Experience

















the Hi-Lite Advantage

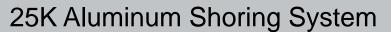






TABLE OF CONTENTS

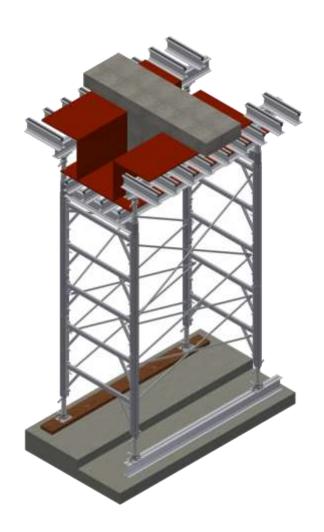
25K ALUMINUM SHORING

Introduc	etion	3
Why Ali	uminum ?	4
Safety 0	Guidelines	5
Feature	s & Benefits	8
Product	Information-16KIP Product Line	
	• Frames	10
	• Ledgers/Legs	11
	Assembly	12
	• Extension Tubes	14
	Screw Jacks and Accessories	15
	Saddle Beam	16
	Beam Clips & T-Bolts	17
	• Clamps	18
•	• Jet-Locks	19
	Cross Braces	20
-	• Beam	21

the same and any can also have the same statement about the control of the same and	
Lateral Bracing	22
Maintaining Full Leg Load	24
Inter-Frame Bracing	_25
Units of Measure	30
Tower Capacities- 16K	31
Saddle Beam Capacities	32
Erecting Towers	33
Economical Setup Procedures	34
Set Up Examples	35
Extension Tubes	39
Safety Guidelines/Fall Prevention	40
Parts List	A1



INTRODUCTION



The 25K Shoring System is primarily a hand-set system. It can also be handled with a crane, and may also be used quite successfully as a rolling or a flying system. (Consult with Hi-Lite Engineering for design)

This manual is published primarily for our customers, shoring designers and erectors this aluminum shoring system. It is intended <u>only as a guide</u> and should be used in conjunction with "generally accepted shoring design and safety regulations" in effect within the area and country of use.

The purpose of this manual is to simplify the understanding and use of the System. In this manual, each component of the 25K Shoring Systems is fully described and illustrated. The features and benefits of using the Hi-Lite 25K Shoring system are outlined in depth and key elements are cross referenced to particular components.

The Manual covers various setup arrangements of the equipment; the correct use of the system including handling and maintenance of the equipment.

Local authorities and/or a locally registered Professional Engineer should approve all drawing for construction purposes.

Barry & Dave Jackson

JASCO SALES INC. / HI-LITE SYSTEMS







RECYCLABLE, SUSTAINABLE, VERSATILE:



- What exactly does it mean to be green? For a material or product to be considered green, it should have low impact on the environment and therefore favor environmentalism—the practice of protecting and conserving the natural environment and its resources. Aluminum is one such material.
- What makes aluminum a green material? Aluminum is recyclable, sustainable, and versatile; three key qualities for any
 material being used to construct a green building. Historically, aluminum has proven to be one of the most important materials
 in successful recycling programs. Aluminum offers high scrap value, widespread consumer acceptance, and aluminum
 recycling enjoys significant industry support.
- Using recycled building materials saves substantial total energy otherwise used for material production. Producing recycled aluminum building materials reduces pollution emissions and energy use, taking only five percent of the energy needed to produce raw aluminum from bauxite. Jerry Powell, Editor, Resource Recycling says, "Many construction materials are hard, if not impossible, to recycle, and this is a negative factor when wishing to undertake a sustainable construction project. This is not the case, however, for aluminum as a building product. The sizable energy savings attained when scrap aluminum is remelted makes the recovered metal very valuable."
- Aluminum, one of the most abundant elements in the earth's crust, is an ideal natural materials choice for sustainable construction products.
- From a green design perspective, aluminum's reduced cost over a longer life cycle offers builders a viable economical choice. Aluminum resists the ravages of time, temperature, corrosion, humidity, and warping, adding to its incredibly long life cycle.



SAFETY FACTORS

OUR EQUIPMENT ARE CONSTANTLY TESTED TO ASSURE THE USER A HIGH STANDARD OF QUALITY. SAMPLES ARE TESTED IN HI-LITE TEST FACILITIES. THE SAFE WORKING LOADS LISTED IN THIS MANUAL WERE DETERMINED FROM THE RESULTS OF TESTING PROGRAM. THE SAFETY FACTOR APPLIED TO THE PRODUCT IS DEPENDENT ON THE DEGREE OF HAZARD OR RISK INVOLVED IN THE APPLICATION OF THE EQUIPMENT AND JOB SITE CONDITIONS. WHICH CAN OFTEN INCREASE THE DEGREE OF RISK.

CONCENTRATED LOADS, SUCH AS CONSTRUCTION MATERIALS STACKED ON THE FORMWORK, NON-SYMMETRICAL PLACEMENT OF CONCRETE, UPLIFT, IMPACT OF MACHINE DELIVERED CONCRETE, USE OF MOTORRIZED CARTS AND EXTRIME FORMWORK HEIGHT, ARE EXAMPLES THAT PRODUCE HIGH RISK FACTOR.

PLEASE CONSULT ENGINEERING DEPARTMENT OF HI-LITE-SYSTEMS IF YOU HAVE ANY OF THE ABOVE

HI-LITE TECHNICAL ASSISTANCE

IN THE SITUATONS WHERE A CONTRACTOR DOES NOT HAVE A QUALIFIED PERSON ON STAFF, HI-LITE TECHNICAL ASSISTANCE PERSONNEL ARE TRAINED TO PROVIDE SUCH SERVICES.

WARNING

IMPROPER USE OF HI-LITE 25K FRAMES SHORING SYSTEMS MAY COUSE PROPERTY DAMAGE. SERIOUS INJURY OR DEATH.

THE USER MUST FOLLOW THE INSTRACTIONS AND REGULATIONS OF HI-LITE SYSTEM ENGINEERING DEPARTMENT

WHEN IN DOUBT ABOUT PROPER USE OR INSTALLATION, IMMEDIATELY CONTACT HI-LITE SYSTEMS ENGINEERING OR TECHNICAL PERSONNEL FOR CLARIFICATION.

manner whatsoever without prior written permission.



SHORING SAFETY GUIDELINES

SAFETY COMES FIRST SAFETY IS EVERYONE'S RESPONSIBILITY

CONSTRUCTION PROJECTS SHOULD BE SAFE WORKPLACE. WORKERS, SUPERVISORS AND EMPLOYERS ARE ALL RESPONSIBLE FOR SAFETY.

OUR COMMITMENT TO A SAFE WORK ENVIRONMENT IS THE PRIORITY OF OUR OPERATING SYSTEM AND OUR SAFETY POLICY, EQUIPMENT SYSTEMS AND DESIGNED TO ENGAGE OUR ENTIRE WORKFORCE IN DELIVERY OF SAFE WORK ON ALL OUR AND OUR PARTNERS / CUSTOMERS PROJECTS.

ON SITE SAFTY DEPENDS UPON THE PROPER ERECTION AND SAFE USE OF SHORING AND FORMING EQUIPMENT.

HI-LITE PRODUCTS ARE DESIGNED TO HELP CONTRACTORS TO INCREASE SAFETY, PRODUCTIVITY AND EFFICIENCY.

ALL OF OUR EQUIPMENT DESIGNED ACCORDING TO NORTH AMERICAN AND INTERNATIONAL STANDARDS.

ALL THE SYSTEMS DESIGN WITH SAFETY FACTOR 2.5:1 FOR THE SHORING AND FORMING AND 4:1 FOR SCAFFOLDING.

HI LITE'S DOCUMENTATION IS CONVENIENT, EASY TO READ AND EASY TO USE. WE WILL SHOW YOU THE RIGHT WAY TO USE AND OPERATE OUR SYSTEMS. IT WILL TELL YOU ALL YOU NEED TO KNOW FOR SAFE AND EFFECTIVE WORK ON JOBSITE.



SAFETY GUIDELINES

- INSPECT ALL THE EQUIPMENT BEFORE USING.
- ALL SHORING LAYOUTS SHOULD BE AVAILABLE AND USED ON CONSTRUCTION SITE ALL THE TIME
- FOLLOW ALL THE INSTRUCTION AND INSPECT ALL SHORING AND FORMING EQUIPMENT FOR CONFORMITY WITH LAYOUT AND SAFETY PRACTICE BEFORE POUR, DURING AND AFTER POUR UNTIL CONCRETE IS SET.
- CONSUILT HI-LITE SYSTEMS IF YOU HAVE ANY QUESTIONS.

HI-LITE INSTRUCTIONS FOR ASSEMBLY AND USE SHOW YOU, IN DETAILS, THE RIGHT WAY TO SET UP AND USE THE FORMWORK AND SHORING SYSTEMS. THIS INFORMATION IS AN IMPORTANT TOOL TO HELP YOU WORK WITH THE HI-LITE EQUIPMENT CORRECTLY.

