Plan Review Comments Response

MacKay-Lyons Sweetapple
Architects Limited

2188 Gottingen Street
Halifax, Nova Scotia
Canada B3K 3B4
t 902.429.1867
f 902.429.6276

www.mlsarchitects.ca

Date:	**2017.09.06**
Project Name:	**Summit Horizon Neighborhood 1500 plus SF Cabin**
Total pages:	**1 of 2**

The following is a formal response to the Plan Review Comments completed by Jason vonWeller (Code), Daniel Mooney (Structural), and checked by DeAnn Wilde.
August 22, 2017. (Received August 23, 2017)

CLARIFICATIONS:

1. Square Footage Summary:

Lower Level Floor Plan: 1007 sq ft
Upper Level Floor Plan: 685 sq ft

See sheet A200 for Livable (Net) Square Footages.

2. Venting for Range:

As per comments for previous units see attached venting and makeup air specifications/cut sheets for use with the Verona Model VCLFSGE365SS range:

- 36" Wolf Pro Wall Hood - 24" Depth.
- Wolf 808331 Inline Blower (600CFM).
- Broane MD8T 8" Makeup Air Kit.

CODE REVIEW COMMENTS:

A1. See Geotechnical Report prepared by IGES Geotechnical Engineers.

A2.

A. See revised Keynote 1 on Sheet 2.0. See 'Rockery Construction Guidelines' prepared by IGES Geotechnical Engineers.

A3. See sheet A200 with exterior wall assemblies noted.

A4. See sheet A101 for removal of reference to 2015 IBC.

A5.

A. Ramp is connected to building with a bolted connection to knife plate which is attached to steel columns. See detail 12/S4.1 for more information.

A6.

A. See sheet A200 for window tags on floor plans. See A900 for callouts indicating emergency escape operators.
B. See A900 for window schedule, and locations of tempered glazing.
C. Window #5 is covered with an 'operable wood screen'. See keynote 13 on A301 and plan details 4 and 5 on A500 for further information.

ELECTRICAL REVIEW COMMENTS:

E1. See Electrical Response.

ENERGY REVIEW COMMENTS:

N1. See revised square footage on REScheck submittal dated 08/25/2017. Please note this is the gross square footage as required by REScheck.

N2. See revised REScheck submittal dated 08/25/2017.

N3. See sheet A900 Notes 1-7 for U-factors and Note 21 for testing and labelling.

N4. See Sheet A001 for note of postage of permanent certificate.

STRUCTURAL REVIEW COMMENTS:

S1. See Structural Response.

END OF RESPONSE

36" PRO WALL HOOD - 24" DEPTH

PW362418

FEATURES

- Heavy-duty stainless steel construction
- Handfinished with hemmed edges and welded seams
- Bright halogen lighting
- Infinite speed blower control
- Heat sentry for safety
- Recessed controls for sleeker look
- Blower required (internal, in-line or remote blowers available)
- Transition with backdraft minimizes backward flow of cold air
- Rigorously tested in our U.S. manufacturing facilities for decades of use
- Exceptional 24/7 support from our Customer Care team in Madison

ACCESSORIES

- 1100 CFM Inline Blower
- 1200 CFM Internal Blower
- 1200 CFM Remote Blower
- 1500 CFM Remote Blower
- 300 CFM Internal Blower
- 450 CFM Internal Blower
- 600 CFM Inline Blower
- 600 CFM Internal Blower
- 600 CFM Remote Blower
- 900 CFM Internal Blower
- 900 CFM Remote Blower
- 38" high stainless steel backsplash with or without warming racks
- 6", 12", 18", 24" and 30" high stainless steel duct covers
- Horizontal discharge kit
- Make-up air damper
- Recirculating kit and filter for non-ducted applications (internal blower)

Accessories available through an authorized Sub-Zero dealer.
For local dealer information, visit subzero-wolf.com/locator.

BLOWER OPTIONS

- 300 CFM Internal
- 450 CFM Internal
- 600 CFM Internal
- 900 CFM Internal
- 1200 CFM Internal
- 600 CFM Inline
- 1100 CFM Inline
- 600 CFM Remote
- 900 CFM Remote
- 1200 CFM Remote
- 1500 CFM Remote

36" PRO WALL HOOD - 24" DEPTH

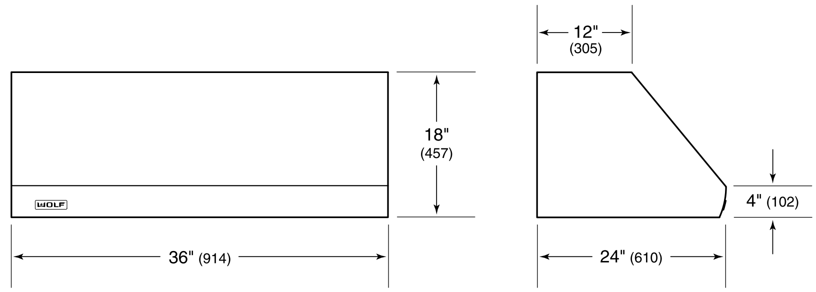
PRODUCT SPECIFICATIONS

Model	PW362418
Dimensions	36"W x 18"H x 24"D
Weight	78 lbs
Electrical Supply	110/120 VAC, 60 Hz
Electrical Service	15 amp dedicated circuit
Discharge Location	Vertical or Horizontal
Discharge Dimensions	10" Round
Bottom of Hood to Countertop	30" to 36"

NOTE:

Dimensions in parenthesis are in millimeters unless otherwise specified

DIMENSIONS



PART NO. 808331

600 CFM INLINE BLOWER

This blower is designed for smooth, quiet and efficient operation with Wolf Ventilation Hoods, keeping the kitchen free of smoke, grease and odors. It mounts outside of the hood, within the run of ducting.

RESOURCES

Support Article: 600 CFM Inline Blower - 808331

MODELS COMPATIBLE WITH THIS ACCESSORY

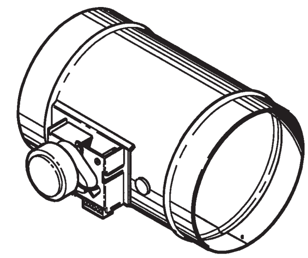
MODEL	PRODUCT NAME
DD30	30" Downdraft Ventilation
DD30	30" Downdraft Ventilation

MODEL	PRODUCT NAME
PW302418	30" Pro Wall Hood - 24" Depth
PW302718	30" Pro Wall Hood - 27" Depth
PW302718	30" Pro Wall Hood - 27" Depth
PW362210	36" Low Profile Wall Hood
PW362418	36" Pro Wall Hood - 24" Depth
PW362418	36" Pro Wall Hood - 24" Depth
PW362718	36" Pro Wall Hood - 27" Depth
PW362718	36" Pro Wall Hood - 27" Depth
PW422210	42" Low Profile Wall Hood
PW422418	42" Pro Wall Hood - 24" Depth
PW422418	42" Pro Wall Hood - 24" Depth
PW422718	42" Pro Wall Hood - 27" Depth
PW422718	42" Pro Wall Hood - 27" Depth
PW482210	48" Low Profile Wall Hood
PW482418	48" Pro Wall Hood - 24" Depth
PW482418	48" Pro Wall Hood - 24" Depth
PW482718	48" Pro Wall Hood - 27" Depth

BROAN®

SPECIFICATION SHEET

AUTOMATIC MAKE-UP AIR DAMPER



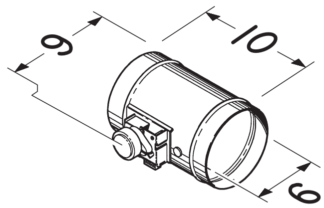
Broan's Automatic Make-up Air Damper provides interlocked damper operation so outside air is only allowed to enter the house when a connected fan or hood is operating.

Model MD6T (for 6" round duct)
Model MD8T (for 8" round duct)
Model MD10T (for 10" round duct)

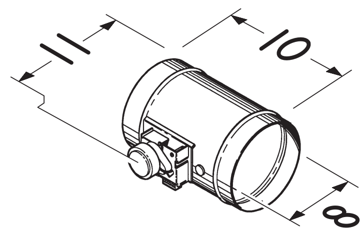
- 24 Volt, 60 Hz AC motor
- Normally closed damper
- Automatically opens when exhaust fans are activated
- Foam seals minimize air leakage
- 24 gauge galvanized steel construction
- Damper adjustment screw for balancing adjustments
- Compatible with select Broan and BEST range hoods
- Use with Fresh Air Inlet Model 641FA for 6" dampers, Fresh Air Inlet Model 643FA for 8" dampers or Fresh Air Inlet Model 610FA for 10" dampers (sold separately)
- Includes 24 Volt 20VA transformer

Model SMD6 (for 6" round duct)
Model SMD8 (for 8" round duct)

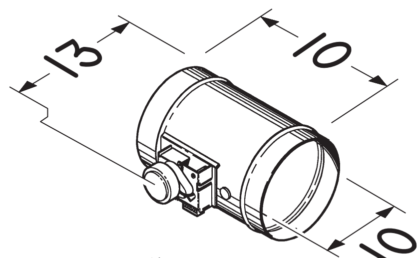
- Same features as Model MD6T and Model MD8T except includes LinkLogic® relay
- Compatible with Broan fans and BEST range hoods equipped with LinkLogic® devices
- Requires no special wiring to range hoods or fan enabled with LinkLogic®. Communicates over existing power lines
- LinkLogic® relay fits single-gang box



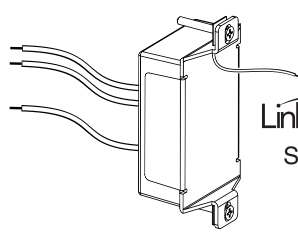
Model MD6T
Model SMD6



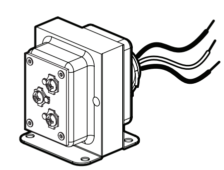
Model MD8T
Model SMD8



Model MD10T



LinkLogic® Relay
SMD6 & SMD8 only



Transformer
Included with all models

Broan-NuTone LLC   Hartford, Wisconsin   www.broan.com   800-558-1711

REFERENCE	QTY.	REMARKS	Project
			Location
			Architect
			Engineer
			Contractor
			Submitted by Date

BNACONSULTING

Memorandum

To: Dave Grandstaff
Salmon Electric

CC:

From: Calvin De St. Jeor

Date: August 23, 2017

Re: Powder Mountain 1500 plus Cabin - County Review Response

E1. Sheet E302:

A. Have added dimension to all floor box next to the walls, to show that they will be installed within 18” of the walls.

B. Have added combo smoke/carbon monoxide as needed.

C. Have added combo smoke/carbon monoxide as needed.

D. Added a General Sheet note addressing the required tamper-resistant devices.

BNA Consulting
635 South State Street
Salt Lake City, Utah 84111
P 801.532.2196
F 801.532.2305

DYNAMIC STRUCTURES

1887 North 1120 West, Provo, Utah 84604 – (ph) 801.356.1140, (fax) 801.356.0001

September 5, 2017

Mike Molyneux
Plan Reviewer

Re: Summit Horizon (Powder Mountain)
1500 + sq. ft. plan (Cabin 28)

The following responses are to plan review comments from the structural portions of the plan review dated August 22, 2017.

S1A The requested information has been added to S0.1.

S1B IBC Table 1705.3 occurs on S0.2. A concrete exposure class table has been added to S0.1 along with concrete mix design being listed as a deferred submittal allowing for a performance based concrete mix to be submitted.

S2 The soils report indicates that there is a tendency for landsliding on the site. Their original recommendation was for all structures to be on drilled piers to bedrock. The owner / contractor instead chose to work with the soils engineer and geologist to remediate the site with soil keys and such. The intent of the concrete walls between piers is to provide a tension tie against any possible localized movement. No flexure or compression loads are anticipated.

S3 Strapping has been added to details 7 and 8 on S4.1.

S4A,B See the attached calculations taking the bridge reactions determined as response to Item S14 through the shear walls, knife plate connection and foundation. The anticipated drift and temperature shrinkage and expansion has been calculated and the knife plate connection shown in 2/S6.1 has been slotted accordingly.

S5 Connection has been clarified.

S6A Hardware has been added to eliminate cross grain bending.

S6B The beam spans from exterior to exterior with a bearing point in the wall between the kitchen and the bathroom. This point load is picked up on a floor beam shown on S2.2.

S7 Because the units are on a sloping hill, at the uphill end, the steel columns under the two stories of wood framing are only 18" tall. At the downhill end, they are about 8 feet tall. We have considered the stiffer braced frame level below in a similar manner as if it were a concrete foundation - a two story wood framed building on a stiffer foundation with walkout on one end. The building was analyzed in a two stage method as outlined in ASCE 7-10 12.2.3.2., using appropriate R and Cd values. This provided reasonable results for the two story wood section but also captured worst case scenarios for the tallest foundation level.

S8 In the short direction, along Grids 1' and 4' a redundancy factor of 1.3 should have been used. In the long direction, all of the wall segments have aspect ratios lower than 1:1. However, due to underlying bedrock close to the surface, the soils report classifies the soil site class as B. A site class D was used in the calculations. It can be shown that by using a soil site class B, the base shear is reduced by 20%. Using a rho of 1.3, the net shear wall demand increase is 10%. Running the 10% increase through the calculations for shear walls and holdowns along Grids 1' and 4' does not require tighter nailing or larger holdowns.

S9 The attached calculation shows that with the "double dip" 0.7 factor removed, the 6' x 6' footing size is still adequate. Out of the four unit types, the 2500 plan previously removed governed for this footing size. We rechecked that unit as well and the 6' x 6' footing size was still adequate in that case as well. (All conservatively using a soil site class D where B could be used)

S10 The soil bearing pressure on S0.1 has been updated to 2600 psf which is allowed per the IGES soils report.

S11 See the attached calculations for the braced frame connections and bending in the concrete columns.

S12 The lateral system has a vertical discontinuity between Grid 1' and 1 and Grid 4' and 4 at the main level. The attached calculation shows that the beam is still adequate with the worst case holdown force applied times an omega factor of 3.

S13 See the attached pages showing diaphragm, chord and collector calculations.

S14A,B See attached calculations showing that wind and seismic forces have been added to the analysis of the access bridge. The diagonal cross bracing at the base of the bridge shown in 5/S6.1 increased in size from L3 ½ x 3 ½ x ¼ to L4 x 4 x ¼. All other components were still adequate. See response to Item S4 for calculations taking the lateral reactions through the structure including the shear walls, bridge foundation and knife plate connection.

