



SafeDeck Supported Scaffold System





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Product Origination

The SafeDeck scaffold system was designed by experienced scaffold erectors who have worked on major industrial projects across the United States. These men have worked with various scaffold systems and products on an everyday basis - hanging platforms in some of the most dangerous situations. The current scaffold products on the market are not designed to have cantilevered horizontal members installed from a supported scaffold system. Not only are these systems not designed for such scenarios, in fact it is the improper use of these systems which create dangerous situations. The SafeDeck scaffold system is the only purpose-built product that allows erectors to install up to 90% of all structural scaffold components from a safe working platform without exposure to leading edge falls. SafeDeck allows the erector to stay tied off while working from a safe platform.

Product Range of Motion

The components that allow erectors to work safely are incorporated in the uniquely hinged, heavy duty, patent pending SafeDeck truss system. Each truss consists of three hinges which allow for free range of movement. At one end of the truss there are two hinges which allow the truss to swing in a horizontal motion away from the erector. The horizontal hinges allow for 180 degrees in range from the starter or existing working platform. The third hinge is located on the opposite end of the truss. It is

rotated 90 degrees to allow the truss to be installed with a vertical range of motion. The vertical and horizontal range of the truss allows the erector to safely install it around any obstruction.

SafeDeck Horizontal Position



SafeDeck Vertical Position



Efficient Installation

As compared to other supported scaffold systems and verified through third party testing, installation of the SafeDeck system proves to be three times faster than other systems on the market. On average, a 7'x7' hung SafeDeck platform was installed in 8 1/2 minutes compared to other 7'x7' hung system scaffold taking an average of 24 minutes. During the SafeDeck installation, the erectors were never exposed to falls outside the perimeter guardrail of a completed platform.

Element Labs Testimony

Element Materials Technology, formerly Stork, was contracted to act as a third-party witness to the construction of SafeDeck systems, used to hang supported or suspended work platforms found on construction sites and offshore platforms for example. The SafeDeck system observed extends 7' and 10' trusses, using a patent pending design and method from Safe-Rite Platforms, an affiliate of Excel Modular Scaffold and Next Generation Scaffold Services Inc. The system allows the erectors to install the trusses, planking, vertical members, and all OSHA compliant guardrails while working from a complete and OSHA compliant working platform, where the personnel are tied off with safety harnesses. The common design requires the personnel to change tie-off locations and climb out from the original structure as they work to cantilever the platform. The SafeDeck design greatly reduces the risk of falls and reduces the construction time by more than 2/3.

The demonstration was conducted at Dynamic Industries, Inc., 6005 Port Rd in New Iberia LA. On January 6, 2012. The platforms were constructed by trained Dynamic personnel. Element have taken both videos and

photographs of the construction processes, and timed each event.

For the first demonstration, the erectors hung a 7' cantilevered working platform using the common practices in the industry supporting the platform from the structural steel overhead with tube and clamps. The time to complete the 7ft. deck was 24 minutes. Subsequently, a 7' SafeDeck platform was erected in 8 1/2 minutes, 16 minutes less than when using the common industry methods; basically requiring 1/3 of the time to construct the SafeDeck system.

