



# Modular Deck Safety Instructions



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#### GENERAL DO'S AND DON'TS / SAFETY RULES

ALWAYS FOLLOW LOCAL, STATE & FEDERAL LAWS;
ALWAYS USE COMMON SENSE WHEN HANDLING,
ERECTING AND DISMANTLING PRO-SHORE®
MATERIALS;

**ALWAYS**WEAR A HARD HAT, GLOVES AND WORK BOOTS WHEN HANDLING PRO-SHORE® MATERIALS;

**ALWAYS** MAKE SURE POST SHORE BEARING PINS AND COTTER PINS ARE IN PLACE WHEN HANDLING/MOVING POSTS:

**ALWAYS** MAKE SURE COTTER PINS ARE INSERTED INTO BEARING PIN ON POST SHORE AFTER ERECTION:

**ALWAYS** REMOVE ANY UNNECESSARY JETLOKS FROM POSTS WHEN CROSSBRACES ARE NOT IN USE;

ALWAYS MAKE SURE CASTER BOLT ASSEMBLIES ARE ON CASTERS WHEN ATTACHED TO STORAGE FRAME TO PREVENT DAMAGE TO EQUIPMENT FAILURE AND/OR INJURIES:

ALWAYS USE PANEL TO LEDGER SAFETY CLAMPS
BETWEEN PANELS AND LEDGERS TO PREVENT WIND
UPLIFT OR PANEL ROTATION;

ALWAYS MAKE SURE ALUMINIUM LEDGERS ARE PROPERLY "SEATED" IN DROPHEAD CATCH PLATES ON BOTH POSTS AFTER ERECTION AND BEFORE POURS;

**ALWAYS** MAKE SURE THAT ALL LVL ARE PROPERLY "SEATED" IN LEDGER CHANNELS ON BOTH SIDES OF LEDGER AFTER ERECTION AND BEFORE POURS;

ALWAYS MAKE SURE THAT THE BOTTOM PLATE AND THE TOP PLATE OF POST SHORE IS FLUSH ON GROUND/CEILING OR PROPERLY "CLEATED" IF SLOPED;

ALWAYS REMOVE JETLOKS AND OTHER
ACCESSORIES FROM POST SHORES AND OTHER
EQUIPMENT BEFORE STACKING BACK IN STORAGE
FRAMES/RACKS TO REDUCE "PINCH POINTS" WHEN
HANDLING;

ALWAYS USE PRO-SHORE® EQUIPMENT IN THE LOCATION AND IN THE MANNER DESIGNED TO BE USED BY THE FORMWORK/ SHORING SUPPLIER'S ENGINEERED DRAWINGS AND SAFETY INSTRUCTIONS.

**NEVER** PUT YOUR FINGERS IN OR NEAR POST SHORE INNER PIPE, OUTER PIPE OR COLLAR SLEEVE HOLES OR GROOVES:

**NEVER** COMBINE POSTS WITH OTHER SYSTEMS WITHOUT ENGINEERING APPROVAL;

NEVER USE YOUR HANDS, FINGERS, OR OTHER FOREIGN OBJECTS TO KEEP POST SHORE OPEN WHILE YOU ATTEMPT TO LIFT THE POST SHORE DURING ERECTION OR DISMANTLE—PUT OR LEAVE THE BEARING PIN IN PLACE AND ADJUST "THREADED COLLAR" AS NECESSARY TO FREE UP THE TENSION ON THE POST;

NEVER USE THE WRONG OR A DIFFERENT TYPE OF PRO-SHORE® POST, LEDGER, LVL OR OTHER EQUIPMENT/SYSTEM IN LIEU OF ENGINEER DESIGNED LAYOUT PROVIDED BY DISTRIBUTOR OR RENTAL COMPANY:

**NEVER** LEAVE STRIPPED OR PARTIALLY STRIPPED/ LOWERED MATERIAL FREE-STANDING OR WITHOUT ATTENDANCE/ MONITORING:

**NEVER** LEAVE EQUIPMENT LOOSE ON THE GROUND, BUNDLED OR NOT IN PROPER PACKAGING/STORAGE FRAMES:

**NEVER** LEAVE LOOSE EQUIPMENT OR UNNECESSARY JETLOKS ATTACHED TO OR HANGING FROM EQUIPMENT:

**NEVER** ATTACH A "SLABGRABBER" OR OTHER GUARDRAIL POST TO THE "ENDS" OF THE ALUMINIUM LEDGER:

**NEVER** ATTACH A "SLABGRABBER" OR OTHER GUARDRAIL POST TO THE "ENDS" OF THE ALUMINIUM PANELS;

**NEVER** USE ANY PRO-SHORE® EQUIPMENT/ MATERIAL AS A "BREAKER BAR", "HAMMER" OR AS ANY OTHER TYPE OF TOOL;

NEVER ALLOW LOOSE/UN-USED PRO-SHORE®

MATERIAL TO BE DROPPED FROM HEIGHT, DROPPED

OR LOWERED PIECE BY PIECE BY HAND, OR TO BE

RUN OVER BY VEHICLES OR OTHER EQUIPMENT;

**NEVER** EXCEED THE LOAD CAPACITY OF A POST TAKING INTO ACCOUNT "DYNAMIC LOADS";

**NEVER** INSTALL POST OUT OF PLUMB;

**NEVER** EXCEED THE LOAD BEARING CAPACITY OF THE SUBSTRATE YOU ARE PLACING THE POST ON;

**NEVER** MAKE REPAIRS TO THE POST YOUR-SELF; ONLY DISTRIBUTOR MAY DO THIS;

**NEVER** HEAT POSTS WITH WELDING EQUIPMENT OR TORCHES;

**NEVER** USE POSTS FOR RESHORING OF DEMOLITION OPTIONS.

Always Follow the INDEPENDENT POST SHORE SYSTEM SAFETY RULES As Recommended by the SCAFFOLDING, SHORING AND FORMING INSTITUTE



### BEST PRACTICES FOR CANTILEVERED DECK SETUP AND POUR WITH PRO-SHORE®

#### **RE-SHORE**

Build deck directly under cantilevered condition to have a sturdy and level surface to build working deck. Make sure Posts that are holding up the temporary re-shored deck are set on concrete or a strong and level surface which will not give out once the weight of concrete hits the working deck.

If ground is soft, set posts on a "Bearing Pad"

Must be engineered/sized-based on site soil conditions

Make sure appropriate re-shore is installed and deck is completely level to withstand point loads of the Pro-shore® posts at the working deck.

Install more re-shore than is necessary – 4 levels below working deck should be suitable depending on thickness of deck.

Span ledgers across re-shored deck in order distribute load to two posts instead of only one post.

#### **WORKING DECK**

Follow PE stamped shoring shop drawings for layout of Joists and Posts.

At the cantilevered ledgers install a spud and Post 2' from the edge, and make sure a post and ledger beam sits directly underneath distributing the load down to an existing sturdy surface.

On the existing concrete or solid surface directly below the working deck, add extra posts under the ledger beam that cantilevers out.

Utilize ledger beams on the ground below the working deck to distribute load, then make sure that load is picked up by beams and posts at the levels below.

Span another ledger across the LVLs in the cantilevered section to better distribute the load.

Make sure ledger beams and posts are installed directly underneath in the levels below until they reach a strong surface such as an existing concrete slab or trench plate.

At the existing surface below where the cantilevered section starts:

Add extra posts at beams to pick up as much weight as possible.

Install cross braces between posts and tie back with "Post Safety Leashes" to keep them in place.

#### **POUR**

Pour cantilevered section from the inside out, NOT the outside in.

Pour this area slowly to prevent shifting of posts and joists.

IMPROPER USE OF PRO-SHORE® MATERIAL CAN LEAD TO SERIOUS INJURY OR DEATH. ALWAYS BE CAUTIOUS WHEN USING THIS AND ANY EQUIPMENT.

#### BUILDING A CANTILEVER DECK WITH PRO-SHORE®

Review stamped drawing from formwork supplier. Understand material, layout, and confirm a 3rd party engineer has stamped and sealed engineering drawings.

Inspect all equipment prior to installation. Check for rust, broken welds, bents, dents, and all other defects.

Remove all defective equipment from service.

At cantilevered portion confirm the following:

- \* Star nut must be tightened and rotated 90 degrees from the release slot.
- \* Posts are plum (no exceptions). Plum the posts before or during final grading.

Working from inside out, measure distance to determine final post location.

Based on location, install plastic spud into horizontal member on ground.

Lock in horizontal member to erected post.

Lift horizontal member into position (plastic spud already installed) and install Pro-Shore® post below horizontal member with plastic spud being inserted into the drop head hole.

Attach ledger. Hold down clip to underside of cantilevered horizontal member and bear under star nut of drop-head plate. Tighten clip to secure two elements.

"X" brace exterior Pro-Shore® posts to adjacent posts in two directions for cantilever posts.

- \* For 8' Double Ledgers (36" max. cantilever)
- \* For 10' Double Ledgers (48" max. cantilever)

Infill secondary joists (LVL's).

- \* Install amount to infill cantilever segment.
- \* Space accordingly.

If the reach is too far for bottom crew have top side, crew space accordingly.

Secure handrail brackets to ledgers whenever possible.

During re-shore process confirm mid-span post is added for 10' ledgers.

#### **SAFETY CONCERNS:**

It is not safe to store material on cantilever deck.

Inform General Contractor and subsequent trades cantilever deck is not designed as storage area for rebar, equipment, tools, boxes, etc.

Prior to deck pour, communicate with place and finish company on dangers of cantilever deck.

Inform all related and relevant subcontractors and personnel.

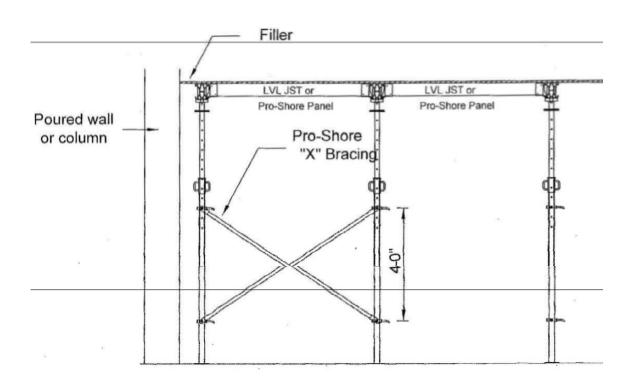
Confirm with place and finish foremen the pour will work from the inside/out to evenly distribute the weight over shoring system.