UNDERSTANDING AND FOLLOWING THESE SAFETY GUIDELINES WILL IMPROVE SAFETY FOR AMM WORKERS ON THE CONSTRUCTION SITE. IF THERE ARE ANY QUESTIONS, OR IF YOU NEED ASSISTANCE IN OBTAINING ADDITIONAL TRANING FOR YOUR EMPLOYEES, PLEASE CONTACT HI-LITE.

ASSEMBLY SAFETY RECOMMENDATIONS

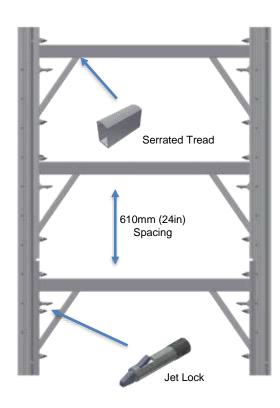
ALL THE ERECTION CREW MUST BE EQUIPPED WITH HARNESSES AND DOUBLE LANYARDS..

THE FOUNDATION MUST HAVE SUFFICIENT STRENGTH TO SAFELY SUPPORT THE ERECTED SHORING TOWERS.

SLOPPED SURFACES MUST BE COMPENSATED FOR BY LEVELING THE AREA BELOW THE BASEPLATES OR BY PROVIDING WEDGES SECURELY ATTACHED TO SILLS. SILLS SHOLD BE 2 in x 10in (50mm x 250mm) WOOD PLANKS OF SUITABBLE LENGTH.



FEATURES & BENIFITS



Hi-Lite Systems is the original manufacturer of the worlds very first aluminum shoring frames. As both the designer and the manufacturer of the system, we are naturally the best choice when it comes to supporting our customers, in all cases of design, layout and application of the product.

- Hi-Lite's 25K Aluminum Shoring frames weigh less than half that of comparable capacity steel frames and they can be handled by a single worker.
 - A 6ft high, 4ft wide 25K frame weighs 29.3 kg (66.6 lbs) compared with the same size steel frames weighing over 50 kg (110 lbs.).
- Our 25K Aluminum Shoring frames also incorporate many special laborsaving design features:
 - The top edge of the horizontal bar is serrated to resist slippage.
 - The Jet Lock (a design first) has proven itself over the years to be the fastest and most advanced lock on the market.
 - Hi-Lite's 25K Aluminum Shoring is designed to accommodate various floor heights using only a single tier of frames, by utilizing specially designed extension tubes that also accept the Hi-Lite's aluminum and steel screw jacks.
 - Using extension tubes can reduce the number of frames required by as much as 50%.
- Safety of your trade people, and improved productivity.



FEATURES & BENIFITS



Our 25K Aluminum Shoring frames also incorporate many special labor-saving design features:

- The de-mountable horizontal members are rectangular, to give the highest strength for the lowest weight.
- Hi-Lite's 25K Shoring System is de-mountable for changing the width of the frames, leg size and capacity (25K) or to allow the legs to be used as Post Shores, using standard Screw Jacks and Extension Tubes.
- Continuous T-bolt slots on the legs allow for attachments to the legs at any location for additional bracing, lacing and/or many other optional accessories.
- The corner gusset bracing is designed to serve not only as a stiffening member, but also to protect the Jet Locks (the Cross Brace locking devices). These corner braces strengthen the frame without obstructing the function of the locks.

Note: Using extension tubes reduces the capacity of the frame. Please consult our engineering department for load capacities.





Hi-Lite's 25K Aluminum Shoring frames are made of a special high-strength aluminum alloy. Their **Hi**-strength / **Lite**-weight ratio greatly facilitates handling and erecting. The horizontal (serrated) ledgers make climbing safer and help to secure wood planks. Jet Locks are spaced at 605mm (2ft) centers to enable frames to be inter-braced with standard Cross Braces when erected more than one tier high. Hi-Lite's 25K Shoring System is built to safely support loads of up to 22,680kg (50,000lb) with a Factor of Safety of 2.5:1.

Frame capacities vary, depending the number of tiers in height, the lengths of extensions, amount of bracing, whether inter-bracing has been used, and if there are any lateral or wind loads imposed.

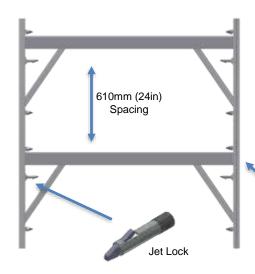


Note: Using extension tubes reduces the capacity of the frame. Please consult our engineering department for load capacities.

The normal testing configuration of the 25K Shoring System exceeds the requirements of both the CSA and the SSFI of the USA A tower, 3 tiers high, consisting of 6ft high frames, with Screw Jacks extended 16", top and bottom, is loaded to failure. The load rating of the frames is then determined by dividing the failure load by the required Safety Factor. Holes in the frame legs, spaced at 150mm (6in) intervals, enable coarse adjustment of Extension Tubes at the top and/or bottom of the frames, to increase the overall height of the frame legs, to cope with steps or severe slopes, until a further combination of frames will make up the desired height.

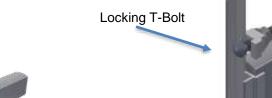


LEDGERS / LEGS



Horizontal Ledgers come in three standard widths

- 600 mm (24.0in)
- 1200 mm (48.0in)
- 1800 mm (72.0in)





Hi-Lite's 25K Aluminum Shoring frame legs are made from Hi-Strength Aluminum alloy: With features such as:

- Continuous T-bolt slots on the legs allow for attachments to the legs at any location for additional bracing, lacing and/or many other optional accessories,
- Extension Tube placement holes spaced at 6inches,
- · Hi-Strength Lite-Weight aluminum Alloy

Serrated Surface







- 1. Set up a level work area to assemble the frame legs and ledgers.
- 2. Set one leg on the work area, making sure that the holes in the leg are facing the correct way

Note hole orientation in frame leg.

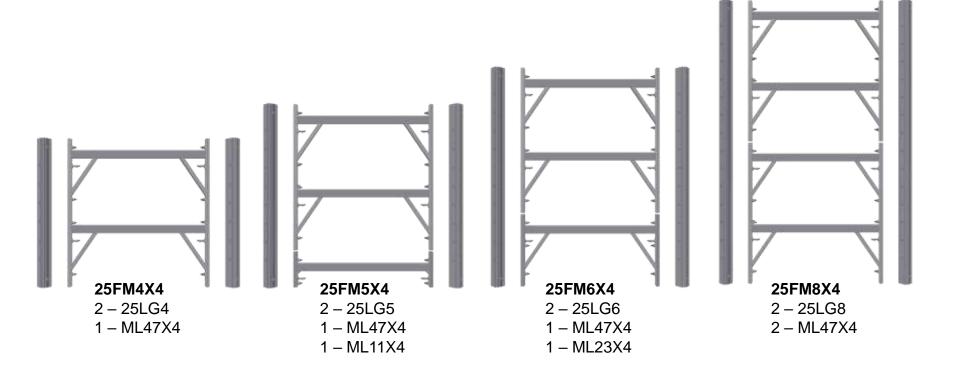
- 3. Align the ledger assembly with the top of the frame leg.
- 4. Make sure the ledger is flush at the top.

Note: On all frames requiring one ledger the ledger is always flush with the top of the frame leg.

On Frames requiring two ledgers, one ledger is flush with the top and the second ledger is flush with the bottom of the frame leg.









EXTENSION TUBES

Extension Tubes readily slide into the frame legs to give additional height to the frames in 150mm (6in) increments. Screw Jacks can be inserted into the Extension Tube to provide fine adjustment. Base plates can be connected to the Extension Tubes when fine adjustment is not required. Extension Tubes for Frames are available in 900mm (36in) , 1.2m (48in) 1.8m (72in) lengths for maximum extensions of 500mm (21in), 840mm (33in) 1448mm (57in) respectively.

There are two holes and a half hole in each Extension Tube. The hole and the half hole are spaced 150mm (6in) apart to match with the holes in the frame leg, for securing the Extension Tube into the frame leg. The half hole ensures correct alignment of the Extension Tube in the frame leg. One pin of the Extension Tube Support Pin set is installed completely into the frame leg, at the required level of the bottom of the Extension Tube. The Extension Tube is placed into the leg until it rests on the pin. Then the tube is rotated until the half hole slips down onto the pin. This automatically aligns the Extension Tube in the frame leg so that the second hole lines up, and the second pin can be installed without looking or "fishing".

The single hole at the other end of the tube is intended to be used for attaching the base plates to the Extension Tube, using the connector pin.

Extension Tubes are recommended for the following purposes:

- a.) To extend the height of one or both legs of the frames.
- b.) When coarse or rapid adjustment is required.
- c.) To adjust for sloping slabs and/or grades or steps.
- d.) To allow for lowering when frames need to be lowered a large amount to clear spandrel beams, etc





SCREW JACKS & ACCESSORIES

Hi-Lite's screw jack for the 25Kip shoring systems is 800mm (32in) long, with 600mm (24in) of adjustment. It is available in two forms (fixed and swivel base); both styles utilize our patented quick-release pin that eliminates extensive hammering of the adjusting nut to loosen the shoring under heavy load; one quick hit on the pin and the adjusting nut can be turned freely.

