

# Blackwell

Structural Engineers

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<input checked="" type="checkbox"/> ELECTRICAL	<input checked="" type="checkbox"/> ENERGY
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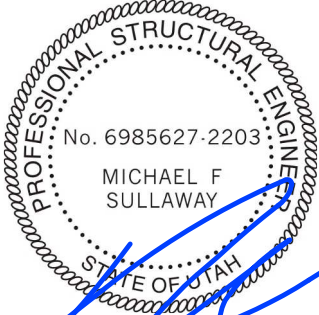
BY: MEM DATE: 08/22/18

**WEST COAST CODE CONSULTANTS, INC.**

## SUMMIT LOT 14R STRUCTURAL DESIGN CALCULATION PACKAGE

**Our Project 170950  
July 06, 2018**

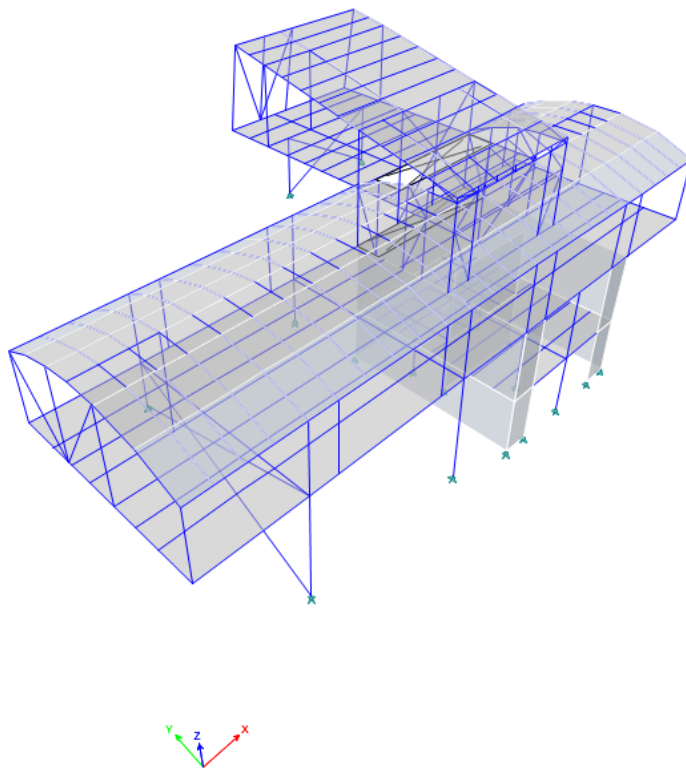
**Rev. 0 Issued for Permit**



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**GRAVITY SYSTEM**  
Designed using ETABS



## Gravity System

**Lot 14R**

Model File: ETABS Model, Revision 0

2018-08-15

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## 1 Properties

This chapter provides property information for materials, frame sections, shell sections, and links.

### 1.1 Materials

**Table 1.1 - Material Properties - Summary**

Name	Type	E lb/in <sup>2</sup>	v	Unit Weight lb/ft <sup>3</sup>	Design Strengths
4000Psi	Concrete	3604997	0.2	150	F <sub>c</sub> =4000 lb/in <sup>2</sup>
A416Gr270	Tendon	28500000	0	490	F <sub>y</sub> =245100 lb/in <sup>2</sup> , F <sub>u</sub> =270000 lb/in <sup>2</sup>
A615Gr60	Rebar	29000000	0	490	F <sub>y</sub> =60000 lb/in <sup>2</sup> , F <sub>u</sub> =90000 lb/in <sup>2</sup>
A992Fy50	Steel	29000000	0.3	490	F <sub>y</sub> =50000 lb/in <sup>2</sup> , F <sub>u</sub> =65000 lb/in <sup>2</sup>

### 1.2 Frame Sections

**Table 1.2 - Frame Sections - Summary**

Name	Material	Shape
C10X15.3	A992Fy50	Steel Channel
ConcBm	4000Psi	Concrete Rectangular
ConcCol	4000Psi	Concrete Rectangular
HSS2-1/2X2-1/2X3/16	A992Fy50	Steel Tube
HSS2X2X1/4	A992Fy50	Steel Tube
HSS3-1/2X3-1/2X1/4	A992Fy50	Steel Tube
HSS3X3X1/4	A992Fy50	Steel Tube
HSS3X3X3/8	A992Fy50	Steel Tube
HSS3X3X5/16	A992Fy50	Steel Tube
HSS4X0.250	A992Fy50	Steel Pipe
HSS6X6X1/2	A992Fy50	Steel Tube
HSS6X6X1/4	A992Fy50	Steel Tube
HSS6X6X3/8	A992Fy50	Steel Tube
W10X22	A992Fy50	Steel I/Wide Flange
W10X39	A992Fy50	Steel I/Wide Flange
W10X45	A992Fy50	Steel I/Wide Flange
W10X49	A992Fy50	Steel I/Wide Flange
W10X54	A992Fy50	Steel I/Wide Flange
W10X68	A992Fy50	Steel I/Wide Flange
W12X26	A992Fy50	Steel I/Wide Flange
W12X35	A992Fy50	Steel I/Wide Flange
W12X79	A992Fy50	Steel I/Wide Flange
W16X26	A992Fy50	Steel I/Wide Flange
W16X31	A992Fy50	Steel I/Wide Flange
W16X40	A992Fy50	Steel I/Wide Flange
W16X45	A992Fy50	Steel I/Wide Flange
W16X67	A992Fy50	Steel I/Wide Flange
W18X46	A992Fy50	Steel I/Wide Flange
W21X166	A992Fy50	Steel I/Wide Flange
W21X44	A992Fy50	Steel I/Wide Flange
W21X68	A992Fy50	Steel I/Wide Flange

**Table 1.2 - Frame Sections - Summary (continued)**

Name	Material	Shape
W24X117	A992Fy50	Steel I/Wide Flange
W27X102	A992Fy50	Steel I/Wide Flange
W27X129	A992Fy50	Steel I/Wide Flange
W27X146	A992Fy50	Steel I/Wide Flange
W27X84	A992Fy50	Steel I/Wide Flange
W30X90	A992Fy50	Steel I/Wide Flange
W6X25	A992Fy50	Steel I/Wide Flange
W8X18	A992Fy50	Steel I/Wide Flange
W8X21	A992Fy50	Steel I/Wide Flange
W8x28	A992Fy50	Steel I/Wide Flange

**1.3 Shell Sections**

**Table 1.3 - Shell Sections - Summary**

Name	Design Type	Element Type	Material	Total Thickness in	Deck Material	Deck Depth in
CW10A	Wall	Shell-Thin	4000Psi	10		
CW12A	Wall	Shell-Thin	4000Psi	12		
Floors	Deck	Membrane	4000Psi	4	A992Fy50	1.5
Roof	Deck	Membrane	Not Applicable	1.5	A992Fy50	1.5



## 2 Assignments

This chapter provides a listing of the assignments applied to the model.

### 2.1 Frame Assignments

**Table 2.1 - Frame Assignments - Sections**

Story	Label	Unique Name	Design Type	Section Type	Analysis Section	Design Procedure	Design Section
Story5	C19	189	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story5	C20	200	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story5	C21	202	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story5	C31	135	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story5	C53	3 E-7	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C54	3 E-8(+)	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C55	3 E-9(-)	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C56	3 E-10	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C58	4 C-7	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story5	C60	4 C-8(+)	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story5	C62	4 C-10	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story5	C2	3 H-8	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C6	3 H-7	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C46	3 H-9	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C47	3 H-10	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C1	3 I-2	Column	Steel I/Wide Flange	W6X25	Steel Frame Design	W6X25
Story4	C3	3 I-3	Column	Steel I/Wide Flange	W6X25	Steel Frame Design	W6X25
Story4	C4	3 I-4	Column	Steel I/Wide Flange	W6X25	Steel Frame Design	W6X25
Story4	C5	3 I-5	Column	Steel I/Wide Flange	W6X25	Steel Frame Design	W6X25
Story4	C7	3 I-6	Column	Steel I/Wide Flange	W6X25	Steel Frame Design	W6X25
Story4	C8	3 I-7	Column	Steel I/Wide Flange	W6X25	Steel Frame Design	W6X25
Story4	C9	3 I-8	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story4	C11	3 I-9	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story4	C12	3 I-10	Column	Steel I/Wide Flange	W6X25	Steel Frame Design	W6X25
Story4	C13	3 I-11	Column	Steel I/Wide Flange	W6X25	Steel Frame Design	W6X25
Story4	C26	3 H-2	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C28	3 G-3-	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C29	3 G-7	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C32	3 G-10	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C33	3 G-11	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story4	C34	3 G(-)-7	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C39	3 G(-)-10	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C40	3 F+-2	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C42	3 F-10	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C44	3 F-7	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C45	3 E-2	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C48	3 E-3	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story4	C49	3 E-4	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story4	C50	3 E-5	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story4	C52	3 E-6	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story4	C57	3 E-11-	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4

**Table 2.1 - Frame Assignments - Sections (continued)**

Story	Label	Unique Name	Design Type	Section Type	Analysis Section	Design Procedure	Design Section
Story3	C30	3 G-8(+)	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story3	C59	2 C-8	Column	Steel I/Wide Flange	W10X45	Steel Frame Design	W10X45
Story3	C61	2 C-9	Column	Steel I/Wide Flange	W10X45	Steel Frame Design	W10X45
Story2	C10	2 I-8+ Conc	Column	Concrete Rectangular	ConcCol	Concrete Frame Design	ConcCol
Story2	C27	1 I-3	Column	Steel I/Wide Flange	W10X49	Steel Frame Design	W10X49
Story2	C35	1E-3	Column	Steel I/Wide Flange	W10X49	Steel Frame Design	W10X49
Story2	C41	1 E-6	Column	Steel I/Wide Flange	W10X49	Steel Frame Design	W10X49
Story2	C43	1 I-6	Column	Steel I/Wide Flange	W10X49	Steel Frame Design	W10X49
Story1	C10	1 I-8+ Conc	Column	Concrete Rectangular	ConcCol	Concrete Frame Design	ConcCol
Story1	C14	1 H+-8+ WD	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story1	C36	1 G-7+ WD	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story1	C37	1 G--8+ WD	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story1	C38	1 G--9- WD	Column	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story5	B102	RB13-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story5	B104	RB13-2	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story5	B139	RB8-1	Beam	Steel I/Wide Flange	W10X22	Steel Frame Design	W10X22
Story5	B140	RB8-2	Beam	Steel I/Wide Flange	W10X22	Steel Frame Design	W10X22
Story5	B145	RB9-1	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B146	RB9-2	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B147	RB9-3	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B173	RB8-3	Beam	Steel I/Wide Flange	W10X22	Steel Frame Design	W10X22
Story5	B174	RB8-4	Beam	Steel I/Wide Flange	W10X22	Steel Frame Design	W10X22
Story5	B183	RB9-4	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B185	RB9-5	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B187	RB9-6	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B204	RB5x	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story5	B205	RB10-3	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story5	B208	RB10-4	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story5	B213	RB9-7	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B214	RB9-8	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B217	RB9-9	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B218	RB9-10	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B222	RB9-11	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B223	RB9-12	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B231	RB9-13	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B232	RB9-14	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B233	RB9-15	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B235	RB9-16	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B236	RB9-17	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B238	RB9-18	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B148	46	Beam	Steel Tube	HSS3X3X5/16	Steel Frame Design	HSS3X3X5/16
Story5	B176	47	Beam	Steel Tube	HSS3X3X5/16	Steel Frame Design	HSS3X3X5/16

**Table 2.1 - Frame Assignments - Sections (continued)**

Story	Label	Unique Name	Design Type	Section Type	Analysis Section	Design Procedure	Design Section
Story5	B5	RB9-19	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B22	RB18-1	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story5	B1	RB12-1	Beam	Steel I/Wide Flange	W10X39	Steel Frame Design	W10X39
Story5	B29	RB19-1	Beam	Steel I/Wide Flange	W10X22	Steel Frame Design	W10X22
Story5	B30	RB12-2	Beam	Steel I/Wide Flange	W10X39	Steel Frame Design	W10X39
Story5	B31	RB19-3	Beam	Steel I/Wide Flange	W10X22	Steel Frame Design	W10X22
Story5	B3	RB7-1	Beam	Steel I/Wide Flange	W10X54	Steel Frame Design	W10X54
Story5	B32	RB19-2	Beam	Steel I/Wide Flange	W10X22	Steel Frame Design	W10X22
Story4	B7	RB4-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B9	RB5-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B10	RB4-3	Beam	Steel I/Wide Flange	W16X40	Steel Frame Design	W16X40
Story4	B12	RB6-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B14	RB4-4	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B15	RB5-3	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B33	RB2-1b	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B34	218	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B35	221	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B36	224	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B37	227	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B38	233	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B39	238	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B40	243	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B41	248	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B42	253	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B43	258	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B44	263	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B45	268	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B46	273	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B47	288	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B48	300	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B49	303	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B50	306	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B51	309	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B52	313	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B53	327	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B54	333	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B55	339	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B56	RB2-3b	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B61	RB10-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B77	RB2-2a	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B78	219	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B79	222	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B80	225	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B81	228	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B82	234	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44

**Table 2.1 - Frame Assignments - Sections (continued)**

Story	Label	Unique Name	Design Type	Section Type	Analysis Section	Design Procedure	Design Section
Story4	B83	239	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B84	244	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B85	249	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B86	254	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B87	259	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B88	264	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B89	269	Beam	Steel I/Wide Flange	W21X68	Steel Frame Design	W21X68
Story4	B90	RB17-1a	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B91	RB17-2a	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B92	328	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B93	334	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B94	340	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B95	RB2-3c	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B100	RB14-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B113	RB2-2b	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B114	293	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B115	297	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B116	175	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B117	229	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B118	235	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B119	240	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B120	245	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B121	250	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B122	255	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B123	260	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B124	265	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B125	270	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B126	RB17-1b	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B127	RB17-2b	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B128	329	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B129	335	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B130	341	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B131	RB2-4a	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B153	RB2-2c	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B154	294	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B155	298	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B156	176	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B158	230	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B159	236	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B160	241	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B161	246	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B162	251	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B163	256	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B164	261	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B165	266	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44

**Table 2.1 - Frame Assignments - Sections (continued)**

Story	Label	Unique Name	Design Type	Section Type	Analysis Section	Design Procedure	Design Section
Story4	B166	271	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B167	RB17-1c	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B169	330	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B170	336	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B171	342	Beam	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	B172	RB2-4b	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B210	RB3-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B224	RB17-2c	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B302	RB16-1	Beam	Steel I/Wide Flange	W24X117	Steel Frame Design	W24X117
Story3	B132	3B14-1	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B149	3B14-2	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B177	3B14-3	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B190	3B7-1	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B203	3B1-1	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B211	3B1-2	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B212	3B1-3	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B215	3B1-4	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B216	3B1-5	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B220	3B1-6	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B221	3B1-7	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B229	3B1-8	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B230	3B1-9	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B234	3B10-1	Beam	Steel I/Wide Flange	W30X90	Steel Frame Design	W30X90
Story3	B243	3B9-1	Beam	Steel I/Wide Flange	W10X68	Steel Frame Design	W10X68
Story3	B244	3B8-1	Beam	Steel I/Wide Flange	W18X46	Steel Frame Design	W18X46
Story3	B245	3B4-1	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story3	B20	3B17-1	Beam	Steel I/Wide Flange	W18X46	Steel Frame Design	W18X46
Story3	B21	3B1-11	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story2	B6	2B4-1	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B8	2B1-1	Beam	Steel I/Wide Flange	W12X26	Steel Frame Design	W12X26
Story2	B13	2B9-R-1	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B64	2B5-R-1	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B67	2B9-3STUB	Beam	Steel I/Wide Flange	W21X166	Steel Frame Design	W21X166
Story2	B68	2B9-3C	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B69	2B9-3	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B70	2B1-4	Beam	Steel I/Wide Flange	W12X26	Steel Frame Design	W12X26
Story2	B73	2B2-1	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B74	2B7-1	Beam	Steel I/Wide Flange	W27X146	Steel Frame Design	W27X146
Story2	B75	2B8-1	Beam	Steel I/Wide Flange	W16X67	Steel Frame Design	W16X67
Story2	B105	2B5-R-2	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B144	2B9-R-4	Beam	Steel I/Wide Flange	W27X84	Steel Frame Design	W27X84
Story2	B186	2B4-R-1	Beam	Steel I/Wide Flange	W27X102	Steel Frame Design	W27X102
Story2	B195	2B4-4C	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B207	2B4-R-2	Beam	Steel I/Wide Flange	W27X102	Steel Frame Design	W27X102
Story2	B254	2B4-1C	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129

**Table 2.1 - Frame Assignments - Sections (continued)**

Story	Label	Unique Name	Design Type	Section Type	Analysis Section	Design Procedure	Design Section
Story2	B257	2B9-1	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B258	2B9-1STUB	Beam	Steel I/Wide Flange	W21X166	Steel Frame Design	W21X166
Story2	B259	2B9-1C	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B263	2B4C-3	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B268	2B5-1	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B271	2B4-3	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B273	2B4-2	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B277	2B9-2	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B278	2B9-2STUB	Beam	Steel I/Wide Flange	W21X166	Steel Frame Design	W21X166
Story2	B279	2B9-2C	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B280	2B1-2	Beam	Steel I/Wide Flange	W12X26	Steel Frame Design	W12X26
Story2	B281	2B1-3	Beam	Steel I/Wide Flange	W12X26	Steel Frame Design	W12X26
Story2	B282	2B1-5	Beam	Steel I/Wide Flange	W12X26	Steel Frame Design	W12X26
Story2	B283	2B1-6	Beam	Steel I/Wide Flange	W12X26	Steel Frame Design	W12X26
Story2	B284	2B1-7	Beam	Steel I/Wide Flange	W12X26	Steel Frame Design	W12X26
Story2	B295	2B9-R-2	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B296	2B9-R-3	Beam	Steel I/Wide Flange	W27X84	Steel Frame Design	W27X84
Story2	B303	2B5-1C	Beam	Steel I/Wide Flange	W21X166	Steel Frame Design	W21X166
Story2	B304	2B4C-2	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B2	2B2-2	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B19	2B2-3	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story1	B11	CB-1	Beam	Concrete Rectangular	ConcBm	Concrete Frame Design	ConcBm
Story1	B16	wFJ-1	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B17	w1B4-1				Composite Beam Design	N/A
Story1	B18	wFJ-2	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B26	wFJ-3	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B27	wFJ-4	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B57	wFJ-5	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B58	w1B4-2	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B59	wFJ-6	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B71	wFB-1	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B72	wFB-2	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B107	wFJ-7	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A

'w' indicates wood members designed using Forte software. See wood members section

**Table 2.1 - Frame Assignments - Sections (continued)**

Story	Label	Unique Name	Design Type	Section Type	Analysis Section	Design Procedure	Design Section
Story1	B108	wFJ-8	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B109	wFJ-9	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B110	wFJ-10	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B111	wFJ-11	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B134	wFB-5	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B135	wFB-6	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B136	wFB-7	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B137	wFB-8	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B150	wFJ-13	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B151	wFJ-14	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B152	wFJ-15	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B191	1B2-1	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B192	1B2-2	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B157	1B1-1	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B180	wFJ-12	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story1	B250	wFJ-16	Beam	Steel I/Wide Flange	W8x28	Composite Beam Design	N/A
Story5	D29	205	Brace	Steel Tube	HSS3-1/2X3-1/2X1/4	Steel Frame Design	HSS3-1/2X3-1/2X1/4
Story5	D30	207	Brace	Steel Tube	HSS3-1/2X3-1/2X1/4	Steel Frame Design	HSS3-1/2X3-1/2X1/4
Story5	D31	209	Brace	Steel Tube	HSS3-1/2X3-1/2X1/4	Steel Frame Design	HSS3-1/2X3-1/2X1/4
Story5	D32	274	Brace	Steel Tube	HSS3-1/2X3-1/2X1/4	Steel Frame Design	HSS3-1/2X3-1/2X1/4
Story5	D33	289	Brace	Steel Tube	HSS3-1/2X3-1/2X1/4	Steel Frame Design	HSS3-1/2X3-1/2X1/4
Story5	D34	301	Brace	Steel Tube	HSS3-1/2X3-1/2X1/4	Steel Frame Design	HSS3-1/2X3-1/2X1/4
Story5	D35	307	Brace	Steel Tube	HSS3-1/2X3-1/2X1/4	Steel Frame Design	HSS3-1/2X3-1/2X1/4
Story5	D79	4 A(+)-7	Brace	Steel Tube	HSS6X6X3/8	Steel Frame Design	HSS6X6X3/8
Story5	D52	4 A(+)-8(+)	Brace	Steel Tube	HSS6X6X3/8	Steel Frame Design	HSS6X6X3/8
Story5	D77	4 A(+)-9(-)	Brace	Steel Tube	HSS6X6X3/8	Steel Frame Design	HSS6X6X3/8
Story5	D46	4 A(+)-10	Brace	Steel Tube	HSS6X6X1/4	Steel Frame Design	HSS6X6X1/4
Story4	D1	RB2-1a	Brace	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	D2	217	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D3	220	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44

— All 21x44 sections are stand-ins for steel trusses

**Table 2.1 - Frame Assignments - Sections (continued)**

Story	Label	Unique Name	Design Type	Section Type	Analysis Section	Design Procedure	Design Section
Story4	D4	223	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D5	226	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D6	232	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D7	237	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D8	242	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D9	247	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D10	252	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D11	257	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D12	262	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D13	267	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D14	272	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D15	287	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D16	299	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D17	302	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D18	305	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D19	308	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D20	312	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D21	326	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D22	332	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D23	338	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D24	RB2-3a	Brace	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	D48	RB2-2d	Brace	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	D49	295	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D50	296	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D51	177	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D53	231	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D54	276	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D55	277	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D56	278	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D57	279	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D58	280	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D59	281	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D60	282	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D61	283	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D62	RB17-1d	Brace	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	D63	RB17-2d	Brace	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	D64	199	Brace	Steel Tube	HSS3X3X1/4	Steel Frame Design	HSS3X3X1/4
Story4	D65	331	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D66	337	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D67	343	Brace	Steel I/Wide Flange	W21X44	Steel Frame Design	W21X44
Story4	D68	RB2-4c	Brace	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	D69	61	Brace	Steel Tube	HSS3X3X1/4	Steel Frame Design	HSS3X3X1/4



2.2 Shell Assignments

Table 2.2 - Shell Assignments - Summary

Story	Label	Unique Name	Section	Diaphragm	Axis Angle deg	Pier
Story4	W1	21	Roof			
Story4	W2	25	Roof			
Story4	W3	27	Roof	Roof diaphragm		
Story4	W4	28	Roof			
Story4	W5	29	Roof			
Story4	W6	30	Roof			
Story4	W7	31	Roof			
Story4	W8	32	Roof			
Story4	W9	33	Roof			
Story4	W10	34	Roof			
Story4	W11	35	Roof			
Story4	W12	36	Roof			
Story4	W13	37	Roof			
Story4	W15	38	Roof			
Story4	W16	39	Roof			
Story4	W17	42	Roof			
Story4	W18	43	Roof			
Story4	W19	44	Roof			
Story4	W21	45	Roof			
Story4	W22	46	Roof			
Story4	W23	47	Roof			
Story4	W24	48	Roof			
Story4	W25	49	Roof			
Story4	W29	108	Roof			
Story4	W30	109	Roof			
Story4	W31	110	Roof			
Story4	W32	111	Roof			
Story4	W33	112	Roof			
Story4	W34	113	Roof			
Story4	W35	114	Roof			
Story4	W36	115	Roof			
Story4	W37	116	Roof			
Story4	W38	117	Roof			
Story4	W39	118	Roof	Concrete walls		
Story4	W40	119	Roof			
Story4	W41	120	Roof			
Story4	W43	56	Roof			
Story4	W44	57	Roof			
Story4	W45	58	Roof			
Story4	W46	59	Roof			
Story2	W14	1	CW10A			P2
Story2	W20	5	CW10A			P5
Story2	W26	6	CW10A			P4

**Table 2.2 - Shell Assignments - Summary (continued)**

Story	Label	Unique Name	Section	Diaphragm	Axis Angle deg	Pier
Story2	W27	2	CW10A			P1
Story2	W28	4	CW10A			P6
Story2	W42	3	CW12A			P3
Story1	W14	14	CW10A			P2
Story1	W20	15	CW10A			P5
Story1	W26	7	CW10A			P4
Story1	W27	12	CW10A			P1
Story1	W28	13	CW10A			P6
Story1	W42	11	CW12A			P3
Story5	F27	9	Roof		90	
Story5	F46	16	Roof		90	
Story5	F47	87	Roof	Roof diaphragm		
Story5	F48	96	Roof			
Story5	F66	99	Roof		90	
Story5	F67	121	Roof		90	
Story5	F68	123	Roof		90	
Story5	F70	124	Roof		90	
Story5	F71	125	Roof		90	
Story5	F72	126	Roof		90	
Story5	F73	127	Roof		90	
Story5	F74	128	Roof		90	
Story5	F75	130	Roof		90	
Story5	F76	129	Roof		90	
Story5	F78	131	Roof		90	
Story5	F79	132	Roof		90	
Story5	F80	133	Roof		90	
Story5	F81	134	Roof		90	
Story5	F82	136	Roof		90	
Story5	F83	135	Roof		90	
Story5	F84	137	Roof		90	
Story5	F85	139	Roof		90	
Story5	F86	138	Roof		90	
Story5	F87	140	Roof		90	
Story4	F2	18	Roof			
Story4	F3	22	Roof			
Story4	F4	23	Roof			
Story4	F5	26	Roof			
Story4	F6	60	Roof			
Story4	F7	61	Roof			
Story4	F8	62	Roof			
Story4	F9	63	Roof			
Story4	F10	64	Roof			
Story4	F11	65	Roof			
Story4	F12	66	Roof			
Story4	F13	67	Roof			

**Table 2.2 - Shell Assignments - Summary (continued)**

Story	Label	Unique Name	Section	Diaphragm	Axis Angle deg	Pier
Story4	F17	71	Roof			
Story4	F18	72	Roof			
Story4	F22	76	Roof			
Story4	F23	77	Roof			
Story4	F24	78	Roof			
Story4	F26	10	Roof			
Story4	F28	20	Roof			
Story4	F29	79	Roof			
Story4	F30	80	Roof			
Story4	F31	81	Roof			
Story4	F32	82	Roof			
Story4	F33	83	Roof			
Story4	F34	84	Roof			
Story4	F35	85	Roof			
Story4	F36	86	Roof			
Story4	F37	88	Roof			
Story4	F38	89	Roof			
Story4	F39	90	Roof			
Story4	F40	91	Roof			
Story4	F41	92	Roof			
Story4	F42	40	Roof			
Story4	F43	41	Roof			
Story4	F44	50	Roof			
Story4	F45	51	Roof			
Story4	F49	93	Roof			
Story4	F50	94	Roof			
Story4	F51	95	Roof			
Story4	F52	97	Roof			
Story4	F53	98	Roof			
Story4	F54	100	Roof			
Story4	F55	101	Roof			
Story4	F56	102	Roof			
Story4	F57	103	Roof			
Story4	F58	104	Roof			
Story4	F59	105	Roof			
Story4	F60	106	Roof			
Story4	F61	107	Roof			
Story4	F62	52	Roof			
Story4	F63	53	Roof			
Story4	F64	54	Roof			
Story4	F65	55	Roof			
Story4	F89	69	Roof			
Story4	F90	70	Roof			
Story4	F91	68	Roof			
Story4	F92	73	Roof			

**Table 2.2 - Shell Assignments - Summary (continued)**

Story	Label	Unique Name	Section	Diaphragm	Axis Angle deg	Pier
Story4	F93	74	Roof			
Story4	F94	75	Roof			
Story3	F88	24	Floors	D1	90	
Story2	F25	8	Floors	D1	90	
Story1	F1	19	Floors			
Story1	F69	17	Floors			

Floor Diaphragm

**Table 2.3 - Shell Assignments - Sections**

Story	Label	Unique Name	Section
Story4	W1	21	Roof
Story4	W2	25	Roof
Story4	W3	27	Roof
Story4	W4	28	Roof
Story4	W5	29	Roof
Story4	W6	30	Roof
Story4	W7	31	Roof
Story4	W8	32	Roof
Story4	W9	33	Roof
Story4	W10	34	Roof
Story4	W11	35	Roof
Story4	W12	36	Roof
Story4	W13	37	Roof
Story4	W15	38	Roof
Story4	W16	39	Roof
Story4	W17	42	Roof
Story4	W18	43	Roof
Story4	W19	44	Roof
Story4	W21	45	Roof
Story4	W22	46	Roof
Story4	W23	47	Roof
Story4	W24	48	Roof
Story4	W25	49	Roof
Story4	W29	108	Roof
Story4	W30	109	Roof
Story4	W31	110	Roof
Story4	W32	111	Roof
Story4	W33	112	Roof
Story4	W34	113	Roof
Story4	W35	114	Roof
Story4	W36	115	Roof
Story4	W37	116	Roof
Story4	W38	117	Roof
Story4	W39	118	Roof
Story4	W40	119	Roof

**Table 2.3 - Shell Assignments - Sections (continued)**

Story	Label	Unique Name	Section
Story4	W41	120	Roof
Story4	W43	56	Roof
Story4	W44	57	Roof
Story4	W45	58	Roof
Story4	W46	59	Roof
Story2	W14	1	CW10A
Story2	W20	5	CW10A
Story2	W26	6	CW10A
Story2	W27	2	CW10A
Story2	W28	4	CW10A
Story2	W42	3	CW12A
Story1	W14	14	CW10A
Story1	W20	15	CW10A
Story1	W26	7	CW10A
Story1	W27	12	CW10A
Story1	W28	13	CW10A
Story1	W42	11	CW12A
Story5	F27	9	Roof
Story5	F46	16	Roof
Story5	F47	87	Roof
Story5	F48	96	Roof
Story5	F66	99	Roof
Story5	F67	121	Roof
Story5	F68	123	Roof
Story5	F70	124	Roof
Story5	F71	125	Roof
Story5	F72	126	Roof
Story5	F73	127	Roof
Story5	F74	128	Roof
Story5	F75	130	Roof
Story5	F76	129	Roof
Story5	F78	131	Roof
Story5	F79	132	Roof
Story5	F80	133	Roof
Story5	F81	134	Roof
Story5	F82	136	Roof
Story5	F83	135	Roof
Story5	F84	137	Roof
Story5	F85	139	Roof
Story5	F86	138	Roof
Story5	F87	140	Roof
Story4	F2	18	Roof
Story4	F3	22	Roof
Story4	F4	23	Roof
Story4	F5	26	Roof

**Table 2.3 - Shell Assignments - Sections (continued)**

Story	Label	Unique Name	Section
Story4	F6	60	Roof
Story4	F7	61	Roof
Story4	F8	62	Roof
Story4	F9	63	Roof
Story4	F10	64	Roof
Story4	F11	65	Roof
Story4	F12	66	Roof
Story4	F13	67	Roof
Story4	F17	71	Roof
Story4	F18	72	Roof
Story4	F22	76	Roof
Story4	F23	77	Roof
Story4	F24	78	Roof
Story4	F26	10	Roof
Story4	F28	20	Roof
Story4	F29	79	Roof
Story4	F30	80	Roof
Story4	F31	81	Roof
Story4	F32	82	Roof
Story4	F33	83	Roof
Story4	F34	84	Roof
Story4	F35	85	Roof
Story4	F36	86	Roof
Story4	F37	88	Roof
Story4	F38	89	Roof
Story4	F39	90	Roof
Story4	F40	91	Roof
Story4	F41	92	Roof
Story4	F42	40	Roof
Story4	F43	41	Roof
Story4	F44	50	Roof
Story4	F45	51	Roof
Story4	F49	93	Roof
Story4	F50	94	Roof
Story4	F51	95	Roof
Story4	F52	97	Roof
Story4	F53	98	Roof
Story4	F54	100	Roof
Story4	F55	101	Roof
Story4	F56	102	Roof
Story4	F57	103	Roof
Story4	F58	104	Roof
Story4	F59	105	Roof
Story4	F60	106	Roof
Story4	F61	107	Roof

**Table 2.3 - Shell Assignments - Sections (continued)**

<b>Story</b>	<b>Label</b>	<b>Unique Name</b>	<b>Section</b>
Story4	F62	52	Roof
Story4	F63	53	Roof
Story4	F64	54	Roof
Story4	F65	55	Roof
Story4	F89	69	Roof
Story4	F90	70	Roof
Story4	F91	68	Roof
Story4	F92	73	Roof
Story4	F93	74	Roof
Story4	F94	75	Roof
Story3	F88	24	Floors
Story2	F25	8	Floors
Story1	F1	19	Floors
Story1	F69	17	Floors

### 3 Loads

This chapter provides loading information as applied to the model.

#### 3.1 Load Patterns

**Table 3.1 - Load Patterns**

Name	Type	Self Weight Multiplier
Dead	Dead	0
Live	Live	0
Snow	Snow	0

#### 3.2 Applied Loads

##### 3.2.1 Line Loads

**Table 3.2 - Frame Loads - Distributed**

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start in	Absolute Distance End in	Force at Start kip/ft	Force at End kip/ft
Story5	B102	RB13-1	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.085	0.085
Story5	B104	RB13-2	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.085	0.085
Story5	B139	RB8-1	Beam	Dead	Force	Gravity Proj	0	1	0	198.5103	0.085	0.085
Story5	B140	RB8-2	Beam	Dead	Force	Gravity Proj	0	1	0	198.5103	0.085	0.085
Story5	B233	RB9-15	Beam	Dead	Force	Gravity Proj	0	1	0	102	0.085	0.085
Story5	B235	RB9-16	Beam	Dead	Force	Gravity Proj	0	1	0	186	0.085	0.085
Story5	B1	RB12-1	Beam	Dead	Force	Gravity Proj	0	1	0	221.0172	0.085	0.085
Story5	B29	RB19-1	Beam	Dead	Force	Gravity Proj	0	1	0	73.6724	0.085	0.085
Story5	B30	RB12-2	Beam	Dead	Force	Gravity Proj	0	1	0	221.0172	0.085	0.085
Story5	B31	RB19-3	Beam	Dead	Force	Gravity Proj	0	1	0	73.6724	0.085	0.085
Story4	B7	RB4-1	Beam	Dead	Force	Gravity Proj	0	1	0	48	0.108	0.108
Story4	B9	RB5-1	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.108	0.108
Story4	B10	RB4-3	Beam	Dead	Force	Gravity Proj	0	1	0	48	0.108	0.108
Story4	B12	RB6-1	Beam	Dead	Force	Gravity Proj	0	1	0	192	0.108	0.108
Story4	B14	RB4-4	Beam	Dead	Force	Gravity Proj	0	1	0	48	0.108	0.108
Story4	B15	RB5-3	Beam	Dead	Force	Gravity Proj	0	1	0	168	0.108	0.108
Story4	B33	RB2-1b	Beam	Dead	Force	Gravity Proj	0	1	0	72.9892	0.148	0.148
Story4	B56	RB2-3b	Beam	Dead	Force	Gravity Proj	0	1	0	72.9892	0.148	0.148
Story4	B77	RB2-2a	Beam	Dead	Force	Gravity Proj	0	1	0	53.004	0.148	0.148
Story4	B95	RB2-3c	Beam	Dead	Force	Gravity Proj	0	1	0	53.004	0.148	0.148
Story4	B113	RB2-2b	Beam	Dead	Force	Gravity Proj	0	1	0	42.2966	0.148	0.148
Story4	B131	RB2-4a	Beam	Dead	Force	Gravity Proj	0	1	0	42.2966	0.148	0.148
Story4	B153	RB2-2c	Beam	Dead	Force	Gravity Proj	0	1	0	56.0446	0.148	0.148
Story4	B172	RB2-4b	Beam	Dead	Force	Gravity Proj	0	1	0	56.0446	0.148	0.148
Story4	B200	RB4-2	Beam	Dead	Force	Gravity Proj	0	1	0	48	0.108	0.108
Story4	B202	RB5-2	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.108	0.108
Story4	B210	RB3-1	Beam	Dead	Force	Gravity Proj	0	1	0	168	0.108	0.108
Story4	B300	RB16-2	Beam	Dead	Force	Gravity Proj	0	0.294118	0	120	0.108	0.108
Story4	B300	RB16-2	Beam	Dead	Force	Gravity Proj	0.294118	0.411765	120	168	0.108	0.108



Table 3.2 - Frame Loads - Distributed (continued)

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start in	Absolute Distance End in	Force at Start kip/ft	Force at End kip/ft
Story4	B300	RB16-2	Beam	Dead	Force	Gravity Proj	0.411765	0.529412	168	216	0.108	0.108
Story4	B300	RB16-2	Beam	Dead	Force	Gravity Proj	0.529412	1	216	408	0.108	0.108
Story4	B302	RB16-1	Beam	Dead	Force	Gravity Proj	0	0.411765	0	168	0.108	0.108
Story4	B302	RB16-1	Beam	Dead	Force	Gravity Proj	0.411765	0.529412	168	216	0.108	0.108
Story4	B302	RB16-1	Beam	Dead	Force	Gravity Proj	0.529412	1	216	408	0.108	0.108
Story3	B101	3B15-1	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.128	0.128
Story3	B103	3B15-2	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.128	0.128
Story3	B234	3B10-1	Beam	Dead	Force	Gravity Proj	0	1	0	288	0.128	0.128
Story3	B243	3B9-1	Beam	Dead	Force	Gravity Proj	0	1	0	312	0.128	0.128
Story3	B244	3B8-1	Beam	Dead	Force	Gravity Proj	0	1	0	312	0.128	0.128
Story3	B23	3B3-4	Beam	Dead	Force	Gravity Proj	0	1	0	42	0.128	0.128
Story3	B25	3B4-5	Beam	Dead	Force	Gravity Proj	0	1	0	51	0.128	0.128
Story3	B28	3B3-6	Beam	Dead	Force	Gravity Proj	0	1	0	48	0.128	0.128
Story2	B6	2B4-1	Beam	Dead	Force	Gravity	0	1	0	288	0.108	0.108
Story2	B8	2B1-1	Beam	Dead	Force	Gravity	0	1	0	144	0.108	0.108
Story2	B13	2B9-R-1	Beam	Dead	Force	Gravity	0	1	0	456	0.108	0.108
Story2	B73	2B2-1	Beam	Dead	Force	Gravity	0	0.428571	0	144	0.148	0.148
Story2	B73	2B2-1	Beam	Dead	Force	Gravity	0.428571	1	144	336	0.148	0.148
Story2	B75	2B8-1	Beam	Dead	Force	Gravity Proj	0	1	0	336	0.128	0.128
Story2	B195	2B4-4C	Beam	Dead	Force	Gravity	0	1	0	168	0.108	0.108
Story2	B199	2B4-4	Beam	Dead	Force	Gravity	0	1	0	288	0.108	0.108
Story2	B201	2B1-8	Beam	Dead	Force	Gravity	0	1	0	144	0.108	0.108
Story2	B207	2B4-R-2	Beam	Dead	Force	Gravity	0	1	0	456	0.108	0.108
Story2	B254	2B4-1C	Beam	Dead	Force	Gravity	0	0.714286	0	120	0.108	0.108
Story2	B254	2B4-1C	Beam	Dead	Force	Gravity	0.714286	1	120	168	0.108	0.108
Story2	B2	2B2-2	Beam	Dead	Force	Gravity	0	1	0	195	0.148	0.148
Story2	B19	2B2-3	Beam	Dead	Force	Gravity	0	1	0	141	0.148	0.148
Story4	B33	RB2-1b	Beam	Snow	Force	Gravity	0	1	0	72.9892	0.768	0.768
Story4	B56	RB2-3b	Beam	Snow	Force	Gravity	0	1	0	72.9892	0.768	0.768
Story4	B77	RB2-2a	Beam	Snow	Force	Gravity	0	1	0	53.004	0.768	0.768
Story4	B95	RB2-3c	Beam	Snow	Force	Gravity	0	1	0	53.004	0.768	0.768
Story4	B113	RB2-2b	Beam	Snow	Force	Gravity	0	1	0	42.2966	0.768	0.768
Story4	B131	RB2-4a	Beam	Snow	Force	Gravity	0	1	0	42.2966	0.768	0.768
Story4	B153	RB2-2c	Beam	Snow	Force	Gravity	0	1	0	56.0446	0.768	0.768
Story4	B172	RB2-4b	Beam	Snow	Force	Gravity	0	1	0	56.0446	0.768	0.768
Story2	B73	2B2-1	Beam	Snow	Force	Gravity	0	1	0	336	0.768	0.768
Story2	B2	2B2-2	Beam	Snow	Force	Gravity	0	1	0	195	0.768	0.768
Story2	B19	2B2-3	Beam	Snow	Force	Gravity	0	1	0	141	0.768	0.768
Story4	D1	RB2-1a	Brace	Dead	Force	Gravity Proj	0	1	0	75.3923	0.148	0.148
Story4	D24	RB2-3a	Brace	Dead	Force	Gravity Proj	0	1	0	75.3923	0.148	0.148
Story4	D48	RB2-2d	Brace	Dead	Force	Gravity Proj	0	1	0	49.2443	0.148	0.148
Story4	D68	RB2-4c	Brace	Dead	Force	Gravity Proj	0	1	0	49.2443	0.148	0.148
Story4	D1	RB2-1a	Brace	Snow	Force	Gravity	0	1	0	75.3923	0.768	0.768
Story4	D24	RB2-3a	Brace	Snow	Force	Gravity	0	1	0	75.3923	0.768	0.768

**Table 3.2 - Frame Loads - Distributed (continued)**

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start in	Absolute Distance End in	Force at Start kip/ft	Force at End kip/ft
Story4	D48	RB2-2d	Brace	Snow	Force	Gravity	0	1	0	49.2443	0.768	0.768
Story4	D68	RB2-4c	Brace	Snow	Force	Gravity	0	1	0	49.2443	0.768	0.768

**3.2.2 Area Loads**

**Table 3.3 - Shell Loads - Uniform**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	W1	21	Dead	Gravity	29
Story4	W2	25	Dead	Gravity	29
Story4	W3	27	Dead	Gravity	29
Story4	W4	28	Dead	Gravity	29
Story4	W5	29	Dead	Gravity	29
Story4	W6	30	Dead	Gravity	29
Story4	W7	31	Dead	Gravity	29
Story4	W8	32	Dead	Gravity	29
Story4	W9	33	Dead	Gravity	29
Story4	W10	34	Dead	Gravity	29
Story4	W11	35	Dead	Gravity	29
Story4	W12	36	Dead	Gravity	29
Story4	W13	37	Dead	Gravity	29
Story4	W15	38	Dead	Gravity	29
Story4	W16	39	Dead	Gravity	29
Story4	W17	42	Dead	Gravity	29
Story4	W18	43	Dead	Gravity	29
Story4	W19	44	Dead	Gravity	29
Story4	W21	45	Dead	Gravity	29
Story4	W22	46	Dead	Gravity	29
Story4	W23	47	Dead	Gravity	29
Story4	W24	48	Dead	Gravity	29
Story4	W25	49	Dead	Gravity	29
Story4	W29	108	Dead	Gravity	29
Story4	W30	109	Dead	Gravity	29
Story4	W31	110	Dead	Gravity	29
Story4	W32	111	Dead	Gravity	29
Story4	W33	112	Dead	Gravity	29
Story4	W34	113	Dead	Gravity	29
Story4	W35	114	Dead	Gravity	29
Story4	W36	115	Dead	Gravity	29
Story4	W37	116	Dead	Gravity	29
Story4	W38	117	Dead	Gravity	29
Story4	W39	118	Dead	Gravity	29
Story4	W40	119	Dead	Gravity	29
Story4	W41	120	Dead	Gravity	29
Story4	W43	56	Dead	Gravity	29

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	W44	57	Dead	Gravity	29
Story4	W45	58	Dead	Gravity	29
Story4	W46	59	Dead	Gravity	29
Story2	W14	1	Dead	Gravity	125
Story2	W20	5	Dead	Gravity	125
Story2	W26	6	Dead	Gravity	125
Story2	W27	2	Dead	Gravity	125
Story2	W28	4	Dead	Gravity	125
Story2	W42	3	Dead	Gravity	125
Story1	W14	14	Dead	Gravity	125
Story1	W20	15	Dead	Gravity	125
Story1	W26	7	Dead	Gravity	125
Story1	W27	12	Dead	Gravity	125
Story1	W28	13	Dead	Gravity	125
Story1	W42	11	Dead	Gravity	125
Story4	W1	21	Snow	Gravity Proj	189
Story4	W2	25	Snow	Gravity Proj	189
Story4	W3	27	Snow	Gravity Proj	189
Story4	W4	28	Snow	Gravity Proj	189
Story4	W5	29	Snow	Gravity Proj	189
Story4	W6	30	Snow	Gravity Proj	189
Story4	W7	31	Snow	Gravity Proj	189
Story4	W8	32	Snow	Gravity Proj	189
Story4	W9	33	Snow	Gravity Proj	189
Story4	W10	34	Snow	Gravity Proj	189
Story4	W11	35	Snow	Gravity Proj	189
Story4	W12	36	Snow	Gravity Proj	189
Story4	W13	37	Snow	Gravity Proj	189
Story4	W15	38	Snow	Gravity Proj	189
Story4	W16	39	Snow	Gravity Proj	189
Story4	W17	42	Snow	Gravity Proj	189
Story4	W18	43	Snow	Gravity Proj	189
Story4	W19	44	Snow	Gravity Proj	189
Story4	W21	45	Snow	Gravity Proj	189
Story4	W22	46	Snow	Gravity Proj	189
Story4	W23	47	Snow	Gravity Proj	189
Story4	W24	48	Snow	Gravity Proj	189
Story4	W25	49	Snow	Gravity Proj	189
Story4	W29	108	Snow	Gravity Proj	189
Story4	W30	109	Snow	Gravity Proj	189
Story4	W31	110	Snow	Gravity Proj	189
Story4	W32	111	Snow	Gravity Proj	189
Story4	W33	112	Snow	Gravity Proj	189
Story4	W34	113	Snow	Gravity Proj	189
Story4	W35	114	Snow	Gravity Proj	189

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	W36	115	Snow	Gravity Proj	189
Story4	W37	116	Snow	Gravity Proj	189
Story4	W38	117	Snow	Gravity Proj	189
Story4	W39	118	Snow	Gravity Proj	189
Story4	W40	119	Snow	Gravity Proj	189
Story4	W41	120	Snow	Gravity Proj	189
Story4	W43	56	Snow	Gravity Proj	189
Story4	W44	57	Snow	Gravity Proj	189
Story4	W45	58	Snow	Gravity Proj	189
Story4	W46	59	Snow	Gravity Proj	189
Story5	F27	9	Dead	Gravity Proj	29
Story5	F46	16	Dead	Gravity Proj	29
Story5	F47	87	Dead	Gravity Proj	29
Story5	F48	96	Dead	Gravity Proj	29
Story5	F66	99	Dead	Gravity Proj	29
Story5	F67	121	Dead	Gravity Proj	29
Story5	F68	123	Dead	Gravity Proj	29
Story5	F70	124	Dead	Gravity Proj	29
Story5	F71	125	Dead	Gravity Proj	29
Story5	F72	126	Dead	Gravity Proj	29
Story5	F73	127	Dead	Gravity Proj	29
Story5	F74	128	Dead	Gravity Proj	29
Story5	F75	130	Dead	Gravity Proj	29
Story5	F76	129	Dead	Gravity Proj	29
Story5	F78	131	Dead	Gravity Proj	29
Story5	F79	132	Dead	Gravity Proj	29
Story5	F80	133	Dead	Gravity Proj	29
Story5	F81	134	Dead	Gravity Proj	29
Story5	F82	136	Dead	Gravity Proj	29
Story5	F83	135	Dead	Gravity Proj	29
Story5	F84	137	Dead	Gravity Proj	29
Story5	F85	139	Dead	Gravity Proj	29
Story5	F86	138	Dead	Gravity Proj	29
Story5	F87	140	Dead	Gravity Proj	29
Story4	F2	18	Dead	Gravity	29
Story4	F3	22	Dead	Gravity	29
Story4	F4	23	Dead	Gravity	29
Story4	F5	26	Dead	Gravity	29
Story4	F6	60	Dead	Gravity	29
Story4	F7	61	Dead	Gravity	29
Story4	F8	62	Dead	Gravity	29
Story4	F9	63	Dead	Gravity	29
Story4	F10	64	Dead	Gravity	29
Story4	F11	65	Dead	Gravity	29
Story4	F12	66	Dead	Gravity	29

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	F13	67	Dead	Gravity	29
Story4	F17	71	Dead	Gravity	29
Story4	F18	72	Dead	Gravity	29
Story4	F22	76	Dead	Gravity	29
Story4	F23	77	Dead	Gravity	29
Story4	F24	78	Dead	Gravity	29
Story4	F26	10	Dead	Gravity	29
Story4	F28	20	Dead	Gravity	29
Story4	F29	79	Dead	Gravity	29
Story4	F30	80	Dead	Gravity	29
Story4	F31	81	Dead	Gravity	29
Story4	F32	82	Dead	Gravity	29
Story4	F33	83	Dead	Gravity	29
Story4	F34	84	Dead	Gravity	29
Story4	F35	85	Dead	Gravity	29
Story4	F36	86	Dead	Gravity	29
Story4	F37	88	Dead	Gravity	29
Story4	F38	89	Dead	Gravity	29
Story4	F39	90	Dead	Gravity	29
Story4	F40	91	Dead	Gravity	29
Story4	F41	92	Dead	Gravity	29
Story4	F42	40	Dead	Gravity	29
Story4	F43	41	Dead	Gravity	29
Story4	F44	50	Dead	Gravity	29
Story4	F45	51	Dead	Gravity	29
Story4	F49	93	Dead	Gravity	29
Story4	F50	94	Dead	Gravity	29
Story4	F51	95	Dead	Gravity	29
Story4	F52	97	Dead	Gravity	29
Story4	F53	98	Dead	Gravity	29
Story4	F54	100	Dead	Gravity	29
Story4	F55	101	Dead	Gravity	29
Story4	F56	102	Dead	Gravity	29
Story4	F57	103	Dead	Gravity	29
Story4	F58	104	Dead	Gravity	29
Story4	F59	105	Dead	Gravity	29
Story4	F60	106	Dead	Gravity	29
Story4	F61	107	Dead	Gravity	29
Story4	F62	52	Dead	Gravity	29
Story4	F63	53	Dead	Gravity	29
Story4	F64	54	Dead	Gravity	29
Story4	F65	55	Dead	Gravity	29
Story4	F89	69	Dead	Gravity	29
Story4	F90	70	Dead	Gravity	29
Story4	F91	68	Dead	Gravity	29

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	F92	73	Dead	Gravity	29
Story4	F93	74	Dead	Gravity	29
Story4	F94	75	Dead	Gravity	29
Story3	F88	24	Dead	Gravity	64
Story2	F25	8	Dead	Gravity	87
Story1	F1	19	Dead	Gravity Proj	57.3
Story1	F69	17	Dead	Gravity Proj	57.3
Story3	F88	24	Live	Gravity	40
Story2	F25	8	Live	Gravity	40
Story1	F1	19	Live	Gravity	40
Story1	F69	17	Live	Gravity	40
Story5	F27	9	Snow	Gravity Proj	189
Story5	F46	16	Snow	Gravity Proj	189
Story5	F47	87	Snow	Gravity Proj	189
Story5	F48	96	Snow	Gravity Proj	189
Story5	F66	99	Snow	Gravity Proj	189
Story5	F67	121	Snow	Gravity Proj	189
Story5	F68	123	Snow	Gravity Proj	189
Story5	F70	124	Snow	Gravity Proj	189
Story5	F71	125	Snow	Gravity Proj	189
Story5	F72	126	Snow	Gravity Proj	189
Story5	F73	127	Snow	Gravity Proj	189
Story5	F74	128	Snow	Gravity Proj	189
Story5	F75	130	Snow	Gravity Proj	189
Story5	F76	129	Snow	Gravity Proj	189
Story5	F78	131	Snow	Gravity Proj	189
Story5	F79	132	Snow	Gravity Proj	189
Story5	F80	133	Snow	Gravity Proj	189
Story5	F81	134	Snow	Gravity Proj	189
Story5	F82	136	Snow	Gravity Proj	189
Story5	F83	135	Snow	Gravity Proj	189
Story5	F84	137	Snow	Gravity Proj	189
Story5	F85	139	Snow	Gravity Proj	189
Story5	F86	138	Snow	Gravity Proj	189
Story5	F87	140	Snow	Gravity Proj	189
Story4	F2	18	Snow	Gravity Proj	189
Story4	F3	22	Snow	Gravity Proj	189
Story4	F4	23	Snow	Gravity Proj	189
Story4	F5	26	Snow	Gravity Proj	189
Story4	F6	60	Snow	Gravity Proj	189
Story4	F7	61	Snow	Gravity Proj	189
Story4	F8	62	Snow	Gravity Proj	189
Story4	F9	63	Snow	Gravity Proj	189
Story4	F10	64	Snow	Gravity Proj	189
Story4	F11	65	Snow	Gravity Proj	189

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	F12	66	Snow	Gravity Proj	189
Story4	F13	67	Snow	Gravity Proj	189
Story4	F17	71	Snow	Gravity Proj	189
Story4	F18	72	Snow	Gravity Proj	189
Story4	F22	76	Snow	Gravity Proj	189
Story4	F23	77	Snow	Gravity Proj	189
Story4	F24	78	Snow	Gravity Proj	189
Story4	F26	10	Snow	Gravity Proj	189
Story4	F28	20	Snow	Gravity Proj	189
Story4	F29	79	Snow	Gravity Proj	189
Story4	F30	80	Snow	Gravity Proj	189
Story4	F31	81	Snow	Gravity Proj	189
Story4	F32	82	Snow	Gravity Proj	189
Story4	F33	83	Snow	Gravity Proj	189
Story4	F34	84	Snow	Gravity Proj	189
Story4	F35	85	Snow	Gravity Proj	189
Story4	F36	86	Snow	Gravity Proj	189
Story4	F37	88	Snow	Gravity Proj	189
Story4	F38	89	Snow	Gravity Proj	189
Story4	F39	90	Snow	Gravity Proj	189
Story4	F40	91	Snow	Gravity Proj	189
Story4	F41	92	Snow	Gravity Proj	189
Story4	F42	40	Snow	Gravity Proj	189
Story4	F43	41	Snow	Gravity Proj	189
Story4	F44	50	Snow	Gravity Proj	189
Story4	F45	51	Snow	Gravity Proj	189
Story4	F49	93	Snow	Gravity Proj	189
Story4	F50	94	Snow	Gravity Proj	189
Story4	F51	95	Snow	Gravity Proj	189
Story4	F52	97	Snow	Gravity Proj	189
Story4	F53	98	Snow	Gravity Proj	189
Story4	F54	100	Snow	Gravity Proj	189
Story4	F55	101	Snow	Gravity Proj	189
Story4	F56	102	Snow	Gravity Proj	189
Story4	F57	103	Snow	Gravity Proj	189
Story4	F58	104	Snow	Gravity Proj	189
Story4	F59	105	Snow	Gravity Proj	189
Story4	F60	106	Snow	Gravity Proj	189
Story4	F61	107	Snow	Gravity Proj	189
Story4	F62	52	Snow	Gravity Proj	189
Story4	F63	53	Snow	Gravity Proj	189
Story4	F64	54	Snow	Gravity Proj	189
Story4	F65	55	Snow	Gravity Proj	189
Story4	F89	69	Snow	Gravity Proj	189
Story4	F90	70	Snow	Gravity Proj	189

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	F91	68	Snow	Gravity Proj	189
Story4	F92	73	Snow	Gravity Proj	189
Story4	F93	74	Snow	Gravity Proj	189
Story4	F94	75	Snow	Gravity Proj	189

**3.3 Load Cases**

**Table 3.4 - Load Cases - Summary**

Name	Type
Dead	Linear Static
Live	Linear Static
Snow	Linear Static

**3.4 Load Combinations**

**Table 3.5 - Load Combinations**

Name	Load Case/Combo	Scale Factor	Type	Auto
LL DEF	Live	1	Linear Add	No
LL+DL DEF	Live	1	Linear Add	No
LL+DL DEF	Dead	1		No
LL+DL+SL DEF	Dead	1	Linear Add	No
LL+DL+SL DEF	Live	1		No
LL+DL+SL DEF	Snow	1		No
1.2D+1.6L+0.5S	Dead	1.2	Linear Add	No
1.2D+1.6L+0.5S	Live	1.6		No
1.2D+1.6L+0.5S	Snow	0.5		No
1.2D+1.6S+1.0L	Dead	1.2	Linear Add	No
1.2D+1.6S+1.0L	Live	1		No
1.2D+1.6S+1.0L	Snow	1.6		No



## 4 Design Data

This chapter provides design data and results.

### 4.1 Steel Frame Design

**Table 4.1 - Steel Frame Preferences - AISC 360-10**

Item	Value
Multi-Response Design	Step-by-Step - All
Frame Type	SCBF
Seismic Design Grade	D
Importance Factor	1
Design System Rho	1.3
Design System Sds	0.592
Design System R	1
Design System Omega0	2
Design System Cd	5
Design Provision	LRFD
Analysis Method	Direct Analysis
Second Order Method	General 2nd Order
Stiffness Reduction Method	Tau-b Fixed
Phi (Bending)	0.9
Phi (Compression)	0.9
Phi (Tension-Yielding)	0.9
Phi (Tension-Fracture)	0.75
Phi (Shear)	0.9
Phi (Shear-Short Webbed Rolled I)	1
Phi (Torsion)	0.9
Ignore Seismic Code?	Yes
Ignore Special Seismic Load?	Yes
Doubler Plate Plug-Welded?	Yes
HSS Welding Type	ERW
Reduced HSS Thickness	No
Consider Deflection?	Yes
DL Ratio	120
SDL+LL Ratio	120
LL Ratio	360
Total Ratio	240
Total Camber Limit	240
Pattern Live Load Factor	0.75
D/C Ratio Limit	0.95

**Table 4.2 - Steel Column Envelope (Part 1 of 2)**

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio	Class
C19	Story5	HSS6X6X1/4	$0.124 = 0.003 + 0.01 + 0.111$	1.2D+1.6S+1.0L	0.008	0.088	Compact
C20	Story5	HSS6X6X1/4	$0.043 = 0.004 + 0.024 + 0.015$	1.2D+1.6S+1.0L	0.019	0.012	Compact
C21	Story5	HSS6X6X1/4	$0.157 = 0.003 + 0.011 + 0.143$	1.2D+1.6S+1.0L	0.008	0.114	Compact
C31	Story5	HSS6X6X1/4	$0.071 = 0.068 + 4.719E-04 + 0.002$	1.2D+1.6S+1.0L	0	0.0003454	Compact
C53	Story5	HSS6X6X1/2	$0.192 = 0.078 + 0.014 + 0.101$	1.2D+1.6S+1.0L	0.011	0.155	Seismic HD

Table 4.2 - Steel Column Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio	Class
C54	Story5	HSS6X6X1/2	$0.156 = 0.065 + 0.072 + 0.019$	1.2D+1.6S+1.0L	0.008	0.003	Seismic HD
C55	Story5	HSS6X6X1/2	$0.06 = 0.051 + 0.007 + 0.001$	1.2D+1.6S+1.0L	0.001	0.002	Seismic HD
C56	Story5	HSS6X6X1/2	$0.392 = 0.085 + 0.005 + 0.302$	1.2D+1.6S+1.0L	0.01	0.291	Seismic HD
C58	Story5	HSS6X6X1/4	$0.122 = 0.051 + 0.043 + 0.028$	1.2D+1.6S+1.0L	0.002	0.002	Compact
C60	Story5	HSS6X6X1/4	$0.393 = 0.272 + 0.1 + 0.021$	1.2D+1.6S+1.0L	0.006	0.001	Compact
C62	Story5	HSS6X6X1/4	$0.218 = 0.091 + 0.076 + 0.051$	1.2D+1.6S+1.0L	0.004	0.003	Compact
C2	Story5	HSS6X6X1/2	$0.169 = 0.042 + 0.062 + 0.065$	1.2D+1.6S+1.0L	0.06	0.017	Seismic HD
C6	Story5	HSS6X6X1/2	$0.327 = 0.071 + 0.187 + 0.069$	1.2D+1.6S+1.0L	0.126	0.045	Seismic HD
C46	Story5	HSS6X6X1/2	$0.217 = 0.049 + 0.079 + 0.089$	1.2D+1.6S+1.0L	0.063	0.033	Seismic HD
C47	Story5	HSS6X6X1/2	$0.402 = 0.068 + 0.222 + 0.112$	1.2D+1.6S+1.0L	0.163	0.084	Seismic HD
C1	Story4	W6X25	$0.009 = 0.009 + 0 + 0$	1.2D+1.6S+1.0L	0	0	Seismic HD
C3	Story4	W6X25	$0.358 = 0.358 + 0 + 0$	1.2D+1.6S+1.0L	0	0	Seismic HD
C4	Story4	W6X25	$0.203 = 0.203 + 0 + 0$	1.2D+1.6S+1.0L	0	0	Seismic HD
C5	Story4	W6X25	$0.143 = 0.061 + 0 + 0.082$	1.2D+1.6S+1.0L	0	0.002	Seismic HD
C7	Story4	W6X25	$0.131 = 0.057 + 0 + 0.073$	1.2D+1.6S+1.0L	0	0.002	Seismic HD
C8	Story4	W6X25	$0.119 = 0.049 + 0 + 0.07$	1.2D+1.6S+1.0L	0	0.002	Seismic HD
C9	Story4	HSS6X6X1/4	$0.112 = 0.052 + 0 + 0.061$	1.2D+1.6S+1.0L	0	0.005	Compact
C11	Story4	HSS6X6X1/4	$0.112 = 0.052 + 0 + 0.061$	1.2D+1.6S+1.0L	0	0.005	Compact
C12	Story4	W6X25	$0.113 = 0.049 + 0 + 0.064$	1.2D+1.6S+1.0L	0	0.002	Seismic HD
C13	Story4	W6X25	$0.055 = 0.055 + 0 + 0$	1.2D+1.6S+1.0L	0	0	Seismic HD
C26	Story4	HSS6X6X1/2	$0.098 = 0.056 + 0.041 + 0$	1.2D+1.6S+1.0L	0.002	0	Seismic HD
C28	Story4	HSS6X6X1/2	$0.119 = 0.067 + 0.013 + 0.038$	1.2D+1.6S+1.0L	0.001	0.002	Seismic HD
C29	Story4	HSS6X6X1/2	$0.052 = 0.02 + 0.01 + 0.022$	1.2D+1.6S+1.0L	0.004	0.003	Seismic HD
C32	Story4	HSS6X6X1/2	$0.105 = 0.028 + 0.012 + 0.064$	1.2D+1.6S+1.0L	0.002	0.005	Seismic HD
C33	Story4	HSS6X6X1/4	$0.257 = 0.226 + 0.031 + 0$	1.2D+1.6S+1.0L	0.002	0	Compact
C34	Story4	HSS6X6X1/2	$0.053 = 0.018 + 0.005 + 0.029$	1.2D+1.6S+1.0L	0.004	0.005	Seismic HD
C39	Story4	HSS6X6X1/2	$0.101 = 0.023 + 0.003 + 0.074$	1.2D+1.6S+1.0L	0.005	0.013	Seismic HD
C40	Story4	HSS6X6X1/2	$0.034 = 0.034 + 4.563E-04 + 0$	1.2D+1.6S+1.0L	0	0	Seismic HD
C42	Story4	HSS6X6X1/2	$0.095 = 0.026 + 0.006 + 0.063$	1.2D+1.6S+1.0L	0.013	0.017	Seismic HD
C44	Story4	HSS6X6X1/2	$0.044 = 0.02 + 0.003 + 0.021$	1.2D+1.6S+1.0L	0.001	0.003	Seismic HD
C45	Story4	HSS6X6X1/2	$0.048 = 0.017 + 0.031 + 0$	1.2D+1.6S+1.0L	0.003	0	Seismic HD
C48	Story4	HSS6X6X1/4	$0.38 = 0.363 + 0.017 + 0$	1.2D+1.6S+1.0L	0.001	0	Compact
C49	Story4	HSS6X6X1/4	$0.24 = 0.238 + 0.002 + 0$	1.2D+1.6S+1.0L	0.0001701	0	Compact
C50	Story4	HSS6X6X1/4	$0.129 = 0.071 + 0 + 0.058$	1.2D+1.6S+1.0L	0	0.005	Compact
C52	Story4	HSS6X6X1/4	$0.125 = 0.068 + 0 + 0.057$	1.2D+1.6S+1.0L	0	0.004	Compact
C57	Story4	HSS6X6X1/4	$0.068 = 0.068 + 0 + 0$	1.2D+1.6S+1.0L	0	0	Compact
C30	Story3	HSS6X6X1/2	$0.064 = 0.045 + 0 + 0.019$	1.2D+1.6S+1.0L	0	0.001	Seismic HD
C59	Story3	W10X45	$0.207 = 0.206 + 0 + 0.001$	1.2D+1.6S+1.0L	0	0	Seismic HD
C61	Story3	W10X45	$0.098 = 0.097 + 0 + 0.001$	1.2D+1.6S+1.0L	0	0	Seismic HD
C27	Story2	W10X49	$0.691 = 0.558 + 0.133 + 0$	1.2D+1.6S+1.0L	0.025	0	Seismic MD
C35	Story2	W10X49	$0.552 = 0.443 + 0.109 + 0$	1.2D+1.6S+1.0L	0.065	0	Seismic MD
C41	Story2	W10X49	$0.108 = 0.051 + 0.016 + 0.041$	1.2D+1.6S+1.0L	0.016	0.003	Seismic MD
C43	Story2	W10X49	$0.15 = 0.067 + 0.023 + 0.06$	1.2D+1.6S+1.0L	0.007	0.002	Seismic MD
C14	Story1	HSS6X6X1/4	$0.028 = 0.027 + 0.002 + 0$	1.2D+1.6L+0.5S	0.0001402	0	Compact
C36	Story1	HSS6X6X1/4	$0.022 = 0.01 + 0.003 + 0.009$	1.2D+1.6L+0.5S	0.0001935	0.001	Compact
C37	Story1	HSS6X6X1/4	$0.016 = 0.014 + 0.003 + 0$	1.2D+1.6L+0.5S	0.0001935	0	Compact

**Table 4.2 - Steel Column Envelope (Part 1 of 2, continued)**

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio	Class
C38	Story1	HSS6X6X1/4	0.022 = 0.01 + 0.003 + 0.009	1.2D+1.6L+0.5S	0.0001935	0.001	Compact

**Table 4.2 - Steel Column Envelope (Part 2 of 2)**

Label	Story	Cont. Plate in <sup>2</sup>	Dbl. Plate in	B/C Ratio Major	B/C Ratio Minor
C19	Story5				
C20	Story5				
C21	Story5				
C31	Story5				
C53	Story5				
C54	Story5				
C55	Story5				
C56	Story5				
C58	Story5				
C60	Story5				
C62	Story5				
C2	Story5				
C6	Story5				
C46	Story5				
C47	Story5				
C1	Story4				
C3	Story4				
C4	Story4				
C5	Story4				
C7	Story4				
C8	Story4				
C9	Story4				
C11	Story4				
C12	Story4				
C13	Story4				
C26	Story4				
C28	Story4				
C29	Story4				
C32	Story4				
C33	Story4				
C34	Story4				
C39	Story4				
C40	Story4				
C42	Story4				
C44	Story4				
C45	Story4				
C48	Story4				
C49	Story4				
C50	Story4				
C52	Story4				

Table 4.2 - Steel Column Envelope (Part 2 of 2, continued)

Label	Story	Cont. Plate in <sup>2</sup>	Dbl. Plate in	B/C Ratio Major	B/C Ratio Minor
C57	Story4				
C30	Story3				
C59	Story3				
C61	Story3				
C27	Story2				
C35	Story2				
C41	Story2				
C43	Story2				
C14	Story1				
C36	Story1				
C37	Story1				
C38	Story1				

Table 4.3 - Steel Beam Envelope (Part 1 of 2)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio
B62	Story5	HSS3-1/2X3-1/2X1/4	0.587 = 0.054 + 0.426 + 0.107	1.2D+1.6S+1.0L	0.106	0.018
B102	Story5	W16X26	0.363 = 0.013 + 0.312 + 0.038	1.2D+1.6S+1.0L	0.139	0.014
B104	Story5	W16X26	0.343 = 0.002 + 0.29 + 0.051	1.2D+1.6S+1.0L	0.143	0.003
B139	Story5	W10X22	0.472 = 0.013 + 0.445 + 0.014	1.2D+1.6S+1.0L	0.154	0.001
B140	Story5	W10X22	0.54 = 0.015 + 0.502 + 0.022	1.2D+1.6S+1.0L	0.174	0.002
B145	Story5	C10X15.3	0.05 = 0.003 + 0.048 + 0	1.2D+1.6S+1.0L	0.045	0
B146	Story5	C10X15.3	0.723 = 0.013 + 0.666 + 0.044	1.2D+1.6S+1.0L	0.157	0.001
B147	Story5	C10X15.3	0.047 = 0.003 + 0.044 + 0	1.2D+1.6S+1.0L	0.04	0
B173	Story5	W10X22	0.581 = 0.014 + 0.544 + 0.022	1.2D+1.6S+1.0L	0.194	0.002
B174	Story5	W10X22	0.565 = 0.014 + 0.533 + 0.018	1.2D+1.6S+1.0L	0.19	0.001
B183	Story5	C10X15.3	0.048 = 3.385E-04 + 0.048 + 0	1.2D+1.6S+1.0L	0.045	0
B185	Story5	C10X15.3	0.673 = 0.005 + 0.668 + 0	1.2D+1.6S+1.0L	0.157	0
B187	Story5	C10X15.3	0.044 = 1.204E-04 + 0.044 + 0	1.2D+1.6S+1.0L	0.04	0
B204	Story5	W16X26	0.243 = 0.009 + 0.219 + 0.016	1.2D+1.6S+1.0L	0.112	0.001
B205	Story5	W16X26	0.12 = 0.006 + 0.113 + 0.001	1.2D+1.6S+1.0L	0.044	0.001
B208	Story5	W16X26	0.21 = 0.002 + 0.19 + 0.018	1.2D+1.6S+1.0L	0.106	0.001
B213	Story5	C10X15.3	0.258 = 0.001 + 0.258 + 0	1.2D+1.6S+1.0L	0.08	0
B214	Story5	C10X15.3	0.659 = 0.001 + 0.612 + 0.046	1.2D+1.6S+1.0L	0.145	0.001
B217	Story5	C10X15.3	0.258 = 1.983E-04 + 0.258 + 0	1.2D+1.6S+1.0L	0.08	0
B218	Story5	C10X15.3	0.614 = 0 + 0.614 + 0	1.2D+1.6S+1.0L	0.145	0
B222	Story5	C10X15.3	0.258 = 2.678E-04 + 0.258 + 0	1.2D+1.6S+1.0L	0.08	0
B223	Story5	C10X15.3	0.614 = 0 + 0.614 + 0	1.2D+1.6S+1.0L	0.145	0
B231	Story5	C10X15.3	0.258 = 0.001 + 0.258 + 0	1.2D+1.6S+1.0L	0.08	0
B232	Story5	C10X15.3	0.614 = 0 + 0.614 + 0	1.2D+1.6S+1.0L	0.145	0
B233	Story5	C10X15.3	0.225 = 0 + 0.225 + 0	1.2D+1.6S+1.0L	0.075	0
B235	Story5	C10X15.3	0.576 = 0.001 + 0.575 + 0	1.2D+1.6S+1.0L	0.141	0
B236	Story5	C10X15.3	0.215 = 0.001 + 0.215 + 0	1.2D+1.6S+1.0L	0.066	0
B238	Story5	C10X15.3	0.512 = 3.136E-04 + 0.512 + 0	1.2D+1.6S+1.0L	0.121	0
B148	Story5	HSS3X3X5/16	0.001 = 0.001 + 0 + 0	1.2D+1.6S+1.0L	0	0

Table 4.3 - Steel Beam Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio
B176	Story5	HSS3X3X5/16	0.039 = 0.039 + 0 + 0	1.2D+1.6S+1.0L	0	0
B5	Story5	C10X15.3	0.183 = 0.001 + 0.182 + 0	1.2D+1.6S+1.0L	0.052	0
B22	Story5	W16X31	0.055 = 0.001 + 0.043 + 0.012	1.2D+1.6S+1.0L	0.033	0.001
B1	Story5	W10X39	0.328 = 0.001 + 0.327 + 1.696E-04	1.2D+1.6S+1.0L	0.117	0.0001756
B29	Story5	W10X22	0.072 = 2.705E-04 + 0.069 + 0.002	1.2D+1.6S+1.0L	0.038	0.0001524
B30	Story5	W10X39	0.581 = 0.004 + 0.577 + 0.001	1.2D+1.6S+1.0L	0.206	0.0002639
B31	Story5	W10X22	0.127 = 4.813E-04 + 0.122 + 0.005	1.2D+1.6S+1.0L	0.065	0.000312
B3	Story5	W10X54	0.607 = 0.002 + 0.604 + 0.001	1.2D+1.6S+1.0L	0.254	0.0002075
B32	Story5	W10X22	0.188 = 0.003 + 0.182 + 0.003	1.2D+1.6S+1.0L	0.094	0.0002865
B7	Story4	W16X26	0.009 = 0.008 + 0.001 + 0	1.2D+1.6S+1.0L	0.002	0
B9	Story4	W16X26	0.294 = 0.056 + 0.231 + 0.006	1.2D+1.6S+1.0L	0.105	0.003
B10	Story4	W16X40	0.049 = 0.048 + 0.001 + 0	1.2D+1.6S+1.0L	0.002	0
B12	Story4	W16X26	0.486 = 0.074 + 0.368 + 0.044	1.2D+1.6S+1.0L	0.113	0.001
B14	Story4	W16X26	0.098 = 0.097 + 0.001 + 0	1.2D+1.6S+1.0L	0.002	0
B15	Story4	W16X26	0.289 = 0.025 + 0.22 + 0.043	1.2D+1.6S+1.0L	0.09	0.006
B33	Story4	W16X31	0.161 = 0.014 + 0.144 + 0.003	1.2D+1.6S+1.0L	0.081	0.0002842
B34	Story4	W21X44	0.097 = 0.009 + 0.082 + 0.005	1.2D+1.6S+1.0L	0.02	0.0003349
B35	Story4	W21X44	0.113 = 0.003 + 0.101 + 0.01	1.2D+1.6S+1.0L	0.02	0.001
B36	Story4	W21X44	0.208 = 0.02 + 0.188 + 1.123E-04	1.2D+1.6S+1.0L	0.023	0.000369
B37	Story4	W21X44	0.356 = 0.005 + 0.346 + 0.006	1.2D+1.6S+1.0L	0.05	0.0004456
B38	Story4	W21X44	0.375 = 2.578E-04 + 0.371 + 0.003	1.2D+1.6S+1.0L	0.051	0.0003638
B39	Story4	W21X44	0.369 = 2.901E-04 + 0.364 + 0.005	1.2D+1.6S+1.0L	0.05	0.0003835
B40	Story4	W21X44	0.352 = 0.002 + 0.346 + 0.004	1.2D+1.6S+1.0L	0.049	0.0003505
B41	Story4	W21X44	0.334 = 0.003 + 0.328 + 0.003	1.2D+1.6S+1.0L	0.047	0.0002701
B42	Story4	W21X44	0.321 = 0.005 + 0.313 + 0.003	1.2D+1.6S+1.0L	0.046	0.0001691
B43	Story4	W21X44	0.298 = 0.008 + 0.284 + 0.006	1.2D+1.6S+1.0L	0.042	0.0002885
B44	Story4	W21X44	0.201 = 0.023 + 0.174 + 0.004	1.2D+1.6S+1.0L	0.033	0.001
B45	Story4	W21X44	0.185 = 0.034 + 0.111 + 0.04	1.2D+1.6S+1.0L	0.025	0.002
B46	Story4	W21X44	0.206 = 0.041 + 0.147 + 0.018	1.2D+1.6S+1.0L	0.058	0.001
B47	Story4	W21X44	0.106 = 0.008 + 0.082 + 0.016	1.2D+1.6S+1.0L	0.04	0.001
B48	Story4	W21X44	0.064 = 0.007 + 0.051 + 0.006	1.2D+1.6S+1.0L	0.032	0.0002368
B49	Story4	W21X44	0.077 = 0.01 + 0.066 + 0.001	1.2D+1.6S+1.0L	0.036	0
B50	Story4	W21X44	0.064 = 0.008 + 0.048 + 0.007	1.2D+1.6S+1.0L	0.032	0.000263
B51	Story4	W21X44	0.108 = 0.009 + 0.083 + 0.015	1.2D+1.6S+1.0L	0.041	0.001
B52	Story4	W21X44	0.238 = 0.048 + 0.166 + 0.023	1.2D+1.6S+1.0L	0.062	0.001
B53	Story4	W21X44	0.12 = 0.022 + 0.047 + 0.051	1.2D+1.6S+1.0L	0.02	0.002
B54	Story4	W21X44	0.087 = 0.03 + 0.022 + 0.036	1.2D+1.6S+1.0L	0.018	0.001
B55	Story4	W21X44	0.087 = 0.04 + 0.012 + 0.035	1.2D+1.6S+1.0L	0.017	0.0003713
B56	Story4	W16X31	0.491 = 0.016 + 0.394 + 0.081	1.2D+1.6S+1.0L	0.063	0.002
B61	Story4	W16X26	0.045 = 0.045 + 0 + 0	1.2D+1.6S+1.0L	0	0
B63	Story4	W16X26	0.397 = 0.078 + 0.267 + 0.052	1.2D+1.6S+1.0L	0.092	0.002
B65	Story4	W16X26	0.048 = 0.048 + 0 + 0	1.2D+1.6S+1.0L	0	0
B77	Story4	W16X31	0.17 = 0.02 + 0.145 + 0.005	1.2D+1.6S+1.0L	0.093	0.001
B78	Story4	W21X44	0.076 = 0.013 + 0.062 + 0.001	1.2D+1.6S+1.0L	0.034	0
B79	Story4	W21X44	0.087 = 0.004 + 0.08 + 0.002	1.2D+1.6S+1.0L	0.041	0.0001252
B80	Story4	W21X44	0.18 = 0.025 + 0.152 + 0.003	1.2D+1.6S+1.0L	0.072	0.0001987

Table 4.3 - Steel Beam Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio
B81	Story4	W21X44	$0.359 = 0.003 + 0.354 + 0.002$	1.2D+1.6S+1.0L	0.014	0.0003786
B82	Story4	W21X44	$0.38 = 3.421E-04 + 0.379 + 0.001$	1.2D+1.6S+1.0L	0.014	0
B83	Story4	W21X44	$0.372 = 1.324E-04 + 0.372 + 0.001$	1.2D+1.6S+1.0L	0.014	0
B84	Story4	W21X44	$0.355 = 0.001 + 0.354 + 1.521E-04$	1.2D+1.6S+1.0L	0.014	0
B85	Story4	W21X44	$0.339 = 0.003 + 0.336 + 3.137E-04$	1.2D+1.6S+1.0L	0.014	0
B86	Story4	W21X44	$0.327 = 0.004 + 0.322 + 0.001$	1.2D+1.6S+1.0L	0.014	0.0001512
B87	Story4	W21X44	$0.305 = 0.009 + 0.294 + 0.002$	1.2D+1.6S+1.0L	0.015	0.0002916
B88	Story4	W21X44	$0.21 = 0.022 + 0.185 + 0.003$	1.2D+1.6S+1.0L	0.016	0.001
B89	Story4	W21X68	$0.097 = 0.021 + 0.067 + 0.009$	1.2D+1.6S+1.0L	0.013	0.001
B90	Story4	W12X35	$0.127 = 0.072 + 0.018 + 0.036$	1.2D+1.6S+1.0L	0.02	0.002
B91	Story4	W12X35	$0.108 = 0.062 + 0.013 + 0.033$	1.2D+1.6S+1.0L	0.016	0.002
B92	Story4	W21X44	$0.078 = 0.02 + 0.045 + 0.013$	1.2D+1.6S+1.0L	0.029	0.001
B93	Story4	W21X44	$0.053 = 0.03 + 0.012 + 0.011$	1.2D+1.6S+1.0L	0.016	0.001
B94	Story4	W21X44	$0.056 = 0.036 + 0.002 + 0.019$	1.2D+1.6S+1.0L	0.013	0.001
B95	Story4	W16X31	$0.386 = 0.015 + 0.301 + 0.07$	1.2D+1.6S+1.0L	0.144	0.003
B100	Story4	W16X26	$0.254 = 2.618E-04 + 0.246 + 0.008$	1.2D+1.6S+1.0L	0.125	0.000405
B113	Story4	W16X31	$0.163 = 0.016 + 0.145 + 0.001$	1.2D+1.6S+1.0L	0.097	0.001
B114	Story4	W21X44	$0.039 = 0.014 + 0.024 + 0.001$	1.2D+1.6S+1.0L	0.02	0.0001104
B115	Story4	W21X44	$0.043 = 0.005 + 0.038 + 0$	1.2D+1.6S+1.0L	0.027	0
B116	Story4	W21X44	$0.113 = 0.025 + 0.087 + 0.001$	1.2D+1.6S+1.0L	0.053	0.0001835
B117	Story4	W21X44	$0.358 = 0.003 + 0.347 + 0.008$	1.2D+1.6S+1.0L	0.035	0.001
B118	Story4	W21X44	$0.377 = 0 + 0.371 + 0.006$	1.2D+1.6S+1.0L	0.036	0.001
B119	Story4	W21X44	$0.37 = 1.959E-04 + 0.363 + 0.007$	1.2D+1.6S+1.0L	0.035	0.001
B120	Story4	W21X44	$0.353 = 0.001 + 0.345 + 0.006$	1.2D+1.6S+1.0L	0.034	0.001
B121	Story4	W21X44	$0.336 = 0.002 + 0.328 + 0.005$	1.2D+1.6S+1.0L	0.033	0.001
B122	Story4	W21X44	$0.32 = 0.003 + 0.314 + 0.003$	1.2D+1.6S+1.0L	0.032	0.0003317
B123	Story4	W21X44	$0.3 = 0.006 + 0.287 + 0.008$	1.2D+1.6S+1.0L	0.029	0.001
B124	Story4	W21X44	$0.208 = 0.016 + 0.178 + 0.014$	1.2D+1.6S+1.0L	0.021	0.003
B125	Story4	W21X44	$0.178 = 0.025 + 0.112 + 0.041$	1.2D+1.6S+1.0L	0.018	0.004
B126	Story4	W12X35	$0.108 = 0.063 + 0.025 + 0.019$	1.2D+1.6S+1.0L	0.084	0.001
B127	Story4	W12X35	$0.083 = 0.046 + 0.005 + 0.033$	1.2D+1.6S+1.0L	0.012	0.002
B128	Story4	W21X44	$0.053 = 0.009 + 0.033 + 0.011$	1.2D+1.6S+1.0L	0.025	0.001
B129	Story4	W21X44	$0.064 = 0.021 + 0.02 + 0.022$	1.2D+1.6S+1.0L	0.018	0.002
B130	Story4	W21X44	$0.073 = 0.026 + 0.022 + 0.025$	1.2D+1.6S+1.0L	0.02	0.002
B131	Story4	W16X31	$0.26 = 0.013 + 0.153 + 0.094$	1.2D+1.6S+1.0L	0.097	0.006
B153	Story4	W16X31	$0.073 = 0.016 + 0.056 + 0.002$	1.2D+1.6S+1.0L	0.094	0.0004855
B154	Story4	W21X44	$0.048 = 0.013 + 0.028 + 0.007$	1.2D+1.6S+1.0L	0.013	0.001
B155	Story4	W21X44	$0.06 = 0.004 + 0.038 + 0.018$	1.2D+1.6S+1.0L	0.012	0.002
B156	Story4	W21X44	$0.115 = 0.019 + 0.094 + 0.002$	1.2D+1.6S+1.0L	0.013	0.000429
B158	Story4	W21X44	$0.312 = 0.006 + 0.296 + 0.01$	1.2D+1.6S+1.0L	0.06	0.001
B159	Story4	W21X44	$0.329 = 0.002 + 0.317 + 0.01$	1.2D+1.6S+1.0L	0.063	0.001
B160	Story4	W21X44	$0.324 = 0.002 + 0.31 + 0.012$	1.2D+1.6S+1.0L	0.062	0.001
B161	Story4	W21X44	$0.308 = 0.003 + 0.295 + 0.01$	1.2D+1.6S+1.0L	0.059	0.001
B162	Story4	W21X44	$0.292 = 0.003 + 0.28 + 0.008$	1.2D+1.6S+1.0L	0.057	0.001
B163	Story4	W21X44	$0.278 = 0.004 + 0.27 + 0.005$	1.2D+1.6S+1.0L	0.055	0.001
B164	Story4	W21X44	$0.254 = 0.003 + 0.248 + 0.002$	1.2D+1.6S+1.0L	0.05	0.0002372

Table 4.3 - Steel Beam Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio
B165	Story4	W21X44	$0.179 = 0.012 + 0.155 + 0.012$	1.2D+1.6S+1.0L	0.035	0.002
B166	Story4	W21X44	$0.156 = 0.02 + 0.097 + 0.038$	1.2D+1.6S+1.0L	0.026	0.004
B167	Story4	W12X35	$0.092 = 0.043 + 0.014 + 0.035$	1.2D+1.6S+1.0L	0.016	0.003
B169	Story4	W21X44	$0.087 = 0.008 + 0.033 + 0.045$	1.2D+1.6S+1.0L	0.013	0.004
B170	Story4	W21X44	$0.074 = 0.015 + 0.027 + 0.031$	1.2D+1.6S+1.0L	0.014	0.003
B171	Story4	W21X44	$0.058 = 0.015 + 0.036 + 0.007$	1.2D+1.6S+1.0L	0.015	0.0002139
B172	Story4	W16X31	$0.207 = 0.006 + 0.183 + 0.018$	1.2D+1.6S+1.0L	0.037	0.002
B200	Story4	W16X26	$0.024 = 0.022 + 0.001 + 0$	1.2D+1.6S+1.0L	0.002	0
B202	Story4	W16X26	$0.295 = 0.023 + 0.252 + 0.02$	1.2D+1.6S+1.0L	0.107	0.001
B210	Story4	W16X26	$0.337 = 0.001 + 0.283 + 0.053$	1.2D+1.6S+1.0L	0.123	0.012
B224	Story4	W12X35	$0.126 = 0.03 + 0.072 + 0.024$	1.2D+1.6S+1.0L	0.073	0.002
B300	Story4	W24X117	$0.308 = 0.005 + 0.258 + 0.044$	1.2D+1.6S+1.0L	0.109	0.008
B302	Story4	W24X117	$0.302 = 0.006 + 0.252 + 0.044$	1.2D+1.6S+1.0L	0.107	0.007
B4	Story4	W16X26	$0.258 = 0.001 + 0.227 + 0.031$	1.2D+1.6S+1.0L	0.104	0.004
B61	Story3	W8X21	$0.029 = 0.017 + 0.012 + 0$	1.2D+1.6S+1.0L	0.004	0
B65	Story3	W8X21	$0.044 = 0.017 + 0.027 + 0$	1.2D+1.6S+1.0L	0.008	0
B101	Story3	W16X45	$0.021 = 0.001 + 0.021 + 0$	1.2D+1.6L+0.5S	0.012	0
B103	Story3	W16X45	$0.021 = 0.001 + 0.021 + 0$	1.2D+1.6L+0.5S	0.012	0
B112	Story3	W8X21	$0.036 = 0 + 0.032 + 0.004$	1.2D+1.6L+0.5S	0.053	0.001
B132	Story3	W8X18	$0.397 = 0.001 + 0.397 + 0$	1.2D+1.6L+0.5S	0.084	0
B149	Story3	W8X18	$0.385 = 2.767E-04 + 0.384 + 0$	1.2D+1.6L+0.5S	0.081	0
B168	Story3	W8X21	$0.072 = 1.607E-04 + 0.069 + 0.003$	1.2D+1.6L+0.5S	0.064	0.001
B177	Story3	W8X18	$0.544 = 0.001 + 0.543 + 1.578E-04$	1.2D+1.6L+0.5S	0.061	0
B190	Story3	W8X18	$1.768E-04 = 1.768E-04 + 0 + 0$	1.2D+1.6S+1.0L	0	0
B193	Story3	W8X21	$0.003 = 0.003 + 0 + 0$	1.2D+1.6S+1.0L	0	0
B203	Story3	W8X18	$0.058 = 0.006 + 0.052 + 0$	1.2D+1.6L+0.5S	0.038	0
B206	Story3	W12X79	$0.01 = 0.006 + 0.003 + 0$	1.2D+1.6S+1.0L	0.005	0
B209	Story3	W12X79	$0.013 = 0.01 + 0.003 + 0$	1.2D+1.6S+1.0L	0.005	0
B211	Story3	W8X18	$0.071 = 0 + 0.071 + 0$	1.2D+1.6L+0.5S	0.042	0
B212	Story3	W8X18	$0.408 = 0 + 0.408 + 0$	1.2D+1.6L+0.5S	0.076	0
B215	Story3	W8X18	$0.071 = 0 + 0.071 + 0$	1.2D+1.6L+0.5S	0.042	0
B216	Story3	W8X18	$0.408 = 0 + 0.408 + 0$	1.2D+1.6L+0.5S	0.076	0
B220	Story3	W8X18	$0.071 = 0 + 0.071 + 0$	1.2D+1.6L+0.5S	0.042	0
B221	Story3	W8X18	$0.408 = 0 + 0.407 + 0$	1.2D+1.6L+0.5S	0.076	0
B229	Story3	W8X18	$0.077 = 1.764E-04 + 0.076 + 0$	1.2D+1.6L+0.5S	0.045	0
B230	Story3	W8X18	$0.437 = 2.096E-04 + 0.436 + 0$	1.2D+1.6L+0.5S	0.082	0
B234	Story3	W30X90	$0.234 = 0.001 + 0.232 + 1.391E-04$	1.2D+1.6S+1.0L	0.168	0
B243	Story3	W10X68	$0.208 = 0.001 + 0.206 + 3.354E-04$	1.2D+1.6S+1.0L	0.067	0.0004748
B244	Story3	W18X46	$0.275 = 0.001 + 0.273 + 0.001$	1.2D+1.6S+1.0L	0.072	0.000106
B245	Story3	W12X35	$0.081 = 0.001 + 0.08 + 0.001$	1.2D+1.6S+1.0L	0.069	0
B23	Story3	W8X21	$0.042 = 0.001 + 0.04 + 0.001$	1.2D+1.6L+0.5S	0.054	0.0002845
B25	Story3	W8X21	$0.062 = 0.001 + 0.059 + 0.002$	1.2D+1.6L+0.5S	0.06	0.022
B28	Story3	W8X21	$0.011 = 0.007 + 0.004 + 0$	1.2D+1.6S+1.0L	0.005	0
B20	Story3	W18X46	$0.382 = 0.001 + 0.381 + 2.39E-04$	1.2D+1.6S+1.0L	0.097	0
B21	Story3	W8X18	$0.466 = 1.782E-04 + 0.465 + 0$	1.2D+1.6L+0.5S	0.087	0
B24	Story3	W8X18	$0.082 = 1.693E-04 + 0.082 + 0$	1.2D+1.6L+0.5S	0.048	0

Table 4.3 - Steel Beam Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio
B6	Story2	W27X129	$0.276 = 1.861E-04 + 0.276 + 0$	1.2D+1.6S+1.0L	0.129	0
B8	Story2	W12X26	$0.067 = 0.001 + 0.066 + 0$	1.2D+1.6L+0.5S	0.038	0
B13	Story2	W27X129	$0.376 = 0 + 0.376 + 0$	1.2D+1.6S+1.0L	0.063	0
B64	Story2	W27X129	$0.514 = 4.015E-04 + 0.513 + 4.385E-04$	1.2D+1.6S+1.0L	0.123	0
B67	Story2	W21X166	$0.038 = 0 + 0.038 + 0$	1.2D+1.6S+1.0L	0.018	0
B68	Story2	W27X129	$0.069 = 0 + 0.068 + 1.449E-04$	1.2D+1.6S+1.0L	0.022	0
B69	Story2	W27X129	$0.069 = 0 + 0.068 + 0$	1.2D+1.6S+1.0L	0.023	0
B70	Story2	W12X26	$0.057 = 0 + 0.057 + 0$	1.2D+1.6L+0.5S	0.032	0
B73	Story2	W27X129	$0.181 = 3.209E-04 + 0.18 + 1.888E-04$	1.2D+1.6S+1.0L	0.053	0
B74	Story2	W27X146	$0.488 = 0 + 0.487 + 2.087E-04$	1.2D+1.6S+1.0L	0.208	0
B75	Story2	W16X67	$0.42 = 2.899E-04 + 0.42 + 1.446E-04$	1.2D+1.6L+0.5S	0.129	0
B105	Story2	W27X129	$0.66 = 1.055E-04 + 0.659 + 2.8E-04$	1.2D+1.6S+1.0L	0.087	0
B144	Story2	W27X84	$0.753 = 2.641E-04 + 0.752 + 1.27E-04$	1.2D+1.6S+1.0L	0.049	0
B186	Story2	W27X102	$0.488 = 0.001 + 0.487 + 3.223E-04$	1.2D+1.6S+1.0L	0.041	0
B195	Story2	W27X129	$0.309 = 1.262E-04 + 0.309 + 2.82E-04$	1.2D+1.6S+1.0L	0.073	0
B199	Story2	W27X129	$0.301 = 3.985E-04 + 0.3 + 1.263E-04$	1.2D+1.6S+1.0L	0.137	0
B201	Story2	W12X26	$0.067 = 0.001 + 0.066 + 0$	1.2D+1.6L+0.5S	0.038	0
B207	Story2	W27X102	$0.452 = 0 + 0.452 + 0$	1.2D+1.6S+1.0L	0.076	0.0001577
B254	Story2	W27X129	$0.285 = 1.266E-04 + 0.284 + 0$	1.2D+1.6S+1.0L	0.068	0
B257	Story2	W27X129	$0.135 = 0 + 0.135 + 0$	1.2D+1.6S+1.0L	0.031	0
B258	Story2	W21X166	$0.081 = 0 + 0.081 + 0$	1.2D+1.6S+1.0L	0.032	0
B259	Story2	W27X129	$0.135 = 0 + 0.135 + 1.125E-04$	1.2D+1.6S+1.0L	0.037	0
B263	Story2	W27X129	$0.146 = 0 + 0.146 + 0$	1.2D+1.6S+1.0L	0.039	0
B268	Story2	W27X129	$0.092 = 0 + 0.092 + 0$	1.2D+1.6S+1.0L	0.024	0
B271	Story2	W27X129	$0.146 = 3.169E-04 + 0.146 + 0$	1.2D+1.6S+1.0L	0.032	0
B273	Story2	W27X129	$0.09 = 0 + 0.09 + 0$	1.2D+1.6S+1.0L	0.023	0
B277	Story2	W27X129	$0.09 = 0 + 0.089 + 0$	1.2D+1.6S+1.0L	0.023	0
B278	Story2	W21X166	$0.052 = 0 + 0.052 + 0$	1.2D+1.6S+1.0L	0.022	0
B279	Story2	W27X129	$0.09 = 0 + 0.089 + 1.095E-04$	1.2D+1.6S+1.0L	0.026	0
B280	Story2	W12X26	$0.093 = 1.566E-04 + 0.092 + 0$	1.2D+1.6L+0.5S	0.051	0
B281	Story2	W12X26	$0.076 = 1.683E-04 + 0.076 + 0$	1.2D+1.6L+0.5S	0.042	0
B282	Story2	W12X26	$0.063 = 1.366E-04 + 0.062 + 0$	1.2D+1.6L+0.5S	0.035	0
B283	Story2	W12X26	$0.074 = 4.045E-04 + 0.073 + 0$	1.2D+1.6L+0.5S	0.041	0
B284	Story2	W12X26	$0.093 = 0.001 + 0.092 + 0$	1.2D+1.6L+0.5S	0.051	0
B295	Story2	W27X129	$0.322 = 1.908E-04 + 0.322 + 3.573E-04$	1.2D+1.6S+1.0L	0.036	0
B296	Story2	W27X84	$0.552 = 0 + 0.552 + 0$	1.2D+1.6S+1.0L	0.038	0
B303	Story2	W21X166	$0.085 = 0 + 0.084 + 1.26E-04$	1.2D+1.6S+1.0L	0.09	0
B304	Story2	W27X129	$0.09 = 0 + 0.09 + 1.418E-04$	1.2D+1.6S+1.0L	0.026	0
B2	Story2	W27X129	$0.05 = 0.001 + 0.048 + 0.001$	1.2D+1.6S+1.0L	0.042	0.0001667
B19	Story2	W27X129	$0.013 = 0.001 + 0.011 + 0.001$	1.2D+1.6S+1.0L	0.014	0
B60	Story2	HSS4X0.250	$0.526 = 0.515 + 0.006 + 0.009$	1.2D+1.6S+1.0L	0.0002444	0.0004078



**Table 4.3 - Steel Beam Envelope (Part 2 of 2)**

<b>Label</b>	<b>Story</b>	<b>Class</b>	<b>Conn. V I-End kip</b>	<b>Conn. V J-End kip</b>
B62	Story5	Seismic HD	0.864	0.738
B102	Story5	Seismic MD	14.754	12.76
B104	Story5	Seismic MD	12.231	15.109
B139	Story5	Seismic MD	10.169	7.073
B140	Story5	Seismic MD	11.448	7.267
B145	Story5	Seismic HD	2.886	2.886
B146	Story5	Seismic HD	10.17	10.17
B147	Story5	Seismic HD	2.613	2.613
B173	Story5	Seismic MD	12.771	12.769
B174	Story5	Seismic MD	12.505	12.503
B183	Story5	Seismic HD	2.886	2.886
B185	Story5	Seismic HD	10.181	10.181
B187	Story5	Seismic HD	2.613	2.613
B204	Story5	Seismic MD	11.368	11.912
B205	Story5	Seismic MD	4.643	4.628
B208	Story5	Seismic MD	11.247	10.801
B213	Story5	Seismic HD	5.159	5.159
B214	Story5	Seismic HD	9.397	9.397
B217	Story5	Seismic HD	5.159	5.159
B218	Story5	Seismic HD	9.408	9.408
B222	Story5	Seismic HD	5.159	5.159
B223	Story5	Seismic HD	9.408	9.408
B231	Story5	Seismic HD	5.159	5.159
B232	Story5	Seismic HD	9.407	9.407
B233	Story5	Seismic HD	4.859	4.859
B235	Story5	Seismic HD	9.11	9.11
B236	Story5	Seismic HD	4.299	4.299
B238	Story5	Seismic HD	7.84	7.84
B148	Story5	Seismic HD	0	0
B176	Story5	Seismic HD	0	0
B5	Story5	Seismic HD	0	0
B22	Story5	Seismic HD	0	0
B1	Story5	Seismic MD	10.959	10.959
B29	Story5	Seismic MD	2.47	0
B30	Story5	Seismic MD	19.262	19.265
B31	Story5	Seismic MD	4.266	0
B3	Story5	Seismic MD	28.472	28.473
B32	Story5	Seismic MD	6.161	5.703
B7	Story4	Seismic MD	0.249	0.249
B9	Story4	Seismic MD	11.172	10.461
B10	Story4	Seismic HD	0.249	0.249
B12	Story4	Seismic MD	12.011	11.945
B14	Story4	Seismic MD	0.249	0.249
B15	Story4	Seismic MD	9.562	7.395
B33	Story4	Seismic HD	0	0

