum Reaction (kips)	LC
1	PHL-93	0.00		72.96	1
2	PHL-93	0.00		72.96	1

Note: These values are to be used only if the end supports are abutments. Do not use these values for the pier design at a discontinuous superstructure.

LC (PHL-93 Loading Codes):
1 - Tandem + Lane Governs
2 - Truck + Lane Governs
3 - Tandem Pair + Lane Governs
4 - Truck Pair + Lane Governs
5 - Truck Alone Governs
6 - 25% Truck + Lane Governs
7 - 90% (Truck Pair + Lane) Governs

9041 INTERIOR BEAM
SUMMARY - OVERALL REACTIONS (cont.)

REACTIONS (UNFACTORED) FOR PIER DESIGN

DL REACTIONS (UNFACTORED) PER GIRDER

Support No.		Minimum Reaction (kips)	Maximum Reaction (kips)
1	Total DC1	20.11	20.11
	Total DC2	2.16	2.16
	Total DL	22.27	22.27
2	Total DC1	20.11	20.11
	Total DC2	2.16	2.16
	Total DL	22.27	22.27

LL REACTIONS PER LANE (UNFACTORED, W/O IMPACT)

Support No.		Minimum Reaction Vehicle (kips)	LC	Minimum Reaction Lane (kips)	LC	Maximum Reaction Vehicle (kips)	LC	Maximum Reaction Lane (kips)	LC
1	PHL-93	0.00		0.00		59.52	1	13.44	1
	P-82	0.00				97.71			
2	PHL-93	0.00		0.00		59.52	1	13.44	1
	P-82	0.00				97.71			

Note: Impact must be added for pier cap design

LC (PHL-93 Loading Codes):
1 - Tandem + Lane Governs
2 - Truck + Lane Governs
3 - Tandem Pair + Lane Governs
4 - Truck Pair + Lane Governs
5 - Truck Alone Governs
6 - 25% Truck + Lane Governs
7 - 90% (Truck Pair + Lane) Governs

9041 INTERIOR BEAM
SUMMARY - RATING FACTORS W/O FWS

RATING FACTORS - OVERALL SUMMARY W/O FWS

	Governs	T/B	Rating Factor	Rating Tonnage (tons)	Span No.	Dist. (ft)	Limit State
PHL-93							
Inventory	Flexure	T	0.655		1	21.000L	STR-I
Operating	Flexure	T	0.849		1	21.000L	STR-IA
P-82							
Operating	Flexure	T	0.718	73.2	1	21.000L	STR-II
ML-80							
Inventory	Flexure	T	0.746	27.3	1	21.000L	STR-I
Operating	Flexure	T	0.967	35.4	1	21.000L	STR-II
HS20							
Inventory	Flexure	T	0.954	34.3	1	18.900	STR-I
Operating	Flexure	T	1.236	44.5	1	18.900	STR-II
H20							
Inventory	Flexure	T	1.260	25.2	1	21.000L	STR-I
Operating	Flexure	T	1.633	32.7	1	21.000L	STR-II
TK527							
Inventory	Flexure	T	0.801	32.0	1	21.000L	STR-I
Operating	Flexure	T	1.038	41.5	1	21.000L	STR-II

9041 INTERIOR BEAM
SUMMARY - SPECIFICATION CHECKS

SPECIFICATION CHECK WARNINGS

For the live loadings input by the user, the program encountered one or more specification check warnings. Specification check warnings indicate conditions that do not fail a specification check, but may need to be reviewed by the user. The following is a list of output table headings, listed separately for each live loading for which warnings have occurred. It should be noted that the program does not perform specification checking corresponding to commands that have not been input by the user.

PHL-93/P-82

%WARNING: **THIS MUST BE APPROVED BY CHIEF BRIDGE ENGINEER** on Page 7
ECONOMIC FEASIBILITY CHECKS

9041 INTERIOR BEAM
SUMMARY - SPECIFICATION CHECKS (cont.)

SPECIFICATION CHECK FAILURES

For the live loadings input by the user, the program encountered one or more specification check failures. The following is a list of output table headings, listed separately for each live loading for which failures have occurred. It should be noted that the program does not perform specification checking corresponding to commands that have not been input by the user.

PHL-93/P-82

- DISTRIBUTION FACTORS FOR DESIGN LIVE LOADING (LANE FRACTION, INCL. SKEW)
- DISTRIBUTION FACTORS FOR FATIGUE VEHICLE (LANE FRACTION, INCL. SKEW)
- STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)
- SERVICE LIMIT STATE - FLEXURAL RESISTANCE
- BEARING STIFFENER CHECK
- WEB CONCENTRATED LOAD CHECK
- DEFLECTION LIMITS FOR LIVE LOAD
- RATING FACTORS - STRESS FLEXURAL CAPACITY

ML-80

- STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)
- SERVICE LIMIT STATE - FLEXURAL RESISTANCE
- BEARING STIFFENER CHECK
- WEB CONCENTRATED LOAD CHECK
- RATING FACTORS - STRESS FLEXURAL CAPACITY

HS20

- STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)
- BEARING STIFFENER CHECK
- WEB CONCENTRATED LOAD CHECK
- RATING FACTORS - STRESS FLEXURAL CAPACITY

TK527

- STRESS FLEXURAL CAPACITY (NONCOMPOSITE OR -FLEX OR COMPOSITE/NONCOMPACT)
- SERVICE LIMIT STATE - FLEXURAL RESISTANCE
- BEARING STIFFENER CHECK
- WEB CONCENTRATED LOAD CHECK
- RATING FACTORS - STRESS FLEXURAL CAPACITY

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HS20 - SPECIFICATION CHECKING	35
H20 - SPECIFICATION CHECKING	45
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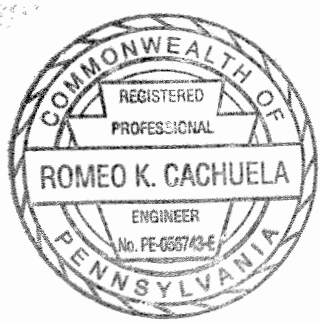
SUMMARY - SPECIFICATION CHECKS	70

Load Rating Summary



Romeo K. Cachuela
9/23/2013

BMS No: **48 7208 0684 9041**
Feature Carried: **Little Creek Road**
Feature Intersected: **Little Martins Creek**
Structure Type: Two Span Simply Supported Encased I-Beam

Inspection Date: 12/5/2012
Analysis Method: Load Factor Design (LFD) Method
Additional Criteria:

By: CMA Date: 8/27/13 Commented Changes: JMF 11/24/15
Chk By: RKC Date: 9/12/13 Checked: MDR 12/8/15

Ratings (BAR7 Version 7.13.0.0)

	Inventory Rating Tons / Load Effect								Operating Rating Tons / Load Effect							
	H20		HS20		ML80		TK527		H20		HS20		ML80		TK527	
Fascia Beam																
no measurable section losses	20	M	28	M	22	M	26	M	34	M	47	M	37	M	43	M
Interior Beam																
no measurable section losses	20	M	28	M	22	M	26	M	34	M	47	M	37	M	43	M
Controlling	**20**	**M**	**28**	**M**	**22**	**M**	**26**	**M**	**34**	**M**	**47**	**M**	**37**	**M**	**43**	**M**

Existing Posting: 20 Tons
Proposed Posting: No posting is required. Existing posting can be removed.

Following STV's December 2012 bridge inspection, in order to perform a load rating analysis, it was determined to be necessary to remove some of the concrete encasement at the bottom flange of a beam as well as drill down through the top of the asphalt overlay and deck slab to the top of a beam to obtain beam, deck slab and asphalt overlay measurements. The work was performed in May 2013 (see attached correspondence) and STV was able to match a historic steel beam section based on field measurements and determine the asphalt overlay and deck slab depths.

CLIENT	PennDOT District 5-0	STV INCORPORATED				
PROJECT	NBIS Bridge Rating Analysis	MADE	CHK	REV	JOB NO.	
SUBJECT	BMS#: 48 7208 0684 9041	CMA	RKC		4013872	
	Fascia Beams	8/27/13	9/12/13		SHT. NO.	

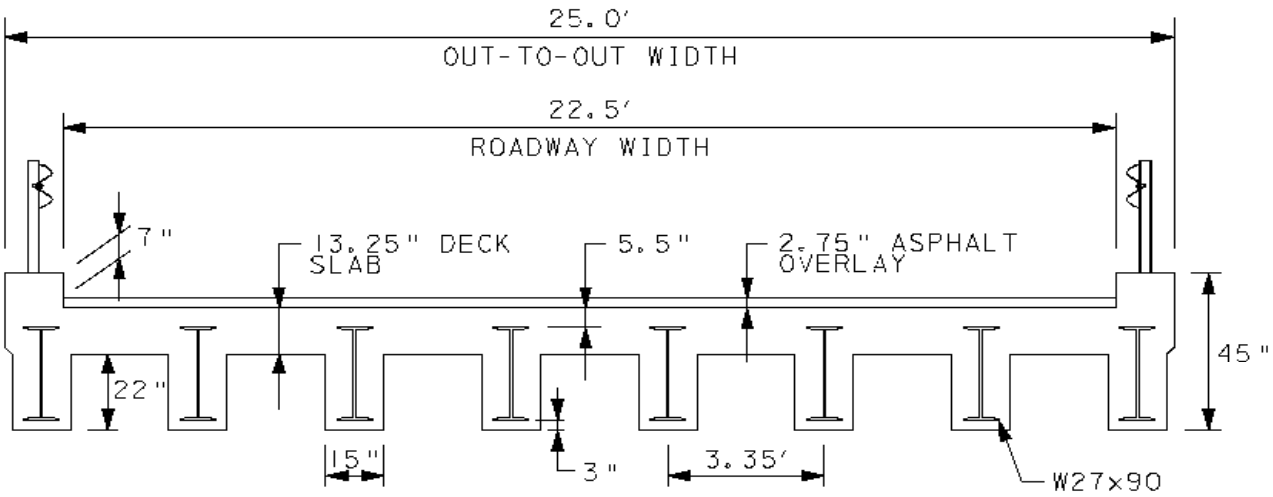
Input

Output

FASCIA BEAMS

References

- AASHTO LFD Standard Specifications for Highway Bridges, 16th Edition (A LFD)
- AASHTO LRFD Bridge Design Specifications, 5th Edition (A LRFD)
- PennDOT Design Manual Part 4, May 2012 Edition (DM-4)



Notes

- No reinforcement was noted in the encasement at the area of the beam where a portion of the encasement was removed. According to the BAR7 User's Manual definition of an encased I-beam, the encased I-beam can only be considered composite if there is sufficient reinforcement wrapped around the beam to provide composite action between the beam and the slab. Therefore, per BAR7 User's Manual 3.2.4, the encased I-beam will be considered non-composite and analyzed as a multi-girder bridge type "GGG."

- According to Northampton County, a core from the top of asphalt to the top of beam showed a depth of 5.5 inches (see attached correspondence). This would indicate a beam depth of approximately 29.5 inches. No historical sections could be matched to a beam of this depth with similar flange dimensions that were measured in the field by STV. However, if the 5.5 inches measured by the County is taken from the top of the actual deck to the top of the beam, a historical section can be determined. Since this approach conservatively uses a shallower beam, this analysis will utilize this approach.

CLIENT	PennDOT District 5-0	STV INCORPORATED			
PROJECT	NBIS Bridge Rating Analysis	MADE	CHK	REV	JOB NO.
SUBJECT	BMS#: 48 7208 0684 9041	CMA	RKC		4013872
	Fascia Beams	8/27/13	9/12/13		SHT. NO.

Input
Output

FASCIA BEAMS

Bridge Data

Roadway Width=	22.5	ft	
Out-to-Out Width=	25	ft	
No of Lanes=	2		A LFD 3.6.3
No of Beams=	8		
Beam Spacing, S=	3.35	ft	

Live Load Distribution Factors

Deflection

Reduction Factor=	1.0		A LFD 3.12.1
DF_{DEF}=	**0.250**		

Shear

Shear Correction Factor

Span Length, L=	42	ft	field measured
Slab Depth, t_s=	13.25	in	
PennDOT Skew Angle, Θ=	30	°	field measured
Longit. Stiffness Parameter, Kg=	n (I + A x e_g^2)		A LRFD 4.6.2.2.1-1
n=	E_B/E_D		A LRFD 4.6.2.2.1-2
E_B=	28000	ksi	
E_D=	2850	ksi	based on f'c = 2.5 ksi concrete per MBE Table 6A.5.2.1-1 (Bridge built 1946)
n=	9		
I @ obtuse corner=	2958.30	in^4	Historic Section (attached)
A @ obtuse corner=	26.34	in^2	Historic Section (attached)
e_g=	**12.375**	in	
Deck Y_{cg}=	6.625	in	from bottom of deck
Beam Y_{cg}=	5.75	in	from bottom of deck
K_g=	**62928.217**	in^4	
Shear Skew Correction Factor=	**1.833**		DM-4 Table 4.6.2.2.3c-1

STLRFD maximum slab thickness = 12". Account for remaining 1.25" in DL1 (see page 4 for changes to exterior girder run and page 8 for changes to interior girder run).

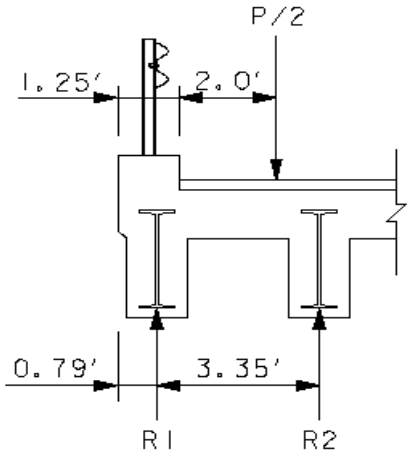
CLIENT	PennDOT District 5-0	STV INCORPORATED			
PROJECT	NBIS Bridge Rating Analysis	MADE	CHK	REV	JOB NO.
SUBJECT	BMS#: 48 7208 0684 9041	CMA	RKC		4013872
	Fascia Beams	8/27/13	9/12/13		SHT. NO.