The Swivel Plate screw jack (SJ60SW) serves for uneven or sloped base conditions, or where it is required for forming inclined surfaces. Used on top or at the bottom, the plates are equipped with 2 T-bolts for positively locking to stringer beams.

Standard Fixed Plate screw jacks, (SJ60BPFX) with or without the quick-release pins, are also available. We recommend that they be used for Post Shores and on level floors or slabs.

The screw jack plates come with two special Hi-Lite T-Head bolts, with hex nuts designed for quick and easy locking into the continuous slot on our aluminum stringer beams. When the plate is to rest on mudsills or to be used with timber stringer material, instead of aluminum, it can be secured to the timber by nailing through the holes provided in the plate or a special U-Head can be attached to the Jack Plate. The T-Bolts retract fully into the recesses in the plate and are held in place by tightening the wing nuts. This allows for the plates to be placed on flat surfaces, or extended to re-shore without blocking, as when U-Heads are used.

The adjusting nut handle is "stepped" to allow the screw jack to be solidly centered in either an Extension Tube or the frame leg, thus assuring straight alignment and rigidity.

Hint to save time always set the adjusting nut higher than finish height before installing it in the frame leg or Extension Tube. It is always easier to lower than to raise for final setting





SADDLE BEAMS

Hi-Lite's Saddle Beams make drop beam or pre-cast beams easy to deal with, enabling stripping the slab without loosening or disturbing the support under the concrete drop beams. The Saddle Beam facilitates supporting poured-in-place concrete drop beams within the frame, at one level, leaving the legs free to accommodate Extension Tubes and Screw Jacks to support the slab formwork, at another level. It also allows for easy stripping of the slab form without disturbing the concrete drop beam soffit forms.

Saddle Beams are made from lengths of standard 184mm (7-1/4in), high-strength Aluminum Beams, with special brackets at each end to enable them to transfer the load of concrete drop beams to the frame legs.

The Saddle Beam is installed at the top of a tower with Extension Tubes locked into the frame legs and protruding through the Saddle Beam end brackets. If wide poured-in-place concrete beams need to be supported, longer Saddle Beams can be adapted between two frames over the Cross Braces.



25SB4

25K Saddle Beam - 4' 10.1 kgs / 22.2 lbs

25SB5

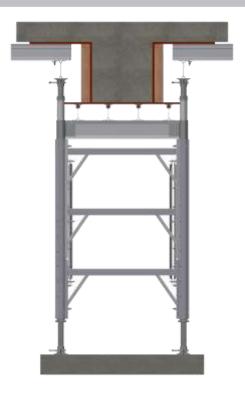
25K Saddle Beam - 5' 12.0 kgs / 26.4 lbs

25SB6

25K Saddle Beam - 6' 13.8 kgs / 30.5 lbs

25SB7

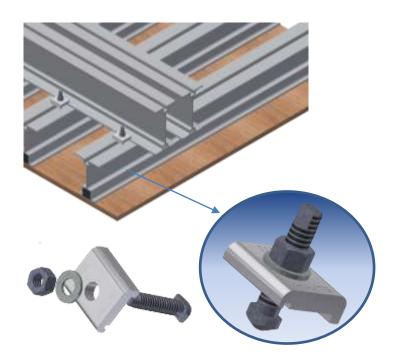
25K Saddle Beam - 7' 15.7 kgs / 34.7 lbs



REFER TO THE LOAD CHARTS FOR DETERMINING THE CAPACITIES OF THE VARIOUS CONFIGURATIONS OF SADDLE BEAMS



T-BOLTS & BEAM CLIPS



Note: The sharp corners very effectively secure one beam to another, preventing all movement. Beam Clips will secure any beam that has a 12.7mm (1/2in) T-bolt slot.

The T-bolt is forged from steel to provide for its special head, which guides the T-bolt into the beam slot. It is 12mm (1/2in) diameter by 45mm (1-3/4in) long, giving enough length to accommodate most uses. The thread is a special coarse Acme thread designed to eliminate seizing up as normal standard threads do.

The nut is loosely fitted on the bolt to provide for easy turning of the nut and still provide full strength of the bolt.



The Beam Clip plate is made from specially-formed high-strength aluminum

When the Beam Clip is assembled with T-bolt and hex nut as an assembly the bolt is crimped to prevent loss of the nut. The assembly s used to tie aluminum beams securely together.

Some other uses of the Beam Clip are:

- a) Securing aluminum beams to standard steel Post Shores.
- b) Securing joists to stringers on Wall Forms or rolling tables, or when a sloping slab is to be poured.

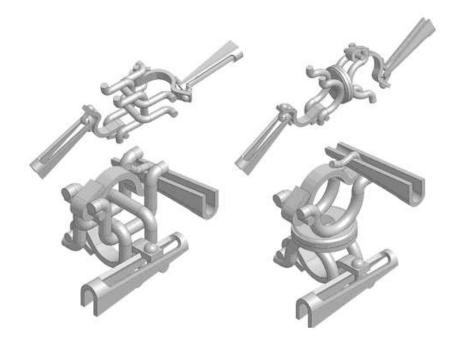




Wedge clamps are used to secure various OD tubing or pipe to each other, to frame legs or Extension Tubes for auxiliary bracing of towers. They are much faster and more convenient to use than conventional bolt clamps. Wedge clamps can be either fixed or swivel type. The fixed wedge clamp secures tubes at right angles to each other. Swivel wedge clamps allow connection of tubes at any angle.

Tube-and-clamp bracing is added to maintain capacity when building a support system of frame towers over 3 tiers high, to give extra stability. The clamps are adequately tightened with moderate blows from a carpenter's hammer.





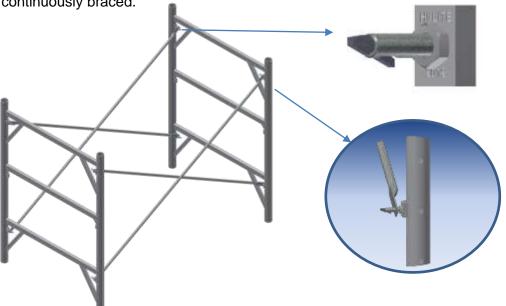


Jet Lock Spacing

The spacing of the Jet Locks permits inter-frame bracing, using standard size Cross Braces. This additional brace can add considerable rigidity to a multi-tier tower. The inter-frame brace is often a standard 600mm (2ft) Cross Brace by the length required. Jet Locks can also be spaced on 1.2m (4ft) modules on higher frames, allowing continuous 1.2m (4ft) by any length Cross Brace can also be used continually on a high tower, also giving full capacity when continuously braced.

Jet Lock Assembly

This unique fastener is standard on all Hi-Lite scaffolding and shoring frames. The Jet Lock is installed at appropriate locations to allow Cross Braces to be attached to the frames quickly and securely. Jet Locks are easily replaced in the field (if necessary) as they are held in place by standard hex jam nuts.

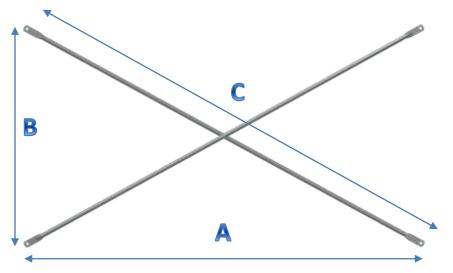


To install Cross Braces on the Jet Locks, simply open up the braces to position their holes over the Jet Locks, then push to snap on. The Jet Lock spring is made of stainless steel, for long, rust-free life. Locks can be replaced with special bolts and nuts, if required, for positive solid connections of the Cross Braces to the frames. These special bolts are available, but they are seldom used. because the connection using the Jet Lock is very secure.

NOTE: On two-tier towers, when the first tier consists of 1.2m (4ft) high frames, the spring action of the Jet Lock enables the Cross Braces to be snapped onto the second tier of frames, from the ground, saving placement of planks and the climb to assemble. So, when a 1.2m (4ft) high frame is used together with a 1.8m (6ft) high frame, we recommend the 1.2m(4ft) frame be located at the bottom and the 1.8m (6ft) high frame on top with Screw Jacks in before placement.



