Dustin J. Wakefield
Structural Option
William Penn Senior High School – York, PA
Primary Faculty Consultant: MKP

Technical Assignment #1
October 8, 2003

Executive Summary

The design of the William Penn Senior High School was based on the 1999 version of BOCA. Many sections of BOCA refer the designer to ASCE 7 for minimum design loads, so for the purposes of this analysis, the majority of the loads were taken directly from ASCE 7-98. Concrete masonry construction was based on the ACI-95 applicable provisions (530). For the design of the steel framing systems, an allowable stress design, ASD-89, was the method of choice.

All of the building materials used in the William Penn Senior High School conform to the appropriate ASTM specifications, and many of these references are listed in this report. All of the major structural elements, such as beams and columns, are composed of A992 steel and minor elements such as plates, bars, and angles, are composed of A36 steel. The various uses of concrete within this building lend a wide variety of 28-day required compressive strengths, ranging from 1,500 psi for concrete masonry and 4,500 for exterior slab on grade.

The 165,000 square foot addition to the William Penn Senior High School is seated on a deep foundation system consisting of caissons. The main floor systems consist of either a 4 or 5-inch slab on grade or composite metal deck with either 3.25 or 5.75 inches of light weight concrete topping. The roof is framed with typical wide flange beams with open-web steel joists spanning between them. The main lateral system in this building is a moment-resisting frame. Therefore, the vast majority of all beam/column connections are moment connections. This structural system works to support gravity loads in combination with lateral loads imposed on the building.

All applicable live loads were taken from ASCE 7-98. These loads were found to be identical to the loads used in the actual design of the building. Dead loads were calculated using the LRFD Manual of Steel Construction's building material weights. Wind, seismic, and snow loadings (including maximum drift surcharge) were also taken from ASCE 7-98.

The typical bay spot check showed that a W16x36 composite beam with 50 shear studs would be sufficient. The original design used a W18x40 with 19 shear studs. Although adequate, the difference may stem from using ASD vs. LRFD as the design approach. A typical lateral frame was also spot checked under wind and seismic forces. The frame was found to be adequate under all load combinations provided in the LRFD Design manual. Additional design considerations are also listed at the end of the report.

Applicable Building Codes

- All design loads conform to the BOCA National Building Code, 1999
- Concrete masonry construction conforms to "Building Code Requirements for Masonry Structures", ACI 530/ASCE 5/TMS 402-95 and "Specifications for Masonry Structures", ACI 530.1/ASCE 6/TMS 602-95
- All structural steel applications, including fabrication, erection, and connection design, conform to AISC's "Specification for Structural Steel Buildings, ASD-89"
- All welding, electrodes, and fluxes conform to AWS D1.1-92, "Structural Welding Code"
- All bolted connections conform to RCSC's "Specification for Structural Joints using ASTM A325 or A490 Bolts"
- Steel joists and associated bridging conform to SJI's "Standard Specifications" and "Recommended Code of Standard Practice for Steel Joists and Joist Girders"
- All Metal decking conform to AISI's "Specification for the Design of Cold Formed Steel Structural Members", SDI's "Design Manual for Floor and Roof Decks" and "Manual of Construction with Steel Deck"

Building Material Strengths
(All building materials conform to the appropriate ASTM specifications. Therefore, not all numerical references are listed)

- Foundations
  All foundation design is based on the geotechnical report which was prepared by Professional Service Industries, Inc.
    - Soil bearing capacity for spread footings   2,000 PSF
    - Rock bearing capacity for caissons   50,000 PSF
    - 28-day compressive strength for normal weight concrete:
        - Caissons   3,000 PSI
        - Spread footings   3,000 PSI
        - Walls and piers   4,000 PSI
        - Grade beams   4,000 PSI
        - Slab-on-grade (interior)   3,500 PSI
        - Slab-on-grade (exterior, 0.45 W/C max)   4,500 PSI
        - Caisson caps   3,000 PSI

- Concrete Reinforcing

  - Deformed bars   ASTM A615, Gr. 60
  - Deformed bars (weldable)   ASTM A706
  - Welded wire fabric   ASTM A185

- Concrete Topping on Metal Deck
  - Lightweight concrete
  - 28-day compressive strength   3,500 PSI
  - Dry unit weight   107 to 116 PSF

- Concrete Masonry
  - Min. compressive strength   1,500 PSI
  - Min. compressive strength (Ivany)   2,100 PSI
  - Min. compressive strength of grout   3,000 PSI

- Structural Steel
  - Structural Steel Shapes   ASTM A992
  - Bars, angles, and plates   ASTM A36, UNO
  - Round pipes   ASTM A53
  - Square and rectangular tubing   ASTM A500 Gr. B
  - High strength bolts   ASTM A325
  - Anchor bolts   ASTM F1554, Gr. 36
  - Grout under steel plates
    - Min. compressive strength   5,000 PSI
    - Non-metallic and shrink-resistant

- Metal Decking
  - Composite floor deck   ASTM A653, Gr. 40
  - Roof deck   ASTM A653, Gr. 33

Description of the Structural System

The 165,000 SF addition to the William Penn Senior High School (separated from the existing structure by a 3-inch expansion joint) is seated on caissons which range from 30 inches to 54 inches in diameter. The deepest caisson is drilled to a depth of 34 feet below the top of the first floor slab while the shallowest one is drilled to 14 feet below. On top of each caisson is a concrete spread footing. These footings are typically square in shape and range from a 3-foot square (1 foot deep with 4-#4 reinforcing bars each way) up to a 13-foot square (2.5 feet deep with 12-#8 reinforcing bars each way). The main first floor system consists of either a 4 or 5-inch slab on grade reinforced with 6x6-W2.0xW2.0 or

6x6-W2.9xW2.9 WWF, respectively, on 6 inches of drainage fill. The second and third floors consist of 2-inch, 20 gage composite floor deck with either 3.25 or 5.75 inches of light weight concrete topping reinforced with 6x6-W1.4xW1.4 WWF. The roof is framed with typical wide flange beams with open-web steel joists spanning between them. The joists range from 10K1 to 28K6 in size. The roof deck is a 1.5-inch 20 gage metal deck with type B roofing construction. The roof of the auditorium section is framed with 60DLH13 joists spanning the entire width of the space (approximately 89.67 feet).

The main structural system in this building is a moment-resisting frame. Therefore, the vast majority of all beam/column connections are moment connections. This structural system works to support gravity loads in combination with lateral loads imposed on the building. The steel columns range from W12x40's to as large as W14x233's with the most typical shape being right around a W14x120. The beams range anywhere from W12x19's to as large as a W36x328 with the most typical sizes between W21's and W24's. A typical bay can be seen in the diagram below which is representative of the structural system as a whole. The filled in triangles represent fully developed moment connections.
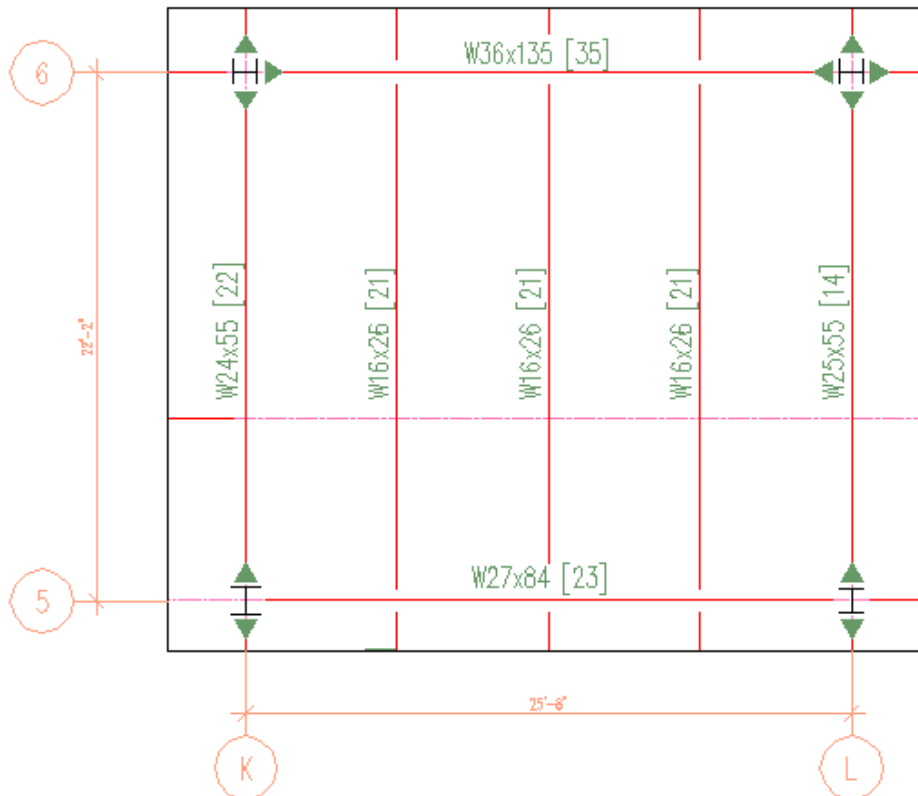
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William Penn Senior High School – York, PA
Primary Faculty Consultant: MKP

Moment connections such as these are shown in much more detail in the drawings below. The connection may occur at the flange or the web of the column, so each of these two cases can be seen here.
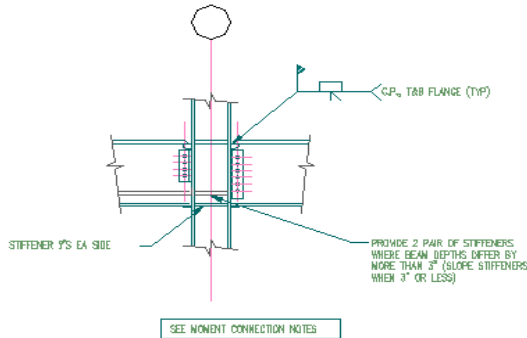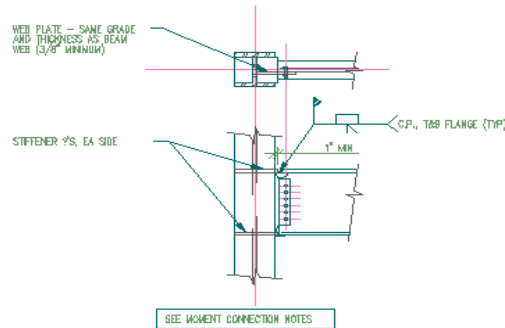
To further understand the layout of the William Penn Senior High School, refer to Appendix A, which contains complete structural framing and foundation plans for each floor.

Determination of Loads

Live Loads – taken directly from ASCE 7-98

- Roof Live Load   30 PSF
- Corridors (first floor only)   100 PSF
- Corridors (other floors)   80 PSF
- Classrooms   40 PSF
- Offices   50 PSF
  (+20 PSF for movable partitions)
- Stairs   100 PSF
- Library   150 PSF
- Light Storage   125 PSF
- Mechanical Rooms   150 PSF

Dead Loads – values for certain building materials taken from AISC's "Manual of Steel Construction: LRFD – Third Edition"

- Roof Dead Loads

  - Slate Shingles   10 PSF
  - K-Series Joists   3 PSF
  - Roof Deck   2 PSF
  - Insulation   2 PSF
  - Ceiling   1 PSF
  - Mechanical Equipment   8 PSF
  - Miscellaneous   5 PSF
  - **TOTAL LOAD**   **26 PSF**

- Floor Dead Loads
  - Terrazzo   13 PSF
  - Steel beams/girders   15 PSF
    (assuming an average size of 75 lb/ft and tributary spacing of 6 ft)
  - Floor Deck (w/concrete)   45 PSF
  - Vinyl Tile   1 PSF
  - Ceiling   1 PSF
  - Partitions/Mechanical Equipment   20 PSF
  - Fireproofing   5 PSF
  - Miscellaneous   5 PSF
  - **TOTAL LOAD**   **105 PSF**

- Exterior Wall Dead Loads
  - Face brick and CMU base   45 PSF

Wind Loads – values taken from ASCE 7-98

- The following diagram shows the wind pressure distribution over the long face of the building:
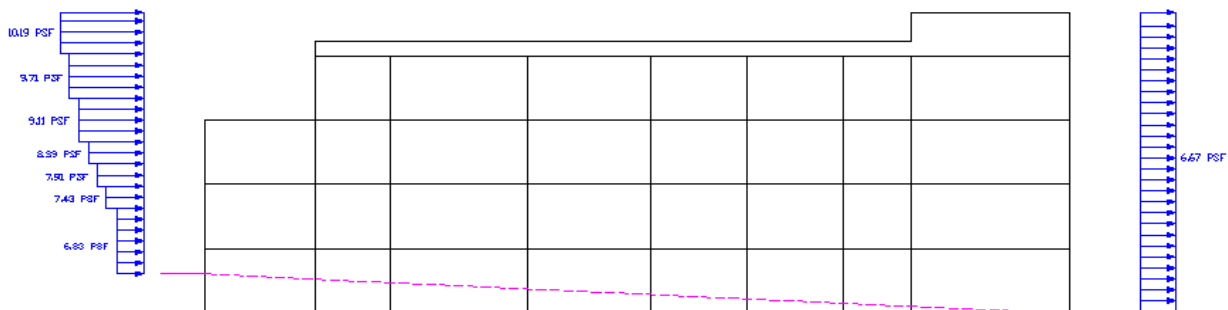
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- o Maximum windward pressure   10.19 PSF
- o Leeward pressure   6.67 PSF
- o Roof Design Uplift pressure   15 PSF

- The following diagram shows the concentrated story wind forces on the building:

10.48 K
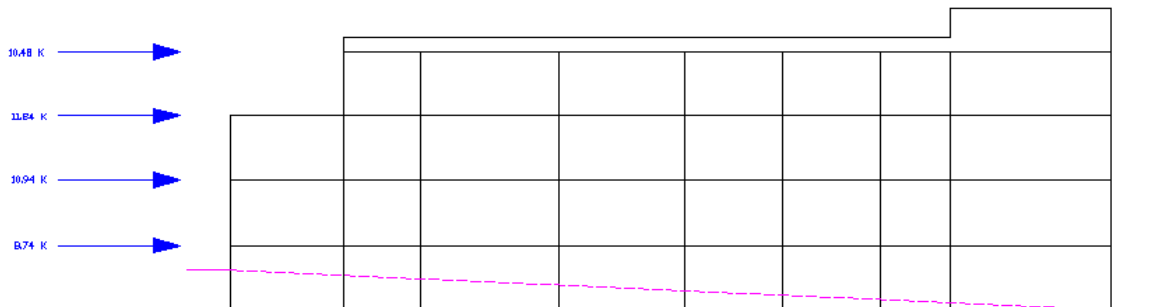
11.84 K

10.94 K

8.74 K

- o Second floor story force   8.74 k
- o Third floor story force   10.94 k
- o Roof story force   11.84 k
- o Upper Roof story force   10.48 k

