THE POWER OF RED

SHORFAST™

CONCRETE CONSTRUCTION PRODUCTS

APPLICATION GUIDE



A WORD ABOUT SAFETY

High productivity depends on safety; even a minor accident causes job delays and inefficiency, which run up costs. That's why Symons by Dayton Superior, in the design of its systems and products, makes the safety of those people who will be working with and near the equipment one of its primary concerns. Every product is designed with safety in mind, and is tested to be certain that it will perform as intended with appropriate safety allowances. Factory-built systems such as these provide predictable strength, minimizing the uncertainty that often surrounds "hand-made," "job-shop" and "job-built" equipment.

As a result, Symons by Dayton Superior products are your best assurance of a safe operation when used properly. To insure proper use, we have published this application guide. We recommend that all construction personnel who will be involved, directly or indirectly, with the use of this product be familiar with the contents of this guide.

As a concerned participant in the construction industry, Symons by Dayton Superior also recommends that regular safety meetings be held prior to starting the forming operation, and regularly throughout the concrete placement, form stripping and erection operations. Symons by Dayton Superior personnel will be happy to assist in these meetings with discussion of safe use of the equipment, slide presentations and other formal safety information provided by such organizations as the Scaffolding, Shoring and Forming Institute.

In addition to the above meetings, all persons involved with the construction should be familiar and in compliance with applicable governmental regulations, codes and ordinances, as well as the industry safety standards developed and published by each of the following:

American Concrete Institute American National Standards Institute The Occupational Safety and Health Administration The Scaffolding, Shoring and Forming Institute

Because field conditions vary and are beyond the knowledge and control of Symons by Dayton Superior, safe and proper use of this product is the responsibility of the user.

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Section 1 — Component Identification

ShorFast Legs

P/C ShorFast Leg		Weight		
	Dim. A	Kg	lbs	
19703	0.5 m (1'-7")	4.0	8.8	
19700	1.5m (4'-11")	10.0	22.0	
19701	2.0m (6'-6")	13.0	28.6	
19702	2.5m (8'-2")	17.0	37.4	
19754	4.0m (13'-2")	25.9	57.0	

Plastic Washer (PW)

P/C 78101 Weight 0.2 lbs (0.1kg) Reduces friction between leg end plate and jack adjusting nuts.

1.1m ShorFast Jack (1.1mJ)

P/C	19705
Weight	17.6 lbs. (8.0 kg)
Height	3.3" (110cm)
Min. ext.	5.75" (15cm)
Max. ext.	34.0" (86cm)

1.6m ShorFast Jack (1.6mJ)

P/C	19704
Weight	25.7 lbs. (11.7 kg)
Height	63" (160cm)
Min. ext.	7.75" (20cm)
Max. ext.	53.0" (135cm)

Jack Retainer (JR)

P/C	19706
Weight	2.2 lbs. (1.0 kg)
Holds jacks	s to legs.

Spanner

P/C	19729
Weight	5.5 lbs. (2.5 kg)
Releases	load on adjusting nut.

Frames (1mF, 2mF & 3mF)

Frame	Weight	
	Kg	lbs
1m Frame	9.0	19.8
2m Frame	13.0	28.6
3m Frame	15.5	34.1
	Frame 1m Frame 2m Frame 3m Frame	Frame We Im Frame 9.0 2m Frame 13.0 3m Frame 15.5





	64muta	14/-	icht
P/L	JIFUIS Dime A	We	ignt II
1070/		кg	IDS
19726	38cm (15)	0.7	1.5
19727	88cm (34.6")	1.5	3.3
19728	138cm (54.3")	2.4	5.3
Wheel Ass	sembly - Short (WAS)		
P/C	19708		
Weight =	27.1 lbs. (12.3 kg)		
With 1.1m	n Jack, moves table unit	S.	
Wheel Ass	sembly - Long (WAL)		
P/C	19733		
Weight -	374 lbs (170 kg)		
Weight –	n lack mayos table uni	te	
with 1.011	II Jack, IIIOves lable ulli	15.	
End Platfor	orms		
P/C	End Platforms	We	right
		Kg	lbs
19737	2m End (2mEP)	14.9	32.8
19735	3m End (3mEP)	21.7	47.7
Light duty	ty work platform – not i	ntended fo	r concrete
loading	, ,		
0			
Interior Pla	atforms		
P/C	Interior Platforms	We	ight
		Ka	lbs
19736	2m Int, (2mIP)	14.9	32.8
19734	3m Int (3mIP)	217	477
	tv.work platform – pot i	LI.I atended fo	TI.I
	iy work plation in – not n	nenueu IO	
loauilig			
Frame Bra	celug (FBL)		
	10700		
	19107		
weight =			
Connects	s Trigger Braces to fran	nes	
Leg Brace	Lug (LBL)		
P/C	19742		
Weight =	2.4lbs. (1.1 kg)		
Cornert	s Trigger Braces to legs	5.	
Connects			
Connects	Bracket (GRR)		
Guardrail F			
	10720		
Guardrail E P/C Woight =	19739		
Guardrail E P/C Weight =	19739 : 2.7lbs. (1.2 kg)	1000 600	
Guardrail E P/C Weight = Connects	19739 2.7lbs. (1.2 kg) s 1.90" diameter pipe to	legs for us	se as
Guardrail E P/C Weight = Connects guardrail:	19739 2.7lbs. (1.2 kg) s 1.90" diameter pipe to ls or for stability bracing	legs for us g.	se as
Guardrail E P/C Weight = Connects guardrail	19739 2.7lbs. (1.2 kg) s 1.90" diameter pipe to ls or for stability bracing	legs for us g.	se as

