APPENDIX

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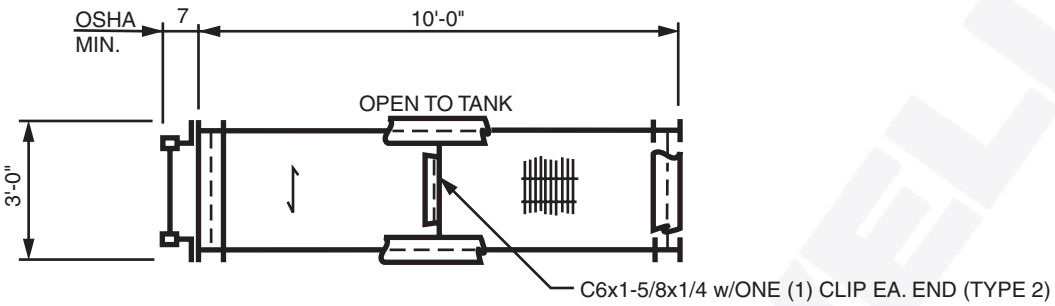
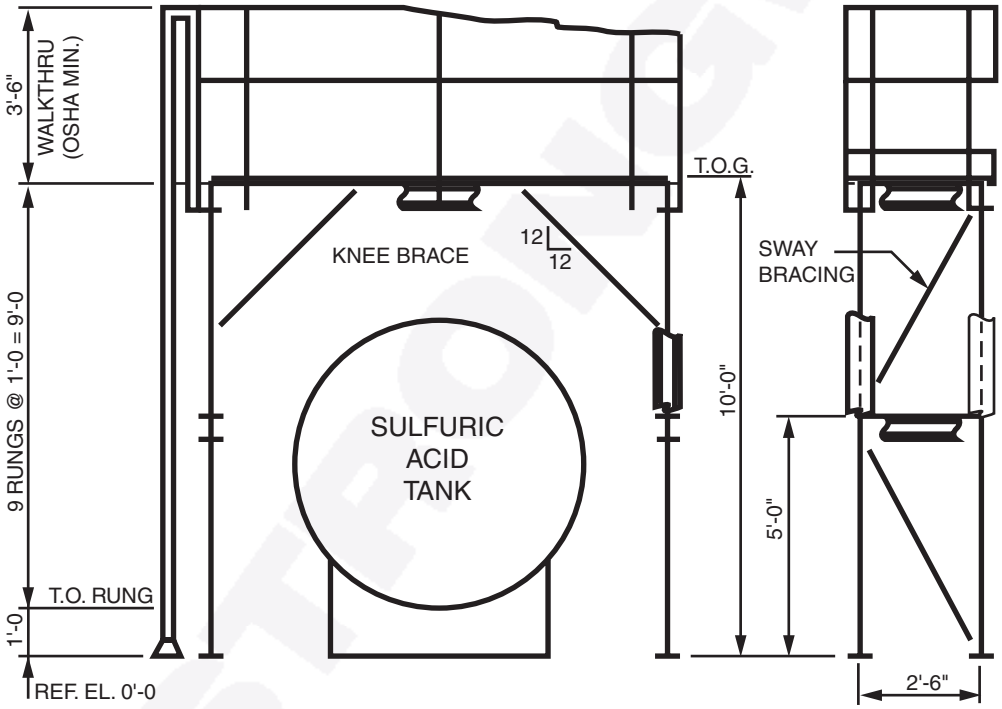
APPENDIX

INTEGRATED DESIGN EXAMPLE

10% SULFURIC ACID TANK PLATFORM



PLAN
T.O. FRP EL 9'-11"



ELEVATION **END VIEW**

DESIGN CRITERIA

OSHA for Safety - fire retardant
Platform Live Load = 100 psf (Work Platform)
Indoor Application (75° F)
Δ Max – grating ~ 1/4" ; Δ Max – structurals ~ L/180
All connections to be bolted and epoxied

INTEGRATED DESIGN EXAMPLE

10% SULFURIC ACID TANK PLATFORM

DESIGN GRATING

According to Section 23 - **CORROSION RESISTANCE GUIDE** of the Strongwell *Design Manual*, standard fire retardant grating is acceptable. (10% Sulfuric to 150°F)

Assume W-6 members, grating clear span is 36”-6”=30”
(grating spans short direction)

1” **DURADEK®** I-6000 will support 160 PSF on 30” span deflect only 3/32”

USE →1” DURADEK I-6000 (WT = 2.4 PSF)

PLATFORM BEAMS (10’ SPAN)

LL = (100 PSF) $\frac{3'}{2}$ = 150 lbs./LF

DL = (2.4 PSF)$_{(GTG)}$ $\frac{3'}{2}$ + 3.19 lbs./$_{(BM)}$1 + 5.5 lbs./$_{(HR)}$1 = 12.29 ASSUME →15 lbs./LF

Therefore: Total Beam Load = 150 + 15 = 165 lbs./LF; R = $\frac{165 \times 10}{2}$ = 825 lbs.

