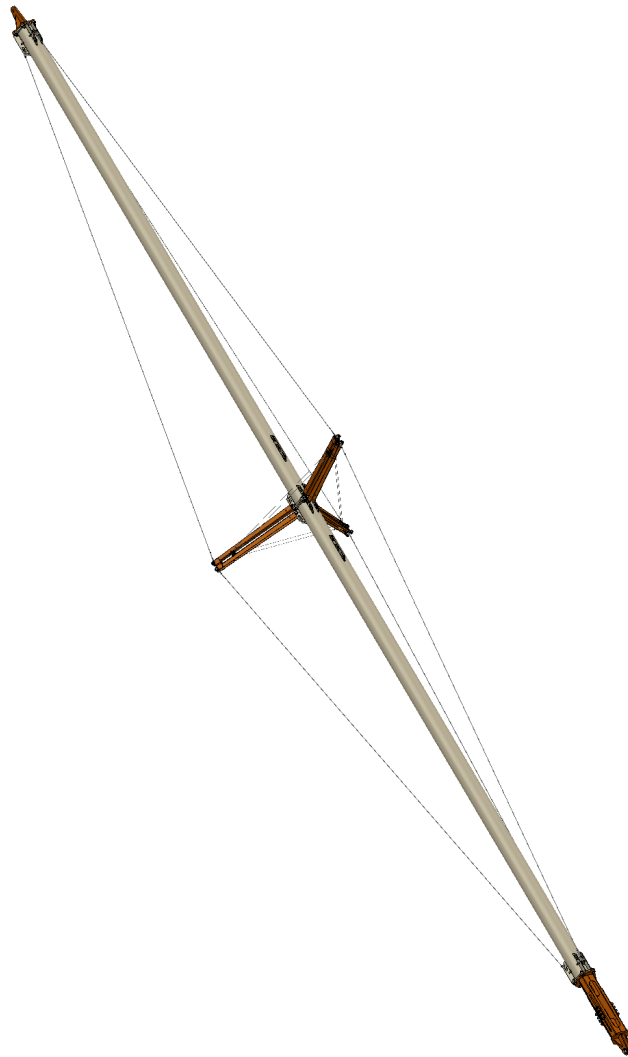


InnovaTech SkyBrace

EQUIPMENT SAFETY, INSTALLATION, AND INSPECTION



SKB-100



Contents

Document Info _____	iii
InnovaTech Panelization System _____	1
Overview _____	1
InnovaTech SkyBrace _____	1
Nomenclature _____	2
Specifications _____	3
Fasteners _____	3
Capacity _____	6
Safety _____	7
Training _____	7
Inspections _____	7
Modifications _____	8
Connecting/Disconnecting _____	8
Worksite Safety _____	8
Setup _____	9
Logistics _____	9
Assembly _____	9
Planning and Procedures _____	9
Installation _____	10
Maintenance _____	11
Service Life _____	11
Replacement Manuals, Decals _____	11
Contact Us _____	11

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InnovaTech, LLC, strives to continually improve their user documentation. If you have any questions or concerns about the content of this service and maintenance guide, we want to hear from you. Please e-mail us at support@innovatechservice.com or contact us by mail at:

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The InnovaTech, LLC, Panelization System is under US PATENT protection.

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InnovaTech Panelization System

Overview

InnovaTech Panelization System is an industrial equipment solution designed to work in conjunction with other common construction equipment to create a safe and efficient workplace for employees involved in the erection of steel structures.

A key piece of equipment involved in the InnovaTech Panelization System is the InnovaTech SkyBrace. This especially engineered temporary bracing equipment is to be used along with other panelization equipment to streamline the erection of a building being assembled with panelized building modules; utilizing assembly line principles and vastly improving worker safety and efficiency.