Toe Board Bracket (TBB)

P/C 19738 Weight = 0.4lbs. (0.2 kg) Connects 1x6 lumber toe board.

Guard Rail Bracket (GRB)



Trigger Brace - Long (TBL) (Tr P/C 19744 Trigger Brace-Long Weight = 16.5lbs. (7.5 kg) (TBL) Range = 45"- 76" (114 – 193cm) (172 Increases load capacity and stabilizes Sloping Jacks. Trigger Brace-Short (TBS) Trigger Brace - Short (TBS) P/C 19745 Weight = 12.8lbs. (5.8 kg) Range = 32" - 51" (81 - 129 cm) Increases load capacity and stabilizes Sloping Jacks. Sloping Jack (SJ) P/C 19756 Weight = 42.2lbs. (19.2 kg) Adapts for sloped ceilings and floors for angles up to Sloping Head Assembly 30 degrees. (SHA) Sloping Head Assembly (SHA) 78170 P/C Weight = 12.2lbs. (5.5 kg) Sloping Jack Adapts for sloped ceilings and floors for angles up to (SJ) 45 degrees. The SHA bolts to ShorFast Jacks and Legs or Meter Screw Jacks. ShorFast Beam Clip (SBC) P/C 19747 Weight = 0.6 lbs. (0.3 kg) ShorFast Beam Clip Connects ShorFast Beams to legs or jacks. (SBC) Aluminum Beam Attachment Clamp (AAC), ShorFast Tee Bolt and 1/2"NC Nut 36502, 78108 and 31411 P/C Weight = 0.7 lbs. (0.3 kg) An alternative to the SBC. ShorFast Beam (SB)

Aluminum Beam Attachment Clip (AAC) Includes Beam Attachment Clamp, T-Bolt and ½" NC Nut



P/C Joist		We	Weight	
		Kg	lbs	
19711	1m (3'-3")	8.7	19.1	
19712	2m (6'-7")	17.4	38.3	
19713	3m (9'-10")	26.1	57.4	
19714	4m (13'-1")	34.8	76.6	
19715	5m (16'-4")	43.5	95.7	
19716	6m (19'-8")	52.5	115.5	
19751	1.2m (3'-11")	10.4	22.9	
19717	2.4m (7'-10")	20.9	46.0	
19718	3.6m (11'-9")	31.3	68.9	
19719	4.8m (15'-9")	41.8	92.0	
19720	5.4m (17'-8")	47.0	103.4	
19731	7.2m (23'-7")	62.6	137.7	
19741	9.6m (31'-6")	81.6	179.5	
19755	5.8m (19'-0")	50.4	110.8	

Aluminum Joist (AJ)