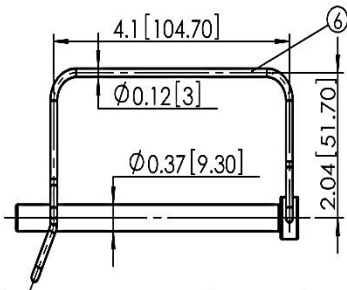
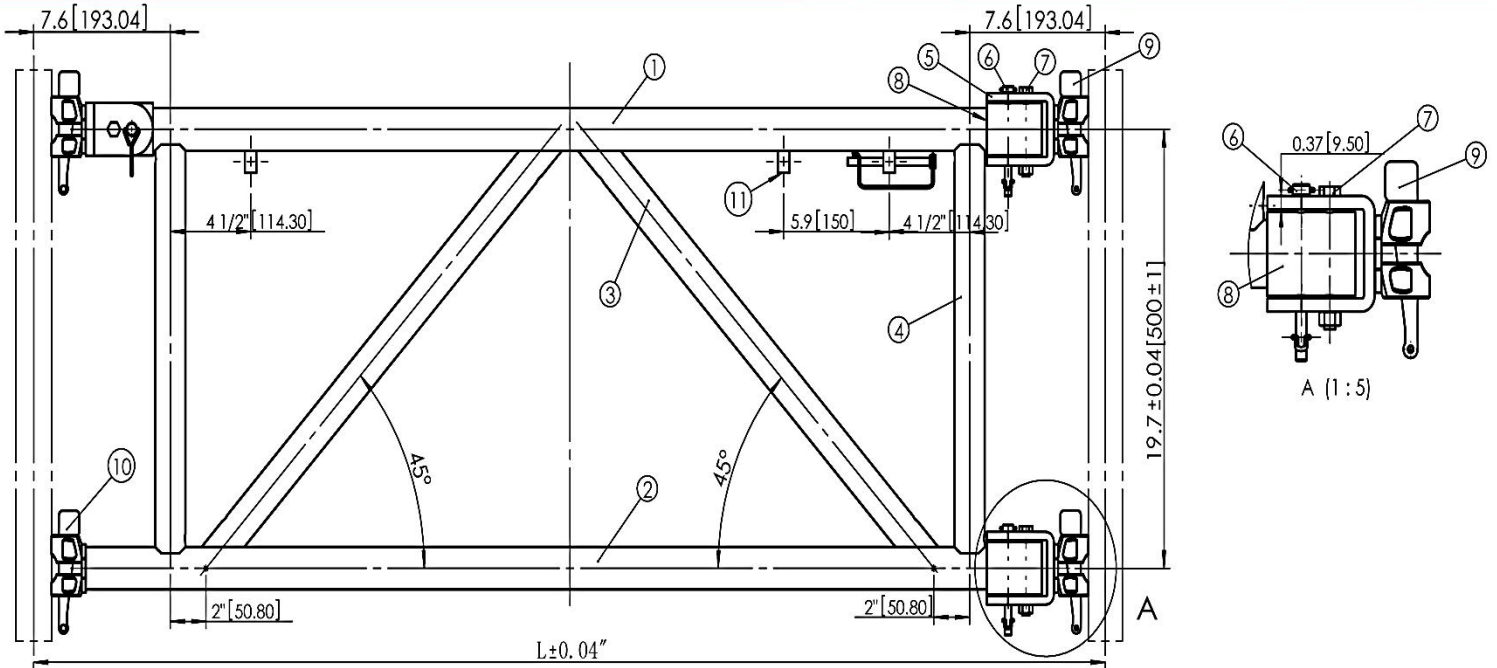
This was followed by the construction of a 10' platform extension using the SafeDeck design. The time required for completion was 10 1/2 minutes, but as seen on the video, at least 2 minutes were used when the personnel had an alignment issue with a horizontal because one pin had been used in the wrong receiving hole of the rosette; this delay was not related to the SafeDeck system in any way. In fact, the 10' SafeDeck was constructed in approximately the same amount of time as the 7' system.

In summary, the SafeDeck system clearly reduces the construction time for cantilevered working platforms, and offers a higher degree in safety by allowing personnel to work from an OSHA compliant working platform, never working outside the boundaries and protection of the fully hand-railed platforms they are working from. After completion of initial cantilevered platform, the personnel can now safely work from that platform while they replicate the new method of cantilevering hanging platforms out to the desired target.

SafeDeck Specifications

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REV.	REV. NOTE	CHANGED	TO	CHANGED BY	DATE



Item	L	N	Weight (LBS)
S-TJ3-DL	36" [914.4]	2	39.15
S-TJ42-DL	42" [1066.8]	2	41.58
S-TJ4-DL	48" [1219.2]	2	43.96
S-TJ5-DL	60" [1524]	2	48.77
S-TJ6-DL	72" [1828.8]	2	53.58
S-TJ7-DL	84" [2133.6]	2	58.39
S-TJ8-DL	96" [2438.4]	2	63.2
S-TJ9-DL	108" [2743.2]	4	74.75
S-TJ10-DL	120" [3048]	4	81.49