Referencing STRONGWELL *Corrosion Resistance Guide*, EXTREN® 525 series will be used.

From the **EXTREN®** allowable load tables, a W-6 x 6 x 1/4 will support 171 lbs./FT @ Δ = L/180 when the beam is laterally supported.

Our beam is laterally braced @ L_U = 5

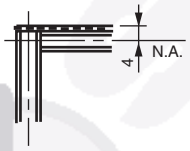
As can be seen in the laterally unsupported column of the table,
W (unbraced) @ 10’-0 = 158 lbs./LF < 165 lbs./LF actual
@ 5’-0 = OK / by inspection

USE →W-6 x 6 x 1/4 w/ type 2 connections

COLUMNS

P_{MAX} = 825 lbs. + 75 lbs. = 900 lbs. (DL COL + BRACING)

Assume $K_X = K_Y = 1.0$ (Both ends pinned)
Try W-6 x 6 x 1/4 Column



$$\frac{Kl}{r_x} = \frac{1.0 \times [10' \times 12 - (1'' + 3'')]}{2.54} = 45.7 \rightarrow \text{controls}$$

(TO N.A.; GTG BM)

$$\frac{Kl}{r_y} = \frac{1.0 \times 5' \times 12}{1.44} = 41.7$$

Going into column table for W & I Shapes: Fa = 6318 psi
for short column mode : Fa = 3543 psi →controls

$$fa = \frac{900 \text{ lbs.}}{A_{W6 \times 1/4}} = \frac{900 \text{ lbs.}}{4.388} = 205 \text{ psi} \ ^{OK} < 3543 \text{ psi}$$

USE →W-6 x 6 x 1/4 EXTREN® 525 COLUMNS

(NOTE: Although W-4 x 1/4 or I-6 x 3 x 1/4 is adequate, connections will be easier with a W-6.)

INTEGRATED DESIGN EXAMPLE

10% SULFURIC ACID TANK PLATFORM

DESIGN SWAY BRACING

Since wind is not a problem, design sway bracing to provide stiffening of the frame in the transverse direction.

Assume sway bracing to resist 2% of column loads

= 2% x 900 lbs. x 2 COLS . 36 lbs. (minimal)

For ease of connection, TRY ⌋L 2 x 2 x 1/4

L . $\sqrt{2.5^2 + 5^2}$ = 5.59' = 67" (@ 63.4°)

