PACO

SMART SOLUTIONS IN STEEL

SMART SOLUTIONS

- FOR THE MOST COMPLEX STEEL NEEDS
- THAT ARE SIMPLE TO USE ON SITE
- THAT DRIVE VALUE FOR CUSTOMERS

Custom Manufactured Beam
PACO Column/Post
RV & MH
Solar Pile
Smart Moment Frame
Smart Braced Frame

TABLE OF CONTENTS

GENERAL NOTES

1. The information in this catalog supersedes all information published in previous documents and publications.
2. For conditions beyond the scope of this catalog, please contact PACO Steel & Engineering Corp. at (800) 421-1473.
3. PACO Steel reserves the right to change size and product availability without prior notice.
4. This catalog is the original authored property of PACO Steel and Engineering Corp. and may not be published, used or reproduced in whole or in part without the written consent of PACO Steel & Engineering Corp.

PACO
STEEL & ENGINEERING

CUSTOMERS COME TO US
FOR STRONG STEEL,

THEY LEAVE WITH
A SMART SOLUTION.

Code Approvals & Tests

A. PACO Sections

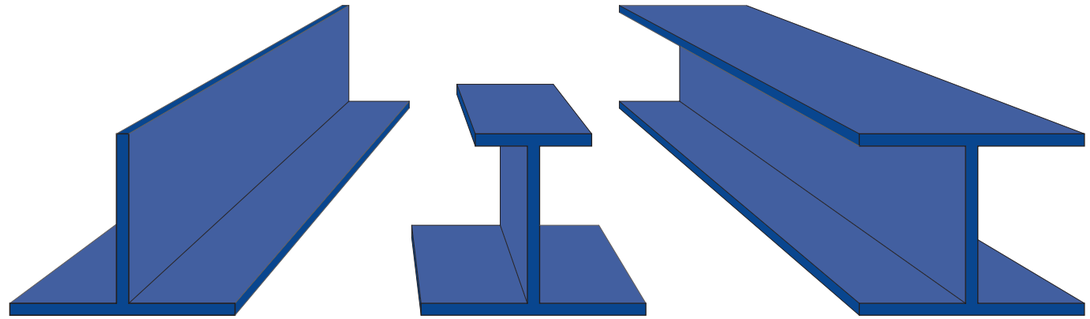
1. American Society for Testing Materials
Designation A 769/A 769M - 05
Standard Specification for Carbon and High-Strength Electric Resistance Forge-Welded Structural Steel Shapes
http://www.astm.org

2. City of Los Angeles, California
Approved for use in the City of Los Angeles
(LARR - Research Report Number - RR 25692)

3. Texas Department of Insurance
Report Number: FR-36
http://www.tdi.texas.gov/wind/prod/indexfr.html

B. PACO Moment Frame (see separate catalog for more information)

1. PACO Steel Special Moment Frames have been tested in compliance with AISC Seismic Provisions for Structural Steel Buildings dated March 9, 2005 (AISC 341-05, ANSI/AISC 358-05), under the supervision of Virginia Tech (Virginia Polytechnic Institute and State University).



CUSTOM MANUFACTURED BEAM

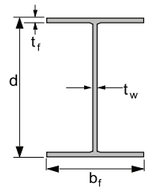
PACO Steel & Engineering Corp. operates the only Beam Line in North America utilizing High Frequency Electric Resistance Forging process. The high technology precision process ensures the highest quality products and allows unlimited ability to custom manufacture “I” and “T” shaped structural members of various gauges, widths, and depths in small quantities. This translates to an ideal structural I-beam solution that is high strength, lightweight, economical and optimized for the application.

PACO Steel & Engineering Corp. is ready to manufacture to your custom requirements.

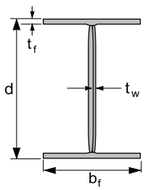
Manufacturing Capabilities & Parameters

Depth:	3.5”—16”
Width:	2.5”—6”
Flange Gauge:	.095 – .375” (Stocked: .095, .105, .120, .155, .175, .210, .245”) Flange Gauge must be greater or equal to Web Gauge.
Web Guage:	095 – .250” (Stocked: .095, .105, .120, .155, .175, .210, .245”)
Grade (ksi) :	30, 40, 50, 60 Other grades available – please inquire
Lead Time:	1 – 8 weeks utilizing stocked gauges 4 – 8 weeks utilizing custom gauges Note: lead times are a function of steel gauges/grades and available tooling.
Minimum Quantity:	25 ton
Paint:	Water Based Red Primer Available on Request
Spec:	ASTM-A769
Tolerance:	ASTM-A6 for shape

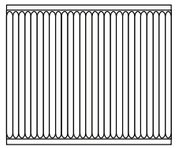
Note: Not all depth/width/gauge combinations are possible – please inquire prior to specifying. Call toll free : (800) 421-1473



PACO



CORRUGATED



SIDE

Section	Designation	A	Wt	d	t_w	b_f	t_f	I_x	S_x	r_x	I_y	S_y	r_y	Z_x
depth x lbs/ft	Part #	in^2	lb/ft	in	in	in	in	in^4	in^3	in	in^4	in^3	in	in^3
PACO Beam - General Application														
P 3.63 x 5.54	363 i 350 p 554	1.599	5.54	3.625	0.155	3.50	0.155	3.74	2.06	1.53	1.11	0.63	0.83	2.31
P 3.63 x 7.59	363 i 350 p 759	2.201	7.59	3.625	0.155	3.50	0.245	5.30	2.93	1.55	1.75	1.00	0.89	3.28
P 4.00 x 3.75	400 i 325 p 375	1.080	3.75	4.00	0.105	3.25	0.105	3.07	1.53	1.68	0.60	0.37	0.75	1.71
P 4.00 x 5.61	400 i 400 p 561	1.627	5.61	4.00	0.105	4.00	0.155	5.03	2.51	1.76	1.65	0.83	1.01	2.74
P 4.00 x 8.62	400 i 400 p 862	2.504	8.62	4.00	0.155	4.00	0.245	7.48	3.74	1.73	2.61	1.31	1.02	4.16
P 5.50 x 4.28	550 i 325 p 428	1.238	4.28	5.50	0.105	3.25	0.105	6.26	2.28	2.25	0.60	0.37	0.70	2.58
P 5.50 x 9.42	550 i 400 p 942	2.737	9.42	5.50	0.155	4.00	0.245	15.17	5.51	2.35	2.61	1.31	0.98	2.89
P 6.00 x 4.46	600 i 325 p 446	1.290	4.46	6.00	0.105	3.25	0.105	7.63	2.54	2.43	0.60	0.37	0.68	2.89
P 6.00 x 6.80	600 i 350 p 680	1.967	6.80	6.00	0.155	3.50	0.155	11.65	3.88	2.43	1.11	0.63	0.75	4.43
P 6.00 x 9.68	600 i 400 p 968	2.814	9.68	6.00	0.155	4.00	0.245	18.40	6.13	2.56	2.62	1.31	0.96	6.82
P 6.00 x 12.41	600 i 500 p 1241	3.607	12.41	6.00	0.210	5.00	0.245	23.23	7.74	2.54	5.11	2.04	1.19	8.64
P 6.00 x 14.76	600 i 600 p 1476	4.290	14.76	6.00	0.245	6.00	0.245	27.77	9.26	2.54	8.83	2.94	1.43	10.32
V 8.00 x 6.38	800 i 300 p 639	1.853	6.39	8.00	0.120	3.00	0.155	18.86	4.71	3.19	0.70	0.47	0.61	5.42
p 8.00 x 11.34	800 i 350 p 1134	3.290	11.34	8.00	0.210	3.50	0.245	33.21	8.30	3.18	1.76	1.00	0.73	9.61
V 10.00 x 7.59	1000 i 300 p 759	2.208	7.59	10.00	0.120	3.00	0.175	34.33	6.87	3.94	0.79	0.53	0.60	7.95
P 10.00 x 11.62	1000 i 350 p 1162	3.380	11.62	10.00	0.175	3.50	0.245	53.35	10.67	3.97	1.75	1.00	0.72	12.32
P 12.00 x 10.62	1200 i 350 p 1062	3.096	10.62	12.00	0.120	3.50	0.245	74.50	12.42	4.91	1.75	1.00	0.75	14.05
P 13.00 x 21.86	1300 i 450 p 2186	6.380	21.86	13.00	0.245	4.50	0.375	172.06	26.47	5.19	5.71	2.54	0.95	30.50
P 13.00 x 24.41	1300 i 550 p 2441	7.130	24.41	13.00	0.245	5.50	0.375	201.95	31.07	5.32	10.41	3.79	1.21	35.23
P 14.00 x 11.43	1400 i 350 p 1143	3.336	11.43	14.00	0.120	3.50	0.245	105.79	15.11	5.63	1.75	1.00	0.72	17.27
P 14.00 x 13.10	1400 i 450 p 1310	3.826	13.10	14.00	0.120	4.50	0.245	128.97	18.42	5.81	3.72	1.65	0.99	20.64
PACO Beam - HUD Code														
P 8.25 x 5.65	825 i 300 p 566	1.645	5.66	8.25	0.090	3.00	0.155	18.99	4.60	3.40	0.70	0.47	0.65	5.18
L 10.25 x 7.69	1025 i 300 p 770	2.238	7.70	10.25	0.120	3.00	0.175	36.35	7.09	4.03	0.79	0.53	0.59	8.23
H 10.25 x 8.28	1025 i 350 p 829	2.413	8.29	10.25	0.120	3.50	0.175	40.79	7.96	4.11	1.25	0.72	0.72	9.11
L 12.25 x 9.91	1225 i 350 p 991	2.890	9.91	12.25	0.120	3.50	0.210	69.83	11.40	4.92	1.50	0.86	0.72	13.05
H 12.25 x 10.71	1225 i 350 p 1072	3.126	10.72	12.25	0.120	3.50	0.245	78.06	12.75	5.00	1.75	1.00	0.75	14.44
S 12.25 x 11.54	1225 i 400 p 1155	3.371	11.55	12.25	0.120	4.00	0.245	86.89	14.19	5.08	2.62	1.31	0.88	15.91
Corrugated Beam (Patent) - HUD Code														
C 8.25 x 5.66	825 i 300 c 566	1.645	5.66	8.25	0.090	3.00	0.155	18.99	4.60	3.40	0.70	0.47	0.65	5.18
CL 10.25 x 7.01	1025 i 300 c 701	2.040	7.01	10.25	0.100	3.00	0.175	34.73	6.78	4.13	0.79	0.53	0.62	7.74
CH 10.25 x 7.60	1025 i 350 c 760	2.215	7.60	10.25	0.100	3.50	0.175	39.18	7.64	4.21	1.25	0.72	0.75	8.62
CH 12.25 x 9.90	1225 i 350 c 990	2.891	9.90	12.25	0.100	3.50	0.245	75.35	12.30	5.11	1.75	1.00	0.78	13.75
CS 12.25 x 10.74	1225 i 400 c 1074	3.136	10.74	12.25	0.100	4.00	0.245	84.18	13.74	5.18	2.61	1.31	0.91	15.22
PACO Beam - Custom Application														
V 5.25 x 3.63	525 i 250 p 364	1.051	3.64	5.25	0.090	2.50	0.120	4.89	1.86	2.16	0.31	0.25	0.55	2.10
V 5.25 x 4.22	525 i 300 p 422	1.221	4.22	5.25	0.100	3.00	0.120	5.79	2.20	2.18	0.54	0.36	0.67	2.47
V 6.50 x 4.02	650 i 250 p 402	1.163	4.02	6.50	0.090	2.50	0.120	7.95	2.44	2.61	0.31	0.25	0.52	2.80

PACO DESIGNATION

1225 i 350 p 1072

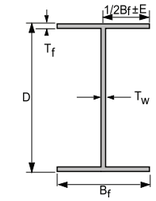
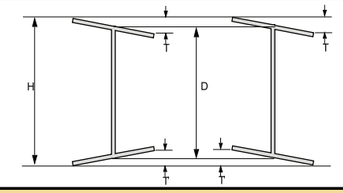
- 1072 — LBS PER FOOT / 100
- p — PACO or Corrugated
- 350 — SECTION WIDTH / 100 (in)
- i — SECTION TYPE
- 1225 — SECTION DEPTH / 100 (in)

STEEL GRADE: ASTM A769
PACO beams comply with ASTM A6 for the following dimensional tolerances: Depth, Flange Width, Thickness, Length, Camber/Sweep, Out-of-Square, Web-Off-Center, Maximum Depth, and End-Out-of-Square. Beams are fabricated in accordance to ASTM A769/A769-90, utilizing High Frequency Electric Resistance Forge Welding (ERW).