ITEM	QTY	PART NO.	DESCRIPTION	MATERIAL	WT(LBS)	TOTAL	REMARK
11	3		Casing OD1.00"[25.4]x0.079"[2.0]T	Q235	0.2	0.6	
10	1		Cast Head		1.28	1.28	
9	3		Cast Head		1.26	3.78	
8	3		Casing OD2.36"[60]x0.177"[4.5]T	20#	1.03	3.09	
7	3		Bolt(M10X95mm) and lock nut(M10)	G88.8	0.15	0.45	
6	3		SP	Q235	0.04	0.12	
5	3		Hinge[60.37"]	Q235	2.27	6.81	
4	2		Connect OD1.69"[42.9]x0.094"[2.4]T	Q235	2.43	4.86	
3	N		Brace OD1.69"[42.9]x0.094"[2.4]T	Q235	3.37		
2	1		Beam OD1.9"[48.3]x0.126"[3.2]T	Q345			
1	1		Beam OD1.9"[48.3]x0.126"[3.2]T	Q345			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES(MILLIMETERS)

DON'T SCALE AND MANUALLY UPDATE DRAWING



SUNSHINE INTERNATIONAL CORP.

DRAWN BY	Xia WenYi	02/02/12	MATERIAL:	DESCRIPTION
CHECKED BY	Feng ChengNian	02/02/12	FINISHING: Hot-Dip Sliver	Horizontal Swing
MFG ENG BY			SCALE: 1:8	PART NO.:
APPROVED BY			SHEET 1 OF 1	DWG.NO.: S-TJx-DL

Competent Person

A Competent person defined by OSHA is “One who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them”. OSHA requires that all “scaffolds shall be erected, moved, dismantled, or altered only under the supervision and direction of a Competent Person qualified in scaffold erection, moving, dismantling or alteration. Such activities shall be performed only by experienced and trained employees selected for such work by the Competent Person.” It is required and very important for the contractor who is installing and using the SafeDeck system to appoint a Competent Person to identify hazards specific to the SafeDeck product and the jobsite.



Tool Requirement

The SafeDeck system requires standard hand tools that are commonly used by experienced scaffold erectors. This includes: standard steel hammer, 7/8” scaffold ratchet, level, wrench, and wire cutters.

Components That Work in Conjunction with SafeDeck

The SafeDeck product is designed with the scaffold contractor's current inventory in mind. The product has been simplified to work with most Tube & Clamp, Pin & Ring systems, including planking and decking products.

While there are other products in the market that have some of the features and benefits of the SafeDeck system, none of the products were specifically designed to work in conjunction with existing scaffolding components. Other scaffolds are standalone products that only work in specific situations, perhaps 20% of the time. Conversely, the SafeDeck system works with 80% to 90% of the contractor's inventory and can be utilized in everyday situations. SafeDeck provides contractors with superior value; the system is not only versatile, but it provides increased production while minimizing hazards in potentially dangerous scaffolding installations.

SafeDeck is designed to work with these products:

- Next Generation Scaffold
- Layher Scaffold
- Step Up Scaffold
- Direct Scaffold
- Universal Scaffold
- Slick Tubes
- Right Angle Clamps
- Swivel Clamps
- Beam Clamps
- Universal Metal Planking
- Wood Planks
- Pin and Ring Diagonal Braces
- Pin and Ring Verticals
- Pin and Ring Horizontal
- Screw Jacks
- Ladders
- Ladder Brackets

Connecting Trusses

The SafeDeck patent pending hinged end connector is designed with a standard wedge head/ring connection. Since the end connector is designed to be a universal component, it is easily connected to a majority of the Pin & Ring scaffold products on the market. Prior to connecting the trusses, the lead erector and Competent Person are required to inspect the trusses looking for any damage or corrosion. Connecting the trusses to the vertical members is as simple as connecting a standard horizontal member. Due to the weight of the trusses, the SafeDeck system requires two erectors to safely install the trusses. With Erector One at the end of the truss (with the two horizontal hinged end connectors), and Erector Two located at the other end of the truss, both erectors will simultaneously carry the truss to the leading edge of the scaffold. The erectors will position the truss at the desired platform height, likely kneeling down to install the first truss. When both horizontal end connectors are moved into position onto the vertical member rosettes, Erector One will use a standard steel hammer to secure both wedge assemblies.