From Elements of Section,

r_x = .609 ; R_y = .95

Kl/r_x = 67/.609 = 110 → F_a = 1167 psi

Axial Load in Brace

$$P = \frac{36 \text{ lbs.}}{\text{COS } 63.4^\circ} = 80 \text{ lbs.}$$

$$f_a = \frac{80 \text{ lbs.}}{1.84} < 1167 \text{ psi OK}$$

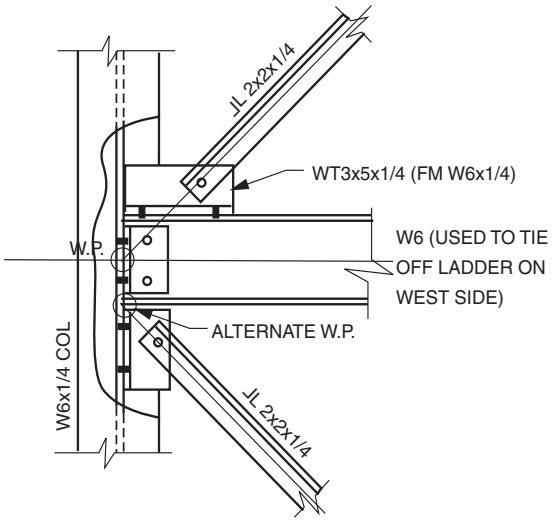
USE → ⌋L 2 x 2 x 1/4 Sway Bracing

By Inspection,

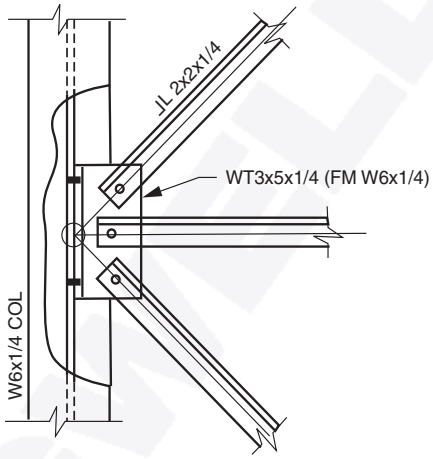
USE → ⌋L 2 x 2 x 1/4 Knee Braces Also

INTEGRATED DESIGN EXAMPLE

10% SULFURIC ACID TANK PLATFORM

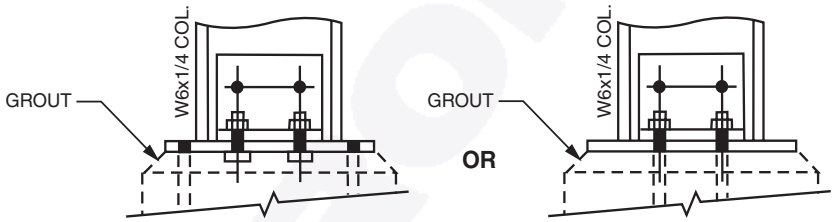


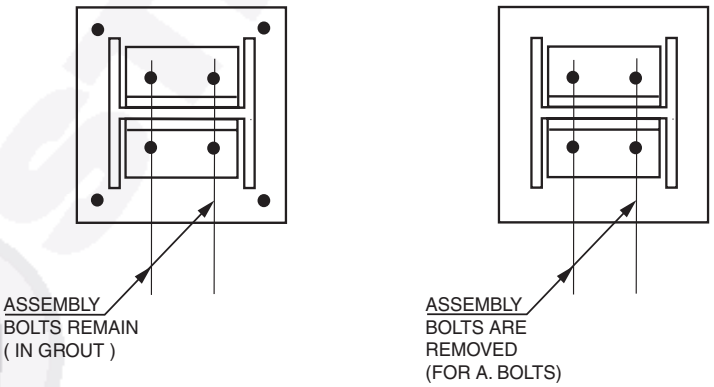
SWAY BRACING
(KNEE BRACING - SIM.)



SWAY BRACING - EAST SIDE

TYPICAL BRACING DETAILS





TYPICAL BASE PLATE DETAILS

RECOMMENDED MINIMUM LIVE LOADS

The live loads listed below are typical of minimums given in the Uniform Building Code and similar model codes for general construction. In the absence of local laws, building codes, or other project specifications, these loads may be used for the engineering design. Otherwise, check applicable requirements. **UNIFORM LOAD** is given in pounds per square foot (psf) and **CONCENTRATED LOAD** is given in pounds.

A live load is defined as the weight resulting from furniture, persons, or other movable and varying loads that are not a permanent part of the structure. **NOTE:** Wind, snow, earthquake, impact, dead and other loads are not considered a part of the live load of a structure.

RECOMMENDED MINIMUM UNIFORM AND CONCENTRATED LOADS

USE OR OCCUPANCY		UNIFORM	CONCENTRATED
CATEGORY	DESCRIPTION	LOAD①	LOAD
1. Access floor systems	Office Computer use	50 100	2000② 2000②
2. Armories		150	0
3. Assembly areas③ and balconies therewith	Fixed seating areas auditoriums and Movable seating and other areas Stage areas and enclosed platforms	50 100 125	0 0 0
4. Cornices, marquees and residential balconies		60	0
5. Exit facilities④		100	0⑤
6. Garages	General storage and/or repair Private or pleasure-type motor vehicle storage	100 50	⑥ ⑦
7. Hospitals	Wards and rooms	40	1000②
8. Libraries	Reading rooms Stack rooms	60 125	1000② 1500②
9. Manufacturing	Light Heavy	75 125	2000② 3000②
10. Offices		50	2000②
11. Printing plants	Press rooms Composing and linotype rooms	150 100	2500② 2000②
12. Residence⑧		40	0⑤
13. Rest rooms⑨			
14. Reviewing stands, grandstands and bleachers		100	0
15. Roof deck	Same as area served or for the type of occupancy accommodated		
16. Schools	Classrooms	40	1000②
17. Sidewalks and driveways	Public access	250	⑥
18. Stairways⑤	Stringer Design Stairtread	100 —	— 300
19. Storage	Light Heavy	125 250	
20. Stores	Retail Wholesale	75 100	2000② 3000

RECOMMENDED MINIMUM UNIFORM ROOF LIVE LOADS

USE OR OCCUPANCY		UNIFORM LOAD①	CONCENTRATED LOAD
CATEGORY	DESCRIPTION		
1. Roof Loads⑩	Rise 4” or less per foot	20	
	Rise 4” to 12” per foot	16	
	Rise over 12” per foot	12	

FOOTNOTES FOR TABLE OF RECOMMENDED MINIMUM UNIFORM & CONCENTRATED LOADS

① In some cases, the Uniform Building Code allows for a reduction of the uniform live load for members supporting 150 sq. ft. or more area. Consult the UBC or other applicable codes for any reductions that may be taken.

② “Concentrated loads shall be placed upon any space 2-1/2 feet square, wherever this load upon an otherwise unloaded floor would produce stresses greater than those caused by the uniform load required thereof.” UBC - 85, section 2304 (c).

③ Assembly areas include such occupancies as dance halls, drill rooms, gymnasiums, playgrounds, plazas, terraces and similar occupancies which are generally accessible to the public.

④ Exit facilities shall include such uses as corridors serving an occupant load of 10 or more persons, exterior exit balconies, stairways, fire escapes, and similar uses.

⑤ Individual stair treads shall be designed to support a 300 pound concentrated load placed in a position which would cause maximum stress. Stair stringers may be designed for the uniform load set forth in the table.

⑥ Provisions shall be made in areas where vehicles are used or stored for concentrated loads consisting of two or more loads spaced 5 feet nominally on center without uniform live loads. Each load shall be 40% of the gross weight of the maximum size vehicle to be accommodated. The condition of concentrated or uniform live load producing the greater stress shall govern.

