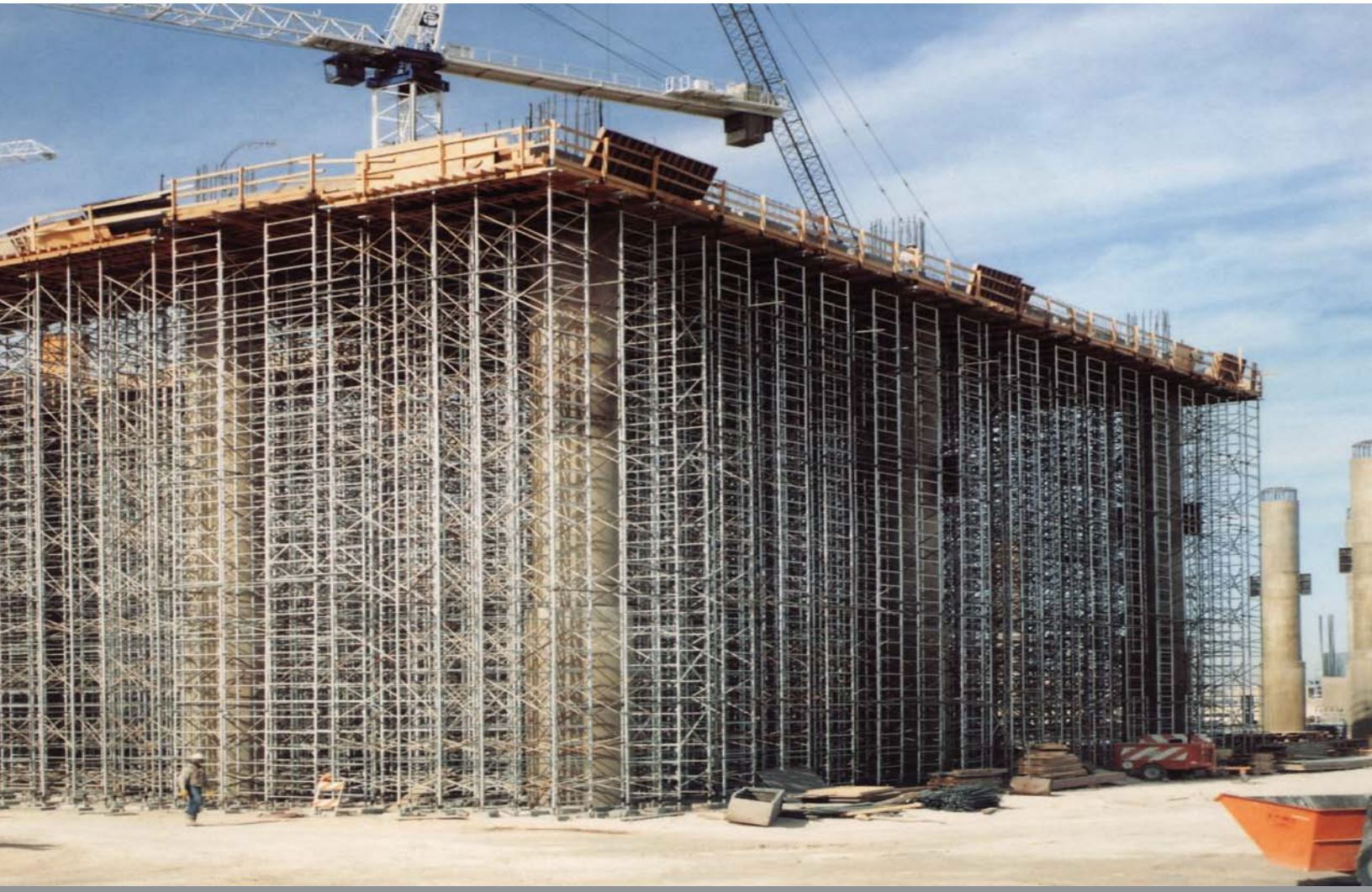
PATENT

HARSCO
INFRASTRUCTURE



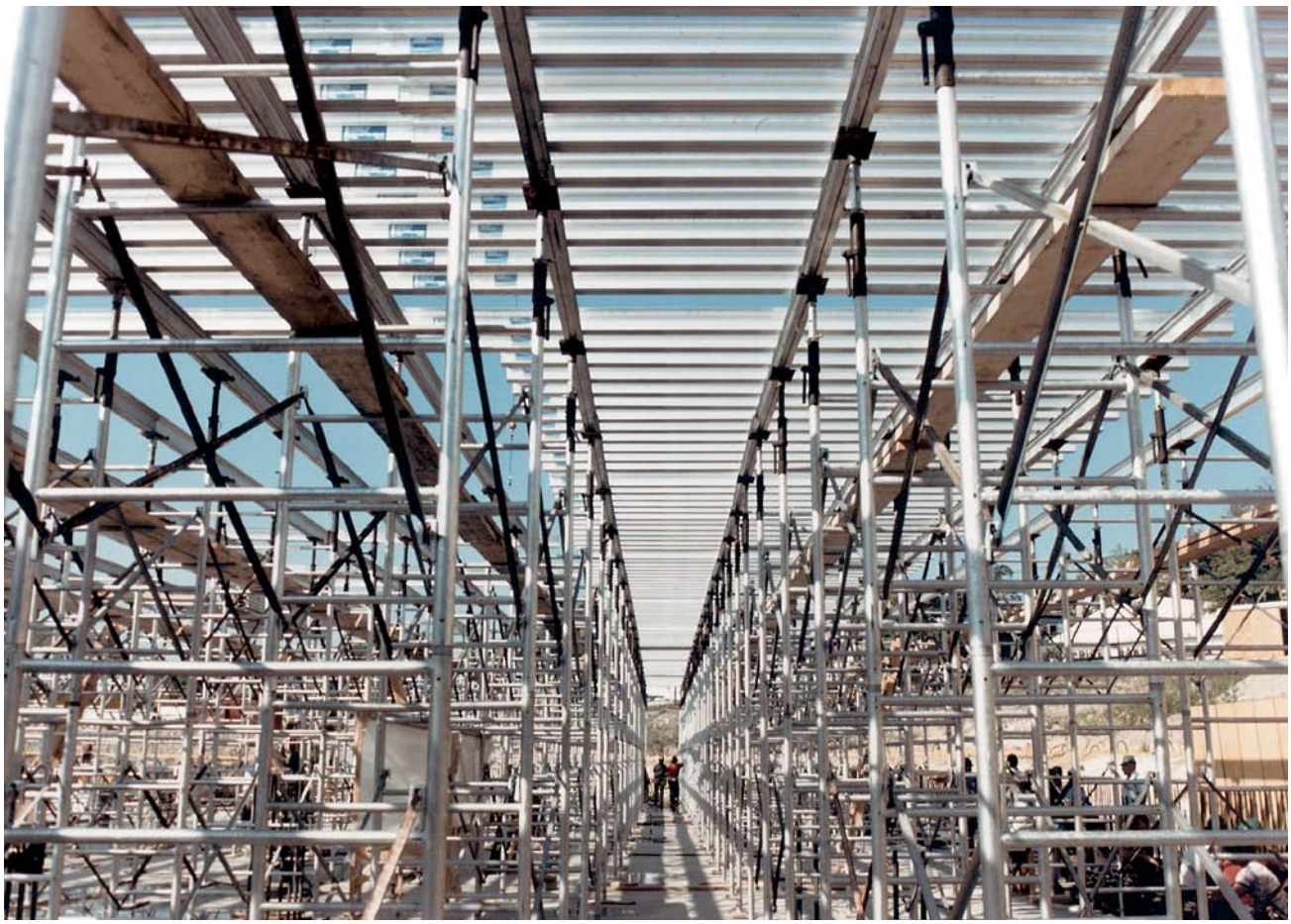
SHORING SYSTEMS®

20K®, 20KA®, and SUPER HI-LITE

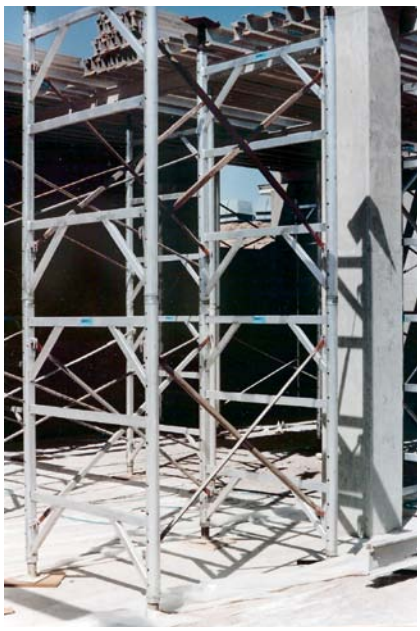
SHORING SYSTEMS®
Applications

Job proven over a wide range of applications:

- Building construction
- Environment
- Heavy construction
- Renovation
- Transportation
- Infrastructure
- Industrial

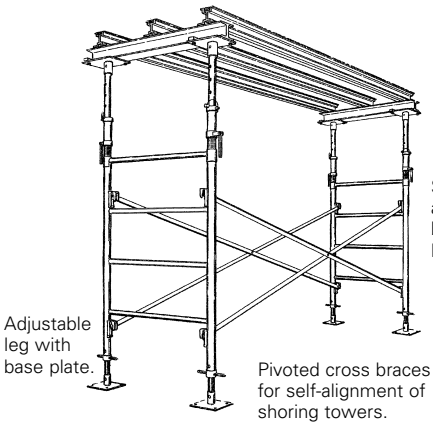



TWELVE WYANDOTTE PLAZA



20K®

Heavy duty steel shoring system

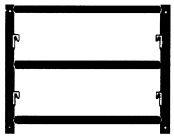


The most universally used shoring system in the industry.

- Safe capacity of 20,000 lbs/frame* (9,072 kg) or 40,000 lbs (18,144 kg) capacity on a typical shoring tower.
- Frames furnished in 2′ (.61 m) and 4′ (1.22 m) widths.
- Fast-acting "Slideloks" eliminate the need for wing nuts in attaching braces to frames.
- Available with a full range of accessories.

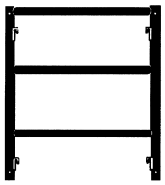
*Allowable loads developed through the use of test procedures recommended by the Scaffolding, Shoring & Forming Institue, Inc. and a safety factor of 2.5:1. Consult Patent Construction Systems for load data for specific conditions

Frames

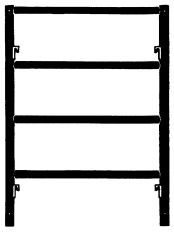


Frame height		Frame width	
ft	m	ft	m
203E 3½	1.07	4	1.22
217E 3½	1.07	2	.61