InnovaTech SkyBrace

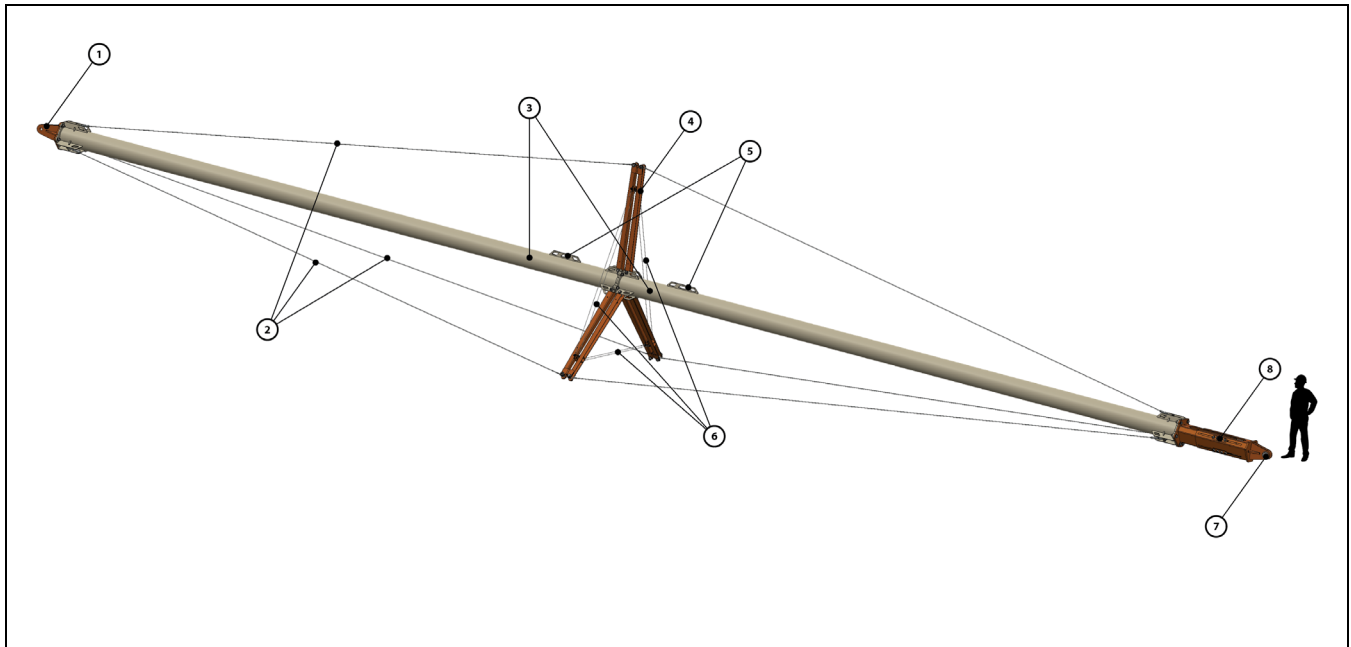
The SkyBrace SKB-100 is engineered to perform temporary bracing of a building exterior. It should be installed to temporarily brace the exterior main structural columns to provide stability against loads that the building will be subjected to during the period in which the building could not otherwise stand on its own against wind loads and other natural forces while initially being erected.

Unique Features

- Engineered high-strength extended-length temporary bracing support.
- Hydraulic telehandler attachment for fine-tuning the brace length for trueing the structure.
- Tension cables designed to add lateral and longitudinal support to SkyBrace.
- Configurable ground load distribution attachment to various types of ground foundation solutions.
- Various bracket solutions for connecting to building structure.



Nomenclature



1. **Fixed Adapter** – The highest connection point where the braced structure is mounted to connection bracket accessories.
2. **Support Cables** – Steel cables pre-tentioned to add rigidity to the Main Tube Spans.
3. **Main Tube Span** – Universal hollow steel tubes providing the main bracing function of the SkyBrace assembly.
4. **Cable Struts** – Raised from transport mode and bolted together in pairs to pre-tension and form a rigid strut for the support cables.
5. **Hoisting Brackets** – Connection point for hoisting and transporting the fully assembled SkyBrace.
6. **Strut Support Cables** – Provides additional structure for the Cable Struts under load.
7. **Master Bolt** – The lowest connection point where the SkyBrace is connected to a foundation solution and accessories at ground level.
8. **Adjustment Unit** – Adjustable slip-joint connection where SkyBrace length is extended or shortened by as much as two feet (utilizing the hydraulic adjuster attachment) to plumb the supported structure and finally secured in place with bolted plate washer sets.