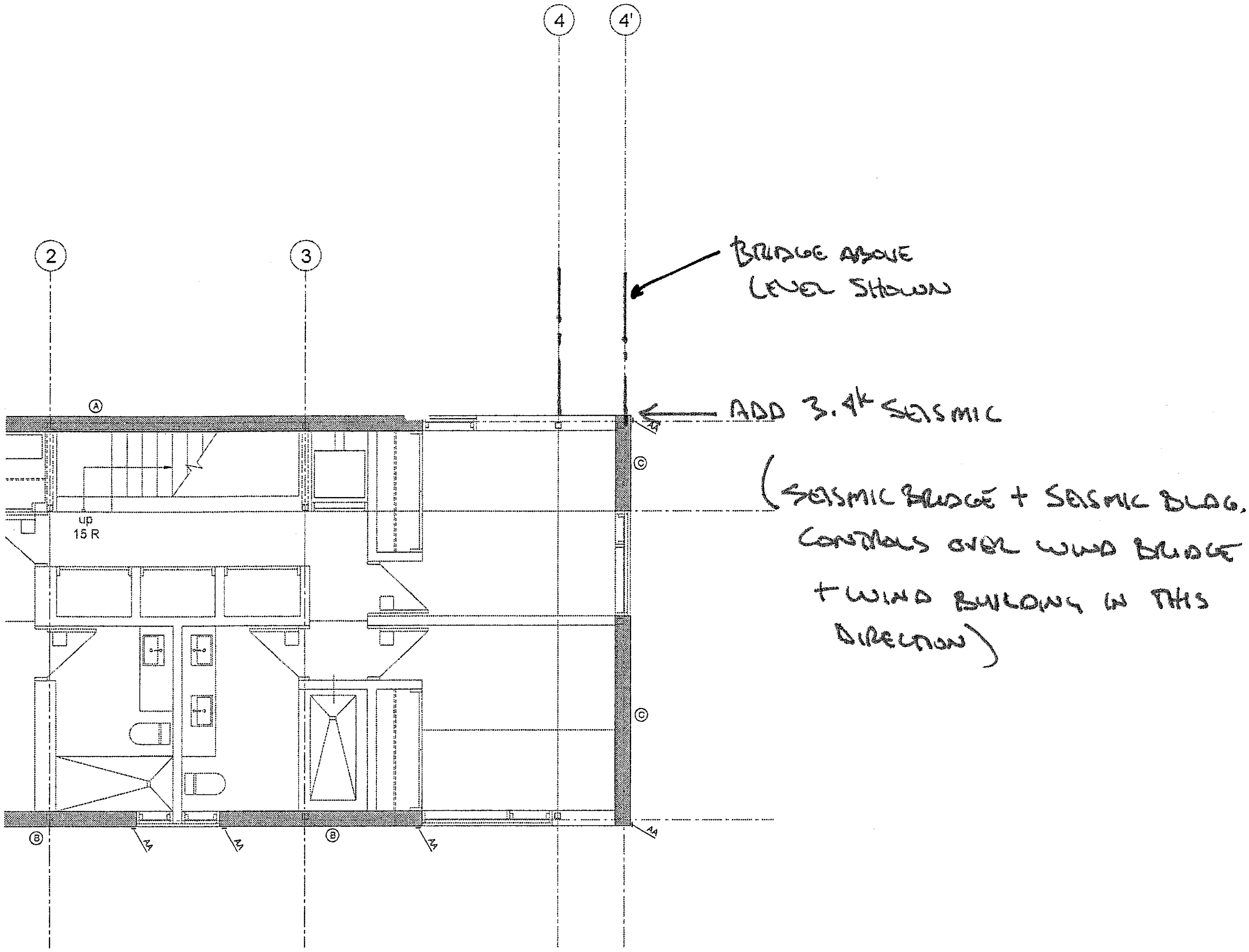
As clarification to architectural comment A5-A, detail 12/S4.1, referenced on S2.2, shows how the bridge structure connects to the building structure.

Respectfully,

Jay D. Adams, SE

Dynamic Structures, Inc.

Item S4



R BOLTS AT TION LEVEL	SILL PLATE AT FOUNDATION
" AT 32" O.C.	2x TREATED
" AT 32" O.C.	2x TREATED
" AT 32" O.C.	2x TREATED
" AT 16" O.C.	2x TREATED

IN SHEAR WALLS SHALL BE DOUGLAS FIR-LARCH

LL PANELS INDICATED ON SCHEDULE ARE TO BE SHEATHED HEIGHT OF THE WALL.

AL INSPECTION PAGE FOR ADDITIONAL REQUIREMENTS

NELS ARE APPLIED ON BOTH FACES OF A SHEAR WALL AND NAIL LESS THAN 6" ON CENTER ON EITHER SIDE, PANEL JOINTS OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS. VELY, THE WIDTH OF THE NAILED FACE OF FRAMING MEMBERS " NOMINAL OR GREATER AT ADJOINING PANEL EDGES AND NAILS JEL EDGES SHALL BE STAGGERED.

HOLD DOWN SCHEDULE

MARK	HOLDOWN	ATTACHMENT TO STUDS	FOUNDATION ANCHORS	MINIMUM STUDS	REMARKS
AA	SIMPSON MST48	(34) 16d SINKERS	N. A.	(2) 2x	SEE DETAILS ON S3.3
BB	SIMPSON MST72	(62) 16d SINKERS	N. A.	(2) 2x	SEE DETAILS ON S3.3

1. ALL ANCHORS ARE SIMPSON STRONG-TIE. (OR EQUAL)
2. INSTALLATION OF ALL HOLDOWN ANCHORS AND STRAPS SHALL BE PER MANUFACTURES RECOMMENDATIONS AND SPECIFICATIONS
3. PROVIDE EDGE NAILING ALONG STUDS CONNECTED TO HOLDOWN ANCHORS AND STRAPS
4. SEE SPECIAL INSPECTION PAGE FOR ADDITIONAL REQUIREMENTS

SHEAR WALLS - LINE A

STORY 2

			PIERS	Length	Height	Tributary
# Piers in Shear Line:	$n2 := 2$	(n = 8 max)	1:	$l2_1 := 18 \cdot ft$	$h2_1 := 9 \cdot ft$	$t2_1 := 11 \cdot ft$
Story Shear:	$Fa_2 := 8.6 \cdot k$	(Allowable)	2:	$l2_2 := 24 \cdot ft$	$h2_2 := 9 \cdot ft$	$t2_2 := 11 \cdot ft$
Shear Attributed To Line:	$Va_2 := 4.3 \cdot k$	(Allowable)	3:	$l2_3 := 0 \cdot ft$	$h2_3 := 0 \cdot ft$	$t2_3 := 0 \cdot ft$
Story DL:	$DL_2 := 15 \cdot psf$		4:	$l2_4 := 0 \cdot ft$	$h2_4 := 0 \cdot ft$	$t2_4 := 0 \cdot ft$
Wall DL:	$DLw_2 := 15 \cdot psf$		5:	$l2_5 := 0 \cdot ft$	$h2_5 := 0 \cdot ft$	$t2_5 := 0 \cdot ft$
Redundancy	$\rho_2 := 1$		6:	$l2_6 := 0 \cdot ft$	$h2_6 := 0 \cdot ft$	$t2_6 := 0 \cdot ft$
			7:	$l2_7 := 0 \cdot ft$	$h2_7 := 0 \cdot ft$	$t2_7 := 0 \cdot ft$
			8:	$l2_8 := 0 \cdot ft$	$h2_8 := 0 \cdot ft$	$t2_8 := 0 \cdot ft$

SHEAR CALCULATIONS

Unit Shear (for walls): $v_2 := \dfrac{\rho_2 \cdot Va_2}{\sum l2}$

OVERTURNING CALCULATIONS $i2 := 1 .. n2$

Overturning Moment: $Mo2_{i2} := v_2 \cdot h2_{i2} \cdot l2_{i2}$ $\quad Mo2 = \begin{pmatrix} 16.586 \\ 22.114 \end{pmatrix} \cdot k \cdot ft$

Resisting Moment: $Mr2_{i2} := 0.6 \cdot \left[\left[\left(DL_2 \cdot t2_{i2} \right) \cdot l2_{i2} \cdot \left(\frac{l2_{i2}}{2} \right) \right] + \left[\left(DLw_2 \cdot h2_{i2} \right) \cdot l2_{i2} \cdot \left(\frac{l2_{i2}}{2} \right) \right] \right]$

Nominal Overturning: $M2_{i2} := Mo2_{i2} - Mr2_{i2}$

Tension at Pier Ends: $T2_{i2} := \dfrac{M2_{i2}}{l2_{i2}}$

STORY 1

# Piers in Shear Line:	$n1 := 1$	(n = 8 max)
Story Shear:	$Fa_1 := 3.8 \cdot k$	
Shear Attributed To Line:	$Va_1 := 1.9 \cdot k + 3.4 \cdot k$	
Story DL:	$DL_1 := 50 \cdot psf$	ADDED
Wall DL:	$DLw_1 := 15 \cdot psf$	SEISMIC
Sill Plate Length:	$Ls_1 := 38 \cdot ft$	FROM
Redundancy	$\rho_1 := 1$	BRIDGE

PIERS	Length	Height	Tributary
1:	$l1_1 := 38 \cdot ft$	$h1_1 := 10 \cdot ft$	$t1_1 := 1 \cdot ft$
2:	$l1_2 := 0 \cdot ft$	$h1_2 := 0 \cdot ft$	$t1_2 := 0 \cdot ft$
3:	$l1_3 := 0 \cdot ft$	$h1_3 := 0 \cdot ft$	$t1_3 := 0 \cdot ft$
4:	$l1_4 := 0 \cdot ft$	$h1_4 := 0 \cdot ft$	$t1_4 := 0 \cdot ft$
5:	$l1_5 := 0 \cdot ft$	$h1_5 := 0 \cdot ft$	$t1_5 := 0 \cdot ft$
6:	$l1_6 := 0 \cdot ft$	$h1_6 := 0 \cdot ft$	$t1_6 := 0 \cdot ft$
7:	$l1_7 := 0 \cdot ft$	$h1_7 := 0 \cdot ft$	$t1_7 := 0 \cdot ft$
8:	$l1_8 := 0 \cdot ft$	$h1_8 := 0 \cdot ft$	$t1_8 := 0 \cdot ft$

SHEAR CALCULATIONS

Unit Shear (for walls): $$v_1 := \frac{\left(\rho_2 \cdot Va_2 + \rho_1 \cdot Va_1\right)}{\sum l1}$$

OVERTURNING CALCULATIONS $i1 := 1 .. n1$

Overturning Moment: $$Mo1_{i1} := \left[\frac{\left(\rho_2 \cdot Va_2 + \rho_1 \cdot Va_1\right) \cdot h1_{i1}}{\sum l1}\right] \cdot l1_{i1}$$

Resisting Moment: $$Mr1_{i1} := 0.6 \cdot \left[\left[\left(DL_1 \cdot t1_{i1}\right) \cdot l1_{i1} \cdot \left(\frac{l1_{i1}}{2}\right)\right] + \left[\left[\left(DLw_1\right) \cdot h1_{i1}\right] \cdot l1_{i1} \cdot \left(\frac{l1_{i1}}{2}\right)\right]\right]$$

Nominal Overturning: $$M1_{i1} := Mo1_{i1} - Mr1_{i1}$$

Tension at Pier Ends: $$T1_{i1} := \frac{M1_{i1}}{l1_{i1}}$$

ANCHOR BOLTS

Unit Shear (for bolts): $$vb_1 := \frac{\left[\sum_{i=1}^{2} \left(\rho_i \cdot Va_i\right)\right]}{Ls_1}$$

1/2" bolt in 1 1/2" sill: $$s_{0.5} := \frac{(650 \cdot lb) \cdot 1.6}{vb_1}$$

5/8" bolt in 1 1/2" sill: $$s_{0.625} := \frac{(930 \cdot lb) \cdot 1.6}{vb_1}$$

SUMMARY, STORY 2

Reduction in shear walls due to height to width ratio less than 2:1

$ratio_{i2} := \frac{l2_{i2}}{h2_{i2}}$ $r2 := if(2 \cdot min(ratio) > 1.0, 1.0, 2 \cdot min(ratio))$ $r2 = 1$

Unit Shear

$\frac{v2}{r2} = 102 \cdot plf$

	Uplift	HOLD DOWN
Pier 1:	$T2_1 = -699 \cdot lb$	NONE REQUIRED
Pier 2:	$T2_2 = -1239 \cdot lb$	NONE REQUIRED
Pier 3:	$T2_3 = ▮ \cdot lb$	
Pier 4:	$T2_4 = ▮ \cdot lb$	
Pier 5:	$T2_5 = ▮ \cdot lb$	
Pier 6:	$T2_6 = ▮ \cdot lb$	
Pier 7:	$T2_7 = ▮ \cdot lb$	
Pier 8:	$T2_8 = ▮ \cdot lb$	

SHEAR WALLS

Sheathing: 7/16", APA, Exp. 1
Blocking: All Panel Edges
Edge Nailing: 8d @ 6" o.c.
Field Nailing: 8d @ 12" o.c.

SUMMARY, STORY 1

Reduction in shear walls due to height to width ratio less than 2:1

$ratio_{i1} := \frac{l1_{i1}}{h1_{i1}}$ $r1 := if(2 \cdot min(ratio) > 1.0, 1.0, 2 \cdot min(ratio))$ $r1 = 1$