⑦ Parking garages for the storage of private or pleasure-type motor vehicles with no repair or fueling shall have a floor system designed for a concentrated wheel load of not less than 2000 pounds without uniform live load. The condition of concentrated or uniform live load producing the greatest stress shall govern.

⑧ Residential occupancies include private dwellings, apartments and hotel guest rooms.

⑨ Rest room loads shall be not less than the load for the occupancy with which they are associated, but need not exceed 50 psf.

⑩ Roof loads are in pounds per square foot of horizontal projection.

SPECIAL LOADS①

USE		VERTICAL LOAD	LATERAL LOAD
CATEGORY	DESCRIPTION	(Pounds Per Square Foot Unless Otherwise Noted)	
1. Construction, public access at site (live load)	Walkway, min. 4 ft. wide Canopy, 8 ft. clear height	150 150	
2. Grandstands, reviewing stands and bleachers (live load)	Seats and footboards	120②	See Footnote 3
3. Stage accessories, live load	Gridirons and fly galleries Loft block wells④ Head block wells and sheave beams④	75 250 250	 250 250
4. Ceiling framing	Over Stages All uses except over stages	20 10⑤	
5. Partitions and interior walls	Permanent and temporary Exceeding 6 ft. in height	All live loads on them	5
6. Elevator and dumb-waiters (dead and live load)		2 x total loads ⑥	
7. Mechanical and electrical equipment (dead load)		Total loads	
8. Cranes (dead and live load)	Total load including impact increase	1.25 x Total load⑦	0.10 x Total load⑧
9. Balcony railings, guard rails and handrails (U.B.C.)	Exit facilities serving an occupant load greater than 50 Other		50⑨ 20⑨
10. Balcony railings, guard rails and (OSHA)		At least 200 lbs. applied in any direction at any point on top rail	
11. Storage racks	Over 8 feet high	Total loads⑩	In Earthquake zones, see U.B.C.
12. Walkways & Platforms Industrial Applications⑪	Accessways Operating Platforms and Walkways	75 100	

① The tabulated loads are minimum loads. Where other vertical loads required by codes or by design would cause greater stresses, they shall be used.

② Pounds per lineal foot

③ Lateral sway bracing loads of 24 pounds per foot parallel and 10 pounds per foot perpendicular to seat and footboards.

④ All loads are in pounds per lineal foot. Head block wells and sheave beams shall be designed for all loft block well loads tributary thereto. Sheave blocks shall be designed with a factor of safety of five.

⑤ Does not apply to ceilings which have sufficient total access from below, such that access is not required within the space above the ceiling. Does not apply to ceilings if the attic areas above the ceiling are not provided with access. This live load need not be considered acting simultaneously with other live loads imposed upon the ceiling framing or its supporting structure.

⑥ Where Appendix Chapter 51 of the U.B.C. has been adopted, see reference standard cited therein for additional design requirements.

⑦ The impact factors included are for cranes with steel wheels riding on steel rails. They may be modified if substantiating technical data acceptable to the building official is submitted. Live loads on crane support girders and their connections shall be taken as the maximum crane wheel loads. For pendant-operated traveling crane support girders and their connections, the impact factors shall be 1.10.

⑧ This applies in the direction parallel to the runway rails (longitudinal). The factor for forces perpendicular to the rail is 0.20 x the transverse traveling loads (trolley, cab, hooks and lifted loads). Forces shall be applied at top of rail and may be distributed among rails of multiple rail cranes and shall be distributed with due regard for lateral stiffness of the structures supporting these rails.

⑨ A load per lineal foot to be applied horizontally at right angles to the top rail.

⑩ Vertical members of storage racks shall be protected from impact forces of operating equipment or racks shall be designed so that failure of one vertical member will not cause collapse of more than the bay or bays directly supported by that member.

⑪ Valves for industrial walkways and platforms are commonly used by industry. Check with applicable project specifications.

WEIGHTS AND MEASURES

International System of Units (SI)[a] (Metric Practice)

BASE UNITS

Quantity	Unit	Symbol
length	metre	m
mass	kilogram	kg
time	second	s
electric current	ampere	A
thermodynamic temperature	kelvin	K
amount of substance	mole	mol
luminous intensity	candela	cd

SUPPLEMENTARY UNITS

Quantity	Unit	Symbol
plane angle	radian	rad
solid angle	steradian	sr

DERIVED UNITS (WITH SPECIAL NAMES)

Quantity	Unit	Symbol	Formula
force	newton	N	$kg\text{-}m/s^2$
pressure, stress	pascal	PA	N/m^2
energy, work, quantity of heat	joule	J	N-m
power	watt	W	J/s

DERIVED UNITS (WITHOUT SPECIAL NAMES)

Quantity	Unit	Formula
area	square metre	m^2
volume	cubic metre	m^3
velocity	metre per second	m/S
acceleration	metre per second squared	m/s^2
specific volume	cubic metre per kilogram	m^3/kg
density	kilogram per cubic metre	kg/m^3