Specifications

Dimensions, weights, and capacities are listed below.

Description	Shipping Mode	Erected
Net Weight	Approx. 1800 lbs.	3682 lbs.
Capacity	N/A	Refer to Capacity Charts on page 00
Overall Length	40 ft (Adjusting Unit 5')	80 ft (79'-81')
Overall Width	20 in.	9 ft. 10 in.
Overall Height	20 in.	11 ft. 8 in.
Adjusting Unit (8) Weight:	Approx. 500 lbs.	

Fasteners

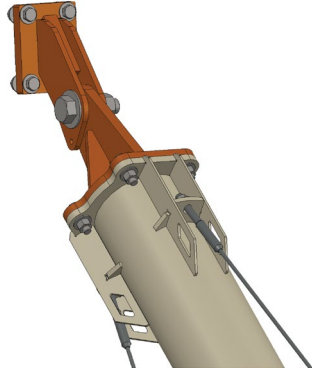
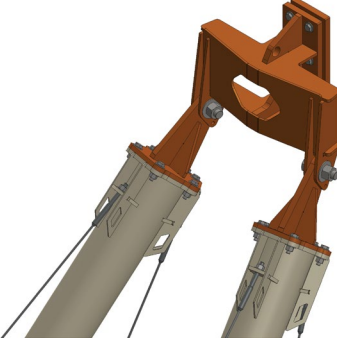
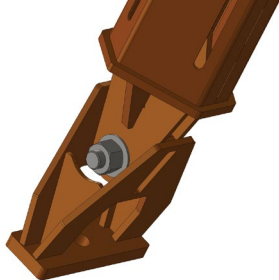

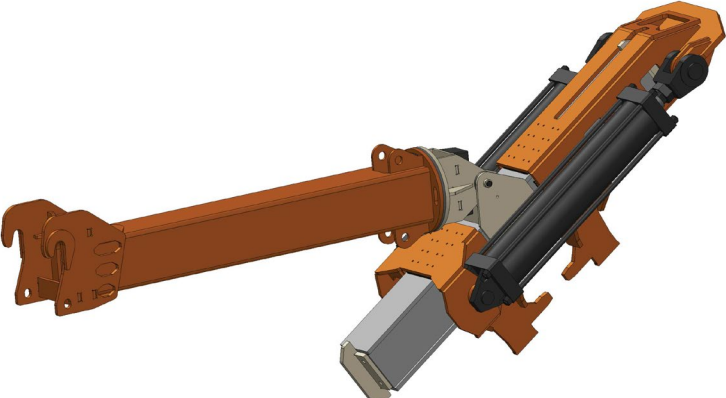
The use of proper fasteners is imperative. Make no substitutions. Use SAE washers on the nut side of the connection. Refer to tables below for fastener type, location, and specs.

Fastener Abbreviation Key

Location Name	Nomenclature #	Abbreviation
Adjustment Unit	8	AU
Master Bolt	7	MB
Cable Struts	4	CS
Main Tube Span	3	MTS
Fixed Adapter	1	FA
Double Fixed Adapter	(1)	DFA
Support Cables	2	SC
Strut Support Cables	6	SSC

Connection	Description	Size	Torque
MTS - MTS	A325	1-8 x 4"	500 ft / lb
MTS - AU	A325	1-8 x 4"	500 ft / lb
MTS - FA/DFA	A325	1-8 x 4"	500 ft / lb
SC - MTS	Grade 5	1-8 standard nut	500 ft / lb
SSC - CS	Grade 5	½ - 13 x ½"	150 ft / lb
CS - CS	A325	1-8 x 3 ½"	500 ft / lb



	
<p>Figure 1: Column/Wall Fixed Adapter Bracket to SkyBrace</p>	<p>Figure 2: Column/Wall to Dual Fixed Adapter to SkyBraces</p>
<p>Weight: 85 lbs.</p>	<p>Weight: 650 lbs.</p>
	
<p>Figure 3: Micropile to SkyBrace</p>	<p>Figure 4: Multiple Micropile Load Distributor to Skybrace</p>
<p>Weight: 135 lbs.</p>	<p>Weight: 1,120 lbs.</p>
	
<p>Figure 5: Hydraulic Adjustment Telehandler Attachment for setting the SkyBrace Adjustment Unit</p>	
<p>Weight: 3,050 lbs. (Compatible with Xtreme Telehandler 2450, 3410)</p>	

Capacity

Refer the building plan and identify the necessary torque per bolt to achieve proper slip resistance of calculated loads. A decal copy of the chart below can be found attached to the SkyBrace Adjustment Unit:

INNOVATECH
 SKYBRACE

BRACE MAX CAPACITY 75 KIPS
 ALL FIGURES BASED ON SERVICE LOADS.