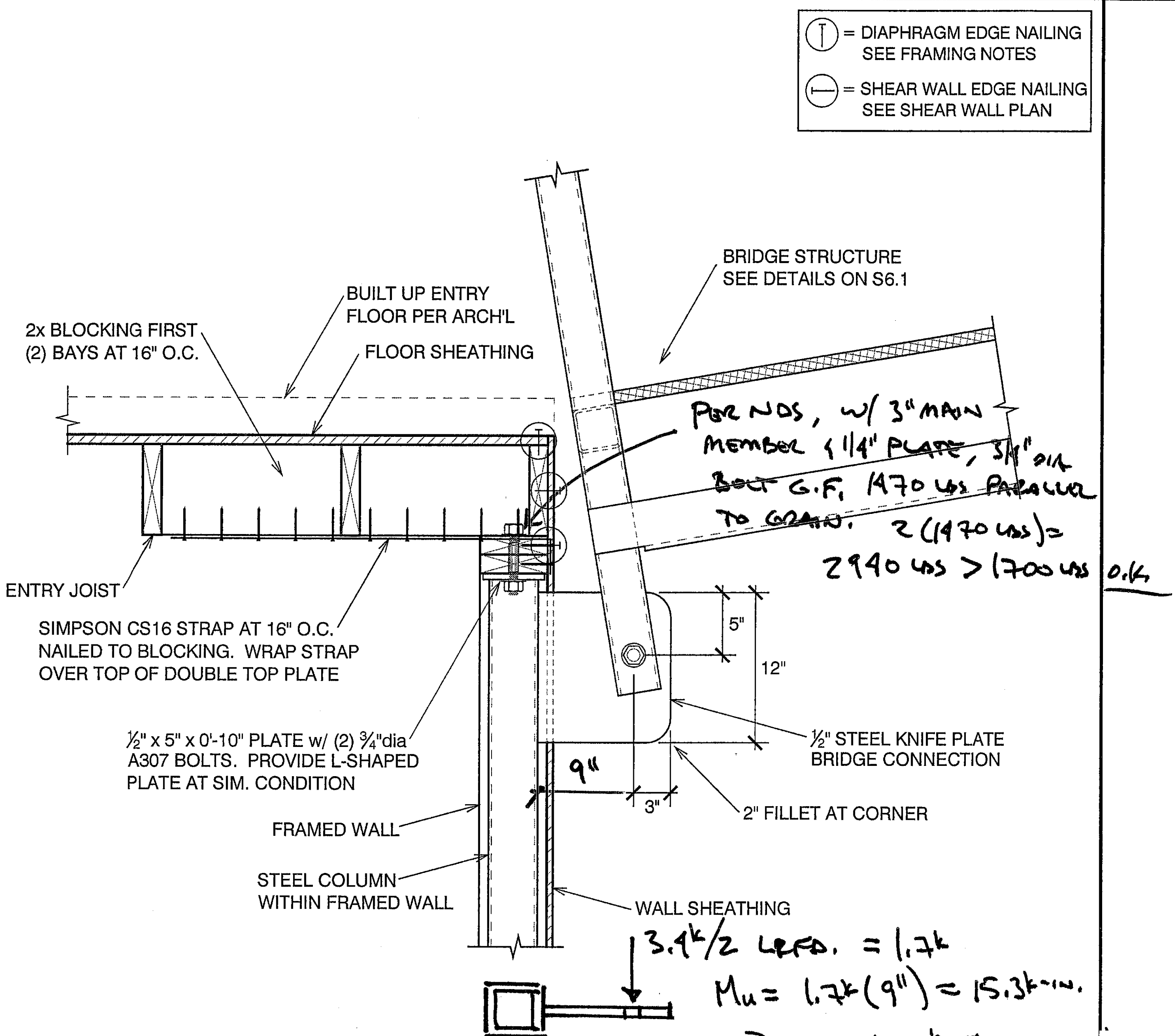
Unit Shear

$\frac{v1}{r1} = 253 \cdot plf$

	Uplift	HOLD DOWN
Pier 1:	$T1_1 = 246 \cdot lb$	SIMPSON MST48
Pier 2:	$T1_2 = ▮ \cdot lb$	
Pier 3:	$T1_3 = ▮ \cdot lb$	HOLDOWNS ADDED
Pier 4:	$T1_4 = ▮ \cdot lb$	
Pier 5:	$T1_5 = ▮ \cdot lb$	
Pier 6:	$T1_6 = ▮ \cdot lb$	
Pier 7:	$T1_7 = ▮ \cdot lb$	
Pier 8:	$T1_8 = ▮ \cdot lb$	

SHEAR WALLS

Sheathing: 7/16", APA, Exp. 1
Blocking: All Panel Edges
Edge Nailing: 8d @ 6" o.c.
Field Nailing: 8d @ 12" o.c.



12 / S4.1 CONSTRUCTION DETAIL

NO SCALE

PER NDS, w/ 3" MAIN MEMBER & 1/4" PLATE, 3/4" DIA ~~BOLT~~ G.F. 1470 LBS PARALLEL TO GRAIN. 2 (1470 LBS) = 2940 LBS > 1700 LBS O.K.

3.4k/2 LRFD. = 1.7k

$M_u = 1.7^k(9") = 15.3^{k\text{-}in.}$

$Z_{REQ'D} = \frac{15.3^{k\cdot in}}{.9(36\ ksi)}$

$Z_{REQ'D} = 0.47$

$Z = \frac{1}{4}(12")(t)^2 = 0.47$

$t = 0.40"$ 1/2" PLATE O.K.

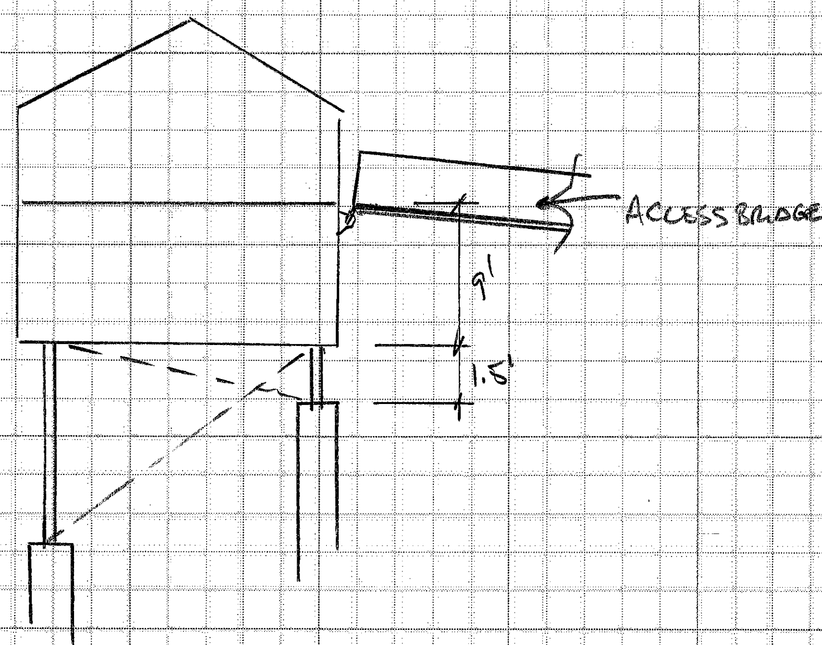
DYNAMIC STRUCTURES
1887 North 1120 West
Provo, UT 84604
Tel: (801) 356-1140

JOB ______

SHEET NO ______ OF ______

CALCULATED BY ______ DATE ______

BRIDGE ISOLATION



INSTEAD OF CALCULATING ACTUAL DRIFT, DETERMINE MAX ALLOWABLE DRIFT.

$0.020(10.5')(12) = 2.5"$

THERMAL EXPANSION.

ASSUME 70° TEMPERATURE DIFFERENTIAL,

$70(7.7\times10^{-6})(48')(12) = 0.3"$

$(2.5" + 0.3")(2) = 5.6"$ USE 6" SLOTTED HOLE

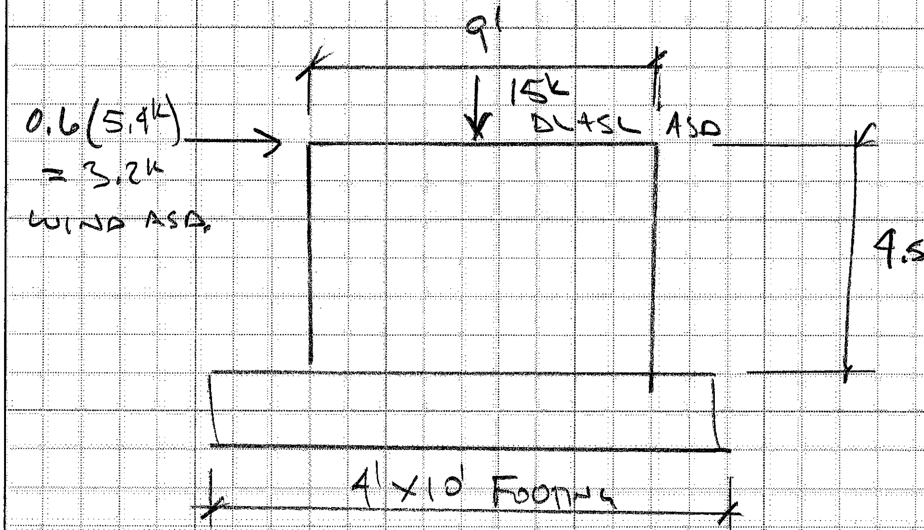
DYNAMIC STRUCTURES
1887 North 1120 West
Provo, UT 84604
Tel: (801) 356-1140

JOB ____________

SHEET NO ________ OF ________

CALCULATED BY ________ DATE ________

BRIDGE REACTION ON FOUNDATION



SEE FOLLOWING PAGES FOR CALCULATION OF FOOTING

CONCRETE FOOTING - SQUARE/ RECTANGULAR SPREAD FOOTINGS WITH MOMENT

PEDESTRIAN BRIDGE FOOTING

Design of Square Conccrete Footing:

Service Level Point Load: $P := 15 \cdot k$

Service Level Moment: $M := 3.2 \cdot k \cdot 4.5ft$

Bearing Pressure: $ps := 2600 \cdot psf$

Wind/Seismic Bearing Pressure: $psa := 1.33 \cdot ps$ $\quad psa = 3458 \cdot psf$

Overturning Moment: $OTM := 1.0 \cdot M$

$OTM = 14.4 \cdot k \cdot ft$

Soil Properties:

Density: $\gamma s := 110 \cdot pcf$

Soil over Footing: $ds := 36 \cdot in$

Assumed Footing Properties:

Density: $\gamma c := 150 \cdot pcf$

Assumed footing width (perp to mom.): $b := 10 \cdot ft$

USE 10' X 4' X 12"

Assumed footing length (parrallel to mom.): $l := 4 \cdot ft$

Assumed footing thickness: $dc := 12 \cdot in$

Righting Moment:

Soil:

$$Ms := \gamma s \cdot ds \cdot b \cdot l \cdot \frac{b}{2}$$

$$Ms = 66 \cdot k \cdot ft$$

Footing:

$$Mf := \gamma c \cdot dc \cdot b \cdot l \cdot \frac{b}{2}$$

$$Mf = 30 \cdot k \cdot ft$$

$$RM := Ms + Mf$$

Verify: $RM = 96 \cdot k \cdot ft$ > $OTM = 14 \cdot k \cdot ft$

Soil Bearing Pressure:

Toe: $pt := \frac{P}{b \cdot l} + \frac{M}{\frac{1}{6} \cdot b \cdot l^2}$ $\quad psa = 3458 \cdot psf$ > $pt = 915 \cdot psf$

Heel: $ph := \frac{P}{b \cdot l} - \frac{M}{\frac{1}{6} \cdot b \cdot l^2}$ $\quad psa = 3458 \cdot psf$ > $ph = -165 \cdot psf$

Check Footing Depth for Punching Shear:

Base plate width: $c := 18 \cdot in$ Compressive Strength of Concrete: $fc' := 3000 \cdot psi$

Area of column: $Ag := c^2$ Yield strength of Steel: $fy := 60ksi$

$d := (dc - 3.5 \cdot in)$ $d = 8.5 \cdot in$

Factored Point Load for Design: $Pu := 1.5P$ $Pu = 22.5 \cdot k$

Ultimate Soil Pressure: $pnet := \frac{Pu}{b^2}$ $pnet = 225 \cdot psf$

Depth Determined by shear:
Two way action:

$area := b^2 - (c + d)^2$ $area = 95.123\,ft^2$

$Vup := pnet \cdot area$ $Vup = 21.4 \cdot k$

ratio of long to short side: $\beta c := 1$

perimeter of critical section: $bo := (c + d) \cdot 4$ $bo = 8.833\,ft$

ACI-11.12.2.1

for $\beta c < 2$ and $bo/d < 20$ for a four sided critical section,

$Vc := 4 \cdot \sqrt{fc' \cdot psi} \cdot bo \cdot d$ $\phi Vc := 0.85 \cdot Vc$

$\phi Vc = 167.8 \cdot k$ > $Vup = 21.4 \cdot k$

Depth Determined by shear:
One way action:

$area := b \cdot \left(\frac{b}{2} - \frac{c}{2} - d\right)$ $area = 35.417\,ft^2$

$Vuw := pnet \cdot area$ $Vuw = 8 \cdot k$

ACI-11.12.1.1 and 11.3.1.1

$Vc := 2\sqrt{fc' \cdot psi} \cdot b \cdot d$ $\phi Vc := 0.85 \cdot Vc$

$\phi Vc = 95 \cdot k$ > $Vuw = 8 \cdot k$ Assumed Depth: OK

Design for bending moment strength:

$$Mu := \frac{1}{2} \cdot pnet \cdot b \cdot \left(\frac{b}{2} - \frac{c}{2}\right)^2 \qquad Mu = 20.3 \cdot k \cdot ft$$

required Rn: $$Rn := \frac{Mu}{0.9 \cdot b \cdot d^2} \qquad Rn = 31.25 \cdot psi$$

$$m := \frac{fy}{0.85 \cdot fc'}$$

$$\rho := \frac{1}{m} \cdot \left(1 - \sqrt{1 - \frac{2 \cdot m \cdot Rn}{fy}}\right) \qquad \rho = 0.0005$$

required As: $As := \rho \cdot b \cdot d$ $\qquad As = 0.535 \cdot in^2$

minimum As: $Asmin := 0.002 \cdot b \cdot d$ $\qquad Asmin = 2.04 \cdot in^2$

$Asreq := if(As < Asmin, Asmin, As)$

$Asreq = 2.04 \cdot in^2$

Use: (11) #5 bars

$As := 11 \cdot .31 \cdot in^2$ $\qquad As = 3.41 \cdot in^2$

$$a := \frac{As \cdot fy}{0.85 \cdot fc' \cdot b} \qquad a = 0.669 \cdot in$$

$$\phi Mn := 0.90 \cdot (As \cdot fy)\left(d - \frac{a}{2}\right)$$

$\phi Mn = 125.3 \cdot k \cdot ft$ $\quad > \quad$ $Mu = 20.3 \cdot k \cdot ft$

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JOB: ITEM 59

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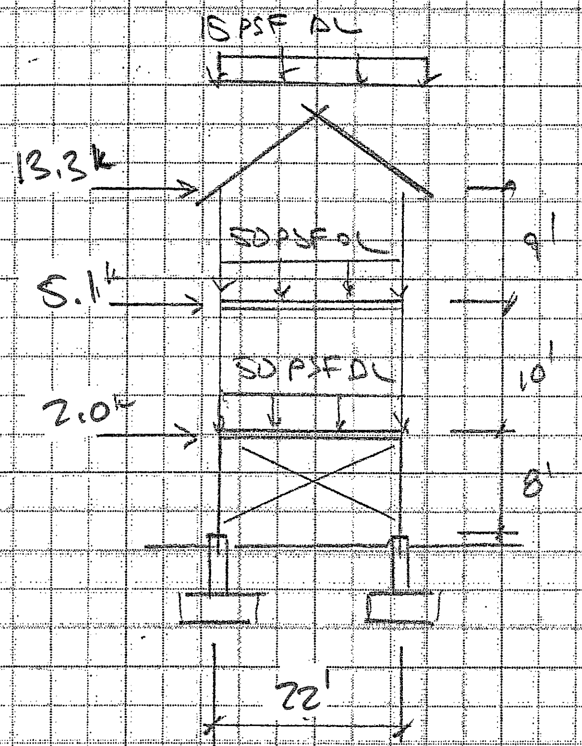
GLOBAL OVERTURNING

SHORT DIRECTION WILL CONTROL



OVERTURNING (ASD)

OTM = ~~0.7~~ $[(13.3^k)(27') + 5.1^k(18') + 2.0^k(8')] = 467^{k\text{-}ft}$

RIGHTING FORCE (ASD)

RM = $0.6(15\,psf + 50\,psf + 50\,psf)(22')(63')\left(\frac{22'}{2}\right)/1000 = 1052^{k\text{-}ft}$