Input

Output

FASCIA BEAMS

Live Load Distribution Factor — A LFD 3.23.1



R1 x 3.35' = P/2 x (3.35' + 0.79' -1.25' - 2.0')
R1 = 0.89' / 3.35' x P/2
R1 = 0.266 x P/2
R1 = 0.133 x P

DF= 0.133

DF_V= **0.133**

Moment

DF= **0.133** — A LFD 3.23.2.3.1.2

OR

DF= **1/2 x S / 5.5** — A LFD 3.23.2.3.1.5 (in terms of wheel load)

DF= **0.305**

DF_M= **0.305** — Use max between Lever Rule and LFD Dist. Factor

Dead Loads

DL1

Encasement

Concrete Wt=	150	pcf	A LFD 3.3.6
Width=	15	in	
Height=	22	in	
DL1=	**0.344**	klf	= Concrete Wt * Width * Height

CLIENT	PennDOT District 5-0	STV INCORPORATED			
PROJECT	NBIS Bridge Rating Analysis	MADE	CHK	REV	JOB NO.
SUBJECT	BMS#: 48 7208 0684 9041	CMA	RKC		4013872
	Fascia Beams	8/27/13	9/12/13		SHT. NO.

Input
Output

FASCIA BEAMS

Beam

The slab DL1 calculated by BAR7 and the encasement DL1 calculated above are based on gross sections. Therefore, a negative DL1 based on the cross sectional area of slab and encasement occupied by the beam will be calculated to input the proper net DL1.

Concrete Wt=	150	pcf	A LFD 3.3.6
Beam Area=	26.34	in^2	Historical Section (attached)
DL1=	**-0.027**	klf	= -1 * Concrete Wt * Beam Area

Curb

curbs appear to have been poured with deck slab

Concrete Wt=	150	pcf	A LFD 3.3.6
Height=	9.75	in	
Width=	**1.25**	ft	
DL1 ~~DL2~~=	**0.152**	klf	= Concrete Wt * Height * Width

Top of Slab DL1 = 150pcf * 1.25" * 25' / 8 bms (A LFD 3.23.2.3.1.1)
DL1 = 0.049 klf

Total

DL1=	~~**0.469**~~	~~klf~~	
	0.518	klf	

DL2

Guiderail

placed after slab and curbs cured

Guiderail Wt=	50	plf	
DL2=	**0.013**	klf	= Guiderail Wt * 2 / No. of Beams (A LFD 3.23.2.3.1.1)

Asphalt Overlay

placed after slab and curbs cured

Asphalt Wt=	140	pcf	A LFD 3.3.6
Depth=	2.75	in	field measured
DL2=	**0.090**	klf	= Asphalt Wt * Depth * Roadway Width / No. of Beams (A LFD 3.23.2.3.1.1)

Total

DL2=	**0.103**	klf

CLIENT	PennDOT District 5-0	STV INCORPORATED			
PROJECT	NBIS Bridge Rating Analysis	MADE	CHK	REV	JOB NO.
SUBJECT	BMS#: 48 7208 0684 9041	CMA	RKC		4013872
	Fascia Beams	8/27/13	9/12/13		SHT. NO.

Input
Output

FASCIA BEAMS

Beam Dimensions Historic Section (attached)

No section losses noted.

Moment of Inertia=	2958.3	in^4	
Area=	26.34	in^2	
Flange Thickness=	0.7075	in	average
Flange Width=	9.0	in	
Beam Depth=	27.0	in	
Web Thickness=	0.524	in	
Composite=	No		
Yield Strength=	33	ksi	MBE Table 6A.6.2.1-1 (Bridge Built 1946)

Lateral Bracing

Top Flange

Top flange of non-composite section is fully in contact with the deck and no sign of cracking, rust, or separation along the steel-concrete interface is present. Therefore, consider the top flange continuously braced as per MBE 6A.6.9.3.

Bottom Flange

None noted.

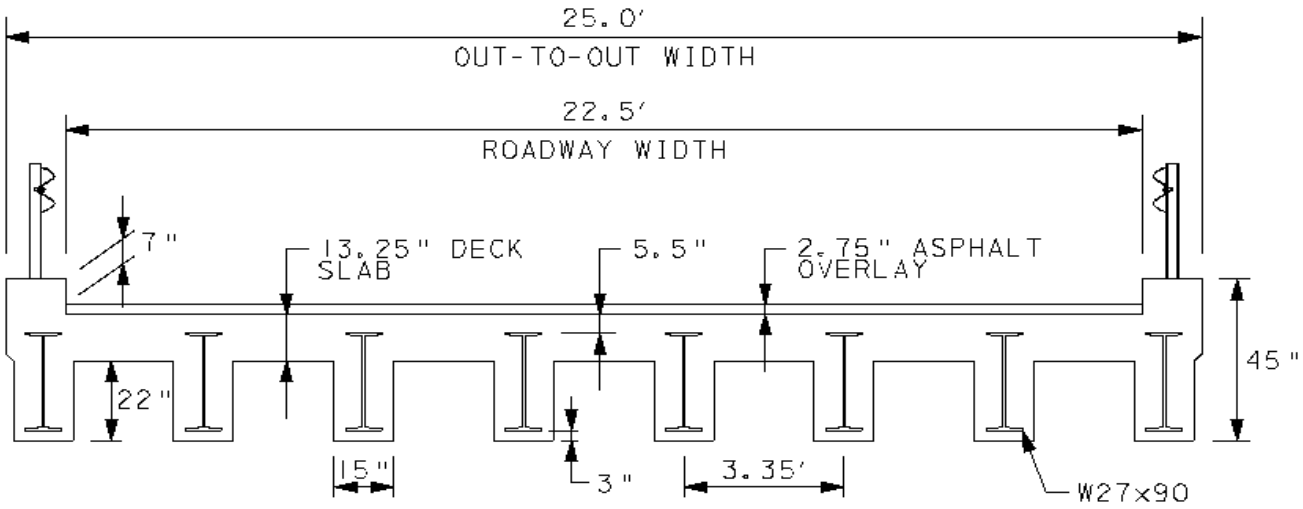
CLIENT	PennDOT District 5-0	STV INCORPORATED				
PROJECT	NBIS Bridge Rating Analysis	MADE	CHK	REV	JOB NO.	
SUBJECT	BMS#: 48 7208 0684 9041	CMA	RKC		4013872	
	Interior Beams	8/27/13	9/10/13		SHT. NO.	

Input
Output

INTERIOR BEAMS

References

- AASHTO LFD Standard Specifications for Highway Bridges, 16th Edition (A LFD)
- AASHTO LRFD Bridge Design Specifications, 5th Edition (A LRFD)
- PennDOT Design Manual Part 4, May 2012 Edition (DM-4)



Notes

- No reinforcement was noted in the encasement at the area of the beam where a portion of the encasement was removed. According to the BAR7 User's Manual definition of an encased I-beam, the encased I-beam can only be considered composite if there is sufficient reinforcement wrapped around the beam to provide composite action between the beam and the slab. Therefore, per BAR7 User's Manual 3.2.4, the encased I-beam will be considered non-composite and analyzed as a multi-girder bridge type "GGG."

- According to Northampton County, a core from the top of asphalt to the top of beam showed a depth of 5.5 inches (see attached correspondence). This would indicate a beam depth of approximately 29.5 inches. No historical sections could be matched to a beam of this depth with similar flange dimensions that were measured in the field by STV. However, if the 5.5 inches measured by the County is taken from the top of the actual deck to the top of the beam, a historical section can be determined. Since this approach conservatively uses a shallower beam, this analysis will utilize this approach.

CLIENT	PennDOT District 5-0	STV INCORPORATED				
PROJECT	NBIS Bridge Rating Analysis	MADE	CHK	REV	JOB NO.	
SUBJECT	BMS#: 48 7208 0684 9041	CMA	RKC		4013872	
	Interior Beams	8/27/13	9/10/13		SHT. NO.	

Input
Output

INTERIOR BEAMS

Bridge Data

Roadway Width=	22.5	ft	
Out-to-Out Width=	25	ft	
No of Lanes=	2		A LFD 3.6.3
No of Beams=	8		
Beam Spacing, S=	3.35	ft	

Live Load Distribution Factors

Deflection

Reduction Factor=	1.0	A LFD 3.12.1
DF_{DEF}=	**0.250**	

Shear

DF_V=	0.500	wheel load directly over beam

Moment

DF=	1/2 x S / 5.5	A LFD Table 3.23.1 (in terms of wheel load)
DF=	**0.305**	A LFD 3.23.2.2
DF_M=	**0.305**	

Dead Loads

DL1

Encasement

Concrete Wt=	150	pcf	A LFD 3.3.6
Width=	15	in	
Height=	22	in	
DL1=	**0.344**	klf	= Concrete Wt * Width * Height

Beam

The slab DL1 calculated by BAR7 and the encasement DL1 calculated above are based on gross sections. Therefore, a negative DL1 based on the cross sectional area of slab and encasement occupied by the beam will be calculated to input the proper net DL1.

Concrete Wt=	150	pcf	A LFD 3.3.6
Beam Area=	26.34	in^2	Historical Section (attached)
DL1=	**-0.027**	klf	= -1 * Concrete Wt * Beam Area

CLIENT	PennDOT District 5-0	STV INCORPORATED				
PROJECT	NBIS Bridge Rating Analysis	MADE	CHK	REV	JOB NO.	
SUBJECT	BMS#: 48 7208 0684 9041	CMA	RKC		4013872	
	Interior Beams	8/27/13	9/10/13		SHT. NO.	

Input
Output

INTERIOR BEAMS

Curb — curbs appear to have been poured with deck slab

Concrete Wt=	150	pcf	A LFD 3.3.6
Height=	9.75	in	
Width=	**1.25**	ft	
DL1 ~~DL2~~=	**0.000**	klf	supported by fascia beams only

Top of Slab DL1 = 0.049 klf (A LFD 3.23.2.3.1.1)

Total

DL1=	~~**0.316**~~	~~klf~~	
	0.365	klf	

DL2

Guiderail — placed after slab and curbs cured

Guiderail Wt=	50	plf	
DL2=	**0.013**	klf	= Guiderail Wt * 2 / No. of Beams (A LFD 3.23.2.3.1.1)

Asphalt Overlay — placed after slab and curbs cured

Asphalt Wt=	140	pcf	A LFD 3.3.6
Depth=	2.75	in	field measured
DL2=	**0.090**	klf	= Asphalt Wt * Depth * Roadway Width / No. of Beams (A LFD 3.23.2.3.1.1)

Total

DL2=	**0.103**	klf	

Beam Dimensions — Historic Section (attached)

No section losses noted.

Moment of Inertia=	2958.3	in^4	
Area=	26.34	in^2	
Flange Thickness=	0.7075	in	average
Flange Width=	9.0	in	
Beam Depth=	27.0	in	
Web Thickness=	0.524	in	
Composite=	No		
Yield Strength=	33	ksi	MBE Table 6A.6.2.1-1 (Bridge Built 1946)

Input

Output

INTERIOR BEAMS

Lateral Bracing

Top Flange

Top flange of non-composite section is fully in contact with the deck and no sign of cracking, rust, or separation along the steel-concrete interface is present. Therefore, consider the top flange continuously braced as per MBE 6A.6.9.3.

Bottom Flange

None noted.

BRIDGE ANALYSIS AND RATING (BAR7) 330522

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DEPARTMENT OF TRANSPORTATION

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BRIDGE ANALYSIS AND RATING (BAR7) 330522

PROGRAM P4353000 09/16/2013 10:48
VERSION 7.13.0.0 LAST UPDATED 05/07/2010 DOCUMENTATION 04/2010

INPUT: Fascia.dat

STRUCTURE ID - 48720806849041 -

PROJECT IDENTIFICATION

BRG TYPE	SLC LEV	LANES	LIVE LOAD	OUT-PUT	IMP FACT	GAGE DIST	PASS DIST	FAT-IGUE	CONC DECK	RE-SPEC	S OVER DIST	END DIR	SKEW FACTOR	PAN
GGG				0	0.00	0.0	0.0						0.00	

SKEW CORR HYB FACTOR 1.833

BRIDGE CROSS SECTION AND LOADING

DECK WIDTH	OVERHANG OR SPACING	CL OF GIRDER OR TRUSS TO CURB	ROADWAY WIDTH	DISTRIBUTION FACTORS SHEAR	MOMENT	DEFLECT
0.00	2.45	0.00	22.50	0.133	0.305	0.250

SLAB THICKNESS	HAUNCH	DEAD LOADS DL1	DL2	F'C	N	SYMMETRY
13.25	0.00	0.469	0.103	0.000	0.	

STRINGER DL1	FLOORBEAM DL1	UNIT WEIGHT DECK CONCRETE
0.000	0.000	0.