ESTIMATED TORQUE PER BOLT (ft·lb)	SLIP RESISTANCE (k)
260	31.25
313	37.50
365	43.75
417	50.00
469	56.25
521	62.50
573	68.75
625	75.00

Safety

This equipment was specifically designed to enhance safety in the steel construction work environment. InnovaTech endeavors to maintain a positive reputation in the industry by preventing accidents and creating a safe, efficient, and productive work environment.

Training

Only qualified individuals should be allowed to rig, lift, and install the SkyBrace equipment

Inspections

InnovaTech recommends a thorough inspection of the SkyBrace before deployment and regular inspection intervals during use to prevent failures and identify potential hazards, recent damage, and initiate repairs or replacements. A competent person should perform inspections. Minimum inspection procedures should be completed for the following conditions:

- Every 72 hours
- After high winds (35 mph or more)
- Monday after returning from the weekend
- After any holiday breaks

Before and during installation, a thorough inspection of the SkyBrace components should be performed:

1. Inspect Main Tube Spans for damage such as dents or cracks.
2. Inspect all Support Cables, Strut Cables for kinks, fraying, or unusual wear.
3. Assure all Cable Fasteners are in place and secure.
4. Assure all bolted connections are the correct size and type, are properly installed with washers placed on the nut side of the connection, and the properly torqued.
5. Assure all Master Bolts are the correct size and type, and are properly installed, with washers placed on the nut side of the connection, and the properly torqued.
6. Inspect all Accessory Brackets for cracks and assure that correct bolting is installed, secure and properly torqued.
7. Once installation is complete, assure all braces are properly flagged and barricaded.

Modifications

⚠ WARNING

Modifications to the SkyBrace or attachments could affect capacity which could result in catastrophic failure, death, or serious injury. **DO NOT** make modifications to the SkyBrace or attachments without prior written approval from InnovaTech, LLC.

- **DO NOT** perform unauthorized modifications or alterations.
- **DO NOT** modify, disable, or bypass any safety procedures.
- **DO NOT** burn or drill holes in the SkyBrace or attachments.

Connecting/Disconnecting

⚠ WARNING

Failure to use proper safety procedures when connecting and disconnecting the SkyBrace could result in death or serious injury.

- When making connections, keep surfaces clear of dirt, mud, snow, ice, debris, and other hazards.
- **DO NOT** climb beneath equipment without proper support columns in place.

Worksite Safety

⚠ WARNING

Use proper safety procedures and avoid hazardous situations while installing the SkyBrace equipment to prevent death, serious injury, or property damage.

- Keep the work site clear of unauthorized persons, equipment, and any other hazards while installing the SkyBrace.
- Check the work area and installation points for conditions, and check for obstacles such as overhead power lines, and other temporary bracing.
- Know about underground hazards.
- **DO NOT** allow bystanders in the work area.
- Follow established site-specific safety plans for erection paths on the work site.
- Follow work site signs and signals.
- Stop for poor visibility conditions, such as dust, smoke, fog, etc. Wait until visibility improves before continuing.
- **DO NOT** attempt to inspect or install the SkyBrace equipment if you are using drugs, alcohol, or any medication that might impair your judgment or ability.

Setup

A general overview describing steps to follow before installing and adjusting the SkyBrace and adapting attachments.

Logistics

When preparing the SkyBrace equipment for shipping, the components must be disassembled and adjusted into shipping mode. Make account for the weight of each piece and utilize proper load distribution, cribbing, and straps for safe transport and delivery.

Use care when loading and unloading to avoid property damage as well as avoiding damage to the SkyBrace Main Tube Span and Support Cables. Adhere to proper rigging techniques and communicate with spotters with pre-arranged hand signals.