Connecting Verticals

With the SafeDeck truss now installed in the folded position, the erectors can install a standard Pin & Ring vertical member. To install the vertical member, the erectors will place the vertical in the truss and secure it using the steel hammer.



Securing Wedge Connector



Double Truss Method

With the lower SafeDeck truss still in the folded position and vertical member already secured in place, the erectors can install another SafeDeck truss at the proper guardrail height. Make sure to install the horizontal hinges of the truss in the same direction as the truss located below it. The erectors will then secure the wedge assemblies at both ends of the trusses. Now that both trusses are properly secured and the vertical member has been installed, the erectors can swing the truss out into a 90 degree position from their current position - expanding the platform. When the trusses are rotated perpendicular to the platform, the erectors can insert the retaining pin into the locked position thus preventing the trusses from swinging out of correct position. The erectors will then repeat the previous steps at the adjacent corner of the working platform. When installed properly, the SafeDeck system will be level.

Double-Truss Completed Assembly



Double-Truss Method



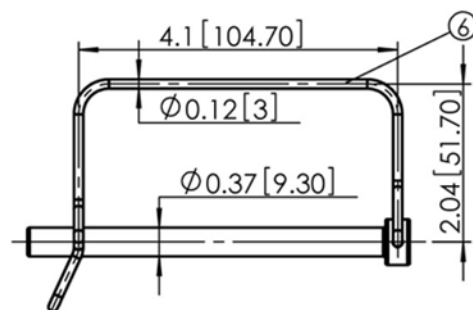
Level



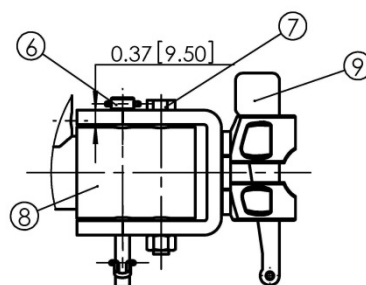
Planking Trusses

Once the erectors have positioned and secured both trusses in the 90 degree position, the erectors will then install the truss retainer pin locking the system in place. Now, the erectors can install the desired platform product. Prior to installing any decking, it is recommended the erectors perform a thorough inspection prior to installation. To install plank, the erectors will place the planks on the trusses and simply slide them out towards the unsupported vertical member until the trusses are completely planked. The erectors will be able to install all the planking from within the 100% guardrail platform from which they are currently working. The erectors will not have to unhook from their current fall arrest anchor point or ever leave the security of the completed platform to complete the new portion of platform. The erectors will repeat the above steps until they have completed the platform. They will then install the handrails and couple the vertical members to the approved structure with the necessary components.