SPAN LENGTHS (SIMPLE)

SPAN #	1
LENGTH	42.00

STEEL MEMBER PROPERTIES

G	S P F A S N	RANGE	T Y P E	WF BM OF I OR VRT LEG	WF BM AREA OR HRZ LEG	FLANGE ANGLE THICK	FLANGE WIDTH	V A R	WF BM OR WEB PLATE DEPTH	WEB THICK
G	1	42.00	W	2958.30	26.34	0.7075	9.000		27.00	0.5240

TPW	TPT	BPW	BPT	COMP	FY	FY TOP	FY BOT	CG TOP	CG BOT
0.00	0.0000	0.00	0.0000	N	33.0	0.0	0.0	0.000	0.000

LATERAL BRACE POINTS AND STIFFENER SPACINGS

B OR S G OR F CODE	SPAN	C O D E	NO. OF SPCS	SPACING	C O D E	NO. OF SPCS	SPACING	C O D E	NO. OF SPCS	SPACING	C O D E	NO. OF SPCS	SPACING
BG	1	C	1	42.00		0	0.00		0	0.00		0	0.00
			0	0.00		0	0.00		0	0.00		0	0.00

DEFAULT VALUES

SLC LEVEL	GAGE DISTANCE	PASSING DISTANCE	UNIT WEIGHT DECK	INTEGRAL WEARING SURFACE	SKEW CORR FACTOR
I	6.0	4.0	150.0	0.5	-----

G I R D E R A N A L Y S I S

DEAD LOADS ACTING ON GIRDER

INPUT DL1	GIRDER WEIGHT	SLAB WEIGHT	FL BEAM WEIGHT	STRINGER WEIGHT	FL BEAM DL1	STRINGER DL1	TOTAL DL1	TOTAL DL2
0.469	0.090	0.406	0.000	0.000	0.000	0.000	0.964	0.103

NOTE: IF THE LIVE LOAD STRESS IS ZERO AT ANY SECTION THE RATING FACTOR IS PRINTED AS 999.99 INDICATING THAT IT IS INFINITE.

NOTE: IF A SECTION DOES NOT MEET FLANGE OR WEB BUCKLING CRITERIA OF CURRENT AASHTO SPECIFICATIONS FOR LOAD FACTOR METHOD, THE RATING FACTORS ARE REPRINTED AS 888.88. THIS INDICATES THAT THERE IS A POTENTIAL FATIGUE PROBLEM.

GIRDER SECTION PROPERTIES

SPAN 1

	DEPTH	GROSS AREA	MOMENT OF INERTIA	C BOTTOM	SECTION MODULUS TOP	SECTION MODULUS BOTTOM
NON-COMPOSITE	27.00	26.34	2958.30	13.50	219.13	219.13

DEFLECTIONS

SPAN 1 - LIVE LOAD IMPACT FACTOR FOR DEFLECTION: 1.30

	DEAD LOAD		LIVE LOAD + IMPACT			
X	DL1	DL2	H20	HS20	TK527	ML80
0.00	0.000	0.000	0.000	0.000	0.000	0.000
4.20	0.245	0.026	0.113	0.174	0.201	0.210
8.40	0.463	0.049	0.217	0.331	0.383	0.400
12.60	0.635	0.068	0.299	0.453	0.527	0.551
16.80	0.743	0.079	0.348	0.528	0.617	0.644
21.00	0.781	0.083	0.363	0.553	0.644	0.671
25.20	0.743	0.079	0.348	0.528	0.617	0.644
29.40	0.635	0.068	0.299	0.453	0.527	0.551
33.60	0.463	0.049	0.217	0.331	0.383	0.400
37.80	0.245	0.026	0.113	0.174	0.201	0.210
42.00	0.000	0.000	0.000	0.000	0.000	0.000

G I R D E R - LIVE LOAD H20

MAXIMUM REACTIONS

SUPPORT	DL1	DL2	+(LL+I)	-(LL+I)	REACTIONS +I.F.	REACTIONS -I.F.	MOMENTS +I.F.	MOMENTS -I.F.
1	20.3	2.2	11.8	0.0	1.30			

NOTE: ALL SUPPORT REACTIONS AND END SHEARS IN EACH SPAN DUE TO A LIVE LOAD ARE CALCULATED BASED ON AASHTO ARTICLE 3.23.1 AS INTERPRETED IN SOL 431-93-05.

UNFACTORED MOMENTS AND SHEARS

SPAN 1 - LIVE LOAD IMPACT FACTORS : POS MOM 1.30

X	DL1 MOMENT	DL2 MOMENT	+(LL+I) MOMENT	-(LL+I) MOMENT	DL1 SHEAR	DL2 SHEAR	+(LL+I) SHEAR	-(LL+I) SHEAR	I.F.
0.00	0.0	0.0	0.0	0.0	20.3	2.2	21.7	0.0	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	
4.20	76.6	8.2	55.5	0.0	16.2	1.7	24.9L	-2.3	1.30
	SIMULT SHEAR		24.2	0.0	SIMULT MOM		57.1	47.9	
8.40	136.1	14.5	97.7	0.0	12.2	1.3	21.4L	-4.7	1.30
	SIMULT SHEAR		21.3	0.0	SIMULT MOM		97.9	85.2	
12.60	178.6	19.1	126.5	0.0	8.1	0.9	18.4	-7.0	1.30
	SIMULT SHEAR		18.4	0.0	SIMULT MOM		126.5	111.9	
16.80	204.1	21.8	142.0	0.0	4.1	0.4	15.5	-9.7	1.30
	SIMULT SHEAR		15.5	0.0	SIMULT MOM		142.0	133.2	
21.00	212.7	22.7	144.3	0.0	0.0	0.0	12.6	-12.6	1.30
	SIMULT SHEAR		12.6	0.0	SIMULT MOM		144.3	144.3	
25.20	204.1	21.8	142.0	0.0	-4.1	-0.4	9.7	-15.5	1.30
	SIMULT SHEAR		-15.5	0.0	SIMULT MOM		133.2	142.0	
29.40	178.6	19.1	126.5	0.0	-8.1	-0.9	7.0	-18.4	1.30
	SIMULT SHEAR		-18.4	0.0	SIMULT MOM		111.9	126.5	
33.60	136.1	14.5	97.7	0.0	-12.2	-1.3	4.7	-21.4L	1.30
	SIMULT SHEAR		-21.3	0.0	SIMULT MOM		85.2	97.9	
37.80	76.6	8.2	55.5	0.0	-16.2	-1.7	2.3	-24.9L	1.30
	SIMULT SHEAR		-24.2	0.0	SIMULT MOM		47.9	57.1	
42.00	0.0	0.0	0.0	0.0	-20.3	-2.2	0.0	-21.7	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	

FLEXURAL STRESSES - BEAM

SPAN 1

	TOP FIBER STEEL STRESS				BOTTOM FIBER STEEL STRESS			
X	DL1	DL2	+(LL+I)	-(LL+I)	DL1	DL2	+(LL+I)	-(LL+I)
0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4.20	-4.192	-0.448	-3.038	0.000	4.192	0.448	3.038	0.000
8.40	-7.453	-0.796	-5.348	0.000	7.453	0.796	5.348	0.000
12.60	-9.782	-1.045	-6.928	0.000	9.782	1.045	6.928	0.000
16.80	-11.179	-1.194	-7.778	0.000	11.179	1.194	7.778	0.000

21.00	-11.645	-1.244	-7.900	0.000	11.645	1.244	7.900	0.000
25.20	-11.179	-1.194	-7.778	0.000	11.179	1.194	7.778	0.000
29.40	-9.782	-1.045	-6.928	0.000	9.782	1.045	6.928	0.000
33.60	-7.453	-0.796	-5.348	0.000	7.453	0.796	5.348	0.000
37.80	-4.192	-0.448	-3.038	0.000	4.192	0.448	3.038	0.000
42.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SHEAR STRESSES AND ALLOWABLE STRESS RATINGS

SPAN 1

	SHEAR STRESSES				ALLOW COMPR	RATING FACTORS	
X	DL1	DL2	+(LL+I)	-(LL+I)	REDUCTION	IR	OR
0.00	1.511	0.161	1.618	0.000	1.000	5.76 V	8.21 V
4.20	1.209	0.129	1.859	-0.173	1.000	4.45 T	6.62 T
8.40	0.906	0.097	1.594	-0.347	1.000	1.85 T	3.09 T
12.60	0.604	0.065	1.373	-0.520	1.000	1.06 T	2.01 T
16.80	0.302	0.032	1.157	-0.723	1.000	0.74 T	1.59 T
21.00	0.000	0.000	0.940	-0.940	1.000	0.67 T	1.50 T
25.20	-0.302	-0.032	0.723	-1.157	1.000	0.74 T	1.59 T
29.40	-0.604	-0.065	0.520	-1.373	1.000	1.06 T	2.01 T
33.60	-0.906	-0.097	0.347	-1.594	1.000	1.85 T	3.09 T
37.80	-1.209	-0.129	0.173	-1.859	1.000	4.45 T	6.62 T
42.00	-1.511	-0.161	0.000	-1.618	1.000	5.76 V	8.21 V

NOTE: THE SHEAR CAPACITIES CALCULATED HEREIN ARE BASED ON STIFFENED OR UNSTIFFENED EQUATIONS AS SPECIFIED BY INPUT REGARDLESS OF THE STIFFENER SPACINGS INPUT AND ARE NOT CHECKED AGAINST AASHTO CRITERIA.

STRENGTHS AND LOAD FACTOR RATINGS

SPAN 1

	NON-COMP OVERLOAD			NON-COMPACT		COMPACT	COMPACT	
	MOMENT	MOMENT	SHEAR	RATING FACTORS		MOMENT	RATING FACTORS	
X	STRENGTH	STRENGTH	STRENGTH	IR	OR	STRENGTH	IR	OR
0.00	602.6 B	482.1	256.6	4.84 V	8.06 V	696.2	4.84 V	8.06 V
4.20	602.6 B	482.1	256.6	4.10 T	6.83 T	696.2	4.30 O	7.16 O
8.40	602.6 B	482.1	256.6	1.92 T	3.20 T	696.2	2.04 O	3.39 O
12.60	602.6 B	482.1	256.6	1.26 T	2.10 T	696.2	1.35 O	2.25 O
16.80	602.6 B	482.1	256.6	1.00 T	1.67 T	696.2	1.08 O	1.80 O
21.00	602.6 B	482.1	256.6	0.95 T	1.58 T	696.2	1.03 O	1.71 O
25.20	602.6 B	482.1	256.6	1.00 T	1.67 T	696.2	1.08 O	1.80 O
29.40	602.6 B	482.1	256.6	1.26 T	2.10 T	696.2	1.35 O	2.25 O
33.60	602.6 B	482.1	256.6	1.92 T	3.20 T	696.2	2.04 O	3.39 O
37.80	602.6 B	482.1	256.6	4.10 T	6.83 T	696.2	4.30 O	7.16 O
42.00	602.6 B	482.1	256.6	4.84 V	8.06 V	696.2	4.84 V	8.06 V

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* GIRDER - LIVE LOAD HS20 *
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MAXIMUM REACTIONS

					REACTIONS		MOMENTS	
SUPPORT	DL1	DL2	+(LL+I)	-(LL+I)	+I.F.	-I.F.	+I.F.	-I.F.
1	20.3	2.2	18.9	0.0	1.30			

NOTE: ALL SUPPORT REACTIONS AND END SHEARS IN EACH SPAN DUE TO A LIVE LOAD ARE CALCULATED BASED ON AASHTO ARTICLE 3.23.1 AS INTERPRETED IN SOL 431-93-05.

UNFACTORED MOMENTS AND SHEARS

SPAN 1 - LIVE LOAD IMPACT FACTORS : POS MOM 1.30

	DL1	DL2	+(LL+I)	-(LL+I)	DL1	DL2	+(LL+I)	-(LL+I)	
X	MOMENT	MOMENT	MOMENT	MOMENT	SHEAR	SHEAR	SHEAR	SHEAR	I.F.
0.00	0.0	0.0	0.0	0.0	20.3	2.2	34.7	0.0	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	
4.20	76.6	8.2	81.2	0.0	16.2	1.7	35.5	-2.3	1.30
	SIMULT SHEAR		35.5	0.0	SIMULT MOM		81.2	47.9	
8.40	136.1	14.5	138.5	0.0	12.2	1.3	30.2	-4.7	1.30
	SIMULT SHEAR		30.2	0.0	SIMULT MOM		138.5	85.2	
12.60	178.6	19.1	171.8	0.0	8.1	0.9	25.0	-7.0	1.30
	SIMULT SHEAR		25.0	0.0	SIMULT MOM		171.8	111.9	
16.80	204.1	21.8	190.0	0.0	4.1	0.4	20.2	-10.9	1.30
	SIMULT SHEAR		19.8	0.0	SIMULT MOM		184.7	149.1	
21.00	212.7	22.7	188.6	0.0	0.0	0.0	15.5	-15.5	1.30
	SIMULT SHEAR		-14.5	0.0	SIMULT MOM		177.6	177.6	
25.20	204.1	21.8	190.0	0.0	-4.1	-0.4	10.9	-20.2	1.30
	SIMULT SHEAR		-19.8	0.0	SIMULT MOM		149.1	184.7	
29.40	178.6	19.1	171.8	0.0	-8.1	-0.9	7.0	-25.0	1.30
	SIMULT SHEAR		-25.0	0.0	SIMULT MOM		111.9	171.8	
33.60	136.1	14.5	138.5	0.0	-12.2	-1.3	4.7	-30.2	1.30
	SIMULT SHEAR		-30.2	0.0	SIMULT MOM		85.2	138.5	
37.80	76.6	8.2	81.2	0.0	-16.2	-1.7	2.3	-35.5	1.30
	SIMULT SHEAR		-35.5	0.0	SIMULT MOM		47.9	81.2	
42.00	0.0	0.0	0.0	0.0	-20.3	-2.2	0.0	-34.7	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	