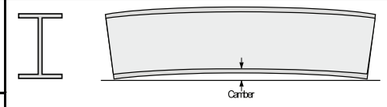
These descriptions are the original authored property of PACO Steel and Engineering Corp. and may NOT be published, used or reproduced in whole or in part without the written consent of PACO Steel and Engineering Corp.

ASTM - A6

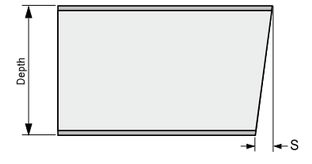
ASTM- A6 DIMENSIONAL TOLERANCE

Description	Remark	3" -7" incl	over 7" - 14" incl	over 14" - 16" incl	Reference
Depth (D)	Over Theoretical	3/32"	1/8"	3/16"	
	Under Theoretical	1/16"	3/32"	1/8"	
Flange Width (B_f)	Over Theoretical	1/8"	3/32"	3/16"	
	Under Theoretical	1/8"	5/32"	3/16"	
Thickness (T_f , T_w)	Not Specified by ASTM A-6				
Flanges Out-of-Square (T + T')	Tolerance per inch of flange width	1/32"			
Web-off-Center (E)		3/16"			
Maximum Depth at any Cross-Section (H)	Maximum Depth at any Cross Section over Theoretical Depth	Not Specified by ASTM A-6			

ASTM-A6 SHAPE TOLERANCE

Description	Remark	10 feet	20 feet	40 feet	Reference
Camber	1/8 in x (number of feet of total length/5)	1/4"	1/2"	1"	
Sweep	Due to the extreme variations in flexibility of these shapes, straightness tolerances for sweep are subjeet to negotiations between the manufacturer and purchaser of individual sections involved				

ASTM-A6 OUT-OF-SQUARE TOLERANCE

Description	Remark	4" Depth	8" Depth	16" Depth	Reference
End Out-of-Square (S)	1/64 in per inch of depth	1/16"	1/8"	1/4"	

ASTM-A6 LENGTH TOLERANCE

Description	Remark	5' - 10' excl	10'-20' excl	20'-30' excl	30'-40'excl	40'-50' excl	50'-60' excl
Length	Over	1/2"	1/2"	1/2"	3/4"	1"	1-1/8"
	Under	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"

PACO beams comply with ASTM A6 for the following dimensional tolerances: *Depth, Flange Width, Thickness, Length, Camber/Sweep, Out-of-Square, Web-Off-Center, Maximum Depth, and End-Out-of-Square*. Beams are fabricated in accordance to ASTM A769/A769-90, utilizing High Frequency Electric Resistance Forge Welding (ERW).

MAXIMUM UNIFORM LOAD CAPACITY TABLE

Simple-Span PACO Sections for Headers/Joists

CUSTOM MANUFACTURED BEAM

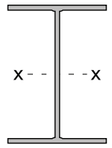


Table of Maximum Uniform Load, lb/ft for Braced [1-9] Simple-Span PACO Sections (ASD) F_y = 50 KSI

PACO Designation		600i325p446		600i350p680		600i400p968		800i350p1134		1000i350p1162		1200i350p1062		1300i550p2441		1400i350p1143		1400i450p1310	
Max. Unbraced Length		L_p = 2.41 ft.		L_p = 2.65 ft.		L_p = 3.41 ft.		L_p = 2.58 ft.		L_p = 2.55 ft.		L_p = 2.66 ft.		L_p = 4.27 ft.		L_p = 2.56 ft.		L_p =3.48 ft.	
SPAN (ft.)	4	2800	2800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5	1790	1790	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6	1242	1242	2292	2292	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7	911	911	1682	1459	2767	2305	-	-	-	-	-	-	-	-	2968	2968	2966	2966
	8	697	640	1286	977	2116	1544	2986	2786	-	-	-	-	-	-	2595	2595	2594	2594
	9	549	450	1015	687	1617	1084	2357	1957	3025	3025	2726	2726	-	-	2306	2306	2304	2304
	10	444	328	744	500	1176	790	1907	1427	2448	2292	2452	2452	-	-	2074	2074	2072	2072
	11	365	246	557	376	881	594	1574	1072	2021	1722	2228	2228	-	-	1884	1884	1883	1883
	12	280	190	428	290	677	457	1227	826	1696	1326	1911	1852	-	-	1716	1726	1725	1725
	14	175	119	267	182	422	288	769	520	1241	835	1401	1166	-	-	1478	1478	1476	1476
	16	116	80	176	122	280	193	511	348	828	560	1071	781	2722	2118	1256	1110	1290	1290
	18	-	-	122	86	194	136	356	245	578	393	813	549	2146	1488	990	779	1145	950
	20	-	-	-	-	139	99	256	178	418	287	590	400	1602	1085	800	568	963	693
	22	-	-	-	-	-	-	190	134	311	215	440	301	1198	815	629	427	767	520
	24	-	-	-	-	-	-	143	103	237	166	337	232	917	628	482	329	588	401
	26	-	-	-	-	-	-	110	81	184	130	263	182	716	494	376	259	460	315
	28	-	-	-	-	-	-	-	-	145	104	208	146	568	395	299	207	366	252
	30	-	-	-	-	-	-	-	-	116	85	167	119	458	321	241	168	295	205

General Notes :

1. The black figures in the table give either the uniform distributed loads which result in maximum flexural or shear strength (ASD level) of the member for a braced ($L_b' \leq L_p$) simple one span condition bent about the strong axis or will produce an approximate deflection of 1/240 of the span.
2. The figures shown in red are the live loads per linear foot of joist which will produce an approximate deflection of 1/360 of the span.
3. Tabulated values are in accordance with Chapter F of AISC (14th Ed.)
4. The criteria of footnote 1 governs, when the figures in red equal the figures in black.
5. For ***LRFD*** design Φ_b = 0.90.
6. For ***ASD*** design Ω_b = 1.67.
7. L_b = length between points that are either braced against lateral displacement of compression flange or braced against twist of the cross section.
8. Refer to page 6 for section properties.
9. Tabulated values are for beam ends with direct web connections. Web strength of sections shall be checked where beam seats provide a ledge or shelf for the ends to rest on. Contact PACO Steel & Engineering for more information.

DESIGN CRITERIA WORKSHEET

PACO Beam/Header

PACO STEEL & ENGINEERING

PROJECT INFORMATION

Project Name and Location: _____

Company Name: _____

Adress/Phone Number/Fax No. _____

Contact Person: _____

Email Address: _____

Please Check: ☐ New Construction ☐ Retrofit

BEAM/HEADER LOAD & SERVICEABILTY CRITERIA

1. WALL WIDTH / THICKNESS per Architectural Drawing		in.
2. Beam/Header SPAN LENGTH center-to-center		ft. in.
3. Beam/Header DEAD LOAD, W_{DL}	ASD	Plf
4. Beam/Header LIVE LOAD, W_{LL}	ASD	Plf
5. Beam/Header OUT OF PLANE WIND LOAD, W_{WIND}, if any	ASCE7-10 Strength Level	Plf
6. Could the COMPRESSION FLANGE of the beam/header be braced?		Yes / No
If **YES,** please specify the spacing		ft. in.

7. Maximum Allowable	Live Load Deflection	Total Load Deflection
	L _____ or _____ in.	L _____ or _____ in.

8. For Beam/Header WEB STABILITY consideration, please specify length of end bearing N _____ in.

9. Specify preferred type of beam/header to post/jamb connection

Other Requirements/Comments :

FAX WORKSHEET to (310) 608-1112 or EMAIL to sales@pacosteel.com

UNIVERSITY PLACE
MORGANTOWN WV

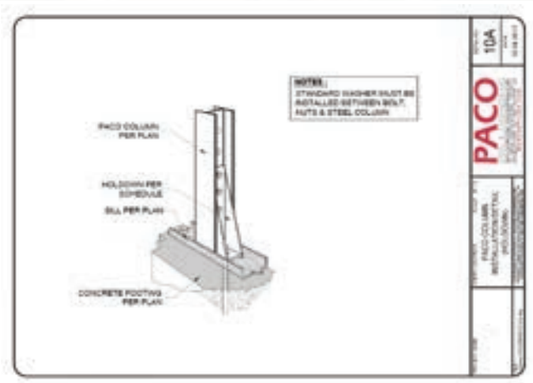
ISSUE
- Eliminate Complexity
- Eliminate Field Welding
- Accelerated Erection Schedule

SMART SOLUTION
- Simple bolt together connections eliminated field welding.
- PACO Columns pre-punched to accept bolted floor to floor connection
- Eliminated slow to install tubing and back to back LGS on project
- Job finished on schedule

SCOPE OF WORK
Mixed-Use (Residential/Retail)
Multi-Story Building

ARCHITECT
Grimm & Parker

CONTRACTOR
Cates Engineering



SMART SOLUTION CASE STUDY

PACO Boundary Elements

University Place is a mixed-use structure at the University of West Virginia, Morgantown, WV. The project consisted of two multi-story mixed-use buildings (1-7 and 1-8 stories) over a steel and concrete podium. PACO Steel columns were used as shearwall end post boundary elements. The pre-fabricated walls were supplied by Shrock prefab of Danville, OH.

"The ease of use was matched by the material savings we enjoyed with PACO columns. Pre-punched holes in the columns allowed for bolted holdowns to be attached with minimal effort. Everything lined-up beautifully. It just made sense when I ran the numbers and saw the cost savings in material alone. The increased speed of fabrication and even onsite erection was a huge bonus. Anytime I have the opportunity, I'll be using PACO products.."

-- Russell Scheaffer of Shrock

BOUNDARY COLUMN/ POST

PACO Boundary Column/Post

PACO Steel posts are the preferred industry solution for load bearing LGS projects as a replacement for inefficient and labor intensive stud packs.

PACO Steel's efficient design provides significant increase in load capacity when compared with conventional built-up LGS sections (back to back or toe to toe).

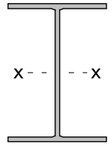
Considering the time needed for connecting LGS studs together by means of screws or welds and labor costs associated with it, the E.O.R can save the contractor cost by simply specifying PACO posts in lieu of bundled LGS.

The higher load capacity allows spacing PACO posts in larger distances which leads to reduction in overall wall weight.

Our system facilitates easy installation and connection of LGS beams to PACO posts. Depending on the load magnitude, screw, bolt or weld connection could be specified.