Table 4.3 - Steel Beam Envelope (Part 2 of 2, continued)

Label	Story	Class	Conn. V I-End kip	Conn. V J-End kip
B34	Story4	Seismic HD	0	0
B35	Story4	Seismic HD	0	0
B36	Story4	Seismic HD	0	0
B37	Story4	Seismic HD	0	0
B38	Story4	Seismic HD	0	0
B39	Story4	Seismic HD	0	0
B40	Story4	Seismic HD	0	0
B41	Story4	Seismic HD	0	0
B42	Story4	Seismic HD	0	0
B43	Story4	Seismic HD	0	0
B44	Story4	Seismic HD	0	0
B45	Story4	Seismic HD	0	0
B46	Story4	Seismic HD	0	0
B47	Story4	Seismic HD	0	0
B48	Story4	Seismic HD	0	6.984
B49	Story4	Seismic HD	0	7.899
B50	Story4	Seismic HD	0	6.848
B51	Story4	Seismic HD	0	0
B52	Story4	Seismic HD	0	0
B53	Story4	Seismic HD	0	0
B54	Story4	Seismic HD	0	0
B55	Story4	Seismic HD	0	0
B56	Story4	Seismic HD	0	0
B61	Story4	Seismic MD	0	0
B63	Story4	Seismic MD	0	0
B65	Story4	Seismic MD	0	0
B77	Story4	Seismic HD	0	0
B78	Story4	Seismic HD	0	7.47
B79	Story4	Seismic HD	0	8.997
B80	Story4	Seismic HD	0	15.633
B81	Story4	Seismic HD	0	0
B82	Story4	Seismic HD	0	0
B83	Story4	Seismic HD	0	0
B84	Story4	Seismic HD	0	0
B85	Story4	Seismic HD	0	0
B86	Story4	Seismic HD	0	0
B87	Story4	Seismic HD	0	0
B88	Story4	Seismic HD	0	0
B89	Story4	Seismic HD	0	0
B90	Story4	Seismic HD	0	2.232
B91	Story4	Seismic HD	0	0.627
B92	Story4	Seismic HD	0	6.238
B93	Story4	Seismic HD	0	3.523

**Table 4.3 - Steel Beam Envelope (Part 2 of 2, continued)**

<b>Label</b>	<b>Story</b>	<b>Class</b>	<b>Conn. V I-End kip</b>	<b>Conn. V J-End kip</b>
B94	Story4	Seismic HD	0	2.516
B95	Story4	Seismic HD	0	18.847
B100	Story4	Seismic MD	0	13.252
B113	Story4	Seismic HD	0	0
B114	Story4	Seismic HD	0	4.404
B115	Story4	Seismic HD	0	5.861
B116	Story4	Seismic HD	0	11.463
B117	Story4	Seismic HD	0	0
B118	Story4	Seismic HD	0	0
B119	Story4	Seismic HD	0	0
B120	Story4	Seismic HD	0	0
B121	Story4	Seismic HD	0	0
B122	Story4	Seismic HD	0	0
B123	Story4	Seismic HD	0	0
B124	Story4	Seismic HD	0	0
B125	Story4	Seismic HD	0	0
B126	Story4	Seismic HD	0	2.186
B127	Story4	Seismic HD	1.312	0.457
B128	Story4	Seismic HD	0	5.389
B129	Story4	Seismic HD	0	4.018
B130	Story4	Seismic HD	0	4.364
B131	Story4	Seismic HD	0	12.728
B153	Story4	Seismic HD	0	0
B154	Story4	Seismic HD	0	0
B155	Story4	Seismic HD	0	0
B156	Story4	Seismic HD	0	0
B158	Story4	Seismic HD	0	0
B159	Story4	Seismic HD	0	0
B160	Story4	Seismic HD	0	0
B161	Story4	Seismic HD	0	0
B162	Story4	Seismic HD	0	0
B163	Story4	Seismic HD	0	0
B164	Story4	Seismic HD	0	0
B165	Story4	Seismic HD	0	0
B166	Story4	Seismic HD	0	0
B167	Story4	Seismic HD	0	0
B169	Story4	Seismic HD	0	0
B170	Story4	Seismic HD	0	0
B171	Story4	Seismic HD	0	0
B172	Story4	Seismic HD	0	0
B200	Story4	Seismic MD	0.249	0.249
B202	Story4	Seismic MD	11.369	0
B210	Story4	Seismic MD	0	0

**Table 4.3 - Steel Beam Envelope (Part 2 of 2, continued)**

<b>Label</b>	<b>Story</b>	<b>Class</b>	<b>Conn. V I-End kip</b>	<b>Conn. V J-End kip</b>
B224	Story4	Seismic HD	0	2.685
B300	Story4	Seismic MD	11.077	12.504
B302	Story4	Seismic MD	6.35	13.448
B4	Story4	Seismic MD	11.014	7.258
B61	Story3	Seismic HD	0	0
B65	Story3	Seismic HD	0	0
B101	Story3	Seismic HD	0	1.968
B103	Story3	Seismic HD	1.968	0
B112	Story3	Seismic HD	0	0
B132	Story3	Seismic MD	4.221	4.222
B149	Story3	Seismic MD	4.089	4.089
B168	Story3	Seismic HD	0	0
B177	Story3	Seismic MD	3.067	2.128
B190	Story3	Seismic MD	0	0
B193	Story3	Seismic HD	0	0
B203	Story3	Seismic MD	0	0
B206	Story3	Seismic MD	0	0
B209	Story3	Seismic MD	0	0
B211	Story3	Seismic MD	2.094	2.094
B212	Story3	Seismic MD	3.819	3.819
B215	Story3	Seismic MD	2.094	2.094
B216	Story3	Seismic MD	3.819	3.819
B220	Story3	Seismic MD	2.094	2.094
B221	Story3	Seismic MD	3.819	3.819
B229	Story3	Seismic MD	2.244	2.244
B230	Story3	Seismic MD	4.092	4.092
B234	Story3	Seismic MD	37.307	60.402
B243	Story3	Seismic HD	0	0
B244	Story3	Seismic HD	0	0
B245	Story3	Seismic HD	0	0
B23	Story3	Seismic HD	0	0
B25	Story3	Seismic HD	0	0
B28	Story3	Seismic HD	0	0
B20	Story3	Seismic HD	0	13.398
B21	Story3	Seismic MD	4.365	4.365
B24	Story3	Seismic MD	2.394	2.394
B6	Story2	Seismic HD	65.137	20.801
B8	Story2	Seismic MD	3.185	3.185
B13	Story2	Seismic HD	3.787	0
B64	Story2	Seismic HD	24.975	26.271
B67	Story2	Seismic HD	3.315	0
B68	Story2	Seismic HD	0	11.149
B69	Story2	Seismic HD	11.651	4.01

Table 4.3 - Steel Beam Envelope (Part 2 of 2, continued)

Label	Story	Class	Conn. V I-End kip	Conn. V J-End kip
B70	Story2	Seismic MD	2.652	2.652
B73	Story2	Seismic HD	0	0
B74	Story2	Seismic HD	95.941	103.373
B75	Story2	Seismic MD	24.999	24.572
B105	Story2	Seismic HD	7.115	0
B144	Story2	Seismic MD	3.335	10.2
B186	Story2	Seismic HD	4.291	9.252
B195	Story2	Seismic HD	0	37.067
B199	Story2	Seismic HD	69.062	19.044
B201	Story2	Seismic MD	3.185	3.185
B207	Story2	Seismic HD	0.89	0
B254	Story2	Seismic HD	0	34.369
B257	Story2	Seismic HD	15.707	3.972
B258	Story2	Seismic HD	10.001	0
B259	Story2	Seismic HD	0	18.593
B263	Story2	Seismic HD	11.157	19.749
B268	Story2	Seismic HD	12.192	3.654
B271	Story2	Seismic HD	16.381	3.688
B273	Story2	Seismic HD	11.398	2.814
B277	Story2	Seismic HD	11.588	3.13
B278	Story2	Seismic HD	5.918	0
B279	Story2	Seismic HD	0	12.994
B280	Story2	Seismic MD	4.294	4.294
B281	Story2	Seismic MD	3.536	3.536
B282	Story2	Seismic MD	2.905	2.905
B283	Story2	Seismic MD	3.41	3.41
B284	Story2	Seismic MD	4.294	4.294
B295	Story2	Seismic HD	4.904	9.287
B296	Story2	Seismic MD	3.543	6.962
B303	Story2	Seismic HD	6.923	45.713
B304	Story2	Seismic HD	6.087	12.91
B2	Story2	Seismic HD	0	0
B19	Story2	Seismic HD	0	0
B60	Story2	Seismic HD	0.009	0.002

Table 4.4 - Steel Brace Envelope (Part 1 of 2)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio
D29	Story5	HSS3-1/2X3-1/2X1/4	0.237 = 0.237 + 0 + 0	1.2D+1.6S+1.0L	0	0
D30	Story5	HSS3-1/2X3-1/2X1/4	0.095 = 0.095 + 0 + 0	1.2D+1.6S+1.0L	0	0
D31	Story5	HSS3-1/2X3-1/2X1/4	0.005 = 0.005 + 0 + 0	1.2D+1.6S+1.0L	0	0
D32	Story5	HSS3-1/2X3-1/2X1/4	0.243 = 0.243 + 0 + 0	1.2D+1.6S+1.0L	0	0
D33	Story5	HSS3-1/2X3-1/2X1/4	0.005 = 0.005 + 0 + 0	1.2D+1.6S+1.0L	0	0
D34	Story5	HSS3-1/2X3-1/2X1/4	0.092 = 0.092 + 0 + 0	1.2D+1.6S+1.0L	0	0
D35	Story5	HSS3-1/2X3-1/2X1/4	0.074 = 0.074 + 0 + 0	1.2D+1.6S+1.0L	0	0

Table 4.4 - Steel Brace Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio
D72	Story5	HSS3X3X1/4	0.493 = 0.493 + 0 + 0	1.2D+1.6S+1.0L	0	0
D74	Story5	HSS3X3X1/4	0.013 = 0.013 + 0 + 0	1.2D+1.6S+1.0L	0	0
D79	Story5	HSS6X6X3/8	0.016 = 0.011 + 0.005 + 0	1.2D+1.6S+1.0L	0.0002539	0
D52	Story5	HSS6X6X3/8	0.017 = 0.012 + 0.005 + 0	1.2D+1.6S+1.0L	0.0002411	0
D77	Story5	HSS6X6X3/8	0.013 = 0.013 + 0 + 0	1.2D+1.6S+1.0L	0	0
D78	Story5	HSS2-1/2X2-1/2X3/16	0.012 = 0.012 + 0 + 0	1.2D+1.6S+1.0L	0	0
D81	Story5	HSS2-1/2X2-1/2X3/16	0.077 = 0.077 + 0 + 0	1.2D+1.6S+1.0L	0	0
D46	Story5	HSS6X6X1/4	0.022 = 0.022 + 0 + 1.35E-04	1.2D+1.6S+1.0L	0	0
D1	Story4	W16X31	0.168 = 0.012 + 0.144 + 0.011	1.2D+1.6S+1.0L	0.072	0.001
D2	Story4	W21X44	0.101 = 0.005 + 0.079 + 0.017	1.2D+1.6S+1.0L	0.028	0.002
D3	Story4	W21X44	0.12 = 0.002 + 0.096 + 0.022	1.2D+1.6S+1.0L	0.032	0.003
D4	Story4	W21X44	0.19 = 0.011 + 0.175 + 0.004	1.2D+1.6S+1.0L	0.054	0.001
D5	Story4	W21X44	0.252 = 0.01 + 0.231 + 0.011	1.2D+1.6S+1.0L	0.069	0.002
D6	Story4	W21X44	0.269 = 0.005 + 0.251 + 0.013	1.2D+1.6S+1.0L	0.074	0.002
D7	Story4	W21X44	0.265 = 0.005 + 0.246 + 0.014	1.2D+1.6S+1.0L	0.073	0.002
D8	Story4	W21X44	0.251 = 0.006 + 0.234 + 0.012	1.2D+1.6S+1.0L	0.07	0.002
D9	Story4	W21X44	0.236 = 0.007 + 0.222 + 0.008	1.2D+1.6S+1.0L	0.067	0.001
D10	Story4	W21X44	0.22 = 0.008 + 0.212 + 0.001	1.2D+1.6S+1.0L	0.064	0
D11	Story4	W21X44	0.211 = 0.008 + 0.197 + 0.007	1.2D+1.6S+1.0L	0.06	0.001
D12	Story4	W21X44	0.165 = 0.017 + 0.118 + 0.03	1.2D+1.6S+1.0L	0.039	0.005
D13	Story4	W21X44	0.17 = 0.019 + 0.082 + 0.069	1.2D+1.6S+1.0L	0.03	0.01
D14	Story4	W21X44	0.212 = 0.023 + 0.147 + 0.042	1.2D+1.6S+1.0L	0.047	0.006
D15	Story4	W21X44	0.086 = 0.003 + 0.082 + 0.002	1.2D+1.6S+1.0L	0.03	0.001
D16	Story4	W21X44	0.061 = 0.008 + 0.051 + 0.003	1.2D+1.6S+1.0L	0.022	0.001
D17	Story4	W21X44	0.07 = 1.402E-04 + 0.066 + 0.003	1.2D+1.6S+1.0L	0.026	0.0004873
D18	Story4	W21X44	0.063 = 0.009 + 0.048 + 0.006	1.2D+1.6S+1.0L	0.021	0.001
D19	Story4	W21X44	0.097 = 0.002 + 0.083 + 0.011	1.2D+1.6S+1.0L	0.03	0.001
D20	Story4	W21X44	0.233 = 0.029 + 0.166 + 0.038	1.2D+1.6S+1.0L	0.051	0.006
D21	Story4	W21X44	0.161 = 0.011 + 0.061 + 0.089	1.2D+1.6S+1.0L	0.023	0.013
D22	Story4	W21X44	0.097 = 0.017 + 0.025 + 0.055	1.2D+1.6S+1.0L	0.013	0.008
D23	Story4	W21X44	0.061 = 0.028 + 0.005 + 0.028	1.2D+1.6S+1.0L	0.009	0.002
D24	Story4	W16X31	0.522 = 0.011 + 0.369 + 0.142	1.2D+1.6S+1.0L	0.128	0.011
D39	Story4	HSS2X2X1/4	0.05 = 0.05 + 0 + 0	1.2D+1.6S+1.0L	0	0
D43	Story4	HSS2X2X1/4	0.027 = 0.027 + 0 + 0	1.2D+1.6S+1.0L	0	0
D48	Story4	W16X31	0.071 = 0.015 + 0.056 + 0.001	1.2D+1.6S+1.0L	0.05	0.002
D49	Story4	W21X44	0.05 = 0.009 + 0.028 + 0.012	1.2D+1.6S+1.0L	0.016	0.003
D50	Story4	W21X44	0.07 = 0.005 + 0.041 + 0.024	1.2D+1.6S+1.0L	0.021	0.005
D51	Story4	W21X44	0.104 = 0.011 + 0.085 + 0.008	1.2D+1.6S+1.0L	0.04	0.003
D53	Story4	W21X44	0.187 = 0.01 + 0.164 + 0.013	1.2D+1.6S+1.0L	0.071	0.002
D54	Story4	W21X44	0.201 = 0.006 + 0.177 + 0.018	1.2D+1.6S+1.0L	0.076	0.004
D55	Story4	W21X44	0.198 = 0.005 + 0.174 + 0.019	1.2D+1.6S+1.0L	0.075	0.004
D56	Story4	W21X44	0.188 = 0.006 + 0.165 + 0.017	1.2D+1.6S+1.0L	0.072	0.004
D57	Story4	W21X44	0.177 = 0.007 + 0.158 + 0.013	1.2D+1.6S+1.0L	0.069	0.003
D58	Story4	W21X44	0.163 = 0.006 + 0.153 + 0.004	1.2D+1.6S+1.0L	0.067	0.002
D59	Story4	W21X44	0.152 = 0.005 + 0.144 + 0.004	1.2D+1.6S+1.0L	0.063	0.0004019
D60	Story4	W21X44	0.116 = 0.01 + 0.093 + 0.013	1.2D+1.6S+1.0L	0.043	0.004

Table 4.4 - Steel Brace Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio
D61	Story4	W21X44	0.132 = 0.014 + 0.062 + 0.056	1.2D+1.6S+1.0L	0.03	0.012
D62	Story4	W12X35	0.085 = 0.009 + 0.005 + 0.071	1.2D+1.6S+1.0L	0.061	0.008
D63	Story4	W12X35	0.09 = 0.018 + 0.045 + 0.027	1.2D+1.6S+1.0L	0.023	0.006
D64	Story4	HSS3X3X1/4	0.004 = 0.004 + 0 + 0	1.2D+1.6S+1.0L	0	0
D65	Story4	W21X44	0.094 = 0.008 + 0.036 + 0.05	1.2D+1.6S+1.0L	0.019	0.011
D66	Story4	W21X44	0.063 = 0.008 + 0.027 + 0.027	1.2D+1.6S+1.0L	0.016	0.007
D67	Story4	W21X44	0.043 = 0.007 + 0.032 + 0.004	1.2D+1.6S+1.0L	0.018	0.001
D68	Story4	W16X31	0.178 = 0.001 + 0.161 + 0.017	1.2D+1.6S+1.0L	0.084	0.002
D69	Story4	HSS3X3X1/4	0.04 = 0.018 + 0.002 + 0.019	1.2D+1.6S+1.0L	0.0001872	0.001
D45	Story4	HSS3X3X1/4	0.077 = 0.077 + 0 + 0	1.2D+1.6S+1.0L	0	0
D28	Story4	HSS2X2X1/4	0.056 = 0.056 + 0 + 0	1.2D+1.6S+1.0L	0	0
D25	Story4	HSS2X2X1/4	0.017 = 0.017 + 0 + 0	1.2D+1.6S+1.0L	0	0
D26	Story4	HSS3X3X1/4	0.067 = 0.067 + 0 + 0	1.2D+1.6S+1.0L	0	0
D40	Story3	HSS3X3X3/8	0.005 = 0.005 + 0 + 0	1.2D+1.6S+1.0L	0	0
D42	Story3	HSS3X3X3/8	0.086 = 0.086 + 0 + 0	1.2D+1.6S+1.0L	0	0
D47	Story3	HSS3X3X3/8	0.038 = 0.038 + 0 + 0	1.2D+1.6S+1.0L	0	0
D70	Story3	HSS3X3X3/8	0.053 = 0.053 + 0 + 0	1.2D+1.6S+1.0L	0	0
D71	Story3	HSS3X3X1/4	0.017 = 0.017 + 0 + 0	1.2D+1.6S+1.0L	0	0
D73	Story3	HSS3X3X1/4	0.044 = 0.044 + 0 + 0	1.2D+1.6S+1.0L	0	0
D75	Story3	HSS4X0.250	0.317 = 0.306 + 0.005 + 0.009	1.2D+1.6S+1.0L	0.0004403	0.000379
D76	Story3	HSS4X0.250	0.065 = 0.055 + 0.003 + 0.009	1.2D+1.6S+1.0L	0.0002973	0.0003404
D27	Story3	HSS3X3X3/8	0.072 = 0.072 + 0 + 0	1.2D+1.6S+1.0L	0	0
D36	Story3	HSS3X3X3/8	0.082 = 0.082 + 0 + 0	1.2D+1.6S+1.0L	0	0
D80	Story3	HSS3-1/2X3-1/2X1/4	0.063 = 0.063 + 0 + 0	1.2D+1.6S+1.0L	0	0
D82	Story3	HSS3-1/2X3-1/2X1/4	0.016 = 0.016 + 0 + 0	1.2D+1.6S+1.0L	0	0
D83	Story2	HSS4X0.250	0.86 = 0.849 + 0.005 + 0.009	1.2D+1.6S+1.0L	0.0002167	0.0003742

Table 4.4 - Steel Brace Envelope (Part 2 of 2)

Label	Story	Class	Conn. P I-End kip	Conn. P J-End kip
D29	Story5	Seismic HD	-27.043	-27.043
D30	Story5	Seismic HD	-21.724	-21.724
D31	Story5	Seismic HD	1.429	1.429
D32	Story5	Seismic HD	31.802	31.802
D33	Story5	Seismic HD	1.304	1.304
D34	Story5	Seismic HD	-21.011	-21.011
D35	Story5	Seismic HD	-16.872	-16.872
D72	Story5	Seismic HD	-18.121	-18.121
D74	Story5	Seismic HD	2.762	2.762
D79	Story5	Seismic MD	-4.999	-4.999
D52	Story5	Seismic MD	-5.604	-5.604
D77	Story5	Seismic MD	-6.177	-6.177
D78	Story5	Seismic HD	1.66	1.66
D81	Story5	Seismic HD	-1.516	-1.516
D46	Story5	Compact	-7.252	-7.252

Table 4.4 - Steel Brace Envelope (Part 2 of 2, continued)

Label	Story	Class	Conn. P I-End kip	Conn. P J-End kip
D1	Story4	Compact	-5.772	-6.992
D2	Story4	Compact	-3.427	-4.083
D3	Story4	Compact	-3.024	-2.41
D4	Story4	Compact	4.944	12.29
D5	Story4	Compact	-9.735	-8.602
D6	Story4	Compact	-5.661	-4.425
D7	Story4	Compact	-4.692	-3.999
D8	Story4	Compact	-5.102	-4.69
D9	Story4	Compact	-5.803	-5.743
D10	Story4	Compact	-5.889	-6.435
D11	Story4	Compact	-5.699	-6.361
D12	Story4	Compact	-6.752	-13.931
D13	Story4	Compact	-6.17	-15.706
D14	Story4	Compact	7.72	26.763
D15	Story4	Compact	1.964	3.324
D16	Story4	Compact	-1.733	-6.29
D17	Story4	Compact	-0.501	0.164
D18	Story4	Compact	-1.879	-7.652
D19	Story4	Compact	2.581	2.518
D20	Story4	Compact	10.626	33.768
D21	Story4	Compact	-2.949	-8.798
D22	Story4	Compact	-5.966	-14.581
D23	Story4	Compact	-9.306	-23.716
D24	Story4	Compact	-2.755	8.701
D39	Story4	Seismic HD	-4.055	-4.055
D43	Story4	Seismic HD	3.603	3.603
D48	Story4	Compact	-11.631	-9.835
D49	Story4	Compact	-6.245	-8.652
D50	Story4	Compact	-4.23	-4.552
D51	Story4	Compact	7.119	12.848
D53	Story4	Compact	-10.838	-9.583
D54	Story4	Compact	-6.58	-5.65
D55	Story4	Compact	-5.405	-5.012
D56	Story4	Compact	-5.729	-5.44
D57	Story4	Compact	-6.338	-6.134
D58	Story4	Compact	-6.369	-5.913
D59	Story4	Compact	-6.02	-4.395
D60	Story4	Compact	-6.262	-9.008
D61	Story4	Compact	-6.793	-13.035
D62	Story4	Compact	8.369	21.853
D63	Story4	Compact	6.135	16.443
D64	Story4	Seismic HD	0.956	0.956
D65	Story4	Compact	-4.326	-7.387
D66	Story4	Compact	-3.049	-7.48
D67	Story4	Compact	-3.464	-6.08



Table 4.4 - Steel Brace Envelope (Part 2 of 2, continued)

Label	Story	Class	Conn. P I-End kip	Conn. P J-End kip
D68	Story4	Compact	-3.923	-0.73
D69	Story4	Seismic HD	4.016	4.016
D45	Story4	Seismic HD	16.835	16.835
D28	Story4	Seismic HD	-3.846	-3.846
D25	Story4	Seismic HD	-1.164	-1.164
D26	Story4	Seismic HD	14.611	14.611
D40	Story3	Seismic HD	-1.117	-1.117
D42	Story3	Seismic HD	-19.079	-19.079
D47	Story3	Seismic HD	-8.298	-8.298
D70	Story3	Seismic HD	-11.833	-11.833
D71	Story3	Seismic HD	-1.142	-1.142
D73	Story3	Seismic HD	-2.977	-2.977
D75	Story3	Seismic HD	-6.998	-7.014
D76	Story3	Seismic HD	-2.489	-2.508
D27	Story3	Seismic HD	-12.257	-12.257
D36	Story3	Seismic HD	-13.968	-13.968
D80	Story3	Seismic HD	-7.332	-7.332
D82	Story3	Seismic HD	-1.887	-1.887
D83	Story2	Seismic HD	-6.383	-6.387

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3)

Story	Label	Unique Name	Design Type	Design Section	Status
Story5	C19	189	Column	HSS6X6X1/4	No Message
Story5	C20	200	Column	HSS6X6X1/4	No Message
Story5	C21	202	Column	HSS6X6X1/4	No Message
Story5	C31	135	Column	HSS6X6X1/4	No Message
Story5	C53	3 E-7	Column	HSS6X6X1/2	No Message
Story5	C54	3 E-8(+)	Column	HSS6X6X1/2	No Message
Story5	C55	3 E-9(-)	Column	HSS6X6X1/2	No Message
Story5	C56	3 E-10	Column	HSS6X6X1/2	No Message
Story5	C58	4 C-7	Column	HSS6X6X1/4	No Message
Story5	C60	4 C-8(+)	Column	HSS6X6X1/4	No Message
Story5	C62	4 C-10	Column	HSS6X6X1/4	No Message
Story5	C2	3 H-8	Column	HSS6X6X1/2	No Message
Story5	C6	3 H-7	Column	HSS6X6X1/2	No Message
Story5	C46	3 H-9	Column	HSS6X6X1/2	No Message
Story5	C47	3 H-10	Column	HSS6X6X1/2	No Message
Story4	C1	3 I-2	Column	W6X25	No Message
Story4	C3	3 I-3	Column	W6X25	No Message
Story4	C4	3 I-4	Column	W6X25	No Message
Story4	C5	3 I-5	Column	W6X25	No Message
Story4	C7	3 I-6	Column	W6X25	No Message
Story4	C8	3 I-7	Column	W6X25	No Message
Story4	C9	3 I-8	Column	HSS6X6X1/4	No Message

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story4	C11	3 I-9	Column	HSS6X6X1/4	No Message
Story4	C12	3 I-10	Column	W6X25	No Message
Story4	C13	3 I-11	Column	W6X25	No Message
Story4	C26	3 H-2	Column	HSS6X6X1/2	No Message
Story4	C28	3 G-3-	Column	HSS6X6X1/2	No Message
Story4	C28		Column	HSS6X6X1/2	No Message
Story4	C29	3 G-7	Column	HSS6X6X1/2	No Message
Story4	C32	3 G-10	Column	HSS6X6X1/2	No Message
Story4	C32		Column	HSS6X6X1/2	No Message
Story4	C33	3 G-11	Column	HSS6X6X1/4	No Message
Story4	C34	3 G(-)-7	Column	HSS6X6X1/2	No Message
Story4	C39	3 G(-)-10	Column	HSS6X6X1/2	No Message
Story4	C40	3 F+-2	Column	HSS6X6X1/2	No Message
Story4	C42	3 F-10	Column	HSS6X6X1/2	No Message
Story4	C44	3 F-7	Column	HSS6X6X1/2	No Message
Story4	C45	3 E-2	Column	HSS6X6X1/2	No Message
Story4	C48	3 E-3	Column	HSS6X6X1/4	No Message
Story4	C49	3 E-4	Column	HSS6X6X1/4	No Message
Story4	C50	3 E-5	Column	HSS6X6X1/4	No Message
Story4	C52	3 E-6	Column	HSS6X6X1/4	No Message
Story4	C57	3 E-11-	Column	HSS6X6X1/4	No Message
Story3	C30	3 G-8(+)	Column	HSS6X6X1/2	No Message
Story3	C59	2 C-8	Column	W10X45	No Message
Story3	C61	2 C-9	Column	W10X45	No Message
Story2	C27	1 I-3	Column	W10X49	No Message
Story2	C35	1E-3	Column	W10X49	No Message
Story2	C41	1 E-6	Column	W10X49	No Message
Story2	C43	1 I-6	Column	W10X49	No Message
Story1	C14	1 H+-8+ WD	Column	HSS6X6X1/4	No Message
Story1	C36	1 G-7+ WD	Column	HSS6X6X1/4	No Message
Story1	C37	1 G--8+ WD	Column	HSS6X6X1/4	No Message
Story1	C38	1 G--9- WD	Column	HSS6X6X1/4	No Message
Story5	B62	RB11-1 HIGH	Beam	HSS3-1/2X3-1/2X1/4	No Message
Story5	B102	RB13-1	Beam	W16X26	No Message
Story5	B104	RB13-2	Beam	W16X26	No Message
Story5	B104		Beam	W16X26	No Message
Story5	B139	RB8-1	Beam	W10X22	No Message
Story5	B139		Beam	W10X22	No Message
Story5	B140	RB8-2	Beam	W10X22	No Message
Story5	B140		Beam	W10X22	No Message
Story5	B145	RB9-1	Beam	C10X15.3	No Message
Story5	B146	RB9-2	Beam	C10X15.3	No Message
Story5	B147	RB9-3	Beam	C10X15.3	No Message
Story5	B173	RB8-3	Beam	W10X22	No Message
Story5	B173		Beam	W10X22	No Message

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story5	B174	RB8-4	Beam	W10X22	No Message
Story5	B174		Beam	W10X22	No Message
Story5	B183	RB9-4	Beam	C10X15.3	No Message
Story5	B185	RB9-5	Beam	C10X15.3	No Message
Story5	B187	RB9-6	Beam	C10X15.3	No Message
Story5	B204	RB5x	Beam	W16X26	No Message
Story5	B205	RB10-3	Beam	W16X26	No Message
Story5	B208	RB10-4	Beam	W16X26	No Message
Story5	B208		Beam	W16X26	No Message
Story5	B213	RB9-7	Beam	C10X15.3	No Message
Story5	B214	RB9-8	Beam	C10X15.3	No Message
Story5	B214		Beam	C10X15.3	No Message
Story5	B217	RB9-9	Beam	C10X15.3	No Message
Story5	B218	RB9-10	Beam	C10X15.3	No Message
Story5	B222	RB9-11	Beam	C10X15.3	No Message
Story5	B223	RB9-12	Beam	C10X15.3	No Message
Story5	B231	RB9-13	Beam	C10X15.3	No Message
Story5	B232	RB9-14	Beam	C10X15.3	No Message
Story5	B233	RB9-15	Beam	C10X15.3	No Message
Story5	B235	RB9-16	Beam	C10X15.3	No Message
Story5	B236	RB9-17	Beam	C10X15.3	No Message
Story5	B238	RB9-18	Beam	C10X15.3	No Message
Story5	B148	46	Beam	HSS3X3X5/16	No Message
Story5	B148		Beam	HSS3X3X5/16	No Message
Story5	B176	47	Beam	HSS3X3X5/16	No Message
Story5	B5	RB9-19	Beam	C10X15.3	No Message
Story5	B22	RB18-1	Beam	W16X31	No Message
Story5	B22		Beam	W16X31	No Message
Story5	B1	RB12-1	Beam	W10X39	No Message
Story5	B1		Beam	W10X39	No Message
Story5	B29	RB19-1	Beam	W10X22	No Message
Story5	B29		Beam	W10X22	No Message
Story5	B30	RB12-2	Beam	W10X39	No Message
Story5	B30		Beam	W10X39	No Message
Story5	B31	RB19-3	Beam	W10X22	No Message
Story5	B3	RB7-1	Beam	W10X54	No Message
Story5	B3		Beam	W10X54	No Message
Story5	B32	RB19-2	Beam	W10X22	No Message
Story4	B7	RB4-1	Beam	W16X26	No Message
Story4	B7		Beam	W16X26	No Message
Story4	B9	RB5-1	Beam	W16X26	No Message
Story4	B9		Beam	W16X26	No Message
Story4	B10	RB4-3	Beam	W16X40	No Message
Story4	B12	RB6-1	Beam	W16X26	No Message
Story4	B14	RB4-4	Beam	W16X26	No Message

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story4	B15	RB5-3	Beam	W16X26	No Message
Story4	B15		Beam	W16X26	No Message
Story4	B33	RB2-1b	Beam	W16X31	No Message
Story4	B33		Beam	W16X31	No Message
Story4	B34	218	Beam	W21X44	No Message
Story4	B34		Beam	W21X44	No Message
Story4	B35	221	Beam	W21X44	No Message
Story4	B36	224	Beam	W21X44	No Message
Story4	B36		Beam	W21X44	No Message
Story4	B37	227	Beam	W21X44	No Message
Story4	B37		Beam	W21X44	No Message
Story4	B38	233	Beam	W21X44	No Message
Story4	B38		Beam	W21X44	No Message
Story4	B39	238	Beam	W21X44	No Message
Story4	B39		Beam	W21X44	No Message
Story4	B40	243	Beam	W21X44	No Message
Story4	B40		Beam	W21X44	No Message
Story4	B41	248	Beam	W21X44	No Message
Story4	B42	253	Beam	W21X44	No Message
Story4	B43	258	Beam	W21X44	No Message
Story4	B44	263	Beam	W21X44	No Message
Story4	B45	268	Beam	W21X44	No Message
Story4	B46	273	Beam	W21X44	No Message
Story4	B47	288	Beam	W21X44	No Message
Story4	B48	300	Beam	W21X44	No Message
Story4	B49	303	Beam	W21X44	No Message
Story4	B50	306	Beam	W21X44	No Message
Story4	B51	309	Beam	W21X44	No Message
Story4	B52	313	Beam	W21X44	No Message
Story4	B53	327	Beam	W21X44	No Message
Story4	B54	333	Beam	W21X44	No Message
Story4	B55	339	Beam	W21X44	No Message
Story4	B56	RB2-3b	Beam	W16X31	No Message
Story4	B61	RB10-1	Beam	W16X26	No Message
Story4	B63	RB11-1	Beam	W16X26	No Message
Story4	B65	RB10-2	Beam	W16X26	No Message
Story4	B77	RB2-2a	Beam	W16X31	No Message
Story4	B77		Beam	W16X31	No Message
Story4	B78	219	Beam	W21X44	No Message
Story4	B79	222	Beam	W21X44	No Message
Story4	B80	225	Beam	W21X44	No Message
Story4	B80		Beam	W21X44	No Message
Story4	B81	228	Beam	W21X44	No Message
Story4	B81		Beam	W21X44	No Message
Story4	B82	234	Beam	W21X44	No Message

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story4	B83	239	Beam	W21X44	No Message
Story4	B84	244	Beam	W21X44	No Message
Story4	B84		Beam	W21X44	No Message
Story4	B85	249	Beam	W21X44	No Message
Story4	B86	254	Beam	W21X44	No Message
Story4	B87	259	Beam	W21X44	No Message
Story4	B88	264	Beam	W21X44	No Message
Story4	B89	269	Beam	W21X68	No Message
Story4	B90	RB17-1a	Beam	W12X35	No Message
Story4	B91	RB17-2a	Beam	W12X35	No Message
Story4	B92	328	Beam	W21X44	No Message
Story4	B93	334	Beam	W21X44	No Message
Story4	B94	340	Beam	W21X44	No Message
Story4	B95	RB2-3c	Beam	W16X31	No Message
Story4	B95		Beam	W16X31	No Message
Story4	B100	RB14-1	Beam	W16X26	No Message
Story4	B100		Beam	W16X26	No Message
Story4	B113	RB2-2b	Beam	W16X31	No Message
Story4	B113		Beam	W16X31	No Message
Story4	B114	293	Beam	W21X44	No Message
Story4	B115	297	Beam	W21X44	No Message
Story4	B116	175	Beam	W21X44	No Message
Story4	B116		Beam	W21X44	No Message
Story4	B117	229	Beam	W21X44	No Message
Story4	B117		Beam	W21X44	No Message
Story4	B118	235	Beam	W21X44	No Message
Story4	B118		Beam	W21X44	No Message
Story4	B119	240	Beam	W21X44	No Message
Story4	B119		Beam	W21X44	No Message
Story4	B120	245	Beam	W21X44	No Message
Story4	B120		Beam	W21X44	No Message
Story4	B121	250	Beam	W21X44	No Message
Story4	B122	255	Beam	W21X44	No Message
Story4	B123	260	Beam	W21X44	No Message
Story4	B124	265	Beam	W21X44	No Message
Story4	B125	270	Beam	W21X44	No Message
Story4	B126	RB17-1b	Beam	W12X35	No Message
Story4	B127	RB17-2b	Beam	W12X35	No Message
Story4	B128	329	Beam	W21X44	No Message
Story4	B129	335	Beam	W21X44	No Message
Story4	B130	341	Beam	W21X44	No Message
Story4	B131	RB2-4a	Beam	W16X31	No Message
Story4	B131		Beam	W16X31	No Message
Story4	B153	RB2-2c	Beam	W16X31	No Message
Story4	B153		Beam	W16X31	No Message

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story4	B154	294	Beam	W21X44	No Message
Story4	B154		Beam	W21X44	No Message
Story4	B155	298	Beam	W21X44	No Message
Story4	B156	176	Beam	W21X44	No Message
Story4	B156		Beam	W21X44	No Message
Story4	B158	230	Beam	W21X44	No Message
Story4	B158		Beam	W21X44	No Message
Story4	B159	236	Beam	W21X44	No Message
Story4	B159		Beam	W21X44	No Message
Story4	B160	241	Beam	W21X44	No Message
Story4	B160		Beam	W21X44	No Message
Story4	B161	246	Beam	W21X44	No Message
Story4	B161		Beam	W21X44	No Message
Story4	B162	251	Beam	W21X44	No Message
Story4	B163	256	Beam	W21X44	No Message
Story4	B164	261	Beam	W21X44	No Message
Story4	B165	266	Beam	W21X44	No Message
Story4	B166	271	Beam	W21X44	No Message
Story4	B167	RB17-1c	Beam	W12X35	No Message
Story4	B169	330	Beam	W21X44	No Message
Story4	B170	336	Beam	W21X44	No Message
Story4	B171	342	Beam	W21X44	No Message
Story4	B172	RB2-4b	Beam	W16X31	No Message
Story4	B172		Beam	W16X31	No Message
Story4	B200	RB4-2	Beam	W16X26	No Message
Story4	B202	RB5-2	Beam	W16X26	No Message
Story4	B202		Beam	W16X26	No Message
Story4	B210	RB3-1	Beam	W16X26	No Message
Story4	B210		Beam	W16X26	No Message
Story4	B224	RB17-2c	Beam	W12X35	No Message
Story4	B300	RB16-2	Beam	W24X117	No Message
Story4	B300		Beam	W24X117	No Message
Story4	B302	RB16-1	Beam	W24X117	No Message
Story4	B302		Beam	W24X117	No Message
Story4	B4	RB14-2	Beam	W16X26	No Message
Story4	B4		Beam	W16X26	No Message
Story3	B61	24	Beam	W8X21	No Message
Story3	B65	34	Beam	W8X21	No Message
Story3	B101	3B15-1	Beam	W16X45	No Message
Story3	B101		Beam	W16X45	No Message
Story3	B103	3B15-2	Beam	W16X45	No Message
Story3	B103		Beam	W16X45	No Message
Story3	B112	3B3-1	Beam	W8X21	No Message
Story3	B112		Beam	W8X21	No Message
Story3	B132	3B14-1	Beam	W8X18	No Message

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story3	B149	3B14-2	Beam	W8X18	No Message
Story3	B168	3B3-2	Beam	W8X21	No Message
Story3	B168		Beam	W8X21	No Message
Story3	B177	3B14-3	Beam	W8X18	No Message
Story3	B190	3B7-1	Beam	W8X18	No Message
Story3	B190		Beam	W8X18	No Message
Story3	B193	3B3-3	Beam	W8X21	No Message
Story3	B203	3B1-1	Beam	W8X18	No Message
Story3	B206	3B2-1	Beam	W12X79	No Message
Story3	B209	3B2-2	Beam	W12X79	No Message
Story3	B211	3B1-2	Beam	W8X18	No Message
Story3	B212	3B1-3	Beam	W8X18	No Message
Story3	B215	3B1-4	Beam	W8X18	No Message
Story3	B216	3B1-5	Beam	W8X18	No Message
Story3	B220	3B1-6	Beam	W8X18	No Message
Story3	B221	3B1-7	Beam	W8X18	No Message
Story3	B229	3B1-8	Beam	W8X18	No Message
Story3	B230	3B1-9	Beam	W8X18	No Message
Story3	B234	3B10-1	Beam	W30X90	No Message
Story3	B234		Beam	W30X90	No Message
Story3	B243	3B9-1	Beam	W10X68	No Message
Story3	B244	3B8-1	Beam	W18X46	No Message
Story3	B245	3B4-1	Beam	W12X35	No Message
Story3	B23	3B3-4	Beam	W8X21	No Message
Story3	B25	3B4-5	Beam	W8X21	No Message
Story3	B28	3B3-6	Beam	W8X21	No Message
Story3	B20	3B17-1	Beam	W18X46	No Message
Story3	B20		Beam	W18X46	No Message
Story3	B21	3B1-11	Beam	W8X18	No Message
Story3	B24	3B1-10	Beam	W8X18	No Message
Story2	B6	2B4-1	Beam	W27X129	No Message
Story2	B6		Beam	W27X129	No Message
Story2	B8	2B1-1	Beam	W12X26	No Message
Story2	B13	2B9-R-1	Beam	W27X129	No Message
Story2	B13		Beam	W27X129	No Message
Story2	B64	2B5-R-1	Beam	W27X129	No Message
Story2	B64		Beam	W27X129	No Message
Story2	B67	2B9-3STUB	Beam	W21X166	No Message
Story2	B68	2B9-3C	Beam	W27X129	No Message
Story2	B69	2B9-3	Beam	W27X129	No Message
Story2	B70	2B1-4	Beam	W12X26	No Message
Story2	B73	2B2-1	Beam	W27X129	No Message
Story2	B73		Beam	W27X129	No Message
Story2	B74	2B7-1	Beam	W27X146	No Message
Story2	B74		Beam	W27X146	No Message

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story2	B75	2B8-1	Beam	W16X67	No Message
Story2	B105	2B5-R-2	Beam	W27X129	No Message
Story2	B105		Beam	W27X129	No Message
Story2	B144	2B9-R-4	Beam	W27X84	No Message
Story2	B186	2B4-R-1	Beam	W27X102	No Message
Story2	B195	2B4-4C	Beam	W27X129	No Message
Story2	B199	2B4-4	Beam	W27X129	No Message
Story2	B201	2B1-8	Beam	W12X26	No Message
Story2	B207	2B4-R-2	Beam	W27X102	No Message
Story2	B207		Beam	W27X102	No Message
Story2	B254	2B4-1C	Beam	W27X129	No Message
Story2	B257	2B9-1	Beam	W27X129	No Message
Story2	B257		Beam	W27X129	No Message
Story2	B258	2B9-1STUB	Beam	W21X166	No Message
Story2	B259	2B9-1C	Beam	W27X129	No Message
Story2	B263	2B4C-3	Beam	W27X129	No Message
Story2	B268	2B5-1	Beam	W27X129	No Message
Story2	B271	2B4-3	Beam	W27X129	No Message
Story2	B273	2B4-2	Beam	W27X129	No Message
Story2	B273		Beam	W27X129	No Message
Story2	B277	2B9-2	Beam	W27X129	No Message
Story2	B277		Beam	W27X129	No Message
Story2	B278	2B9-2STUB	Beam	W21X166	No Message
Story2	B278		Beam	W21X166	No Message
Story2	B279	2B9-2C	Beam	W27X129	No Message
Story2	B279		Beam	W27X129	No Message
Story2	B280	2B1-2	Beam	W12X26	No Message
Story2	B281	2B1-3	Beam	W12X26	No Message
Story2	B282	2B1-5	Beam	W12X26	No Message
Story2	B283	2B1-6	Beam	W12X26	No Message
Story2	B284	2B1-7	Beam	W12X26	No Message
Story2	B295	2B9-R-2	Beam	W27X129	No Message
Story2	B296	2B9-R-3	Beam	W27X84	No Message
Story2	B296		Beam	W27X84	No Message
Story2	B303	2B5-1C	Beam	W21X166	No Message
Story2	B304	2B4C-2	Beam	W27X129	No Message
Story2	B304		Beam	W27X129	No Message
Story2	B2	2B2-2	Beam	W27X129	No Message
Story2	B19	2B2-3	Beam	W27X129	No Message
Story2	B60	2D2	Beam	HSS4X0.250	Warning: See Message
Story5	D29	205	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D30	207	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D31	209	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D31		Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D32	274	Brace	HSS3-1/2X3-1/2X1/4	No Message



Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story5	D33	289	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D33		Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D34	301	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D35	307	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D72	RD5	Brace	HSS3X3X1/4	No Message
Story5	D74	RD6	Brace	HSS3X3X1/4	No Message
Story5	D79	4 A(+)-7	Brace	HSS6X6X3/8	No Message
Story5	D52	4 A(+)-8(+)	Brace	HSS6X6X3/8	No Message
Story5	D77	4 A(+)-9(-)	Brace	HSS6X6X3/8	No Message
Story5	D78	RD7	Brace	HSS2-1/2X2-1/2X3/16	No Message
Story5	D81	RD8	Brace	HSS2-1/2X2-1/2X3/16	No Message
Story5	D46	4 A(+)-10	Brace	HSS6X6X1/4	No Message
Story4	D1	RB2-1a	Brace	W16X31	No Message
Story4	D1		Brace	W16X31	No Message
Story4	D2	217	Brace	W21X44	No Message
Story4	D2		Brace	W21X44	No Message
Story4	D3	220	Brace	W21X44	No Message
Story4	D4	223	Brace	W21X44	No Message
Story4	D4		Brace	W21X44	No Message
Story4	D5	226	Brace	W21X44	No Message
Story4	D6	232	Brace	W21X44	No Message
Story4	D6		Brace	W21X44	No Message
Story4	D7	237	Brace	W21X44	No Message
Story4	D7		Brace	W21X44	No Message
Story4	D8	242	Brace	W21X44	No Message
Story4	D9	247	Brace	W21X44	No Message
Story4	D10	252	Brace	W21X44	No Message
Story4	D11	257	Brace	W21X44	No Message
Story4	D12	262	Brace	W21X44	No Message
Story4	D13	267	Brace	W21X44	No Message
Story4	D14	272	Brace	W21X44	No Message
Story4	D15	287	Brace	W21X44	No Message
Story4	D16	299	Brace	W21X44	No Message
Story4	D17	302	Brace	W21X44	No Message
Story4	D17		Brace	W21X44	No Message
Story4	D18	305	Brace	W21X44	No Message
Story4	D19	308	Brace	W21X44	No Message
Story4	D20	312	Brace	W21X44	No Message
Story4	D21	326	Brace	W21X44	No Message
Story4	D22	332	Brace	W21X44	No Message
Story4	D23	338	Brace	W21X44	No Message
Story4	D24	RB2-3a	Brace	W16X31	No Message
Story4	D24		Brace	W16X31	No Message
Story4	D39	RD1	Brace	HSS2X2X1/4	No Message
Story4	D43	RD2	Brace	HSS2X2X1/4	No Message

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story4	D48	RB2-2d	Brace	W16X31	No Message
Story4	D48		Brace	W16X31	No Message
Story4	D49	295	Brace	W21X44	No Message
Story4	D50	296	Brace	W21X44	No Message
Story4	D51	177	Brace	W21X44	No Message
Story4	D51		Brace	W21X44	No Message
Story4	D53	231	Brace	W21X44	No Message
Story4	D53		Brace	W21X44	No Message
Story4	D54	276	Brace	W21X44	No Message
Story4	D54		Brace	W21X44	No Message
Story4	D55	277	Brace	W21X44	No Message
Story4	D56	278	Brace	W21X44	No Message
Story4	D57	279	Brace	W21X44	No Message
Story4	D58	280	Brace	W21X44	No Message
Story4	D59	281	Brace	W21X44	No Message
Story4	D60	282	Brace	W21X44	No Message
Story4	D61	283	Brace	W21X44	No Message
Story4	D62	RB17-1d	Brace	W12X35	No Message
Story4	D63	RB17-2d	Brace	W12X35	No Message
Story4	D64	199	Brace	HSS3X3X1/4	No Message
Story4	D65	331	Brace	W21X44	No Message
Story4	D66	337	Brace	W21X44	No Message
Story4	D67	343	Brace	W21X44	No Message
Story4	D68	RB2-4c	Brace	W16X31	No Message
Story4	D69	61	Brace	HSS3X3X1/4	No Message
Story4	D45	RD10	Brace	HSS3X3X1/4	No Message
Story4	D28	RD3	Brace	HSS2X2X1/4	No Message
Story4	D25	RD4	Brace	HSS2X2X1/4	No Message
Story4	D25		Brace	HSS2X2X1/4	No Message
Story4	D26	RD9	Brace	HSS3X3X1/4	No Message
Story3	D40	3D1	Brace	HSS3X3X3/8	No Message
Story3	D42	3D3	Brace	HSS3X3X3/8	No Message
Story3	D47	3D4	Brace	HSS3X3X3/8	No Message
Story3	D70	3D2	Brace	HSS3X3X3/8	No Message
Story3	D71	3D9	Brace	HSS3X3X1/4	No Message
Story3	D71		Brace	HSS3X3X1/4	No Message
Story3	D73	3D10	Brace	HSS3X3X1/4	No Message
Story3	D75	456	Brace	HSS4X0.250	No Message
Story3	D76	455	Brace	HSS4X0.250	No Message
Story3	D27	3D5	Brace	HSS3X3X3/8	No Message
Story3	D36	3D6	Brace	HSS3X3X3/8	No Message
Story3	D80	3D7	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story3	D80		Brace	HSS3-1/2X3-1/2X1/4	No Message
Story3	D82	3D8	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story3	D82		Brace	HSS3-1/2X3-1/2X1/4	No Message

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story2	D83	2D1	Brace	HSS4X0.250	Warning: See Message

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story5	C19	189	1.2D+1.6S+1.0L(C)	0.124	0.003	0.01	0.111
Story5	C20	200	1.2D+1.6S+1.0L(C)	0.043	0.004	0.024	0.015
Story5	C21	202	1.2D+1.6S+1.0L(C)	0.157	0.003	0.011	0.143
Story5	C31	135	1.2D+1.6S+1.0L(C)	0.071	0.068	0.0004719	0.002
Story5	C53	3 E-7	1.2D+1.6S+1.0L(C)	0.192	0.078	0.014	0.101
Story5	C54	3 E-8(+)	1.2D+1.6S+1.0L(C)	0.156	0.065	0.072	0.019
Story5	C55	3 E-9(-)	1.2D+1.6S+1.0L(C)	0.06	0.051	0.007	0.001
Story5	C56	3 E-10	1.2D+1.6S+1.0L(C)	0.392	0.085	0.005	0.302
Story5	C58	4 C-7	1.2D+1.6S+1.0L(C)	0.122	0.051	0.043	0.028
Story5	C60	4 C-8(+)	1.2D+1.6S+1.0L(C)	0.393	0.272	0.1	0.021
Story5	C62	4 C-10	1.2D+1.6S+1.0L(C)	0.218	0.091	0.076	0.051
Story5	C2	3 H-8	1.2D+1.6S+1.0L(C)	0.169	0.042	0.062	0.065
Story5	C6	3 H-7	1.2D+1.6S+1.0L(C)	0.327	0.071	0.187	0.069
Story5	C46	3 H-9	1.2D+1.6S+1.0L(C)	0.217	0.049	0.079	0.089
Story5	C47	3 H-10	1.2D+1.6S+1.0L(C)	0.402	0.068	0.222	0.112
Story4	C1	3 I-2	1.2D+1.6S+1.0L(C)	0.009	0.009	0	0
Story4	C3	3 I-3	1.2D+1.6S+1.0L(C)	0.358	0.358	0	0
Story4	C4	3 I-4	1.2D+1.6S+1.0L(C)	0.203	0.203	0	0
Story4	C5	3 I-5	1.2D+1.6S+1.0L(C)	0.143	0.061	0	0.082
Story4	C7	3 I-6	1.2D+1.6S+1.0L(C)	0.131	0.057	0	0.073
Story4	C8	3 I-7	1.2D+1.6S+1.0L(C)	0.119	0.049	0	0.07
Story4	C9	3 I-8	1.2D+1.6S+1.0L(C)	0.112	0.052	0	0.061
Story4	C11	3 I-9	1.2D+1.6S+1.0L(C)	0.112	0.052	0	0.061
Story4	C12	3 I-10	1.2D+1.6S+1.0L(C)	0.113	0.049	0	0.064
Story4	C13	3 I-11	1.2D+1.6S+1.0L(C)	0.055	0.055	0	0
Story4	C26	3 H-2	1.2D+1.6S+1.0L(C)	0.098	0.056	0.041	0
Story4	C28	3 G-3-	1.2D+1.6S+1.0L(C)	0.119	0.067	0.013	0.038
Story4	C28		(R=MIXED) D + RSY + rsx(T)	0.004	0.002	0.001	0.002
Story4	C29	3 G-7	1.2D+1.6S+1.0L(C)	0.052	0.02	0.01	0.022
Story4	C32	3 G-10	1.2D+1.6S+1.0L(C)	0.105	0.028	0.012	0.064
Story4	C32		1.2D+1.6L+0.5S(T)	0.037	0	0.006	0.031
Story4	C33	3 G-11	1.2D+1.6S+1.0L(C)	0.257	0.226	0.031	0
Story4	C34	3 G(-)-7	1.2D+1.6S+1.0L(C)	0.053	0.018	0.005	0.029
Story4	C39	3 G(-)-10	1.2D+1.6S+1.0L(C)	0.101	0.023	0.003	0.074
Story4	C40	3 F+-2	1.2D+1.6S+1.0L(C)	0.034	0.034	0.0004563	0
Story4	C42	3 F-10	1.2D+1.6S+1.0L(C)	0.095	0.026	0.006	0.063
Story4	C44	3 F-7	1.2D+1.6S+1.0L(C)	0.044	0.02	0.003	0.021
Story4	C45	3 E-2	1.2D+1.6S+1.0L(C)	0.048	0.017	0.031	0
Story4	C48	3 E-3	1.2D+1.6S+1.0L(C)	0.38	0.363	0.017	0
Story4	C49	3 E-4	1.2D+1.6S+1.0L(C)	0.24	0.238	0.002	0

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	C50	3 E-5	1.2D+1.6S+1.0L(C)	0.129	0.071	0	0.058
Story4	C52	3 E-6	1.2D+1.6S+1.0L(C)	0.125	0.068	0	0.057
Story4	C57	3 E-11-	1.2D+1.6S+1.0L(C)	0.068	0.068	0	0
Story3	C30	3 G-8(+)	1.2D+1.6S+1.0L(C)	0.064	0.045	0	0.019
Story3	C59	2 C-8	1.2D+1.6S+1.0L(C)	0.207	0.206	0	0.001
Story3	C61	2 C-9	1.2D+1.6S+1.0L(C)	0.098	0.097	0	0.001
Story2	C27	1 I-3	1.2D+1.6S+1.0L(C)	0.691	0.558	0.133	0
Story2	C35	1E-3	1.2D+1.6S+1.0L(C)	0.552	0.443	0.109	0
Story2	C41	1 E-6	1.2D+1.6S+1.0L(C)	0.108	0.051	0.016	0.041
Story2	C43	1 I-6	1.2D+1.6S+1.0L(C)	0.15	0.067	0.023	0.06
Story1	C14	1 H+-8+ WD	1.2D+1.6L+0.5S(C)	0.028	0.027	0.002	0
Story1	C36	1 G-7+ WD	1.2D+1.6L+0.5S(C)	0.022	0.01	0.003	0.009
Story1	C37	1 G--8+ WD	1.2D+1.6L+0.5S(C)	0.016	0.014	0.003	0
Story1	C38	1 G--9- WD	1.2D+1.6L+0.5S(C)	0.022	0.01	0.003	0.009
Story5	B62	RB11-1 HIGH	1.2D+1.6S+1.0L(T)	0.587	0.054	0.426	0.107
Story5	B102	RB13-1	1.2D+1.6S+1.0L(C)	0.363	0.013	0.312	0.038
Story5	B104	RB13-2	1.2D+1.6S+1.0L(C)	0.316	0.003	0.291	0.022
Story5	B104		1.2D+1.6S+1.0L(T)	0.343	0.002	0.29	0.051
Story5	B139	RB8-1	1.2D+1.6S+1.0L(C)	0.461	0.01	0.445	0.005
Story5	B139		1.2D+1.6S+1.0L(T)	0.472	0.013	0.445	0.014
Story5	B140	RB8-2	1.2D+1.6S+1.0L(C)	0.461	0.001	0.451	0.009
Story5	B140		1.2D+1.6S+1.0L(T)	0.54	0.015	0.502	0.022
Story5	B145	RB9-1	1.2D+1.6S+1.0L(T)	0.05	0.003	0.048	0
Story5	B146	RB9-2	1.2D+1.6S+1.0L(C)	0.723	0.013	0.666	0.044
Story5	B147	RB9-3	1.2D+1.6S+1.0L(T)	0.047	0.003	0.044	0
Story5	B173	RB8-3	1.2D+1.6S+1.0L(C)	0.581	0.014	0.544	0.022
Story5	B173		1.2D+1.6S+1.0L(T)	0.578	0.002	0.544	0.032
Story5	B174	RB8-4	1.2D+1.6S+1.0L(C)	0.565	0.014	0.533	0.018
Story5	B174		1.2D+1.6S+1.0L(T)	0.557	0.002	0.533	0.022
Story5	B183	RB9-4	1.2D+1.6S+1.0L(T)	0.048	0.0003385	0.048	0
Story5	B185	RB9-5	1.2D+1.6S+1.0L(C)	0.673	0.005	0.668	0
Story5	B187	RB9-6	1.2D+1.6S+1.0L(T)	0.044	0.0001204	0.044	0
Story5	B204	RB5x	1.2D+1.6S+1.0L(C)	0.243	0.009	0.219	0.016
Story5	B205	RB10-3	1.2D+1.6S+1.0L(T)	0.12	0.006	0.113	0.001
Story5	B208	RB10-4	1.2D+1.6S+1.0L(C)	0.21	0.002	0.19	0.018
Story5	B208		1.2D+1.6S+1.0L(T)	0.205	0.003	0.19	0.012
Story5	B213	RB9-7	1.2D+1.6S+1.0L(T)	0.258	0.001	0.258	0
Story5	B214	RB9-8	1.2D+1.6S+1.0L(C)	0.659	0.000281	0.612	0.046
Story5	B214		1.2D+1.6S+1.0L(T)	0.659	0.001	0.612	0.046
Story5	B217	RB9-9	1.2D+1.6S+1.0L(T)	0.258	0.0001983	0.258	0
Story5	B218	RB9-10	1.2D+1.6S+1.0L(T)	0.614	0	0.614	0
Story5	B222	RB9-11	1.2D+1.6S+1.0L(C)	0.258	0.0002678	0.258	0
Story5	B223	RB9-12	1.2D+1.6S+1.0L(T)	0.614	0	0.614	0
Story5	B231	RB9-13	1.2D+1.6S+1.0L(C)	0.258	0.001	0.258	0
Story5	B232	RB9-14	1.2D+1.6S+1.0L(C)	0.614	0	0.614	0

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story5	B233	RB9-15	1.2D+1.6S+1.0L(C)	0.225	0	0.225	0
Story5	B235	RB9-16	1.2D+1.6S+1.0L(C)	0.576	0.001	0.575	0
Story5	B236	RB9-17	1.2D+1.6S+1.0L(C)	0.215	0.001	0.215	0
Story5	B238	RB9-18	1.2D+1.6S+1.0L(T)	0.512	0.0003136	0.512	0
Story5	B148	46	1.2D+1.6S+1.0L(C)	0.001	0.001	0	0
Story5	B148		(R=MIXED) D + L + S + RSY + rsx(T)	0.001	0.001	0	0
Story5	B176	47	1.2D+1.6S+1.0L(C)	0.039	0.039	0	0
Story5	B5	RB9-19	1.2D+1.6S+1.0L(C)	0.183	0.001	0.182	0
Story5	B22	RB18-1	1.2D+1.6S+1.0L(C)	0.055	0.001	0.043	0.012
Story5	B22		1.2D+1.6L+0.5S(T)	0.018	0	0.016	0.002
Story5	B1	RB12-1	1.2D+1.6S+1.0L(C)	0.328	0.001	0.327	0.0001696
Story5	B1		1.2D+1.6S+1.0L(T)	0.326	0.0003497	0.326	0.0001535
Story5	B29	RB19-1	1.2D+1.6S+1.0L(C)	0.072	0.0002705	0.069	0.002
Story5	B29		(R=MIXED) D + L + S + RSY + rsx(T)	0	0	0	0
Story5	B30	RB12-2	1.2D+1.6S+1.0L(C)	0.581	0.004	0.577	0.001
Story5	B30		1.2D+1.6S+1.0L(T)	0.378	0.001	0.376	0.0002486
Story5	B31	RB19-3	1.2D+1.6S+1.0L(C)	0.127	0.0004813	0.122	0.005
Story5	B3	RB7-1	1.2D+1.6S+1.0L(C)	0.607	0.002	0.604	0.001
Story5	B3		1.2D+1.6S+1.0L(T)	0.605	0.001	0.604	0.0004502
Story5	B32	RB19-2	1.2D+1.6S+1.0L(C)	0.188	0.003	0.182	0.003
Story4	B7	RB4-1	(R=MIXED) D + L + S + RSY + rsx(C)	0.003	0.001	0.001	0
Story4	B7		1.2D+1.6S+1.0L(T)	0.009	0.008	0.001	0
Story4	B9	RB5-1	1.2D+1.6S+1.0L(C)	0.294	0.056	0.231	0.006
Story4	B9		1.2D+1.6S+1.0L(T)	0.275	0.003	0.247	0.025
Story4	B10	RB4-3	1.2D+1.6S+1.0L(C)	0.049	0.048	0.001	0
Story4	B12	RB6-1	1.2D+1.6S+1.0L(C)	0.486	0.074	0.368	0.044
Story4	B14	RB4-4	1.2D+1.6S+1.0L(C)	0.098	0.097	0.001	0
Story4	B15	RB5-3	1.2D+1.6S+1.0L(C)	0.289	0.025	0.22	0.043
Story4	B15		1.2D+1.6S+1.0L(T)	0.258	0.004	0.216	0.037
Story4	B33	RB2-1b	1.2D+1.6S+1.0L(C)	0.161	0.014	0.144	0.003
Story4	B33		1.2D+1.6L+0.5S(T)	0.08	0.004	0.073	0.004
Story4	B34	218	1.2D+1.6S+1.0L(C)	0.097	0.009	0.082	0.005
Story4	B34		(R=MIXED) D + RSY + rsx(T)	0.01	0	0.008	0.002
Story4	B35	221	1.2D+1.6S+1.0L(C)	0.113	0.003	0.101	0.01
Story4	B36	224	1.2D+1.6L+0.5S(C)	0.045	0.003	0.039	0.004
Story4	B36		1.2D+1.6S+1.0L(T)	0.208	0.02	0.188	0.0001123
Story4	B37	227	1.2D+1.6S+1.0L(C)	0.356	0.005	0.346	0.006
Story4	B37		1.2D+1.6L+0.5S(T)	0.172	0.0004723	0.167	0.005
Story4	B38	233	1.2D+1.6S+1.0L(C)	0.375	0.0002578	0.371	0.003
Story4	B38		1.2D+1.6L+0.5S(T)	0.169	0.002	0.167	0.0003052
Story4	B39	238	1.2D+1.6S+1.0L(C)	0.369	0.0002901	0.364	0.005
Story4	B39		1.2D+1.6L+0.5S(T)	0.157	0.001	0.155	0.001
Story4	B40	243	1.2D+1.6S+1.0L(C)	0.352	0.002	0.346	0.004
Story4	B40		1.2D+1.6L+0.5S(T)	0.143	0	0.142	0.001
Story4	B41	248	1.2D+1.6S+1.0L(C)	0.334	0.003	0.328	0.003

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	B42	253	1.2D+1.6S+1.0L(C)	0.321	0.005	0.313	0.003
Story4	B43	258	1.2D+1.6S+1.0L(C)	0.298	0.008	0.284	0.006
Story4	B44	263	1.2D+1.6S+1.0L(C)	0.201	0.023	0.174	0.004
Story4	B45	268	1.2D+1.6S+1.0L(C)	0.185	0.034	0.111	0.04
Story4	B46	273	1.2D+1.6S+1.0L(T)	0.206	0.041	0.147	0.018
Story4	B47	288	1.2D+1.6S+1.0L(C)	0.106	0.008	0.082	0.016
Story4	B48	300	1.2D+1.6S+1.0L(C)	0.064	0.007	0.051	0.006
Story4	B49	303	1.2D+1.6S+1.0L(T)	0.077	0.01	0.066	0.001
Story4	B50	306	1.2D+1.6S+1.0L(C)	0.064	0.008	0.048	0.007
Story4	B51	309	1.2D+1.6S+1.0L(C)	0.108	0.009	0.083	0.015
Story4	B52	313	1.2D+1.6S+1.0L(T)	0.238	0.048	0.166	0.023
Story4	B53	327	1.2D+1.6S+1.0L(C)	0.12	0.022	0.047	0.051
Story4	B54	333	1.2D+1.6S+1.0L(C)	0.087	0.03	0.022	0.036
Story4	B55	339	1.2D+1.6S+1.0L(C)	0.087	0.04	0.012	0.035
Story4	B56	RB2-3b	1.2D+1.6S+1.0L(T)	0.491	0.016	0.394	0.081
Story4	B61	RB10-1	1.2D+1.6S+1.0L(T)	0.045	0.045	0	0
Story4	B63	RB11-1	1.2D+1.6S+1.0L(T)	0.397	0.078	0.267	0.052
Story4	B65	RB10-2	1.2D+1.6S+1.0L(T)	0.048	0.048	0	0
Story4	B77	RB2-2a	1.2D+1.6S+1.0L(C)	0.17	0.02	0.145	0.005
Story4	B77		1.2D+1.6L+0.5S(T)	0.076	0.004	0.064	0.008
Story4	B78	219	1.2D+1.6S+1.0L(C)	0.076	0.013	0.062	0.001
Story4	B79	222	1.2D+1.6S+1.0L(C)	0.087	0.004	0.08	0.002
Story4	B80	225	1.2D+1.6L+0.5S(C)	0.036	0.005	0.027	0.003
Story4	B80		1.2D+1.6S+1.0L(T)	0.18	0.025	0.152	0.003
Story4	B81	228	1.2D+1.6S+1.0L(C)	0.359	0.003	0.354	0.002
Story4	B81		1.2D+1.6L+0.5S(T)	0.18	0.004	0.172	0.004
Story4	B82	234	1.2D+1.6S+1.0L(T)	0.38	0.0003421	0.379	0.001
Story4	B83	239	1.2D+1.6S+1.0L(T)	0.372	0.0001324	0.372	0.001
Story4	B84	244	1.2D+1.6S+1.0L(C)	0.355	0.001	0.354	0.0001521
Story4	B84		1.2D+1.6L+0.5S(T)	0.145	0.0002888	0.145	0.0001677
Story4	B85	249	1.2D+1.6S+1.0L(C)	0.339	0.003	0.336	0.0003137
Story4	B86	254	1.2D+1.6S+1.0L(C)	0.327	0.004	0.322	0.001
Story4	B87	259	1.2D+1.6S+1.0L(C)	0.305	0.009	0.294	0.002
Story4	B88	264	1.2D+1.6S+1.0L(C)	0.21	0.022	0.185	0.003
Story4	B89	269	1.2D+1.6S+1.0L(C)	0.097	0.021	0.067	0.009
Story4	B90	RB17-1a	1.2D+1.6S+1.0L(T)	0.127	0.072	0.018	0.036
Story4	B91	RB17-2a	1.2D+1.6S+1.0L(T)	0.108	0.062	0.013	0.033
Story4	B92	328	1.2D+1.6S+1.0L(C)	0.078	0.02	0.045	0.013
Story4	B93	334	1.2D+1.6S+1.0L(C)	0.053	0.03	0.012	0.011
Story4	B94	340	1.2D+1.6S+1.0L(C)	0.056	0.036	0.002	0.019
Story4	B95	RB2-3c	(R=MIXED) D + RSY + rsx(C)	0.025	0	0.021	0.003
Story4	B95		1.2D+1.6S+1.0L(T)	0.386	0.015	0.301	0.07
Story4	B100	RB14-1	1.2D+1.6S+1.0L(C)	0.254	0.0002618	0.246	0.008
Story4	B100		1.2D+1.6S+1.0L(T)	0.254	0.001	0.247	0.006
Story4	B113	RB2-2b	1.2D+1.6S+1.0L(C)	0.163	0.016	0.145	0.001

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	B113		1.2D+1.6L+0.5S(T)	0.077	0.004	0.064	0.009
Story4	B114	293	1.2D+1.6S+1.0L(C)	0.039	0.014	0.024	0.001
Story4	B115	297	1.2D+1.6S+1.0L(C)	0.043	0.005	0.038	0
Story4	B116	175	(R=MIXED) D + L + S + RSY + rsx(C)	0.021	0.012	0.006	0.002
Story4	B116		1.2D+1.6S+1.0L(T)	0.113	0.025	0.087	0.001
Story4	B117	229	1.2D+1.6S+1.0L(C)	0.358	0.003	0.347	0.008
Story4	B117		1.2D+1.6L+0.5S(T)	0.178	0.005	0.172	0.001
Story4	B118	235	1.2D+1.6S+1.0L(C)	0.35	0.0002374	0.35	0.001
Story4	B118		1.2D+1.6S+1.0L(T)	0.377	0	0.371	0.006
Story4	B119	240	1.2D+1.6S+1.0L(C)	0.37	0.0001959	0.363	0.007
Story4	B119		1.2D+1.6L+0.5S(T)	0.157	0.001	0.155	0.001
Story4	B120	245	1.2D+1.6S+1.0L(C)	0.353	0.001	0.345	0.006
Story4	B120		1.2D+1.6L+0.5S(T)	0.143	0.0001473	0.141	0.002
Story4	B121	250	1.2D+1.6S+1.0L(C)	0.336	0.002	0.328	0.005
Story4	B122	255	1.2D+1.6S+1.0L(C)	0.32	0.003	0.314	0.003
Story4	B123	260	1.2D+1.6S+1.0L(C)	0.3	0.006	0.287	0.008
Story4	B124	265	1.2D+1.6S+1.0L(C)	0.208	0.016	0.178	0.014
Story4	B125	270	1.2D+1.6S+1.0L(C)	0.178	0.025	0.112	0.041
Story4	B126	RB17-1b	1.2D+1.6S+1.0L(T)	0.108	0.063	0.025	0.019
Story4	B127	RB17-2b	1.2D+1.6S+1.0L(T)	0.083	0.046	0.005	0.033
Story4	B128	329	1.2D+1.6S+1.0L(C)	0.053	0.009	0.033	0.011
Story4	B129	335	1.2D+1.6S+1.0L(C)	0.064	0.021	0.02	0.022
Story4	B130	341	1.2D+1.6S+1.0L(C)	0.073	0.026	0.022	0.025
Story4	B131	RB2-4a	(R=MIXED) D + RSY + rsx(C)	0.014	0.0004023	0.009	0.004
Story4	B131		1.2D+1.6S+1.0L(T)	0.26	0.013	0.153	0.094
Story4	B153	RB2-2c	1.2D+1.6S+1.0L(C)	0.073	0.016	0.056	0.002
Story4	B153		1.2D+1.6L+0.5S(T)	0.03	0.002	0.025	0.004
Story4	B154	294	1.2D+1.6S+1.0L(C)	0.048	0.013	0.028	0.007
Story4	B154		(R=MIXED) D + RSY + rsx(T)	0.006	0	0.003	0.003
Story4	B155	298	1.2D+1.6S+1.0L(C)	0.06	0.004	0.038	0.018
Story4	B156	176	1.2D+1.6L+0.5S(C)	0.021	0.005	0.012	0.004
Story4	B156		1.2D+1.6S+1.0L(T)	0.115	0.019	0.094	0.002
Story4	B158	230	1.2D+1.6S+1.0L(C)	0.312	0.006	0.296	0.01
Story4	B158		1.2D+1.6L+0.5S(T)	0.156	0.002	0.149	0.005
Story4	B159	236	1.2D+1.6S+1.0L(C)	0.329	0.002	0.317	0.01
Story4	B159		1.2D+1.6L+0.5S(T)	0.145	0.001	0.143	0.001
Story4	B160	241	1.2D+1.6S+1.0L(C)	0.324	0.002	0.31	0.012
Story4	B160		1.2D+1.6L+0.5S(T)	0.135	0.000223	0.132	0.002
Story4	B161	246	1.2D+1.6S+1.0L(C)	0.308	0.003	0.295	0.01
Story4	B161		(R=MIXED) D + RSY + rsx(T)	0.024	0	0.024	0.0002747
Story4	B162	251	1.2D+1.6S+1.0L(C)	0.292	0.003	0.28	0.008
Story4	B163	256	1.2D+1.6S+1.0L(C)	0.278	0.004	0.27	0.005
Story4	B164	261	1.2D+1.6S+1.0L(C)	0.254	0.003	0.248	0.002
Story4	B165	266	1.2D+1.6S+1.0L(C)	0.179	0.012	0.155	0.012
Story4	B166	271	1.2D+1.6S+1.0L(C)	0.156	0.02	0.097	0.038

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	B167	RB17-1c	1.2D+1.6S+1.0L(T)	0.092	0.043	0.014	0.035
Story4	B169	330	1.2D+1.6S+1.0L(C)	0.087	0.008	0.033	0.045
Story4	B170	336	1.2D+1.6S+1.0L(C)	0.074	0.015	0.027	0.031
Story4	B171	342	1.2D+1.6S+1.0L(C)	0.058	0.015	0.036	0.007
Story4	B172	RB2-4b	(R=MIXED) D + L + S + RSY + rsx(C)	0.043	0.000228	0.04	0.003
Story4	B172		1.2D+1.6S+1.0L(T)	0.207	0.006	0.183	0.018
Story4	B200	RB4-2	1.2D+1.6S+1.0L(T)	0.024	0.022	0.001	0
Story4	B202	RB5-2	1.2D+1.6S+1.0L(C)	0.257	0.012	0.234	0.01
Story4	B202		1.2D+1.6S+1.0L(T)	0.295	0.023	0.252	0.02
Story4	B210	RB3-1	1.2D+1.6S+1.0L(C)	0.337	0.001	0.283	0.053
Story4	B210		1.2D+1.6S+1.0L(T)	0.335	0.001	0.283	0.051
Story4	B224	RB17-2c	1.2D+1.6S+1.0L(T)	0.126	0.03	0.072	0.024
Story4	B300	RB16-2	1.2D+1.6S+1.0L(C)	0.308	0.005	0.258	0.044
Story4	B300		1.2D+1.6L+0.5S(T)	0.125	0.0003186	0.112	0.013
Story4	B302	RB16-1	1.2D+1.6S+1.0L(C)	0.302	0.006	0.252	0.044
Story4	B302		(R=MIXED) D + L + S + RSY + rsx(T)	0.085	0	0.072	0.013
Story4	B4	RB14-2	1.2D+1.6S+1.0L(C)	0.258	0.001	0.227	0.031
Story4	B4		1.2D+1.6L+0.5S(T)	0.098	0.001	0.083	0.014
Story3	B61	24	1.2D+1.6S+1.0L(T)	0.029	0.017	0.012	0
Story3	B65	34	1.2D+1.6S+1.0L(T)	0.044	0.017	0.027	0
Story3	B101	3B15-1	(R=MIXED) D + RSY + rsx(C)	0.01	0	0.01	0
Story3	B101		1.2D+1.6L+0.5S(T)	0.021	0.001	0.021	0
Story3	B103	3B15-2	(R=MIXED) D + RSY + rsx(C)	0.01	0	0.01	0
Story3	B103		1.2D+1.6L+0.5S(T)	0.021	0.001	0.021	0
Story3	B112	3B3-1	1.2D+1.6L+0.5S(C)	0.036	0	0.032	0.004
Story3	B112		1.2D+1.6L+0.5S(T)	0.035	0.000143	0.032	0.002
Story3	B132	3B14-1	1.2D+1.6L+0.5S(T)	0.397	0.001	0.397	0
Story3	B149	3B14-2	1.2D+1.6L+0.5S(C)	0.385	0.0002767	0.384	0
Story3	B168	3B3-2	1.2D+1.6L+0.5S(C)	0.069	0	0.069	0.0001291
Story3	B168		1.2D+1.6L+0.5S(T)	0.072	0.0001607	0.069	0.003
Story3	B177	3B14-3	1.2D+1.6L+0.5S(T)	0.544	0.001	0.543	0.0001578
Story3	B190	3B7-1	(R=MIXED) D + L + S + RSY + rsx(C)	0.0001612	0.0001612	0	0
Story3	B190		1.2D+1.6S+1.0L(T)	0.0001768	0.0001768	0	0
Story3	B193	3B3-3	1.2D+1.6S+1.0L(T)	0.003	0.003	0	0
Story3	B203	3B1-1	1.2D+1.6L+0.5S(C)	0.058	0.006	0.052	0
Story3	B206	3B2-1	1.2D+1.6S+1.0L(C)	0.01	0.006	0.003	0
Story3	B209	3B2-2	1.2D+1.6S+1.0L(C)	0.013	0.01	0.003	0
Story3	B211	3B1-2	1.2D+1.6L+0.5S(C)	0.071	0	0.071	0
Story3	B212	3B1-3	1.2D+1.6L+0.5S(C)	0.408	0	0.408	0
Story3	B215	3B1-4	1.2D+1.6L+0.5S(C)	0.071	0	0.071	0
Story3	B216	3B1-5	1.2D+1.6L+0.5S(C)	0.408	0	0.408	0
Story3	B220	3B1-6	1.2D+1.6L+0.5S(T)	0.071	0	0.071	0
Story3	B221	3B1-7	1.2D+1.6L+0.5S(T)	0.408	0	0.407	0
Story3	B229	3B1-8	1.2D+1.6L+0.5S(T)	0.077	0.0001764	0.076	0
Story3	B230	3B1-9	1.2D+1.6L+0.5S(T)	0.437	0.0002096	0.436	0



Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story3	B234	3B10-1	1.2D+1.6S+1.0L(C)	0.233	0	0.232	0.0002269
Story3	B234		1.2D+1.6S+1.0L(T)	0.234	0.001	0.232	0.0001391
Story3	B243	3B9-1	1.2D+1.6S+1.0L(T)	0.208	0.001	0.206	0.0003354
Story3	B244	3B8-1	1.2D+1.6S+1.0L(T)	0.275	0.001	0.273	0.001
Story3	B245	3B4-1	1.2D+1.6S+1.0L(T)	0.081	0.001	0.08	0.001
Story3	B23	3B3-4	1.2D+1.6L+0.5S(T)	0.042	0.001	0.04	0.001
Story3	B25	3B4-5	1.2D+1.6L+0.5S(T)	0.062	0.001	0.059	0.002
Story3	B28	3B3-6	1.2D+1.6S+1.0L(T)	0.011	0.007	0.004	0
Story3	B20	3B17-1	1.2D+1.6S+1.0L(C)	0.382	0.001	0.381	0.000239
Story3	B20		1.2D+1.6S+1.0L(T)	0.158	0	0.158	0.001
Story3	B21	3B1-11	1.2D+1.6L+0.5S(T)	0.466	0.0001782	0.465	0
Story3	B24	3B1-10	1.2D+1.6L+0.5S(T)	0.082	0.0001693	0.082	0
Story2	B6	2B4-1	(R=MIXED) D + RSY + rsx(C)	0.008	0	0.008	0
Story2	B6		1.2D+1.6S+1.0L(T)	0.276	0.0001861	0.276	0
Story2	B8	2B1-1	1.2D+1.6L+0.5S(C)	0.067	0.001	0.066	0
Story2	B13	2B9-R-1	1.2D+1.6S+1.0L(C)	0.376	0	0.376	0
Story2	B13		1.2D+1.6S+1.0L(T)	0.211	0.001	0.21	0.001
Story2	B64	2B5-R-1	1.2D+1.6S+1.0L(C)	0.199	0	0.199	0
Story2	B64		1.2D+1.6S+1.0L(T)	0.514	0.0004015	0.513	0.0004385
Story2	B67	2B9-3STUB	1.2D+1.6S+1.0L(C)	0.038	0	0.038	0
Story2	B68	2B9-3C	1.2D+1.6S+1.0L(C)	0.069	0	0.068	0.0001449
Story2	B69	2B9-3	1.2D+1.6S+1.0L(T)	0.069	0	0.068	0
Story2	B70	2B1-4	1.2D+1.6L+0.5S(T)	0.057	0	0.057	0
Story2	B73	2B2-1	1.2D+1.6S+1.0L(C)	0.085	0	0.085	0.0001315
Story2	B73		1.2D+1.6S+1.0L(T)	0.181	0.0003209	0.18	0.0001888
Story2	B74	2B7-1	1.2D+1.6L+0.5S(C)	0.35	0	0.35	0
Story2	B74		1.2D+1.6S+1.0L(T)	0.488	0	0.487	0.0002087
Story2	B75	2B8-1	1.2D+1.6L+0.5S(C)	0.42	0.0002899	0.42	0.0001446
Story2	B105	2B5-R-2	1.2D+1.6S+1.0L(C)	0.659	0	0.659	0
Story2	B105		1.2D+1.6S+1.0L(T)	0.66	0.0001055	0.659	0.00028
Story2	B144	2B9-R-4	1.2D+1.6S+1.0L(T)	0.753	0.0002641	0.752	0.000127
Story2	B186	2B4-R-1	1.2D+1.6S+1.0L(T)	0.488	0.001	0.487	0.0003223
Story2	B195	2B4-4C	1.2D+1.6S+1.0L(C)	0.309	0.0001262	0.309	0.000282
Story2	B199	2B4-4	1.2D+1.6S+1.0L(C)	0.301	0.0003985	0.3	0.0001263
Story2	B201	2B1-8	1.2D+1.6L+0.5S(C)	0.067	0.001	0.066	0
Story2	B207	2B4-R-2	1.2D+1.6S+1.0L(C)	0.452	0	0.452	0
Story2	B207		1.2D+1.6S+1.0L(T)	0.209	0.007	0.201	0.001
Story2	B254	2B4-1C	1.2D+1.6S+1.0L(T)	0.285	0.0001266	0.284	0
Story2	B257	2B9-1	1.2D+1.6L+0.5S(C)	0.082	0	0.082	0
Story2	B257		1.2D+1.6S+1.0L(T)	0.135	0	0.135	0
Story2	B258	2B9-1STUB	1.2D+1.6S+1.0L(T)	0.081	0	0.081	0
Story2	B259	2B9-1C	1.2D+1.6S+1.0L(T)	0.135	0	0.135	0.0001125
Story2	B263	2B4C-3	1.2D+1.6S+1.0L(C)	0.146	0	0.146	0
Story2	B268	2B5-1	1.2D+1.6S+1.0L(T)	0.092	0	0.092	0
Story2	B271	2B4-3	1.2D+1.6S+1.0L(C)	0.146	0.0003169	0.146	0

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story2	B273	2B4-2	1.2D+1.6S+1.0L(C)	0.09	0	0.09	0
Story2	B273		1.2D+1.6L+0.5S(T)	0.067	0	0.067	0
Story2	B277	2B9-2	(R=MIXED) D + RSY + rsx(C)	0.023	0	0.023	0
Story2	B277		1.2D+1.6S+1.0L(T)	0.09	0	0.089	0
Story2	B278	2B9-2STUB	1.2D+1.6L+0.5S(C)	0.035	0	0.035	0
Story2	B278		1.2D+1.6S+1.0L(T)	0.052	0	0.052	0
Story2	B279	2B9-2C	1.2D+1.6L+0.5S(C)	0.065	0	0.065	0
Story2	B279		1.2D+1.6S+1.0L(T)	0.09	0	0.089	0.0001095
Story2	B280	2B1-2	1.2D+1.6L+0.5S(T)	0.093	0.0001566	0.092	0
Story2	B281	2B1-3	1.2D+1.6L+0.5S(T)	0.076	0.0001683	0.076	0
Story2	B282	2B1-5	1.2D+1.6L+0.5S(T)	0.063	0.0001366	0.062	0
Story2	B283	2B1-6	1.2D+1.6L+0.5S(T)	0.074	0.0004045	0.073	0
Story2	B284	2B1-7	1.2D+1.6L+0.5S(T)	0.093	0.001	0.092	0
Story2	B295	2B9-R-2	1.2D+1.6S+1.0L(T)	0.322	0.0001908	0.322	0.0003573
Story2	B296	2B9-R-3	1.2D+1.6S+1.0L(C)	0.552	0	0.552	0
Story2	B296		1.2D+1.6S+1.0L(T)	0.552	0	0.552	0
Story2	B303	2B5-1C	1.2D+1.6S+1.0L(C)	0.085	0	0.084	0.000126
Story2	B304	2B4C-2	1.2D+1.6S+1.0L(C)	0.09	0	0.09	0.0001418
Story2	B304		1.2D+1.6L+0.5S(T)	0.067	0	0.067	0
Story2	B2	2B2-2	1.2D+1.6S+1.0L(C)	0.05	0.001	0.048	0.001
Story2	B19	2B2-3	1.2D+1.6S+1.0L(C)	0.013	0.001	0.011	0.001
Story2	B60	2D2	1.2D+1.6S+1.0L(C)	0.526	0.515	0.006	0.009
Story5	D29	205	1.2D+1.6S+1.0L(C)	0.237	0.237	0	0
Story5	D30	207	1.2D+1.6S+1.0L(C)	0.095	0.095	0	0
Story5	D31	209	(R=MIXED) D + RSY + rsx(C)	0.0003041	0.0003041	0	0
Story5	D31		1.2D+1.6S+1.0L(T)	0.005	0.005	0	0
Story5	D32	274	1.2D+1.6S+1.0L(T)	0.243	0.243	0	0
Story5	D33	289	(R=MIXED) D + RSY + rsx(C)	0.0002758	0.0002758	0	0
Story5	D33		1.2D+1.6S+1.0L(T)	0.005	0.005	0	0
Story5	D34	301	1.2D+1.6S+1.0L(C)	0.092	0.092	0	0
Story5	D35	307	1.2D+1.6S+1.0L(C)	0.074	0.074	0	0
Story5	D72	RD5	1.2D+1.6S+1.0L(C)	0.493	0.493	0	0
Story5	D74	RD6	1.2D+1.6S+1.0L(T)	0.013	0.013	0	0
Story5	D79	4 A(+)-7	1.2D+1.6S+1.0L(C)	0.016	0.011	0.005	0
Story5	D52	4 A(+)-8(+)	1.2D+1.6S+1.0L(C)	0.017	0.012	0.005	0
Story5	D77	4 A(+)-9(-)	1.2D+1.6S+1.0L(C)	0.013	0.013	0	0
Story5	D78	RD7	1.2D+1.6S+1.0L(T)	0.012	0.012	0	0
Story5	D81	RD8	1.2D+1.6S+1.0L(C)	0.077	0.077	0	0
Story5	D46	4 A(+)-10	1.2D+1.6S+1.0L(C)	0.022	0.022	0	0.000135
Story4	D1	RB2-1a	1.2D+1.6S+1.0L(C)	0.168	0.012	0.144	0.011
Story4	D1		1.2D+1.6L+0.5S(T)	0.076	0.001	0.073	0.003
Story4	D2	217	1.2D+1.6S+1.0L(C)	0.101	0.005	0.079	0.017
Story4	D2		(R=MIXED) D + RSY + rsx(T)	0.011	0.0001217	0.007	0.004
Story4	D3	220	1.2D+1.6S+1.0L(C)	0.12	0.002	0.096	0.022
Story4	D4	223	1.2D+1.6L+0.5S(C)	0.042	0.001	0.037	0.004

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	D4		1.2D+1.6S+1.0L(T)	0.19	0.011	0.175	0.004
Story4	D5	226	1.2D+1.6S+1.0L(C)	0.252	0.01	0.231	0.011
Story4	D6	232	1.2D+1.6S+1.0L(C)	0.269	0.005	0.251	0.013
Story4	D6		(R=MIXED) D + L + S + RSY + rsx(T)	0.078	0.000218	0.074	0.004
Story4	D7	237	1.2D+1.6S+1.0L(C)	0.265	0.005	0.246	0.014
Story4	D7		(R=MIXED) D + RSY + rsx(T)	0.023	0	0.022	0.001
Story4	D8	242	1.2D+1.6S+1.0L(C)	0.251	0.006	0.234	0.012
Story4	D9	247	1.2D+1.6S+1.0L(C)	0.236	0.007	0.222	0.008
Story4	D10	252	1.2D+1.6S+1.0L(C)	0.22	0.008	0.212	0.001
Story4	D11	257	1.2D+1.6S+1.0L(C)	0.211	0.008	0.197	0.007
Story4	D12	262	1.2D+1.6S+1.0L(C)	0.165	0.017	0.118	0.03
Story4	D13	267	1.2D+1.6S+1.0L(C)	0.17	0.019	0.082	0.069
Story4	D14	272	1.2D+1.6S+1.0L(T)	0.212	0.023	0.147	0.042
Story4	D15	287	1.2D+1.6S+1.0L(T)	0.086	0.003	0.082	0.002
Story4	D16	299	1.2D+1.6S+1.0L(C)	0.061	0.008	0.051	0.003
Story4	D17	302	1.2D+1.6S+1.0L(C)	0.053	0.001	0.049	0.003
Story4	D17		1.2D+1.6S+1.0L(T)	0.07	0.0001402	0.066	0.003
Story4	D18	305	1.2D+1.6S+1.0L(C)	0.063	0.009	0.048	0.006
Story4	D19	308	1.2D+1.6S+1.0L(T)	0.097	0.002	0.083	0.011
Story4	D20	312	1.2D+1.6S+1.0L(T)	0.233	0.029	0.166	0.038
Story4	D21	326	1.2D+1.6S+1.0L(C)	0.161	0.011	0.061	0.089
Story4	D22	332	1.2D+1.6S+1.0L(C)	0.097	0.017	0.025	0.055
Story4	D23	338	1.2D+1.6S+1.0L(C)	0.061	0.028	0.005	0.028
Story4	D24	RB2-3a	1.2D+1.6S+1.0L(C)	0.243	0.002	0.229	0.011
Story4	D24		1.2D+1.6S+1.0L(T)	0.522	0.011	0.369	0.142
Story4	D39	RD1	1.2D+1.6S+1.0L(C)	0.05	0.05	0	0
Story4	D43	RD2	1.2D+1.6S+1.0L(T)	0.027	0.027	0	0
Story4	D48	RB2-2d	1.2D+1.6S+1.0L(C)	0.071	0.015	0.056	0.001
Story4	D48		(R=MIXED) D + L + S + RSY + rsx(T)	0.026	0.001	0.016	0.009
Story4	D49	295	1.2D+1.6S+1.0L(C)	0.05	0.009	0.028	0.012
Story4	D50	296	1.2D+1.6S+1.0L(C)	0.07	0.005	0.041	0.024
Story4	D51	177	1.2D+1.6L+0.5S(C)	0.022	0.003	0.012	0.007
Story4	D51		1.2D+1.6S+1.0L(T)	0.104	0.011	0.085	0.008
Story4	D53	231	1.2D+1.6S+1.0L(C)	0.187	0.01	0.164	0.013
Story4	D53		(R=MIXED) D + L + S + RSY + rsx(T)	0.068	0.0004779	0.058	0.01
Story4	D54	276	1.2D+1.6S+1.0L(C)	0.201	0.006	0.177	0.018
Story4	D54		(R=MIXED) D + RSY + rsx(T)	0.02	0	0.018	0.002
Story4	D55	277	1.2D+1.6S+1.0L(C)	0.198	0.005	0.174	0.019
Story4	D56	278	1.2D+1.6S+1.0L(C)	0.188	0.006	0.165	0.017
Story4	D57	279	1.2D+1.6S+1.0L(C)	0.177	0.007	0.158	0.013
Story4	D58	280	1.2D+1.6S+1.0L(C)	0.163	0.006	0.153	0.004
Story4	D59	281	1.2D+1.6S+1.0L(C)	0.152	0.005	0.144	0.004
Story4	D60	282	1.2D+1.6S+1.0L(C)	0.116	0.01	0.093	0.013
Story4	D61	283	1.2D+1.6S+1.0L(C)	0.132	0.014	0.062	0.056
Story4	D62	RB17-1d	1.2D+1.6S+1.0L(T)	0.085	0.009	0.005	0.071

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	D63	RB17-2d	1.2D+1.6S+1.0L(T)	0.09	0.018	0.045	0.027
Story4	D64	199	1.2D+1.6S+1.0L(T)	0.004	0.004	0	0
Story4	D65	331	1.2D+1.6S+1.0L(C)	0.094	0.008	0.036	0.05
Story4	D66	337	1.2D+1.6S+1.0L(C)	0.063	0.008	0.027	0.027
Story4	D67	343	1.2D+1.6S+1.0L(C)	0.043	0.007	0.032	0.004
Story4	D68	RB2-4c	1.2D+1.6S+1.0L(C)	0.178	0.001	0.161	0.017
Story4	D69	61	1.2D+1.6S+1.0L(T)	0.04	0.018	0.002	0.019
Story4	D45	RD10	1.2D+1.6S+1.0L(T)	0.077	0.077	0	0
Story4	D28	RD3	1.2D+1.6S+1.0L(C)	0.056	0.056	0	0
Story4	D25	RD4	1.2D+1.6S+1.0L(C)	0.017	0.017	0	0
Story4	D25		(R=MIXED) D + L + S + RSY + rsx(T)	0.004	0.004	0	0
Story4	D26	RD9	1.2D+1.6S+1.0L(T)	0.067	0.067	0	0
Story3	D40	3D1	1.2D+1.6S+1.0L(C)	0.005	0.005	0	0
Story3	D42	3D3	1.2D+1.6S+1.0L(C)	0.086	0.086	0	0
Story3	D47	3D4	1.2D+1.6S+1.0L(C)	0.038	0.038	0	0
Story3	D70	3D2	1.2D+1.6S+1.0L(C)	0.053	0.053	0	0
Story3	D71	3D9	1.2D+1.6S+1.0L(C)	0.017	0.017	0	0
Story3	D71		(R=MIXED) D + RSY + rsx(T)	0.0001686	0.0001686	0	0
Story3	D73	3D10	1.2D+1.6S+1.0L(C)	0.044	0.044	0	0
Story3	D75	456	1.2D+1.6S+1.0L(C)	0.317	0.306	0.005	0.009
Story3	D76	455	1.2D+1.6S+1.0L(C)	0.065	0.055	0.003	0.009
Story3	D27	3D5	1.2D+1.6S+1.0L(C)	0.072	0.072	0	0
Story3	D36	3D6	1.2D+1.6S+1.0L(C)	0.082	0.082	0	0
Story3	D80	3D7	1.2D+1.6S+1.0L(C)	0.063	0.063	0	0
Story3	D80		(R=MIXED) D + RSY + rsx(T)	0.00012	0.00012	0	0
Story3	D82	3D8	1.2D+1.6S+1.0L(C)	0.016	0.016	0	0
Story3	D82		(R=MIXED) D + L + S + RSY + rsx(T)	0.003	0.003	0	0
Story2	D83	2D1	1.2D+1.6S+1.0L(C)	0.86	0.849	0.005	0.009

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story5	C19	189	0.008	1.2D+1.6S+1.0L	0.088	
Story5	C20	200	0.019	1.2D+1.6S+1.0L	0.012	
Story5	C21	202	0.008	1.2D+1.6S+1.0L	0.114	
Story5	C31	135	0	1.2D+1.6S+1.0L	0.0003454	
Story5	C53	3 E-7	0.011	1.2D+1.6S+1.0L	0.155	
Story5	C54	3 E-8(+)	0.008	1.2D+1.6S+1.0L	0.003	
Story5	C55	3 E-9(-)	0.001	1.2D+1.6S+1.0L	0.002	
Story5	C56	3 E-10	0.01	1.2D+1.6S+1.0L	0.291	
Story5	C58	4 C-7	0.002	1.2D+1.6S+1.0L	0.002	
Story5	C60	4 C-8(+)	0.006	1.2D+1.6S+1.0L	0.001	
Story5	C62	4 C-10	0.004	1.2D+1.6S+1.0L	0.003	
Story5	C2	3 H-8	0.06	1.2D+1.6S+1.0L	0.017	
Story5	C6	3 H-7	0.126	1.2D+1.6S+1.0L	0.045	

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story5	C46	3 H-9	0.063	1.2D+1.6S+1.0L	0.033	
Story5	C47	3 H-10	0.163	1.2D+1.6S+1.0L	0.084	
Story4	C1	3 I-2	0	1.2D+1.6S+1.0L	0	
Story4	C3	3 I-3	0	1.2D+1.6S+1.0L	0	
Story4	C4	3 I-4	0	1.2D+1.6S+1.0L	0	
Story4	C5	3 I-5	0	1.2D+1.6S+1.0L	0.002	
Story4	C7	3 I-6	0	1.2D+1.6S+1.0L	0.002	
Story4	C8	3 I-7	0	1.2D+1.6S+1.0L	0.002	
Story4	C9	3 I-8	0	1.2D+1.6S+1.0L	0.005	
Story4	C11	3 I-9	0	1.2D+1.6S+1.0L	0.005	
Story4	C12	3 I-10	0	1.2D+1.6S+1.0L	0.002	
Story4	C13	3 I-11	0	1.2D+1.6S+1.0L	0	
Story4	C26	3 H-2	0.002	1.2D+1.6S+1.0L	0	
Story4	C28	3 G-3-	0.001	1.2D+1.6S+1.0L	0.002	
Story4	C28					
Story4	C29	3 G-7	0.004	1.2D+1.6S+1.0L	0.003	
Story4	C32	3 G-10	0.002	1.2D+1.6S+1.0L	0.005	
Story4	C32					
Story4	C33	3 G-11	0.002	1.2D+1.6S+1.0L	0	
Story4	C34	3 G(-)-7	0.004	1.2D+1.6S+1.0L	0.005	
Story4	C39	3 G(-)-10	0.005	1.2D+1.6S+1.0L	0.013	
Story4	C40	3 F+-2	0	1.2D+1.6S+1.0L	0	
Story4	C42	3 F-10	0.013	1.2D+1.6S+1.0L	0.017	
Story4	C44	3 F-7	0.001	1.2D+1.6S+1.0L	0.003	
Story4	C45	3 E-2	0.003	1.2D+1.6S+1.0L	0	
Story4	C48	3 E-3	0.001	1.2D+1.6S+1.0L	0	
Story4	C49	3 E-4	0.0001701	1.2D+1.6S+1.0L	0	
Story4	C50	3 E-5	0	1.2D+1.6S+1.0L	0.005	
Story4	C52	3 E-6	0	1.2D+1.6S+1.0L	0.004	
Story4	C57	3 E-11-	0	1.2D+1.6S+1.0L	0	
Story3	C30	3 G-8(+)	0	1.2D+1.6S+1.0L	0.001	
Story3	C59	2 C-8	0	1.2D+1.6S+1.0L	0	
Story3	C61	2 C-9	0	1.2D+1.6S+1.0L	0	
Story2	C27	1 I-3	0.025	1.2D+1.6S+1.0L	0	
Story2	C35	1E-3	0.065	1.2D+1.6S+1.0L	0	
Story2	C41	1 E-6	0.016	1.2D+1.6S+1.0L	0.003	
Story2	C43	1 I-6	0.007	1.2D+1.6S+1.0L	0.002	
Story1	C14	1 H+-8+ WD	0.0001402	1.2D+1.6S+1.0L	0	
Story1	C36	1 G-7+ WD	0.0001935	1.2D+1.6L+0.5S	0.001	
Story1	C37	1 G--8+ WD	0.0001935	1.2D+1.6S+1.0L	0	
Story1	C38	1 G--9- WD	0.0001935	1.2D+1.6L+0.5S	0.001	
Story5	B62	RB11-1 HIGH	0.106	1.2D+1.6S+1.0L	0.018	
Story5	B102	RB13-1	0.139	1.2D+1.6S+1.0L	0.014	
Story5	B104	RB13-2	0.143	1.2D+1.6S+1.0L	0.003	
Story5	B104					