Always follow all local, state, regional, and national safety procedures.

Always follow professional engineer stamped and engineered drawings.

IMPROPER USE OF PRO-SHORE® MATERIAL CAN LEAD TO SERIOUS INJURY OR DEATH. ALWAYS BE CAUTIOUS WHEN USING THIS AND ANY EQUIPMENT.

## STABILITY AND LATERAL FORCE CONSIDERATION ON POST SHORES



Post shores and set-up depicted are illustrative only.

#### STABILITY AND LATERAL FORCE CONSIDERATION ON SHORING SYSTEMS

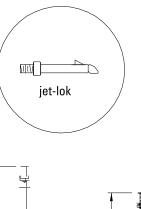
It is important for the erector to recognize the difference between stability bracing, and lateral force bracing.

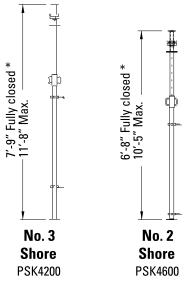
Stability Bracing is required during the erection and dismantling of the shoring system when it is freestanding without blocking the permanent structure. The Pro-Shore® "X" braces shown on the shoring drawings illustrate a typical method used for stability bracing. The cross braces act in conjunction with the stringer and joist connections at the top of the post shores, providing additional stability in the longitudinal and transverse directions. In addition to the standard Pro-Shore® "X" bracing, all shoring heights in excess of 12'-0" may require added bracing or securing.

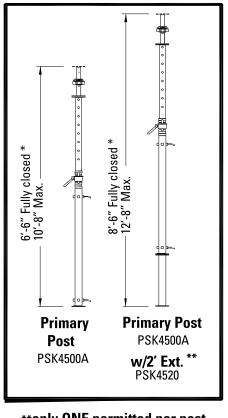
Lateral Bracing is required to resist the horizontal forces acting on the shoring system, such as wind loads, concrete pressures against bulkheads, or sloping soffits and dynamic loads during concrete placement. Blocking the plywood and components of the shoring system to the permanent structure provides lateral bracing. The cross braces used to stability bracing may also provide lateral bracing when it is not possible to provide blocking to the structure.

A qualified person should analyze every shoring system to determine what lateral bracing is required.

#### SYSTEM COMPONENTS - PRO-SHORE® STEEL POSTS



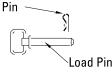




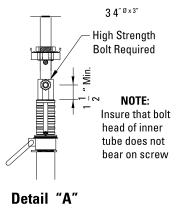
Det. "A" 8'-4" Fully closed \* 13'-4" Max. PS Shore PSK4000

\*\*only ONE permitted per post

### **Ensure all load pins are secured with** cotter pins.



\* Add 2" to minimum dimension for stripping.

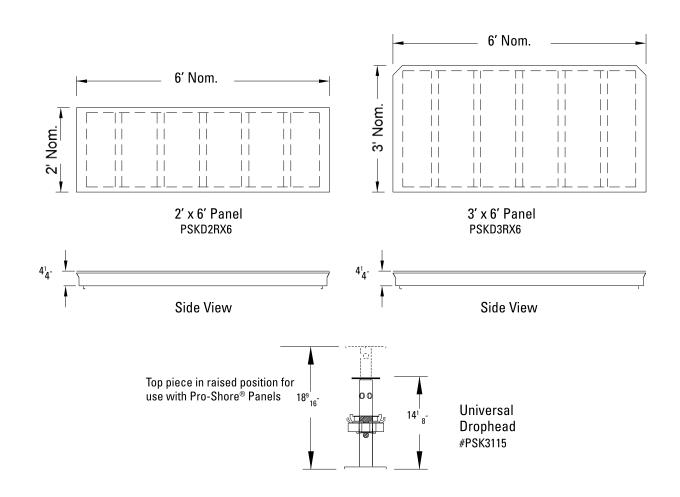


## **SYSTEM COMPONENTS - PRO-SHORE® STEEL POSTS**



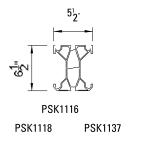


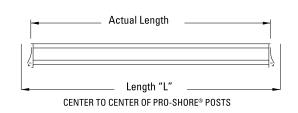
## **SYSTEM COMPONENTS - PRO-DECK® ALUMINUM FIN-PLY/ALKUS PANELS**



## **LEDGERS**

#### NOTE: Used for Pro-Shore® Modular Decking System & Pro-Deck® Panelized Decking System



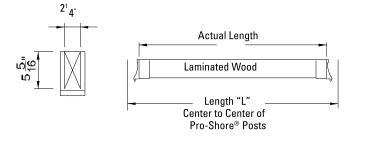


Actual Length	Length "L"	Weight	Part No.
5'-5 <sub>16"</sub>	6'-0"	40.5 lbs.	PSK1116
7'-5 <sup>5</sup> <sub>16"</sub>	8'-0"	53.4 lbs.	PSK1118
9′-5 <sup>5</sup> <sub>16″</sub>	10'-0"	67.3 lbs.	PSK1137

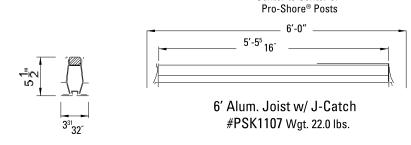
## **SYSTEM COMPONENTS**

## LVL JOISTS W/ "J" CATCHES

Center to Center of

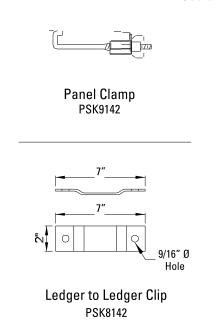


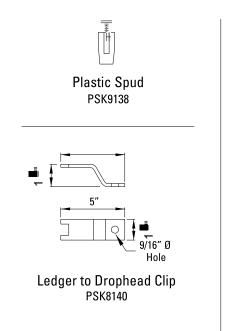
Actual Length	Length	Weight	Part No.
3′-5¼″	4'-0"	14.5 lbs.	#PSK1104
4′-5¼″	5′-0″	15.5 lbs.	#PSK1105
5′-5¼″	6'-0"	18.5 lbs.	#PSK1106

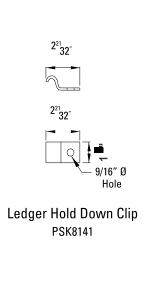


## **ACCESSORIES**

See erection instructions for use of accessories.







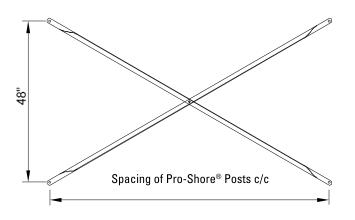
## **SYSTEM COMPONENTS**

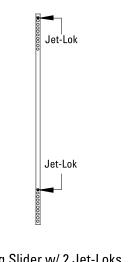
## **ACCESSORIES**

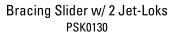
See erection instructions for use of accessories.

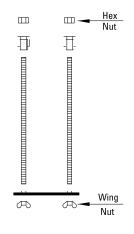
## PRO-SHORE® X BRACES

	cc/Dm.	Weight	Part No.
4 x 4	4′	8.5 lbs.	PSK0126
4 x 5	5′	9.0 lbs.	PSK0127
4 x 6	6′	10.3 lbs.	PSK0125
4 x 8	8	12.5 lbs.	PSK0124









Ledger Hanger PSK8145

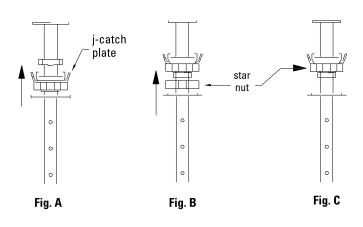
## **PRO-SHORE® ERECTION**

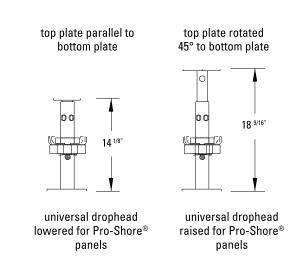
1. Prior to erecting Pro-Shore® posts, insure that the bearing plate is in the up position and the star nut tight.

Fig. A: Raise lower j-catch plate of drophead to the stop position.

Fig. B: Raise star-nut to underside of j-catch plate.

Fig. C: Hammer star nut in counter clockwise direction to secure j-catch plate.

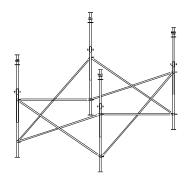


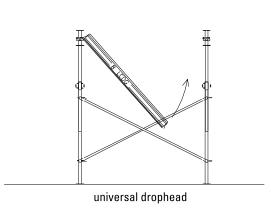


2. The first step of the Pro-Shore® system is setting up a fully braced tower using four (4) posts and pivoted cross braces. This creates a stable base from which to hang ledgers and joists. Additional jet-loks must be installed on the posts in order to brace posts at 90°. Use a fully braced tower at all perimeter cantilever conditions and at changes in slab elevations.

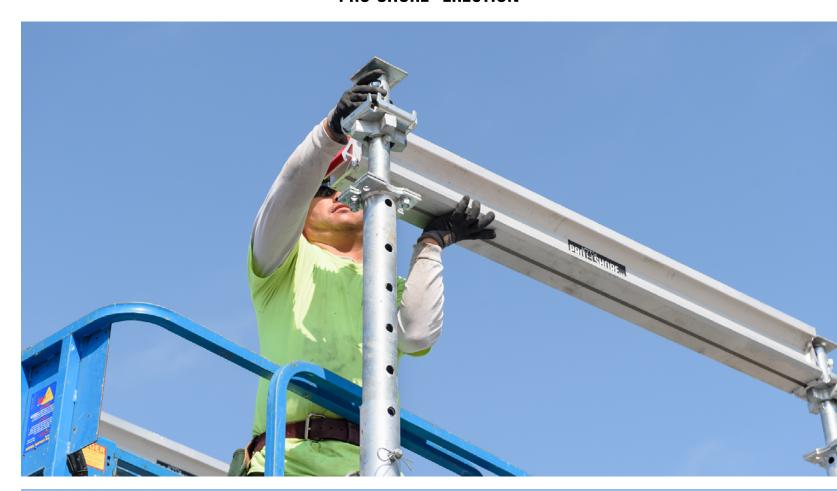
Install additional bracing as the erection continues until the shoring system can be stabilized against previously poured walls or columns.