DESIGN AXIAL COMPRESSIVE STRENGTH OF SINGLE-PLY PACO COLUMNS IN KIPS

8′-1″ and 9′-1″



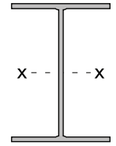
PACO Column[7,8]	Braced at Mid-Height[9]	No Utility Holes		Utility Holes[6]	
		Φc Pn (LRFD)	Pn/Ωc (ASD)	Φc Pn (LRFD)	Pn/Ωc (ASD)
Available Strength in Axial Compression[1,2,3,4,5] kips @ h = 8' 1"					
350i325p357	No	14.40	9.59	12.20	8.10
350i325p357	Yes	32.00	21.29	27.00	18.00
363i350p554	No	26.50	17.69	22.70	15.10
363i350p554	Yes	53.50	35.66	45.80	30.40
363i350p759	No	41.69	27.74	37.29	24.80
363i350p759	Yes	74.43	49.51	66.56	44.30
400i325p375	No	14.40	9.59	12.30	8.10
400i325p375	Yes	33.20	22.10	28.30	18.90
400i400p561	No	37.00	24.67	33.40	22.20
400i400p561	Yes	58.10	38.71	52.50	34.90
400i400p862	No	58.20	38.77	52.80	35.10
400i400p862	Yes	89.40	59.53	81.10	54.00
550i325p428	No	14.40	9.60	12.50	8.30
550i325p428	Yes	33.90	22.60	29.60	19.70
550i400p942	No	59.90	40.00	54.80	36.50
550i400p942	Yes	102.80	68.49	94.10	62.60
600i325p446	No	14.40	9.60	12.60	8.40
600i325p446	Yes	33.80	22.54	29.70	19.80
600i350p680	No	26.60	17.70	23.40	15.60
600i350p680	Yes	65.20	43.40	57.50	38.30
600i400p968	No	60.30	40.16	55.30	36.80
600i400p968	Yes	105.20	70.00	96.50	64.20
600i500p1241	No	99.81	66.41	91.10	-
600i500p1241	Yes	143.74	95.63	131.20	-
Available Strength in Axial Compression[1,2,3,4,5] kips @ h = 9' 1"					
350i325p357	No	11.40	7.60	9.60	6.40
350i325p357	Yes	29.60	19.75	25.10	16.70
363i350p554	No	21.00	14.00	17.90	11.90
363i350p554	Yes	49.60	33.00	42.30	28.20
363i350p759	No	33.27	22.14	29.76	19.40
363i350p759	Yes	69.00	45.93	61.75	41.10
400i325p375	No	11.40	7.60	9.70	6.50
400i325p375	Yes	30.80	20.53	26.30	17.50
400i400p561	No	31.00	20.68	28.00	18.70
400i400p561	Yes	54.90	36.53	49.50	33.00
400i400p862	No	49.00	32.60	44.40	29.50
400i400p862	Yes	84.20	56.00	76.30	50.80
550i325p428	No	11.40	7.60	9.90	6.60
550i325p428	Yes	31.70	21.15	27.70	18.40
550i400p942	No	49.60	33.14	45.30	30.20
550i400p942	Yes	98.10	65.34	89.70	59.70
600i325p446	No	11.40	7.60	10.00	6.60
600i325p446	Yes	31.70	21.12	27.80	18.50
600i350p680	No	21.00	14.00	18.50	12.30
600i350p680	Yes	60.20	40.00	53.00	35.30
600i400p968	No	49.60	33.00	45.50	30.30
600i400p968	Yes	100.20	66.68	91.90	61.10
600i500p1241	No	87.84	58.44	80.17	53.30
600i500p1241	Yes	139.22	92.63	127.10	84.60

General Notes:

1. Fy = 50 Ksi
2. Tabulated values are in accordance with Chapter E of AISC (14th Ed.)
3. Tabulated values are for members subject to axial compression through the centroidal axis. Adequacy of members subject to axial compression and flexure shall be checked by the S.E.O.R.
4. For ASD design, $\Omega_c = 1.67$
5. For LRFD design, $\Phi_c = 0.90$
6. Available Strength values calculated with 1-1/2" utility hole web penetration with maximum three penetrations per column.
7. Refer to page 6 for section properties.
8. Floor-to-floor splice connection by S.E.O.R.
9. It is assumed that member is braced at mid-height with respect to the weak axis Y-Y; (i.e. Member has an effective length of $L_y = 0.5L_x$).

DESIGN AXIAL COMPRESSIVE STRENGTH OF SINGLE-PLY PACO COLUMNS IN KIPS

10′-1″ and 12′-1″



PACO Column[7,8]	Braced at Mid-Height[9]	No Utility Holes		Utility Holes[6]	
		Φc Pn (LRFD)	Pn/Ωc (ASD)	Φc Pn (LRFD)	Pn/Ωc (ASD)
Available Strength in Axial Compression[1,2,3,4,5] kips @ h = 10' 1"					
350i325p357	No	9.20	6.16	7.80	5.20
350i325p357	Yes	27.20	18.16	23.10	15.30
363i350p554	No	17.00	11.37	14.60	9.70
363i350p554	Yes	45.50	30.27	38.80	25.90
363i350p759	No	27.00	17.97	24.20	16.00
363i350p759	Yes	63.50	42.23	56.80	37.80
400i325p375	No	9.20	6.16	7.90	5.20
400i325p375	Yes	28.40	18.91	24.20	16.10
400i400p561	No	25.40	16.96	23.00	15.30
400i400p561	Yes	51.40	34.24	46.40	30.90
400i400p862	No	40.30	26.81	36.50	24.30
400i400p862	Yes	78.70	52.37	71.30	47.50
550i325p428	No	9.20	6.17	8.00	5.30
550i325p428	Yes	29.40	19.58	25.60	17.10
550i400p942	No	40.31	26.96	36.90	24.50
550i400p942	Yes	93.00	62.00	85.10	56.60
600i325p446	No	9.20	6.17	8.10	5.40
600i325p446	Yes	29.40	19.57	25.80	17.10
600i350p680	No	17.10	11.38	15.00	10.00
600i350p680	Yes	55.00	36.62	48.50	32.30
600i400p968	No	40.30	26.82	36.90	24.60
600i400p968	Yes	94.90	63.15	87.00	57.90
600i500p1241	No	76.20	50.67	69.50	46.20
600i500p1241	Yes	134.30	89.38	122.60	81.50
Available Strength in Axial Compression[1,2,3,4,5] kips @ h = 12' 1"					
350i325p357	No	6.40	4.29	5.40	3.60
350i325p357	Yes	22.40	14.96	19.10	12.60
363i350p554	No	11.90	7.92	10.10	6.80
363i350p554	Yes	37.20	24.79	31.80	21.10
363i350p759	No	18.80	12.51	16.80	11.20
363i350p759	Yes	52.30	34.79	46.80	31.10
400i325p375	No	6.40	4.29	5.50	3.70
400i325p375	Yes	23.50	15.65	20.00	13.40
400i400p561	No	17.70	11.81	16.00	10.70
400i400p561	Yes	44.20	29.47	40.00	26.60
400i400p862	No	28.00	18.67	25.40	16.90
400i400p862	Yes	67.30	44.78	61.00	40.60
550i325p428	No	-	-	-	-
550i325p428	Yes	24.20	16.12	21.10	14.00
550i400p942	No	28.10	18.77	25.60	17.00
550i400p942	Yes	82.30	54.89	75.30	50.10
600i325p446	No	-	-	-	-
600i325p446	Yes	24.30	16.22	21.30	14.20
600i350p680	No	11.90	7.92	10.50	6.90
600i350p680	Yes	44.70	29.77	39.40	26.20
600i400p968	No	28.00	18.68	25.70	17.10
600i400p968	Yes	83.70	55.69	76.70	51.10
600i500p1241	No	54.80	36.48	50.00	33.30
600i500p1241	Yes	123.70	82.31	112.90	75.20

General Notes:

1. Fy = 50 Ksi
2. Tabulated values are in accordance with Chapter E of AISC (14th Ed.)
3. Tabulated values are for members subject to axial compression through the centroidal axis. Adequacy of members subject to axial compression and flexure shall be checked by the S.E.O.R.
4. For ASD design, $\Omega_c = 1.67$
5. For LRFD design, $\Phi_c = 0.90$
6. Available Strength values calculated with 1-1/2" utility hole web penetration with maximum three penetrations per column.
7. Refer to page 6 for section properties.
8. Floor-to-floor splice connection by S.E.O.R.
9. It is assumed that member is braced at mid-height with respect to the weak axis Y-Y; (i.e. Member has an effective length of $L_y = 0.5L_x$).

BRACED

General Notes:

1 F_y = 50 Ksi
2 Tabulated values are at ASD level, Ω_c = 1.67
3 Allowable axial loads listed are based on simple one span condition.
4 Tabulated values are in accordance with chapter H of AISC (14th Edition).
5 AISC equation (H1-1a) is used to check the interaction of compression & flexure (Bending about strong axis X-X).
6 Axial loads are assumed to pass through the centroidal axis of the member.
7 Available strengths are calculated for a 1-1/2" Ø web penetration which is located along the center line of the web and spaced no closer than 24" o.c.
8 It is assumed that member is braced at mid-height with respect to the weak axis Y-Y; (i.e. Member has an effective length of L_y=0.5L_x); Also compression flange is assumed to be adequately braced at a maximum spacing of L_u which is not greater than member mid-height to develop full allowable moment, M_a.
9 Depending upon the member end-support condition,The E.O.R should also check the adequacy of member for limit states outlined in section J10 of of AISC Specifications (e.g. web crippling).
10 Listed wind pressures represent calculated design wind pressure at ASD level (i.e. 1.0 W based on 2009 IBC or 0.6W based on 2012 IBC).

UNBRACED

General Notes:

1 F_y = 50 Ksi
2 Tabulated values are at ASD level, Ω_c = 1.67
3 Allowable axial loads listed are based on simple one span condition.
4 Tabulated values are in accordance with chapter H of AISC (14th Edition).
5 AISC equation (H1-1a) is used to check the interaction of compression & flexure (Bending about strong axis X-X).
6 Axial loads are assumed to pass through the centroidal axis of the member.
7 Available strengths are calculated for a 1-1/2" Ø web penetration which is located along the center line of the web and spaced no closer than 24" o.c.
8 Depending upon the member end-support condition,The E.O.R should also check the adequacy of member for limit states outlined in section J10 of of AISC Specifications (e.g. web crippling).
9 Listed wind pressures represent calculated design wind pressure at ASD level (i.e. 1.0 W based on 2009 IBC or 0.6W based on 2012 IBC).