(calculations available upon request)

Seismic Loads – values taken from ASCE 7-98

- The following diagram shows the concentrated story seismic forces on the building:
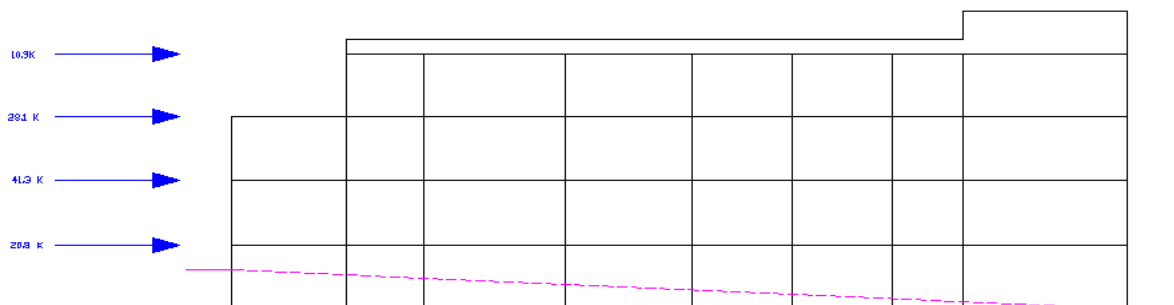
10.3 K

29.1 K

41.3 K

20.3 K

- o Second floor story force   20.9 k
- o Third floor story force   41.3 k
- o Roof story force   28.1 k
- o Upper Roof story force   10.8 k

Level	wx	hx	wxhx^1.163	Cvx	Fx	on one frame
Upper Roof	550	67.7	74017.99405	0.107304	56.54901	10.85740907
Roof	2350	44.02	191704.7424	0.277914	146.4605	28.12041634
2	5500	29.5	281686.2797	0.40836	215.2055	41.31945492
1	6270	14.66	142390.6093	0.206423	108.785	20.88671967
			689799.6255		527	

Base shear was determined to be 527 kips and is 3.6% of the total approximated building weight of 14,670 kips.

(calculations available upon request)

Snow Loads – values taken from ASCE 7-98

- Ground snow load for York, PA   30 PSF
- Flat roof snow load   21 PSF
- Drifting must be considered along raised portion of upper roof
  - o Maximum drift surcharge   57.3 PSF

(calculations available upon request)

Gravity System Spot Check

As previously noted, the main floor system in the William Penn Senior High School consists of a composite metal deck with light weight concrete topping. The deck spans across wide flange beams, which in turn frame into wide flange girders. Almost all of the girder/column connections are moment connections, as seen on the framing plans in Appendix A. To spot check the system, bay M-N, 3-4 was analyzed as a composite beam/slab system. To get an idea of the layout of this bay, see the previous diagram on page 3. The dimensions are a bit different, but the layout is identical. Calculations for this analysis are available upon request.

The actual size chosen for the beams in this bay were W18x40 with 19 shear studs each. However, while performing the spot check calculations, it was found that a W16x36 with 50 shear studs would suffice. One possible reason for this difference may lie in the design approach used between the two analyses. The original designers of the school

used ASD (Allowable Stress Design) to size all steel members. However, the spot check
was performed using LRFD (Load and Resistance Factor Design). The LRFD approach
is considered to be a more conservative one compared to ASD in that it factors both the
load and resistance side of the design equation. This may be one reason that the W16x36
was found to be sufficient.

As far as the slab and metal decking were concerned, the original designers chose to use a
2 inch composite deck with 3.25 inches of lightweight concrete topping. There were no
obvious reasons to designate a different slab/deck layout, so the same ones were used in
the spot check. In addition to practicality, the 3.25 inches of lightweight concrete topping
were found to be sufficient for a 2-hour fire rating, which is also a major concern in
structural engineering, so it was determined to be sufficient.

One other possible reason for the original designer's decision to choose a slightly larger
member may be that the number of shear studs needed for a W18x40 is much smaller
than for a W16x36. In fact, there are 62% fewer shear studs needed in the former shape.
This may not be much of an issue for only one beam, but there are 3 interior beams in this
span. With approximately 20 bays per floor and 3 floors of identical framing, this
number multiplies very quickly and become a cost issue.

The W16x36 was also adequate for shear and deflection criteria. Due to these results,
along with the strength criteria already discussed, it is assumed that the W18x40 that was
originally chosen for the building is a sufficient member in conjunction with the
corresponding composite slab.

Lateral System Spot Check

The lateral resisting system for the William Penn Senior High School consists primarily
of ordinary moment-resisting steel frames. These frames are spaced throughout the entire
building, offering a fairly complex system to analyze as a whole. For the purposes of a
spot check, the frame spanning along grid line J was analyzed based on the wind and
seismic loads that were previously listed. The frame can be seen below.
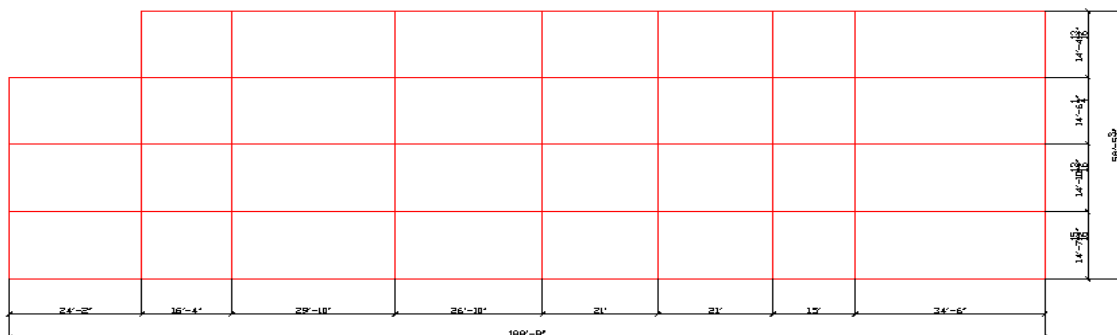
This frame was modeled in RISA-3D and analyzed under a variety of load cases. To be more accurate, moment frames such as this are not designed solely for the lateral loads imposed upon them. They must also be able to handle the gravity loads such as floor live loads, roof live loads, and dead loads. Upon utilizing the load combinations offered in the LRFD steel design manual, Chapter 2, it was found that the frame was adequate to support the given loads. See Appendix B for RISA-3D calculations and results.

It can be seen that the seismic loads are, at some stories, significantly higher than the wind loads at the same levels. Although the building is not exceedingly tall, it is very massive and has a great deal of square footage. The masonry/brick exterior walls along with the 5.25 inch composite slabs and terrazzo finishing in most locations add a great deal of mass to the building. Despite the large seismic story forces, the percentage of base shear to total building weight is approximately 3.6%, which is usually an acceptable value.

The original designer of the building used BOCA 99 as the model code for seismic design. However, for the purposes of the frame spot check, the seismic forces were calculated using ASCE 7-98. Although minor, there are a few differences between the two methods and may account for a slight difference in the overall story forces. Despite the differences in magnitude, it was found that the frame was adequate for all load cases.

Other Design Considerations

The following issues were not directly addressed in the analyses performed for this report. Although they have not been accounted for now, they will need to be addressed in the future.

- ➢ Overturning moments imposed on the foundation elements need to be considered.
- ➢ Water table/frost depth needed to determine the required depth of the footings.
- ➢ Smaller canopies at points along the perimeter of the building will need to be addressed at some point.
- ➢ The lateral frame analyzed in this report considered wind and seismic forces in one direction only. The other direction will also need to be addressed for completeness.
- ➢ Roof uplift force will need to be considered. It is recommended that 15 psf uplift force be used to design the roof.
- ➢ Retaining walls will need to be addressed and lateral earth pressures acknowledged.
- ➢ Components and cladding must also be designed to resist the applied wind loads.

APPENDIX A

Structural Foundation and
Framing Plans

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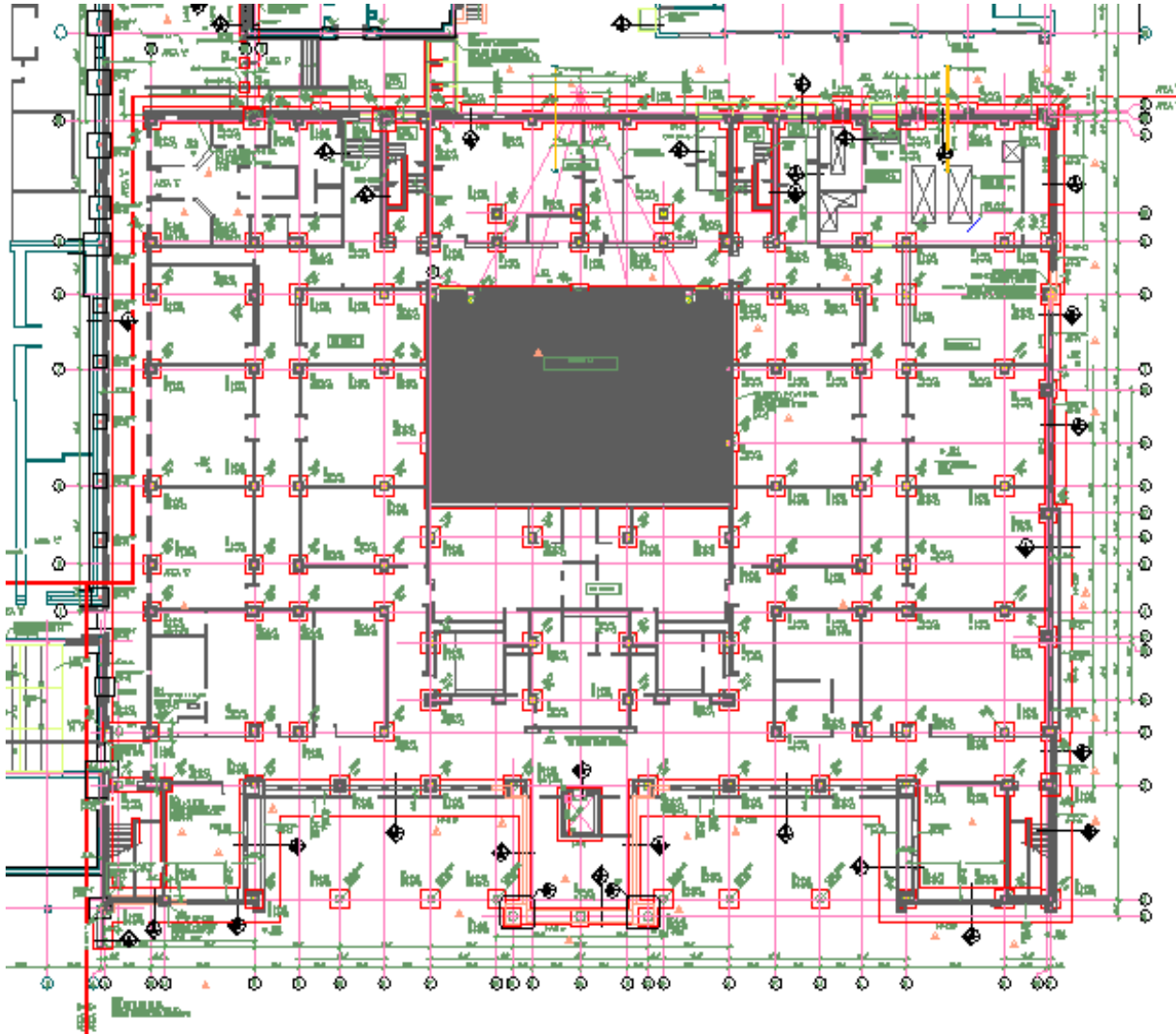
Foundation Plan
(drawing prepared by Baker, Ingram & Associates)