- 3. Place one end of a ledger into the Pro-Shore® drophead assembly. **Ensure end is seated securely in drophead.**
- 4. Raise opposite end of ledger and place in the second Pro-Shore® drophead assembly.
- 5. Repeat steps 3 & 4 to erect a ledger in the remaining two Pro-Shore® posts.





## PRO-SHORE® ERECTION





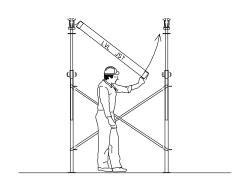
#### PRO-SHORE® ERECTION

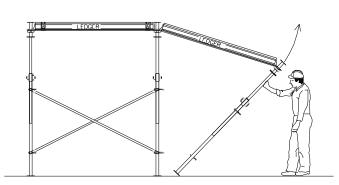
#### SEE STEPS 16 THROUGH 23 FOR PRO-DECK® PANEL (PAGES 16-18)

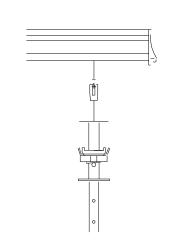
- 6. From below, place one (1) LVL joist into bottom slot of ledger near first pair of Pro-Shore® posts erected and raise up to adjacent ledger. Insure joist is secured in drophead or ledger.
- 7. From below, erect additional LVL joists at spacing shown on the layout drawing.
- 8. From below, continue erecting ledgers by placing one end of the ledger into a previously erected Pro-Shore® drop-head assembly and raising the other end of the ledger, using another Pro-Shore® post, as a prop.
- 9. From below, add a joist between each subsequent erected pair of post shores to provide additional stability.
- 10. It is recommended that a braced tower of four (4) Pro-Shore® posts be erected with a maximum of six (6) bays between the braced towers in either direction during erection and dismantling.

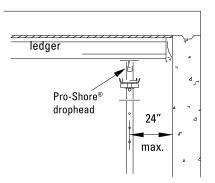
Additional lateral bracing may be required for loading conditions at corners, slab edges and elevation changes.

- 11. When it is necessary to cantilever a ledger over a Pro-Shore® post, a plastic spud is inserted into the bottom slot of the ledger and tightened.
- 12. Insert plastic spud into hole of drophead plate, or if using UDH drophead, turn post over and insert plastic spud into hole of drophead baseplate.









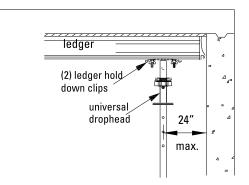
#### PRO-SHORE® ERECTION

13. When cantilevering a ledger over a Universal Drophead, secure ledger to drophead with two (2) ledger hold down clips.

Additional "X" bracing may be required at cantilevered conditions next to beam sides, interior openings, walls and other similar applications.

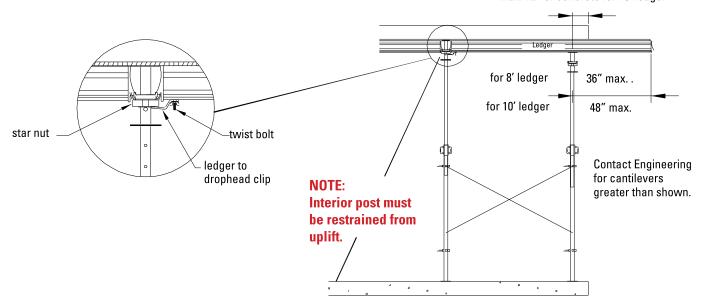
When cantilevering a ledger beyond a slab edge, follow these additional steps.

- 14. Attach ledger hold down clip to under side of cantilevered ledger and bear under star nut of drophead plate.
- 15. "X" brace exterior Pro-Shore® posts to adjacent posts in two directions using pivoted diagonal cross braces on all open sides and openings in formwork and slabs as required by applicable codes. (Note: fall protection shall be provided)



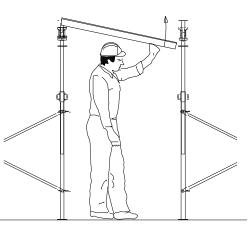
Note: Fall protection shall be provided on all open sides and openings in formwork and slabs as required by applicable codes.

max. 6" of concrete for 8' ledger max. 12" of concrete for 10' ledger

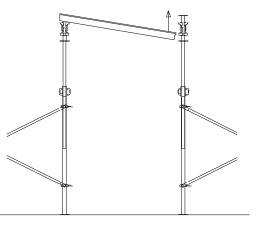


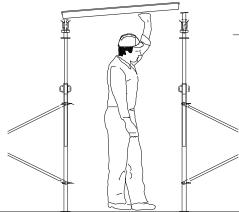
## PRO-DECK® ERECTION

16. From below, place one end of Pro-Deck® panel on previously erected, stabilized ledger.



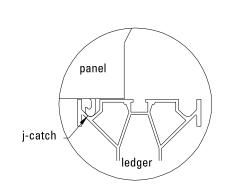
17. Rotate opposite end of Pro-Deck® panel above adjacent stabilized ledger.

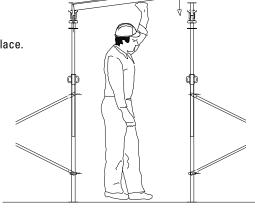




18. Slide Pro-Deck® panel forward over second ledger until j-catch of panel locks into first ledger.

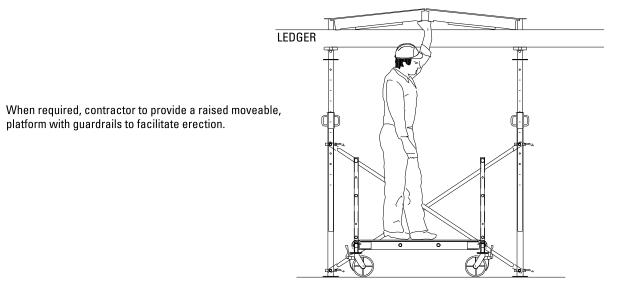
19. Lower Pro-Deck® panel onto second ledger and lock j-catch into place.



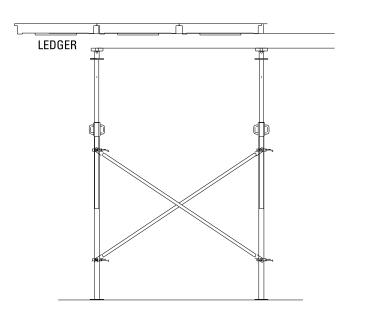


## PRO-DECK® ERECTION

20. To facilitate placement of the last panel in a bay, lift adjacent panel and last panel and lower both panels together.



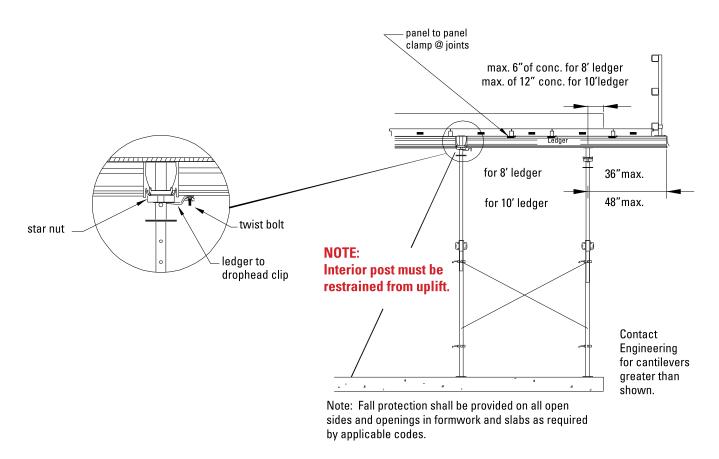
21. Repeat previous steps in order to erect remaining panels.



#### PRO-DECK® PANEL ERECTION

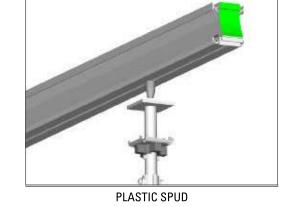
When cantilevering a ledger beyond a slab edge, follow these additional steps.

22. Attach Ledger to drophead clip to under side of cantilevered ledger and bear under star nut of drop-head plate.



23. "X" brace exterior Pro-Deck® posts to adjacent posts in two directions.



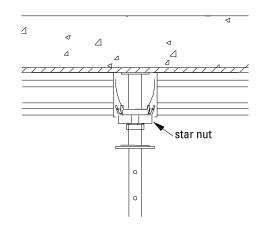


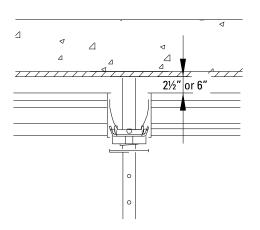
PRO-SHORE® STRIPPING

SEE STEPS 7 THROUGH 11 FOR PRO-DECK® STRIPPING (ON PAGES 20-21)

When cantilevering a ledger beyond a slab edge, follow these additional steps.

- 1. Begin the stripping operation by hammering the star nut in a clockwise direction in a three (3) bay wide area.
- 2. This will drop all ledgers and joist approximately 2½" or 6" when using universal drophead.
- 3. Remove the joists and stack onto a cart.
- 4. Lower the ledgers and place them on a second cart.
- 5. Carefully remove the plywood and stack for reuse.
- 6. Lower Pro-Shore® posts a sufficient distance to remove plywood directly above the posts.





Reshores and backshores as defined by ACI are some of the most critical operations in formwork. Consequently, the reshoring and backshoring shall be designed by a qualified person and should be approved by the architect/engineer of record.

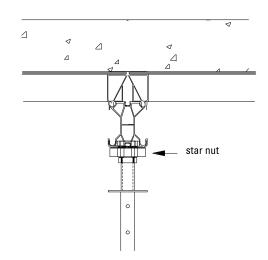
**Reshores** - Shores placed snugly under a stripped concrete slab or structural member after the original forms and shoring have been removed from a large area, requiring the new slab or structural member to deflect and support its own weight and existing constructionloads applied prior to the installation of the reshores.