BUILDING STABLE

ASD FORCE ON FOOTING = $467^{k\text{-}ft} / 22' = \pm 21.2^k$

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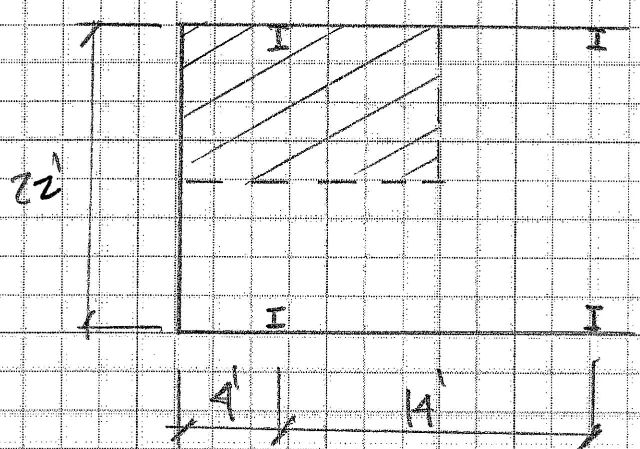
FOUNDATIONS

WORST CASE TRIBUTARY TO COLUMN



AREA = 11' (4' + 7')
= 121 FT²

$$P = \frac{\left[15\,PSF + 192\,PSF + 2(50\,PSF + 40\,PSF)\right]}{1000}\,121\,FT^2 = 47^k$$

ADD 15^k FROM OVERTURNING

$47^k + 15^k = 62^k$

ALLOWABLE SOIL PRESSURE = 2600 PSF

$(62^k / 2.6\,KSF)^{1/2} = 4.9'$ USE **6' x 6' x 14"**

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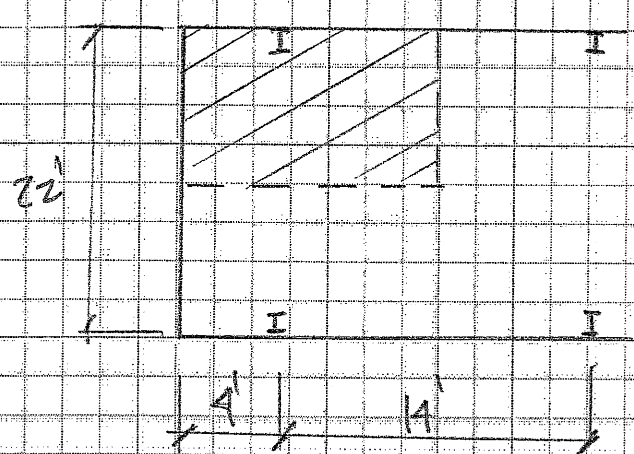
FOUNDATIONS

WORST CASE TRIBUTARY TO COLUMN



AREA $= 11'(4'+7')$
$= 121\ FT^2$

$$P = \frac{\left[15PSF + 192PSF + 2(50PSF + 40PSF)\right] 121\ FT^2}{1000} = 47^k$$

ADD 22^k FROM OVERTURNING

$$47^k + 22^k = 69^k$$

ALLOWABLE SOIL PRESSURE = 2600 PSF

$$\left(69^k / 2.6ksf\right)^{1/2} = 5.2'$$ USE 6'x6'x12"

Item S11

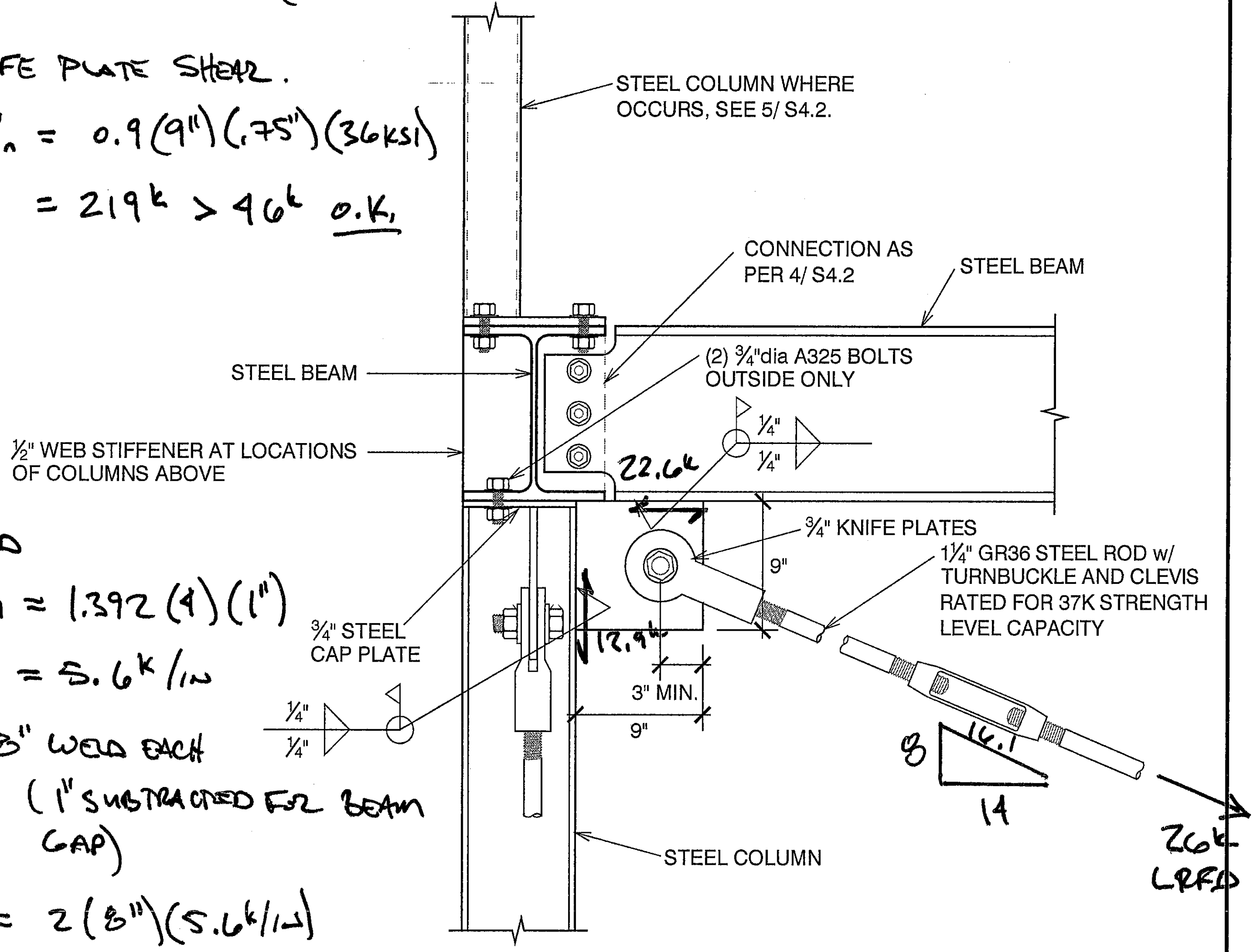
$\Omega_0 = 2$ FOR ORDINARY BRACED FRAME

CONTROLLING $V = 2(22.6) = 45.2^k$

• KNIFE PLATE SHEAR.

$\phi V_n = 0.9(9")(.75")(36ksi)$

$= 219^k > 46^k$ O.K.



• WELD

$\phi R_n = 1.392(4)(1")$

$= 5.6^k/in$

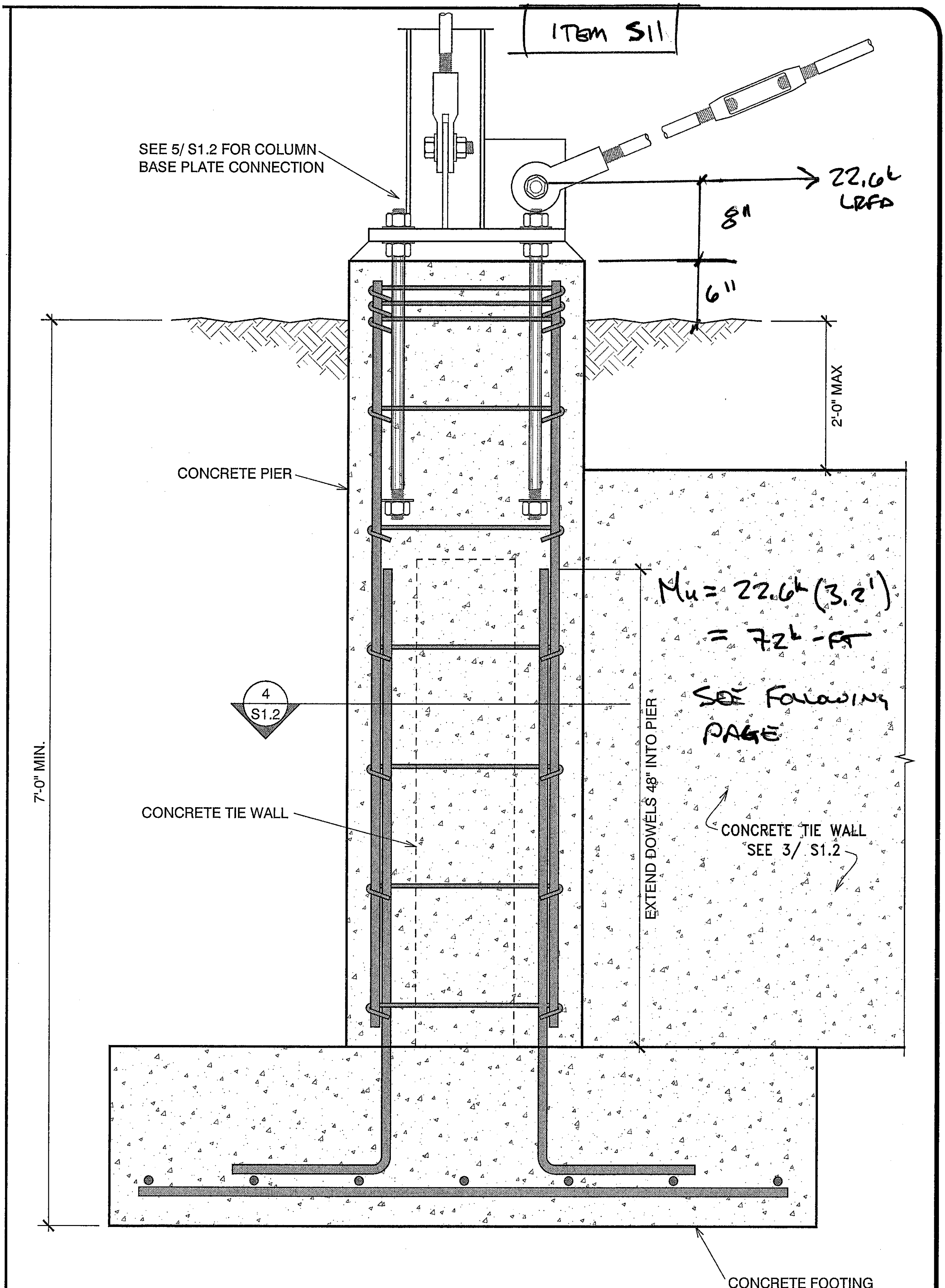
USE 8" WELD EACH SIDE (1" SUBTRACTED FOR BEAM CAP)

$\phi V_n = 2(8")(5.6^k/in)$

$= 89^k > 46^k$ O.K.

6 / S4.2 CONSTRUCTION DETAIL

NO SCALE



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S1.2

CONSTRUCTION DETAIL

NO SCALE

LRFD Design of Concrete Beam

This worksheet calculates the capacity of a concrete beam loaded with a uniform load and a single concentrated load using the LRFD method.

Load combinations:	$1.2 \cdot DL + 1.6 \cdot FLL + 0.5 \cdot SL$	(IBC Equation 16-2)
	$1.2 \cdot DL + 1.6 \cdot SL + f_1 \cdot FLL$	(IBC Equation 16-3)
Floor live load factor:	$f_1 := 0.5$	
Reduction factor for bending:	$\phi b := 0.9$	
Reduction factor for shear:	$\phi v := 0.75$	
Compressive strength of concrete:	$f'c := 4000 \cdot psi$	
Yield Strength of reinforcing:	$fy := 60 \cdot ksi$	
Modulus of elasticity for steel:	$Ey := 29000 \cdot ksi$	
Allowable strain in concrete	$\varepsilon_{cu} := .003$	
Beam width:	$b := 24\ in$	
Total beam depth:	$h := 24\ in$	
Depth to tension steel:	$d := (h - 3 \cdot in)$	

USE 24" X 24" COLUMN IN BENDING

Bending Design:

$Mu := 72 \cdot k \cdot ft$

Approximate A_s:

$$As_{approx} := \frac{Mu \cdot in}{4d \cdot (k \cdot ft)}$$

$As_{approx} = 0.86$

PROVIDE (4) #7 BARS PROVIDED IN OUTSIDE FACE

Actual A_s:

$As := 2.4 \cdot in^2$

$$a := \frac{As \cdot fy}{0.85 \cdot f'c \cdot b}$$

Calculate ϕM_n:

$$\phi Mn := \phi b \cdot As \cdot fy \cdot \left(d - \frac{a}{2}\right)$$

$\phi Mn = 217.3 \cdot k \cdot ft$ **>** $Mu = 72.0 \cdot k \cdot ft$

Verify the section is tension controlled: ($\varepsilon t > \varepsilon y$)

IT CAN BE SEEN BY INSPECTION THAT IN COMBINATION WITH 62 KIPS AXIAL FORCE, THE 24" X 24" COLUMN SIZED BY ARCHITECTURAL REQUIREMENTS IS MORE THAN ADEQUATE STRUCTURALLY

Calculate Steel strain:

$$\varepsilon t := \varepsilon_{cu} \cdot \frac{\left(d - \frac{a}{\beta_1}\right)}{\frac{a}{\beta_1}}$$

$\varepsilon t = 0.0273$ **>** $\varepsilon y = 0.0021$

Minimum tensile strain $\varepsilon t = 0.0273$ **>** $\varepsilon max := 0.004$

Check Minimum Reinforcement Requirements:

$$As_{min} := \max\left(\frac{200psi}{fy}, 3 \cdot \frac{\sqrt{\frac{f'c}{psi}} \cdot psi}{fy}\right) \cdot b \cdot d$$

$As = 2.4 \cdot in^2$ **>** $As_{min} = 1.7 \cdot in^2$

Shear Design:

$Vu := 23 \cdot k$

Shear strength of concrete:

$Vc := 2 \cdot b \cdot d \cdot \sqrt{(f'c \cdot psi)}$

$Vc = 63.8 \cdot k$

$\frac{1}{2} \phi v \cdot Vc = 23.9 \cdot k$ **>** $Vu = 23.0 \cdot k$

**If $^1/_2$ ϕVm is greater than Vu, no shear steel required

Shear steel not required

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Descrip: 1FB1	

STEEL BEAM DESIGN

FLEXURE DESIGN (STEEL)

L. T. Buckling Cb-factor	1.16	
Max. Bending Moment M ..	45.8	k-ft
Limit States	Nominal Mn	
Yielding	155.0	k-ft
Lateral Torsional Buckling	133.0	k-ft
Flange Local Buckling	N.A.	k-ft
Web Local Buckling	N.A.	k-ft
Nominal Strength Mn	79.7	k-ft
Safety Factor Ω	1.67	
Allowable Strength Mn/Ω ...	79.7	k-ft
M / Mn/Ω Design Ratio	0.57	OK

FLEXURE DESIGN (COMPOSITE)

Overall Slab Thickness	N.A
Interior Beam. Spacing = 5.0 ft	
Effective Slab Width	N.A
Concrete Strength f'c	N.A
Concrete Density	N.A
Metal Deck Type	None None
Deck Ribs Height hr	N.A
Deck Ribs Avg. Width wr ..	N.A
No Metal Deck specified for this Beam	
Max. Bending Moment M	N.A
Limit States	Nominal Mn
Plastic Yielding	N.A
Elastic Yielding	N.A.
Nominal Strength Mn	N.A
Safety Factor Ω	1.67
Allowable Strength Mn/Ω	N.A
M / Mn/Ω Design Ratio	N.A

DEFLECTIONS

Stiffness factor	1.0	
Required Camber	0.00	in
Long-term Deflection	N.A.	