FLEXURAL STRESSES - BEAM

SPAN 1

	TOP FIBER STEEL STRESS				BOTTOM FIBER STEEL STRESS			
X	DL1	DL2	+(LL+I)	-(LL+I)	DL1	DL2	+(LL+I)	-(LL+I)
0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4.20	-4.192	-0.448	-4.448	0.000	4.192	0.448	4.448	0.000
8.40	-7.453	-0.796	-7.584	0.000	7.453	0.796	7.584	0.000
12.60	-9.782	-1.045	-9.407	0.000	9.782	1.045	9.407	0.000
16.80	-11.179	-1.194	-10.403	0.000	11.179	1.194	10.403	0.000
21.00	-11.645	-1.244	-10.331	0.000	11.645	1.244	10.331	0.000
25.20	-11.179	-1.194	-10.403	0.000	11.179	1.194	10.403	0.000
29.40	-9.782	-1.045	-9.407	0.000	9.782	1.045	9.407	0.000
33.60	-7.453	-0.796	-7.584	0.000	7.453	0.796	7.584	0.000
37.80	-4.192	-0.448	-4.448	0.000	4.192	0.448	4.448	0.000
42.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SHEAR STRESSES AND ALLOWABLE STRESS RATINGS

SPAN 1

	SHEAR STRESSES				ALLOW COMPR	RATING FACTORS	
X	DL1	DL2	+(LL+I)	-(LL+I)	REDUCTION	IR	OR
0.00	1.511	0.161	2.588	0.000	1.000	3.60 V	5.13 V
4.20	1.209	0.129	2.646	-0.173	1.000	3.04 T	4.52 T
8.40	0.906	0.097	2.255	-0.347	1.000	1.31 T	2.18 T
12.60	0.604	0.065	1.865	-0.520	1.000	0.78 T	1.48 T
16.80	0.302	0.032	1.503	-0.810	1.000	0.56 T	1.19 T

21.00	0.000	0.000	1.157	-1.157	1.000	0.51 T	1.15 T
25.20	-0.302	-0.032	0.810	-1.503	1.000	0.56 T	1.19 T
29.40	-0.604	-0.065	0.520	-1.865	1.000	0.78 T	1.48 T
33.60	-0.906	-0.097	0.347	-2.255	1.000	1.31 T	2.18 T
37.80	-1.209	-0.129	0.173	-2.646	1.000	3.04 T	4.52 T
42.00	-1.511	-0.161	0.000	-2.588	1.000	3.60 V	5.13 V

NOTE: THE SHEAR CAPACITIES CALCULATED HEREIN ARE BASED ON STIFFENED OR
UNSTIFFENED EQUATIONS AS SPECIFIED BY INPUT REGARDLESS OF THE STIFFENER
SPACINGS INPUT AND ARE NOT CHECKED AGAINST AASHTO CRITERIA.

STRENGTHS AND LOAD FACTOR RATINGS

SPAN 1

	NON-COMP MOMENT	OVERLOAD MOMENT	SHEAR	NON-COMPACT RATING FACTORS		COMPACT MOMENT	COMPACT RATING FACTORS	
X	STRENGTH	STRENGTH	STRENGTH	IR	OR	STRENGTH	IR	OR
0.00	602.6 B	482.1	256.6	3.03 V	5.04 V	696.2	3.03 V	5.04 V
4.20	602.6 B	482.1	256.6	2.80 T	4.66 T	696.2	2.94 O	4.89 O
8.40	602.6 B	482.1	256.6	1.36 T	2.26 T	696.2	1.44 O	2.39 O
12.60	602.6 B	482.1	256.6	0.93 T	1.55 T	696.2	0.99 O	1.66 O
16.80	602.6 B	482.1	256.6	0.75 T	1.25 T	696.2	0.81 O	1.35 O
21.00	602.6 B	482.1	256.6	0.73 T	1.21 T	696.2	0.78 O	1.31 O
25.20	602.6 B	482.1	256.6	0.75 T	1.25 T	696.2	0.81 O	1.35 O
29.40	602.6 B	482.1	256.6	0.93 T	1.55 T	696.2	0.99 O	1.66 O
33.60	602.6 B	482.1	256.6	1.36 T	2.26 T	696.2	1.44 O	2.39 O
37.80	602.6 B	482.1	256.6	2.80 T	4.66 T	696.2	2.94 O	4.89 O
42.00	602.6 B	482.1	256.6	3.03 V	5.04 V	696.2	3.03 V	5.04 V

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* GIRDER - LIVE LOAD TK527 *
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MAXIMUM REACTIONS

					REACTIONS	MOMENTS	
SUPPORT	DL1	DL2	+(LL+I)	-(LL+I)	+I.F. -I.F.	+I.F.	-I.F.
1	20.3	2.2	21.7	0.0	1.30		

NOTE: ALL SUPPORT REACTIONS AND END SHEARS IN EACH SPAN DUE TO A LIVE LOAD
ARE CALCULATED BASED ON AASHTO ARTICLE 3.23.1
AS INTERPRETED IN SOL 431-93-05.

UNFACTORED MOMENTS AND SHEARS

SPAN 1 - LIVE LOAD IMPACT FACTORS : POS MOM 1.30

	DL1	DL2	+(LL+I)	-(LL+I)	DL1	DL2	+(LL+I)	-(LL+I)	
X	MOMENT	MOMENT	MOMENT	MOMENT	SHEAR	SHEAR	SHEAR	SHEAR	I.F.
0.00	0.0	0.0	0.0	0.0	20.3	2.2	39.7	0.0	1.30
	SIMULT SHEAR		0.0	0.0		SIMULT MOM	0.0	0.0	
4.20	76.6	8.2	90.8	0.0	16.2	1.7	39.6	-1.6	1.30
	SIMULT SHEAR		39.6	0.0		SIMULT MOM	90.8	32.3	
8.40	136.1	14.5	154.4	0.0	12.2	1.3	33.7	-4.6	1.30
	SIMULT SHEAR		33.7	0.0		SIMULT MOM	154.4	84.6	
12.60	178.6	19.1	197.2	0.0	8.1	0.9	28.3	-8.3	1.30
	SIMULT SHEAR		18.5	0.0		SIMULT MOM	194.6	133.0	
16.80	204.1	21.8	224.4	0.0	4.1	0.4	22.9	-12.6	1.30
	SIMULT SHEAR		13.1	0.0		SIMULT MOM	210.0	173.2	
21.00	212.7	22.7	227.0	0.0	0.0	0.0	17.5	-17.5	1.30
	SIMULT SHEAR		7.7	0.0		SIMULT MOM	200.8	200.8	
25.20	204.1	21.8	224.4	0.0	-4.1	-0.4	12.6	-22.9	1.30
	SIMULT SHEAR		-13.1	0.0		SIMULT MOM	173.2	210.0	
29.40	178.6	19.1	197.2	0.0	-8.1	-0.9	8.3	-28.3	1.30
	SIMULT SHEAR		-18.5	0.0		SIMULT MOM	133.0	194.6	
33.60	136.1	14.5	154.4	0.0	-12.2	-1.3	4.6	-33.7	1.30
	SIMULT SHEAR		-33.7	0.0		SIMULT MOM	84.6	154.4	
37.80	76.6	8.2	90.8	0.0	-16.2	-1.7	1.6	-39.6	1.30
	SIMULT SHEAR		-39.6	0.0		SIMULT MOM	32.3	90.8	
42.00	0.0	0.0	0.0	0.0	-20.3	-2.2	0.0	-39.7	1.30
	SIMULT SHEAR		0.0	0.0		SIMULT MOM	0.0	0.0	

FLEXURAL STRESSES - BEAM

SPAN 1

	TOP FIBER STEEL STRESS				BOTTOM FIBER STEEL STRESS			
X	DL1	DL2	+(LL+I)	-(LL+I)	DL1	DL2	+(LL+I)	-(LL+I)
0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4.20	-4.192	-0.448	-4.972	0.000	4.192	0.448	4.972	0.000
8.40	-7.453	-0.796	-8.455	0.000	7.453	0.796	8.455	0.000
12.60	-9.782	-1.045	-10.798	0.000	9.782	1.045	10.798	0.000
16.80	-11.179	-1.194	-12.289	0.000	11.179	1.194	12.289	0.000
21.00	-11.645	-1.244	-12.429	0.000	11.645	1.244	12.429	0.000
25.20	-11.179	-1.194	-12.289	0.000	11.179	1.194	12.289	0.000
29.40	-9.782	-1.045	-10.798	0.000	9.782	1.045	10.798	0.000
33.60	-7.453	-0.796	-8.455	0.000	7.453	0.796	8.455	0.000
37.80	-4.192	-0.448	-4.972	0.000	4.192	0.448	4.972	0.000
42.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SHEAR STRESSES AND ALLOWABLE STRESS RATINGS

SPAN 1

	SHEAR STRESSES				ALLOW COMPR	RATING FACTORS	
X	DL1	DL2	+(LL+I)	-(LL+I)	REDUCTION	IR	OR
0.00	1.511	0.161	2.962	0.000	1.000	3.15 V	4.49 V
4.20	1.209	0.129	2.957	-0.117	1.000	2.72 T	4.05 T
8.40	0.906	0.097	2.514	-0.345	1.000	1.17 T	1.95 T
12.60	0.604	0.065	2.112	-0.619	1.000	0.68 T	1.29 T
16.80	0.302	0.032	1.710	-0.940	1.000	0.47 T	1.01 T
21.00	0.000	0.000	1.308	-1.308	1.000	0.42 T	0.95 T
25.20	-0.302	-0.032	0.940	-1.710	1.000	0.47 T	1.01 T
29.40	-0.604	-0.065	0.619	-2.112	1.000	0.68 T	1.29 T
33.60	-0.906	-0.097	0.345	-2.514	1.000	1.17 T	1.95 T
37.80	-1.209	-0.129	0.117	-2.957	1.000	2.72 T	4.05 T
42.00	-1.511	-0.161	0.000	-2.962	1.000	3.15 V	4.49 V

NOTE: THE SHEAR CAPACITIES CALCULATED HEREIN ARE BASED ON STIFFENED OR
UNSTIFFENED EQUATIONS AS SPECIFIED BY INPUT REGARDLESS OF THE STIFFENER
SPACINGS INPUT AND ARE NOT CHECKED AGAINST AASHTO CRITERIA.

STRENGTHS AND LOAD FACTOR RATINGS

SPAN 1

	NON-COMP MOMENT	OVERLOAD MOMENT	SHEAR	NON-COMPACT RATING FACTORS		COMPACT MOMENT	COMPACT RATING FACTORS	

X	STRENGTH	STRENGTH	STRENGTH	IR	OR	STRENGTH	IR	OR
0.00	602.6 B	482.1	256.6	2.64 V	4.41 V	696.2	2.64 V	4.41 V
4.20	602.6 B	482.1	256.6	2.50 T	4.17 T	696.2	2.63 O	4.38 O
8.40	602.6 B	482.1	256.6	1.22 T	2.03 T	696.2	1.29 O	2.15 O
12.60	602.6 B	482.1	256.6	0.81 T	1.35 T	696.2	0.87 O	1.44 O
16.80	602.6 B	482.1	256.6	0.64 T	1.06 T	696.2	0.68 O	1.14 O
21.00	602.6 B	482.1	256.6	0.60 T	1.01 T	696.2	0.65 O	1.09 O
25.20	602.6 B	482.1	256.6	0.64 T	1.06 T	696.2	0.68 O	1.14 O
29.40	602.6 B	482.1	256.6	0.81 T	1.35 T	696.2	0.87 O	1.44 O
33.60	602.6 B	482.1	256.6	1.22 T	2.03 T	696.2	1.29 O	2.15 O
37.80	602.6 B	482.1	256.6	2.50 T	4.17 T	696.2	2.63 O	4.38 O
42.00	602.6 B	482.1	256.6	2.64 V	4.41 V	696.2	2.64 V	4.41 V

****
* GIRDER - LIVE LOAD ML80 *
****

MAXIMUM REACTIONS

SUPPORT	DL1	DL2	+(LL+I)	-(LL+I)	REACTIONS +I.F.	REACTIONS -I.F.	MOMENTS +I.F.	MOMENTS -I.F.
1	20.3	2.2	20.7	0.0	1.30			

NOTE: ALL SUPPORT REACTIONS AND END SHEARS IN EACH SPAN DUE TO A LIVE LOAD ARE CALCULATED BASED ON AASHTO ARTICLE 3.23.1 AS INTERPRETED IN SOL 431-93-05.