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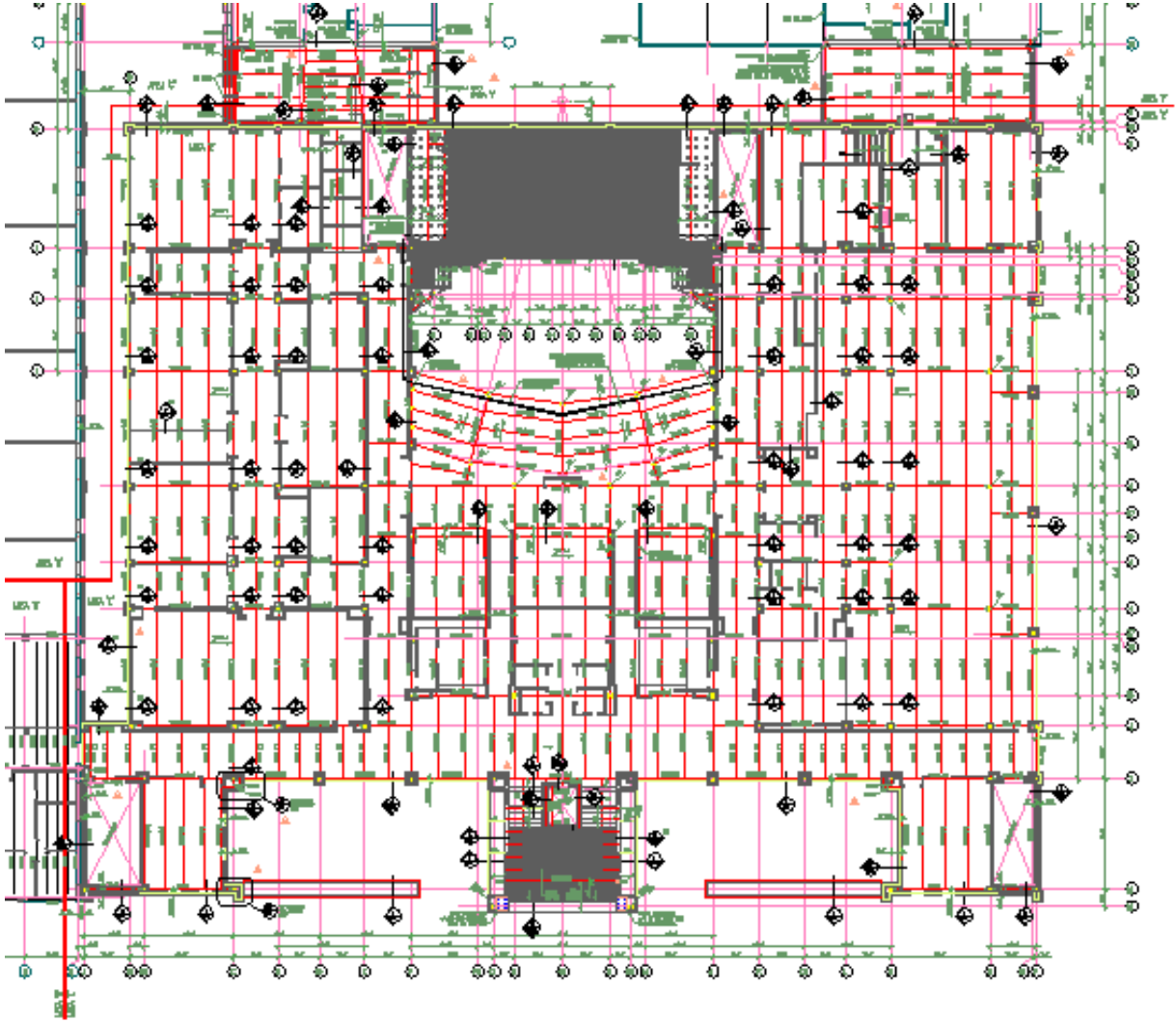
Second Floor Framing Plan
(drawing prepared by Baker, Ingram & Associates)
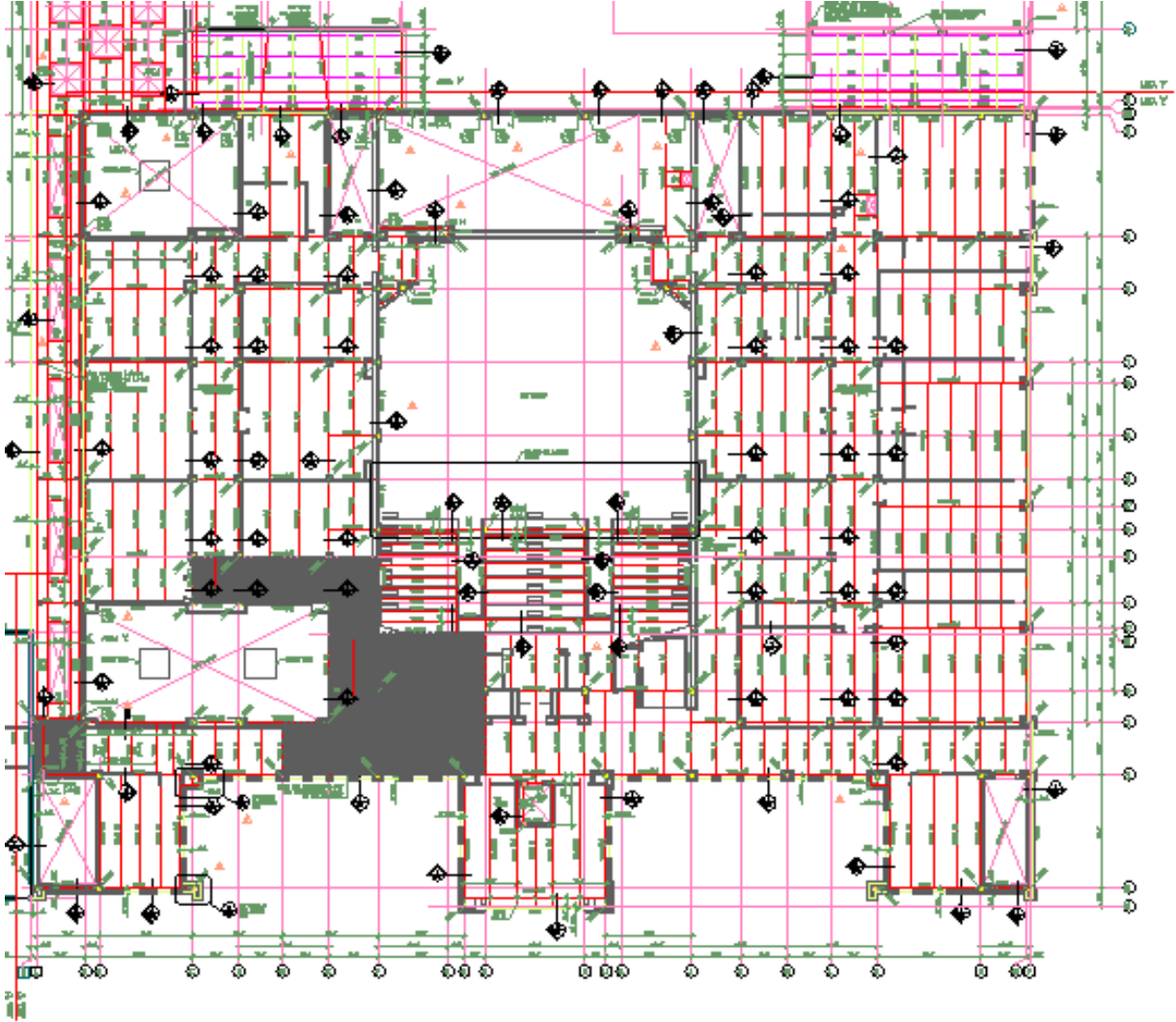
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Third Floor Framing Plan
(drawing prepared by Baker, Ingram & Associates)
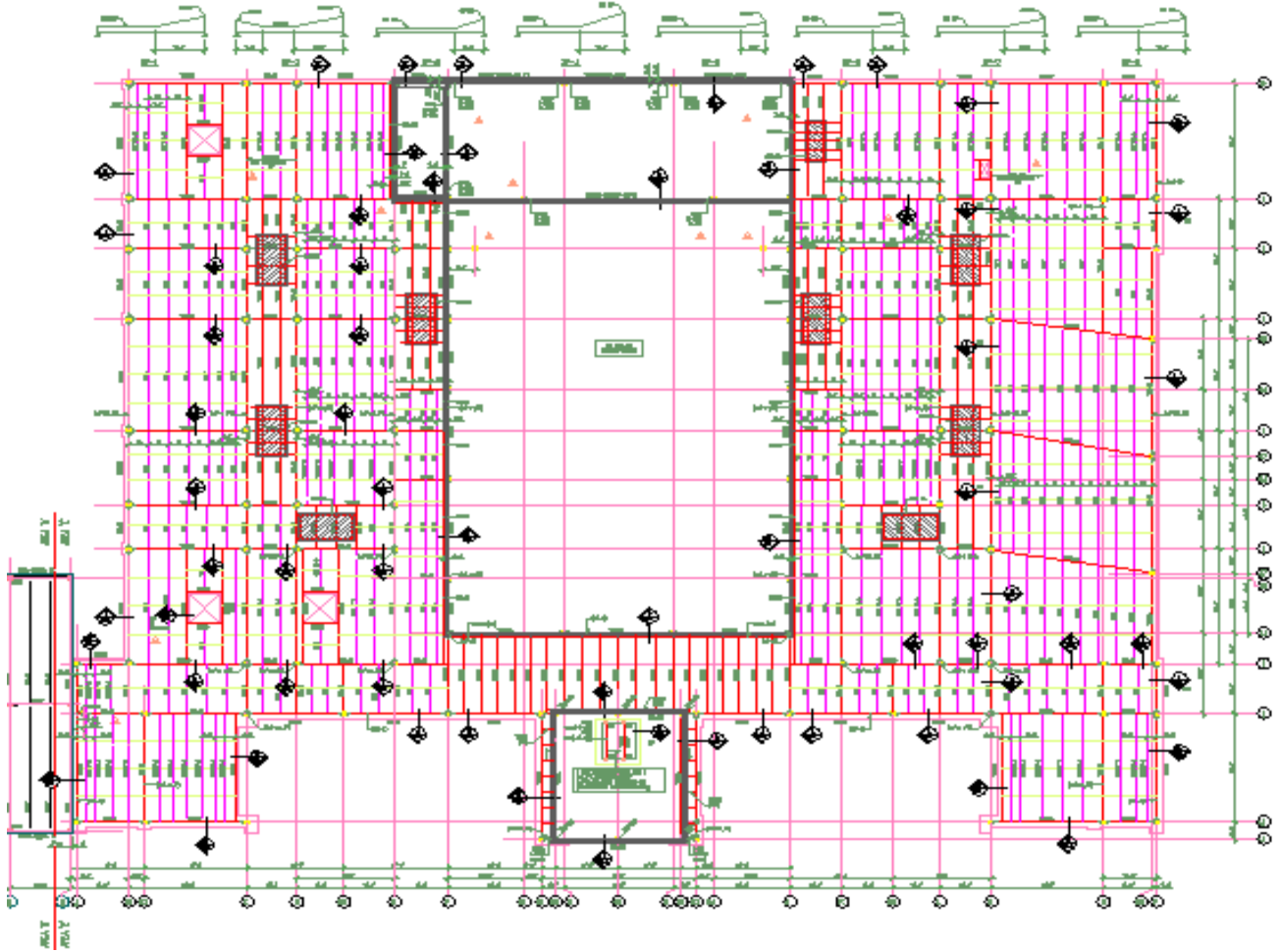
Roof Framing Plan
(drawing prepared by Baker, Ingram & Associates)

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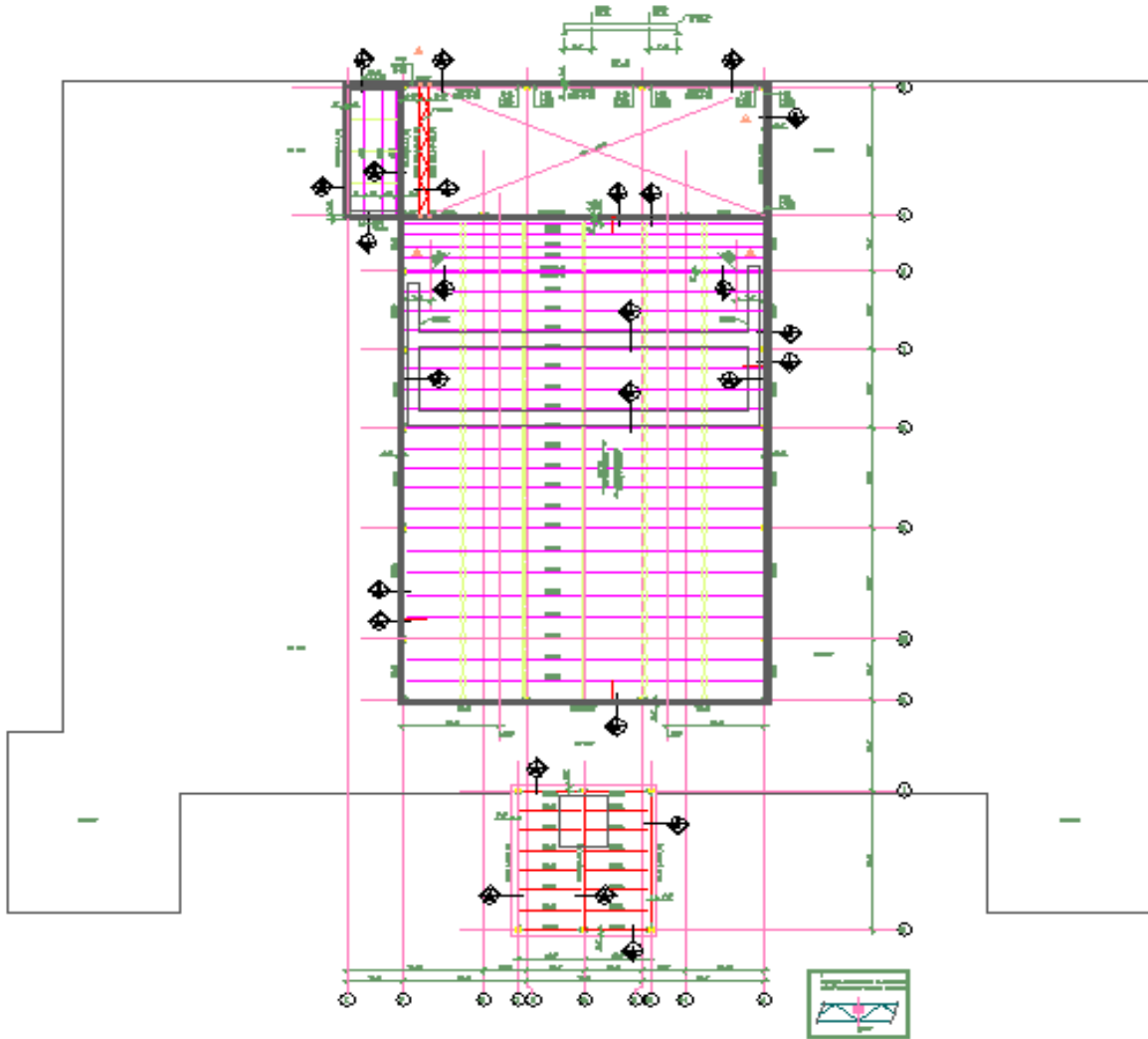
Upper Roof Framing Plan
(drawing prepared by Baker, Ingram & Associates)

APPENDIX B

Results from RISA-3D
Frame Analysis

Company :
Designer : **DJW**
Job Number :

October 8, 2003

William Penn Lateral Frame Check

Checked By:_____

Basic Load Case Data

BLC No.	Basic Load Case Description	Category Code	Category Description	Nodal	Load Type Totals Point	Distributed	Surface
1	Wind Loads	WL	Wind Load	4			
3	Seismic Loads	EL	Earthquake Load	4			
4	Floor Live Load	LL	Live Load			16	
5	Roof Live Load	RLL	Roof Live Load			15	