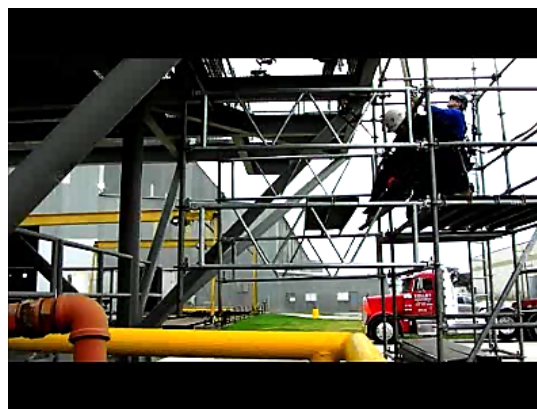
Retainer Pin



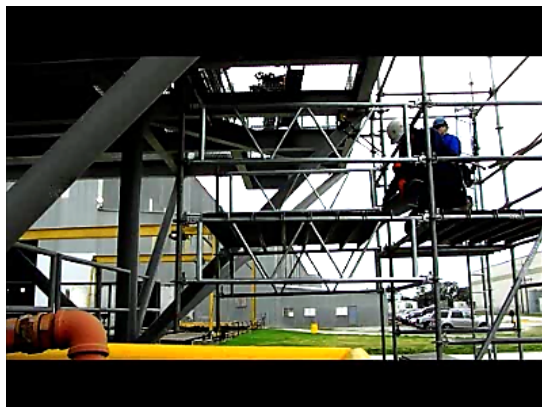
Locked Pin and Hinge



Erectors Planking Position from Safe Zone



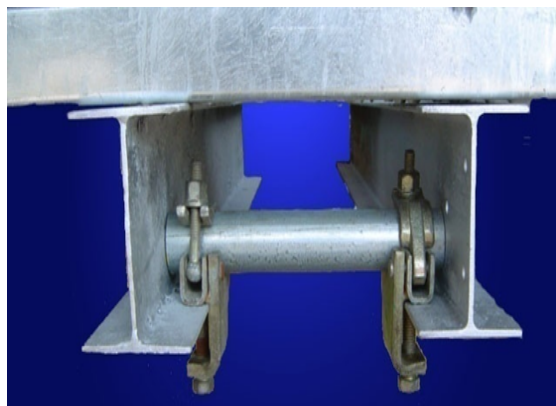
Planking Completed without Fall Hazard



Supporting SafeDeck from Structure

Every time SafeDeck trusses are cantilevered, the system must be supported by attaching the scaffold to the overhead structure with either tube & clamp, cables, or other suitable connections. The overhead structure has to be approved to support the intended loads imposed by the SafeDeck system. Tube & clamp is a common method of attaching the scaffold to the structure. The clamps must always be installed in compliance with the manufacturer's specifications.

Beam Clamp Proper Installation



Allowable Platform Loads

There are three current OSHA load ratings for scaffold platforms: light, medium, and heavy duty. A light duty scaffold is designed to support 25 psf. A medium duty platform is designed to support 50 psf. A heavy duty platform rating requires a 75 psf load rating.

To achieve a heavy duty rated work platform, the platform shall be installed with vertical members spaced no more than 7' on-center in both directions (i.e. 7'x7' grid pattern with every vertical member adequately attached to the overhead structure).

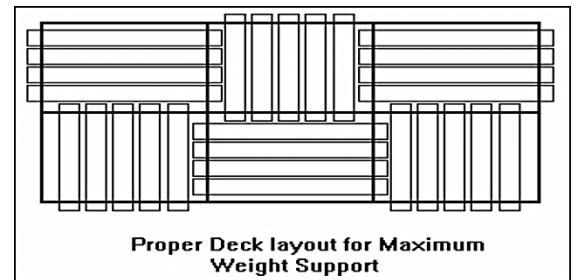
To achieve a medium duty rated work platform, vertical members are spaced up to 7' in one direction and 10' in the other direction (i.e. 7'x10' grid pattern with every vertical member adequately attached to the overhead structure).

To achieve a light duty rated work platform, vertical members shall be installed no more than 10' on-center in both directions (i.e. 10'x10' grid pattern with every vertical member adequately attached to the overhead structure)

During use, the platform should not experience excessive deflection. Inspect the platform to

ensure that truss deflection does not exceed $\frac{1}{2}$ "; refer to manufacturer's data for allowable plank/platform deflection. Failure to take corrective measures may result in property damage, serious injury, and even death.

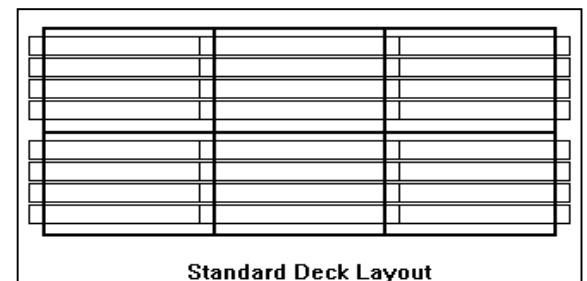
Proper Plank Layout



Proper Single Platform Plank Layout



Standard Platform Plank Layout



Material Storage

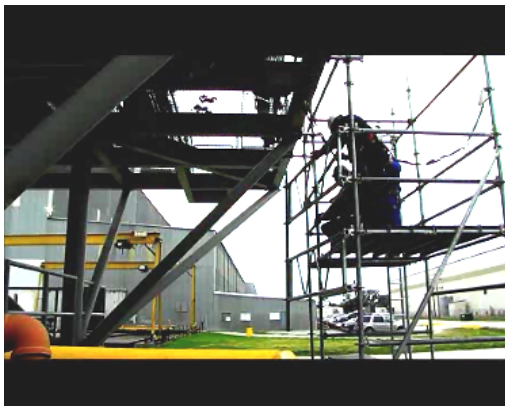
Overloading the system can result in property damage, serious injury, or even death. The Competent Person shall inspect the SafeDeck system, including connections and joints, prior to each work shift. It is good practice to store materials over the trusses adjacent to the vertical members of the platforms. When placing objects on the SafeDeck system, materials shall be placed with care and not dropped onto the platform creating an impact or shock load.