CROSS BRACING





- 9/16" (14.3MM) HOLE
- SIZES ARE STAMPED ON ENDS
- HI TENSILE PRE GALVANIZED TUBES FOR LONG LIFE AND DURABILITY

	DESCRIPTION	TUB	E		ı	MPERIAL			М	ETRIC		COLOUR	CODE
PART No.	(A) x (B)		DIA. Inches/mm		B Feet	C Inches	WEIGHT Lbs	A mm	B mm	C mm	WEIGHT Kg	HI-LITE	USER
CB42	4' x 2'	1	25	4	2	53 5/8	6.0	1620	610	1361	2.72	Orange	
CB44	4' x 4'	1	25	4	4	67 13/16	7.5	1620	1620	1722	3.40	Yellow	
CB52	5' x 2'	1	25	5	2	64 9/16	7.2	1524	610	1641	3.27	White	
CB54	5' x 4'	1	25	5	4	76 13/16	8.5	1524	1620	1951	3.86	Silver	
CB62	6' x 2'	1	25	6	2	75 7/8	8.4	1828	610	1928	3.81	Black	
CB64	6' x 4'	1	25	6	4	86 1/2	9.5	1828	1620	2197	4.31	Red	
CB72	7' x 2'	1	25	7	2	87 5/16	9.6	2134	610	2218	4.35	Blue	
CB74	7' x 4'	1	25	7	4	96 3/4	10.6	2134	1620	2456	4.81	Grey	
CB82	8' x 2'	1	25	8	2	98 15/16	10.9	2438	610	2516	4.94	Green	
CB84	8' x 4'	1	25	8	4	107 5/16	11.8	2438	1620	2725	5.35	Orange	
CB102	10' x 2'	1	25	10	2	162 3/8	13.4	3048	610	3109	6.08	Yellow	
CB104	10' x 4'	1	25	10	4	169 1/4	14.1	3048	1620	3282	6.40	Grey	

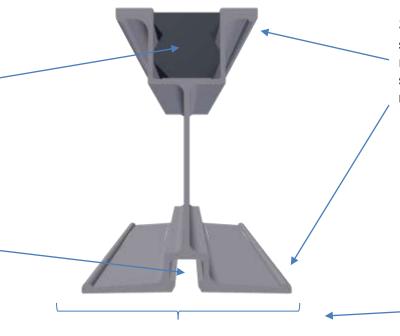


ALUMINUM BEAMS

MORE VERSATILE: Plastic or wood insert allows for nailing or screwing down plywood decking. Less subject to damage than wooden beams. Reusable. It all adds up to less inventory, less storage, lower transportation cost, and lower carrying costs.

MORE ECONOMICAL:

12.7mm (½") T-bolt slots provide for easy fastening of beams and stringers to their supports or to each other. Your workers will be more productive and the lower labour costs will be reflected in your bottom line.



STRONGER: Reinforced side flanges resist bending and retain beam clips. Employees spend less time repairing and more time working.

SAFER: Wider flanges resist overturning. Fewer accidents and injuries mean less employee downtime and lower insurance costs.



Hi-Lite Aluminum Beams have many other advantages over competing beams. Our designs save time on the job and reduce maintenance. Please refer to our load charts for capacities. Generally speaking, Hi-Lite beams carry more load and usually cost less.



LATERAL BRACING

GENERAL RECOMMENDATIONS

- Lateral bracing shall be designed by a qualified structural engineer in accordance with National Building Codes and Local regulations.
- Towers exceeding the allowable height-to-base ratio shall be braced in both directions.
- Clamping of external bracing shall be at the intersection of vertical legs with the bracing tube.
- Do not connect bracing tubes to the frame's ledgers.
- Whenever possible, the horizontal bracing shall be tied to permanent structures such as walls, columns.
- If no walls or columns are present, guying can be used as an alternative.

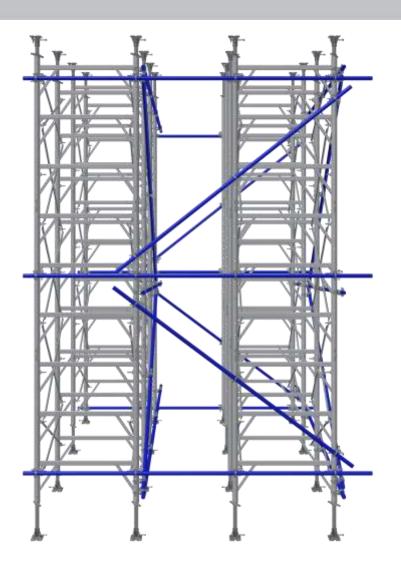
IMPORTANT:

The temporary shoring structures shall be structurally analyzed to include all lateral loads including wind pressure, lateral loads due to motorized equipment, lateral load components due to inclined supports or live and dead loads, etc

If required, consult Hi-Lite Systems Engineering Department.

As a Guideline: In Canada, horizontal bracing is placed at a height not exceeding 3 times the minimum base width. In the USA, except for some states, the rule is 4 times the minimum base width.

BE SURE TO CHECK ALL RELEVANT CODES.



22



LATERAL BRACING

Slopping Surfaces

• Lateral bracing shall be designed by a qualified structural engineer in accordance with National Building Codes and Local regulations.

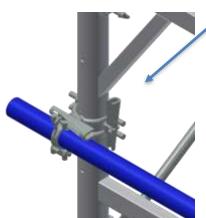
• Towers exceeding the allowable height-to-base ratio shall be braced in both directions.

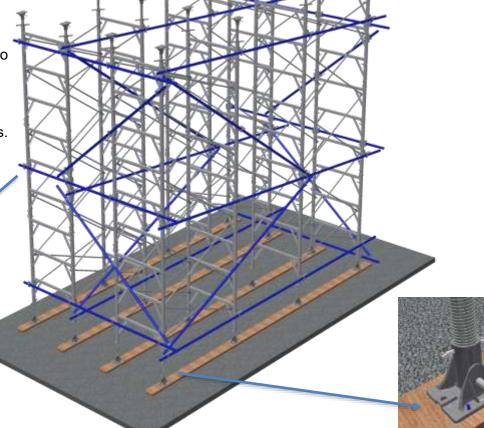
• Clamping of external bracing shall be at the intersection of vertical legs with the bracing tube.

• Do not connect bracing tubes to the frame's ledgers.

• Whenever possible, the horizontal bracing shall be tied to permanent structures such as walls, columns.

• If no walls or columns are present, guying can be used as an alternative.





BE SURE TO CHECK ALL RELEVANT CODES.

Base Plate nailed directly to mudsill or slab



MAINTAINING FULL LEG LOAD

The continuous T-bolt slots on the 25K Aluminum Shoring system frame legs provide a perfect means of connecting additional Cross Braces to the frames to provide additional lateral stability, often eliminating the need for tube-and-clamp bracing. The T-bolts can be installed into the brace end holes. Straight or cross braces then can be installed readily at any point on the length of the frame leg. The location of the T-bolt slots on all four sides of the leg permits stability bracing and/or lacing in all directions.

Note: The forces induced in tower legs by added bracing must be taken into account in the design of the support system. Consult your Engineer for details.

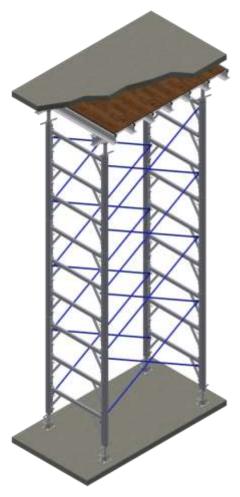
Do not clamp to rectangular horizontal frame ledgers.

We recommend that additional lateral stability bracing be installed at the mid-height of 7.3m(24ft) to 9.1m(30ft) high towers, and every 5.5m(18ft) [3 frames] if higher.

The towers should be sufficiently diagonally braced to prevent lateral movement, where the walls or columns are not poured before the deck.

Tube-and-clamp can also be used to provide additional stability bracing in both directions. Clamps should be used at every intersection of the bracing tubes with the frame legs. The horizontal tubes should, if possible, be tied to or butted against the permanent structure (such as walls or columns).

Note: If towers are inter-braced and sufficiently Cross Braced between towers, tube-andclamp may only be needed in one direction or may not be required at all. Consult Hi-Lite Systems or an experienced layout engineer. Guying can also be an alternative for providing additional stability bracing

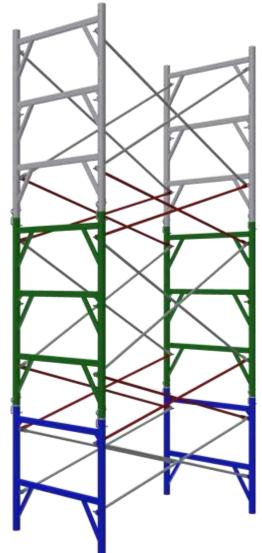


HI-LITE ALUMIRUM CONCARTE SUPPORT STOTEMS

INTER-FRAME BRACEING

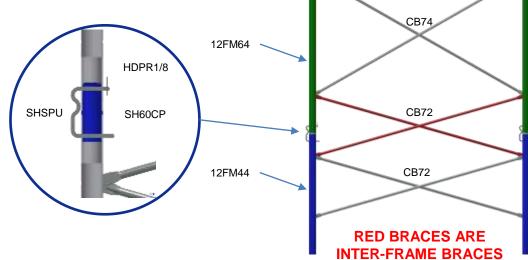
CB74

CB72



The inter-frame brace utilizes a combination of standard 600mm (2ft) Cross Brace and 1.2m (4ft) Cross Braces.

Jet Locks can also be spaced on 1.2m (4ft) modules on higher frames, allowing continuous 1.2m (4ft) by any length Cross Brace can also be used continually on a high tower, also giving full capacity when continuously braced.