Boundary Conditions

Joint Label	X Translation (K/in)	Y Translation (K/in)	Z Translation (K/in)	MX Rotation (K-ft/rad)	MY Rotation (K-ft/rad)	MZ Rotation (K-ft/rad)
N1	Reaction	Reaction	Reaction			
N5	Reaction	Reaction	Reaction			
N10	Reaction	Reaction	Reaction			
N15	Reaction	Reaction	Reaction			
N20	Reaction	Reaction	Reaction			
N25	Reaction	Reaction	Reaction			
N30	Reaction	Reaction	Reaction			
N35	Reaction	Reaction	Reaction			
N40	Reaction	Reaction	Reaction			

Member Distributed Loads, Category : LL, BLC 4 : Floor Live Load

Member Label	I Joint	J Joint	Load Pattern Label	Pattern Multiplier
M47	N6	N11	UNIFORM	2.85
M46	N2	N6	UNIFORM	2.85
M54	N11	N16	UNIFORM	2.85
M55	N16	N21	UNIFORM	2.85
M57	N21	N26	UNIFORM	2.85
M58	N26	N31	UNIFORM	2.85
M59	N31	N36	UNIFORM	2.85
M60	N36	N41	UNIFORM	2.85
M70	N37	N42	UNIFORM	2.85
M65	N32	N37	UNIFORM	2.85
M53	N27	N32	UNIFORM	2.85
M52	N22	N27	UNIFORM	2.85
M64	N17	N22	UNIFORM	2.85
M56	N12	N17	UNIFORM	2.85
M48	N7	N12	UNIFORM	2.85
M61	N3	N7	UNIFORM	2.85

Member Distributed Loads, Category : RLL, BLC 5 : Roof Live Load

Member Label	I Joint	J Joint	Load Pattern Label	Pattern Multiplier
M50	N4	N8	UNIFORM	1.55
M49	N8	N13	UNIFORM	1.55
M71	N13	N18	UNIFORM	1.55
M63	N18	N23	UNIFORM	1.55
M51	N23	N28	UNIFORM	1.55
M72	N28	N33	UNIFORM	1.55
M73	N33	N38	UNIFORM	1.55
M74	N38	N43	UNIFORM	1.55
M76	N39	N44	UNIFORM	1.55
M69	N34	N39	UNIFORM	1.55
M68	N29	N34	UNIFORM	1.55
M67	N24	N29	UNIFORM	1.55

Company :
Designer : **DJW**
Job Number :

October 8, 2003

William Penn Lateral Frame Check

Checked By:_____

Member Distributed Loads, Category : RLL, BLC 5 (continued)

Member Label	I Joint	J Joint	Load Pattern Label	Pattern Multiplier
M62	N19	N24	UNIFORM	1.55
M75	N14	N19	UNIFORM	1.55
M66	N9	N14	UNIFORM	1.55

Load Combinations

Num	Description	Env	WS	PD	SRSS	CD	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Wind Load	y	y	y		0	1	1.6						
2	D+W	y	y	y		1	1	1.6	2	1.2				
3	D+E	y	y	y		1	2	1.2	3	1				
4	D+W+L+RL	y	y	y		1	2	1.2	1	1.6	4	.5	5	.5
5	D+L+RL	y	y	y		1	2	1.2	4	1.6	5	.5		
6	D+RL+L	y	y	y		1	2	1.2	5	1.6	4	.5		

Member Deflection

Member Label	Section		x-Translate (In)	Lc	y-Translate (In)	Lc	z-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
M2	1	max	0	1	0	1	0	1	0	1	NC		NC	
		min	0	1	0	1	0	1	0	1	NC		NC	
	2	max	0.003	3	0.007	5	0	1	0	1	NC		NC	
		min	-0.006	5	-0.425	3	0	1	0	1	1630.889	3	NC	
	3	max	0.006	3	0.008	5	0	1	0	1	NC		NC	
		min	-0.012	5	-0.807	3	0	1	0	1	1019.306	3	NC	
	4	max	0.009	3	-0.001	6	0	1	0	1	NC		NC	
		min	-0.018	5	-1.103	3	0	1	0	1	1164.921	3	NC	
	5	max	0.011	3	-0.01	6	0	1	0	1	NC		NC	
		min	-0.024	5	-1.269	3	0	1	0	1	NC		NC	
M3	1	max	0.011	3	-0.01	6	0	1	0	1	NC		NC	
		min	-0.024	5	-1.269	3	0	1	0	1	NC		NC	
	2	max	0.013	3	-0.017	6	0	1	0	1	NC		NC	
		min	-0.027	5	-1.385	3	0	1	0	1	NC		NC	
	3	max	0.014	3	-0.018	6	0	1	0	1	NC		NC	
		min	-0.03	5	-1.529	3	0	1	0	1	7360.188	3	NC	
	4	max	0.016	3	-0.017	6	0	1	0	1	NC		NC	
		min	-0.033	5	-1.661	3	0	1	0	1	4635.66	3	NC	
	5	max	0.017	3	-0.02	6	0	1	0	1	NC		NC	
		min	-0.037	5	-1.74	3	0	1	0	1	NC		NC	
M4	1	max	0.017	3	-0.02	6	0	1	0	1	NC		NC	
		min	-0.037	5	-1.74	3	0	1	0	1	NC		NC	
	2	max	0.017	3	-0.02	6	0	1	0	1	NC		NC	
		min	-0.037	5	-1.748	3	0	1	0	1	3796.277	3	NC	
	3	max	0.017	3	-0.021	6	0	1	0	1	NC		NC	
		min	-0.037	5	-1.759	3	0	1	0	1	1657.087	3	NC	
	4	max	0.017	3	-0.021	6	0	1	0	1	NC		NC	
		min	-0.037	5	-1.772	3	0	1	0	1	987.574	3	NC	
	5	max	0.018	3	-0.021	6	0	1	0	1	NC		NC	
		min	-0.037	5	-1.787	3	0	1	0	1	674.226	3	NC	
M5	1	max	0.018	3	-0.021	6	0	1	0	1	NC		NC	
		min	-0.037	5	-1.787	3	0	1	0	1	NC		NC	

Company   :
Designer   : **DJW**
Job Number :

October 8, 2003

William Penn Lateral Frame Check

Checked By:_____

Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
	2	max	0.018	3	-0.02	6	0	1	0	1	NC		NC	
		min	-0.037	5	-1.874	3	0	1	0	1	NC		NC	
	3	max	0.018	3	-0.019	6	0	1	0	1	NC		NC	
		min	-0.038	5	-1.975	3	0	1	0	1	6460.335	3	NC	
	4	max	0.019	3	-0.023	6	0	1	0	1	NC		NC	
		min	-0.038	5	-2.065	3	0	1	0	1	4897.672	3	NC	
	5	max	0.019	3	-0.037	6	0	1	0	1	9382.558	6	NC	
		min	-0.039	5	-2.119	3	0	1	0	1	NC		NC	
M6	1	max	0	1	0	1	0	1	0	1	NC		NC	
		min	0	1	0	1	0	1	0	1	NC		NC	
	2	max	0	1	0	1	0.429	3	0	1	NC		1544.195	3
		min	-0.007	5	0	1	0	6	0	1	NC		NC	
	3	max	0	1	0	1	0.813	3	0	1	NC		965.122	3
		min	-0.014	5	0	1	0	6	0	1	NC		NC	
	4	max	0	1	0	1	1.105	3	0	1	NC		1102.997	3
		min	-0.021	5	0	1	0.004	6	0	1	NC		NC	
	5	max	-0.001	1	0	1	1.261	3	0	1	NC		NC	
		min	-0.028	5	0	1	0.01	6	0	1	NC		NC	
M7	1	max	-0.001	1	0	1	1.261	3	0	1	NC		NC	
		min	-0.028	5	0	1	0.01	6	0	1	NC		NC	
	2	max	-0.001	1	0	1	1.369	3	0	1	NC		NC	
		min	-0.032	5	0	1	0.015	6	0	1	NC		NC	
	3	max	-0.001	1	0	1	1.515	3	0	1	NC		8935.964	3
		min	-0.036	5	0	1	0.015	6	0	1	NC		NC	
	4	max	-0.001	1	0	1	1.65	3	0	1	NC		4610.077	3
		min	-0.04	5	0	1	0.015	6	0	1	NC		NC	
	5	max	-0.001	1	0	1	1.728	3	0	1	NC		NC	
		min	-0.043	5	0	1	0.02	6	0	1	NC		NC	
M8	1	max	-0.001	1	0	1	1.728	3	0	1	NC		NC	
		min	-0.043	5	0	1	0.02	6	0	1	NC		NC	
	2	max	-0.001	1	0	1	1.735	3	0	1	NC		4667.633	3
		min	-0.044	5	0	1	0.021	6	0	1	NC		NC	
	3	max	-0.001	1	0	1	1.744	3	0	1	NC		2057.976	3
		min	-0.044	5	0	1	0.022	6	0	1	NC		NC	
	4	max	-0.001	1	0	1	1.754	3	0	1	NC		1234.904	3
		min	-0.044	5	0	1	0.023	6	0	1	NC		NC	
	5	max	-0.001	1	0	1	1.765	3	0	1	NC		847.029	3
		min	-0.044	5	0	1	0.024	6	0	1	NC		NC	
M9	1	max	-0.001	1	0	1	1.765	3	0	1	NC		NC	
		min	-0.044	5	0	1	0.024	6	0	1	NC		NC	
	2	max	-0.001	1	0	1	1.848	3	0	1	NC		NC	
		min	-0.046	5	0	1	0.026	6	0	1	NC		NC	
	3	max	-0.001	1	0	1	1.957	3	0	1	NC		7746.411	3
		min	-0.047	5	0	1	0.027	6	0	1	NC		NC	
	4	max	-0.001	1	0	1	2.057	3	0	1	NC		4481.961	3
		min	-0.048	5	0	1	0.029	6	0	1	NC		NC	
	5	max	-0.001	1	0	1	2.112	3	0	1	NC		NC	
		min	-0.05	5	0	1	0.036	6	0	1	NC		NC	
M10	1	max	-0.001	1	0	1	2.112	3	0	1	NC		NC	
		min	-0.05	5	0	1	0.036	6	0	1	NC		NC	
	2	max	-0.001	1	0	1	2.176	3	0	1	NC		2668.756	3
		min	-0.051	6	0	1	0.032	6	0	1	NC		NC	
	3	max	-0.001	1	0	1	2.292	3	0	1	NC		958.524	3
		min	-0.053	6	0	1	0.017	6	0	1	NC		8906.169	6

Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
	4	max	-0.001	1	0	1	2.411	3	0	1	NC		576.999	3
		min	-0.054	6	0	1	0.023	6	0	1	NC		NC	
	5	max	-0.001	1	0	1	2.487	3	0	1	NC		460.483	3
		min	-0.056	6	0	1	0.082	6	0	1	NC		3802.525	6
M11	1	max	0	1	0	1	0	1	0	1	NC		NC	
		min	0	1	0	1	0	1	0	1	NC		NC	
	2	max	0	1	-0.001	6	0	1	0	1	NC		NC	
		min	-0.012	5	-0.416	3	0	1	0	1	1708.022	3	NC	
	3	max	0	1	-0.003	6	0	1	0	1	NC		NC	
		min	-0.024	5	-0.79	3	0	1	0	1	1067.514	3	NC	
	4	max	0	1	-0.006	6	0	1	0	1	NC		NC	
		min	-0.036	5	-1.082	3	0	1	0	1	1220.016	3	NC	
	5	max	0	1	-0.011	6	0	1	0	1	NC		NC	
		min	-0.048	5	-1.25	3	0	1	0	1	NC		NC	
M12	1	max	0	1	-0.011	6	0	1	0	1	NC		NC	
		min	-0.048	5	-1.25	3	0	1	0	1	NC		NC	
	2	max	0	1	-0.014	6	0	1	0	1	NC		NC	
		min	-0.055	5	-1.363	3	0	1	0	1	NC		NC	
	3	max	0.001	1	-0.015	6	0	1	0	1	NC		NC	
		min	-0.062	5	-1.498	3	0	1	0	1	9505.918	3	NC	
	4	max	0.001	1	-0.016	6	0	1	0	1	NC		NC	
		min	-0.069	5	-1.624	3	0	1	0	1	5983.05	3	NC	
	5	max	0.001	1	-0.02	6	0	1	0	1	NC		NC	
		min	-0.076	5	-1.709	3	0	1	0	1	NC		NC	
M13	1	max	0.001	1	-0.02	6	0	1	0	1	NC		NC	
		min	-0.076	5	-1.709	3	0	1	0	1	NC		NC	
	2	max	0.001	1	-0.02	6	0	1	0	1	NC		NC	
		min	-0.077	5	-1.719	3	0	1	0	1	3185.232	3	NC	
	3	max	0.001	1	-0.021	6	0	1	0	1	NC		NC	
		min	-0.077	5	-1.73	3	0	1	0	1	1486.018	3	NC	
	4	max	0.001	1	-0.022	6	0	1	0	1	NC		NC	
		min	-0.077	5	-1.742	3	0	1	0	1	932.089	3	NC	
	5	max	0.001	1	-0.022	6	0	1	0	1	NC		NC	
		min	-0.078	5	-1.756	3	0	1	0	1	662.43	3	NC	
M14	1	max	0.001	1	-0.022	6	0	1	0	1	NC		NC	
		min	-0.078	5	-1.756	3	0	1	0	1	NC		NC	
	2	max	0.001	1	-0.023	6	0	1	0	1	NC		NC	
		min	-0.081	5	-1.84	3	0	1	0	1	NC		NC	
	3	max	0.001	1	-0.024	6	0	1	0	1	NC		NC	
		min	-0.087	6	-1.941	3	0	1	0	1	NC		NC	
	4	max	0.001	1	-0.028	6	0	1	0	1	NC		NC	
		min	-0.095	6	-2.036	3	0	1	0	1	6838.246	3	NC	
	5	max	0.001	1	-0.037	6	0	1	0	1	9419.632	6	NC	
		min	-0.103	6	-2.102	3	0	1	0	1	NC		NC	
M15	1	max	0.001	1	-0.037	6	0	1	0	1	NC		NC	
		min	-0.103	6	-2.102	3	0	1	0	1	NC		NC	
	2	max	0.001	1	-0.052	6	0	1	0	1	NC		NC	
		min	-0.108	6	-2.18	3	0	1	0	1	NC		NC	
	3	max	0.001	1	-0.063	6	0	1	0	1	NC		NC	
		min	-0.113	6	-2.289	3	0	1	0	1	NC		NC	
	4	max	0.001	1	-0.071	6	0	1	0	1	NC		NC	
		min	-0.118	6	-2.393	3	0	1	0	1	6448.888	3	NC	
	5	max	0.001	1	-0.079	6	0	1	0	1	NC		NC	
		min	-0.123	6	-2.454	3	0	1	0	1	NC		NC	

Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
M16	1	max	0	1	0	1	0	1	0	1	NC		NC	
		min	0	1	0	1	0	1	0	1	NC		NC	
	2	max	0	1	0	1	0.44	3	0	1	NC		1368.365	3
		min	-0.008	5	0	1	0.005	6	0	1	NC		NC	
	3	max	0	1	0	1	0.828	3	0	1	NC		855.228	3
		min	-0.017	5	0	1	0.01	6	0	1	NC		NC	
	4	max	0	1	0	1	1.114	3	0	1	NC		977.404	3
		min	-0.025	5	0	1	0.012	6	0	1	NC		NC	
	5	max	0	1	0	1	1.245	3	0	1	NC		NC	
		min	-0.033	5	0	1	0.012	6	0	1	NC		NC	
M17	1	max	0	1	0	1	1.245	3	0	1	NC		NC	
		min	-0.033	5	0	1	0.012	6	0	1	NC		NC	
	2	max	0	1	0	1	1.332	3	0	1	NC		6801.351	3
		min	-0.038	5	0	1	0.012	6	0	1	NC		NC	
	3	max	0	1	0	1	1.476	3	0	1	NC		NC	
		min	-0.043	5	0	1	0.016	6	0	1	NC		NC	
	4	max	0	1	0	1	1.618	3	0	1	NC		5248.027	3
		min	-0.048	5	0	1	0.02	6	0	1	NC		NC	
	5	max	0	1	0	1	1.697	3	0	1	NC		NC	
		min	-0.053	5	0	1	0.02	6	0	1	NC		NC	
M18	1	max	0	1	0	1	1.697	3	0	1	NC		NC	
		min	-0.053	5	0	1	0.02	6	0	1	NC		NC	
	2	max	0	1	0	1	1.703	3	0	1	NC		5543.241	3
		min	-0.053	5	0	1	0.019	6	0	1	NC		NC	
	3	max	0	1	0	1	1.711	3	0	1	NC		2372.038	3
		min	-0.053	5	0	1	0.019	6	0	1	NC		NC	
	4	max	0	1	0	1	1.72	3	0	1	NC		1392.628	3
		min	-0.053	5	0	1	0.019	6	0	1	NC		NC	
	5	max	0	1	0	1	1.731	3	0	1	NC		939.499	3
		min	-0.054	5	0	1	0.019	6	0	1	NC		NC	
M19	1	max	0	1	0	1	1.731	3	0	1	NC		NC	
		min	-0.054	5	0	1	0.019	6	0	1	NC		NC	
	2	max	0	1	0	1	1.815	3	0	1	NC		NC	
		min	-0.056	5	0	1	0.024	6	0	1	NC		NC	
	3	max	0	1	0	1	1.931	3	0	1	NC		7648.633	3
		min	-0.061	6	0	1	0.032	6	0	1	NC		NC	
	4	max	0	1	0	1	2.038	3	0	1	NC		4096.714	3
		min	-0.068	6	0	1	0.038	6	0	1	NC		NC	
	5	max	0	1	0	1	2.094	3	0	1	NC		NC	
		min	-0.075	6	0	1	0.038	6	0	1	NC		NC	
M20	1	max	0	1	0	1	2.094	3	0	1	NC		NC	
		min	-0.075	6	0	1	0.038	6	0	1	NC		NC	
	2	max	0	1	0	1	2.156	3	0	1	NC		7736.921	3
		min	-0.079	6	0	1	0.042	6	0	1	NC		NC	
	3	max	0	1	0	1	2.27	3	0	1	NC		NC	
		min	-0.082	6	0	1	0.057	6	0	1	NC		NC	
	4	max	0	1	0	1	2.381	3	0	1	NC		5432.159	3
		min	-0.086	6	0	1	0.073	6	0	1	NC		NC	
	5	max	0	1	0	1	2.434	3	0	1	NC		NC	
		min	-0.09	6	0	1	0.077	6	0	1	NC		NC	
M21	1	max	0	1	0	1	0	1	0	1	NC		NC	
		min	0	1	0	1	0	1	0	1	NC		NC	
	2	max	0	1	-0.006	6	0	1	0	1	NC		NC	
		min	-0.01	5	-0.416	3	0	1	0	1	1655.129	3	NC	

Company   :
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Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
	3	max	0	1	-0.01	6	0	1	0	1	NC		NC	
		min	-0.021	5	-0.79	3	0	1	0	1	1034.455	3	NC	
	4	max	0	1	-0.013	6	0	1	0	1	NC		NC	
		min	-0.031	5	-1.079	3	0	1	0	1	1182.235	3	NC	
	5	max	-0.001	1	-0.012	6	0	1	0	1	NC		NC	
		min	-0.041	5	-1.24	3	0	1	0	1	NC		NC	
M22	1	max	-0.001	1	-0.012	6	0	1	0	1	NC		NC	
		min	-0.041	5	-1.24	3	0	1	0	1	NC		NC	
	2	max	-0.001	1	-0.012	6	0	1	0	1	NC		NC	
		min	-0.047	5	-1.345	3	0	1	0	1	NC		NC	
	3	max	-0.001	1	-0.015	6	0	1	0	1	NC		NC	
		min	-0.053	5	-1.477	3	0	1	0	1	NC		NC	
	4	max	-0.001	1	-0.019	6	0	1	0	1	NC		NC	
		min	-0.059	5	-1.602	3	0	1	0	1	6815.599	3	NC	
	5	max	-0.001	1	-0.02	6	0	1	0	1	NC		NC	
		min	-0.065	5	-1.688	3	0	1	0	1	NC		NC	
M23	1	max	-0.001	1	-0.02	6	0	1	0	1	NC		NC	
		min	-0.065	5	-1.688	3	0	1	0	1	NC		NC	
	2	max	-0.001	1	-0.019	6	0	1	0	1	NC		NC	
		min	-0.066	5	-1.698	3	0	1	0	1	3163.062	3	NC	
	3	max	-0.001	1	-0.02	6	0	1	0	1	NC		NC	
		min	-0.066	5	-1.709	3	0	1	0	1	1484.254	3	NC	
	4	max	-0.001	1	-0.02	6	0	1	0	1	NC		NC	
		min	-0.066	5	-1.721	3	0	1	0	1	935.503	3	NC	
	5	max	-0.001	1	-0.02	6	0	1	0	1	NC		NC	
		min	-0.067	5	-1.735	3	0	1	0	1	667.585	3	NC	
M24	1	max	-0.001	1	-0.02	6	0	1	0	1	NC		NC	
		min	-0.067	5	-1.735	3	0	1	0	1	NC		NC	
	2	max	-0.001	1	-0.025	6	0	1	0	1	NC		NC	
		min	-0.069	5	-1.821	3	0	1	0	1	NC		NC	
	3	max	-0.001	1	-0.033	6	0	1	0	1	NC		NC	
		min	-0.076	6	-1.926	3	0	1	0	1	9207.818	3	NC	
	4	max	-0.001	1	-0.038	6	0	1	0	1	NC		NC	
		min	-0.084	6	-2.024	3	0	1	0	1	5657.968	3	NC	
	5	max	-0.001	1	-0.038	6	0	1	0	1	NC		NC	
		min	-0.092	6	-2.087	3	0	1	0	1	NC		NC	
M25	1	max	-0.001	1	-0.038	6	0	1	0	1	NC		NC	
		min	-0.092	6	-2.087	3	0	1	0	1	NC		NC	
	2	max	-0.001	1	-0.043	6	0	1	0	1	NC		NC	
		min	-0.097	6	-2.157	3	0	1	0	1	NC		NC	
	3	max	-0.001	1	-0.059	6	0	1	0	1	NC		NC	
		min	-0.102	6	-2.26	3	0	1	0	1	NC		NC	
	4	max	-0.001	1	-0.074	6	0	1	0	1	NC		NC	
		min	-0.107	6	-2.36	3	0	1	0	1	7203.458	3	NC	
	5	max	-0.001	1	-0.076	6	0	1	0	1	NC		NC	
		min	-0.112	6	-2.419	3	0	1	0	1	NC		NC	
M26	1	max	0	1	0	1	0	1	0	1	NC		NC	
		min	0	1	0	1	0	1	0	1	NC		NC	
	2	max	0	1	0	1	0.439	3	0	1	NC		1352.166	3
		min	-0.01	5	0	1	0.004	6	0	1	NC		NC	
	3	max	0	1	0	1	0.826	3	0	1	NC		845.103	3
		min	-0.021	5	0	1	0.007	6	0	1	NC		NC	
	4	max	-0.001	1	0	1	1.109	3	0	1	NC		965.833	3
		min	-0.031	5	0	1	0.01	6	0	1	NC		NC	

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Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
	5	max	-0.001	1	0	1	1.235	3	0	1	NC		NC	
		min	-0.041	5	0	1	0.012	6	0	1	NC		NC	
M27	1	max	-0.001	1	0	1	1.235	3	0	1	NC		NC	
		min	-0.041	5	0	1	0.012	6	0	1	NC		NC	
	2	max	-0.001	1	0	1	1.318	3	0	1	NC		6442.627	3
		min	-0.047	5	0	1	0.014	6	0	1	NC		NC	
	3	max	-0.001	1	0	1	1.462	3	0	1	NC		NC	
		min	-0.053	5	0	1	0.016	6	0	1	NC		NC	
	4	max	-0.001	1	0	1	1.603	3	0	1	NC		5090.996	3
		min	-0.059	5	0	1	0.018	6	0	1	NC		NC	
	5	max	-0.001	1	0	1	1.679	3	0	1	NC		NC	
		min	-0.065	5	0	1	0.02	6	0	1	NC		NC	
M28	1	max	-0.001	1	0	1	1.679	3	0	1	NC		NC	
		min	-0.065	5	0	1	0.02	6	0	1	NC		NC	
	2	max	-0.001	1	0	1	1.683	3	0	1	NC		7074.899	3
		min	-0.066	5	0	1	0.02	6	0	1	NC		NC	
	3	max	-0.001	1	0	1	1.689	3	0	1	NC		3056.092	3
		min	-0.066	5	0	1	0.02	6	0	1	NC		NC	
	4	max	-0.001	1	0	1	1.696	3	0	1	NC		1806.04	3
		min	-0.066	5	0	1	0.02	6	0	1	NC		NC	
	5	max	-0.001	1	0	1	1.705	3	0	1	NC		1224.174	3
		min	-0.067	5	0	1	0.021	6	0	1	NC		NC	
M29	1	max	-0.001	1	0	1	1.705	3	0	1	NC		NC	
		min	-0.067	5	0	1	0.021	6	0	1	NC		NC	
	2	max	-0.001	1	0	1	1.786	3	0	1	NC		NC	
		min	-0.069	5	0	1	0.024	6	0	1	NC		NC	
	3	max	-0.001	1	0	1	1.912	3	0	1	NC		7694.567	3
		min	-0.075	6	0	1	0.028	6	0	1	NC		NC	
	4	max	-0.001	1	0	1	2.028	3	0	1	NC		3487.55	3
		min	-0.083	6	0	1	0.033	6	0	1	NC		NC	
	5	max	-0.001	1	0	1	2.081	3	0	1	NC		NC	
		min	-0.09	6	0	1	0.038	6	0	1	NC		8183.832	6
M30	1	max	-0.001	1	0	1	2.081	3	0	1	NC		NC	
		min	-0.09	6	0	1	0.038	6	0	1	NC		NC	
	2	max	-0.002	1	0	1	2.134	3	0	1	NC		6030.327	3
		min	-0.095	6	0	1	0.046	6	0	1	NC		NC	
	3	max	-0.002	1	0	1	2.244	3	0	1	NC		NC	
		min	-0.099	6	0	1	0.056	6	0	1	NC		9582.46	6
	4	max	-0.002	1	0	1	2.354	3	0	1	NC		5808.311	3
		min	-0.104	6	0	1	0.067	6	0	1	NC		6030.391	6
	5	max	-0.002	1	0	1	2.405	3	0	1	NC		NC	
		min	-0.109	6	0	1	0.075	6	0	1	NC		4642.143	6
M31	1	max	0	1	0	1	0	1	0	1	NC		NC	
		min	0	1	0	1	0	1	0	1	NC		NC	
	2	max	0	1	0	1	0.432	3	0	1	NC		1413.69	3
		min	-0.008	5	0	1	0.009	6	0	1	NC		NC	
	3	max	0.001	1	0	1	0.814	3	0	1	NC		883.556	3
		min	-0.016	5	0	1	0.016	6	0	1	NC		NC	
	4	max	0.001	1	0	1	1.097	3	0	1	NC		1009.778	3
		min	-0.025	5	0	1	0.017	6	0	1	NC		NC	
	5	max	0.001	1	0	1	1.23	3	0	1	NC		NC	
		min	-0.033	5	0	1	0.012	6	0	1	NC		NC	
M32	1	max	0.001	1	0	1	1.23	3	0	1	NC		NC	
		min	-0.033	5	0	1	0.012	6	0	1	NC		NC	