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story5	B139	RB8-1	0.154	1.2D+1.6S+1.0L	0.001	
Story5	B139					
Story5	B140	RB8-2	0.174	1.2D+1.6S+1.0L	0.002	
Story5	B140					
Story5	B145	RB9-1	0.045	1.2D+1.6S+1.0L	0	
Story5	B146	RB9-2	0.157	1.2D+1.6S+1.0L	0.001	
Story5	B147	RB9-3	0.04	1.2D+1.6S+1.0L	0	
Story5	B173	RB8-3	0.194	1.2D+1.6S+1.0L	0.002	
Story5	B173					
Story5	B174	RB8-4	0.19	1.2D+1.6S+1.0L	0.001	
Story5	B174					
Story5	B183	RB9-4	0.045	1.2D+1.6S+1.0L	0	
Story5	B185	RB9-5	0.157	1.2D+1.6S+1.0L	0	
Story5	B187	RB9-6	0.04	1.2D+1.6S+1.0L	0	
Story5	B204	RB5x	0.112	1.2D+1.6S+1.0L	0.001	
Story5	B205	RB10-3	0.044	1.2D+1.6S+1.0L	0.001	
Story5	B208	RB10-4	0.106	1.2D+1.6S+1.0L	0.001	
Story5	B208					
Story5	B213	RB9-7	0.08	1.2D+1.6S+1.0L	0	
Story5	B214	RB9-8	0.145	1.2D+1.6S+1.0L	0.001	
Story5	B214					
Story5	B217	RB9-9	0.08	1.2D+1.6S+1.0L	0	
Story5	B218	RB9-10	0.145	1.2D+1.6S+1.0L	0	
Story5	B222	RB9-11	0.08	1.2D+1.6S+1.0L	0	
Story5	B223	RB9-12	0.145	1.2D+1.6S+1.0L	0	
Story5	B231	RB9-13	0.08	1.2D+1.6S+1.0L	0	
Story5	B232	RB9-14	0.145	1.2D+1.6S+1.0L	0	
Story5	B233	RB9-15	0.075	1.2D+1.6S+1.0L	0	
Story5	B235	RB9-16	0.141	1.2D+1.6S+1.0L	0	
Story5	B236	RB9-17	0.066	1.2D+1.6S+1.0L	0	
Story5	B238	RB9-18	0.121	1.2D+1.6S+1.0L	0	
Story5	B148	46	0	1.2D+1.6S+1.0L	0	
Story5	B148					
Story5	B176	47	0	1.2D+1.6S+1.0L	0	
Story5	B5	RB9-19	0.052	1.2D+1.6S+1.0L	0	
Story5	B22	RB18-1	0.033	1.2D+1.6S+1.0L	0.001	
Story5	B22					
Story5	B1	RB12-1	0.117	1.2D+1.6S+1.0L	0.0001756	
Story5	B1					
Story5	B29	RB19-1	0.038	1.2D+1.6S+1.0L	0.0001524	
Story5	B29					
Story5	B30	RB12-2	0.206	1.2D+1.6S+1.0L	0.0002639	
Story5	B30					
Story5	B31	RB19-3	0.065	1.2D+1.6S+1.0L	0.000312	
Story5	B3	RB7-1	0.254	1.2D+1.6S+1.0L	0.0002075	

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story5	B3					
Story5	B32	RB19-2	0.094	1.2D+1.6S+1.0L	0.0002865	
Story4	B7	RB4-1	0.002	1.2D+1.6S+1.0L	0	
Story4	B7					
Story4	B9	RB5-1	0.105	1.2D+1.6S+1.0L	0.003	
Story4	B9					
Story4	B10	RB4-3	0.002	1.2D+1.6S+1.0L	0	
Story4	B12	RB6-1	0.113	1.2D+1.6S+1.0L	0.001	
Story4	B14	RB4-4	0.002	1.2D+1.6S+1.0L	0	
Story4	B15	RB5-3	0.09	1.2D+1.6S+1.0L	0.006	
Story4	B15					
Story4	B33	RB2-1b	0.081	1.2D+1.6L+0.5S	0.0002842	
Story4	B33					
Story4	B34	218	0.02	(R=MIXED) D + L + S + RSY + rsx	0.0003349	
Story4	B34					
Story4	B35	221	0.02	1.2D+1.6S+1.0L	0.001	
Story4	B36	224	0.023	1.2D+1.6S+1.0L	0.000369	
Story4	B36					
Story4	B37	227	0.05	(R=MIXED) D + L + S + RSY + rsx	0.0004456	
Story4	B37					
Story4	B38	233	0.051	1.2D+1.6S+1.0L	0.0003638	
Story4	B38					
Story4	B39	238	0.05	1.2D+1.6S+1.0L	0.0003835	
Story4	B39					
Story4	B40	243	0.049	1.2D+1.6S+1.0L	0.0003505	
Story4	B40					
Story4	B41	248	0.047	1.2D+1.6S+1.0L	0.0002701	
Story4	B42	253	0.046	1.2D+1.6S+1.0L	0.0001691	
Story4	B43	258	0.042	1.2D+1.6S+1.0L	0.0002885	
Story4	B44	263	0.033	1.2D+1.6S+1.0L	0.001	
Story4	B45	268	0.025	1.2D+1.6S+1.0L	0.002	
Story4	B46	273	0.058	1.2D+1.6S+1.0L	0.001	
Story4	B47	288	0.04	1.2D+1.6S+1.0L	0.001	
Story4	B48	300	0.032	1.2D+1.6S+1.0L	0.0002368	
Story4	B49	303	0.036	1.2D+1.6S+1.0L	0	
Story4	B50	306	0.032	1.2D+1.6S+1.0L	0.000263	
Story4	B51	309	0.041	1.2D+1.6S+1.0L	0.001	
Story4	B52	313	0.062	1.2D+1.6S+1.0L	0.001	
Story4	B53	327	0.02	1.2D+1.6S+1.0L	0.002	
Story4	B54	333	0.018	1.2D+1.6S+1.0L	0.001	
Story4	B55	339	0.017	1.2D+1.6S+1.0L	0.0003713	
Story4	B56	RB2-3b	0.063	1.2D+1.6S+1.0L	0.002	
Story4	B61	RB10-1	0	1.2D+1.6S+1.0L	0	
Story4	B63	RB11-1	0.092	1.2D+1.6S+1.0L	0.002	
Story4	B65	RB10-2	0	1.2D+1.6S+1.0L	0	

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story4	B77	RB2-2a	0.093	1.2D+1.6S+1.0L	0.001	
Story4	B77					
Story4	B78	219	0.034	1.2D+1.6L+0.5S	0	
Story4	B79	222	0.041	1.2D+1.6S+1.0L	0.0001252	
Story4	B80	225	0.072	1.2D+1.6S+1.0L	0.0001987	
Story4	B80					
Story4	B81	228	0.014	(R=MIXED) D + L + S + RSY + rsx	0.0003786	
Story4	B81					
Story4	B82	234	0.014	1.2D+1.6S+1.0L	0	
Story4	B83	239	0.014	1.2D+1.6S+1.0L	0	
Story4	B84	244	0.014	1.2D+1.6S+1.0L	0	
Story4	B84					
Story4	B85	249	0.014	(R=MIXED) D + L + S + RSY + rsx	0	
Story4	B86	254	0.014	1.2D+1.6S+1.0L	0.0001512	
Story4	B87	259	0.015	1.2D+1.6S+1.0L	0.0002916	
Story4	B88	264	0.016	1.2D+1.6S+1.0L	0.001	
Story4	B89	269	0.013	1.2D+1.6S+1.0L	0.001	
Story4	B90	RB17-1a	0.02	1.2D+1.6S+1.0L	0.002	
Story4	B91	RB17-2a	0.016	1.2D+1.6S+1.0L	0.002	
Story4	B92	328	0.029	1.2D+1.6S+1.0L	0.001	
Story4	B93	334	0.016	1.2D+1.6S+1.0L	0.001	
Story4	B94	340	0.013	1.2D+1.6S+1.0L	0.001	
Story4	B95	RB2-3c	0.144	1.2D+1.6S+1.0L	0.003	
Story4	B95					
Story4	B100	RB14-1	0.125	1.2D+1.6S+1.0L	0.000405	
Story4	B100					
Story4	B113	RB2-2b	0.097	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B113					
Story4	B114	293	0.02	(R=MIXED) D + L + S + RSY + rsx	0.0001104	
Story4	B115	297	0.027	(R=MIXED) D + L + S + RSY + rsx	0	
Story4	B116	175	0.053	(R=MIXED) D + L + S + RSY + rsx	0.0001835	
Story4	B116					
Story4	B117	229	0.035	1.2D+1.6S+1.0L	0.001	
Story4	B117					
Story4	B118	235	0.036	1.2D+1.6S+1.0L	0.001	
Story4	B118					
Story4	B119	240	0.035	1.2D+1.6S+1.0L	0.001	
Story4	B119					
Story4	B120	245	0.034	1.2D+1.6S+1.0L	0.001	
Story4	B120					
Story4	B121	250	0.033	1.2D+1.6S+1.0L	0.001	
Story4	B122	255	0.032	1.2D+1.6S+1.0L	0.0003317	
Story4	B123	260	0.029	1.2D+1.6S+1.0L	0.001	
Story4	B124	265	0.021	1.2D+1.6S+1.0L	0.003	
Story4	B125	270	0.018	1.2D+1.6S+1.0L	0.004	



Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story4	B126	RB17-1b	0.084	1.2D+1.6S+1.0L	0.001	
Story4	B127	RB17-2b	0.012	1.2D+1.6S+1.0L	0.002	
Story4	B128	329	0.025	1.2D+1.6S+1.0L	0.001	
Story4	B129	335	0.018	1.2D+1.6S+1.0L	0.002	
Story4	B130	341	0.02	1.2D+1.6S+1.0L	0.002	
Story4	B131	RB2-4a	0.097	1.2D+1.6S+1.0L	0.006	
Story4	B131					
Story4	B153	RB2-2c	0.094	(R=MIXED) D + L + S + RSY + rsx	0.0004855	
Story4	B153					
Story4	B154	294	0.013	1.2D+1.6S+1.0L	0.001	
Story4	B154					
Story4	B155	298	0.012	1.2D+1.6S+1.0L	0.002	
Story4	B156	176	0.013	1.2D+1.6L+0.5S	0.000429	
Story4	B156					
Story4	B158	230	0.06	1.2D+1.6S+1.0L	0.001	
Story4	B158					
Story4	B159	236	0.063	1.2D+1.6S+1.0L	0.001	
Story4	B159					
Story4	B160	241	0.062	1.2D+1.6S+1.0L	0.001	
Story4	B160					
Story4	B161	246	0.059	1.2D+1.6S+1.0L	0.001	
Story4	B161					
Story4	B162	251	0.057	1.2D+1.6S+1.0L	0.001	
Story4	B163	256	0.055	1.2D+1.6S+1.0L	0.001	
Story4	B164	261	0.05	1.2D+1.6S+1.0L	0.0002372	
Story4	B165	266	0.035	1.2D+1.6S+1.0L	0.002	
Story4	B166	271	0.026	1.2D+1.6S+1.0L	0.004	
Story4	B167	RB17-1c	0.016	1.2D+1.6S+1.0L	0.003	
Story4	B169	330	0.013	1.2D+1.6S+1.0L	0.004	
Story4	B170	336	0.014	1.2D+1.6S+1.0L	0.003	
Story4	B171	342	0.015	(R=MIXED) D + L + S + RSY + rsx	0.0002139	
Story4	B172	RB2-4b	0.037	1.2D+1.6S+1.0L	0.002	
Story4	B172					
Story4	B200	RB4-2	0.002	1.2D+1.6S+1.0L	0	
Story4	B202	RB5-2	0.107	1.2D+1.6S+1.0L	0.001	
Story4	B202					
Story4	B210	RB3-1	0.123	1.2D+1.6S+1.0L	0.012	
Story4	B210					
Story4	B224	RB17-2c	0.073	1.2D+1.6S+1.0L	0.002	
Story4	B300	RB16-2	0.109	1.2D+1.6S+1.0L	0.008	
Story4	B300					
Story4	B302	RB16-1	0.107	1.2D+1.6S+1.0L	0.007	
Story4	B302					
Story4	B4	RB14-2	0.104	1.2D+1.6S+1.0L	0.004	
Story4	B4					

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story3	B61	24	0.004	1.2D+1.6S+1.0L	0	
Story3	B65	34	0.008	1.2D+1.6S+1.0L	0	
Story3	B101	3B15-1	0.012	1.2D+1.6S+1.0L	0	
Story3	B101					
Story3	B103	3B15-2	0.012	1.2D+1.6S+1.0L	0	
Story3	B103					
Story3	B112	3B3-1	0.053	1.2D+1.6S+1.0L	0.001	
Story3	B112					
Story3	B132	3B14-1	0.084	1.2D+1.6S+1.0L	0	
Story3	B149	3B14-2	0.081	1.2D+1.6S+1.0L	0	
Story3	B168	3B3-2	0.064	1.2D+1.6S+1.0L	0.001	
Story3	B168					
Story3	B177	3B14-3	0.061	1.2D+1.6S+1.0L	0	
Story3	B190	3B7-1	0	1.2D+1.6S+1.0L	0	
Story3	B190					
Story3	B193	3B3-3	0	1.2D+1.6S+1.0L	0	
Story3	B203	3B1-1	0.038	1.2D+1.6S+1.0L	0	
Story3	B206	3B2-1	0.005	1.2D+1.6S+1.0L	0	
Story3	B209	3B2-2	0.005	1.2D+1.6S+1.0L	0	
Story3	B211	3B1-2	0.042	1.2D+1.6S+1.0L	0	
Story3	B212	3B1-3	0.076	1.2D+1.6S+1.0L	0	
Story3	B215	3B1-4	0.042	1.2D+1.6S+1.0L	0	
Story3	B216	3B1-5	0.076	1.2D+1.6S+1.0L	0	
Story3	B220	3B1-6	0.042	1.2D+1.6S+1.0L	0	
Story3	B221	3B1-7	0.076	1.2D+1.6S+1.0L	0	
Story3	B229	3B1-8	0.045	1.2D+1.6S+1.0L	0	
Story3	B230	3B1-9	0.082	1.2D+1.6S+1.0L	0	
Story3	B234	3B10-1	0.168	1.2D+1.6S+1.0L	0	
Story3	B234					
Story3	B243	3B9-1	0.067	1.2D+1.6S+1.0L	0.0004748	
Story3	B244	3B8-1	0.072	1.2D+1.6S+1.0L	0.000106	
Story3	B245	3B4-1	0.069	1.2D+1.6S+1.0L	0	
Story3	B23	3B3-4	0.054	1.2D+1.6S+1.0L	0.0002845	
Story3	B25	3B4-5	0.06	1.2D+1.6S+1.0L	0.022	
Story3	B28	3B3-6	0.005	1.2D+1.6S+1.0L	0	
Story3	B20	3B17-1	0.097	1.2D+1.6S+1.0L	0	
Story3	B20					
Story3	B21	3B1-11	0.087	1.2D+1.6S+1.0L	0	
Story3	B24	3B1-10	0.048	1.2D+1.6S+1.0L	0	
Story2	B6	2B4-1	0.129	1.2D+1.6S+1.0L	0	
Story2	B6					
Story2	B8	2B1-1	0.038	1.2D+1.6S+1.0L	0	
Story2	B13	2B9-R-1	0.063	1.2D+1.6S+1.0L	0	
Story2	B13					
Story2	B64	2B5-R-1	0.123	1.2D+1.6S+1.0L	0	

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story2	B64					
Story2	B67	2B9-3STUB	0.018	1.2D+1.6S+1.0L	0	
Story2	B68	2B9-3C	0.022	1.2D+1.6S+1.0L	0	
Story2	B69	2B9-3	0.023	1.2D+1.6S+1.0L	0	
Story2	B70	2B1-4	0.032	1.2D+1.6S+1.0L	0	
Story2	B73	2B2-1	0.053	1.2D+1.6S+1.0L	0	
Story2	B73					
Story2	B74	2B7-1	0.208	1.2D+1.6S+1.0L	0	
Story2	B74					
Story2	B75	2B8-1	0.129	1.2D+1.6S+1.0L	0	
Story2	B105	2B5-R-2	0.087	1.2D+1.6S+1.0L	0	
Story2	B105					
Story2	B144	2B9-R-4	0.049	1.2D+1.6S+1.0L	0	
Story2	B186	2B4-R-1	0.041	1.2D+1.6S+1.0L	0	
Story2	B195	2B4-4C	0.073	1.2D+1.6S+1.0L	0	
Story2	B199	2B4-4	0.137	1.2D+1.6S+1.0L	0	
Story2	B201	2B1-8	0.038	1.2D+1.6S+1.0L	0	
Story2	B207	2B4-R-2	0.076	1.2D+1.6S+1.0L	0.0001577	
Story2	B207					
Story2	B254	2B4-1C	0.068	1.2D+1.6S+1.0L	0	
Story2	B257	2B9-1	0.031	1.2D+1.6S+1.0L	0	
Story2	B257					
Story2	B258	2B9-1STUB	0.032	1.2D+1.6S+1.0L	0	
Story2	B259	2B9-1C	0.037	1.2D+1.6S+1.0L	0	
Story2	B263	2B4C-3	0.039	1.2D+1.6S+1.0L	0	
Story2	B268	2B5-1	0.024	1.2D+1.6S+1.0L	0	
Story2	B271	2B4-3	0.032	1.2D+1.6S+1.0L	0	
Story2	B273	2B4-2	0.023	1.2D+1.6S+1.0L	0	
Story2	B273					
Story2	B277	2B9-2	0.023	1.2D+1.6S+1.0L	0	
Story2	B277					
Story2	B278	2B9-2STUB	0.022	1.2D+1.6S+1.0L	0	
Story2	B278					
Story2	B279	2B9-2C	0.026	1.2D+1.6S+1.0L	0	
Story2	B279					
Story2	B280	2B1-2	0.051	1.2D+1.6S+1.0L	0	
Story2	B281	2B1-3	0.042	1.2D+1.6S+1.0L	0	
Story2	B282	2B1-5	0.035	1.2D+1.6S+1.0L	0	
Story2	B283	2B1-6	0.041	1.2D+1.6S+1.0L	0	
Story2	B284	2B1-7	0.051	1.2D+1.6S+1.0L	0	
Story2	B295	2B9-R-2	0.036	1.2D+1.6S+1.0L	0	
Story2	B296	2B9-R-3	0.038	1.2D+1.6S+1.0L	0	
Story2	B296					
Story2	B303	2B5-1C	0.09	1.2D+1.6S+1.0L	0	
Story2	B304	2B4C-2	0.026	1.2D+1.6S+1.0L	0	

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story2	B304					
Story2	B2	2B2-2	0.042	1.2D+1.6S+1.0L	0.0001667	
Story2	B19	2B2-3	0.014	1.2D+1.6S+1.0L	0	
Story2	B60	2D2	0.0002444	1.2D+1.6S+1.0L	0.0004078	kl/r > 200
Story5	D29	205	0	1.2D+1.6S+1.0L	0	
Story5	D30	207	0	1.2D+1.6S+1.0L	0	
Story5	D31	209	0	1.2D+1.6S+1.0L	0	
Story5	D31					
Story5	D32	274	0	1.2D+1.6S+1.0L	0	
Story5	D33	289	0	1.2D+1.6S+1.0L	0	
Story5	D33					
Story5	D34	301	0	1.2D+1.6S+1.0L	0	
Story5	D35	307	0	1.2D+1.6S+1.0L	0	
Story5	D72	RD5	0	1.2D+1.6S+1.0L	0	
Story5	D74	RD6	0	1.2D+1.6S+1.0L	0	
Story5	D79	4 A(+)-7	0.0002539	1.2D+1.6S+1.0L	0	
Story5	D52	4 A(+)-8(+)	0.0002411	1.2D+1.6S+1.0L	0	
Story5	D77	4 A(+)-9(-)	0	1.2D+1.6S+1.0L	0	
Story5	D78	RD7	0	1.2D+1.6S+1.0L	0	
Story5	D81	RD8	0	1.2D+1.6S+1.0L	0	
Story5	D46	4 A(+)-10	0	1.2D+1.6S+1.0L	0	
Story4	D1	RB2-1a	0.072	1.2D+1.6S+1.0L	0.001	
Story4	D1					
Story4	D2	217	0.028	1.2D+1.6S+1.0L	0.002	
Story4	D2					
Story4	D3	220	0.032	1.2D+1.6S+1.0L	0.003	
Story4	D4	223	0.054	1.2D+1.6S+1.0L	0.001	
Story4	D4					
Story4	D5	226	0.069	1.2D+1.6S+1.0L	0.002	
Story4	D6	232	0.074	1.2D+1.6S+1.0L	0.002	
Story4	D6					
Story4	D7	237	0.073	1.2D+1.6S+1.0L	0.002	
Story4	D7					
Story4	D8	242	0.07	1.2D+1.6S+1.0L	0.002	
Story4	D9	247	0.067	1.2D+1.6S+1.0L	0.001	
Story4	D10	252	0.064	(R=MIXED) D + L + S + RSY + rsx	0	
Story4	D11	257	0.06	1.2D+1.6S+1.0L	0.001	
Story4	D12	262	0.039	1.2D+1.6S+1.0L	0.005	
Story4	D13	267	0.03	1.2D+1.6S+1.0L	0.01	
Story4	D14	272	0.047	1.2D+1.6S+1.0L	0.006	
Story4	D15	287	0.03	1.2D+1.6S+1.0L	0.001	
Story4	D16	299	0.022	1.2D+1.6S+1.0L	0.001	
Story4	D17	302	0.026	1.2D+1.6S+1.0L	0.0004873	
Story4	D17					
Story4	D18	305	0.021	1.2D+1.6S+1.0L	0.001	

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story4	D19	308	0.03	1.2D+1.6S+1.0L	0.001	
Story4	D20	312	0.051	1.2D+1.6S+1.0L	0.006	
Story4	D21	326	0.023	1.2D+1.6S+1.0L	0.013	
Story4	D22	332	0.013	1.2D+1.6S+1.0L	0.008	
Story4	D23	338	0.009	1.2D+1.6S+1.0L	0.002	
Story4	D24	RB2-3a	0.128	1.2D+1.6S+1.0L	0.011	
Story4	D24					
Story4	D39	RD1	0	1.2D+1.6S+1.0L	0	
Story4	D43	RD2	0	1.2D+1.6S+1.0L	0	
Story4	D48	RB2-2d	0.05	(R=MIXED) D + L + S + RSY + rsx	0.002	
Story4	D48					
Story4	D49	295	0.016	1.2D+1.6S+1.0L	0.003	
Story4	D50	296	0.021	1.2D+1.6S+1.0L	0.005	
Story4	D51	177	0.04	1.2D+1.6S+1.0L	0.003	
Story4	D51					
Story4	D53	231	0.071	1.2D+1.6S+1.0L	0.002	
Story4	D53					
Story4	D54	276	0.076	1.2D+1.6S+1.0L	0.004	
Story4	D54					
Story4	D55	277	0.075	1.2D+1.6S+1.0L	0.004	
Story4	D56	278	0.072	1.2D+1.6S+1.0L	0.004	
Story4	D57	279	0.069	1.2D+1.6S+1.0L	0.003	
Story4	D58	280	0.067	1.2D+1.6S+1.0L	0.002	
Story4	D59	281	0.063	1.2D+1.6S+1.0L	0.0004019	
Story4	D60	282	0.043	1.2D+1.6S+1.0L	0.004	
Story4	D61	283	0.03	1.2D+1.6S+1.0L	0.012	
Story4	D62	RB17-1d	0.061	1.2D+1.6S+1.0L	0.008	
Story4	D63	RB17-2d	0.023	1.2D+1.6S+1.0L	0.006	
Story4	D64	199	0	1.2D+1.6S+1.0L	0	
Story4	D65	331	0.019	1.2D+1.6S+1.0L	0.011	
Story4	D66	337	0.016	1.2D+1.6S+1.0L	0.007	
Story4	D67	343	0.018	1.2D+1.6L+0.5S	0.001	
Story4	D68	RB2-4c	0.084	1.2D+1.6S+1.0L	0.002	
Story4	D69	61	0.0001872	1.2D+1.6S+1.0L	0.001	
Story4	D45	RD10	0	1.2D+1.6S+1.0L	0	
Story4	D28	RD3	0	1.2D+1.6S+1.0L	0	
Story4	D25	RD4	0	1.2D+1.6S+1.0L	0	
Story4	D25					
Story4	D26	RD9	0	1.2D+1.6S+1.0L	0	
Story3	D40	3D1	0	1.2D+1.6S+1.0L	0	
Story3	D42	3D3	0	1.2D+1.6S+1.0L	0	
Story3	D47	3D4	0	1.2D+1.6S+1.0L	0	
Story3	D70	3D2	0	1.2D+1.6S+1.0L	0	
Story3	D71	3D9	0	1.2D+1.6S+1.0L	0	
Story3	D71					

Table 4.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story3	D73	3D10	0	1.2D+1.6S+1.0L	0	
Story3	D75	456	0.0004403	1.2D+1.6S+1.0L	0.000379	
Story3	D76	455	0.0002973	1.2D+1.6S+1.0L	0.0003404	
Story3	D27	3D5	0	1.2D+1.6S+1.0L	0	
Story3	D36	3D6	0	1.2D+1.6S+1.0L	0	
Story3	D80	3D7	0	1.2D+1.6S+1.0L	0	
Story3	D80					
Story3	D82	3D8	0	1.2D+1.6S+1.0L	0	
Story3	D82					
Story2	D83	2D1	0.0002167	1.2D+1.6S+1.0L	0.0003742	kl/r > 200

## 4.2 Concrete Frame Design

Table 4.6 - Concrete Frame Preferences - ACI 318-14

Item	Value
Multi-Response Design	Step-by-Step - All
Seismic Design Category	D
# Interaction Curves	24
# Interaction Points	11
Minimum Eccentricity	Yes
Phi (Tension)	0.9
Phi (Compression Tied)	0.65
Phi (Compression Spiral)	0.75
Phi (Shear and Torsion)	0.85
Phi (Shear Seismic)	0.6
Phi (Shear Joint)	0.85
Pattern Live Load Factor	0.75
D/C Ratio Limit	1

Table 4.7 - Concrete Column PMM Envelope

Label	Story	Section	Location	P kip	M Major kip-ft	M Minor kip-ft	PMM Combo	PMM Ratio or Rebar %
C10	Story2	ConcCol	Top	1.483	-0.1409	0	DCon7	1 %
C10	Story2	ConcCol	Bottom	1.483	0.1409	0	DCon7	1 %
C10	Story1	ConcCol	Top	3.31	0.6975	0	DCon7	1 %
C10	Story1	ConcCol	Bottom	3.31	0.3144	0	DCon7	1 %

Table 4.8 - Concrete Column Shear Envelope

Label	Story	Section	Location	V Major kip	Major Combo	At Major in <sup>2</sup> /ft	V Minor kip	Minor Combo	At Minor in <sup>2</sup> /ft
C10	Story2	ConcCol	Top	2.672E-05		0	0		0
C10	Story2	ConcCol	Bottom	2.672E-05		0	0		0
C10	Story1	ConcCol	Top	0.084		0	0		0
C10	Story1	ConcCol	Bottom	0.084		0	0		0

**Table 4.9 - Concrete Beam Flexure Envelope**

Label	Story	Location	Section	(-) Moment kip-ft	(-) Combo	As Top in <sup>2</sup>	(+) Moment kip-ft	(+) Combo	As Bot in <sup>2</sup>
B11	Story1	End-I	ConcBm	0	DCon7	0	0.7619	DCon5	0.0073
B11	Story1	Middle	ConcBm	-1.9518	DCon2	0.0485	0.7368	DCon5	0.0063
B11	Story1	End-J	ConcBm	0	DCon7	0	0	DCon7	0

**Table 4.10 - Concrete Beam Shear Envelope**

Label	Story	Section	Location	V kip	V Combo	At in <sup>2</sup> /ft	T for At kip-ft	T Combo At	At Torsion in <sup>2</sup> /ft	T for As kip-ft	T Combo As	As Torsion in <sup>2</sup>
B11	Story1	ConcBm	End-I	0.073	DCon7	0	0	DCon7	0	0	DCon7	0
B11	Story1	ConcBm	Middle	0.085	DCon7	0	0.0157	DCon7	0	0.0157	DCon7	0
B11	Story1	ConcBm	End-J	0.23	DCon7	0	0.0157	DCon7	0	0.0157	DCon7	0

**Table 4.11 - Concrete Joint Envelope**

Label	Story	Section	B/C Major Combo	B/C Major Ratio	B/C Minor Combo	B/C Minor Ratio	JS Major Combo	JS Major Ratio	JS Minor Combo	JS Minor Ratio
C10	Story2	ConcCol								
C10	Story1	ConcCol								

**Table 4.12 - Concrete Column Summary - ACI 318-14 (Part 1 of 2)**

Story	Label	Unique Name	Station in	Design Section	Design/Check	Status	PMM Ratio	PMM Combo	As,min in <sup>2</sup>	As in <sup>2</sup>
Story2	C10	2 I-8+ Conc	0	ConcCol	Design	No Message		DCon7	3.24	3.24
Story2	C10	2 I-8+ Conc	66	ConcCol	Design	No Message		DCon7	3.24	3.24
Story2	C10	2 I-8+ Conc	132	ConcCol	Design	No Message		DCon7	3.24	3.24
Story1	C10	1 I-8+ Conc	0	ConcCol	Design	No Message		DCon7	3.24	3.24
Story1	C10	1 I-8+ Conc	49.965	ConcCol	Design	No Message		DCon7	3.24	3.24
Story1	C10	1 I-8+ Conc	99.93	ConcCol	Design	No Message		DCon7	3.24	3.24

**Table 4.12 - Concrete Column Summary - ACI 318-14 (Part 2 of 2)**

Story	Label	Unique Name	Station in	Mid Bar As in <sup>2</sup>	Corner Bar As in <sup>2</sup>	V Major Combo	At V Major in <sup>2</sup> /ft	V Minor Combo	At V Minor in <sup>2</sup> /ft	Warnings	Errors
Story2	C10	2 I-8+ Conc	0	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message
Story2	C10	2 I-8+ Conc	66	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message
Story2	C10	2 I-8+ Conc	132	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message
Story1	C10	1 I-8+ Conc	0	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message
Story1	C10	1 I-8+ Conc	49.965	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message
Story1	C10	1 I-8+ Conc	99.93	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message

**Table 4.13 - Concrete Beam Summary - ACI 318-14 (Part 1 of 2)**

Story	Label	Unique Name	Station in	Design Section	Status	As Top Combo	As,min Top in <sup>2</sup>	As Top in <sup>2</sup>	As Bottom Combo	As,min Bottom in <sup>2</sup>	As Bottom in <sup>2</sup>
Story1	B11	CB-1	0	ConcBm	No Message	DCon7	0	0	DCon7	0	0
Story1	B11	CB-1	24	ConcBm	No Message	DCon7	0	0	DCon5	0.0073	0.0073
Story1	B11	CB-1	48	ConcBm	No Message	DCon7	0	0	DCon5	0.0063	0.0063
Story1	B11	CB-1	72	ConcBm	No Message	DCon7	0	0	DCon7	0	0
Story1	B11	CB-1	96	ConcBm	No Message	DCon2	0.0485	0.0485	DCon7	0	0
Story1	B11	CB-1	96	ConcBm	No Message	DCon5	0.0203	0.0203	DCon7	0	0
Story1	B11	CB-1	120	ConcBm	No Message	DCon7	0	0	DCon7	0	0
Story1	B11	CB-1	144	ConcBm	No Message	DCon7	0	0	DCon7	0	0
Story1	B11	CB-1	168	ConcBm	No Message	DCon7	0	0	DCon7	0	0
Story1	B11	CB-1	192	ConcBm	No Message	DCon7	0	0	DCon7	0	0

**Table 4.13 - Concrete Beam Summary - ACI 318-14 (Part 2 of 2)**

Story	Label	Unique Name	Station in	V Combo	At Shear in <sup>2</sup> /ft	Torsion Long Combo	At Torsion in <sup>2</sup>	Torsion Tran Combo	At Torsion in <sup>2</sup> /ft	Warnings	Errors
Story1	B11	CB-1	0	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	24	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	48	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	72	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	96	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	96	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	120	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	144	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	168	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	192	DCon7	0	DCon7	0	DCon7	0	No Message	No Message

**Table 4.14 - Concrete Joint Summary - ACI 318-14 (Part 1 of 2)**

Story	Label	Unique Name	Design Section	Status	B/C Major Combo	B/C Major Ratio	B/C Minor Combo	B/C Minor Ratio
Story2	C10	2 I-8+ Conc	ConcCol	Joint check not done.				
Story1	C10	1 I-8+ Conc	ConcCol	Joint check not done.				

**Table 4.14 - Concrete Joint Summary - ACI 318-14 (Part 2 of 2)**

Story	Label	Unique Name	JS Major Combo	JS Major Ratio	JS Minor Combo	JS Minor Ratio	Warnings	Errors
Story2	C10	2 I-8+ Conc					No Message	No Message
Story1	C10	1 I-8+ Conc					No Message	No Message

**4.3 Shear Wall Design**

**Table 4.15 - Shear Wall Preferences - ACI 318-14**

Item	Value
Rebar Material	A615Gr60
Rebar Shear Material	A615Gr60
Importance Factor	1



**Table 4.15 - Shear Wall Preferences - ACI 318-14 (continued)**

Item	Value
System $C_d$	5.5
Phi (Tension)	0.9
Phi (Compression)	0.65
Phi (Shear and Torsion)	0.75
Phi (Shear Seismic)	0.6
PMax factor	0.8
# Interaction Curves	24
# Interaction Points	11
Edge Design PT-Max	0.06
Edge Design PC-Max	0.04
Section Design IP-Max	0.04
Section Design IP-Min	0.0025
D/C Ratio Limit	0.95

**Table 4.16 - Shear Wall Pier Overwrites - ACI 318-14 (Part 1 of 2)**

Story	Pier	Design	LLRF	Seismic	PierSecType	Design/Check	EndBar	EdgeBar	EdgeBarSp in
Story2	P1	Yes	0.665636	Yes	Uniform Reinforcing Section	Check	#5	#5	16
Story2	P2	Yes	1	Yes	Uniform Reinforcing Section	Check	#5	#5	16
Story2	P3	Yes	0.705285	Yes	Uniform Reinforcing Section	Check	#5	#5	16
Story2	P4	Yes	1	Yes	Uniform Reinforcing Section	Design	#3	#3	12
Story2	P5	Yes	1	Yes	Uniform Reinforcing Section	Check	#5	#5	16
Story2	P6	Yes	0.547307	Yes	Uniform Reinforcing Section	Check	#5	#5	16
Story1	P1	Yes	0.648721	Yes	Uniform Reinforcing Section	Check	#5	#5	16
Story1	P2	Yes	1	Yes	Uniform Reinforcing Section	Check	#5	#5	16
Story1	P3	Yes	0.659902	Yes	Uniform Reinforcing Section	Check	#5	#5	16
Story1	P4	Yes	1	Yes	Uniform Reinforcing Section	Design	#3	#3	12
Story1	P5	Yes	1	Yes	Uniform Reinforcing Section	Check	#5	#5	16
Story1	P6	Yes	0.549817	Yes	Uniform Reinforcing Section	Check	#5	#5	16

**Table 4.16 - Shear Wall Pier Overwrites - ACI 318-14 (Part 2 of 2)**

Cover in	Material
1.5	4000Psi
1.5	4000Psi
1.5	4000Psi
1.5	4000Psi
1.5	4000Psi
1.5	4000Psi
1.5	4000Psi
1.5	4000Psi
1.5	4000Psi
1.5	4000Psi
1.5	4000Psi
1.5	4000Psi

Table 4.17 - Shear Wall Pier Summary - ACI 318-14 (Part 1 of 3)

Story	Pier Label	Station	Design Type	Edge Rebar	End Rebar	Rebar Spacing in	Required Reinf %	Current Reinf %	D/C Ratio	Pier Leg	Leg X1 in
Story2	P1	Top	Uniform	#5	#5	16			0.025	Top Leg 1	648
Story2	P1	Bottom	Uniform	#5	#5	16			0.03	Bottom Leg 1	648
Story1	P1	Top	Uniform	#5	#5	16			0.031	Top Leg 1	648
Story1	P1	Bottom	Uniform	#5	#5	16			0.037	Bottom Leg 1	648
Story2	P2	Top	Uniform	#5	#5	16			0.037	Top Leg 1	648
Story2	P2	Bottom	Uniform	#5	#5	16			0.046	Bottom Leg 1	648
Story1	P2	Top	Uniform	#5	#5	16			0.049	Top Leg 1	648
Story1	P2	Bottom	Uniform	#5	#5	16			0.054	Bottom Leg 1	648
Story2	P3	Top	Uniform	#5	#5	16			0.015	Top Leg 1	648
Story2	P3	Bottom	Uniform	#5	#5	16			0.03	Bottom Leg 1	648
Story1	P3	Top	Uniform	#5	#5	16			0.033	Top Leg 1	648
Story1	P3	Bottom	Uniform	#5	#5	16			0.041	Bottom Leg 1	648
Story2	P4	Top	Uniform	#3	#3	12	0.25	0.19		Top Leg 1	696
Story2	P4	Bottom	Uniform	#3	#3	12	0.25	0.19		Bottom Leg 1	696
Story1	P4	Top	Uniform	#3	#3	12	0.25	0.19		Top Leg 1	696
Story1	P4	Bottom	Uniform	#3	#3	12	0.25	0.19		Bottom Leg 1	696
Story2	P5	Top	Uniform	#5	#5	16			0.697	Top Leg 1	888
Story2	P5	Bottom	Uniform	#5	#5	16			0.035	Bottom Leg 1	888
Story1	P5	Top	Uniform	#5	#5	16			0.05	Top Leg 1	888
Story1	P5	Bottom	Uniform	#5	#5	16			0.073	Bottom Leg 1	888
Story2	P6	Top	Uniform	#5	#5	16			0.06	Top Leg 1	936
Story2	P6	Bottom	Uniform	#5	#5	16			0.081	Bottom Leg 1	936
Story1	P6	Top	Uniform	#5	#5	16			0.079	Top Leg 1	936
Story1	P6	Bottom	Uniform	#5	#5	16			0.081	Bottom Leg 1	936

Table 4.17 - Shear Wall Pier Summary - ACI 318-14 (Part 2 of 3)

Story	Pier Label	Station	Leg Y1 in	Leg X2 in	Leg Y2 in	Shear Rebar in <sup>2</sup> /ft	Compressive Stress Left lb/in <sup>2</sup>	Compressive Stress Right lb/in <sup>2</sup>	Compressive Stress Limit Left lb/in <sup>2</sup>	Compressive Stress Limit Right lb/in <sup>2</sup>
Story2	P1	Top	48	648	384	0.3	0	32.41	0	800
Story2	P1	Bottom	48	648	384	0.3	41.35	0	800	0
Story1	P1	Top	48	648	384	0.3	45.77	0	800	0
Story1	P1	Bottom	48	648	384	0.3	61.98	0	800	0
Story2	P2	Top	48	696	48	0.3	31.27	0	800	0
Story2	P2	Bottom	48	696	48	0.3	0	68.9	0	800
Story1	P2	Top	48	696	48	0.3	0	71.48	0	800
Story1	P2	Bottom	48	696	48	0.3	64.93	70.46	800	800
Story2	P3	Top	384	936	384	0.36	0	16.22	0	800
Story2	P3	Bottom	384	936	384	0.36	0	46.01	0	800
Story1	P3	Top	384	936	384	0.36	0	51.41	0	800
Story1	P3	Bottom	384	936	384	0.36	0	68.08	0	800
Story2	P4	Top	213	888	213	0.3	3.56	3.56	800	800
Story2	P4	Bottom	213	888	213	0.3	0	37.23	0	800

**Table 4.17 - Shear Wall Pier Summary - ACI 318-14 (Part 2 of 3, continued)**

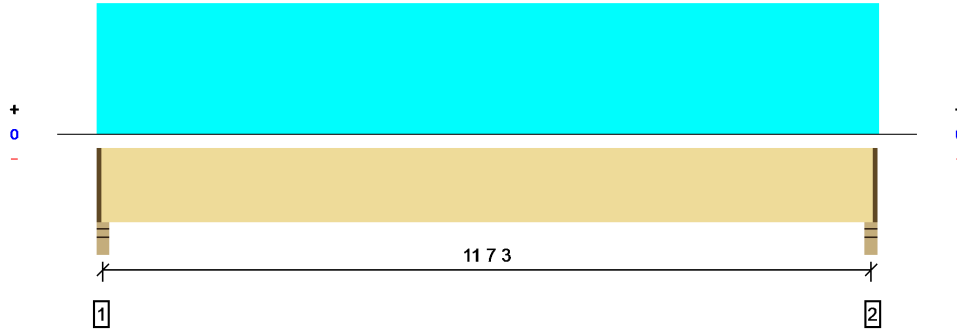
Story	Pier Label	Station	Leg Y1 in	Leg X2 in	Leg Y2 in	Shear Rebar in <sup>2</sup> /ft	Compressive Stress Left lb/in <sup>2</sup>	Compressive Stress Right lb/in <sup>2</sup>	Compressive Stress Limit Left lb/in <sup>2</sup>	Compressive Stress Limit Right lb/in <sup>2</sup>
Story1	P4	Top	213	888	213	0.3	0	44.02	0	800
Story1	P4	Bottom	213	888	213	0.3	0	64.09	0	800
Story2	P5	Top	48	936	48	0.3	0	233.58	0	800
Story2	P5	Bottom	48	936	48	0.3	53.18	0	800	0
Story1	P5	Top	48	936	48	0.3	0	70.17	0	800
Story1	P5	Bottom	48	936	48	0.3	99.98	0	800	0
Story2	P6	Top	48	936	384	0.3	0	67.07	0	800
Story2	P6	Bottom	48	936	384	0.3	76.55	79.85	800	800
Story1	P6	Top	48	936	384	0.3	77.09	80.56	800	800
Story1	P6	Bottom	48	936	384	0.3	83.54	90.13	800	800

**Table 4.17 - Shear Wall Pier Summary - ACI 318-14 (Part 3 of 3)**

Story	Pier Label	Station	C Limit Left in	C Depth Right in	C Limit Right in	Boundary Zone Left in	Boundary Zone Right in	Warnings	Errors
Story2	P1	Top						No Message	No Message
Story2	P1	Bottom						No Message	No Message
Story1	P1	Top						No Message	No Message
Story1	P1	Bottom						No Message	No Message
Story2	P2	Top						No Message	No Message
Story2	P2	Bottom						No Message	No Message
Story1	P2	Top						No Message	No Message
Story1	P2	Bottom						No Message	No Message
Story2	P3	Top						No Message	No Message
Story2	P3	Bottom						No Message	No Message
Story1	P3	Top						No Message	No Message
Story1	P3	Bottom						No Message	No Message
Story2	P4	Top						No Message	No Message
Story2	P4	Bottom						No Message	No Message
Story1	P4	Top						No Message	No Message
Story1	P4	Bottom						No Message	No Message
Story2	P5	Top						No Message	No Message
Story2	P5	Bottom						No Message	No Message
Story1	P5	Top						No Message	No Message
Story1	P5	Bottom						No Message	No Message
Story2	P6	Top						No Message	No Message
Story2	P6	Bottom						No Message	No Message
Story1	P6	Top						No Message	No Message
Story1	P6	Bottom						No Message	No Message

**2 piece(s) 2 x 8 Spruce-Pine-Fir No. 1 / No. 2 @ 16" OC**

Overall Length: 11 10 11



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDF	Load: Combination (Pattern)
Member Reaction (lbs)	662 @ 0 2 8	2869 (2.25")	Passed (23%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	572 @ 0 10 12	1958	Passed (29%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	1865 @ 5 11 6	2645	Passed (71%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.156 @ 5 11 6	0.382	Passed (L/883)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.331 @ 5 11 6	0.574	Passed (L/415)	--	1.0 D + 1.0 L (All Spans)
TJ-Pro™ Rating	N/A	N/A	--	--	--

 System : Floor  
 Member Type : Joist  
 Building Use : Residential  
 Building Code : IBC 2015  
 Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Input total load span ratio deflection limit is below building code minimum value of L/240. This minimum value was used for design.
- Top Edge Bracing (Lu): Top compression edge must be braced at 11 8 0 o/c unless detailed otherwise.
- Bottom Edge Bracing (Lu): Bottom compression edge must be braced at 11 8 0 o/c unless detailed otherwise.
- A 15% increase in the moment capacity has been added to account for repetitive member usage.
- Applicable calculations are based on NDS.
- No composite action between deck and joist was considered in analysis.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Stud wall - SPF	3.50"	2.25"	1.50"	357	317	674	1 1/4" Rim Board
2 - Stud wall - SPF	3.50"	2.25"	1.50"	357	317	674	1 1/4" Rim Board

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Loads	Location (Side)	Spacing	Dead (0.90)	Floor Live (1.00)	Comments
1 - Uniform (PSF)	0 0 0 to 11 10 11	16"	45.0	40.0	Residential - Living Areas

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The product application, input design loads, dimensions and support information have been provided by Forte Software Operator

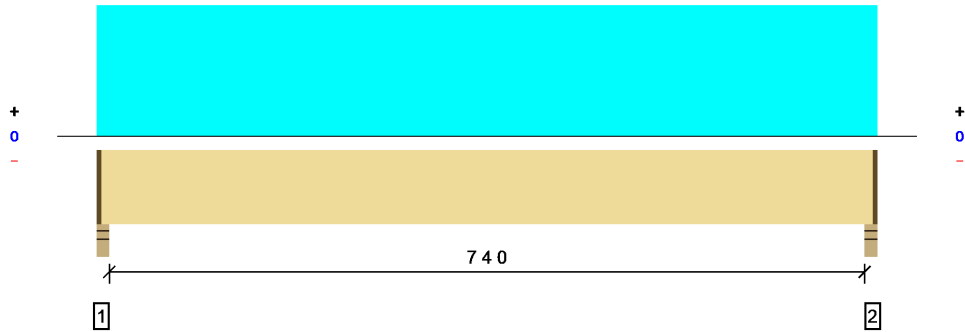


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 8/15/2018 2:34:18 AM  
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 Wood Floor Joists.4te

**2 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL**

Overall Length: 7 11 0



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDf	Load: Combination (Pattern)
Member Reaction (lbs)	1585 @ 0 2 0	3347 (2.25")	Passed (47%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	1259 @ 0 10 12	4821	Passed (26%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	2956 @ 3 11 8	7115	Passed (42%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.070 @ 3 11 8	0.253	Passed (L/999+)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.151 @ 3 11 8	0.379	Passed (L/602)	--	1.0 D + 1.0 L (All Spans)

 System : Floor  
 Member Type : Flush Beam  
 Building Use : Residential  
 Building Code : IBC 2015  
 Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Input total load span ratio deflection limit is below building code minimum value of L/240. This minimum value was used for design.
- Top Edge Bracing (Lu): Top compression edge must be braced at 7 9 0 o/c unless detailed otherwise.
- Bottom Edge Bracing (Lu): Bottom compression edge must be braced at 7 9 0 o/c unless detailed otherwise.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Stud wall - SPF	3.50"	2.25"	1.50"	875	752	1627	1 1/4" Rim Board
2 - Stud wall - SPF	3.50"	2.25"	1.50"	875	752	1627	1 1/4" Rim Board

- Rim Board is assumed to carry all loads applied directly above it, bypassing the member being designed.

Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 1 4 to 7 9 12	N/A	7.4		
1 - Uniform (PSF)	0 0 0 to 7 11 0 (Front)	4 9 0	45.0	40.0	Residential - Living Areas

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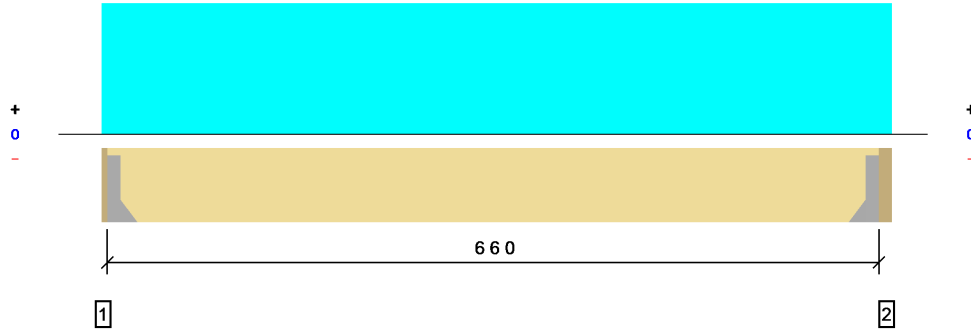
The product application, input design loads, dimensions and support information have been provided by Forte Software Operator



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**2 piece(s) 1 3/4" x 7 1/4" 2.0E Microllam® LVL**

Overall Length: 6 11 0



All locations are measured from the outside face of left support (or left cantilever end). All dimensions are horizontal.

Design Results	Actual @ Location	Allowed	Result	LDf	Load: Combination (Pattern)
Member Reaction (lbs)	3247 @ 0 1 8	3938 (1.50")	Passed (82%)	--	1.0 D + 1.0 L (All Spans)
Shear (lbs)	2643 @ 0 8 12	4821	Passed (55%)	1.00	1.0 D + 1.0 L (All Spans)
Moment (Ft-lbs)	5276 @ 3 4 8	7115	Passed (74%)	1.00	1.0 D + 1.0 L (All Spans)
Live Load Defl. (in)	0.096 @ 3 4 8	0.217	Passed (L/817)	--	1.0 D + 1.0 L (All Spans)
Total Load Defl. (in)	0.204 @ 3 4 8	0.325	Passed (L/381)	--	1.0 D + 1.0 L (All Spans)

 System : Floor  
 Member Type : Flush Beam  
 Building Use : Residential  
 Building Code : IBC 2015  
 Design Methodology : ASD

- Deflection criteria: LL (L/360) and TL (L/240).
- Input total load span ratio deflection limit is below building code minimum value of L/240. This minimum value was used for design.
- Top Edge Bracing (Lu): Top compression edge must be braced at 6 6 0 o/c unless detailed otherwise.
- Bottom Edge Bracing (Lu): Bottom compression edge must be braced at 6 6 0 o/c unless detailed otherwise.

Supports	Bearing Length			Loads to Supports (lbs)			Accessories
	Total	Available	Required	Dead	Floor Live	Total	
1 - Hanger on 7 1/4" SPF beam	1.50"	Hanger <sup>1</sup>	1.50"	1796	1575	3371	See note <sup>1</sup>
2 - Hanger on 7 1/4" SPF beam	3.50"	Hanger <sup>1</sup>	1.50"	1883	1653	3536	See note <sup>1</sup>

- At hanger supports, the Total Bearing dimension is equal to the width of the material that is supporting the hanger
- <sup>1</sup> See Connector grid below for additional information and/or requirements.

Connector: Simpson Strong-Tie Connectors							
Support	Model	Seat Length	Top Nails	Face Nails	Member Nails	Accessories	
1 - Face Mount Hanger	Connector not found	N/A	N/A	N/A	N/A		
2 - Face Mount Hanger	HHUS48	3.00"	N/A	22-16d	8-16d	None	

Loads	Location (Side)	Tributary Width	Dead (0.90)	Floor Live (1.00)	Comments
0 - Self Weight (PLF)	0 1 8 to 6 7 8	N/A	7.4		
1 - Uniform (PSF)	0 0 0 to 6 11 0 (Front)	11 8 0	45.0	40.0	Residential - Living Areas

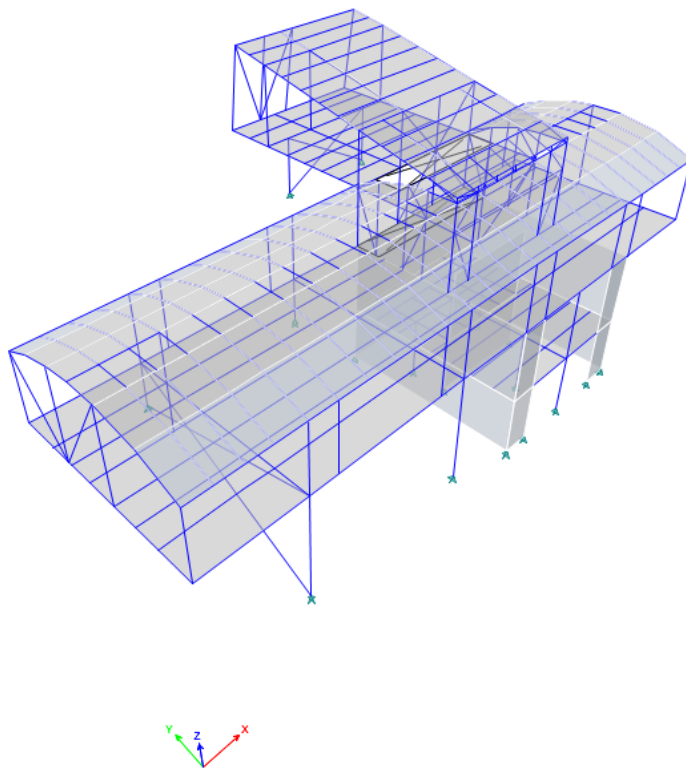
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**LATERAL SYSTEM**  
Designed using ETABS



## **Lateral System**

**Lot 14R**

Model File: ETABS Model, Revision 0

2018-08-15



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# 1 Properties

This chapter provides property information for materials, frame sections, shell sections, and links.

## 1.1 Materials

**Table 1.1 - Material Properties - Summary**

Name	Type	E lb/in <sup>2</sup>	v	Unit Weight lb/ft <sup>3</sup>	Design Strengths
4000Psi	Concrete	3604997	0.2	150	F <sub>c</sub> =4000 lb/in <sup>2</sup>
A416Gr270	Tendon	28500000	0	490	F <sub>y</sub> =245100 lb/in <sup>2</sup> , F <sub>u</sub> =270000 lb/in <sup>2</sup>
A615Gr60	Rebar	29000000	0	490	F <sub>y</sub> =60000 lb/in <sup>2</sup> , F <sub>u</sub> =90000 lb/in <sup>2</sup>
A992Fy50	Steel	29000000	0.3	490	F <sub>y</sub> =50000 lb/in <sup>2</sup> , F <sub>u</sub> =65000 lb/in <sup>2</sup>

## 1.2 Frame Sections

**Table 1.2 - Frame Sections - Summary**

Name	Material	Shape
C10X15.3	A992Fy50	Steel Channel
ConcBm	4000Psi	Concrete Rectangular
ConcCol	4000Psi	Concrete Rectangular
HSS2-1/2X2-1/2X3/16	A992Fy50	Steel Tube
HSS2X2X1/4	A992Fy50	Steel Tube
HSS3-1/2X3-1/2X1/4	A992Fy50	Steel Tube
HSS3X3X1/4	A992Fy50	Steel Tube
HSS3X3X3/8	A992Fy50	Steel Tube
HSS3X3X5/16	A992Fy50	Steel Tube
HSS4X0.250	A992Fy50	Steel Pipe
HSS6X6X1/2	A992Fy50	Steel Tube
HSS6X6X1/4	A992Fy50	Steel Tube
HSS6X6X3/8	A992Fy50	Steel Tube
W10X22	A992Fy50	Steel I/Wide Flange
W10X39	A992Fy50	Steel I/Wide Flange
W10X45	A992Fy50	Steel I/Wide Flange
W10X49	A992Fy50	Steel I/Wide Flange
W10X54	A992Fy50	Steel I/Wide Flange
W10X68	A992Fy50	Steel I/Wide Flange
W12X26	A992Fy50	Steel I/Wide Flange
W12X35	A992Fy50	Steel I/Wide Flange
W12X79	A992Fy50	Steel I/Wide Flange
W16X26	A992Fy50	Steel I/Wide Flange
W16X31	A992Fy50	Steel I/Wide Flange
W16X40	A992Fy50	Steel I/Wide Flange
W16X45	A992Fy50	Steel I/Wide Flange
W16X67	A992Fy50	Steel I/Wide Flange
W18X46	A992Fy50	Steel I/Wide Flange
W21X166	A992Fy50	Steel I/Wide Flange
W21X44	A992Fy50	Steel I/Wide Flange
W21X68	A992Fy50	Steel I/Wide Flange

All W21x44 sections are stand-ins for OWSJ

**Table 1.2 - Frame Sections - Summary (continued)**

Name	Material	Shape
W24X117	A992Fy50	Steel I/Wide Flange
W27X102	A992Fy50	Steel I/Wide Flange
W27X129	A992Fy50	Steel I/Wide Flange
W27X146	A992Fy50	Steel I/Wide Flange
W27X84	A992Fy50	Steel I/Wide Flange
W30X90	A992Fy50	Steel I/Wide Flange
W6X25	A992Fy50	Steel I/Wide Flange
W8X18	A992Fy50	Steel I/Wide Flange
W8X21	A992Fy50	Steel I/Wide Flange
W8x28	A992Fy50	Steel I/Wide Flange

**1.3 Shell Sections**

**Table 1.3 - Shell Sections - Summary**

Name	Design Type	Element Type	Material	Total Thickness in	Deck Material	Deck Depth in
CW10A	Wall	Shell-Thin	4000Psi	10		
CW12A	Wall	Shell-Thin	4000Psi	12		
Floors	Deck	Membrane	4000Psi	4	A992Fy50	1.5
Roof	Deck	Membrane	Not Applicable	1.5	A992Fy50	1.5

## 2 Assignments

This chapter provides a listing of the assignments applied to the model.

### 2.1 Frame Assignments

Table 2.1 - Frame Assignments - Summary (Part 1 of 2)

Story	Label	Unique Name	Design Type	Length in	Analysis Section	Design Section	Axis Angle deg	Max Station Spacing in
Story5	C53	3 E-7	Column	207.5664	HSS6X6X1/2	HSS6X6X1/2	90	
Story5	C54	3 E-8(+)	Column	207.5673	HSS6X6X1/2	HSS6X6X1/2	90	
Story5	C55	3 E-9(-)	Column	207.5664	HSS6X6X1/2	HSS6X6X1/2	90	
Story5	C56	3 E-10	Column	207.5664	HSS6X6X1/2	HSS6X6X1/2	90	
Story5	C2	3 H-8	Column	165.5096	HSS6X6X1/2	HSS6X6X1/2	90	
Story5	C6	3 H-7	Column	165.5096	HSS6X6X1/2	HSS6X6X1/2	90	
Story5	C46	3 H-9	Column	165.5096	HSS6X6X1/2	HSS6X6X1/2	90	
Story5	C47	3 H-10	Column	165.5096	HSS6X6X1/2	HSS6X6X1/2	90	
Story4	C26	3 H-2	Column	156	HSS6X6X1/2	HSS6X6X1/2	90	
Story4	C29	3 G-7	Column	156	HSS6X6X1/2	HSS6X6X1/2	90	
Story4	C32	3 G-10	Column	156	HSS6X6X1/2	HSS6X6X1/2	90	
Story4	C34	3 G(-)-7	Column	151.2386	HSS6X6X1/2	HSS6X6X1/2	90	
Story4	C39	3 G(-)-10	Column	151	HSS6X6X1/2	HSS6X6X1/2	90	
Story4	C40	3 F+-2	Column	150.1667	HSS6X6X1/2	HSS6X6X1/2	90	
Story4	C42	3 F-10	Column	136.8333	HSS6X6X1/2	HSS6X6X1/2	90	
Story4	C44	3 F-7	Column	135.1093	HSS6X6X1/2	HSS6X6X1/2	90	
Story4	C45	3 E-2	Column	116	HSS6X6X1/2	HSS6X6X1/2	90	
Story3	C30	3 G-8(+)	Column	108	HSS6X6X1/2	HSS6X6X1/2	90	
Story3	C59	2 C-8	Column	108	W10X45	W10X45	90	
Story3	C61	2 C-9	Column	108	W10X45	W10X45	90	
Story2	C27	1 I-3	Column	186	W10X49	W10X49	90	
Story2	C35	1E-3	Column	78	W10X49	W10X49	90	
Story5	B62	RB11-1 HIGH	Beam	288	Stand-in member	/2X3-1/2X1/4		24
Story5	B139	RB8-1	Beam	198.5103	W10X22	W10X22		
Story5	B140	RB8-2	Beam	198.5103	W10X22	W10X22		
Story5	B204	RB5x	Beam	102	W16X26	W16X26		24
Story5	B205	RB10-3	Beam	93	W16X26	W16X26		24
Story5	B208	RB10-4	Beam	93	W16X26	W16X26		24
Story5	B5	RB9-19	Beam	158.4996	C10X15.3	C10X15.3		24
Story5	B22	RB18-1	Beam	129.5004	W16X31	W16X31		24
Story5	B1	RB12-1	Beam	221.0172	W10X39	W10X39		
Story5	B29	RB19-1	Beam	73.6724	W10X22	W10X22		
Story5	B30	RB12-2	Beam	221.0172	W10X39	W10X39		
Story5	B31	RB19-3	Beam	73.6724	W10X22	W10X22		
Story4	B7	RB4-1	Beam	48	W16X26	W16X26		24
Story4	B9	RB5-1	Beam	144	W16X26	W16X26		24
Story4	B10	RB4-3	Beam	48	W16X40	W16X40		24
Story4	B12	RB6-1	Beam	192	W16X26	W16X26		24
Story4	B14	RB4-4	Beam	48	W16X26	W16X26		24

**Table 2.1 - Frame Assignments - Summary (Part 1 of 2, continued)**

Story	Label	Unique Name	Design Type	Length in	Analysis Section	Design Section	Axis Angle deg	Max Station Spacing in
Story4	B15	RB5-3	Beam	168	W16X26	W16X26		24
Story4	B33	RB2-1b	Beam	72.9892	W16X31	W16X31		
Story4	B56	RB2-3b	Beam	72.9892	W16X31	W16X31		
Story4	B61	RB10-1	Beam	48	W16X26	W16X26		24
Story4	B63	RB11-1	Beam	192	W16X26	W16X26		24
Story4	B65	RB10-2	Beam	48	W16X26	W16X26		24
Story4	B77	RB2-2a	Beam	53.004	W16X31	W16X31		24
Story4	B90	RB17-1a	Beam	53.004	W12X35	W12X35		24
Story4	B91	RB17-2a	Beam	53.004	W12X35	W12X35		24
Story4	B95	RB2-3c	Beam	53.004	W16X31	W16X31		24
Story4	B113	RB2-2b	Beam	42.2966	W16X31	W16X31		
Story4	B126	RB17-1b	Beam	42.2966	W12X35	W12X35		
Story4	B127	RB17-2b	Beam	42.2966	W12X35	W12X35		
Story4	B131	RB2-4a	Beam	42.2966	W16X31	W16X31		
Story4	B153	RB2-2c	Beam	56.0446	W16X31	W16X31		
Story4	B167	RB17-1c	Beam	56.0446	W12X35	W12X35		
Story4	B172	RB2-4b	Beam	56.0446	W16X31	W16X31		
Story4	B200	RB4-2	Beam	48	W16X26	W16X26		24
Story4	B202	RB5-2	Beam	144	W16X26	W16X26		24
Story4	B210	RB3-1	Beam	168	W16X26	W16X26		24
Story4	B224	RB17-2c	Beam	56.0446	W12X35	W12X35		
Story4	B300	RB16-2	Beam	408	W24X117	W24X117		24
Story4	B302	RB16-1	Beam	408	W24X117	W24X117		24
Story3	B61	Collect1	Beam	48	W8X21	W8X21		24
Story3	B63	Collect2	Beam	192	W8X21	W8X21		24
Story3	B65	Collect3	Beam	48	W8X21	W8X21		24
Story3	B101	3B15-1	Beam	144	W16X45	W16X45		24
Story3	B103	3B15-2	Beam	144	W16X45	W16X45		24
Story3	B112	3B3-1	Beam	39.996	W8X21	W8X21		24
Story3	B168	3B3-2	Beam	58.008	W8X21	W8X21		24
Story3	B193	3B3-3	Beam	42.996	W8X21	W8X21		24
Story3	B203	3B1-1	Beam	102	W8X18	W8X18		24
Story3	B206	3B2-1	Beam	93	W12X79	W12X79		24
Story3	B209	3B2-2	Beam	93	W12X79	W12X79		24
Story3	B234	3B10-1	Beam	288	W30X90	W30X90		24
Story3	B243	3B9-1	Beam	312	W10X68	W10X68		24
Story3	B244	3B8-1	Beam	312	W18X46	W18X46		24
Story3	B245	3B4-1	Beam	288	W12X35	W12X35		24
Story3	B23	3B3-4	Beam	42	W8X21	W8X21		24
Story3	B25	3B4-5	Beam	51	W8X21	W8X21		24
Story3	B28	3B3-6	Beam	48	W8X21	W8X21		24
Story2	B6	2B4-1	Beam	288	W27X129	W27X129		24
Story2	B8	2B1-1	Beam	144	W12X26	W12X26		24
Story2	B13	2B9-R-1	Beam	456	W27X129	W27X129		24

Table 2.1 - Frame Assignments - Summary (Part 1 of 2, continued)

Story	Label	Unique Name	Design Type	Length in	Analysis Section	Design Section	Axis Angle deg	Max Station Spacing in
Story2	B64	2B5-R-1	Beam	456	W27X129	W27X129		24
Story2	B73	2B2-1	Beam	336	W27X129	W27X129		24
Story2	B74	2B7-1	Beam	336	W27X146	W27X146		24
Story2	B105	2B5-R-2	Beam	456	W27X129	W27X129		24
Story2	B195	2B4-4C	Beam	168	W27X129	W27X129		24
Story2	B199	2B4-4	Beam	288	W27X129	W27X129		24
Story2	B201	2B1-8	Beam	144	W12X26	W12X26		24
Story2	B207	2B4-R-2	Beam	456	W27X102	W27X102		24
Story2	B254	2B4-1C	Beam	168	W27X129	W27X129		24
Story2	B2	2B2-2	Beam	195	W27X129	W27X129		24
Story2	B19	2B2-3	Beam	141	W27X129	W27X129		24
Story2	B60	2D2	Beam	344.9348	HSS4X0.250	HSS4X0.250		
Story5	D72	RD5	Brace	136.2448	HSS3X3X1/4	HSS3X3X1/4		
Story5	D74	RD6	Brace	136.2442	HSS3X3X1/4	HSS3X3X1/4		
Story5	D79	4 A(+)-7	Brace	163.7681	HSS6X6X3/8	HSS6X6X3/8	90	
Story5	D52	4 A(+)-8(+)	Brace	163.7681	HSS6X6X3/8	HSS6X6X3/8	90	
Story5	D77	4 A(+)-9(-)	Brace	163.7681	HSS6X6X3/8	HSS6X6X3/8	90	
Story5	D78	RD7	Brace	176.1038	HSS2-1/2X2-1/2X3/16	HSS2-1/2X2-1/2X3/16		
Story5	D81	RD8	Brace	176.104	HSS2-1/2X2-1/2X3/16	HSS2-1/2X2-1/2X3/16		
Story4	D1	RB2-1a	Brace	75.3923	W16X31	W16X31		
Story4	D24	RB2-3a	Brace	75.3923	W16X31	W16X31		
Story4	D39	RD1	Brace	58.9004	HSS2X2X1/4	HSS2X2X1/4		
Story4	D43	RD2	Brace	60.1082	HSS2X2X1/4	HSS2X2X1/4		
Story4	D48	RB2-2d	Brace	49.2443	W16X31	W16X31		
Story4	D62	RB17-1d	Brace	49.2443	W12X35	W12X35		
Story4	D63	RB17-2d	Brace	49.2443	W12X35	W12X35		
Story4	D68	RB2-4c	Brace	49.2443	W16X31	W16X31		
Story4	D45	RD10	Brace	150.5722	HSS3X3X1/4	HSS3X3X1/4		
Story4	D28	RD3	Brace	67.8823	HSS2X2X1/4	HSS2X2X1/4		
Story4	D25	RD4	Brace	67.8823	HSS2X2X1/4	HSS2X2X1/4		
Story4	D26	RD9	Brace	183.1721	HSS3X3X1/4	HSS3X3X1/4		
Story3	D40	3D1	Brace	115.1681	HSS3X3X3/8	HSS3X3X3/8		
Story3	D42	3D3	Brace	115.8792	HSS3X3X3/8	HSS3X3X3/8		
Story3	D47	3D4	Brace	118.1863	HSS3X3X3/8	HSS3X3X3/8		
Story3	D70	3D2	Brace	116.244	HSS3X3X3/8	HSS3X3X3/8		
Story3	D71	3D9	Brace	142.5237	HSS3X3X1/4	HSS3X3X1/4		
Story3	D73	3D10	Brace	142.5237	HSS3X3X1/4	HSS3X3X1/4		
Story3	D75	3D11a	Brace	220.2907	HSS4X0.250	HSS4X0.250		
Story3	D76	3D11b	Brace	220.2907	HSS4X0.250	HSS4X0.250		
Story3	D27	3D5	Brace	118.1863	HSS3X3X3/8	HSS3X3X3/8		
Story3	D36	3D6	Brace	118.1863	HSS3X3X3/8	HSS3X3X3/8		
Story3	D80	3D7	Brace	180	HSS3-1/2X3-1/2X1/4	HSS3-1/2X3-1/2X1/4		
Story3	D82	3D8	Brace	180	HSS3-1/2X3-1/2X1/4	HSS3-1/2X3-1/2X1/4		
Story2	D83	2D1	Brace	384.0469	HSS4X0.250	HSS4X0.250		

**Table 2.1 - Frame Assignments - Summary (Part 2 of 2)**

Story	Label	Unique Name	Min Number Stations	Releases	T/C Limits
Story5	C53	3 E-7	3	Yes	No
Story5	C54	3 E-8(+)	3	Yes	No
Story5	C55	3 E-9(-)	3	Yes	No
Story5	C56	3 E-10	3	Yes	No
Story5	C2	3 H-8	3	Yes	No
Story5	C6	3 H-7	3	Yes	No
Story5	C46	3 H-9	3	Yes	No
Story5	C47	3 H-10	3	Yes	No
Story4	C26	3 H-2	3	Yes	No
Story4	C29	3 G-7	3	Yes	No
Story4	C32	3 G-10	3	Yes	No
Story4	C34	3 G(-)-7	3	Yes	No
Story4	C39	3 G(-)-10	3	Yes	No
Story4	C40	3 F+-2	3	Yes	No
Story4	C42	3 F-10	3	Yes	No
Story4	C44	3 F-7	3	Yes	No
Story4	C45	3 E-2	3	Yes	No
Story3	C30	3 G-8(+)	3	Yes	No
Story3	C59	2 C-8	3	Yes	No
Story3	C61	2 C-9	3	Yes	No
Story2	C27	1 I-3	3	Yes	No
Story2	C35	1E-3	3	Yes	No
Story5	B62	RB11-1 HIGH		Yes	No
Story5	B139	RB8-1	3	Yes	No
Story5	B140	RB8-2	3	Yes	No
Story5	B204	RB5x		Yes	No
Story5	B205	RB10-3		Yes	No
Story5	B208	RB10-4		Yes	No
Story5	B5	RB9-19		Yes	No
Story5	B22	RB18-1		Yes	No
Story5	B1	RB12-1	3	Yes	No
Story5	B29	RB19-1	3	Yes	No
Story5	B30	RB12-2	3	Yes	No
Story5	B31	RB19-3	3	Yes	No
Story4	B7	RB4-1		Yes	No
Story4	B9	RB5-1		Yes	No
Story4	B10	RB4-3		Yes	No
Story4	B12	RB6-1		Yes	No
Story4	B14	RB4-4		Yes	No
Story4	B15	RB5-3		Yes	No
Story4	B33	RB2-1b	3	Yes	No
Story4	B56	RB2-3b	3	No	No
Story4	B61	RB10-1		Yes	No
Story4	B63	RB11-1		Yes	No
Story4	B65	RB10-2		Yes	No



**Table 2.1 - Frame Assignments - Summary (Part 2 of 2, continued)**

Story	Label	Unique Name	Min Number Stations	Releases	T/C Limits
Story4	B77	RB2-2a		No	No
Story4	B90	RB17-1a		Yes	No
Story4	B91	RB17-2a		Yes	No
Story4	B95	RB2-3c		Yes	No
Story4	B113	RB2-2b	3	No	No
Story4	B126	RB17-1b	3	No	No
Story4	B127	RB17-2b	3	No	No
Story4	B131	RB2-4a	3	Yes	No
Story4	B153	RB2-2c	3	No	No
Story4	B167	RB17-1c	3	No	No
Story4	B172	RB2-4b	3	No	No
Story4	B200	RB4-2		Yes	No
Story4	B202	RB5-2		Yes	No
Story4	B210	RB3-1		No	No
Story4	B224	RB17-2c	3	No	No
Story4	B300	RB16-2		Yes	No
Story4	B302	RB16-1		Yes	No
Story3	B61	Collect1		Yes	No
Story3	B63	Collect2		Yes	No
Story3	B65	Collect3		Yes	No
Story3	B101	3B15-1		Yes	No
Story3	B103	3B15-2		Yes	No
Story3	B112	3B3-1		Yes	No
Story3	B168	3B3-2		Yes	No
Story3	B193	3B3-3		Yes	No
Story3	B203	3B1-1		Yes	No
Story3	B206	3B2-1		Yes	No
Story3	B209	3B2-2		Yes	No
Story3	B234	3B10-1		Yes	No
Story3	B243	3B9-1		Yes	No
Story3	B244	3B8-1		Yes	No
Story3	B245	3B4-1		Yes	No
Story3	B23	3B3-4		Yes	No
Story3	B25	3B4-5		Yes	No
Story3	B28	3B3-6		Yes	No
Story2	B6	2B4-1		Yes	No
Story2	B8	2B1-1		Yes	No
Story2	B13	2B9-R-1		Yes	No
Story2	B64	2B5-R-1		Yes	No
Story2	B73	2B2-1		Yes	No
Story2	B74	2B7-1		Yes	No
Story2	B105	2B5-R-2		Yes	No
Story2	B195	2B4-4C		No	No

**Table 2.1 - Frame Assignments - Summary (Part 2 of 2, continued)**

Story	Label	Unique Name	Min Number Stations	Releases	T/C Limits
Story2	B199	2B4-4		Yes	No
Story2	B201	2B1-8		Yes	No
Story2	B207	2B4-R-2		Yes	No
Story2	B254	2B4-1C		No	No
Story2	B2	2B2-2		Yes	No
Story2	B19	2B2-3		Yes	No
Story2	B60	2D2	3	Yes	Yes
Story5	D72	RD5	3	Yes	No
Story5	D74	RD6	3	Yes	No
Story5	D79	4 A(+)-7	3	Yes	No
Story5	D52	4 A(+)-8(+)	3	Yes	No
Story5	D77	4 A(+)-9(-)	3	Yes	No
Story5	D78	RD7	3	Yes	No
Story5	D81	RD8	3	Yes	No
Story4	D1	RB2-1a	3	Yes	No
Story4	D24	RB2-3a	3	Yes	No
Story4	D39	RD1	3	Yes	No
Story4	D43	RD2	3	Yes	No
Story4	D48	RB2-2d	3	Yes	No
Story4	D62	RB17-1d	3	Yes	No
Story4	D63	RB17-2d	3	Yes	No
Story4	D68	RB2-4c	3	Yes	No
Story4	D45	RD10	3	Yes	No
Story4	D28	RD3	3	Yes	No
Story4	D25	RD4	3	Yes	No
Story4	D26	RD9	3	Yes	No
Story3	D40	3D1	3	Yes	No
Story3	D42	3D3	3	Yes	No
Story3	D47	3D4	3	Yes	No
Story3	D70	3D2	3	Yes	No
Story3	D71	3D9	3	Yes	No
Story3	D73	3D10	3	Yes	No
Story3	D75	3D11a	3	Yes	Yes
Story3	D76	3D11b	3	Yes	Yes
Story3	D27	3D5	3	Yes	No
Story3	D36	3D6	3	Yes	No
Story3	D80	3D7	3	Yes	No
Story3	D82	3D8	3	Yes	No
Story2	D83	2D1	3	Yes	Yes

Table 2.2 - Frame Assignments - Sections

Story	Label	Unique Name	Design Type	Section Type	Analysis Section	Design Procedure	Design Section
Story5	C53	3 E-7	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C54	3 E-8(+)	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C55	3 E-9(-)	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C56	3 E-10	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C2	3 H-8	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C6	3 H-7	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C46	3 H-9	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story5	C47	3 H-10	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C26	3 H-2	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C29	3 G-7	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C32	3 G-10	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C34	3 G(-)-7	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C39	3 G(-)-10	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C40	3 F+-2	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C42	3 F-10	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C44	3 F-7	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story4	C45	3 E-2	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story3	C30	3 G-8(+)	Column	Steel Tube	HSS6X6X1/2	Steel Frame Design	HSS6X6X1/2
Story3	C59	2 C-8	Column	Steel I/Wide Flange	W10X45	Steel Frame Design	W10X45
Story3	C61	2 C-9	Column	Steel I/Wide Flange	W10X45	Steel Frame Design	W10X45
Story2	C27	1 I-3	Column	Steel I/Wide Flange	W10X49	Steel Frame Design	W10X49
Story2	C35	1E-3	Column	Steel I/Wide Flange	W10X49	Steel Frame Design	W10X49
Story5	B62	RB11-1 HIGH	Beam	Steel Tube	Stand-in member	I Frame Design	HSS3-1/2X3-1/2X1/4
Story5	B139	RB8-1	Beam	Steel I/Wide Flange	W10X22	Steel Frame Design	W10X22
Story5	B140	RB8-2	Beam	Steel I/Wide Flange	W10X22	Steel Frame Design	W10X22
Story5	B204	RB5x	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story5	B205	RB10-3	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story5	B208	RB10-4	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story5	B5	RB9-19	Beam	Steel Channel	C10X15.3	Steel Frame Design	C10X15.3
Story5	B22	RB18-1	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story5	B1	RB12-1	Beam	Steel I/Wide Flange	W10X39	Steel Frame Design	W10X39
Story5	B29	RB19-1	Beam	Steel I/Wide Flange	W10X22	Steel Frame Design	W10X22
Story5	B30	RB12-2	Beam	Steel I/Wide Flange	W10X39	Steel Frame Design	W10X39
Story5	B31	RB19-3	Beam	Steel I/Wide Flange	W10X22	Steel Frame Design	W10X22
Story4	B7	RB4-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B9	RB5-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B10	RB4-3	Beam	Steel I/Wide Flange	W16X40	Steel Frame Design	W16X40
Story4	B12	RB6-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B14	RB4-4	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B15	RB5-3	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B33	RB2-1b	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B56	RB2-3b	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B61	RB10-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B63	RB11-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B65	RB10-2	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26

Table 2.2 - Frame Assignments - Sections (continued)

Story	Label	Unique Name	Design Type	Section Type	Analysis Section	Design Procedure	Design Section
Story4	B77	RB2-2a	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B90	RB17-1a	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B91	RB17-2a	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B95	RB2-3c	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B113	RB2-2b	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B126	RB17-1b	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B127	RB17-2b	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B131	RB2-4a	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B153	RB2-2c	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B167	RB17-1c	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B172	RB2-4b	Beam	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	B200	RB4-2	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B202	RB5-2	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B210	RB3-1	Beam	Steel I/Wide Flange	W16X26	Steel Frame Design	W16X26
Story4	B224	RB17-2c	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	B300	RB16-2	Beam	Steel I/Wide Flange	W24X117	Steel Frame Design	W24X117
Story4	B302	RB16-1	Beam	Steel I/Wide Flange	W24X117	Steel Frame Design	W24X117
Story3	B61	Collect1	Beam	Steel I/Wide Flange	W8X21	Steel Frame Design	W8X21
Story3	B63	Collect2	Beam	Steel I/Wide Flange	W8X21	Steel Frame Design	W8X21
Story3	B65	Collect3	Beam	Steel I/Wide Flange	W8X21	Steel Frame Design	W8X21
Story3	B101	3B15-1	Beam	Steel I/Wide Flange	W16X45	Steel Frame Design	W16X45
Story3	B103	3B15-2	Beam	Steel I/Wide Flange	W16X45	Steel Frame Design	W16X45
Story3	B112	3B3-1	Beam	Steel I/Wide Flange	W8X21	Steel Frame Design	W8X21
Story3	B168	3B3-2	Beam	Steel I/Wide Flange	W8X21	Steel Frame Design	W8X21
Story3	B193	3B3-3	Beam	Steel I/Wide Flange	W8X21	Steel Frame Design	W8X21
Story3	B203	3B1-1	Beam	Steel I/Wide Flange	W8X18	Steel Frame Design	W8X18
Story3	B206	3B2-1	Beam	Steel I/Wide Flange	W12X79	Steel Frame Design	W12X79
Story3	B209	3B2-2	Beam	Steel I/Wide Flange	W12X79	Steel Frame Design	W12X79
Story3	B234	3B10-1	Beam	Steel I/Wide Flange	W30X90	Steel Frame Design	W30X90
Story3	B243	3B9-1	Beam	Steel I/Wide Flange	W10X68	Steel Frame Design	W10X68
Story3	B244	3B8-1	Beam	Steel I/Wide Flange	W18X46	Steel Frame Design	W18X46
Story3	B245	3B4-1	Beam	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story3	B23	3B3-4	Beam	Steel I/Wide Flange	W8X21	Steel Frame Design	W8X21
Story3	B25	3B4-5	Beam	Steel I/Wide Flange	W8X21	Steel Frame Design	W8X21
Story3	B28	3B3-6	Beam	Steel I/Wide Flange	W8X21	Steel Frame Design	W8X21
Story2	B6	2B4-1	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B8	2B1-1	Beam	Steel I/Wide Flange	W12X26	Steel Frame Design	W12X26
Story2	B13	2B9-R-1	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B64	2B5-R-1	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B73	2B2-1	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B74	2B7-1	Beam	Steel I/Wide Flange	W27X146	Steel Frame Design	W27X146
Story2	B105	2B5-R-2	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B195	2B4-4C	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B199	2B4-4	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B201	2B1-8	Beam	Steel I/Wide Flange	W12X26	Steel Frame Design	W12X26

**Table 2.2 - Frame Assignments - Sections (continued)**

Story	Label	Unique Name	Design Type	Section Type	Analysis Section	Design Procedure	Design Section
Story2	B207	2B4-R-2	Beam	Steel I/Wide Flange	W27X102	Steel Frame Design	W27X102
Story2	B254	2B4-1C	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B2	2B2-2	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B19	2B2-3	Beam	Steel I/Wide Flange	W27X129	Steel Frame Design	W27X129
Story2	B60	2D2	Beam	Steel Pipe	HSS4X0.250	Steel Frame Design	HSS4X0.250
Story5	D72	RD5	Brace	Steel Tube	HSS3X3X1/4	Steel Frame Design	HSS3X3X1/4
Story5	D74	RD6	Brace	Steel Tube	HSS3X3X1/4	Steel Frame Design	HSS3X3X1/4
Story5	D79	4 A(+)-7	Brace	Steel Tube	HSS6X6X3/8	Steel Frame Design	HSS6X6X3/8
Story5	D52	4 A(+)-8(+)	Brace	Steel Tube	HSS6X6X3/8	Steel Frame Design	HSS6X6X3/8
Story5	D77	4 A(+)-9(-)	Brace	Steel Tube	HSS6X6X3/8	Steel Frame Design	HSS6X6X3/8
Story5	D78	RD7	Brace	Steel Tube	HSS2-1/2X2-1/2X3/16	Steel Frame Design	HSS2-1/2X2-1/2X3/16
Story5	D81	RD8	Brace	Steel Tube	HSS2-1/2X2-1/2X3/16	Steel Frame Design	HSS2-1/2X2-1/2X3/16
Story4	D1	RB2-1a	Brace	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	D24	RB2-3a	Brace	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	D39	RD1	Brace	Steel Tube	HSS2X2X1/4	Steel Frame Design	HSS2X2X1/4
Story4	D43	RD2	Brace	Steel Tube	HSS2X2X1/4	Steel Frame Design	HSS2X2X1/4
Story4	D48	RB2-2d	Brace	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	D62	RB17-1d	Brace	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	D63	RB17-2d	Brace	Steel I/Wide Flange	W12X35	Steel Frame Design	W12X35
Story4	D68	RB2-4c	Brace	Steel I/Wide Flange	W16X31	Steel Frame Design	W16X31
Story4	D45	RD10	Brace	Steel Tube	HSS3X3X1/4	Steel Frame Design	HSS3X3X1/4
Story4	D28	RD3	Brace	Steel Tube	HSS2X2X1/4	Steel Frame Design	HSS2X2X1/4
Story4	D25	RD4	Brace	Steel Tube	HSS2X2X1/4	Steel Frame Design	HSS2X2X1/4
Story4	D26	RD9	Brace	Steel Tube	HSS3X3X1/4	Steel Frame Design	HSS3X3X1/4
Story3	D40	3D1	Brace	Steel Tube	HSS3X3X3/8	Steel Frame Design	HSS3X3X3/8
Story3	D42	3D3	Brace	Steel Tube	HSS3X3X3/8	Steel Frame Design	HSS3X3X3/8
Story3	D47	3D4	Brace	Steel Tube	HSS3X3X3/8	Steel Frame Design	HSS3X3X3/8
Story3	D70	3D2	Brace	Steel Tube	HSS3X3X3/8	Steel Frame Design	HSS3X3X3/8
Story3	D71	3D9	Brace	Steel Tube	HSS3X3X1/4	Steel Frame Design	HSS3X3X1/4
Story3	D73	3D10	Brace	Steel Tube	HSS3X3X1/4	Steel Frame Design	HSS3X3X1/4
Story3	D75	3D11a	Brace	Steel Pipe	HSS4X0.250	Steel Frame Design	HSS4X0.250
Story3	D76	3D11b	Brace	Steel Pipe	HSS4X0.250	Steel Frame Design	HSS4X0.250
Story3	D27	3D5	Brace	Steel Tube	HSS3X3X3/8	Steel Frame Design	HSS3X3X3/8
Story3	D36	3D6	Brace	Steel Tube	HSS3X3X3/8	Steel Frame Design	HSS3X3X3/8
Story3	D80	3D7	Brace	Steel Tube	HSS3-1/2X3-1/2X1/4	Steel Frame Design	HSS3-1/2X3-1/2X1/4
Story3	D82	3D8	Brace	Steel Tube	HSS3-1/2X3-1/2X1/4	Steel Frame Design	HSS3-1/2X3-1/2X1/4
Story2	D83	2D1	Brace	Steel Pipe	HSS4X0.250	Steel Frame Design	HSS4X0.250

**2.2 Shell Assignments**

**Table 2.3 - Shell Assignments - Summary**

Story	Label	Unique Name	Section	Diaphragm	Axis Angle deg	Pier
Story2	W14	1	CW10A			P2
Story2	W20	5	CW10A			P5
Story2	W26	6	CW10A			P4
Story2	W27	2	CW10A			P1
Story2	W28	4	CW10A			P6
Story2	W42	3	CW12A			P3
Story1	W14	14	CW10A			P2
Story1	W20	15	CW10A			P5
Story1	W26	7	CW10A			P4
Story1	W27	12	CW10A			P1
Story1	W28	13	CW10A			P6
Story1	W42	11	CW12A			P3
Story3	F88	24	Floors	D1	90	
Story2	F25	8	Floors	D1	90	
Story1	F1	19	Floors	D1	90	
Story1	F69	17	Floors	D1		

### 3 Loads

This chapter provides loading information as applied to the model.