	P/C	Joist	Wei	ght
			Кд	lbs
	36838	4' AJ	6.4	14.0
	36841	5' AJ	8.0	17.5
	36842	7' AJ	11.1	24.5
	36843	9' AJ	14.3	31.5
	36844	11' AJ	17.5	38.5
	36845	13' AJ	20.7	45.5
	36846	15' AJ	23.9	52.5
	36847	17' AJ	27.1	59.5
	36848	19' AJ	30.2	66.5
	36849	21' AJ	33.4	73.5
	Vaad Daama (I	1001		
V	vood Beam (r	120)		
v	P/C	Joist	Wei	ght
v	<i>P/C</i>	Joist	Wei Kg	ght Ibs
v	<i>P/C</i> SW865004	Joist 4' H20	Wei Kg 6.1	ght Ibs 13.5
v	<i>P/C</i> SW865004 SW865005	4' H20 5' H20	Wei Kg 6.1 7.6	ght 13.5 16.8
v	<i>P/C</i> SW865004 SW865005 SW865007	<i>Joist</i> 4' H20 5' H20 7' H20	<i>Wei</i> <i>Kg</i> 6.1 7.6 10.7	<i>ght</i> <i>Ibs</i> 13.5 16.8 23.6
v	<i>P/C</i> SW865004 SW865005 SW865007 SW865009	<i>Joist</i> 4' H20 5' H20 7' H20 9' H20	<i>Wei</i> <i>Kg</i> 6.1 7.6 10.7 13.8	<i>ght</i> <i>lbs</i> 13.5 16.8 23.6 30.3
v	<i>P/C</i> SW865004 SW865005 SW865007 SW865009 SW865011	<i>Joist</i> 4' H20 5' H20 7' H20 9' H20 11' H20	<i>Wei</i> <i>Kg</i> 6.1 7.6 10.7 13.8 16.8	<i>ght</i> <i>lbs</i> 13.5 16.8 23.6 30.3 37.0
v	<i>P/C</i> SW865004 SW865005 SW865007 SW865009 SW865011 SW865013	Joist 4' H20 5' H20 7' H20 9' H20 11' H20 13' H20	<i>Wei</i> <i>Kg</i> 6.1 7.6 10.7 13.8 16.8 19.9	<i>ght</i> <i>lbs</i> 13.5 16.8 23.6 30.3 37.0 43.7
v	<i>P/C</i> SW865004 SW865005 SW865007 SW865009 SW865011 SW865013 SW865015	4' H20 5' H20 7' H20 9' H20 11' H20 13' H20 15' H20	<i>Wei</i> <i>Kg</i> 6.1 7.6 10.7 13.8 16.8 19.9 23.0	<i>ght</i> <i>lbs</i> 13.5 16.8 23.6 30.3 37.0 43.7 50.5
v	<i>P/C</i> SW865004 SW865005 SW865007 SW865009 SW865011 SW865013 SW865015 SW865017	Joist 4' H20 5' H20 7' H20 9' H20 11' H20 13' H20 15' H20 17' H20	<i>Wei</i> <i>Kg</i> 6.1 7.6 10.7 13.8 16.8 19.9 23.0 26.0	<i>ght</i> <i>lbs</i> 13.5 16.8 23.6 30.3 37.0 43.7 50.5 57.2
v	<i>P/C</i> SW865004 SW865005 SW865007 SW865009 SW865011 SW865013 SW865015 SW865017 SW865019	Joist 4' H20 5' H20 7' H20 9' H20 11' H20 13' H20 15' H20 17' H20 17' H20 19' H20	<i>Wei</i> <i>Kg</i> 6.1 7.6 10.7 13.8 16.8 19.9 23.0 26.0 29.1	<i>ght</i> <i>lbs</i> 13.5 16.8 23.6 30.3 37.0 43.7 50.5 57.2 63.9









Section 2 — Tools, Condition and Care

Assembly of towers may require the following tools. Contractor provided tools:

Level

• Plumbs posts and shore towers.

Wrenches 3/4", 7/8" and 15/16"

- 3/4" for SBC, GRB, FBL and LBL
- 7/8" for TB and WA
- ¹⁵/₁₆" for leg end plate connections

11/2" x 30" extension pipe

- Extends Spanner when added torque is required to release loads exceeding (98kN) 22 kips.
- Minimum inside pipe diameter is 11/2".
- Length should be approximately 30" (76cm).

Lubricant Spray

Facilitates faster and easier adjustment of threaded connections.

Symons provided tools:

Spanner

- Adjusting screw jack nut
- Releasing loads



Condition of the Equipment

- Never use any components that have cracked welds.
- Never use jacks with cracked adjusting nuts or bases.
- Never use legs, frames or jacks with bent or kinked members.

Care of the Equipment

- Never strike legs or jacks with a hammer to strip.
- Never throw or drop equipment.
- Always use a Spanner to facilitate stripping.
- Always use the Plastic Washer (PW) between the leg end plate and the jack adjusting nut.

Section 3 — Product Information Legs

The ShorFast Leg has connection slots running the full length of the leg on all four sides of its square section The slots accept the following accessory items:

- Frames
- Struts
- Leg Brace Lug
- Guardrail Bracket
- Toeboard Bracket



Slot and end plate dimenstions

The end plates of each leg have four (4) holes and four (4) slots. When the ShorFast Beam is used as the stringer, it is connected using the ShorFast Beam Clip (¹⁵/₁₆" socket and wrench recommended)

The holes are used to bolt legs (requires $^{15}/_{16}$ " open end or box end and $^{15}/_{16}$ " socket) end to end for taller applications. Four (4) $^{5}/_{8}$ " x2" Fit-Up Bolts and four (4) $^{5}/_{8}$ " nuts are used to make the connections.



Bolt hole patterns on the leg end plate

Frames

ShorFast Frames are quickly attached to the legs to create stable shoring towers. The frames come in three widths that create leg spacings of 1m (3'-3"), 2m (6'-7") and 3m (9'-10"). Each frame is 1.08m (421/2") high.