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Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
	2	max	0.001	1	0	1	1.319	3	0	1	NC		8404.363	3
		min	-0.038	5	0	1	0.01	6	0	1	NC		NC	
	3	max	0.001	1	0	1	1.462	3	0	1	NC		NC	
		min	-0.043	5	0	1	0.016	6	0	1	NC		NC	
	4	max	0.002	1	0	1	1.6	3	0	1	NC		4707.265	3
		min	-0.047	5	0	1	0.022	6	0	1	NC		NC	
	5	max	0.002	1	0	1	1.673	3	0	1	NC		NC	
		min	-0.052	5	0	1	0.019	6	0	1	NC		NC	
M33	1	max	0.002	1	0	1	1.673	3	0	1	NC		NC	
		min	-0.052	5	0	1	0.019	6	0	1	NC		8030.686	6
	2	max	0.002	1	0	1	1.677	3	0	1	NC		7523.386	3
		min	-0.052	5	0	1	0.018	6	0	1	NC		NC	
	3	max	0.002	1	0	1	1.683	3	0	1	NC		3223.622	3
		min	-0.053	5	0	1	0.017	6	0	1	NC		NC	
	4	max	0.002	1	0	1	1.689	3	0	1	NC		1893.955	3
		min	-0.053	5	0	1	0.016	6	0	1	NC		NC	
	5	max	0.002	1	0	1	1.697	3	0	1	NC		1278.123	3
		min	-0.053	5	0	1	0.016	6	0	1	NC		NC	
M34	1	max	0.002	1	0	1	1.697	3	0	1	NC		NC	
		min	-0.053	5	0	1	0.016	6	0	1	NC		NC	
	2	max	0.002	1	0	1	1.777	3	0	1	NC		9669.981	3
		min	-0.055	5	0	1	0.022	6	0	1	NC		NC	
	3	max	0.002	1	0	1	1.902	3	0	1	NC		9010.139	3
		min	-0.059	6	0	1	0.038	6	0	1	NC		NC	
	4	max	0.002	1	0	1	2.02	3	0	1	NC		3705.187	3
		min	-0.065	6	0	1	0.048	6	0	1	NC		9448.124	6
	5	max	0.002	1	0	1	2.076	3	0	1	NC		NC	
		min	-0.071	6	0	1	0.038	6	0	1	NC		NC	
M35	1	max	0.002	1	0	1	2.076	3	0	1	NC		NC	
		min	-0.071	6	0	1	0.038	6	0	1	NC		NC	
	2	max	0.002	1	0	1	2.13	3	0	1	NC		6979.367	3
		min	-0.074	6	0	1	0.034	6	0	1	NC		NC	
	3	max	0.002	1	0	1	2.238	3	0	1	NC		NC	
		min	-0.078	6	0	1	0.058	6	0	1	NC		NC	
	4	max	0.002	1	0	1	2.344	3	0	1	NC		5547.078	3
		min	-0.081	6	0	1	0.082	6	0	1	NC		NC	
	5	max	0.002	1	0	1	2.392	3	0	1	NC		NC	
		min	-0.085	6	0	1	0.075	6	0	1	NC		NC	
M36	1	max	0	1	0	1	0	1	0	1	NC		NC	
		min	0	1	0	1	0	1	0	1	NC		NC	
	2	max	0	1	0.008	5	0	1	0	1	NC		NC	
		min	-0.007	5	-0.395	3	0	1	0	1	1970.08	3	NC	
	3	max	0	1	0.01	5	0	1	0	1	NC		NC	
		min	-0.014	5	-0.755	3	0	1	0	1	1231.3	3	NC	
	4	max	0.001	1	-0.001	6	0	1	0	1	NC		NC	
		min	-0.02	5	-1.043	3	0	1	0	1	1407.2	3	NC	
	5	max	0.001	1	-0.012	6	0	1	0	1	NC		NC	
		min	-0.027	5	-1.224	3	0	1	0	1	NC		NC	
M37	1	max	0.001	1	-0.012	6	0	1	0	1	NC		NC	
		min	-0.027	5	-1.224	3	0	1	0	1	NC		NC	
	2	max	0.001	1	-0.02	6	0	1	0	1	NC		NC	
		min	-0.031	5	-1.346	3	0	1	0	1	NC		NC	
	3	max	0.001	1	-0.019	6	0	1	0	1	NC		NC	
		min	-0.035	5	-1.475	3	0	1	0	1	6223.998	3	NC	

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Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
	4	max	0.001	1	-0.016	6	0	1	0	1	NC		NC	
		min	-0.039	5	-1.59	3	0	1	0	1	5605.73	3	NC	
	5	max	0.001	1	-0.019	6	0	1	0	1	NC		NC	
		min	-0.043	5	-1.67	3	0	1	0	1	NC		NC	
M38	1	max	0.001	1	-0.019	6	0	1	0	1	NC		NC	
		min	-0.043	5	-1.67	3	0	1	0	1	NC		NC	
	2	max	0.001	1	-0.021	6	0	1	0	1	NC		NC	
		min	-0.044	5	-1.68	3	0	1	0	1	3059.673	3	NC	
	3	max	0.001	1	-0.022	6	0	1	0	1	NC		NC	
		min	-0.044	5	-1.691	3	0	1	0	1	1446.613	3	NC	
	4	max	0.001	1	-0.023	6	0	1	0	1	NC		NC	
		min	-0.044	5	-1.704	3	0	1	0	1	917.456	3	NC	
	5	max	0.001	1	-0.023	6	0	1	0	1	NC		NC	
		min	-0.044	5	-1.717	3	0	1	0	1	658.071	3	NC	
M39	1	max	0.001	1	-0.023	6	0	1	0	1	NC		NC	
		min	-0.044	5	-1.717	3	0	1	0	1	NC		NC	
	2	max	0.001	1	-0.019	6	0	1	0	1	NC		NC	
		min	-0.046	5	-1.801	3	0	1	0	1	NC		NC	
	3	max	0.002	1	-0.014	6	0	1	0	1	NC		NC	
		min	-0.05	6	-1.902	3	0	1	0	1	NC		NC	
	4	max	0.002	1	-0.017	6	0	1	0	1	NC		NC	
		min	-0.055	6	-1.999	3	0	1	0	1	8366.133	3	NC	
	5	max	0.002	1	-0.038	6	0	1	0	1	9695.263	6	NC	
		min	-0.06	6	-2.071	3	0	1	0	1	NC		NC	
M40	1	max	0.002	1	-0.038	6	0	1	0	1	NC		NC	
		min	-0.06	6	-2.071	3	0	1	0	1	NC		NC	
	2	max	0.002	1	-0.058	6	0	1	0	1	8719.33	6	NC	
		min	-0.063	6	-2.147	3	0	1	0	1	NC		NC	
	3	max	0.002	1	-0.056	6	0	1	0	1	9300.692	6	NC	
		min	-0.066	6	-2.242	3	0	1	0	1	NC		NC	
	4	max	0.002	1	-0.055	6	0	1	0	1	9869.187	6	NC	
		min	-0.069	6	-2.33	3	0	1	0	1	7115.348	3	NC	
	5	max	0.002	1	-0.076	6	0	1	0	1	4567.473	6	NC	
		min	-0.072	6	-2.384	3	0	1	0	1	NC		NC	
M41	1	max	0	1	0	1	0	1	0	1	NC		NC	
		min	0	1	0	1	0	1	0	1	NC		NC	
	2	max	0	1	0	1	0.426	3	0	1	NC		1468.846	3
		min	-0.004	5	0	1	0.018	6	0	1	NC		NC	
	3	max	-0.001	1	0	1	0.804	3	0	1	NC		918.029	3
		min	-0.009	5	0	1	0.029	6	0	1	NC		7796.366	6
	4	max	-0.001	1	0	1	1.086	3	0	1	NC		1049.176	3
		min	-0.013	5	0	1	0.03	6	0	1	NC		8910.133	6
	5	max	-0.002	1	0	1	1.224	3	0	1	NC		NC	
		min	-0.017	5	0	1	0.014	6	0	1	NC		NC	
M42	1	max	-0.002	1	0	1	1.224	3	0	1	NC		NC	
		min	-0.017	5	0	1	0.014	6	0	1	NC		NC	
	2	max	-0.002	1	0	1	1.317	3	0	1	NC		9829.446	3
		min	-0.02	5	0	1	0.003	6	0	1	NC		NC	
	3	max	-0.002	1	0	1	1.457	3	0	1	NC		NC	
		min	-0.023	5	0	1	0.013	6	0	1	NC		NC	
	4	max	-0.003	1	0	1	1.591	3	0	1	NC		5156.448	3
		min	-0.025	5	0	1	0.025	6	0	1	NC		NC	
	5	max	-0.003	1	0	1	1.668	3	0	1	NC		NC	
		min	-0.028	5	0	1	0.02	6	0	1	NC		NC	

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Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
M43	1	max	-0.003	1	0	1	1.668	3	0	1	NC		NC	
		min	-0.028	5	0	1	0.02	6	0	1	NC		5695.124	6
	2	max	-0.003	1	0	1	1.674	3	0	1	NC		5130.315	3
		min	-0.028	5	0	1	0.017	6	0	1	NC		NC	
	3	max	-0.003	1	0	1	1.682	3	0	1	NC		2203.521	3
		min	-0.028	5	0	1	0.015	6	0	1	NC		NC	
	4	max	-0.003	1	0	1	1.692	3	0	1	NC		1297.165	3
		min	-0.028	5	0	1	0.014	6	0	1	NC		NC	
	5	max	-0.003	1	0	1	1.703	3	0	1	NC		876.876	3
		min	-0.028	5	0	1	0.014	6	0	1	NC		NC	
M44	1	max	-0.003	1	0	1	1.703	3	0	1	NC		NC	
		min	-0.028	5	0	1	0.014	6	0	1	NC		NC	
	2	max	-0.003	1	0	1	1.789	3	0	1	NC		NC	
		min	-0.03	5	0	1	0.01	5	0	1	NC		NC	
	3	max	-0.003	1	0	1	1.905	3	0	1	NC		7467.864	3
		min	-0.032	6	0	1	0.035	5	0	1	NC		7528.728	5
	4	max	-0.003	1	0	1	2.012	3	0	1	NC		4154.006	3
		min	-0.035	6	0	1	0.066	5	0	1	NC		2908.718	5
	5	max	-0.004	1	0	1	2.069	3	0	1	NC		NC	
		min	-0.038	6	0	1	0.039	6	0	1	NC		NC	
M45	1	max	-0.004	1	0	1	2.069	3	0	1	NC		NC	
		min	-0.038	6	0	1	0.039	6	0	1	NC		NC	
	2	max	-0.004	1	0	1	2.13	3	0	1	NC		NC	
		min	-0.04	6	0	1	0.019	6	0	1	NC		8708.447	6
	3	max	-0.004	1	0	1	2.236	3	0	1	NC		NC	
		min	-0.042	6	0	1	0.054	6	0	1	NC		NC	
	4	max	-0.004	1	0	1	2.336	3	0	1	NC		5318.398	3
		min	-0.044	6	0	1	0.09	6	0	1	NC		3339.963	6
	5	max	-0.004	1	0	1	2.382	3	0	1	NC		NC	
		min	-0.046	6	0	1	0.073	6	0	1	NC		4968.589	6
M46	1	max	1.269	3	0.011	3	0	1	0	1	NC		NC	
		min	0.01	6	-0.024	5	0	1	0	1	NC		NC	
	2	max	1.267	3	-0.009	1	0	1	0	1	NC		NC	
		min	0.01	6	-0.063	5	0	1	0	1	5073.953	5	NC	
	3	max	1.265	3	0	1	0	1	0	1	NC		NC	
		min	0.01	6	-0.071	5	0	1	0	1	4279.506	5	NC	
	4	max	1.263	3	0.022	3	0	1	0	1	7682.663	3	NC	
		min	0.01	6	-0.043	5	0	1	0	1	NC		NC	
	5	max	1.261	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.01	6	-0.028	5	0	1	0	1	NC		NC	
M47	1	max	1.261	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.01	6	-0.028	5	0	1	0	1	NC		NC	
	2	max	1.258	3	-0.016	1	0	1	0	1	NC		NC	
		min	0.01	6	-0.125	5	0	1	0	1	3169.821	5	NC	
	3	max	1.256	3	0.005	3	0	1	0	1	NC		NC	
		min	0.01	6	-0.181	5	0	1	0	1	2036.626	5	NC	
	4	max	1.253	3	0.048	3	0	1	0	1	5870.369	3	NC	
		min	0.011	6	-0.114	5	0	1	0	1	4100.336	5	NC	
	5	max	1.25	3	0	1	0	1	0	1	NC		NC	
		min	0.011	6	-0.048	5	0	1	0	1	NC		NC	
M48	1	max	1.728	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.043	5	0	1	0	1	NC		NC	
	2	max	1.724	3	-0.006	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.137	5	0	1	0	1	3406.65	5	NC	

Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
	3	max	1.719	3	0.005	3	0	1	0	1	NC		NC	
		min	0.02	6	-0.198	5	0	1	0	1	2110.876	5	NC	
	4	max	1.714	3	0.026	3	0	1	0	1	9987.524	3	NC	
		min	0.02	6	-0.138	5	0	1	0	1	4168.274	5	NC	
	5	max	1.709	3	0.001	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.076	5	0	1	0	1	NC		NC	
M49	1	max	2.112	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.036	6	-0.05	5	0	1	0	1	NC		NC	
	2	max	2.109	3	-0.002	1	0	1	0	1	NC		NC	
		min	0.037	6	-0.107	6	0	1	0	1	6600.877	6	NC	
	3	max	2.107	3	0.01	3	0	1	0	1	NC		NC	
		min	0.037	6	-0.149	6	0	1	0	1	4037.446	6	NC	
	4	max	2.104	3	0.026	3	0	1	0	1	9435.578	3	NC	
		min	0.037	6	-0.125	6	0	1	0	1	8179.883	6	NC	
	5	max	2.102	3	0.001	1	0	1	0	1	NC		NC	
		min	0.037	6	-0.103	6	0	1	0	1	NC		NC	
M50	1	max	2.119	3	0.019	3	0	1	0	1	8068.377	3	NC	
		min	0.037	6	-0.039	5	0	1	0	1	NC		NC	
	2	max	2.117	3	0.005	3	0	1	0	1	NC		NC	
		min	0.037	6	-0.053	6	0	1	0	1	NC		NC	
	3	max	2.115	3	0.005	3	0	1	0	1	NC		NC	
		min	0.037	6	-0.061	6	0	1	0	1	9019.412	6	NC	
	4	max	2.113	3	0.006	3	0	1	0	1	NC		NC	
		min	0.036	6	-0.053	6	0	1	0	1	NC		NC	
	5	max	2.112	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.036	6	-0.05	5	0	1	0	1	NC		NC	
M51	1	max	2.087	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.092	6	0	1	0	1	NC		NC	
	2	max	2.085	3	-0.01	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.109	6	0	1	0	1	NC		NC	
	3	max	2.084	3	-0.009	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.125	6	0	1	0	1	7549.416	6	NC	
	4	max	2.083	3	-0.004	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.108	6	0	1	0	1	NC		NC	
	5	max	2.081	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.09	6	0	1	0	1	NC		NC	
M52	1	max	1.688	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.065	5	0	1	0	1	NC		NC	
	2	max	1.686	3	-0.013	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.098	5	0	1	0	1	7857.356	5	NC	
	3	max	1.683	3	-0.009	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.129	5	0	1	0	1	3984.285	5	NC	
	4	max	1.681	3	0	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.1	5	0	1	0	1	7391.301	5	NC	
	5	max	1.679	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.065	5	0	1	0	1	NC		NC	
M53	1	max	1.679	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.065	5	0	1	0	1	NC		NC	
	2	max	1.677	3	-0.005	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.121	5	0	1	0	1	4304.546	5	NC	
	3	max	1.676	3	0	1	0	1	0	1	NC		NC	
		min	0.019	6	-0.162	5	0	1	0	1	2447.958	5	NC	
	4	max	1.674	3	0.008	3	0	1	0	1	NC		NC	
		min	0.019	6	-0.123	5	0	1	0	1	3751.958	5	NC	