UNFACTORED MOMENTS AND SHEARS

SPAN 1 - LIVE LOAD IMPACT FACTORS : POS MOM 1.30

X	DL1 MOMENT	DL2 MOMENT	+(LL+I) MOMENT	-(LL+I) MOMENT	DL1 SHEAR	DL2 SHEAR	+(LL+I) SHEAR	-(LL+I) SHEAR	I.F.
0.00	0.0	0.0	0.0	0.0	20.3	2.2	37.9	0.0	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	
4.20	76.6	8.2	93.5	0.0	16.2	1.7	40.8	-1.6	1.30
	SIMULT SHEAR		40.8	0.0	SIMULT MOM		93.5	32.3	
8.40	136.1	14.5	161.9	0.0	12.2	1.3	35.3	-4.7	1.30
	SIMULT SHEAR		35.3	0.0	SIMULT MOM		161.9	86.2	
12.60	178.6	19.1	208.4	0.0	8.1	0.9	29.9	-9.2	1.30
	SIMULT SHEAR		20.1	0.0	SIMULT MOM		205.2	147.4	
16.80	204.1	21.8	238.5	0.0	4.1	0.4	24.4	-13.7	1.30
	SIMULT SHEAR		14.6	0.0	SIMULT MOM		223.3	188.1	
21.00	212.7	22.7	243.5	0.0	0.0	0.0	18.9	-18.9	1.30
	SIMULT SHEAR		9.1	0.0	SIMULT MOM		216.3	216.3	
25.20	204.1	21.8	238.5	0.0	-4.1	-0.4	13.7	-24.4	1.30
	SIMULT SHEAR		-14.6	0.0	SIMULT MOM		188.1	223.3	
29.40	178.6	19.1	208.4	0.0	-8.1	-0.9	9.2	-29.9	1.30
	SIMULT SHEAR		-20.1	0.0	SIMULT MOM		147.4	205.2	
33.60	136.1	14.5	161.9	0.0	-12.2	-1.3	4.7	-35.3	1.30
	SIMULT SHEAR		-35.3	0.0	SIMULT MOM		86.2	161.9	
37.80	76.6	8.2	93.5	0.0	-16.2	-1.7	1.6	-40.8	1.30
	SIMULT SHEAR		-40.8	0.0	SIMULT MOM		32.3	93.5	
42.00	0.0	0.0	0.0	0.0	-20.3	-2.2	0.0	-37.9	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	

FLEXURAL STRESSES - BEAM

SPAN 1

X	TOP FIBER STEEL STRESS DL1	DL2	+(LL+I)	-(LL+I)	BOTTOM FIBER STEEL STRESS DL1	DL2	+(LL+I)	-(LL+I)
0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4.20	-4.192	-0.448	-5.121	0.000	4.192	0.448	5.121	0.000
8.40	-7.453	-0.796	-8.866	0.000	7.453	0.796	8.866	0.000
12.60	-9.782	-1.045	-11.413	0.000	9.782	1.045	11.413	0.000
16.80	-11.179	-1.194	-13.061	0.000	11.179	1.194	13.061	0.000
21.00	-11.645	-1.244	-13.334	0.000	11.645	1.244	13.334	0.000
25.20	-11.179	-1.194	-13.061	0.000	11.179	1.194	13.061	0.000
29.40	-9.782	-1.045	-11.413	0.000	9.782	1.045	11.413	0.000
33.60	-7.453	-0.796	-8.866	0.000	7.453	0.796	8.866	0.000
37.80	-4.192	-0.448	-5.121	0.000	4.192	0.448	5.121	0.000
42.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SHEAR STRESSES AND ALLOWABLE STRESS RATINGS

SPAN 1

X	SHEAR STRESSES DL1	DL2	+(LL+I)	-(LL+I)	ALLOW COMPR REDUCTION	RATING FACTORS IR	RATING FACTORS OR
0.00	1.511	0.161	2.824	0.000	1.000	3.30 V	4.71 V
4.20	1.209	0.129	3.046	-0.117	1.000	2.64 T	3.93 T
8.40	0.906	0.097	2.637	-0.351	1.000	1.12 T	1.86 T
12.60	0.604	0.065	2.227	-0.686	1.000	0.64 T	1.22 T
16.80	0.302	0.032	1.818	-1.021	1.000	0.44 T	0.95 T
21.00	0.000	0.000	1.409	-1.409	1.000	0.39 T	0.89 T
25.20	-0.302	-0.032	1.021	-1.818	1.000	0.44 T	0.95 T
29.40	-0.604	-0.065	0.686	-2.227	1.000	0.64 T	1.22 T
33.60	-0.906	-0.097	0.351	-2.637	1.000	1.12 T	1.86 T
37.80	-1.209	-0.129	0.117	-3.046	1.000	2.64 T	3.93 T
42.00	-1.511	-0.161	0.000	-2.824	1.000	3.30 V	4.71 V

NOTE: THE SHEAR CAPACITIES CALCULATED HEREIN ARE BASED ON STIFFENED OR UNSTIFFENED EQUATIONS AS SPECIFIED BY INPUT REGARDLESS OF THE STIFFENER SPACINGS INPUT AND ARE NOT CHECKED AGAINST AASHTO CRITERIA.

STRENGTHS AND LOAD FACTOR RATINGS

SPAN 1

X	NON-COMP MOMENT STRENGTH	OVERLOAD MOMENT STRENGTH	SHEAR STRENGTH	NON-COMPACT RATING FACTORS IR	NON-COMPACT RATING FACTORS OR	COMPACT MOMENT STRENGTH	COMPACT RATING FACTORS IR	COMPACT RATING FACTORS OR
0.00	602.6 B	482.1	256.6	2.77 V	4.62 V	696.2	2.77 V	4.62 V
4.20	602.6 B	482.1	256.6	2.43 T	4.05 T	696.2	2.55 O	4.25 O
8.40	602.6 B	482.1	256.6	1.16 T	1.93 T	696.2	1.23 O	2.05 O
12.60	602.6 B	482.1	256.6	0.77 T	1.28 T	696.2	0.82 O	1.36 O
16.80	602.6 B	482.1	256.6	0.60 T	1.00 T	696.2	0.64 O	1.07 O
21.00	602.6 B	482.1	256.6	0.56 T	0.94 T	696.2	0.61 O	1.01 O
25.20	602.6 B	482.1	256.6	0.60 T	1.00 T	696.2	0.64 O	1.07 O
29.40	602.6 B	482.1	256.6	0.77 T	1.28 T	696.2	0.82 O	1.36 O
33.60	602.6 B	482.1	256.6	1.16 T	1.93 T	696.2	1.23 O	2.05 O
37.80	602.6 B	482.1	256.6	2.43 T	4.05 T	696.2	2.55 O	4.25 O
42.00	602.6 B	482.1	256.6	2.77 V	4.62 V	696.2	2.77 V	4.62 V

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+ +
+ R A T I N G S U M M A R Y +
+ +
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MEMBER: GIRDER
                      ALLOWABLE STRESS RATING          LOAD FACTOR RATING
  LOAD                FACTOR    TONS     X   SPAN  FACTOR    TONS     X   SPAN
  H20  IR (CRITICAL)    0.67 T   13.3    21.00  1    1.03 O   20.5    21.00  1
       OR (CRITICAL)    1.50 T   30.0    21.00  1    1.71 O   34.2    21.00  1
       IR ( POS MOM)    0.67 T   13.3    21.00  1    1.03 O   20.5    21.00  1
       OR ( POS MOM)    1.50 T   30.0    21.00  1    1.71 O   34.2    21.00  1
  HS20 IR (CRITICAL)    0.51 T   18.3    21.00  1    0.78 O   28.3    21.00  1
       OR (CRITICAL)    1.15 T   41.3    21.00  1    1.31 O   47.1    21.00  1
       IR ( POS MOM)    0.51 T   18.3    21.00  1    0.78 O   28.3    21.00  1
       OR ( POS MOM)    1.15 T   41.3    21.00  1    1.31 O   47.1    21.00  1
 TK527 IR (CRITICAL)    0.42 T   16.9    21.00  1    0.65 O   26.1    21.00  1
       OR (CRITICAL)    0.95 T   38.2    21.00  1    1.09 O   43.5    21.00  1
       IR ( POS MOM)    0.42 T   16.9    21.00  1    0.65 O   26.1    21.00  1
       OR ( POS MOM)    0.95 T   38.2    21.00  1    1.09 O   43.5    21.00  1
  ML80 IR (CRITICAL)    0.39 T   14.5    21.00  1    0.61 O   22.3    21.00  1
       OR (CRITICAL)    0.89 T   32.6    21.00  1    1.01 O   37.1    21.00  1
       IR ( POS MOM)    0.39 T   14.5    21.00  1    0.61 O   22.3    21.00  1
       OR ( POS MOM)    0.89 T   32.6    21.00  1    1.01 O   37.1    21.00  1

     RATING FACTOR CODES:
     T - TOP STEEL STRESS/STRENGTH GOVERNS
     B - BOTTOM STEEL STRESS/STRENGTH GOVERNS
     C - CONCRETE STRESS/STRENGTH GOVERNS
     R - REINFORCEMENT STRESS/STRENGTH GOVERNS
     V - SHEAR STRESS/STRENGTH GOVERNS
     blank - COMPACT MOMENT STRENGTH GOVERNS
     O - OVERLOAD PROVISIONS GOVERN
     I - MOMENT-SHEAR INTERACTION GOVERNS
     F - SECTION DOES NOT MEET FLANGE PROJECTION/THICKNESS RATIO CRITERIA
     W - SECTION DOES NOT MEET WEB DEPTH/THICKNESS RATIO CRITERIA

     NON-COMPACT MOMENT STRENGTH CODES:
     B - SECTION IS BRACED
     U - SECTION IS UNBRACED

  NOTE: ALL RATINGS ARE BASED ON THE NUMBER OF DESIGN LANES OR THE ACTUAL
        TRAFFIC LANES AS DEFINED BY "D" OR "L" ENTERED FOR LANES IN THE
        PROJECT IDENTIFICATION.

BAR7 v7.13.0.0 PROGRAM WAS EXECUTED COMPLETELY AND SUCCESSFULLY.
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BRIDGE ANALYSIS AND RATING (BAR7) 330522

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DEPARTMENT OF TRANSPORTATION

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BRIDGE ANALYSIS AND RATING (BAR7) 330522

PROGRAM P4353000 09/16/2013 10:48
VERSION 7.13.0.0 LAST UPDATED 05/07/2010 DOCUMENTATION 04/2010

INPUT: Interior.dat

STRUCTURE ID - 48720806849041 -

PROJECT IDENTIFICATION

BRG TYPE	SLC LEV	LANES	LIVE LOAD	OUT-PUT	IMP FACT	GAGE DIST	PASS DIST	FAT-IGUE	CONC DECK	RE-SPEC	S OVER DIST	END DIR	FACTOR	PAN
GGG				0	0.00	0.0	0.0						0.00	

SKEW CORR HYB FACTOR 0.000

BRIDGE CROSS SECTION AND LOADING

DECK WIDTH	OVERHANG OR SPACING	CL OF GIRDER OR TRUSS TO CURB	ROADWAY WIDTH	DISTRIBUTION FACTORS SHEAR	MOMENT	DEFLECT
0.00	3.35	0.00	22.50	0.500	0.305	0.250

SLAB THICKNESS	HAUNCH	DEAD LOADS DL1	DL2	F'C	N	SYMMETRY
13.25	0.00	0.316	0.103	0.000	0.	

STRINGER DL1	FLOORBEAM DL1	UNIT WEIGHT DECK CONCRETE
0.000	0.000	0.

SPAN LENGTHS (SIMPLE)

SPAN #	1
LENGTH	42.00

STEEL MEMBER PROPERTIES

G	S P F A S N	RANGE	T Y P E W	WF BM OF I OR VRT LEG	WF BM OR HRZ LEG	FLANGE ANGLE THICK	FLANGE WIDTH	V A R	WF BM OR WEB PLATE DEPTH	WEB THICK
1		42.00	W	2958.30	26.34	0.7075	9.000		27.00	0.5240

TPW	TPT	BPW	BPT	COMP	FY	FY TOP	FY BOT	CG TOP	CG BOT
0.00	0.0000	0.00	0.0000	N	33.0	0.0	0.0	0.000	0.000

LATERAL BRACE POINTS AND STIFFENER SPACINGS

B OR S G OR F CODE	SPAN	C O D E	NO. OF SPCS	SPACING	C O D E	NO. OF SPCS	SPACING	C O D E	NO. OF SPCS	SPACING	C O D E	NO. OF SPCS	SPACING
BG	1	C	1	42.00		0	0.00		0	0.00		0	0.00
			0	0.00		0	0.00		0	0.00		0	0.00

DEFAULT VALUES

SLC LEVEL	GAGE DISTANCE	PASSING DISTANCE	UNIT WEIGHT DECK	INTEGRAL WEARING SURFACE	SKEW CORR FACTOR
I	6.0	4.0	150.0	0.5	1.000

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+ G I R D E R A N A L Y S I S +
+ +
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DEAD LOADS ACTING ON GIRDER

INPUT DL1	GIRDER WEIGHT	SLAB WEIGHT	FL BEAM WEIGHT	STRINGER WEIGHT	FL BEAM DL1	STRINGER DL1	TOTAL DL1	TOTAL DL2
0.316	0.090	0.555	0.000	0.000	0.000	0.000	0.960	0.103

NOTE: IF THE LIVE LOAD STRESS IS ZERO AT ANY SECTION THE RATING FACTOR IS PRINTED AS 999.99 INDICATING THAT IT IS INFINITE.

NOTE: IF A SECTION DOES NOT MEET FLANGE OR WEB BUCKLING CRITERIA OF CURRENT AASHTO SPECIFICATIONS FOR LOAD FACTOR METHOD, THE RATING FACTORS ARE REPRINTED AS 888.88. THIS INDICATES THAT THERE IS A POTENTIAL FATIGUE PROBLEM.

GIRDER SECTION PROPERTIES

SPAN 1
=======

	DEPTH	GROSS AREA	MOMENT OF INERTIA	C BOTTOM	SECTION MODULUS TOP	SECTION MODULUS BOTTOM
NON-COMPOSITE	27.00	26.34	2958.30	13.50	219.13	219.13

DEFLECTIONS

SPAN 1 - LIVE LOAD IMPACT FACTOR FOR DEFLECTION: 1.30
=======

	DEAD LOAD		LIVE LOAD + IMPACT			
X	DL1	DL2	H20	HS20	TK527	ML80
0.00	0.000	0.000	0.000	0.000	0.000	0.000
4.20	0.244	0.026	0.113	0.174	0.201	0.210
8.40	0.462	0.049	0.217	0.331	0.383	0.400
12.60	0.632	0.068	0.299	0.453	0.527	0.551
16.80	0.740	0.079	0.348	0.528	0.617	0.644
21.00	0.778	0.083	0.363	0.553	0.644	0.671
25.20	0.740	0.079	0.348	0.528	0.617	0.644
29.40	0.632	0.068	0.299	0.453	0.527	0.551
33.60	0.462	0.049	0.217	0.331	0.383	0.400
37.80	0.244	0.026	0.113	0.174	0.201	0.210
42.00	0.000	0.000	0.000	0.000	0.000	0.000

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* GIRDER - LIVE LOAD H20 *
****

MAXIMUM REACTIONS

SUPPORT	DL1	DL2	+(LL+I)	-(LL+I)	REACTIONS +I.F.	REACTIONS -I.F.	MOMENTS +I.F.	MOMENTS -I.F.
1	20.2	2.2	22.9	0.0	1.30			

NOTE: ALL SUPPORT REACTIONS AND END SHEARS IN EACH SPAN DUE TO A LIVE LOAD ARE CALCULATED BASED ON AASHTO ARTICLE 3.23.1 AS INTERPRETED IN SOL 431-93-05.