Frames are connected to the legs by the two T-head bolt and locking nut assemblies on each frame side rail. On the stem of the T-bolt is a circular wire tell-tale ring. When the tell-tale is parallel to the frame side rail, the T-head can be placed into the leg slot. Once inserted, the telltale and T-bolt are rotated clockwise and the cast fly nut is tightened. Hand tight plus a quarter turn is all that is required. Excessive tightening will make the assembly difficult to release.



When the towers are standing, the tell-tale ring should flop down. If the ring sticks out, it means the T-bolt is not properly engaged in the leg slot. This condition must be corrected immediately.



Tell-tale ring does not flop down until the T-bolt is properly engaged in the slot

Jacks

The ShorFast Jack provides a large adjustment range and maintains high capacity.

The 1.1m $(43^{5}/_{16}")$ jack has an adjustment range from 15cm $(5^{3}/_{4}")$ to 83cm $(32^{1}/_{2}")$. The 1.6m (63") jack has an adjustment range of 19cm $(7^{1}/_{4}")$ to 133cm $(52^{1}/_{4}")$. The 1.6m jack has a restraint bracket captured between the adjustment nut and the base/head. The restraint bracket is used in combination with the Long Wheel assembly when rolling tables.



1.1m and 1.6m jacks

Each jack has a plastic friction reduction washer on the adjustment nut. Check to make sure all jacks have this washer in place. It will be extremely difficult to release the load if these washers are not used.

Each jack has a base/head unit with four (4) integral Trigger Brace Lugs at right angles to each other. The lugs are the attachment point for Trigger Braces. The Trigger Braces are used to maintain the high load carrying capabilities of the system. Each base/head unit also has four holes in the plate. These holes can be used for securing the jacks to a sill.

The adjustment nut turns at 1.75cm ($^{11}/_{16}$ ") per rotation. This facilitates quick adjustment and plumbing of legs. The ShorFast Spanner should be used to release the load from the system.

Loadings above 98kN (22kips) will require a 76cm (30") long pipe used to extend the Spanner.

Jack Retainer (JR)

The ShorFast Jack Retainer is used to secure the jack to the leg. It easily slides over the end plate of the leg. A spring-loaded pin retracts to allow placement of the retainer. The JR needs to be positioned with the ring and spring pin located on the leg side away from the jack. Once the retainer is in place, the pin secures it in one of the holes in the leg end plate.



The jack can be adjusted while the retainer is in place, but the adjusting nut will rotate more freely if the retainer is removed.

Sloping Conditions

The Sloping Jack (SJ) may be used to accommodate sloping base or soffit conditions without hardwood shims. The Sloping Jack unit may have a square or circular end plate and can be used on slopes up to 30 degrees. Maximum capacity of the Sloping Jack is 16.8 kips (75 kN).

The Sloping Head Assembly (SHA) can accommodate up to 45-degree slopes and capacities up to 25 kips (111 kN). The SHA must be bolted to either the leg end plate or the ShorFast Jack with (4) four 5/8" x2" bolts and nuts.





Typical Sloping Head Assembly application



whenever sloping heads or jacks are used. When used for sloping floors, the units must be secured to the sill or floor. Sloped soffits must be secured to prevent lateral movement.

Trigger Braces (TB)

Trigger Braces are adjustable length braces that increase the loading capacity of the system and stabilize extended jacks or legs. The braces have a unique trigger mechanism that allows the brace to be attached to a lug without any loose nuts or bolts. Simply pull the trigger back with your thumb, slide the brace pin into the lug, and release the trigger.

The braces are constructed such that a smaller tube slides



into a larger tube. After the brace is adjusted to the right length an integral pipe coupler is tightened with a 7/8" hex socket wrench.

Trigger Braces can be connected to the lugs of the jacks and the 2m or 3m frames. The Leg Brace Lug (LBL) and the Frame Brace Lug (FBL) can be used when the other locations are unavailable.



If Trigger Braces are to be used with 1m Frames, either an LBL or an FBL will be required, as 1m Frames do not have integral welded lugs.

Frame Brace Lug (FBL)

The Frame Brace Lug connects to the flat of the top rail on any ShorFast frame. It must only be attached next to the side rails of a frame or directly over or under a vertical frame strut. The FBL is connected with a 3/4" hex deep socket wrench.



Leg Brace Lug (LBL)

The Leg Brace Lug connects directly to the leg typically immediately above or below a frame. The LBL is connected with a 3/4" hex deep socket wrench.



Typical Leg Brace Lug installation

Guardrail Bracket (GRB)

The Guardrail Bracket allows 1.90" (4.8cm) outside diameter pipe to be secured to a leg to create guardrails or for bracing. The GRB is connected with a 3/4" hex deep socket wrench.







Guardrail Bracket



When used to connect pipe for guardrails, the proper distance required by OSHA and local requirements must be observed.



Guardrail Application

When used for stability bracing, the GRB can accommodate pipe at an angle up to 57 degrees from horizontal.