#### 3.1 Load Patterns

Table 3.1 - Load Patterns

Name	Type	Self Weight Multiplier
Dead	Dead	0
Live	Live	0
Snow	Snow	0

#### 3.2 Applied Loads

##### 3.2.1 Line Loads

Table 3.2 - Frame Loads - Distributed

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start in	Absolute Distance End in	Force at Start kip/ft	Force at End kip/ft
Story5	B102	RB13-1	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.085	0.085
Story5	B104	RB13-2	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.085	0.085
Story5	B139	RB8-1	Beam	Dead	Force	Gravity Proj	0	1	0	198.5103	0.085	0.085
Story5	B140	RB8-2	Beam	Dead	Force	Gravity Proj	0	1	0	198.5103	0.085	0.085
Story5	B233	RB9-15	Beam	Dead	Force	Gravity Proj	0	1	0	102	0.085	0.085
Story5	B235	RB9-16	Beam	Dead	Force	Gravity Proj	0	1	0	186	0.085	0.085
Story5	B1	RB12-1	Beam	Dead	Force	Gravity Proj	0	1	0	221.0172	0.085	0.085
Story5	B29	RB19-1	Beam	Dead	Force	Gravity Proj	0	1	0	73.6724	0.085	0.085
Story5	B30	RB12-2	Beam	Dead	Force	Gravity Proj	0	1	0	221.0172	0.085	0.085
Story5	B31	RB19-3	Beam	Dead	Force	Gravity Proj	0	1	0	73.6724	0.085	0.085
Story4	B7	RB4-1	Beam	Dead	Force	Gravity Proj	0	1	0	48	0.108	0.108
Story4	B9	RB5-1	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.108	0.108
Story4	B10	RB4-3	Beam	Dead	Force	Gravity Proj	0	1	0	48	0.108	0.108
Story4	B12	RB6-1	Beam	Dead	Force	Gravity Proj	0	1	0	192	0.108	0.108
Story4	B14	RB4-4	Beam	Dead	Force	Gravity Proj	0	1	0	48	0.108	0.108
Story4	B15	RB5-3	Beam	Dead	Force	Gravity Proj	0	1	0	168	0.108	0.108
Story4	B33	RB2-1b	Beam	Dead	Force	Gravity Proj	0	1	0	72.9892	0.148	0.148
Story4	B56	RB2-3b	Beam	Dead	Force	Gravity Proj	0	1	0	72.9892	0.148	0.148
Story4	B77	RB2-2a	Beam	Dead	Force	Gravity Proj	0	1	0	53.004	0.148	0.148
Story4	B95	RB2-3c	Beam	Dead	Force	Gravity Proj	0	1	0	53.004	0.148	0.148
Story4	B113	RB2-2b	Beam	Dead	Force	Gravity Proj	0	1	0	42.2966	0.148	0.148
Story4	B131	RB2-4a	Beam	Dead	Force	Gravity Proj	0	1	0	42.2966	0.148	0.148
Story4	B153	RB2-2c	Beam	Dead	Force	Gravity Proj	0	1	0	56.0446	0.148	0.148
Story4	B172	RB2-4b	Beam	Dead	Force	Gravity Proj	0	1	0	56.0446	0.148	0.148
Story4	B200	RB4-2	Beam	Dead	Force	Gravity Proj	0	1	0	48	0.108	0.108
Story4	B202	RB5-2	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.108	0.108
Story4	B210	RB3-1	Beam	Dead	Force	Gravity Proj	0	1	0	168	0.108	0.108
Story4	B300	RB16-2	Beam	Dead	Force	Gravity Proj	0	0.294118	0	120	0.108	0.108
Story4	B300	RB16-2	Beam	Dead	Force	Gravity Proj	0.294118	0.411765	120	168	0.108	0.108

Table 3.2 - Frame Loads - Distributed (continued)

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start in	Absolute Distance End in	Force at Start kip/ft	Force at End kip/ft
Story4	B300	RB16-2	Beam	Dead	Force	Gravity Proj	0.411765	0.529412	168	216	0.108	0.108
Story4	B300	RB16-2	Beam	Dead	Force	Gravity Proj	0.529412	1	216	408	0.108	0.108
Story4	B302	RB16-1	Beam	Dead	Force	Gravity Proj	0	0.411765	0	168	0.108	0.108
Story4	B302	RB16-1	Beam	Dead	Force	Gravity Proj	0.411765	0.529412	168	216	0.108	0.108
Story4	B302	RB16-1	Beam	Dead	Force	Gravity Proj	0.529412	1	216	408	0.108	0.108
Story3	B101	3B15-1	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.128	0.128
Story3	B103	3B15-2	Beam	Dead	Force	Gravity Proj	0	1	0	144	0.128	0.128
Story3	B234	3B10-1	Beam	Dead	Force	Gravity Proj	0	1	0	288	0.128	0.128
Story3	B243	3B9-1	Beam	Dead	Force	Gravity Proj	0	1	0	312	0.128	0.128
Story3	B244	3B8-1	Beam	Dead	Force	Gravity Proj	0	1	0	312	0.128	0.128
Story3	B23	3B3-4	Beam	Dead	Force	Gravity Proj	0	1	0	42	0.128	0.128
Story3	B25	3B4-5	Beam	Dead	Force	Gravity Proj	0	1	0	51	0.128	0.128
Story3	B28	3B3-6	Beam	Dead	Force	Gravity Proj	0	1	0	48	0.128	0.128
Story2	B6	2B4-1	Beam	Dead	Force	Gravity	0	1	0	288	0.108	0.108
Story2	B8	2B1-1	Beam	Dead	Force	Gravity	0	1	0	144	0.108	0.108
Story2	B13	2B9-R-1	Beam	Dead	Force	Gravity	0	1	0	456	0.108	0.108
Story2	B73	2B2-1	Beam	Dead	Force	Gravity	0	0.428571	0	144	0.148	0.148
Story2	B73	2B2-1	Beam	Dead	Force	Gravity	0.428571	1	144	336	0.148	0.148
Story2	B75	2B8-1	Beam	Dead	Force	Gravity Proj	0	1	0	336	0.128	0.128
Story2	B195	2B4-4C	Beam	Dead	Force	Gravity	0	1	0	168	0.108	0.108
Story2	B199	2B4-4	Beam	Dead	Force	Gravity	0	1	0	288	0.108	0.108
Story2	B201	2B1-8	Beam	Dead	Force	Gravity	0	1	0	144	0.108	0.108
Story2	B207	2B4-R-2	Beam	Dead	Force	Gravity	0	1	0	456	0.108	0.108
Story2	B254	2B4-1C	Beam	Dead	Force	Gravity	0	0.714286	0	120	0.108	0.108
Story2	B254	2B4-1C	Beam	Dead	Force	Gravity	0.714286	1	120	168	0.108	0.108
Story2	B2	2B2-2	Beam	Dead	Force	Gravity	0	1	0	195	0.148	0.148
Story2	B19	2B2-3	Beam	Dead	Force	Gravity	0	1	0	141	0.148	0.148
Story4	B33	RB2-1b	Beam	Snow	Force	Gravity	0	1	0	72.9892	0.768	0.768
Story4	B56	RB2-3b	Beam	Snow	Force	Gravity	0	1	0	72.9892	0.768	0.768
Story4	B77	RB2-2a	Beam	Snow	Force	Gravity	0	1	0	53.004	0.768	0.768
Story4	B95	RB2-3c	Beam	Snow	Force	Gravity	0	1	0	53.004	0.768	0.768
Story4	B113	RB2-2b	Beam	Snow	Force	Gravity	0	1	0	42.2966	0.768	0.768
Story4	B131	RB2-4a	Beam	Snow	Force	Gravity	0	1	0	42.2966	0.768	0.768
Story4	B153	RB2-2c	Beam	Snow	Force	Gravity	0	1	0	56.0446	0.768	0.768
Story4	B172	RB2-4b	Beam	Snow	Force	Gravity	0	1	0	56.0446	0.768	0.768
Story2	B73	2B2-1	Beam	Snow	Force	Gravity	0	1	0	336	0.768	0.768
Story2	B2	2B2-2	Beam	Snow	Force	Gravity	0	1	0	195	0.768	0.768
Story2	B19	2B2-3	Beam	Snow	Force	Gravity	0	1	0	141	0.768	0.768
Story4	D1	RB2-1a	Brace	Dead	Force	Gravity Proj	0	1	0	75.3923	0.148	0.148
Story4	D24	RB2-3a	Brace	Dead	Force	Gravity Proj	0	1	0	75.3923	0.148	0.148
Story4	D48	RB2-2d	Brace	Dead	Force	Gravity Proj	0	1	0	49.2443	0.148	0.148
Story4	D68	RB2-4c	Brace	Dead	Force	Gravity Proj	0	1	0	49.2443	0.148	0.148
Story4	D1	RB2-1a	Brace	Snow	Force	Gravity	0	1	0	75.3923	0.768	0.768
Story4	D24	RB2-3a	Brace	Snow	Force	Gravity	0	1	0	75.3923	0.768	0.768



**Table 3.2 - Frame Loads - Distributed (continued)**

Story	Label	Unique Name	Design Type	Load Pattern	LoadType	Direction	Relative Distance Start	Relative Distance End	Absolute Distance Start in	Absolute Distance End in	Force at Start kip/ft	Force at End kip/ft
Story4	D48	RB2-2d	Brace	Snow	Force	Gravity	0	1	0	49.2443	0.768	0.768
Story4	D68	RB2-4c	Brace	Snow	Force	Gravity	0	1	0	49.2443	0.768	0.768

**3.2.2 Area Loads**

**Table 3.3 - Shell Loads - Uniform**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	W1	21	Dead	Gravity	29
Story4	W2	25	Dead	Gravity	29
Story4	W3	27	Dead	Gravity	29
Story4	W4	28	Dead	Gravity	29
Story4	W5	29	Dead	Gravity	29
Story4	W6	30	Dead	Gravity	29
Story4	W7	31	Dead	Gravity	29
Story4	W8	32	Dead	Gravity	29
Story4	W9	33	Dead	Gravity	29
Story4	W10	34	Dead	Gravity	29
Story4	W11	35	Dead	Gravity	29
Story4	W12	36	Dead	Gravity	29
Story4	W13	37	Dead	Gravity	29
Story4	W15	38	Dead	Gravity	29
Story4	W16	39	Dead	Gravity	29
Story4	W17	42	Dead	Gravity	29
Story4	W18	43	Dead	Gravity	29
Story4	W19	44	Dead	Gravity	29
Story4	W21	45	Dead	Gravity	29
Story4	W22	46	Dead	Gravity	29
Story4	W23	47	Dead	Gravity	29
Story4	W24	48	Dead	Gravity	29
Story4	W25	49	Dead	Gravity	29
Story4	W29	108	Dead	Gravity	29
Story4	W30	109	Dead	Gravity	29
Story4	W31	110	Dead	Gravity	29
Story4	W32	111	Dead	Gravity	29
Story4	W33	112	Dead	Gravity	29
Story4	W34	113	Dead	Gravity	29
Story4	W35	114	Dead	Gravity	29
Story4	W36	115	Dead	Gravity	29
Story4	W37	116	Dead	Gravity	29
Story4	W38	117	Dead	Gravity	29
Story4	W39	118	Dead	Gravity	29
Story4	W40	119	Dead	Gravity	29
Story4	W41	120	Dead	Gravity	29
Story4	W43	56	Dead	Gravity	29

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	W44	57	Dead	Gravity	29
Story4	W45	58	Dead	Gravity	29
Story4	W46	59	Dead	Gravity	29
Story2	W14	1	Dead	Gravity	125
Story2	W20	5	Dead	Gravity	125
Story2	W26	6	Dead	Gravity	125
Story2	W27	2	Dead	Gravity	125
Story2	W28	4	Dead	Gravity	125
Story2	W42	3	Dead	Gravity	125
Story1	W14	14	Dead	Gravity	125
Story1	W20	15	Dead	Gravity	125
Story1	W26	7	Dead	Gravity	125
Story1	W27	12	Dead	Gravity	125
Story1	W28	13	Dead	Gravity	125
Story1	W42	11	Dead	Gravity	125
Story4	W1	21	Snow	Gravity Proj	189
Story4	W2	25	Snow	Gravity Proj	189
Story4	W3	27	Snow	Gravity Proj	189
Story4	W4	28	Snow	Gravity Proj	189
Story4	W5	29	Snow	Gravity Proj	189
Story4	W6	30	Snow	Gravity Proj	189
Story4	W7	31	Snow	Gravity Proj	189
Story4	W8	32	Snow	Gravity Proj	189
Story4	W9	33	Snow	Gravity Proj	189
Story4	W10	34	Snow	Gravity Proj	189
Story4	W11	35	Snow	Gravity Proj	189
Story4	W12	36	Snow	Gravity Proj	189
Story4	W13	37	Snow	Gravity Proj	189
Story4	W15	38	Snow	Gravity Proj	189
Story4	W16	39	Snow	Gravity Proj	189
Story4	W17	42	Snow	Gravity Proj	189
Story4	W18	43	Snow	Gravity Proj	189
Story4	W19	44	Snow	Gravity Proj	189
Story4	W21	45	Snow	Gravity Proj	189
Story4	W22	46	Snow	Gravity Proj	189
Story4	W23	47	Snow	Gravity Proj	189
Story4	W24	48	Snow	Gravity Proj	189
Story4	W25	49	Snow	Gravity Proj	189
Story4	W29	108	Snow	Gravity Proj	189
Story4	W30	109	Snow	Gravity Proj	189
Story4	W31	110	Snow	Gravity Proj	189
Story4	W32	111	Snow	Gravity Proj	189
Story4	W33	112	Snow	Gravity Proj	189
Story4	W34	113	Snow	Gravity Proj	189
Story4	W35	114	Snow	Gravity Proj	189

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	W36	115	Snow	Gravity Proj	189
Story4	W37	116	Snow	Gravity Proj	189
Story4	W38	117	Snow	Gravity Proj	189
Story4	W39	118	Snow	Gravity Proj	189
Story4	W40	119	Snow	Gravity Proj	189
Story4	W41	120	Snow	Gravity Proj	189
Story4	W43	56	Snow	Gravity Proj	189
Story4	W44	57	Snow	Gravity Proj	189
Story4	W45	58	Snow	Gravity Proj	189
Story4	W46	59	Snow	Gravity Proj	189
Story5	F27	9	Dead	Gravity Proj	29
Story5	F46	16	Dead	Gravity Proj	29
Story5	F47	87	Dead	Gravity Proj	29
Story5	F48	96	Dead	Gravity Proj	29
Story5	F66	99	Dead	Gravity Proj	29
Story5	F67	121	Dead	Gravity Proj	29
Story5	F68	123	Dead	Gravity Proj	29
Story5	F70	124	Dead	Gravity Proj	29
Story5	F71	125	Dead	Gravity Proj	29
Story5	F72	126	Dead	Gravity Proj	29
Story5	F73	127	Dead	Gravity Proj	29
Story5	F74	128	Dead	Gravity Proj	29
Story5	F75	130	Dead	Gravity Proj	29
Story5	F76	129	Dead	Gravity Proj	29
Story5	F78	131	Dead	Gravity Proj	29
Story5	F79	132	Dead	Gravity Proj	29
Story5	F80	133	Dead	Gravity Proj	29
Story5	F81	134	Dead	Gravity Proj	29
Story5	F82	136	Dead	Gravity Proj	29
Story5	F83	135	Dead	Gravity Proj	29
Story5	F84	137	Dead	Gravity Proj	29
Story5	F85	139	Dead	Gravity Proj	29
Story5	F86	138	Dead	Gravity Proj	29
Story5	F87	140	Dead	Gravity Proj	29
Story4	F2	18	Dead	Gravity	29
Story4	F3	22	Dead	Gravity	29
Story4	F4	23	Dead	Gravity	29
Story4	F5	26	Dead	Gravity	29
Story4	F6	60	Dead	Gravity	29
Story4	F7	61	Dead	Gravity	29
Story4	F8	62	Dead	Gravity	29
Story4	F9	63	Dead	Gravity	29
Story4	F10	64	Dead	Gravity	29
Story4	F11	65	Dead	Gravity	29
Story4	F12	66	Dead	Gravity	29

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	F13	67	Dead	Gravity	29
Story4	F17	71	Dead	Gravity	29
Story4	F18	72	Dead	Gravity	29
Story4	F22	76	Dead	Gravity	29
Story4	F23	77	Dead	Gravity	29
Story4	F24	78	Dead	Gravity	29
Story4	F26	10	Dead	Gravity	29
Story4	F28	20	Dead	Gravity	29
Story4	F29	79	Dead	Gravity	29
Story4	F30	80	Dead	Gravity	29
Story4	F31	81	Dead	Gravity	29
Story4	F32	82	Dead	Gravity	29
Story4	F33	83	Dead	Gravity	29
Story4	F34	84	Dead	Gravity	29
Story4	F35	85	Dead	Gravity	29
Story4	F36	86	Dead	Gravity	29
Story4	F37	88	Dead	Gravity	29
Story4	F38	89	Dead	Gravity	29
Story4	F39	90	Dead	Gravity	29
Story4	F40	91	Dead	Gravity	29
Story4	F41	92	Dead	Gravity	29
Story4	F42	40	Dead	Gravity	29
Story4	F43	41	Dead	Gravity	29
Story4	F44	50	Dead	Gravity	29
Story4	F45	51	Dead	Gravity	29
Story4	F49	93	Dead	Gravity	29
Story4	F50	94	Dead	Gravity	29
Story4	F51	95	Dead	Gravity	29
Story4	F52	97	Dead	Gravity	29
Story4	F53	98	Dead	Gravity	29
Story4	F54	100	Dead	Gravity	29
Story4	F55	101	Dead	Gravity	29
Story4	F56	102	Dead	Gravity	29
Story4	F57	103	Dead	Gravity	29
Story4	F58	104	Dead	Gravity	29
Story4	F59	105	Dead	Gravity	29
Story4	F60	106	Dead	Gravity	29
Story4	F61	107	Dead	Gravity	29
Story4	F62	52	Dead	Gravity	29
Story4	F63	53	Dead	Gravity	29
Story4	F64	54	Dead	Gravity	29
Story4	F65	55	Dead	Gravity	29
Story4	F89	69	Dead	Gravity	29
Story4	F90	70	Dead	Gravity	29
Story4	F91	68	Dead	Gravity	29

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	F92	73	Dead	Gravity	29
Story4	F93	74	Dead	Gravity	29
Story4	F94	75	Dead	Gravity	29
Story3	F88	24	Dead	Gravity	64
Story2	F25	8	Dead	Gravity	87
Story1	F1	19	Dead	Gravity Proj	57.3
Story1	F69	17	Dead	Gravity Proj	57.3
Story3	F88	24	Live	Gravity	40
Story2	F25	8	Live	Gravity	40
Story1	F1	19	Live	Gravity	40
Story1	F69	17	Live	Gravity	40
Story5	F27	9	Snow	Gravity Proj	189
Story5	F46	16	Snow	Gravity Proj	189
Story5	F47	87	Snow	Gravity Proj	189
Story5	F48	96	Snow	Gravity Proj	189
Story5	F66	99	Snow	Gravity Proj	189
Story5	F67	121	Snow	Gravity Proj	189
Story5	F68	123	Snow	Gravity Proj	189
Story5	F70	124	Snow	Gravity Proj	189
Story5	F71	125	Snow	Gravity Proj	189
Story5	F72	126	Snow	Gravity Proj	189
Story5	F73	127	Snow	Gravity Proj	189
Story5	F74	128	Snow	Gravity Proj	189
Story5	F75	130	Snow	Gravity Proj	189
Story5	F76	129	Snow	Gravity Proj	189
Story5	F78	131	Snow	Gravity Proj	189
Story5	F79	132	Snow	Gravity Proj	189
Story5	F80	133	Snow	Gravity Proj	189
Story5	F81	134	Snow	Gravity Proj	189
Story5	F82	136	Snow	Gravity Proj	189
Story5	F83	135	Snow	Gravity Proj	189
Story5	F84	137	Snow	Gravity Proj	189
Story5	F85	139	Snow	Gravity Proj	189
Story5	F86	138	Snow	Gravity Proj	189
Story5	F87	140	Snow	Gravity Proj	189
Story4	F2	18	Snow	Gravity Proj	189
Story4	F3	22	Snow	Gravity Proj	189
Story4	F4	23	Snow	Gravity Proj	189
Story4	F5	26	Snow	Gravity Proj	189
Story4	F6	60	Snow	Gravity Proj	189
Story4	F7	61	Snow	Gravity Proj	189
Story4	F8	62	Snow	Gravity Proj	189
Story4	F9	63	Snow	Gravity Proj	189
Story4	F10	64	Snow	Gravity Proj	189
Story4	F11	65	Snow	Gravity Proj	189

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	F12	66	Snow	Gravity Proj	189
Story4	F13	67	Snow	Gravity Proj	189
Story4	F17	71	Snow	Gravity Proj	189
Story4	F18	72	Snow	Gravity Proj	189
Story4	F22	76	Snow	Gravity Proj	189
Story4	F23	77	Snow	Gravity Proj	189
Story4	F24	78	Snow	Gravity Proj	189
Story4	F26	10	Snow	Gravity Proj	189
Story4	F28	20	Snow	Gravity Proj	189
Story4	F29	79	Snow	Gravity Proj	189
Story4	F30	80	Snow	Gravity Proj	189
Story4	F31	81	Snow	Gravity Proj	189
Story4	F32	82	Snow	Gravity Proj	189
Story4	F33	83	Snow	Gravity Proj	189
Story4	F34	84	Snow	Gravity Proj	189
Story4	F35	85	Snow	Gravity Proj	189
Story4	F36	86	Snow	Gravity Proj	189
Story4	F37	88	Snow	Gravity Proj	189
Story4	F38	89	Snow	Gravity Proj	189
Story4	F39	90	Snow	Gravity Proj	189
Story4	F40	91	Snow	Gravity Proj	189
Story4	F41	92	Snow	Gravity Proj	189
Story4	F42	40	Snow	Gravity Proj	189
Story4	F43	41	Snow	Gravity Proj	189
Story4	F44	50	Snow	Gravity Proj	189
Story4	F45	51	Snow	Gravity Proj	189
Story4	F49	93	Snow	Gravity Proj	189
Story4	F50	94	Snow	Gravity Proj	189
Story4	F51	95	Snow	Gravity Proj	189
Story4	F52	97	Snow	Gravity Proj	189
Story4	F53	98	Snow	Gravity Proj	189
Story4	F54	100	Snow	Gravity Proj	189
Story4	F55	101	Snow	Gravity Proj	189
Story4	F56	102	Snow	Gravity Proj	189
Story4	F57	103	Snow	Gravity Proj	189
Story4	F58	104	Snow	Gravity Proj	189
Story4	F59	105	Snow	Gravity Proj	189
Story4	F60	106	Snow	Gravity Proj	189
Story4	F61	107	Snow	Gravity Proj	189
Story4	F62	52	Snow	Gravity Proj	189
Story4	F63	53	Snow	Gravity Proj	189
Story4	F64	54	Snow	Gravity Proj	189
Story4	F65	55	Snow	Gravity Proj	189
Story4	F89	69	Snow	Gravity Proj	189
Story4	F90	70	Snow	Gravity Proj	189

**Table 3.3 - Shell Loads - Uniform (continued)**

Story	Label	Unique Name	Load Pattern	Direction	Load lb/ft²
Story4	F91	68	Snow	Gravity Proj	189
Story4	F92	73	Snow	Gravity Proj	189
Story4	F93	74	Snow	Gravity Proj	189
Story4	F94	75	Snow	Gravity Proj	189

**3.3 Functions**

**3.3.1 Response Spectrum Functions**

**Table 3.4 - Response Spectrum Function - ASCE 7-10**

Name	Period sec	Acceleration	Damping	Ss	S1	TL sec	Site Class	Fa	Fv	SDS	SD1
Response spectrum	0	0.25874	5	0.831	0.277	8	D	1.1676	1.846	0.64685	0.340895
Response spectrum	0.105	0.64685									
Response spectrum	0.527	0.64685									
Response spectrum	0.8	0.426118									
Response spectrum	1	0.340895									
Response spectrum	1.2	0.284079									
Response spectrum	1.4	0.243496									
Response spectrum	1.6	0.213059									
Response spectrum	1.8	0.189386									
Response spectrum	2	0.170447									
Response spectrum	2.5	0.136358									
Response spectrum	3	0.113632									
Response spectrum	3.5	0.097398									
Response spectrum	4	0.085224									
Response spectrum	4.5	0.075754									
Response spectrum	5	0.068179									
Response spectrum	5.5	0.061981									
Response spectrum	6	0.056816									
Response spectrum	6.5	0.052445									
Response spectrum	7	0.048699									
Response spectrum	7.5	0.045453									
Response spectrum	8	0.042612									
Response spectrum	8.5	0.037746									
Response spectrum	9	0.033669									
Response spectrum	9.5	0.030218									
Response spectrum	10	0.027272									

**3.4 Load Cases**

**Table 3.5 - Load Cases - Summary**

Name	Type
Seismic Weight	Linear Static
Dead	Linear Static
Live	Linear Static
Snow	Linear Static

**Table 3.5 - Load Cases - Summary (continued)**

Name	Type
RSX (R=MIXED)	Response Spectrum
RSY (R=MIXED)	Response Spectrum
~TorsionRSX (R=MIXED)	Linear Static
~TorsionRSY (R=MIXED)	Linear Static

**3.5 Load Combinations**

**Table 3.6 - Load Combinations**

Name	Load Case/Combo	Scale Factor	Type	Auto
(R=MIXED) D + L + S + RSX + rsy	Dead	1.32	Linear Add	No
(R=MIXED) D + L + S + RSX + rsy	Live	1		No
(R=MIXED) D + L + S + RSX + rsy	Snow	0.2		No
(R=MIXED) D + L + S + RSX + rsy	RSX (R=MIXED)	1		No
(R=MIXED) D + L + S + RSX + rsy	RSY (R=MIXED)	0.3		No
(R=MIXED) D + L + S + RSY + rsx	Dead	1.32	Linear Add	No
(R=MIXED) D + L + S + RSY + rsx	Live	1		No
(R=MIXED) D + L + S + RSY + rsx	Snow	0.2		No
(R=MIXED) D + L + S + RSY + rsx	RSY (R=MIXED)	1		No
(R=MIXED) D + L + S + RSY + rsx	RSX (R=MIXED)	0.3		No
(R=MIXED) D + RSX + rsy	Dead	0.78	Linear Add	No
(R=MIXED) D + RSX + rsy	RSX (R=MIXED)	1		No
(R=MIXED) D + RSX + rsy	RSY (R=MIXED)	0.3		No
(R=MIXED) D + RSY + rsx	Dead	0.78	Linear Add	No
(R=MIXED) D + RSY + rsx	RSX (R=MIXED)	0.3		No
(R=MIXED) D + RSY + rsx	RSY (R=MIXED)	1		No



## 4 Analysis Results

This chapter provides analysis results.

### 4.1 Modal Results

**Table 4.1 - Modal Periods and Frequencies**

Case	Mode	Period sec	Frequency cyc/sec	Circular Frequency rad/sec	Eigenvalue rad <sup>2</sup> /sec <sup>2</sup>
Modal	1	0.39	2.563	16.1056	259.3889
Modal	2	0.365	2.741	17.2199	296.525
Modal	3	0.262	3.823	24.023	577.1023
Modal	4	0.246	4.068	25.5581	653.2169
Modal	5	0.199	5.022	31.557	995.8436
Modal	6	0.189	5.297	33.2843	1107.8474
Modal	7	0.188	5.327	33.4714	1120.3378
Modal	8	0.18	5.553	34.8934	1217.5473
Modal	9	0.173	5.786	36.3559	1321.7501
Modal	10	0.169	5.919	37.1922	1383.261
Modal	11	0.167	5.979	37.5677	1411.3303
Modal	12	0.167	5.989	37.6289	1415.9304
Modal	13	0.162	6.18	38.832	1507.9234
Modal	14	0.156	6.407	40.2554	1620.4977
Modal	15	0.15	6.65	41.7821	1745.7457
Modal	16	0.141	7.098	44.5957	1988.78
Modal	17	0.136	7.364	46.2689	2140.8095
Modal	18	0.134	7.437	46.7282	2183.5283
Modal	19	0.123	8.106	50.929	2593.7598
Modal	20	0.114	8.738	54.9016	3014.1854
Modal	21	0.107	9.383	58.9523	3475.3791
Modal	22	0.105	9.532	59.8906	3586.8832
Modal	23	0.103	9.738	61.1848	3743.5809
Modal	24	0.099	10.063	63.2258	3997.498
Modal	25	0.095	10.523	66.1192	4371.753
Modal	26	0.093	10.71	67.2923	4528.2504
Modal	27	0.092	10.848	68.1628	4646.1663
Modal	28	0.09	11.116	69.845	4878.3215
Modal	29	0.088	11.348	71.3034	5084.1816
Modal	30	0.077	13.069	82.114	6742.7067
Modal	31	0.076	13.208	82.9859	6886.6642
Modal	32	0.074	13.446	84.4844	7137.62
Modal	33	0.073	13.737	86.3099	7449.3966
Modal	34	0.072	13.904	87.3585	7631.5017
Modal	35	0.071	14.069	88.3953	7813.7352
Modal	36	0.071	14.178	89.0856	7936.2526
Modal	37	0.069	14.469	90.9111	8264.8201
Modal	38	0.068	14.614	91.82	8430.9068
Modal	39	0.067	14.896	93.5928	8759.6209
Modal	40	0.066	15.063	94.6459	8957.849

Table 4.1 - Modal Periods and Frequencies (continued)

Case	Mode	Period sec	Frequency cyc/sec	Circular Frequency rad/sec	Eigenvalue rad <sup>2</sup> /sec <sup>2</sup>
Modal	41	0.064	15.629	98.2022	9643.6797
Modal	42	0.062	16.23	101.9766	10399.226
Modal	43	0.06	16.792	105.5075	11131.8279
Modal	44	0.058	17.265	108.4797	11767.8441
Modal	45	0.057	17.564	110.3567	12178.5927
Modal	46	0.056	17.737	111.4448	12419.9343
Modal	47	0.055	18.292	114.9293	13208.7528
Modal	48	0.054	18.521	116.3683	13541.5718
Modal	49	0.053	18.749	117.8046	13877.9214
Modal	50	0.052	19.146	120.301	14472.3254
Modal	51	0.051	19.546	122.8137	15083.213
Modal	52	0.05	19.905	125.0684	15642.1096
Modal	53	0.049	20.352	127.8781	16352.8206
Modal	54	0.049	20.394	128.1387	16419.5175
Modal	55	0.049	20.488	128.7271	16570.6656
Modal	56	0.047	21.185	133.1076	17717.6396
Modal	57	0.047	21.223	133.346	17781.1683
Modal	58	0.046	21.517	135.1972	18278.2931
Modal	59	0.046	21.749	136.656	18674.8617
Modal	60	0.045	22.021	138.3637	19144.512
Modal	61	0.045	22.212	139.5594	19476.8163
Modal	62	0.043	23.219	145.8922	21284.5418
Modal	63	0.043	23.456	147.3799	21720.8423
Modal	64	0.042	23.655	148.6277	22090.1991
Modal	65	0.042	23.8	149.5367	22361.2339
Modal	66	0.041	24.164	151.827	23051.4258
Modal	67	0.041	24.61	154.6299	23910.3973
Modal	68	0.04	25.118	157.8233	24908.1883
Modal	69	0.04	25.281	158.8438	25231.3374
Modal	70	0.039	25.339	159.2066	25346.7407
Modal	71	0.039	25.678	161.3407	26030.8103
Modal	72	0.039	25.856	162.4576	26392.4668
Modal	73	0.038	26.116	164.0917	26926.0838
Modal	74	0.038	26.239	164.8666	27180.9909
Modal	75	0.038	26.407	165.9227	27530.3285
Modal	76	0.038	26.506	166.5403	27735.6812
Modal	77	0.037	26.837	168.6195	28432.5331
Modal	78	0.037	26.901	169.0227	28568.67
Modal	79	0.037	27.146	170.5609	29091.0051
Modal	80	0.037	27.31	171.5948	29444.7695
Modal	81	0.037	27.391	172.1026	29619.3146
Modal	82	0.036	27.971	175.7495	30887.8766
Modal	83	0.035	28.312	177.8901	31644.8704
Modal	84	0.035	28.353	178.1442	31735.3625
Modal	85	0.035	28.669	180.1319	32447.5114

Table 4.1 - Modal Periods and Frequencies (continued)

Case	Mode	Period sec	Frequency cyc/sec	Circular Frequency rad/sec	Eigenvalue rad <sup>2</sup> /sec <sup>2</sup>
Modal	86	0.034	29.096	182.8134	33420.7543
Modal	87	0.034	29.114	182.9273	33462.4011
Modal	88	0.034	29.408	184.7736	34141.2869
Modal	89	0.034	29.505	185.3877	34368.6007
Modal	90	0.034	29.543	185.6266	34457.2227
Modal	91	0.034	29.64	186.2333	34682.8572
Modal	92	0.034	29.808	187.2908	35077.8609
Modal	93	0.033	29.914	187.9574	35327.9672
Modal	94	0.033	30.076	188.9751	35711.5806
Modal	95	0.033	30.157	189.4847	35904.4605
Modal	96	0.033	30.305	190.4139	36257.4697
Modal	97	0.033	30.702	192.908	37213.4988
Modal	98	0.032	31.036	195.0079	38028.0656
Modal	99	0.032	31.419	197.4107	38970.971
Modal	100	0.031	31.802	199.8152	39926.1246
Modal	101	0.031	32.025	201.2178	40488.5897
Modal	102	0.031	32.036	201.2876	40516.7008
Modal	103	0.031	32.458	203.9389	41591.0701
Modal	104	0.031	32.749	205.7663	42339.7881
Modal	105	0.03	32.841	206.3437	42577.7393
Modal	106	0.03	33.611	211.1837	44598.5494
Modal	107	0.029	33.923	213.1443	45430.5023
Modal	108	0.029	33.943	213.2683	45483.3479
Modal	109	0.029	34.075	214.099	45838.3622
Modal	110	0.029	34.151	214.5755	46042.6325
Modal	111	0.029	34.251	215.2073	46314.1955
Modal	112	0.029	34.543	217.0413	47106.9048
Modal	113	0.029	34.899	219.2751	48081.5642
Modal	114	0.028	35.539	223.2972	49861.6587
Modal	115	0.028	35.769	224.745	50510.3009
Modal	116	0.028	36.12	226.9487	51505.7228
Modal	117	0.028	36.253	227.7849	51885.9552
Modal	118	0.027	36.765	231.0036	53362.6661
Modal	119	0.027	37.352	234.6904	55079.5969
Modal	120	0.026	38.036	238.9897	57116.078
Modal	121	0.026	38.399	241.2668	58209.6913
Modal	122	0.026	38.417	241.3833	58265.9123
Modal	123	0.026	38.784	243.6863	59383.0314
Modal	124	0.025	39.452	247.8872	61448.0492
Modal	125	0.025	39.782	249.9602	62480.0941
Modal	126	0.025	40.161	252.3403	63675.6368
Modal	127	0.025	40.272	253.0365	64027.4931
Modal	128	0.025	40.491	254.4142	64726.6035
Modal	129	0.025	40.75	256.0417	65557.3509
Modal	130	0.024	40.86	256.7318	65911.2123

Table 4.1 - Modal Periods and Frequencies (continued)

Case	Mode	Period sec	Frequency cyc/sec	Circular Frequency rad/sec	Eigenvalue rad <sup>2</sup> /sec <sup>2</sup>
Modal	131	0.024	41.255	259.2124	67191.0809
Modal	132	0.024	41.404	260.1478	67676.8654
Modal	133	0.024	41.608	261.4288	68345.0426
Modal	134	0.024	41.733	262.2192	68758.9252
Modal	135	0.024	42.093	264.4789	69949.0776
Modal	136	0.024	42.37	266.2179	70871.985
Modal	137	0.023	42.635	267.8824	71760.9794
Modal	138	0.023	42.834	269.1354	72433.8574
Modal	139	0.023	43.542	273.5827	74847.4971
Modal	140	0.023	43.63	274.1325	75148.6141
Modal	141	0.023	43.762	274.9658	75606.1969
Modal	142	0.023	44.145	277.3696	76933.8776
Modal	143	0.023	44.328	278.5213	77574.0873
Modal	144	0.022	44.666	280.6446	78761.4047
Modal	145	0.022	45.187	283.9178	80609.3343
Modal	146	0.022	45.554	286.2227	81923.4168
Modal	147	0.022	45.631	286.7111	82203.2413
Modal	148	0.022	45.695	287.1114	82432.9609
Modal	149	0.022	45.724	287.2912	82536.2619
Modal	150	0.022	45.769	287.5766	82700.2746
Modal	151	0.022	45.883	288.2896	83110.8649
Modal	152	0.021	46.849	294.3622	86649.0992
Modal	153	0.021	47.397	297.8069	88688.9751
Modal	154	0.021	48.141	302.4778	91492.8236
Modal	155	0.021	48.226	303.0109	91815.5982
Modal	156	0.021	48.456	304.457	92694.0869
Modal	157	0.02	48.84	306.8692	94168.6995
Modal	158	0.02	48.926	307.4096	94500.6844
Modal	159	0.02	49.176	308.985	95471.742
Modal	160	0.02	49.34	310.0105	96106.5009
Modal	161	0.02	49.599	311.6401	97119.5529
Modal	162	0.02	49.838	313.1411	98057.3262
Modal	163	0.02	50.162	315.1782	99337.2668
Modal	164	0.02	50.279	315.9109	99799.6663
Modal	165	0.02	50.411	316.743	100326.1322
Modal	166	0.02	50.701	318.5628	101482.2405
Modal	167	0.019	51.345	322.6113	104078.0345
Modal	168	0.019	51.545	323.8643	104888.1158
Modal	169	0.019	52.08	327.228	107078.1823
Modal	170	0.019	52.279	328.48	107899.1316

Table 4.2 - Modal Participating Mass Ratios (Part 1 of 2)

Case	Mode	Period sec	UX	UY	UZ	Sum UX	Sum UY	Sum UZ
Modal	1	0.39	0.0103	0.3568	2.626E-05	0.0103	0.3568	2.626E-05
Modal	2	0.365	0.0818	0.0655	0.0004	0.0921	0.4223	0.0005
Modal	3	0.262	0.012	0.0008	0.0013	0.104	0.4231	0.0017
Modal	4	0.246	0.27	0.0007	2.497E-05	0.374	0.4238	0.0018
Modal	5	0.199	0.0008	0.0001	0.1503	0.3748	0.4239	0.1521
Modal	6	0.189	0.0123	1.892E-05	0.0283	0.3871	0.4239	0.1804
Modal	7	0.188	0.0082	3.184E-05	1.447E-06	0.3953	0.4239	0.1804
Modal	8	0.18	0.0181	0.0001	0.0233	0.4134	0.4241	0.2037
Modal	9	0.173	0.0026	0.0002	0.0088	0.416	0.4242	0.2125
Modal	10	0.169	0.0002	0.0002	0.0105	0.4162	0.4244	0.2229
Modal	11	0.167	6.002E-07	0	0.0027	0.4162	0.4244	0.2256
Modal	12	0.167	0.0017	0.0001	0.0209	0.4179	0.4244	0.2465
Modal	13	0.162	0.0002	0.0003	0.007	0.4181	0.4247	0.2536
Modal	14	0.156	0.0025	0.0021	0.0302	0.4205	0.4268	0.2838
Modal	15	0.15	0.0001	0.0004	0.0044	0.4207	0.4272	0.2882
Modal	16	0.141	0.0001	0.0095	0.0309	0.4207	0.4367	0.3191
Modal	17	0.136	3.494E-05	0.0097	0.0502	0.4208	0.4464	0.3693
Modal	18	0.134	0.0003	0.008	0.0002	0.4211	0.4543	0.3696
Modal	19	0.123	0.0001	3.138E-05	0.0058	0.4211	0.4544	0.3754
Modal	20	0.114	0.0007	0.0003	2.944E-05	0.4218	0.4547	0.3754
Modal	21	0.107	0.0031	0.0006	0.0002	0.425	0.4553	0.3757
Modal	22	0.105	6.641E-06	0	0.0001	0.425	0.4553	0.3758
Modal	23	0.103	0.0083	0.0015	0.0002	0.4333	0.4568	0.3759
Modal	24	0.099	0.0201	0.0293	0.0005	0.4534	0.4861	0.3764
Modal	25	0.095	0.0035	0.0066	0.0014	0.4569	0.4928	0.3778
Modal	26	0.093	0.0008	2.531E-05	0.0015	0.4577	0.4928	0.3793
Modal	27	0.092	3.366E-05	5.316E-06	0.0175	0.4577	0.4928	0.3967
Modal	28	0.09	0.005	0.0002	2.855E-05	0.4627	0.493	0.3968
Modal	29	0.088	0.0003	2.026E-06	0.0011	0.463	0.493	0.3979
Modal	30	0.077	0.0006	0	0.0002	0.4636	0.493	0.3981
Modal	31	0.076	0.0006	1.323E-05	0.0167	0.4642	0.493	0.4148
Modal	32	0.074	0.0001	0.0002	0.0212	0.4643	0.4932	0.4359
Modal	33	0.073	0.0033	0.0003	0.0012	0.4676	0.4935	0.4372
Modal	34	0.072	0.0144	5.991E-06	0.0025	0.482	0.4935	0.4397
Modal	35	0.071	0.0032	2.366E-05	0	0.4851	0.4935	0.4397
Modal	36	0.071	0.004	0.0002	0.0017	0.4892	0.4937	0.4414
Modal	37	0.069	0.0034	0.0005	0.0022	0.4926	0.4942	0.4435
Modal	38	0.068	0.0131	0.001	2.994E-05	0.5057	0.4952	0.4436
Modal	39	0.067	0.0005	7.561E-06	0.0127	0.5062	0.4952	0.4563
Modal	40	0.066	0.0044	0.0013	0.001	0.5106	0.4965	0.4573
Modal	41	0.064	0.0075	0.0009	0.0023	0.5181	0.4974	0.4595
Modal	42	0.062	0.2331	0.0197	0.0002	0.7511	0.517	0.4597
Modal	43	0.06	0.0492	0.0014	0.0002	0.8004	0.5184	0.4599
Modal	44	0.058	0.0024	4.212E-06	0.0007	0.8028	0.5184	0.4605
Modal	45	0.057	0.0002	0.0002	1.147E-06	0.803	0.5186	0.4605

Table 4.2 - Modal Participating Mass Ratios (Part 1 of 2, continued)

Case	Mode	Period sec	UX	UY	UZ	Sum UX	Sum UY	Sum UZ
Modal	46	0.056	0.007	8.752E-07	0.0006	0.81	0.5186	0.4611
Modal	47	0.055	8.756E-06	8.375E-06	0.0006	0.81	0.5186	0.4617
Modal	48	0.054	0.0007	0.0006	1.479E-06	0.8107	0.5192	0.4617
Modal	49	0.053	0.0012	0.0004	0.0021	0.8119	0.5196	0.4639
Modal	50	0.052	0.0012	0.0001	0.0007	0.8132	0.5197	0.4645
Modal	51	0.051	0.0027	0.0021	0.0001	0.8159	0.5218	0.4646
Modal	52	0.05	0.0013	0.0035	0.0003	0.8172	0.5254	0.465
Modal	53	0.049	6.062E-06	3.578E-05	0.0006	0.8172	0.5254	0.4656
Modal	54	0.049	0.0002	1.278E-05	0.0025	0.8173	0.5254	0.468
Modal	55	0.049	3.132E-06	0.0024	1.053E-05	0.8173	0.5278	0.468
Modal	56	0.047	0.0004	0.0043	2.683E-05	0.8177	0.5321	0.4681
Modal	57	0.047	0.0019	0.067	0	0.8196	0.5991	0.4681
Modal	58	0.046	1.947E-06	0.0002	3.759E-06	0.8196	0.5993	0.4681
Modal	59	0.046	9.426E-06	0	0	0.8196	0.5993	0.4681
Modal	60	0.045	0.0003	2.278E-05	0.0001	0.8199	0.5993	0.4681
Modal	61	0.045	0.0001	8.118E-06	3.87E-05	0.82	0.5994	0.4682
Modal	62	0.043	0.0001	2.048E-05	4.814E-05	0.8201	0.5994	0.4682
Modal	63	0.043	0.0004	0.0001	8.631E-06	0.8205	0.5995	0.4682
Modal	64	0.042	0.0006	1.56E-05	7.057E-06	0.821	0.5995	0.4682
Modal	65	0.042	0.0002	0.0001	0.0001	0.8212	0.5996	0.4684
Modal	66	0.041	0.0002	2.066E-06	0.0003	0.8214	0.5996	0.4686
Modal	67	0.041	9.971E-06	0.0008	0.0029	0.8215	0.6004	0.4715
Modal	68	0.04	6.848E-07	1.041E-05	0.0003	0.8215	0.6004	0.4718
Modal	69	0.04	0.0001	0.0003	0.0036	0.8216	0.6007	0.4754
Modal	70	0.039	4.208E-05	0.0001	0.0083	0.8216	0.6009	0.4837
Modal	71	0.039	0.0004	0.002	0.0003	0.822	0.6028	0.484
Modal	72	0.039	4.187E-05	0	0.0014	0.8221	0.6028	0.4854
Modal	73	0.038	7.532E-06	0.0001	0.0081	0.8221	0.6029	0.4935
Modal	74	0.038	0.0007	0.0015	0.0133	0.8228	0.6044	0.5068
Modal	75	0.038	0.0002	0.0019	0	0.8231	0.6063	0.5068
Modal	76	0.038	3.067E-05	2.752E-05	0.0003	0.8231	0.6063	0.5071
Modal	77	0.037	0.0002	0.0001	0.0027	0.8233	0.6064	0.5098
Modal	78	0.037	0.0145	0.1064	0	0.8378	0.7129	0.5098
Modal	79	0.037	0.006	0.0166	0.0013	0.8438	0.7295	0.5111
Modal	80	0.037	0.0004	0.0041	0.0007	0.8442	0.7335	0.5117
Modal	81	0.037	0.0001	0.0006	0.0001	0.8443	0.7341	0.5118
Modal	82	0.036	0.0019	0.015	0.0005	0.8462	0.7491	0.5123
Modal	83	0.035	2.188E-05	0.0002	2.34E-05	0.8463	0.7493	0.5123
Modal	84	0.035	1.156E-05	2.635E-05	2.936E-05	0.8463	0.7493	0.5123
Modal	85	0.035	2.369E-06	0.0002	0.0002	0.8463	0.7495	0.5125
Modal	86	0.034	1.567E-06	0	0.004	0.8463	0.7495	0.5165
Modal	87	0.034	3.06E-05	2.477E-06	0.0001	0.8463	0.7495	0.5166
Modal	88	0.034	0.0006	0.0009	0.0051	0.8469	0.7504	0.5217
Modal	89	0.034	0.0061	0.0038	0.0006	0.853	0.7542	0.5223

Table 4.2 - Modal Participating Mass Ratios (Part 1 of 2, continued)

Case	Mode	Period sec	UX	UY	UZ	Sum UX	Sum UY	Sum UZ
Modal	90	0.034	0.001	0.0013	0.0007	0.854	0.7555	0.523
Modal	91	0.034	0.0006	0.0009	0.0001	0.8546	0.7564	0.5231
Modal	92	0.034	0.0006	3.57E-05	0.0004	0.8551	0.7564	0.5235
Modal	93	0.033	2.659E-05	6.84E-07	0.0033	0.8552	0.7564	0.5268
Modal	94	0.033	0	6.167E-06	0.0001	0.8552	0.7564	0.527
Modal	95	0.033	4.239E-05	0	0.0001	0.8552	0.7564	0.5271
Modal	96	0.033	3.994E-05	7.465E-06	0.0001	0.8552	0.7565	0.5272
Modal	97	0.033	0.0002	0.0003	3.513E-05	0.8554	0.7568	0.5272
Modal	98	0.032	1.565E-06	5.396E-06	0.0001	0.8554	0.7568	0.5273
Modal	99	0.032	0.0001	4.825E-05	0.0021	0.8555	0.7568	0.5294
Modal	100	0.031	1.374E-06	1.336E-05	4.603E-05	0.8555	0.7568	0.5294
Modal	101	0.031	0	3.215E-06	5.165E-06	0.8555	0.7568	0.5294
Modal	102	0.031	1.558E-05	1.379E-06	0.0004	0.8555	0.7568	0.5298
Modal	103	0.031	0.0003	0.0007	0.0162	0.8558	0.7576	0.546
Modal	104	0.031	0.0001	0.0001	0.0002	0.8559	0.7577	0.5462
Modal	105	0.03	4.768E-06	1.504E-05	0.0089	0.8559	0.7577	0.5551
Modal	106	0.03	3.026E-05	0.0014	0.0007	0.856	0.7591	0.5558
Modal	107	0.029	1.721E-06	0.0025	0.0014	0.856	0.7616	0.5572
Modal	108	0.029	0	3.066E-06	0.0028	0.856	0.7616	0.56
Modal	109	0.029	0.0003	0.0155	0.0019	0.8562	0.7771	0.5619
Modal	110	0.029	0.0002	0.0108	0	0.8564	0.7879	0.5619
Modal	111	0.029	0	0	0.0033	0.8564	0.7879	0.5652
Modal	112	0.029	0.0009	0.0605	4.876E-05	0.8573	0.8483	0.5653
Modal	113	0.029	0	0	0	0.8573	0.8483	0.5653
Modal	114	0.028	0.0001	0.002	0.002	0.8574	0.8504	0.5672
Modal	115	0.028	4.802E-06	0.0008	0.0018	0.8574	0.8511	0.5691
Modal	116	0.028	0	7.018E-06	2.209E-05	0.8574	0.8511	0.5691
Modal	117	0.028	0.0002	0.0001	4.448E-05	0.8576	0.8512	0.5691
Modal	118	0.027	0.0001	2.704E-05	0.0003	0.8576	0.8513	0.5694
Modal	119	0.027	0.0001	0.0002	0.0006	0.8577	0.8515	0.5701
Modal	120	0.026	2.443E-06	3.1E-05	0.0001	0.8577	0.8515	0.5701
Modal	121	0.026	0	0.0001	0	0.8577	0.8517	0.5701
Modal	122	0.026	2.784E-06	0.0001	0.0006	0.8577	0.8518	0.5707
Modal	123	0.026	7.672E-07	0.0004	0.0014	0.8577	0.8522	0.5721
Modal	124	0.025	2.131E-05	0	0.0003	0.8577	0.8522	0.5724
Modal	125	0.025	8.888E-07	1.171E-05	0.0001	0.8577	0.8522	0.5724
Modal	126	0.025	0	1.797E-06	0.0001	0.8577	0.8522	0.5725
Modal	127	0.025	0.0001	0.0005	3.944E-05	0.8578	0.8527	0.5726
Modal	128	0.025	0.0105	0.0003	0.0001	0.8683	0.853	0.5727
Modal	129	0.025	0.0001	0.0125	0.0003	0.8684	0.8655	0.573
Modal	130	0.024	2.588E-05	0.0001	0.0078	0.8684	0.8655	0.5807
Modal	131	0.024	0	4.089E-06	0.0033	0.8684	0.8655	0.584
Modal	132	0.024	5.985E-07	5.074E-07	3.907E-05	0.8684	0.8655	0.5841
Modal	133	0.024	1.352E-06	4.384E-06	0.0001	0.8684	0.8655	0.5842

**Table 4.2 - Modal Participating Mass Ratios (Part 1 of 2, continued)**

Case	Mode	Period sec	UX	UY	UZ	Sum UX	Sum UY	Sum UZ
Modal	134	0.024	7.236E-07	8.079E-06	0.0009	0.8684	0.8656	0.5852
Modal	135	0.024	1.448E-06	9.49E-07	0.0011	0.8684	0.8656	0.5863
Modal	136	0.024	0.0001	3.314E-06	3.75E-06	0.8685	0.8656	0.5863
Modal	137	0.023	5.645E-06	1.013E-05	0.0008	0.8685	0.8656	0.5871
Modal	138	0.023	1.696E-05	6.204E-06	0.0001	0.8685	0.8656	0.5872
Modal	139	0.023	0.0001	0.0003	0.0054	0.8686	0.8658	0.5926
Modal	140	0.023	0	2.028E-05	7.478E-06	0.8686	0.8658	0.5926
Modal	141	0.023	6.182E-07	0.0001	0.0068	0.8686	0.8659	0.5994
Modal	142	0.023	0.0002	0.0019	0.0006	0.8688	0.8678	0.6
Modal	143	0.023	0	2.293E-05	2.797E-05	0.8688	0.8678	0.6
Modal	144	0.022	7.16E-07	1.334E-06	0.0006	0.8688	0.8678	0.6006
Modal	145	0.022	3.73E-06	3.416E-05	0.0003	0.8688	0.8678	0.6009
Modal	146	0.022	9.439E-07	0.0001	0.0023	0.8688	0.8679	0.6032
Modal	147	0.022	5.578E-07	1.613E-05	0.0001	0.8688	0.8679	0.6033
Modal	148	0.022	1.961E-06	1.503E-05	0.0001	0.8688	0.8679	0.6034
Modal	149	0.022	1.016E-06	1.471E-05	0.0011	0.8688	0.8679	0.6045
Modal	150	0.022	2.118E-06	0.0001	0.0015	0.8688	0.868	0.606
Modal	151	0.022	6.367E-06	2.439E-05	0.0001	0.8688	0.868	0.6061
Modal	152	0.021	0	0.0001	0.0011	0.8688	0.8681	0.6072
Modal	153	0.021	5.992E-07	0.0002	1.819E-06	0.8688	0.8683	0.6072
Modal	154	0.021	0.0033	0.0209	8.889E-06	0.8722	0.8892	0.6072
Modal	155	0.021	0.0013	0.0069	0.0004	0.8735	0.896	0.6076
Modal	156	0.021	1.552E-06	2.365E-05	0.001	0.8735	0.896	0.6086
Modal	157	0.02	0.0006	3.651E-05	0.0002	0.874	0.8961	0.6088
Modal	158	0.02	5.004E-06	6.121E-07	0.0015	0.874	0.8961	0.6102
Modal	159	0.02	0.0003	0.0001	0.0008	0.8743	0.8962	0.6111
Modal	160	0.02	0.0132	0.004	2.119E-05	0.8875	0.9002	0.6111
Modal	161	0.02	0.0002	0.0001	0.0002	0.8877	0.9003	0.6113
Modal	162	0.02	0.0142	0.022	3.862E-05	0.9019	0.9223	0.6113
Modal	163	0.02	0.0003	0.0003	0.0002	0.9022	0.9227	0.6115
Modal	164	0.02	0	1.104E-05	0.0011	0.9022	0.9227	0.6126
Modal	165	0.02	4.971E-05	0.0001	0.0002	0.9023	0.9228	0.6128
Modal	166	0.02	4.646E-05	0.0001	0.0001	0.9023	0.9229	0.6129
Modal	167	0.019	6.029E-07	3.583E-06	0.0009	0.9023	0.9229	0.6137
Modal	168	0.019	0	9.181E-07	0.0003	0.9023	0.9229	0.614
Modal	169	0.019	0.001	0.0001	2.736E-06	0.9033	0.923	0.614
Modal	170	0.019	2.717E-06	8.536E-06	0.0003	0.9033	0.923	0.6143

**Table 4.2 - Modal Participating Mass Ratios (Part 2 of 2)**

Case	Mode	RX	RY	RZ	Sum RX	Sum RY	Sum RZ
Modal	1	0.1838	1.489E-05	0.1136	0.1838	1.489E-05	0.1136
Modal	2	0.0332	0.0094	0.2573	0.2171	0.0094	0.371
Modal	3	0.0011	0.0553	0.0004	0.2182	0.0647	0.3714
Modal	4	0.0006	0.0829	0.1169	0.2188	0.1476	0.4883
Modal	5	0.0068	0.347	4.125E-05	0.2256	0.4946	0.4884



Table 4.2 - Modal Participating Mass Ratios (Part 2 of 2, continued)

Case	Mode	RX	RY	RZ	Sum RX	Sum RY	Sum RZ
Modal	6	0.0254	0.0001	0.0036	0.251	0.4947	0.4919
Modal	7	0.052	0.0035	0.0016	0.303	0.4982	0.4935
Modal	8	0.0012	0.0559	0.0022	0.3043	0.5541	0.4957
Modal	9	0.0206	4.041E-05	0.0013	0.3249	0.5541	0.497
Modal	10	0.0209	0.0048	1.846E-05	0.3458	0.5589	0.497
Modal	11	0.0006	0.0003	0	0.3464	0.5592	0.497
Modal	12	0.0199	0.0356	0.0013	0.3663	0.5948	0.4983
Modal	13	0.0001	0.0079	0.0012	0.3663	0.6027	0.4995
Modal	14	0.0001	0.0145	0.0007	0.3664	0.6172	0.5002
Modal	15	0.0015	0.024	0.0001	0.3679	0.6413	0.5003
Modal	16	0.0025	0.0184	0.0614	0.3704	0.6597	0.5617
Modal	17	0.013	0.0278	0.0514	0.3835	0.6875	0.6131
Modal	18	0.0014	4.216E-05	0.0183	0.3848	0.6876	0.6314
Modal	19	0.0095	0.0001	0.0001	0.3944	0.6876	0.6315
Modal	20	0.0002	5.593E-06	0.001	0.3946	0.6876	0.6326
Modal	21	0.0005	0.0009	0.001	0.3951	0.6885	0.6335
Modal	22	0.001	2.538E-05	5.074E-06	0.3961	0.6886	0.6335
Modal	23	1.814E-05	0.0005	0.0002	0.3961	0.6891	0.6337
Modal	24	0.0002	0.0007	0.1366	0.3963	0.6898	0.7703
Modal	25	2.188E-06	0.0052	0.0302	0.3963	0.695	0.8005
Modal	26	0.0006	0.0002	0.0038	0.3969	0.6951	0.8043
Modal	27	0.0082	0.0031	0.0005	0.405	0.6983	0.8048
Modal	28	0.001	0.0005	0.0077	0.4061	0.6987	0.8125
Modal	29	0.0016	0.0002	0.0006	0.4077	0.6989	0.8131
Modal	30	0.0011	0.0012	0.0005	0.4088	0.7002	0.8136
Modal	31	0.0681	0.0109	0.0003	0.4768	0.7111	0.8139
Modal	32	0.0005	0.0002	0.0019	0.4773	0.7113	0.8158
Modal	33	0.0041	0.0006	0.0022	0.4814	0.7119	0.818
Modal	34	0.0005	0.0021	0.0001	0.4818	0.714	0.8181
Modal	35	0.0098	0.0005	0.0001	0.4916	0.7145	0.8181
Modal	36	0.0042	0.0004	0.0015	0.4958	0.7149	0.8196
Modal	37	0.0001	0.0031	0.0004	0.4959	0.7181	0.82
Modal	38	0.0026	6.046E-06	0.0007	0.4986	0.7181	0.8207
Modal	39	0.0258	0.0001	1.124E-05	0.5243	0.7181	0.8207
Modal	40	0.0022	0.0015	0.0003	0.5266	0.7196	0.821
Modal	41	0.0002	0.0007	0.0009	0.5267	0.7203	0.8219
Modal	42	0.0011	0.0046	0.0012	0.5278	0.7249	0.8231
Modal	43	0.0003	0.0011	0.0001	0.5282	0.726	0.8231
Modal	44	0.002	2.023E-05	8.037E-06	0.5302	0.726	0.8231
Modal	45	0.0038	0	0.0001	0.534	0.7261	0.8232
Modal	46	0.0004	0.0006	4.775E-05	0.5343	0.7267	0.8232
Modal	47	0.0001	0.0005	5.731E-06	0.5345	0.7271	0.8232
Modal	48	0.0259	1.651E-06	0.0007	0.5604	0.7271	0.8239
Modal	49	0.0002	0.0007	0.0007	0.5605	0.7279	0.8246
Modal	50	0.001	1.748E-05	7.637E-07	0.5615	0.7279	0.8246
Modal	51	0.0002	0.0003	0.0002	0.5617	0.7282	0.8248

Table 4.2 - Modal Participating Mass Ratios (Part 2 of 2, continued)

Case	Mode	RX	RY	RZ	Sum RX	Sum RY	Sum RZ
Modal	52	0.0062	0.0023	0.0004	0.5678	0.7305	0.8252
Modal	53	9.6E-06	8.896E-06	1.074E-05	0.5679	0.7305	0.8252
Modal	54	0.0003	0.0009	1.058E-05	0.5681	0.7314	0.8252
Modal	55	0.0041	0.0003	0.0016	0.5722	0.7318	0.8268
Modal	56	0.0045	0.0001	0.001	0.5767	0.7319	0.8278
Modal	57	0.0081	0.0001	0.0101	0.5849	0.732	0.8379
Modal	58	0.0022	3.369E-06	0.0001	0.587	0.732	0.838
Modal	59	0	0.0002	0	0.587	0.7322	0.838
Modal	60	0.0006	0.0001	0.0002	0.5876	0.7322	0.8381
Modal	61	0.0013	2.339E-05	2.452E-06	0.5889	0.7323	0.8381
Modal	62	0.0002	0	0.0001	0.5891	0.7323	0.8382
Modal	63	0.0002	0.0003	0.0002	0.5893	0.7325	0.8384
Modal	64	0.0005	1.218E-06	0.0006	0.5898	0.7325	0.839
Modal	65	0.0001	0.0003	0.0006	0.5899	0.7328	0.8396
Modal	66	0.0001	1.172E-05	0.0002	0.59	0.7328	0.8398
Modal	67	0.002	0.0004	2.009E-05	0.592	0.7332	0.8398
Modal	68	3.601E-05	2.447E-05	1.241E-06	0.592	0.7332	0.8398
Modal	69	0.0018	0.0096	0.0005	0.5938	0.7428	0.8403
Modal	70	0.0017	0.0034	0.0002	0.5955	0.7461	0.8405
Modal	71	0.001	0.0004	0.0023	0.5965	0.7465	0.8428
Modal	72	0.0002	0.0012	0	0.5967	0.7477	0.8428
Modal	73	0.0055	0.0053	4.581E-06	0.6022	0.753	0.8428
Modal	74	0.0032	0.0002	0.0017	0.6054	0.7532	0.8445
Modal	75	0.0014	1.622E-05	0.001	0.6068	0.7532	0.8455
Modal	76	0.0009	3.217E-05	0.0001	0.6077	0.7532	0.8456
Modal	77	0.0001	0.0099	0.0004	0.6078	0.7631	0.846
Modal	78	0.0049	0.0001	0.0603	0.6127	0.7632	0.9064
Modal	79	0.0003	0.0005	0.0107	0.613	0.7638	0.9171
Modal	80	9.459E-07	0.0001	0.0026	0.613	0.7638	0.9197
Modal	81	0.0002	0.0007	0.0001	0.6132	0.7646	0.9198
Modal	82	0.0019	0.0036	0.0061	0.6151	0.7682	0.926
Modal	83	0.0001	0.0003	1.625E-05	0.6152	0.7685	0.926
Modal	84	0.0001	0	4.09E-05	0.6153	0.7685	0.926
Modal	85	0.0005	8.196E-07	1.347E-05	0.6157	0.7685	0.926
Modal	86	0.0011	0.0006	2.417E-06	0.6168	0.7691	0.926
Modal	87	0.0003	0.0002	2.149E-05	0.6172	0.7693	0.9261
Modal	88	0.0039	0.002	0.0012	0.621	0.7712	0.9272
Modal	89	0.002	0.0004	0.0067	0.6231	0.7716	0.9339
Modal	90	0.0049	0.0002	0.0013	0.6279	0.7718	0.9352
Modal	91	0.0009	0.0008	0.0004	0.6289	0.7726	0.9356
Modal	92	0.0008	1.936E-05	0.0005	0.6297	0.7726	0.9361
Modal	93	0.0006	0.0011	5.094E-06	0.6302	0.7738	0.9361
Modal	94	0.0009	0.0001	1.34E-05	0.6311	0.7738	0.9361
Modal	95	0.0004	3.792E-05	2.715E-05	0.6316	0.7739	0.9362
Modal	96	0.0008	5.789E-06	8.595E-06	0.6323	0.7739	0.9362
Modal	97	0.0001	0	0.0001	0.6325	0.7739	0.9363

Table 4.2 - Modal Participating Mass Ratios (Part 2 of 2, continued)

Case	Mode	RX	RY	RZ	Sum RX	Sum RY	Sum RZ
Modal	98	2.232E-05	7.472E-07	5.036E-07	0.6325	0.7739	0.9363
Modal	99	0.0001	2.819E-05	0.0001	0.6326	0.7739	0.9364
Modal	100	2.251E-06	2.635E-06	0	0.6326	0.7739	0.9364
Modal	101	1.395E-06	0.0001	0	0.6326	0.774	0.9364
Modal	102	0.0001	3.262E-05	3.39E-06	0.6328	0.774	0.9364
Modal	103	0.0063	0.0021	0.0003	0.6391	0.7761	0.9367
Modal	104	0.0002	0.0001	6.709E-06	0.6393	0.7762	0.9367
Modal	105	0.0003	0.0019	6.245E-06	0.6395	0.7781	0.9367
Modal	106	0.0004	0.0006	0.0001	0.6399	0.7788	0.9367
Modal	107	0.0122	0.0003	0.0001	0.6521	0.779	0.9368
Modal	108	0.0014	0.0003	0	0.6535	0.7794	0.9368
Modal	109	0.0009	0.0007	3.045E-06	0.6544	0.7801	0.9368
Modal	110	0.0013	0.0003	0	0.6558	0.7804	0.9368
Modal	111	0.0001	0.0005	0	0.6558	0.7809	0.9368
Modal	112	0.0049	0.0002	0.0006	0.6607	0.7812	0.9374
Modal	113	0	0.0001	0	0.6607	0.7812	0.9374
Modal	114	0.0016	0.0002	1.173E-05	0.6623	0.7814	0.9374
Modal	115	2.216E-06	0.005	0	0.6623	0.7864	0.9374
Modal	116	4.14E-05	0.0002	9.19E-06	0.6623	0.7867	0.9374
Modal	117	2.218E-06	0.0004	0	0.6623	0.7871	0.9374
Modal	118	1.534E-05	0.0003	9.126E-07	0.6623	0.7874	0.9374
Modal	119	0.002	0.0008	2.308E-06	0.6643	0.7881	0.9374
Modal	120	0.0046	2.514E-05	0	0.6689	0.7882	0.9374
Modal	121	0.0014	6.445E-06	0	0.6704	0.7882	0.9374
Modal	122	0.0004	2.605E-05	6.662E-07	0.6708	0.7882	0.9374
Modal	123	0.001	1.572E-06	8.228E-06	0.6717	0.7882	0.9374
Modal	124	0.0003	0.0032	1.674E-06	0.6721	0.7914	0.9374
Modal	125	4.891E-06	0.0004	3.389E-06	0.6721	0.7918	0.9374
Modal	126	4.331E-05	0.0002	6.61E-07	0.6721	0.792	0.9374
Modal	127	0.0017	0.0001	1.607E-05	0.6738	0.7921	0.9374
Modal	128	1.599E-05	0.005	0.0001	0.6738	0.7971	0.9375
Modal	129	0.0222	3.357E-06	0.0019	0.696	0.7972	0.9394
Modal	130	0.0002	4.453E-06	3.888E-05	0.6962	0.7972	0.9394
Modal	131	0.0007	0.0013	5.338E-06	0.697	0.7985	0.9394
Modal	132	0.0001	0.0008	0	0.6971	0.7993	0.9394
Modal	133	3.42E-05	0.0001	0	0.6971	0.7993	0.9394
Modal	134	0.0002	0.0008	3.623E-06	0.6973	0.8001	0.9395
Modal	135	1.539E-05	0.0002	1.652E-06	0.6973	0.8004	0.9395
Modal	136	0	0.0002	2.246E-05	0.6973	0.8005	0.9395
Modal	137	0.0001	0.002	1.187E-06	0.6974	0.8025	0.9395
Modal	138	0.0003	0.0002	1.39E-06	0.6977	0.8027	0.9395
Modal	139	4.041E-05	0.0028	0.0001	0.6977	0.8055	0.9396
Modal	140	8.259E-06	0.0016	3.061E-06	0.6977	0.8071	0.9396
Modal	141	3.392E-05	0.0035	0.0001	0.6978	0.8106	0.9396
Modal	142	0.0004	0.0005	0.0009	0.6982	0.8111	0.9406
Modal	143	6.286E-06	2.65E-05	2.432E-05	0.6982	0.8111	0.9406

Table 4.2 - Modal Participating Mass Ratios (Part 2 of 2, continued)

Case	Mode	RX	RY	RZ	Sum RX	Sum RY	Sum RZ
Modal	144	0.0011	0.0003	0	0.6993	0.8114	0.9406
Modal	145	0.0003	0.0002	3.861E-06	0.6995	0.8116	0.9406
Modal	146	0.0002	0.0007	3.295E-06	0.6997	0.8123	0.9406
Modal	147	0.0002	0.0004	1.754E-06	0.6999	0.8127	0.9406
Modal	148	8.13E-06	0.0002	9.347E-07	0.6999	0.8129	0.9406
Modal	149	0.0001	0.0003	5.133E-06	0.7	0.8132	0.9406
Modal	150	2.35E-05	0.0007	1.037E-05	0.7	0.8139	0.9406
Modal	151	0.0002	5.741E-07	1.398E-05	0.7002	0.8139	0.9406
Modal	152	0.0001	0.0006	1.274E-06	0.7003	0.8145	0.9406
Modal	153	9.747E-06	0.0002	2.851E-05	0.7004	0.8147	0.9406
Modal	154	0.0041	0.0016	0.0046	0.7044	0.8163	0.9452
Modal	155	0.0027	0.0007	0.0015	0.7071	0.8169	0.9467
Modal	156	0.0006	0.0021	0	0.7077	0.819	0.9467
Modal	157	0.0001	6.543E-07	0.0001	0.7078	0.819	0.9468
Modal	158	4.627E-05	0.0001	0	0.7078	0.8191	0.9468
Modal	159	2.343E-06	3.357E-05	3.688E-05	0.7078	0.8191	0.9468
Modal	160	0.0012	0.004	0.0059	0.7091	0.8232	0.9527
Modal	161	0.0001	0.0002	0.0001	0.7092	0.8234	0.9527
Modal	162	0.0067	0.0051	0.0013	0.7159	0.8284	0.954
Modal	163	9.539E-06	0.0004	0.0001	0.7159	0.8288	0.9541
Modal	164	0.0002	4.736E-05	2.194E-05	0.7161	0.8289	0.9541
Modal	165	1.191E-05	0.0002	7.893E-06	0.7161	0.8291	0.9541
Modal	166	0.0004	0.0001	3.502E-05	0.7165	0.8292	0.9541
Modal	167	0.0004	3.961E-06	3.543E-05	0.7169	0.8292	0.9542
Modal	168	0.0002	0.0001	4.878E-06	0.7171	0.8292	0.9542
Modal	169	0.0003	0.0018	0.0005	0.7174	0.831	0.9547
Modal	170	9.611E-06	0.0004	1.081E-05	0.7174	0.8314	0.9547

## 5 Design Data

This chapter provides design data and results.

### 5.1 Steel Frame Design

**Table 5.1 - Steel Frame Preferences - AISC 360-10**

Item	Value
Multi-Response Design	Step-by-Step - All
Frame Type	SCBF
Seismic Design Grade	D
Importance Factor	1
Design System Rho	1.3
Design System Sds	0.592
Design System R	1
Design System Omega0	2
Design System Cd	5
Design Provision	LRFD
Analysis Method	Direct Analysis
Second Order Method	General 2nd Order
Stiffness Reduction Method	Tau-b Fixed
Phi (Bending)	0.9
Phi (Compression)	0.9
Phi (Tension-Yielding)	0.9
Phi (Tension-Fracture)	0.75
Phi (Shear)	0.9
Phi (Shear-Short Webbed Rolled I)	1
Phi (Torsion)	0.9
Ignore Seismic Code?	Yes
Ignore Special Seismic Load?	Yes
Doubler Plate Plug-Welded?	Yes
HSS Welding Type	ERW
Reduced HSS Thickness	No
Consider Deflection?	Yes
DL Ratio	120
SDL+LL Ratio	120
LL Ratio	360
Total Ratio	240
Total Camber Limit	240
Pattern Live Load Factor	0.75
D/C Ratio Limit	0.95

**Table 5.2 - Steel Column Envelope (Part 1 of 2)**

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio
C19	Story5	HSS6X6X1/4	$0.124 = 0.003 + 0.01 + 0.11$	1.2D+1.6S+1.0L	0.008	0.088
C20	Story5	HSS6X6X1/4	$0.045 = 0.001 + 0.008 + 0.035$	(R=MIXED) D + L + S + RSX + rsy	0.019	0.028
C21	Story5	HSS6X6X1/4	$0.157 = 0.003 + 0.011 + 0.143$	1.2D+1.6S+1.0L	0.008	0.114
C31	Story5	HSS6X6X1/4	$0.071 = 0.068 + 4.719E-04 + 0.002$	1.2D+1.6S+1.0L	0	0.001
C53	Story5	HSS6X6X1/2	$0.442 = 0.352 + 0.025 + 0.066$	(R=MIXED) D + L + S + RSY + rsx	0.122	0.277

Table 5.2 - Steel Column Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio
C54	Story5	HSS6X6X1/2	0.156 = 0.065 + 0.072 + 0.019	1.2D+1.6S+1.0L	0.008	0.003
C55	Story5	HSS6X6X1/2	0.08 = 0.03 + 0.042 + 0.008	(R=MIXED) D + L + S + RSY + rsx	0.003	0.002
C56	Story5	HSS6X6X1/2	0.415 = 0.373 + 0.023 + 0.018	(R=MIXED) D + L + S + RSY + rsx	0.113	0.291
C58	Story5	HSS6X6X1/4	0.122 = 0.051 + 0.043 + 0.028	1.2D+1.6S+1.0L	0.002	0.002
C60	Story5	HSS6X6X1/4	0.393 = 0.272 + 0.1 + 0.021	1.2D+1.6S+1.0L	0.006	0.001
C62	Story5	HSS6X6X1/4	0.218 = 0.091 + 0.076 + 0.051	1.2D+1.6S+1.0L	0.004	0.003
C2	Story5	HSS6X6X1/2	0.168 = 0.042 + 0.062 + 0.064	1.2D+1.6S+1.0L	0.06	0.028
C6	Story5	HSS6X6X1/2	0.326 = 0.071 + 0.187 + 0.068	1.2D+1.6S+1.0L	0.126	0.045
C46	Story5	HSS6X6X1/2	0.217 = 0.049 + 0.079 + 0.088	1.2D+1.6S+1.0L	0.063	0.032
C47	Story5	HSS6X6X1/2	0.401 = 0.068 + 0.222 + 0.112	1.2D+1.6S+1.0L	0.163	0.083
C1	Story4	W6X25	0.009 = 0.009 + 0 + 0	1.2D+1.6S+1.0L	0	0
C3	Story4	W6X25	0.358 = 0.358 + 0 + 0	1.2D+1.6S+1.0L	0	0
C4	Story4	W6X25	0.203 = 0.203 + 0 + 0	1.2D+1.6S+1.0L	0	0
C5	Story4	W6X25	0.143 = 0.061 + 0 + 0.082	1.2D+1.6S+1.0L	0	0.002
C7	Story4	W6X25	0.131 = 0.057 + 0 + 0.073	1.2D+1.6S+1.0L	0	0.002
C8	Story4	W6X25	0.119 = 0.049 + 0 + 0.07	1.2D+1.6S+1.0L	0	0.002
C9	Story4	HSS6X6X1/4	0.112 = 0.052 + 0 + 0.061	1.2D+1.6S+1.0L	0	0.005
C11	Story4	HSS6X6X1/4	0.112 = 0.052 + 0 + 0.061	1.2D+1.6S+1.0L	0	0.005
C12	Story4	W6X25	0.113 = 0.049 + 0 + 0.064	1.2D+1.6S+1.0L	0	0.002
C13	Story4	W6X25	0.055 = 0.055 + 0 + 0	1.2D+1.6S+1.0L	0	0
C26	Story4	HSS6X6X1/2	0.099 = 0.061 + 0.039 + 0	(R=MIXED) D + L + S + RSY + rsx	0.002	0
C28	Story4	HSS6X6X1/2	0.119 = 0.067 + 0.013 + 0.038	1.2D+1.6S+1.0L	0.001	0.002
C29	Story4	HSS6X6X1/2	0.278 = 0.21 + 0.036 + 0.033	(R=MIXED) D + L + S + RSY + rsx	0.01	0.009
C32	Story4	HSS6X6X1/2	0.152 = 0.06 + 0.04 + 0.052	(R=MIXED) D + L + S + RSY + rsx	0.01	0.01
C33	Story4	HSS6X6X1/4	0.257 = 0.226 + 0.031 + 0	1.2D+1.6S+1.0L	0.002	0
C34	Story4	HSS6X6X1/2	0.104 = 0.023 + 0.043 + 0.038	(R=MIXED) D + L + S + RSY + rsx	0.01	0.01
C39	Story4	HSS6X6X1/2	0.136 = 0.041 + 0.043 + 0.052	(R=MIXED) D + L + S + RSY + rsx	0.009	0.013
C40	Story4	HSS6X6X1/2	0.037 = 0.013 + 0.023 + 0	(R=MIXED) D + L + S + RSY + rsx	0.001	0
C42	Story4	HSS6X6X1/2	0.189 = 0.015 + 0.171 + 0.002	(R=MIXED) D + L + S + RSY + rsx	0.04	0.021
C44	Story4	HSS6X6X1/2	0.17 = 0.008 + 0.156 + 0.006	(R=MIXED) D + L + S + RSY + rsx	0.039	0.02
C45	Story4	HSS6X6X1/2	0.048 = 0.017 + 0.031 + 0	1.2D+1.6S+1.0L	0.003	0
C48	Story4	HSS6X6X1/4	0.38 = 0.363 + 0.017 + 0	1.2D+1.6S+1.0L	0.001	0
C49	Story4	HSS6X6X1/4	0.24 = 0.238 + 0.002 + 0	1.2D+1.6S+1.0L	0.0001701	0
C50	Story4	HSS6X6X1/4	0.129 = 0.071 + 0 + 0.058	1.2D+1.6S+1.0L	0	0.005
C52	Story4	HSS6X6X1/4	0.125 = 0.068 + 0 + 0.057	1.2D+1.6S+1.0L	0	0.004
C57	Story4	HSS6X6X1/4	0.068 = 0.068 + 0 + 0	1.2D+1.6S+1.0L	0	0
C30	Story3	HSS6X6X1/2	0.064 = 0.045 + 0 + 0.019	1.2D+1.6S+1.0L	0	0.002
C59	Story3	W10X45	0.207 = 0.206 + 0 + 0.001	1.2D+1.6S+1.0L	0	0
C61	Story3	W10X45	0.098 = 0.097 + 0 + 0.001	1.2D+1.6S+1.0L	0	0
C27	Story2	W10X49	0.691 = 0.558 + 0.133 + 0	1.2D+1.6S+1.0L	0.025	0
C35	Story2	W10X49	0.552 = 0.443 + 0.109 + 0	1.2D+1.6S+1.0L	0.065	0
C41	Story2	W10X49	0.113 = 0.045 + 0.031 + 0.038	(R=MIXED) D + L + S + RSY + rsx	0.017	0.003
C43	Story2	W10X49	0.15 = 0.067 + 0.023 + 0.06	1.2D+1.6S+1.0L	0.008	0.002
C14	Story1	HSS6X6X1/4	0.028 = 0.027 + 0.002 + 0	1.2D+1.6L+0.5S	0.0001402	0
C36	Story1	HSS6X6X1/4	0.022 = 0.01 + 0.003 + 0.009	1.2D+1.6L+0.5S	0.0001935	0.001

**Table 5.2 - Steel Column Envelope (Part 1 of 2, continued)**

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio	V33 Ratio
C37	Story1	HSS6X6X1/4	0.016 = 0.014 + 0.003 + 0	1.2D+1.6L+0.5S	0.0001935	0
C38	Story1	HSS6X6X1/4	0.022 = 0.01 + 0.003 + 0.009	1.2D+1.6L+0.5S	0.0001935	0.001

**Table 5.2 - Steel Column Envelope (Part 2 of 2)**

Label	Story	Class	Cont. Plate in <sup>2</sup>	Dbl. Plate in	B/C Ratio Major	B/C Ratio Minor
C19	Story5	Compact				
C20	Story5	Compact			0	0
C21	Story5	Compact				
C31	Story5	Compact				
C53	Story5	Seismic HD			0	0
C54	Story5	Seismic HD				
C55	Story5	Seismic HD			0	0
C56	Story5	Seismic HD			0	0
C58	Story5	Compact				
C60	Story5	Compact				
C62	Story5	Compact				
C2	Story5	Seismic HD				
C6	Story5	Seismic HD				
C46	Story5	Seismic HD				
C47	Story5	Seismic HD				
C1	Story4	Seismic HD				
C3	Story4	Seismic HD				
C4	Story4	Seismic HD				
C5	Story4	Seismic HD				
C7	Story4	Seismic HD				
C8	Story4	Seismic HD				
C9	Story4	Compact				
C11	Story4	Compact				
C12	Story4	Seismic HD				
C13	Story4	Seismic HD				
C26	Story4	Seismic HD			0	0
C28	Story4	Seismic HD				
C29	Story4	Seismic HD			0	0
C32	Story4	Seismic HD			0	0
C33	Story4	Compact				
C34	Story4	Seismic HD			0	0
C39	Story4	Seismic HD			0	0
C40	Story4	Seismic HD			0	0
C42	Story4	Seismic HD			0	0
C44	Story4	Seismic HD			0	0
C45	Story4	Seismic HD				
C48	Story4	Compact				
C49	Story4	Compact				
C50	Story4	Compact				

Table 5.2 - Steel Column Envelope (Part 2 of 2, continued)

Label	Story	Class	Cont. Plate in <sup>2</sup>	DbL. Plate in	B/C Ratio Major	B/C Ratio Minor
C52	Story4	Compact				
C57	Story4	Compact				
C30	Story3	Seismic HD				
C59	Story3	Seismic HD				
C61	Story3	Seismic HD				
C27	Story2	Seismic MD				
C35	Story2	Seismic MD				
C41	Story2	Seismic MD			0	0
C43	Story2	Seismic MD				
C14	Story1	Compact				
C36	Story1	Compact				
C37	Story1	Compact				
C38	Story1	Compact				

Table 5.3 - Steel Beam Envelope (Part 1 of 2)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio
B62	Story5	HSS3-1/2X3-1/2X1/4	0.586 = 0.054 + 0.425 + 0.107	1.2D+1.6S+1.0L	0.106
B102	Story5	W16X26	0.363 = 0.013 + 0.312 + 0.038	1.2D+1.6S+1.0L	0.139
B104	Story5	W16X26	0.343 = 0.002 + 0.29 + 0.051	1.2D+1.6S+1.0L	0.143
B139	Story5	W10X22	0.472 = 0.013 + 0.445 + 0.014	1.2D+1.6S+1.0L	0.154
B140	Story5	W10X22	0.54 = 0.015 + 0.502 + 0.022	1.2D+1.6S+1.0L	0.174
B145	Story5	C10X15.3	0.05 = 0.003 + 0.048 + 0	1.2D+1.6S+1.0L	0.045
B146	Story5	C10X15.3	0.723 = 0.013 + 0.666 + 0.044	1.2D+1.6S+1.0L	0.157
B147	Story5	C10X15.3	0.047 = 0.003 + 0.044 + 0	1.2D+1.6S+1.0L	0.04
B173	Story5	W10X22	0.581 = 0.014 + 0.544 + 0.022	1.2D+1.6S+1.0L	0.194
B174	Story5	W10X22	0.565 = 0.014 + 0.533 + 0.018	1.2D+1.6S+1.0L	0.19
B183	Story5	C10X15.3	0.048 = 3.386E-04 + 0.048 + 0	1.2D+1.6S+1.0L	0.045
B185	Story5	C10X15.3	0.673 = 0.005 + 0.668 + 0	1.2D+1.6S+1.0L	0.157
B187	Story5	C10X15.3	0.044 = 1.206E-04 + 0.044 + 0	1.2D+1.6S+1.0L	0.04
B204	Story5	W16X26	0.243 = 0.009 + 0.219 + 0.016	1.2D+1.6S+1.0L	0.112
B205	Story5	W16X26	0.12 = 0.006 + 0.113 + 0.001	1.2D+1.6S+1.0L	0.044
B208	Story5	W16X26	0.21 = 0.002 + 0.19 + 0.018	1.2D+1.6S+1.0L	0.106
B213	Story5	C10X15.3	0.258 = 0.001 + 0.258 + 0	1.2D+1.6S+1.0L	0.08
B214	Story5	C10X15.3	0.659 = 0.001 + 0.612 + 0.046	1.2D+1.6S+1.0L	0.145
B217	Story5	C10X15.3	0.258 = 1.983E-04 + 0.258 + 0	1.2D+1.6S+1.0L	0.08
B218	Story5	C10X15.3	0.614 = 0 + 0.614 + 0	1.2D+1.6S+1.0L	0.145
B222	Story5	C10X15.3	0.258 = 2.677E-04 + 0.258 + 0	1.2D+1.6S+1.0L	0.08
B223	Story5	C10X15.3	0.614 = 0 + 0.614 + 0	1.2D+1.6S+1.0L	0.145
B231	Story5	C10X15.3	0.258 = 0.001 + 0.258 + 0	1.2D+1.6S+1.0L	0.08
B232	Story5	C10X15.3	0.614 = 0 + 0.614 + 0	1.2D+1.6S+1.0L	0.145
B233	Story5	C10X15.3	0.225 = 0 + 0.225 + 0	1.2D+1.6S+1.0L	0.075
B235	Story5	C10X15.3	0.576 = 0.001 + 0.575 + 0	1.2D+1.6S+1.0L	0.141
B236	Story5	C10X15.3	0.215 = 0.001 + 0.215 + 0	1.2D+1.6S+1.0L	0.066
B238	Story5	C10X15.3	0.512 = 3.136E-04 + 0.512 + 0	1.2D+1.6S+1.0L	0.121



Table 5.3 - Steel Beam Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio
B148	Story5	HSS3X3X5/16	0.006 = 0.006 + 0 + 0	(R=MIXED) D + L + S + RSX + rsy	0
B176	Story5	HSS3X3X5/16	0.04 = 0.04 + 0 + 0	1.2D+1.6S+1.0L	0
B5	Story5	C10X15.3	0.183 = 0.001 + 0.182 + 0	1.2D+1.6S+1.0L	0.052
B22	Story5	W16X31	0.055 = 0.001 + 0.043 + 0.012	1.2D+1.6S+1.0L	0.033
B1	Story5	W10X39	0.328 = 0.001 + 0.327 + 1.695E-04	1.2D+1.6S+1.0L	0.117
B29	Story5	W10X22	0.072 = 2.705E-04 + 0.069 + 0.002	1.2D+1.6S+1.0L	0.038
B30	Story5	W10X39	0.581 = 0.004 + 0.577 + 0.001	1.2D+1.6S+1.0L	0.206
B31	Story5	W10X22	0.127 = 4.813E-04 + 0.122 + 0.005	1.2D+1.6S+1.0L	0.065
B3	Story5	W10X54	0.607 = 0.002 + 0.604 + 0.001	1.2D+1.6S+1.0L	0.254
B32	Story5	W10X22	0.188 = 0.003 + 0.182 + 0.003	1.2D+1.6S+1.0L	0.094
B7	Story4	W16X26	0.013 = 0.012 + 0.001 + 0	(R=MIXED) D + L + S + RSX + rsy	0.002
B9	Story4	W16X26	0.294 = 0.056 + 0.231 + 0.006	1.2D+1.6S+1.0L	0.105
B10	Story4	W16X40	0.049 = 0.048 + 0.001 + 0	1.2D+1.6S+1.0L	0.002
B12	Story4	W16X26	0.486 = 0.074 + 0.368 + 0.044	1.2D+1.6S+1.0L	0.113
B14	Story4	W16X26	0.098 = 0.097 + 0.001 + 0	1.2D+1.6S+1.0L	0.002
B15	Story4	W16X26	0.289 = 0.025 + 0.22 + 0.043	1.2D+1.6S+1.0L	0.09
B33	Story4	W16X31	0.161 = 0.014 + 0.144 + 0.003	1.2D+1.6S+1.0L	0.081
B34	Story4	W21X44	0.097 = 0.009 + 0.082 + 0.005	1.2D+1.6S+1.0L	0.02
B35	Story4	W21X44	0.113 = 0.003 + 0.101 + 0.01	1.2D+1.6S+1.0L	0.02
B36	Story4	W21X44	0.208 = 0.02 + 0.188 + 1.123E-04	1.2D+1.6S+1.0L	0.023
B37	Story4	W21X44	0.356 = 0.005 + 0.346 + 0.006	1.2D+1.6S+1.0L	0.05
B38	Story4	W21X44	0.375 = 2.57E-04 + 0.371 + 0.003	1.2D+1.6S+1.0L	0.051
B39	Story4	W21X44	0.369 = 2.889E-04 + 0.364 + 0.005	1.2D+1.6S+1.0L	0.05
B40	Story4	W21X44	0.352 = 0.002 + 0.346 + 0.004	1.2D+1.6S+1.0L	0.049
B41	Story4	W21X44	0.334 = 0.003 + 0.328 + 0.003	1.2D+1.6S+1.0L	0.047
B42	Story4	W21X44	0.321 = 0.005 + 0.313 + 0.003	1.2D+1.6S+1.0L	0.046
B43	Story4	W21X44	0.298 = 0.008 + 0.284 + 0.006	1.2D+1.6S+1.0L	0.042
B44	Story4	W21X44	0.201 = 0.023 + 0.174 + 0.004	1.2D+1.6S+1.0L	0.033
B45	Story4	W21X44	0.185 = 0.033 + 0.111 + 0.04	1.2D+1.6S+1.0L	0.025
B46	Story4	W21X44	0.206 = 0.041 + 0.147 + 0.018	1.2D+1.6S+1.0L	0.058
B47	Story4	W21X44	0.106 = 0.008 + 0.082 + 0.016	1.2D+1.6S+1.0L	0.04
B48	Story4	W21X44	0.064 = 0.007 + 0.051 + 0.006	1.2D+1.6S+1.0L	0.032
B49	Story4	W21X44	0.077 = 0.01 + 0.066 + 0.001	1.2D+1.6S+1.0L	0.036
B50	Story4	W21X44	0.064 = 0.008 + 0.048 + 0.007	1.2D+1.6S+1.0L	0.032
B51	Story4	W21X44	0.108 = 0.009 + 0.083 + 0.015	1.2D+1.6S+1.0L	0.041
B52	Story4	W21X44	0.238 = 0.048 + 0.166 + 0.023	1.2D+1.6S+1.0L	0.062
B53	Story4	W21X44	0.12 = 0.022 + 0.047 + 0.051	1.2D+1.6S+1.0L	0.02
B54	Story4	W21X44	0.087 = 0.03 + 0.022 + 0.036	1.2D+1.6S+1.0L	0.018
B55	Story4	W21X44	0.087 = 0.04 + 0.012 + 0.035	1.2D+1.6S+1.0L	0.017
B56	Story4	W16X31	0.491 = 0.016 + 0.394 + 0.081	1.2D+1.6S+1.0L	0.063
B61	Story4	W16X26	0.045 = 0.045 + 0 + 0	1.2D+1.6S+1.0L	0
B63	Story4	W16X26	0.398 = 0.078 + 0.268 + 0.052	1.2D+1.6S+1.0L	0.092
B65	Story4	W16X26	0.048 = 0.048 + 0 + 0	1.2D+1.6S+1.0L	0
B77	Story4	W16X31	0.17 = 0.02 + 0.145 + 0.005	1.2D+1.6S+1.0L	0.093
B78	Story4	W21X44	0.076 = 0.013 + 0.062 + 0.001	1.2D+1.6S+1.0L	0.034
B79	Story4	W21X44	0.087 = 0.004 + 0.08 + 0.002	1.2D+1.6S+1.0L	0.041

Table 5.3 - Steel Beam Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio
B80	Story4	W21X44	$0.18 = 0.025 + 0.152 + 0.003$	1.2D+1.6S+1.0L	0.072
B81	Story4	W21X44	$0.359 = 0.003 + 0.354 + 0.002$	1.2D+1.6S+1.0L	0.014
B82	Story4	W21X44	$0.38 = 3.429E-04 + 0.379 + 0.001$	1.2D+1.6S+1.0L	0.014
B83	Story4	W21X44	$0.372 = 1.334E-04 + 0.372 + 0.001$	1.2D+1.6S+1.0L	0.014
B84	Story4	W21X44	$0.355 = 0.001 + 0.354 + 1.524E-04$	1.2D+1.6S+1.0L	0.014
B85	Story4	W21X44	$0.339 = 0.003 + 0.336 + 3.129E-04$	1.2D+1.6S+1.0L	0.014
B86	Story4	W21X44	$0.327 = 0.004 + 0.322 + 0.001$	1.2D+1.6S+1.0L	0.014
B87	Story4	W21X44	$0.305 = 0.009 + 0.294 + 0.002$	1.2D+1.6S+1.0L	0.015
B88	Story4	W21X44	$0.21 = 0.022 + 0.185 + 0.003$	1.2D+1.6S+1.0L	0.016
B89	Story4	W21X68	$0.097 = 0.021 + 0.067 + 0.009$	1.2D+1.6S+1.0L	0.013
B90	Story4	W12X35	$0.169 = 0.052 + 0.099 + 0.019$	(R=MIXED) D + L + S + RSY + rsx	0.043
B91	Story4	W12X35	$0.205 = 0.05 + 0.138 + 0.017$	(R=MIXED) D + L + S + RSY + rsx	0.059
B92	Story4	W21X44	$0.078 = 0.02 + 0.045 + 0.013$	1.2D+1.6S+1.0L	0.029
B93	Story4	W21X44	$0.053 = 0.03 + 0.012 + 0.011$	1.2D+1.6S+1.0L	0.016
B94	Story4	W21X44	$0.056 = 0.036 + 0.002 + 0.019$	1.2D+1.6S+1.0L	0.013
B95	Story4	W16X31	$0.386 = 0.015 + 0.301 + 0.07$	1.2D+1.6S+1.0L	0.144
B100	Story4	W16X26	$0.254 = 2.621E-04 + 0.246 + 0.008$	1.2D+1.6S+1.0L	0.125
B113	Story4	W16X31	$0.163 = 0.016 + 0.145 + 0.001$	1.2D+1.6S+1.0L	0.097
B114	Story4	W21X44	$0.039 = 0.014 + 0.024 + 0.001$	1.2D+1.6S+1.0L	0.02
B115	Story4	W21X44	$0.043 = 0.005 + 0.038 + 0$	1.2D+1.6S+1.0L	0.027
B116	Story4	W21X44	$0.113 = 0.025 + 0.087 + 0.001$	1.2D+1.6S+1.0L	0.053
B117	Story4	W21X44	$0.358 = 0.003 + 0.347 + 0.008$	1.2D+1.6S+1.0L	0.035
B118	Story4	W21X44	$0.377 = 0 + 0.371 + 0.006$	1.2D+1.6S+1.0L	0.036
B119	Story4	W21X44	$0.37 = 1.948E-04 + 0.363 + 0.007$	1.2D+1.6S+1.0L	0.036
B120	Story4	W21X44	$0.353 = 0.001 + 0.345 + 0.006$	1.2D+1.6S+1.0L	0.034
B121	Story4	W21X44	$0.336 = 0.002 + 0.328 + 0.005$	1.2D+1.6S+1.0L	0.033
B122	Story4	W21X44	$0.32 = 0.003 + 0.314 + 0.003$	1.2D+1.6S+1.0L	0.032
B123	Story4	W21X44	$0.3 = 0.006 + 0.287 + 0.008$	1.2D+1.6S+1.0L	0.029
B124	Story4	W21X44	$0.208 = 0.016 + 0.178 + 0.014$	1.2D+1.6S+1.0L	0.021
B125	Story4	W21X44	$0.178 = 0.025 + 0.112 + 0.041$	1.2D+1.6S+1.0L	0.018
B126	Story4	W12X35	$0.139 = 0.043 + 0.08 + 0.016$	(R=MIXED) D + L + S + RSY + rsx	0.12
B127	Story4	W12X35	$0.159 = 0.045 + 0.106 + 0.009$	(R=MIXED) D + L + S + RSY + rsx	0.099
B128	Story4	W21X44	$0.053 = 0.009 + 0.033 + 0.011$	1.2D+1.6S+1.0L	0.025
B129	Story4	W21X44	$0.064 = 0.021 + 0.02 + 0.022$	1.2D+1.6S+1.0L	0.018
B130	Story4	W21X44	$0.073 = 0.026 + 0.022 + 0.025$	1.2D+1.6S+1.0L	0.02
B131	Story4	W16X31	$0.26 = 0.013 + 0.153 + 0.094$	1.2D+1.6S+1.0L	0.097
B153	Story4	W16X31	$0.073 = 0.016 + 0.056 + 0.002$	1.2D+1.6S+1.0L	0.094
B154	Story4	W21X44	$0.048 = 0.013 + 0.028 + 0.007$	1.2D+1.6S+1.0L	0.013
B155	Story4	W21X44	$0.06 = 0.004 + 0.038 + 0.018$	1.2D+1.6S+1.0L	0.012
B156	Story4	W21X44	$0.115 = 0.019 + 0.094 + 0.002$	1.2D+1.6S+1.0L	0.013
B158	Story4	W21X44	$0.312 = 0.006 + 0.296 + 0.01$	1.2D+1.6S+1.0L	0.06
B159	Story4	W21X44	$0.329 = 0.002 + 0.317 + 0.01$	1.2D+1.6S+1.0L	0.063
B160	Story4	W21X44	$0.324 = 0.002 + 0.31 + 0.012$	1.2D+1.6S+1.0L	0.062
B161	Story4	W21X44	$0.308 = 0.003 + 0.295 + 0.01$	1.2D+1.6S+1.0L	0.059
B162	Story4	W21X44	$0.292 = 0.003 + 0.28 + 0.008$	1.2D+1.6S+1.0L	0.057
B163	Story4	W21X44	$0.278 = 0.004 + 0.27 + 0.005$	1.2D+1.6S+1.0L	0.055

Table 5.3 - Steel Beam Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio
B164	Story4	W21X44	$0.254 = 0.003 + 0.248 + 0.002$	1.2D+1.6S+1.0L	0.05
B165	Story4	W21X44	$0.179 = 0.012 + 0.155 + 0.012$	1.2D+1.6S+1.0L	0.035
B166	Story4	W21X44	$0.156 = 0.02 + 0.097 + 0.038$	1.2D+1.6S+1.0L	0.026
B167	Story4	W12X35	$0.165 = 0.044 + 0.103 + 0.018$	(R=MIXED) D + L + S + RSY + rsx	0.066
B169	Story4	W21X44	$0.087 = 0.008 + 0.033 + 0.045$	1.2D+1.6S+1.0L	0.013
B170	Story4	W21X44	$0.074 = 0.015 + 0.027 + 0.031$	1.2D+1.6S+1.0L	0.014
B171	Story4	W21X44	$0.058 = 0.015 + 0.036 + 0.007$	1.2D+1.6S+1.0L	0.015
B172	Story4	W16X31	$0.207 = 0.006 + 0.183 + 0.018$	1.2D+1.6S+1.0L	0.037
B200	Story4	W16X26	$0.031 = 0.03 + 0.001 + 0$	(R=MIXED) D + RSX + rsy	0.002
B202	Story4	W16X26	$0.295 = 0.023 + 0.252 + 0.02$	1.2D+1.6S+1.0L	0.107
B210	Story4	W16X26	$0.337 = 0.001 + 0.283 + 0.053$	1.2D+1.6S+1.0L	0.123
B224	Story4	W12X35	$0.188 = 0.043 + 0.128 + 0.017$	(R=MIXED) D + L + S + RSY + rsx	0.097
B300	Story4	W24X117	$0.308 = 0.005 + 0.258 + 0.044$	1.2D+1.6S+1.0L	0.109
B302	Story4	W24X117	$0.302 = 0.006 + 0.252 + 0.044$	1.2D+1.6S+1.0L	0.107
B4	Story4	W16X26	$0.258 = 0.001 + 0.227 + 0.031$	1.2D+1.6S+1.0L	0.104
B61	Story3	W8X21	$0.064 = 0.006 + 0.058 + 0$	(R=MIXED) D + L + S + RSX + rsy	0.018
B63	Story3	W8X21	$0.02 = 0.02 + 0 + 0$	1.2D+1.6S+1.0L	0
B65	Story3	W8X21	$0.055 = 0.005 + 0.05 + 0$	(R=MIXED) D + L + S + RSX + rsy	0.015
B101	Story3	W16X45	$0.023 = 0.002 + 0.02 + 0$	(R=MIXED) D + L + S + RSY + rsx	0.012
B103	Story3	W16X45	$0.023 = 0.002 + 0.02 + 0$	(R=MIXED) D + L + S + RSY + rsx	0.012
B112	Story3	W8X21	$0.047 = 0.003 + 0.029 + 0.016$	(R=MIXED) D + L + S + RSX + rsy	0.053
B132	Story3	W8X18	$0.397 = 0.001 + 0.397 + 0$	1.2D+1.6L+0.5S	0.084
B149	Story3	W8X18	$0.385 = 2.76E-04 + 0.384 + 0$	1.2D+1.6L+0.5S	0.081
B168	Story3	W8X21	$0.089 = 0.004 + 0.062 + 0.024$	(R=MIXED) D + L + S + RSX + rsy	0.064
B177	Story3	W8X18	$0.569 = 0.081 + 0.484 + 0.004$	(R=MIXED) D + L + S + RSX + rsy	0.061
B190	Story3	W8X18	$0.016 = 0.016 + 0 + 0$	(R=MIXED) D + L + S + RSX + rsy	0
B193	Story3	W8X21	$0.022 = 0.022 + 0 + 0$	(R=MIXED) D + RSX + rsy	0
B203	Story3	W8X18	$0.082 = 0.017 + 0.046 + 0.018$	(R=MIXED) D + L + S + RSX + rsy	0.038
B206	Story3	W12X79	$0.01 = 0.006 + 0.003 + 0$	1.2D+1.6S+1.0L	0.005
B209	Story3	W12X79	$0.013 = 0.01 + 0.003 + 0$	1.2D+1.6S+1.0L	0.005
B211	Story3	W8X18	$0.071 = 0 + 0.071 + 0$	1.2D+1.6L+0.5S	0.042
B212	Story3	W8X18	$0.408 = 0 + 0.408 + 0$	1.2D+1.6L+0.5S	0.076
B215	Story3	W8X18	$0.071 = 0 + 0.071 + 0$	1.2D+1.6L+0.5S	0.042
B216	Story3	W8X18	$0.408 = 0 + 0.408 + 0$	1.2D+1.6L+0.5S	0.076
B220	Story3	W8X18	$0.071 = 0 + 0.071 + 0$	1.2D+1.6L+0.5S	0.042
B221	Story3	W8X18	$0.408 = 0 + 0.407 + 0$	1.2D+1.6L+0.5S	0.076
B229	Story3	W8X18	$0.077 = 1.762E-04 + 0.076 + 0$	1.2D+1.6L+0.5S	0.045
B230	Story3	W8X18	$0.437 = 2.096E-04 + 0.436 + 0$	1.2D+1.6L+0.5S	0.082
B234	Story3	W30X90	$0.234 = 0.001 + 0.232 + 1.393E-04$	1.2D+1.6S+1.0L	0.168
B243	Story3	W10X68	$0.208 = 0.001 + 0.206 + 3.345E-04$	1.2D+1.6S+1.0L	0.067
B244	Story3	W18X46	$0.275 = 0.001 + 0.273 + 0.001$	1.2D+1.6S+1.0L	0.072
B245	Story3	W12X35	$0.081 = 0.001 + 0.08 + 0.001$	1.2D+1.6S+1.0L	0.069
B23	Story3	W8X21	$0.054 = 0.003 + 0.036 + 0.014$	(R=MIXED) D + L + S + RSY + rsx	0.054
B25	Story3	W8X21	$0.088 = 0.025 + 0.015 + 0.049$	(R=MIXED) D + L + S + RSX + rsy	0.06
B28	Story3	W8X21	$0.027 = 0.023 + 0.004 + 0$	(R=MIXED) D + L + S + RSY + rsx	0.005
B20	Story3	W18X46	$0.382 = 0.001 + 0.381 + 2.394E-04$	1.2D+1.6S+1.0L	0.097

Table 5.3 - Steel Beam Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio
B21	Story3	W8X18	0.466 = 1.781E-04 + 0.465 + 0	1.2D+1.6L+0.5S	0.087
B24	Story3	W8X18	0.082 = 1.693E-04 + 0.082 + 0	1.2D+1.6L+0.5S	0.048
B6	Story2	W27X129	0.276 = 1.864E-04 + 0.276 + 0	1.2D+1.6S+1.0L	0.129
B8	Story2	W12X26	0.08 = 0.016 + 0.064 + 0	(R=MIXED) D + L + S + RSY + rsx	0.038
B13	Story2	W27X129	0.376 = 0 + 0.376 + 0	1.2D+1.6S+1.0L	0.063
B64	Story2	W27X129	0.514 = 3.967E-04 + 0.513 + 4.387E-04	1.2D+1.6S+1.0L	0.123
B67	Story2	W21X166	0.039 = 1.85E-04 + 0.038 + 0.001	(R=MIXED) D + L + S + RSY + rsx	0.018
B68	Story2	W27X129	0.071 = 2.08E-04 + 0.07 + 0.001	(R=MIXED) D + L + S + RSY + rsx	0.023
B69	Story2	W27X129	0.071 = 0.001 + 0.07 + 0	(R=MIXED) D + L + S + RSY + rsx	0.023
B70	Story2	W12X26	0.057 = 0 + 0.057 + 0	1.2D+1.6L+0.5S	0.032
B73	Story2	W27X129	0.181 = 3.209E-04 + 0.18 + 1.885E-04	1.2D+1.6S+1.0L	0.053
B74	Story2	W27X146	0.488 = 0 + 0.487 + 2.091E-04	1.2D+1.6S+1.0L	0.208
B75	Story2	W16X67	0.451 = 0.001 + 0.449 + 0.001	(R=MIXED) D + L + S + RSX + rsy	0.148
B105	Story2	W27X129	0.66 = 1.071E-04 + 0.659 + 2.801E-04	1.2D+1.6S+1.0L	0.087
B144	Story2	W27X84	0.753 = 2.647E-04 + 0.752 + 1.271E-04	1.2D+1.6S+1.0L	0.049
B186	Story2	W27X102	0.488 = 0.001 + 0.487 + 3.222E-04	1.2D+1.6S+1.0L	0.041
B195	Story2	W27X129	0.309 = 1.262E-04 + 0.309 + 2.82E-04	1.2D+1.6S+1.0L	0.073
B199	Story2	W27X129	0.301 = 3.982E-04 + 0.3 + 1.263E-04	1.2D+1.6S+1.0L	0.137
B201	Story2	W12X26	0.082 = 0.018 + 0.064 + 0	(R=MIXED) D + L + S + RSY + rsx	0.038
B207	Story2	W27X102	0.452 = 0 + 0.452 + 0	1.2D+1.6S+1.0L	0.076
B254	Story2	W27X129	0.285 = 1.266E-04 + 0.284 + 0	1.2D+1.6S+1.0L	0.068
B257	Story2	W27X129	0.135 = 0 + 0.135 + 0	1.2D+1.6S+1.0L	0.031
B258	Story2	W21X166	0.081 = 0 + 0.081 + 0	1.2D+1.6S+1.0L	0.032
B259	Story2	W27X129	0.135 = 0 + 0.135 + 1.121E-04	1.2D+1.6S+1.0L	0.037
B263	Story2	W27X129	0.146 = 0 + 0.146 + 0	1.2D+1.6S+1.0L	0.039
B268	Story2	W27X129	0.092 = 0 + 0.092 + 0	1.2D+1.6S+1.0L	0.024
B271	Story2	W27X129	0.146 = 3.167E-04 + 0.146 + 0	1.2D+1.6S+1.0L	0.032
B273	Story2	W27X129	0.09 = 0 + 0.09 + 0	1.2D+1.6S+1.0L	0.023
B277	Story2	W27X129	0.09 = 0 + 0.089 + 0	1.2D+1.6S+1.0L	0.023
B278	Story2	W21X166	0.052 = 0 + 0.052 + 0	1.2D+1.6S+1.0L	0.022
B279	Story2	W27X129	0.09 = 0 + 0.089 + 1.099E-04	1.2D+1.6S+1.0L	0.026
B280	Story2	W12X26	0.093 = 1.574E-04 + 0.092 + 0	1.2D+1.6L+0.5S	0.051
B281	Story2	W12X26	0.076 = 1.681E-04 + 0.076 + 0	1.2D+1.6L+0.5S	0.042
B282	Story2	W12X26	0.063 = 1.371E-04 + 0.062 + 0	1.2D+1.6L+0.5S	0.035
B283	Story2	W12X26	0.074 = 4.049E-04 + 0.073 + 0	1.2D+1.6L+0.5S	0.041
B284	Story2	W12X26	0.093 = 0.001 + 0.092 + 0	1.2D+1.6L+0.5S	0.051
B295	Story2	W27X129	0.322 = 1.92E-04 + 0.322 + 3.58E-04	1.2D+1.6S+1.0L	0.036
B296	Story2	W27X84	0.552 = 0 + 0.552 + 0	1.2D+1.6S+1.0L	0.038
B303	Story2	W21X166	0.085 = 0 + 0.084 + 1.26E-04	1.2D+1.6S+1.0L	0.09
B304	Story2	W27X129	0.09 = 0 + 0.09 + 1.42E-04	1.2D+1.6S+1.0L	0.026
B2	Story2	W27X129	0.05 = 0.001 + 0.048 + 0.001	1.2D+1.6S+1.0L	0.042
B19	Story2	W27X129	0.013 = 0.001 + 0.011 + 0.001	1.2D+1.6S+1.0L	0.014
B60	Story2	HSS4X0.250	1.139 = 1.133 + 0.004 + 0.005	(R=MIXED) D + L + S + RSY + rsx	0.0002444