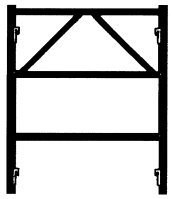
Other frame configurations available upon request.



Frame height		Frame width	
ft	m	ft	m
203C 5	1.52	4	1.22
217C 5	1.52	2	.61



Frame height		Frame width	
ft	m	ft	m
203D 6	1.83	4	1.22
217D 6	1.83	2	.61



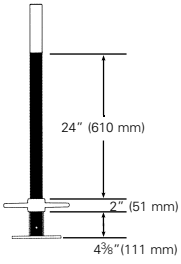
Head load frames for special applications

Frame height		Frame width	
ft	m	ft	m
203EH 3½	1.07	4	1.22
203CH 5	1.52	4	1.22
203DH 6	1.83	4	1.22

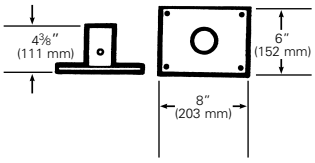
Adjustable legs

202EE screw leg –
Used at top and/or bottom of frames, 6⅜″ (162 mm) minimum height with base plates. 6¼″ (159 mm) minimum heights with U-heads, plus 24″ (610 mm) screw thread adjustment. (201A base plate shown)

202E screw leg – 12″ (305 mm) adjustment.

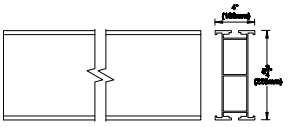


Base plate



201A base plate – Used with adjustable leg 202E, 202EE, sprocket 204A, or extension tubes.

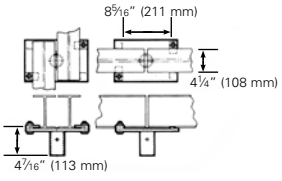
Du-Al beams



Du-Al Lengths Available

5′11″ (1.8 m)	17′8″ (5.4 m)
7′10″ (2.4 m)	19′8″ (6.0 m)
9′10″ (3.0 m)	23′7″ (7.2 m)
13′9″ (4.2 m)	

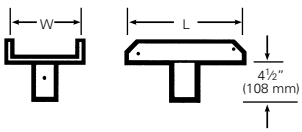
201P Top plates



Used to support steel W6x12, W8x10 and aluminum stringers. Two-way design permits placement of 4″ (102 mm) wide stringers either singly or lapped atop frame leg. Top plates include lock-in clips to secure beams.