PACO COMBINED AXIAL & LATERAL LOADS TABLE

(ASD, Pn/Ω) - KIPS Braced at Mid-Height with Respect to Y-Y Axis

5 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	19.8	38.4	64.3	87.3
	16	19.7	38.3	64.3	87.3
	24	19.6	38.2	64.2	87.2
9	12	18.5	35.4	61.3	84.6
	16	18.4	35.3	61.2	84.5
	24	18.3	35.2	61.1	84.4
10	12	17.1	32.3	58.0	81.6
	16	17.1	32.3	57.9	81.5
	24	16.9	32.1	57.8	81.4
11	12	15.7	29.3	54.6	78.4
	16	15.6	29.2	54.5	78.3
	24	15.5	29.0	54.4	78.2
12	12	14.1	26.2	51.1	75.1
	16	14.0	26.2	51.0	75.0
	24	13.9	26.0	50.8	74.8
14	12	10.9	20.5	44.0	68.1
	16	10.8	20.4	43.9	67.9
	24	10.6	20.2	43.6	67.7
16	12	8.2	15.6	37.0	60.7
	16	8.1	15.5	36.8	60.6
	24	7.8	15.2	36.6	60.3

15 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	19.5	38.1	64.0	87.1
	16	19.4	38.0	63.9	86.9
	24	19.1	37.7	63.6	86.6
9	12	18.2	35.1	60.9	84.2
	16	18.0	34.9	60.7	84.0
	24	17.7	34.5	60.4	83.7
10	12	16.8	31.9	57.6	81.2
	16	16.6	31.7	57.4	81.0
	24	16.2	31.3	57.0	80.5
11	12	15.2	28.8	54.1	77.9
	16	15.0	28.6	53.9	77.7
	24	14.6	28.1	53.4	77.1
12	12	13.6	25.7	50.5	74.5
	16	13.4	25.5	50.3	74.2
	24	12.9	24.9	49.7	73.6
14	12	10.3	19.9	43.3	67.3
	16	10.0	19.6	42.9	66.9
	24	9.4	18.9	42.2	66.1
16	12	7.4	14.9	36.1	59.8
	16	7.0	14.5	35.7	59.3
	24	6.3	13.8	34.9	58.3

PACO COMBINED AXIAL & LATERAL LOADS TABLE

(ASD, Pn/Ω) - KIPS Braced at Mid-Height with Respect to Y-Y Axis

INTERIOR & CURTAIN WALL BEARING POST

20 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	19.4	38.0	63.9	86.9
	16	19.2	37.8	63.7	86.7
	24	18.9	37.4	63.3	86.3
9	12	18.0	34.9	60.7	84.0
	16	17.8	34.7	60.5	83.8
	24	17.4	34.2	60.0	83.3
10	12	16.6	31.7	57.4	81.0
	16	16.4	31.5	57.1	80.7
	24	15.9	30.9	56.5	80.1
11	12	15.0	28.6	53.9	77.7
	16	14.8	28.3	53.5	77.3
	24	14.2	27.7	52.9	76.6
12	12	13.4	25.5	50.3	74.2
	16	13.1	25.1	49.9	73.8
	24	12.5	24.4	49.1	73.0
14	12	10.0	19.6	42.9	66.9
	16	9.6	19.1	42.5	66.4
	24	8.8	18.3	41.5	65.3
16	12	7.0	14.5	35.7	59.3
	16	6.5	14.0	35.2	58.6
	24	5.5	13.1	34.1	57.4

25 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	19.3	37.8	63.8	86.8
	16	19.0	37.6	63.5	86.5
	24	18.6	37.1	63.1	86.0
9	12	17.9	34.7	60.6	83.9
	16	17.6	34.4	60.3	83.6
	24	17.1	33.9	59.7	83.0
10	12	16.4	31.5	57.2	80.7
	16	16.1	31.2	56.8	80.4
	24	15.6	30.5	56.1	79.6
11	12	14.8	28.4	53.6	77.4
	16	14.5	28.0	53.2	77.0
	24	13.8	27.2	52.4	76.1
12	12	13.2	25.2	50.0	73.9
	16	12.8	24.8	49.5	73.4
	24	12.0	23.9	48.6	72.4
14	12	9.7	19.2	42.6	66.5
	16	9.2	18.7	42.0	65.8
	24	8.2	17.7	40.8	64.5
16	12	6.7	14.1	35.3	58.8
	16	6.0	13.6	34.6	58.0
	24	4.7	12.4	33.2	56.4

PACO COMBINED AXIAL & LATERAL LOADS TABLE

(ASD, Pn/Ω) - KIPS Braced at Mid-Height with Respect to Y-Y Axis

INTERIOR & CURTAIN WALL BEARING POST

30 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	19.1	37.7	63.6	86.6
	16	18.9	37.4	63.3	86.3
	24	18.4	36.8	62.8	85.7
9	12	17.7	34.6	60.4	83.7
	16	17.4	34.2	60.0	83.3
	24	16.8	33.5	59.4	82.6
10	12	16.2	31.3	57.0	80.5
	16	15.9	30.9	56.5	80.1
	24	15.2	30.1	55.7	79.2
11	12	14.6	28.1	53.4	77.1
	16	14.2	27.7	52.9	76.6
	24	13.4	26.7	51.9	75.6
12	12	12.9	24.9	49.7	73.6
	16	12.5	24.4	49.1	73.0
	24	11.5	23.4	48.0	71.8
14	12	9.4	18.9	42.2	66.1
	16	8.8	18.3	41.5	65.3
	24	7.6	17.1	40.1	63.7
16	12	6.3	13.8	34.9	58.3
	16	5.5	13.1	34.1	57.4
	24	4.0	11.6	32.4	55.4

35 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	19.0	37.5	63.5	86.5
	16	18.7	37.2	63.2	86.1
	24	18.1	36.6	62.5	85.4
9	12	17.6	34.4	60.2	83.5
	16	17.2	34.0	59.8	83.1
	24	16.5	33.2	59.0	82.2
10	12	16.1	31.1	56.7	80.3
	16	15.7	30.7	56.3	79.8
	24	14.9	29.7	55.3	78.8
11	12	14.4	27.9	53.1	76.9
	16	13.9	27.4	52.6	76.3
	24	13.0	26.3	51.4	75.1
12	12	12.7	24.7	49.4	73.3
	16	12.1	24.1	48.8	72.6
	24	11.0	22.9	47.4	71.2
14	12	9.1	18.6	41.9	65.7
	16	8.4	17.9	41.0	64.8
	24	7.0	16.5	39.4	63.0
16	12	5.9	13.4	34.5	57.8
	16	5.0	12.6	33.5	56.7
	24	3.2	10.9	31.6	54.5

PACO COMBINED AXIAL & LATERAL LOADS TABLE

(ASD, Pn/Ω) - KIPS Braced at Mid-Height with Respect to Y-Y Axis

INTERIOR & CURTAIN WALL BEARING POST

40 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	18.8	37.4	63.3	86.3
	16	18.5	37.0	62.9	85.9
	24	17.8	36.3	62.2	85.1
9	12	17.4	34.2	60.0	83.3
	16	17.0	33.7	59.5	82.8
	24	16.2	32.8	58.6	81.8
10	12	15.9	30.9	56.5	80.0
	16	15.4	30.4	56.0	79.5
	24	14.5	29.3	54.8	78.3
11	12	14.2	27.6	52.8	76.6
	16	13.6	27.0	52.2	75.9
	24	12.5	25.8	50.9	74.5
12	12	12.4	24.4	49.1	72.9
	16	11.8	23.7	48.3	72.1
	24	10.5	22.3	46.8	70.5
14	12	8.8	18.3	41.5	65.3
	16	7.9	17.5	40.5	64.2
	24	6.3	15.8	38.7	62.1
16	12	5.5	13.0	34.0	57.3
	16	4.4	12.1	32.9	56.0
	24	2.4	10.2	30.7	53.5

50 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	18.6	37.1	63.0	86.0
	16	18.2	36.6	62.6	85.5
	24	17.3	35.7	61.6	84.5
9	12	17.1	33.8	59.7	82.9
	16	16.6	33.3	59.1	82.3
	24	15.6	32.1	57.9	81.1
10	12	15.5	30.5	56.1	79.6
	16	14.9	29.8	55.4	78.9
	24	13.8	28.5	54.0	77.4
11	12	13.8	27.2	52.4	76.1
	16	13.1	26.4	51.5	75.2
	24	11.7	24.9	49.9	73.5
12	12	12.0	23.9	48.5	72.3
	16	11.2	23.0	47.6	71.3
	24	9.6	21.3	45.7	69.3
14	12	8.1	17.7	40.8	64.5
	16	7.1	16.6	39.6	63.2
	24	5.1	14.6	37.2	60.6
16	12	4.7	12.3	33.2	56.4
	16	3.4	11.1	31.8	54.8
	24	-	8.8	29.0	51.6

PACO COMBINED AXIAL & LATERAL LOADS TABLE

(ASD, Pn/Ω) - KIPS Unbraced with Respect to Y-Y Axis

INTERIOR & CURTAIN WALL BEARING POST

5 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	8.5	15.8	37.3	61.1
	16	8.5	15.8	37.3	61.0
	24	8.4	15.8	37.2	61.0
9	12	6.7	12.5	30.7	53.8
	16	6.6	12.4	30.7	53.7
	24	6.6	12.4	30.6	53.6
10	12	5.4	10.1	24.9	46.7
	16	5.3	10.0	24.8	46.6
	24	5.2	9.9	24.8	46.5
11	12	4.4	8.3	20.5	39.9
	16	4.3	8.2	20.5	39.8
	24	4.2	8.1	20.4	39.7
12	12	-	6.9	17.2	33.6
	16	-	6.9	17.1	33.5
	24	-	6.7	17.0	33.4
14	12	-	-	12.6	24.6
	16	-	-	12.5	24.5
	24	-	-	12.4	24.4
16	12	-	-	9.5	18.7
	16	-	-	9.5	18.6
	24	-	-	9.3	18.5

15 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	8.3	15.7	37.1	60.9
	16	8.2	15.6	37.0	60.7
	24	8.0	15.4	36.8	60.5
9	12	6.4	12.3	30.5	53.5
	16	6.3	12.2	30.4	53.4
	24	6.1	11.9	30.1	53.1
10	12	5.1	9.8	24.6	46.3
	16	4.9	9.7	24.5	46.2
	24	4.6	9.4	24.2	45.9
11	12	4.0	8.0	20.2	39.5
	16	3.9	7.8	20.1	39.3
	24	3.6	7.5	19.8	39.0
12	12	-	6.6	16.9	33.2
	16	-	6.4	16.7	33.0
	24	-	6.1	16.4	32.6
14	12	-	-	12.2	24.1
	16	-	-	12.0	23.9
	24	-	-	11.6	23.5
16	12	-	-	9.1	18.2
	16	-	-	8.8	17.9
	24	-	-	8.3	17.4

PACO COMBINED AXIAL & LATERAL LOADS TABLE
(ASD, Pn/Ω) - KIPS Unbraced with Respect to Y-Y Axis

INTERIOR & CURTAIN WALL BEARING POST

20 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	8.2	15.6	37.0	60.7
	16	8.1	15.5	36.8	60.6
	24	7.8	15.2	36.6	60.3
9	12	6.3	12.2	30.4	53.4
	16	6.2	12.0	30.2	53.2
	24	5.8	11.7	29.9	52.8
10	12	4.9	9.7	24.5	46.2
	16	4.7	9.5	24.3	46.0
	24	4.4	9.2	24.0	45.5
11	12	3.9	7.8	20.1	39.3
	16	3.7	7.6	19.9	39.1
	24	3.2	7.3	19.5	38.6
12	12	-	6.4	16.7	33.0
	16	-	6.2	16.5	32.8
	24	-	5.8	16.1	32.3
14	12	-	-	12.0	23.9
	16	-	-	11.7	23.6
	24	-	-	11.2	23.0
16	12	-	-	8.8	17.9
	16	-	-	8.5	17.6
	24	-	-	7.9	16.9

25 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	8.1	15.5	36.9	60.6
	16	8.0	15.3	36.7	60.4
	24	7.6	15.0	36.4	60.0
9	12	6.2	12.0	30.3	53.2
	16	6.0	11.9	30.1	53.0
	24	5.6	11.5	29.7	52.5
10	12	4.8	9.6	24.4	46.0
	16	4.6	9.3	24.2	45.8
	24	4.1	8.9	23.7	45.2
11	12	3.7	7.7	19.9	39.2
	16	3.4	7.5	19.7	38.9
	24	2.8	7.0	19.2	38.3
12	12	-	6.2	16.6	32.8
	16	-	6.0	16.3	32.5
	24	-	5.4	15.7	31.9
14	12	-	-	11.8	23.7
	16	-	-	11.4	23.3
	24	-	-	10.8	22.6
16	12	-	-	8.6	17.7
	16	-	-	8.2	17.2
	24	-	-	7.4	16.3

PACO COMBINED AXIAL & LATERAL LOADS TABLE
(ASD, Pn/Ω) - KIPS Unbraced with Respect to Y-Y Axis