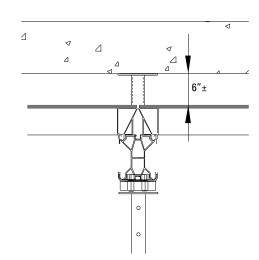
**Backshores** - Shores placed snugly under a concrete slab or structural member after the original formwork and shores have been removed from a small area at a time, without allowing the slab or member to deflect; thus the slab or other member does not yet support its own weight or existing construction loads from above.

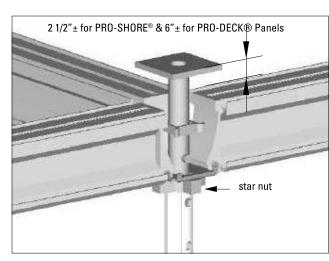
## PRO-DECK® PANEL STRIPPING

Start the stripping operation with any cantilevered panels, working inward on the structure. Dismantle and lower all components in a safe manner.

- 7. Begin the stripping operation by hammering the star nut in a clockwise direction in a three (3) bay wide area.
- 8. Ledgers and panels will drop approximately 6".

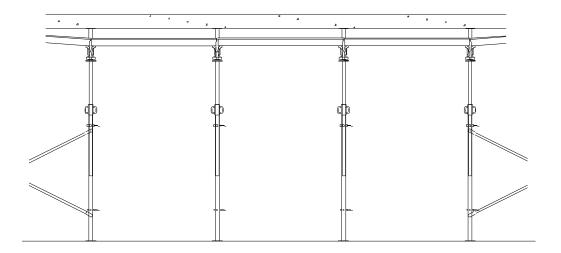




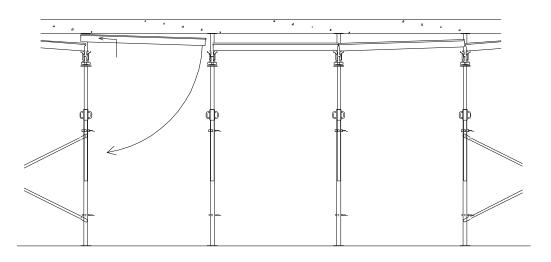


LEDGERS LOWERED AT DROPHEAD

## PRO-DECK® PANEL STRIPPING



9. Release the star nut on several posts in adjacent rows to lower the panel dropheads.



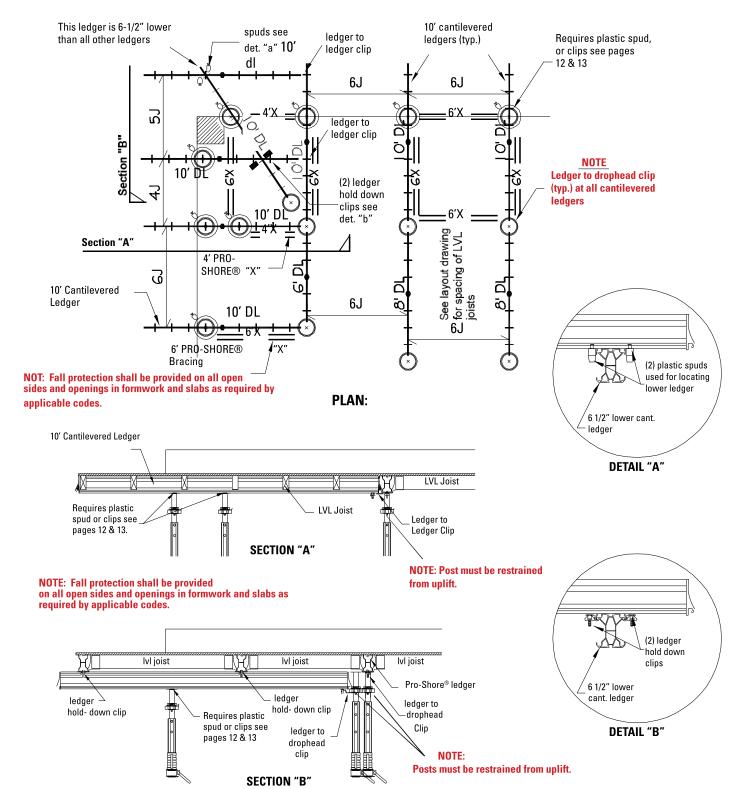
- 10. Raise the panel up and slide over adjacent ledger & panel, then lower the panel.
- 11. Continue lowering subsequent panels and stack on cart for movement to next location.

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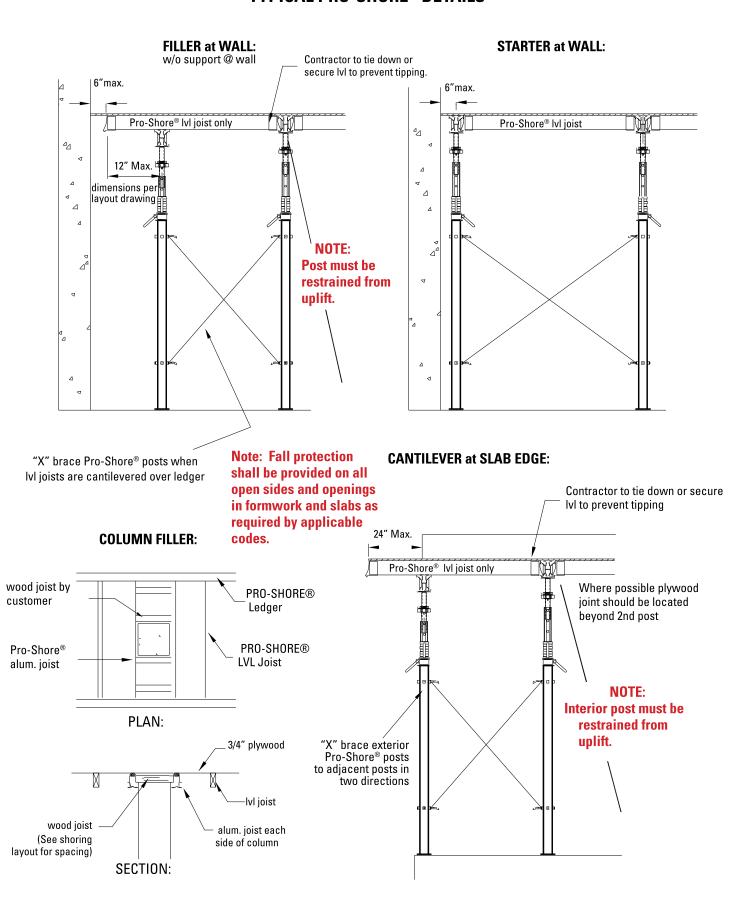
#### TYPICAL PRO-SHORE® DETAILS

SEE STEPS 7 THROUGH 11 FOR PRO-DECK® PANEL (ON PAGES 20-21)

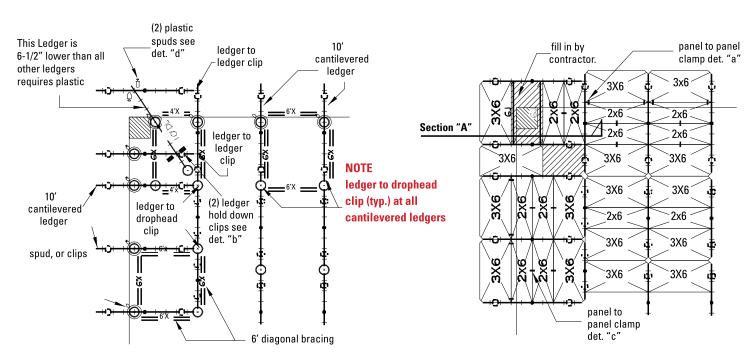
#### **SUGGESTED CORNER LAYOUT:**



#### TYPICAL PRO-SHORE® DETAILS

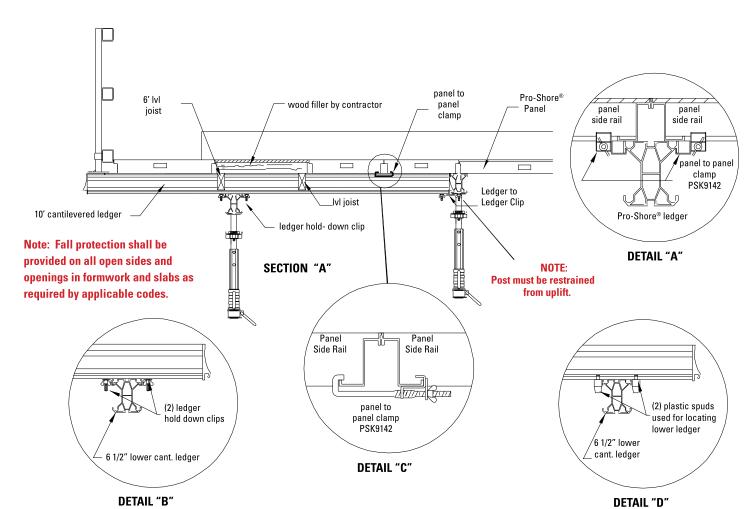


## **TYPICAL PRO-DECK® PANEL DETAILS**



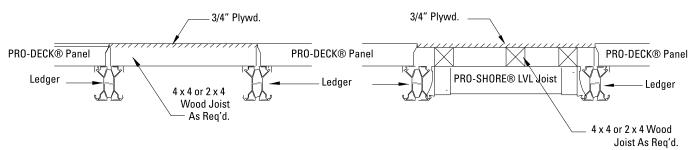
#### **POST & LEDGER LAYOUT AT CORNER**

#### **PANEL LAYOUT AT CORNER**

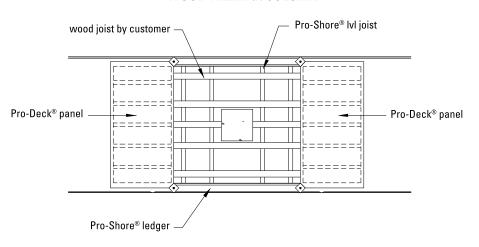


## **TYPICAL PRO-DECK® PANEL DETAILS**

#### **WOOD FILLER**

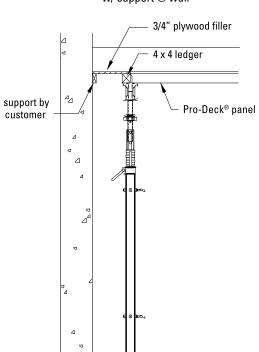


#### **WOOD FILLER at COLUMN**



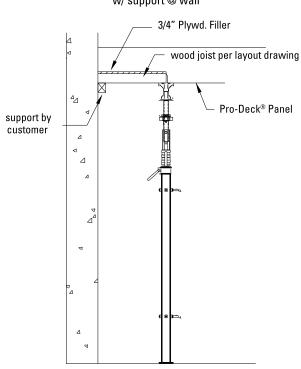
#### 12" FILLER at WALL:

w/ support @ wall



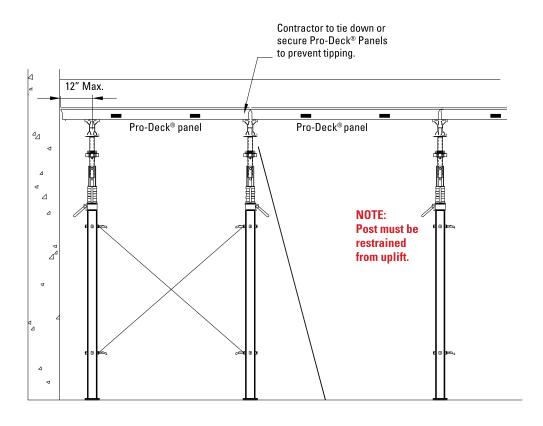
#### **WIDE FILLER at WALL:**

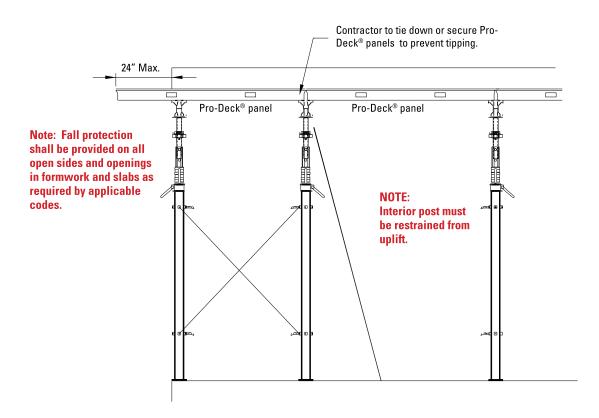
w/ support @ wall



## **TYPICAL PRO-DECK® PANEL DETAILS**

#### **CANTILEVER OF PANEL**

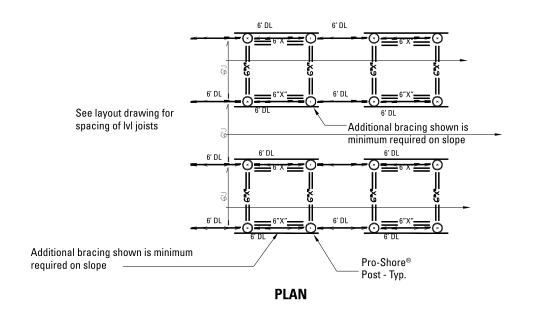


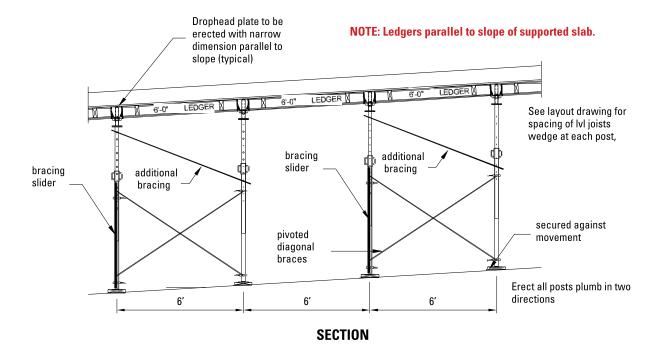


## **TYPICAL DETAILS**

#### **SLOPED SLABS**

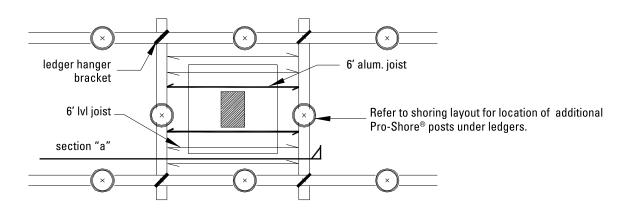
Shoring sloped slabs or bearing on sloped surfaces require additional bracing and analysis of the forces imposed, contact engineering for assistance. Drawings below are illustrative only, each situation requires review. Contact engineering for slopes greater than 12% (7°).

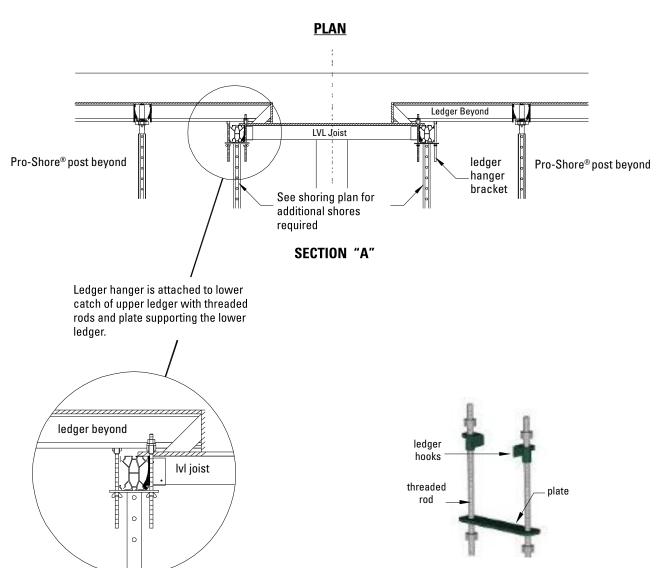




## TYPICAL DETAILS

#### **LEDGER HANGER**



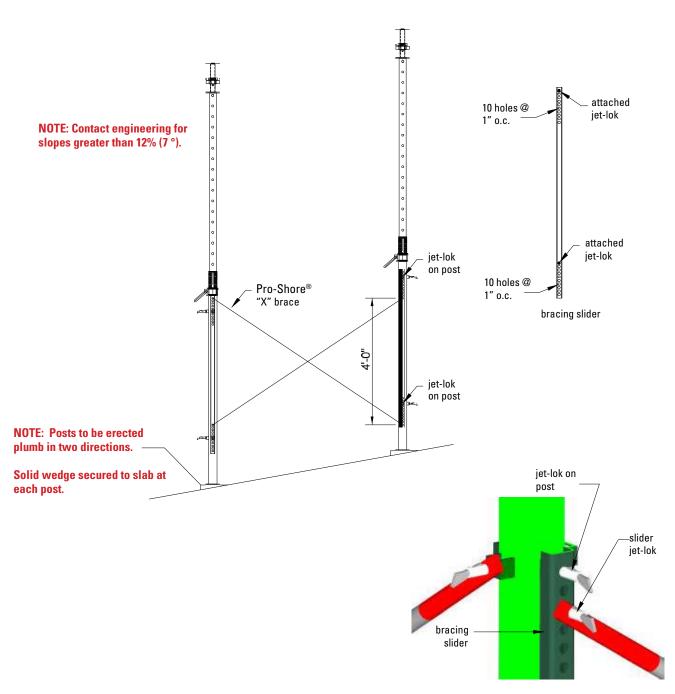


## **TYPICAL DETAILS**

#### **BRACING SLIDER**

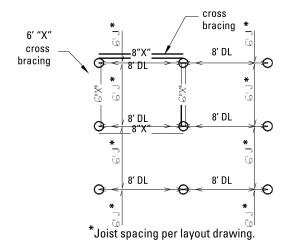
In order to "X" brace Pro-Shore® posts bearing on a sloped slab a bracing slider is attached to one or both of the posts.

The bracing slider is placed over the jet-loks on the post shores and the pivoted diagonal cross braces are attached to the jet-loks on the bracing slider.

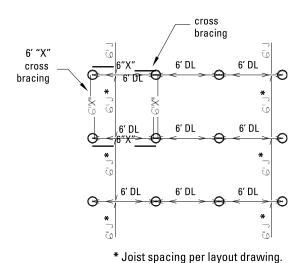


#### TYPICAL PRO-SHORE® SHORING PLANS

#### 6' x 8' grid for concrete slabs up to 12" thick

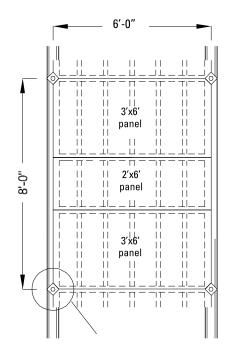


#### 6' x 6' grid for concrete slabs 13" to 24" thick

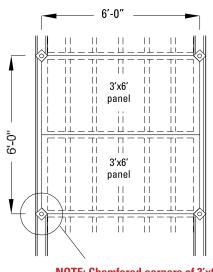


NOTE: For concrete slabs greater than 24" thick contact engineering.

Pro-Shore® panels can support a maximum 12" slab without additional intermediate support.



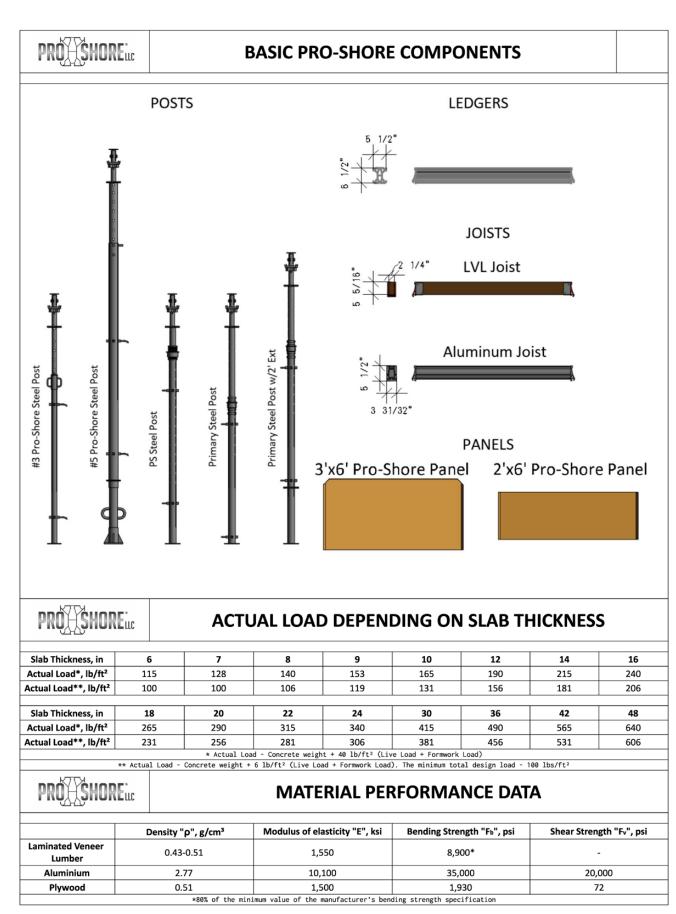
NOTE: Chamfered corners of 3'x6' panel are erected at dropheads.