UNFACTORED MOMENTS AND SHEARS

SPAN 1 - LIVE LOAD IMPACT FACTORS : POS MOM 1.30
=======

X	DL1 MOMENT	DL2 MOMENT	+(LL+I) MOMENT	-(LL+I) MOMENT	DL1 SHEAR	DL2 SHEAR	+(LL+I) SHEAR	-(LL+I) SHEAR	I.F.
0.00	0.0	0.0	0.0	0.0	20.2	2.2	22.9	0.0	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	
4.20	76.2	8.2	55.5	0.0	16.1	1.7	13.6L	-1.3	1.30
	SIMULT SHEAR		13.2	0.0	SIMULT MOM		57.1	47.9	
8.40	135.5	14.5	97.7	0.0	12.1	1.3	11.7L	-2.5	1.30
	SIMULT SHEAR		11.6	0.0	SIMULT MOM		97.9	85.2	
12.60	177.9	19.1	126.5	0.0	8.1	0.9	10.0	-3.8	1.30
	SIMULT SHEAR		10.0	0.0	SIMULT MOM		126.5	111.9	
16.80	203.3	21.8	142.0	0.0	4.0	0.4	8.5	-5.3	1.30
	SIMULT SHEAR		8.5	0.0	SIMULT MOM		142.0	133.2	
21.00	211.8	22.7	144.3	0.0	0.0	0.0	6.9	-6.9	1.30
	SIMULT SHEAR		6.9	0.0	SIMULT MOM		144.3	144.3	
25.20	203.3	21.8	142.0	0.0	-4.0	-0.4	5.3	-8.5	1.30
	SIMULT SHEAR		-8.5	0.0	SIMULT MOM		133.2	142.0	
29.40	177.9	19.1	126.5	0.0	-8.1	-0.9	3.8	-10.0	1.30
	SIMULT SHEAR		-10.0	0.0	SIMULT MOM		111.9	126.5	
33.60	135.5	14.5	97.7	0.0	-12.1	-1.3	2.5	-11.7L	1.30
	SIMULT SHEAR		-11.6	0.0	SIMULT MOM		85.2	97.9	
37.80	76.2	8.2	55.5	0.0	-16.1	-1.7	1.3	-13.6L	1.30
	SIMULT SHEAR		-13.2	0.0	SIMULT MOM		47.9	57.1	
42.00	0.0	0.0	0.0	0.0	-20.2	-2.2	0.0	-22.9	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	

FLEXURAL STRESSES - BEAM

SPAN 1
=======

	TOP FIBER STEEL STRESS				BOTTOM FIBER STEEL STRESS			
X	DL1	DL2	+(LL+I)	-(LL+I)	DL1	DL2	+(LL+I)	-(LL+I)
0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4.20	-4.175	-0.448	-3.038	0.000	4.175	0.448	3.038	0.000
8.40	-7.422	-0.796	-5.348	0.000	7.422	0.796	5.348	0.000
12.60	-9.742	-1.045	-6.928	0.000	9.742	1.045	6.928	0.000
16.80	-11.134	-1.194	-7.778	0.000	11.134	1.194	7.778	0.000

21.00	-11.598	-1.244	-7.900	0.000	11.598	1.244	7.900	0.000
25.20	-11.134	-1.194	-7.778	0.000	11.134	1.194	7.778	0.000
29.40	-9.742	-1.045	-6.928	0.000	9.742	1.045	6.928	0.000
33.60	-7.422	-0.796	-5.348	0.000	7.422	0.796	5.348	0.000
37.80	-4.175	-0.448	-3.038	0.000	4.175	0.448	3.038	0.000
42.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SHEAR STRESSES AND ALLOWABLE STRESS RATINGS

SPAN 1

	SHEAR STRESSES				ALLOW COMPR	RATING FACTORS	
X	DL1	DL2	+(LL+I)	-(LL+I)	REDUCTION	IR	OR
0.00	1.504	0.161	1.708	0.000	1.000	5.46 V	7.78 V
4.20	1.204	0.129	1.014	-0.095	1.000	4.45 T	6.62 T
8.40	0.903	0.097	0.870	-0.189	1.000	1.86 T	3.09 T
12.60	0.602	0.065	0.749	-0.284	1.000	1.06 T	2.02 T
16.80	0.301	0.032	0.631	-0.394	1.000	0.75 T	1.60 T
21.00	0.000	0.000	0.513	-0.513	1.000	0.67 T	1.51 T
25.20	-0.301	-0.032	0.394	-0.631	1.000	0.75 T	1.60 T
29.40	-0.602	-0.065	0.284	-0.749	1.000	1.06 T	2.02 T
33.60	-0.903	-0.097	0.189	-0.870	1.000	1.86 T	3.09 T
37.80	-1.204	-0.129	0.095	-1.014	1.000	4.45 T	6.62 T
42.00	-1.504	-0.161	0.000	-1.708	1.000	5.46 V	7.78 V

NOTE: THE SHEAR CAPACITIES CALCULATED HEREIN ARE BASED ON STIFFENED OR UNSTIFFENED EQUATIONS AS SPECIFIED BY INPUT REGARDLESS OF THE STIFFENER SPACINGS INPUT AND ARE NOT CHECKED AGAINST AASHTO CRITERIA.

STRENGTHS AND LOAD FACTOR RATINGS

SPAN 1

	NON-COMP OVERLOAD			NON-COMPACT		COMPACT	COMPACT	
	MOMENT	MOMENT	SHEAR	RATING FACTORS		MOMENT	RATING FACTORS	
X	STRENGTH	STRENGTH	STRENGTH	IR	OR	STRENGTH	IR	OR
0.00	602.6 B	482.1	256.6	4.59 V	7.64 V	696.2	4.59 V	7.64 V
4.20	602.6 B	482.1	256.6	4.10 T	6.83 T	696.2	4.30 O	7.17 O
8.40	602.6 B	482.1	256.6	1.93 T	3.21 T	696.2	2.04 O	3.40 O
12.60	602.6 B	482.1	256.6	1.26 T	2.11 T	696.2	1.35 O	2.25 O
16.80	602.6 B	482.1	256.6	1.01 T	1.68 T	696.2	1.09 O	1.81 O
21.00	602.6 B	482.1	256.6	0.95 T	1.59 T	696.2	1.03 O	1.72 O
25.20	602.6 B	482.1	256.6	1.01 T	1.68 T	696.2	1.09 O	1.81 O
29.40	602.6 B	482.1	256.6	1.26 T	2.11 T	696.2	1.35 O	2.25 O
33.60	602.6 B	482.1	256.6	1.93 T	3.21 T	696.2	2.04 O	3.40 O
37.80	602.6 B	482.1	256.6	4.10 T	6.83 T	696.2	4.30 O	7.17 O
42.00	602.6 B	482.1	256.6	4.59 V	7.64 V	696.2	4.59 V	7.64 V

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* GIRDER - LIVE LOAD HS20 *
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MAXIMUM REACTIONS

					REACTIONS		MOMENTS	
SUPPORT	DL1	DL2	+(LL+I)	-(LL+I)	+I.F.	-I.F.	+I.F.	-I.F.
1	20.2	2.2	30.3	0.0	1.30			

NOTE: ALL SUPPORT REACTIONS AND END SHEARS IN EACH SPAN DUE TO A LIVE LOAD ARE CALCULATED BASED ON AASHTO ARTICLE 3.23.1 AS INTERPRETED IN SOL 431-93-05.

UNFACTORED MOMENTS AND SHEARS

SPAN 1 - LIVE LOAD IMPACT FACTORS : POS MOM 1.30

	DL1	DL2	+(LL+I)	-(LL+I)	DL1	DL2	+(LL+I)	-(LL+I)	
X	MOMENT	MOMENT	MOMENT	MOMENT	SHEAR	SHEAR	SHEAR	SHEAR	I.F.
0.00	0.0	0.0	0.0	0.0	20.2	2.2	30.3	0.0	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	
4.20	76.2	8.2	81.2	0.0	16.1	1.7	19.3	-1.3	1.30
	SIMULT SHEAR		19.3	0.0	SIMULT MOM		81.2	47.9	
8.40	135.5	14.5	138.5	0.0	12.1	1.3	16.5	-2.5	1.30
	SIMULT SHEAR		16.5	0.0	SIMULT MOM		138.5	85.2	
12.60	177.9	19.1	171.8	0.0	8.1	0.9	13.6	-3.8	1.30
	SIMULT SHEAR		13.6	0.0	SIMULT MOM		171.8	111.9	
16.80	203.3	21.8	190.0	0.0	4.0	0.4	11.0	-5.9	1.30
	SIMULT SHEAR		10.8	0.0	SIMULT MOM		184.7	149.1	
21.00	211.8	22.7	188.6	0.0	0.0	0.0	8.5	-8.5	1.30
	SIMULT SHEAR		-7.9	0.0	SIMULT MOM		177.6	177.6	
25.20	203.3	21.8	190.0	0.0	-4.0	-0.4	5.9	-11.0	1.30
	SIMULT SHEAR		-10.8	0.0	SIMULT MOM		149.1	184.7	
29.40	177.9	19.1	171.8	0.0	-8.1	-0.9	3.8	-13.6	1.30
	SIMULT SHEAR		-13.6	0.0	SIMULT MOM		111.9	171.8	
33.60	135.5	14.5	138.5	0.0	-12.1	-1.3	2.5	-16.5	1.30
	SIMULT SHEAR		-16.5	0.0	SIMULT MOM		85.2	138.5	
37.80	76.2	8.2	81.2	0.0	-16.1	-1.7	1.3	-19.3	1.30
	SIMULT SHEAR		-19.3	0.0	SIMULT MOM		47.9	81.2	
42.00	0.0	0.0	0.0	0.0	-20.2	-2.2	0.0	-30.3	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	

FLEXURAL STRESSES - BEAM

SPAN 1

	TOP FIBER STEEL STRESS				BOTTOM FIBER STEEL STRESS			
X	DL1	DL2	+(LL+I)	-(LL+I)	DL1	DL2	+(LL+I)	-(LL+I)
0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4.20	-4.175	-0.448	-4.448	0.000	4.175	0.448	4.448	0.000
8.40	-7.422	-0.796	-7.584	0.000	7.422	0.796	7.584	0.000
12.60	-9.742	-1.045	-9.407	0.000	9.742	1.045	9.407	0.000
16.80	-11.134	-1.194	-10.403	0.000	11.134	1.194	10.403	0.000
21.00	-11.598	-1.244	-10.331	0.000	11.598	1.244	10.331	0.000
25.20	-11.134	-1.194	-10.403	0.000	11.134	1.194	10.403	0.000
29.40	-9.742	-1.045	-9.407	0.000	9.742	1.045	9.407	0.000
33.60	-7.422	-0.796	-7.584	0.000	7.422	0.796	7.584	0.000
37.80	-4.175	-0.448	-4.448	0.000	4.175	0.448	4.448	0.000
42.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SHEAR STRESSES AND ALLOWABLE STRESS RATINGS

SPAN 1

	SHEAR STRESSES				ALLOW COMPR	RATING FACTORS	
X	DL1	DL2	+(LL+I)	-(LL+I)	REDUCTION	IR	OR
0.00	1.504	0.161	2.260	0.000	1.000	4.13 V	5.88 V
4.20	1.204	0.129	1.443	-0.095	1.000	3.04 T	4.52 T
8.40	0.903	0.097	1.230	-0.189	1.000	1.31 T	2.18 T
12.60	0.602	0.065	1.017	-0.284	1.000	0.78 T	1.48 T
16.80	0.301	0.032	0.820	-0.442	1.000	0.56 T	1.19 T

21.00	0.000	0.000	0.631	-0.631	1.000	0.51 T	1.15 T
25.20	-0.301	-0.032	0.442	-0.820	1.000	0.56 T	1.19 T
29.40	-0.602	-0.065	0.284	-1.017	1.000	0.78 T	1.48 T
33.60	-0.903	-0.097	0.189	-1.230	1.000	1.31 T	2.18 T
37.80	-1.204	-0.129	0.095	-1.443	1.000	3.04 T	4.52 T
42.00	-1.504	-0.161	0.000	-2.260	1.000	4.13 V	5.88 V

NOTE: THE SHEAR CAPACITIES CALCULATED HEREIN ARE BASED ON STIFFENED OR
UNSTIFFENED EQUATIONS AS SPECIFIED BY INPUT REGARDLESS OF THE STIFFENER
SPACINGS INPUT AND ARE NOT CHECKED AGAINST AASHTO CRITERIA.