Loading	δ (in)	L/δ	L/δ Min	Ratio	
CL	0.00	9999	360	0.04	OK
CD+CL .	0.02	9999	240	0.02	OK
L	0.31	847	360	0.43	OK
D+L	0.65	408	240	0.59	OK

DESIGN FOR SHEAR

Shear Coefficient Cv	1.00	
Maximum Shear Force V ...	9.9	kip
Limit States	Nominal Vn	
Shear Yielding	84.2	kip
Shear Buckling	84.2	kip
Nominal Strength Vn	84.2	kip
Safety Factor Ω	1.50	
Allowable Strength Vn/Ω ..	56.1	kip
V / Vn/Ω Design Ratio	0.18	OK

LOCAL BUCKLING

Flanges in Flexure	Compact
Flanges in Compression	Non-compact
Web in Flexure	Compact
Web in Compression	Non-compact

SHEAR CONNECTORS

Shear Stud Diameter	N.A
Shear Stud Length	N.A
Tensile Strength Fu	N.A
Nominal Strength Qn	N.A
Horizontal Shear Force	N.A
# of Studs for Full Composite	N.A
# of Studs for Partial Composite ..	N.A
Partial Composite Action %	N.A
Minimum Spacing Allowed	N.A
# of Studs at Any Section	N.A
Max. Spacing Required	N.A

DESIGN CODES

Steel Design	AISC 360-10 (14th Ed.)
Load Combinations ...	ASCE 7-10

Project:

Engineer:

Descrip: 1FB1

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9/5/2017

ASDIP Steel 4.1.3 **STEEL BEAM DESIGN** *www.asdipsoft.com*

GEOMETRY			
Beam Designation	W12X26		
Steel Yield Strength Fy ...	50.0	ksi	OK
Modulus of Elasticity Es ..	29000	ksi	
Member Length L	22.00	ft	
Left Cantilever	0.00	ft	
Right Cantilever	0.00	ft	
Unbraced Length Lb top ..	12.00	ft	
Unbraced Length Lb bot ..	22.00	ft	

PROPERTIES					
Area ..	7.7	in^2	Sx ...	33.4	in^3
Depth	12.2	in	Zx ...	37.2	in^3
bf	6.5	in	rx	5.17	in
tw	0.23	in	Iy	17.3	in^4
tf	0.38	in	Sy ...	5.3	in^3
k des .	0.68	in	Zy ...	8.2	in^3
Ix	204.0	in^4	ry	1.51	in
Cw	607.0	in^6	J	0.30	in^4

UNFACTORED LOADS (Selfweight calculated internally)

	Uniform (k/ft)		Concentrated (kip)						Moments (k-ft)	
SPAN 1	w1	w2	P1	P2	P3	P4	P5	P6	ML	MR
Const. Dead Load .	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Const. Live Load ...	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dead Load	0.35	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Live Load	0.35	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Roof Live Load	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Snow Load	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Wind Load	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Seismic Load	0.00	0.00	6.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Start Distance (ft) ..	0.00	0.00	18.00	0.00	0.00	0.00	0.00	0.00		
End Distance (ft) ...	22.00	0.00								

2200 LBS (3) Ω_o

ITEM S13

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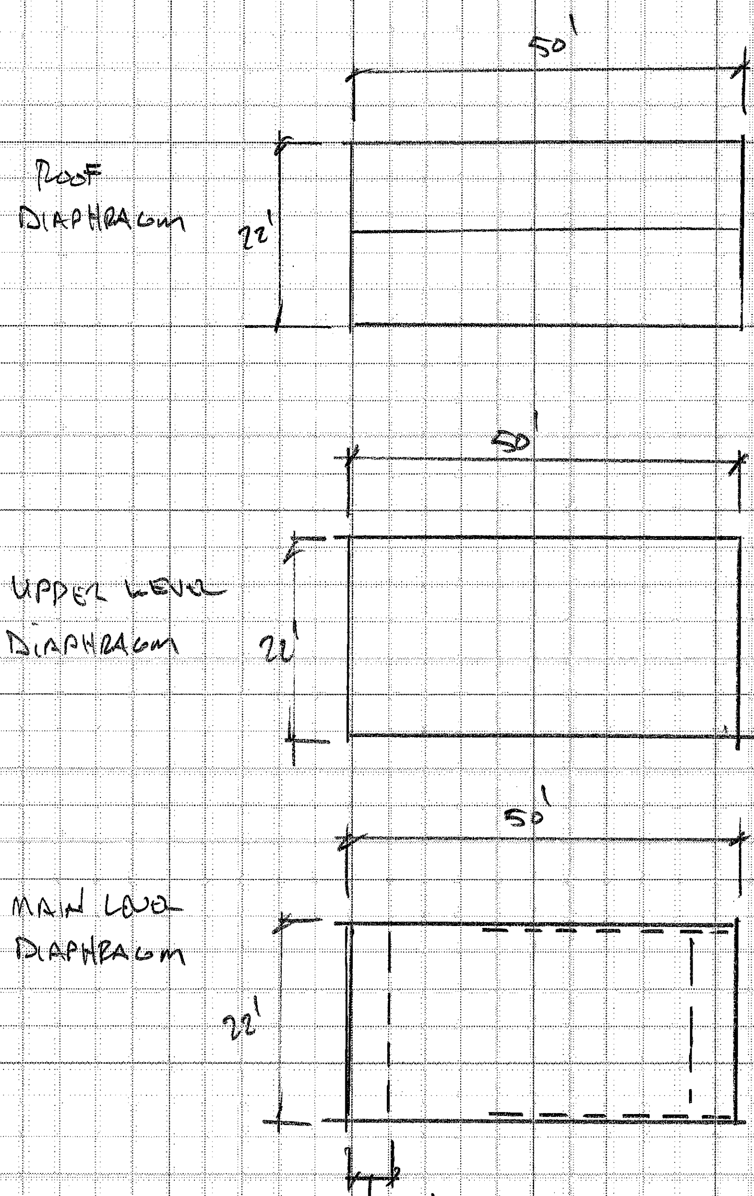

- DIAPHRAGM SHEAR 25% (ASD)

$$v = \frac{0.7\,(289\ \text{PLF})(1.25)(50')}{2(22')}$$

$v = 237$ PLF

5/8" SHEATHING w/ 6" NAILING E.F. 285 PLF O.K.

$$v = \frac{0.7\,(189\ \text{PLF})(1.25)(50')}{2(22')}$$

$v = 188$ PLF

3/4" SHEATHING w/ 6" NAILING E.F. MIN. OF 285 PLF. O.K.

$$v = \frac{0.7\,(171\ \text{PLF})(1.25)(50')}{2(22')}$$

$v = 170$ PLF

SAME 3/4" SHEATHING w/ 6" NAILING E.F. 285 PLF

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CHORDS / COLLECTORS

UPPER (2) LEVELS REGULAR RECTANGLE SHAPE w/ (2) 2x6 TOP CHORD ALL FOUR SIDES.

WORST CASE ASD CHORD FORCE

$$T = C = \frac{0.7\,(289\,PLF)\,(1.25)\,(80')^2}{8\,(22')}$$

(1.25 ← 25%)

= 3592 LBS.

(2) DF #2 CHORD w/ LAPS (ONE 2x6 EFFECTIVE)

6.F. 1.5 (5.5)(1.6)(575 PSI) = 7590 LBS - O.K.

MAIN LEVEL HAS STEEL WF CHORDS ALL FOUR SIDES. MUCH MORE CAPACITY THAN 2x6.

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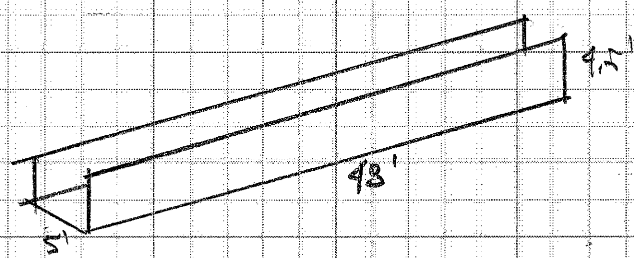
SEISMIC FORCE ON ACCESS BRIDGE



48' LONG, 5' WIDE, 4.5' TALL

SELF WEIGHT = 6200 LBS (RISA)

30% OF 192 PSF SNOW = 58 PSF.

58 PSF (5') (48') = 13,920 LBS.

W_p = 6200 + 13,920 = 20,120 LBS

$$F_p = \frac{0.4\, a_p\, S_{DS}}{\frac{R_p}{I_p}} \left(1 + 2\frac{z}{h}\right)$$

$a_p = 1.0$

$R_p = 2.5$

$S_{DS} = 0.553$

$I_p = 1.0$

$z/h = 9'/19' = 0.5$

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$$F_p = \frac{0.4(1.0)(.553)}{\left(\frac{2.5}{1.0}\right)}(1+0.5)W_p = 0.13W_p$$

$$F_{p\,MIN} = 0.3(.553)(1.0)W_p = 0.17\,W_p \leftarrow$$

$$0.17\,(20,120 \text{ LBS}) = \underline{3338 \text{ LBS.}}$$

WIND FORCE ON ACCESS BRIDGE (ASCE 7-10 29.5)

WORST CASE WIND IF BRIDGE FULL OF SNOW.

PROJECTED AREA = 48'(4.5') = 216 FT²

$$q_z = 0.00256\,K_z K_{zt} K_d V^2$$

$$q_z = 0.00256(0.57)(1.0)(0.85)(115)^2 = 16.4 \text{ PSF}$$

$G = 0.85$

$C_f = 1.8$ (LIKE SOLID FREESTANDING SIGN)

$$F = (16.4 \text{ PSF})(0.85)(1.8)(216 \text{ FT}^2) = 5420 \text{ LBS.}$$

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APPLY WIND AND SEISMIC LOADS TO BRACE MODEL
AS SURFACE LOADS.

16.4 (.85) (1.8) = 25 PSF LRFD FOR WIND

3334 LBS / (4.5') (49') = 16 PSF FOR SEISMIC

SEE FOLLOWING SUMMARY PAGES

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design ...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	ContCho...	L4x4x6	Beam	Single Angle	A36 Gr.36	Typical	2.86	4.32	4.32	.141
2	VertGuard	LL3.5x3.5x6x3	Beam	Double Angle (3/8 Gap)	A36 Gr.36	Typical	5	12.8	5.72	.246
3	CrossBr...	L3.5x3.5x6	Beam	Single Angle	A36 Gr.36	Typical	2.5	2.86	2.86	.123
4	BottomC...	C6x10.5	Beam	Channel	A36 Gr.36	Typical	3.07	.86	15.1	.128
5	DiagChord	L4x4x4	Beam	Single Angle	A36 Gr.36	Typical	1.93	3	3	.044
6	End Me...	HSS3.5x3.5x6	Beam	SquareTube	A500 Gr.B Rect	Typical	4.09	6.49	6.49	11.2

DIAG. CHORDS ALONG BOTTOM SIZE CHANGE

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
1	M1	ContChord	48	4	4	4	4					Lateral
2	M2	ContChord	48	4	4	4	4					Lateral
3	M3	VertGuard	4.5									Lateral
4	M4	VertGuard	4.5									Lateral
5	M5	VertGuard	4.5									Lateral
6	M6	VertGuard	4.5									Lateral
7	M7	VertGuard	4.5									Lateral
8	M8	VertGuard	4.5									Lateral
9	M9	VertGuard	4.5									Lateral
10	M10	VertGuard	4.5									Lateral
11	M11	VertGuard	4.5									Lateral
12	M12	VertGuard	4.5									Lateral
13	M13	VertGuard	4.5									Lateral
14	M14	End Membe...	4.5									Lateral
15	M15	CrossBrace	6.021									Lateral
16	M16	CrossBrace	6.021									Lateral
17	M17	CrossBrace	6.021									Lateral
18	M18	CrossBrace	6.021									Lateral
19	M19	CrossBrace	6.021									Lateral
20	M20	CrossBrace	6.021									Lateral
21	M21	CrossBrace	6.021									Lateral
22	M22	CrossBrace	6.021									Lateral
23	M23	CrossBrace	6.021									Lateral
24	M24	CrossBrace	6.021									Lateral
25	M25	CrossBrace	6.021									Lateral
26	M26	CrossBrace	6.021									Lateral
27	M27	End Membe...	4.5									Lateral
28	M28	ContChord	48	4	4	4	4					Lateral
29	M29	ContChord	48	4	4	4	4					Lateral
30	M30	VertGuard	4.5									Lateral
31	M31	VertGuard	4.5									Lateral
32	M32	VertGuard	4.5									Lateral
33	M33	VertGuard	4.5									Lateral
34	M34	VertGuard	4.5									Lateral
35	M35	VertGuard	4.5									Lateral
36	M36	VertGuard	4.5									Lateral
37	M37	VertGuard	4.5									Lateral
38	M38	VertGuard	4.5									Lateral
39	M39	VertGuard	4.5									Lateral
40	M40	VertGuard	4.5									Lateral
41	M41	End Membe...	4.5									Lateral
42	M42	CrossBrace	6.021									Lateral
43	M43	CrossBrace	6.021									Lateral
44	M44	CrossBrace	6.021									Lateral
45	M45	CrossBrace	6.021									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[ft]	Lcomp bot[ft]	L-torqu...	Kyy	Kzz	Cb	Function
46	M46	CrossBrace	6.021									Lateral
47	M47	CrossBrace	6.021									Lateral
48	M48	CrossBrace	6.021									Lateral
49	M49	CrossBrace	6.021									Lateral
50	M50	CrossBrace	6.021									Lateral
51	M51	CrossBrace	6.021									Lateral
52	M52	CrossBrace	6.021									Lateral
53	M53	CrossBrace	6.021									Lateral
54	M54	End Membe...	4.5									Lateral
55	M55	DiagChord	6.403									Lateral
56	M56	DiagChord	6.403									Lateral
57	M57	DiagChord	6.403									Lateral
58	M58	DiagChord	6.403									Lateral
59	M59	DiagChord	6.403									Lateral
60	M60	DiagChord	6.403									Lateral
61	M61	DiagChord	6.403									Lateral
62	M62	DiagChord	6.403									Lateral
63	M63	DiagChord	6.403									Lateral
64	M64	DiagChord	6.403									Lateral
65	M65	DiagChord	6.403									Lateral
66	M66	DiagChord	6.403									Lateral
67	M67	End Membe...	5									Lateral
68	M68	BottomChord	5									Lateral
69	M69	BottomChord	5									Lateral
70	M70	BottomChord	5									Lateral
71	M71	BottomChord	5									Lateral
72	M72	BottomChord	5									Lateral
73	M73	BottomChord	5									Lateral
74	M74	BottomChord	5									Lateral
75	M75	BottomChord	5									Lateral
76	M76	BottomChord	5									Lateral
77	M77	BottomChord	5									Lateral
78	M78	BottomChord	5									Lateral
79	M79	End Membe...	5									Lateral