SI PREFIXES

Multiplication Factor			Prefix	Symbol
1 000 000 000 000 000 000	=	10^{18}	exa	E
1 000 000 000 000 000	=	10^{15}	peta	P
1 000 000 000 000	=	10^{12}	tera	T
1 000 000 000	=	10^{9}	giga	G
1 000 000	=	10^{6}	mega	M
1 000	=	10^{3}	kilo	k
100	=	10^{2}	hecto[b]	h
10	=	10^{1}	deka[b]	da
0.1	=	10^{-1}	deci[b]	d
0.01	=	10^{-2}	centi[b]	c
0.001	=	10^{-3}	milli	m
0.000 001	=	10^{-6}	micro	µ
0.000 000 001	=	10^{-9}	nano	n
0.000 000 000 001	=	10^{-12}	pico	p
0.000 000 000 000 001	=	10^{-15}	femto	f
0.000 000 000 000 000 001	=	10^{-18}	atto	a

a Refer to ASTM E380-79 for more complete information on SI.
b Use is not recommended.

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WEIGHTS AND MEASURES

United States System

LINEAR MEASURE

Inches		*Feet*		*Yards*		*Rods*		*Furlongs*		*Miles*
1.0	=	.08333	=	.02778	=	.0050505	=	.00012626	=	.00001578
12.0	=	1.0	=	.33333	=	.0606061	=	.00151515	=	.00018939
36.0	=	3.0	=	1.0	=	.1818182	=	.00454545	=	.00056818
198.0	=	16.5	=	5.5	=	1.0	=	.025	=	.003125
7920.0	=	660.0	=	220.0	=	40.0	=	1.0	=	.125
63360.0	=	5280.0	=	1760.0	=	320.0	=	8.0	=	1.0

SQUARE AND LAND MEASURE

Sq. Inches		*Square Feet*		*Square Yards*		*Sq. Rods*		*Acres*		*Sq. Miles*
1.0	=	.006944	=	.000772						
144.0	=	1.0	=	.111111						
1296.0	=	9.0	=	1.0	=	.03306	=	.000207		
39204.0	=	272.25	=	30.25	=	1.0	=	.00625	=	.0000098
		43560.0	=	4840.0	=	160.0	=	1.0	=	.00015625
				3097600.0	=	102400.0	=	640.0	=	1.0

AVOIRDUPOIS WEIGHTS

Grains		*Drams*		*Ounces*		*Pounds*		*Tons*
1.0	=	.03657	=	.002286	=	.000143	=	.0000000714
27.34375	=	1.0	=	.0625	=	.003906	=	.00000195
437.5	=	16.0	=	1.0	=	.0625	=	.00003125
7000.0	=	256.0	=	16.0	=	1.0	=	.0005
14000000.0	=	512000.0	=	32000.0	=	2000.0	=	1.0

DRY MEASURE

Pints	*Quarts*		*Pecks*		*Cubic Feet*		*Bushels*	
1.0	=	.5	=	.0625	=	.01945	=	.01563
2.0	=	1.0	=	.125	=	.03891	=	.03125
16.0	=	8.0	=	1.0	=	.31112	=	.25
51.42627	=	25.71314	=	3.21414	=	1.0	=	.80354
64.0	=	32.0	=	4.0	=	1.2445	=	1.0

LIQUID MEASURE

Gills		*Pints*		*Quarts*		*U.S. Gallons*		*Cubic Feet*
1.0	=	.25	=	.125	=	.03125	=	.00418
4.0	=	1.0	=	.5	=	.125	=	.01671
8.0	=	2.0	=	1.0	=	.250	=	.03342
32.0	=	8.0	=	4.0	=	1.0	=	.1337
						7.48052	=	1.0

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SI CONVERSION FACTORS[a]