STRENGTHS AND LOAD FACTOR RATINGS

SPAN 1

	NON-COMP MOMENT	OVERLOAD MOMENT	SHEAR	NON-COMPACT RATING FACTORS		COMPACT MOMENT	COMPACT RATING FACTORS	
X	STRENGTH	STRENGTH	STRENGTH	IR	OR	STRENGTH	IR	OR
0.00	602.6 B	482.1	256.6	3.47 V	5.78 V	696.2	3.47 V	5.78 V
4.20	602.6 B	482.1	256.6	2.80 T	4.67 T	696.2	2.94 O	4.90 O
8.40	602.6 B	482.1	256.6	1.36 T	2.26 T	696.2	1.44 O	2.40 O
12.60	602.6 B	482.1	256.6	0.93 T	1.55 T	696.2	1.00 O	1.66 O
16.80	602.6 B	482.1	256.6	0.75 T	1.26 T	696.2	0.81 O	1.35 O
21.00	602.6 B	482.1	256.6	0.73 T	1.21 T	696.2	0.79 O	1.31 O
25.20	602.6 B	482.1	256.6	0.75 T	1.26 T	696.2	0.81 O	1.35 O
29.40	602.6 B	482.1	256.6	0.93 T	1.55 T	696.2	1.00 O	1.66 O
33.60	602.6 B	482.1	256.6	1.36 T	2.26 T	696.2	1.44 O	2.40 O
37.80	602.6 B	482.1	256.6	2.80 T	4.67 T	696.2	2.94 O	4.90 O
42.00	602.6 B	482.1	256.6	3.47 V	5.78 V	696.2	3.47 V	5.78 V

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* GIRDER - LIVE LOAD TK527 *
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MAXIMUM REACTIONS

					REACTIONS	MOMENTS	
SUPPORT	DL1	DL2	+(LL+I)	-(LL+I)	+I.F. -I.F.	+I.F.	-I.F.
1	20.2	2.2	30.1	0.0	1.30		

NOTE: ALL SUPPORT REACTIONS AND END SHEARS IN EACH SPAN DUE TO A LIVE LOAD
ARE CALCULATED BASED ON AASHTO ARTICLE 3.23.1
AS INTERPRETED IN SOL 431-93-05.

UNFACTORED MOMENTS AND SHEARS

SPAN 1 - LIVE LOAD IMPACT FACTORS : POS MOM 1.30

	DL1	DL2	+(LL+I)	-(LL+I)	DL1	DL2	+(LL+I)	-(LL+I)	
X	MOMENT	MOMENT	MOMENT	MOMENT	SHEAR	SHEAR	SHEAR	SHEAR	I.F.
0.00	0.0	0.0	0.0	0.0	20.2	2.2	30.1	0.0	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	
4.20	76.2	8.2	90.8	0.0	16.1	1.7	21.6	-0.9	1.30
	SIMULT SHEAR		21.6	0.0	SIMULT MOM		90.8	32.3	
8.40	135.5	14.5	154.4	0.0	12.1	1.3	18.4	-2.5	1.30
	SIMULT SHEAR		18.4	0.0	SIMULT MOM		154.4	84.6	
12.60	177.9	19.1	197.2	0.0	8.1	0.9	15.4	-4.5	1.30
	SIMULT SHEAR		10.1	0.0	SIMULT MOM		194.6	133.0	
16.80	203.3	21.8	224.4	0.0	4.0	0.4	12.5	-6.9	1.30
	SIMULT SHEAR		7.1	0.0	SIMULT MOM		210.0	173.2	
21.00	211.8	22.7	227.0	0.0	0.0	0.0	9.6	-9.6	1.30
	SIMULT SHEAR		4.2	0.0	SIMULT MOM		200.8	200.8	
25.20	203.3	21.8	224.4	0.0	-4.0	-0.4	6.9	-12.5	1.30
	SIMULT SHEAR		-7.1	0.0	SIMULT MOM		173.2	210.0	
29.40	177.9	19.1	197.2	0.0	-8.1	-0.9	4.5	-15.4	1.30
	SIMULT SHEAR		-10.1	0.0	SIMULT MOM		133.0	194.6	
33.60	135.5	14.5	154.4	0.0	-12.1	-1.3	2.5	-18.4	1.30
	SIMULT SHEAR		-18.4	0.0	SIMULT MOM		84.6	154.4	
37.80	76.2	8.2	90.8	0.0	-16.1	-1.7	0.9	-21.6	1.30
	SIMULT SHEAR		-21.6	0.0	SIMULT MOM		32.3	90.8	
42.00	0.0	0.0	0.0	0.0	-20.2	-2.2	0.0	-30.1	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	

FLEXURAL STRESSES - BEAM

SPAN 1

	TOP FIBER STEEL STRESS				BOTTOM FIBER STEEL STRESS			
X	DL1	DL2	+(LL+I)	-(LL+I)	DL1	DL2	+(LL+I)	-(LL+I)
0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4.20	-4.175	-0.448	-4.972	0.000	4.175	0.448	4.972	0.000
8.40	-7.422	-0.796	-8.455	0.000	7.422	0.796	8.455	0.000
12.60	-9.742	-1.045	-10.798	0.000	9.742	1.045	10.798	0.000
16.80	-11.134	-1.194	-12.289	0.000	11.134	1.194	12.289	0.000
21.00	-11.598	-1.244	-12.429	0.000	11.598	1.244	12.429	0.000
25.20	-11.134	-1.194	-12.289	0.000	11.134	1.194	12.289	0.000
29.40	-9.742	-1.045	-10.798	0.000	9.742	1.045	10.798	0.000
33.60	-7.422	-0.796	-8.455	0.000	7.422	0.796	8.455	0.000
37.80	-4.175	-0.448	-4.972	0.000	4.175	0.448	4.972	0.000
42.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SHEAR STRESSES AND ALLOWABLE STRESS RATINGS

SPAN 1

	SHEAR STRESSES				ALLOW COMPR	RATING FACTORS	
X	DL1	DL2	+(LL+I)	-(LL+I)	REDUCTION	IR	OR
0.00	1.504	0.161	2.245	0.000	1.000	4.16 V	5.92 V
4.20	1.204	0.129	1.613	-0.064	1.000	2.72 T	4.05 T
8.40	0.903	0.097	1.372	-0.188	1.000	1.17 T	1.96 T
12.60	0.602	0.065	1.152	-0.338	1.000	0.68 T	1.29 T
16.80	0.301	0.032	0.933	-0.513	1.000	0.47 T	1.01 T
21.00	0.000	0.000	0.714	-0.714	1.000	0.43 T	0.96 T
25.20	-0.301	-0.032	0.513	-0.933	1.000	0.47 T	1.01 T
29.40	-0.602	-0.065	0.338	-1.152	1.000	0.68 T	1.29 T
33.60	-0.903	-0.097	0.188	-1.372	1.000	1.17 T	1.96 T
37.80	-1.204	-0.129	0.064	-1.613	1.000	2.72 T	4.05 T
42.00	-1.504	-0.161	0.000	-2.245	1.000	4.16 V	5.92 V

NOTE: THE SHEAR CAPACITIES CALCULATED HEREIN ARE BASED ON STIFFENED OR
UNSTIFFENED EQUATIONS AS SPECIFIED BY INPUT REGARDLESS OF THE STIFFENER
SPACINGS INPUT AND ARE NOT CHECKED AGAINST AASHTO CRITERIA.

STRENGTHS AND LOAD FACTOR RATINGS

SPAN 1

	NON-COMP MOMENT	OVERLOAD MOMENT	SHEAR	NON-COMPACT RATING FACTORS		COMPACT MOMENT	COMPACT RATING FACTORS	

X	STRENGTH	STRENGTH	STRENGTH	IR	OR	STRENGTH	IR	OR
0.00	602.6 B	482.1	256.6	3.49 V	5.82 V	696.2	3.49 V	5.82 V
4.20	602.6 B	482.1	256.6	2.51 T	4.18 T	696.2	2.63 O	4.38 O
8.40	602.6 B	482.1	256.6	1.22 T	2.03 T	696.2	1.29 O	2.15 O
12.60	602.6 B	482.1	256.6	0.81 T	1.35 T	696.2	0.87 O	1.45 O
16.80	602.6 B	482.1	256.6	0.64 T	1.06 T	696.2	0.69 O	1.15 O
21.00	602.6 B	482.1	256.6	0.61 T	1.01 T	696.2	0.65 O	1.09 O
25.20	602.6 B	482.1	256.6	0.64 T	1.06 T	696.2	0.69 O	1.15 O
29.40	602.6 B	482.1	256.6	0.81 T	1.35 T	696.2	0.87 O	1.45 O
33.60	602.6 B	482.1	256.6	1.22 T	2.03 T	696.2	1.29 O	2.15 O
37.80	602.6 B	482.1	256.6	2.51 T	4.18 T	696.2	2.63 O	4.38 O
42.00	602.6 B	482.1	256.6	3.49 V	5.82 V	696.2	3.49 V	5.82 V

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* GIRDER - LIVE LOAD ML80 *
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MAXIMUM REACTIONS

SUPPORT	DL1	DL2	+(LL+I)	-(LL+I)	REACTIONS +I.F.	REACTIONS -I.F.	MOMENTS +I.F.	MOMENTS -I.F.
1	20.2	2.2	30.5	0.0	1.30			

NOTE: ALL SUPPORT REACTIONS AND END SHEARS IN EACH SPAN DUE TO A LIVE LOAD
ARE CALCULATED BASED ON AASHTO ARTICLE 3.23.1
AS INTERPRETED IN SOL 431-93-05.

UNFACTORED MOMENTS AND SHEARS

SPAN 1 - LIVE LOAD IMPACT FACTORS : POS MOM 1.30

X	DL1 MOMENT	DL2 MOMENT	+(LL+I) MOMENT	-(LL+I) MOMENT	DL1 SHEAR	DL2 SHEAR	+(LL+I) SHEAR	-(LL+I) SHEAR	I.F.
0.00	0.0	0.0	0.0	0.0	20.2	2.2	30.5	0.0	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	
4.20	76.2	8.2	93.5	0.0	16.1	1.7	22.3	-0.9	1.30
	SIMULT SHEAR		22.3	0.0	SIMULT MOM		93.5	32.3	
8.40	135.5	14.5	161.9	0.0	12.1	1.3	19.3	-2.6	1.30
	SIMULT SHEAR		19.3	0.0	SIMULT MOM		161.9	86.2	
12.60	177.9	19.1	208.4	0.0	8.1	0.9	16.3	-5.0	1.30
	SIMULT SHEAR		11.0	0.0	SIMULT MOM		205.2	147.4	
16.80	203.3	21.8	238.5	0.0	4.0	0.4	13.3	-7.5	1.30
	SIMULT SHEAR		8.0	0.0	SIMULT MOM		223.3	188.1	
21.00	211.8	22.7	243.5	0.0	0.0	0.0	10.3	-10.3	1.30
	SIMULT SHEAR		5.0	0.0	SIMULT MOM		216.3	216.3	
25.20	203.3	21.8	238.5	0.0	-4.0	-0.4	7.5	-13.3	1.30
	SIMULT SHEAR		-8.0	0.0	SIMULT MOM		188.1	223.3	
29.40	177.9	19.1	208.4	0.0	-8.1	-0.9	5.0	-16.3	1.30
	SIMULT SHEAR		-11.0	0.0	SIMULT MOM		147.4	205.2	
33.60	135.5	14.5	161.9	0.0	-12.1	-1.3	2.6	-19.3	1.30
	SIMULT SHEAR		-19.3	0.0	SIMULT MOM		86.2	161.9	
37.80	76.2	8.2	93.5	0.0	-16.1	-1.7	0.9	-22.3	1.30
	SIMULT SHEAR		-22.3	0.0	SIMULT MOM		32.3	93.5	
42.00	0.0	0.0	0.0	0.0	-20.2	-2.2	0.0	-30.5	1.30
	SIMULT SHEAR		0.0	0.0	SIMULT MOM		0.0	0.0	

FLEXURAL STRESSES - BEAM

SPAN 1

X	TOP FIBER STEEL STRESS DL1	DL2	+(LL+I)	-(LL+I)	BOTTOM FIBER STEEL STRESS DL1	DL2	+(LL+I)	-(LL+I)
0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4.20	-4.175	-0.448	-5.121	0.000	4.175	0.448	5.121	0.000
8.40	-7.422	-0.796	-8.866	0.000	7.422	0.796	8.866	0.000
12.60	-9.742	-1.045	-11.413	0.000	9.742	1.045	11.413	0.000
16.80	-11.134	-1.194	-13.061	0.000	11.134	1.194	13.061	0.000
21.00	-11.598	-1.244	-13.334	0.000	11.598	1.244	13.334	0.000
25.20	-11.134	-1.194	-13.061	0.000	11.134	1.194	13.061	0.000
29.40	-9.742	-1.045	-11.413	0.000	9.742	1.045	11.413	0.000
33.60	-7.422	-0.796	-8.866	0.000	7.422	0.796	8.866	0.000
37.80	-4.175	-0.448	-5.121	0.000	4.175	0.448	5.121	0.000
42.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

SHEAR STRESSES AND ALLOWABLE STRESS RATINGS

SPAN 1

X	SHEAR STRESSES DL1	DL2	+(LL+I)	-(LL+I)	ALLOW COMPR REDUCTION	RATING FACTORS IR	RATING FACTORS OR
0.00	1.504	0.161	2.273	0.000	1.000	4.11 V	5.85 V
4.20	1.204	0.129	1.662	-0.064	1.000	2.64 T	3.93 T
8.40	0.903	0.097	1.438	-0.191	1.000	1.12 T	1.86 T
12.60	0.602	0.065	1.215	-0.374	1.000	0.65 T	1.22 T
16.80	0.301	0.032	0.992	-0.557	1.000	0.45 T	0.95 T
21.00	0.000	0.000	0.769	-0.769	1.000	0.40 T	0.89 T
25.20	-0.301	-0.032	0.557	-0.992	1.000	0.45 T	0.95 T
29.40	-0.602	-0.065	0.374	-1.215	1.000	0.65 T	1.22 T
33.60	-0.903	-0.097	0.191	-1.438	1.000	1.12 T	1.86 T
37.80	-1.204	-0.129	0.064	-1.662	1.000	2.64 T	3.93 T
42.00	-1.504	-0.161	0.000	-2.273	1.000	4.11 V	5.85 V

NOTE: THE SHEAR CAPACITIES CALCULATED HEREIN ARE BASED ON STIFFENED OR
UNSTIFFENED EQUATIONS AS SPECIFIED BY INPUT REGARDLESS OF THE STIFFENER
SPACINGS INPUT AND ARE NOT CHECKED AGAINST AASHTO CRITERIA.