Diagonal Brace Application

Toe Board Bracket

The Toe Board Bracket secures a 1x6 lumber toe board against the ShorFast leg at the surface of a work platform. The TBB is simply inserted into the leg slot, rotated downward over the 1x6, and a nail stop prevents it from rotating up again.





Toe Board Bracket





Toe Board Bracket installation

Work Platforms

Work platforms can be constructed from OSHA grade scaffold boards or from modular ShorFast platforms.

ShorFast platforms come in interior and end styles. They are both made from an aluminum frame supporting a plywood work surface. They are intended as light duty work platforms and are not to be used to support concrete or for staging materials. On the underside of each platform, a spring-loaded Hook Bolt provides a secure connection to the frames.



The Interior Platforms come in 2m and 3m sizes. They have a notch in two corners, which allows a trigger brace to pass by to connect it to the frame.



The 2m End Platform (2mEP) has a notch in two corners to fit against the legs, and a center notch on one edge which for a trigger brace to pass by and connect to the frame.

The 3m End Platform (3mEP) has a notch in two corners to fit against the legs, and a notch at the third points on one edge which will allows a trigger brace to pass by for connection to the frame.

The platforms rest on the top of the frames. Frames may





be upside down, but the platforms are always fastened over the top edge of the frame. Guardrails and toe boards are required above the platforms.



Typical platform installation on frames

A tower requires two properly sized end platforms and the appropriate number of interior platforms with the correct dimensions.



Proper arrangement for a 2m x 2m platform

The combination of platforms that may be used for the designated tower configurations include:

Tower	Platforms
1m x 2m	(2) 2mEP
1m x 3m	(2) 3mEP
2m x 2m	(2) 2mEP + (2) 2mIP
2m x 3m	(2) 2mEP + (4) 2mIP
	or
	(2) 3mEP + (2) 3mIP
3m x 3m	(2) 3mEP + (4) 3mIP

ShorFast Beam (SB)

The ShorFast Beam is a double web aluminum member with a continuous connecting slot on top and bottom. The beam is connected directly to the leg or jack with the ShorFast Beam Clip (SBC). The nut of the SBC is inserted into the slot of the beam and then rotated clockwise until it stops. The bolt is then tightened with a 3/4" hex socket.



The protrusion on the bent plate of the SBC nests in the slot of the beam and the opposite side clamps underneath the leg or jack. Two (2) SBCs are required at every jack or leg location.

Another acceptable connection uses the Aluminum Attachment Clamp, ShorFast T-bolt and a 1/2"NC Nut. When using this connection, the serrated edge of the Beam Attachment Clamp must grip the leg or jack.



Aluminum Joist (AJ)

Symons Aluminum Joists combine lightweight, high strength and a variety of cost saving design features. The joists have a 4" (15cm) top and bottom flange and have a 61/2" (25.6cm) height. They are available from 5' through 21' in 2' (61cm) increments.



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Centered in the top flange of the joist is a 1½" x 1½" nailer strip for attaching plywood. The joist weighs 3.6 pounds per foot with a wood nailer, and 3.8 pounds per foot with a plastic nailer. The nailing strip is replaceable once it has reached its serviceable life. The aluminum joist has no knots, splits, cracks or rot to weaken them and reduce their useful life.

If the ShorFast towers are to be moved as a ganged unit, either rolled or flown, the joists must be secured to the ShorFast Beam with the Aluminum Beam Attachment Clamp, Clamping Nut and 11/2" x 1/2" NC Bolt.



11/2" X 1/2" NC BOLT

Attaching Aluminum Beam or Aluminum Joist to Stringer

To attach the joist to the ShorFast Beam, assemble the components as shown in the diagram above. The serrated edge of the Beam Attachment Clamp must face the Clamping Nut. Insert the nut into the slot of the joist and rotate clockwise until it stops. Position the clamp with the serrated edges gripping the flange of the ShorFast Beam. Tighten the bolt with a ³/₄" hex socket.

H20 Wood Beam (H20)

The H20 Wood Beam is an engineered wood beam with a capacity similar to the aluminum joist. It is $20 \text{ cm} (7^7/8")$ high with a top and bottom flange width of $8 \text{ cm} (3^1/8")$. It is available in 5' through 21' in 2' increments.

To attach the Wood Beam to the ShorFast Beam, use the Beam Attachment Clamp and a $1\frac{1}{2}$ " x $\frac{1}{2}$ " Lag Screw. The serrated edge of the clamp must grip the flange of the ShorFast Beam.

Wheel Assembly (WA)

The Wheel Assemblies come in a short version that is typically used with the 1.1m Jack, or the long version for the 1.6m Jack. They are quickly attached or detached to the ShorFast leg and jack to facilitate simple and cost efficient rolling of towers.