7″ W x 10¾″ L
(178 mm x 273 mm)

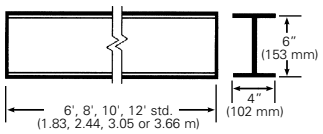
U-heads



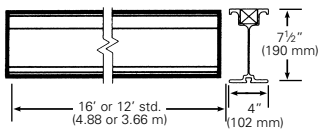
	Width	Length
201J-8 U-head	8¼″ (210 mm)	8″ (203 mm)
201J-14 U-head	8¼″ (210 mm)	14″ (356 mm)
201JJ-14 U-head	4¼″ (108 mm)	14″ (356 mm)

Two-way U-head
201J-2W U-head 7¾″ W x 3¾″ L
(197 mm x 95 mm)

Steel stringer

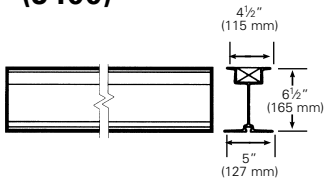


Aluminum stringer



Lengths are available to satisfy all job conditions.
See page 11 for more detail.

Aluminum joist (J400)

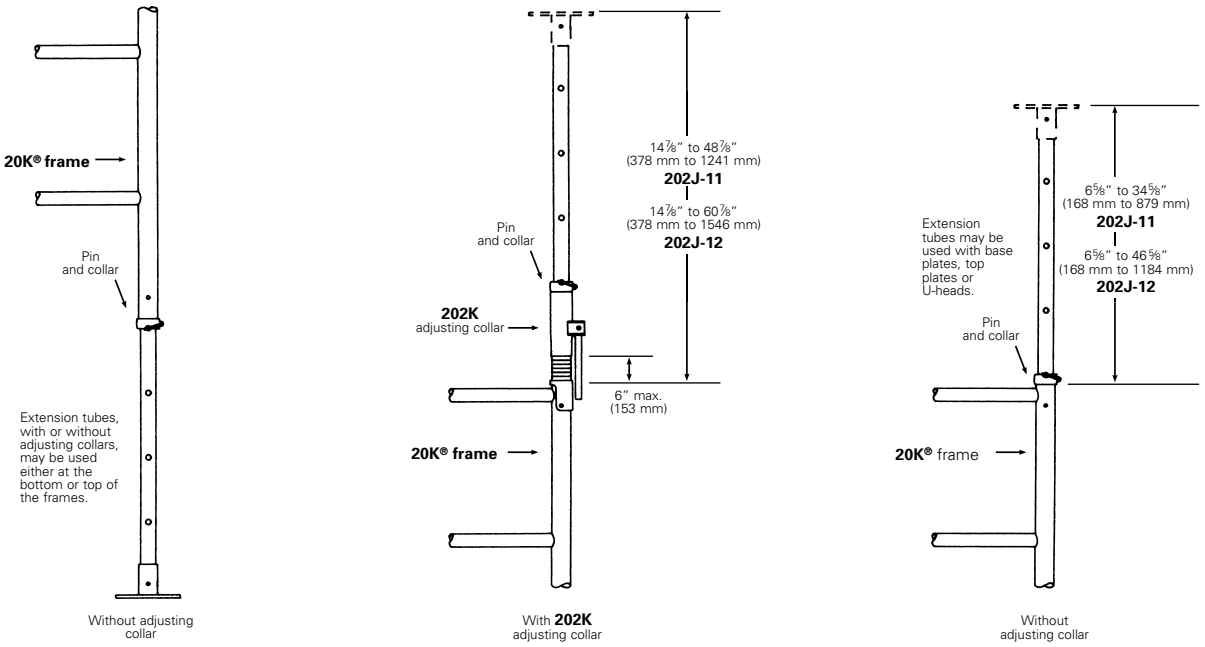


Available in lengths from 12′ to 22′ (3.66 m to 6.71 m)

Lengths are available to satisfy all job conditions.

See page 11 for more detail.

Extension tubes and adjusting collars



Safe working loads for extension tubes

Distance from top of frame leg to top plate		Allowable load unbraced		Allowable load braced two directions	
in	mm	lbs.	kg	lbs.	kg
up to 24	up to 610	10,000	4536	10,000*	4536*
25 to 36	635 to 914	8,000	3629	10,000	4536
37 to 48	940 to 1219	7,000	3175	9,000	4082
49 to 60	1245 to 1524	6,000	2722	8,000	3629

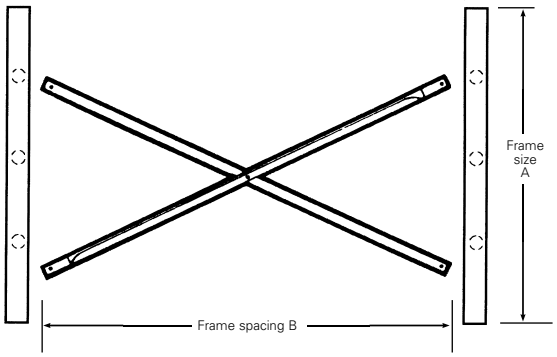
*No brace necessary.

202J-11
5′ long (1.52 m) Extension Tube

202J-12
6′ long (1.83 m) Extension Tube

202K
Adjusting Collar

Braces



Frame size A	Frame spacing B								
20K®	2′ .61 m	3′ .91 m	3′ 7½″ 1.11 m	4′ 1.22 m	5′ 1.52 m	6′ 1.83 m	7′ 2.13 m	8′ 2.44 m	10′ 3.05 m
3′-6″ 1.07 m	06T	06S	06CC	06R	06C	06B	06A	06Q	06H
5′-0″ 1.52 m	06N	06M	06C	06L	06F	06E	06D	06K	06G
6′-0″ 1.83 m	06N	06M	06C	06L	06F	06E	06D	06K	06G

STEEL POST SHORE SYSTEMS

- Easy to handle, easy to erect
- Available in a variety of sizes and allowable loads
- Tube is open at both ends to prevent accumulation of water and rust
- Top plates and base plates are provided wtih nail holes
- U-heads fit into the top of the tube without removing the plate
- Adjustments are made at standard working height- no stooping or reaching for levers
- Additional open floor space. Allows more 'elbow room' for simultaneous work
- For approximate height adjustment, open the upper tube and insert pin through hole in slot above adjusting nut
- For precise adjustment, turn adjusting nut by means of 8" long (203 mm) handle.