Assure adequate space for unloading, staging, and assembly of the SkyBrace.

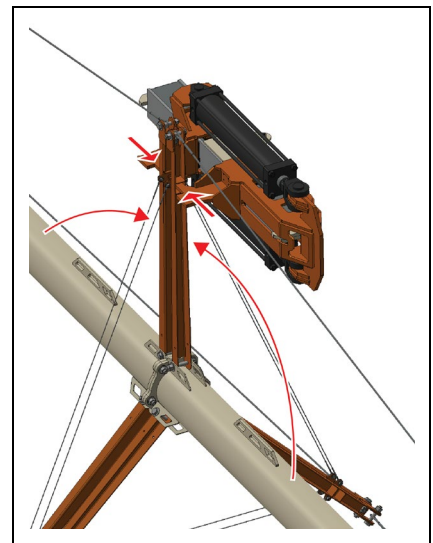
Assembly

While in shipping mode, the Cable Struts will be folded against the Main Tube Span. Choose the proper connection accessories and ready them for joining to the building and micropiles or foundations.

When positioned in line for assembly, the two components of the Main Tube Span must be joined and then hoisted to allow the unfolding of Cable Struts.

The unfolding of the Cable Struts and bolting-in-place performs the action of pre-tensioning the support cables. The tension must be overcome in order to fasten the Cable Strut pairs together.

To accomplish this, utilize the SkyBrace Hydraulic Adjustment Telehandler Attachment to assist (see illustration). Once assembled, then the SkyBrace must pass inspection, and rigged for installation.



Planning and Procedures

Follow approved erection sequence plans and procedures which have been approved by site overseers.

Proper techniques should be utilized by trained rigging personnel and crane operators while communicating with spotters with pre-arranged hand signals.

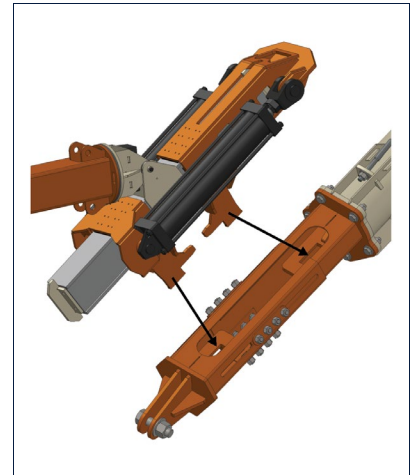
Installation

Once equipment is delivered onsite and preliminaries have been completed, the SkyBrace components must be completely assembled from shipping mode in order to be erected.

Identify the proper building connection accessories and bolting as well as preparations for micropile installations or footing connections.

Once everything is arranged properly and the SkyBrace is assembled, rigged and placed in position, utilize the SkyBrace Hydraulic Adjustment Telehandler Attachment to assist in truing and plumbing the supported structure and mounting in place. Follow the engineered torque specifications to finalize the installations. Flag and barricade all bracing.

Follow regular inspection procedures and intervals after installation.



Removal

Once the structure is completed to the degree that the temporary bracing is no longer necessary, follow reverse methods for removal and stage the Skybrace in a location to facilitate disassembly and storage and/or loading for transportation away from the site.

Follow necessary inspections procedures and if damages are found to be present that warrant repair or replacement, follow proper lock-out tag-out procedures.

Maintenance

In order to maintain the highest level of safety and operation efficiency, InnovaTech recommends an established inspection and service interval. Contact your service representative for recommendations.

Service Life

InnovaTech Products and Services are constantly being improved for serviceability and durability. If any portion of the equipment is deemed unsafe, or in poor repair, appropriate procedures should be initiated for repair or replacement. InnovaTech recommends complete service and inspection procedures be performed prior to site deployment. If onsite repairs are necessary, appropriate Lock-Out/Tag-Out procedures must be initiated. No portion of damaged equipment should be utilized for any length of time.

Replacement Manuals, Decals

Replacement manuals and decals for the SkyBrace can be obtained by contacting us by phone, mail, email.

Contact Us

INNOVATECH, LLC

HC 65 PO BOX 218 | KANARRAVILLE, UT 84742

Email support@innovatechservice.com