INTERIOR & CURTAIN WALL BEARING POST

30 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	8.0	15.4	36.8	60.5
	16	7.8	15.2	36.6	60.3
	24	7.4	14.9	36.1	59.8
9	12	6.1	11.9	30.1	53.1
	16	5.8	11.7	29.9	52.8
	24	5.4	11.3	29.4	52.2
10	12	4.6	9.4	24.2	45.9
	16	4.4	9.2	24.0	45.5
	24	3.8	8.7	23.5	44.9
11	12	3.6	7.5	19.8	39.0
	16	3.2	7.3	19.5	38.6
	24	2.5	6.7	18.9	37.9
12	12	-	6.1	16.4	32.6
	16	-	5.8	16.1	32.3
	24	-	5.1	15.4	31.5
14	12	-	-	11.6	23.5
	16	-	-	11.2	23.0
	24	-	-	10.4	22.2
16	12	-	-	8.3	17.4
	16	-	-	7.9	16.9
	24	-	-	6.9	15.8

35 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	7.9	15.3	36.7	60.4
	16	7.7	15.1	36.4	60.1
	24	7.2	14.7	35.9	59.5
9	12	6.0	11.8	30.0	52.9
	16	5.7	11.6	29.7	52.6
	24	5.1	11.1	29.2	52.0
10	12	4.5	9.3	24.1	45.7
	16	4.2	9.0	23.8	45.3
	24	3.5	8.4	23.2	44.6
11	12	3.4	7.4	19.7	38.8
	16	3.0	7.1	19.3	38.4
	24	2.2	6.4	18.6	37.6
12	12	-	5.9	16.2	32.5
	16	-	5.5	15.8	32.0
	24	-	4.8	15.1	31.1
14	12	-	-	11.4	23.3
	16	-	-	10.9	22.7
	24	-	-	10.0	21.7
16	12	-	-	8.1	17.1
	16	-	-	7.6	16.5
	24	-	-	6.5	15.3

PACO COMBINED AXIAL & LATERAL LOADS TABLE

(ASD, Pn/Ω) - KIPS Unbraced with Respect to Y-Y Axis

INTERIOR & CURTAIN WALL
BEARING POST

40 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	7.8	15.2	36.5	60.2
	16	7.5	15.0	36.2	59.9
	24	7.0	14.5	35.7	59.3
9	12	5.8	11.7	29.9	52.8
	16	5.5	11.4	29.5	52.4
	24	4.9	10.8	28.9	51.6
10	12	4.3	9.1	24.0	45.5
	16	4.0	8.8	23.6	45.1
	24	3.2	8.1	22.9	44.2
11	12	3.2	7.2	19.5	38.6
	16	2.7	6.8	19.1	38.1
	24	1.9	6.0	18.3	37.2
12	12	-	5.7	16.0	32.2
	16	-	5.3	15.6	31.7
	24	-	4.4	14.7	30.7
14	12	-	-	11.1	23.0
	16	-	-	10.6	22.4
	24	-	-	9.5	21.2
16	12	-	-	7.8	16.8
	16	-	-	7.2	16.1
	24	-	-	6.0	14.7

50 PSF Lateral Load					
Member Length (ft.)	Spacing (in)	PACO Sections			
		PACO600i325p446	PACO600i350p680	PACO600i400p968	PACO600i500p1241
8	12	7.6	15.0	36.3	60.0
	16	7.3	14.7	36.0	59.6
	24	6.6	14.1	35.3	58.8
9	12	5.6	11.5	29.6	52.5
	16	5.2	11.1	29.2	52.0
	24	4.4	10.4	28.5	51.1
10	12	4.1	8.9	23.7	45.2
	16	3.6	8.5	23.3	44.7
	24	2.6	7.6	22.4	43.6
11	12	2.8	6.9	19.2	38.3
	16	2.3	6.4	18.7	37.7
	24	1.2	5.5	17.7	36.5
12	12	-	5.4	15.7	31.9
	16	-	4.8	15.2	31.2
	24	-	3.7	14.1	30.0
14	12	-	-	10.7	22.6
	16	-	-	10.1	21.8
	24	-	-	8.7	20.4
16	12	-	-	7.4	16.3
	16	-	-	6.6	15.4
	24	-	-	5.0	13.7

DESIGN CRITERIA WORKSHEET

PACO Boundary Element

PACO STEEL & ENGINEERING

PROJECT INFORMATION

Project Name and Location: _____ Company Name: _____

_____ _____

_____ Adress/Phone Number/Fax No. _____

Contact Person: _____ Email Address: _____

GEOMETRY & LOADING

1. WALL THICKNESS per Architectural Drawing _____ in.

2. Story HEIGHT & LOADING

Level	Height (ft)	P_{DL} (KIP)	P_{LL} (KIP)	P_{EQ} (KIP)	P_{wind} (KIP)	Other (KIP)
8						
7						
6						
5						
4						
3						
2						
1						

BOUNDARY ELEMENT DESIGN CRITERIA

3. Required DESIGN CODE :

4. S_{DS} =

5. W_o =

6. Is W_o included in seismic load? Yes ☐ No ☐

7. Axial Seismic Load is at (please check) ASD Level ☐ Strength Level (LRFD) ☐

8. Is allowable stress increase per ASCE 7-10 Section 12.4.3.3 considered in determining the values of Seismic Loads at ASD Level? Yes ☐ No ☐

9. Axial Wind Load is at (please check) ASD Level ☐ Strength Level (LRFD) ☐

10. Could the boundary element be braced at mid-height about its weak axis? Yes ☐ No ☐

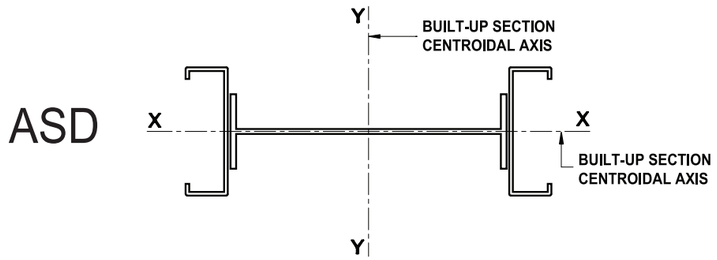
11. Preferred splice connections at floor levels Bolted ☐ Welded ☐ Bolted & Welded ☐

Other Requirements/Comments :

FAX WORKSHEET to (310) 608-1112 or EMAIL to sales@pacosteel.com

DESIGN AXIAL COMPRESSIVE STRENGTH OF PACO BUILT-UP COLUMNS IN KIPS

ASD



4" Wall with 6" Deep PACO Center Section

PACO Section/CFS Section	8'-1"		9'-1"		10'-1"		12'-1"		14'-1"	
	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes
	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$
Available Strength in Axial Compression Kips [1,2,3,4,5,6,7]										
600i325p446 w/ (2) 400s162-54	30.5	28.1	27.9	25.8	25.1	23.2	18.6	17.2	14.0	13.0
600i325p446 w/ (2) 400s162-68	34.3	31.9	31.8	29.5	29.0	27.0	22.1	20.6	16.4	15.3
600i325p446 w/ (2) 400s162-97	42.2	39.7	39.1	36.8	35.8	33.7	28.0	26.4	20.9	19.7
600i325p446 w/ (2) 400s200-54	33.2	30.7	30.6	28.3	27.8	25.8	21.3	19.7	16.0	14.8
600i325p446 w/ (2) 400s200-68	37.4	34.9	34.9	32.6	32.1	30.0	25.5	23.8	18.9	17.7
600i325p446 w/ (2) 400s200-97	46.6	44.0	43.5	41.1	40.1	37.9	32.4	30.6	24.4	23.1
600i325p446 w/ (2) 400s250-54	34.9	32.3	32.8	30.4	30.3	28.2	24.1	22.4	18.1	16.9
600i325p446 w/ (2) 400s250-68	40.2	37.6	38.0	35.6	35.3	33.1	28.8	27.1	21.7	20.4
600i325p446 w/ (2) 400s250-97	51.0	48.3	47.9	45.4	44.5	42.2	36.9	35.0	28.3	26.8
600i350p680 w/ (2) 400s162-54	44.4	40.7	38.0	34.8	31.9	29.2	22.4	20.5	16.7	15.3
600i350p680 w/ (2) 400s162-68	49.5	45.6	42.8	39.4	36.4	33.5	25.8	23.8	19.1	17.6
600i350p680 w/ (2) 400s162-97	59.0	54.9	51.6	48.1	44.5	41.4	31.8	29.7	23.6	22.0
600i350p680 w/ (2) 400s200-54	48.5	44.6	42.0	38.6	35.7	32.8	25.2	23.1	18.7	17.2
600i350p680 w/ (2) 400s200-68	54.4	50.3	47.5	44.0	40.9	37.8	29.3	27.1	21.7	20.0
600i350p680 w/(2) 400s200-97	65.5	61.3	57.9	54.2	50.5	47.2	36.7	34.3	27.2	25.4
600i350p680 w/ (2) 400s250-54	51.3	47.2	45.5	41.9	39.5	36.4	28.2	26.0	21.0	19.3
600i350p680 w/ (2) 400s250-68	58.5	54.3	52.1	48.3	45.5	42.2	33.1	30.8	24.5	22.7
600i350p680 w/ (2) 400s250-97	72.0	67.6	64.3	60.3	56.6	53.1	42.1	39.5	31.1	29.2

*For higher capacities, please inquire.

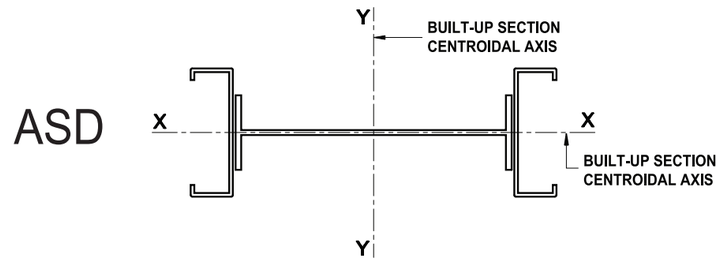
Notes:

1. Tabulated values are for members subject to axial compression through the centroidal axis. Adequacy of members subject to axial compression and flexure shall be checked by the S.E.O.R.
2. For ASD Design, Ωc = 1.67 for PACO Sections & 1.8 for LGS Sections
3. For LRFD design, Øc = 0.90 for PACO Sections & 0.85 for LGS Sections
4. Design of connection for all components in contact with one another by S.E.O.R.
5. For all components in contact with one another Fy = 50 Ksi
6. Tabulated values are based on 1-1/2" utility hole web penetration with maximum (3) penetrations per PACO section.
7. Tabulated values are based on the effective length factors $K_x=K_y=1.0$

SHEAR WALL BOUNDARY POST

DESIGN AXIAL COMPRESSIVE STRENGTH OF PACO BUILT-UP COLUMNS IN KIPS

ASD



4" Wall with 6" Deep PACO Center Section

PACO Section/CFS Section	8'-1"		9'-1"		10'-1"		12'-1"		14'-1"	
	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes
	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$
Available Strength in Axial Compression Kips [1,2,3,4,5,6,7]										
600i400p968 w/ (2) 400s162-54	62.2	58.3	54.2	50.7	46.4	43.4	32.9	30.8	24.4	22.8
600i400p968 w/ (2) 400s162-68	67.0	63.0	58.7	55.1	50.5	47.5	36.2	34.0	26.8	25.2
600i400p968 w/ (2) 400s162-97	75.9	71.8	67.0	63.3	58.2	55.0	42.2	39.8	31.3	29.6
600i400p968 w/ (2) 400s200-54	66.4	62.2	58.1	54.5	50.1	47.0	35.8	33.6	26.5	24.9
600i400p968 w/ (2) 400s200-68	72.0	67.8	63.4	59.7	55.0	51.8	39.8	37.4	29.4	27.7
600i400p968 w/ (2) 400s200-97	82.5	78.2	73.3	69.4	64.2	60.8	47.2	44.7	34.9	33.1
600i400p968 w/ (2) 400s250-54	68.8	64.5	61.3	57.5	53.7	50.4	39.0	36.7	28.8	27.1
600i400p968 w/ (2) 400s250-68	75.9	71.6	67.8	63.9	59.6	56.3	43.7	41.2	32.3	30.4
600i400p968 w/ (2) 400s250-97	89.1	84.6	79.7	75.6	70.3	66.8	52.7	50.0	38.9	36.9

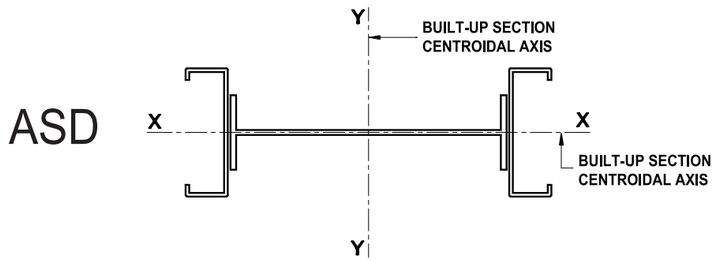
*For higher capacities, please inquire.