Single Post Shores

- Adjusting holes 5½" (140 mm) apart.
- Base plates 7" x 7" (178 mm x 178 mm).
- U-heads 3½" x 6" (89 mm x 152 mm).
- U-heads available in 8" (203 mm) and 14" (356 mm) lengths.

SPS01
50 lbs (22.7 kg) Fully closed at 5'7" (1.7 m)

Height Range	Safe Allowable Load lbs*
5'11" (1.8 m)	9,200 (4,173 kg)
6'5" (2.0 m)	7,500 (3,402 kg)
6'11" (2.1 m)	5,700 (2,586 kg)
7'5" (2.3 m)	5,600 (2,540 kg)
7'11" (2.4 m)	5,400 (2,449 kg)
8'11" (2.7 m)	5,200 (2,359 kg)
9'10" (3.0 m)	5,100 (2,313 kg)

SPS03
58 lbs (22.7 kg) Fully closed at 8'2.5" (2.5 m)

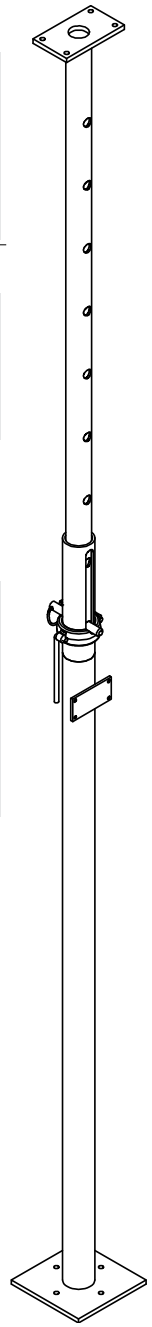
Height Range	Safe Allowable Load lbs*
8'11" (2.7 m)	7,500 (3,402 kg)
9'5" (2.9 m)	6,600 (2,994 kg)
9'11" (3.0 m)	6,200 (2,812 kg)
10'5" (3.2 m)	6,000 (2,722 kg)
10'11" (3.3 m)	5,750 (2,608 kg)
11'5" (3.5 m)	5,000 (2,268 kg)
12'5.5" (3.8 m)	4,700 (2,132 kg)

SPS02
54 lbs (24.5 kg) Fully closed at 6'7" (2.0 m)

Height Range	Safe Allowable Load lbs*
6'11" (2.1 m)	8,000 (3,629 kg)
7'5" (2.3 m)	7,200 (3,266 kg)
7'11" (2.3 m)	6,800 (3,084 kg)
8'5" (2.36m)	6,000 (2,722 kg)
8'11" (2.7 m)	5,600 (2,540 kg)
9'11" (3.0 m)	5,500 (2,495 kg)
10'10" (3.3 m)	5,450 (2,472 kg)

SPS04
72 lbs (32.7 kg) Fully closed at 11'0" (3.4 m)

Height Range	Safe Allowable Load lbs*
11'5" (3.5 m)	4,500 (2,041 kg)
11'11" (3.6 m)	4,000 (1,814 kg)
12'5" (3.8 m)	3,600 (1,633 kg)
12'11" (3.9 m)	3,200 (1,452 kg)
13'5" (4.1 m)	2,800 (1,270 kg)
14'5" (4.4 m)	2,600 (1,179 kg)
16'0" (4.9 m)	2,400 (1,089 kg)



SPANALL® Standard Vertical Steel Shores

- Available in three practical sizes

Types S-2 and S-3:

- Adjusting holes 4¾" (121 mm) apart.
- Base plates 5½" square (140mm).
- Square top plate 4" x 5⅞" (102 mm x 149 mm).

Type S-5

- Adjusting holes 5½" (140 mm).
- Base plates 7" x 7" (178 mm x 178 mm).
- Top plate 3½" x 6" (89 mm x 152 mm).
- SL-5-03 Standard U-head 4" W x 3" L (102 mm x 76 mm).

S-2
32 lbs (14.5 kg)

Height Range	Safe Allowable Load lbs*
To 8'6" (2.6 m)	7,500 (3,402 kg)
9'0" (2.7 m)	6,150 (2,790 kg)
9'3" (2.8 m)	5,500 (2,495 kg)
9'6" (2.9 m)	5,080 (2,304 kg)

S-5
72 lbs (32.7 kg)

Height Range	Safe Allowable Load lbs*
To 11'5" (3.5 m)	4,500 (2,041 kg)
11'11" (3.6 m)	4,000 (1,814 kg)
12'5" (3.8 m)	3,600 (1,633 kg)
12'11" (3.9 m)	3,200 (1,452 kg)
13'5" (4.1 m)	2,800 (1,270 kg)
14'5" (4.4 m)	2,600 (1,179 kg)
16'0" (4.9 m)	2,400 (1,089 kg)

S-3
38 lbs (17.2 kg)

Height Range	Safe Allowable Load lbs*
To 8'6" (2.6 m)	7,500 (3,402 kg)
9'0" (2.7 m)	6,150 (2,790 kg)
9'3" (2.8 m)	5,500 (2,495 kg)
9'6" (2.9 m)	5,080 (2,304 kg)
10'0" (3.1 m)	4,250 (1,928 kg)
10'6" (3.2 m)	3,650 (1,656 kg)
11'0" (3.4 m)	3,160 (1,433 kg)
11'6" (3.5 m)	2,830 (1,284 kg)
11'9" (3.6 m)	2,750 (1,247 kg)

SPANALL® Heavy Duty Vertical Shores

- Double carrying capactiy-low weight.
- Base plates 5½" square (140 mm).
- Top plate 4" x 5⅞" (102 mm x 149 mm).
- SL-500 heavy duty U-head 4" W x 6" L (102 mm x 152 mm).