STRENGTHS AND LOAD FACTOR RATINGS

SPAN 1

X	NON-COMP MOMENT STRENGTH	OVERLOAD MOMENT STRENGTH	SHEAR STRENGTH	NON-COMPACT RATING FACTORS IR	NON-COMPACT RATING FACTORS OR	COMPACT MOMENT STRENGTH	COMPACT RATING FACTORS IR	COMPACT RATING FACTORS OR
0.00	602.6 B	482.1	256.6	3.45 V	5.74 V	696.2	3.45 V	5.74 V
4.20	602.6 B	482.1	256.6	2.43 T	4.05 T	696.2	2.55 O	4.25 O
8.40	602.6 B	482.1	256.6	1.16 T	1.94 T	696.2	1.23 O	2.05 O
12.60	602.6 B	482.1	256.6	0.77 T	1.28 T	696.2	0.82 O	1.37 O
16.80	602.6 B	482.1	256.6	0.60 T	1.00 T	696.2	0.65 O	1.08 O
21.00	602.6 B	482.1	256.6	0.56 T	0.94 T	696.2	0.61 O	1.02 O
25.20	602.6 B	482.1	256.6	0.60 T	1.00 T	696.2	0.65 O	1.08 O
29.40	602.6 B	482.1	256.6	0.77 T	1.28 T	696.2	0.82 O	1.37 O
33.60	602.6 B	482.1	256.6	1.16 T	1.94 T	696.2	1.23 O	2.05 O
37.80	602.6 B	482.1	256.6	2.43 T	4.05 T	696.2	2.55 O	4.25 O
42.00	602.6 B	482.1	256.6	3.45 V	5.74 V	696.2	3.45 V	5.74 V

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+ +
+ R A T I N G S U M M A R Y +
+ +
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MEMBER: GIRDER

LOAD		ALLOWABLE STRESS RATING FACTOR	TONS	X	SPAN	LOAD FACTOR RATING FACTOR		TONS	X	SPAN
H20	IR (CRITICAL)	0.67 T	13.4	21.00	1	1.03 O		20.6	21.00	1
	OR (CRITICAL)	1.51 T	30.1	21.00	1	1.72 O		34.3	21.00	1
	IR (POS MOM)	0.67 T	13.4	21.00	1	1.03 O		20.6	21.00	1
	OR (POS MOM)	1.51 T	30.1	21.00	1	1.72 O		34.3	21.00	1
HS20	IR (CRITICAL)	0.51 T	18.5	21.00	1	0.79 O		28.3	21.00	1
	OR (CRITICAL)	1.15 T	41.5	21.00	1	1.31 O		47.2	21.00	1
	IR (POS MOM)	0.51 T	18.5	21.00	1	0.79 O		28.3	21.00	1
	OR (POS MOM)	1.15 T	41.5	21.00	1	1.31 O		47.2	21.00	1
TK527	IR (CRITICAL)	0.43 T	17.1	21.00	1	0.65 O		26.2	21.00	1
	OR (CRITICAL)	0.96 T	38.3	21.00	1	1.09 O		43.6	21.00	1
	IR (POS MOM)	0.43 T	17.1	21.00	1	0.65 O		26.2	21.00	1
	OR (POS MOM)	0.96 T	38.3	21.00	1	1.09 O		43.6	21.00	1
ML80	IR (CRITICAL)	0.40 T	14.6	21.00	1	0.61 O		22.4	21.00	1
	OR (CRITICAL)	0.89 T	32.7	21.00	1	1.02 O		37.3	21.00	1
	IR (POS MOM)	0.40 T	14.6	21.00	1	0.61 O		22.4	21.00	1
	OR (POS MOM)	0.89 T	32.7	21.00	1	1.02 O		37.3	21.00	1

RATING FACTOR CODES:
T - TOP STEEL STRESS/STRENGTH GOVERNS
B - BOTTOM STEEL STRESS/STRENGTH GOVERNS
C - CONCRETE STRESS/STRENGTH GOVERNS
R - REINFORCEMENT STRESS/STRENGTH GOVERNS
V - SHEAR STRESS/STRENGTH GOVERNS
blank - COMPACT MOMENT STRENGTH GOVERNS
O - OVERLOAD PROVISIONS GOVERN
I - MOMENT-SHEAR INTERACTION GOVERNS
F - SECTION DOES NOT MEET FLANGE PROJECTION/THICKNESS RATIO CRITERIA
W - SECTION DOES NOT MEET WEB DEPTH/THICKNESS RATIO CRITERIA

NON-COMPACT MOMENT STRENGTH CODES:
B - SECTION IS BRACED
U - SECTION IS UNBRACED

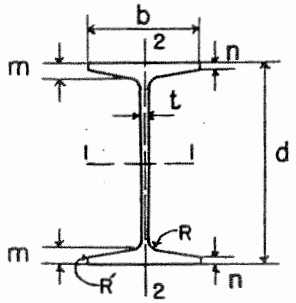
NOTE: ALL RATINGS ARE BASED ON THE NUMBER OF DESIGN LANES OR THE ACTUAL TRAFFIC LANES AS DEFINED BY "D" OR "L" ENTERED FOR LANES IN THE PROJECT IDENTIFICATION.

BAR7 v7.13.0.0 PROGRAM WAS EXECUTED COMPLETELY AND SUCCESSFULLY.

27" BEAMS

REFERENCES; SEE COLUMN (1) AND PAGE 4

4	9	11	13
CI913	CB271	CB272,27X14	CIL1946
CI915	CI929	CB271, 27X10	CIL1948
5	CB271, 27X9¾	CI933	USI950
CI916	CI930	CI934	2, 3, 6, 10
CI917		IL1934	See Page 45
CI919		27WFCB272,27X14	
CI920		27WFCB271, 27X10	
CI921		CIL1940	
CI923			



* Computed

SECT. NO. OR NOM. SIZE	COL. (1)	WEIGHT PER FOOT	AREA	DEPTH	FLANGE WIDTH	WEB THICK	DIMENSIONS				SLOPE INSIDE FLANGE	AXIS 1—1			AXIS 2—2		
				d	b	t	m	n	R	R′		I	S	r	I	S	r
		Lb.	Sq.In.	In.	In.	In.	In.	In.	In.	In.	%	In.⁴	In.³	In.	In.⁴	In.³	In.
27WF CB271 27X10	11	106.0	31.17	27.140	10.035	.535	.862	.862	.64	0	0	3761.2	277.2	10.98	136.1	27.1	2.09
27WF (B27) 27X10	2	106.0	31.17	27.140	10.035	.535	.862†		.60	0	5.0	3761.2	277.2	10.98	136.1	27.1	2.09
CB27N 27X10	10	104.0	30.60	27.450	10.040	.490	.883	.883	.65	0	0	3867.1	281.8	11.24	149.2	29.7	2.21
27WF CB271 27X10	13	102.0	30.01	27.070	10.018	.518	.827	.827	.64	0	0	3604.1	266.3	10.96	129.5	25.9	2.08
27WF (B27) 27X10	3	102.0	30.01	27.070	10.018	.518	.827†		.60	0	5.0	3604.1	266.3	10.96	129.5	25.9	2.08
CB271 27X9¾	6	101.0	29.70	27.166	9.799	.510	.838	.838	.65	0	0	3595.7	264.7	11.00	131.7	26.9	2.11
27WF CB27 27X10	11	98.0	28.82	27.000	10.000	.500	.792	.792	.64	0	0	3446.5	255.3	10.94	122.9	24.6	2.07
27WF (B27) 27X10	2	98.0	28.82	27.000	10.000	.500	.792†		.60	0	5.0	3446.5	255.3	10.94	122.9	24.6	2.07
CB27IN 27X10	10	97.0	28.53	27.326	10.010	.460	.821	.821	.65	0	0	3582.6	262.2	11.21	137.5	27.5	2.20
27WF CB271 27X10	13	94.0	27.65	26.910	9.990	.490	.747	.747	.64	0	0	3266.7	242.8	10.87	115.1	23.0	2.04
27WF (B27) 27X10	3	94.0	27.65	26.910	9.990	.490	.747†		.60	0	5.0	3266.7	242.8	10.87	115.1	23.0	2.04
27WF (B27) 27X10	2	91.0	26.77	26.840	9.983	.483	.712†		.60	0	5.0	3129.2	233.2	10.81	109.0	21.8	2.02
27WF CB271 27X10	11	91.0	26.77	26.840	9.983	.483	.712	.712	.64	0	0	3129.2	233.2	10.81	109.0	21.8	2.02
CB271N 27X10	10	91.0	26.76	27.162	10.005	.455	.739	.739	.65	0	0	3269.7	240.8	11.05	123.6	24.7	2.15
CB271 27X9¾	6	91.0	26.76	27.000	9.750	.461	.755	.755	.65	0	0	3217.0	238.3	10.97	116.9	24.0	2.09
B61	5	90.0	26.34	27.000	9.000	.524	.900	.515	.46	0	9.1 *	2958.3	219.1	10.60	75.3	16.7	1.69
CB271N 27X10	10	85.0	25.00	27.000	10.000	.450	.658	.658	.65	0	0	2964.3	219.6	10.89	109.9	22.0	2.10
CB271 27X9¾	9	85.0	25.00	26.820	9.750	.461	.665	.665	.65	0	0	2899.3	216.2	10.77	103.0	21.1	2.03
B31	4	83.0	24.41	27.000	7.500	.424	L185	.596	.65	0	16⅔ *	2888.6	214.0	10.88	53.1	14.1	1.47

† Average thickness

Christopher M. Alvaro

From: Brent D. Miller
Sent: Monday, August 26, 2013 2:43 PM
To: Christopher M. Alvaro
Subject: FW: Encased beam shot crete removal

From: Tom Kohler [mailto:TKohler@northamptoncounty.org]
Sent: Friday, June 28, 2013 7:31 AM
To: Brent D. Miller
Subject: RE: Encased beam shot crete removal

We drilled holes from the top of the macadam down and thru the concrete deck until we hit the top of the beam.

From: Brent D. Miller [mailto:BRENT.MILLER@stvinc.com]
Sent: Thursday, June 27, 2013 3:01 PM
To: Tom Kohler
Subject: RE: Encased beam shot crete removal

Tom,

We did go out and get some measurements around the perimeters, but the shotcrete on the bottom, as well as the macadam thickness is throwing things off. You wouldn't happen to know how much of the deck thickness is concrete and how much is macadam (it matters)? Also, were these slab thicknesses measured to the top flanges of the steel beam?

From: Tom Kohler [mailto:TKohler@northamptoncounty.org]
Sent: Thursday, June 27, 2013 1:49 PM
To: Brent D. Miller
Subject: RE: Encased beam shot crete removal

Brent,

Yes, they include the total thickness of the macadam as well as the thickness of the concrete deck.
We took these same types of measurement on previously requested structures to be calculated for beam size and STV was able to take some other field measurements to determine the beam height. Not sure if someone has done that to date? If not, I can do it, but it won't be for a while.

TK

From: Brent D. Miller [mailto:BRENT.MILLER@stvinc.com]
Sent: Thursday, June 27, 2013 10:50 AM
To: Tom Kohler
Cc: Romeo K. Cachuela
Subject: RE: Encased beam shot crete removal

Tom,

Can you tell me of these slab thicknesses include the bituminous wearing surface – and if the drills/cores stopped when they hit the top flange of the beam?

We are having difficulty coming up with a beam section (especially figuring out the height of the beam) from our shapes manuals.
If possible, can your guys also (some time) drill through the entire slab and pressure mortar covering the bottom to get an overall thickness – this may help?

Thanks, Brent

From: Tom Kohler [mailto:TKohler@northamptoncounty.org]
Sent: Monday, May 20, 2013 8:10 AM
To: Barry K. Moyer
Cc: Carl T. McGloughlin
Subject: Encased beam shot crete removal

Barry,

Per your previous request, we have removed a small portion of shotcrete on an bridge beam at the three bridges listed below. This was completed so that STV could determine the beam size in each structure and to perform a structural and load analysis of each structure. We have drilled a hole into each bridge deck to determine the deck thickness as well and that information is provided with the location of the shotctrete removal below.

Bridge #41 – Little Creek Rd. / Lower Mt. Bethel Twp.
Deck Thickness – 5.5”
Beam #7 at Near Abutment

Bridge #138 – Club Rd. / Moore Twp.
Deck Thickness – 6.25”
Beam # 6 at Far abutment

Bridge #205 – S. Cottonwood Dr. / Lehigh Twp.
Deck Thickness – 9.25”
Beam # 9 at Far abutment

Let me know when STV has completed their analysis so that these beams can be resealed.

Northampton County Bridge Division
Thomas A. Kohler - Supt.
14 Gracedale Ave.
Greystone Building Rm. 305
Nazareth, Pa. 18064

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