To attach the wheel assembly, lower the table rolled by turning the jack adjusting nut with the spanner. Remove the $5/_8$ " fast pin from the lower connection point of the WA. Slide the lower connector over the Jack Brace Lug and replace the fast pin, locking it with a hairpin clip. The top of the Wheel Assembly has a special long T-bolt that must be inserted into the slot of the leg, rotated clockwise, and then tightened with the Cast Fly Nut. Raise the table by turning the adjusting bolt of the WA with a $7/_8$ " hex socket.

When the 1.6mJ is used, the restraint bracket on the jack is connected to the WA immediately above the upper horizontal brace.

Each Wheel Assembly has a working capacity of 2,250lbs. (10kN). They are not to be used to support concrete loads. When the jacks are extended past 18" (45cm), Trigger Braces should be used in two directions to stiffen the jack while rolling.

Wheel assemblies should be placed so they lead and follow the main direction the table will roll. Intermediate jacks are held up out of the way with Jack Retainers.



Section 4 — Assembly & Disassembly Assembly

ShorFast towers may be quickly assembled either vertically in place or horizontally and then tipped up. In both methods the frames must be installed flush with the legs and the telltale ring should end up perpendicular to the leg. If any gaps are noticed between the frame and leg, the frame has not been installed properly.

A spacer block should be cut from a 2x4 or other suitable material. The block is then used as a gauge so that all the frames can be easily spaced the appropriate distance from the leg end plate. If this is not done a frame can be connected unequal distances on one leg versus the other. This will make it very difficult to plumb the tower. It can also result in problems when placing work platforms.

Single Tier Vertical Assembly

Step 1: Adjust all jacks to the extension required for the project plus ¹/₂". It will be much easier to lower jacks slightly when adjusting to final grade rather than trying to raise them.

Step 2: Place jack in leg and leave flat on the slab.



Step 3: Place the first frame into the leg slot from above using the spacer block to gauge the correct distance from the end plate. Rotate the T-Bolts clockwise and tighten the cast fly nuts. Rotate the frame and leg 90 degrees so the frame rests on the slab.

Step 4: Attach the second leg to the first frame using the block to gauge the location.

Step 5: Attach the second frame similar to Step 3.



Step 6: Tip the assembled legs up and attach the third leg.



Step 7: Attach the third and fourth frames.

Step 8: Attach the fourth leg and plumb the tower.



Step 9: Attach the ShorFast Beams securing each one with (2) two SBCs at every leg location.



Step 10: Complete decking with joists and plywood.

Multiple Tier Vertical Assembly

Complete steps 1 through 8 as described in "Single Tier Vertical Assembly" procedure, then proceed as follows.

Step 8A: Bolt the first stacked leg onto a lower tier leg using (4) 5/8 x 2" bolts and nuts.

Step 8B: Attach the first and second stacked frames to the leg.

Step 8C: Attach the second and third stacked legs loosely to the frames and bolt to the legs below. After the legs are bolted tighten the frame connections.

Step 8D: Attach the third and fourth stacked frames to the legs.

Step 8E: Attach the fourth stacked leg loosely to the frames and bolt to the leg below. After the legs are bolted, tighten the frame connections.

Step 8F: Repeat 8A through 8D for any additional tiers. When complete move to Step 9.

Single Tier Horizontal Assembly

This method allows workers to frame towers while on the ground. Single leg height towers can usually be tipped up with manpower, while multi-leg towers will require the aid of a crane.

Step 1: Adjust all jacks to the extension required for the project plus 1/2". It will be much easier to lower jacks when shooting final grade rather trying to raise them.

Step 2: Place jack in leg and leave flat on the slab.



Step 3: Place the first frame into the leg slot from above using the spacer block to gauge the correct distance from the end plate. Rotate the T-Bolts clockwise and tighten the cast fly nuts. Rotate the frame and leg 90 degrees so the frame rests on the slab.

Step 4: Attach the second leg to the first frame using the block to gauge the location.

Step 5: Attach the second and third frame similar to Step 3.

Step 6: Attach the third and fourth legs to the two frames of Step 5. This step is simple if the frames of Step 5 are 1m. If they are 2m frames, the crew will be working over their heads. 3m frames require the use of ladders or an elevated work platform.

Step 7: Complete the tower by attaching the fourth frame.

Step 8: Tip the tower up into place. Jack Retainers should be used temporarily to prevent the jacks from sliding out during this procedure. Plumb the tower.

Step 9: Attach the ShorFast Beams securing each one with (2) two SBCs at every leg location. This step could be accomplished prior to Step 8 depending on the direction and layout of the beams.

Step 10: Complete decking with joists and plywood.

Multiple Tier Horizontal Assembly

Maximum tower height to be tipped up with this procedure is 33' (10m).

Step 1: Adjust all jacks to the extension required for the project plus ¹/₂". It will be much easier to lower jacks slightly when adjusting to final grade rather trying to raise them.

Step 2: Bolt legs end to end, place jack in leg and leave flat on the slab.