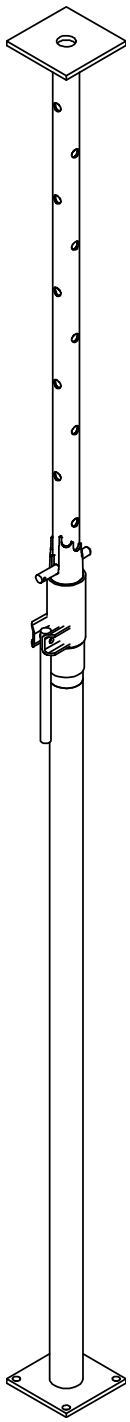
SHD-4
62 lbs (28.1 kg)

Height Range	Safe Allowable Load lbs*
To 9'8" (3.0 m)	9,000 (4,082 kg)
10'0" (3.1 m)	9,000 (4,082 kg)
10'6" (3.2 m)	9,000 (4,082 kg)
11'0" (3.4 m)	9,000 (4,082 kg)
11'6" (3.5 m)	9,000 (4,082 kg)
12'0" (3.7 m)	9,000 (4,082 kg)
12'6" (3.8 m)	8,400 (3,810 kg)
13'0" (4.0 m)	7,800 (3,583 kg)
13'6" (4.1 m)	7,200 (3,266 kg)
14'0" (4.3 m)	6,600 (2,994 kg)
14'6" (4.4 m)	6,000 (2,722 kg)

* Allowable loads developed through the use of test procedures recommended by the Scaffolding, Shoring & Forming Institue, Inc. and a safety factor of 3:1. Consult Patent Construction Systems for load data for specfic conditions.

SPW Post Shore Features

- Adjusting holes are 4" (102 mm) apart
- Top plate is 6" x 6" (152 mm x 152 mm)
- Base plate is 6" x 6")152 mm x 152 mm) with nailer holes
- Check with Patent for U-head availability



SPW Post Shores

1. Extend shore staff to approximate required height.
2. Insert pin in lowest exposed hole in staff, set in adjacent step of the speed set.
3. Adjust shore to final height by turning the shore nut. Adjustment holes in the shore staffs are spaced four inches apart. The four steps in the speed set are one inch apart, permitting approximate adjustment to within two inches of the required height. Final adjustment requires only four to five turns of the shore nut.
4. To strip, back shore nut off a turn or two, lower pin to bottom step in the speed set and the shore staff is free.

SPW02
44.0 lbs (20.0 kg)

Height Range	Safe Allowable Load lbs*
6'2"	9,000 (4,082 kg)
6'6"	9,000 (4,082 kg)
7'0"	9,000 (4,082 kg)
7'6"	8,500 (3,855 kg)
8'0"	8,100 (3,674 kg)
8'6"	7,500 (3,402 kg)
9'0"	7,000 (3,175 kg)
9'6"	6,500 (2,948 kg)
10'0"	6,000 (2,722 kg)
10'6"	5,500 (2,495 kg)
11'1"	5,000 (2,268 kg)

SPW03
48.0 lbs (21.8 kg)

Height Range	Safe Allowable Load lbs*
8'2"	8,100 (3,674 kg)
8'6"	7,500 (3,402 kg)
9'0"	7,000 (3,175 kg)
9'6"	6,500 (2,948 kg)
10'0"	6,000 (2,722 kg)
10'6"	5,500 (2,495 kg)
11'0"	5,000 (2,268 kg)
11'6"	4,700 (2,131 kg)
12'0"	4,200 (2,131 kg)
12'6"	3,700 (1,678 kg)
13'1"	3,500 (1,587 kg)

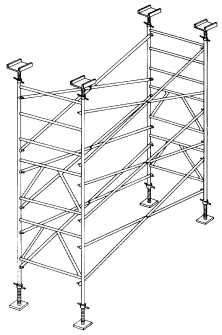
SPW04
55.0 lbs (25.0 kg)

Height Range	Safe Allowable Load lbs*
10'9"	5,200 (2,358 kg)
11'0"	5,000 (2,268 kg)
11'6"	4,700 (2,131 kg)
12'0"	4,200 (2,131 kg)
12'6"	3,700 (1,678 kg)
13'0"	3,500 (1,587 kg)
13'6"	3,700 (1,678 kg)
14'0"	3,000 (1,360 kg)
14'6"	2,700 (1,224 kg)
15'0"	2,500 (1,234 kg)
15'6"	2,200 (1,000 kg)

*based on factor of safety of 3:1

20KA®

Heavy duty aluminum shoring system

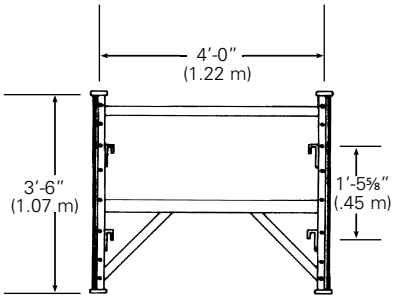


Lightweight aluminum frames for specialized applications

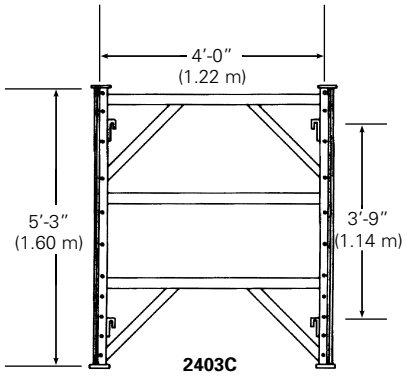
- Safe capacity of up to 20,000 lbs (9072 kg)/frame* or 40,000 lbs (18,144 kg) capacity on a typical shoring tower
- Available in 4' (1.22 m) wide frames only
- Fully compatible with 20K® shoring accessories

* Allowable loads developed through the use of test procedures recommended by the Scaffolding, Shoring & Forming Institue, Inc. and a safety factor of 2.5:1. Consult Patent Construction Systems for load data for specfic conditions.

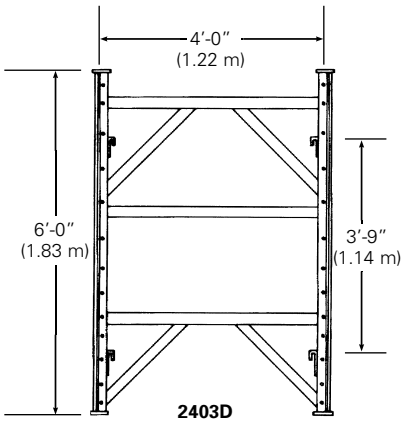
Frames



2403E

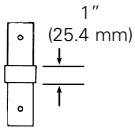


2403C

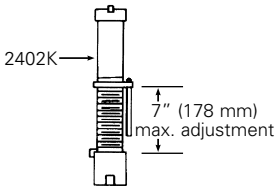


2403D

Typical tower components

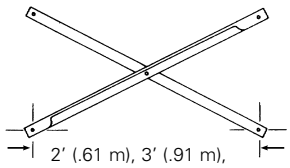


2404A Sprocket

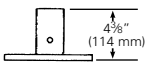


Extension tube with adjustable collar

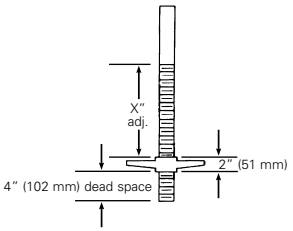
Compatible 20K accessories



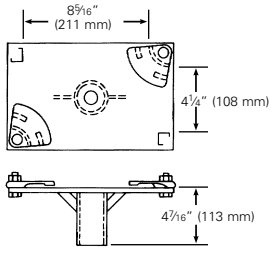
Pivoted diagonal brace



201A Base plate
6″ x 8″ (152 mm x 203 mm)