Member Area Loads (BLC 1 : Dead)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N27	N1	N13	N39	Y	Perp to A-B	-.02

Member Area Loads (BLC 2 : Snow)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N27	N1	N13	N39	Y	Perp to A-B	-.192

Member Area Loads (BLC 5 : Wind)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N40	N52	N39	N27	Z	Two Way	-.025

Member Area Loads (BLC 6 : Seismic)

	Joint A	Joint B	Joint C	Joint D	Direction	Distribution	Magnitude[ksf]
1	N52	N39	N27	N40	Z	Two Way	-.016

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribut...	Area(Me...	Surface(...
1	Dead	DL		-1					1	
2	Snow	SL							1	
3	BLC 1 Transient Area Loads	None						129		
4	BLC 2 Transient Area Loads	None						129		
5	Wind	None							1	
6	Seismic	None							1	
7	BLC 5 Transient Area Loads	None						285		
8	BLC 6 Transient Area Loads	None						285		

Load Combinations

	Description	Solve	PD...	SR...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	IBC 16-1	Yes	Y		1	1.4																		
2	IBC 16-3	Yes	Y		1	1.2	2	1.6	5	.5														
3	IBC 16-4	Yes	Y		1	1.2	2	.5	5	1														
4	IBC 16-5	Yes	Y		1	1.2	2	.7	6	1														

Envelope Joint Reactions

	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N1	max	36.969	2	22.355	2	2.562	3	0	1	0	1	0	1
2		min	5.881	1	3.878	1	.035	1	0	1	0	1	0	1
3	N13	max	-5.881	1	22.355	2	2.562	3	0	1	0	1	0	1
4		min	-36.969	2	3.878	1	.035	1	0	1	0	1	0	1
5	N27	max	30.853	2	21.157	2	.138	3	0	1	0	1	0	1
6		min	5.902	1	3.878	1	-.132	2	0	1	0	1	0	1
7	N39	max	-5.902	1	21.157	2	.138	3	0	1	0	1	0	1
8		min	-30.853	2	3.878	1	-.132	2	0	1	0	1	0	1
9	Totals:	max	0	4	87.025	2	5.4	3						
10		min	0	2	15.513	1	0	1						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotati...	LC	Y Rotation...	LC	Z Rotation [rad]	LC
1	N1	max	0	1	0	1	0	1	1.89e-03	2	-4.359e-05	1	-7.881e-04	1
2		min	0	2	0	2	0	3	2.211e-04	1	-2.493e-04	2	-4.52e-03	2
3	N2	max	-.004	1	-.042	1	.013	2	1.527e-03	2	7.462e-06	3	-7.563e-04	1
4		min	-.026	2	-.25	2	-.003	3	1.723e-04	1	-4.215e-04	2	-4.49e-03	2
5	N3	max	-.006	1	-.083	1	.002	1	1.052e-03	2	2.19e-04	3	-6.994e-04	1
6		min	-.039	2	-.491	2	-.02	3	-1.518e-...	3	-2.034e-05	1	-4.159e-03	2
7	N4	max	-.006	1	-.118	1	.002	1	1.005e-03	2	9.571e-05	3	-5.843e-04	1
8		min	-.039	2	-.698	2	-.034	3	-5.592e-...	3	-2.422e-04	2	-3.477e-03	2
9	N5	max	-.005	1	-.145	1	.003	1	5.754e-04	2	1.629e-04	3	-4.198e-04	1
10		min	-.032	2	-.863	2	-.043	3	-1.03e-03	3	-1.267e-05	1	-2.502e-03	2
11	N6	max	-.003	1	-.163	1	0	1	6.826e-04	2	2.469e-05	3	-2.304e-04	1
12		min	-.018	2	-.968	2	-.055	3	-1.196e-...	3	-1.398e-04	2	-1.368e-03	2
13	N7	max	0	1	-.171	1	.003	1	3.657e-04	2	0	2	0	4
14		min	0	2	-1.013	2	-.052	3	-1.391e-...	3	0	4	0	2
15	N8	max	.018	2	-.163	1	0	1	6.826e-04	2	1.398e-04	2	1.368e-03	2
16		min	.003	1	-.968	2	-.055	3	-1.196e-...	3	-2.469e-05	3	2.304e-04	1
17	N9	max	.032	2	-.145	1	.003	1	5.754e-04	2	1.267e-05	1	2.502e-03	2
18		min	.005	1	-.863	2	-.043	3	-1.03e-03	3	-1.629e-04	3	4.198e-04	1
19	N10	max	.039	2	-.118	1	.002	1	1.005e-03	2	2.422e-04	2	3.477e-03	2
20		min	.006	1	-.698	2	-.034	3	-5.592e-...	3	-9.571e-05	3	5.843e-04	1

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotati...	LC	Y Rotation...	LC	Z Rotation [rad]	LC
21	N11	max	.039	2	-.083	1	.002	1	1.052e-03	2	2.034e-05	1	4.159e-03	2
22		min	.006	1	-.491	2	-.02	3	-1.518e-...	3	-2.19e-04	3	6.994e-04	1
23	N12	max	.026	2	-.042	1	.013	2	1.527e-03	2	4.215e-04	2	4.49e-03	2
24		min	.004	1	-.25	2	-.003	3	1.723e-04	1	-7.462e-06	3	7.563e-04	1
25	N13	max	0	2	0	1	0	1	1.89e-03	2	2.493e-04	2	4.52e-03	2
26		min	0	1	0	2	0	3	2.211e-04	1	4.359e-05	1	7.881e-04	1
27	N14	max	.193	2	-.002	1	.107	2	1.71e-03	2	4.267e-04	3	-9.087e-04	1
28		min	.033	1	-.011	2	.012	1	2.318e-04	1	-2.558e-06	1	-5.085e-03	2
29	N15	max	.18	2	-.044	1	.093	2	1.616e-03	2	9.148e-04	3	-8.542e-04	1
30		min	.031	1	-.258	2	.012	1	2.207e-04	1	1.301e-05	1	-5.133e-03	2
31	N16	max	.156	2	-.084	1	.064	2	1.527e-03	2	9.602e-04	3	-7.927e-04	1
32		min	.026	1	-.497	2	-.023	3	1.564e-04	3	2.214e-05	1	-4.692e-03	2
33	N17	max	.124	2	-.119	1	.04	2	1.336e-03	2	8.164e-04	3	-6.532e-04	1
34		min	.021	1	-.703	2	-.065	3	-9.946e-...	3	2.896e-06	1	-3.888e-03	2
35	N18	max	.085	2	-.146	1	.02	2	1.217e-03	2	5.967e-04	3	-4.7e-04	1
36		min	.014	1	-.865	2	-.1	3	-3.052e-...	3	-2.053e-06	1	-2.792e-03	2
37	N19	max	.043	2	-.164	1	.01	1	1.101e-03	2	3.438e-04	3	-2.717e-04	1
38		min	.007	1	-.969	2	-.122	3	-4.477e-...	3	8.866e-06	1	-1.607e-03	2
39	N20	max	0	2	-.171	1	.01	1	1.101e-03	2	0	2	0	1
40		min	0	4	-1.013	2	-.132	3	-4.477e-...	3	0	4	0	2
41	N21	max	-.007	1	-.164	1	.01	1	1.101e-03	2	-8.866e-06	1	1.607e-03	2
42		min	-.043	2	-.969	2	-.122	3	-4.477e-...	3	-3.438e-04	3	2.717e-04	1
43	N22	max	-.014	1	-.146	1	.02	2	1.217e-03	2	2.053e-06	1	2.792e-03	2
44		min	-.085	2	-.865	2	-.1	3	-3.052e-...	3	-5.967e-04	3	4.7e-04	1
45	N23	max	-.021	1	-.119	1	.04	2	1.336e-03	2	-2.896e-06	1	3.888e-03	2
46		min	-.124	2	-.703	2	-.065	3	-9.946e-...	3	-8.164e-04	3	6.532e-04	1
47	N24	max	-.026	1	-.084	1	.064	2	1.527e-03	2	-2.214e-05	1	4.692e-03	2
48		min	-.156	2	-.497	2	-.023	3	1.564e-04	3	-9.602e-04	3	7.927e-04	1
49	N25	max	-.031	1	-.044	1	.093	2	1.616e-03	2	-1.301e-05	1	5.133e-03	2
50		min	-.18	2	-.258	2	.012	1	2.207e-04	1	-9.148e-04	3	8.542e-04	1
51	N26	max	-.033	1	-.002	1	.107	2	1.71e-03	2	2.558e-06	1	5.085e-03	2
52		min	-.193	2	-.011	2	.012	1	2.318e-04	1	-4.267e-04	3	9.087e-04	1
53	N27	max	0	1	0	1	0	2	-2.228e-...	1	4.26e-05	3	-7.926e-04	1
54		min	0	2	0	2	0	3	-2.241e-...	2	-2.448e-04	2	-4.376e-03	2
55	N28	max	-.004	1	-.043	1	.013	2	-1.489e-...	1	6.329e-05	3	-7.586e-04	1
56		min	-.022	2	-.238	2	-.003	3	-1.938e-...	2	-3.838e-04	2	-4.209e-03	2
57	N29	max	-.006	1	-.083	1	.002	1	-1.517e-...	1	2.567e-04	3	-7.012e-04	1
58		min	-.033	2	-.461	2	-.02	3	-2.35e-03	2	-2.062e-05	1	-3.88e-03	2
59	N30	max	-.006	1	-.118	1	.002	1	-1.311e-...	1	1.247e-04	3	-5.852e-04	1
60		min	-.034	2	-.657	2	-.034	3	-2.688e-...	3	-2.244e-04	2	-3.231e-03	2
61	N31	max	-.005	1	-.146	1	.003	1	-1.52e-04	1	1.797e-04	3	-4.204e-04	1
62		min	-.027	2	-.808	2	-.043	3	-3.116e-...	3	-1.243e-05	1	-2.322e-03	2
63	N32	max	-.003	1	-.164	1	0	1	-1.291e-...	1	2.978e-05	3	-2.306e-04	1
64		min	-.015	2	-.909	2	-.055	3	-3.216e-...	3	-1.363e-04	2	-1.273e-03	2
65	N33	max	0	1	-.171	1	.003	1	-1.56e-04	1	0	1	0	1
66		min	0	2	-.948	2	-.053	3	-3.339e-...	3	0	4	0	2
67	N34	max	.015	2	-.164	1	0	1	-1.291e-...	1	1.363e-04	2	1.273e-03	2
68		min	.003	1	-.909	2	-.055	3	-3.216e-...	3	-2.978e-05	3	2.306e-04	1
69	N35	max	.027	2	-.146	1	.003	1	-1.52e-04	1	1.243e-05	1	2.322e-03	2
70		min	.005	1	-.808	2	-.043	3	-3.116e-...	3	-1.797e-04	3	4.204e-04	1
71	N36	max	.034	2	-.118	1	.002	1	-1.311e-...	1	2.244e-04	2	3.231e-03	2
72		min	.006	1	-.657	2	-.034	3	-2.688e-...	3	-1.247e-04	3	5.852e-04	1
73	N37	max	.033	2	-.083	1	.002	1	-1.517e-...	1	2.062e-05	1	3.88e-03	2
74		min	.006	1	-.461	2	-.02	3	-2.35e-03	2	-2.567e-04	3	7.012e-04	1
75	N38	max	.022	2	-.043	1	.013	2	-1.489e-...	1	3.838e-04	2	4.209e-03	2
76		min	.004	1	-.238	2	-.003	3	-1.938e-...	2	-6.329e-05	3	7.586e-04	1
77	N39	max	0	2	0	1	0	2	-2.228e-...	1	2.448e-04	2	4.376e-03	2

Envelope Joint Displacements (Continued)

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotati...	LC	Y Rotation...	LC	Z Rotation [rad]	LC
78		min	0	1	0	2	0	3	-2.241e-...	2	-4.26e-05	3	7.926e-04	1
79	N40	max	.184	2	-.002	1	-.011	1	-1.277e-...	1	5.03e-04	3	-9.327e-04	1
80		min	.033	1	-.011	2	-.143	3	-1.871e-...	2	-5.824e-05	1	-4.917e-03	2
81	N41	max	.171	2	-.044	1	-.007	1	-1.319e-...	1	8.64e-04	3	-8.514e-04	1
82		min	.031	1	-.245	2	-.178	3	-1.954e-...	2	-6.002e-05	1	-4.79e-03	2
83	N42	max	.148	2	-.084	1	-.006	1	-1.198e-...	1	9.229e-04	3	-7.961e-04	1
84		min	.027	1	-.467	2	-.222	3	-2.041e-...	3	-6.507e-06	1	-4.387e-03	2
85	N43	max	.117	2	-.119	1	-.006	1	-1.214e-...	1	7.513e-04	3	-6.538e-04	1
86		min	.021	1	-.661	2	-.263	3	-2.298e-...	3	-1.06e-06	1	-3.618e-03	2
87	N44	max	.081	2	-.146	1	-.006	1	-1.185e-...	1	4.319e-04	3	-4.71e-04	1
88		min	.014	1	-.81	2	-.292	3	-2.509e-...	3	2.502e-06	1	-2.603e-03	2
89	N45	max	.041	2	-.164	1	-.006	1	-1.235e-...	1	1.044e-04	2	-2.712e-04	1
90		min	.007	1	-.91	2	-.305	3	-2.656e-...	3	1.177e-05	1	-1.502e-03	2
91	N46	max	0	2	-.171	1	-.006	1	-1.235e-...	1	0	2	0	1
92		min	0	1	-.948	2	-.305	3	-2.656e-...	3	0	4	0	2
93	N47	max	-.007	1	-.164	1	-.006	1	-1.235e-...	1	-1.177e-05	1	1.502e-03	2
94		min	-.041	2	-.91	2	-.305	3	-2.656e-...	3	-1.044e-04	2	2.712e-04	1
95	N48	max	-.014	1	-.146	1	-.006	1	-1.185e-...	1	-2.502e-06	1	2.603e-03	2
96		min	-.081	2	-.81	2	-.292	3	-2.509e-...	3	-4.319e-04	3	4.71e-04	1
97	N49	max	-.021	1	-.119	1	-.006	1	-1.214e-...	1	1.06e-06	1	3.618e-03	2
98		min	-.117	2	-.661	2	-.263	3	-2.298e-...	3	-7.513e-04	3	6.538e-04	1
99	N50	max	-.027	1	-.084	1	-.006	1	-1.198e-...	1	6.507e-06	1	4.387e-03	2
100		min	-.148	2	-.467	2	-.222	3	-2.041e-...	3	-9.229e-04	3	7.961e-04	1
101	N51	max	-.031	1	-.044	1	-.007	1	-1.319e-...	1	6.002e-05	1	4.79e-03	2
102		min	-.171	2	-.245	2	-.178	3	-1.954e-...	2	-8.64e-04	3	8.514e-04	1
103	N52	max	-.033	1	-.002	1	-.011	1	-1.277e-...	1	5.824e-05	1	4.917e-03	2
104		min	-.184	2	-.011	2	-.143	3	-1.871e-...	2	-5.03e-04	3	9.327e-04	1