Quantity	Multiply	by		to obtain	
Length	Inch	[b] 25.400		Millimetre	mm
	Foot	[b] 0.304 800		Metre	m
	Yard	[b] 0.914 400		Metre	m
	Mile (U.S. Statute)	1.609 347		Kilometre	km
	Millimetre	39.370 079	$\times 10^{-3}$	Inch	in
	Metre	3.280 840		Foot	ft
	Metre	1.093 613		Yard	yd
	Kilometre	0.621 370		Mile	mi
Area	Square inch	[b] 0.645 160	$\times 10^{3}$	Square millimetre	mm^2
	Square foot	[b] 0.092 903		Square metre	m^2
	Square yard	0.836 127		Square metre	m^2
	Square mile (U.S. Statute)	2.589 998		Square kilometre	km^2
	Acre	4.046 873	$\times 10^{3}$	Square metre	m^2
	Acre	0.404 687		Hectare	
	Square millimetre	1.550 003	$\times 10^{-3}$	Square inch	in^2
	Square metre	10.763 910		Square foot	ft^2
	Square metre	1.195 990		Square yard	yd^2
	Square kilometre	0.386 101		Square mile	mi^2
	Square metre	0.247 104	$\times 10^{-3}$	Acre	
	Hectare	2.471 044		Acre	
Volume	Cubic inch	[b] 16.387 06	$\times 10^{3}$	Cubic millimetre	mm^3
	Cubic foot	28.316 85	$\times 10^{-3}$	Cubic metre	m^3
	Cubic yard	0.764 555		Cubic metre	m^3
	Gallon (U.S. liquid)	3.785 412		Litre	l
	Quart (U.S. liquid)	0.946 353		Litre	l
	Cubic millimetre	61.023 759	$\times 10^{-6}$	Cubic inch	in^3
	Cubic metre	35.314 662		Cubic foot	ft^3
	Cubic metre	1.307 951		Cubic yard	yd^3
	Litre	0.264 172		Gallon (U.S. liquid)	gal
	Litre	1.056 688		Quart (U.S. liquid)	qt
Mass	Ounce (avoirdupois)	28.349 52		Gram	g
	Pound (avoirdupois)	0.453 592		Kilogram	kg
	Short ton	0.907 185	$\times 10^{3}$	Kilogram	kg
	Gram	35.273 966	$\times 10^{-3}$	Ounce (avoirdupois)	oz av
	Kilogram	2.204 622		Pound (avoirdupois)	lb av
	Kilogram	1.102 311	$\times 10^{-3}$	Short ton	lb av

[a] Refer to ASTM E380-79 for more complete information on SI.
[b] Indicates exact value.

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SI CONVERSION FACTORS[a]

Quantity	Multiply	by	to obtain
Force	ounce-force	0.278 014	newton N
	pound-force	4.448 222	newton N
	newton	3.596 942	ounce-force
	newton	0.224 809	pound-force lbf
Bending Moment	pound-force-inch	0.112 985	newton-metre N-m
	pound-force-foot	1.355 818	newton-metre N-m
	newton-metre	8.850 748	pound-force-inch lbf-in
	newton-metre	0.737 562	pound-force-foot lbf-ft
Pressure Stress	pound-force per square inch	6.894 757	kilopascal kPa
	foot of water (39.2 F)	2.988 98	kilopascal kPa
	inch of mercury (32 F)	3.386 38	kilopascal kPa
	kilopascal	0.145 038	pound-force per square inch lbf/in^2
	kilopascal	0.334 562	foot of water (39.2 F)
	kilopascal	0.295 301	inch of mercury (32 F)
Energy, Work, Heat	foot-pound-force	1.355 818	joule J
	[c] British thermal unit	1.055 056 x 10^3	joule J
	[c] calorie	[b] 4.186 800	joule J
	kilowatt hour	[b] 3.600 000 x 10^6	joule J
	joule	0.737 562	foot-pound-force ft-lbf
	joule	0.947 817 x 10^{-3}	[c] British thermal unit BTU
	joule	0.238 846	[c] calorie
	joule	0.277 778 x 10^{-6}	kilowatt hour kW-h
Power	foot-pound-force/second	1.355 818	watt W
	[c] British thermal units per hour	0.293 071	watt W
	horsepower (550 ft. lb f/s)	0.745 700	kilowatt KW
	watt	0.737 562	ft. lb.– force/second ft-lbf/s
	watt	3.412 141	[c] British thermal unit per hour BTU/h
	kilowatt	1.341 022	horsepower (550 ft.-lbf/s) hp
Angle	degree	17.453 29 x 10^{-3}	radian rad
	radian	57.295 788	degree
Temper-ature	degree Fahrenheit	$t^oC=(t^oF-32)/1.8$	degree Celsius
	degree Celsius	$t^oF= 1.8 \times t^oC+32$	degree Fahrenheit

[a] Refer to ASTM E380-79 for more complete information on SI.
[b] Indicates exact value.
[c] International Table.

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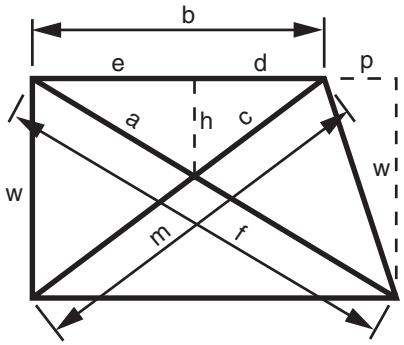
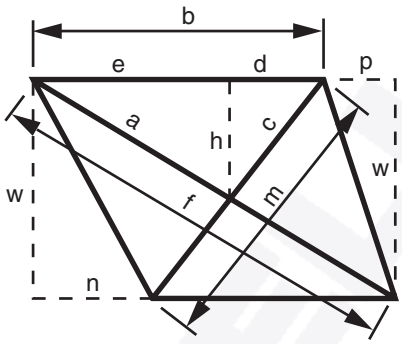
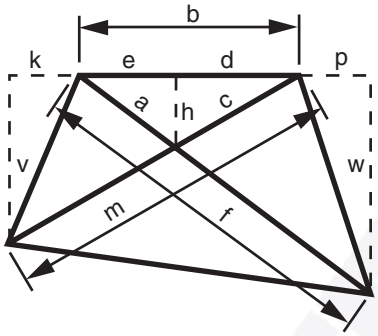
BRACING FORMULAS