12FM64

SHSPU

SH60CP

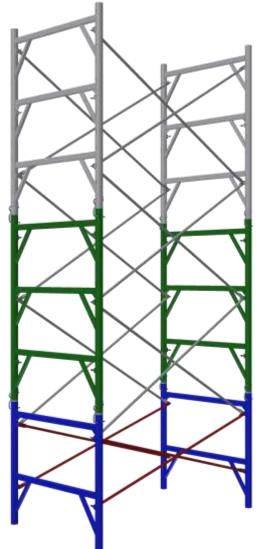


INTER-FRAME BRACING ALTERNATIVE

12FM64

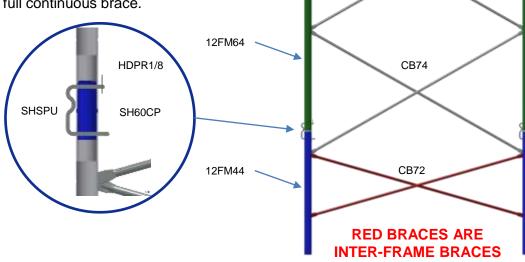
SHSPU

SH60CP



This inter-frame brace utilizes a standard 1.2m (4ft) Cross Brace by the length required. Jet Locks can also be spaced on 1.2m (4ft) modules on higher frames, allowing continuous 1.2m (4ft) by any length Cross Brace can also be used continually on a high tower, also giving full capacity when continuously braced.

Braces both lower and upper frame, creating a full continuous brace.



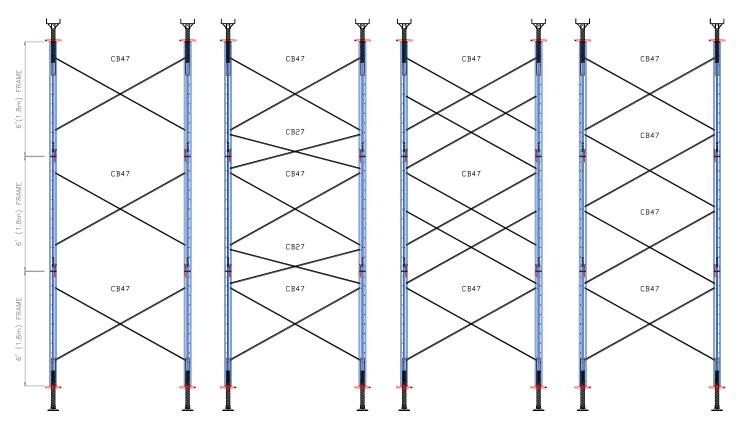
CB74

CB74



INTER-FRAME BRACING

6' (1800 mm) HEIGHT THREE FRAME TOWER



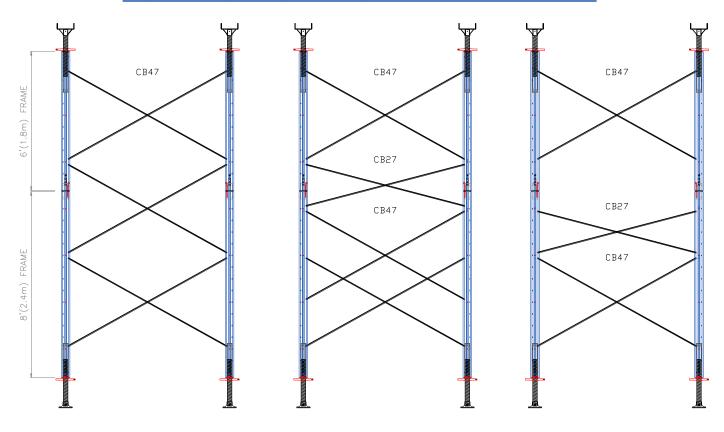
NO INTER-FRAME BRACING
LESS CAPACITY

WITH INTER-FRAME BRACING
DIFFERENT BRACING COMBINATIONS
SAME CAPACITY



INTER-FRAME BRACING

8' (2400 mm) & 6' (1800 mm) HEIGHT FRAME TOWER



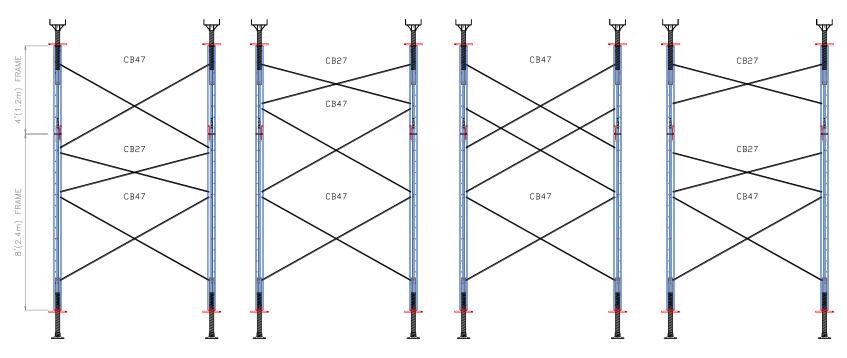
WITH INTER-FRAME BRACING
DIFFERENT BRACING COMBINATIONS
SAME CAPACITY

NO INTER-FRAME BRACING
LESS CAPACITY



INTER-FRAME BRACING

8' (2400 mm) & 4' (1200 mm) HEIGHT FRAME TOWER



WITH INTER-FRAME BRACING

DIFFERENT BRACING COMBINATIONS

SAME CAPACITY

NO INTER-FRAME BRACING
LESS CAPACITY



UNITS OF MEASURE

A **kip** is a non-SI unit of force. It equals 1000 pounds-force, used primarily by American architects and engineers to measure engineering loads. Although uncommon, it is occasionally also considered a unit of mass, equal to 1000 pounds, i.e., one half of a short ton. One use is as a unit of deadweight to compute shipping charges. 1 kip = 4448.2216 newtons (N) = 4.4482216 kilonewtons (kN)

The name comes from combining the words "kilo" and "pound"; it is occasionally called a *kilopound*. Its symbol is **kip**, or less frequently, **klb**. When it is necessary to clearly distinguish it as a unit of force rather than mass, it is sometimes called the *kip-force* (symbol **kipf** or **klbf**). Note that the symbol **kp** usually stands for a different unit of force, the *kilopond* or kilogram-force.

Kilonewtons (kN) are often used for stating safety holding values of fasteners, anchors, and more in the building industry. They are also often used in the specifications for rock climbing equipment. The safe working loads in both tension and shear measurements can be stated in kilonewtons. Injection moulding machines, used to manufacture plastic parts, are classed by kilonewton (i.e., the amount of clamping force they apply to the mould).

On the Earth's surface, 1 kN is about 101.97162 kilogram-force of load, so multiplying the kilonewton value by 100 (i.e. using a slightly conservative and easier to calculate value) is a good rule of thumb.

	Units of force							
•vte	newton (SI unit)	dyne	kilogram-force, kilopond	pound-force	poundal			
1 N	≡ 1 kg·m/s²	= 10 ⁵ dyn	≈ 0.10197 kp	≈ 0.22481 lb _F	≈ 7.2330 pdl			
1 dyn	= 10 ⁻⁵ N	≡ 1 g·cm/s²	≈ 1.0197 × 10 ⁻⁶ kp	≈ 2.2481 × 10 ⁻⁶ lb _F	≈ 7.2330 × 10 ⁻⁵ pdl			
1 kp	= 9.80665 N	= 980665 dyn	$\equiv g_n \cdot (1 \text{ kg})$	≈ 2.2046 lb _F	≈ 70.932 pdl			
1 lb _F	≈ 4.448222 N	≈ 444822 dyn	≈ 0.45359 kp	≡ g _n ·(1 lb)	≈ 32.174 pdl			
1 pdl	≈ 0.138255 N	≈ 13825 dyn	≈ 0.014098 kp	≈ 0.031081 lb _F	$\equiv 1 \text{ lb} \cdot \underline{\text{ft}}/\text{s}^2$			

The value of g_n as used in the official definition of the kilogram-force is used here for all gravitational units



25K - TOWER CAPACITIES

Tower Capacities with Jacks only or Equivalent Extension

THREE FRAMES HIGH "WITH" INTERFRAME CROSS BRACE

SCREW JACK EXTENSION	SAFE WORKING LOAD (2.5:1)		
12" AT TOP AND 12" AT BOTTOM	25.43 Kips/Leg	113.12 kN / Leg	
18" AT TOP AND 18" AT BOTTOM	21.00 Kips/Leg	93.41 kN / Leg	
24" AT TOP AND 24" AT BOTTOM	18.16 Kips/Leg	80.77 kN / Leg	

THREE FRAMES HIGH "WITHOUT" INTERFRAME CROSS BRACE

SCREW JACK EXTENSION	SAFE WORKING LOAD (2.5:1)		
12" AT TOP AND 12" AT BOTTOM	22.44 Kips/Leg	99.82 kN / Leg	
18" AT TOP AND 18" AT BOTTOM	19.74 Kips/Leg	87.81 kN / Leg	
24" AT TOP AND 24" AT BOTTOM	17.05 Kips/Leg	75.84 kN / Leg	