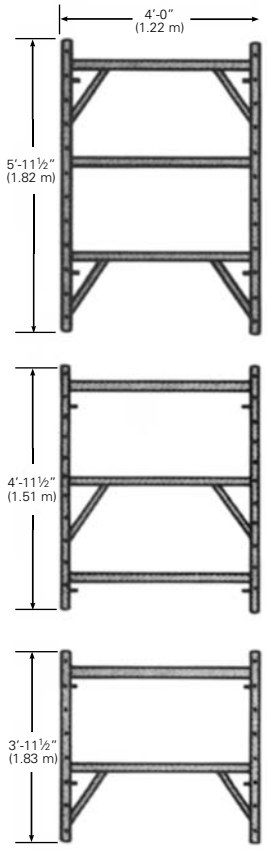
202E, X=12″ (305 mm)
202EE, X=24″ (610 mm)



201P Top plate
for steel or aluminum stringer
201-PP also compatible

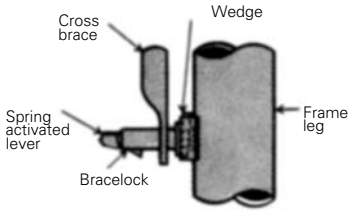
SUPER HI-LITE
Aluminum frame shoring system

Frames



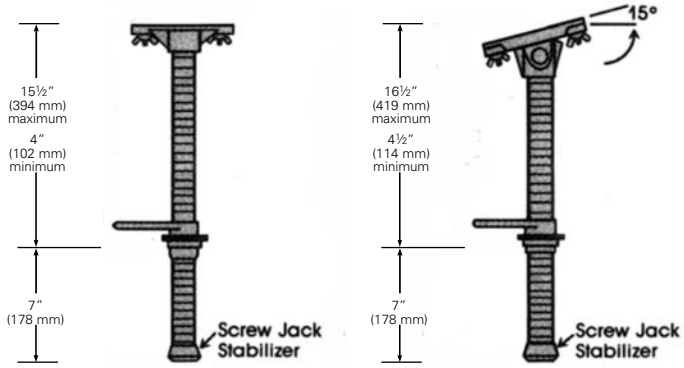
Super Hi-Lite frames are made of a high strength aluminum alloy. Their light weight/high strength ratio greatly facilitates handling and erecting. The frames are available in 4" nom. (1.21 m), 5' nom. (1.5 m), and 6' nom, (1.82 m) heights.

Super Hi-Lite Frames			
CODE	SIZE	WEIGHT	
1030200	4′ x 4′ nom.	19.4 lbs	8.80 kg
1030300	5′ x 4′ nom.	25.5 lbs	11.57 kg
1030400	6′ x 4′ nom.	29.4 lbs	13.34 kg



Screw jacks

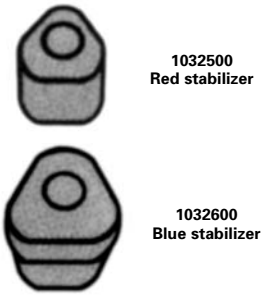
Adjustable screw legs are supplied with base plate and "T" bolts attached. This helps reduce the number of pieces shipped to sites.



1032200
Screw jack
weight: 14.2 lbs.

1032400
Swivel screw jack
weight: 14.5 lbs.

Stabilizers



1032500
Red stabilizer

1032600
Blue stabilizer

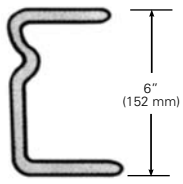
Plastic stabilizers allow the adjustable screw leg to be used in a frame leg or an extension tube. They are screwed onto the end of the screw jack shaft. The red stabilizer is used where the screw jack is fitted into the extension tube. The blue stabilizer is used where the screw jack is fitted into the frame leg.

Saddle beam

1033600 Aluminum saddle beam 4′ (1.22 m)
weight: 16.5 lbs (7.48 kg)

Made from a length of 6 1/2" (165 mm) aluminum beam with special brackets at each end to enable it to transfer the load of a concrete drop beam to the frame legs. It is installed at the top end of a frame with extension tubes.

Extension tube support pin

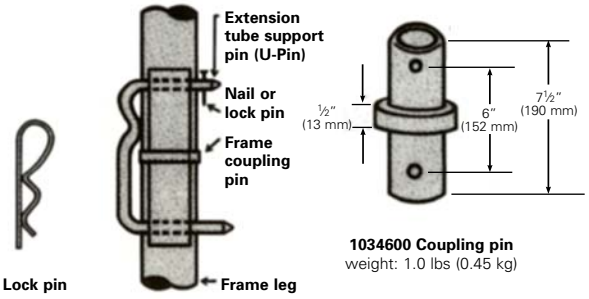


1031800 Extension tube support pin (U-Pin)
weight: 0.8 lbs (0.36 kg)

Used to support the extension tubes and in conjunction with the coupling pin for stacking frames. One leg of the extension support pin is made longer to allow easy insertion through the frame leg for fast assembly.

Coupling pin

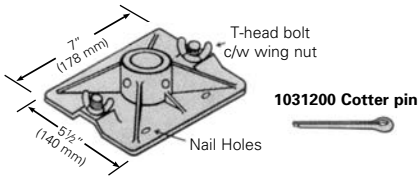
The coupling pin permits stacking of frames and is used in conjunction with the extension tube support pin (U-Pin).



1034600 Coupling pin
weight: 1.0 lbs (0.45 kg)

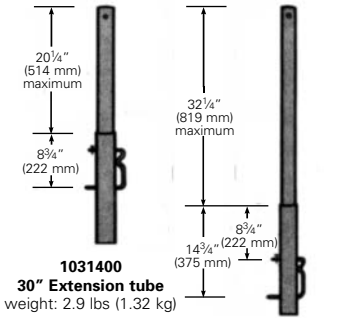
SUPER HI-LITE
Aluminum frame shoring system

Extension tube plates



1030800 Extension tube plate c/w bolts
weight: 4.2 lbs (1.91 kg)

Extension tubes

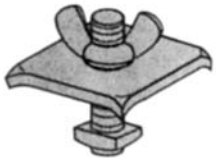


1031400
30" Extension tube
weight: 2.9 lbs (1.32 kg)

1031500
48" Extension tube
weight: 4.8 lbs (2.18 kg)

Extension tubes are made of heavy gauge, high strength aluminum and readily slide into the frame legs. The screw jacks can be inserted into the extension tube for fine adjustment or the extension tube base plate can be attached when fine adjustment is not required. Extension tubes are available in 30" and 48" lengths.