This member has been  
design as a tension-only  
brace

Table 5.3 - Steel Beam Envelope (Part 2 of 2)

Label	Story	V33 Ratio	Class	Conn. V I-End kip	Conn. V J-End kip
B62	Story5	0.018	Seismic HD	0.862	0.736
B102	Story5	0.014	Seismic MD	14.753	12.76
B104	Story5	0.003	Seismic MD	12.231	15.109
B139	Story5	0.001	Seismic MD	10.169	7.073
B140	Story5	0.002	Seismic MD	11.448	7.267
B145	Story5	0	Seismic HD	2.886	2.886
B146	Story5	0.001	Seismic HD	10.17	10.17
B147	Story5	0	Seismic HD	2.613	2.613
B173	Story5	0.002	Seismic MD	12.771	12.769
B174	Story5	0.001	Seismic MD	12.505	12.503
B183	Story5	0	Seismic HD	2.886	2.886
B185	Story5	0	Seismic HD	10.181	10.181
B187	Story5	0	Seismic HD	2.613	2.613
B204	Story5	0.001	Seismic MD	11.368	11.912
B205	Story5	0.001	Seismic MD	4.643	4.628
B208	Story5	0.001	Seismic MD	11.247	10.801
B213	Story5	0	Seismic HD	5.159	5.159
B214	Story5	0.001	Seismic HD	9.397	9.397
B217	Story5	0	Seismic HD	5.159	5.159
B218	Story5	0	Seismic HD	9.408	9.408
B222	Story5	0	Seismic HD	5.159	5.159
B223	Story5	0	Seismic HD	9.408	9.408
B231	Story5	0	Seismic HD	5.159	5.159
B232	Story5	0	Seismic HD	9.407	9.407
B233	Story5	0	Seismic HD	4.859	4.859
B235	Story5	0	Seismic HD	9.11	9.11
B236	Story5	0	Seismic HD	4.299	4.299
B238	Story5	0	Seismic HD	7.84	7.84
B148	Story5	0	Seismic HD	0	0
B176	Story5	0	Seismic HD	0	0
B5	Story5	0	Seismic HD	0	0
B22	Story5	0.001	Seismic HD	0	0
B1	Story5	0.002	Seismic MD	10.959	10.959
B29	Story5	0.0001715	Seismic MD	2.47	0
B30	Story5	0.002	Seismic MD	19.262	19.265
B31	Story5	0.000312	Seismic MD	4.266	0
B3	Story5	0.002	Seismic MD	28.472	28.473
B32	Story5	0.0002865	Seismic MD	6.161	5.703
B7	Story4	0	Seismic MD	0.249	0.249
B9	Story4	0.003	Seismic MD	11.172	10.461
B10	Story4	0	Seismic HD	0.249	0.249
B12	Story4	0.001	Seismic MD	12.011	11.946
B14	Story4	0	Seismic MD	0.249	0.249
B15	Story4	0.006	Seismic MD	9.562	7.396
B33	Story4	0.001	Seismic HD	0	0

Table 5.3 - Steel Beam Envelope (Part 2 of 2, continued)

Label	Story	V33 Ratio	Class	Conn. V I-End kip	Conn. V J-End kip
B34	Story4	0.001	Seismic HD	0	0
B35	Story4	0.001	Seismic HD	0	0
B36	Story4	0.001	Seismic HD	0	0
B37	Story4	0.001	Seismic HD	0	0
B38	Story4	0.0003639	Seismic HD	0	0
B39	Story4	0.0003837	Seismic HD	0	0
B40	Story4	0.0003507	Seismic HD	0	0
B41	Story4	0.0002703	Seismic HD	0	0
B42	Story4	0.0003236	Seismic HD	0	0
B43	Story4	0.0004364	Seismic HD	0	0
B44	Story4	0.001	Seismic HD	0	0
B45	Story4	0.002	Seismic HD	0	0
B46	Story4	0.001	Seismic HD	0	0
B47	Story4	0.001	Seismic HD	0	0
B48	Story4	0.0002565	Seismic HD	0	6.984
B49	Story4	0.0001353	Seismic HD	0	7.899
B50	Story4	0.0002629	Seismic HD	0	6.848
B51	Story4	0.001	Seismic HD	0	0
B52	Story4	0.001	Seismic HD	0	0
B53	Story4	0.002	Seismic HD	0	0
B54	Story4	0.001	Seismic HD	0	0
B55	Story4	0.0003721	Seismic HD	0	0
B56	Story4	0.002	Seismic HD	0	0
B61	Story4	0	Seismic MD	0	0
B63	Story4	0.002	Seismic MD	0	0
B65	Story4	0	Seismic MD	0	0
B77	Story4	0.001	Seismic HD	0	0
B78	Story4	0.0002674	Seismic HD	0	7.47
B79	Story4	0.0002029	Seismic HD	0	8.997
B80	Story4	0.0003067	Seismic HD	0	15.633
B81	Story4	0.001	Seismic HD	0	0
B82	Story4	0.0003144	Seismic HD	0	0
B83	Story4	0.0003119	Seismic HD	0	0
B84	Story4	0.0003867	Seismic HD	0	0
B85	Story4	0.0004694	Seismic HD	0	0
B86	Story4	0.001	Seismic HD	0	0
B87	Story4	0.001	Seismic HD	0	0
B88	Story4	0.001	Seismic HD	0	0
B89	Story4	0.001	Seismic HD	0	0
B90	Story4	0.002	Seismic HD	0	4.867
B91	Story4	0.002	Seismic HD	0	6.099
B92	Story4	0.001	Seismic HD	0	6.238
B93	Story4	0.001	Seismic HD	0	3.523

Table 5.3 - Steel Beam Envelope (Part 2 of 2, continued)

Label	Story	V33 Ratio	Class	Conn. V I-End kip	Conn. V J-End kip
B94	Story4	0.001	Seismic HD	0	2.516
B95	Story4	0.003	Seismic HD	0	18.85
B100	Story4	0.001	Seismic MD	0	13.252
B113	Story4	0.002	Seismic HD	0	0
B114	Story4	0.0004415	Seismic HD	0	4.404
B115	Story4	0.0003701	Seismic HD	0	5.861
B116	Story4	0.001	Seismic HD	0	11.463
B117	Story4	0.001	Seismic HD	0	0
B118	Story4	0.001	Seismic HD	0	0
B119	Story4	0.001	Seismic HD	0	0
B120	Story4	0.001	Seismic HD	0	0
B121	Story4	0.001	Seismic HD	0	0
B122	Story4	0.001	Seismic HD	0	0
B123	Story4	0.001	Seismic HD	0	0
B124	Story4	0.003	Seismic HD	0	0
B125	Story4	0.004	Seismic HD	0	0
B126	Story4	0.001	Seismic HD	0	7.674
B127	Story4	0.002	Seismic HD	11.107	10.864
B128	Story4	0.001	Seismic HD	0	5.388
B129	Story4	0.002	Seismic HD	0	4.018
B130	Story4	0.002	Seismic HD	0	4.364
B131	Story4	0.006	Seismic HD	0	12.73
B153	Story4	0.001	Seismic HD	0	0
B154	Story4	0.002	Seismic HD	0	0
B155	Story4	0.002	Seismic HD	0	0
B156	Story4	0.001	Seismic HD	0	0
B158	Story4	0.001	Seismic HD	0	0
B159	Story4	0.001	Seismic HD	0	0
B160	Story4	0.001	Seismic HD	0	0
B161	Story4	0.001	Seismic HD	0	0
B162	Story4	0.001	Seismic HD	0	0
B163	Story4	0.001	Seismic HD	0	0
B164	Story4	0.001	Seismic HD	0	0
B165	Story4	0.002	Seismic HD	0	0
B166	Story4	0.004	Seismic HD	0	0
B167	Story4	0.003	Seismic HD	0	0
B169	Story4	0.004	Seismic HD	0	0
B170	Story4	0.003	Seismic HD	0	0
B171	Story4	0.001	Seismic HD	0	0
B172	Story4	0.002	Seismic HD	0	0
B200	Story4	0	Seismic MD	0.249	0.249
B202	Story4	0.001	Seismic MD	11.369	0
B210	Story4	0.012	Seismic MD	0	0

**Table 5.3 - Steel Beam Envelope (Part 2 of 2, continued)**

Label	Story	V33 Ratio	Class	Conn. V I-End kip	Conn. V J-End kip
B224	Story4	0.002	Seismic HD	0	10.412
B300	Story4	0.008	Seismic MD	11.077	12.505
B302	Story4	0.007	Seismic MD	6.713	13.448
B4	Story4	0.004	Seismic MD	11.014	7.259
B61	Story3	0	Seismic HD	0	0
B63	Story3	0	Seismic HD	0	0
B65	Story3	0	Seismic HD	0	0
B101	Story3	0	Seismic HD	0	1.968
B103	Story3	0	Seismic HD	1.968	0
B112	Story3	0.002	Seismic HD	0	0
B132	Story3	0	Seismic MD	4.221	4.222
B149	Story3	0	Seismic MD	4.089	4.089
B168	Story3	0.002	Seismic HD	0	0
B177	Story3	0.0001136	Seismic MD	3.067	2.128
B190	Story3	0	Seismic MD	0	0
B193	Story3	0	Seismic HD	0	0
B203	Story3	0.001	Seismic MD	0	0
B206	Story3	0	Seismic MD	0	0
B209	Story3	0	Seismic MD	0	0
B211	Story3	0	Seismic MD	2.094	2.094
B212	Story3	0	Seismic MD	3.819	3.819
B215	Story3	0	Seismic MD	2.094	2.094
B216	Story3	0	Seismic MD	3.819	3.819
B220	Story3	0	Seismic MD	2.094	2.094
B221	Story3	0	Seismic MD	3.819	3.819
B229	Story3	0	Seismic MD	2.244	2.244
B230	Story3	0	Seismic MD	4.092	4.092
B234	Story3	0.0002177	Seismic MD	37.307	60.402
B243	Story3	0.005	Seismic HD	0	0
B244	Story3	0.001	Seismic HD	0	0
B245	Story3	0	Seismic HD	0	0
B23	Story3	0.002	Seismic HD	0	0
B25	Story3	0.027	Seismic HD	0	0
B28	Story3	0	Seismic HD	0	0
B20	Story3	0.002	Seismic HD	0	13.398
B21	Story3	0	Seismic MD	4.365	4.365
B24	Story3	0	Seismic MD	2.394	2.394
B6	Story2	0	Seismic HD	65.138	20.801
B8	Story2	0	Seismic MD	3.185	3.185
B13	Story2	0	Seismic HD	4.963	0
B64	Story2	0.0001752	Seismic HD	25.856	26.271
B67	Story2	0	Seismic HD	3.315	0
B68	Story2	0	Seismic HD	0	11.57



**Table 5.3 - Steel Beam Envelope (Part 2 of 2, continued)**

Label	Story	V33 Ratio	Class	Conn. V	
				I-End kip	J-End kip
B69	Story2	0	Seismic HD	11.651	4.742
B70	Story2	0	Seismic MD	2.652	2.652
B73	Story2	0.001	Seismic HD	0	0
B74	Story2	0.001	Seismic HD	95.942	103.373
B75	Story2	0.001	Seismic MD	28.519	26.678
B105	Story2	0	Seismic HD	7.114	0
B144	Story2	0	Seismic MD	3.997	10.201
B186	Story2	0	Seismic HD	4.292	9.253
B195	Story2	0	Seismic HD	0	37.067
B199	Story2	0	Seismic HD	69.062	19.045
B201	Story2	0	Seismic MD	3.185	3.185
B207	Story2	0.001	Seismic HD	2.014	0
B254	Story2	0	Seismic HD	0	34.369
B257	Story2	0	Seismic HD	15.707	6.429
B258	Story2	0	Seismic HD	10.002	0
B259	Story2	0	Seismic HD	0	18.593
B263	Story2	0	Seismic HD	11.157	19.749
B268	Story2	0	Seismic HD	12.192	3.947
B271	Story2	0	Seismic HD	16.381	6.129
B273	Story2	0	Seismic HD	11.398	3.997
B277	Story2	0	Seismic HD	11.588	4.756
B278	Story2	0	Seismic HD	5.918	0
B279	Story2	0	Seismic HD	0	12.994
B280	Story2	0	Seismic MD	4.294	4.294
B281	Story2	0	Seismic MD	3.536	3.536
B282	Story2	0	Seismic MD	2.905	2.905
B283	Story2	0	Seismic MD	3.41	3.41
B284	Story2	0	Seismic MD	4.294	4.294
B295	Story2	0	Seismic HD	5.364	9.288
B296	Story2	0	Seismic MD	3.958	6.964
B303	Story2	0	Seismic HD	6.923	45.713
B304	Story2	0	Seismic HD	6.087	12.91
B2	Story2	0.001	Seismic HD	0	0
B19	Story2	0.0002406	Seismic HD	0	0
B60	Story2	0.0004078	Seismic HD	0.009	0.002

**Table 5.4 - Steel Brace Envelope (Part 1 of 2)**

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio
D29	Story5	HSS3-1/2X3-1/2X1/4	0.237 = 0.237 + 0 + 0	1.2D+1.6S+1.0L	0
D30	Story5	HSS3-1/2X3-1/2X1/4	0.095 = 0.095 + 0 + 0	1.2D+1.6S+1.0L	0
D31	Story5	HSS3-1/2X3-1/2X1/4	0.008 = 0.008 + 0 + 0	(R=MIXED) D + RSY + rsx	0
D32	Story5	HSS3-1/2X3-1/2X1/4	0.243 = 0.243 + 0 + 0	1.2D+1.6S+1.0L	0
D33	Story5	HSS3-1/2X3-1/2X1/4	0.007 = 0.007 + 0 + 0	(R=MIXED) D + RSX + rsy	0
D34	Story5	HSS3-1/2X3-1/2X1/4	0.092 = 0.092 + 0 + 0	1.2D+1.6S+1.0L	0

Table 5.4 - Steel Brace Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio
D35	Story5	HSS3-1/2X3-1/2X1/4	0.082 = 0.082 + 0 + 0	(R=MIXED) D + L + S + RSX + rsy	0
D72	Story5	HSS3X3X1/4	0.947 = 0.947 + 0 + 0	(R=MIXED) D + L + S + RSX + rsy	0
D74	Story5	HSS3X3X1/4	0.778 = 0.778 + 0 + 0	(R=MIXED) D + RSX + rsy	0
D79	Story5	HSS6X6X3/8	0.016 = 0.011 + 0.005 + 0	1.2D+1.6S+1.0L	0.0002539
D52	Story5	HSS6X6X3/8	0.017 = 0.012 + 0.005 + 0	1.2D+1.6S+1.0L	0.0002411
D77	Story5	HSS6X6X3/8	0.013 = 0.013 + 0 + 0	1.2D+1.6S+1.0L	0
D78	Story5	HSS2-1/2X2-1/2X3/16	0.033 = 0.033 + 0 + 0	(R=MIXED) D + RSX + rsy	0
D81	Story5	HSS2-1/2X2-1/2X3/16	0.304 = 0.304 + 0 + 0	(R=MIXED) D + L + S + RSX + rsy	0
D46	Story5	HSS6X6X1/4	0.022 = 0.022 + 0 + 1.35E-04	1.2D+1.6S+1.0L	0
D1	Story4	W16X31	0.168 = 0.012 + 0.144 + 0.011	1.2D+1.6S+1.0L	0.072
D2	Story4	W21X44	0.101 = 0.005 + 0.079 + 0.017	1.2D+1.6S+1.0L	0.028
D3	Story4	W21X44	0.12 = 0.002 + 0.096 + 0.022	1.2D+1.6S+1.0L	0.032
D4	Story4	W21X44	0.19 = 0.011 + 0.175 + 0.004	1.2D+1.6S+1.0L	0.054
D5	Story4	W21X44	0.252 = 0.01 + 0.231 + 0.011	1.2D+1.6S+1.0L	0.069
D6	Story4	W21X44	0.269 = 0.005 + 0.251 + 0.013	1.2D+1.6S+1.0L	0.074
D7	Story4	W21X44	0.265 = 0.005 + 0.246 + 0.014	1.2D+1.6S+1.0L	0.073
D8	Story4	W21X44	0.251 = 0.006 + 0.234 + 0.012	1.2D+1.6S+1.0L	0.07
D9	Story4	W21X44	0.236 = 0.007 + 0.222 + 0.008	1.2D+1.6S+1.0L	0.067
D10	Story4	W21X44	0.22 = 0.008 + 0.212 + 0.001	1.2D+1.6S+1.0L	0.064
D11	Story4	W21X44	0.211 = 0.008 + 0.197 + 0.007	1.2D+1.6S+1.0L	0.06
D12	Story4	W21X44	0.165 = 0.017 + 0.118 + 0.03	1.2D+1.6S+1.0L	0.039
D13	Story4	W21X44	0.17 = 0.019 + 0.082 + 0.069	1.2D+1.6S+1.0L	0.03
D14	Story4	W21X44	0.212 = 0.023 + 0.147 + 0.042	1.2D+1.6S+1.0L	0.047
D15	Story4	W21X44	0.086 = 0.003 + 0.082 + 0.002	1.2D+1.6S+1.0L	0.03
D16	Story4	W21X44	0.061 = 0.008 + 0.051 + 0.003	1.2D+1.6S+1.0L	0.022
D17	Story4	W21X44	0.07 = 1.39E-04 + 0.066 + 0.003	1.2D+1.6S+1.0L	0.026
D18	Story4	W21X44	0.063 = 0.009 + 0.048 + 0.006	1.2D+1.6S+1.0L	0.021
D19	Story4	W21X44	0.097 = 0.002 + 0.083 + 0.011	1.2D+1.6S+1.0L	0.03
D20	Story4	W21X44	0.233 = 0.029 + 0.166 + 0.038	1.2D+1.6S+1.0L	0.051
D21	Story4	W21X44	0.161 = 0.011 + 0.061 + 0.089	1.2D+1.6S+1.0L	0.023
D22	Story4	W21X44	0.097 = 0.017 + 0.025 + 0.055	1.2D+1.6S+1.0L	0.013
D23	Story4	W21X44	0.061 = 0.028 + 0.005 + 0.028	1.2D+1.6S+1.0L	0.009
D24	Story4	W16X31	0.522 = 0.011 + 0.369 + 0.142	1.2D+1.6S+1.0L	0.128
D39	Story4	HSS2X2X1/4	0.377 = 0.377 + 0 + 0	(R=MIXED) D + L + S + RSY + rsx	0
D43	Story4	HSS2X2X1/4	0.093 = 0.093 + 0 + 0	(R=MIXED) D + RSX + rsy	0
D48	Story4	W16X31	0.072 = 0.011 + 0.041 + 0.019	(R=MIXED) D + L + S + RSY + rsx	0.05
D49	Story4	W21X44	0.05 = 0.009 + 0.028 + 0.012	1.2D+1.6S+1.0L	0.016
D50	Story4	W21X44	0.07 = 0.005 + 0.041 + 0.024	1.2D+1.6S+1.0L	0.021
D51	Story4	W21X44	0.104 = 0.011 + 0.085 + 0.008	1.2D+1.6S+1.0L	0.04
D53	Story4	W21X44	0.187 = 0.01 + 0.164 + 0.013	1.2D+1.6S+1.0L	0.071
D54	Story4	W21X44	0.201 = 0.006 + 0.177 + 0.018	1.2D+1.6S+1.0L	0.076
D55	Story4	W21X44	0.198 = 0.005 + 0.174 + 0.02	1.2D+1.6S+1.0L	0.075
D56	Story4	W21X44	0.188 = 0.006 + 0.165 + 0.017	1.2D+1.6S+1.0L	0.072
D57	Story4	W21X44	0.177 = 0.007 + 0.158 + 0.013	1.2D+1.6S+1.0L	0.069
D58	Story4	W21X44	0.163 = 0.006 + 0.153 + 0.004	1.2D+1.6S+1.0L	0.067
D59	Story4	W21X44	0.152 = 0.005 + 0.144 + 0.004	1.2D+1.6S+1.0L	0.063

Table 5.4 - Steel Brace Envelope (Part 1 of 2, continued)

Label	Story	Section	Moment Interaction Check	PMM Combo	V22 Ratio
D60	Story4	W21X44	0.116 = 0.01 + 0.093 + 0.013	1.2D+1.6S+1.0L	0.043
D61	Story4	W21X44	0.132 = 0.014 + 0.062 + 0.056	1.2D+1.6S+1.0L	0.03
D62	Story4	W12X35	0.167 = 0.042 + 0.106 + 0.019	(R=MIXED) D + L + S + RSY + rsx	0.061
D63	Story4	W12X35	0.099 = 0.015 + 0.066 + 0.018	(R=MIXED) D + L + S + RSY + rsx	0.029
D64	Story4	HSS3X3X1/4	0.252 = 0.252 + 0 + 0	(R=MIXED) D + RSY + rsx	0
D65	Story4	W21X44	0.094 = 0.008 + 0.036 + 0.05	1.2D+1.6S+1.0L	0.019
D66	Story4	W21X44	0.063 = 0.008 + 0.027 + 0.027	1.2D+1.6S+1.0L	0.016
D67	Story4	W21X44	0.043 = 0.007 + 0.032 + 0.004	1.2D+1.6S+1.0L	0.018
D68	Story4	W16X31	0.178 = 0.001 + 0.161 + 0.017	1.2D+1.6S+1.0L	0.084
D69	Story4	HSS3X3X1/4	0.292 = 0.265 + 0.017 + 0.01	(R=MIXED) D + RSY + rsx	0.001
D45	Story4	HSS3X3X1/4	0.632 = 0.632 + 0 + 0	(R=MIXED) D + RSY + rsx	0
D28	Story4	HSS2X2X1/4	0.328 = 0.328 + 0 + 0	(R=MIXED) D + L + S + RSX + rsy	0
D25	Story4	HSS2X2X1/4	0.312 = 0.312 + 0 + 0	(R=MIXED) D + RSX + rsy	0
D26	Story4	HSS3X3X1/4	0.837 = 0.837 + 0 + 0	(R=MIXED) D + RSY + rsx	0
D40	Story3	HSS3X3X3/8	0.601 = 0.601 + 0 + 0	(R=MIXED) D + L + S + RSY + rsx	0
D42	Story3	HSS3X3X3/8	0.54 = 0.54 + 0 + 0	(R=MIXED) D + L + S + RSY + rsx	0
D47	Story3	HSS3X3X3/8	0.687 = 0.687 + 0 + 0	(R=MIXED) D + L + S + RSY + rsx	0
D70	Story3	HSS3X3X3/8	0.636 = 0.636 + 0 + 0	(R=MIXED) D + L + S + RSY + rsx	0
D71	Story3	HSS3X3X1/4	0.672 = 0.672 + 0 + 0	(R=MIXED) D + L + S + RSX + rsy	0
D73	Story3	HSS3X3X1/4	0.678 = 0.678 + 0 + 0	(R=MIXED) D + L + S + RSX + rsy	0
D75	Story3	HSS4X0.250	1.24 = 1.223 + 0.017 + 0 *	(R=MIXED) D + L + S + RSX + rsy	0.001
D76	Story3	HSS4X0.250	1.186 = 1.17 + 0.016 + 0 *	(R=MIXED) D + L + S + RSX + rsy	0.001
D27	Story3	HSS3X3X3/8	0.292 = 0.292 + 0 + 0	(R=MIXED) D + L + S + RSX + rsy	0
D36	Story3	HSS3X3X3/8	0.319 = 0.319 + 0 + 0	(R=MIXED) D + L + S + RSX + rsy	0
D80	Story3	HSS3-1/2X3-1/2X1/4	0.338 = 0.338 + 0 + 0	(R=MIXED) D + L + S + RSX + rsy	0
D82	Story3	HSS3-1/2X3-1/2X1/4	0.278 = 0.278 + 0 + 0	(R=MIXED) D + RSX + rsy	0
D83	Story2	HSS4X0.250	1.366 = 1.36 + 0.005 + 0.004 *	(R=MIXED) D + L + S + RSY + rsx	0.0002167

Table 5.4 - Steel Brace Envelope (Part 2 of 2)

Label	Story	V33 Ratio	Class	Conn. P I-End kip	Conn. P J-End kip
D29	Story5	0	Seismic HD	-27.039	-27.039
D30	Story5	0	Seismic HD	-21.725	-21.725
D31	Story5	0	Seismic HD	-1.847	-1.847
D32	Story5	0	Seismic HD	31.801	31.801
D33	Story5	0	Seismic HD	-1.699	-1.699
D34	Story5	0	Seismic HD	-21.012	-21.012
D35	Story5	0	Seismic HD	-18.727	-18.727
D72	Story5	0	Seismic HD	-34.793	-34.793
D74	Story5	0	Seismic HD	30.381	30.381
D79	Story5	0	Seismic MD	-4.999	-4.999
D52	Story5	0	Seismic MD	-5.604	-5.604
D77	Story5	0	Seismic MD	-6.177	-6.177
D78	Story5	0	Seismic HD	1.659	1.659
D81	Story5	0	Seismic HD	-2.985	-2.985

\*These members have been designed as tension-only

Table 5.4 - Steel Brace Envelope (Part 2 of 2, continued)

Label	Story	V33 Ratio	Class	Conn. P I-End kip	Conn. P J-End kip
D46	Story5	0	Compact	-7.252	-7.252
D1	Story4	0.001	Compact	-5.772	-6.992
D2	Story4	0.002	Compact	-3.427	-4.083
D3	Story4	0.003	Compact	-3.024	-2.638
D4	Story4	0.001	Compact	4.944	12.291
D5	Story4	0.002	Compact	-9.735	-8.601
D6	Story4	0.002	Compact	-5.661	-4.424
D7	Story4	0.002	Compact	-4.691	-3.998
D8	Story4	0.002	Compact	-5.102	-4.69
D9	Story4	0.001	Compact	-5.803	-5.743
D10	Story4	0.001	Compact	-5.889	-6.434
D11	Story4	0.001	Compact	-5.7	-6.36
D12	Story4	0.005	Compact	-6.753	-13.931
D13	Story4	0.01	Compact	-6.172	-15.711
D14	Story4	0.006	Compact	7.718	26.755
D15	Story4	0.002	Compact	1.963	3.322
D16	Story4	0.002	Compact	-1.734	-6.29
D17	Story4	0.002	Compact	-0.514	-1.477
D18	Story4	0.002	Compact	-1.88	-7.653
D19	Story4	0.002	Compact	2.579	2.515
D20	Story4	0.006	Compact	10.624	33.761
D21	Story4	0.013	Compact	-2.951	-8.804
D22	Story4	0.008	Compact	-5.968	-14.582
D23	Story4	0.002	Compact	-9.306	-23.715
D24	Story4	0.011	Compact	-2.754	8.705
D39	Story4	0	Seismic HD	-15.344	-15.344
D43	Story4	0	Seismic HD	9.165	9.165
D48	Story4	0.003	Compact	-12.069	-9.835
D49	Story4	0.004	Compact	-6.245	-8.652
D50	Story4	0.005	Compact	-4.23	-4.552
D51	Story4	0.004	Compact	7.12	12.848
D53	Story4	0.003	Compact	-10.838	-9.583
D54	Story4	0.004	Compact	-6.58	-5.65
D55	Story4	0.004	Compact	-5.406	-5.012
D56	Story4	0.004	Compact	-5.729	-5.44
D57	Story4	0.003	Compact	-6.338	-6.134
D58	Story4	0.002	Compact	-6.369	-5.913
D59	Story4	0.002	Compact	-6.021	-4.395
D60	Story4	0.004	Compact	-6.263	-9.008
D61	Story4	0.012	Compact	-6.794	-13.035
D62	Story4	0.008	Compact	14.271	38.93
D63	Story4	0.006	Compact	13.781	16.442
D64	Story4	0	Seismic HD	23.946	23.946
D65	Story4	0.011	Compact	-4.327	-7.387
D66	Story4	0.007	Compact	-3.049	-7.48

Table 5.4 - Steel Brace Envelope (Part 2 of 2, continued)

Label	Story	V33 Ratio	Class	Conn. P I-End kip	Conn. P J-End kip
D67	Story4	0.002	Compact	-3.464	-6.079
D68	Story4	0.002	Compact	-3.922	-1.597
D69	Story4	0.001	Seismic HD	26.37	26.37
D45	Story4	0	Seismic HD	24.714	24.714
D28	Story4	0	Seismic HD	-11.276	-11.276
D25	Story4	0	Seismic HD	11.669	11.669
D26	Story4	0	Seismic HD	31.257	31.257
D40	Story3	0	Seismic HD	-67.06	-67.06
D42	Story3	0	Seismic HD	-60.005	-60.005
D47	Story3	0	Seismic HD	-75.416	-75.416
D70	Story3	0	Seismic HD	-70.47	-70.47
D71	Story3	0	Seismic HD	22.588	22.588
D73	Story3	0	Seismic HD	-22.761	-22.761
D75	Story3	0.0004145	Seismic HD	-27.962	-27.952
D76	Story3	0.0003805	Seismic HD	-26.754	-26.744
D27	Story3	0	Seismic HD	-24.809	-24.809
D36	Story3	0	Seismic HD	-27.113	-27.113
D80	Story3	0	Seismic HD	-19.659	-19.659
D82	Story3	0	Seismic HD	17.594	17.594
D83	Story2	0.0003742	Seismic HD	-10.212	-10.225

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3)

Story	Label	Unique Name	Design Type	Design Section	Status
Story5	C19	189	Column	HSS6X6X1/4	No Message
Story5	C20	200	Column	HSS6X6X1/4	No Message
Story5	C21	202	Column	HSS6X6X1/4	No Message
Story5	C31	135	Column	HSS6X6X1/4	No Message
Story5	C53	3 E-7	Column	HSS6X6X1/2	No Message
Story5	C54	3 E-8(+)	Column	HSS6X6X1/2	No Message
Story5	C55	3 E-9(-)	Column	HSS6X6X1/2	No Message
Story5	C56	3 E-10	Column	HSS6X6X1/2	No Message
Story5	C58	4 C-7	Column	HSS6X6X1/4	No Message
Story5	C60	4 C-8(+)	Column	HSS6X6X1/4	No Message
Story5	C62	4 C-10	Column	HSS6X6X1/4	No Message
Story5	C2	3 H-8	Column	HSS6X6X1/2	No Message
Story5	C6	3 H-7	Column	HSS6X6X1/2	No Message
Story5	C46	3 H-9	Column	HSS6X6X1/2	No Message
Story5	C47	3 H-10	Column	HSS6X6X1/2	No Message
Story4	C1	3 I-2	Column	W6X25	No Message
Story4	C3	3 I-3	Column	W6X25	No Message
Story4	C4	3 I-4	Column	W6X25	No Message
Story4	C5	3 I-5	Column	W6X25	No Message
Story4	C7	3 I-6	Column	W6X25	No Message
Story4	C8	3 I-7	Column	W6X25	No Message

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story4	C9	3 I-8	Column	HSS6X6X1/4	No Message
Story4	C11	3 I-9	Column	HSS6X6X1/4	No Message
Story4	C12	3 I-10	Column	W6X25	No Message
Story4	C13	3 I-11	Column	W6X25	No Message
Story4	C26	3 H-2	Column	HSS6X6X1/2	No Message
Story4	C28	3 G-3-	Column	HSS6X6X1/2	No Message
Story4	C28		Column	HSS6X6X1/2	No Message
Story4	C29	3 G-7	Column	HSS6X6X1/2	No Message
Story4	C32	3 G-10	Column	HSS6X6X1/2	No Message
Story4	C32		Column	HSS6X6X1/2	No Message
Story4	C33	3 G-11	Column	HSS6X6X1/4	No Message
Story4	C34	3 G(-)-7	Column	HSS6X6X1/2	No Message
Story4	C39	3 G(-)-10	Column	HSS6X6X1/2	No Message
Story4	C40	3 F+-2	Column	HSS6X6X1/2	No Message
Story4	C42	3 F-10	Column	HSS6X6X1/2	No Message
Story4	C44	3 F-7	Column	HSS6X6X1/2	No Message
Story4	C45	3 E-2	Column	HSS6X6X1/2	No Message
Story4	C48	3 E-3	Column	HSS6X6X1/4	No Message
Story4	C49	3 E-4	Column	HSS6X6X1/4	No Message
Story4	C50	3 E-5	Column	HSS6X6X1/4	No Message
Story4	C52	3 E-6	Column	HSS6X6X1/4	No Message
Story4	C57	3 E-11-	Column	HSS6X6X1/4	No Message
Story3	C30	3 G-8(+)	Column	HSS6X6X1/2	No Message
Story3	C59	2 C-8	Column	W10X45	No Message
Story3	C61	2 C-9	Column	W10X45	No Message
Story2	C27	1 I-3	Column	W10X49	No Message
Story2	C35	1E-3	Column	W10X49	No Message
Story2	C41	1 E-6	Column	W10X49	No Message
Story2	C43	1 I-6	Column	W10X49	No Message
Story1	C14	1 H+-8+ WD	Column	HSS6X6X1/4	No Message
Story1	C36	1 G-7+ WD	Column	HSS6X6X1/4	No Message
Story1	C37	1 G--8+ WD	Column	HSS6X6X1/4	No Message
Story1	C38	1 G--9- WD	Column	HSS6X6X1/4	No Message
Story5	B62	RB11-1 HIGH	<del>Beam</del> HSS	Stand-in member	Message
Story5	B62		Beam	HSS3-1/2X3-1/2X1/4	No Message
Story5	B102	RB13-1	Beam	W16X26	No Message
Story5	B104	RB13-2	Beam	W16X26	No Message
Story5	B104		Beam	W16X26	No Message
Story5	B139	RB8-1	Beam	W10X22	No Message
Story5	B139		Beam	W10X22	No Message
Story5	B140	RB8-2	Beam	W10X22	No Message
Story5	B140		Beam	W10X22	No Message
Story5	B145	RB9-1	Beam	C10X15.3	No Message
Story5	B146	RB9-2	Beam	C10X15.3	No Message
Story5	B147	RB9-3	Beam	C10X15.3	No Message

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story5	B173	RB8-3	Beam	W10X22	No Message
Story5	B173		Beam	W10X22	No Message
Story5	B174	RB8-4	Beam	W10X22	No Message
Story5	B174		Beam	W10X22	No Message
Story5	B183	RB9-4	Beam	C10X15.3	No Message
Story5	B183		Beam	C10X15.3	No Message
Story5	B185	RB9-5	Beam	C10X15.3	No Message
Story5	B187	RB9-6	Beam	C10X15.3	No Message
Story5	B187		Beam	C10X15.3	No Message
Story5	B204	RB5x	Beam	W16X26	No Message
Story5	B205	RB10-3	Beam	W16X26	No Message
Story5	B205		Beam	W16X26	No Message
Story5	B208	RB10-4	Beam	W16X26	No Message
Story5	B208		Beam	W16X26	No Message
Story5	B213	RB9-7	Beam	C10X15.3	No Message
Story5	B213		Beam	C10X15.3	No Message
Story5	B214	RB9-8	Beam	C10X15.3	No Message
Story5	B214		Beam	C10X15.3	No Message
Story5	B217	RB9-9	Beam	C10X15.3	No Message
Story5	B217		Beam	C10X15.3	No Message
Story5	B218	RB9-10	Beam	C10X15.3	No Message
Story5	B218		Beam	C10X15.3	No Message
Story5	B222	RB9-11	Beam	C10X15.3	No Message
Story5	B223	RB9-12	Beam	C10X15.3	No Message
Story5	B223		Beam	C10X15.3	No Message
Story5	B231	RB9-13	Beam	C10X15.3	No Message
Story5	B232	RB9-14	Beam	C10X15.3	No Message
Story5	B233	RB9-15	Beam	C10X15.3	No Message
Story5	B235	RB9-16	Beam	C10X15.3	No Message
Story5	B236	RB9-17	Beam	C10X15.3	No Message
Story5	B238	RB9-18	Beam	C10X15.3	No Message
Story5	B238		Beam	C10X15.3	No Message
Story5	B148	46	Beam	HSS3X3X5/16	No Message
Story5	B148		Beam	HSS3X3X5/16	No Message
Story5	B176	47	Beam	HSS3X3X5/16	No Message
Story5	B5	RB9-19	Beam	C10X15.3	No Message
Story5	B22	RB18-1	Beam	W16X31	No Message
Story5	B22		Beam	W16X31	No Message
Story5	B1	RB12-1	Beam	W10X39	No Message
Story5	B1		Beam	W10X39	No Message
Story5	B29	RB19-1	Beam	W10X22	No Message
Story5	B29		Beam	W10X22	No Message
Story5	B30	RB12-2	Beam	W10X39	No Message
Story5	B30		Beam	W10X39	No Message
Story5	B31	RB19-3	Beam	W10X22	No Message

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story5	B3	RB7-1	Beam	W10X54	No Message
Story5	B3		Beam	W10X54	No Message
Story5	B32	RB19-2	Beam	W10X22	No Message
Story4	B7	RB4-1	Beam	W16X26	No Message
Story4	B7		Beam	W16X26	No Message
Story4	B9	RB5-1	Beam	W16X26	No Message
Story4	B9		Beam	W16X26	No Message
Story4	B10	RB4-3	Beam	W16X40	No Message
Story4	B12	RB6-1	Beam	W16X26	No Message
Story4	B14	RB4-4	Beam	W16X26	No Message
Story4	B15	RB5-3	Beam	W16X26	No Message
Story4	B15		Beam	W16X26	No Message
Story4	B33	RB2-1b	Beam	W16X31	No Message
Story4	B33		Beam	W16X31	No Message
Story4	B34	218	Beam	W21X44	No Message
Story4	B35	221	Beam	W21X44	No Message
Story4	B36	224	Beam	W21X44	No Message
Story4	B36		Beam	W21X44	No Message
Story4	B37	227	Beam	W21X44	No Message
Story4	B37		Beam	W21X44	No Message
Story4	B38	233	Beam	W21X44	No Message
Story4	B38		Beam	W21X44	No Message
Story4	B39	238	Beam	W21X44	No Message
Story4	B39		Beam	W21X44	No Message
Story4	B40	243	Beam	W21X44	No Message
Story4	B40		Beam	W21X44	No Message
Story4	B41	248	Beam	W21X44	No Message
Story4	B42	253	Beam	W21X44	No Message
Story4	B43	258	Beam	W21X44	No Message
Story4	B44	263	Beam	W21X44	No Message
Story4	B45	268	Beam	W21X44	No Message
Story4	B46	273	Beam	W21X44	No Message
Story4	B47	288	Beam	W21X44	No Message
Story4	B48	300	Beam	W21X44	No Message
Story4	B49	303	Beam	W21X44	No Message
Story4	B50	306	Beam	W21X44	No Message
Story4	B51	309	Beam	W21X44	No Message
Story4	B52	313	Beam	W21X44	No Message
Story4	B53	327	Beam	W21X44	No Message
Story4	B54	333	Beam	W21X44	No Message
Story4	B55	339	Beam	W21X44	No Message
Story4	B56	RB2-3b	Beam	W16X31	No Message
Story4	B61	RB10-1	Beam	W16X26	No Message
Story4	B63	RB11-1	Beam	W16X26	No Message
Story4	B65	RB10-2	Beam	W16X26	No Message



Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story4	B77	RB2-2a	Beam	W16X31	No Message
Story4	B77		Beam	W16X31	No Message
Story4	B78	219	Beam	W21X44	No Message
Story4	B79	222	Beam	W21X44	No Message
Story4	B80	225	Beam	W21X44	No Message
Story4	B80		Beam	W21X44	No Message
Story4	B81	228	Beam	W21X44	No Message
Story4	B81		Beam	W21X44	No Message
Story4	B82	234	Beam	W21X44	No Message
Story4	B83	239	Beam	W21X44	No Message
Story4	B84	244	Beam	W21X44	No Message
Story4	B84		Beam	W21X44	No Message
Story4	B85	249	Beam	W21X44	No Message
Story4	B86	254	Beam	W21X44	No Message
Story4	B87	259	Beam	W21X44	No Message
Story4	B88	264	Beam	W21X44	No Message
Story4	B89	269	Beam	W21X68	No Message
Story4	B90	RB17-1a	Beam	W12X35	No Message
Story4	B91	RB17-2a	Beam	W12X35	No Message
Story4	B92	328	Beam	W21X44	No Message
Story4	B93	334	Beam	W21X44	No Message
Story4	B94	340	Beam	W21X44	No Message
Story4	B95	RB2-3c	Beam	W16X31	No Message
Story4	B95		Beam	W16X31	No Message
Story4	B100	RB14-1	Beam	W16X26	No Message
Story4	B100		Beam	W16X26	No Message
Story4	B113	RB2-2b	Beam	W16X31	No Message
Story4	B113		Beam	W16X31	No Message
Story4	B114	293	Beam	W21X44	No Message
Story4	B115	297	Beam	W21X44	No Message
Story4	B116	175	Beam	W21X44	No Message
Story4	B116		Beam	W21X44	No Message
Story4	B117	229	Beam	W21X44	No Message
Story4	B117		Beam	W21X44	No Message
Story4	B118	235	Beam	W21X44	No Message
Story4	B118		Beam	W21X44	No Message
Story4	B119	240	Beam	W21X44	No Message
Story4	B119		Beam	W21X44	No Message
Story4	B120	245	Beam	W21X44	No Message
Story4	B120		Beam	W21X44	No Message
Story4	B121	250	Beam	W21X44	No Message
Story4	B122	255	Beam	W21X44	No Message
Story4	B123	260	Beam	W21X44	No Message
Story4	B124	265	Beam	W21X44	No Message
Story4	B125	270	Beam	W21X44	No Message

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story4	B126	RB17-1b	Beam	W12X35	No Message
Story4	B127	RB17-2b	Beam	W12X35	No Message
Story4	B128	329	Beam	W21X44	No Message
Story4	B129	335	Beam	W21X44	No Message
Story4	B130	341	Beam	W21X44	No Message
Story4	B131	RB2-4a	Beam	W16X31	No Message
Story4	B131		Beam	W16X31	No Message
Story4	B153	RB2-2c	Beam	W16X31	No Message
Story4	B153		Beam	W16X31	No Message
Story4	B154	294	Beam	W21X44	No Message
Story4	B155	298	Beam	W21X44	No Message
Story4	B156	176	Beam	W21X44	No Message
Story4	B156		Beam	W21X44	No Message
Story4	B158	230	Beam	W21X44	No Message
Story4	B158		Beam	W21X44	No Message
Story4	B159	236	Beam	W21X44	No Message
Story4	B159		Beam	W21X44	No Message
Story4	B160	241	Beam	W21X44	No Message
Story4	B160		Beam	W21X44	No Message
Story4	B161	246	Beam	W21X44	No Message
Story4	B161		Beam	W21X44	No Message
Story4	B162	251	Beam	W21X44	No Message
Story4	B163	256	Beam	W21X44	No Message
Story4	B164	261	Beam	W21X44	No Message
Story4	B165	266	Beam	W21X44	No Message
Story4	B166	271	Beam	W21X44	No Message
Story4	B167	RB17-1c	Beam	W12X35	No Message
Story4	B169	330	Beam	W21X44	No Message
Story4	B170	336	Beam	W21X44	No Message
Story4	B171	342	Beam	W21X44	No Message
Story4	B172	RB2-4b	Beam	W16X31	No Message
Story4	B172		Beam	W16X31	No Message
Story4	B200	RB4-2	Beam	W16X26	No Message
Story4	B200		Beam	W16X26	No Message
Story4	B202	RB5-2	Beam	W16X26	No Message
Story4	B202		Beam	W16X26	No Message
Story4	B210	RB3-1	Beam	W16X26	No Message
Story4	B210		Beam	W16X26	No Message
Story4	B224	RB17-2c	Beam	W12X35	No Message
Story4	B300	RB16-2	Beam	W24X117	No Message
Story4	B300		Beam	W24X117	No Message
Story4	B302	RB16-1	Beam	W24X117	No Message
Story4	B302		Beam	W24X117	No Message
Story4	B4	RB14-2	Beam	W16X26	No Message
Story4	B4		Beam	W16X26	No Message

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story3	B61	Collect1	Beam	W8X21	No Message
Story3	B63	Collect2	Beam	W8X21	No Message
Story3	B65	Collect3	Beam	W8X21	No Message
Story3	B101	3B15-1	Beam	W16X45	No Message
Story3	B101		Beam	W16X45	No Message
Story3	B103	3B15-2	Beam	W16X45	No Message
Story3	B103		Beam	W16X45	No Message
Story3	B112	3B3-1	Beam	W8X21	No Message
Story3	B112		Beam	W8X21	No Message
Story3	B132	3B14-1	Beam	W8X18	No Message
Story3	B132		Beam	W8X18	No Message
Story3	B149	3B14-2	Beam	W8X18	No Message
Story3	B168	3B3-2	Beam	W8X21	No Message
Story3	B168		Beam	W8X21	No Message
Story3	B177	3B14-3	Beam	W8X18	No Message
Story3	B177		Beam	W8X18	No Message
Story3	B190	3B7-1	Beam	W8X18	No Message
Story3	B190		Beam	W8X18	No Message
Story3	B193	3B3-3	Beam	W8X21	No Message
Story3	B193		Beam	W8X21	No Message
Story3	B203	3B1-1	Beam	W8X18	No Message
Story3	B206	3B2-1	Beam	W12X79	No Message
Story3	B209	3B2-2	Beam	W12X79	No Message
Story3	B211	3B1-2	Beam	W8X18	No Message
Story3	B212	3B1-3	Beam	W8X18	No Message
Story3	B212		Beam	W8X18	No Message
Story3	B215	3B1-4	Beam	W8X18	No Message
Story3	B215		Beam	W8X18	No Message
Story3	B216	3B1-5	Beam	W8X18	No Message
Story3	B216		Beam	W8X18	No Message
Story3	B220	3B1-6	Beam	W8X18	No Message
Story3	B220		Beam	W8X18	No Message
Story3	B221	3B1-7	Beam	W8X18	No Message
Story3	B221		Beam	W8X18	No Message
Story3	B229	3B1-8	Beam	W8X18	No Message
Story3	B229		Beam	W8X18	No Message
Story3	B230	3B1-9	Beam	W8X18	No Message
Story3	B230		Beam	W8X18	No Message
Story3	B234	3B10-1	Beam	W30X90	No Message
Story3	B234		Beam	W30X90	No Message
Story3	B243	3B9-1	Beam	W10X68	No Message
Story3	B243		Beam	W10X68	No Message
Story3	B244	3B8-1	Beam	W18X46	No Message
Story3	B244		Beam	W18X46	No Message
Story3	B245	3B4-1	Beam	W12X35	No Message

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story3	B245		Beam	W12X35	No Message
Story3	B23	3B3-4	Beam	W8X21	No Message
Story3	B23		Beam	W8X21	No Message
Story3	B25	3B4-5	Beam	W8X21	No Message
Story3	B25		Beam	W8X21	No Message
Story3	B28	3B3-6	Beam	W8X21	No Message
Story3	B28		Beam	W8X21	No Message
Story3	B20	3B17-1	Beam	W18X46	No Message
Story3	B20		Beam	W18X46	No Message
Story3	B21	3B1-11	Beam	W8X18	No Message
Story3	B21		Beam	W8X18	No Message
Story3	B24	3B1-10	Beam	W8X18	No Message
Story3	B24		Beam	W8X18	No Message
Story2	B6	2B4-1	Beam	W27X129	No Message
Story2	B6		Beam	W27X129	No Message
Story2	B8	2B1-1	Beam	W12X26	No Message
Story2	B13	2B9-R-1	Beam	W27X129	No Message
Story2	B13		Beam	W27X129	No Message
Story2	B64	2B5-R-1	Beam	W27X129	No Message
Story2	B64		Beam	W27X129	No Message
Story2	B67	2B9-3STUB	Beam	W21X166	No Message
Story2	B68	2B9-3C	Beam	W27X129	No Message
Story2	B69	2B9-3	Beam	W27X129	No Message
Story2	B69		Beam	W27X129	No Message
Story2	B70	2B1-4	Beam	W12X26	No Message
Story2	B70		Beam	W12X26	No Message
Story2	B73	2B2-1	Beam	W27X129	No Message
Story2	B73		Beam	W27X129	No Message
Story2	B74	2B7-1	Beam	W27X146	No Message
Story2	B74		Beam	W27X146	No Message
Story2	B75	2B8-1	Beam	W16X67	No Message
Story2	B105	2B5-R-2	Beam	W27X129	No Message
Story2	B105		Beam	W27X129	No Message
Story2	B144	2B9-R-4	Beam	W27X84	No Message
Story2	B144		Beam	W27X84	No Message
Story2	B186	2B4-R-1	Beam	W27X102	No Message
Story2	B186		Beam	W27X102	No Message
Story2	B195	2B4-4C	Beam	W27X129	No Message
Story2	B199	2B4-4	Beam	W27X129	No Message
Story2	B199		Beam	W27X129	No Message
Story2	B201	2B1-8	Beam	W12X26	No Message
Story2	B207	2B4-R-2	Beam	W27X102	No Message
Story2	B207		Beam	W27X102	No Message
Story2	B254	2B4-1C	Beam	W27X129	No Message
Story2	B254		Beam	W27X129	No Message

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story2	B257	2B9-1	Beam	W27X129	No Message
Story2	B257		Beam	W27X129	No Message
Story2	B258	2B9-1STUB	Beam	W21X166	No Message
Story2	B258		Beam	W21X166	No Message
Story2	B259	2B9-1C	Beam	W27X129	No Message
Story2	B259		Beam	W27X129	No Message
Story2	B263	2B4C-3	Beam	W27X129	No Message
Story2	B268	2B5-1	Beam	W27X129	No Message
Story2	B268		Beam	W27X129	No Message
Story2	B271	2B4-3	Beam	W27X129	No Message
Story2	B271		Beam	W27X129	No Message
Story2	B273	2B4-2	Beam	W27X129	No Message
Story2	B273		Beam	W27X129	No Message
Story2	B277	2B9-2	Beam	W27X129	No Message
Story2	B277		Beam	W27X129	No Message
Story2	B278	2B9-2STUB	Beam	W21X166	No Message
Story2	B278		Beam	W21X166	No Message
Story2	B279	2B9-2C	Beam	W27X129	No Message
Story2	B279		Beam	W27X129	No Message
Story2	B280	2B1-2	Beam	W12X26	No Message
Story2	B280		Beam	W12X26	No Message
Story2	B281	2B1-3	Beam	W12X26	No Message
Story2	B281		Beam	W12X26	No Message
Story2	B282	2B1-5	Beam	W12X26	No Message
Story2	B282		Beam	W12X26	No Message
Story2	B283	2B1-6	Beam	W12X26	No Message
Story2	B283		Beam	W12X26	No Message
Story2	B284	2B1-7	Beam	W12X26	No Message
Story2	B284		Beam	W12X26	No Message
Story2	B295	2B9-R-2	Beam	W27X129	No Message
Story2	B295		Beam	W27X129	No Message
Story2	B296	2B9-R-3	Beam	W27X84	No Message
Story2	B296		Beam	W27X84	No Message
Story2	B303	2B5-1C	Beam	W21X166	No Message
Story2	B304	2B4C-2	Beam	W27X129	No Message
Story2	B304		Beam	W27X129	No Message
Story2	B2	2B2-2	Beam	W27X129	No Message
Story2	B2		Beam	W27X129	No Message
Story2	B19	2B2-3	Beam	W27X129	No Message
Story2	B60	2D2	Beam		No Message
Story5	D29	205	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D30	207	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D31	209	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D31		Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D32	274	Brace	HSS3-1/2X3-1/2X1/4	No Message

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story5	D33	289	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D33		Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D34	301	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D35	307	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story5	D72	RD5	Brace	HSS3X3X1/4	No Message
Story5	D74	RD6	Brace	HSS3X3X1/4	No Message
Story5	D74		Brace	HSS3X3X1/4	No Message
Story5	D79	4 A(+)-7	Brace	HSS6X6X3/8	No Message
Story5	D52	4 A(+)-8(+)	Brace	HSS6X6X3/8	No Message
Story5	D77	4 A(+)-9(-)	Brace	HSS6X6X3/8	No Message
Story5	D78	RD7	Brace	HSS2-1/2X2-1/2X3/16	No Message
Story5	D78		Brace	HSS2-1/2X2-1/2X3/16	No Message
Story5	D81	RD8	Brace	HSS2-1/2X2-1/2X3/16	No Message
Story5	D46	4 A(+)-10	Brace	HSS6X6X1/4	No Message
Story4	D1	RB2-1a	Brace	W16X31	No Message
Story4	D1		Brace	W16X31	No Message
Story4	D2	217	Brace	W21X44	No Message
Story4	D3	220	Brace	W21X44	No Message
Story4	D4	223	Brace	W21X44	No Message
Story4	D4		Brace	W21X44	No Message
Story4	D5	226	Brace	W21X44	No Message
Story4	D6	232	Brace	W21X44	No Message
Story4	D6		Brace	W21X44	No Message
Story4	D7	237	Brace	W21X44	No Message
Story4	D7		Brace	W21X44	No Message
Story4	D8	242	Brace	W21X44	No Message
Story4	D9	247	Brace	W21X44	No Message
Story4	D10	252	Brace	W21X44	No Message
Story4	D11	257	Brace	W21X44	No Message
Story4	D12	262	Brace	W21X44	No Message
Story4	D13	267	Brace	W21X44	No Message
Story4	D14	272	Brace	W21X44	No Message
Story4	D15	287	Brace	W21X44	No Message
Story4	D16	299	Brace	W21X44	No Message
Story4	D17	302	Brace	W21X44	No Message
Story4	D17		Brace	W21X44	No Message
Story4	D18	305	Brace	W21X44	No Message
Story4	D19	308	Brace	W21X44	No Message
Story4	D20	312	Brace	W21X44	No Message
Story4	D21	326	Brace	W21X44	No Message
Story4	D22	332	Brace	W21X44	No Message
Story4	D23	338	Brace	W21X44	No Message
Story4	D24	RB2-3a	Brace	W16X31	No Message
Story4	D24		Brace	W16X31	No Message
Story4	D39	RD1	Brace	HSS2X2X1/4	No Message

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story4	D43	RD2	Brace	HSS2X2X1/4	No Message
Story4	D43		Brace	HSS2X2X1/4	No Message
Story4	D48	RB2-2d	Brace	W16X31	No Message
Story4	D48		Brace	W16X31	No Message
Story4	D49	295	Brace	W21X44	No Message
Story4	D50	296	Brace	W21X44	No Message
Story4	D51	177	Brace	W21X44	No Message
Story4	D51		Brace	W21X44	No Message
Story4	D53	231	Brace	W21X44	No Message
Story4	D53		Brace	W21X44	No Message
Story4	D54	276	Brace	W21X44	No Message
Story4	D55	277	Brace	W21X44	No Message
Story4	D56	278	Brace	W21X44	No Message
Story4	D57	279	Brace	W21X44	No Message
Story4	D58	280	Brace	W21X44	No Message
Story4	D59	281	Brace	W21X44	No Message
Story4	D60	282	Brace	W21X44	No Message
Story4	D61	283	Brace	W21X44	No Message
Story4	D62	RB17-1d	Brace	W12X35	No Message
Story4	D63	RB17-2d	Brace	W12X35	No Message
Story4	D64	199	Brace	HSS3X3X1/4	No Message
Story4	D64		Brace	HSS3X3X1/4	No Message
Story4	D65	331	Brace	W21X44	No Message
Story4	D66	337	Brace	W21X44	No Message
Story4	D67	343	Brace	W21X44	No Message
Story4	D68	RB2-4c	Brace	W16X31	No Message
Story4	D69	61	Brace	HSS3X3X1/4	No Message
Story4	D69		Brace	HSS3X3X1/4	No Message
Story4	D45	RD10	Brace	HSS3X3X1/4	No Message
Story4	D45		Brace	HSS3X3X1/4	No Message
Story4	D28	RD3	Brace	HSS2X2X1/4	No Message
Story4	D25	RD4	Brace	HSS2X2X1/4	No Message
Story4	D25		Brace	HSS2X2X1/4	No Message
Story4	D26	RD9	Brace	HSS3X3X1/4	No Message
Story4	D26		Brace	HSS3X3X1/4	No Message
Story3	D40	3D1	Brace	HSS3X3X3/8	No Message
Story3	D42	3D3	Brace	HSS3X3X3/8	No Message
Story3	D47	3D4	Brace	HSS3X3X3/8	No Message
Story3	D70	3D2	Brace	HSS3X3X3/8	No Message
Story3	D71	3D9	Brace	HSS3X3X1/4	No Message
Story3	D73	3D10	Brace	HSS3X3X1/4	No Message
Story3	D75	3D11a	Brace	HSS4X0.250	No Message
Story3	D76	3D11b	Brace	HSS4X0.250	No Message
Story3	D27	3D5	Brace	HSS3X3X3/8	No Message
Story3	D36	3D6	Brace	HSS3X3X3/8	No Message

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 1 of 3, continued)

Story	Label	Unique Name	Design Type	Design Section	Status
Story3	D80	3D7	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story3	D82	3D8	Brace	HSS3-1/2X3-1/2X1/4	No Message
Story3	D82		Brace	HSS3-1/2X3-1/2X1/4	No Message
Story2	D83	2D1	Brace	HSS4X0.250	Warning: See Tension-only, see envelope results

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story5	C19	189	1.2D+1.6S+1.0L(C)	0.124	0.003	0.01	0.11
Story5	C20	200	(R=MIXED) D + L + S + RSX + rsy(C)	0.045	0.001	0.008	0.035
Story5	C21	202	1.2D+1.6S+1.0L(C)	0.157	0.003	0.011	0.143
Story5	C31	135	1.2D+1.6S+1.0L(C)	0.071	0.068	0.0004719	0.002
Story5	C53	3 E-7	(R=MIXED) D + L + S + RSY + rsx(C)	0.442	0.352	0.025	0.066
Story5	C54	3 E-8(+)	1.2D+1.6S+1.0L(C)	0.156	0.065	0.072	0.019
Story5	C55	3 E-9(-)	(R=MIXED) D + L + S + RSY + rsx(C)	0.08	0.03	0.042	0.008
Story5	C56	3 E-10	(R=MIXED) D + L + S + RSY + rsx(C)	0.415	0.373	0.023	0.018
Story5	C58	4 C-7	1.2D+1.6S+1.0L(C)	0.122	0.051	0.043	0.028
Story5	C60	4 C-8(+)	1.2D+1.6S+1.0L(C)	0.393	0.272	0.1	0.021
Story5	C62	4 C-10	1.2D+1.6S+1.0L(C)	0.218	0.091	0.076	0.051
Story5	C2	3 H-8	1.2D+1.6S+1.0L(C)	0.168	0.042	0.062	0.064
Story5	C6	3 H-7	1.2D+1.6S+1.0L(C)	0.326	0.071	0.187	0.068
Story5	C46	3 H-9	1.2D+1.6S+1.0L(C)	0.217	0.049	0.079	0.088
Story5	C47	3 H-10	1.2D+1.6S+1.0L(C)	0.401	0.068	0.222	0.112
Story4	C1	3 I-2	1.2D+1.6S+1.0L(C)	0.009	0.009	0	0
Story4	C3	3 I-3	1.2D+1.6S+1.0L(C)	0.358	0.358	0	0
Story4	C4	3 I-4	1.2D+1.6S+1.0L(C)	0.203	0.203	0	0
Story4	C5	3 I-5	1.2D+1.6S+1.0L(C)	0.143	0.061	0	0.082
Story4	C7	3 I-6	1.2D+1.6S+1.0L(C)	0.131	0.057	0	0.073
Story4	C8	3 I-7	1.2D+1.6S+1.0L(C)	0.119	0.049	0	0.07
Story4	C9	3 I-8	1.2D+1.6S+1.0L(C)	0.112	0.052	0	0.061
Story4	C11	3 I-9	1.2D+1.6S+1.0L(C)	0.112	0.052	0	0.061
Story4	C12	3 I-10	1.2D+1.6S+1.0L(C)	0.113	0.049	0	0.064
Story4	C13	3 I-11	1.2D+1.6S+1.0L(C)	0.055	0.055	0	0
Story4	C26	3 H-2	(R=MIXED) D + L + S + RSY + rsx(C)	0.099	0.061	0.039	0
Story4	C28	3 G-3-	1.2D+1.6S+1.0L(C)	0.119	0.067	0.013	0.038
Story4	C28		(R=MIXED) D + RSY + rsx(T)	0.01	0.003	0.002	0.005
Story4	C29	3 G-7	(R=MIXED) D + L + S + RSY + rsx(C)	0.278	0.21	0.036	0.033
Story4	C32	3 G-10	(R=MIXED) D + L + S + RSY + rsx(C)	0.152	0.06	0.04	0.052
Story4	C32		1.2D+1.6L+0.5S(T)	0.037	0	0.006	0.031
Story4	C33	3 G-11	1.2D+1.6S+1.0L(C)	0.257	0.226	0.031	0
Story4	C34	3 G(-)-7	(R=MIXED) D + L + S + RSY + rsx(C)	0.104	0.023	0.043	0.038
Story4	C39	3 G(-)-10	(R=MIXED) D + L + S + RSY + rsx(C)	0.136	0.041	0.043	0.052
Story4	C40	3 F+-2	(R=MIXED) D + L + S + RSY + rsx(C)	0.037	0.013	0.023	0
Story4	C42	3 F-10	(R=MIXED) D + L + S + RSY + rsx(C)	0.189	0.015	0.171	0.002
Story4	C44	3 F-7	(R=MIXED) D + L + S + RSY + rsx(C)	0.17	0.008	0.156	0.006



Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	C45	3 E-2	1.2D+1.6S+1.0L(C)	0.048	0.017	0.031	0
Story4	C48	3 E-3	1.2D+1.6S+1.0L(C)	0.38	0.363	0.017	0
Story4	C49	3 E-4	1.2D+1.6S+1.0L(C)	0.24	0.238	0.002	0
Story4	C50	3 E-5	1.2D+1.6S+1.0L(C)	0.129	0.071	0	0.058
Story4	C52	3 E-6	1.2D+1.6S+1.0L(C)	0.125	0.068	0	0.057
Story4	C57	3 E-11-	1.2D+1.6S+1.0L(C)	0.068	0.068	0	0
Story3	C30	3 G-8(+)	1.2D+1.6S+1.0L(C)	0.064	0.045	0	0.019
Story3	C59	2 C-8	1.2D+1.6S+1.0L(C)	0.207	0.206	0	0.001
Story3	C61	2 C-9	1.2D+1.6S+1.0L(C)	0.098	0.097	0	0.001
Story2	C27	1 I-3	1.2D+1.6S+1.0L(C)	0.691	0.558	0.133	0
Story2	C35	1E-3	1.2D+1.6S+1.0L(C)	0.552	0.443	0.109	0
Story2	C41	1 E-6	(R=MIXED) D + L + S + RSY + rsx(C)	0.113	0.045	0.031	0.038
Story2	C43	1 I-6	1.2D+1.6S+1.0L(C)	0.15	0.067	0.023	0.06
Story1	C14	1 H+-8+ WD	1.2D+1.6L+0.5S(C)	0.028	0.027	0.002	0
Story1	C36	1 G-7+ WD	1.2D+1.6L+0.5S(C)	0.022	0.01	0.003	0.009
Story1	C37	1 G--8+ WD	1.2D+1.6L+0.5S(C)	0.016	0.014	0.003	0
Story1	C38	1 G--9- WD	1.2D+1.6L+0.5S(C)	0.022	0.01	0.003	0.009
Story5	B62	RB11-1 HIGH	(R=MIXED) D + RSX + rsy(C)	0.141	0.017	0.099	0.024
Story5	B62		1.2D+1.6S+1.0L(T)	0.586	0.054	0.425	0.107
Story5	B102	RB13-1	1.2D+1.6S+1.0L(C)	0.363	0.013	0.312	0.038
Story5	B104	RB13-2	1.2D+1.6S+1.0L(C)	0.316	0.003	0.291	0.022
Story5	B104		1.2D+1.6S+1.0L(T)	0.343	0.002	0.29	0.051
Story5	B139	RB8-1	1.2D+1.6S+1.0L(C)	0.461	0.01	0.445	0.005
Story5	B139		1.2D+1.6S+1.0L(T)	0.472	0.013	0.445	0.014
Story5	B140	RB8-2	1.2D+1.6S+1.0L(C)	0.461	0.001	0.451	0.009
Story5	B140		1.2D+1.6S+1.0L(T)	0.54	0.015	0.502	0.022
Story5	B145	RB9-1	1.2D+1.6S+1.0L(T)	0.05	0.003	0.048	0
Story5	B146	RB9-2	1.2D+1.6S+1.0L(C)	0.723	0.013	0.666	0.044
Story5	B147	RB9-3	1.2D+1.6S+1.0L(T)	0.047	0.003	0.044	0
Story5	B173	RB8-3	1.2D+1.6S+1.0L(C)	0.581	0.014	0.544	0.022
Story5	B173		1.2D+1.6S+1.0L(T)	0.578	0.002	0.544	0.032
Story5	B174	RB8-4	1.2D+1.6S+1.0L(C)	0.565	0.014	0.533	0.018
Story5	B174		1.2D+1.6S+1.0L(T)	0.557	0.002	0.533	0.022
Story5	B183	RB9-4	(R=MIXED) D + L + S + RSX + rsy(C)	0.012	0.001	0.011	0
Story5	B183		1.2D+1.6S+1.0L(T)	0.048	0.0003386	0.048	0
Story5	B185	RB9-5	1.2D+1.6S+1.0L(C)	0.673	0.005	0.668	0
Story5	B187	RB9-6	(R=MIXED) D + L + S + RSX + rsy(C)	0.011	0.001	0.01	0
Story5	B187		1.2D+1.6S+1.0L(T)	0.044	0.0001206	0.044	0
Story5	B204	RB5x	1.2D+1.6S+1.0L(C)	0.243	0.009	0.219	0.016
Story5	B205	RB10-3	(R=MIXED) D + RSX + rsy(C)	0.007	0.002	0.004	0.001
Story5	B205		1.2D+1.6S+1.0L(T)	0.12	0.006	0.113	0.001
Story5	B208	RB10-4	1.2D+1.6S+1.0L(C)	0.21	0.002	0.19	0.018
Story5	B208		1.2D+1.6S+1.0L(T)	0.205	0.003	0.19	0.012
Story5	B213	RB9-7	(R=MIXED) D + L + S + RSX + rsy(C)	0.065	0.007	0.058	0
Story5	B213		1.2D+1.6S+1.0L(T)	0.258	0.001	0.258	0

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story5	B214	RB9-8	1.2D+1.6S+1.0L(C)	0.659	0.0002808	0.612	0.046
Story5	B214		1.2D+1.6S+1.0L(T)	0.659	0.001	0.612	0.046
Story5	B217	RB9-9	(R=MIXED) D + L + S + RSY + rsx(C)	0.06	0.001	0.058	0
Story5	B217		1.2D+1.6S+1.0L(T)	0.258	0.0001983	0.258	0
Story5	B218	RB9-10	(R=MIXED) D + L + S + RSX + rsy(C)	0.139	0.001	0.139	0
Story5	B218		1.2D+1.6S+1.0L(T)	0.614	0	0.614	0
Story5	B222	RB9-11	1.2D+1.6S+1.0L(C)	0.258	0.0002677	0.258	0
Story5	B223	RB9-12	(R=MIXED) D + RSX + rsy(C)	0.041	0.0002381	0.041	0
Story5	B223		1.2D+1.6S+1.0L(T)	0.614	0	0.614	0
Story5	B231	RB9-13	1.2D+1.6S+1.0L(C)	0.258	0.001	0.258	0
Story5	B232	RB9-14	1.2D+1.6S+1.0L(C)	0.614	0	0.614	0
Story5	B233	RB9-15	1.2D+1.6S+1.0L(C)	0.225	0	0.225	0
Story5	B235	RB9-16	1.2D+1.6S+1.0L(C)	0.576	0.001	0.575	0
Story5	B236	RB9-17	1.2D+1.6S+1.0L(C)	0.215	0.001	0.215	0
Story5	B238	RB9-18	(R=MIXED) D + RSY + rsx(C)	0.035	0.0002136	0.034	0
Story5	B238		1.2D+1.6S+1.0L(T)	0.512	0.0003136	0.512	0
Story5	B148	46	1.2D+1.6S+1.0L(C)	0.002	0.002	0	0
Story5	B148		(R=MIXED) D + L + S + RSX + rsy(T)	0.006	0.006	0	0
Story5	B176	47	1.2D+1.6S+1.0L(C)	0.04	0.04	0	0
Story5	B5	RB9-19	1.2D+1.6S+1.0L(C)	0.183	0.001	0.182	0
Story5	B22	RB18-1	1.2D+1.6S+1.0L(C)	0.055	0.001	0.043	0.012
Story5	B22		1.2D+1.6L+0.5S(T)	0.018	0	0.016	0.002
Story5	B1	RB12-1	1.2D+1.6S+1.0L(C)	0.328	0.001	0.327	0.0001695
Story5	B1		1.2D+1.6S+1.0L(T)	0.326	0.0003497	0.326	0.0001535
Story5	B29	RB19-1	1.2D+1.6S+1.0L(C)	0.072	0.0002705	0.069	0.002
Story5	B29		(R=MIXED) D + L + S + RSY + rsx(T)	0.001	0.001	0	0
Story5	B30	RB12-2	1.2D+1.6S+1.0L(C)	0.581	0.004	0.577	0.001
Story5	B30		1.2D+1.6S+1.0L(T)	0.378	0.001	0.376	0.0002486
Story5	B31	RB19-3	1.2D+1.6S+1.0L(C)	0.127	0.0004813	0.122	0.005
Story5	B3	RB7-1	1.2D+1.6S+1.0L(C)	0.607	0.002	0.604	0.001
Story5	B3		1.2D+1.6S+1.0L(T)	0.605	0.001	0.604	0.0004502
Story5	B32	RB19-2	1.2D+1.6S+1.0L(C)	0.188	0.003	0.182	0.003
Story4	B7	RB4-1	(R=MIXED) D + L + S + RSX + rsy(C)	0.013	0.012	0.001	0
Story4	B7		1.2D+1.6S+1.0L(T)	0.009	0.008	0.001	0
Story4	B9	RB5-1	1.2D+1.6S+1.0L(C)	0.294	0.056	0.231	0.006
Story4	B9		1.2D+1.6S+1.0L(T)	0.275	0.003	0.247	0.025
Story4	B10	RB4-3	1.2D+1.6S+1.0L(C)	0.049	0.048	0.001	0
Story4	B12	RB6-1	1.2D+1.6S+1.0L(C)	0.486	0.074	0.368	0.044
Story4	B14	RB4-4	1.2D+1.6S+1.0L(C)	0.098	0.097	0.001	0
Story4	B15	RB5-3	1.2D+1.6S+1.0L(C)	0.289	0.025	0.22	0.043
Story4	B15		1.2D+1.6S+1.0L(T)	0.258	0.005	0.216	0.037
Story4	B33	RB2-1b	1.2D+1.6S+1.0L(C)	0.161	0.014	0.144	0.003
Story4	B33		1.2D+1.6L+0.5S(T)	0.08	0.004	0.073	0.004
Story4	B34	218	1.2D+1.6S+1.0L(C)	0.097	0.009	0.082	0.005
Story4	B35	221	1.2D+1.6S+1.0L(C)	0.113	0.003	0.101	0.01

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	B36	224	1.2D+1.6L+0.5S(C)	0.045	0.003	0.039	0.004
Story4	B36		1.2D+1.6S+1.0L(T)	0.208	0.02	0.188	0.0001123
Story4	B37	227	1.2D+1.6S+1.0L(C)	0.356	0.005	0.346	0.006
Story4	B37		1.2D+1.6L+0.5S(T)	0.172	0.0004724	0.167	0.005
Story4	B38	233	1.2D+1.6S+1.0L(C)	0.375	0.000257	0.371	0.003
Story4	B38		1.2D+1.6L+0.5S(T)	0.169	0.002	0.167	0.0003046
Story4	B39	238	1.2D+1.6S+1.0L(C)	0.369	0.0002889	0.364	0.005
Story4	B39		1.2D+1.6L+0.5S(T)	0.157	0.001	0.155	0.001
Story4	B40	243	1.2D+1.6S+1.0L(C)	0.352	0.002	0.346	0.004
Story4	B40		1.2D+1.6L+0.5S(T)	0.143	0	0.142	0.001
Story4	B41	248	1.2D+1.6S+1.0L(C)	0.334	0.003	0.328	0.003
Story4	B42	253	1.2D+1.6S+1.0L(C)	0.321	0.005	0.313	0.003
Story4	B43	258	1.2D+1.6S+1.0L(C)	0.298	0.008	0.284	0.006
Story4	B44	263	1.2D+1.6S+1.0L(C)	0.201	0.023	0.174	0.004
Story4	B45	268	1.2D+1.6S+1.0L(C)	0.185	0.033	0.111	0.04
Story4	B46	273	1.2D+1.6S+1.0L(T)	0.206	0.041	0.147	0.018
Story4	B47	288	1.2D+1.6S+1.0L(C)	0.106	0.008	0.082	0.016
Story4	B48	300	1.2D+1.6S+1.0L(C)	0.064	0.007	0.051	0.006
Story4	B49	303	1.2D+1.6S+1.0L(T)	0.077	0.01	0.066	0.001
Story4	B50	306	1.2D+1.6S+1.0L(C)	0.064	0.008	0.048	0.007
Story4	B51	309	1.2D+1.6S+1.0L(C)	0.108	0.009	0.083	0.015
Story4	B52	313	1.2D+1.6S+1.0L(T)	0.238	0.048	0.166	0.023
Story4	B53	327	1.2D+1.6S+1.0L(C)	0.12	0.022	0.047	0.051
Story4	B54	333	1.2D+1.6S+1.0L(C)	0.087	0.03	0.022	0.036
Story4	B55	339	1.2D+1.6S+1.0L(C)	0.087	0.04	0.012	0.035
Story4	B56	RB2-3b	1.2D+1.6S+1.0L(T)	0.491	0.016	0.394	0.081
Story4	B61	RB10-1	1.2D+1.6S+1.0L(T)	0.045	0.045	0	0
Story4	B63	RB11-1	1.2D+1.6S+1.0L(T)	0.398	0.078	0.268	0.052
Story4	B65	RB10-2	1.2D+1.6S+1.0L(T)	0.048	0.048	0	0
Story4	B77	RB2-2a	1.2D+1.6S+1.0L(C)	0.17	0.02	0.145	0.005
Story4	B77		(R=MIXED) D + L + S + RSY + rsx(T)	0.089	0.015	0.061	0.014
Story4	B78	219	1.2D+1.6S+1.0L(C)	0.076	0.013	0.062	0.001
Story4	B79	222	1.2D+1.6S+1.0L(C)	0.087	0.004	0.08	0.002
Story4	B80	225	1.2D+1.6L+0.5S(C)	0.036	0.005	0.027	0.003
Story4	B80		1.2D+1.6S+1.0L(T)	0.18	0.025	0.152	0.003
Story4	B81	228	1.2D+1.6S+1.0L(C)	0.359	0.003	0.354	0.002
Story4	B81		1.2D+1.6L+0.5S(T)	0.18	0.004	0.172	0.004
Story4	B82	234	1.2D+1.6S+1.0L(T)	0.38	0.0003429	0.379	0.001
Story4	B83	239	1.2D+1.6S+1.0L(T)	0.372	0.0001334	0.372	0.001
Story4	B84	244	1.2D+1.6S+1.0L(C)	0.355	0.001	0.354	0.0001524
Story4	B84		1.2D+1.6L+0.5S(T)	0.145	0.0002894	0.145	0.0001678
Story4	B85	249	1.2D+1.6S+1.0L(C)	0.339	0.003	0.336	0.0003129
Story4	B86	254	1.2D+1.6S+1.0L(C)	0.327	0.004	0.322	0.001
Story4	B87	259	1.2D+1.6S+1.0L(C)	0.305	0.009	0.294	0.002
Story4	B88	264	1.2D+1.6S+1.0L(C)	0.21	0.022	0.185	0.003

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	B89	269	1.2D+1.6S+1.0L(C)	0.097	0.021	0.067	0.009
Story4	B90	RB17-1a	(R=MIXED) D + L + S + RSY + rsx(T)	0.169	0.052	0.099	0.019
Story4	B91	RB17-2a	(R=MIXED) D + L + S + RSY + rsx(T)	0.205	0.05	0.138	0.017
Story4	B92	328	1.2D+1.6S+1.0L(C)	0.078	0.02	0.045	0.013
Story4	B93	334	1.2D+1.6S+1.0L(C)	0.053	0.03	0.012	0.011
Story4	B94	340	1.2D+1.6S+1.0L(C)	0.056	0.036	0.002	0.019
Story4	B95	RB2-3c	(R=MIXED) D + RSX + rsy(C)	0.058	0.005	0.042	0.011
Story4	B95		1.2D+1.6S+1.0L(T)	0.386	0.015	0.301	0.07
Story4	B100	RB14-1	1.2D+1.6S+1.0L(C)	0.254	0.0002621	0.246	0.008
Story4	B100		1.2D+1.6S+1.0L(T)	0.254	0.001	0.247	0.006
Story4	B113	RB2-2b	1.2D+1.6S+1.0L(C)	0.163	0.016	0.145	0.001
Story4	B113		(R=MIXED) D + L + S + RSY + rsx(T)	0.087	0.009	0.061	0.017
Story4	B114	293	1.2D+1.6S+1.0L(C)	0.039	0.014	0.024	0.001
Story4	B115	297	1.2D+1.6S+1.0L(C)	0.043	0.005	0.038	0
Story4	B116	175	(R=MIXED) D + L + S + RSY + rsx(C)	0.031	0.014	0.009	0.008
Story4	B116		1.2D+1.6S+1.0L(T)	0.113	0.025	0.087	0.001
Story4	B117	229	1.2D+1.6S+1.0L(C)	0.358	0.003	0.347	0.008
Story4	B117		1.2D+1.6L+0.5S(T)	0.178	0.005	0.172	0.001
Story4	B118	235	1.2D+1.6S+1.0L(C)	0.35	0.0002366	0.35	0.001
Story4	B118		1.2D+1.6S+1.0L(T)	0.377	0	0.371	0.006
Story4	B119	240	1.2D+1.6S+1.0L(C)	0.37	0.0001948	0.363	0.007
Story4	B119		1.2D+1.6L+0.5S(T)	0.157	0.001	0.155	0.001
Story4	B120	245	1.2D+1.6S+1.0L(C)	0.353	0.001	0.345	0.006
Story4	B120		1.2D+1.6L+0.5S(T)	0.143	0.0001478	0.141	0.002
Story4	B121	250	1.2D+1.6S+1.0L(C)	0.336	0.002	0.328	0.005
Story4	B122	255	1.2D+1.6S+1.0L(C)	0.32	0.003	0.314	0.003
Story4	B123	260	1.2D+1.6S+1.0L(C)	0.3	0.006	0.287	0.008
Story4	B124	265	1.2D+1.6S+1.0L(C)	0.208	0.016	0.178	0.014
Story4	B125	270	1.2D+1.6S+1.0L(C)	0.178	0.025	0.112	0.041
Story4	B126	RB17-1b	(R=MIXED) D + L + S + RSY + rsx(T)	0.139	0.043	0.08	0.016
Story4	B127	RB17-2b	(R=MIXED) D + L + S + RSY + rsx(T)	0.159	0.045	0.106	0.009
Story4	B128	329	1.2D+1.6S+1.0L(C)	0.053	0.009	0.033	0.011
Story4	B129	335	1.2D+1.6S+1.0L(C)	0.064	0.021	0.02	0.022
Story4	B130	341	1.2D+1.6S+1.0L(C)	0.073	0.026	0.022	0.025
Story4	B131	RB2-4a	(R=MIXED) D + RSX + rsy(C)	0.037	0.005	0.021	0.012
Story4	B131		1.2D+1.6S+1.0L(T)	0.26	0.013	0.153	0.094
Story4	B153	RB2-2c	1.2D+1.6S+1.0L(C)	0.073	0.016	0.056	0.002
Story4	B153		(R=MIXED) D + L + S + RSY + rsx(T)	0.062	0.009	0.041	0.012
Story4	B154	294	1.2D+1.6S+1.0L(C)	0.048	0.013	0.028	0.007
Story4	B155	298	1.2D+1.6S+1.0L(C)	0.06	0.004	0.038	0.018
Story4	B156	176	(R=MIXED) D + L + S + RSY + rsx(C)	0.029	0.011	0.009	0.009
Story4	B156		1.2D+1.6S+1.0L(T)	0.115	0.019	0.094	0.002
Story4	B158	230	1.2D+1.6S+1.0L(C)	0.312	0.006	0.296	0.01
Story4	B158		1.2D+1.6L+0.5S(T)	0.156	0.002	0.149	0.005
Story4	B159	236	1.2D+1.6S+1.0L(C)	0.329	0.002	0.317	0.01

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	B159		1.2D+1.6L+0.5S(T)	0.145	0.001	0.143	0.001
Story4	B160	241	1.2D+1.6S+1.0L(C)	0.324	0.002	0.31	0.012
Story4	B160		1.2D+1.6L+0.5S(T)	0.135	0.0002232	0.132	0.002
Story4	B161	246	1.2D+1.6S+1.0L(C)	0.308	0.003	0.295	0.01
Story4	B161		(R=MIXED) D + RSY + rsx(T)	0.032	0.0003532	0.029	0.003
Story4	B162	251	1.2D+1.6S+1.0L(C)	0.292	0.003	0.28	0.008
Story4	B163	256	1.2D+1.6S+1.0L(C)	0.278	0.004	0.27	0.005
Story4	B164	261	1.2D+1.6S+1.0L(C)	0.254	0.003	0.248	0.002
Story4	B165	266	1.2D+1.6S+1.0L(C)	0.179	0.012	0.155	0.012
Story4	B166	271	1.2D+1.6S+1.0L(C)	0.156	0.02	0.097	0.038
Story4	B167	RB17-1c	(R=MIXED) D + L + S + RSY + rsx(T)	0.165	0.044	0.103	0.018
Story4	B169	330	1.2D+1.6S+1.0L(C)	0.087	0.008	0.033	0.045
Story4	B170	336	1.2D+1.6S+1.0L(C)	0.074	0.015	0.027	0.031
Story4	B171	342	1.2D+1.6S+1.0L(C)	0.058	0.015	0.036	0.007
Story4	B172	RB2-4b	(R=MIXED) D + L + S + RSX + rsy(C)	0.059	0.003	0.051	0.005
Story4	B172		1.2D+1.6S+1.0L(T)	0.207	0.006	0.183	0.018
Story4	B200	RB4-2	(R=MIXED) D + RSX + rsy(C)	0.031	0.03	0.001	0
Story4	B200		(R=MIXED) D + L + S + RSX + rsy(T)	0.028	0.027	0.001	0
Story4	B202	RB5-2	1.2D+1.6S+1.0L(C)	0.257	0.012	0.234	0.01
Story4	B202		1.2D+1.6S+1.0L(T)	0.295	0.023	0.252	0.02
Story4	B210	RB3-1	1.2D+1.6S+1.0L(C)	0.337	0.001	0.283	0.053
Story4	B210		1.2D+1.6S+1.0L(T)	0.335	0.001	0.283	0.051
Story4	B224	RB17-2c	(R=MIXED) D + L + S + RSY + rsx(T)	0.188	0.043	0.128	0.017
Story4	B300	RB16-2	1.2D+1.6S+1.0L(C)	0.308	0.005	0.258	0.044
Story4	B300		(R=MIXED) D + L + S + RSY + rsx(T)	0.158	0.003	0.136	0.018
Story4	B302	RB16-1	1.2D+1.6S+1.0L(C)	0.302	0.006	0.252	0.044
Story4	B302		(R=MIXED) D + L + S + RSY + rsx(T)	0.144	0.001	0.124	0.019
Story4	B4	RB14-2	1.2D+1.6S+1.0L(C)	0.258	0.001	0.227	0.031
Story4	B4		1.2D+1.6L+0.5S(T)	0.098	0.001	0.083	0.014
Story3	B61	Collect1	(R=MIXED) D + L + S + RSX + rsy(T)	0.064	0.006	0.058	0
Story3	B63	Collect2	1.2D+1.6S+1.0L(T)	0.02	0.02	0	0
Story3	B65	Collect3	(R=MIXED) D + L + S + RSX + rsy(T)	0.055	0.005	0.05	0
Story3	B101	3B15-1	(R=MIXED) D + L + S + RSY + rsx(C)	0.02	0.004	0.016	0
Story3	B101		(R=MIXED) D + L + S + RSY + rsx(T)	0.023	0.002	0.02	0
Story3	B103	3B15-2	(R=MIXED) D + L + S + RSY + rsx(C)	0.014	0.004	0.01	0
Story3	B103		(R=MIXED) D + L + S + RSY + rsx(T)	0.023	0.002	0.02	0
Story3	B112	3B3-1	(R=MIXED) D + L + S + RSX + rsy(C)	0.047	0.003	0.029	0.016
Story3	B112		1.2D+1.6L+0.5S(T)	0.035	0.000143	0.032	0.002
Story3	B132	3B14-1	(R=MIXED) D + RSX + rsy(C)	0.142	0.002	0.141	0
Story3	B132		1.2D+1.6L+0.5S(T)	0.397	0.001	0.397	0
Story3	B149	3B14-2	1.2D+1.6L+0.5S(C)	0.385	0.000276	0.384	0
Story3	B168	3B3-2	(R=MIXED) D + L + S + RSX + rsy(C)	0.089	0.004	0.062	0.024
Story3	B168		1.2D+1.6L+0.5S(T)	0.072	0.0001607	0.069	0.003
Story3	B177	3B14-3	(R=MIXED) D + L + S + RSX + rsy(C)	0.569	0.081	0.484	0.004
Story3	B177		1.2D+1.6L+0.5S(T)	0.544	0.001	0.543	0.000158

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story3	B190	3B7-1	(R=MIXED) D + L + S + RSX + rsy(C)	0.016	0.016	0	0
Story3	B190		1.2D+1.6S+1.0L(T)	0.0001738	0.0001738	0	0
Story3	B193	3B3-3	(R=MIXED) D + RSX + rsy(C)	0.022	0.022	0	0
Story3	B193		(R=MIXED) D + L + S + RSY + rsx(T)	0.016	0.016	0	0
Story3	B203	3B1-1	(R=MIXED) D + L + S + RSX + rsy(C)	0.082	0.017	0.046	0.018
Story3	B206	3B2-1	1.2D+1.6S+1.0L(C)	0.01	0.006	0.003	0
Story3	B209	3B2-2	1.2D+1.6S+1.0L(C)	0.013	0.01	0.003	0
Story3	B211	3B1-2	1.2D+1.6L+0.5S(C)	0.071	0	0.071	0
Story3	B212	3B1-3	1.2D+1.6L+0.5S(C)	0.408	0	0.408	0
Story3	B212		(R=MIXED) D + L + S + RSX + rsy(T)	0.27	0.002	0.268	0
Story3	B215	3B1-4	1.2D+1.6L+0.5S(C)	0.071	0	0.071	0
Story3	B215		(R=MIXED) D + L + S + RSX + rsy(T)	0.067	0.004	0.063	0
Story3	B216	3B1-5	1.2D+1.6L+0.5S(C)	0.408	0	0.408	0
Story3	B216		(R=MIXED) D + L + S + RSX + rsy(T)	0.27	0.003	0.267	0
Story3	B220	3B1-6	(R=MIXED) D + RSX + rsy(C)	0.029	0.005	0.024	0
Story3	B220		1.2D+1.6L+0.5S(T)	0.071	0	0.071	0
Story3	B221	3B1-7	(R=MIXED) D + L + S + RSY + rsx(C)	0.36	0	0.36	0
Story3	B221		1.2D+1.6L+0.5S(T)	0.408	0	0.407	0
Story3	B229	3B1-8	(R=MIXED) D + RSX + rsy(C)	0.002	0.002	0	0
Story3	B229		1.2D+1.6L+0.5S(T)	0.077	0.0001762	0.076	0
Story3	B230	3B1-9	(R=MIXED) D + L + S + RSY + rsx(C)	0.386	0	0.386	0
Story3	B230		1.2D+1.6L+0.5S(T)	0.437	0.0002096	0.436	0
Story3	B234	3B10-1	1.2D+1.6S+1.0L(C)	0.233	0	0.232	0.0002272
Story3	B234		1.2D+1.6S+1.0L(T)	0.234	0.001	0.232	0.0001393
Story3	B243	3B9-1	(R=MIXED) D + L + S + RSX + rsy(C)	0.101	0.011	0.045	0.046
Story3	B243		1.2D+1.6S+1.0L(T)	0.208	0.001	0.206	0.0003345
Story3	B244	3B8-1	(R=MIXED) D + L + S + RSX + rsy(C)	0.095	0.007	0.065	0.023
Story3	B244		1.2D+1.6S+1.0L(T)	0.275	0.001	0.273	0.001
Story3	B245	3B4-1	(R=MIXED) D + L + S + RSX + rsy(C)	0.013	0.001	0.011	0.001
Story3	B245		1.2D+1.6S+1.0L(T)	0.081	0.001	0.08	0.001
Story3	B23	3B3-4	(R=MIXED) D + RSY + rsx(C)	0.025	0.003	0.015	0.006
Story3	B23		(R=MIXED) D + L + S + RSY + rsx(T)	0.054	0.003	0.036	0.014
Story3	B25	3B4-5	(R=MIXED) D + RSY + rsx(C)	0.063	0.027	0.006	0.03
Story3	B25		(R=MIXED) D + L + S + RSX + rsy(T)	0.088	0.025	0.015	0.049
Story3	B28	3B3-6	(R=MIXED) D + RSY + rsx(C)	0.024	0.022	0.003	0
Story3	B28		(R=MIXED) D + L + S + RSY + rsx(T)	0.027	0.023	0.004	0
Story3	B20	3B17-1	1.2D+1.6S+1.0L(C)	0.382	0.001	0.381	0.0002394
Story3	B20		1.2D+1.6S+1.0L(T)	0.158	0	0.158	0.001
Story3	B21	3B1-11	(R=MIXED) D + L + S + RSY + rsx(C)	0.412	0	0.412	0
Story3	B21		1.2D+1.6L+0.5S(T)	0.466	0.0001781	0.465	0
Story3	B24	3B1-10	(R=MIXED) D + RSX + rsy(C)	0.001	0.001	0	0
Story3	B24		1.2D+1.6L+0.5S(T)	0.082	0.0001693	0.082	0
Story2	B6	2B4-1	(R=MIXED) D + L + S + RSY + rsx(C)	0.154	0.004	0.15	0.0001376
Story2	B6		1.2D+1.6S+1.0L(T)	0.276	0.0001864	0.276	0
Story2	B8	2B1-1	(R=MIXED) D + L + S + RSY + rsx(C)	0.08	0.016	0.064	0

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story2	B13	2B9-R-1	1.2D+1.6S+1.0L(C)	0.376	0	0.376	0
Story2	B13		1.2D+1.6S+1.0L(T)	0.211	0.001	0.21	0.001
Story2	B64	2B5-R-1	(R=MIXED) D + L + S + RSX + rsy(C)	0.256	0.003	0.252	0.001
Story2	B64		1.2D+1.6S+1.0L(T)	0.514	0.0003967	0.513	0.0004387
Story2	B67	2B9-3STUB	(R=MIXED) D + L + S + RSY + rsx(C)	0.039	0.000185	0.038	0.001
Story2	B68	2B9-3C	(R=MIXED) D + L + S + RSY + rsx(C)	0.071	0.000208	0.07	0.001
Story2	B69	2B9-3	(R=MIXED) D + L + S + RSY + rsx(C)	0.071	0.001	0.07	0
Story2	B69		1.2D+1.6S+1.0L(T)	0.069	0	0.068	0
Story2	B70	2B1-4	(R=MIXED) D + L + S + RSY + rsx(C)	0.054	0.002	0.052	0
Story2	B70		1.2D+1.6L+0.5S(T)	0.057	0	0.057	0
Story2	B73	2B2-1	(R=MIXED) D + L + S + RSY + rsx(C)	0.145	0.003	0.14	0.003
Story2	B73		1.2D+1.6S+1.0L(T)	0.181	0.0003209	0.18	0.0001885
Story2	B74	2B7-1	1.2D+1.6L+0.5S(C)	0.35	0	0.35	0
Story2	B74		1.2D+1.6S+1.0L(T)	0.488	0	0.487	0.0002091
Story2	B75	2B8-1	(R=MIXED) D + L + S + RSX + rsy(C)	0.451	0.001	0.449	0.001
Story2	B105	2B5-R-2	1.2D+1.6S+1.0L(C)	0.659	0	0.659	0
Story2	B105		1.2D+1.6S+1.0L(T)	0.66	0.0001071	0.659	0.0002801
Story2	B144	2B9-R-4	(R=MIXED) D + RSY + rsx(C)	0.013	0.013	0.000103	0
Story2	B144		1.2D+1.6S+1.0L(T)	0.753	0.0002647	0.752	0.0001271
Story2	B186	2B4-R-1	(R=MIXED) D + RSX + rsy(C)	0.012	0.012	0	0
Story2	B186		1.2D+1.6S+1.0L(T)	0.488	0.001	0.487	0.0003222
Story2	B195	2B4-4C	1.2D+1.6S+1.0L(C)	0.309	0.0001262	0.309	0.000282
Story2	B199	2B4-4	1.2D+1.6S+1.0L(C)	0.301	0.0003982	0.3	0.0001263
Story2	B199		(R=MIXED) D + RSY + rsx(T)	0.053	0.003	0.049	0.0002323
Story2	B201	2B1-8	(R=MIXED) D + L + S + RSY + rsx(C)	0.082	0.018	0.064	0
Story2	B207	2B4-R-2	1.2D+1.6S+1.0L(C)	0.452	0	0.452	0
Story2	B207		1.2D+1.6S+1.0L(T)	0.209	0.007	0.201	0.001
Story2	B254	2B4-1C	(R=MIXED) D + L + S + RSY + rsx(C)	0.154	0.001	0.152	0.001
Story2	B254		1.2D+1.6S+1.0L(T)	0.285	0.0001266	0.284	0
Story2	B257	2B9-1	(R=MIXED) D + L + S + RSY + rsx(C)	0.107	0.003	0.103	0.0001129
Story2	B257		1.2D+1.6S+1.0L(T)	0.135	0	0.135	0
Story2	B258	2B9-1STUB	(R=MIXED) D + L + S + RSY + rsx(C)	0.06	0.0004099	0.059	0.0004161
Story2	B258		1.2D+1.6S+1.0L(T)	0.081	0	0.081	0
Story2	B259	2B9-1C	(R=MIXED) D + L + S + RSY + rsx(C)	0.105	0.000458	0.103	0.001
Story2	B259		1.2D+1.6S+1.0L(T)	0.135	0	0.135	0.0001121
Story2	B263	2B4C-3	1.2D+1.6S+1.0L(C)	0.146	0	0.146	0
Story2	B268	2B5-1	(R=MIXED) D + L + S + RSX + rsy(C)	0.059	0.001	0.058	0
Story2	B268		1.2D+1.6S+1.0L(T)	0.092	0	0.092	0
Story2	B271	2B4-3	1.2D+1.6S+1.0L(C)	0.146	0.0003167	0.146	0
Story2	B271		(R=MIXED) D + RSY + rsx(T)	0.028	0.002	0.026	0
Story2	B273	2B4-2	1.2D+1.6S+1.0L(C)	0.09	0	0.09	0
Story2	B273		1.2D+1.6L+0.5S(T)	0.067	0	0.067	0
Story2	B277	2B9-2	(R=MIXED) D + L + S + RSY + rsx(C)	0.083	0.002	0.081	0
Story2	B277		1.2D+1.6S+1.0L(T)	0.09	0	0.089	0
Story2	B278	2B9-2STUB	(R=MIXED) D + L + S + RSY + rsx(C)	0.047	0.0003254	0.046	0.0004848

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story2	B278		1.2D+1.6S+1.0L(T)	0.052	0	0.052	0
Story2	B279	2B9-2C	(R=MIXED) D + L + S + RSY + rsx(C)	0.082	0.0003681	0.081	0.001
Story2	B279		1.2D+1.6S+1.0L(T)	0.09	0	0.089	0.0001099
Story2	B280	2B1-2	(R=MIXED) D + L + S + RSY + rsx(C)	0.092	0.007	0.085	0
Story2	B280		1.2D+1.6L+0.5S(T)	0.093	0.0001574	0.092	0
Story2	B281	2B1-3	(R=MIXED) D + L + S + RSY + rsx(C)	0.074	0.004	0.07	0
Story2	B281		1.2D+1.6L+0.5S(T)	0.076	0.0001681	0.076	0
Story2	B282	2B1-5	(R=MIXED) D + L + S + RSX + rsy(C)	0.06	0.002	0.057	0
Story2	B282		1.2D+1.6L+0.5S(T)	0.063	0.0001371	0.062	0
Story2	B283	2B1-6	(R=MIXED) D + RSY + rsx(C)	0.033	0.004	0.03	0
Story2	B283		1.2D+1.6L+0.5S(T)	0.074	0.0004049	0.073	0
Story2	B284	2B1-7	(R=MIXED) D + RSY + rsx(C)	0.044	0.007	0.037	0
Story2	B284		1.2D+1.6L+0.5S(T)	0.093	0.001	0.092	0
Story2	B295	2B9-R-2	(R=MIXED) D + L + S + RSX + rsy(C)	0.016	0.002	0.014	0.0001713
Story2	B295		1.2D+1.6S+1.0L(T)	0.322	0.000192	0.322	0.000358
Story2	B296	2B9-R-3	1.2D+1.6S+1.0L(C)	0.552	0	0.552	0
Story2	B296		1.2D+1.6S+1.0L(T)	0.552	0	0.552	0
Story2	B303	2B5-1C	1.2D+1.6S+1.0L(C)	0.085	0	0.084	0.000126
Story2	B304	2B4C-2	1.2D+1.6S+1.0L(C)	0.09	0	0.09	0.000142
Story2	B304		1.2D+1.6L+0.5S(T)	0.067	0	0.067	0
Story2	B2	2B2-2	1.2D+1.6S+1.0L(C)	0.05	0.001	0.048	0.001
Story2	B2		(R=MIXED) D + L + S + RSX + rsy(T)	0.008	0	0.008	0.001
Story2	B19	2B2-3	1.2D+1.6S+1.0L(C)	0.013	0.001	0.011	0.001
Story2	B60	2D2	(R=MIXED) D + L + S + RSY + rsx(C)	1.139	1.133	0.004	0.005
Story5	D29	205	1.2D+1.6S+1.0L(C)	0.237	0.237	0	0
Story5	D30	207	1.2D+1.6S+1.0L(C)	0.095	0.095	0	0
Story5	D31	209	(R=MIXED) D + RSY + rsx(C)	0.008	0.008	0	0
Story5	D31		1.2D+1.6S+1.0L(T)	0.005	0.005	0	0
Story5	D32	274	1.2D+1.6S+1.0L(T)	0.243	0.243	0	0
Story5	D33	289	(R=MIXED) D + RSX + rsy(C)	0.007	0.007	0	0
Story5	D33		1.2D+1.6S+1.0L(T)	0.005	0.005	0	0
Story5	D34	301	1.2D+1.6S+1.0L(C)	0.092	0.092	0	0
Story5	D35	307	(R=MIXED) D + L + S + RSX + rsy(C)	0.082	0.082	0	0
Story5	D72	RD5	(R=MIXED) D + L + S + RSX + rsy(C)	0.947	0.947	0	0
Story5	D74	RD6	(R=MIXED) D + RSX + rsy(C)	0.778	0.778	0	0
Story5	D74		1.2D+1.6S+1.0L(T)	0.013	0.013	0	0
Story5	D79	4 A(+)-7	1.2D+1.6S+1.0L(C)	0.016	0.011	0.005	0
Story5	D52	4 A(+)-8(+)	1.2D+1.6S+1.0L(C)	0.017	0.012	0.005	0
Story5	D77	4 A(+)-9(-)	1.2D+1.6S+1.0L(C)	0.013	0.013	0	0
Story5	D78	RD7	(R=MIXED) D + RSX + rsy(C)	0.033	0.033	0	0
Story5	D78		1.2D+1.6S+1.0L(T)	0.012	0.012	0	0
Story5	D81	RD8	(R=MIXED) D + L + S + RSX + rsy(C)	0.304	0.304	0	0
Story5	D46	4 A(+)-10	1.2D+1.6S+1.0L(C)	0.022	0.022	0	0.000135
Story4	D1	RB2-1a	1.2D+1.6S+1.0L(C)	0.168	0.012	0.144	0.011
Story4	D1		1.2D+1.6L+0.5S(T)	0.076	0.001	0.073	0.003



Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	D2	217	1.2D+1.6S+1.0L(C)	0.101	0.005	0.079	0.017
Story4	D3	220	1.2D+1.6S+1.0L(C)	0.12	0.002	0.096	0.022
Story4	D4	223	1.2D+1.6L+0.5S(C)	0.042	0.001	0.037	0.004
Story4	D4		1.2D+1.6S+1.0L(T)	0.19	0.011	0.175	0.004
Story4	D5	226	1.2D+1.6S+1.0L(C)	0.252	0.01	0.231	0.011
Story4	D6	232	1.2D+1.6S+1.0L(C)	0.269	0.005	0.251	0.013
Story4	D6		(R=MIXED) D + L + S + RSY + rsx(T)	0.084	0.001	0.077	0.006
Story4	D7	237	1.2D+1.6S+1.0L(C)	0.265	0.005	0.246	0.014
Story4	D7		(R=MIXED) D + RSY + rsx(T)	0.028	0.0004768	0.025	0.002
Story4	D8	242	1.2D+1.6S+1.0L(C)	0.251	0.006	0.234	0.012
Story4	D9	247	1.2D+1.6S+1.0L(C)	0.236	0.007	0.222	0.008
Story4	D10	252	1.2D+1.6S+1.0L(C)	0.22	0.008	0.212	0.001
Story4	D11	257	1.2D+1.6S+1.0L(C)	0.211	0.008	0.197	0.007
Story4	D12	262	1.2D+1.6S+1.0L(C)	0.165	0.017	0.118	0.03
Story4	D13	267	1.2D+1.6S+1.0L(C)	0.17	0.019	0.082	0.069
Story4	D14	272	1.2D+1.6S+1.0L(T)	0.212	0.023	0.147	0.042
Story4	D15	287	1.2D+1.6S+1.0L(T)	0.086	0.003	0.082	0.002
Story4	D16	299	1.2D+1.6S+1.0L(C)	0.061	0.008	0.051	0.003
Story4	D17	302	1.2D+1.6S+1.0L(C)	0.053	0.001	0.049	0.003
Story4	D17		1.2D+1.6S+1.0L(T)	0.07	0.000139	0.066	0.003
Story4	D18	305	1.2D+1.6S+1.0L(C)	0.063	0.009	0.048	0.006
Story4	D19	308	1.2D+1.6S+1.0L(T)	0.097	0.002	0.083	0.011
Story4	D20	312	1.2D+1.6S+1.0L(T)	0.233	0.029	0.166	0.038
Story4	D21	326	1.2D+1.6S+1.0L(C)	0.161	0.011	0.061	0.089
Story4	D22	332	1.2D+1.6S+1.0L(C)	0.097	0.017	0.025	0.055
Story4	D23	338	1.2D+1.6S+1.0L(C)	0.061	0.028	0.005	0.028
Story4	D24	RB2-3a	1.2D+1.6S+1.0L(C)	0.243	0.002	0.229	0.011
Story4	D24		1.2D+1.6S+1.0L(T)	0.522	0.011	0.369	0.142
Story4	D39	RD1	(R=MIXED) D + L + S + RSY + rsx(C)	0.377	0.377	0	0
Story4	D43	RD2	(R=MIXED) D + RSX + rsy(C)	0.093	0.093	0	0
Story4	D43		1.2D+1.6S+1.0L(T)	0.027	0.027	0	0
Story4	D48	RB2-2d	(R=MIXED) D + L + S + RSY + rsx(C)	0.072	0.011	0.041	0.019
Story4	D48		(R=MIXED) D + RSX + rsy(T)	0.043	0.008	0.024	0.011
Story4	D49	295	1.2D+1.6S+1.0L(C)	0.05	0.009	0.028	0.012
Story4	D50	296	1.2D+1.6S+1.0L(C)	0.07	0.005	0.041	0.024
Story4	D51	177	(R=MIXED) D + L + S + RSY + rsx(C)	0.033	0.004	0.003	0.026
Story4	D51		1.2D+1.6S+1.0L(T)	0.104	0.011	0.085	0.008
Story4	D53	231	1.2D+1.6S+1.0L(C)	0.187	0.01	0.164	0.013
Story4	D53		(R=MIXED) D + L + S + RSY + rsx(T)	0.078	0.001	0.064	0.014
Story4	D54	276	1.2D+1.6S+1.0L(C)	0.201	0.006	0.177	0.018
Story4	D55	277	1.2D+1.6S+1.0L(C)	0.198	0.005	0.174	0.02
Story4	D56	278	1.2D+1.6S+1.0L(C)	0.188	0.006	0.165	0.017
Story4	D57	279	1.2D+1.6S+1.0L(C)	0.177	0.007	0.158	0.013
Story4	D58	280	1.2D+1.6S+1.0L(C)	0.163	0.006	0.153	0.004
Story4	D59	281	1.2D+1.6S+1.0L(C)	0.152	0.005	0.144	0.004

**Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 2 of 3, continued)**

Story	Label	Unique Name	PMM Combo	PMM Ratio	P Ratio	M Major Ratio	M Minor Ratio
Story4	D60	282	1.2D+1.6S+1.0L(C)	0.116	0.01	0.093	0.013
Story4	D61	283	1.2D+1.6S+1.0L(C)	0.132	0.014	0.062	0.056
Story4	D62	RB17-1d	(R=MIXED) D + L + S + RSY + rsx(T)	0.167	0.042	0.106	0.019
Story4	D63	RB17-2d	(R=MIXED) D + L + S + RSY + rsx(T)	0.099	0.015	0.066	0.018
Story4	D64	199	(R=MIXED) D + RSY + rsx(C)	0.252	0.252	0	0
Story4	D64		1.2D+1.6S+1.0L(T)	0.004	0.004	0	0
Story4	D65	331	1.2D+1.6S+1.0L(C)	0.094	0.008	0.036	0.05
Story4	D66	337	1.2D+1.6S+1.0L(C)	0.063	0.008	0.027	0.027
Story4	D67	343	1.2D+1.6S+1.0L(C)	0.043	0.007	0.032	0.004
Story4	D68	RB2-4c	1.2D+1.6S+1.0L(C)	0.178	0.001	0.161	0.017
Story4	D69	61	(R=MIXED) D + RSY + rsx(C)	0.292	0.265	0.017	0.01
Story4	D69		1.2D+1.6S+1.0L(T)	0.04	0.018	0.002	0.019
Story4	D45	RD10	(R=MIXED) D + RSY + rsx(C)	0.632	0.632	0	0
Story4	D45		1.2D+1.6S+1.0L(T)	0.077	0.077	0	0
Story4	D28	RD3	(R=MIXED) D + L + S + RSX + rsy(C)	0.328	0.328	0	0
Story4	D25	RD4	(R=MIXED) D + RSX + rsy(C)	0.312	0.312	0	0
Story4	D25		1.2D+1.6L+0.5S(T)	0.003	0.003	0	0
Story4	D26	RD9	(R=MIXED) D + RSY + rsx(C)	0.837	0.837	0	0
Story4	D26		1.2D+1.6S+1.0L(T)	0.067	0.067	0	0
Story3	D40	3D1	(R=MIXED) D + L + S + RSY + rsx(C)	0.601	0.601	0	0
Story3	D42	3D3	(R=MIXED) D + L + S + RSY + rsx(C)	0.54	0.54	0	0
Story3	D47	3D4	(R=MIXED) D + L + S + RSY + rsx(C)	0.687	0.687	0	0
Story3	D70	3D2	(R=MIXED) D + L + S + RSY + rsx(C)	0.636	0.636	0	0
Story3	D71	3D9	(R=MIXED) D + L + S + RSX + rsy(C)	0.672	0.672	0	0
Story3	D73	3D10	(R=MIXED) D + L + S + RSX + rsy(C)	0.678	0.678	0	0
Story3	D75	3D11a	(R=MIXED) D + L + S + RSX + rsy(C)	1.24	1.223	0.017	0
Story3	D76	3D11b	(R=MIXED) D + L + S + RSX + rsy(C)	1.186	1.17	0.016	0
Story3	D27	3D5	(R=MIXED) D + L + S + RSX + rsy(C)	0.292	0.292	0	0
Story3	D36	3D6	(R=MIXED) D + L + S + RSX + rsy(C)	0.319	0.319	0	0
Story3	D80	3D7	(R=MIXED) D + L + S + RSX + rsy(C)	0.338	0.338	0	0
Story3	D82	3D8	(R=MIXED) D + RSX + rsy(C)	0.278	0.278	0	0
Story3	D82		1.2D+1.6L+0.5S(T)	0.001	0.001	0	0
Story2	D83	2D1	(R=MIXED) D + L + S + RSY + rsx(C)	1.366	1.36	0.005	0.004

**Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3) — Tension-only, see envelope results**

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story5	C19	189	0.008	1.2D+1.6S+1.0L	0.088	
Story5	C20	200	0.019	(R=MIXED) D + L + S + RSX + rsy	0.028	
Story5	C21	202	0.008	1.2D+1.6S+1.0L	0.114	
Story5	C31	135	0	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story5	C53	3 E-7	0.122	(R=MIXED) D + L + S + RSX + rsy	0.277	
Story5	C54	3 E-8(+)	0.008	1.2D+1.6S+1.0L	0.003	
Story5	C55	3 E-9(-)	0.003	1.2D+1.6S+1.0L	0.002	
Story5	C56	3 E-10	0.113	1.2D+1.6S+1.0L	0.291	

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story5	C58	4 C-7	0.002	1.2D+1.6S+1.0L	0.002	
Story5	C60	4 C-8(+)	0.006	1.2D+1.6S+1.0L	0.001	
Story5	C62	4 C-10	0.004	1.2D+1.6S+1.0L	0.003	
Story5	C2	3 H-8	0.06	(R=MIXED) D + L + S + RSX + rsy	0.028	
Story5	C6	3 H-7	0.126	1.2D+1.6S+1.0L	0.045	
Story5	C46	3 H-9	0.063	1.2D+1.6S+1.0L	0.032	
Story5	C47	3 H-10	0.163	1.2D+1.6S+1.0L	0.083	
Story4	C1	3 I-2	0	1.2D+1.6S+1.0L	0	
Story4	C3	3 I-3	0	1.2D+1.6S+1.0L	0	
Story4	C4	3 I-4	0	1.2D+1.6S+1.0L	0	
Story4	C5	3 I-5	0	1.2D+1.6S+1.0L	0.002	
Story4	C7	3 I-6	0	1.2D+1.6S+1.0L	0.002	
Story4	C8	3 I-7	0	1.2D+1.6S+1.0L	0.002	
Story4	C9	3 I-8	0	1.2D+1.6S+1.0L	0.005	
Story4	C11	3 I-9	0	1.2D+1.6S+1.0L	0.005	
Story4	C12	3 I-10	0	1.2D+1.6S+1.0L	0.002	
Story4	C13	3 I-11	0	1.2D+1.6S+1.0L	0	
Story4	C26	3 H-2	0.002	1.2D+1.6S+1.0L	0	
Story4	C28	3 G-3-	0.001	1.2D+1.6S+1.0L	0.002	
Story4	C28					
Story4	C29	3 G-7	0.01	(R=MIXED) D + L + S + RSX + rsy	0.009	
Story4	C32	3 G-10	0.01	(R=MIXED) D + L + S + RSX + rsy	0.01	
Story4	C32					
Story4	C33	3 G-11	0.002	1.2D+1.6S+1.0L	0	
Story4	C34	3 G(-)-7	0.01	(R=MIXED) D + L + S + RSX + rsy	0.01	
Story4	C39	3 G(-)-10	0.009	1.2D+1.6S+1.0L	0.013	
Story4	C40	3 F+-2	0.001	1.2D+1.6S+1.0L	0	
Story4	C42	3 F-10	0.04	(R=MIXED) D + L + S + RSX + rsy	0.021	
Story4	C44	3 F-7	0.039	(R=MIXED) D + L + S + RSX + rsy	0.02	
Story4	C45	3 E-2	0.003	1.2D+1.6S+1.0L	0	
Story4	C48	3 E-3	0.001	1.2D+1.6S+1.0L	0	
Story4	C49	3 E-4	0.0001701	1.2D+1.6S+1.0L	0	
Story4	C50	3 E-5	0	1.2D+1.6S+1.0L	0.005	
Story4	C52	3 E-6	0	1.2D+1.6S+1.0L	0.004	
Story4	C57	3 E-11-	0	1.2D+1.6S+1.0L	0	
Story3	C30	3 G-8(+)	0	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story3	C59	2 C-8	0	(R=MIXED) D + L + S + RSX + rsy	0	
Story3	C61	2 C-9	0	(R=MIXED) D + L + S + RSX + rsy	0	
Story2	C27	1 I-3	0.025	1.2D+1.6S+1.0L	0	
Story2	C35	1E-3	0.065	1.2D+1.6S+1.0L	0	
Story2	C41	1 E-6	0.017	1.2D+1.6S+1.0L	0.003	
Story2	C43	1 I-6	0.008	1.2D+1.6S+1.0L	0.002	
Story1	C14	1 H+-8+ WD	0.0001402	1.2D+1.6S+1.0L	0	
Story1	C36	1 G-7+ WD	0.0001935	1.2D+1.6L+0.5S	0.001	
Story1	C37	1 G--8+ WD	0.0001935	1.2D+1.6S+1.0L	0	

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story1	C38	1 G--9- WD	0.0001935	1.2D+1.6L+0.5S	0.001	
Story5	B62	RB11-1 HIGH	0.106	1.2D+1.6S+1.0L	0.018	kl/r > 200
Story5	B62					
Story5	B102	RB13-1	0.139	1.2D+1.6S+1.0L	0.014	
Story5	B104	RB13-2	0.143	1.2D+1.6S+1.0L	0.003	
Story5	B104					
Story5	B139	RB8-1	0.154	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story5	B139					
Story5	B140	RB8-2	0.174	1.2D+1.6S+1.0L	0.002	
Story5	B140					
Story5	B145	RB9-1	0.045	1.2D+1.6S+1.0L	0	
Story5	B146	RB9-2	0.157	1.2D+1.6S+1.0L	0.001	
Story5	B147	RB9-3	0.04	1.2D+1.6S+1.0L	0	
Story5	B173	RB8-3	0.194	1.2D+1.6S+1.0L	0.002	
Story5	B173					
Story5	B174	RB8-4	0.19	1.2D+1.6S+1.0L	0.001	
Story5	B174					
Story5	B183	RB9-4	0.045	1.2D+1.6S+1.0L	0	
Story5	B183					
Story5	B185	RB9-5	0.157	1.2D+1.6S+1.0L	0	
Story5	B187	RB9-6	0.04	1.2D+1.6S+1.0L	0	
Story5	B187					
Story5	B204	RB5x	0.112	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story5	B205	RB10-3	0.044	1.2D+1.6S+1.0L	0.001	
Story5	B205					
Story5	B208	RB10-4	0.106	1.2D+1.6S+1.0L	0.001	
Story5	B208					
Story5	B213	RB9-7	0.08	1.2D+1.6S+1.0L	0	
Story5	B213					
Story5	B214	RB9-8	0.145	1.2D+1.6S+1.0L	0.001	
Story5	B214					
Story5	B217	RB9-9	0.08	1.2D+1.6S+1.0L	0	
Story5	B217					
Story5	B218	RB9-10	0.145	1.2D+1.6S+1.0L	0	
Story5	B218					
Story5	B222	RB9-11	0.08	1.2D+1.6S+1.0L	0	
Story5	B223	RB9-12	0.145	1.2D+1.6S+1.0L	0	
Story5	B223					
Story5	B231	RB9-13	0.08	1.2D+1.6S+1.0L	0	
Story5	B232	RB9-14	0.145	1.2D+1.6S+1.0L	0	
Story5	B233	RB9-15	0.075	1.2D+1.6S+1.0L	0	
Story5	B235	RB9-16	0.141	1.2D+1.6S+1.0L	0	
Story5	B236	RB9-17	0.066	1.2D+1.6S+1.0L	0	
Story5	B238	RB9-18	0.121	1.2D+1.6S+1.0L	0	
Story5	B238					

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story5	B148	46	0	1.2D+1.6S+1.0L	0	
Story5	B148					
Story5	B176	47	0	1.2D+1.6S+1.0L	0	
Story5	B5	RB9-19	0.052	1.2D+1.6S+1.0L	0	
Story5	B22	RB18-1	0.033	1.2D+1.6S+1.0L	0.001	
Story5	B22					
Story5	B1	RB12-1	0.117	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story5	B1					
Story5	B29	RB19-1	0.038	(R=MIXED) D + L + S + RSX + rsy	0.0001715	
Story5	B29					
Story5	B30	RB12-2	0.206	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story5	B30					
Story5	B31	RB19-3	0.065	1.2D+1.6S+1.0L	0.000312	
Story5	B3	RB7-1	0.254	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story5	B3					
Story5	B32	RB19-2	0.094	1.2D+1.6S+1.0L	0.0002865	
Story4	B7	RB4-1	0.002	1.2D+1.6S+1.0L	0	
Story4	B7					
Story4	B9	RB5-1	0.105	1.2D+1.6S+1.0L	0.003	
Story4	B9					
Story4	B10	RB4-3	0.002	1.2D+1.6S+1.0L	0	
Story4	B12	RB6-1	0.113	1.2D+1.6S+1.0L	0.001	
Story4	B14	RB4-4	0.002	1.2D+1.6S+1.0L	0	
Story4	B15	RB5-3	0.09	1.2D+1.6S+1.0L	0.006	
Story4	B15					
Story4	B33	RB2-1b	0.081	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B33					
Story4	B34	218	0.02	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B35	221	0.02	1.2D+1.6S+1.0L	0.001	
Story4	B36	224	0.023	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B36					
Story4	B37	227	0.05	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B37					
Story4	B38	233	0.051	1.2D+1.6S+1.0L	0.0003639	
Story4	B38					
Story4	B39	238	0.05	1.2D+1.6S+1.0L	0.0003837	
Story4	B39					
Story4	B40	243	0.049	1.2D+1.6S+1.0L	0.0003507	
Story4	B40					
Story4	B41	248	0.047	1.2D+1.6S+1.0L	0.0002703	
Story4	B42	253	0.046	(R=MIXED) D + L + S + RSY + rsx	0.0003236	
Story4	B43	258	0.042	(R=MIXED) D + L + S + RSY + rsx	0.0004364	
Story4	B44	263	0.033	1.2D+1.6S+1.0L	0.001	
Story4	B45	268	0.025	1.2D+1.6S+1.0L	0.002	
Story4	B46	273	0.058	1.2D+1.6S+1.0L	0.001	

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story4	B47	288	0.04	1.2D+1.6S+1.0L	0.001	
Story4	B48	300	0.032	(R=MIXED) D + L + S + RSX + rsy	0.0002565	
Story4	B49	303	0.036	(R=MIXED) D + L + S + RSX + rsy	0.0001353	
Story4	B50	306	0.032	1.2D+1.6S+1.0L	0.0002629	
Story4	B51	309	0.041	1.2D+1.6S+1.0L	0.001	
Story4	B52	313	0.062	1.2D+1.6S+1.0L	0.001	
Story4	B53	327	0.02	1.2D+1.6S+1.0L	0.002	
Story4	B54	333	0.018	1.2D+1.6S+1.0L	0.001	
Story4	B55	339	0.017	1.2D+1.6S+1.0L	0.0003721	
Story4	B56	RB2-3b	0.063	1.2D+1.6S+1.0L	0.002	
Story4	B61	RB10-1	0	1.2D+1.6S+1.0L	0	
Story4	B63	RB11-1	0.092	1.2D+1.6S+1.0L	0.002	
Story4	B65	RB10-2	0	1.2D+1.6S+1.0L	0	
Story4	B77	RB2-2a	0.093	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B77					
Story4	B78	219	0.034	(R=MIXED) D + L + S + RSY + rsx	0.0002674	
Story4	B79	222	0.041	(R=MIXED) D + L + S + RSY + rsx	0.0002029	
Story4	B80	225	0.072	(R=MIXED) D + L + S + RSY + rsx	0.0003067	
Story4	B80					
Story4	B81	228	0.014	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B81					
Story4	B82	234	0.014	(R=MIXED) D + L + S + RSX + rsy	0.0003144	
Story4	B83	239	0.014	(R=MIXED) D + L + S + RSX + rsy	0.0003119	
Story4	B84	244	0.014	(R=MIXED) D + L + S + RSX + rsy	0.0003867	
Story4	B84					
Story4	B85	249	0.014	(R=MIXED) D + L + S + RSX + rsy	0.0004694	
Story4	B86	254	0.014	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B87	259	0.015	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B88	264	0.016	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B89	269	0.013	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B90	RB17-1a	0.043	1.2D+1.6S+1.0L	0.002	
Story4	B91	RB17-2a	0.059	1.2D+1.6S+1.0L	0.002	
Story4	B92	328	0.029	1.2D+1.6S+1.0L	0.001	
Story4	B93	334	0.016	1.2D+1.6S+1.0L	0.001	
Story4	B94	340	0.013	1.2D+1.6S+1.0L	0.001	
Story4	B95	RB2-3c	0.144	1.2D+1.6S+1.0L	0.003	
Story4	B95					
Story4	B100	RB14-1	0.125	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B100					
Story4	B113	RB2-2b	0.097	(R=MIXED) D + L + S + RSY + rsx	0.002	
Story4	B113					
Story4	B114	293	0.02	(R=MIXED) D + L + S + RSY + rsx	0.0004415	
Story4	B115	297	0.027	(R=MIXED) D + L + S + RSY + rsx	0.0003701	
Story4	B116	175	0.053	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story4	B116					

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story4	B117	229	0.035	1.2D+1.6S+1.0L	0.001	
Story4	B117					
Story4	B118	235	0.036	1.2D+1.6S+1.0L	0.001	
Story4	B118					
Story4	B119	240	0.036	1.2D+1.6S+1.0L	0.001	
Story4	B119					
Story4	B120	245	0.034	1.2D+1.6S+1.0L	0.001	
Story4	B120					
Story4	B121	250	0.033	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story4	B122	255	0.032	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story4	B123	260	0.029	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B124	265	0.021	1.2D+1.6S+1.0L	0.003	
Story4	B125	270	0.018	1.2D+1.6S+1.0L	0.004	
Story4	B126	RB17-1b	0.12	1.2D+1.6S+1.0L	0.001	
Story4	B127	RB17-2b	0.099	1.2D+1.6S+1.0L	0.002	
Story4	B128	329	0.025	1.2D+1.6S+1.0L	0.001	
Story4	B129	335	0.018	1.2D+1.6S+1.0L	0.002	
Story4	B130	341	0.02	1.2D+1.6S+1.0L	0.002	
Story4	B131	RB2-4a	0.097	1.2D+1.6S+1.0L	0.006	
Story4	B131					
Story4	B153	RB2-2c	0.094	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B153					
Story4	B154	294	0.013	(R=MIXED) D + L + S + RSY + rsx	0.002	
Story4	B155	298	0.012	1.2D+1.6S+1.0L	0.002	
Story4	B156	176	0.013	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	B156					
Story4	B158	230	0.06	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story4	B158					
Story4	B159	236	0.063	1.2D+1.6S+1.0L	0.001	
Story4	B159					
Story4	B160	241	0.062	1.2D+1.6S+1.0L	0.001	
Story4	B160					
Story4	B161	246	0.059	1.2D+1.6S+1.0L	0.001	
Story4	B161					
Story4	B162	251	0.057	1.2D+1.6S+1.0L	0.001	
Story4	B163	256	0.055	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story4	B164	261	0.05	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story4	B165	266	0.035	1.2D+1.6S+1.0L	0.002	
Story4	B166	271	0.026	1.2D+1.6S+1.0L	0.004	
Story4	B167	RB17-1c	0.066	1.2D+1.6S+1.0L	0.003	
Story4	B169	330	0.013	1.2D+1.6S+1.0L	0.004	
Story4	B170	336	0.014	1.2D+1.6S+1.0L	0.003	
Story4	B171	342	0.015	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story4	B172	RB2-4b	0.037	1.2D+1.6S+1.0L	0.002	
Story4	B172					

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story4	B200	RB4-2	0.002	1.2D+1.6S+1.0L	0	
Story4	B200					
Story4	B202	RB5-2	0.107	1.2D+1.6S+1.0L	0.001	
Story4	B202					
Story4	B210	RB3-1	0.123	1.2D+1.6S+1.0L	0.012	
Story4	B210					
Story4	B224	RB17-2c	0.097	1.2D+1.6S+1.0L	0.002	
Story4	B300	RB16-2	0.109	1.2D+1.6S+1.0L	0.008	
Story4	B300					
Story4	B302	RB16-1	0.107	1.2D+1.6S+1.0L	0.007	
Story4	B302					
Story4	B4	RB14-2	0.104	1.2D+1.6S+1.0L	0.004	
Story4	B4					
Story3	B61	Collect1	0.018	1.2D+1.6S+1.0L	0	
Story3	B63	Collect2	0	1.2D+1.6S+1.0L	0	
Story3	B65	Collect3	0.015	1.2D+1.6S+1.0L	0	
Story3	B101	3B15-1	0.012	1.2D+1.6S+1.0L	0	
Story3	B101					
Story3	B103	3B15-2	0.012	1.2D+1.6S+1.0L	0	
Story3	B103					
Story3	B112	3B3-1	0.053	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story3	B112					
Story3	B132	3B14-1	0.084	1.2D+1.6S+1.0L	0	
Story3	B132					
Story3	B149	3B14-2	0.081	1.2D+1.6S+1.0L	0	
Story3	B168	3B3-2	0.064	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story3	B168					
Story3	B177	3B14-3	0.061	(R=MIXED) D + L + S + RSX + rsy	0.0001136	
Story3	B177					
Story3	B190	3B7-1	0	1.2D+1.6S+1.0L	0	
Story3	B190					
Story3	B193	3B3-3	0	1.2D+1.6S+1.0L	0	
Story3	B193					
Story3	B203	3B1-1	0.038	(R=MIXED) D + RSX + rsy	0.001	
Story3	B206	3B2-1	0.005	1.2D+1.6S+1.0L	0	
Story3	B209	3B2-2	0.005	1.2D+1.6S+1.0L	0	
Story3	B211	3B1-2	0.042	1.2D+1.6S+1.0L	0	
Story3	B212	3B1-3	0.076	1.2D+1.6S+1.0L	0	
Story3	B212					
Story3	B215	3B1-4	0.042	1.2D+1.6S+1.0L	0	
Story3	B215					
Story3	B216	3B1-5	0.076	1.2D+1.6S+1.0L	0	
Story3	B216					
Story3	B220	3B1-6	0.042	1.2D+1.6S+1.0L	0	
Story3	B220					



Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story3	B221	3B1-7	0.076	1.2D+1.6S+1.0L	0	
Story3	B221					
Story3	B229	3B1-8	0.045	1.2D+1.6S+1.0L	0	
Story3	B229					
Story3	B230	3B1-9	0.082	1.2D+1.6S+1.0L	0	
Story3	B230					
Story3	B234	3B10-1	0.168	(R=MIXED) D + RSX + rsy	0.0002177	
Story3	B234					
Story3	B243	3B9-1	0.067	(R=MIXED) D + L + S + RSX + rsy	0.005	
Story3	B243					
Story3	B244	3B8-1	0.072	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story3	B244					
Story3	B245	3B4-1	0.069	(R=MIXED) D + L + S + RSX + rsy	0	
Story3	B245					
Story3	B23	3B3-4	0.054	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story3	B23					
Story3	B25	3B4-5	0.06	(R=MIXED) D + L + S + RSX + rsy	0.027	
Story3	B25					
Story3	B28	3B3-6	0.005	1.2D+1.6S+1.0L	0	
Story3	B28					
Story3	B20	3B17-1	0.097	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story3	B20					
Story3	B21	3B1-11	0.087	1.2D+1.6S+1.0L	0	
Story3	B21					
Story3	B24	3B1-10	0.048	1.2D+1.6S+1.0L	0	
Story3	B24					
Story2	B6	2B4-1	0.129	(R=MIXED) D + L + S + RSX + rsy	0	
Story2	B6					
Story2	B8	2B1-1	0.038	1.2D+1.6S+1.0L	0	
Story2	B13	2B9-R-1	0.063	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B13					
Story2	B64	2B5-R-1	0.123	(R=MIXED) D + L + S + RSY + rsx	0.0001752	
Story2	B64					
Story2	B67	2B9-3STUB	0.018	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B68	2B9-3C	0.023	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B69	2B9-3	0.023	(R=MIXED) D + L + S + RSX + rsy	0	
Story2	B69					
Story2	B70	2B1-4	0.032	1.2D+1.6S+1.0L	0	
Story2	B70					
Story2	B73	2B2-1	0.053	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story2	B73					
Story2	B74	2B7-1	0.208	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story2	B74					
Story2	B75	2B8-1	0.148	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story2	B105	2B5-R-2	0.087	(R=MIXED) D + RSY + rsx	0	

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story2	B105					
Story2	B144	2B9-R-4	0.049	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B144					
Story2	B186	2B4-R-1	0.041	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B186					
Story2	B195	2B4-4C	0.073	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B199	2B4-4	0.137	(R=MIXED) D + L + S + RSX + rsy	0	
Story2	B199					
Story2	B201	2B1-8	0.038	1.2D+1.6S+1.0L	0	
Story2	B207	2B4-R-2	0.076	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story2	B207					
Story2	B254	2B4-1C	0.068	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B254					
Story2	B257	2B9-1	0.031	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B257					
Story2	B258	2B9-1STUB	0.032	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B258					
Story2	B259	2B9-1C	0.037	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B259					
Story2	B263	2B4C-3	0.039	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B268	2B5-1	0.024	(R=MIXED) D + L + S + RSX + rsy	0	
Story2	B268					
Story2	B271	2B4-3	0.032	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B271					
Story2	B273	2B4-2	0.023	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B273					
Story2	B277	2B9-2	0.023	1.2D+1.6S+1.0L	0	
Story2	B277					
Story2	B278	2B9-2STUB	0.022	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B278					
Story2	B279	2B9-2C	0.026	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B279					
Story2	B280	2B1-2	0.051	1.2D+1.6S+1.0L	0	
Story2	B280					
Story2	B281	2B1-3	0.042	1.2D+1.6S+1.0L	0	
Story2	B281					
Story2	B282	2B1-5	0.035	1.2D+1.6S+1.0L	0	
Story2	B282					
Story2	B283	2B1-6	0.041	1.2D+1.6S+1.0L	0	
Story2	B283					
Story2	B284	2B1-7	0.051	1.2D+1.6S+1.0L	0	
Story2	B284					
Story2	B295	2B9-R-2	0.036	(R=MIXED) D + L + S + RSX + rsy	0	
Story2	B295					
Story2	B296	2B9-R-3	0.038	(R=MIXED) D + L + S + RSX + rsy	0	

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story2	B296					
Story2	B303	2B5-1C	0.09	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B304	2B4C-2	0.026	(R=MIXED) D + L + S + RSY + rsx	0	
Story2	B304					
Story2	B2	2B2-2	0.042	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story2	B2					
Story2	B19	2B2-3	0.014	(R=MIXED) D + L + S + RSY + rsx	0.0002406	
Story2	B60	2D2	0.0002444	1.2D+1.6S+1.0L	0.0004078	kl/r > 200
Story5	D29	205	0	1.2D+1.6S+1.0L	0	
Story5	D30	207	0	1.2D+1.6S+1.0L	0	
Story5	D31	209	0	1.2D+1.6S+1.0L	0	
Story5	D31					
Story5	D32	274	0	1.2D+1.6S+1.0L	0	
Story5	D33	289	0	1.2D+1.6S+1.0L	0	
Story5	D33					
Story5	D34	301	0	1.2D+1.6S+1.0L	0	
Story5	D35	307	0	1.2D+1.6S+1.0L	0	
Story5	D72	RD5	0	1.2D+1.6S+1.0L	0	
Story5	D74	RD6	0	1.2D+1.6S+1.0L	0	
Story5	D74					
Story5	D79	4 A(+)-7	0.0002539	1.2D+1.6S+1.0L	0	
Story5	D52	4 A(+)-8(+)	0.0002411	1.2D+1.6S+1.0L	0	
Story5	D77	4 A(+)-9(-)	0	1.2D+1.6S+1.0L	0	
Story5	D78	RD7	0	1.2D+1.6S+1.0L	0	
Story5	D78					
Story5	D81	RD8	0	1.2D+1.6S+1.0L	0	
Story5	D46	4 A(+)-10	0	1.2D+1.6S+1.0L	0	
Story4	D1	RB2-1a	0.072	1.2D+1.6S+1.0L	0.001	
Story4	D1					
Story4	D2	217	0.028	1.2D+1.6S+1.0L	0.002	
Story4	D3	220	0.032	1.2D+1.6S+1.0L	0.003	
Story4	D4	223	0.054	(R=MIXED) D + L + S + RSY + rsx	0.001	
Story4	D4					
Story4	D5	226	0.069	1.2D+1.6S+1.0L	0.002	
Story4	D6	232	0.074	1.2D+1.6S+1.0L	0.002	
Story4	D6					
Story4	D7	237	0.073	1.2D+1.6S+1.0L	0.002	
Story4	D7					
Story4	D8	242	0.07	1.2D+1.6S+1.0L	0.002	
Story4	D9	247	0.067	1.2D+1.6S+1.0L	0.001	
Story4	D10	252	0.064	(R=MIXED) D + L + S + RSX + rsy	0.001	
Story4	D11	257	0.06	1.2D+1.6S+1.0L	0.001	
Story4	D12	262	0.039	1.2D+1.6S+1.0L	0.005	
Story4	D13	267	0.03	1.2D+1.6S+1.0L	0.01	
Story4	D14	272	0.047	1.2D+1.6S+1.0L	0.006	

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story4	D15	287	0.03	(R=MIXED) D + L + S + RSY + rsx	0.002	
Story4	D16	299	0.022	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story4	D17	302	0.026	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story4	D17					
Story4	D18	305	0.021	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story4	D19	308	0.03	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story4	D20	312	0.051	1.2D+1.6S+1.0L	0.006	
Story4	D21	326	0.023	1.2D+1.6S+1.0L	0.013	
Story4	D22	332	0.013	1.2D+1.6S+1.0L	0.008	
Story4	D23	338	0.009	1.2D+1.6S+1.0L	0.002	
Story4	D24	RB2-3a	0.128	1.2D+1.6S+1.0L	0.011	
Story4	D24					
Story4	D39	RD1	0	1.2D+1.6S+1.0L	0	
Story4	D43	RD2	0	1.2D+1.6S+1.0L	0	
Story4	D43					
Story4	D48	RB2-2d	0.05	(R=MIXED) D + L + S + RSY + rsx	0.003	
Story4	D48					
Story4	D49	295	0.016	(R=MIXED) D + L + S + RSY + rsx	0.004	
Story4	D50	296	0.021	1.2D+1.6S+1.0L	0.005	
Story4	D51	177	0.04	(R=MIXED) D + L + S + RSX + rsy	0.004	
Story4	D51					
Story4	D53	231	0.071	(R=MIXED) D + L + S + RSX + rsy	0.003	
Story4	D53					
Story4	D54	276	0.076	1.2D+1.6S+1.0L	0.004	
Story4	D55	277	0.075	1.2D+1.6S+1.0L	0.004	
Story4	D56	278	0.072	1.2D+1.6S+1.0L	0.004	
Story4	D57	279	0.069	1.2D+1.6S+1.0L	0.003	
Story4	D58	280	0.067	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story4	D59	281	0.063	(R=MIXED) D + L + S + RSY + rsx	0.002	
Story4	D60	282	0.043	1.2D+1.6S+1.0L	0.004	
Story4	D61	283	0.03	1.2D+1.6S+1.0L	0.012	
Story4	D62	RB17-1d	0.061	1.2D+1.6S+1.0L	0.008	
Story4	D63	RB17-2d	0.029	1.2D+1.6S+1.0L	0.006	
Story4	D64	199	0	1.2D+1.6S+1.0L	0	
Story4	D64					
Story4	D65	331	0.019	1.2D+1.6S+1.0L	0.011	
Story4	D66	337	0.016	1.2D+1.6S+1.0L	0.007	
Story4	D67	343	0.018	(R=MIXED) D + L + S + RSX + rsy	0.002	
Story4	D68	RB2-4c	0.084	1.2D+1.6S+1.0L	0.002	
Story4	D69	61	0.001	1.2D+1.6S+1.0L	0.001	
Story4	D69					
Story4	D45	RD10	0	1.2D+1.6S+1.0L	0	
Story4	D45					
Story4	D28	RD3	0	1.2D+1.6S+1.0L	0	
Story4	D25	RD4	0	1.2D+1.6S+1.0L	0	

Table 5.5 - Steel Frame Summary - AISC 360-10 (Part 3 of 3, continued)

Story	Label	Unique Name	V Major Ratio	V Minor Combo	V Minor Ratio	Message
Story4	D25					
Story4	D26	RD9	0	1.2D+1.6S+1.0L	0	
Story4	D26					
Story3	D40	3D1	0	1.2D+1.6S+1.0L	0	
Story3	D42	3D3	0	1.2D+1.6S+1.0L	0	
Story3	D47	3D4	0	1.2D+1.6S+1.0L	0	
Story3	D70	3D2	0	1.2D+1.6S+1.0L	0	
Story3	D71	3D9	0	1.2D+1.6S+1.0L	0	
Story3	D73	3D10	0	1.2D+1.6S+1.0L	0	
Story3	D75	3D11a	0.001	(R=MIXED) D + L + S + RSY + rsx	0.0004145	
Story3	D76	3D11b	0.001	(R=MIXED) D + L + S + RSY + rsx	0.0003805	
Story3	D27	3D5	0	1.2D+1.6S+1.0L	0	
Story3	D36	3D6	0	1.2D+1.6S+1.0L	0	
Story3	D80	3D7	0	1.2D+1.6S+1.0L	0	
Story3	D82	3D8	0	1.2D+1.6S+1.0L	0	
Story3	D82					
Story2	D83	2D1	0.0002167	1.2D+1.6S+1.0L	0.0003742	kl/r > 200

## 5.2 Concrete Frame Design

Table 5.6 - Concrete Frame Preferences - ACI 318-14

Item	Value
Multi-Response Design	Step-by-Step - All
Seismic Design Category	D
# Interaction Curves	24
# Interaction Points	11
Minimum Eccentricity	Yes
Phi (Tension)	0.9
Phi (Compression Tied)	0.65
Phi (Compression Spiral)	0.75
Phi (Shear and Torsion)	0.85
Phi (Shear Seismic)	0.6
Phi (Shear Joint)	0.85
Pattern Live Load Factor	0.75
D/C Ratio Limit	1

Table 5.7 - Concrete Column PMM Envelope

Label	Story	Section	Location	P kip	M Major kip-ft	M Minor kip-ft	PMM Combo	PMM Ratio or Rebar %
C10	Story2	ConcCol	Top	-0.114	-0.0108	0	DCon7	1 %
C10	Story2	ConcCol	Bottom	-0.114	0.0108	0	DCon7	1 %
C10	Story1	ConcCol	Top	1.695	0.6897	0	DCon7	1 %
C10	Story1	ConcCol	Bottom	1.695	0.161	0	DCon7	1 %

Table 5.8 - Concrete Column Shear Envelope

Label	Story	Section	Location	V Major kip	Major Combo	At Major in <sup>2</sup> /ft	V Minor kip	Minor Combo	At Minor in <sup>2</sup> /ft
C10	Story2	ConcCol	Top	0.0001864		0	0		0
C10	Story2	ConcCol	Bottom	0.0001864		0	0		0
C10	Story1	ConcCol	Top	0.085		0	0		0
C10	Story1	ConcCol	Bottom	0.085		0	0		0

Table 5.9 - Concrete Beam Flexure Envelope

Label	Story	Location	Section	(-) Moment kip-ft	(-) Combo	As Top in <sup>2</sup>	(+) Moment kip-ft	(+) Combo	As Bot in <sup>2</sup>
B11	Story1	End-I	ConcBm	0	DCon7	0.0034	0.7787	DCon5	0.0224
B11	Story1	Middle	ConcBm	-1.7421	DCon5	0.0609	0.7703	DCon5	0.0221
B11	Story1	End-J	ConcBm	0	DCon7	0	0	DCon7	0

Table 5.10 - Concrete Beam Shear Envelope

Label	Story	Section	Location	V kip	V Combo	At in <sup>2</sup> /ft	T for At kip-ft	T Combo At	At Torsion in <sup>2</sup> /ft	T for As kip-ft	T Combo As	As Torsion in <sup>2</sup>
B11	Story1	ConcBm	End-I	0.081	DCon7	0	0	DCon7	0	0	DCon7	0
B11	Story1	ConcBm	Middle	0.093	DCon7	0	0.0075	DCon7	0	0.0075	DCon7	0
B11	Story1	ConcBm	End-J	0.239	DCon7	0	0.0075	DCon7	0	0.0075	DCon7	0

Table 5.11 - Concrete Joint Envelope

Label	Story	Section	B/C Major Combo	B/C Major Ratio	B/C Minor Combo	B/C Minor Ratio	JS Major Combo	JS Major Ratio	JS Minor Combo	JS Minor Ratio
C10	Story2	ConcCol								
C10	Story1	ConcCol								

Table 5.12 - Concrete Column Summary - ACI 318-14 (Part 1 of 2)

Story	Label	Unique Name	Station in	Design Section	Design/Check	Status	PMM Ratio	PMM Combo	As,min in <sup>2</sup>	As in <sup>2</sup>
Story2	C10	2 I-8+ Conc	0	ConcCol	Design	No Message		DCon7	3.24	3.24
Story2	C10	2 I-8+ Conc	66	ConcCol	Design	No Message		DCon7	3.24	3.24
Story2	C10	2 I-8+ Conc	132	ConcCol	Design	No Message		DCon7	3.24	3.24
Story1	C10	1 I-8+ Conc	0	ConcCol	Design	No Message		DCon7	3.24	3.24
Story1	C10	1 I-8+ Conc	49.965	ConcCol	Design	No Message		DCon7	3.24	3.24
Story1	C10	1 I-8+ Conc	99.93	ConcCol	Design	No Message		DCon7	3.24	3.24

Table 5.12 - Concrete Column Summary - ACI 318-14 (Part 2 of 2)

Story	Label	Unique Name	Station in	Mid Bar As in <sup>2</sup>	Corner Bar As in <sup>2</sup>	V Major Combo	At V Major in <sup>2</sup> /ft	V Minor Combo	At V Minor in <sup>2</sup> /ft	Warnings	Errors
Story2	C10	2 I-8+ Conc	0	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message
Story2	C10	2 I-8+ Conc	66	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message
Story2	C10	2 I-8+ Conc	132	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message
Story1	C10	1 I-8+ Conc	0	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message

**Table 5.12 - Concrete Column Summary - ACI 318-14 (Part 2 of 2, continued)**

Story	Label	Unique Name	Station in	Mid Bar As in <sup>2</sup>	Corner Bar As in <sup>2</sup>	V Major Combo	At V Major in <sup>2</sup> /ft	V Minor Combo	At V Minor in <sup>2</sup> /ft	Warnings	Errors
Story1	C10	1 I-8+ Conc	49.965	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message
Story1	C10	1 I-8+ Conc	99.93	0.27	0.27	DCon7	0	DCon7	0	No Message	No Message

**Table 5.13 - Concrete Beam Summary - ACI 318-14 (Part 1 of 2)**

Story	Label	Unique Name	Station in	Design Section	Status	As Top Combo	As,min Top in <sup>2</sup>	As Top in <sup>2</sup>	As Bottom Combo	As,min Bottom in <sup>2</sup>	As Bottom in <sup>2</sup>
Story1	B11	CB-1	0	ConcBm	No Message	DCon7	0.0034	0.0034	DCon7	0.0034	0.0034
Story1	B11	CB-1	24	ConcBm	No Message	DCon7	0.0034	0.0034	DCon5	0.0224	0.0224
Story1	B11	CB-1	48	ConcBm	No Message	DCon7	0.0034	0.0034	DCon5	0.0221	0.0221
Story1	B11	CB-1	72	ConcBm	No Message	DCon7	0.008	0.008	DCon7	0.0042	0.0042
Story1	B11	CB-1	96	ConcBm	No Message	DCon5	0.0609	0.0609	DCon7	0.0034	0.0034
Story1	B11	CB-1	96	ConcBm	No Message	DCon4	0.0284	0.0284	DCon7	0	0
Story1	B11	CB-1	120	ConcBm	No Message	DCon7	0	0	DCon7	0	0
Story1	B11	CB-1	144	ConcBm	No Message	DCon7	0	0	DCon7	0	0
Story1	B11	CB-1	168	ConcBm	No Message	DCon7	0	0	DCon7	0	0
Story1	B11	CB-1	192	ConcBm	No Message	DCon7	0	0	DCon7	0	0

**Table 5.13 - Concrete Beam Summary - ACI 318-14 (Part 2 of 2)**

Story	Label	Unique Name	Station in	V Combo	At Shear in <sup>2</sup> /ft	Torsion Long Combo	AI Torsion in <sup>2</sup>	Torsion Tran Combo	At Torsion in <sup>2</sup> /ft	Warnings	Errors
Story1	B11	CB-1	0	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	24	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	48	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	72	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	96	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	96	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	120	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	144	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	168	DCon7	0	DCon7	0	DCon7	0	No Message	No Message
Story1	B11	CB-1	192	DCon7	0	DCon7	0	DCon7	0	No Message	No Message

**Table 5.14 - Concrete Joint Summary - ACI 318-14 (Part 1 of 2)**

Story	Label	Unique Name	Design Section	Status	B/C Major Combo	B/C Major Ratio	B/C Minor Combo	B/C Minor Ratio
Story2	C10	2 I-8+ Conc	ConcCol	Joint check not done.				
Story1	C10	1 I-8+ Conc	ConcCol	Joint check not done.				

**Table 5.14 - Concrete Joint Summary - ACI 318-14 (Part 2 of 2)**

Story	Label	Unique Name	JS Major Combo	JS Major Ratio	JS Minor Combo	JS Minor Ratio	Warnings	Errors
Story2	C10	2 I-8+ Conc					No Message	No Message
Story1	C10	1 I-8+ Conc					No Message	No Message

## 5.3 Shear Wall Design

Table 5.15 - Shear Wall Preferences - ACI 318-14

Item	Value
Rebar Material	A615Gr60
Rebar Shear Material	A615Gr60
Importance Factor	1
System C <sub>s</sub>	5.5
Phi (Tension)	0.9
Phi (Compression)	0.65
Phi (Shear and Torsion)	0.75
Phi (Shear Seismic)	0.6
PMax factor	0.8
# Interaction Curves	24
# Interaction Points	11
Edge Design PT-Max	0.06
Edge Design PC-Max	0.04
Section Design IP-Max	0.04
Section Design IP-Min	0.0025
D/C Ratio Limit	0.95

Table 5.16 - Shear Wall Pier Summary - ACI 318-14 (Part 1 of 3)

Story	Pier Label	Station	Design Type	Edge Rebar	End Rebar	Rebar Spacing in	Required Reinf %	Current Reinf %	D/C Ratio	Pier Leg	Leg X1 in
Story2	P1	Top	Uniform	#5	#5	16			0.053	Top Leg 1	648
Story2	P1	Bottom	Uniform	#5	#5	16			0.083	Bottom Leg 1	648
Story1	P1	Top	Uniform	#5	#5	16			0.069	Top Leg 1	648
Story1	P1	Bottom	Uniform	#5	#5	16			0.098	Bottom Leg 1	648
Story2	P2	Top	Uniform	#5	#5	16			0.148	Top Leg 1	648
Story2	P2	Bottom	Uniform	#5	#5	16			0.277	Bottom Leg 1	648
Story1	P2	Top	Uniform	#5	#5	16			0.268	Top Leg 1	648
Story1	P2	Bottom	Uniform	#5	#5	16			0.549	Bottom Leg 1	648
Story2	P3	Top	Uniform	#5	#5	16			0.231	Top Leg 1	648
Story2	P3	Bottom	Uniform	#5	#5	16			0.194	Bottom Leg 1	648
Story1	P3	Top	Uniform	#5	#5	16			0.199	Top Leg 1	648
Story1	P3	Bottom	Uniform	#5	#5	16			0.216	Bottom Leg 1	648
Story2	P4	Top	Uniform	#3	#3	12	0.25	0.19		Top Leg 1	696
Story2	P4	Bottom	Uniform	#3	#3	12	0.25	0.19		Bottom Leg 1	696
Story1	P4	Top	Uniform	#3	#3	12	0.25	0.19		Top Leg 1	696
Story1	P4	Bottom	Uniform	#3	#3	12	0.25	0.19		Bottom Leg 1	696
Story2	P5	Top	Uniform	#5	#5	16			0.697	Top Leg 1	888
Story2	P5	Bottom	Uniform	#5	#5	16			0.193	Bottom Leg 1	888
Story1	P5	Top	Uniform	#5	#5	16			0.173	Top Leg 1	888
Story1	P5	Bottom	Uniform	#5	#5	16			0.434	Bottom Leg 1	888
Story2	P6	Top	Uniform	#5	#5	16			0.138	Top Leg 1	936
Story2	P6	Bottom	Uniform	#5	#5	16			0.081	Bottom Leg 1	936
Story1	P6	Top	Uniform	#5	#5	16			0.079	Top Leg 1	936
Story1	P6	Bottom	Uniform	#5	#5	16			0.081	Bottom Leg 1	936



**Table 5.16 - Shear Wall Pier Summary - ACI 318-14 (Part 2 of 3)**

Story	Pier Label	Station	Leg Y1 in	Leg X2 in	Leg Y2 in	Shear Rebar in <sup>2</sup> /ft	Compressive Stress Left lb/in <sup>2</sup>	Compressive Stress Right lb/in <sup>2</sup>	Compressive Stress Limit Left lb/in <sup>2</sup>	Compressive Stress Limit Right lb/in <sup>2</sup>
Story2	P1	Top	48	648	384	0.3	44.39	56.89	800	800
Story2	P1	Bottom	48	648	384	0.3	89.47	83.51	800	800
Story1	P1	Top	48	648	384	0.3	92.31	83.49	800	800
Story1	P1	Bottom	48	648	384	0.3	132.87	113.56	800	800
Story2	P2	Top	48	696	48	0.3	144.88	135.43	800	800
Story2	P2	Bottom	48	696	48	0.3	193.63	235.75	800	800
Story1	P2	Top	48	696	48	0.3	148.82	186.28	800	800
Story1	P2	Bottom	48	696	48	0.3	335.75	341.28	800	800
Story2	P3	Top	384	936	384	0.36	67.99	76.88	800	800
Story2	P3	Bottom	384	936	384	0.36	85.99	114.49	800	800
Story1	P3	Top	384	936	384	0.36	89.18	123.11	800	800
Story1	P3	Bottom	384	936	384	0.36	119.42	159.72	800	800
Story2	P4	Top	213	888	213	0.3	3.8	3.8	800	800
Story2	P4	Bottom	213	888	213	0.3	84.02	121.11	800	800
Story1	P4	Top	213	888	213	0.3	90.96	128.05	800	800
Story1	P4	Bottom	213	888	213	0.3	173.01	225.48	800	800
Story2	P5	Top	48	936	48	0.3	17.74	344.88	800	800
Story2	P5	Bottom	48	936	48	0.3	179.86	150.54	800	800
Story1	P5	Top	48	936	48	0.3	124.07	157.5	800	800
Story1	P5	Bottom	48	936	48	0.3	353.9	315.43	800	800
Story2	P6	Top	48	936	384	0.3	118.5	143.88	800	800
Story2	P6	Bottom	48	936	384	0.3	144.55	147.85	800	800
Story1	P6	Top	48	936	384	0.3	141	144.47	800	800
Story1	P6	Bottom	48	936	384	0.3	168.83	175.42	800	800

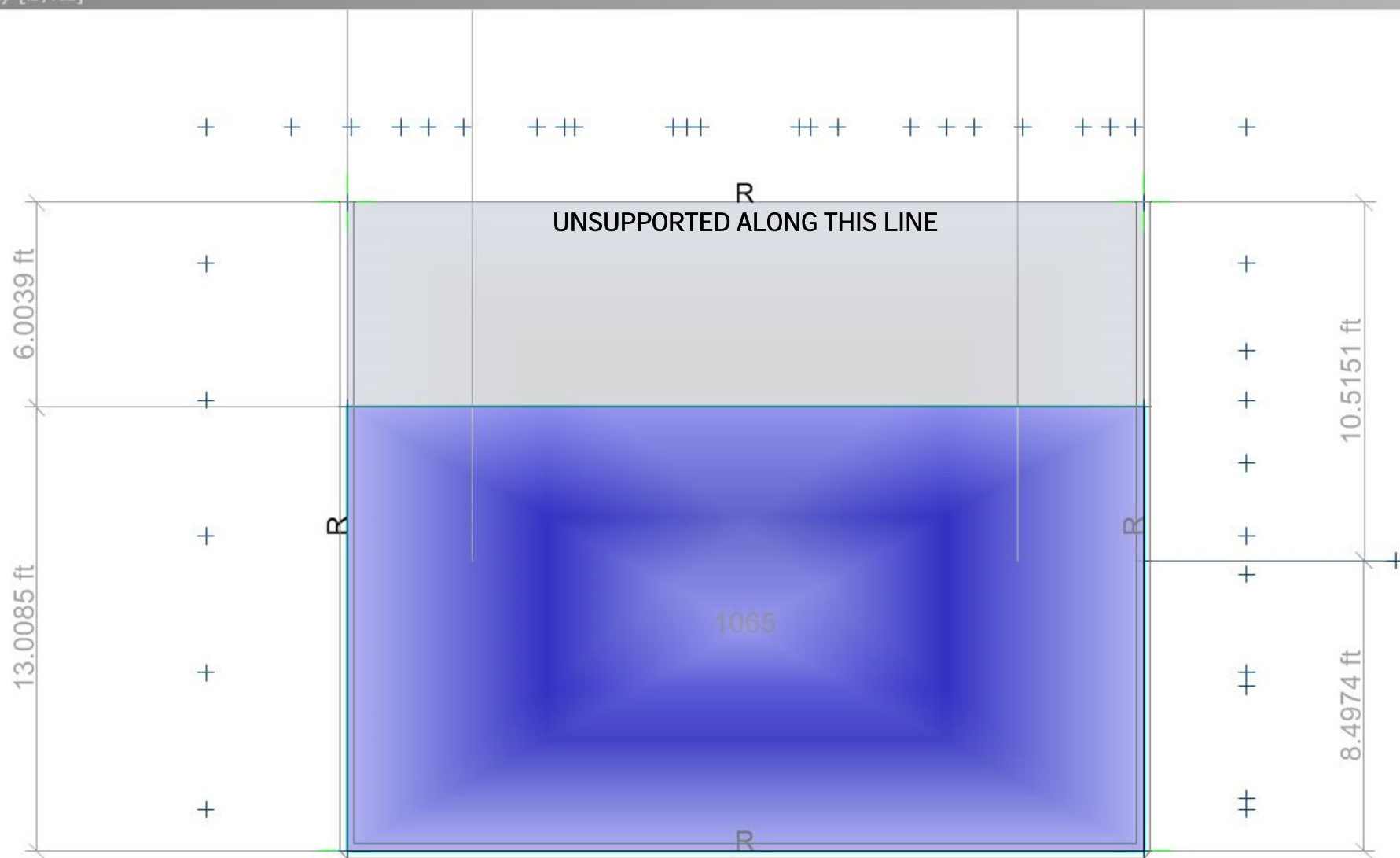
**Table 5.16 - Shear Wall Pier Summary - ACI 318-14 (Part 3 of 3)**

Story	Pier Label	Station	C Limit Left in	C Depth Right in	C Limit Right in	Boundary Zone Left in	Boundary Zone Right in	Warnings	Errors
Story2	P1	Top						No Message	No Message
Story2	P1	Bottom						No Message	No Message
Story1	P1	Top						No Message	No Message
Story1	P1	Bottom						No Message	No Message
Story2	P2	Top						No Message	No Message
Story2	P2	Bottom						No Message	No Message
Story1	P2	Top						No Message	No Message
Story1	P2	Bottom						No Message	No Message
Story2	P3	Top						No Message	No Message
Story2	P3	Bottom						No Message	No Message
Story1	P3	Top						No Message	No Message
Story1	P3	Bottom						No Message	No Message
Story2	P4	Top						No Message	No Message
Story2	P4	Bottom						No Message	No Message

Table 5.16 - Shear Wall Pier Summary - ACI 318-14 (Part 3 of 3, continued)

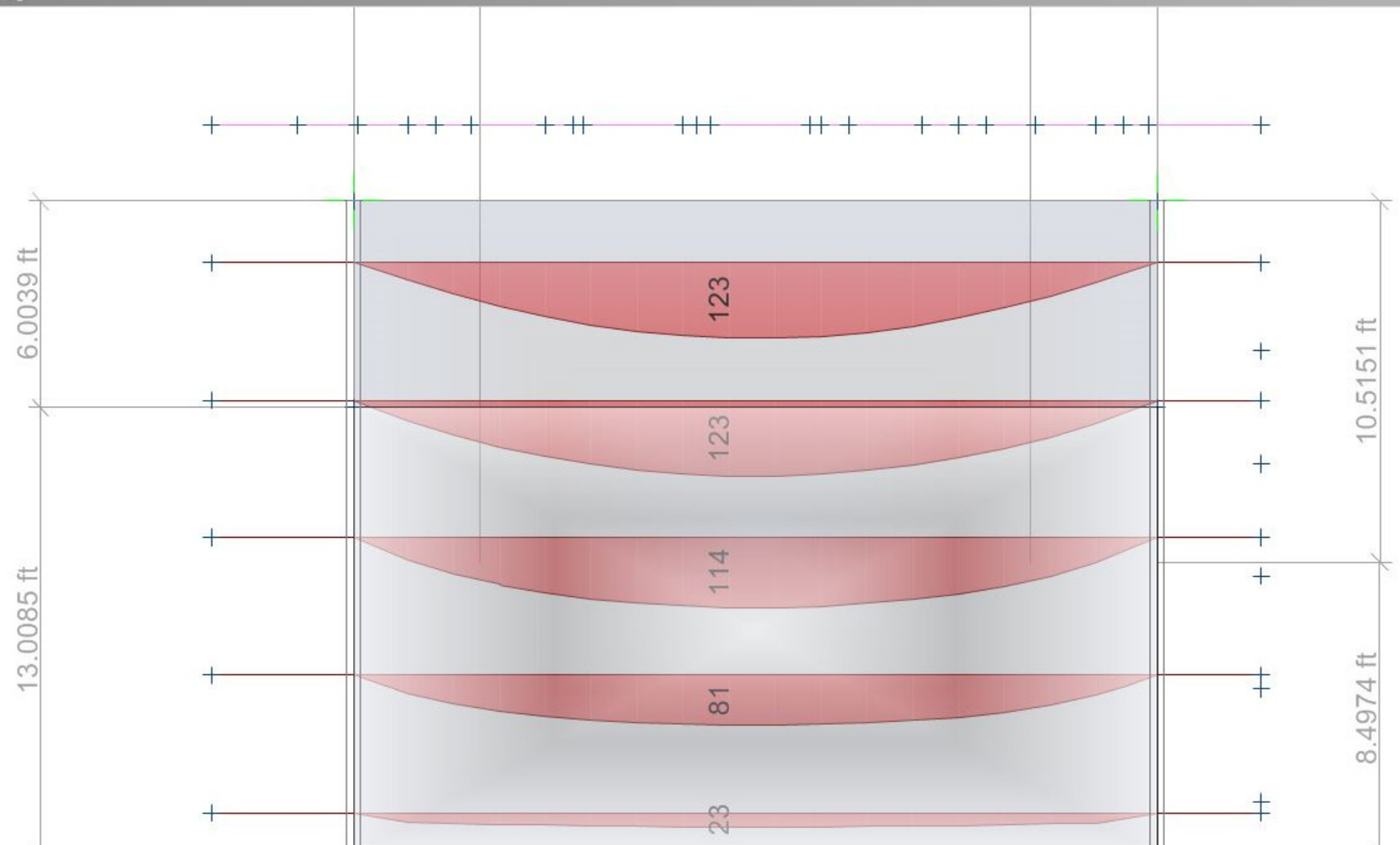
Story	Pier Label	Station	C Limit Left in	C Depth Right in	C Limit Right in	Boundary Zone Left in	Boundary Zone Right in	Warnings	Errors
Story1	P4	Top						No Message	No Message
Story1	P4	Bottom						No Message	No Message
Story2	P5	Top						No Message	No Message
Story2	P5	Bottom						No Message	No Message
Story1	P5	Top						No Message	No Message
Story1	P5	Bottom						No Message	No Message
Story2	P6	Top						No Message	No Message
Story2	P6	Bottom						No Message	No Message
Story1	P6	Top						No Message	No Message
Story1	P6	Bottom						No Message	No Message

**APPENDIX A**  
12" Concrete Wall Design



**Blackwell**

Seal	Title FOUNDATION WALL GRIDE E SAMPLE CALCULATIONS  OUTPUT FROM "SAFE" SOFTWARE UNIFORM DESIGN LOAD	Project #	Date
		170950	2018-07-06
		Designer	Scale
		KZ	N.T.S.
		Checked by	Sheet #
		TJ	

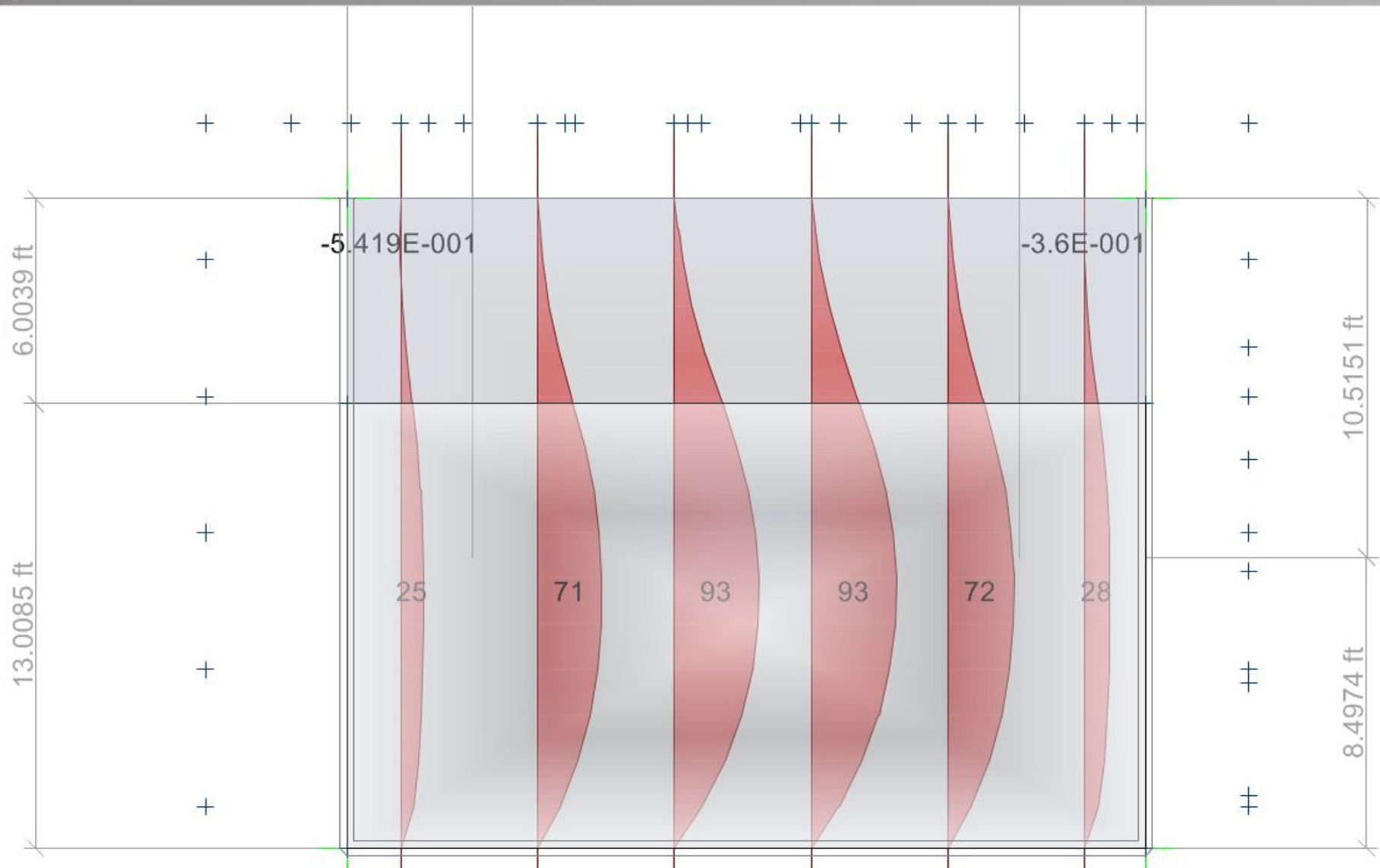


Blackwell

Seal	Title FOUNDATION WALL GRIDE E SAMPLE CALCULATIONS	Project # 170950	Date 2018-07-06
	OUTPUT FROM "SAFE" SOFTWARE APPLIED MOMENTS - HORIZONTAL	Designer KZ	Scale N.T.S.
		Checked by TJ	Sheet #



Water) [kip-ft]

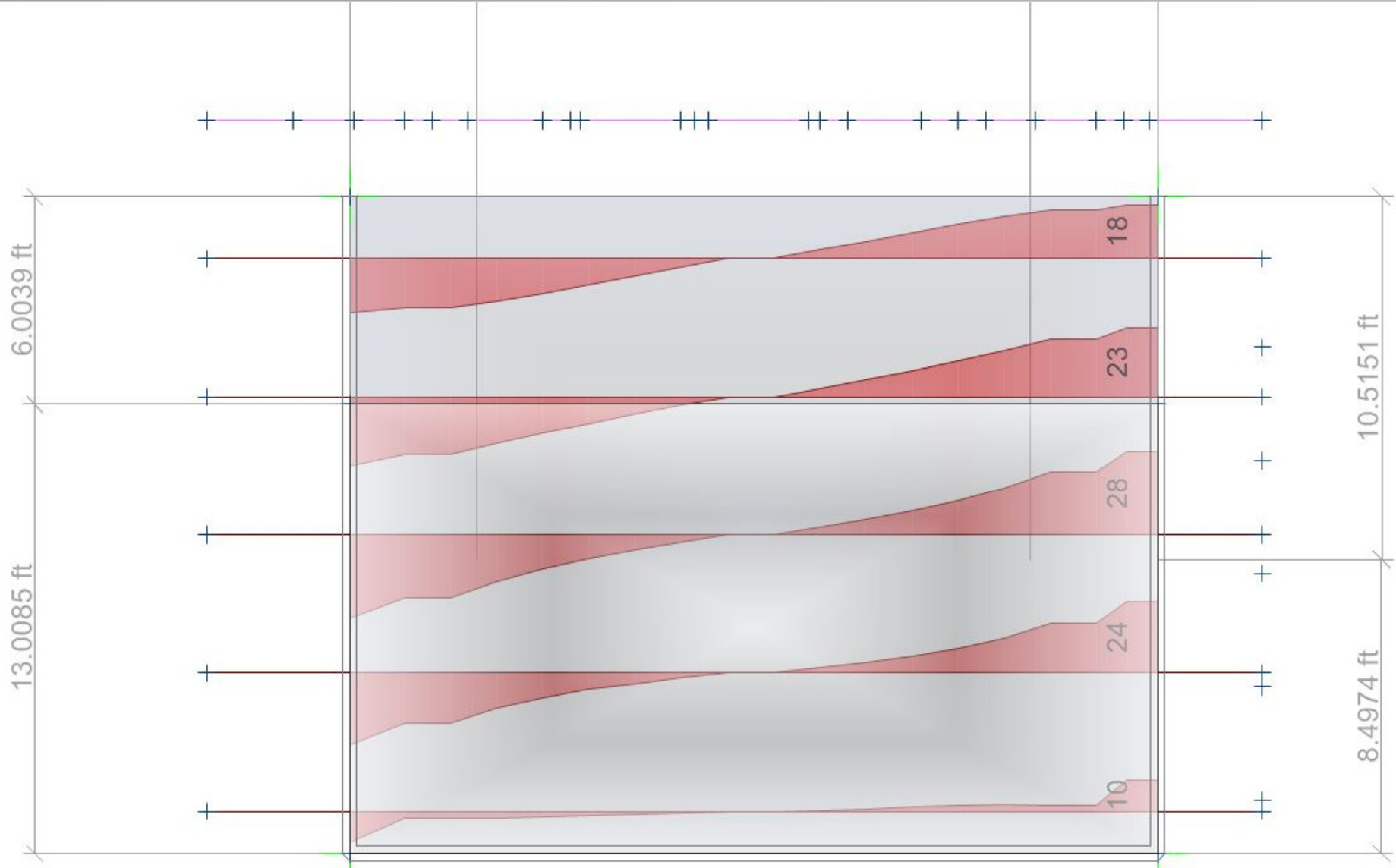


**Blackwell**

Seal	Title FOUNDATION WALL GRIDE E SAMPLE CALCULATIONS		Project # 170950	Date 2018-07-06
	OUTPUT FROM "SAFE" SOFTWARE APPLIED MOMENTS - VERTICAL		Designer KZ	Scale N.T.S.
			Checked by TJ	Sheet # Page 182 of 323

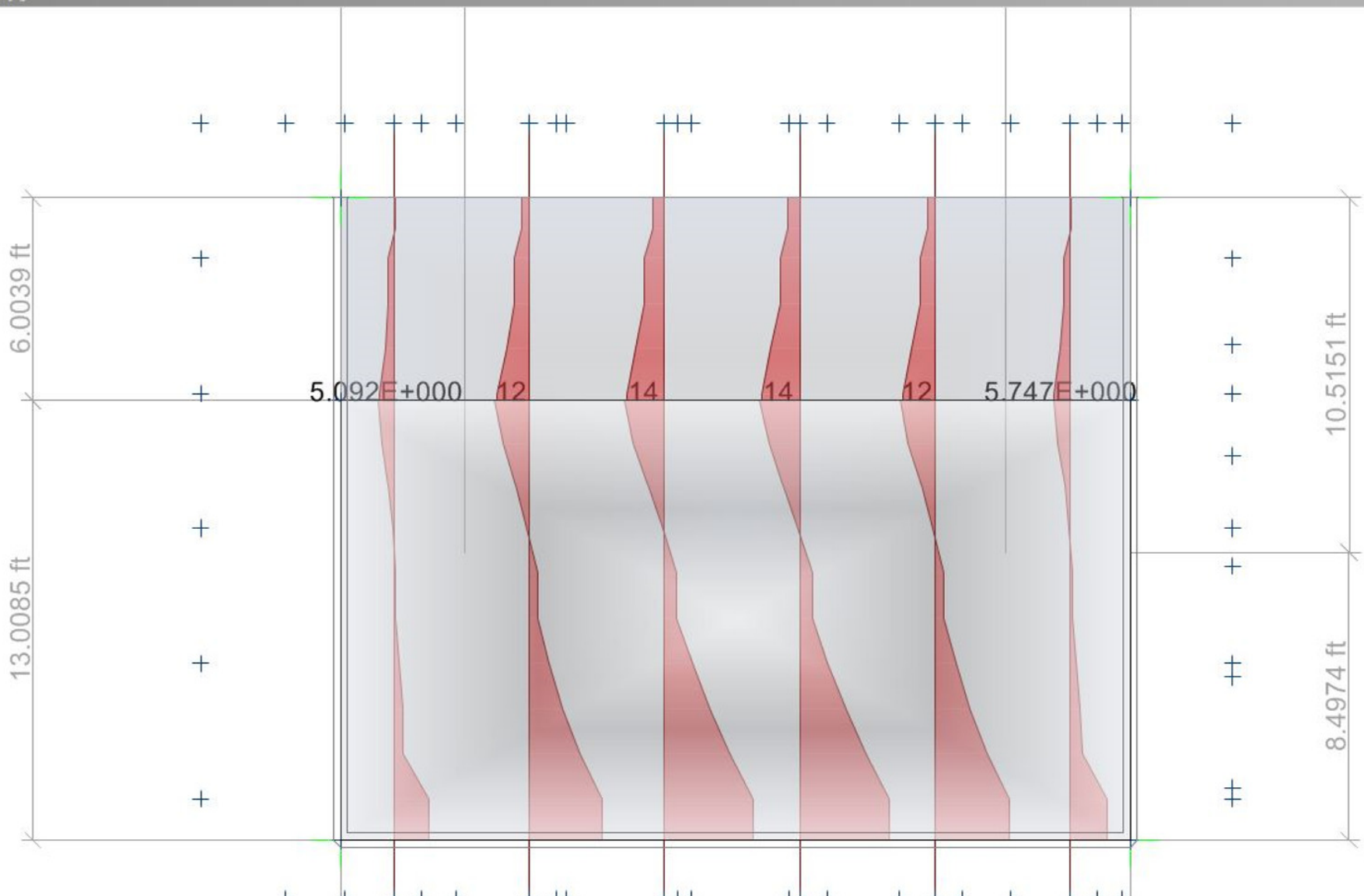


Water) [kip]



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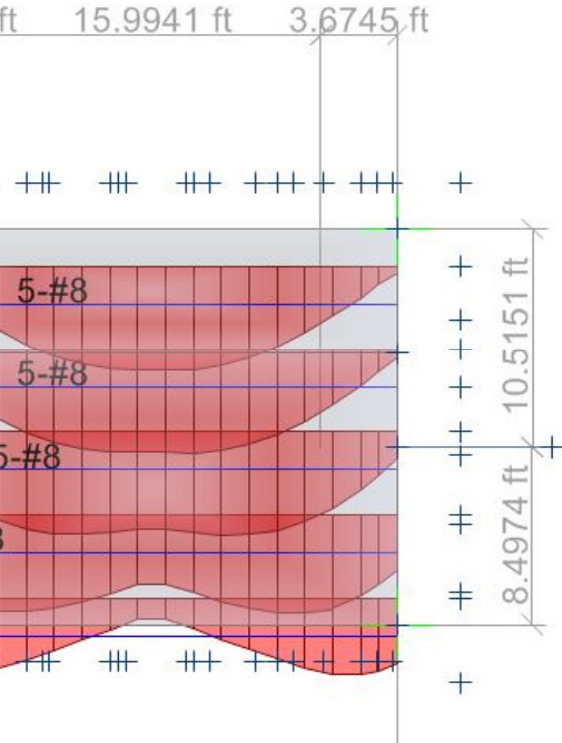
Seal	Title FOUNDATION WALL GRIDE E SAMPLE CALCULATIONS  OUTPUT FROM "SAFE" SOFTWARE APPLIED SHEAR - HORIZONTAL	Project #	Date
		170950	2018-07-06
		Designer	Scale
		KZ	N.T.S.
		Checked by	Sheet #
		TJ	Page 183 of 323



Blackwell

Seal	Title	Project #	Date
	FOUNDATION WALL GRIDE E SAMPLE CALCULATIONS	170950	2018-07-06
	OUTPUT FROM "SAFE" SOFTWARE APPLIED SHEAR - VERTICAL	Designer KZ	Scale N.T.S.
		Checked by TJ	Sheet # Page 184 of 323





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**Design Details**

File View

Combination  
 Overall Envelope

Show Spans  
 From span: Span 1  
 to span: Span 6

Items to Display

- Geometric Properties
- Material Properties
- Elevation Figure
- Moment Diagram
- Longitudinal Rebar
- Shear Diagram
- Transverse Rebar
- Stress Diagram

Done

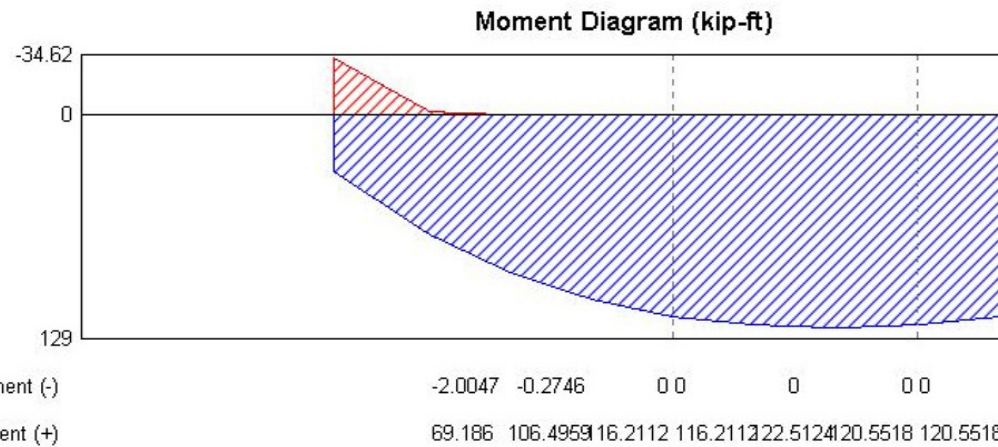
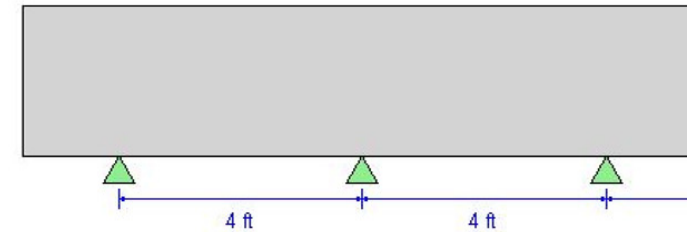
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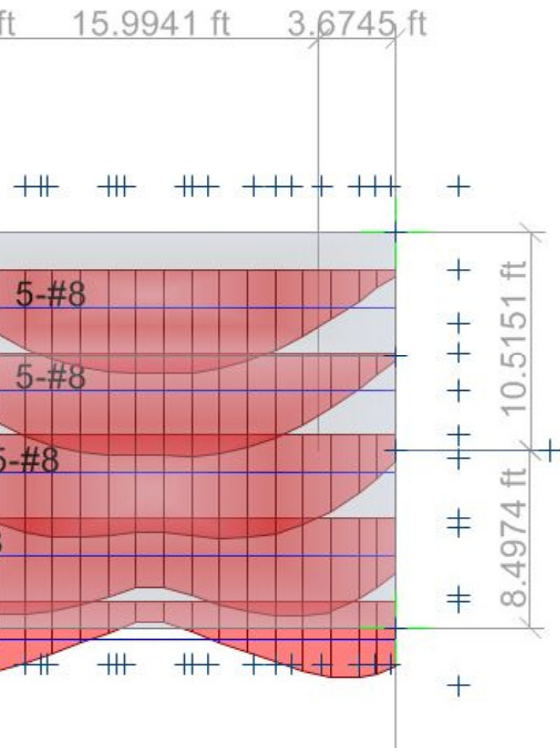
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 Distance to Bot Rebar Center = 3.4872 in

### Material Properties

Concrete Comp. Strength = 3.626 kip/in<sup>2</sup>  
 Concrete Modulus = 3617.676 kip/in<sup>2</sup>  
 Longitudinal Rebar Yield = 60 kip/in<sup>2</sup>





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Items to Display

- Geometric Properties
- Material Properties
- Elevation Figure
- Moment Diagram
- Longitudinal Rebar
- Shear Diagram
- Transverse Rebar
- Stress Diagram

Done

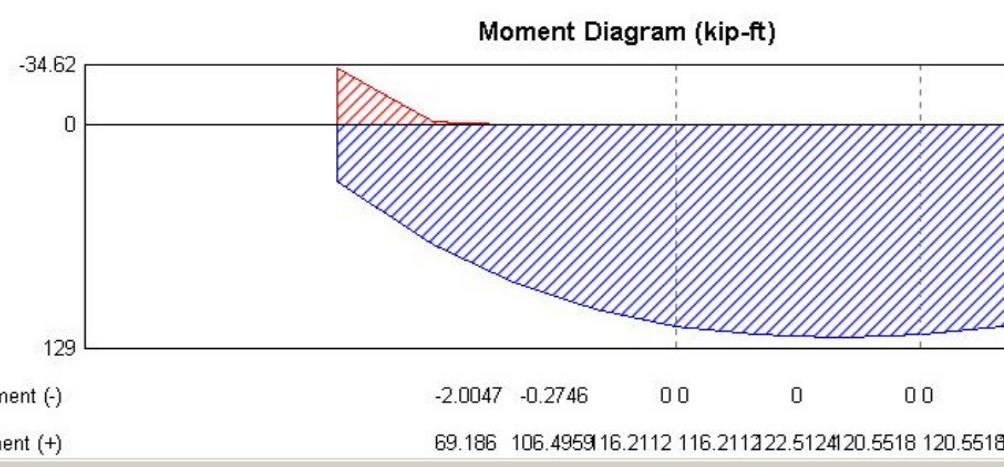
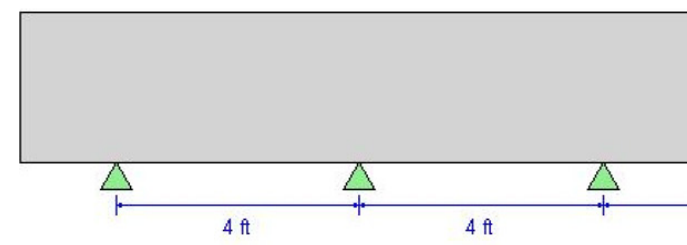
## ACI 318-14 Concrete Strip Design

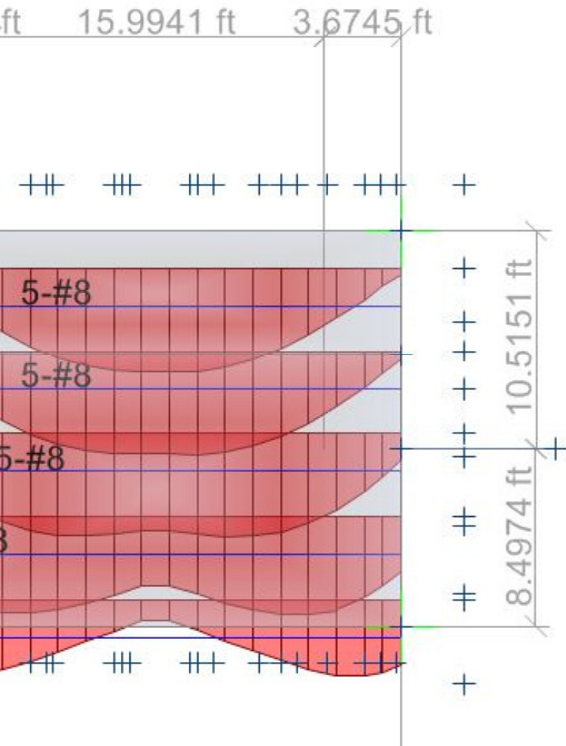
### Geometric Properties

Combination = Overall Envelope  
 Strip Label = SA9  
 Length = 30.5118 ft  
 Distance to Top Rebar Center = 3.0935 in  
 Distance to Bot Rebar Center = 3.4872 in

### Material Properties

Concrete Comp. Strength = 3.626 kip/in<sup>2</sup>  
 Concrete Modulus = 3617.676 kip/in<sup>2</sup>  
 Longitudinal Rebar Yield = 60 kip/in<sup>2</sup>





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Show Spans

From span: Span 1

to span: Span 6

Items to Display

- Geometric Properties
- Material Properties
- Elevation Figure
- Moment Diagram
- Longitudinal Rebar
- Shear Diagram
- Transverse Rebar
- Stress Diagram

**ACI 318-14 Concrete Strip Design**

**Geometric Properties**

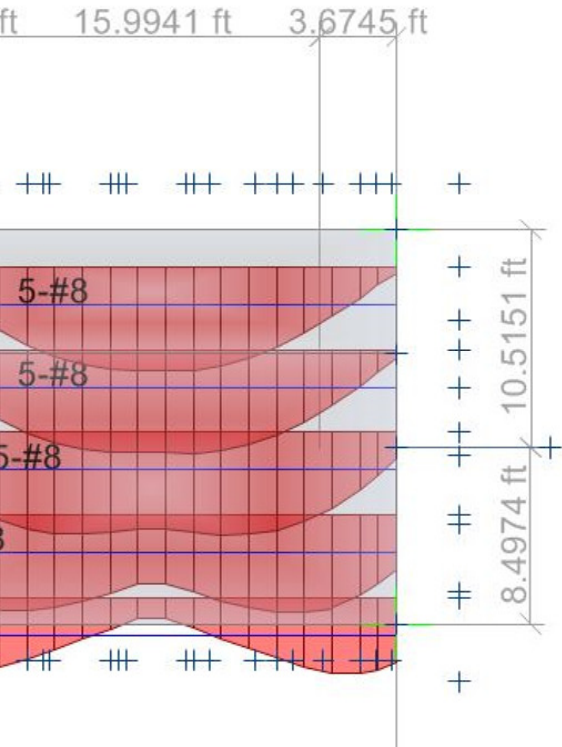
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Strip Label = SA9  
Length = 30.5118 ft  
Distance to Top Rebar Center = 3.0935 in  
Distance to Bot Rebar Center = 3.4872 in

**Material Properties**

Concrete Comp. Strength = 3.626 kip/in<sup>2</sup>  
Concrete Modulus = 3617.676 kip/in<sup>2</sup>  
Longitudinal Rebar Yield = 60 kip/in<sup>2</sup>

Moment (-)	Moment (+)
-34.62	69.186
0	106.4959
129	16.2112
	116.2112
	22.5124
	20.5518
	120.5518

Done



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Items to Display

- Geometric Properties
- Material Properties
- Elevation Figure
- Moment Diagram
- Longitudinal Rebar
- Shear Diagram
- Transverse Rebar
- Stress Diagram

Done

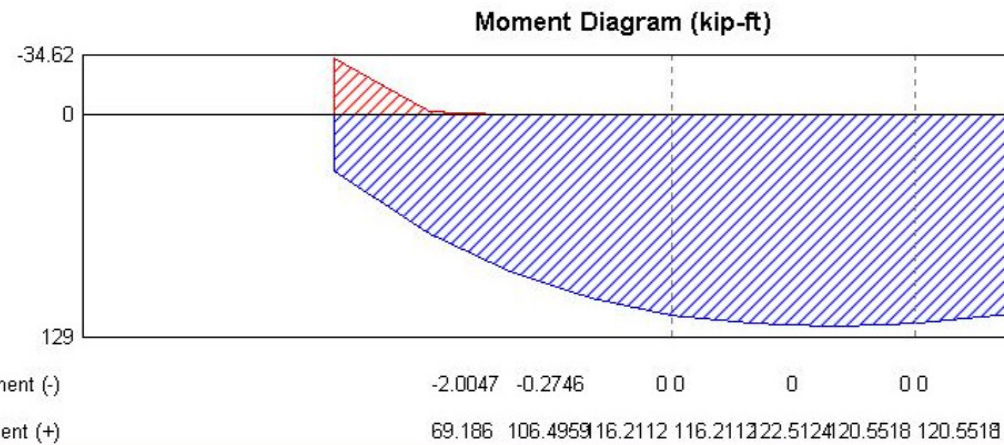
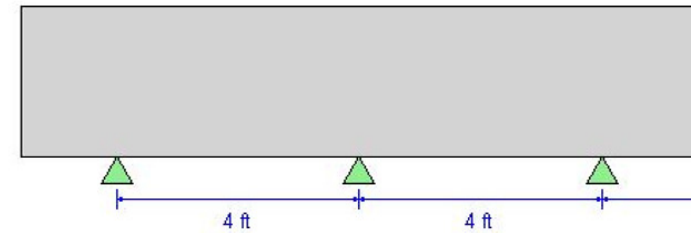
## ACI 318-14 Concrete Strip Design

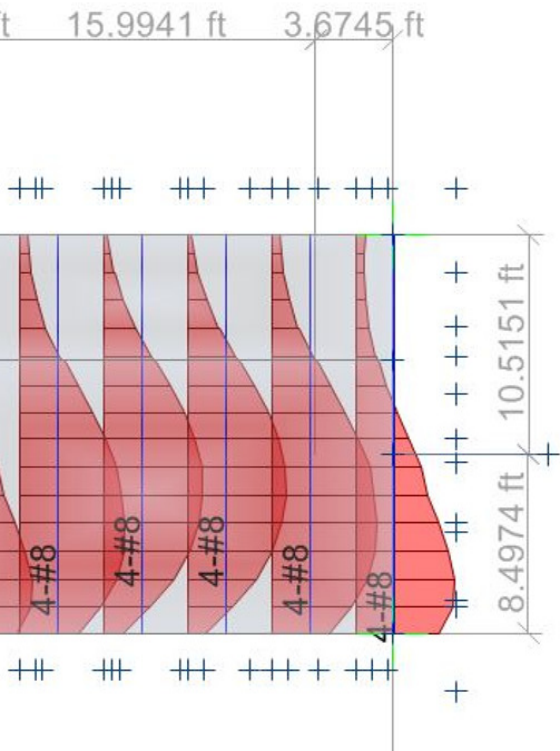
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Strip Label = SA9  
Length = 30.5118 ft  
Distance to Top Rebar Center = 3.0935 in  
Distance to Bot Rebar Center = 3.4872 in

### Material Properties

Concrete Comp. Strength = 3.626 kip/in<sup>2</sup>  
Concrete Modulus = 3617.676 kip/in<sup>2</sup>  
Longitudinal Rebar Yield = 60 kip/in<sup>2</sup>





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Show Spans  
 From span: Span 1  
 to span: Span 5

Items to Display

- Geometric Properties
- Material Properties
- Elevation Figure
- Moment Diagram
- Longitudinal Rebar
- Shear Diagram
- Transverse Rebar
- Stress Diagram

Done

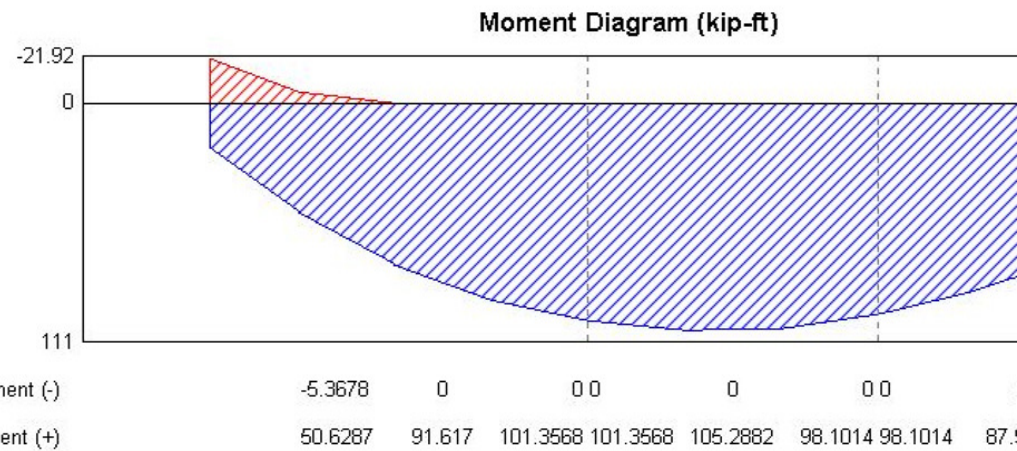
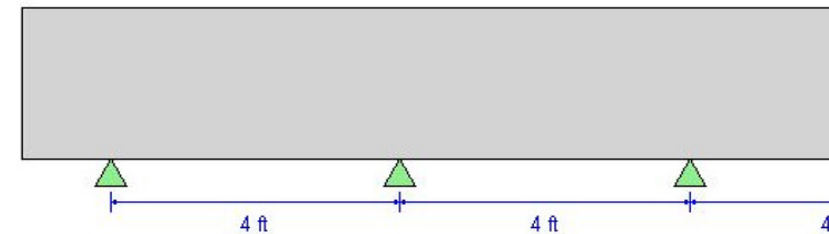
## ACI 318-14 Concrete Strip Design

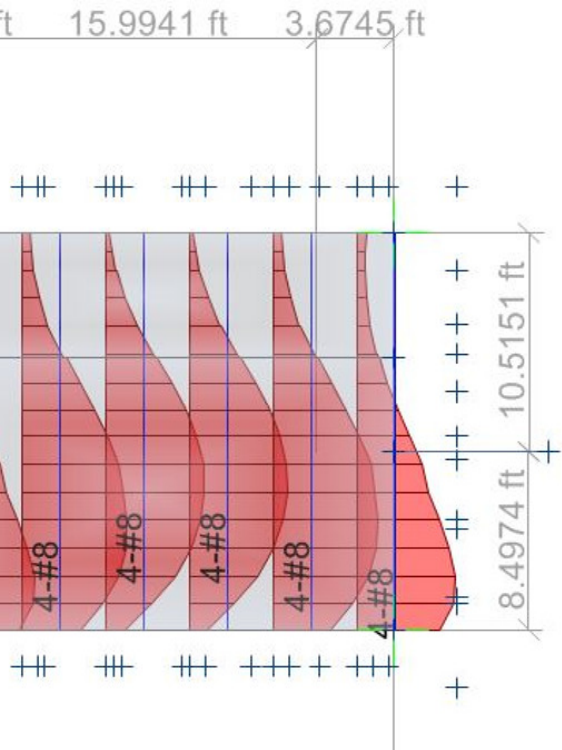
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### Material Properties

Concrete Comp. Strength = 3.626 kip/in<sup>2</sup>  
 Concrete Modulus = 3617.676 kip/in<sup>2</sup>  
 Longitudinal Rebar Yield = 60 kip/in<sup>2</sup>





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 From span: Span 1  
 to span: Span 5

Items to Display

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- Longitudinal Rebar
- Shear Diagram
- Transverse Rebar
- Stress Diagram

Done

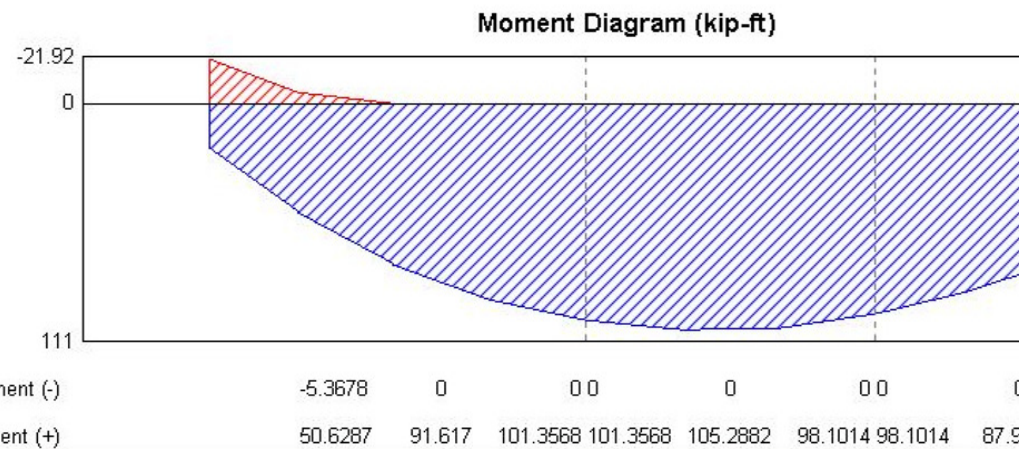
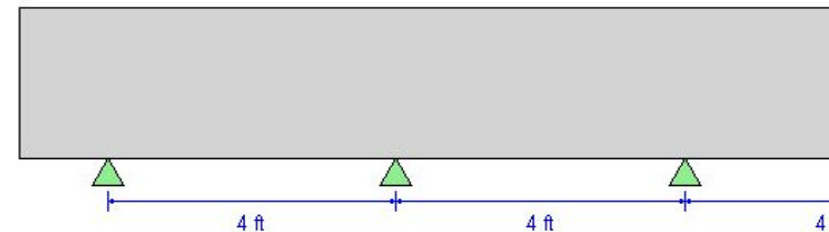
## ACI 318-14 Concrete Strip Design

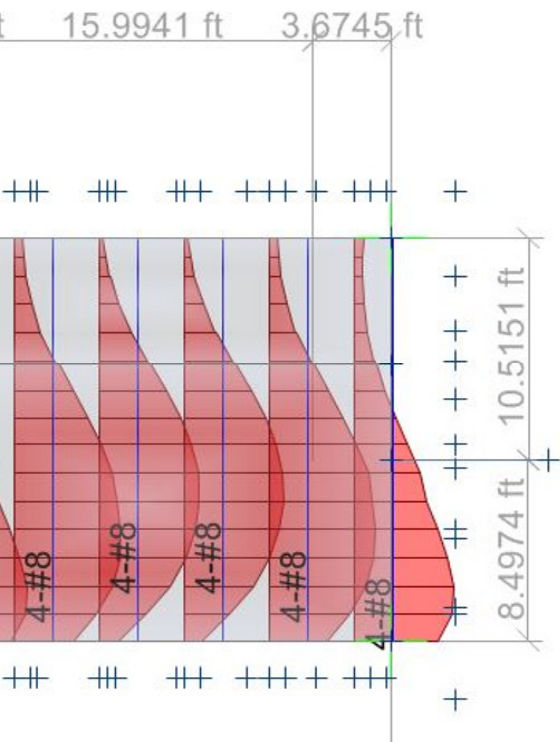
### Geometric Properties

Combination = Overall Envelope  
 Strip Label = SB3  
 Length = 22.9659 ft  
 Distance to Top Rebar Center = 2.3435 in  
 Distance to Bot Rebar Center = 2.7372 in

### Material Properties

Concrete Comp. Strength = 3.626 kip/in<sup>2</sup>  
 Concrete Modulus = 3617.676 kip/in<sup>2</sup>  
 Longitudinal Rebar Yield = 60 kip/in<sup>2</sup>





**Design Details**

File View

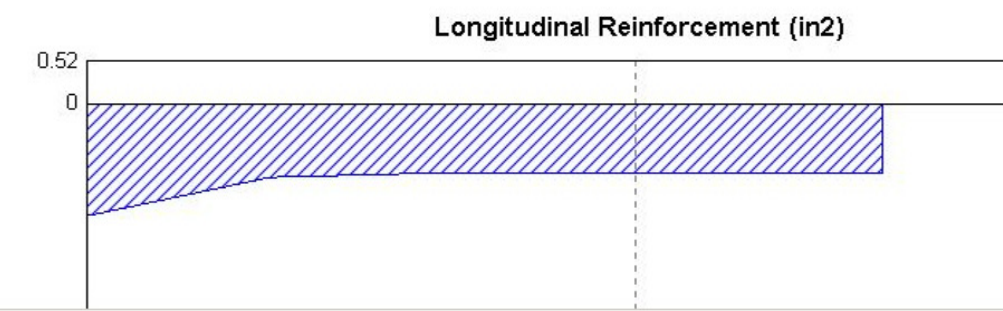
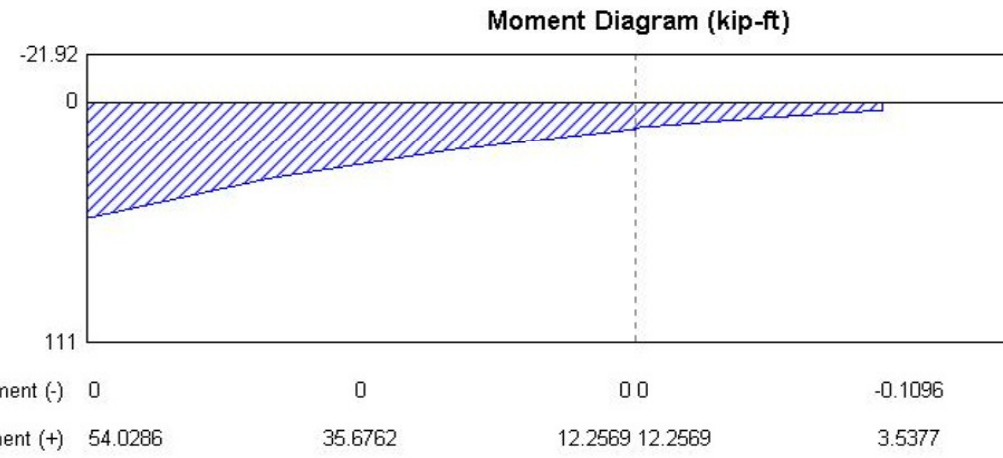
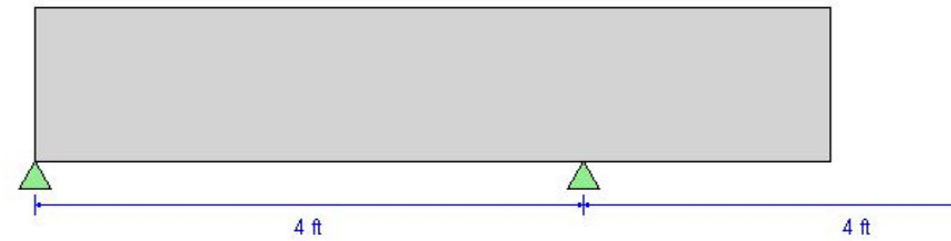
Combination  
Overall Envelope

Show Spans  
From span: Span 1  
to span: Span 5

Items to Display

- Geometric Properties
- Material Properties
- Elevation Figure
- Moment Diagram
- Longitudinal Rebar
- Shear Diagram
- Transverse Rebar
- Stress Diagram

Done

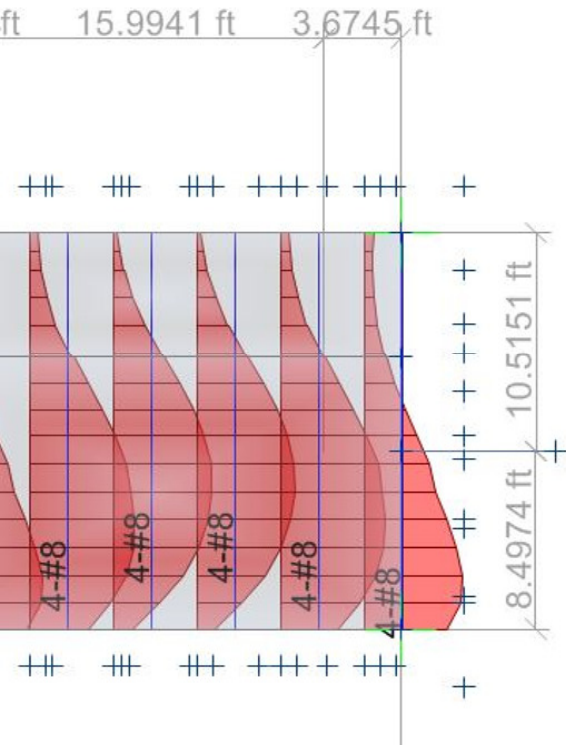


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**Design Details**

File View

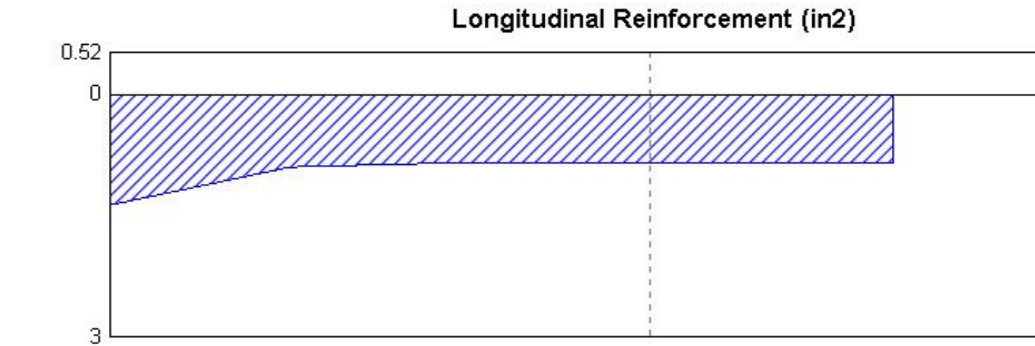
Combination  
Overall Envelope

Show Spans  
From span: Span 1  
to span: Span 5

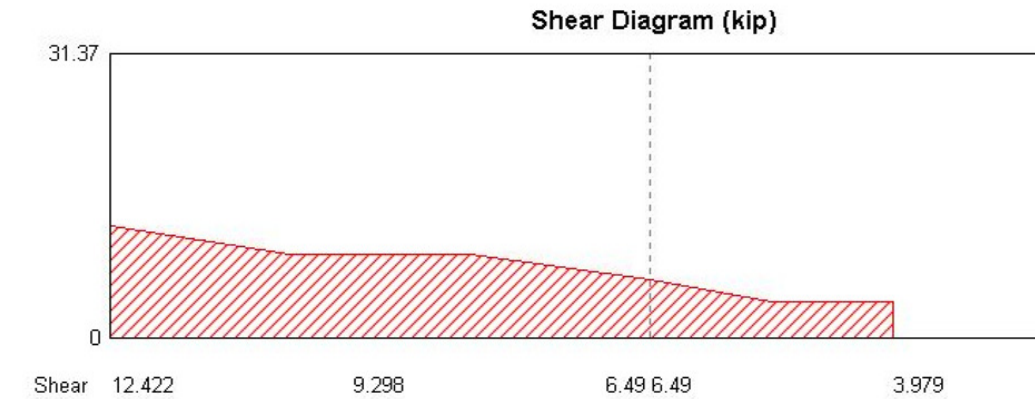
Items to Display

- Geometric Properties
- Material Properties
- Elevation Figure
- Moment Diagram
- Longitudinal Rebar
- Shear Diagram
- Transverse Rebar
- Stress Diagram

Done



As (top)	0	0	0.0	0.0	0
Combo					Earth+Water
As (bot)	1.3747	0.8956	0.3043	0.3043	0.0896
Combo	Earth+Water	Earth+Water	Earth+Water	Earth+Water	Earth+Water



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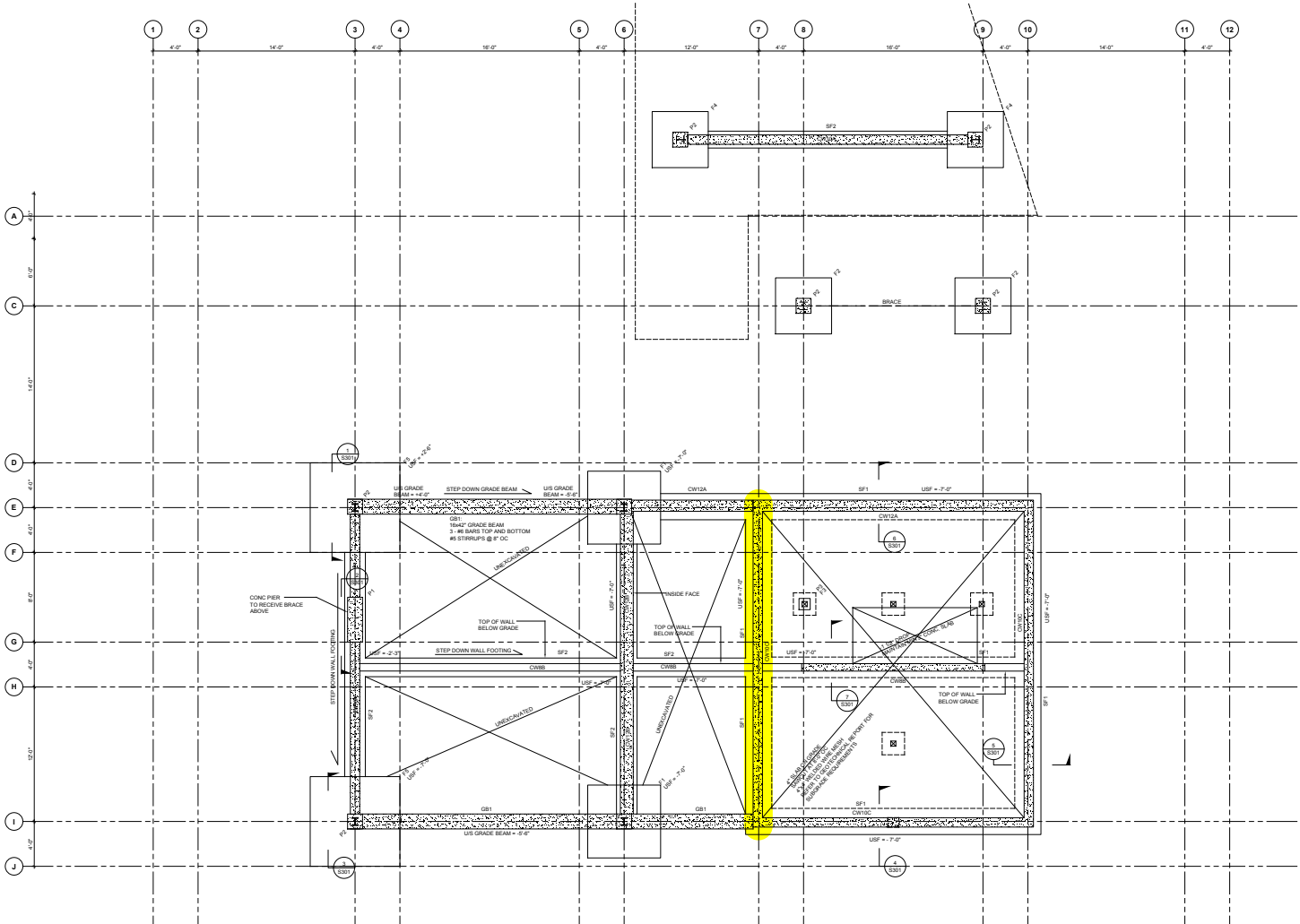
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**APPENDIX B**  
10" Concrete Wall Design

Seal	<b>Title</b> LOT 14 SAMPLE SHEAR WALL CALCULATION  GRID 8	<b>Project #</b> 170950	<b>Date</b> 2018-07-06
		<b>Designer</b> KZ	<b>Scale</b> N.T.S.
		<b>Checked by</b> TJ	<b>Sheet #</b>

Toronto 416.593.5300 | Waterloo 519.616.0895 | Victoria 778.817.1010 | Halifax 902.593.0125 | blackwell.ca



**S-CONCRETE 11.1.7**

(c) S-FRAME Software Inc.