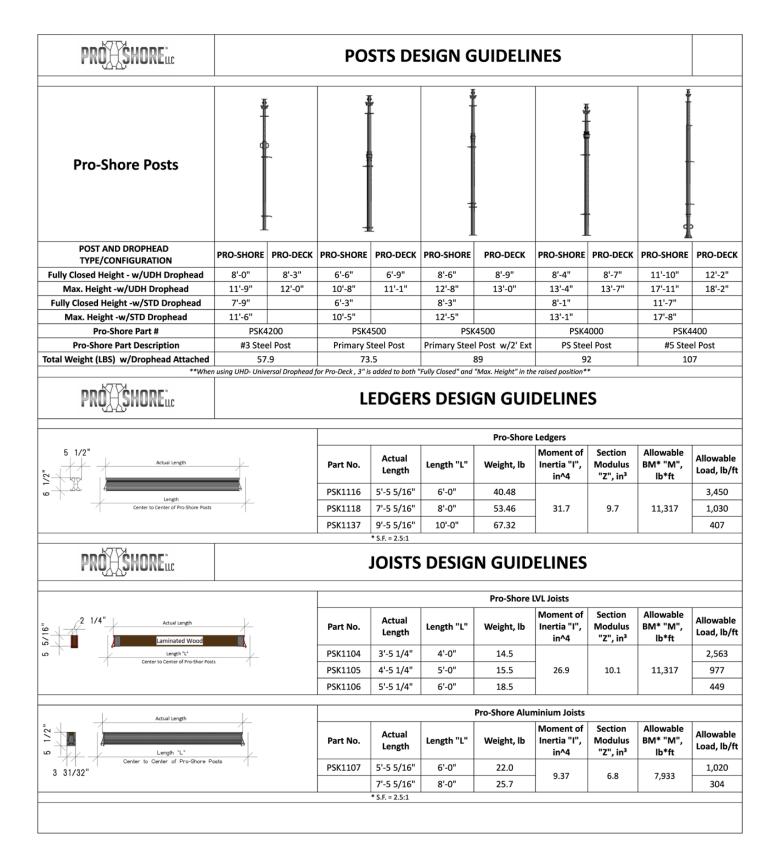


NOTE: Chamfered corners of 3'x6' panel are erected at dropheads.

ALWAYS VERIFY THE POST SHORES HAVE ADEQUATE CAPACITY TO SUPPORT THE DESIGN LOAD AT THE ACTUAL (INSTALLED) HEIGHT.

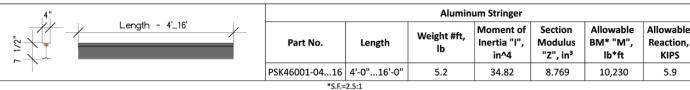
## **PRO-SHORE® ENGINEERING GUIDELINES**





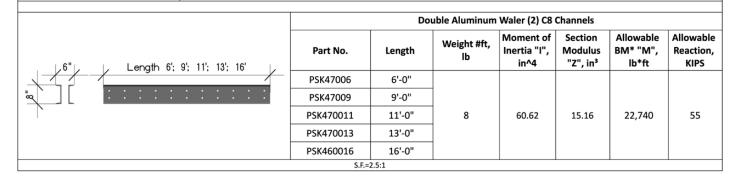
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# **ALUMINUM STRINGER DESIGN GUIDELINES**



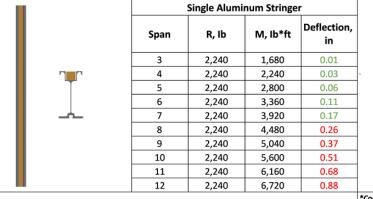
RO SHORE LLC

### **DOUBLE ALUMINUM WALER DESIGN GUIDELINES**



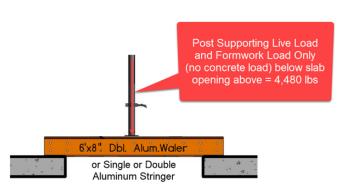


## **ALUM STRINGER AND DBL WALER ENGINEERING DATA**



		Oouble Alum	inum Stringe	er
	Span	R, Ib	M, lb*ft	Deflection, in
Nails	3	2,240	1,680	0.01
·	4	2,240	2,240	0.02
	5	2,240	2,800	0.03
	6	2,240	3,360	0.05
	7	2,240	3,920	0.09
	8	2,240	4,480	0.13
	9	2,240	5,040	0.19
	10	2,240	5,600	0.25
	11	2,240	6,160	0.34
	12	2,240	6,720	0.44
*Connect stringers with 2"x8"x	8" long placed b	elow post base p	late nailed to st	ringer nailers

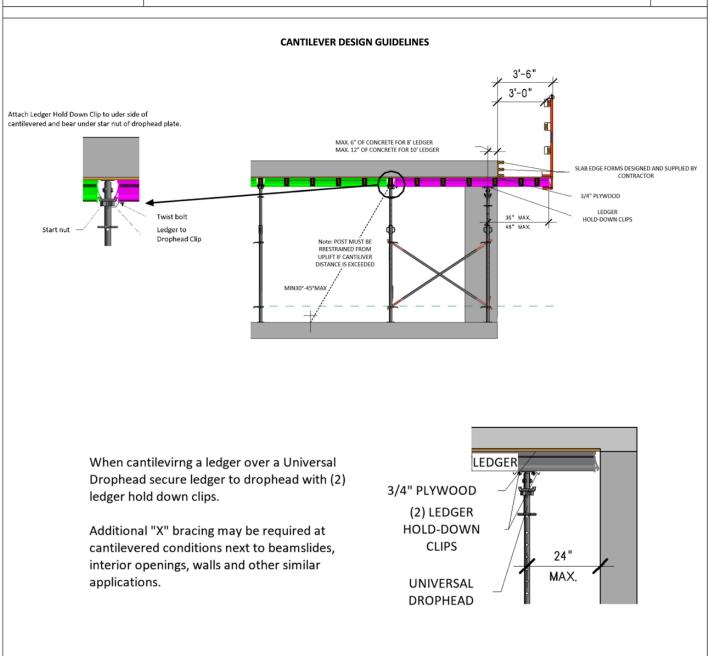
		Double Aluminum Waler						
ш		Span	R, Ib	M, lb*ft	Deflection, **in			
		3	2,240	1,680	0.01			
		4	2,240	2,240	0.02			
	1	5	2,240	2,800	0.03			
		6	2,240	3,360	0.06			
		7	2,240	3,920	0.09			
		8	2,240	4,480	0.14			
		9	2,240	5,040	0.19			
		10	2,240	5,600	0.27			
		11	2,240	6,160	0.35			
		12	2,240	6,720	0.46			
** Maximum deflection - 1	/360L with 0.2	25" max						
Color legend:	Allowa	ble Value	Limit Value	Not Alloy	vable Value			



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## **LEDGERS DESIGN GUIDELINES**





# **GENERAL DESIGN GUIDELINES**

		#3 Steel F			
Slab Thickness, in	Grid Pattern	Max. Post Height	Ledger	Joist	Joists spacing, in
6	8' x 8'	10'-0"	8' Ledger	8' Aluminium Joist	24
7	8' x 8'	9'-6"	8' Ledger	8' Aluminium Joist	24
8	8' x 8'	9'-0"	8' Ledger	8' Aluminium Joist	19.2
9	8' x 8'	8'-4"	8' Ledger	8' Aluminium Joist	19.2
10	6' x 8'	9'-8"	8' Ledger	6' LVL Joist	19.2
12	6' x 8'	8'-9"	8' Ledger	6' LVL Joist	19.2
14	6' x 6'	9'-9"	6' Ledger	6' LVL Joist	19.2
16	6' x 6'	9'-1"	6' Ledger	6' LVL Joist	19.2
18	6' x 6'	8'-5"	6' Ledger	6' LVL Joist	16
20	6' x 6'	-	6' Ledger	6' LVL Joist	16
22	6' x 6'	-	6' Ledger	6' LVL Joist	12
24	6' x 6'	-	6' Ledger	6' LVL Joist	12
		#5 Steel F	Post		
Slab Thickness, in	Grid Pattern	Max. Post Height	Ledger	Joist	Joists spacing, in
6	8' x 8'	16'-1"	8' Ledger	8' Aluminium Joist	24
7	8' x 8'	15'-2"	8' Ledger	8' Aluminium Joist	24
8	6' x 8'	16'-11"	8' Ledger	6' LVL Joist	19.2
9	6' x 8'	16'-2"	8' Ledger	6' LVL Joist	19.2
10	6' x 8'	15'-5"	8' Ledger	6' LVL Joist	19.2
12	6' x 6'	16'-9"	6' Ledger	6' LVL Joist	19.2
14	6' x 6'	15'-8"	6' Ledger	6' LVL Joist	19.2
16	6' x 6'	-	6' Ledger	6' LVL Joist	19.2
18	6' x 6'	-	6' Ledger	6' LVL Joist	16
20	6' x 6'	-	6' Ledger	6' LVL Joist	16
22	6' x 6'	-		6' LVL Joist	12
24		-	6' Ledger		
24	6' x 6'	PC Stoo	6' Ledger	6' LVL Joist	12
Slab Thickness, in	Grid Pattern	PS Stee Max. Post Height	Ledger	Joist	Joists spacing, in
6	8' x 8'	12'-10"		8' Aluminium Joist	24
7			8' Ledger		
	8' x 8'	12'-3"	8' Ledger	8' Aluminium Joist	24
8	8' x 8'	11'-7"	8' Ledger	8' Aluminium Joist	19.2
9	8' x 8'	11'-0"	8' Ledger	8' Aluminium Joist	19.2
10	8' x 8'	10'-2"	8' Ledger	8' Aluminium Joist	19.2
12	6' x 8'	11'-6"	8' Ledger	6' LVL Joist	19.2
14	6' x 8'	10'-5"	8' Ledger	6' LVL Joist	19.2
16	6' x 6'	11'-10"	6' Ledger	6' LVL Joist	19.2
18	6' x 6'	11'-2"	6' Ledger	6' LVL Joist	16
20	6' x 6'	10'-4"	6' Ledger	6' LVL Joist	16
22	6' x 6'	9'-3"	6' Ledger	6' LVL Joist	12
24	6' x 6'	-	6' Ledger	6' LVL Joist	12
		Primary S	teel Post		
Slab Thickness, in	<b>Grid Pattern</b>	Max. Post Height	Ledger	Joist	Joists spacing, in
6	8' x 8'	10'-8"	8' Ledger	8' Aluminium Joist	24
7	8' x 8'	10'-8"	8' Ledger	8' Aluminium Joist	24
8	8' x 8'	10'-8"	8' Ledger	8' Aluminium Joist	19.2
9	8' x 8'	10'-8"	8' Ledger	8' Aluminium Joist	19.2
10	8' x 8'	10'-8"	8' Ledger	8' Aluminium Joist	19.2
12	6' x 8'	10'-8"	8' Ledger	6' LVL Joist	19.2
14	6' x 8'	10'-8"	8' Ledger	6' LVL Joist	19.2
16	6' x 6'	10'-8"	6' Ledger	6' LVL Joist	19.2
18	6' x 6'	10'-8"	6' Ledger	6' LVL Joist	16
20	6' x 6'	10'-8"	6' Ledger	6' LVL Joist	16
22	6' x 6'	10'-8"	6' Ledger	6' LVL Joist	12