Beam clips

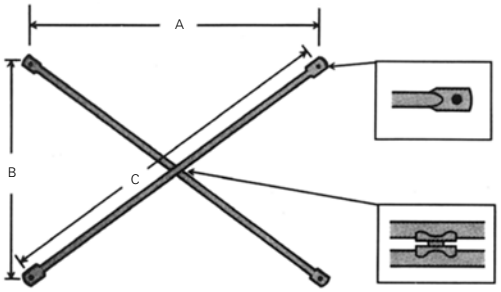


1034800 Beam clip c/w bolt
weight: 0.3 lbs (.14 kg)

A specially formed steel plate complete with a T-head bolt and wing nut or hex (for wall forms). Some applications are:
a.) Securing aluminum beams to post shores
b.) Securing joists to stringers

Cross braces

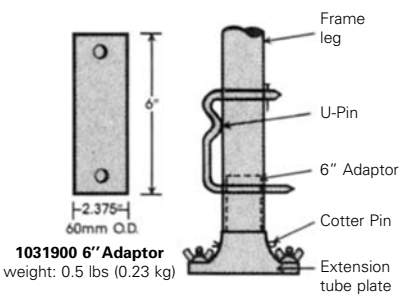
Cross braces are made of galvanized hi-tensile steel tubes. They are available in various sizes as shown in the table. A special hinge is designed for rugged and extended service. The cross braces are color coded for easy identification.



CROSS BRACES

CODE	COLOR	A		B		C		WEIGHT	
1036400	Orange	4′	1.22 m	2′	.61 m	53⅝″	1362 mm	6.0 lbs.	2.72 kg
1036500	White	5′	1.52 m	2′	.61 m	64⁹⁄₁₆″	1641 mm	7.1 lbs.	3.18 kg
1036600	Black	6′	1.83 m	2′	.61 m	75⅞″	1927 mm	8.5 lbs.	3.86 kg
1036700	Blue	7′	2.13 m	2′	.61 m	87⁵⁄₁₆″	2219 mm	9.5 lbs.	4.31 kg
1036800	Green	8′	2.44 m	2′	.61 m	98¹⁵⁄₁₆″	2513 mm	11.0 lbs.	4.99 kg
1037000	Yellow	10′	3.05 m	2′	.61 m	122⅜″	3108 mm	12.8 lbs.	5.81 kg
1037400	Silver	4′	1.22 m	4′	1.22 m	67¹³⁄₁₆″	1723 mm	7.5 lbs.	3.40 kg
1037500	Red	5′	1.52 m	4′	1.22 m	76¹³⁄₁₆″	1951 mm	8.5 lbs.	3.86 kg
1037600	Grey	6′	1.83 m	4′	1.22 m	86½″	2197 mm	9.5 lbs.	4.31 kg
1037700	White	7′	2.13 m	4′	1.22 m	96¾″	2380 mm	10.6 lbs.	4.81 kg
1037800	Orange	8′	2.44 m	4′	1.22 m	107⁵⁄₁₆″	2725 mm	11.8 lbs.	5.35 kg
1038000	Grey	10′	3.05 m	4′	1.22 m	129¼″	3282 mm	14.1 lbs.	6.40 kg

6" Adaptors



1031900 6" Adaptor
weight: 0.5 lbs (0.23 kg)

The 6" adapter is used when no extension is required for adapting the extension tube plate to fit into the frame leg.

ALUMINUM JOIST AND ALUMINUM STRINGER

SPANALL® horizontal shoring system

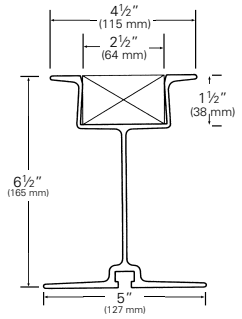
INTERFORM® aluminum joist and aluminum stringer

High strength joists and stringers are the low-cost alternative to lumber for stationary shoring applications. Used in combination with the 20K heavy-duty shoring frames, the system is designed to set up faster, with fewer components to rent or buy, and fewer pieces to handle or set, than with conventional methods and materials.

Labor savings are substantial because the aluminum joist and aluminum stringers are lighter, and easier to handle than wood, while offering greater capacity. You can use fewer joists, stringers, ledger beams, and shoring frames to reduce set-up time and speed stripping. These durable joists and stringers can be reused over and over on many projects, helping to eliminate scrap and new material costs.

- Rugged, non-corrosive construction insures many reuses.
- Standard ⅜" (10 mm) twist bolts and joist clips firmly anchor joist to the stringer.
- Available in a variety of standard lengths.
- The nailer strip provides the same advantages of wood with the economy of aluminum and is easily replaced.
- Nailer strips are flush with the top of the joist and stringer; no grout leakage.
- Lightweight joists and stringers are easy to handle and place.

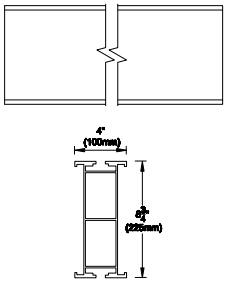
Aluminum joist



- Wide top flange provides an extremely rigid decking and work surface.
- Wider 3" x 2" nominal nailer makes nailing of deck easier, quicker.

Capacity:
250 lbs.* per linear foot (372 kg/m) at 10' (3.05 m) spans.
Joist weight:
4.5 lbs. per foot (6.7 kg/m) including nailer strip.
*Deflection limited to L/360.