Notes:

1. Tabulated values are for members subject to axial compression through the centroidal axis. Adequacy of members subject to axial compression and flexure shall be checked by the S.E.O.R.
2. For ASD Design, Ωc = 1.67 for PACO Sections & 1.8 for LGS Sections
3. For LRFD design, Øc = 0.90 for PACO Sections & 0.85 for LGS Sections
4. Design of connection for all components in contact with one another by S.E.O.R.
5. For all components in contact with one another Fy = 50 Ksi
6. Tabulated values are based on 1-1/2" utility hole web penetration with maximum (3) penetrations per PACO section.
7. Tabulated values are based on the effective length factors $K_x=K_y=1.0$

DESIGN AXIAL COMPRESSIVE STRENGTH OF PACO BUILT-UP COLUMNS IN KIPS

ASD



6" Wall with 6" Deep PACO Center Section

PACO Section/CFS Section	8'-1"		9'-1"		10'-1"		12'-1"		14'-1"	
	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes
	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$
Available Strength in Axial Compression Kips [1,2,3,4,5,6,7]										
600i325p446 w/ (2) 600s162-54	35.7	32.8	34.3	31.6	32.9	30.3	29.6	27.2	26.0	24.0
600i325p446 w/(2) 600s162-68	40.2	37.3	39.0	36.2	37.6	34.9	34.4	32.0	30.7	28.7
600i325p446 w/ (2) 600s162-97	52.1	49.1	50.6	47.7	49.0	46.2	45.2	42.7	40.9	38.7
600i325p446 w/ (2) 600s200-54	38.3	35.4	37.0	34.2	35.6	32.9	32.3	29.9	28.7	26.6
600i325p446 w/ (2) 600s200-68	43.4	40.4	42.2	39.3	40.8	38.0	37.7	35.2	34.0	31.8
600i325p446 w/ (2) 600s200-97	56.5	53.5	55.1	52.1	53.4	50.6	49.7	47.1	45.4	43.1
600i325p446 w/ (2) 600s250-54	39.0	36.0	37.9	35.0	36.8	34.0	34.3	31.8	31.1	28.9
600i325p446 w/ (2) 600s250-68	45.5	42.4	44.4	41.5	43.2	40.4	40.5	37.9	37.2	34.9
600i325p446 w/ (2) 600s250-97	60.9	57.8	59.4	56.4	57.8	54.9	54.1	51.4	49.7	47.3
600i350p680 w/ (2) 600s162-54	58.8	53.8	54.2	49.6	49.5	45.3	40.1	36.7	31.2	28.6
600i350p680 w/ (2) 600s162-68	64.8	59.7	60.1	55.4	55.3	51.0	46.2	42.6	37.4	34.5
600i350p680 w/ (2) 600s162-97	79.1	73.8	74.4	69.5	69.6	65.0	59.5	55.7	49.5	46.3
600i350p680 w/ (2) 600s200-54	63.3	58.2	58.9	54.1	54.2	49.8	44.7	41.1	35.6	32.7
600i350p680 w/ (2) 600s200-68	70.3	65.0	65.7	60.7	60.9	56.3	51.4	47.6	42.3	39.2
600i350p680 w/ (2) 600s200-97	86.2	80.7	81.5	76.4	76.6	71.8	66.4	62.3	56.1	52.7
600i350p680 w/ (2) 600s250-54	64.9	59.6	60.9	55.9	56.7	52.1	48.2	44.4	39.8	36.7
600i350p680 w/ (2) 600s250-68	73.3	67.8	69.3	64.2	64.8	60.1	55.8	51.8	47.2	43.8
600i350p680 w/ (2) 600s250-97	91.9	86.4	87.9	82.6	83.3	78.4	73.0	68.7	62.5	58.8

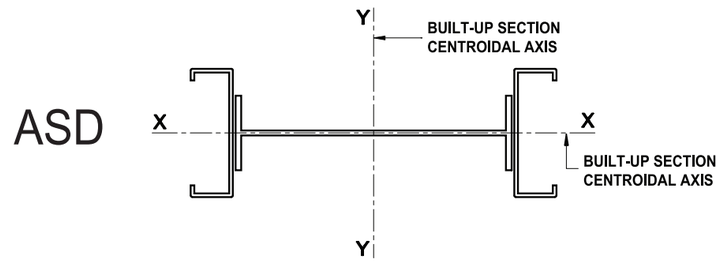
*For higher capacities, please inquire.

Notes:

1. Tabulated values are for members subject to axial compression through the centroidal axis. Adequacy of members subject to axial compression and flexure shall be checked by the S.E.O.R.
2. For ASD Design, Ωc = 1.67 for PACO Sections & 1.8 for LGS Sections
3. For LRFD design, ϕc = 0.90 for PACO Sections & 0.85 for LGS Sections
4. Design of connection for all components in contact with one another by S.E.O.R.
5. For all components in contact with one another Fy = 50 Ksi
6. Tabulated values are based on 1-1/2" utility hole web penetration with maximum (3) penetrations per PACO section.
7. Tabulated values are based on the effective length factors $K_x=K_y=1.0$

DESIGN AXIAL COMPRESSIVE STRENGTH OF PACO BUILT-UP COLUMNS IN KIPS

ASD



6" Wall with 6" Deep PACO Center Section

PACO Section/CFS Section	8'-1"		9'-1"		10'-1"		12'-1"		14'-1"	
	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes	No Holes	with Holes
	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$	$P_{n/\Omega}$
Available Strength in Axial Compression Kips [1,2,3,4,5,6,7]										
600i400p968 w/ (2) 600s162-54	76.8	71.9	70.5	66.1	64.1	60.1	51.5	48.2	39.6	37.1
600i400p968 w/ (2) 600s162-68	83.3	78.3	77.0	72.4	70.6	66.3	57.6	54.1	45.5	42.8
600i400p968 w/ (2) 600s162-97	96.6	91.4	90.4	85.6	84.0	79.6	70.9	67.2	58.1	55.1
600i400p968 w/ (2) 600s200-54	81.9	76.9	75.7	71.1	69.3	65.1	56.5	53.1	44.4	41.7
600i400p968 w/ (2) 600s200-68	89.3	84.2	83.1	78.3	76.6	72.2	63.5	59.8	51.0	48.0
600i400p968 w/ (2) 600s200-97	104.2	98.9	98.1	93.1	91.7	87.0	78.4	74.5	65.2	61.9
600i400p968 w/ (2) 600s250-54	83.9	78.7	78.2	73.4	72.4	67.9	60.8	57.1	49.1	46.2
600i400p968 w/ (2) 600s250-68	92.9	87.6	87.3	82.3	81.2	76.5	68.8	64.9	56.4	53.2
600i400p968 w/ (2) 600s250-97	110.6	105.1	105.1	100.0	98.9	94.0	85.5	81.4	72.1	68.6

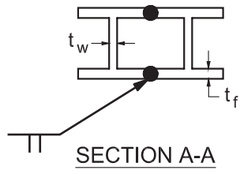
*For higher capacities, please inquire.

Notes:

1. Tabulated values are for members subject to axial compression through the centroidal axis. Adequacy of members subject to axial compression and flexure shall be checked by the S.E.O.R.
2. For ASD Design, Ωc = 1.67 for PACO Sections & 1.8 for LGS Sections
3. For LRFD design, ϕc = 0.90 for PACO Sections & 0.85 for LGS Sections
4. Design of connection for all components in contact with one another by S.E.O.R.
5. For all components in contact with one another Fy = 50 Ksi
6. Tabulated values are based on 1-1/2" utility hole web penetration with maximum (3) penetrations per PACO section.
7. Tabulated values are based on the effective length factors $K_x=K_y=1.0$

AXIAL COMPRESSIVE STRENGTH COMPARISON TABLES FOR PACO COLUMNS

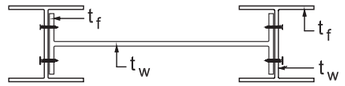
Built-Up PACO Columns & Comparison Table For PACO/LGS Columns



SECTION A-A

PACO Column	Braced at Mid-Height	No Utility Holes		Utility Holes[3]	
		Øc Pn (LRFD)	Pn/Ωc (ASD)	Øc Pn (LRFD)	Pn/Ωc (ASD)
Available Strength in Axial Compression [1,2,5,6,7,8], kips @ h = 9' 1"					
(2) PACO350i325p357	No	59.37	39.50	50.27	33.44
(2) PACO400i400p862	No	168.42	112.00	152.79	101.65
(2) PACO600i400p968	No	212.30	141.25	194.76	129.58

*For higher capacities, please inquire.



SECTION A-A

PACO Built-up Columns (h = 9′-1″)

PACO Column	Braced at Mid-Height	No Utility Holes		Utility Holes[4]	
		Øc Pn (LRFD)	Pn/Ωc (ASD)	Øc Pn (LRFD)	Pn/Ωc (ASD)
Available Strength in Axial Compression [1,2,5,6,7,8], kips @ h = 9' 1"					
(2) 400i400p862 (1) 1200i320p1370	No	239.52	159.36	223.54	148.73
(2) 550i400p942 (1) 1200i320p1370	No	297.25	197.78	278.40	185.22
(2) 600i400p968 (1) 1200i320p1370	No	310.81	206.79	291.41	193.89

*For higher capacities, please inquire.

***For different column heights and load requirements, please call PACO Technical Office at 1 (800) 421-1473.**

General Notes:

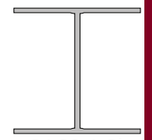
1. Fy = 50 Ksi
2. Tabulated values are in accordance with Chapter E of AISC (14th Edition).
3. Available Strength values calculated with 1-1/2" utility hole web penetrations with maximum three penetrations per column.
4. Available strength values calculated with 3/4"Ø utility holes web & flange penetrations.
5. Øc = 0.90 (LRFD), Ωc =1.67(ASD)
6. Floor-to-floor splice connection by S.E.O.R.
7. Tabulated values are for members subject to axial compression through the centroidal axis. Adequacy of members subject to axial compression and flexure shall be checked by the S.E.O.R.
8. Tabulated values are based on the effective length factor $K_x = K_y = 1.0$
9. Design of connection for all components in contact with one another by S.E.O.R.