Given	To Find	Formula
bpw	f	$\sqrt{(b + p)^2 + w^2}$
bw	m	$\sqrt{b^2 + w^2}$
bp	d	$b^2 \div (2b + p)$
bp	e	$b (b + p) \div (2b + p)$
bfp	a	$bf \div (2b + p)$
bmp	c	$bm \div (2b + p)$
bpw	h	$bw \div (2b + p)$
afw	h	$aw \div f$
cmw	h	$cw \div m$

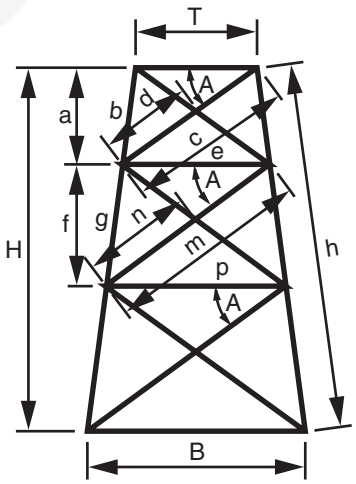


Given	To Find	Formula
bpw	f	$\sqrt{(b + p)^2 + w^2}$
bnw	m	$\sqrt{(b - n)^2 + w^2}$
bnp	d	$b (b - n) \div (2b + p - n)$
bnp	e	$b (b + p) \div (2b + p - n)$
bfnp	a	$bf \div (2b + p - n)$
bmnp	c	$bm \div (2b + p - n)$
bnpw	h	$bw \div (2b + p - n)$
afw	h	$aw \div f$
cmw	h	$cw \div m$



Given	To Find	Formula
bpw	f	$\sqrt{(b + p)^2 + w^2}$
bkv	m	$\sqrt{(b + k)^2 + v^2}$
bkpvw	d	$bw (b + k) \div [v(b + p) + w(b + k)]$
bkpvw	e	$bv(b + p) \div [v(b + p) + w(b + k)]$
bfkpvw	a	$fbv \div [v(b + p) + w(b + k)]$
bkmpvw	c	$bmw \div [v(b + p) + w(b + k)]$
bkpvw	h	$bvw \div [v(b + p) + w(b + k)]$
afw	h	$aw \div f$
cmv	h	$cv \div m$

PARALLEL BRACING



$k = (\log B - \log T) \div$ No. of panels. Constant k plus the logarithm of any line equals the log of the corresponding line in the next panel below.

$a = TH \div (T + e + p)$

$b = Th \div (T + e + p)$

$c = \sqrt{(1/2T + 1/2e)^2 + a^2}$

$d = ce \div (T + e)$

$\log e = k + \log T$
$\log f = k + \log a$
$\log g = k + \log b$
$\log m = k + \log c$
$\log n = k + \log d$
$\log p = k + \log e$

The above method can be used for any number of panels. In the formulas for "a" and "b" the sum in parenthesis, which in the case shown is (T + e + p), is always composed of all the horizontal distances except the base.

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DECIMALS OF AN INCH

For Each 64th of an inch With Millimeter Equivalents							
Fraction	1/64ths	Decimal	Millimeters (Approx.)	Fraction	1/64ths	Decimal	Millimeters (Approx.)
…	1	.015625	0.397	…	33	.515625	13.097
1/32	2	.03125	0.794	17/32	34	.53125	13.494
…	3	.046875	1.191	…	35	.546875	13.891
1/16	4	.0625	1.588	9/16	36	.5625	14.288
…	5	.078125	1.984	…	37	.578125	14.684
3/32	6	.09375	2.381	19/32	38	.59375	15.081
…	7	.109375	2.778	…	39	.609375	15.478
1/8	8	.125	3.175	5/8	40	.625	15.875
…	9	.140625	3.572	…	41	.640625	16.272
5/32	10	.15625	3.969	21/32	42	.65625	16.669
…	11	.171875	4.366	…	43	.671875	17.066
3/16	12	.1875	4.763	11/16	44	.6875	17.463
…	13	.203125	5.159	…	45	.703125	17.859
7/32	14	.21875	5.556	23/32	46	.71875	18.256
…	15	.234375	5.953	…	47	.734375	18.653
1/4	16	.250	6.350	3/4	48	.750	19.050
…	17	.265625	6.747	…	49	.765625	19.447
9/32	18	.28125	7.144	25/32	50	.78125	19.844
…	19	.296875	7.541	…	51	.796875	20.241
5/16	20	.3125	7.938	13/16	52	.8125	20.638
…	21	.328125	8.334	…	53	.828125	21.034
11/32	22	.34375	8.731	27/32	54	.84375	21.431
…	23	.359375	9.128	…	55	.859375	21.828
3/8	24	.375	9.525	7/8	56	.875	22.225
…	25	.390625	9.922	…	57	.890625	22.622
13/32	26	.40625	10.319	29/32	58	.90625	23.019
…	27	.421875	10.716	…	59	.921875	23.416
7/16	28	.4375	11.113	15/16	60	.9375	23.813
…	29	.453125	11.509	…	61	.953125	24.209
15/32	30	.46875	11.906	31/32	62	.96875	24.606
…	31	.484375	12.303	…	63	.984375	25.003
1/2	32	.500	12.700	1	64	1.000	25.400