Step 3: Place the first side of frames into the leg slot from above using the spacer block to gauge the correct distance from the end plate. Rotate the T-Bolts clockwise and tighten the cast fly nuts. Rotate the frames and legs 90 degrees so the frames rest on the slab.

Step 4: Attach the second leg to the first frame using the block to gauge the location. Slide the leg for the second tier onto the second tier frames and then bolt the legs together before tightening the cast fly nuts. Continue for any additional tiers of legs.

Step 5: Attach the frames of the second and third sides of the tower so that they are standing upright.

Step 6: Bolt the legs for the third corner together and attach to the frames of the second side of the tower. This step may require ladders or an elevated work platform if 2m or 3m frames are used.

Step 7: Attach the first tier frame of the fourth side and the first tier leg of the fourth corner. Tighten the connections.

Continue this procedure for the additional tiers of legs and frames. After the T-Bolts of the frame are in the slot of the leg, bolt the legs together before tightening the cast fly nut connections.

Step 8: Wrap and secure polyester slings under the leg end plates of the top tier of legs. Tip the tower up and fly into place. Jack Retainers should be used to prevent the jacks from sliding out during this procedure. Plumb the tower.

Step 9: Attach the ShorFast Beams securing each one with (2) two SBCs at every leg location. This step could be accomplished prior to Step 8 depending on the direction and layout of the beams.

Step 10: Complete decking with joists and plywood.

Stripping Procedure

Stripping should not proceed until the concrete has sufficiently set up and is able to support its own weight, as determined by the project engineer. Once approval has been obtained, the load is released from the system by turning down the adjusting nuts of the jacks using the Spanner. Failure to use the Spanner can result in damage to the jack.

After the load is released the jacks are lowered and disassembly is accomplished by reversing the assembly procedure. Equipment should never be thrown or dropped as damage may result.





Section 5 — Rolling or Flying Rolling ShorFast

ShorFast can be assembled into ganged tables and rolled from one pour to the next. This is especially advantageous for tunnels, culverts or large reservoirs. Tables that are to be rolled must be assembled with jacks on the bottom. The removable Wheel Assemblies (WA) attach to both the jack and the leg. The attachment and capacity information on the WA can be found in Section 3.

Rolling Procedure

Step 1: Lower the table by turning the adjusting nuts of the jacks using the Spanner.

Step 2: Attach the Wheel Assemblies (WA) to the four corner legs of the table. The maximum allowable weight for a table with four WA's is 9,000 lbs. (4,090 kg). Heavier tables will require additional WA's. The front two WA's should be leading the table and the rear two following.

Step 3: Raise all intermediate jacks a sufficient clearance distance and capture with a Jack Retainer (JR).

Step 4: If the jacks that the WAs are attached to are extended more than 18" (45cm) connect (2) two Trigger Braces (TB) at 90 degrees to each other to stiffen jack during the rolling procedure.

Step 5: Raise the table on the rollers by turning the Wheel Assembly adjusting bolt with a ⁷/₈" hex socket.

Step 6: Roll to next position making sure the path is clear of any debris or obstructions.

Step 7: Lower intermediate jacks. Remove the Trigger Braces (if they are to be moved from table to table) or release the pipe clamp if they are to remain with the table. Raise and remove WA wheels one at a time and lower the jack before proceeding to the next WA.

Step 8: Set table to grade, and repeat procedure on the next table.

Flying Procedure (with slings)

Steps 1 through 5 Same steps as the rolling procedure.

Step 6: Roll table to a position where the pick points are accessible. Remove knockout panels in the plywood deck and sling the legs underneath the end plates.

Step 7: Attach tag lines and fly table to next location. Extend the jacks and lower the table into position. The WAs may now be removed and reused.

IMPORTANT — Check sling for cuts and fraying before use.

Check that the SWL tag is adequate. If there is no SWL tag on the sling, it must not be used.



Typical rolling assembly



Typical sling attachment



Section 6 — Allowable Loads

ShorFast Used as a Post Shore (one leg, one jack)