MAX VERT. DEFLECTION = 1"   MAX HORIZ. DEFLECTION = 3/8"

Member AISC 14th(360-10): LRFD Steel Code Checks

	LC	Member	Shape	UC Max	Loc[ft]	Shear...	Loc[ft]...		phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn
1	1	M1	L4x4x6	.104	4	.003	0	y	75.876	92.664	4.398	9.764	1	H2-1
2	1	M2	L4x4x6	.145	25.5	.001	28	y	75.876	92.664	4.398	9.764	1	H2-1
3	1	M3	LL3.5x3...	.022	.422	.001	0	z	141.6...	162	14.996	6.178	1.6...	H1-...
4	1	M4	LL3.5x3...	.018	0	.001	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
5	1	M5	LL3.5x3...	.014	0	.001	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
6	1	M6	LL3.5x3...	.009	0	.000	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
7	1	M7	LL3.5x3...	.006	0	.000	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
8	1	M8	LL3.5x3...	.002	0	.000	0	y	141.6...	162	14.996	6.178	1	H1-1b
9	1	M9	LL3.5x3...	.006	0	.000	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
10	1	M10	LL3.5x3...	.009	0	.000	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
11	1	M11	LL3.5x3...	.014	0	.001	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
12	1	M12	LL3.5x3...	.018	0	.001	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
13	1	M13	LL3.5x3...	.022	.422	.001	0	z	141.6...	162	14.996	6.178	1.6...	H1-...
14	1	M14	HSS3.5...	.024	0	.001	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
15	1	M15	L3.5x3....	.067	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
16	1	M16	L3.5x3....	.059	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
17	1	M17	L3.5x3....	.046	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
18	1	M18	L3.5x3....	.038	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
19	1	M19	L3.5x3....	.026	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
20	1	M20	L3.5x3....	.017	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
21	1	M21	L3.5x3....	.017	3.073	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
22	1	M22	L3.5x3....	.026	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
23	1	M23	L3.5x3....	.038	3.073	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
24	1	M24	L3.5x3....	.046	3.073	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
25	1	M25	L3.5x3....	.059	3.073	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1

Member AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear...	Loc[ft]	...	phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn
26	1	M26	L3.5x3....	.067	3.073	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
27	1	M27	HSS3.5...	.024	0	.001	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
28	1	M28	L4x4x6	.104	44	.003	48	y	75.876	92.664	4.398	9.764	1	H2-1
29	1	M29	L4x4x6	.144	25.5	.001	28	y	75.876	92.664	4.398	9.764	1	H2-1
30	1	M30	LL3.5x3...	.023	0	.001	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
31	1	M31	LL3.5x3...	.019	0	.001	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
32	1	M32	LL3.5x3...	.013	0	.001	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
33	1	M33	LL3.5x3...	.009	0	.000	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
34	1	M34	LL3.5x3...	.006	0	.000	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
35	1	M35	LL3.5x3...	.002	0	.000	0	y	141.6...	162	14.996	9.884	1	H1-1b
36	1	M36	LL3.5x3...	.006	0	.000	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
37	1	M37	LL3.5x3...	.009	0	.000	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
38	1	M38	LL3.5x3...	.013	0	.001	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
39	1	M39	LL3.5x3...	.019	0	.001	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
40	1	M40	LL3.5x3...	.023	0	.001	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
41	1	M41	HSS3.5...	.024	0	.001	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
42	1	M42	L3.5x3....	.069	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
43	1	M43	L3.5x3....	.057	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
44	1	M44	L3.5x3....	.048	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
45	1	M45	L3.5x3....	.036	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
46	1	M46	L3.5x3....	.028	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
47	1	M47	L3.5x3....	.015	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
48	1	M48	L3.5x3....	.015	3.073	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
49	1	M49	L3.5x3....	.028	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
50	1	M50	L3.5x3....	.036	3.073	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
51	1	M51	L3.5x3....	.048	3.073	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
52	1	M52	L3.5x3....	.057	3.073	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
53	1	M53	L3.5x3....	.069	3.073	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
54	1	M54	HSS3.5...	.024	0	.001	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
55	1	M55	L4x4x4	.096	3.202	.009	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
56	1	M56	L4x4x4	.095	3.202	.009	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
57	1	M57	L4x4x4	.095	3.202	.009	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
58	1	M58	L4x4x4	.095	3.202	.009	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
59	1	M59	L4x4x4	.095	3.202	.009	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
60	1	M60	L4x4x4	.095	3.202	.009	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
61	1	M61	L4x4x4	.095	3.202	.009	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
62	1	M62	L4x4x4	.095	3.202	.009	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
63	1	M63	L4x4x4	.095	3.202	.009	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
64	1	M64	L4x4x4	.095	3.202	.009	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
65	1	M65	L4x4x4	.095	3.202	.009	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
66	1	M66	L4x4x4	.096	3.202	.009	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
67	1	M67	HSS3.5...	.010	3.125	.004	5	y	145.36	169.3...	16.181	16.181	1.1...	H1-1b
68	1	M68	C6x10.5	.015	1.719	.006	0	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
69	1	M69	C6x10.5	.014	2.917	.006	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
70	1	M70	C6x10.5	.014	1.823	.006	0	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
71	1	M71	C6x10.5	.014	2.917	.006	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
72	1	M72	C6x10.5	.014	1.979	.006	0	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
73	1	M73	C6x10.5	.014	2.865	.006	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
74	1	M74	C6x10.5	.014	1.979	.006	0	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
75	1	M75	C6x10.5	.014	2.917	.006	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
76	1	M76	C6x10.5	.014	1.823	.006	0	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
77	1	M77	C6x10.5	.014	2.917	.006	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
78	1	M78	C6x10.5	.015	1.719	.006	0	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
79	1	M79	HSS3.5...	.010	3.125	.004	5	y	145.36	169.3...	16.181	16.181	1.1...	H1-1b
80	2	M1	L4x4x6	.622	44	.013	0	y	75.876	92.664	4.398	9.764	1	H2-1
81	2	M2	L4x4x6	.850	24	.002	28	y	75.876	92.664	4.398	9.764	1	H2-1
82	2	M3	LL3.5x3...	.127	0	.007	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b

Member AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear...	Loc[ft]	...	phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn
83	2	M4	LL3.5x3...	.106	0	.005	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
84	2	M5	LL3.5x3...	.085	0	.005	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
85	2	M6	LL3.5x3...	.050	0	.003	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
86	2	M7	LL3.5x3...	.039	0	.003	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
87	2	M8	LL3.5x3...	.015	0	.000	0	y	141.6...	162	14.996	6.178	1	H1-1b
88	2	M9	LL3.5x3...	.039	0	.003	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
89	2	M10	LL3.5x3...	.050	0	.003	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
90	2	M11	LL3.5x3...	.085	0	.005	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
91	2	M12	LL3.5x3...	.106	0	.005	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
92	2	M13	LL3.5x3...	.127	0	.007	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
93	2	M14	HSS3.5...	.133	0	.008	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
94	2	M15	L3.5x3....	.336	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
95	2	M16	L3.5x3....	.295	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
96	2	M17	L3.5x3....	.215	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
97	2	M18	L3.5x3....	.171	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
98	2	M19	L3.5x3....	.094	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
99	2	M20	L3.5x3....	.047	2.948	.002	0	y	44.941	81	3.34	7.05	1.1...	H2-1
100	2	M21	L3.5x3....	.047	3.073	.002	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
101	2	M22	L3.5x3....	.094	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
102	2	M23	L3.5x3....	.171	3.073	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
103	2	M24	L3.5x3....	.215	3.073	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
104	2	M25	L3.5x3....	.295	3.073	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
105	2	M26	L3.5x3....	.336	3.073	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
106	2	M27	HSS3.5...	.133	0	.008	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
107	2	M28	L4x4x6	.553	44	.013	48	y	75.876	92.664	4.398	9.764	1	H2-1
108	2	M29	L4x4x6	.797	24.5	.002	20	y	75.876	92.664	4.398	9.764	1	H2-1
109	2	M30	LL3.5x3...	.173	0	.006	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
110	2	M31	LL3.5x3...	.134	0	.005	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
111	2	M32	LL3.5x3...	.126	0	.005	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
112	2	M33	LL3.5x3...	.101	0	.004	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
113	2	M34	LL3.5x3...	.078	0	.004	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
114	2	M35	LL3.5x3...	.051	0	.003	0	y	141.6...	162	14.996	9.884	1	H1-1b
115	2	M36	LL3.5x3...	.078	0	.004	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
116	2	M37	LL3.5x3...	.101	0	.004	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
117	2	M38	LL3.5x3...	.126	0	.005	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
118	2	M39	LL3.5x3...	.134	0	.005	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
119	2	M40	LL3.5x3...	.173	0	.006	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
120	2	M41	HSS3.5...	.133	0	.006	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
121	2	M42	L3.5x3....	.351	3.01	.002	0	z	44.941	81	3.34	7.079	1.1...	H2-1
122	2	M43	L3.5x3....	.276	2.948	.002	0	z	44.941	81	3.34	7.074	1.1...	H2-1
123	2	M44	L3.5x3....	.234	3.01	.003	6.021	z	44.941	81	3.34	7.069	1.1...	H2-1
124	2	M45	L3.5x3....	.159	3.01	.002	0	z	44.941	81	3.34	7.069	1.1...	H2-1
125	2	M46	L3.5x3....	.120	3.01	.002	6.021	z	44.941	81	3.34	7.074	1.1...	H2-1
126	2	M47	L3.5x3....	.043	3.01	.003	0	z	44.941	81	3.34	7.079	1.1...	H2-1
127	2	M48	L3.5x3....	.043	3.01	.003	6.021	z	44.941	81	3.34	7.079	1.1...	H2-1
128	2	M49	L3.5x3....	.127	3.01	.002	6.021	z	44.941	81	3.34	7.1	1.1...	H2-1
129	2	M50	L3.5x3....	.159	3.01	.002	6.021	z	44.941	81	3.34	7.069	1.1...	H2-1
130	2	M51	L3.5x3....	.234	3.01	.003	0	z	44.941	81	3.34	7.069	1.1...	H2-1
131	2	M52	L3.5x3....	.276	3.073	.002	6.021	z	44.941	81	3.34	7.074	1.1...	H2-1
132	2	M53	L3.5x3....	.351	3.01	.002	6.021	z	44.941	81	3.34	7.079	1.1...	H2-1
133	2	M54	HSS3.5...	.133	0	.006	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
134	2	M55	L4x4x4	.991	3.202	.090	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
135	2	M56	L4x4x4	.952	3.202	.089	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
136	2	M57	L4x4x4	.966	3.202	.089	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
137	2	M58	L4x4x4	.948	3.202	.088	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
138	2	M59	L4x4x4	.941	3.202	.088	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
139	2	M60	L4x4x4	.942	3.202	.088	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1