Aluminum stringer

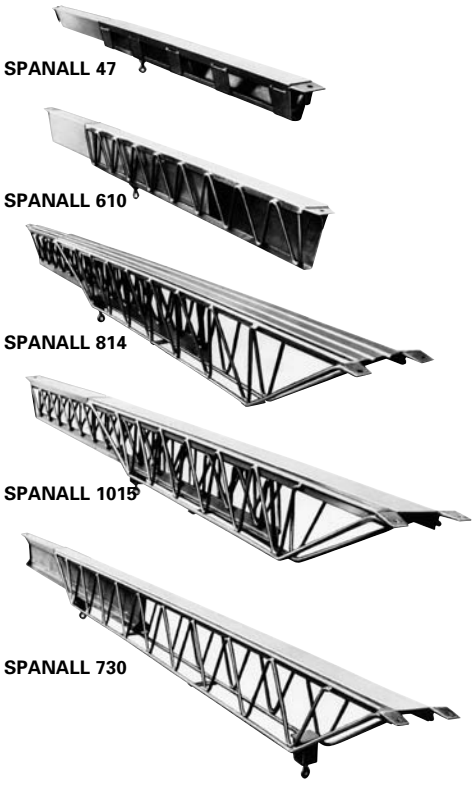


Capacity:
520 lbs.*(774 kg/m) per linear foot at 10' (3.05 m) spans.
Stringer weight:
5.2 lbs. per foot (7.7 kg/m) including nailer strip.
*Deflection limited to L/360.

Note: For specific load data covering your particular job requirement, contact your nearest Patent Branch Office at www.patentconstruction.com.

SPANALL® Horizontal shoring system

SPANALL® horizontal shoring beams deliver substantial time and cost savings because of their high load carrying capacity. SPANALL® maximizes the allowable load potential of vertical shoring support systems and keeps the deck wide open for worker access.



SPANALL 47 — For spans from 4'3" (1.3 m) to 6'10" (2.1 m). For pre-stressed and steel girder bridges, narrow corridors and narrow continuous dropheads. Weight: 28 lb. (13 kg).
Maximum bending moment. . . . . 1,450 ft.-lb. (6.45 kN)
Maximum end reaction . . . . . 2,380 lb. (1080 kg)

SPANALL 610 — For building corridors, dropheads and bridge formwork where medium spans are required. Members adjust from 6'1" (1.8 m) to 10'2" (3.1 m). Weight 49 lb. (22 kg).
Maximum bending moment. . . . . 4,000 ft.-lb. (17.79 kN)
Maximum end reaction . . . . . 2,750 lb. (1247 kg)

SPANALL 814 — Ideal for high-rise construction where low weight is of prime importance. Adjustable for spans from 8'8" (2.6 m) to 14'9" (4.5 m). Weight: 78 lb. (35 kg).
Maximum bending moment. . . . . .6,200 ft.-lb. (27.58kN)
Maximum end reaction . . . . . 2,500 lb. (1134 kg)

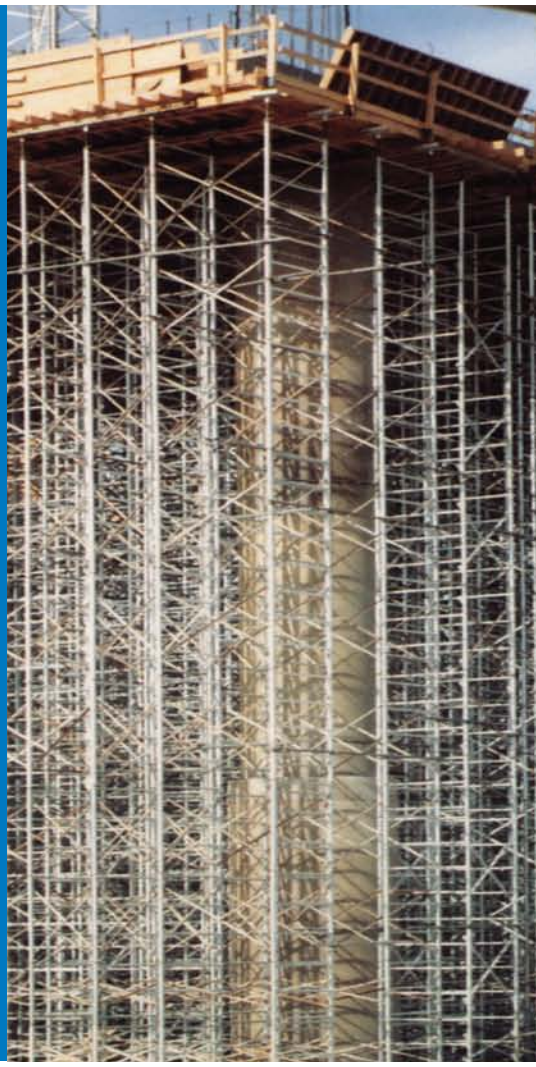
SPANALL 1015 — Perfect for multi-story form construction with spans from 9'11" (3.0 m) to 15'5" (4.7 m). Weight: 100 lb. (45 kg).
Maximum bending moment. . . . . 9,100 ft.-lb. (40.48 kN)
Maximum end reaction . . . . . 3,300 lb. (1497 kg)

SPANALL 730 — The standard unit for long-span and heavy-load formwork, with two-section spans from 8'7" (2.6 m) to 19'9" (6.0 m) and three-section spans up to 29'7" (9.0 m). Weight depends on number and type of sections used.
Maximum bending moment (2 member). . . . . 12,200 ft.-lb. (54.27 kN)
Maximum bending moment (3 member). . . . . 10,800 ft.-lb. (48.04 kN)
Maximum end reaction . . . . . 3,740 lb. (1696 kg)

Patent Construction Systems,
650 From Road
Paramus, NJ 07652-3905

TEL: 1-800-969-5600 (IN NJ: 201-261-5600)
FAX: 201-261-5544
E-Mail: sales@pcshd.com
Website: www.patentconstruction.com

SGB HÜNNEBECK PATENT HARSCO INFRASTRUCTURE



WARNING

Serious injury may result if you fail to use safe practice in the erecting, dismantling or use of scaffolding, shoring and/or forming equipment. Erectors, dismantlers and users must be familiar with and follow current laws and regulations, safe practice and the Safety Rules and Instructions. Individuals using this equipment must be instructed in these requirements. Safety Rules and Instructions pertaining to the products shown herein are provided upon sale or rental of equipment. Additional copies or further information shall be provided upon the customer's request.

It is important to note that current OSHA regulations require the use of guardrail systems and/or fall-protection devices at all working levels, open sides, and at all other openings on platforms and work areas above certain heights, as specified by OSHA. In all cases, where a worker is exposed to a fall hazard in the use of this equipment, guardrail systems, where appropriate, or other personal fall-protection devices, must be utilized. Means of access must be made available by the customer to all locations where people are expected to work. Materials for the provision of such means of access may be job-built by the customer or, at the customer's option, be obtained through Patent Construction Systems or other suppliers. Patent Construction Systems will, at the customer's request, consult on an alternative means of access.