**File Name:** C:\Jobs\170950\_Tim\S-Concrete\P1\_ACI.SCO**Summary**

Status Acceptable

**Section Name** **Consultant**

Concrete Section

Blackwell

Maximum 1.000

V (shear) Util 0.284

N vs M Util 0.479

**American Building Standards**

ACI 318-11, "Building Code Requirements for Structural Concrete"

ACI 318-11, "Commentary for ACI 318-11"

**Design Aids, Manuals, and Handbooks**

The Reinforced Concrete Design Manual in Accordance with ACI 318-11

"ACI Detailing Manual - 1994", ACI Committee 315, American Concrete Institute, 1994

"Manual of Standard Practice", Concrete Reinforcing Steel Institute, 2003

**Section Dimensions**

I-Shape

L1 = 336.0 in

T1 = 10.0 in

**Material Properties**

fc' = 4000 psi

fy (panel vert) = 60.0 ksi

fy (panel horz) = 60.0 ksi

fy (zone vert) = 60.0 ksi

fy (zone horz) = 60.0 ksi

Wc = 150 pcf

Ws = 500 pcf

Poisson's Ratio = 0.2

hagg = 0.75 in

Es = 29000 ksi

Ec = 3834 ksi

Gc = 1598 ksi

fr = 474 psi

**Gross Properties**

Zbar = 0.0 in

Ybar = 0.0 in

Ag = 3360.0 sq.in.

I<sub>g</sub> (y-y) = 31611xE3 in<sup>4</sup>I<sub>g</sub> (z-z) = 28000 in<sup>4</sup>

Ashear (Y) = 2800.0 sq.in.

Ashear (Z) = 2800.0 sq.in.

J<sub>g</sub> = 109899 in<sup>4</sup>**Effective Properties**

Ae = 3360.0 sq.in.

I<sub>e</sub> (y-y) = 31611xE3 in<sup>4</sup>I<sub>e</sub> (z-z) = 28000 in<sup>4</sup>

Ase (Y) = 2800.0 sq.in.

Ase (Z) = 2800.0 sq.in.

Je = 109899 in<sup>4</sup>**Quantities (approx.)**

Concrete = 3493 lb/ft

Steel = 53.5 lb/ft

Primary = 23.7 lb/ft

Secondary = 29.8 lb/ft

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**Panel 1**

22-15M @ 16.0" Vert

15M @ 12.0" Horz

**Factored Design Loads**

Load	N	T	Vz	My	Vy	Mz	Mres	Theta
Case/Combo	(kips)	(k*ft)	(kips)	(k*ft)	(kips)	(k*ft)	(k*ft)	
1 (W)	65.7	10.5	-92.6	554.8	0.7	5.4	554.8	179°
2 (W)	84.8	4.7	-92.5	979.4	0.5	0.5	979.4	180°
3 (W)	47.1	7.2	-96.9	524.0	0.2	2.1	524.0	180°
4 (W)	53.2	1.9	-96.9	1024.1	0.2	0.2	1024.1	180°

5 (W)	-104.9	-1.2	-6.6	-92.4	-0.1	-0.6	92.4	360°
6 (W)	-134.9	-0.4	-6.6	-87.3	0.2	0.0	87.3	0°
7 (W)	-88.5	-1.0	-3.7	-45.7	-0.1	-0.2	45.7	360°
8 (W)	-118.9	-0.1	-3.7	-44.0	0.2	0.0	44.0	0°
9 (W)	-18.7	-0.3	-1.0	-3.5	0.0	-0.1	3.5	359°
10 (W)	-18.3	-0.1	-1.0	-2.5	0.0	0.0	2.5	0°
11 (W)	-54.4	-0.6	-9.7	-155.8	0.1	-1.3	155.8	360°
12 (W)	-53.2	-1.2	-9.8	-144.4	0.2	0.0	144.4	360°
13 (W)	62.9	5.2	21.8	-376.6	-0.1	-2.0	376.6	360°
14 (W)	82.9	-4.6	21.5	-543.1	0.2	-0.5	543.1	360°
15 (W)	19.8	-8.7	-116.9	535.0	0.0	0.8	535.0	180°
16 (W)	18.2	-0.6	-116.7	1132.6	-0.2	0.1	1132.6	180°
17 (W)	-88.6	-1.0	-3.5	-46.6	-0.1	-0.2	46.6	360°
18 (W)	-118.9	-0.1	-3.5	-45.8	0.2	0.0	45.8	0°
19 (W)	-88.6	-1.0	-3.5	-46.6	-0.1	-0.2	46.6	360°
20 (W)	-118.9	-0.1	-3.5	-45.8	0.2	0.0	45.8	0°
21 (W)	-107.3	-1.3	-4.6	-50.1	-0.1	-0.3	50.1	360°
22 (W)	-137.2	-0.1	-4.5	-47.9	0.2	0.0	47.9	0°
23 (W)	-107.3	-1.3	-4.6	-50.1	-0.1	-0.3	50.1	360°
24 (W)	-137.2	-0.1	-4.5	-47.9	0.2	0.0	47.9	0°
25 (W)	-212.0	-2.1	-18.8	-320.6	0.0	-2.5	320.6	360°
26 (W)	-245.6	-2.1	-18.9	-310.1	0.5	0.0	310.1	0°
27 (W)	-212.0	-2.1	-18.8	-320.6	0.0	-2.5	320.6	360°
28 (W)	-245.6	-2.1	-18.9	-310.1	0.5	0.0	310.1	0°
29 (W)	-11.0	2.5	-8.3	-283.0	-0.2	-2.0	283.0	360°
30 (W)	-18.6	-4.8	-8.6	-305.9	0.3	-0.5	305.9	360°
31 (W)	-11.0	2.5	-8.3	-283.0	-0.2	-2.0	283.0	360°
32 (W)	-18.6	-4.8	-8.6	-305.9	0.3	-0.5	305.9	360°
33 (W)	-23.4	9.0	74.6	-643.5	-0.2	-2.7	643.5	360°
34 (W)	-29.8	-4.4	74.2	-1082.2	0.5	-0.5	1082.2	360°
35 (W)	-23.4	9.0	74.6	-643.5	-0.2	-2.7	643.5	360°
36 (W)	-29.8	-4.4	74.2	-1082.2	0.5	-0.5	1082.2	360°
37 (W)	-40.4	-9.7	-130.5	432.5	-0.1	0.2	432.5	180°
38 (W)	-63.6	-2.2	-130.3	1056.8	0.0	0.0	1056.8	180°
39 (W)	-40.4	-9.7	-130.5	432.5	-0.1	0.2	432.5	180°
40 (W)	-63.6	-2.2	-130.3	1056.8	0.0	0.0	1056.8	180°
41 (W)	-77.9	-13.7	-152.2	685.2	-0.1	1.4	685.2	180°
42 (W)	-113.3	0.5	-151.8	1448.2	-0.2	0.3	1448.2	180°
43 (W)	-77.9	-13.7	-152.2	685.2	-0.1	1.4	685.2	180°
44 (W)	-113.3	0.5	-151.8	1448.2	-0.2	0.3	1448.2	180°
45 (W)	-77.7	1.7	-12.6	-338.4	-0.2	-2.5	338.4	360°
46 (W)	-97.3	-5.1	-12.8	-358.6	0.5	-0.5	358.6	360°
47 (W)	-77.7	1.7	-12.6	-338.4	-0.2	-2.5	338.4	360°
48 (W)	-97.3	-5.1	-12.8	-358.6	0.5	-0.5	358.6	360°
49 (W)	-90.1	8.2	70.5	-699.6	-0.2	-3.1	699.6	360°
50 (W)	-108.5	-4.7	70.1	-1136.2	0.6	-0.5	1136.2	360°
51 (W)	-90.1	8.2	70.5	-699.6	-0.2	-3.1	699.6	360°
52 (W)	-108.5	-4.7	70.1	-1136.2	0.6	-0.5	1136.2	360°
53 (W)	-107.1	-10.5	-134.8	378.1	-0.2	-0.3	378.1	180°
54 (W)	-142.3	-2.5	-134.6	1005.6	0.1	0.0	1005.6	180°

55 (W)	-107.1	-10.5	-134.8	378.1	-0.2	-0.3	378.1	180°
56 (W)	-142.3	-2.5	-134.6	1005.6	0.1	0.0	1005.6	180°
57 (W)	-144.6	-14.5	-156.5	631.0	-0.1	1.0	631.0	180°
58 (W)	-192.1	0.2	-156.2	1397.4	-0.1	0.3	1397.4	180°
59 (W)	-144.6	-14.5	-156.5	631.0	-0.1	1.0	631.0	180°
60 (W)	-192.1	0.2	-156.2	1397.4	-0.1	0.3	1397.4	180°
61 (W)	-202.9	-11.6	-85.2	504.6	-0.1	1.8	504.6	180°
62 (W)	-263.2	3.9	-84.8	947.7	-0.1	0.6	947.7	180°
63 (W)	-202.9	-11.6	-85.2	504.6	-0.1	1.8	504.6	180°
64 (W)	-263.2	3.9	-84.8	947.7	-0.1	0.6	947.7	180°
65 (W)	-215.3	-5.1	-2.3	143.4	-0.1	1.2	143.4	180°
66 (W)	-274.3	4.3	-2.0	170.5	0.1	0.6	170.5	180°
67 (W)	-215.3	-5.1	-2.3	143.4	-0.1	1.2	143.4	180°
68 (W)	-274.3	4.3	-2.0	170.5	0.1	0.6	170.5	180°
69 (W)	-148.4	11.1	141.8	-826.0	-0.2	-2.3	826.0	360°
70 (W)	-179.6	-1.0	141.5	-1586.0	0.6	-0.2	1586.0	360°
71 (W)	-148.4	11.1	141.8	-826.0	-0.2	-2.3	826.0	360°
72 (W)	-179.6	-1.0	141.5	-1586.0	0.6	-0.2	1586.0	360°
73 (W)	-186.0	7.2	120.0	-573.0	-0.1	-1.0	573.0	360°
74 (W)	-229.3	1.7	119.9	-1193.8	0.4	0.1	1193.8	0°
75 (W)	-186.0	7.2	120.0	-573.0	-0.1	-1.0	573.0	360°
76 (W)	-229.3	1.7	119.9	-1193.8	0.4	0.1	1193.8	0°
77 (W)	-136.0	-10.8	-80.9	559.6	0.0	2.2	559.6	180°
78 (W)	-184.3	4.2	-80.5	999.8	-0.2	0.6	999.8	180°
79 (W)	-136.0	-10.8	-80.9	559.6	0.0	2.2	559.6	180°
80 (W)	-184.3	4.2	-80.5	999.8	-0.2	0.6	999.8	180°
81 (W)	-148.4	-4.3	1.9	199.1	0.0	1.6	199.1	180°
82 (W)	-195.4	4.7	2.2	223.8	-0.1	0.5	223.8	180°
83 (W)	-148.4	-4.3	1.9	199.1	0.0	1.6	199.1	180°
84 (W)	-195.4	4.7	2.2	223.8	-0.1	0.5	223.8	180°
85 (W)	-81.5	11.9	145.9	-769.1	-0.1	-1.9	769.1	360°
86 (W)	-100.7	-0.7	145.6	-1530.8	0.5	-0.2	1530.8	360°
87 (W)	-81.5	11.9	145.9	-769.1	-0.1	-1.9	769.1	360°
88 (W)	-100.7	-0.7	145.6	-1530.8	0.5	-0.2	1530.8	360°
89 (W)	-119.0	7.9	124.1	-516.3	-0.1	-0.6	516.3	360°
90 (W)	-150.4	2.1	123.9	-1139.0	0.3	0.1	1139.0	0°
91 (W)	-119.0	7.9	124.1	-516.3	-0.1	-0.6	516.3	360°
92 (W)	-150.4	2.1	123.9	-1139.0	0.3	0.1	1139.0	0°
93 (W)	69.8	5.1	21.5	-410.7	1.1	-6.2	410.8	359°
94 (W)	92.8	-5.3	21.1	-588.6	0.0	-0.6	588.6	360°
95 (W)	70.9	5.6	24.5	-421.9	1.1	-6.2	422.0	359°
96 (W)	94.3	-5.4	24.1	-612.2	0.0	-0.6	612.2	360°
97 (W)	23.6	-7.7	-122.0	557.4	0.0	0.6	557.4	180°
98 (W)	22.6	-0.8	-123.5	1201.2	-0.1	0.1	1201.2	180°
99 (W)	22.8	-8.8	-129.8	580.9	0.0	0.7	580.9	180°
100 (W)	21.3	-0.8	-131.3	1255.1	-0.2	0.1	1255.1	180°
101 (W)	50.3	8.1	-70.9	425.0	0.6	4.1	425.0	179°
102 (W)	65.0	3.6	-70.9	750.2	0.4	0.4	750.2	180°
103 (W)	36.3	5.6	-74.7	403.3	0.2	1.6	403.3	180°
104 (W)	41.1	1.5	-74.8	788.4	0.2	0.2	788.4	180°

105 (E)	-42.7	14.8	-165.9	830.7	0.9	7.1	830.7	180°
106 (E)	-54.8	6.4	-165.9	1583.1	1.1	0.8	1583.1	180°
107 (E)	-250.2	-18.2	150.3	-1020.6	-1.2	-8.4	1020.6	360°
108 (E)	-316.9	-7.2	150.3	-1762.0	-0.5	-0.7	1762.0	360°
109 (E)	34.7	15.7	-161.0	890.0	1.0	7.6	890.0	180°
110 (E)	38.3	6.7	-161.0	1638.3	0.9	0.8	1638.3	180°
111 (E)	-172.8	-17.3	155.2	-961.3	-1.1	-7.9	961.3	360°
112 (E)	-223.8	-6.8	155.2	-1706.9	-0.7	-0.8	1706.9	360°
113 (E)	-59.6	11.8	-169.8	802.7	0.5	4.1	802.7	180°
114 (E)	-83.6	3.9	-169.8	1623.8	0.8	0.5	1623.8	180°
115 (E)	-233.4	-15.2	154.2	-992.6	-0.8	-5.4	992.6	360°
116 (E)	-288.1	-4.6	154.3	-1802.7	-0.2	-0.4	1802.7	360°
117 (W)	-90.1	8.2	70.5	-699.6	-0.2	-3.1	699.6	360°
118 (W)	-108.5	-4.7	70.1	-1136.2	0.6	-0.5	1136.2	360°
119 (W)	-148.4	11.1	141.8	-826.0	-0.2	-2.3	826.0	360°
120 (W)	-179.6	-1.0	141.5	-1586.0	0.6	-0.2	1586.0	360°
121 (E)	17.8	12.7	-164.9	862.0	0.5	4.6	862.0	180°
122 (E)	9.5	4.2	-164.9	1679.0	0.6	0.5	1679.0	180°
123 (E)	-155.9	-14.3	159.1	-933.2	-0.7	-4.9	933.2	360°
124 (E)	-195.0	-4.3	159.2	-1747.6	-0.4	-0.5	1747.6	360°
125 (W)	-77.7	1.7	-12.6	-338.4	-0.2	-2.5	338.4	360°
126 (W)	-97.3	-5.1	-12.8	-358.6	0.5	-0.5	358.6	360°
127 (W)	-107.1	-10.5	-134.8	378.1	-0.2	-0.3	378.1	180°
128 (W)	-142.3	-2.5	-134.6	1005.6	0.1	0.0	1005.6	180°
129 (W)	-144.6	-14.5	-156.5	631.0	-0.1	1.0	631.0	180°
130 (W)	-192.1	0.2	-156.2	1397.4	-0.1	0.3	1397.4	180°
131 (W)	-186.0	7.2	120.0	-573.0	-0.1	-1.0	573.0	360°
132 (W)	-229.3	1.7	119.9	-1193.8	0.4	0.1	1193.8	0°
133 (W)	-202.9	-11.6	-85.2	504.6	-0.1	1.8	504.6	180°
134 (W)	-263.2	3.9	-84.8	947.7	-0.1	0.6	947.7	180°
135 (W)	-215.3	-5.1	-2.3	143.4	-0.1	1.2	143.4	180°
136 (W)	-274.3	4.3	-2.0	170.5	0.1	0.6	170.5	180°
137 (W)	-11.0	2.5	-8.3	-283.0	-0.2	-2.0	283.0	360°
138 (W)	-18.6	-4.8	-8.6	-305.9	0.3	-0.5	305.9	360°
139 (W)	-23.4	9.0	74.6	-643.5	-0.2	-2.7	643.5	360°
140 (W)	-29.8	-4.4	74.2	-1082.2	0.5	-0.5	1082.2	360°
141 (W)	-136.0	-10.8	-80.9	559.6	0.0	2.2	559.6	180°
142 (W)	-184.3	4.2	-80.5	999.8	-0.2	0.6	999.8	180°
143 (W)	-148.4	-4.3	1.9	199.1	0.0	1.6	199.1	180°
144 (W)	-195.4	4.7	2.2	223.8	-0.1	0.5	223.8	180°
145 (W)	-40.4	-9.7	-130.5	432.5	-0.1	0.2	432.5	180°
146 (W)	-63.6	-2.2	-130.3	1056.8	0.0	0.0	1056.8	180°
147 (W)	-77.9	-13.7	-152.2	685.2	-0.1	1.4	685.2	180°
148 (W)	-113.3	0.5	-151.8	1448.2	-0.2	0.3	1448.2	180°
149 (W)	-81.5	11.9	145.9	-769.1	-0.1	-1.9	769.1	360°
150 (W)	-100.7	-0.7	145.6	-1530.8	0.5	-0.2	1530.8	360°
151 (W)	-119.0	7.9	124.1	-516.3	-0.1	-0.6	516.3	360°
152 (W)	-150.4	2.1	123.9	-1139.0	0.3	0.1	1139.0	0°
153 (W)	-11.0	11.9	-156.5	685.2	0.0	2.2	685.2	180°
154 (W)	-18.6	4.7	-156.2	1448.2	0.6	0.6	1448.2	180°

155 (W)	-215.3	-14.5	145.9	-826.0	-0.2	-3.1	826.0	360°
156 (W)	-274.3	-5.1	145.6	-1586.0	-0.2	-0.5	1586.0	360°
157 (W)	34.7	15.7	-169.8	890.0	1.0	7.6	890.0	180°
158 (W)	38.3	6.7	-169.8	1679.0	1.1	0.8	1679.0	180°
159 (W)	-250.2	-18.2	159.1	-1020.6	-1.2	-8.4	1020.6	360°
160 (W)	-316.9	-7.2	159.2	-1802.7	-0.7	-0.8	1802.7	360°
161 (W)	-124.0	-1.4	-5.2	-64.0	-0.2	-0.3	64.0	360°
162 (W)	-166.5	-0.1	-5.2	-61.6	0.2	0.1	61.6	0°
163 (W)	-163.4	-1.9	-10.9	-138.3	-0.1	-1.1	138.3	360°
164 (W)	-198.5	-0.8	-10.9	-129.0	0.3	0.0	129.0	0°
165 (W)	-212.1	-2.4	-21.0	-307.5	0.0	-2.5	307.5	360°
166 (W)	-246.0	-2.0	-21.1	-286.3	0.5	0.0	286.3	0°
167 (W)	-81.8	3.5	14.0	-470.6	-0.2	-2.6	470.6	360°
168 (W)	-100.5	-5.0	13.7	-631.6	0.5	-0.5	631.6	360°
169 (W)	-207.6	-6.9	-29.5	282.6	-0.1	1.3	282.6	180°
170 (W)	-266.4	4.3	-29.2	454.5	0.0	0.6	454.5	180°
171 (W)	-124.9	-10.4	-124.6	440.9	-0.2	0.1	440.9	180°
172 (W)	-165.3	-0.9	-124.4	1044.1	0.1	0.1	1044.1	180°
173 (W)	-164.5	7.0	109.1	-629.0	-0.1	-1.4	629.0	360°
174 (W)	-201.7	0.2	109.0	-1221.2	0.5	0.0	1221.2	360°
175 (W)	-73.8	3.9	13.7	-504.8	0.9	-6.8	504.8	359°
176 (W)	-89.2	-5.7	13.4	-677.2	0.3	-0.6	677.2	360°
177 (W)	-74.9	3.5	16.8	-516.0	0.9	-6.9	516.0	359°
178 (W)	-90.6	-5.7	16.4	-700.7	0.3	-0.6	700.7	360°
179 (W)	-214.5	-6.8	-32.2	327.9	-1.2	5.6	327.9	179°
180 (W)	-276.3	5.0	-31.9	523.6	0.3	0.7	523.6	180°
181 (W)	-215.6	-7.3	-29.2	316.7	-1.2	5.5	316.7	179°
182 (W)	-277.8	5.0	-28.8	500.1	0.3	0.7	500.1	180°
183 (W)	-121.1	-9.4	-137.6	486.8	-0.2	0.1	486.8	180°
184 (W)	-160.8	-1.2	-139.0	1166.6	0.1	0.1	1166.6	180°
185 (W)	-121.9	-10.5	-129.7	463.3	-0.2	-0.1	463.3	180°
186 (W)	-162.2	-1.2	-131.2	1112.7	0.1	0.1	1112.7	180°
187 (W)	-167.5	7.1	114.2	-651.4	-0.1	-1.2	651.4	360°
188 (W)	-204.8	0.5	115.8	-1289.7	0.5	0.0	1289.7	360°
189 (W)	-168.3	6.0	122.1	-674.9	-0.1	-1.3	674.9	360°
190 (W)	-206.1	0.4	123.6	-1343.7	0.4	0.0	1343.7	360°
191 (W)	-7.9	4.4	18.8	-413.1	-0.2	-2.2	413.1	360°
192 (W)	-12.2	-4.7	18.5	-578.2	0.4	-0.5	578.2	360°
193 (W)	-133.8	-6.0	-24.7	340.1	0.0	1.8	340.1	180°
194 (W)	-178.1	4.6	-24.4	507.9	-0.1	0.6	507.9	180°
195 (W)	-51.0	-9.5	-119.8	498.4	-0.1	0.6	498.4	180°
196 (W)	-76.9	-0.6	-119.6	1097.5	-0.1	0.1	1097.5	180°
197 (W)	-90.6	7.9	113.9	-571.5	-0.1	-1.0	571.5	360°
198 (W)	-113.3	0.5	113.7	-1167.8	0.3	-0.1	1167.8	360°
199 (W)	0.1	4.8	18.5	-447.3	1.0	-6.3	447.3	359°
200 (W)	-0.8	-5.4	18.2	-623.8	0.1	-0.6	623.8	360°
201 (W)	-1.0	4.3	21.5	-458.5	1.0	-6.4	458.5	359°
202 (W)	-2.3	-5.4	21.2	-647.3	0.1	-0.6	647.3	360°
203 (W)	-140.6	-6.0	-27.5	385.4	-1.2	6.0	385.4	179°
204 (W)	-188.0	5.3	-27.1	577.0	0.1	0.6	577.0	180°

205 (W)	-141.7	-6.4	-24.4	374.2	-1.2	6.0	374.2	179 <sup>o</sup>
206 (W)	-189.4	5.3	-24.1	553.5	0.1	0.6	553.5	180 <sup>o</sup>
207 (W)	-47.2	-8.5	-132.8	544.3	-0.1	0.5	544.3	180 <sup>o</sup>
208 (W)	-72.5	-0.9	-134.3	1220.0	0.0	0.1	1220.0	180 <sup>o</sup>
209 (W)	-48.1	-9.6	-124.9	520.8	-0.1	0.4	520.8	180 <sup>o</sup>
210 (W)	-73.8	-0.9	-126.4	1166.0	-0.1	0.1	1166.0	180 <sup>o</sup>
211 (W)	-93.6	8.0	119.0	-593.9	-0.1	-0.8	593.9	360 <sup>o</sup>
212 (W)	-116.4	0.8	120.6	-1236.4	0.3	0.0	1236.4	360 <sup>o</sup>
213 (W)	-94.4	6.9	126.8	-617.4	-0.1	-0.9	617.4	360 <sup>o</sup>
214 (W)	-117.8	0.8	128.4	-1290.3	0.3	-0.1	1290.3	360 <sup>o</sup>
215 (W)	-79.0	8.9	-100.3	460.8	0.6	4.7	460.8	179 <sup>o</sup>
216 (W)	-98.7	4.3	-100.3	890.8	0.8	0.6	890.8	180 <sup>o</sup>
217 (W)	-210.4	-12.2	84.8	-648.9	-0.9	-6.0	648.9	359 <sup>o</sup>
218 (W)	-268.3	-5.0	84.8	-1067.9	-0.3	-0.5	1067.9	360 <sup>o</sup>
219 (W)	-97.6	5.6	-104.6	430.0	0.1	1.4	430.0	180 <sup>o</sup>
220 (W)	-130.3	1.5	-104.6	935.6	0.5	0.3	935.6	180 <sup>o</sup>
221 (W)	-191.8	-8.9	89.1	-618.1	-0.4	-2.7	618.1	360 <sup>o</sup>
222 (W)	-236.7	-2.3	89.2	-1112.6	0.0	-0.2	1112.6	360 <sup>o</sup>
223 (W)	-5.2	9.7	-95.6	518.3	0.6	5.2	518.3	179 <sup>o</sup>
224 (W)	-10.3	4.6	-95.5	944.2	0.7	0.6	944.2	180 <sup>o</sup>
225 (W)	-136.5	-11.3	89.6	-591.4	-0.8	-5.5	591.4	359 <sup>o</sup>
226 (W)	-179.9	-4.7	89.6	-1014.5	-0.4	-0.5	1014.5	360 <sup>o</sup>
227 (W)	-23.7	6.4	-99.8	487.5	0.2	1.9	487.5	180 <sup>o</sup>
228 (W)	-41.9	1.8	-99.8	988.9	0.4	0.3	988.9	180 <sup>o</sup>
229 (W)	-118.0	-8.1	93.9	-560.6	-0.3	-2.2	560.6	360 <sup>o</sup>
230 (W)	-148.3	-1.9	93.9	-1059.3	-0.1	-0.2	1059.3	360 <sup>o</sup>
231 (W)	-88.5	-1.0	-3.7	-45.7	-0.1	-0.2	45.7	360 <sup>o</sup>
232 (W)	-118.9	-0.1	-3.7	-44.0	0.2	0.0	44.0	0 <sup>o</sup>
233 (W)	-107.3	-1.3	-4.7	-49.2	-0.1	-0.3	49.2	360 <sup>o</sup>
234 (W)	-137.2	-0.1	-4.6	-46.5	0.2	0.0	46.5	0 <sup>o</sup>
235 (W)	-85.3	8.1	-101.2	451.1	0.5	3.9	451.1	179 <sup>o</sup>
236 (W)	-108.6	3.6	-101.1	897.3	0.7	0.5	897.3	180 <sup>o</sup>
237 (W)	-207.7	-11.5	85.5	-641.0	-0.8	-5.2	641.0	360 <sup>o</sup>
238 (W)	-263.1	-4.4	85.5	-1076.2	-0.2	-0.4	1076.2	360 <sup>o</sup>
239 (W)	-95.1	6.4	-103.8	435.9	0.2	2.2	435.9	180 <sup>o</sup>
240 (W)	-125.3	2.2	-103.8	924.0	0.6	0.3	924.0	180 <sup>o</sup>
241 (W)	-197.9	-9.8	88.2	-625.8	-0.5	-3.5	625.8	360 <sup>o</sup>
242 (W)	-246.4	-2.9	88.2	-1102.9	0.0	-0.2	1102.9	360 <sup>o</sup>
243 (W)	-7.9	9.0	-96.2	510.4	0.5	4.4	510.4	180 <sup>o</sup>
244 (W)	-15.5	4.0	-96.2	952.4	0.6	0.5	952.4	180 <sup>o</sup>
245 (W)	-130.3	-10.6	90.5	-581.6	-0.7	-4.8	581.6	360 <sup>o</sup>
246 (W)	-170.0	-4.1	90.4	-1021.0	-0.3	-0.4	1021.0	360 <sup>o</sup>
247 (W)	-17.6	7.3	-98.9	495.2	0.3	2.6	495.2	180 <sup>o</sup>
248 (W)	-32.2	2.5	-98.9	979.2	0.4	0.3	979.2	180 <sup>o</sup>
249 (W)	-120.5	-8.9	93.1	-566.4	-0.4	-3.0	566.4	360 <sup>o</sup>
250 (W)	-153.3	-2.6	93.2	-1047.7	-0.2	-0.3	1047.7	360 <sup>o</sup>
251 (W)	-7.9	9.0	-103.8	510.4	0.5	4.4	510.4	180 <sup>o</sup>
252 (W)	-15.5	4.0	-103.8	979.2	0.7	0.5	979.2	180 <sup>o</sup>
253 (W)	-207.7	-11.5	93.1	-641.0	-0.8	-5.2	641.0	360 <sup>o</sup>
254 (W)	-263.1	-4.4	93.2	-1102.9	-0.3	-0.4	1102.9	360 <sup>o</sup>



255 (W)	-66.9	11.0	-129.2	614.9	0.7	5.3	614.9	180°
256 (W)	-85.4	4.8	-129.1	1193.3	0.9	0.6	1193.3	180°
257 (W)	-226.0	-14.4	113.5	-804.8	-1.0	-6.6	804.8	360°
258 (W)	-286.3	-5.6	113.5	-1372.2	-0.3	-0.6	1372.2	360°
259 (W)	-79.6	8.8	-132.6	595.1	0.3	3.0	595.1	180°
260 (W)	-107.1	2.9	-132.6	1228.1	0.7	0.4	1228.1	180°
261 (W)	-213.3	-12.2	117.0	-785.0	-0.6	-4.3	785.0	360°
262 (W)	-264.6	-3.7	117.1	-1406.9	-0.1	-0.3	1406.9	360°
263 (W)	10.5	11.9	-124.2	674.2	0.7	5.8	674.2	180°
264 (W)	7.7	5.2	-124.2	1248.5	0.7	0.6	1248.5	180°
265 (W)	-148.6	-13.5	118.5	-745.4	-0.9	-6.1	745.5	360°
266 (W)	-193.2	-5.3	118.4	-1317.1	-0.5	-0.6	1317.1	360°
267 (W)	-2.2	9.7	-127.7	654.4	0.4	3.5	654.4	180°
268 (W)	-14.0	3.2	-127.7	1283.2	0.5	0.4	1283.2	180°
269 (W)	-135.9	-11.3	121.9	-725.7	-0.6	-3.9	725.7	360°
270 (W)	-171.5	-3.3	122.0	-1351.8	-0.3	-0.4	1351.8	360°
271 (W)	-24.1	17.8	-194.5	997.1	1.1	8.5	997.1	180°
272 (W)	-31.3	7.6	-194.4	1884.1	1.2	1.0	1884.1	180°
273 (W)	-268.9	-21.2	178.9	-1187.0	-1.4	-9.8	1187.0	360°
274 (W)	-340.4	-8.4	178.9	-2062.9	-0.7	-0.9	2062.9	360°
275 (W)	-43.7	14.4	-199.9	966.7	0.6	5.0	966.7	180°
276 (W)	-64.7	4.7	-199.8	1937.5	0.9	0.6	1937.5	180°
277 (W)	-249.3	-17.8	184.2	-1156.6	-0.9	-6.3	1156.6	360°
278 (W)	-307.0	-5.4	184.3	-2116.3	-0.3	-0.5	2116.3	360°
279 (W)	53.3	18.7	-189.6	1056.4	1.1	9.0	1056.4	180°
280 (W)	61.8	8.0	-189.5	1939.2	1.0	1.0	1939.2	180°
281 (W)	-191.5	-20.3	183.8	-1127.6	-1.3	-9.3	1127.7	360°
282 (W)	-247.3	-8.1	183.8	-2007.8	-0.8	-0.9	2007.8	360°
283 (W)	33.8	15.3	-194.9	1026.0	0.6	5.5	1026.0	180°
284 (W)	28.4	5.0	-194.9	1992.6	0.7	0.6	1992.6	180°
285 (W)	-171.9	-16.9	189.2	-1097.3	-0.8	-5.8	1097.3	360°
286 (W)	-213.9	-5.1	189.2	-2061.2	-0.5	-0.6	2061.2	360°
287 (W)	10.5	11.9	-132.6	674.2	0.7	5.8	674.2	180°
288 (W)	7.7	5.2	-132.6	1283.2	0.9	0.6	1283.2	180°
289 (W)	-226.0	-14.4	121.9	-804.8	-1.0	-6.6	804.8	360°
290 (W)	-286.3	-5.6	122.0	-1406.9	-0.5	-0.6	1406.9	360°
291 (W)	53.3	18.7	-199.9	1056.4	1.1	9.0	1056.4	180°
292 (W)	61.8	8.0	-199.8	1992.6	1.2	1.0	1992.6	180°
293 (W)	-268.9	-21.2	189.2	-1187.0	-1.4	-9.8	1187.0	360°
294 (W)	-340.4	-8.4	189.2	-2116.3	-0.8	-0.9	2116.3	360°

**N vs M Results**

GLC	292
Status	Acceptable
Utilization	0.479
Maximum	1.000
Theta	180°

**Axial Utilization**

Nu = 61.8 kips
ØNn (max) = 368.3 kips
Utilization = 0.168

**Moment Utilization**

Mu = 1992.6 k*ft	Mn = 4710.5 k*ft
ØMn = 4155.6 k*ft	Mp = 6053.3 k*ft
Utilization = 0.479	

**Shear Utilization**

GLC	292
Status	Acceptable
Utilization	0.284
Maximum	1.000

**Shear Z-Direction**

Nu = 61.8 kips
Mu (y-y) = 1992.6 k*ft
Vuz = 199.8 kips
bw = 10.0 in
d = 268.8 in
As (Tens) = 6.32 sq.in.
Av = 0.31 sq.in.
Lambda = 1.00
ØVsz = 312.5 kips
ØVcz = 411.5 kips
ØVnz = 724.0 kips
Util (Uz) = 0.276

**Shear Y-Direction**

Nu = 61.8 kips
Mu (z-z) = 1.0 k*ft
Vuy = 1.2 kips
bw = 336.0 in
d = 5.0 in
As (Tens) = 6.82 sq.in.
Av = 0.0 sq.in.
Lambda = 1.00
ØVsy = 0.0 kips
ØVcy = 153.5 kips
ØVny = 153.5 kips
Util (Uy) = 0.008

**Torsion**

Tu = 18.7 k*ft
T (limit) = 42.1 k*ft
Acceptable

Lambda = 1.00
ØVsz = 312.5 kips
ØVcz = 411.5 kips
ØVnz = 724.0 kips
Util (Uz) = 0.276

**Panel 1 Reinforcing**

15M @ 16.0" Vert

Vert Steel Ratio	Vert Bar Spacing	Number of Curtains
Rho = 0.00194	S = 16.00 in	Curtains Specified = 1
Rho (min) = 0.00150	S (min) = 2.76 in	Curtains Required = 1
Rho (max) = 0.01000	S (max) = 18.00 in	Acceptable
Acceptable	Acceptable	

15M @ 12.0" Horz

Horz Steel Ratio	Horz Bar Spacing
Rho = 0.00258	S = 12.00 in
Rho (min) = 0.00250	S (min) = 2.13 in
Acceptable	S (max) = 18.00 in
	Acceptable

**Panel Vertical Reinf.**

fy (min)	40.0 ksi
fy (vert)	60.0 ksi
fy (max)	80.0 ksi
Status	Acceptable

**Panel Horizontal Reinf.**

fy (min)	40.0 ksi
fy (horz)	60.0 ksi
fy (max)	60.0 ksi
Status	Acceptable

**Zone Vertical Reinf.**

fy (min)	40.0 ksi
fy (vert)	60.0 ksi
fy (max)	80.0 ksi
Status	Acceptable

**Concrete Strength**

fc' (min)	2500.0 psi
fc'	4000.0 psi
fc' (max)	10000.0 psi
Status	Acceptable

**Concrete Density**

Wc (min)	90.0 pcf
Wc	150.0 pcf
Wc (max)	160.0 pcf
Status	Acceptable

**Zone Horizontal Reinf.**

fy (min)	40.0 ksi
fy (horz)	60.0 ksi
fy (max)	100.0 ksi
Status	Acceptable

**Canadian Reinforcing Bars**

Index	Bar Designation	Diameter (in)	Area (sq.in.)
1	10M	0.445	0.155
2	15M	0.63	0.31

3	20M	0.768	0.465
4	25M	0.992	0.775
5	30M	1.177	1.085
6	35M	1.406	1.55
7	45M	1.72	2.325
8	55M	2.22	3.875

**Wall Dimensions**

Lu (y-y) = 120.0 in, Lu (z-z) = 120.0 in, hw = 1200.0 in

Panel 1 Thickness

T = 10.0 in

T (min) = 4.8 in

Acceptable

**List of Messages**

No Messages...



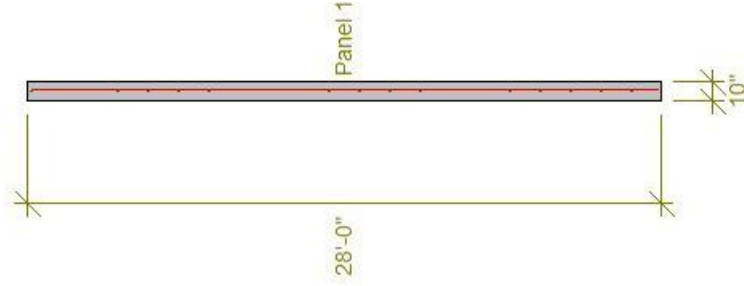
Status = Acceptable V (shear) Util = 0.28 N vs M Util = 0.48

Project Name Concrete Section Job # A123.45 Visual Editor

I-Shape Wall

Material Properties	
fc'	4000 psi
fy (panel vert)	60.0 ksi
fy (panel horz)	60.0 ksi
fy (zone vert)	60.0 ksi
fy (zone horz)	60.0 ksi
Wc	150 pcf
Ws	500 pcf
Poisson's Ratio	0.2
hagg	0.75 in
Es	29000 ksi
Ec	3834 ksi
Gc	1598 ksi

Miscellaneous	
Quantities (Approx.)	
Concrete	3493 lb/ft
Steel	53.5 lb/ft
Zone Cover	1.5 in
Panel Cover	1.5 in



Panel 1	
22-15M @ 16.0" Vert	
15M @ 12.0" Horz	

Section Properties	
Zbar	0.0 in
Ybar	0.0 in
Ag	3360.0 sq.in
Ig (y-y)	31611xE3 in4
Ig (z-z)	28000 in4
Ashear (Y)	2800.0 sq.in.
Ashear (Z)	2800.0 sq.in.
Jg	109899 in4
Ae	3360.0 sq.in.
Ie (y-y)	31611xE3 in4
Ie (z-z)	28000 in4
Ase (Y)	2800.0 sq.in.
Ase (Z)	2800.0 sq.in.
Je	109899 in4

Summary	
Concrete Section	
Job #	A123.45
Standard	ACI 318-11 Standard
Blackwell	Blackwell
BBTDNC2	BBTDNC2
Status	Acceptable

Shear Results	
Vuz	199.8 kips
Vuy	1.2 kips
Vuz / ØVnz	0.276
Vuy / ØVny	0.008
Shear Util	0.284

Flexural / Axial Results	
Nu	61.8 kips
Theta	180 Degrees
Mu	1992.6 k*ft
ØMn	4155.6 k*ft
N vs M Util	0.479

# Blackwell

## Structural Engineers

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blackwell.ca

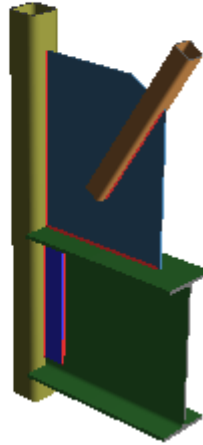
**APPENDIX C**  
Braced Frame Connection Design

**Global Parameters - Description:**

Project Title	New Project
Company	
Designer	
Job Number	
Notes	

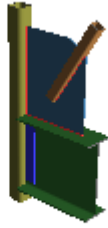
**Global Parameters - Solution:**

Design Method	AISC 14th (360-10): LRFD
Bolt Group Analysis Method	Center of Rotation
Weld Analysis Method	Center of Rotation
Consider Bolt Hole Deformation?	No
Check Weld Filler Material Matching?	Yes
Check Rotational Ductility?	Yes
Full Shear Eccentricity Considered?	No
Plastic Panel-Zone Shear Deformation Considered?	No



**Grid 2 Bottom: Summary Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x84	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.38x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x30.00x24.09	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	80.00 kips	User Input Shear Load
<b>Beam Story Force</b>	-75.53 kips	Design maximum beam story force
<b>Column Force</b>	50.00 kips	User Input Column Force
<b>Column Moment</b>	0.00 kips-ft	User Input Column Moment
<b>Top Brace Axial (Tension)</b>	-187.40 kips	Design tensile load in top brace
<b>Top Brace Axial(Compression)</b>	107.41 kips	Design compressive load in top brace

Seismic Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{top}</math></b>	120.00 in	User Input Clear Span of Top Brace
<b><math>K_{top}</math></b>	1.00	User Input Effective Length Factor of Top Brace
<b>Ca Beam Ratio</b>	0.25	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

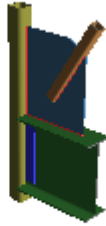
Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
<b>Beam/Column connection</b>	Weld at Beam	<b>0.92</b>	<b>PASS</b>
<b>Top Gusset/Beam connection</b>	Beam Weld Strength	<b>0.49</b>	<b>PASS</b>
<b>Top Gusset/Column connection</b>	Column Weld Strength	<b>0.34</b>	<b>PASS</b>
<b>Top Gusset/Brace connection</b>	Gusset Plate Tensile Yield (Whitmore)	<b>0.99</b>	<b>PASS</b>
<b>Seismic Calculations</b>	Seismic Weld Strength at Beam (Top)	<b>0.70</b>	<b>PASS</b>



**Grid 2 Bottom: Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x84	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.38x4.00x22.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.38x30.00x24.09	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

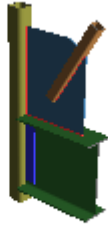
Input Data:		
<b>Shear(Compression)</b>	125.48 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	85.75 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	0.00 kips	<i>Calculated Shear due to Tension Brace Loading</i>
<b>Axial(Tension)</b>	-93.36 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	151.98 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Column Force</b>	50.00 kips	<i>User Input Column Force</i>
<b>Column Moment</b>	0.00 kips-ft	<i>User Input Column Moment</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Beam Weld Limitations				<b>PASS</b>
Beam Shear Yield	125.48 kips	368.46 kips	<b>0.34</b>	<b>PASS</b>
Plate Shear Yield	125.48 kips	178.20 kips	<b>0.70</b>	<b>PASS</b>
Beam Shear Rupture	125.48 kips	359.25 kips	<b>0.35</b>	<b>PASS</b>
Plate Shear Rupture at Beam	125.48 kips	215.32 kips	<b>0.58</b>	<b>PASS</b>
Beam Axial Yield	93.36 kips	1111.50 kips	<b>0.08</b>	<b>PASS</b>
Plate Axial Yield	93.36 kips	267.30 kips	<b>0.35</b>	<b>PASS</b>
Beam Tension Rupture	93.36 kips	1204.13 kips	<b>0.08</b>	<b>PASS</b>
Plate Tension Rupture	93.36 kips	358.88 kips	<b>0.26</b>	<b>PASS</b>
Compression Buckling of the Plate	85.75 kips	267.30 kips	<b>0.32</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.90</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.56</b>	<b>PASS</b>
Plate Flexural Buckling			<b>0.76</b>	<b>PASS</b>
Weld at Column	151.98 kips	215.56 kips	<b>0.71</b>	<b>PASS</b>
Weld at Beam	5.13 kips/in	5.57 kips/in	<b>0.92</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	93.36 kips	185.61 kips	<b>0.50</b>	<b>PASS</b>

**Grid 2 Bottom: Top Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x84	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.38x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x30.00x24.09	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

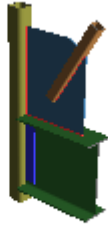
Input Data:		
<b>Shear(Compression)</b>	46.70 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	45.48 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	-81.48 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-79.35 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	113.73 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD1)</i>
<b>Moment Load</b>	-11.00 kips-ft	<i>Calculated Maximum Moment (SD1)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	81.48 kips	195.11 kips	<b>0.42</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	81.48 kips	235.76 kips	<b>0.35</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	79.35 kips	292.67 kips	<b>0.27</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	79.35 kips	392.94 kips	<b>0.20</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.29</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.19</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	113.73 kips	232.58 kips	<b>0.49</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	79.35 kips	696.63 kips	<b>0.11</b>	<b>PASS</b>

**Grid 2 Bottom: Top Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x84	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.38x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x30.00x24.09	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

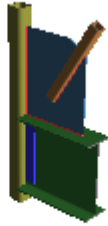
Input Data:		
<b>Shear(Compression)</b>	45.61 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	10.22 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	-79.58 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-17.83 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	81.55 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD1)</i>
<b>Moment Load</b>	2.40 kips-ft	<i>Calculated Maximum Moment (SD1)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Plate Shear Yield	79.58 kips	243.00 kips	<b>0.33</b>	<b>PASS</b>
Plate Shear Rupture	79.58 kips	293.63 kips	<b>0.27</b>	<b>PASS</b>
Plate Axial Yield	17.83 kips	364.50 kips	<b>0.05</b>	<b>PASS</b>
Plate Tension Rupture	17.83 kips	489.38 kips	<b>0.04</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.11</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.08</b>	<b>PASS</b>
Column Weld Strength	81.55 kips	242.50 kips	<b>0.34</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	17.83 kips	229.78 kips	<b>0.08</b>	<b>PASS</b>

**Grid 2 Bottom: Top Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:

<b>Beam</b>	W27x84	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.38x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x30.00x24.09	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:

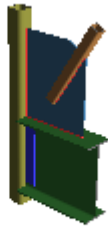
<b>Input Brace Tension</b>	-40.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	40.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-187.40 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	107.41 kips	<i>Design Compressive Load in Brace</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	187.40 kips	188.84 kips	<b>0.99</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	187.40 kips	253.54 kips	<b>0.74</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	107.41 kips	164.79 kips	<b>0.65</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	40.00 kips	120.47 kips	<b>0.33</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	40.00 kips	109.12 kips	<b>0.37</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	187.40 kips	408.75 kips	<b>0.46</b>	<b>PASS</b>

**Grid 2 Bottom: Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x84	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.38x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x30.00x24.09	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{top}</math></b>	120.00 in	User Input Clear Span of Top Brace
<b><math>K_{top}</math></b>	1.00	User Input Effective Length Factor of Top Brace
<b>Ca Beam Ratio</b>	0.25	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

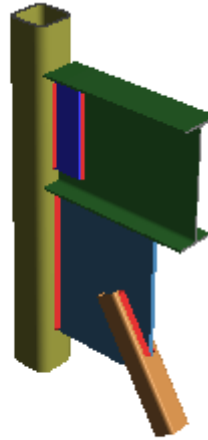
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Controlling Load Calculation</b>				n/a
<b>Seismic Loading Directions</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD1)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD2)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD3)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD4)</b>				n/a
<b>Seismic Load Distribution (Governing)</b>				n/a
<b>Seismic Joint Fasteners</b>				PASS
<b>Seismic Workpoint Limitations</b>				PASS
<b>Seismic Yield Stress Limitations</b>				PASS
<b>Seismic Brace Slenderness</b>				PASS
<b>Seismic Rotational Ductility</b>				PASS
<b>Seismic Gusset Rotation Capacity/Clearance</b>				PASS
<b>Seismic Column Width to Thickness Ratios</b>				PASS
<b>Seismic Beam Width to Thickness Ratios</b>				PASS
<b>Seismic Top Brace Width to Thickness Ratios</b>				PASS
<b>Check Seismic Top Brace Area</b>				REINF REQ'D

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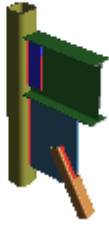
**Grid 2 Bottom: Seismic Report (continued):**

Limit State	Required	Available	Unity Check	Result
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Top)	422.75 kips	603.51 kips	0.70	PASS
Seismic Weld Strength at Column (Top)	526.50 kips	751.63 kips	0.70	PASS



**Grid 2 Top: Summary Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x26	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.75x22.00x15.65	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	20.00 kips	User Input Shear Load
<b>Beam Story Force</b>	75.53 kips	Design maximum beam story force
<b>Column Force</b>	75.00 kips	User Input Column Force
<b>Column Moment</b>	0.00 kips-ft	User Input Column Moment
<b>Bot Brace Axial (Tension)</b>	-187.40 kips	Design tensile load in bottom brace
<b>Bot Brace Axial(Compression)</b>	107.41 kips	Design compressive load in bottom brace

Seismic Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{bottom}</math></b>	120.00 in	User Input Clear Span of Bottom Brace
<b><math>K_{bottom}</math></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.10	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
<b>Beam/Column connection</b>	Weld at Beam	<b>0.95</b>	<b>PASS</b>
<b>Bottom Gusset/Beam connection</b>	Beam Weld Strength	<b>0.33</b>	<b>PASS</b>
<b>Bottom Gusset/Column connection</b>	Column Weld Strength	<b>0.26</b>	<b>PASS</b>
<b>Bottom Gusset/Brace connection</b>	Brace Weld Strength	<b>0.83</b>	<b>PASS</b>
<b>Seismic Calculations</b>	Seismic Weld Strength at Beam (Bottom)	<b>0.93</b>	<b>PASS</b>



**Grid 2 Top: Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x26	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.75x22.00x15.65	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

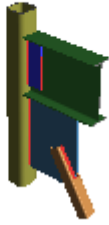
Input Data:		
<b>Shear(Compression)</b>	88.60 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	90.55 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	-19.32 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-101.74 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	134.91 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Column Force</b>	75.00 kips	<i>User Input Column Force</i>
<b>Column Moment</b>	0.00 kips-ft	<i>User Input Column Moment</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Beam Weld Limitations				<b>PASS</b>
Beam Shear Yield	88.60 kips	105.97 kips	<b>0.84</b>	<b>PASS</b>
Plate Shear Yield	88.60 kips	194.40 kips	<b>0.46</b>	<b>PASS</b>
Beam Shear Rupture	88.60 kips	114.81 kips	<b>0.77</b>	<b>PASS</b>
Plate Shear Rupture at Beam	88.60 kips	234.90 kips	<b>0.38</b>	<b>PASS</b>
Beam Axial Yield	101.74 kips	345.60 kips	<b>0.29</b>	<b>PASS</b>
Plate Axial Yield	101.74 kips	291.60 kips	<b>0.35</b>	<b>PASS</b>
Beam Tension Rupture	101.74 kips	374.40 kips	<b>0.27</b>	<b>PASS</b>
Plate Tension Rupture	101.74 kips	391.50 kips	<b>0.26</b>	<b>PASS</b>
Compression Buckling of the Plate	90.55 kips	291.60 kips	<b>0.31</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.62</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.37</b>	<b>PASS</b>
Plate Flexural Buckling			<b>0.80</b>	<b>PASS</b>
Weld at Column	12.40 kips/in	16.70 kips/in	<b>0.74</b>	<b>PASS</b>
Weld at Beam	134.91 kips	142.11 kips	<b>0.95</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	101.74 kips	137.38 kips	<b>0.74</b>	<b>PASS</b>

**Grid 2 Top: Bot Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x26	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.75x22.00x15.65	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear(Compression)</b>	41.89 kips	<i>Calculated Shear due to Compression Brace Loading (SD1)</i>
<b>Axial(Compression)</b>	39.32 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	-73.09 kips	<i>Calculated Shear due to Tension Brace Loading (SD3)</i>
<b>Axial(Tension)</b>	-68.60 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	100.24 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Moment Load</b>	-3.07 kips-ft	<i>Calculated Maximum Moment (SD3)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	73.09 kips	253.57 kips	<b>0.29</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	73.09 kips	306.39 kips	<b>0.24</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	68.60 kips	380.35 kips	<b>0.18</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	68.60 kips	510.66 kips	<b>0.13</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.13</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.08</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	100.24 kips	305.67 kips	<b>0.33</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	68.60 kips	242.34 kips	<b>0.28</b>	<b>PASS</b>

**Grid 2 Top: Bot Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x26	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.75x22.00x15.65	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear(Compression)</b>	51.77 kips	<i>Calculated Shear due to Compression Brace Loading (SD1)</i>
<b>Axial(Compression)</b>	15.03 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	-90.33 kips	<i>Calculated Shear due to Tension Brace Loading (SD3)</i>
<b>Axial(Tension)</b>	-26.22 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	94.05 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Moment Load</b>	1.45 kips-ft	<i>Calculated Maximum Moment (SD3)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	90.33 kips	356.40 kips	<b>0.25</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	90.33 kips	430.65 kips	<b>0.21</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	26.22 kips	534.60 kips	<b>0.05</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	26.22 kips	717.75 kips	<b>0.04</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.07</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.05</b>	<b>PASS</b>
<b>Column Weld Strength</b>	94.05 kips	364.42 kips	<b>0.26</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	26.22 kips	196.54 kips	<b>0.13</b>	<b>PASS</b>

**Grid 2 Top: Bot Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x26	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.75x22.00x15.65	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

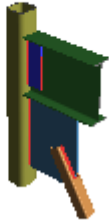
Input Data:		
<b>Input Brace Tension</b>	-40.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	40.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-187.40 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	107.41 kips	<i>Design Compressive Load in Brace</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	187.40 kips	344.22 kips	<b>0.54</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	187.40 kips	462.14 kips	<b>0.41</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	107.41 kips	326.03 kips	<b>0.33</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	40.00 kips	120.47 kips	<b>0.33</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	40.00 kips	93.38 kips	<b>0.43</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	187.40 kips	224.92 kips	<b>0.83</b>	<b>PASS</b>

**Grid 2 Top: Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x26	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3.5x3.5x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.75x22.00x15.65	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b>L<sub>bottom</sub></b>	120.00 in	User Input Clear Span of Bottom Brace
<b>K<sub>bottom</sub></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.10	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

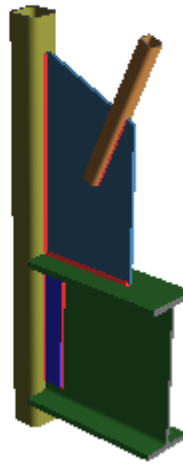
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
Controlling Load Calculation				n/a
Seismic Loading Directions				n/a
Seismic Load Distribution (Loading Direction SD1)				n/a
Seismic Load Distribution (Loading Direction SD2)				n/a
Seismic Load Distribution (Loading Direction SD3)				n/a
Seismic Load Distribution (Loading Direction SD4)				n/a
Seismic Load Distribution (Governing)				n/a
Seismic Joint Fasteners				PASS
Seismic Workpoint Limitations				PASS
Seismic Yield Stress Limitations				PASS
Seismic Brace Slenderness				PASS
Seismic Rotational Ductility				PASS
Seismic Gusset Rotation Capacity/Clearance				PASS
Seismic Column Width to Thickness Ratios				PASS
Seismic Beam Width to Thickness Ratios				PASS
Seismic Bottom Brace Width to Thickness Ratios				PASS
Check Seismic Bottom Brace Area				REINF REQ'D

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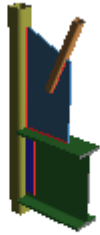
**Grid 2 Top: Seismic Report (continued):**

Limit State	Required	Available	Unity Check	Result
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Bottom)	549.40 kips	588.24 kips	0.93	PASS
Seismic Weld Strength at Column (Bottom)	772.20 kips	826.79 kips	0.93	PASS



**Grid 7 Bottom: Summary Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x5	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.75x35.00x18.73	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	80.00 kips	User Input Shear Load
<b>Beam Story Force</b>	-69.37 kips	Design maximum beam story force
<b>Column Force</b>	75.00 kips	User Input Column Force
<b>Column Moment</b>	0.00 kips-ft	User Input Column Moment
<b>Top Brace Axial (Tension)</b>	-189.34 kips	Design tensile load in top brace
<b>Top Brace Axial(Compression)</b>	166.94 kips	Design compressive load in top brace

Seismic Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{top}</math></b>	66.25 in	User Input Clear Span of Top Brace
<b><math>K_{top}</math></b>	1.00	User Input Effective Length Factor of Top Brace
<b>Ca Beam Ratio</b>	0.75	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

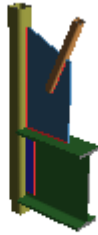
Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
<b>Beam/Column connection</b>	Weld at Column	<b>0.70</b>	<b>PASS</b>
<b>Top Gusset/Beam connection</b>	Beam Weld Strength	<b>0.27</b>	<b>PASS</b>
<b>Top Gusset/Column connection</b>	Column Weld Strength	<b>0.17</b>	<b>PASS</b>
<b>Top Gusset/Brace connection</b>	Brace Tensile Rupture	<b>0.89</b>	<b>PASS</b>
<b>Seismic Calculations</b>	Seismic Weld Strength at Beam (Top)	<b>0.93</b>	<b>PASS</b>



**Grid 7 Bottom: Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x5	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.75x35.00x18.73	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

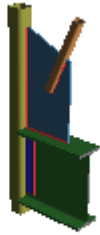
Input Data:		
<b>Shear(Compression)</b>	150.49 kips	Calculated Shear due to Compression Brace Loading (SD3)
<b>Axial(Compression)</b>	84.69 kips	Calculated Axial due to Compression Brace Loading (SD3)
<b>Shear(Tension)</b>	0.00 kips	Calculated Shear due to Tension Brace Loading
<b>Axial(Tension)</b>	-86.75 kips	Calculated Axial due to Tension Brace Loading (SD1)
<b>Resultant Force</b>	172.69 kips	Calculated Maximum Resultant Force due to Brace Loading (SD3)
<b>Moment due ecc</b>	45.59 kips-ft	Calculated Maximum Moment due Eccentricity (SD3)
<b>Column Force</b>	75.00 kips	User Input Column Force
<b>Column Moment</b>	0.00 kips-ft	User Input Column Moment

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Beam Shear Yield</b>	150.49 kips	505.08 kips	<b>0.30</b>	<b>PASS</b>
<b>Plate Shear Yield</b>	150.49 kips	237.60 kips	<b>0.63</b>	<b>PASS</b>
<b>Beam Shear Rupture</b>	150.49 kips	492.45 kips	<b>0.31</b>	<b>PASS</b>
<b>Plate Shear Rupture at Beam</b>	150.49 kips	287.10 kips	<b>0.52</b>	<b>PASS</b>
<b>Beam Axial Yield</b>	86.75 kips	1701.00 kips	<b>0.05</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	86.75 kips	356.40 kips	<b>0.24</b>	<b>PASS</b>
<b>Beam Tension Rupture</b>	86.75 kips	1842.75 kips	<b>0.05</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	86.75 kips	478.50 kips	<b>0.18</b>	<b>PASS</b>
<b>Compression Buckling of the Plate</b>	84.69 kips	356.40 kips	<b>0.24</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.67</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.43</b>	<b>PASS</b>
<b>Plate Flexural Buckling</b>			<b>0.64</b>	<b>PASS</b>
<b>Weld at Column</b>	172.69 kips	244.99 kips	<b>0.70</b>	<b>PASS</b>
<b>Weld at Beam</b>	172.69 kips	361.30 kips	<b>0.48</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	86.75 kips	189.10 kips	<b>0.46</b>	<b>PASS</b>

**Grid 7 Bottom: Top Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x5	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.75x35.00x18.73	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

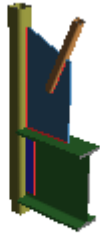
Input Data:		
<b>Shear(Compression)</b>	52.58 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	70.49 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	-59.63 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-79.95 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	99.74 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD1)</i>
<b>Moment Load</b>	-6.19 kips-ft	<i>Calculated Maximum Moment (SD1)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	59.63 kips	303.38 kips	<b>0.20</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	59.63 kips	366.58 kips	<b>0.16</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	79.95 kips	455.07 kips	<b>0.18</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	79.95 kips	610.97 kips	<b>0.13</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.08</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.05</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	99.74 kips	374.77 kips	<b>0.27</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	79.95 kips	830.43 kips	<b>0.10</b>	<b>PASS</b>

**Grid 7 Bottom: Top Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3x3x5	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.75x35.00x18.73	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

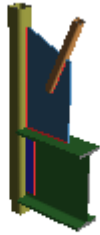
Input Data:		
<b>Shear(Compression)</b>	82.01 kips	Calculated Shear due to Compression Brace Loading (SD3)
<b>Axial(Compression)</b>	15.32 kips	Calculated Axial due to Compression Brace Loading (SD3)
<b>Shear(Tension)</b>	-93.02 kips	Calculated Shear due to Tension Brace Loading (SD1)
<b>Axial(Tension)</b>	-17.38 kips	Calculated Axial due to Tension Brace Loading (SD1)
<b>Resultant Force</b>	94.63 kips	Calculated Maximum Resultant Force due to Brace Loading (SD1)
<b>Moment Load</b>	2.09 kips-ft	Calculated Maximum Moment (SD1)

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	93.02 kips	567.00 kips	<b>0.16</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	93.02 kips	685.13 kips	<b>0.14</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	17.38 kips	850.50 kips	<b>0.02</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	17.38 kips	1141.88 kips	<b>0.02</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.03</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.02</b>	<b>PASS</b>
<b>Column Weld Strength</b>	94.63 kips	559.35 kips	<b>0.17</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	17.38 kips	273.44 kips	<b>0.06</b>	<b>PASS</b>

**Grid 7 Bottom: Top Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x5	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.75x35.00x18.73	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

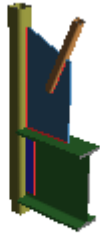
Input Data:		
<b>Input Brace Tension</b>	-86.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	86.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-189.34 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	166.94 kips	<i>Design Compressive Load in Brace</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	189.34 kips	431.30 kips	<b>0.44</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	189.34 kips	579.06 kips	<b>0.33</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	166.94 kips	395.72 kips	<b>0.42</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	86.00 kips	121.72 kips	<b>0.71</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	86.00 kips	97.02 kips	<b>0.89</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	189.34 kips	303.81 kips	<b>0.62</b>	<b>PASS</b>

**Grid 7 Bottom: Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x5	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.75x35.00x18.73	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{top}</math></b>	66.25 in	User Input Clear Span of Top Brace
<b><math>K_{top}</math></b>	1.00	User Input Effective Length Factor of Top Brace
<b>Ca Beam Ratio</b>	0.75	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

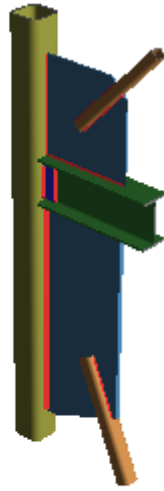
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Controlling Load Calculation</b>				n/a
<b>Seismic Loading Directions</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD1)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD2)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD3)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD4)</b>				n/a
<b>Seismic Load Distribution (Governing)</b>				n/a
<b>Seismic Joint Fasteners</b>				PASS
<b>Seismic Workpoint Limitations</b>				PASS
<b>Seismic Yield Stress Limitations</b>				PASS
<b>Seismic Brace Slenderness</b>				PASS
<b>Seismic Rotational Ductility</b>				PASS
<b>Seismic Gusset Rotation Capacity/Clearance</b>				PASS
<b>Seismic Column Width to Thickness Ratios</b>				PASS
<b>Seismic Beam Width to Thickness Ratios</b>				PASS
<b>Seismic Top Brace Width to Thickness Ratios</b>				PASS
<b>Check Seismic Top Brace Area</b>				REINF REQ'D

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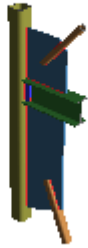
**Grid 7 Bottom: Seismic Report (continued):**

Limit State	Required	Available	Unity Check	Result
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Top)	657.32 kips	703.79 kips	0.93	PASS
Seismic Weld Strength at Column (Top)	1228.50 kips	1315.35 kips	0.93	PASS



**Grid 7 Middle: Summary Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W8x21	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.00x6.0 0	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS2x2x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x17.56x16 .49	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.88x41.42x16 .00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	8.00 kips	User Input Shear Load
<b>Beam Story Force</b>	19.10 kips	Design maximum beam story force
<b>Column Force</b>	75.00 kips	User Input Column Force
<b>Column Moment</b>	0.00 kips-ft	User Input Column Moment
<b>Top Brace Axial (Tension)</b>	-97.24 kips	Design tensile load in top brace
<b>Top Brace Axial(Compression)</b>	16.33 kips	Design compressive load in top brace
<b>Bot Brace Axial (Tension)</b>	-218.32 kips	Design tensile load in bottom brace
<b>Bot Brace Axial(Compression)</b>	82.63 kips	Design compressive load in bottom brace

Seismic Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b>L<sub>top</sub></b>	120.00 in	User Input Clear Span of Top Brace
<b>L<sub>bottom</sub></b>	120.00 in	User Input Clear Span of Bottom Brace
<b>K<sub>top</sub></b>	1.00	User Input Effective Length Factor of Top Brace
<b>K<sub>bottom</sub></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.75	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	8*t <sub>p</sub>	Gusset Hinge Line Method for Brace Buckling Check

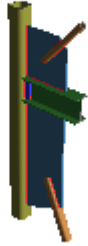
Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
<b>Beam/Column connection</b>	Beam Shear Rupture	<b>0.74</b>	<b>PASS</b>
<b>Top Gusset/Beam connection</b>	Beam Weld Strength	<b>0.39</b>	<b>PASS</b>
<b>Bottom Gusset/Beam connection</b>	Beam Weld Strength	<b>0.21</b>	<b>PASS</b>
<b>Top Gusset/Column connection</b>	Column Weld Strength	<b>0.34</b>	<b>PASS</b>
<b>Bottom Gusset/Column connection</b>	Column Weld Strength	<b>0.22</b>	<b>PASS</b>
<b>Top Gusset/Brace connection</b>	Gusset Plate Tensile Yield (Whitmore)	<b>0.52</b>	<b>PASS</b>
<b>Bottom Gusset/Brace connection</b>	Brace Tensile Rupture	<b>0.99</b>	<b>PASS</b>
<b>Seismic Calculations</b>	Seismic Weld Strength at Beam (Bottom)	<b>0.98</b>	<b>PASS</b>



**Grid 7 Middle: Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W8x21	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.88x2.00x6.0 0	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS2x2x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.38x17.56x16 .49	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.88x41.42x16 .00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

Input Data:		
<b>Shear(Compression)</b>	44.67 kips	Calculated Shear due to Compression Brace Loading (SD3)
<b>Axial(Compression)</b>	11.00 kips	Calculated Axial due to Compression Brace Loading (SD1)
<b>Shear(Tension)</b>	-27.95 kips	Calculated Shear due to Tension Brace Loading (SD1)
<b>Axial(Tension)</b>	-39.94 kips	Calculated Axial due to Tension Brace Loading (SD3)
<b>Resultant Force</b>	59.93 kips	Calculated Maximum Resultant Force due to Brace Loading (SD3)
<b>Column Force</b>	75.00 kips	User Input Column Force
<b>Column Moment</b>	0.00 kips-ft	User Input Column Moment

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Beam Weld Limitations				<b>PASS</b>
Beam Shear Yield	44.67 kips	62.10 kips	<b>0.72</b>	<b>PASS</b>
Plate Shear Yield	44.67 kips	113.40 kips	<b>0.39</b>	<b>PASS</b>
Beam Shear Rupture	44.67 kips	60.55 kips	<b>0.74</b>	<b>PASS</b>
Plate Shear Rupture at Beam	44.67 kips	137.03 kips	<b>0.33</b>	<b>PASS</b>
Beam Axial Yield	39.94 kips	277.20 kips	<b>0.14</b>	<b>PASS</b>
Plate Axial Yield	39.94 kips	170.10 kips	<b>0.23</b>	<b>PASS</b>
Beam Tension Rupture	39.94 kips	300.30 kips	<b>0.13</b>	<b>PASS</b>
Plate Tension Rupture	39.94 kips	228.38 kips	<b>0.17</b>	<b>PASS</b>
Compression Buckling of the Plate	11.00 kips	170.10 kips	<b>0.06</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.50</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.30</b>	<b>PASS</b>
Plate Flexural Buckling			<b>0.48</b>	<b>PASS</b>

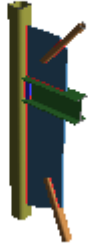
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**Grid 7 Middle: Beam/Column Report (continued):**

<b>Limit State</b>	<b>Required</b>	<b>Available</b>	<b>Unity Check</b>	<b>Result</b>
<b>Weld at Column</b>	12.39 kips/in	22.86 kips/in	<b>0.54</b>	<b>PASS</b>
<b>Weld at Beam</b>	59.93 kips	93.39 kips	<b>0.64</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	39.94 kips	103.56 kips	<b>0.39</b>	<b>PASS</b>

**Grid 7 Middle: Top Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W8x21	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.00x6.0 0	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS2x2x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x17.56x16 .49	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.88x41.42x16 .00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

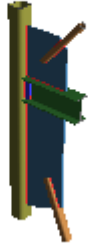
Input Data:		
<b>Shear(Compression)</b>	8.27 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	3.96 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	-49.24 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-23.57 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	54.59 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD1)</i>
<b>Moment Load</b>	-5.22 kips-ft	<i>Calculated Maximum Moment (SD1)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	49.24 kips	133.57 kips	<b>0.37</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	49.24 kips	161.40 kips	<b>0.31</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	23.57 kips	200.36 kips	<b>0.12</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	23.57 kips	269.00 kips	<b>0.09</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.17</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.11</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	54.59 kips	138.83 kips	<b>0.39</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	23.57 kips	249.88 kips	<b>0.09</b>	<b>PASS</b>

**Grid 7 Middle: Bot Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W8x21	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.88x2.00x6.0 0	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS2x2x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.38x17.56x16 .49	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.88x41.42x16 .00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

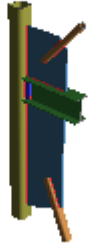
Input Data:		
<b>Shear(Compression)</b>	23.31 kips	Calculated Shear due to Compression Brace Loading (SD1)
<b>Axial(Compression)</b>	12.38 kips	Calculated Axial due to Compression Brace Loading (SD1)
<b>Shear(Tension)</b>	-61.60 kips	Calculated Shear due to Tension Brace Loading (SD3)
<b>Axial(Tension)</b>	-32.72 kips	Calculated Axial due to Tension Brace Loading (SD3)
<b>Resultant Force</b>	69.75 kips	Calculated Maximum Resultant Force due to Brace Loading (SD3)
<b>Moment Load</b>	-2.29 kips-ft	Calculated Maximum Moment (SD3)

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	61.60 kips	302.37 kips	<b>0.20</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	61.60 kips	365.36 kips	<b>0.17</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	32.72 kips	453.56 kips	<b>0.07</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	32.72 kips	608.94 kips	<b>0.05</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.05</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.03</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	69.75 kips	330.49 kips	<b>0.21</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	32.72 kips	243.73 kips	<b>0.13</b>	<b>PASS</b>

**Grid 7 Middle: Top Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W8x21	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.00x6.0 0	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS2x2x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x17.56x16 .49	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.88x41.42x16 .00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

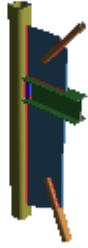
Input Data:		
<b>Shear(Compression)</b>	7.98 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	2.87 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	-47.55 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-17.08 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	50.53 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD1)</i>
<b>Moment Load</b>	0.61 kips-ft	<i>Calculated Maximum Moment (SD1)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	47.55 kips	142.24 kips	<b>0.33</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	47.55 kips	171.88 kips	<b>0.28</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	17.08 kips	213.37 kips	<b>0.08</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	17.08 kips	286.47 kips	<b>0.06</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.12</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.08</b>	<b>PASS</b>
<b>Column Weld Strength</b>	50.53 kips	149.41 kips	<b>0.34</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	17.08 kips	161.10 kips	<b>0.11</b>	<b>PASS</b>

**Grid 7 Middle: Bot Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W8x21	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.00x6.0 0	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS2x2x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x17.56x16 .49	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.88x41.42x16 .00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

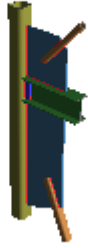
Input Data:		
<b>Shear(Compression)</b>	63.68 kips	<i>Calculated Shear due to Compression Brace Loading (SD1)</i>
<b>Axial(Compression)</b>	8.97 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	-168.25 kips	<i>Calculated Shear due to Tension Brace Loading (SD3)</i>
<b>Axial(Tension)</b>	-23.71 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	169.91 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Moment Load</b>	-3.99 kips-ft	<i>Calculated Maximum Moment (SD3)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Plate Shear Yield	168.25 kips	782.79 kips	<b>0.21</b>	<b>PASS</b>
Plate Shear Rupture	168.25 kips	945.87 kips	<b>0.18</b>	<b>PASS</b>
Plate Axial Yield	23.71 kips	1174.19 kips	<b>0.02</b>	<b>PASS</b>
Plate Tension Rupture	23.71 kips	1576.45 kips	<b>0.02</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.05</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.03</b>	<b>PASS</b>
Column Weld Strength	169.91 kips	756.53 kips	<b>0.22</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	23.71 kips	318.18 kips	<b>0.07</b>	<b>PASS</b>

**Grid 7 Middle: Top Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W8x21	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.88x2.00x6.0 0	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS2x2x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.38x17.56x16 .49	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.88x41.42x16 .00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

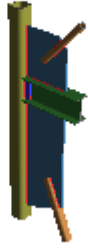
Input Data:		
<b>Input Brace Tension</b>	-22.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	22.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-97.24 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	16.33 kips	<i>Design Compressive Load in Brace</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	97.24 kips	187.80 kips	<b>0.52</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	97.24 kips	252.14 kips	<b>0.39</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	16.33 kips	167.50 kips	<b>0.10</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	22.00 kips	62.51 kips	<b>0.35</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	22.00 kips	51.97 kips	<b>0.42</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	97.24 kips	228.37 kips	<b>0.43</b>	<b>PASS</b>

**Grid 7 Middle: Bot Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W8x21	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.88x2.00x6.0 0	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS2x2x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.38x17.56x16 .49	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.88x41.42x16 .00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

Input Data:		
<b>Input Brace Tension</b>	-105.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	105.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-218.32 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	82.63 kips	<i>Design Compressive Load in Brace</i>

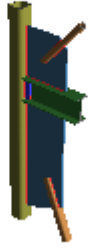
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	218.32 kips	256.88 kips	<b>0.85</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	218.32 kips	344.89 kips	<b>0.63</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	82.63 kips	228.12 kips	<b>0.36</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	105.00 kips	140.35 kips	<b>0.75</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	105.00 kips	105.68 kips	<b>0.99</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	218.32 kips	256.78 kips	<b>0.85</b>	<b>PASS</b>



**Grid 7 Middle: Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W8x21	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.00x6.0 0	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS2x2x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x17.56x16 .49	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.88x41.42x16 .00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{top}</math></b>	120.00 in	User Input Clear Span of Top Brace
<b><math>L_{bottom}</math></b>	120.00 in	User Input Clear Span of Bottom Brace
<b><math>K_{top}</math></b>	1.00	User Input Effective Length Factor of Top Brace
<b><math>K_{bottom}</math></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.75	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

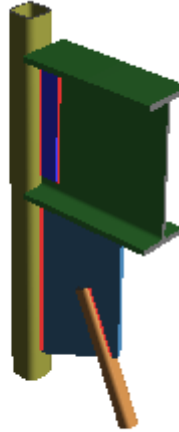
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
Controlling Load Calculation				n/a
Seismic Loading Directions				n/a
Seismic Load Distribution (Loading Direction SD1)				n/a
Seismic Load Distribution (Loading Direction SD2)				n/a
Seismic Load Distribution (Loading Direction SD3)				n/a
Seismic Load Distribution (Loading Direction SD4)				n/a
Seismic Load Distribution (Governing)				n/a
Seismic Joint Fasteners				PASS
Seismic Workpoint Limitations				PASS
Seismic Yield Stress Limitations				PASS
Seismic Brace Slenderness				PASS
Seismic Rotational Ductility				PASS
Seismic Gusset Rotation Capacity/Clearance				PASS

continued on next page...