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DECIMALS OF A FOOT

For Each 32nd of an inch						
Inch	0	1	2	3	4	5
0	0	.0833	.1667	.2500	.3333	.4167
1/32	.0026	.0859	.1693	.2526	.3359	.4193
1/16	.0052	.0885	.1719	.2552	.3385	.4219
3/32	.0078	.0911	.1745	.2578	.3411	.4245
1/8	.0104	.0938	.1771	.2604	.3438	.4271
5/32	.0130	.0964	.1797	.2630	.3464	.4297
3/16	.0156	.0990	.1823	.2656	.3490	.4323
7/32	.0182	.1016	.1849	.2682	.3516	.4349
1/4	.0208	.1042	.1875	.2708	.3542	.4375
9/32	.0234	.1068	.1901	.2734	.3568	.4401
5/16	.0260	.1094	.1927	.2760	.3594	.4427
11/32	.0286	.1120	.1953	.2786	.3620	.4453
3/8	.0313	.1146	.1979	.2812	.3646	.4479
13/32	.0339	.1172	.2005	.2839	.3672	.4505
1/17	.0365	.1198	.2031	.2865	.3698	.4531
15/32	0391	.1224	.2057	.2891	.3724	.4557
1/2	.0417	.1250	.2083	.2917	.3750	.4583
17/32	.0443	.1276	.2109	.2943	.3776	.4609
9/16	.0469	.1302	.2135	.2969	.3802	.4635
19/32	.0495	.1328	.2161	.2995	.3828	.4661
5/8	.0521	.1354	.2188	.3021	.3854	.4688
21/32	.0547	.1380	.2214	.3047	.3880	.4714
11/16	.0573	.1406	.2240	.3073	.3906	.4740
23/32	.0599	.1432	.2266	.3099	.3932	.4766
3/4	.0625	.1458	.2292	.3125	.3958	.4792
25/32	.0651	.1484	.2318	.3151	.3984	.4818
13/16	.0677	.1510	.2344	.3177	.4010	.4844
27/32	.0703	.1536	.2370	.3203	.4036	.4870
7/8	.0729	.1563	.2396	.3229	.4063	.4896
29/32	.0755	.1589	.2422	.3255	.4089	.4922
15/16	.0781	.1615	.2448	.3281	.4115	.4948
31/32	.0807	.1641	.2474	.3307	.4141	.4974

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DECIMALS OF A FOOT

For Each 32nd of an inch						
Inch	6	7	8	9	10	11
0	.5000	.5833	.6667	.7500	.8333	.9167
1/32	.5026	.5859	.6693	.7526	.8359	.9193
1/16	.5052	.5885	.6719	.7552	.8385	.9219
3/32	.5078	.5911	.6745	.7578	.8411	.9245
1/8	.5104	.5938	.6771	.7604	.8438	.9271
5/32	.5130	.5964	.6797	.7630	.8464	.9297
3/16	.5156	.5990	.6823	.7656	.8490	.9323
7/32	.5182	.6016	.6849	.7682	.8516	.9349
1/4	.5208	.6042	.6875	.7708	.8542	.9375
9/32	.5234	.6068	.6901	.7734	.8568	.9401
5/16	.5260	.6094	.6927	.7760	.8594	.9427
11/32	.5286	.6120	.6953	.7786	.8620	.9453
3/8	.5313	.6146	.6979	.7813	.8646	.9479
13/32	.5339	.6172	.7005	.7839	.8672	.9505
7/16	.5365	.6198	.7031	.7865	.8698	.9531
15/32	.5391	.6224	.7057	.7891	.8724	.9557
1/2	.5417	.6250	.7083	.7917	.8750	.9583
17/32	.5443	.6276	.7109	.7943	.8776	.9609
9/16	.5469	.6302	.7135	.7969	.8802	.9635
19/32	.5495	.6328	.7161	.7995	.8828	.9661
5/8	.5521	.6354	.7188	.8021	.8854	.9688
21/32	.5547	.6380	.7214	.8047	.8880	.9714
11/16	.5573	.6406	.7240	.8073	.8906	.9740
23/32	.5599	.6432	.7266	.8099	.8932	.9766
3/4	.5625	.6458	.7292	.8125	.8958	.9792
25/32	.5651	.6484	.7318	.8151	.8984	.9818
13/16	.5677	.6510	.7344	.8177	.9010	.9844
27/32	.5703	.6536	.7370	.8203	.9036	.9870
7/8	.5729	.6563	.7396	.8229	.9063	.9896
29/32	.5755	.6589	.7422	.8255	.9089	.9922
15/16	.5781	.6615	.7448	.8281	.9115	.9948
31/32	.5807	.6641	.7474	.8307	.9141	.9974

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