TWO FRAMES HIGH "WITH" INTERFRAME CROSS BRACE

SCREW JACK EXTENSION	SAFE W ORKIN	IG LOAD (2.5:1)
12" AT TOP AND 12" AT BOTTOM	26.21 Kips/Leg **	116.59 kN / Leg **
18" AT TOP AND 18" AT BOTTOM	22.03 Kips/Leg	97.99 kN / Leg
24" AT TOP AND 24" AT BOTTOM	19.07 Kips/Leg	84.83 kN / Leg

TWO FRAMES HIGH "WITHOUT" INTERFRAME CROSS BRACE

SCREW JACK EXTENSION	SAFE WORKIN	IG LOAD (2.5:1)
12" AT TOP AND 12" AT BOTTOM	24.17 Kips/Leg	107.51 kN / Leg
18" AT TOP AND 18" AT BOTTOM	20.63 Kips/Leg	91.70 kN / Leg
24" AT TOP AND 24" AT BOTTOM	17.10 Kips/Leg	76.06 kN / Leg

ONE FRAME HIGH

SCREW JACK EXTENSION	SAFE WORKIN	G LOAD (2.5:1)
12" AT TOP AND 12" AT BOTTOM	25.46 Kips/Leg **	113.25 kN / Leg **
18" AT TOP AND 18" AT BOTTOM	21.81 Kips/Leg	97.02 kN / Leg
24" AT TOP AND 24" AT BOTTOM	18.62 Kips/Leg	82.83 kN / Leg

NOTE: I kip = 4.448222 kN

FRAMES WITH INTER-FRAME BRACING FRAMES WITH INTER-FRAME BRACING NOTE: I kip = 4.448222 kN ** The Test Was Stopped At Full Load

1. 1

^{**} The Test Was Stopped At Full Load



SADDLE BEAM CAPACITIES

Saddle Beam Allowable Loading



Total Load per Frame Leg (based on central loading of Saddle Beam)

$$A = P1 + \frac{1}{2} wI$$

$$B = P2 + \frac{1}{2} wI$$

- 1. The total load per leg shall not exceed the load ratings expressed on the Tower Capacity chart (pages 7 & 8).
- 2. Axial Loads P1 and P2 shall not exceed the ratings for the Extension Tubes shown on Table 5 (page 8).
- 3. The uniformly distributed loads on the Saddle Beam shall not exceed the maximum distributed loads listed on the following table:

Saddle	Beam Length	1		M	aximum Allo	wable Distril	outed Load		
	L	a = 6"	150 mm	a = 12"	300 mm	a = 18"	450 mm	a = 24"	600 mm
Feet	mm	lb/ft	kg/m	lb /ft	kg/m	lb/ft	kg/m	lb/ft	kg/m
4' 0"	1219	3,300	4,917	4,400	6,556	6,630	9,878		
5' 0"	1524	2,000	2,980	2,500	3,725	3,300	4,910	5,800	8,630
6' 0"	1828	1,475	2,198	1,650	2,459	1,900	2,831	2,600	3,868
7' 0"	2134	1,050	1,565	1,150	1,714	1,300	1,937	1,600	2,380

Deflection is limited to 1/270 of the span.



ERECTING TOWERS

The continuous T-bolt slots on the 25K Aluminum Shoring system frame legs provide a perfect means of connecting additional Cross Braces to the frames to provide additional lateral stability, often eliminating the need for tube-and-clamp bracing. The T-bolts can be installed into the brace end holes. Straight or cross braces then can be installed readily at any point on the length of the frame leg. The location of the T-bolt slots on all four sides of the leg permits stability bracing and/or lacing in all directions.

Note: The forces induced in tower legs by added bracing must be taken into account in the design of the support system. Consult your Engineer for details.

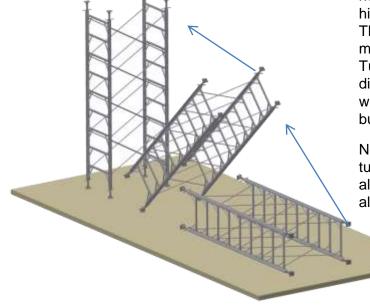
DO NOT CLAMP TO RECTANGULAR HORIZONTAL FRAME LEDGERS.

We recommend that additional lateral stability bracing be installed at the midheight of 7.3m(24ft) to 9.1m(30ft) high towers, and every 5.5m(18ft) [3 frames] if higher.

The towers should be sufficiently diagonally braced to prevent lateral movement, where the walls or columns are not poured before the deck.

Tube-and-clamp can also be used to provide additional stability bracing in both directions. Clamps should be used at every intersection of the bracing tubes with the frame legs. The horizontal tubes should, if possible, be tied to or butted against the permanent structure (such as walls or columns).

Note: If towers are inter-braced and sufficiently Cross Braced between towers, tube-and-clamp may only be needed in one direction or may not be required at all. Consult Hi-Lite Systems or an experienced layout engineer. Guying can also be an alternative for providing additional stability bracing.





ECONOMICAL SET-UP PROCEDURES

The most economical setup occurs where Screw Jack adjustment is only needed at one end of the tower as shown in illustration.

When erecting on level concrete, etc. always use the jacks on top and the Extension Tubes at the bottom. This saves considerable time in leveling each tower, provides for easy movement into location, and to the next location, often without reassemble. This works well on towers even up to 4 frames high, providing the base is solid and level. If working from mudsills or a sloping foundation, always use the Screw Jacks on the bottom.

Always set the Screw Jacks 12mm (1/2in) to 25mm (1in) high before installing, so that when it is time to level the deck, you just tap the adjusting nut handle to level. If you have the room, and are setting 2 or 3 frames high, assemble on the ground and raise as a unit, again with Screw Jacks already installed in the tops of the frame legs. This, when it is possible to carry out, will reduce man-hours by over 70%.

NOTE: Considerable time (man-hours) can be saved with the Hi-Lite's Aluminum Shoring Systems, providing some planning goes into the erecting procedures. Ideas include using Extension Tubes and plates on the bottom. If the tower consists of one 4ft high frame and one 6ft high frame, put the 4ft high frame on the bottom and the 6ft high frame at the top, with Screw Jacks already installed in the tops of the legs -- if you have two strong men. Otherwise, the Screw Jacks will have to be installed later. By putting the 1.2m (4ft) frame at the bottom, you will also be able to set the braces from the ground, saving plank handling and climbing to set braces and Screw Jacks.

Description of Various Set-Up Combinations

Hi-Lite' *Aluminum Shoring* Systems are very versatile in allowing many different set-ups for various conditions and applications. A number of various set-ups for one-frame-high towers are illustrated below and on the following pages.

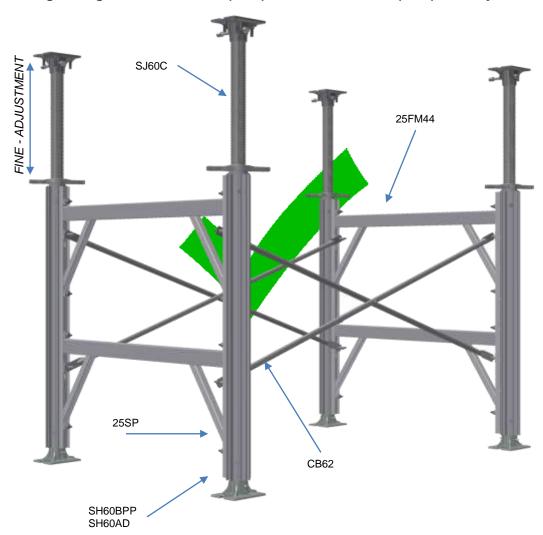
IMPORTANT: Always keep extension to a minimum for safety and use the highest frame possible for maximum load. If you have to extend, example IL-2 is the best way to set up or IL-5 if on mud sills or uneven ground.

CONSULT HI-LITE IF YOU HAVE ANY QUESTIONS ABOUT SET-UP OR LOAD-CARRYING CAPABILITY.



SET-UP EXAMPLES

II -1: height range: min - 1370mm (54in) to max - 1850mm (73in) fine adjustment at top only



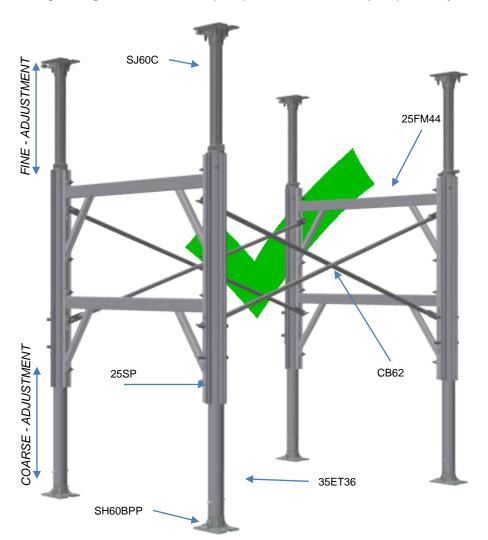
GOOD SET-UP. USED WHERE THE TOWER SITS ON LEVEL CONCRETE.