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## **GENERAL DESIGN GUIDELINES**

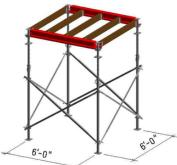
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Primary Steel Post w/2'Ext							
Slab Thickness, in	<b>Grid Pattern</b>	Max. Post Height	Ledger	Joist	Joists spacing, ir		
6	8' x 8'	12'-8"	8' Ledger	8' Aluminium Joist	24		
7	8' x 8'	12'-8"	8' Ledger	8' Aluminium Joist	24		
8	8' x 8'	12'-5"	8' Ledger	8' Aluminium Joist	19.2		
9	8' x 8'	12'-0"	8' Ledger	8' Aluminium Joist	19.2		
10	8' x 8'	11'-7"	8' Ledger	8' Aluminium Joist	19.2		
12	6' x 8'	12'-4"	8' Ledger	6' LVL Joist	19.2		
14	6' x 8'	11'-9"	8' Ledger	6' LVL Joist	19.2		
16	6' x 6'	12'-7"	6' Ledger	6' LVL Joist	19.2		
18	6' x 6'	12'-1"	6' Ledger	6' LVL Joist	16		
20	6' x 6'	11'-8"	6' Ledger	6' LVL Joist	16		
22	6' x 6'	11'-5"	6' Ledger	6' LVL Joist	12		
24	6' x 6'	11'-1"	6' Ledger	6' LVL Joist	12		



## **POSTS ENGINEERING DATA**

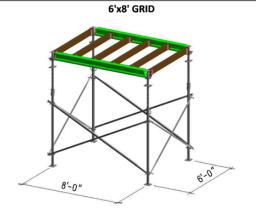
#### 6'x6' GRID



\*Actual Load - Concrete Weight + 40 lb/ft² (Live Load + Formwork Load)

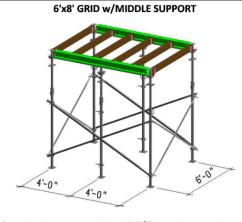
S.F. = 3:1

	Maximum Post Height 6'x6' Grid								
Slab Thickness, in	Actual Load*, lb	#3 Steel Post	#5 Steel Post	PS Steel Post	Primary Steel Post	Primary Steel Post w/2'Ext			
6	4,140	11'-5"	17'-11"	13'-4"	10'-8"	12'-8"			
7	4,590	11'-5"	17'-11"	13'-4"	10'-8"	12'-8"			
8	5,040	11'-4"	17'-11"	13'-4"	10'-8"	12'-8"			
9	5,490	11'-1"	17'-11"	13'-4"	10'-8"	12'-8"			
10	5,940	10'-10"	17'-10"	13'-4"	10'-8"	12'-8"			
12	6,840	10'-3"	16'-9"	13'-3"	10'-8"	12'-8"			
14	7,740	9'-9"	15'-8"	12'-7"	10'-8"	12'-8"			
16	8,640	9'-1"	-	11'-10"	10'-8"	12'-7"			
18	9,540	8'-5"	-	11'-2"	10'-8"	12'-1"			
20	10,440	-	-	10'-4"	10'-8"	11'-8"			
22	11,340	-	-	9'-3"	10'-8"	11'-5"			
24	12,240	-	-	-	9'-9"	11'-1"			



\*Actual Load - Concrete Weight + 40 lb/ft² (Live Load + Formwork Load)  ${\rm S.F. = 3:1}$ 

	Maximum Post Height 6'x8' Grid								
Slab Thickness, in	Actual Load*, lb	#3 Steel Post	#5 Steel Post	PS Steel Post	Primary Steel Post	Primary Steel Post w/2'Ext			
6	5,520	11'-1"	17'-11"	13'-4"	10'-8"	12'-8"			
7	6,120	10'-8"	17'-8"	13'-4"	10'-8"	12'-8"			
8	6,720	10'-4"	16'-11"	13'-4"	10'-8"	12'-8"			
9	7,320	10'-0"	16'-2"	12'-10"	10'-8"	12'-8"			
10	7,920	9'-8"	15'-5"	12'-5"	10'-8"	12'-8"			
12	9,120	8'-9"	-	11'-6"	10'-8"	12'-4"			
14	10,320	-	-	10'-5"	10'-8"	11'-9"			
16	11,520	-	-	9'-1"	10'-7"	11'-4"			
18	12,720	-	-	-	-	-			
20	13,920	-	-	-	-	-			
22	15,120	-	-	-	-	-			
24	16,320	-	-	-	_	-			



\*Actual Load - Concrete Weight + 40 lb/ft² (Live Load + Formwork Load)

S.F. = 3:1

Color legend: Allowable Value

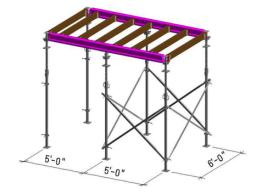
ı	Maximum Post Height 6'x8' GRID w/MIDDLE SUPPORT								
Slab Thickness, in	Actual Load*, lb	#3 Steel Post	#5 Steel Post	PS Steel Post	Primary Steel Post	Primary Steel Post w/2'Ext			
6	2,760	11'-9"	17'-11"	13'-4"	10'-8"	12'-8"			
7	3,060	11'-9"	17'-11"	13'-4"	10'-8"	12'-8"			
8	3,360	11'-9"	17'-11"	13'-4"	10'-8"	12'-8"			
9	3,660	11'-9"	17'-11"	13'-4"	10'-8"	12'-8"			
10	3,960	11'-9"	17'-11"	13'-4"	10'-8"	12'-8"			
12	4,560	11'-7"	17'-11"	13'-4"	10'-8"	12'-8"			
14	5,160	11'-3"	17'-11"	13'-4"	10'-8"	12'-8"			
16	5,760	10'-11"	17'-11"	13'-4"	10'-8"	12'-8"			
18	6,360	10'-7"	17'-4"	13'-4"	10'-8"	12'-8"			
20	6,960	10'-2"	16'-7"	13'-2"	10'-8"	12'-8"			
22	7,560	9'-10"	15'-10"	12'-8"	10'-8"	12'-8"			
24	8,160	9'-6"	15'-2"	12'-3"	10'-8"	12'-8"			

Slab Actual #3 Steel #5 Steel PS Steel Primary Primary



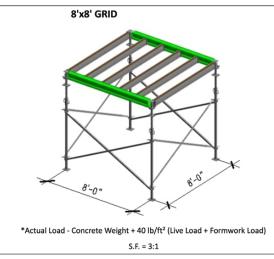
## **POSTS ENGINEERING DATA**

#### 6'x10' GRID w/MIDDLE SUPPORT



\*Actual Load - Concrete Weight + 40 lb/ft² (Live Load + Formwork Load)  ${\sf S.F.=3:1}$ 

	Maximum Post Height 6'x10' GRID w/MIDDLE SUPPORT								
Slab Thickness, in	Actual Load*, lb	#3 Steel Post	#5 Steel Post	PS Steel Post	Primary Steel Post	Primary Steel Post w/2'Ext			
6	3,450	11'-9"	17'-11"	13'-4"	10'-8"	12'-8"			
7	3,825	11'-9"	17'-11"	13'-4"	10'-8"	12'-8"			
8	4,200	11'-10"	17'-11"	13'-4"	10'-8"	12'-8"			
9	4,575	11'-7"	17'-11"	13'-4"	10'-8"	12'-8"			
10	4,950	11'-5"	17'-11"	13'-4"	10'-8"	12'-8"			
12	5,700	10'-11"	17'-11"	13'-4"	10'-8"	12'-8"			
14	6,450	10'-6"	17'-3"	13'-4"	10'-8"	12'-8"			
16	7,200	10'-1"	16'-4"	12'-11"	10'-8"	12'-8"			
18	7,950	9'-7"	15'-5"	12'-5"	10'-8"	12'-8"			
20	8,700	9'-1"	-	11'-10"	10'-8"	12'-7"			
22	9,450	8'-6"	-	11'-3"	10'-8"	12'-2"			
24	10,200	8'-0"	-	10'-7"	10'-8"	11'-9"			



		Maximum	Post Height	8'x8' GRID		
Slab Thickness, in	Actual Load*, lb	#3 Steel Post	#5 Steel Post	PS Steel Post	Primary Steel Post	Primary Steel Post w/2'Ext
6	7,360	10'-0"	16'-1"	12'-10"	10'-8"	12'-8"
7	8,160	9'-6"	15'-2"	12'-3"	10'-8"	12'-8"
8	8,960	9'-0"	-	11'-7"	10'-8"	12'-5"
9	9,760	8'-4"	-	11'-0"	10'-8"	12'-0"
10	10,560	-	-	10'-2"	10'-8"	11'-7"
12	12,160	-	-	8'-4"	9'-10"	11'-1"
14	13,760	-	-	-	-	-
16	15,360	-	-	-	-	-
18	16,960	-	-	-	-	-
20	18,560	-	-	-	-	-
22	20,160	-	-	-	-	-
24	21,760	-	-	-	-	-