SHEAR WALL BOUNDARY POST

AXIAL COMPRESSIVE STRENGTH COMPARISON TABLES FOR PACO COLUMNS

Built-Up PACO Columns & Comparison Table For PACO/LGS Columns

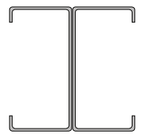
PACO One-Ply Column (h = 9′-1″)



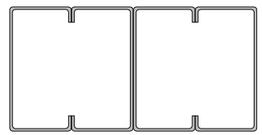
PACO 1-Ply

PACO COLUMN					
Designation	Grade KSI	Weight lb/ft	Gauge		Axial Capacity (KIP) @ H = 9'-1" P_n/Ω
			Flange	Web	
PACO 363i350p554	50	5.54	0.155	0.155	33.00
PACO 363i350p759	50	7.59	0.245	0.155	45.93
PACO 400i325p375	50	3.75	0.105	0.105	20.53
PACO 400i400p561	50	5.61	0.155	0.105	36.53
PACO 400i400p862	50	8.62	0.245	0.155	56.00
PACO 550i325p428	50	4.28	0.105	0.105	21.15
PACO 550i400p942	50	9.42	0.245	0.155	65.34
PACO 600i325p446	50	4.46	0.105	0.105	21.12
PACO 600i350p680	50	6.80	0.155	0.155	40.00
PACO 600i400p968	50	9.68	0.245	0.155	66.68
PACO 600i500p1241	50	12.41	0.245	0.210	92.63
PACO 600i600p1476	50	14.76	0.245	0.245	112.27

Axial capacities (KIP) assumes lateral bracing at mid-height- no web penetrations
Tabulated values calculated in accordance with Chapter E of AISC 14th Edition
Ωc =1.67(ASD)



LGS 2-Ply



LGS 4-Ply

PACO/LGS Columns Comparison Table (h = 9′-1″)

Gauge	Multi-Ply	Grade KSI	350S162		362S162		400S162		550S162		600S162	
			P_n/Ω	lb/ft	P_n/Ω	lb/ft	P_n/Ω	lb/ft	P_n/Ω	lb/ft	P_n/Ω	lb/ft
Light Gauge Steel (LGS) / Cold Formed Steel (CFS)												
20	2	33	**5.78**	1.76	**5.88**	1.78	**6.05**	1.88	**5.94**	2.22	**5.88**	2.34
18	2	33	**8.05**	2.28	**8.22**	2.32	**8.44**	2.42	**8.33**	2.88	**8.27**	3.04
16	2	50	**13.44**	2.82	**13.77**	2.88	**14.44**	3.02	**14.00**	3.60	**13.83**	3.78
14	2	50	**17.72**	3.50	**18.27**	3.56	**19.22**	3.74	**18.83**	4.48	**18.66**	4.72
12	2	50	**24.94**	4.84	**26.11**	4.92	**28.44**	5.18	**29.55**	6.22	**29.44**	6.58
16	4	50	**26.88**	5.64	**27.66**	5.76	**29.61**	6.04	**34.38**	7.20	**35.27**	7.56
14	4	50	**35.50**	7.00	**36.61**	7.12	**39.44**	7.48	**46.38**	8.96	**47.94**	9.44
12	4	50	**49.88**	9.68	**52.22**	9.84	**58.88**	10.36	**73.88**	12.44	**76.66**	13.16

Axial capacities (KIP) assumes lateral bracing at mid-height - no web penetrations h = 9'-1"
Tabulated values calculated in accordance with AISI 2012 Edition
Ωc =1.80 (ASD)

RV & MH

SMART SOLUTIONS

FOR THE MOST COMPLEX STEEL NEEDS

PACO

PACO RV & MH

PACO Steel and Engineering has long been the premier supplier of light-weight beams to the Recreational Vehicle (RV) and Manufactured Housing (MH) industry combining the highest quality products, smart engineering and best in class service. PACO holds numerous inventions and patents for structural beams designed specifically for RV and MH.

PACO Steel was the pioneer of using highly efficient electrical resistance welding (ERW) method to form structural beams. This technology transformed the industry allowing for lighter weight RV and MH chassis that perform better.

PACO Corrugated Beam (patent) was invented in 1979 by our founder Young J. Paik and continued our goal of innovative solutions. Utilizing a corrugated web in the beam adds a significant amount to the strength and reduces weight simultaneously, therefore providing our customers with the most efficient steel section available.

SOLAR
PILE

SMART SOLUTIONS
THAT ARE SIMPLE TO USE ON SITE

PACO

SOLAR PILE

With all of the solar industry companies striving to reduce the cost per watt, PACO Steel and Engineering is providing another smart solution to meet the challenge. Our unique manufacturing facility has the capacity to produce an unlimited number of custom shapes to match the job site specific loading conditions for solar applications. There is no waste.

To determine the strongest "I" shape with optimal weight per foot for a ground mount solar post, PACO collaborates with the Structural Engineer of Record. Soil geotechnical report, regional seismic/wind demands and rack supplier specifications are used to proportion the section depth, flange width and material thickness to produce the most efficient site specific steel post. Significant savings are achieved from reduction of the weight per post, the amount of galvanization required and reducing the number of trucks needed to ship product to the job site.

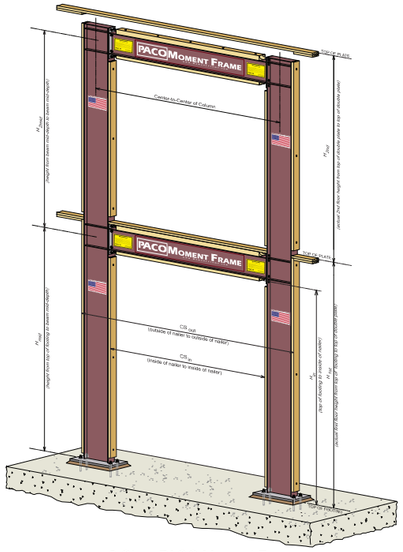
SMART MOMENT FRAME

PACO Smart Moment Frame System

PACO Steel and Engineering Corp. has developed a state-of-the-art, pre-engineered, pre-fabricated and cost-effective Special Moment Frame to resist both lateral and gravity loads. Special Moment Frames allow the architect to design large clear openings and provides the Engineer of Record a frame capable of maintaining structural integrity.

Using PACO Steel's lightweight sections, for the SMF, the installation is fast, performed by the standard framing crew (no welders), fits into standard 2x4 or 2x6 wood walls and is less expensive than site-built wide flange moment frames. PACO Moment Frames are compatible with wood, LGS or heavy structural framing systems.

PACO will provide the EOR, calculations, submittal documents and detail drawings for the moment frames and their attachments to the foundation. This will reduce design time for the engineer and provide a cost-effective solution for large clear span openings.



2-Story PACO Moment Frame

Smart Moment Frame Connections

PACO unstiffened extended end plate connection has an end plate that extends beyond the outside of the connecting PACO beam flanges. The end-plate is shop-welded to the end of a PACO beam and is then field-bolted to a PACO column flange with four rows of high-strength bolts using a total of 8 bolts.

The excellent inelastic response capacities of the PACO SMF beam-column connections have been validated through numerous tests conducted at Virginia Polytechnic Institute and State University (VirginiaTech) utilizing the testing protocol per Appendix S of 2005 AISC Seismic Provision.

Test results for the PACO SMF beam-column connection configuration indicate that the connection is capable of sustaining an interstory drift angle of more than 0.04 radians, exceeding code requirements.

The measured flexural resistance of the connection, determined at the column face, was greater than 0.80 Mp, where Mp=(1.1 Ry Zx Fy), of the connected PACO beam at the interstory drift angle of 0.04 radians.

MOMENT FRAME DESIGN CRITERIA WORKSHEET

www.MomentFrame.com

PACO STEEL & ENGINEERING

PROJECT INFORMATION

Project Name and Location: _____

_____

Contact Person: _____

Company Name: _____

Adress/Phone Number/Fax No. _____

_____

Email Address: _____

Please Check: ☐ New Construction ☐ Retrofit

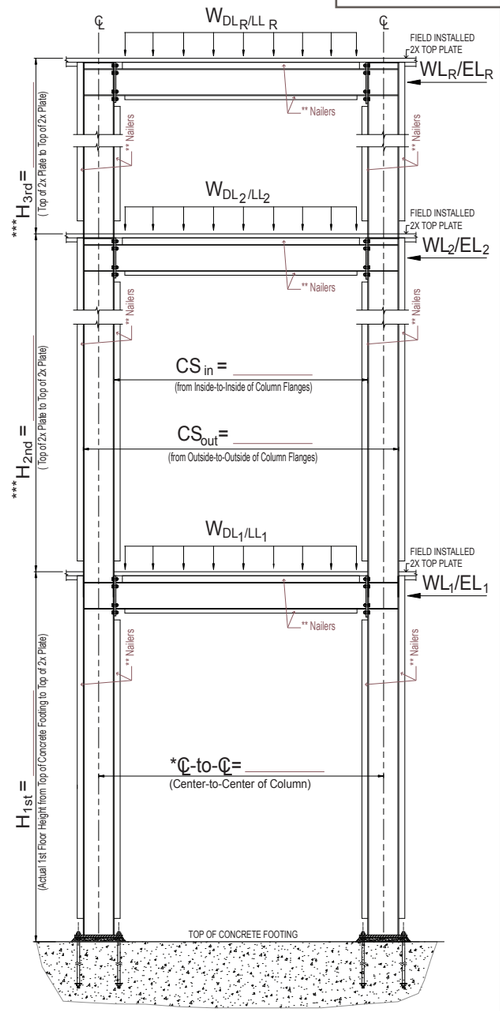
Notes:

a. Please complete one sheet per application.

b. Specify the total quantity of identical frames. **TOTAL:** _____

*Optional dimension
**Please specify nailer size as required
***As applicable (for multi-story frames)

Note: If point loads exist, please mark it on the elevation below.



FRAME GEOMETRY

1. **Please specify** per Architectural Limitations (inches)
   Max. Column Depth = _____ Flange Width = _____
   Max. Beam Depth = _____ Flange Width = _____

2. **Frame Height and Span (feet)** See Elevation

MOMENT FRAME DESIGN CRITERIA

3. Required Design Code :

7. S_{DS} =

4. Response Modification Coefficient :
   ☐ R = 8.0 ☐ R = 3.5
   ☐ R = 6.5 ☐ R = 3.0
   ☐ R = 4.5 ☐ R = _____

8. Deflection Amplification Factor:
   ☐ C_0 = 5.5 ☐ C_0 = 3.0
   ☐ C_0 = 4.0 ☐ C_0 = _____

9. Importance Factor, I_e =

5. Ω_0 = Specify type of diaphragm : Flexible ☐ Rigid ☐

6. ρ = Is ρ included in item 11? Yes ☐ No ☐

MOMENT FRAME LOADING

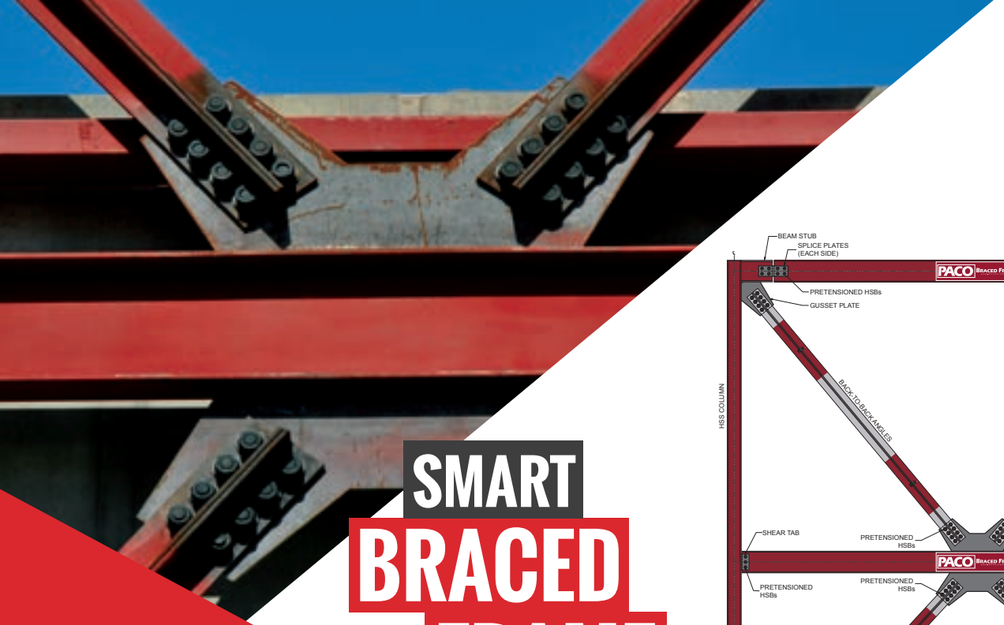
10. WL_1, WL_2, WL_{ROOF} = Wind Lateral Load (Kip) ASCE 7-10 *Please check: ☐ ASD Level ☐ Strength Level (LRFD) *Provide this value if 2nd level exist*	WL_R =	
	WL_1 =	
	WL_2 =	
11. EL_1, EL_2, EL_{ROOF} = Seismic Lateral Load (Kip) ASCE 7-10 *Please check: ☐ ASD Level ☐ Strength Level (LRFD) *Provide this value if 2nd level exist*	EL_R =	
	EL_1 =	
	EL_2 =	
12. W_1, W_2, W_{ROOF} = Gravity Load (Plf) ASD Level	W_{DL_R} =	W_{LL_R} =
	W_{DL_1} =	W_{LL_1} =
Provide this value if 2nd level exist	W_{DL_2} =	W_{LL_2} =
13. **SL** = Snow Load (Plf) - *If applicable*	SL =	