Company   :
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Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
	5	max	1.673	3	0.002	1	0	1	0	1	NC		NC	
		min	0.019	6	-0.052	5	0	1	0	1	NC		NC	
M54	1	max	1.25	3	0	1	0	1	0	1	NC		NC	
		min	0.011	6	-0.048	5	0	1	0	1	NC		NC	
	2	max	1.249	3	-0.032	1	0	1	0	1	NC		NC	
		min	0.011	6	-0.137	5	0	1	0	1	3863.099	5	NC	
	3	max	1.248	3	-0.02	1	0	1	0	1	NC		NC	
		min	0.011	6	-0.188	5	0	1	0	1	2434.288	5	NC	
	4	max	1.246	3	0.003	1	0	1	0	1	NC		NC	
		min	0.011	6	-0.119	5	0	1	0	1	4350.515	5	NC	
	5	max	1.245	3	0	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.033	5	0	1	0	1	NC		NC	
M55	1	max	1.245	3	0	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.033	5	0	1	0	1	NC		NC	
	2	max	1.244	3	-0.003	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.076	5	0	1	0	1	7957.755	5	NC	
	3	max	1.242	3	0.028	3	0	1	0	1	NC		NC	
		min	0.012	6	-0.119	5	0	1	0	1	3961.142	5	NC	
	4	max	1.241	3	0.054	3	0	1	0	1	5640.019	3	NC	
		min	0.012	6	-0.091	5	0	1	0	1	6239.891	5	NC	
	5	max	1.24	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.041	5	0	1	0	1	NC		NC	
M56	1	max	1.709	3	0.001	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.076	5	0	1	0	1	NC		NC	
	2	max	1.706	3	-0.015	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.165	5	0	1	0	1	3777.659	5	NC	
	3	max	1.703	3	-0.007	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.214	5	0	1	0	1	2390.016	5	NC	
	4	max	1.7	3	0.004	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.143	5	0	1	0	1	4247.771	5	NC	
	5	max	1.697	3	0	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.053	5	0	1	0	1	NC		NC	
M57	1	max	1.24	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.041	5	0	1	0	1	NC		NC	
	2	max	1.239	3	-0.021	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.066	5	0	1	0	1	NC		NC	
	3	max	1.237	3	-0.014	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.09	5	0	1	0	1	5210.521	5	NC	
	4	max	1.236	3	0	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.067	5	0	1	0	1	9823.073	5	NC	
	5	max	1.235	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.041	5	0	1	0	1	NC		NC	
M58	1	max	1.235	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.041	5	0	1	0	1	NC		NC	
	2	max	1.234	3	-0.005	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.09	5	0	1	0	1	4920.264	5	NC	
	3	max	1.233	3	0.005	3	0	1	0	1	NC		NC	
		min	0.012	6	-0.127	5	0	1	0	1	2789.154	5	NC	
	4	max	1.231	3	0.022	3	0	1	0	1	NC		NC	
		min	0.012	6	-0.094	5	0	1	0	1	4253.758	5	NC	
	5	max	1.23	3	0.001	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.033	5	0	1	0	1	NC		NC	
M59	1	max	1.23	3	0.001	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.033	5	0	1	0	1	NC		NC	

Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
	2	max	1.228	3	0.001	3	0	1	0	1	NC		NC	
		min	0.012	6	-0.028	5	0	1	0	1	NC		NC	
	3	max	1.227	3	0.033	3	0	1	0	1	5515.683	3	NC	
		min	0.012	6	-0.029	5	0	1	0	1	NC		NC	
	4	max	1.225	3	0.049	3	0	1	0	1	3679.126	3	NC	
		min	0.012	6	-0.017	5	0	1	0	1	NC		NC	
	5	max	1.224	3	0.001	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.027	5	0	1	0	1	NC		NC	
M60	1	max	1.224	3	0.001	1	0	1	0	1	NC		NC	
		min	0.012	6	-0.027	5	0	1	0	1	NC		NC	
	2	max	1.224	3	-0.046	1	0	1	0	1	8978.954	1	NC	
		min	0.013	6	-0.195	5	0	1	0	1	2434.652	5	NC	
	3	max	1.224	3	-0.026	1	0	1	0	1	NC		NC	
		min	0.013	6	-0.296	5	0	1	0	1	1514.416	5	NC	
	4	max	1.224	3	0.006	1	0	1	0	1	NC		NC	
		min	0.013	6	-0.212	5	0	1	0	1	2155.101	5	NC	
	5	max	1.224	3	-0.002	1	0	1	0	1	NC		NC	
		min	0.014	6	-0.017	5	0	1	0	1	NC		NC	
M61	1	max	1.74	3	0.017	3	0	1	0	1	8949.643	3	NC	
		min	0.02	6	-0.037	5	0	1	0	1	NC		NC	
	2	max	1.737	3	0.002	3	0	1	0	1	NC		NC	
		min	0.02	6	-0.056	5	0	1	0	1	NC		NC	
	3	max	1.734	3	0.006	3	0	1	0	1	NC		NC	
		min	0.02	6	-0.059	5	0	1	0	1	NC		NC	
	4	max	1.731	3	0.01	3	0	1	0	1	NC		NC	
		min	0.02	6	-0.046	5	0	1	0	1	NC		NC	
	5	max	1.728	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.043	5	0	1	0	1	NC		NC	
M62	1	max	2.434	3	0	1	0	1	0	1	NC		NC	
		min	0.077	6	-0.09	6	0	1	0	1	NC		NC	
	2	max	2.43	3	0	1	0	1	0	1	NC		NC	
		min	0.077	6	-0.132	6	0	1	0	1	9006.805	6	NC	
	3	max	2.426	3	0.003	1	0	1	0	1	NC		NC	
		min	0.076	6	-0.177	6	0	1	0	1	4237.794	6	NC	
	4	max	2.423	3	0.007	3	0	1	0	1	NC		NC	
		min	0.076	6	-0.158	6	0	1	0	1	6324.814	6	NC	
	5	max	2.419	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.076	6	-0.112	6	0	1	0	1	NC		NC	
M63	1	max	2.094	3	0	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.075	6	0	1	0	1	NC		NC	
	2	max	2.092	3	-0.002	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.114	6	0	1	0	1	9291.782	6	NC	
	3	max	2.09	3	0.005	3	0	1	0	1	NC		NC	
		min	0.038	6	-0.156	6	0	1	0	1	4450.237	6	NC	
	4	max	2.089	3	0.018	3	0	1	0	1	NC		NC	
		min	0.038	6	-0.134	6	0	1	0	1	6914.888	6	NC	
	5	max	2.087	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.092	6	0	1	0	1	NC		NC	
M64	1	max	1.697	3	0	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.053	5	0	1	0	1	NC		NC	
	2	max	1.695	3	-0.003	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.108	5	0	1	0	1	6146.44	5	NC	
	3	max	1.693	3	0.012	3	0	1	0	1	NC		NC	
		min	0.02	6	-0.165	5	0	1	0	1	3039.331	5	NC	

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Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
	4	max	1.69	3	0.03	3	0	1	0	1	9159.345	3	NC	
		min	0.02	6	-0.13	5	0	1	0	1	4768.91	5	NC	
	5	max	1.688	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.065	5	0	1	0	1	NC		NC	
M65	1	max	1.673	3	0.002	1	0	1	0	1	NC		NC	
		min	0.019	6	-0.052	5	0	1	0	1	NC		NC	
	2	max	1.672	3	0.001	1	0	1	0	1	NC		NC	
		min	0.019	6	-0.041	6	0	1	0	1	NC		NC	
	3	max	1.671	3	0.015	3	0	1	0	1	NC		NC	
		min	0.019	6	-0.039	6	0	1	0	1	NC		NC	
	4	max	1.67	3	0.022	3	0	1	0	1	8098.466	3	NC	
		min	0.019	6	-0.035	6	0	1	0	1	NC		NC	
	5	max	1.67	3	0.001	1	0	1	0	1	NC		NC	
		min	0.019	6	-0.043	5	0	1	0	1	NC		NC	
M66	1	max	2.487	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.082	6	-0.056	6	0	1	0	1	NC		NC	
	2	max	2.479	3	-0.007	1	0	1	0	1	NC		NC	
		min	0.081	6	-0.212	6	0	1	0	1	2097.271	6	NC	
	3	max	2.47	3	-0.003	1	0	1	0	1	NC		NC	
		min	0.08	6	-0.267	6	0	1	0	1	1649.059	6	NC	
	4	max	2.462	3	0.002	1	0	1	0	1	NC		NC	
		min	0.08	6	-0.194	6	0	1	0	1	3321.345	6	NC	
	5	max	2.454	3	0.001	1	0	1	0	1	NC		NC	
		min	0.079	6	-0.123	6	0	1	0	1	NC		NC	
M67	1	max	2.419	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.076	6	-0.112	6	0	1	0	1	NC		NC	
	2	max	2.415	3	-0.006	1	0	1	0	1	NC		NC	
		min	0.076	6	-0.133	6	0	1	0	1	NC		NC	
	3	max	2.412	3	-0.005	1	0	1	0	1	NC		NC	
		min	0.076	6	-0.155	6	0	1	0	1	5683.751	6	NC	
	4	max	2.408	3	-0.003	1	0	1	0	1	NC		NC	
		min	0.076	6	-0.133	6	0	1	0	1	NC		NC	
	5	max	2.405	3	-0.002	1	0	1	0	1	NC		NC	
		min	0.075	6	-0.109	6	0	1	0	1	NC		NC	
M68	1	max	2.405	3	-0.002	1	0	1	0	1	NC		NC	
		min	0.075	6	-0.109	6	0	1	0	1	NC		NC	
	2	max	2.401	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.075	6	-0.151	6	0	1	0	1	5162.755	6	NC	
	3	max	2.398	3	0	1	0	1	0	1	NC		NC	
		min	0.075	6	-0.182	6	0	1	0	1	2965.624	6	NC	
	4	max	2.395	3	0.002	1	0	1	0	1	NC		NC	
		min	0.075	6	-0.148	6	0	1	0	1	4397.484	6	NC	
	5	max	2.392	3	0.002	1	0	1	0	1	NC		NC	
		min	0.075	6	-0.085	6	0	1	0	1	NC		NC	
M69	1	max	2.392	3	0.002	1	0	1	0	1	NC		NC	
		min	0.075	6	-0.085	6	0	1	0	1	NC		NC	
	2	max	2.39	3	0.006	3	0	1	0	1	NC		NC	
		min	0.075	6	-0.063	6	0	1	0	1	NC		NC	
	3	max	2.388	3	0.011	3	0	1	0	1	NC		NC	
		min	0.076	6	-0.054	6	0	1	0	1	9913.1	6	NC	
	4	max	2.386	3	0.01	3	0	1	0	1	NC		NC	
		min	0.076	6	-0.051	6	0	1	0	1	8555.078	6	NC	
	5	max	2.384	3	0.002	1	0	1	0	1	NC		NC	
		min	0.076	6	-0.072	6	0	1	0	1	NC		NC	

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Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
M70	1	max	1.67	3	0.001	1	0	1	0	1	NC		NC	
		min	0.019	6	-0.043	5	0	1	0	1	NC		NC	
	2	max	1.669	3	-0.018	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.193	5	0	1	0	1	2703.788	5	NC	
	3	max	1.669	3	-0.009	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.28	5	0	1	0	1	1697.347	5	NC	
	4	max	1.668	3	0.004	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.204	5	0	1	0	1	2399.044	5	NC	
	5	max	1.668	3	-0.003	1	0	1	0	1	NC		NC	
		min	0.02	6	-0.028	5	0	1	0	1	NC		NC	
M71	1	max	2.102	3	0.001	1	0	1	0	1	NC		NC	
		min	0.037	6	-0.103	6	0	1	0	1	NC		NC	
	2	max	2.1	3	-0.014	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.188	6	0	1	0	1	3900.462	6	NC	
	3	max	2.098	3	-0.008	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.232	6	0	1	0	1	2495.29	6	NC	
	4	max	2.096	3	0.002	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.161	6	0	1	0	1	4522.127	6	NC	
	5	max	2.094	3	0	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.075	6	0	1	0	1	NC		NC	
M72	1	max	2.081	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.09	6	0	1	0	1	NC		NC	
	2	max	2.08	3	-0.001	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.128	6	0	1	0	1	5902.38	6	NC	
	3	max	2.079	3	0.002	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.155	6	0	1	0	1	3361.479	6	NC	
	4	max	2.077	3	0.005	3	0	1	0	1	NC		NC	
		min	0.038	6	-0.127	6	0	1	0	1	4930.889	6	NC	
	5	max	2.076	3	0.002	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.071	6	0	1	0	1	NC		NC	
M73	1	max	2.076	3	0.002	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.071	6	0	1	0	1	NC		NC	
	2	max	2.075	3	0.008	3	0	1	0	1	NC		NC	
		min	0.038	6	-0.061	6	0	1	0	1	NC		NC	
	3	max	2.073	3	0.022	3	0	1	0	1	8162.707	3	NC	
		min	0.038	6	-0.06	6	0	1	0	1	NC		NC	
	4	max	2.072	3	0.026	3	0	1	0	1	6743.952	3	NC	
		min	0.038	6	-0.053	5	0	1	0	1	NC		NC	
	5	max	2.071	3	0.002	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.06	6	0	1	0	1	NC		NC	
M74	1	max	2.071	3	0.002	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.06	6	0	1	0	1	NC		NC	
	2	max	2.07	3	-0.018	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.2	6	0	1	0	1	2838.344	6	NC	
	3	max	2.07	3	-0.012	1	0	1	0	1	NC		NC	
		min	0.038	6	-0.279	6	0	1	0	1	1801.819	6	NC	
	4	max	2.07	3	0	1	0	1	0	1	NC		NC	
		min	0.039	6	-0.206	6	0	1	0	1	2553.023	6	NC	
	5	max	2.069	3	-0.004	1	0	1	0	1	NC		NC	
		min	0.039	6	-0.038	6	0	1	0	1	NC		NC	
M75	1	max	2.454	3	0.001	1	0	1	0	1	NC		NC	
		min	0.079	6	-0.123	6	0	1	0	1	NC		NC	
	2	max	2.449	3	-0.005	1	0	1	0	1	NC		NC	
		min	0.079	6	-0.181	6	0	1	0	1	5463.58	6	NC	