**Grid 7 Middle: Seismic Report (continued):**

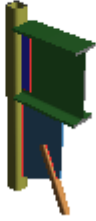
Limit State	Required	Available	Unity Check	Result
Seismic Column Width to Thickness Ratios				PASS
Seismic Beam Width to Thickness Ratios				PASS
Seismic Top Brace Width to Thickness Ratios				PASS
Seismic Bottom Brace Width to Thickness Ratios				PASS
Check Seismic Top Brace Area				REINF REQ'D
Check Seismic Bottom Brace Area				REINF REQ'D
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Top)	289.41 kips	344.30 kips	0.84	PASS
Seismic Weld Strength at Column (Top)	308.20 kips	366.65 kips	0.84	PASS
Seismic Weld Strength at Beam (Bottom)	655.14 kips	668.05 kips	0.98	PASS
Seismic Weld Strength at Column (Bottom)	1696.05 kips	1729.48 kips	0.98	PASS



# Grid 7 Top: Summary Report

LRFD

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.75x35.00x18.73	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	60.00 kips	User Input Shear Load
<b>Beam Story Force</b>	59.67 kips	Design maximum beam story force
<b>Column Force</b>	75.00 kips	User Input Column Force
<b>Column Moment</b>	0.00 kips-ft	User Input Column Moment
<b>Bot Brace Axial (Tension)</b>	-218.32 kips	Design tensile load in bottom brace
<b>Bot Brace Axial(Compression)</b>	82.63 kips	Design compressive load in bottom brace

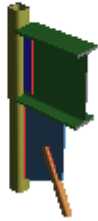
Seismic Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{bottom}</math></b>	120.00 in	User Input Clear Span of Bottom Brace
<b><math>K_{bottom}</math></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.75	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
Beam/Column connection	Weld at Column	0.71	PASS
Bottom Gusset/Beam connection	Beam Weld Strength	0.31	PASS
Bottom Gusset/Column connection	Column Weld Strength	0.20	PASS
Bottom Gusset/Brace connection	Brace Tensile Rupture	0.95	PASS
Seismic Calculations	Seismic Weld Strength at Beam (Bottom)	0.93	PASS

**Grid 7 Top: Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.75x35.00x18.73	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

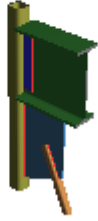
Input Data:		
<b>Shear(Compression)</b>	152.19 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	67.26 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	0.00 kips	<i>Calculated Shear due to Tension Brace Loading</i>
<b>Axial(Tension)</b>	-79.72 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	171.80 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Column Force</b>	75.00 kips	<i>User Input Column Force</i>
<b>Column Moment</b>	0.00 kips-ft	<i>User Input Column Moment</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Beam Weld Limitations				<b>PASS</b>
Beam Shear Yield	152.19 kips	505.08 kips	<b>0.30</b>	<b>PASS</b>
Plate Shear Yield	152.19 kips	237.60 kips	<b>0.64</b>	<b>PASS</b>
Beam Shear Rupture	152.19 kips	492.45 kips	<b>0.31</b>	<b>PASS</b>
Plate Shear Rupture at Beam	152.19 kips	287.10 kips	<b>0.53</b>	<b>PASS</b>
Beam Axial Yield	79.72 kips	1701.00 kips	<b>0.05</b>	<b>PASS</b>
Plate Axial Yield	79.72 kips	356.40 kips	<b>0.22</b>	<b>PASS</b>
Beam Tension Rupture	79.72 kips	1842.75 kips	<b>0.04</b>	<b>PASS</b>
Plate Tension Rupture	79.72 kips	478.50 kips	<b>0.17</b>	<b>PASS</b>
Compression Buckling of the Plate	67.26 kips	356.40 kips	<b>0.19</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.64</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.41</b>	<b>PASS</b>
Plate Flexural Buckling			<b>0.59</b>	<b>PASS</b>
Weld at Column	7.95 kips/in	11.14 kips/in	<b>0.71</b>	<b>PASS</b>
Weld at Beam	171.80 kips	357.56 kips	<b>0.48</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	79.72 kips	189.10 kips	<b>0.42</b>	<b>PASS</b>

**Grid 7 Top: Bot Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.75x35.00x18.73	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear(Compression)</b>	26.02 kips	<i>Calculated Shear due to Compression Brace Loading (SD1)</i>
<b>Axial(Compression)</b>	34.89 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	-68.76 kips	<i>Calculated Shear due to Tension Brace Loading (SD3)</i>
<b>Axial(Tension)</b>	-92.19 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	115.00 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Moment Load</b>	-7.14 kips-ft	<i>Calculated Maximum Moment (SD3)</i>

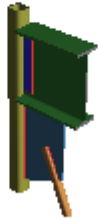
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	68.76 kips	303.38 kips	<b>0.23</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	68.76 kips	366.58 kips	<b>0.19</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	92.19 kips	455.07 kips	<b>0.20</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	92.19 kips	610.97 kips	<b>0.15</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.11</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.07</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	115.00 kips	374.83 kips	<b>0.31</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	92.19 kips	830.43 kips	<b>0.11</b>	<b>PASS</b>

# Grid 7 Top: Bot Gusset/Col Report

LRFD

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.75x35.00x18.73	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

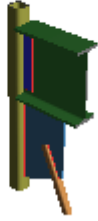
Input Data:		
<b>Shear(Compression)</b>	40.59 kips	<i>Calculated Shear due to Compression Brace Loading (SD1)</i>
<b>Axial(Compression)</b>	7.58 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	-107.25 kips	<i>Calculated Shear due to Tension Brace Loading (SD3)</i>
<b>Axial(Tension)</b>	-20.04 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	109.11 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Moment Load</b>	2.41 kips-ft	<i>Calculated Maximum Moment (SD3)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	107.25 kips	567.00 kips	<b>0.19</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	107.25 kips	685.13 kips	<b>0.16</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	20.04 kips	850.50 kips	<b>0.02</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	20.04 kips	1141.88 kips	<b>0.02</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.04</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.02</b>	<b>PASS</b>
<b>Column Weld Strength</b>	109.11 kips	555.62 kips	<b>0.20</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	20.04 kips	273.44 kips	<b>0.07</b>	<b>PASS</b>

**Grid 7 Top: Bot Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.75x35.00x18.73	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Input Brace Tension</b>	-105.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	105.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-218.32 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	82.63 kips	<i>Design Compressive Load in Brace</i>

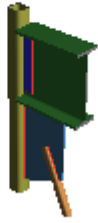
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	218.32 kips	431.30 kips	<b>0.51</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	218.32 kips	579.06 kips	<b>0.38</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	82.63 kips	395.72 kips	<b>0.21</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	105.00 kips	140.35 kips	<b>0.75</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	105.00 kips	110.93 kips	<b>0.95</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	218.32 kips	303.81 kips	<b>0.72</b>	<b>PASS</b>



**Grid 7 Top: Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x6	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.75x35.00x18.73	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b>L<sub>bottom</sub></b>	120.00 in	User Input Clear Span of Bottom Brace
<b>K<sub>bottom</sub></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.75	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

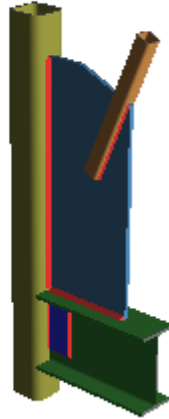
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
Controlling Load Calculation				n/a
Seismic Loading Directions				n/a
Seismic Load Distribution (Loading Direction SD1)				n/a
Seismic Load Distribution (Loading Direction SD2)				n/a
Seismic Load Distribution (Loading Direction SD3)				n/a
Seismic Load Distribution (Loading Direction SD4)				n/a
Seismic Load Distribution (Governing)				n/a
Seismic Joint Fasteners				PASS
Seismic Workpoint Limitations				PASS
Seismic Yield Stress Limitations				PASS
Seismic Brace Slenderness				PASS
Seismic Rotational Ductility				PASS
Seismic Gusset Rotation Capacity/Clearance				PASS
Seismic Column Width to Thickness Ratios				PASS
Seismic Beam Width to Thickness Ratios				PASS
Seismic Bottom Brace Width to Thickness Ratios				PASS
Check Seismic Bottom Brace Area				REINF REQ'D

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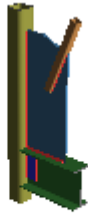
**Grid 7 Top: Seismic Report (continued):**

Limit State	Required	Available	Unity Check	Result
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Bottom)	657.32 kips	703.79 kips	0.93	PASS
Seismic Weld Strength at Column (Bottom)	1228.50 kips	1315.35 kips	0.93	PASS



**Grid B Bottom: Summary Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x35	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x8.0 0	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.75x36.03x14 .95	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	8.00 kips	<i>User Input Shear Load</i>
<b>Beam Story Force</b>	-24.62 kips	<i>Design maximum beam story force</i>
<b>Column Force</b>	75.00 kips	<i>User Input Column Force</i>
<b>Column Moment</b>	0.00 kips-ft	<i>User Input Column Moment</i>
<b>Top Brace Axial (Tension)</b>	-99.18 kips	<i>Design tensile load in top brace</i>
<b>Top Brace Axial(Compression)</b>	29.51 kips	<i>Design compressive load in top brace</i>

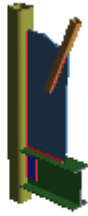
Seismic Input Data:		
<b>Seismic System</b>	SCBF	<i>User Input Seismic System</i>
<b><math>L_{top}</math></b>	120.00 in	<i>User Input Clear Span of Top Brace</i>
<b><math>K_{top}</math></b>	1.00	<i>User Input Effective Length Factor of Top Brace</i>
<b>Ca Beam Ratio</b>	0.75	<i>User-Input Ratio of Required Strength to Available Strength</i>
<b>Gusset Hinge Line</b>	$8*t_p$	<i>Gusset Hinge Line Method for Brace Buckling Check</i>

Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
<b>Beam/Column connection</b>	Weld at Column	<b>0.53</b>	<b>PASS</b>
<b>Top Gusset/Beam connection</b>	Beam Weld Strength	<b>0.12</b>	<b>PASS</b>
<b>Top Gusset/Column connection</b>	Column Weld Strength	<b>0.12</b>	<b>PASS</b>
<b>Top Gusset/Brace connection</b>	Gusset Plate Tensile Yield (Whitmore)	<b>0.93</b>	<b>PASS</b>
<b>Seismic Calculations</b>	Seismic Weld Strength at Beam (Top)	<b>0.84</b>	<b>PASS</b>

**Grid B Bottom: Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x35	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.50x4.00x8.0 0	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.75x36.03x14 .95	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

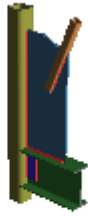
Input Data:		
<b>Shear(Compression)</b>	14.94 kips	Calculated Shear due to Compression Brace Loading (SD3)
<b>Axial(Compression)</b>	27.95 kips	Calculated Axial due to Compression Brace Loading (SD3)
<b>Shear(Tension)</b>	-15.31 kips	Calculated Shear due to Tension Brace Loading (SD1)
<b>Axial(Tension)</b>	-35.81 kips	Calculated Axial due to Tension Brace Loading (SD1)
<b>Resultant Force</b>	38.95 kips	Calculated Maximum Resultant Force due to Brace Loading (SD1)
<b>Column Force</b>	75.00 kips	User Input Column Force
<b>Column Moment</b>	0.00 kips-ft	User Input Column Moment

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Beam Shear Yield</b>	15.31 kips	112.50 kips	<b>0.14</b>	<b>PASS</b>
<b>Plate Shear Yield</b>	15.31 kips	86.40 kips	<b>0.18</b>	<b>PASS</b>
<b>Beam Shear Rupture</b>	15.31 kips	109.69 kips	<b>0.14</b>	<b>PASS</b>
<b>Plate Shear Rupture at Beam</b>	15.31 kips	104.40 kips	<b>0.15</b>	<b>PASS</b>
<b>Beam Axial Yield</b>	35.81 kips	463.50 kips	<b>0.08</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	35.81 kips	129.60 kips	<b>0.28</b>	<b>PASS</b>
<b>Beam Tension Rupture</b>	35.81 kips	502.13 kips	<b>0.07</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	35.81 kips	174.00 kips	<b>0.21</b>	<b>PASS</b>
<b>Compression Buckling of the Plate</b>	27.95 kips	129.60 kips	<b>0.22</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.28</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.16</b>	<b>PASS</b>
<b>Plate Flexural Buckling</b>			<b>0.48</b>	<b>PASS</b>
<b>Weld at Column</b>	5.85 kips/in	11.14 kips/in	<b>0.53</b>	<b>PASS</b>
<b>Weld at Beam</b>	38.95 kips	167.43 kips	<b>0.23</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	35.81 kips	110.04 kips	<b>0.33</b>	<b>PASS</b>

**Grid B Bottom: Top Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x35	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x8.0 0	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.75x36.03x14 .95	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

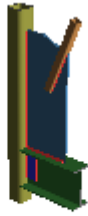
Input Data:		
<b>Shear(Compression)</b>	8.20 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	6.94 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	-27.56 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-23.31 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	36.10 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD1)</i>
<b>Moment Load</b>	0.16 kips-ft	<i>Calculated Maximum Moment (SD1)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	27.56 kips	242.12 kips	<b>0.11</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	27.56 kips	292.56 kips	<b>0.09</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	23.31 kips	363.18 kips	<b>0.06</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	23.31 kips	487.61 kips	<b>0.05</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.02</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.01</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	36.10 kips	292.47 kips	<b>0.12</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	23.31 kips	285.69 kips	<b>0.08</b>	<b>PASS</b>

**Grid B Bottom: Top Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x35	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.50x4.00x8.0 0	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.75x36.03x14 .95	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

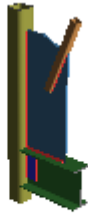
Input Data:		
<b>Shear(Compression)</b>	20.23 kips	Calculated Shear due to Compression Brace Loading (SD3)
<b>Axial(Compression)</b>	3.33 kips	Calculated Axial due to Compression Brace Loading (SD3)
<b>Shear(Tension)</b>	-67.98 kips	Calculated Shear due to Tension Brace Loading (SD1)
<b>Axial(Tension)</b>	-11.19 kips	Calculated Axial due to Tension Brace Loading (SD1)
<b>Resultant Force</b>	68.89 kips	Calculated Maximum Resultant Force due to Brace Loading (SD1)
<b>Moment Load</b>	-0.19 kips-ft	Calculated Maximum Moment (SD1)

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	67.98 kips	583.65 kips	<b>0.12</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	67.98 kips	705.24 kips	<b>0.10</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	11.19 kips	875.47 kips	<b>0.01</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	11.19 kips	1175.40 kips	<b>0.01</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.01</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.01</b>	<b>PASS</b>
<b>Column Weld Strength</b>	68.89 kips	570.58 kips	<b>0.12</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	11.19 kips	279.52 kips	<b>0.04</b>	<b>PASS</b>

**Grid B Bottom: Top Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x35	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x8.0 0	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.75x36.03x14 .95	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Input Brace Tension</b>	-9.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	9.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-99.18 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	29.51 kips	<i>Design Compressive Load in Brace</i>

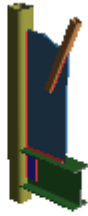
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	99.18 kips	106.64 kips	<b>0.93</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	99.18 kips	143.17 kips	<b>0.69</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	29.51 kips	93.59 kips	<b>0.32</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	9.00 kips	63.76 kips	<b>0.14</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	9.00 kips	49.92 kips	<b>0.18</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	99.18 kips	239.31 kips	<b>0.41</b>	<b>PASS</b>



**Grid B Bottom: Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x35	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.50x4.00x8.0 0	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.75x36.03x14 .95	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{top}</math></b>	120.00 in	User Input Clear Span of Top Brace
<b><math>K_{top}</math></b>	1.00	User Input Effective Length Factor of Top Brace
<b>Ca Beam Ratio</b>	0.75	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

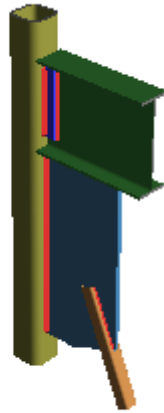
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Controlling Load Calculation</b>				n/a
<b>Seismic Loading Directions</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD1)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD2)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD3)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD4)</b>				n/a
<b>Seismic Load Distribution (Governing)</b>				n/a
<b>Seismic Joint Fasteners</b>				PASS
<b>Seismic Workpoint Limitations</b>				PASS
<b>Seismic Yield Stress Limitations</b>				PASS
<b>Seismic Brace Slenderness</b>				PASS
<b>Seismic Rotational Ductility</b>				PASS
<b>Seismic Gusset Rotation Capacity/Clearance</b>				PASS
<b>Seismic Column Width to Thickness Ratios</b>				PASS
<b>Seismic Beam Width to Thickness Ratios</b>				PASS
<b>Seismic Top Brace Width to Thickness Ratios</b>				PASS
<b>Check Seismic Top Brace Area</b>				REINF REQ'D

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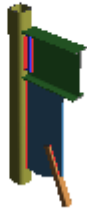
**Grid B Bottom: Seismic Report (continued):**

Limit State	Required	Available	Unity Check	Result
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Top)	524.60 kips	624.09 kips	0.84	PASS
Seismic Weld Strength at Column (Top)	1264.57 kips	1504.41 kips	0.84	PASS



**Grid B Top : Summary Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.88x35.00x14.89	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	8.00 kips	User Input Shear Load
<b>Beam Story Force</b>	24.62 kips	Design maximum beam story force
<b>Column Force</b>	75.00 kips	User Input Column Force
<b>Column Moment</b>	0.00 kips-ft	User Input Column Moment
<b>Bot Brace Axial (Tension)</b>	-99.18 kips	Design tensile load in bottom brace
<b>Bot Brace Axial(Compression)</b>	29.51 kips	Design compressive load in bottom brace

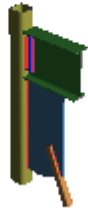
Seismic Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{bottom}</math></b>	120.00 in	User Input Clear Span of Bottom Brace
<b><math>K_{bottom}</math></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.25	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
Beam/Column connection	Weld at Beam	0.31	PASS
Bottom Gusset/Beam connection	Beam Weld Strength	0.12	PASS
Bottom Gusset/Column connection	Column Weld Strength	0.10	PASS
Bottom Gusset/Brace connection	Brace Tensile Rupture	0.84	PASS
Seismic Calculations	Seismic Weld Strength at Beam (Bottom)	0.98	PASS

**Grid B Top : Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.88x2.00x12.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.88x35.00x14.89	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

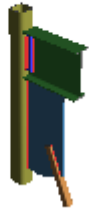
Input Data:		
<b>Shear(Compression)</b>	37.00 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	27.87 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	-0.63 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-35.56 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	51.31 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Column Force</b>	75.00 kips	<i>User Input Column Force</i>
<b>Column Moment</b>	0.00 kips-ft	<i>User Input Column Moment</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Beam Weld Limitations				<b>PASS</b>
Beam Shear Yield	37.00 kips	131.18 kips	<b>0.28</b>	<b>PASS</b>
Plate Shear Yield	37.00 kips	226.80 kips	<b>0.16</b>	<b>PASS</b>
Beam Shear Rupture	37.00 kips	127.90 kips	<b>0.29</b>	<b>PASS</b>
Plate Shear Rupture at Beam	37.00 kips	274.05 kips	<b>0.13</b>	<b>PASS</b>
Beam Axial Yield	35.56 kips	410.85 kips	<b>0.09</b>	<b>PASS</b>
Plate Axial Yield	35.56 kips	340.20 kips	<b>0.10</b>	<b>PASS</b>
Beam Tension Rupture	35.56 kips	445.09 kips	<b>0.08</b>	<b>PASS</b>
Plate Tension Rupture	35.56 kips	456.75 kips	<b>0.08</b>	<b>PASS</b>
Compression Buckling of the Plate	27.87 kips	340.20 kips	<b>0.08</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.05</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.03</b>	<b>PASS</b>
Plate Flexural Buckling			<b>0.18</b>	<b>PASS</b>
Weld at Column	4.62 kips/in	22.86 kips/in	<b>0.20</b>	<b>PASS</b>
Weld at Beam	51.31 kips	165.24 kips	<b>0.31</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	35.56 kips	139.92 kips	<b>0.25</b>	<b>PASS</b>

**Grid B Top : Bot Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.88x2.00x12.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.88x35.00x14.89	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

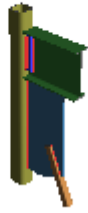
Input Data:		
<b>Shear(Compression)</b>	8.27 kips	Calculated Shear due to Compression Brace Loading (SD1)
<b>Axial(Compression)</b>	8.63 kips	Calculated Axial due to Compression Brace Loading (SD1)
<b>Shear(Tension)</b>	-27.81 kips	Calculated Shear due to Tension Brace Loading (SD3)
<b>Axial(Tension)</b>	-29.00 kips	Calculated Axial due to Tension Brace Loading (SD3)
<b>Resultant Force</b>	40.18 kips	Calculated Maximum Resultant Force due to Brace Loading (SD3)
<b>Moment Load</b>	-1.72 kips-ft	Calculated Maximum Moment (SD3)

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	27.81 kips	281.45 kips	<b>0.10</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	27.81 kips	340.09 kips	<b>0.08</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	29.00 kips	422.18 kips	<b>0.07</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	29.00 kips	566.81 kips	<b>0.05</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.02</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.01</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	40.18 kips	337.30 kips	<b>0.12</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	29.00 kips	262.65 kips	<b>0.11</b>	<b>PASS</b>

**Grid B Top : Bot Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.88x2.00x12.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.88x35.00x14.89	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

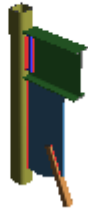
Input Data:		
<b>Shear(Compression)</b>	18.54 kips	Calculated Shear due to Compression Brace Loading (SD1)
<b>Axial(Compression)</b>	3.26 kips	Calculated Axial due to Compression Brace Loading (SD1)
<b>Shear(Tension)</b>	-62.30 kips	Calculated Shear due to Tension Brace Loading (SD3)
<b>Axial(Tension)</b>	-10.94 kips	Calculated Axial due to Tension Brace Loading (SD3)
<b>Resultant Force</b>	63.25 kips	Calculated Maximum Resultant Force due to Brace Loading (SD3)
<b>Moment Load</b>	-0.91 kips-ft	Calculated Maximum Moment (SD3)

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	62.30 kips	661.50 kips	<b>0.09</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	62.30 kips	799.31 kips	<b>0.08</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	10.94 kips	992.25 kips	<b>0.01</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	10.94 kips	1332.19 kips	<b>0.01</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.01</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.01</b>	<b>PASS</b>
<b>Column Weld Strength</b>	63.25 kips	647.01 kips	<b>0.10</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	10.94 kips	279.29 kips	<b>0.04</b>	<b>PASS</b>

**Grid B Top : Bot Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.88x2.00x12.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.88x35.00x14.89	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

Input Data:		
<b>Input Brace Tension</b>	-40.00 kips	User-input Tensile Load in Brace
<b>Input Brace Compression</b>	40.00 kips	User-input Compressive Load in Brace
<b>Brace Axial (Tension)</b>	-99.18 kips	Design Tensile Load in Brace
<b>Brace Axial(Compression)</b>	29.51 kips	Design Compressive Load in Brace

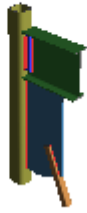
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	99.18 kips	124.41 kips	<b>0.80</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	99.18 kips	167.03 kips	<b>0.59</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	29.51 kips	111.21 kips	<b>0.27</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	40.00 kips	63.76 kips	<b>0.63</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	40.00 kips	47.50 kips	<b>0.84</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	99.18 kips	203.20 kips	<b>0.49</b>	<b>PASS</b>



**Grid B Top : Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS2.5x2.5x3	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.88x35.00x14.89	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b>L<sub>bottom</sub></b>	120.00 in	User Input Clear Span of Bottom Brace
<b>K<sub>bottom</sub></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.25	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

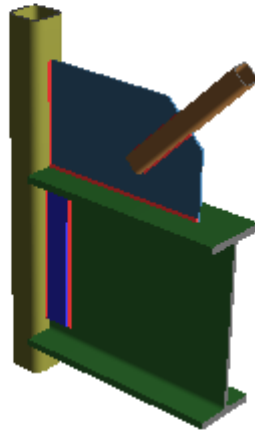
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
Controlling Load Calculation				n/a
Seismic Loading Directions				n/a
Seismic Load Distribution (Loading Direction SD1)				n/a
Seismic Load Distribution (Loading Direction SD2)				n/a
Seismic Load Distribution (Loading Direction SD3)				n/a
Seismic Load Distribution (Loading Direction SD4)				n/a
Seismic Load Distribution (Governing)				n/a
Seismic Joint Fasteners				PASS
Seismic Workpoint Limitations				PASS
Seismic Yield Stress Limitations				PASS
Seismic Brace Slenderness				PASS
Seismic Rotational Ductility				PASS
Seismic Gusset Rotation Capacity/Clearance				PASS
Seismic Column Width to Thickness Ratios				PASS
Seismic Beam Width to Thickness Ratios				PASS
Seismic Bottom Brace Width to Thickness Ratios				PASS
Check Seismic Bottom Brace Area				REINF REQ'D

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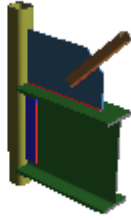
**Grid B Top : Seismic Report (continued):**

Limit State	Required	Available	Unity Check	Result
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Bottom)	609.81 kips	621.83 kips	0.98	PASS
Seismic Weld Strength at Column (Bottom)	1433.25 kips	1461.50 kips	0.98	PASS



**Grid E Bottom: Summary Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x16.00x26.80	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	80.00 kips	User Input Shear Load
<b>Beam Story Force</b>	-76.77 kips	Design maximum beam story force
<b>Column Force</b>	50.00 kips	User Input Column Force
<b>Column Moment</b>	4.00 kips-ft	User Input Column Moment
<b>Top Brace Axial (Tension)</b>	-157.14 kips	Design tensile load in top brace
<b>Top Brace Axial(Compression)</b>	66.01 kips	Design compressive load in top brace

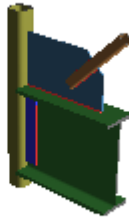
Seismic Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{top}</math></b>	120.00 in	User Input Clear Span of Top Brace
<b><math>K_{top}</math></b>	1.00	User Input Effective Length Factor of Top Brace
<b>Ca Beam Ratio</b>	0.50	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
<b>Beam/Column connection</b>	Weld at Column	<b>0.57</b>	<b>PASS</b>
<b>Top Gusset/Beam connection</b>	Beam Weld Strength	<b>0.52</b>	<b>PASS</b>
<b>Top Gusset/Column connection</b>	Column Weld Strength	<b>0.28</b>	<b>PASS</b>
<b>Top Gusset/Brace connection</b>	Gusset Plate Tensile Yield (Whitmore)	<b>0.82</b>	<b>PASS</b>
<b>Seismic Calculations</b>	Seismic Weld Strength at Beam (Top)	<b>0.70</b>	<b>PASS</b>

**Grid E Bottom: Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.38x16.00x26.80	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

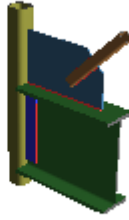
Input Data:		
<b>Shear(Compression)</b>	111.61 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	83.64 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	0.00 kips	<i>Calculated Shear due to Tension Brace Loading</i>
<b>Axial(Tension)</b>	-93.13 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	139.47 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Column Force</b>	50.00 kips	<i>User Input Column Force</i>
<b>Column Moment</b>	4.00 kips-ft	<i>User Input Column Moment</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Beam Weld Limitations				<b>PASS</b>
Beam Shear Yield	111.61 kips	505.08 kips	<b>0.22</b>	<b>PASS</b>
Plate Shear Yield	111.61 kips	356.40 kips	<b>0.31</b>	<b>PASS</b>
Beam Shear Rupture	111.61 kips	492.45 kips	<b>0.23</b>	<b>PASS</b>
Plate Shear Rupture at Beam	111.61 kips	430.65 kips	<b>0.26</b>	<b>PASS</b>
Beam Axial Yield	93.13 kips	1701.00 kips	<b>0.05</b>	<b>PASS</b>
Plate Axial Yield	93.13 kips	534.60 kips	<b>0.17</b>	<b>PASS</b>
Beam Tension Rupture	93.13 kips	1842.75 kips	<b>0.05</b>	<b>PASS</b>
Plate Tension Rupture	93.13 kips	717.75 kips	<b>0.13</b>	<b>PASS</b>
Compression Buckling of the Plate	83.64 kips	534.60 kips	<b>0.16</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.20</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.12</b>	<b>PASS</b>
Plate Flexural Buckling			<b>0.35</b>	<b>PASS</b>
Weld at Column	139.47 kips	244.99 kips	<b>0.57</b>	<b>PASS</b>
Weld at Beam	139.47 kips	317.53 kips	<b>0.44</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	93.13 kips	196.54 kips	<b>0.47</b>	<b>PASS</b>

**Grid E Bottom: Top Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.38x16.00x26.80	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

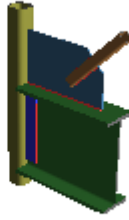
Input Data:		
<b>Shear(Compression)</b>	39.81 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	31.61 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	-94.76 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-75.23 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	120.99 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD1)</i>
<b>Moment Load</b>	-24.96 kips-ft	<i>Calculated Maximum Moment (SD1)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	94.76 kips	217.08 kips	<b>0.44</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	94.76 kips	262.31 kips	<b>0.36</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	75.23 kips	325.62 kips	<b>0.23</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	75.23 kips	437.18 kips	<b>0.17</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.33</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.21</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	120.99 kips	233.14 kips	<b>0.52</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	75.23 kips	1076.65 kips	<b>0.07</b>	<b>PASS</b>

**Grid E Bottom: Top Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.38x16.00x26.80	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

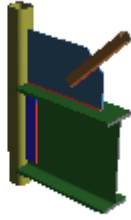
Input Data:		
<b>Shear(Compression)</b>	15.07 kips	Calculated Shear due to Compression Brace Loading (SD3)
<b>Axial(Compression)</b>	6.87 kips	Calculated Axial due to Compression Brace Loading (SD3)
<b>Shear(Tension)</b>	-35.88 kips	Calculated Shear due to Tension Brace Loading (SD1)
<b>Axial(Tension)</b>	-16.36 kips	Calculated Axial due to Tension Brace Loading (SD1)
<b>Resultant Force</b>	39.43 kips	Calculated Maximum Resultant Force due to Brace Loading (SD1)
<b>Moment Load</b>	1.93 kips-ft	Calculated Maximum Moment (SD1)

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	35.88 kips	129.60 kips	<b>0.28</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	35.88 kips	156.60 kips	<b>0.23</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	16.36 kips	194.40 kips	<b>0.08</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	16.36 kips	261.00 kips	<b>0.06</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.09</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.06</b>	<b>PASS</b>
<b>Column Weld Strength</b>	39.43 kips	138.62 kips	<b>0.28</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	16.36 kips	152.48 kips	<b>0.11</b>	<b>PASS</b>

**Grid E Bottom: Top Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:

<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x16.00x26.80	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:

<b>Input Brace Tension</b>	-55.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	55.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-157.14 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	66.01 kips	<i>Design Compressive Load in Brace</i>

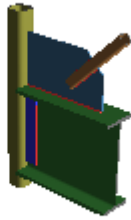
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	157.14 kips	192.24 kips	<b>0.82</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	157.14 kips	258.10 kips	<b>0.61</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	66.01 kips	180.92 kips	<b>0.36</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	55.00 kips	101.02 kips	<b>0.54</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	55.00 kips	86.28 kips	<b>0.64</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	157.14 kips	217.60 kips	<b>0.72</b>	<b>PASS</b>



**Grid E Bottom: Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x16.00x26.80	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{top}</math></b>	120.00 in	User Input Clear Span of Top Brace
<b><math>K_{top}</math></b>	1.00	User Input Effective Length Factor of Top Brace
<b>Ca Beam Ratio</b>	0.50	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

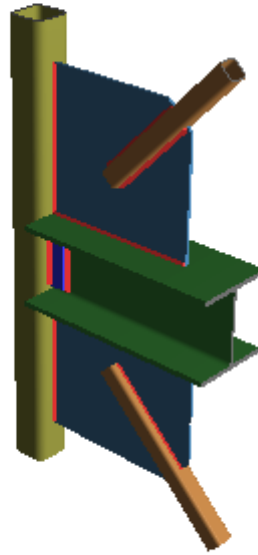
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Controlling Load Calculation</b>				n/a
<b>Seismic Loading Directions</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD1)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD2)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD3)</b>				n/a
<b>Seismic Load Distribution (Loading Direction SD4)</b>				n/a
<b>Seismic Load Distribution (Governing)</b>				n/a
<b>Seismic Joint Fasteners</b>				PASS
<b>Seismic Workpoint Limitations</b>				PASS
<b>Seismic Yield Stress Limitations</b>				PASS
<b>Seismic Brace Slenderness</b>				PASS
<b>Seismic Rotational Ductility</b>				PASS
<b>Seismic Gusset Rotation Capacity/Clearance</b>				PASS
<b>Seismic Column Width to Thickness Ratios</b>				PASS
<b>Seismic Beam Width to Thickness Ratios</b>				PASS
<b>Seismic Top Brace Width to Thickness Ratios</b>				PASS
<b>Check Seismic Top Brace Area</b>				REINF REQ'D

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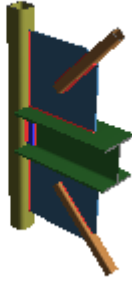
**Grid E Bottom: Seismic Report (continued):**

Limit State	Required	Available	Unity Check	Result
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Top)	470.34 kips	671.46 kips	0.70	PASS
Seismic Weld Strength at Column (Top)	280.80 kips	400.87 kips	0.70	PASS



**Grid E Middle: Summary Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x79	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.91x2.50x8.7 5	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.50x22.00x23 .30	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.38x22.00x25 .20	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	9.00 kips	<i>User Input Shear Load</i>
<b>Beam Story Force</b>	2.73 kips	<i>Design maximum beam story force</i>
<b>Column Force</b>	75.00 kips	<i>User Input Column Force</i>
<b>Column Moment</b>	0.00 kips-ft	<i>User Input Column Moment</i>
<b>Top Brace Axial (Tension)</b>	-157.14 kips	<i>Design tensile load in top brace</i>
<b>Top Brace Axial(Compression)</b>	66.01 kips	<i>Design compressive load in top brace</i>
<b>Bot Brace Axial (Tension)</b>	-157.14 kips	<i>Design tensile load in bottom brace</i>
<b>Bot Brace Axial(Compression)</b>	66.01 kips	<i>Design compressive load in bottom brace</i>

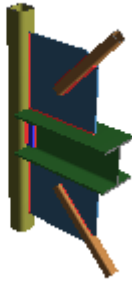
Seismic Input Data:		
<b>Seismic System</b>	SCBF	<i>User Input Seismic System</i>
<b>L<sub>top</sub></b>	120.00 in	<i>User Input Clear Span of Top Brace</i>
<b>L<sub>bottom</sub></b>	120.00 in	<i>User Input Clear Span of Bottom Brace</i>
<b>K<sub>top</sub></b>	1.00	<i>User Input Effective Length Factor of Top Brace</i>
<b>K<sub>bottom</sub></b>	1.00	<i>User Input Effective Length Factor of Bottom Brace</i>
<b>Ca Beam Ratio</b>	0.50	<i>User-Input Ratio of Required Strength to Available Strength</i>
<b>Gusset Hinge Line</b>	8*t <sub>p</sub>	<i>Gusset Hinge Line Method for Brace Buckling Check</i>

Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
<b>Beam/Column connection</b>	Beam Shear Rupture	<b>0.40</b>	<b>PASS</b>
<b>Top Gusset/Beam connection</b>	Beam Weld Strength	<b>0.35</b>	<b>PASS</b>
<b>Bottom Gusset/Beam connection</b>	Beam Weld Strength	<b>0.53</b>	<b>PASS</b>
<b>Top Gusset/Column connection</b>	Column Weld Strength	<b>0.31</b>	<b>PASS</b>
<b>Bottom Gusset/Column connection</b>	Column Weld Strength	<b>0.43</b>	<b>PASS</b>
<b>Top Gusset/Brace connection</b>	Brace Tensile Rupture	<b>0.63</b>	<b>PASS</b>
<b>Bottom Gusset/Brace connection</b>	Brace Tensile Rupture	<b>0.61</b>	<b>PASS</b>
<b>Seismic Calculations</b>	Seismic Weld Strength at Beam (Top)	<b>0.93</b>	<b>PASS</b>

**Grid E Middle: Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x79	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.91x2.50x8.7 5	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.50x22.00x23 .30	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.38x22.00x25 .20	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

Input Data:		
<b>Shear(Compression)</b>	68.82 kips	Calculated Shear due to Compression Brace Loading (SD3)
<b>Axial(Compression)</b>	0.00 kips	Calculated Axial due to Compression Brace Loading
<b>Shear(Tension)</b>	-51.59 kips	Calculated Shear due to Tension Brace Loading (SD1)
<b>Axial(Tension)</b>	-19.77 kips	Calculated Axial due to Tension Brace Loading (SD4)
<b>Resultant Force</b>	70.26 kips	Calculated Maximum Resultant Force due to Brace Loading (SD3)
<b>Column Force</b>	75.00 kips	User Input Column Force
<b>Column Moment</b>	0.00 kips-ft	User Input Column Moment

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Beam Weld Limitations				<b>PASS</b>
Beam Shear Yield	68.82 kips	174.84 kips	<b>0.39</b>	<b>PASS</b>
Plate Shear Yield	68.82 kips	171.28 kips	<b>0.40</b>	<b>PASS</b>
Beam Shear Rupture	68.82 kips	170.47 kips	<b>0.40</b>	<b>PASS</b>
Plate Shear Rupture at Beam	68.82 kips	206.96 kips	<b>0.33</b>	<b>PASS</b>
Beam Axial Yield	19.77 kips	1044.00 kips	<b>0.02</b>	<b>PASS</b>
Plate Axial Yield	19.77 kips	256.92 kips	<b>0.08</b>	<b>PASS</b>
Beam Tension Rupture	19.77 kips	1131.00 kips	<b>0.02</b>	<b>PASS</b>
Plate Tension Rupture	19.77 kips	344.94 kips	<b>0.06</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.28</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.17</b>	<b>PASS</b>
Plate Flexural Buckling	68.82 kips	183.18 kips	<b>0.38</b>	<b>PASS</b>
Weld at Column	8.14 kips/in	22.27 kips/in	<b>0.37</b>	<b>PASS</b>

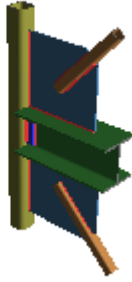
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**Grid E Middle: Beam/Column Report (continued):**

Limit State	Required	Available	Unity Check	Result
Weld at Beam	70.26 kips	221.88 kips	0.32	PASS
HSS Transverse Plastification (compression)	19.77 kips	120.76 kips	0.16	PASS

**Grid E Middle: Top Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x79	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.91x2.50x8.7 5	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.50x22.00x23 .30	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.38x22.00x25 .20	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

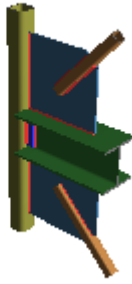
Input Data:		
<b>Shear(Compression)</b>	36.27 kips	Calculated Shear due to Compression Brace Loading (SD3)
<b>Axial(Compression)</b>	18.09 kips	Calculated Axial due to Compression Brace Loading (SD3)
<b>Shear(Tension)</b>	-86.33 kips	Calculated Shear due to Tension Brace Loading (SD1)
<b>Axial(Tension)</b>	-43.06 kips	Calculated Axial due to Tension Brace Loading (SD1)
<b>Resultant Force</b>	96.47 kips	Calculated Maximum Resultant Force due to Brace Loading (SD1)
<b>Moment Load</b>	-2.81 kips-ft	Calculated Maximum Moment (SD1)

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	86.33 kips	251.61 kips	<b>0.34</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	86.33 kips	304.02 kips	<b>0.28</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	43.06 kips	377.41 kips	<b>0.11</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	43.06 kips	506.71 kips	<b>0.08</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.13</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.09</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	96.47 kips	276.94 kips	<b>0.35</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	43.06 kips	703.75 kips	<b>0.06</b>	<b>PASS</b>

**Grid E Middle: Bot Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:

<b>Beam</b>	W12x79	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.91x2.50x8.7 5	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.50x22.00x23 .30	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.38x22.00x25 .20	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

Input Data:

<b>Shear(Compression)</b>	38.20 kips	Calculated Shear due to Compression Brace Loading (SD1)
<b>Axial(Compression)</b>	17.53 kips	Calculated Axial due to Compression Brace Loading (SD1)
<b>Shear(Tension)</b>	-90.92 kips	Calculated Shear due to Tension Brace Loading (SD3)
<b>Axial(Tension)</b>	-41.73 kips	Calculated Axial due to Tension Brace Loading (SD3)
<b>Resultant Force</b>	100.04 kips	Calculated Maximum Resultant Force due to Brace Loading (SD3)
<b>Moment Load</b>	-3.16 kips-ft	Calculated Maximum Moment (SD3)

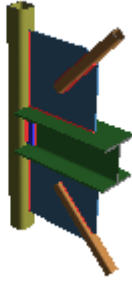
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	90.92 kips	204.12 kips	<b>0.45</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	90.92 kips	246.65 kips	<b>0.37</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	41.73 kips	306.18 kips	<b>0.14</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	41.73 kips	411.07 kips	<b>0.10</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.22</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.15</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	4.13 kips/in	7.84 kips/in	<b>0.53</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	41.73 kips	748.48 kips	<b>0.06</b>	<b>PASS</b>



**Grid E Middle: Top Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x79	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.91x2.50x8.75	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.50x22.00x23.30	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.38x22.00x25.20	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

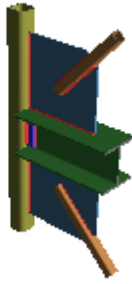
Input Data:		
<b>Shear(Compression)</b>	30.19 kips	Calculated Shear due to Compression Brace Loading (SD3)
<b>Axial(Compression)</b>	8.75 kips	Calculated Axial due to Compression Brace Loading (SD3)
<b>Shear(Tension)</b>	-71.87 kips	Calculated Shear due to Tension Brace Loading (SD1)
<b>Axial(Tension)</b>	-20.83 kips	Calculated Axial due to Tension Brace Loading (SD1)
<b>Resultant Force</b>	74.82 kips	Calculated Maximum Resultant Force due to Brace Loading (SD1)
<b>Moment Load</b>	1.13 kips-ft	Calculated Maximum Moment (SD1)

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Plate Shear Yield	71.87 kips	237.60 kips	<b>0.30</b>	<b>PASS</b>
Plate Shear Rupture	71.87 kips	287.10 kips	<b>0.25</b>	<b>PASS</b>
Plate Axial Yield	20.83 kips	356.40 kips	<b>0.06</b>	<b>PASS</b>
Plate Tension Rupture	20.83 kips	478.50 kips	<b>0.04</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.10</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.07</b>	<b>PASS</b>
Column Weld Strength	74.82 kips	243.16 kips	<b>0.31</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	20.83 kips	189.10 kips	<b>0.11</b>	<b>PASS</b>

**Grid E Middle: Bot Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x79	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.91x2.50x8.75	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.50x22.00x23.30	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.38x22.00x25.20	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

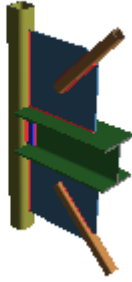
Input Data:		
<b>Shear(Compression)</b>	29.15 kips	Calculated Shear due to Compression Brace Loading (SD1)
<b>Axial(Compression)</b>	8.48 kips	Calculated Axial due to Compression Brace Loading (SD1)
<b>Shear(Tension)</b>	-69.38 kips	Calculated Shear due to Tension Brace Loading (SD3)
<b>Axial(Tension)</b>	-20.19 kips	Calculated Axial due to Tension Brace Loading (SD3)
<b>Resultant Force</b>	72.26 kips	Calculated Maximum Resultant Force due to Brace Loading (SD3)
<b>Moment Load</b>	1.16 kips-ft	Calculated Maximum Moment (SD3)

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Plate Shear Yield	69.38 kips	178.20 kips	<b>0.39</b>	<b>PASS</b>
Plate Shear Rupture	69.38 kips	215.32 kips	<b>0.32</b>	<b>PASS</b>
Plate Axial Yield	20.19 kips	267.30 kips	<b>0.08</b>	<b>PASS</b>
Plate Tension Rupture	20.19 kips	358.88 kips	<b>0.06</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.16</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.11</b>	<b>PASS</b>
Column Weld Strength	3.34 kips/in	7.84 kips/in	<b>0.43</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	20.19 kips	185.61 kips	<b>0.11</b>	<b>PASS</b>

**Grid E Middle: Top Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:

<b>Beam</b>	W12x79	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.91x2.50x8.75	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.50x22.00x23.30	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.38x22.00x25.20	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

Input Data:

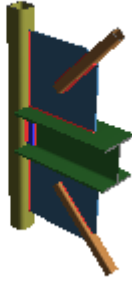
<b>Input Brace Tension</b>	-55.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	55.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-157.14 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	66.01 kips	<i>Design Compressive Load in Brace</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	157.14 kips	343.49 kips	<b>0.46</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	157.14 kips	461.16 kips	<b>0.34</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	66.01 kips	315.15 kips	<b>0.21</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	55.00 kips	101.02 kips	<b>0.54</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	55.00 kips	86.80 kips	<b>0.63</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	157.14 kips	383.88 kips	<b>0.41</b>	<b>PASS</b>

**Grid E Middle: Bot Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x79	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.91x2.50x8.7 5	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.50x22.00x23 .30	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.38x22.00x25 .20	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

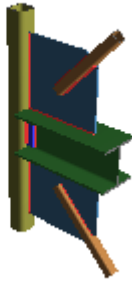
Input Data:		
<b>Input Brace Tension</b>	-55.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	55.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-157.14 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	66.01 kips	<i>Design Compressive Load in Brace</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	157.14 kips	277.66 kips	<b>0.57</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	157.14 kips	372.78 kips	<b>0.42</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	66.01 kips	242.47 kips	<b>0.27</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	55.00 kips	101.02 kips	<b>0.54</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	55.00 kips	89.72 kips	<b>0.61</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	157.14 kips	336.91 kips	<b>0.47</b>	<b>PASS</b>

**Grid E Middle: Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W12x79	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.91x2.50x8.7 5	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.50x22.00x23 .30	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.38x22.00x25 .20	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{top}</math></b>	120.00 in	User Input Clear Span of Top Brace
<b><math>L_{bottom}</math></b>	120.00 in	User Input Clear Span of Bottom Brace
<b><math>K_{top}</math></b>	1.00	User Input Effective Length Factor of Top Brace
<b><math>K_{bottom}</math></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.50	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

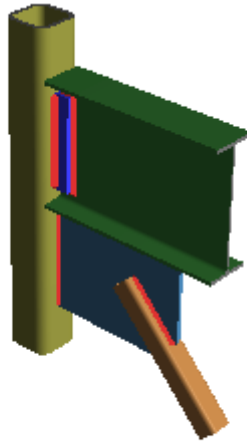
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
Controlling Load Calculation				n/a
Seismic Loading Directions				n/a
Seismic Load Distribution (Loading Direction SD1)				n/a
Seismic Load Distribution (Loading Direction SD2)				n/a
Seismic Load Distribution (Loading Direction SD3)				n/a
Seismic Load Distribution (Loading Direction SD4)				n/a
Seismic Load Distribution (Governing)				n/a
Seismic Joint Fasteners				PASS
Seismic Workpoint Limitations				PASS
Seismic Yield Stress Limitations				PASS
Seismic Brace Slenderness				PASS
Seismic Rotational Ductility				PASS
Seismic Gusset Rotation Capacity/Clearance				PASS

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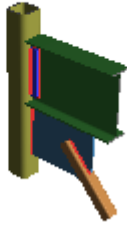
**Grid E Middle: Seismic Report (continued):**

Limit State	Required	Available	Unity Check	Result
Seismic Column Width to Thickness Ratios				PASS
Seismic Beam Width to Thickness Ratios				PASS
Seismic Top Brace Width to Thickness Ratios				PASS
Seismic Bottom Brace Width to Thickness Ratios				PASS
Check Seismic Top Brace Area				REINF REQ'D
Check Seismic Bottom Brace Area				REINF REQ'D
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Top)	545.15 kips	583.69 kips	0.93	PASS
Seismic Weld Strength at Column (Top)	514.80 kips	551.19 kips	0.93	PASS
Seismic Weld Strength at Beam (Bottom)	442.26 kips	631.37 kips	0.70	PASS
Seismic Weld Strength at Column (Bottom)	386.10 kips	551.19 kips	0.70	PASS



**Grid E Top : Summary Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.91x2.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.50x14.47x17.91	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	10.00 kips	User Input Shear Load
<b>Beam Story Force</b>	74.05 kips	Design maximum beam story force
<b>Column Force</b>	75.00 kips	User Input Column Force
<b>Column Moment</b>	4.00 kips-ft	User Input Column Moment
<b>Bot Brace Axial (Tension)</b>	-157.14 kips	Design tensile load in bottom brace
<b>Bot Brace Axial(Compression)</b>	66.01 kips	Design compressive load in bottom brace

Seismic Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b>L<sub>bottom</sub></b>	120.00 in	User Input Clear Span of Bottom Brace
<b>K<sub>bottom</sub></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.25	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	8*t <sub>p</sub>	Gusset Hinge Line Method for Brace Buckling Check

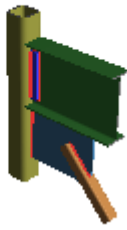
Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
<b>Beam/Column connection</b>	Weld at Beam	<b>0.72</b>	<b>PASS</b>
<b>Bottom Gusset/Beam connection</b>	Beam Weld Strength	<b>0.47</b>	<b>PASS</b>
<b>Bottom Gusset/Column connection</b>	Column Weld Strength	<b>0.40</b>	<b>PASS</b>
<b>Bottom Gusset/Brace connection</b>	Gusset Plate Tensile Yield (Whitmore)	<b>0.72</b>	<b>PASS</b>
<b>Seismic Calculations</b>	Seismic Weld Strength at Beam (Bottom)	<b>0.93</b>	<b>PASS</b>



**Grid E Top : Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.91x2.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.50x14.47x17.91	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

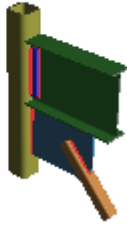
Input Data:		
<b>Shear(Compression)</b>	73.76 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	84.16 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	-16.79 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-98.11 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	122.75 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Column Force</b>	75.00 kips	<i>User Input Column Force</i>
<b>Column Moment</b>	4.00 kips-ft	<i>User Input Column Moment</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Beam Weld Limitations				<b>PASS</b>
Beam Shear Yield	73.76 kips	131.18 kips	<b>0.56</b>	<b>PASS</b>
Plate Shear Yield	73.76 kips	234.90 kips	<b>0.31</b>	<b>PASS</b>
Beam Shear Rupture	73.76 kips	127.90 kips	<b>0.58</b>	<b>PASS</b>
Plate Shear Rupture at Beam	73.76 kips	283.84 kips	<b>0.26</b>	<b>PASS</b>
Beam Axial Yield	98.11 kips	410.85 kips	<b>0.24</b>	<b>PASS</b>
Plate Axial Yield	98.11 kips	352.35 kips	<b>0.28</b>	<b>PASS</b>
Beam Tension Rupture	98.11 kips	445.09 kips	<b>0.22</b>	<b>PASS</b>
Plate Tension Rupture	98.11 kips	473.06 kips	<b>0.21</b>	<b>PASS</b>
Compression Buckling of the Plate	84.16 kips	352.35 kips	<b>0.24</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.27</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.16</b>	<b>PASS</b>
Plate Flexural Buckling			<b>0.42</b>	<b>PASS</b>
Weld at Column	10.59 kips/in	23.68 kips/in	<b>0.45</b>	<b>PASS</b>
Weld at Beam	122.75 kips	171.11 kips	<b>0.72</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	98.11 kips	140.57 kips	<b>0.70</b>	<b>PASS</b>

**Grid E Top : Bot Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.91x2.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.50x14.47x17.91	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

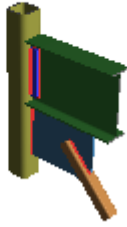
Input Data:		
<b>Shear(Compression)</b>	34.91 kips	<i>Calculated Shear due to Compression Brace Loading (SD1)</i>
<b>Axial(Compression)</b>	26.79 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	-83.10 kips	<i>Calculated Shear due to Tension Brace Loading (SD3)</i>
<b>Axial(Tension)</b>	-63.76 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	104.75 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Moment Load</b>	-7.48 kips-ft	<i>Calculated Maximum Moment (SD3)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	83.10 kips	193.40 kips	<b>0.43</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	83.10 kips	233.70 kips	<b>0.36</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	63.76 kips	290.10 kips	<b>0.22</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	63.76 kips	389.49 kips	<b>0.16</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.27</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.17</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	104.75 kips	220.90 kips	<b>0.47</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	63.76 kips	304.12 kips	<b>0.21</b>	<b>PASS</b>

**Grid E Top : Bot Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.91x2.00x12.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Bottom Gusset</b>	P0.50x14.47x17.91	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

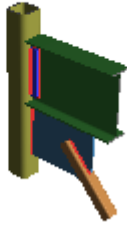
Input Data:		
<b>Shear(Compression)</b>	21.49 kips	Calculated Shear due to Compression Brace Loading (SD1)
<b>Axial(Compression)</b>	10.11 kips	Calculated Axial due to Compression Brace Loading (SD1)
<b>Shear(Tension)</b>	-51.16 kips	Calculated Shear due to Tension Brace Loading (SD3)
<b>Axial(Tension)</b>	-24.06 kips	Calculated Axial due to Tension Brace Loading (SD3)
<b>Resultant Force</b>	56.53 kips	Calculated Maximum Resultant Force due to Brace Loading (SD3)
<b>Moment Load</b>	1.72 kips-ft	Calculated Maximum Moment (SD3)

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	51.16 kips	156.28 kips	<b>0.33</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	51.16 kips	188.84 kips	<b>0.27</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	24.06 kips	234.43 kips	<b>0.10</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	24.06 kips	314.74 kips	<b>0.08</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.12</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.08</b>	<b>PASS</b>
<b>Column Weld Strength</b>	4.19 kips/in	10.45 kips/in	<b>0.40</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	24.06 kips	146.58 kips	<b>0.16</b>	<b>PASS</b>

**Grid E Top : Bot Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.91x2.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.50x14.47x17.91	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

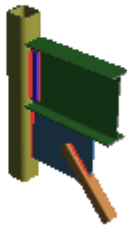
Input Data:		
<b>Input Brace Tension</b>	-55.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	55.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-157.14 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	66.01 kips	<i>Design Compressive Load in Brace</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	157.14 kips	216.96 kips	<b>0.72</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	157.14 kips	291.28 kips	<b>0.54</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	66.01 kips	207.14 kips	<b>0.32</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	55.00 kips	101.02 kips	<b>0.54</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	55.00 kips	81.79 kips	<b>0.67</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	157.14 kips	219.16 kips	<b>0.72</b>	<b>PASS</b>

**Grid E Top : Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x31	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.91x2.00x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.50x14.47x17.91	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b>L<sub>bottom</sub></b>	120.00 in	User Input Clear Span of Bottom Brace
<b>K<sub>bottom</sub></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.25	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8 * t_p$	Gusset Hinge Line Method for Brace Buckling Check

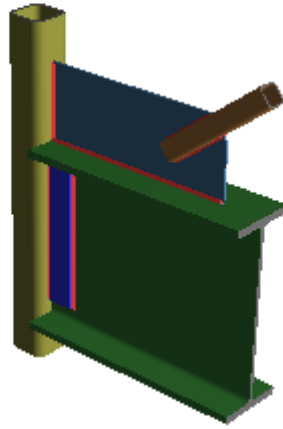
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
Controlling Load Calculation				n/a
Seismic Loading Directions				n/a
Seismic Load Distribution (Loading Direction SD1)				n/a
Seismic Load Distribution (Loading Direction SD2)				n/a
Seismic Load Distribution (Loading Direction SD3)				n/a
Seismic Load Distribution (Loading Direction SD4)				n/a
Seismic Load Distribution (Governing)				n/a
Seismic Joint Fasteners				PASS
Seismic Workpoint Limitations				PASS
Seismic Yield Stress Limitations				PASS
Seismic Brace Slenderness				PASS
Seismic Rotational Ductility				PASS
Seismic Gusset Rotation Capacity/Clearance				PASS
Seismic Column Width to Thickness Ratios				PASS
Seismic Beam Width to Thickness Ratios				PASS
Seismic Bottom Brace Width to Thickness Ratios				PASS
Check Seismic Bottom Brace Area				REINF REQ'D

continued on next page...

**Grid E Top : Seismic Report (continued):**

Limit State	Required	Available	Unity Check	Result
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Bottom)	419.04 kips	448.67 kips	0.93	PASS
Seismic Weld Strength at Column (Bottom)	338.62 kips	362.56 kips	0.93	PASS



**Grid G Bottom: Summary Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x11.27x28.86	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	80.00 kips	User Input Shear Load
<b>Beam Story Force</b>	-85.32 kips	Design maximum beam story force
<b>Column Force</b>	50.00 kips	User Input Column Force
<b>Column Moment</b>	4.00 kips-ft	User Input Column Moment
<b>Top Brace Axial (Tension)</b>	-157.14 kips	Design tensile load in top brace
<b>Top Brace Axial(Compression)</b>	66.01 kips	Design compressive load in top brace

Seismic Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{top}</math></b>	120.00 in	User Input Clear Span of Top Brace
<b><math>K_{top}</math></b>	1.00	User Input Effective Length Factor of Top Brace
<b>Ca Beam Ratio</b>	0.50	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
<b>Beam/Column connection</b>	Weld at Column	<b>0.59</b>	<b>PASS</b>
<b>Top Gusset/Beam connection</b>	Beam Weld Strength	<b>0.54</b>	<b>PASS</b>
<b>Top Gusset/Column connection</b>	Column Weld Strength	<b>0.29</b>	<b>PASS</b>
<b>Top Gusset/Brace connection</b>	Gusset Plate Tensile Yield (Whitmore)	<b>0.97</b>	<b>PASS</b>
<b>Seismic Calculations</b>	Seismic Weld Strength at Beam (Top)	<b>0.70</b>	<b>PASS</b>



**Grid G Bottom: Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.38x11.27x28.86	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

Input Data:		
<b>Shear(Compression)</b>	110.78 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	92.02 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	0.00 kips	<i>Calculated Shear due to Tension Brace Loading</i>
<b>Axial(Tension)</b>	-101.25 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	144.01 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Column Force</b>	50.00 kips	<i>User Input Column Force</i>
<b>Column Moment</b>	4.00 kips-ft	<i>User Input Column Moment</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Beam Weld Limitations				<b>PASS</b>
Beam Shear Yield	110.78 kips	505.08 kips	<b>0.22</b>	<b>PASS</b>
Plate Shear Yield	110.78 kips	356.40 kips	<b>0.31</b>	<b>PASS</b>
Beam Shear Rupture	110.78 kips	492.45 kips	<b>0.22</b>	<b>PASS</b>
Plate Shear Rupture at Beam	110.78 kips	430.65 kips	<b>0.26</b>	<b>PASS</b>
Beam Axial Yield	101.25 kips	1701.00 kips	<b>0.06</b>	<b>PASS</b>
Plate Axial Yield	101.25 kips	534.60 kips	<b>0.19</b>	<b>PASS</b>
Beam Tension Rupture	101.25 kips	1842.75 kips	<b>0.05</b>	<b>PASS</b>
Plate Tension Rupture	101.25 kips	717.75 kips	<b>0.14</b>	<b>PASS</b>
Compression Buckling of the Plate	92.02 kips	534.60 kips	<b>0.17</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.21</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.13</b>	<b>PASS</b>
Plate Flexural Buckling			<b>0.37</b>	<b>PASS</b>
Weld at Column	144.01 kips	244.99 kips	<b>0.59</b>	<b>PASS</b>
Weld at Beam	144.01 kips	319.65 kips	<b>0.45</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	101.25 kips	196.54 kips	<b>0.52</b>	<b>PASS</b>

**Grid G Bottom: Top Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x11.27x28.86	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear(Compression)</b>	45.19 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	30.78 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	-107.56 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-73.26 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	130.14 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD1)</i>
<b>Moment Load</b>	-35.61 kips-ft	<i>Calculated Maximum Moment (SD1)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	107.56 kips	233.73 kips	<b>0.46</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	107.56 kips	282.42 kips	<b>0.38</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	73.26 kips	350.59 kips	<b>0.21</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	73.26 kips	470.71 kips	<b>0.16</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.35</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.22</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	130.14 kips	239.86 kips	<b>0.54</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	73.26 kips	1139.34 kips	<b>0.06</b>	<b>PASS</b>

**Grid G Bottom: Top Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x11.27x28.86	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear(Compression)</b>	10.05 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	6.69 kips	<i>Calculated Axial due to Compression Brace Loading (SD3)</i>
<b>Shear(Tension)</b>	-23.91 kips	<i>Calculated Shear due to Tension Brace Loading (SD1)</i>
<b>Axial(Tension)</b>	-15.93 kips	<i>Calculated Axial due to Tension Brace Loading (SD1)</i>
<b>Resultant Force</b>	28.73 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD1)</i>
<b>Moment Load</b>	1.50 kips-ft	<i>Calculated Maximum Moment (SD1)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	23.91 kips	91.27 kips	<b>0.26</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	23.91 kips	110.28 kips	<b>0.22</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	15.93 kips	136.90 kips	<b>0.12</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	15.93 kips	183.81 kips	<b>0.09</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.10</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.06</b>	<b>PASS</b>
<b>Column Weld Strength</b>	28.73 kips	100.68 kips	<b>0.29</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	15.93 kips	126.36 kips	<b>0.13</b>	<b>PASS</b>

**Grid G Bottom: Top Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:

<b>Beam</b>	W27x129	A992	F <sub>y</sub> = 50.00 ksi	F <sub>u</sub> = 65.00 ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	F <sub>y</sub> = 46.00 ksi	F <sub>u</sub> = 58.00 ksi
<b>Top Gusset</b>	P0.38x11.27x28.86	A36	F <sub>y</sub> = 36.00 ksi	F <sub>u</sub> = 58.00 ksi

Input Data:

<b>Input Brace Tension</b>	-25.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	25.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-157.14 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	66.01 kips	<i>Design Compressive Load in Brace</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	157.14 kips	161.93 kips	<b>0.97</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	157.14 kips	217.41 kips	<b>0.72</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	66.01 kips	152.37 kips	<b>0.43</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	25.00 kips	101.02 kips	<b>0.25</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	25.00 kips	83.93 kips	<b>0.30</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	157.14 kips	175.27 kips	<b>0.90</b>	<b>PASS</b>

**Grid G Bottom: Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W27x129	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.75x4.00x22.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Top Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Top Gusset</b>	P0.38x11.27x28.86	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{top}</math></b>	120.00 in	User Input Clear Span of Top Brace
<b><math>K_{top}</math></b>	1.00	User Input Effective Length Factor of Top Brace
<b>Ca Beam Ratio</b>	0.50	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

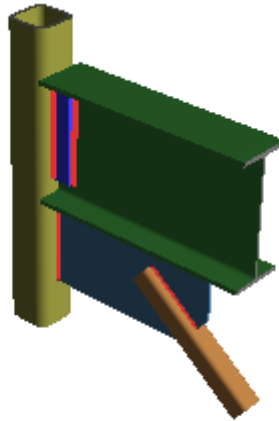
Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
Controlling Load Calculation				n/a
Seismic Loading Directions				n/a
Seismic Load Distribution (Loading Direction SD1)				n/a
Seismic Load Distribution (Loading Direction SD2)				n/a
Seismic Load Distribution (Loading Direction SD3)				n/a
Seismic Load Distribution (Loading Direction SD4)				n/a
Seismic Load Distribution (Governing)				n/a
Seismic Joint Fasteners				PASS
Seismic Workpoint Limitations				PASS
Seismic Yield Stress Limitations				PASS
Seismic Brace Slenderness				PASS
Seismic Rotational Ductility				PASS
Seismic Gusset Rotation Capacity/Clearance				PASS
Seismic Column Width to Thickness Ratios				PASS
Seismic Beam Width to Thickness Ratios				PASS
Seismic Top Brace Width to Thickness Ratios				PASS
Check Seismic Top Brace Area				REINF REQ'D

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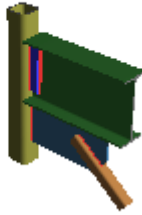
**Grid G Bottom: Seismic Report (continued):**

Limit State	Required	Available	Unity Check	Result
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Top)	506.41 kips	722.96 kips	0.70	PASS
Seismic Weld Strength at Column (Top)	197.75 kips	282.31 kips	0.70	PASS



**Grid G Top: Summary Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x45	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.50x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.38x12.36x23.12	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Shear Load</b>	80.00 kips	User Input Shear Load
<b>Beam Story Force</b>	85.56 kips	Design maximum beam story force
<b>Column Force</b>	50.00 kips	User Input Column Force
<b>Column Moment</b>	4.00 kips-ft	User Input Column Moment
<b>Bot Brace Axial (Tension)</b>	-157.14 kips	Design tensile load in bottom brace
<b>Bot Brace Axial(Compression)</b>	66.01 kips	Design compressive load in bottom brace

Seismic Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b><math>L_{bottom}</math></b>	120.00 in	User Input Clear Span of Bottom Brace
<b><math>K_{bottom}</math></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.50	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8*t_p$	Gusset Hinge Line Method for Brace Buckling Check

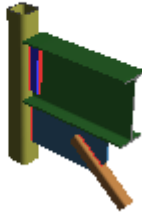
Note: Unless specified, all code references are from AISC 360-10

Connection	Required	Max Unity Check	Result
<b>Beam/Column connection</b>	Beam Shear Rupture	<b>0.85</b>	<b>PASS</b>
<b>Bottom Gusset/Beam connection</b>	Beam Weld Strength	<b>0.58</b>	<b>PASS</b>
<b>Bottom Gusset/Column connection</b>	Column Weld Strength	<b>0.39</b>	<b>PASS</b>
<b>Bottom Gusset/Brace connection</b>	Gusset Plate Tensile Yield (Whitmore)	<b>0.97</b>	<b>PASS</b>
<b>Seismic Calculations</b>	Seismic Weld Strength at Beam (Bottom)	<b>0.84</b>	<b>PASS</b>



**Grid G Top: Beam/Column Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x45	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.50x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.38x12.36x23.12	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

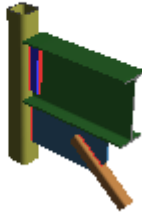
Input Data:		
<b>Shear(Compression)</b>	138.47 kips	<i>Calculated Shear due to Compression Brace Loading (SD3)</i>
<b>Axial(Compression)</b>	94.71 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	0.00 kips	<i>Calculated Shear due to Tension Brace Loading</i>
<b>Axial(Tension)</b>	-107.35 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	175.20 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Column Force</b>	50.00 kips	<i>User Input Column Force</i>
<b>Column Moment</b>	4.00 kips-ft	<i>User Input Column Moment</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
HSS Punching Shear				<b>PASS</b>
Column Weld Limitations				<b>PASS</b>
Beam Weld Limitations				<b>PASS</b>
Beam Shear Yield	138.47 kips	166.63 kips	<b>0.83</b>	<b>PASS</b>
Plate Shear Yield	138.47 kips	226.80 kips	<b>0.61</b>	<b>PASS</b>
Beam Shear Rupture	138.47 kips	162.47 kips	<b>0.85</b>	<b>PASS</b>
Plate Shear Rupture at Beam	138.47 kips	274.05 kips	<b>0.51</b>	<b>PASS</b>
Beam Axial Yield	107.35 kips	598.50 kips	<b>0.18</b>	<b>PASS</b>
Plate Axial Yield	107.35 kips	340.20 kips	<b>0.32</b>	<b>PASS</b>
Beam Tension Rupture	107.35 kips	648.38 kips	<b>0.17</b>	<b>PASS</b>
Plate Tension Rupture	107.35 kips	456.75 kips	<b>0.24</b>	<b>PASS</b>
Compression Buckling of the Plate	94.71 kips	340.20 kips	<b>0.28</b>	<b>PASS</b>
Plate Flexural Yield			<b>0.71</b>	<b>PASS</b>
Plate Flexural Rupture			<b>0.44</b>	<b>PASS</b>
Plate Flexural Buckling			<b>0.71</b>	<b>PASS</b>
Weld at Column	15.28 kips/in	19.49 kips/in	<b>0.78</b>	<b>PASS</b>
Weld at Beam	175.20 kips	216.86 kips	<b>0.81</b>	<b>PASS</b>
HSS Transverse Plastification (compression)	107.35 kips	139.92 kips	<b>0.77</b>	<b>PASS</b>

**Grid G Top: Bot Gusset/Beam Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x45	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.50x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.38x12.36x23.12	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

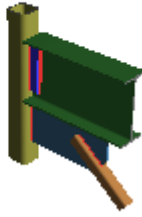
Input Data:		
<b>Shear(Compression)</b>	42.87 kips	<i>Calculated Shear due to Compression Brace Loading (SD1)</i>
<b>Axial(Compression)</b>	24.56 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	-102.04 kips	<i>Calculated Shear due to Tension Brace Loading (SD3)</i>
<b>Axial(Tension)</b>	-58.47 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	117.60 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Moment Load</b>	-12.12 kips-ft	<i>Calculated Maximum Moment (SD3)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Beam Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	102.04 kips	187.30 kips	<b>0.54</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	102.04 kips	226.32 kips	<b>0.45</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	58.47 kips	280.95 kips	<b>0.21</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	58.47 kips	377.21 kips	<b>0.15</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.39</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.25</b>	<b>PASS</b>
<b>Beam Weld Strength</b>	117.60 kips	204.41 kips	<b>0.58</b>	<b>PASS</b>
<b>Beam Web Yielding</b>	58.47 kips	482.29 kips	<b>0.12</b>	<b>PASS</b>

**Grid G Top: Bot Gusset/Col Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x45	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.50x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.38x12.36x23.12	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

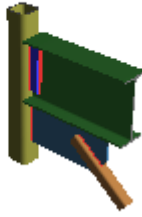
Input Data:		
<b>Shear(Compression)</b>	16.08 kips	<i>Calculated Shear due to Compression Brace Loading (SD1)</i>
<b>Axial(Compression)</b>	9.15 kips	<i>Calculated Axial due to Compression Brace Loading (SD1)</i>
<b>Shear(Tension)</b>	-38.28 kips	<i>Calculated Shear due to Tension Brace Loading (SD3)</i>
<b>Axial(Tension)</b>	-21.79 kips	<i>Calculated Axial due to Tension Brace Loading (SD3)</i>
<b>Resultant Force</b>	44.04 kips	<i>Calculated Maximum Resultant Force due to Brace Loading (SD3)</i>
<b>Moment Load</b>	1.65 kips-ft	<i>Calculated Maximum Moment (SD3)</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>HSS Punching Shear</b>				<b>PASS</b>
<b>Column Weld Limitations</b>				<b>PASS</b>
<b>Plate Shear Yield</b>	38.28 kips	100.12 kips	<b>0.38</b>	<b>PASS</b>
<b>Plate Shear Rupture</b>	38.28 kips	120.97 kips	<b>0.32</b>	<b>PASS</b>
<b>Plate Axial Yield</b>	21.79 kips	150.18 kips	<b>0.15</b>	<b>PASS</b>
<b>Plate Tension Rupture</b>	21.79 kips	201.62 kips	<b>0.11</b>	<b>PASS</b>
<b>Plate Flexural Yield</b>			<b>0.18</b>	<b>PASS</b>
<b>Plate Flexural Rupture</b>			<b>0.12</b>	<b>PASS</b>
<b>Column Weld Strength</b>	44.04 kips	112.68 kips	<b>0.39</b>	<b>PASS</b>
<b>HSS Transverse Plastification (compression)</b>	21.79 kips	132.39 kips	<b>0.16</b>	<b>PASS</b>

**Grid G Top: Bot Gusset/Brace Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x45	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.50x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.38x12.36x23.12	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

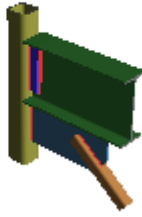
Input Data:		
<b>Input Brace Tension</b>	-25.00 kips	<i>User-input Tensile Load in Brace</i>
<b>Input Brace Compression</b>	25.00 kips	<i>User-input Compressive Load in Brace</i>
<b>Brace Axial (Tension)</b>	-157.14 kips	<i>Design Tensile Load in Brace</i>
<b>Brace Axial(Compression)</b>	66.01 kips	<i>Design Compressive Load in Brace</i>

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
<b>Brace Weld Limitations</b>				<b>PASS</b>
<b>Gusset Plate Tensile Yield (Whitmore)</b>	157.14 kips	162.72 kips	<b>0.97</b>	<b>PASS</b>
<b>Gusset Plate Tensile Rupture (Whitmore)</b>	157.14 kips	218.46 kips	<b>0.72</b>	<b>PASS</b>
<b>Gusset Plate Compression (Whitmore)</b>	66.01 kips	150.90 kips	<b>0.44</b>	<b>PASS</b>
<b>Brace Tensile Yield</b>	25.00 kips	101.02 kips	<b>0.25</b>	<b>PASS</b>
<b>Brace Tensile Rupture</b>	25.00 kips	84.00 kips	<b>0.30</b>	<b>PASS</b>
<b>Brace Weld Strength</b>	157.14 kips	176.37 kips	<b>0.89</b>	<b>PASS</b>

**Grid G Top: Seismic Report**

Vertical Brace Diagonal Connection



Material Properties:				
<b>Beam</b>	W16x45	A992	$F_y = 50.00$ ksi	$F_u = 65.00$ ksi
<b>Column</b>	HSS6x6x10	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Plate</b>	P0.88x2.50x12.00	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Brace</b>	HSS3x3x4	A500 Gr.B Rect	$F_y = 46.00$ ksi	$F_u = 58.00$ ksi
<b>Bottom Gusset</b>	P0.38x12.36x23.12	A36	$F_y = 36.00$ ksi	$F_u = 58.00$ ksi

Input Data:		
<b>Seismic System</b>	SCBF	User Input Seismic System
<b>L<sub>bottom</sub></b>	120.00 in	User Input Clear Span of Bottom Brace
<b>K<sub>bottom</sub></b>	1.00	User Input Effective Length Factor of Bottom Brace
<b>Ca Beam Ratio</b>	0.50	User-Input Ratio of Required Strength to Available Strength
<b>Gusset Hinge Line</b>	$8 * t_p$	Gusset Hinge Line Method for Brace Buckling Check

Note: Unless specified, all code references are from AISC 360-10

Limit State	Required	Available	Unity Check	Result
Controlling Load Calculation				n/a
Seismic Loading Directions				n/a
Seismic Load Distribution (Loading Direction SD1)				n/a
Seismic Load Distribution (Loading Direction SD2)				n/a
Seismic Load Distribution (Loading Direction SD3)				n/a
Seismic Load Distribution (Loading Direction SD4)				n/a
Seismic Load Distribution (Governing)				n/a
Seismic Joint Fasteners				PASS
Seismic Workpoint Limitations				PASS
Seismic Yield Stress Limitations				PASS
Seismic Brace Slenderness				PASS
Seismic Rotational Ductility				PASS
Seismic Gusset Rotation Capacity/Clearance				PASS
Seismic Column Width to Thickness Ratios				PASS
Seismic Beam Width to Thickness Ratios				PASS
Seismic Bottom Brace Width to Thickness Ratios				PASS
Check Seismic Bottom Brace Area				REINF REQ'D

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**Grid G Top: Seismic Report (continued):**

Limit State	Required	Available	Unity Check	Result
Seismic Weld Limitations				PASS
Seismic Weld Strength at Beam (Bottom)	405.82 kips	482.79 kips	0.84	PASS
Seismic Weld Strength at Column (Bottom)	216.92 kips	258.06 kips	0.84	PASS

**APPENDIX D**  
ELF Method Calculations

Component	Snow (psf)	Dead (psf)	Length (ft)	Width (ft)	Area (ft <sup>2</sup> )	Height (ft)	Perimeter (ft)	Seismic Weight (lbs)
Garage Roof	189	29	--	--	864	--	--	74044.8
Garage Walls		17	40	24.75		9.875	129.5	10869.90625
								<b>84914.70625</b>
Garage Walls		17	40	24.75		9.875	129.5	10869.90625
Garage Floor		63.8	--	--	864			55123.2
								<b>65993.10625</b>
Roof	189	29	--	--	2400	--	--	205680
Main Floor Walls		21.5	96	36		10	264	28380
								<b>234060</b>
Main Floor Walls		21.5	96	36		10	264	28380
Main Floor		87	96	28		--	--	233856
Lower Floor Walls		125	--	--		11	88	60500
								<b>322736</b>
Main Floor Walls		125	--	--		11	88	60500
Lower Floor		57.3	25	29		--	--	41542.5
Lower Floor Walls		125	--	--		9	88	49500
								<b>151542.5</b>
<b>Total</b>								<b>859246.3125</b>



Seismic Distribution - Elastic Design Forces

Main House

Base	Seismic Weight $w_x$ (lbs)	Height Below (ft)	Elev From Base $h_x$ (ft)	$w_x h_x^k$	$C_v x$
Lower Floor	151542.5	9	9	1363882.5	0.06774294
Main Floor	322736	11	20	6454720	0.32060074
Garage Floor	65993.10625	9	29	1913800.081	0.09505691
Main Roof	234060	1.333	30.333	7099741.98	0.35263846
Garage Roof	84914.70625	8.542	38.875	3301059.205	0.16396095
Floor 6			0	0	0
Floor 7			0	0	0
Floor 8			0	0	0
Floor 9			0	0	0
Floor 10			0	0	0
<b>SUM <math>\Sigma</math></b>	859246.3125			20133203.77	
$V_{BASE}^*R$	508673.817				
$V_{BASE DESIGN}$	119456.2189				

**Level 1**

V<sub>BASE</sub>\*R 508673.817  
C<sub>vx</sub> 0.06774294  
V<sub>elastic</sub> 34459.062

Diaphragms @ Level	Sub Name	Length(ft) (z)	Width(ft) (x)	Weight (lbs)	% of W <sub>TOT</sub>	V <sub>DIA-elastic</sub>	R	V <sub>DESIGN</sub>	Area	UDL
D1	Lower Floor			151542.5	1	34459.06202	3.25	10602.7883	608	17.4387966
				<b>151542.5</b>		0		0		

Diaphragms are to allow for distribution of seismic loads for variable weights in assemblies on same floor.  
When designing base shear, designer needs to factor down V<sub>DIA-elastic</sub> for the appropriate ductility factor.

**Level 2**

V <sub>BASE</sub> *R	508673.817
C <sub>vix</sub>	0.320600739
V <sub>elastic</sub>	163081.2015

Diaphragms @ Level	Sub Name	Length(ft) (z)	Width(ft) (x)	Weight (lbs)	% of W <sub>i</sub> -TOT	V <sub>DIA-elastic</sub>	R	V <sub>DESIGN</sub>	Area	UDL
D1	Ground Floor	96	28	322736	100	163081.2015	3.25	50178.8312	2464	20.3647854
D2					0	0				
D3					0	0				

**322736**

*Diaphragms are to allow for distribution of seismic loads for variable weights in assemblies on same floor.  
When designing base shear, designer needs to factor down V<sub>DIA-elastic</sub> for the appropriate ductility factor.*

**Garage Floor**

V <sub>BASE</sub> *R	508673.817
C <sub>VX</sub>	0.09505691
V <sub>elastic</sub>	48352.9598

Diaphragms @ Level	Sub Name	Length(ft) (z)	Width(ft) (x)	Weight (lbs)	% of W <sub>i-TOT</sub>	V <sub>DIA-elastic</sub>	R	V <sub>DESIGN</sub>	Area	UDL
D1	Garage Floor	24	36	65993.10625	100	48352.9598	3.25	14877.8338	864	17.219715
D2					0	0				
D3					0	0				
				<b>65993.10625</b>						

Diaphragms are to allow for distribution of seismic loads for variable weights in assemblies on same floor.  
 When designing base shear, designer needs to factor down V<sub>DIA-elastic</sub> for the appropriate ductility factor.

**Level 3**

V <sub>BASE*R</sub>	508673.817
C <sub>VX</sub>	0.35263846
V <sub>elastic</sub>	179377.952

Diaphragms @ Level	Sub Name	Length(ft) (z)	Width(ft) (x)	Weight (lbs)	% of W <sub>i-TOT</sub>	V <sub>DIA-elastic</sub>	R	V <sub>DESIGN</sub>	Area	UDL
D1	Full Roof	96	39	65993.10625	100	179377.9517	6	29896.3253	2176	13.7391201
D2					0	0				
D3					0	0				
				<b>65993.10625</b>						

Diaphragms are to allow for distribution of seismic loads for variable weights in assemblies on same floor.  
When designing base shear, designer needs to factor down V<sub>DIA-elastic</sub> for the appropriate ductility factor.

**Garage Floor**

V <sub>BASE*R</sub>	508673.817
C <sub>VX</sub>	0.16396095
V <sub>elastic</sub>	83402.642

Diaphragms @ Level	Sub Name	Length(ft) (z)	Width(ft) (x)	Weight (lbs)	% of W <sub>i-TOT</sub>	V <sub>DIA-elastic</sub>	R	V <sub>DESIGN</sub>	Area	UDL
D1	Garage Roof			84914.70625	100	83402.64201	6	13900.4403	950	14.6320425
D2				0	0	0				
D3				0	0	0				
				<b>84914.70625</b>						

Diaphragms are to allow for distribution of seismic loads for variable weights in assemblies on same floor.  
 When designing base shear, designer needs to factor down V<sub>DIA-elastic</sub> for the appropriate ductility factor.

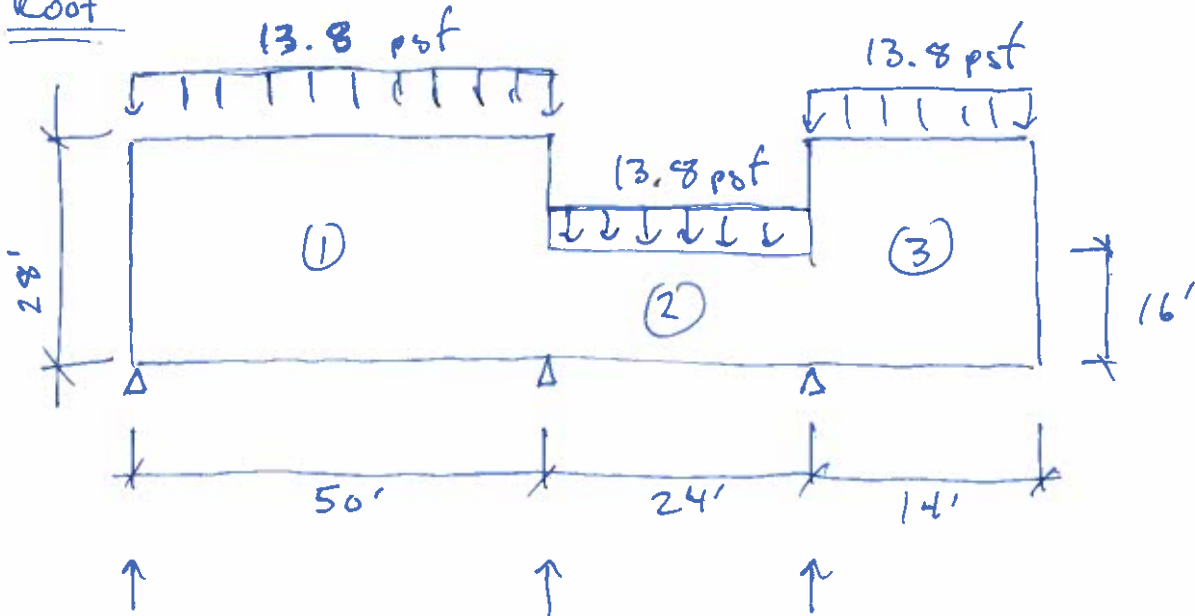
**APPENDIX E**  
Diaphragm Calculations

Seal	Title Lot 14R Diaphragm Forces	Project # 170950	Date 2018-08-15
		Designer MJC	Scale —
		Checked by	Sheet # 1 of 2

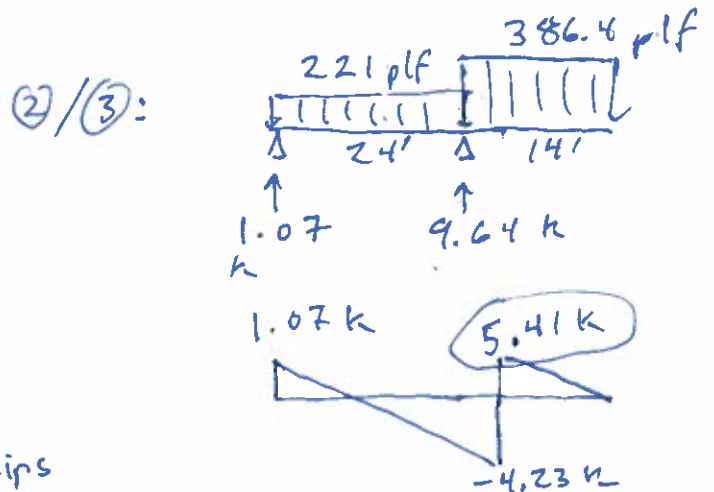
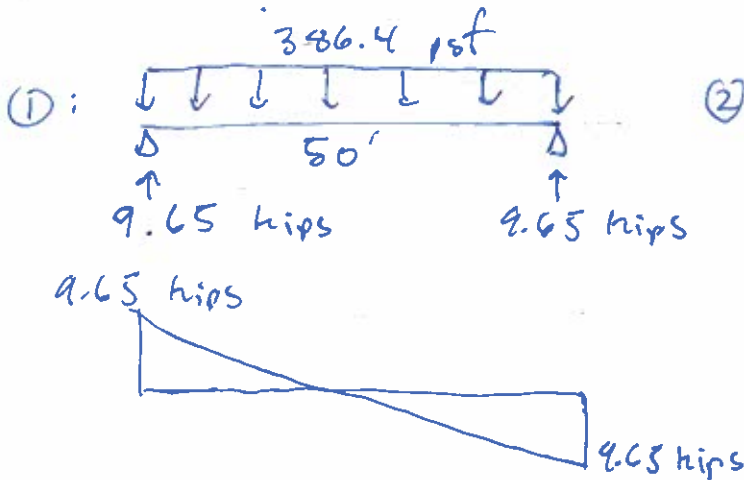
Toronto 416.593.5300 | Waterloo 519.616.0895 | Victoria 778.817.1010 | Halifax 902.593.0125 | Montréal 514.316.9202 | blackwell.ca

Diaphragm Forces

Roof



↳ Treat as simply supported areas



Diaphragm is 36' wide (including ends of curved wall)

$\Rightarrow V_{roof} = \frac{9.65 \text{ k}}{36'} = 0.268 \text{ k/ft}$  OR

↳ Diaphragm is 16' wide

$V_{roof} = \frac{5.41 \text{ k}}{16'} \times 1.25$

Increases by 1.25 = 0.334 kip/ft

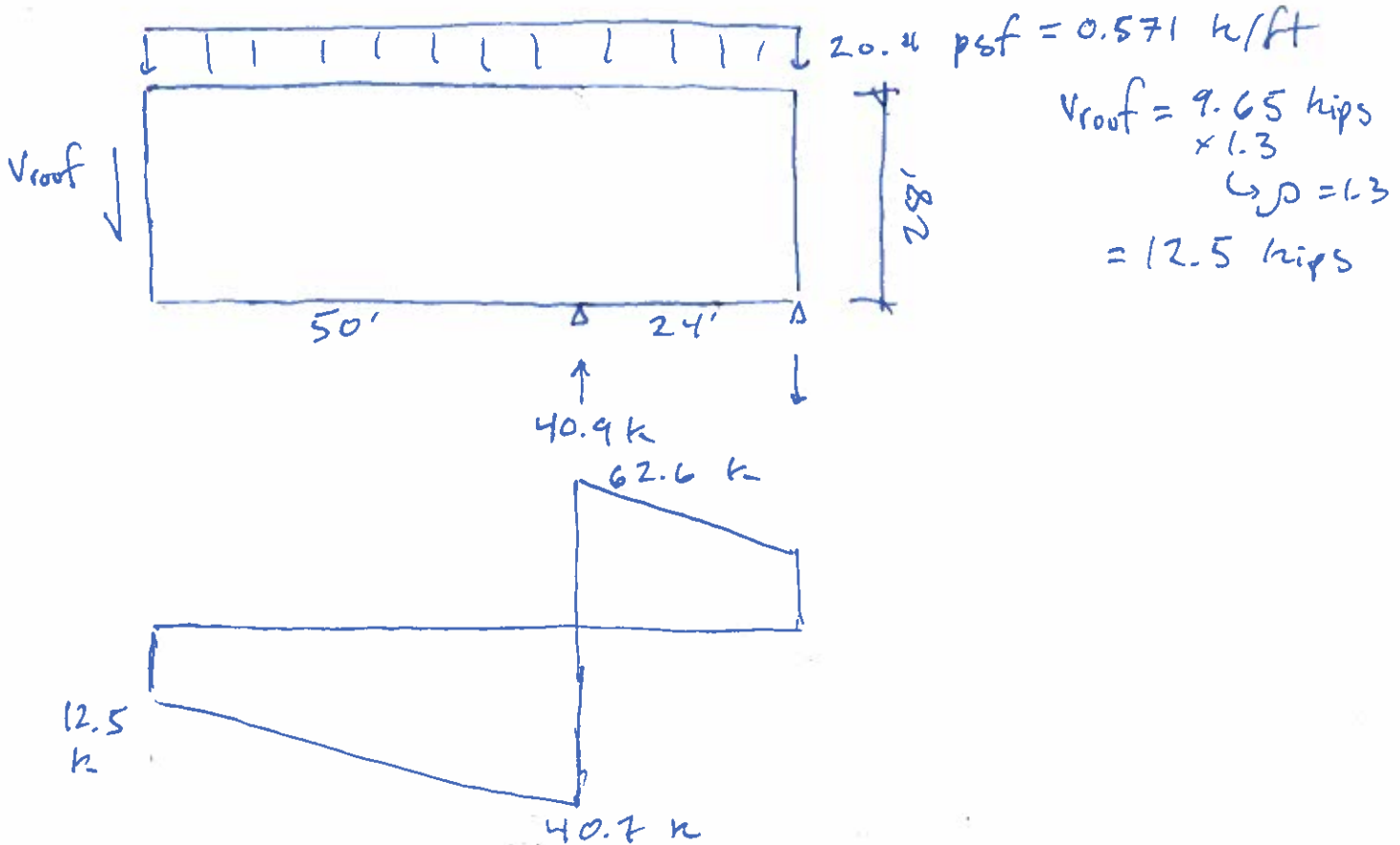
= 0.425 Page 320 of 323 kip/ft



Seal	Title	Project #	Date
	Lot 14R	170950	2018-08-15
	Diaphragm Forces	Designer	Scale
		<i>M.B.C.</i>	—
		Checked by	Sheet #
			2 of 2

Toronto 416.593.5300 | Waterloo 519.616.0895 | Victoria 778.817.1010 | Halifax 902.593.0125 | Montréal 514.316.9202 | blackwell.ca

Main Floor → Treat as simply support then subtract force taken by lower brace



$V_{max} = 62.6 \text{ k} - 15 \text{ k} = 47.6 \text{ k}$

← Lower tension only brace (Etabs model)

Increase by 1.25 = 59.5 k

Diaphragm is 24' wide  $\Rightarrow$  2.48 k/ft

↳ Diaphragm design force

# Vulcraft Deck Diaphragm Shear & Stiffness

Per SDI DDM03

In accordance with 2015 IBC Section 2210 ANSI/SDI RD-1.0, NC1.0 & C-2011

Calculation Generated on 8/14/2018 Using Calculator V1.1



## Input Design Criteria

Unit System	Imperial	Deck to Support Attachment Type	Hilti X-ENP19
Design Method	LRFD		
Deck Option	Roof Deck	Support Member	A572 GR50
Deck Type	1.5B-36	Perpendicular Attachment Pattern	36 / 7
Deck Gage	20	Sidelap Attachment Type	#10 Screw
Deck Grade	Grade 33	Table Generator Formatting:	
Number of Spans	3	Tables Generated Based on	Sidelap Attachment Spacing (in.)
MWFRS Net Wind Uplift (psf)	0.00		
		Start Table at Span of (ft.)	3.00
		Spans Increment at (ft.)	0.50

Please refer to the Vulcraft Deck Catalog for product availability.

The vertical gravity load capacity of the deck based on bending stress and applicable deflection criteria must be checked separately.

Use selected support attachment type for both perpendicular attachment and parallel attachment of steel deck.

Note: Support Steel Thickness  $\geq 1/4$  in.

Sidelap Attachment Spacing (in.)	LRFD Seismic Diaphragm Shear Strength (plf)						
	Span (ft. - in.)						
	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
36	957	953	849	764	693	628	573
24	1084	953	849	858	781	716	657
18	1084	1063	950	858	865	795	734
12	1202	1166	1047	1034	946	945	876
8	1409	1351	1224	1194	1160	1149	1072
6	1490	1433	1380	1337	1302	1272	1246
4	1724	1703	1635	1627	1575	1575	1533



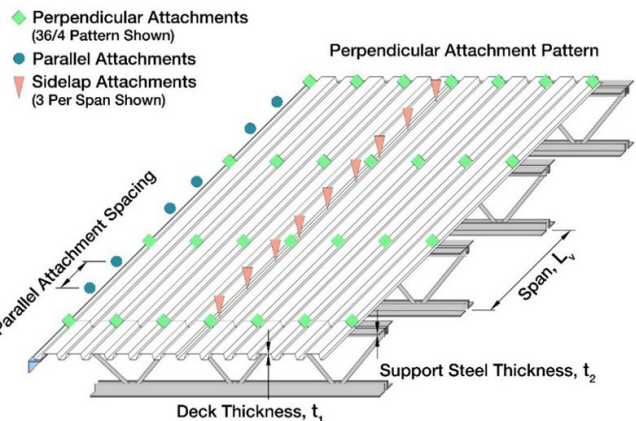
Sidelap Attachment Spacing (in.)	Parallel Attachment Spacing to Chords and Collectors (in. o.c.)						
	Span (ft. - in.)						
	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
36	27	32	29	32	30	33	36
24	27	32	29	32	30	33	36
18	27	25	29	32	30	33	36
12	22	25	29	27	30	33	36
8	22	21	24	27	30	28	31
6	22	21	24	23	26	28	27
4	18	18	21	20	23	22	24

Sidelap Attachment Spacing (in.)	LRFD Wind Diaphragm Shear Strength (plf)						
	Span (ft. - in.)						
	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
36	1031	1027	914	822	747	676	618
24	1168	1027	914	924	841	771	707
18	1168	1145	1024	924	932	856	791
12	1295	1256	1128	1114	1019	1017	943
8	1518	1455	1318	1286	1250	1238	1154
6	1615	1544	1487	1440	1402	1360	1342
4	1857	1834	1760	1753	1697	1696	1651



Sidelap Attachment Spacing (in.)	Parallel Attachment Spacing to Chords and Collectors (in. o.c.)						
	Span (ft. - in.)						
	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
36	27	32	29	32	30	33	36
24	27	32	29	32	30	33	36
18	27	25	29	32	30	33	36
12	22	25	29	27	30	33	36
8	22	21	24	27	30	28	31
6	22	21	24	23	26	28	27
4	18	18	21	20	23	22	24

Sidelap Attachment Spacing (in.)	Diaphragm Shear Stiffness, G' (Kip/in)						
	Span (ft. - in.)						
	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
36	69	76	77	78	78	77	76
24	73	76	77	83	83	83	82
18	73	79	82	83	87	88	87
12	76	82	85	80	91	95	95
8	79	86	80	95	99	103	104
6	81	87	93	98	102	106	100
4	84	92	98	104	109	114	117



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# Vulcraft Deck Diaphragm Shear & Stiffness

Per SDI DDM03

In accordance with 2015 IBC Section 2210 ANSI/SDI RD-1.0, NC1.0 & C-2011

Calculation Generated on 8/14/2018 Using Calculator V1.1



## Input Design Criteria

Unit System	<b>Imperial</b>	Deck to Support Attachment Type	<b>Hilti X-ENP19</b>
Design Method	<b>LRFD</b>		
Deck Option	<b>Composite Deck - No Fill</b>	Support Member	<b>A572 GR50</b>
Deck Type	<b>1.5VL-36</b>	Perpendicular Attachment Pattern	<b>36 / 7</b>
Deck Gage	<b>16</b>	Sidelap Attachment Type	<b>#10 Screw</b>
Deck Grade	<b>Grade 40</b>	Table Generator Formatting:	
Number of Spans	<b>3</b>	Tables Generated Based on	<b>Sidelap Attachment Spacing (in.)</b>
MWFRS Net Wind Uplift (psf)	<b>0.00</b>		
		Start Table at Span of (ft.)	<b>3.00</b>
		Spans Increment at (ft.)	<b>0.50</b>

Please refer to the Vulcraft Deck Catalog for product availability.

The vertical gravity load capacity of the deck based on bending stress and applicable deflection criteria must be checked separately.

Use selected support attachment type for both perpendicular attachment and parallel attachment of steel deck.

**Note: Support Steel Thickness  $\geq$  1/4 in.**

Sidelap Attachment Spacing (in.)	LRFD Seismic Diaphragm Shear Strength (plf)						
	Span (ft. - in.)						
	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
36	1565	1562	1391	1252	1137	1040	951
24	1777	1562	1391	1409	1282	1176	1085
18	1777	1745	1560	1409	1423	1307	1208
12	1972	1916	1721	1702	1558	1557	1444
8	2315	2222	2015	1967	1928	1896	1769
6	2464	2358	2273	2203	2146	2098	2057
4	2832	2800	2680	2679	2595	2595	2528

Sidelap Attachment Spacing (in.)	Parallel Attachment Spacing to Chords and Collectors (in. o.c.)						
	Span (ft. - in.)						
	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
36	27	25	29	32	30	33	36
24	27	25	29	32	30	33	36
18	27	25	29	32	30	33	36
12	22	25	29	27	30	33	36
8	22	21	24	27	26	28	31
6	22	21	24	23	26	28	27
4	18	18	21	20	23	22	24

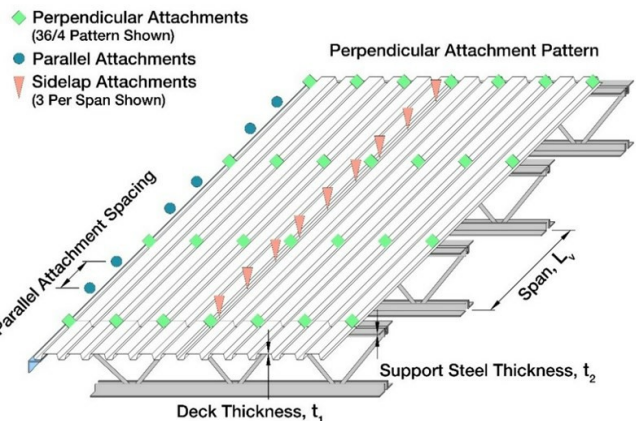


Sidelap Attachment Spacing (in.)	LRFD Wind Diaphragm Shear Strength (plf)						
	Span (ft. - in.)						
	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
36	1685	1683	1498	1348	1224	1120	1024
24	1913	1683	1498	1517	1381	1266	1169
18	1913	1879	1681	1517	1532	1408	1301
12	2124	2063	1853	1833	1678	1677	1555
8	2493	2393	2160	2119	2077	2042	1905
6	2654	2539	2447	2373	2311	2259	2215
4	3040	3016	2897	2885	2795	2794	2723

Sidelap Attachment Spacing (in.)	Parallel Attachment Spacing to Chords and Collectors (in. o.c.)						
	Span (ft. - in.)						
	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
36	27	25	29	32	30	33	36
24	27	25	29	32	30	33	36
18	27	25	29	32	30	33	36
12	22	25	29	27	30	33	36
8	22	21	24	27	26	28	31
6	22	21	24	23	26	28	27
4	18	18	21	20	23	22	24

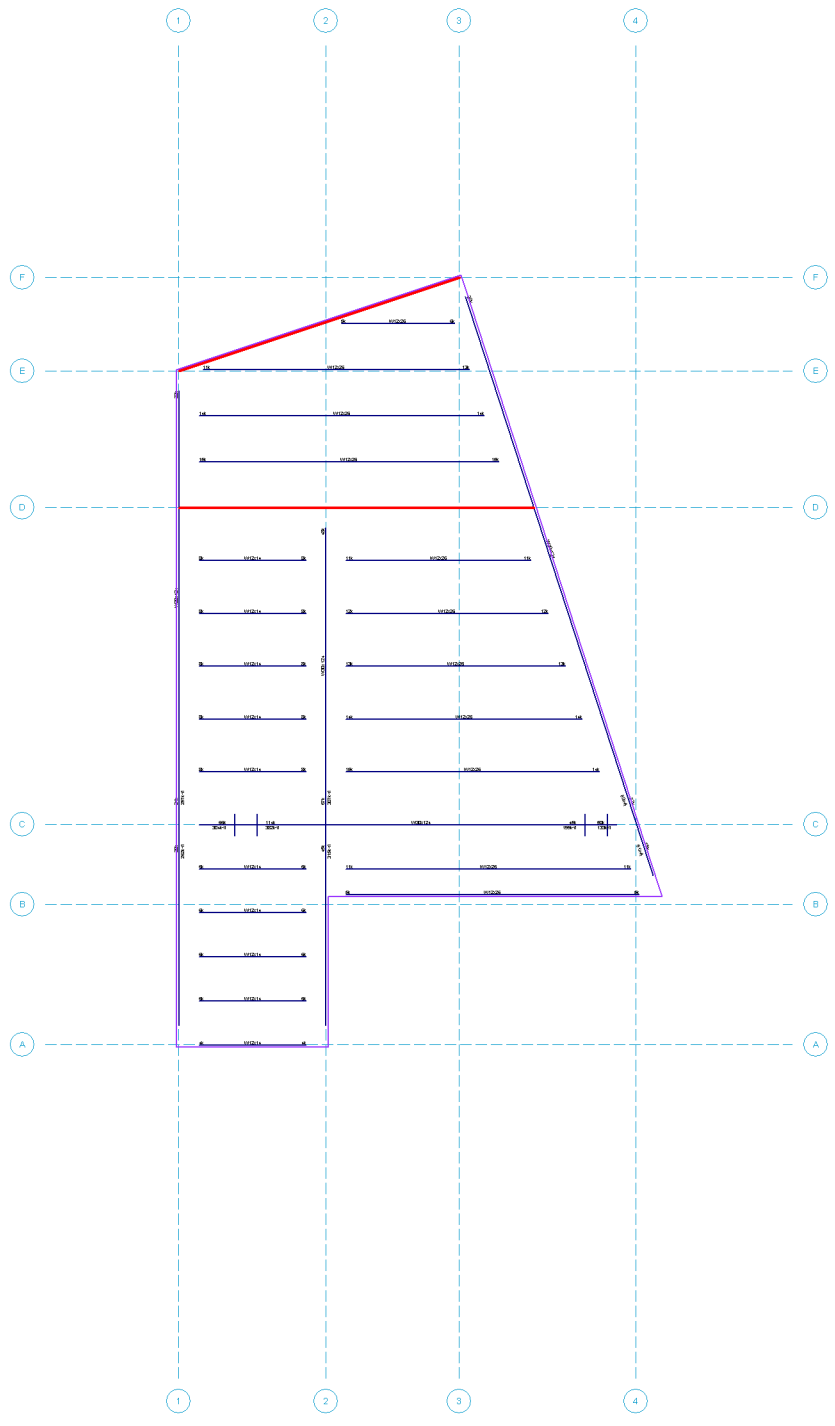


Sidelap Attachment Spacing (in.)	Diaphragm Shear Stiffness, G' (Kip/in)						
	Span (ft. - in.)						
	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"
36	143	153	149	144	139	134	129
24	156	153	149	157	153	148	143
18	156	165	162	157	164	150	155
12	166	174	172	178	174	179	175
8	180	188	188	193	197	201	198
6	186	193	199	204	208	212	214
4	198	209	216	224	229	235	238



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**APPENDIX F**  
Bridge Structure Design



Model: Bridge SK - 1  
Date: 2018-08-13 4:47 AM  
User: rfi

### Bridge

SK - 1

Aug 15, 2018 at 4:47 AM

2018-08-13 Working Model.rfl



<chFc`YX: 6fjXj Yf7 cbhbi YXL

Sää^	Š}^* cZca	Sà^`Zca	Sà::Zca	S&[ ] Á/ HES&[ { ] Á/ HES[ ]~ HEE	Ôa	Ô[ { ]•æ^ à^! Z áÓP~Á~ HEE~ÁÚa @EE
FÍ	HÓFFË	FF		Ě		Ÿ^.
FÌ	HÓFFË€	FF		Ě		Ÿ^.
FĪ	HÓFGĪ	GFĪĪ F		Ě		Ÿ^.
FĪ	HÓFGĪ	GFĪĪ JG		Ōæ ā *		Ÿ^.
FJ	HÓFGĪ	FJĪĪ FG		Ě		Ÿ^.
G€	HÓFGĪ	FĪĪHH		Ě		Ÿ^.
GF	HÓFGĪ	FĪĪĪĪ		Ě		Ÿ^.
GG	HÓFGĪ	GĪĪĪ		Ě		Ÿ^.
GH	HÓFGĪ	GĪĪĪĪ		Ě		Ÿ^.
G	HÓFGĪ€	GFĪĪH		Ě		Ÿ^.
GĪ	HÓFGĪFF	FFĪĪĪĪ		Ě		Ÿ^.

8 YgJj b'GjnY# '7"DUfUa YHfg

Sää^	TæÁÓ^	cZá Tá ÁÓ^	cZá Tá ÁÓ^	TæÁ æcZá Tá ÁÓ^	TæÁ æcZá Tá ÁÓ^	TæÁÓ^ áá^ ÁÓ@	TæÁÚ@æÁÓ@
F	V ] ææ					F	F
G	Y UF					F	F

6 Yua 7cXYGi a a UfmZf'<chFc`YX: 6fjXj Y

Sää^	Uá^	Ōj ææ	Úc á• Óæ	HEE æ HEÓ^ áá HEE ŠZca	ŠÓ	Ō~ÁÓ@&	Š &Zca	Ōæ	Ú@æ/HEE &HE ŠÓ
F	HÓFĪ	Y HEGFI	Ÿ^.	€	ŌEJG ĪĪĪ ĪĪĪJ FG	ĪĪĪ	€	ŌSEŠŠ	ĪĪĪ ĪĪĪ FG
G	HÓĪ	Y HEGFI	Ÿ^.	€	ŌEJG ĪĪĪ HĪĪG FG	ĪĪĪ	€	ŌSEŠŠ	ĪĪĪ ĪĪĪ FG
H	HÓĪ	Y HEGFI	Ÿ^.	€	ŌEJG ĪĪĪ FĪĪGH FG	ĪĪĪ H	€	ŌSEŠŠ	ĪĪĪ FĪĪ FG
I	HÓFH	Y HEGFI	Ÿ^.	€	ŌEJG ĪĪĪ FĪĪĪJ FG	ĪĪĪF	€	ŌSEŠŠ	ĪĪĪ FĪĪ FG
Í	HÓFFË	Y FGFI	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪĪ FG	ĪĪĪ H ĪĪĪĪ	ĪĪĪĪ	ŌSEŠŠ	ĪĪĪ F € FG
Î	HÓFGË	Y FGĪ	Ÿ^.	€	ŌEJG ĪĪĪĪ FGĪĪĪ FG	ĪĪĪ FGĪĪĪ	FGĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
Ï	HÓFFË	Y FGFI	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪĪ FG	ĪĪĪ ĪĪĪĪ	ĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
Ì	HÓFFË	Y FGFI	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪĪ FG	ĪĪĪ ĪĪĪĪ	ĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
J	HÓFFË	Y FGFI	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪĪ FG	ĪĪĪ ĪĪĪĪ	ĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
F€	HÓFFË	Y FGFI	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪĪ FG	ĪĪĪ ĪĪĪĪ	ĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
FF	HÓFGË	Y FGĪ	Ÿ^.	€	ŌEJG ĪĪĪĪ FGĪĪ F FG	ĪĪĪĪ FGĪĪ F	FGĪĪ F	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
FG	HÓFFË	Y FGFI	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪĪ FG	ĪĪĪĪ ĪĪĪĪ	ĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
FH	HÓFFË	Y FGFI	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪĪ FG	ĪĪĪĪ ĪĪĪĪ	ĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
FI	HÓFFË	Y FGFI	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪĪ FG	ĪĪĪĪ ĪĪĪĪ	ĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
FĪ	HÓFFË	Y FGFI	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪĪ FG	ĪĪĪĪ ĪĪĪĪ	ĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
FĪ	HÓFFË€	Y FGFI	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪĪ FG	ĪĪĪĪ ĪĪĪĪ	ĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
FĪ	HÓFGĪ	Y FGĪ	Ÿ^.	€	ŌEJG ĪĪĪĪ FFĪĪĪ FG	ĪĪĪ ĪĪĪĪ	FFĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
FĪ	HÓFGĪ	Y FGĪ	Ÿ^.	€	ŌEJG ĪĪĪĪ FĪĪĪĪ FG	ĪĪĪ FĪĪĪĪ	FĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
FJ	HÓFGĪ	Y FGĪ	Ÿ^.	€	ŌEJG ĪĪĪĪ JĪĪĪ FG	ĪĪĪĪ JĪĪĪ	JĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
G€	HÓFGĪ	Y FGĪ	Ÿ^.	€	ŌEJG ĪĪĪĪ JĪĪĪĪ FG	ĪĪĪĪ H JĪĪĪĪ	JĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
GF	HÓFGĪ	Y FGĪ	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪFG FG	ĪĪĪĪ ĪĪĪFG	ĪĪĪFG	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
GG	HÓFGĪ	Y FGĪ	Ÿ^.	€	ŌEJG ĪĪĪĪ FGĪĪĪ FG	ĪĪĪĪ FGĪĪĪ	FGĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
GH	HÓFGĪ	Y FGĪ	Ÿ^.	€	ŌEJG ĪĪĪĪ FGĪĪĪ FG	ĪĪĪĪ FGĪĪĪ	FGĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
G	HÓFGĪ€	Y FGĪ	Ÿ^.	€	ŌEJG ĪĪĪĪ FFĪĪ F FG	ĪĪĪĪ FFĪĪ F	FFĪĪ F	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG
GĪ	HÓFGĪFF	Y FGĪ	Ÿ^.	€	ŌEJG ĪĪĪĪ ĪĪĪĪ FG	ĪĪĪĪ ĪĪĪĪ	ĪĪĪĪ	ŌSEŠŠ	ĪĪĪ ĪĪĪ € FG