ShorFast	Lea (m)	4.0m		2.5m		2.0m		1.5m			0.5m	
ShorFast Jack (m)		1.6	1.1	1.6 1.1		1.6	1.1	1.6	1.1	1.6 1		1.1
cm	feet											
122	4.0											25.0
137	4.5											25.0
152	5.0											
168	5.5							25.	0 25.	0	22.5	
183	6.0							25.	0 25.	0	20.0	
198	6.5							25.	0 25.	0		
213	7.0							23.	0 23.	0		
229	7.5					25.0	25.0) 20.	5 20.	5		
244	8.0					25.0	25.0) 18.	0			
259	8.5					23.0	23.0	J 16.	0			
274	9.0			25.0	25.0	20.0	20.0) 13.	5			
290	9.5			23.5	23.5	17.7						
305	10.0			21.2	21.2	15.0						
320	10.5			19.0	19.0	12.2						
335	11.0			16.7	16.7	10.0						
351	11.5	* 	e	14.5				Jack Adjustment Ranges				
366	12.0			12.2				1.	1.1 Jack 1.6 Jack			
381	12.5			10.0				5	3⁄4" to 34	4"	73/4"	to 53"
396	13.0									. <u> </u>		
411	13.5											
427	14.0	16.5	16.5									
442	14.5	15.0	15.0									
457	15.0	13.2	13.2		(1) Leg and (1) Jack min. to max. Range							
472	15.5	12.0	12.0					1.1 Ja	ack		1.6 Ja	ck
488	16.0	10.1	10.1			0.5 Leg		3'-10" to	o 4'-4"	5	5'-5" to	6'-0"
503	16.5	8.6				1.5 Leg		5'-7" to	7'-7"	5	5'-9" to	9'-3"
518	17.0	7.0				2.0 Leg		7'-3" to	9'-3"	7'.	-5" to 1	0'-11"
533	17.5	5.5				2.5 Leg	8	8'-8" to 1	10'-10"	8'-	-10" to	12'-6"

Allowable loads in kips at 3 to 1 factor of safety

NOTES:

- Do not rest jacks on lumber sills for loads over 12,000lbs. Jacks must sit on concrete or ³/₈"x8"x10" steel bearing plate.
- 2. Minimum dimension does not include stripping clearance.
- 3. If the ShorFast Beam is supported on the ShorFast leg or jack, the allowable load is limited to 23.6kips due to bearing.



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Safety Information



Improper Use of Concrete Forms and Shores Can Cause Severe Injury or Death

Read, understand and follow the information and instructions in this publication before using any of the Dayton Superior concrete accessories displayed herein. When in doubt about the proper use or installation of any Dayton Superior concrete accessory, immediately contact the nearest Dayton Superior Service Center or Technical Service Department for clarification.

Dayton Superior products are intended for use by trained, qualified and experienced workmen only. Misuse or lack of supervision and/or inspection can contribute to serious accidents or deaths. Any application other than those shown in this publication should be carefully tested before use.

The user of Dayton Superior products must evaluate the product application, determine the safe working load and control all field conditions to prevent applications of loads in excess of a product's safe working load. Safety factors shown in this publication are approximate minimum values. The data used to develop safe working loads for products displayed in this publication are a combination of actual testing and/or other industry sources. Recommended safe working loads given for the products in this publication must never be exceeded.

Worn Working Parts

For safety, concrete forms must be properly used and maintained. Concrete products shown in this publication may be subject to wear, overloading, corrosion, deformation, intentional alteration and other factors that may affect the device's performance. All reusable products must be inspected regularly by the user to determine if they may be used at the rated safe working load or should be removed from service. The frequency of inspections depends upon factors such as (but not limited to) the amount of use, period of service and environment. It is the responsibility of the user to schedule inspections for wear and remove the hardware from service when wear is noted.

Shop or Field Modification

Welding can compromise a product's safe working load value and cause hazardous situations. Knowledge of materials, heat treating and welding procedures is necessary for proper welding. Consult a local welding supply dealer for assistance in determining required welding procedures.

Since Dayton Superior cannot control workmanship or conditions in which modifications are done, Dayton Superior cannot be responsible for any product altered in the field.

Interchangeability

Many concrete products that Dayton Superior manufactures are designed as part of a system. Dayton Superior strongly discourages efforts to interchange products supplied by other manufacturers with components supplied by Dayton Superior. When used properly, and in accordance with published instructions, Dayton Superior products have proven to be among the best designed and safest in the industry. Used improperly or with incompatible components supplied by other manufacturers, Dayton Superior products or systems may be rendered unsafe.

Installation

WARNING

- 1. Dayton Superior Corporation products shall be installed and used only as indicated on the Dayton Superior Corporation installation guidelines and training materials.
- 2. Dayton Superior Corporation products must never be used for a purpose other than the purpose for which they were designed or in a manner that exceeds specific load ratings.
- 3. All instructions are to be completely followed to ensure proper and safe installation and performance
- 4. Any improper misuse, misapplication, installation, or other failure to follow Dayton Superior Corporation's instruction may cause product malfunction, property damage, serious bodily injury and death.

THE CUSTOMER IS RESPONSIBLE FOR THE FOLLOWING:

- 1. Conformance to all governing codes
- 2. Use of appropriate industry standard hardware
- 3. The integrity of structures to which the products are attached, including their capability to safely accept the loads imposed, as evaluated by a qualified engineer.

SAFETY INSTRUCTIONS:

All governing codes and regulations and those required by the job site must be observed. Always use appropriate safety equipment

Design Changes

Dayton Superior reserves the right to change product designs, rated loads and product dimensions at any time without prior notice. Note: See Safety Notes and Safety Factor Information.



1125 Byers Road Miamisburg, OH 45342 937-866-0711 888-977-9600

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