Color legend:

Allowable Value

imit Value

t Allowable Value



## **LEDGERS ENGINEERING DATA**



Slab hickness, in	Actual Load*, lbs/ft2	Actual Linear Load*, lbs/ft	Deflection**, in
6	100	600	0.04
7	100	600	0.04
8	106	636	0.05
9	119	711	0.05
10	131	786	0.06
12	156	936	0.07
14	181	1,086	0.08
16	206	1,236	0.09
18	231	1,386	0.10
20	256	1,536	0.11
22	281	1,686	0.12
24	306	1,836	0.13

6'x6' GRID



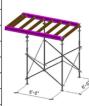
	6'x8'	GRID	
Slab Thickness, in	Actual Load*, lbs/ft2	Actual Linear Load*, lbs/ft	Deflection**
6	100	600	0.15
7	100	600	0.15
8	106	636	0.15
9	119	711	0.17
10	131	786	0.19
12	156	936	0.23
14	181	1,086	0.26
16	206	1,236	0.30
18	231	1,386	0.34
20	256	1,536	0.37
22	281	1,686	0.41
24	306	1,836	0.45



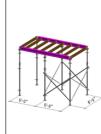
Slab Thickness, in	Actual Load*, lbs/ft2	Actual Linear Load*, lbs/ft	Deflection**, in
6	100	600	0.01
7	100	600	0.01
8	106	636	0.01
9	119	711	0.01
10	131	786	0.01
12	156	936	0.01
14	181	1,086	0.02
16	206	1,236	0.02
18	231	1,386	0.02
20	256	1,536	0.02
22	281	1,686	0.03
24	306	1,836	0.03

6'x10' GRID w/MIDDLE SUPPORT

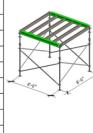
6'x8' GRID w/MIDDLE SUPPORT



		6'x6' GRID w/	4' CANTILEVER	ł
	Slab Thickness, in	Actual Load*, lbs/ft2	Actual Linear Load*, lbs/ft	Deflection**, in
	6	100	600	0.03
	7	100	600	0.04
	8	106	636	0.04
	9	119	711	0.05
	10	131	786	0.05
κ.	12	156	936	0.06
	14	181	1,086	0.07
	16	206	1,236	0.08
	18	231	1,386	0.09
	20	256	1,536	0.10
	22	281	1,686	0.11
	24	306	1,836	0.12



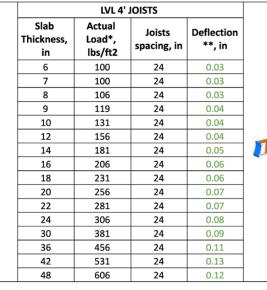
Slab Thickness, in	Actual Load*, lbs/ft2	Actual Linear Load*, lbs/ft	Deflection**, in
6	100	600	0.02
7	100	600	0.02
8	106	636	0.02
9	119	711	0.03
10	131	786	0.03
12	156	936	0.04
14	181	1,086	0.04
16	206	1,236	0.05
18	231	1,386	0.05
20	256	1,536	0.06
22	281	1,686	0.06
24	306	1,836	0.07
*Actual Load - C	oncrete weight +	6 lb/ft² (Live Loa	d + Formwork Loa



		8'x8'	GRID	
	Slab Thickness, in	Actual Load*, lbs/ft2	Actual Linear Load*, lbs/ft	Deflection**, in
	6	100	800	0.19
	7	100	800	0.19
	8	106	848	0.21
	9	119	948	0.23
<	10	131	1,048	0.25
	12	156	1,248	0.30
	14	181	1,448	0.35
	16	206	1,648	0.40
	18	231	1,848	0.45
	20	256	2,048	0.50
	22	281	2,248	0.55
	24	306	2,448	0.59
	** Maximum defl	ection - 1/360L v	vith 0.25" max	

Allowable Value Limit Value

## **JOISTS ENGINEERING DATA**



LVL 6' JOISTS

Joists

Actual

381

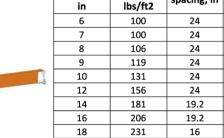
456

531

606

2123 30.010				
	Slab Thickness, in	Actual Load*, lbs/ft2	Joists spacing, in	Deflection **, in
	6	100	24	0.05
	7	100	24	0.05
	8	106	24	0.05
	9	119	24	0.06
9	10	131	24	0.07
the same	12	156	24	0.08
	14	181	24	0.09
	16	206	24	0.11
	18	231	24	0.12
	20	256	24	0.13
	22	281	24	0.14
	24	306	24	0.16
	30	381	19.2	0.16
	36	456	16	0.16
	42	531	12	0.14
	48	606	12	0.16

LVL 5' JOISTS

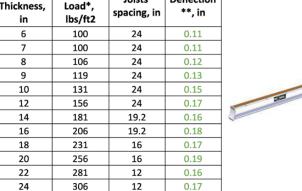


Slab

30

36

42



Deflection

0.14

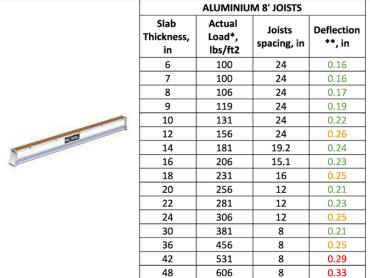
0.17

0.20

0.22

Slab Thickness, in	Actual Load*, lbs/ft2	Joists spacing, in	Deflection **, in
6	100	24	0.05
7	100	24	0.05
8	106	24	0.05
9	119	24	0.06
10	131	24	0.06
12	156	24	0.08
14	181	24	0.09
16	206	24	0.10
18	231	24	0.11
20	256	24	0.13
22	281	24	0.14
24	306	24	0.15
30	381	24	0.19
36	456	19.2	0.18
42	531	16	0.17
48	606	12	0.15

**ALUMINIUM 6' JOISTS** 



\*Actual Load - Concrete weight + 6 lb/ft² (Live Load + Formwork Load)

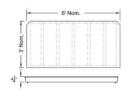
\*\* Maximum deflection - 1/360L with 0.25" max

# PRO SHORE LLC

## **PANELS DESIGN GUIDELINES**

	Birch-ve	eneer plywood 2'-0 x 6'-0 Panel			el	
N Nom.	Part #	Description	Weight, lbs	Flex Stiffr EI (ki Mid	iess,	
4	PSKD2RX6	2'-0 x 6'-0 Panel (Powder	46	5,000	2,500	

coat)

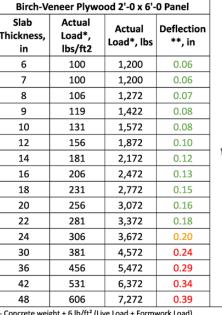


Birch-ve	Birch-veneer plywood 3'-0 x 6'-0 Panel					
Part #	Description	Weight, lbs	Flexural Stiffness, EI (kip-in²)			
			Mid	Edge		
PSKD3RX6	3'-0 x 6'-0 Panel (Powder coat)	62	103,500	83,500		

Birch-Veneer Plywood 3'-0 x 6'-0 Panel

# PRO SHORE LLC

## **PANELS ENGINEERING DATA**



	Slab Thickness, in	Actual Load*, lbs/ft2	Actual Load*, lbs	Deflection **, in
	6	100	1,800	0.08
	7	100	1,800	0.08
	8	106	1,908	0.09
	9	119	2,133	0.10
	10	131	2,358	0.11
	12	156	2,808	0.13
	14	181	3,258	0.15
	16	206	3,708	0.17
	18	231	4,158	0.19
	20	256	4,608	0.21
	22	281	5,058	0.23
	24	306	5,508	0.26
	30	381	6,858	0.32
	36	456	8,208	0.38
	42	531	9,558	0.44
	48	606	10,908	0.51
imun	n deflection - 1/	360L with 0.25'	max max	

\*Actual Load - Concrete weight + 6 lb/ft² (Live Load + Formwork Load)

Color legend:

Not Allowable Value



## **PLYWOOD ENGINEERING DATA**



	3/4 Plywood FACE GRAIN PARALLEL TO SPAN				
	Slab Thickness, in	Actual Load*, lbs/ft2	Support Spacing, in	Deflection **, in	
	6	100	24	0.06	
	7	100	24	0.06	
	8	106	22	0.05	
	9	119	22	0.05	
	10	131	22	0.06	
	12	156	19.2	0.04	
	14	181	19.2	0.05	
	16	206	19.2	0.05	
- Concrete weight + 6 lb/ft2 (Live Load + Formwork Load)					

١	3/4 Plywood FACE GRAIN PARALLEL TO SPA					
n		Slab Thickness, in	Actual Load*, lbs/ft2	Support Spacing, in	Deflection **, in	
	_	18	231	16	0.03	
		20	256	16	0.03	
		22	281	16	0.04	
	400	24	306	16	0.04	
		30	381	12	0.02	
		36	456	12	0.02	
		42	531	12	0.02	
		48	606	12	0.02	
** Maximum deflection - 1/360L with 0.0625" max						

Slab Thickness, in	Actual Load*, lbs/ft2	Support Spacing, in	Deflection **, in	
18	231	16	0.03	
20	256	16	0.03	
22	281	16	0.04	
24	306	16	0.04	
30	381	12	0.02	
36	456	12	0.02	
42	531	12	0.02	
48	606	12	0.02	

\*Actual Load - Co Allowable Value

## **POSTS ENGINEERING CHART**

MIN. AND MAX. HEIGHT AND LOADING ON ALL POSTS

WIIN. AND WAX. HEIGHT AND ECADING ON ALE FOOTS							
20'							
19'							
19							
18'						17' 11" 5,880	
17'						,,,,,	
16'							
15'							
14'							
					13' 4"		
13'				12' 8"	6,700		
12'			11' 9"	8,500		8,400	
11'			4,330			11' 10"	
10'		10° 8" 11,450					
9'				12,550			
8'			10,100 8' 0"	8' 6*	12,150 8' 4"		
7'							
6'		12,300 6' 6*					
5'							
		Primary Steel Post	#3 Steel Post	Primary Steel Post w/2' Ext	PS Steel Post	#5 Steel Post	

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