NOTE: Always try to use approximately the same amount of extension at the top as on the bottom. We recommend that when 1.5m(60in) and 2.1m (72in) extension tubes are used in frames, they should be braced in both directions



SET-UP EXAMPLES

II -2: height range: min - 1830mm (72in) to max - 2430mm (96in) fine adjustment at top, coarse adjustment at bottom,



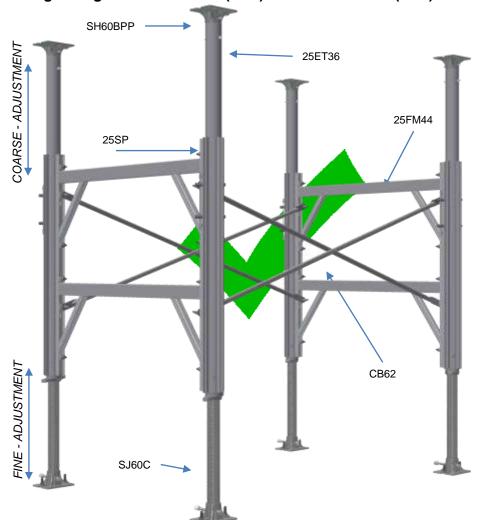
GOOD SET-UP. USED WHERE THE TOWER SITS ON LEVEL CONCRETE.

NOTE: Always try to use approximately the same amount of extension at the top as on the bottom. We recommend that when 1.5m(60in) and 2.1m (72in) extension tubes are used in frames, they should be braced in both directions



SET-UP EXAMPLES

II -3: height range: min - 1830mm (72in) to max - 2430mm (96in) coarse adjustment at top, fine adjustment at bottom,



NOTE: GOOD SET-UP: USED WHERE THE TOWER SITS ON LEVEL CONCRETE AND A FAIR AMOUNT OF ADJUSTMENT IS REQUIRED.

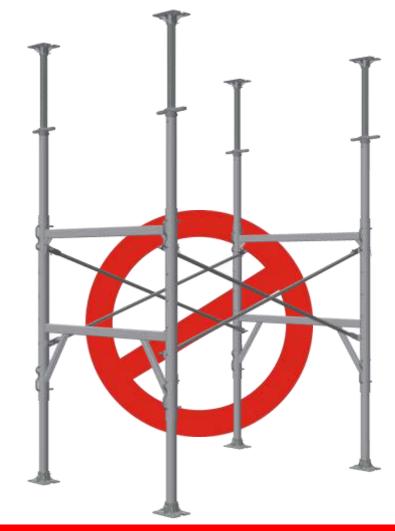
NOTE: Always try to use approximately the same amount of extension at the top as on the bottom. We recommend that when 1.5m(60in) and 2.1m (72in) extension tubes are used in frames, they should be braced in both directions



SET-UP EXAMPLES









BAD SET-UP(s) (UNBALANCED), FOR USE WHERE THE TOWER SITS ON LEVEL CONCRETE AND REQUIRES EXTENSION AT ONE END.



EXTENSION TUBES

1. Extension Tube with Screw Jack on top

2. Extension Tube with incorrect placement of U-Pin

3. Extension Tube with Base Plate on top

ALWAYS ENSURE THAT U-PIN IS PROPERLY ENGAGED INTO BOTH THE FULL AND ½ HOLE OF THE EXTENSION TUBE TO PROVIDE EQUAL DISTRIBUTION OF LOAD BEARING ON THE U-PIN AND FRAME LEG.

SCREW JACK BASE PLATE **EXTENSION TUBE** SUPPORT PIN FRAME LEG



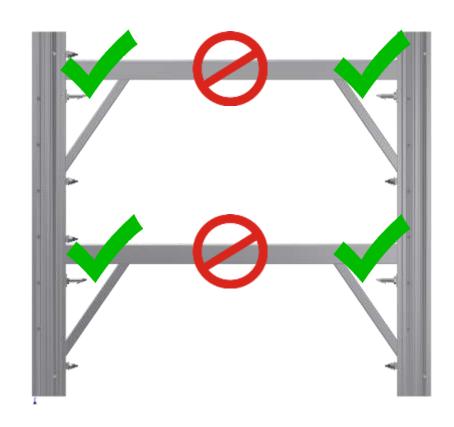
FALL PREVENTION

ALL THE ERECTION CREW MUST BE EQUIPPED WITH HARNESSES AND DOUBLE LANYARDS.

HARNESSES SHOULD BE SAFELY ATTACHED TO HORIZONTAL MEMBERS OF THE FRAME IN THE LOCATIONS SHOWN ON DIAGRAM

NOTE: IT IS VERY IMPORTANT TO NOTE THAT THE HANGING POINTS SHOULD BE BETWEEN THE KNEE BRACE AND THE FRAME LEG – INDICATED IN THE ATTACHED SKETCH. IT SHOULD NEVER BE FROM THE MIDDLE OF THE FRAME.

25K 4 foot HIGH FRAME





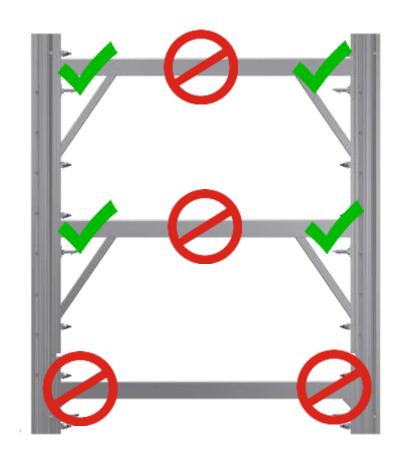
FALL PREVENTION

ALL THE ERECTION CREW MUST BE EQUIPPED WITH HARNESSES AND DOUBLE LANYARDS.

HARNESSES SHOULD BE SAFELY
ATTACHED TO HORIZONTAL MEMBERS
OF THE FRAME IN THE LOCATIONS
SHOWN ON DIAGRAM

NOTE: IT IS VERY IMPORTANT TO NOTE THAT THE HANGING POINTS SHOULD BE BETWEEN THE KNEE BRACE AND THE FRAME LEG – INDICATED IN THE ATTACHED SKETCH. IT SHOULD NEVER BE FROM THE MIDDLE OF THE FRAME.

25K 5 foot HIGH FRAME





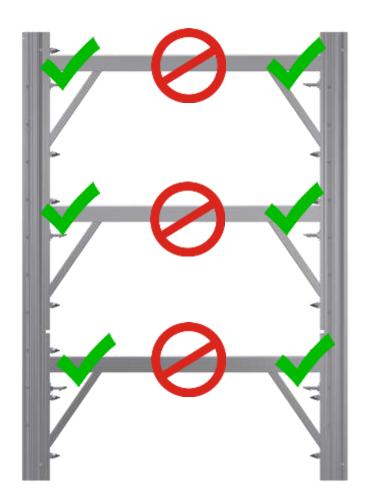
FALL PREVENTION

ALL THE ERECTION CREW MUST BE EQUIPPED WITH HARNESSES AND DOUBLE LANYARDS.

HARNESSES SHOULD BE SAFELY ATTACHED TO HORIZONTAL MEMBERS OF THE FRAME IN THE LOCATIONS SHOWN ON DIAGRAM

NOTE: IT IS VERY IMPORTANT TO NOTE THAT THE HANGING POINTS SHOULD BE BETWEEN THE KNEE BRACE AND THE FRAME LEG – INDICATED IN THE ATTACHED SKETCH. IT SHOULD NEVER BE FROM THE MIDDLE OF THE FRAME.

25K 6 foot HIGH FRAME





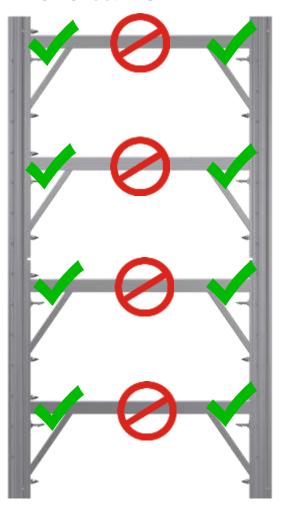
FALL PREVENTION

ALL THE ERECTION CREW MUST BE EQUIPPED WITH HARNESSES AND DOUBLE LANYARDS.

HARNESSES SHOULD BE SAFELY ATTACHED TO HORIZONTAL MEMBERS OF THE FRAME IN THE LOCATIONS SHOWN ON DIAGRAM

NOTE: IT IS VERY IMPORTANT TO NOTE THAT THE HANGING POINTS SHOULD BE BETWEEN THE KNEE BRACE AND THE FRAME LEG – INDICATED IN THE ATTACHED SKETCH. IT SHOULD NEVER BE FROM THE MIDDLE OF THE FRAME.