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Member Deflections, (continued)

Member Label	Section		x-Translate (In)	Lc	x-Translate (In)	Lc	x-Translate (In)	Lc	x-Rotate (radians)	Lc	(n) L/y Ratio	Lc	(n) L/z Ratio	Lc
	3	max	2.444	3	-0.003	1	0	1	0	1	NC		NC	
		min	0.078	6	-0.212	6	0	1	0	1	3423.069	6	NC	
	4	max	2.439	3	0	1	0	1	0	1	NC		NC	
		min	0.078	6	-0.157	6	0	1	0	1	6128.928	6	NC	
	5	max	2.434	3	0	1	0	1	0	1	NC		NC	
		min	0.077	6	-0.09	6	0	1	0	1	NC		NC	
M76	1	max	2.384	3	0.002	1	0	1	0	1	NC		NC	
		min	0.076	6	-0.072	6	0	1	0	1	NC		NC	
	2	max	2.383	3	-0.005	1	0	1	0	1	NC		NC	
		min	0.075	6	-0.189	6	0	1	0	1	3357.564	6	NC	
	3	max	2.383	3	-0.005	1	0	1	0	1	NC		NC	
		min	0.075	6	-0.246	6	0	1	0	1	2218.422	6	NC	
	4	max	2.382	3	-0.003	1	0	1	0	1	NC		NC	
		min	0.074	6	-0.187	6	0	1	0	1	3072.359	6	NC	
	5	max	2.382	3	-0.004	1	0	1	0	1	NC		NC	
		min	0.073	6	-0.046	6	0	1	0	1	NC		NC	

Envelope Member AISC LRFD 2nd Code Checks

Member Label	Code Chk	Loc (Ft)	Lc	Shear Chk	Loc (Ft)	Dir	Lc	Pn (K)	Mn y-y (K-ft)	Mn z-z (K-ft)	LRFD Eqn.
M1				- Steel code check not calculated -							
M2	0.493	14.66	3	0.082	0	y	3	472.427	96.204	245.536	H1-1b
M3	0.259	14.9	3	0.074	0	y	3	468.407	96.204	244.756	H1-1b
M4	0.216	0	3	0.08	0	y	3	606.999	96.204	259.2	H1-1b
M5	0.246	11.91	3	0.084	0	y	3	471.39	86.263	228.652	H1-1b
M6	0.448	14.66	3	0.016	0	z	3	1686.145	481.917	960	H1-1b
M7	0.25	14.9	3	0.016	0	z	3	1680.549	481.917	960	H1-1b
M8	0.151	0	3	0.01	0	z	3	1858.857	481.917	960	H1-1b
M9	0.277	11.91	3	0.021	0	z	3	881.782	224.38	471	H1-1b
M10	0.228	0	3	0.015	0	z	3	850.3	224.38	471	H1-1b
M11	0.504	14.66	3	0.117	0	y	3	1244.619	334.941	702	H1-1b
M12	0.217	14.9	3	0.085	0	y	3	1239.889	334.941	702	H1-1b
M13	0.151	0	3	0.065	0	y	3	1391.702	334.941	702	H1-1b
M14	0.294	11.91	6	0.096	0	y	3	658.845	119.762	370.79	H1-1a
M15	0.254	14.4	3	0.084	0	y	3	607.707	119.762	359.425	H1-1b
M16	0.507	14.66	3	0.019	0	z	3	2023.498	586.709	1170	H1-1b
M17	0.295	14.9	3	0.021	0	z	3	2016.958	586.709	1170	H1-1b
M18	0.162	0	3	0.011	0	z	3	2225.073	586.709	1170	H1-1b
M19	0.321	11.91	3	0.024	0	z	3	969.147	248.404	519	H1-1b
M20	0.262	14.4	3	0.018	0	z	3	934.925	248.404	519	H1-1b
M21	0.525	14.66	3	0.121	0	y	3	1244.619	334.941	702	H1-1b
M22	0.217	14.9	3	0.089	0	y	3	1239.889	334.941	702	H1-1b
M23	0.139	0	3	0.06	0	y	3	1391.702	334.941	702	H1-1b
M24	0.301	11.91	6	0.109	0	y	3	538.307	96.348	298.502	H1-1a
M25	0.251	14.4	3	0.084	0	y	3	495.391	96.348	287.664	H1-1b
M26	0.483	14.66	3	0.016	0	z	3	1131.406	303.681	636	H1-1b
M27	0.288	14.9	3	0.019	0	z	3	1127.075	303.681	636	H1-1b
M28	0.113	0	3	0.007	0	z	3	1266.129	303.681	636	H1-1b
M29	0.283	11.91	3	0.015	0	z	3	538.307	96.348	298.502	H1-1b
M30	0.19	0	3	0.009	0	z	3	495.391	96.348	287.664	H1-1b
M31	0.454	14.66	3	0.016	0	z	3	1131.406	303.681	636	H1-1b
M32	0.274	14.9	3	0.018	0	z	3	1127.075	303.681	636	H1-1b
M33	0.108	0	3	0.007	0	z	3	1266.129	303.681	636	H1-1b
M34	0.269	11.91	3	0.014	0	z	3	538.307	96.348	298.502	H1-1b

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Envelope Member AISC LRFD 2nd Code Checks, (continued)

Member Label	Code Chk	Loc (Ft)	Lc	Shear Chk	Loc (Ft)	Dir	Lc	Pn (K)	Mn y-y (K-ft)	Mn z-z (K-ft)	LRFD Eqn.
M35	0.183	14.4	3	0.009	0	z	3	495.391	96.348	287.664	H1-1b
M36	0.456	14.66	3	0.11	0	y	3	2237.931	651.353	1308	H1-1b
M37	0.207	0	5	0.074	0	y	5	2230.773	651.353	1308	H1-1b
M38	0.131	0	3	0.057	0	y	3	2458.426	651.353	1308	H1-1b
M39	0.219	11.91	3	0.115	0	y	3	1176.992	303.681	636	H1-1b
M40	0.188	14.4	3	0.078	0	y	3	1136.037	303.681	636	H1-1b
M41	0.49	14.66	3	0.018	0	z	3	2237.931	651.353	1308	H1-1b
M42	0.308	0	5	0.02	0	z	5	2230.773	651.353	1308	H1-1b
M43	0.175	0	3	0.012	0	z	3	2458.426	651.353	1308	H1-1b
M44	0.319	11.91	3	0.024	0	z	3	1176.992	303.681	636	H1-1b
M45	0.28	0	6	0.018	0	z	6	1136.037	303.681	636	H1-1b
M46	0.518	16.17	5	0.276	16.17	y	5	350.577	62.803	336.265	H1-1b
M47	0.992	24.33	5	0.31	24.33	y	5	207.311	70.675	293.63	H1-1b
M48	0.973	24.33	5	0.306	24.33	y	5	207.311	70.675	293.63	H1-1b
M49	0.54	24.33	6	0.169	24.33	y	6	207.311	70.675	293.63	H1-1b
M50	0.235	16.17	6	0.133	16.17	y	6	410.885	70.675	418.65	H1-1b
M51	0.313	0	6	0.141	0	y	6	278.272	70.675	353.834	H1-1b
M52	0.573	0	5	0.257	0	y	5	278.272	70.675	353.834	H1-1b
M53	0.55	0	5	0.264	0	y	5	278.272	70.675	353.834	H1-1b
M54	0.538	29.83	5	0.221	29.83	y	5	360.451	165.435	749.191	H1-1b
M55	0.44	0	5	0.202	0	y	5	445.565	165.435	812.544	H1-1b
M56	0.541	29.83	5	0.221	29.83	y	5	360.451	165.435	749.191	H1-1b
M57	0.423	0	5	0.224	0	y	5	370.77	94.191	478.757	H1-1b
M58	0.472	0	5	0.248	0	y	5	325.339	82.592	415.401	H1-1b
M59	0.731	15	3	0.241	15	y	5	192.909	34.319	218.952	H1-1b
M60	0.616	0	3	0.209	0	y	5	399.815	212.451	903.847	H1-1b
M61	0.318	16.17	5	0.196	16.17	y	5	561.502	95.783	605.69	H1-1b
M62	0.515	0	6	0.155	0	y	6	256.684	95.783	405.17	H1-1b
M63	0.495	0	6	0.153	0	y	6	256.684	95.783	405.17	H1-1b
M64	0.621	0	5	0.243	0	y	5	336.595	124.913	577.832	H1-1b
M65	0.571	15	5	0.207	15	y	5	225.447	37.388	268.847	H1-1b
M66	- KL/r > 200 for compression member (LRFD) -										
M67	0.673	0	6	0.149	0	y	6	115.024	37.388	166.957	H1-1b
M68	0.64	0	6	0.155	0	y	6	115.024	37.388	166.957	H1-1b
M69	0.41	15	6	0.12	15	y	6	225.447	37.388	268.847	H1-1b
M70	0.472	0	5	0.191	0	y	5	432.035	221.25	994.214	H1-1b
M71	0.571	29.83	6	0.165	29.83	y	6	213.528	108.218	394.78	H1-1b
M72	0.525	0	6	0.143	0	y	6	136.369	44.105	207.559	H1-1b
M73	0.513	15	6	0.185	15	y	6	147.974	28.579	154.251	H1-1b
M74	0.443	18.208	6	0.136	0	y	6	273.866	146.603	550.555	H1-1b
M75	0.574	29.83	6	0.147	29.83	y	6	225.282	99.519	392.087	H1-1b
M76	0.186	18.208	6	0.108	0	y	6	1065.976	451.043	1764.753	H1-1b

Member Data

Member Label	I Node	J Node	K Node	X-Axis Rotate (degrees)	Section Set	End Releases I-End xyz xyz	J-End xyz xyz	End Offsets I-End (In)	J-End (In)	Inactive Code	Member Length (Ft)
M1	N1	N1			W12X58						0
M2	N1	N2			W12X58						14.66
M3	N2	N3			W12X58						14.9
M4	N3	N45			W12X58						2.61
M5	N45	N4			W12X53						11.91
M6	N5	N6		90	W14X176						14.66
M7	N6	N7		90	W14X176						14.9

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Member Data (continued)

Member Label	I Node	J Node	K Node	X-Axis Rotate (degrees)	Section Set	End Releases I-End	End Releases J-End	End Offsets I-End (In)	End Offsets J-End (In)	Inactive	Length (Ft)
M8	N7	N46		90	W14X176						2.61
M9	N46	N8		90	W14X90						11.91
M10	N8	N9		90	W14X90						14.4
M11	N10	N11			W14X132						14.66
M12	N11	N12			W14X132						14.9
M13	N12	N47			W14X132						2.61
M14	N47	N13			W14X74						11.91
M15	N13	N14			W14X74						14.4
M16	N15	N16		90	W14X211						14.66
M17	N16	N17		90	W14X211						14.9
M18	N17	N48		90	W14X211						2.61
M19	N48	N18		90	W14X99						11.91
M20	N18	N19		90	W14X99						14.4
M21	N20	N21			W14X132						14.66
M22	N21	N22			W14X132						14.9
M23	N22	N49			W14X132						2.61
M24	N49	N23			W14X61						11.91
M25	N23	N24			W14X61						14.4
M26	N25	N26		90	W14X120						14.66
M27	N26	N27		90	W14X120						14.9
M28	N27	N50		90	W14X120						2.61
M29	N50	N28		90	W14X61						11.91
M30	N28	N29		90	W14X61						14.4
M31	N30	N31		90	W14X120						14.66
M32	N31	N32		90	W14X120						14.9
M33	N32	N51		90	W14X120						2.61
M34	N51	N33		90	W14X61						11.91
M35	N33	N34		90	W14X61						14.4
M36	N35	N36			W14X233						14.66
M37	N36	N37			W14X233						14.9
M38	N37	N52			W14X233						2.61
M39	N52	N38			W14X120						11.91
M40	N38	N39			W14X120						14.4
M41	N40	N41		90	W14X233						14.66
M42	N41	N42		90	W14X233						14.9
M43	N42	N53		90	W14X233						2.61
M44	N53	N43		90	W14X120						11.91
M45	N43	N44		90	W14X120						14.4
M46	N2	N6			W21X62						16.17
M47	N6	N11			W24X68						24.33
M48	N7	N12			W24X68						24.33
M49	N8	N13			W24X68						24.33
M50	N4	N8			W24X68						16.17
M51	N23	N28			W24X68						21
M52	N22	N27			W24X68						21
M53	N27	N32			W24X68						21
M54	N11	N16			W27X129						29.83
M55	N16	N21			W27X129						26.83
M56	N12	N17			W27X129						29.83
M57	N21	N26			W24X84						21
M58	N26	N31			W24X76						21
M59	N31	N36			W21X50						15
M60	N36	N41			W33X152						34.5

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Member Data (continued)

Member Label	I Node	J Node	K Node	X-Axis Rotate (degrees)	Section Set	End Releases I-End	End Releases J-End	End Offsets I-End (In)	End Offsets J-End (In)	Inactive	Length (Ft)
M61	N3	N7			W27X84						16.17
M62	N19	N24			W27X84						26.83
M63	N18	N23			W27X84						26.83
M64	N17	N22			W27X102						26.83
M65	N32	N37			W24X55						15
M66	N9	N14			W24X55						24.33
M67	N24	N29			W24X55						21
M68	N29	N34			W24X55						21
M69	N34	N39			W24X55						15
M70	N37	N42			W36X160						34.5
M71	N13	N18			W24X94						29.83
M72	N28	N33			W24X62						21
M73	N33	N38			W18X40						15
M74	N38	N43			W33X118						34.5
M75	N14	N19			W30X90						29.83
M76	N39	N44			W30X211						34.5