Member AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear..	Loc[ft]...		phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn
140	2	M61	L4x4x4	.942	3.202	.088	6.403	y	35.908	62.532	3.138	5.829	1.1..	H2-1
141	2	M62	L4x4x4	.941	3.202	.088	6.403	y	35.908	62.532	3.138	5.829	1.1..	H2-1
142	2	M63	L4x4x4	.948	3.202	.088	6.403	y	35.908	62.532	3.138	5.829	1.1..	H2-1
143	2	M64	L4x4x4	.966	3.202	.089	6.403	y	35.908	62.532	3.138	5.829	1.1..	H2-1
144	2	M65	L4x4x4	.952	3.202	.089	6.403	y	35.908	62.532	3.138	5.829	1.1..	H2-1
145	2	M66	L4x4x4	.991	3.202	.090	6.403	y	35.908	62.532	3.138	5.829	1.1..	H2-1
146	2	M67	HSS3.5...	.083	3.229	.028	5	y	145.36	169.3...	16.181	16.181	1.1..	H1-1b
147	2	M68	C6x10.5	.151	1.979	.065	0	y	50.567	99.468	2.428	16.596	1.1..	H1-1b
148	2	M69	C6x10.5	.148	3.021	.060	5	y	50.567	99.468	2.428	16.686	1.15	H1-1b
149	2	M70	C6x10.5	.146	2.083	.065	0	y	50.567	99.468	2.428	16.63	1.1..	H1-1b
150	2	M71	C6x10.5	.150	3.073	.058	5	y	50.567	99.468	2.428	16.686	1.1..	H1-1b
151	2	M72	C6x10.5	.145	2.135	.064	0	y	50.567	99.468	2.428	16.666	1.1..	H1-1b
152	2	M73	C6x10.5	.150	3.021	.058	5	y	50.567	99.468	2.428	16.686	1.1..	H1-1b
153	2	M74	C6x10.5	.145	2.135	.064	0	y	50.567	99.468	2.428	16.666	1.1..	H1-1b
154	2	M75	C6x10.5	.150	3.073	.059	5	y	50.567	99.468	2.428	16.686	1.1..	H1-1b
155	2	M76	C6x10.5	.146	2.083	.065	0	y	50.567	99.468	2.428	16.63	1.1..	H1-1b
156	2	M77	C6x10.5	.148	3.021	.060	5	y	50.567	99.468	2.428	16.686	1.15	H1-1b
157	2	M78	C6x10.5	.151	1.979	.065	0	y	50.567	99.468	2.428	16.596	1.1..	H1-1b
158	2	M79	HSS3.5...	.083	3.229	.028	5	y	145.36	169.3...	16.181	16.181	1.1..	H1-1b
159	3	M1	L4x4x6	.309	4	.009	0	y	75.876	92.664	4.398	9.764	1	H2-1
160	3	M2	L4x4x6	.383	23	.002	36	y	75.876	92.664	4.398	9.764	1	H2-1
161	3	M3	LL3.5x3...	.060	0	.005	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
162	3	M4	LL3.5x3...	.050	0	.004	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
163	3	M5	LL3.5x3...	.037	0	.004	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
164	3	M6	LL3.5x3...	.025	0	.002	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
165	3	M7	LL3.5x3...	.019	0	.002	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
166	3	M8	LL3.5x3...	.008	0	.000	0	y	141.6...	162	14.996	6.178	1	H1-1b
167	3	M9	LL3.5x3...	.019	0	.002	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
168	3	M10	LL3.5x3...	.025	0	.002	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
169	3	M11	LL3.5x3...	.037	0	.004	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
170	3	M12	LL3.5x3...	.050	0	.004	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
171	3	M13	LL3.5x3...	.060	0	.005	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
172	3	M14	HSS3.5...	.061	0	.008	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
173	3	M15	L3.5x3....	.159	2.948	.002	0	y	44.941	81	3.34	7.05	1.1..	H2-1
174	3	M16	L3.5x3....	.139	2.948	.001	0	y	44.941	81	3.34	7.05	1.1..	H2-1
175	3	M17	L3.5x3....	.104	2.948	.001	0	y	44.941	81	3.34	7.05	1.1..	H2-1
176	3	M18	L3.5x3....	.082	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1..	H2-1
177	3	M19	L3.5x3....	.048	2.948	.001	0	y	44.941	81	3.34	7.05	1.1..	H2-1
178	3	M20	L3.5x3....	.026	2.948	.002	6.021	y	44.941	81	3.34	7.05	1.1..	H2-1
179	3	M21	L3.5x3....	.026	3.073	.002	6.021	y	44.941	81	3.34	7.05	1.1..	H2-1
180	3	M22	L3.5x3....	.048	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1..	H2-1
181	3	M23	L3.5x3....	.082	3.073	.001	0	y	44.941	81	3.34	7.05	1.1..	H2-1
182	3	M24	L3.5x3....	.104	3.073	.001	0	y	44.941	81	3.34	7.05	1.1..	H2-1
183	3	M25	L3.5x3....	.139	3.073	.001	6.021	y	44.941	81	3.34	7.05	1.1..	H2-1
184	3	M26	L3.5x3....	.159	3.073	.002	6.021	y	44.941	81	3.34	7.05	1.1..	H2-1
185	3	M27	HSS3.5...	.061	0	.008	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
186	3	M28	L4x4x6	.168	44	.005	8	y	75.876	92.664	4.398	9.764	1	H2-1
187	3	M29	L4x4x6	.296	25.5	.002	24	z	75.876	92.664	4.398	9.764	1	H2-1
188	3	M30	LL3.5x3...	.144	0	.008	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
189	3	M31	LL3.5x3...	.133	0	.008	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
190	3	M32	LL3.5x3...	.132	0	.008	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
191	3	M33	LL3.5x3...	.121	0	.007	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
192	3	M34	LL3.5x3...	.107	0	.006	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
193	3	M35	LL3.5x3...	.091	0	.005	0	y	141.6...	162	14.996	9.884	1	H1-1b
194	3	M36	LL3.5x3...	.107	0	.006	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
195	3	M37	LL3.5x3...	.121	0	.007	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
196	3	M38	LL3.5x3...	.132	0	.008	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b

Member AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear...	Loc[ft]...		phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn
197	3	M39	LL3.5x3...	.133	0	.008	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
198	3	M40	LL3.5x3...	.144	0	.008	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
199	3	M41	HSS3.5...	.082	0	.010	0	z	149.6...	169.3...	16.181	16.181	1.6...	H1-1b
200	3	M42	L3.5x3....	.175	3.01	.005	0	z	44.941	81	3.34	7.083	1.1...	H2-1
201	3	M43	L3.5x3....	.144	2.948	.004	0	z	44.941	81	3.34	7.077	1.1...	H2-1
202	3	M44	L3.5x3....	.129	3.01	.004	6.021	z	44.941	81	3.34	7.072	1.1...	H2-1
203	3	M45	L3.5x3....	.101	3.01	.004	0	z	44.941	81	3.34	7.072	1.1...	H2-1
204	3	M46	L3.5x3....	.087	3.01	.004	6.021	z	44.941	81	3.34	7.077	1.1...	H2-1
205	3	M47	L3.5x3....	.061	3.01	.005	0	z	44.941	81	3.34	7.083	1.1...	H2-1
206	3	M48	L3.5x3....	.061	3.01	.005	6.021	z	44.941	81	3.34	7.083	1.1...	H2-1
207	3	M49	L3.5x3....	.094	3.01	.004	6.021	z	44.941	81	3.34	7.089	1.1...	H2-1
208	3	M50	L3.5x3....	.101	3.01	.004	6.021	z	44.941	81	3.34	7.072	1.1...	H2-1
209	3	M51	L3.5x3....	.129	3.01	.004	0	z	44.941	81	3.34	7.072	1.1...	H2-1
210	3	M52	L3.5x3....	.144	3.073	.004	6.021	z	44.941	81	3.34	7.077	1.1...	H2-1
211	3	M53	L3.5x3....	.175	3.01	.005	6.021	z	44.941	81	3.34	7.083	1.1...	H2-1
212	3	M54	HSS3.5...	.082	0	.010	0	z	149.6...	169.3...	16.181	16.181	1.6...	H1-1b
213	3	M55	L4x4x4	.440	3.202	.034	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
214	3	M56	L4x4x4	.388	3.202	.034	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
215	3	M57	L4x4x4	.406	3.202	.034	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
216	3	M58	L4x4x4	.372	3.202	.034	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
217	3	M59	L4x4x4	.370	3.202	.033	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
218	3	M60	L4x4x4	.354	3.202	.033	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
219	3	M61	L4x4x4	.354	3.202	.033	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
220	3	M62	L4x4x4	.370	3.202	.033	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
221	3	M63	L4x4x4	.372	3.202	.034	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
222	3	M64	L4x4x4	.406	3.202	.034	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
223	3	M65	L4x4x4	.388	3.202	.034	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
224	3	M66	L4x4x4	.440	3.202	.034	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
225	3	M67	HSS3.5...	.054	3.594	.013	0	y	145.36	169.3...	16.181	16.181	1.1...	H1-1b
226	3	M68	C6x10.5	.084	3.177	.028	0	y	50.567	99.468	2.428	16.077	1.0...	H1-1b
227	3	M69	C6x10.5	.093	3.542	.018	.521	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
228	3	M70	C6x10.5	.083	3.229	.029	0	y	50.567	99.468	2.428	16.15	1.0...	H1-1b
229	3	M71	C6x10.5	.092	3.542	.018	.469	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
230	3	M72	C6x10.5	.080	3.021	.028	0	y	50.567	99.468	2.428	16.148	1.0...	H1-1b
231	3	M73	C6x10.5	.087	3.438	.018	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
232	3	M74	C6x10.5	.080	3.021	.028	0	y	50.567	99.468	2.428	16.148	1.0...	H1-1b
233	3	M75	C6x10.5	.092	3.542	.018	.469	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
234	3	M76	C6x10.5	.083	3.229	.028	0	y	50.567	99.468	2.428	16.15	1.0...	H1-1b
235	3	M77	C6x10.5	.093	3.542	.018	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
236	3	M78	C6x10.5	.084	3.177	.028	0	y	50.567	99.468	2.428	16.077	1.0...	H1-1b
237	3	M79	HSS3.5...	.054	3.594	.013	0	y	145.36	169.3...	16.181	16.181	1.1...	H1-1b
238	4	M1	L4x4x6	.348	4	.009	0	y	75.876	92.664	4.398	9.764	1	H2-1
239	4	M2	L4x4x6	.456	23.5	.002	20	y	75.876	92.664	4.398	9.764	1	H2-1
240	4	M3	LL3.5x3...	.067	0	.005	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
241	4	M4	LL3.5x3...	.058	0	.004	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
242	4	M5	LL3.5x3...	.045	0	.003	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
243	4	M6	LL3.5x3...	.028	0	.002	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
244	4	M7	LL3.5x3...	.021	0	.002	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
245	4	M8	LL3.5x3...	.008	0	.000	0	y	141.6...	162	14.996	6.178	1	H1-1b
246	4	M9	LL3.5x3...	.021	0	.002	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
247	4	M10	LL3.5x3...	.028	0	.002	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
248	4	M11	LL3.5x3...	.045	0	.003	0	z	141.6...	162	14.996	6.178	1.6...	H1-1b
249	4	M12	LL3.5x3...	.058	0	.004	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
250	4	M13	LL3.5x3...	.067	0	.005	0	z	141.6...	162	14.996	9.884	1.6...	H1-1b
251	4	M14	HSS3.5...	.072	0	.006	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
252	4	M15	L3.5x3....	.186	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
253	4	M16	L3.5x3....	.163	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1

Member AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear...	Loc[ft]	...	phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn
254	4	M17	L3.5x3....	.121	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
255	4	M18	L3.5x3....	.096	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
256	4	M19	L3.5x3....	.055	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
257	4	M20	L3.5x3....	.029	2.948	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
258	4	M21	L3.5x3....	.029	3.073	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
259	4	M22	L3.5x3....	.055	2.948	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
260	4	M23	L3.5x3....	.096	3.073	.001	0	y	44.941	81	3.34	7.05	1.1...	H2-1
261	4	M24	L3.5x3....	.121	3.073	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
262	4	M25	L3.5x3....	.163	3.073	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
263	4	M26	L3.5x3....	.186	3.073	.001	6.021	y	44.941	81	3.34	7.05	1.1...	H2-1
264	4	M27	HSS3.5...	.072	0	.006	0	y	149.6...	169.3...	16.181	16.181	1.6...	H1-...
265	4	M28	L4x4x6	.259	44	.007	48	y	75.876	92.664	4.398	9.764	1	H2-1
266	4	M29	L4x4x6	.398	23	.002	28	y	75.876	92.664	4.398	9.764	1	H2-1
267	4	M30	LL3.5x3...	.125	0	.006	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
268	4	M31	LL3.5x3...	.107	0	.005	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
269	4	M32	LL3.5x3...	.104	0	.006	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
270	4	M33	LL3.5x3...	.090	0	.004	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
271	4	M34	LL3.5x3...	.076	0	.004	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
272	4	M35	LL3.5x3...	.060	0	.003	0	y	141.6...	162	14.996	9.884	1	H1-1b
273	4	M36	LL3.5x3...	.076	0	.004	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
274	4	M37	LL3.5x3...	.090	0	.004	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
275	4	M38	LL3.5x3...	.104	0	.006	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
276	4	M39	LL3.5x3...	.107	0	.005	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
277	4	M40	LL3.5x3...	.125	0	.006	0	y	141.6...	162	14.996	9.884	1.6...	H1-1b
278	4	M41	HSS3.5...	.079	0	.006	0	z	149.6...	169.3...	16.181	16.181	1.6...	H1-1b
279	4	M42	L3.5x3....	.196	3.01	.003	0	z	44.941	81	3.34	7.08	1.1...	H2-1
280	4	M43	L3.5x3....	.157	2.948	.002	0	z	44.941	81	3.34	7.075	1.16	H2-1
281	4	M44	L3.5x3....	.136	3.01	.003	6.021	z	44.941	81	3.34	7.07	1.1...	H2-1
282	4	M45	L3.5x3....	.099	3.01	.003	0	z	44.941	81	3.34	7.07	1.1...	H2-1
283	4	M46	L3.5x3....	.079	3.01	.002	6.021	z	44.941	81	3.34	7.075	1.16	H2-1
284	4	M47	L3.5x3....	.042	3.01	.003	0	z	44.941	81	3.34	7.08	1.1...	H2-1
285	4	M48	L3.5x3....	.042	3.01	.003	6.021	z	44.941	81	3.34	7.08	1.1...	H2-1
286	4	M49	L3.5x3....	.086	3.01	.002	6.021	z	44.941	81	3.34	7.094	1.1...	H2-1
287	4	M50	L3.5x3....	.099	3.01	.003	6.021	z	44.941	81	3.34	7.07	1.1...	H2-1
288	4	M51	L3.5x3....	.136	3.01	.003	0	z	44.941	81	3.34	7.07	1.1...	H2-1
289	4	M52	L3.5x3....	.157	3.073	.002	6.021	z	44.941	81	3.34	7.075	1.16	H2-1
290	4	M53	L3.5x3....	.196	3.01	.003	0	z	44.941	81	3.34	7.08	1.1...	H2-1
291	4	M54	HSS3.5...	.079	0	.006	0	z	149.6...	169.3...	16.181	16.181	1.6...	H1-1b
292	4	M55	L4x4x4	.517	3.202	.044	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
293	4	M56	L4x4x4	.479	3.202	.044	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
294	4	M57	L4x4x4	.492	3.202	.043	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
295	4	M58	L4x4x4	.470	3.202	.043	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
296	4	M59	L4x4x4	.467	3.202	.043	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
297	4	M60	L4x4x4	.460	3.202	.043	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
298	4	M61	L4x4x4	.460	3.202	.043	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
299	4	M62	L4x4x4	.467	3.202	.043	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
300	4	M63	L4x4x4	.470	3.202	.043	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
301	4	M64	L4x4x4	.492	3.202	.043	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
302	4	M65	L4x4x4	.479	3.202	.044	0	y	35.908	62.532	3.138	5.829	1.1...	H2-1
303	4	M66	L4x4x4	.517	3.202	.044	6.403	y	35.908	62.532	3.138	5.829	1.1...	H2-1
304	4	M67	HSS3.5...	.051	3.385	.014	5	y	145.36	169.3...	16.181	16.181	1.16	H1-1b
305	4	M68	C6x10.5	.086	2.24	.034	0	y	50.567	99.468	2.428	16.209	1.0...	H1-1b
306	4	M69	C6x10.5	.089	3.177	.027	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
307	4	M70	C6x10.5	.084	2.292	.034	0	y	50.567	99.468	2.428	16.23	1.0...	H1-1b
308	4	M71	C6x10.5	.090	3.229	.026	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
309	4	M72	C6x10.5	.082	2.344	.033	0	y	50.567	99.468	2.428	16.271	1.1...	H1-1b
310	4	M73	C6x10.5	.088	3.177	.026	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b

Member AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	LC	Member	Shape	UC Max	Loc[ft]	Shear...	Loc[ft]	...	phi*P...	phi*P...	phi*M...	phi*M...	Cb	Eqn
311	4	M74	C6x10.5	.082	2.344	.033	0	y	50.567	99.468	2.428	16.271	1.1...	H1-1b
312	4	M75	C6x10.5	.090	3.229	.026	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
313	4	M76	C6x10.5	.084	2.292	.034	0	y	50.567	99.468	2.428	16.23	1.0...	H1-1b
314	4	M77	C6x10.5	.089	3.177	.027	5	y	50.567	99.468	2.428	16.686	1.1...	H1-1b
315	4	M78	C6x10.5	.086	2.24	.033	0	y	50.567	99.468	2.428	16.209	1.0...	H1-1b
316	4	M79	HSS3.5...	.051	3.385	.014	5	y	145.36	169.3...	16.181	16.181	1.16	H1-1b

↖ ALL ≤ 1.0