25K 8 foot HIGH FRAME





25K - PARTS

25FM42

1.2mx0.6m (4'x2') HxW 17.46 kgs / 38.5 lbs

25FM44

1.2mx1.2m (4'x4') HxW 19.19 kgs / 42.3 lbs

25FM46

1.2mx1.8m (4'x6') HxW 20.86 kgs / 46.0 lbs

25FM52

1.5mx0.6m (5'x2') HxW 22.27 kgs / 49.1 lbs

25FM54

1.5mx1.2m (5'x4') HxW 24.86 kgs / 54.8 lbs

25FM56

1.5mx1.8m (5'x6') HxW 27.4 kgs / 60.4 lbs

25FM62

1.8mx1.2m (6'x2') HxW 26.81 kgs / 59.1 lbs

25FM64

1.8mx1.2m (6'x4') HxW 29.35 kgs / 64.7 lbs

25FM66

1.8mx1.8m (6'x6') HxW 31.93 kgs / 70.4 lbs

25FM82

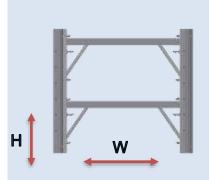
2.4mx1.2m (8'x2') HxW 35.02 kgs / 77.2 lbs

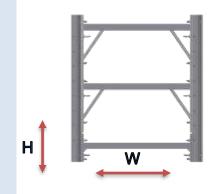
25FM84

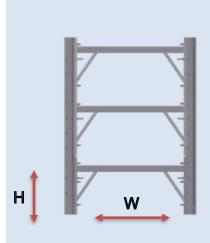
2.4mx1.2m (8'x4') HxW 38.42 kgs / 84.7 lbs

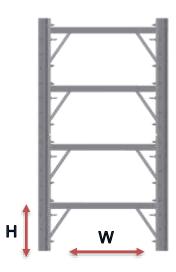
25FM86

2.4mx1.8m (8'x6') HxW 41.87 kgs / 92.3 lbs











25LG4

25K Aluminul Leg 1.2m (4') 5.71 kgs / 12.6 lbs

25LG5

25K Aluminul Leg 1.5m (5') 7.12 kgs / 15.7 lbs

25LG6

25K Aluminul Leg 1.8m (6') 8.57 kgs / 18.9 lbs

25LG8

25K Aluminul Leg 2.4m (8') 11.43 kgs / 25.2 lbs



ML11X2

Modular Ledger 0.28 x 0.6m (11" x 2') HxW, 2.0 kgs / 4.4 lbs

ML11X44

Modular Ledger 0.28 x 1.2m (11" x 4') HxW 2.81 kgs / 6.2 lbs

ML11X6

Modular Ledger 0.28 x 1.8m (11" x 6') HxW 3.67 kgs / 8.1 lbs

ML23X2

Modular Ledger 0.58 x 0.6m (23" x 2') HxW, 3.62 kgs / 8.0 lbs

ML23X44

Modular Ledger 0.58 x 1.2m (23" x 4') HxW 4.5 kgs / 9.9 lbs

ML23X6

Modular Ledger 0.58 x 1.8m (23" x 6') HxW 5.35 kgs / 11.8 lbs

ML47X2

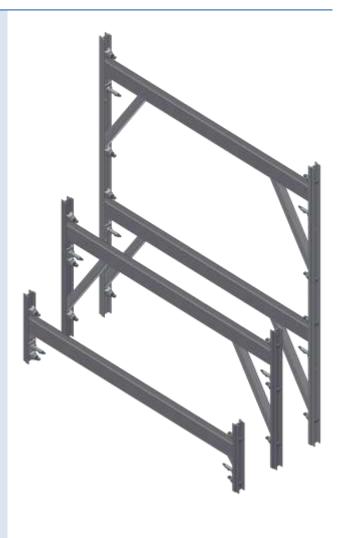
Modular Ledger 1.2 x 0.6m (47" x 2') HxW, 6.1 kgs / 13.5 lbs

ML47X44

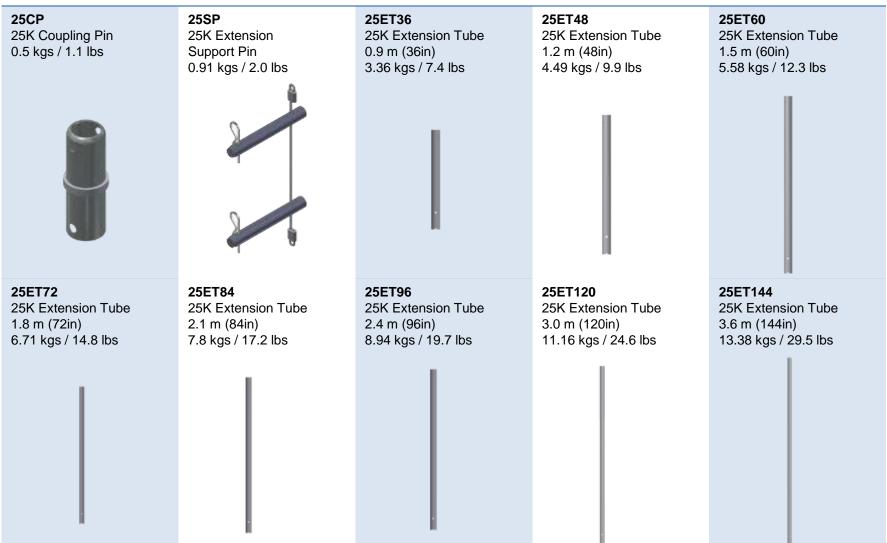
Modular Ledger 1.2 x 1.2m (47" x 4') HxW 7.8 kgs / 17.2 lbs

ML47X6

Modular Ledger 1.2 x 1.8m (47" x 6') HxW 9.52 kgs / 21.0 lbs







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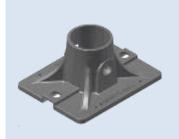
SJ60 - PARTS

SJ60FX

60mm Screw Jack c/w BP, Taper Pin / Cap 9.5 kgs / 21.0 lbs



SJ60BPFX 60mm SJ BP Fixed 2.64 kgs / 5.82 lbs



SJ60SW

60mm SJ c/w Swivel BP, Taper Pin / Cap 9.0 kgs / 19.8 lbs



SJ60BPSW 60mm SJ BP Swivel 2.1 kgs / 4.62 lbs



SJ60FXB

60mm SJ c/w Swivel BP, (No Taper) 8.7 kgs / 19.1 lbs



SH60BP 12/25K/25K Base Plate 2.6 kgs / 5.7 lbs



SJ60SH

60mm SJ Shaft c/w Nut 6.8 kgs / 15.0 lbs



SH60AD 12/16/25K Adapter Stl 152mm (6in) 0.3 kgs / 0.6 lbs



SJ60N

60mm Screw Jack Nuts 1.4 kgs / 3.0 lbs



SJ60TP 60mm SJ Taper Pin 0.4 kgs / 0.88 lbs





SJ60SCBLA

60mm SJ Stabilizer Cap Black 0.09 kgs / 0.2 lbs





Screw Jack U Head 10x8in Heavy Duty 6.8 kgs / 15 lbs



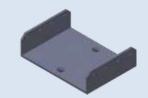
Screw Jack U Head 8x8in 5.44 kgs / 12 lbs



Screw Jack U Head 5x8in 2.27 kgs / 5 lbs









SJRCScrew Jack Retaining Clip
0.14 kgs / 0.3 lbs



HDPR1/8

R Pin 1/8in

0.05kgs / 0.1 lbs

HDTB1/2X1-3/4C T-Bolt c/w Hex Nut Crp

> 1/2x1-3/4in 0.05 kgs / 0.1 lbs



CL25LG48

25K Leg Clamp 48mm Swivel c/w T-Bolts 2.58 kgs / 5.7 lbs



Experience the Hi-Lite Advantage



BMALCLPC

Alum Beam Clip c/w Hi-Lite T-Bolt 0.14 kgs / 0.3 lbs



CL4848SS

48x48mm (1.9x1.9) Swivel Stl (Wedge Type) 1.72 kgs / 3.8 lbs



25SB4

25K Saddle Beam 185 mm 1.2 m (4') 10.07 kgs / 22.2 lbs

25SB5

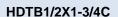
25K Saddle Beam 185 mm 1.5 m (5') 11.97 kgs / 26.4 lbs

25SB6

25K Saddle Beam 185 mm 1.8 m (6') 13.83 kgs / 30.5 lbs

25SB7

25K Saddle Beam 185 mm 2.1 m (7') 15.74 kgs / 34.7 lbs



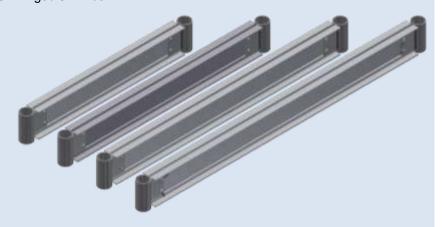
T-Bolt c/w Hex Nut Crp. 1/2x1-3/4in 0.1 kgs / 0.22 lbs



HDJLC

Jet Lock c/w 2 Jam Nuts 0.1 kgs / 0.22 lbs







Sales and Manufacturing Facilities

HI-LITE SYSTEMS / JASCO SALES INC

Mississauga, Ontario, Canada +1-905-677-4032

TARGET HI-LITE

Abu Dhabi, United Arab Emirates +971-2-6727452

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Hi-Lite Systems International Inc.

1680 Bonhill Road Mississauga, Ontario Canada L5T 1C8

Tel: 1-905-677-4032

Toll-free: 1-877-HILITE-1 [North America]

(1-877-445-4831)

Fax: 1-905-677-4542

Web Site: www.hi-lite-systems.com E-mail: hilite@hi-lite-systems.com