14. **Base Condition:** Fixed ☐ Hinged ☐

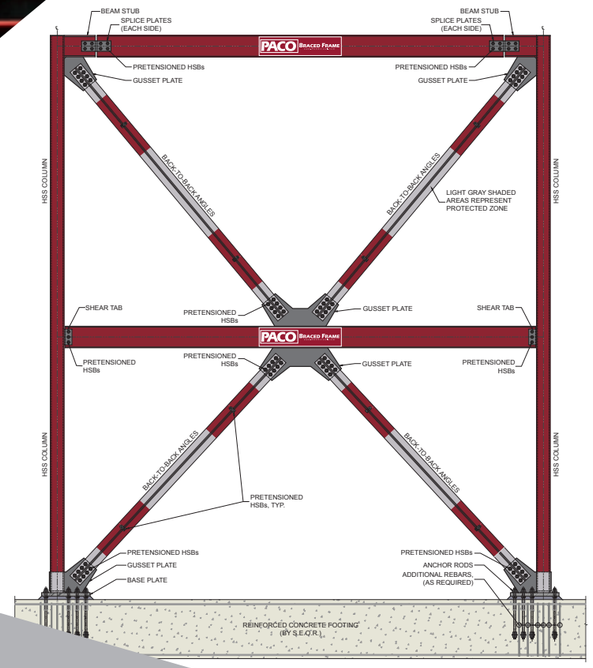
15. **Could top & bottom flanges of the beam be braced?** Yes ☐ No ☐

Other Requirements/Comments :

FAX WORKSHEET to (310) 608-1112 or EMAIL to sales@pacosteel.com



SMART BRACED FRAME



PACO Smart Braced Frame

PACO Steel and Engineering Corp. has also developed a pre-engineered, pre-fabricated and cost-effective bolted together Special Concentric Braced Frame (SCBF) to resist lateral loads with higher magnitude.

PACO Special Concentric Braced Frames are designed in accordance with chapter F of AISC 341-10 seismic provisions. All connections will be bolted which allows fast installation in the field and eliminates the need for welding.

Concentric Braced Frame systems tend to be more economical than eccentrically braced frames in terms of material, fabrication and erection costs. They are typically located in the walls that occur in the core area around stair and elevator shafts. This generally allows for greater architectural flexibility in placement and configuration of exterior windows and claddings.

Special Concentric Braced Frames may be utilized in dual systems together with special moment frames in all seismic design categories with no limitation in the building height. This gives EOR the benefit of using a value of 7 for response modification factor (R=7).

PACO will provide the EOR, calculations, submittal documents and detail drawings for the Special Concentric Braced Frames and their attachments to the foundation. This will reduce design time for the engineer and provide a cost-effective solution for lateral loads with higher magnitude.

CONCENTRICALLY BRACED FRAME DESIGN CRITERIA WORKSHEET

www.PACOsteel.com

PACO STEEL & ENGINEERING

PROJECT INFORMATION

Project Name and Location: _____

_____

Contact Person: _____

Company Name: _____

Adress/Phone Number/Fax No. _____

_____

Email Address: _____

Please Check: ☐ New Construction ☐ Retrofit

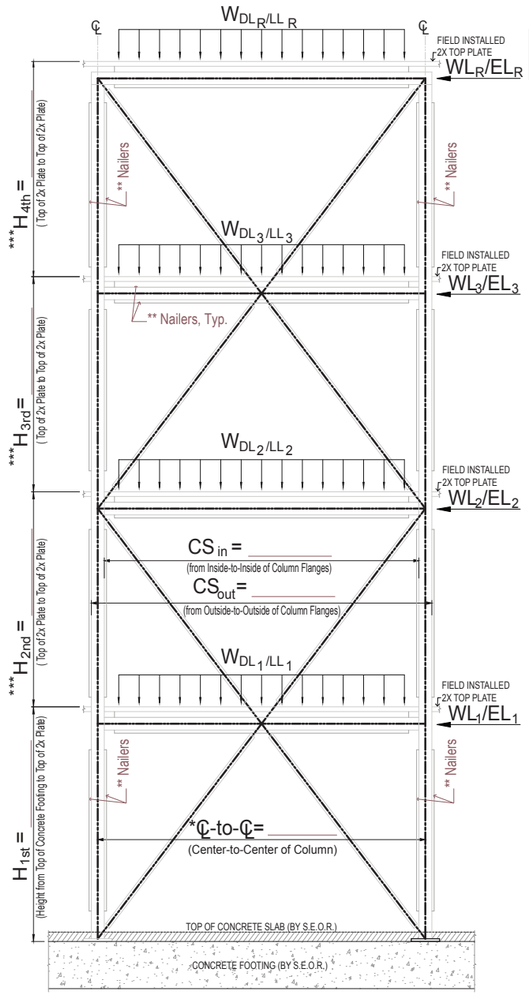
Notes:

a. Please complete one sheet per application.

b. Specify the total quantity of identical frames. **TOTAL:** _____

*Optional dimension
**Please specify nailer size as required
***As applicable (for multi-story frames)

Note: If point loads exist, please mark it on the elevation below.



FRAME GEOMETRY

1. **Please specify** per Architectural Limitations (inches)
   Max. Column Depth = _____ Flange Width = _____
   Max. Beam Depth = _____ Flange Width = _____
2. **Frame Height and Span (feet)** See Elevation

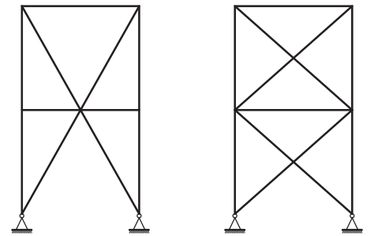
BRACED FRAME DESIGN CRITERIA

3. Required Design Code :
4. **S_{DS} =**
5. Response Modification Coefficient :
   SCBF: ☐ R = 6.0
   OCBF: ☐ R = 3.25
   Specify the value of R used to determine the total shear at the base of the structure. R= _____
6. Deflection Amplification Factor:
   SCBF: ☐ C_d = 5.0
   OCBF: ☐ C_d = 3.25
7. Importance Factor:
   I_e =
8. **Ω_0 =** Specify type of diaphragm : Flexible ☐ Rigid ☐
9. **ρ =** Is ρ included in item 11? Yes ☐ No ☐

BRACED FRAME LOADING

10. **$WL_1, WL_2, W_3, WL_{ROOF}$ =** Wind Lateral Load (Kip) ASCE 7-10 *Please check: ☐ASD Level ☐Strength Level (LRFD)	WL_R =	WL_1 =
	Provide these values if these levels exist	
	WL_2 =	WL_3 =
11. **$EL_1, EL_2, EL_3, EL_{ROOF}$ =** Seismic Lateral Load (Kip) ASCE 7-10 *Please check: ☐ASD Level ☐Strength Level (LRFD)	EL_R =	EL_1 =
	Provide these values if these levels exist	
	EL_2 =	EL_3 =
12. **W_1, W_2, W_3, W_{ROOF} =** Gravity Load (Plf) ASCE Level	W_{DL_R} =	W_{LL_R} =
	W_{DL_1} =	W_{LL_1} =
Provide these values if these levels exist	W_{DL_2} =	W_{LL_2} =
	W_{DL_3} =	W_{LL_3} =
13. **SL =** Snow Load (Plf) - *If applicable*	SL =	

14. **Could top & bottom flanges of the beam be braced?** Yes ☐ No ☐
15. **Please specify the type :** A ☐ B ☐



A - Chevron V Bracing B - X Bracing

16. **Other Requirements/Comments :**

FAX WORKSHEET to (310) 608-1112 or EMAIL to sales@pacosteel.com

PACO
STEEL & ENGINEERING

PACO GREENSTEEL

PACO Steel and Engineering Corp. manufactures Electric Resistance Welded and Corrugated Beams from hot rolled steel coils supplied by both Mini-Mills and Integrated Mills. Depending on the supplier, the process, the current price of scrap and other factors, the recycled contents of our beam will vary.

Most mini-mill steel manufacturers use Electric Arc Furnace (EAF) process to produce their steel. The EAF process uses electricity to make steel out of scrap steel. Their scrap or recycled content approaches 100 percent.

Most steel manufacturers use a Basic Oxygen Furnace (BOF) process to produce their steel. The BOF process uses a combination of iron ore and scrap. Their scrap or recycled content generally ranges from 25 to 35 percent.

PACO Steel and Engineering Corp., with over 40 years experience in design and manufacturing, is dedicated to working with its customers in creating innovative solutions. PACO Steel specializes in the design and manufacture of Intermediate Gauge Structural Sections which are used in column, joist, header and long span applications as well as moment and shear frame systems. PACO also offers the largest selection of Mini, Corrugated, and Custom manufactured sections. PACO sections bridge the gap between multi-ply LGS and wide flange beam shapes, combining superior deflection and load capacities with ease of use in typical LGS and wood framed projects.

For years, PACO has been the premier supplier of lightweight steel beams to the manufactured housing, recreational vehicle, load-bearing light-gauge housing, and light to medium construction industries. PACO revolutionized the steel beam market with the introduction of the PACO Beam and Corrugated Beam (patent). The combined lightweight and high-strength engineered steel has proven to be ideal for industries that require a steel section that is strong, light and durable.

The company operates the only Beam Line in North America that utilizes High Frequency Electric Resistance Forging Process. This high technology precision process ensures the highest quality products and allows unlimited ability to custom manufacture “I” and “T” shaped structural members of various gauges, widths and depths in small quantities. This translates to an ideal structural I-beam solution that is high-strength, lightweight, economical and optimized for the application.

SMART SOLUTIONS

- SMART MOMENT FRAME
- SMART BRACED FRAME
- SMART SHEAR WALL
- CUSTOM BEAM & COLUMN
- SHEAR WALL BOUNDARY POST
- RV & MH BEAM
- SOLAR PILE

PACO

www.PACOSTEEL.com
www.MOMENTFRAME.com

PROUDLY MADE IN AMERICA SINCE 1974

PACO

SMART SOLUTIONS IN STEEL

PACO
STEEL & ENGINEERING

19818 SOUTH ALAMEDA STREET
RANCHO DOMINGUEZ CA 90221

800.421.1473 TOLL FREE

310.537.6375 HEADQUARTERS

310.608.1112 FAX

WWW.MOMENTFRAME.COM
WWW.PACOSTEEL.COM