SafeDeck Inspection

Prior to expanding the SafeDeck platform the erectors shall inspect the truss system and all components. All parts should be free moving and in the proper working condition. The hinges should be free of any visual damage or corrosion. If the erectors notice any issues with the system components, the component is to be marked and removed from service. Failure to inspect the components prior to use can result in property damage, serious injury, or even death.



Like all other scaffolds on the market, the SafeDeck system requires regular inspection by a Competent Person. The SafeDeck system must be inspected prior to each work shift. Hinges and wedge assembly parts can become worn over time. The Competent Person inspecting the system should look for damaged or bent components, corrosion, and loose fitting bolts. Verify that other products used in conjunction with the SafeDeck system are compatible with SafeDeck prior to installation. Damage can occur to the galvanized finish through improper handling and corrosive environments. The components should be regularly inspected for finish defects; these defects can be repaired by applying a zinc enriched paint product.



Platform Disassembly

Prior to dismantling any portions of the SafeDeck system, a Competent Person shall verify the structural integrity of the system. Failure to inspect system can result in property damage, serious injury, or even death.

Dismantling the system is essentially reversing the process of erecting the platform. However, plank removal may place erectors outside the limits of the completed platform. If the erectors are exposed to leading edge falls, personal fall arrest systems shall be required. The Competent Person shall determine proper anchorage points. All anchorage points must be designed by a Qualified person.

Be aware that smaller starter platforms can lift up if not secured properly to the overhead structure during dismantling operations.





SafeDeck Supported Scaffold System

Safety Guidelines

This SafeDeck guide provides vital and safe direction for the erection, dismantle, and modification of the supported scaffold system.

The Competent or Qualified person or persons are responsible for the safety of all persons while erecting, dismantling, and using the SafeDeck product.

Modification of any SafeDeck product is prohibited by anyone and may result in serious injury or even death.



Warning Serious Injury of Death can occur from failure to comply with all guidelines, all applicable safety requirements of federal, state, and local regulations prior to installation, dismantle, or modification of SafeDeck system.



CAUTION All Competent and Qualified personal are required to familiarize themselves and to be trained with the proper use and loading of the SafeDeck system prior to the beginning of each project.

Prior to Erection of SafeDeck all personal is required to wear proper PPE and have established proper anchorage points for fall arrest systems.

The Competent person must evaluate all potential jobsite hazards prior to the start of work on any SafeDeck project.



Do not install SafeDeck near any electrical power sources prior to consulting with plant, facility owner, or electrical contractor.



If exposed to the possibility of a fall during the erection of the platform, properly attach fall protection to approved anchorage point.

1. The contractor should establish competent and/or qualified personal that will be responsible for the installation, relocation, and modification of the SafeDeck system.

2. Inspect all equipment prior to use for all visual defects. Do not use damaged or modified equipment.
3. Before installing the Beam clamps to the supporting structure check with structures owner to make sure the structure will support the SafeDeck system and imposed loads.



Inspect all components that work with SafeDeck scaffold system. Tighten all clamps to manufacturer's recommendations.

4. Comply with all SafeDeck assembly instructions.
5. The Competent person shall determine the method of fall protection system.



Do not use unsupported truss

Safety Guidelines

system for fall arrest system without previous engineering approval.

6. When installing SafeDeck at the leading edge of the platform the Erectors are to utilize the double truss method.
7. Make sure the SafeDeck trusses are installed level before hinged end connector wedges are driven home.
8. Once the truss is swung into 90 degree position erector is to engage truss retaining pins.



Secure

the area below the SafeDeck working platform from any traffic.

9. Prior to the beginning of each shift check all clamps and end connectors to make sure they are secured properly.
10. Installation of starter platform is to be

installed under all supported scaffold regulations.

11. Maximum allowable cantilever is 50% greatest length of shortest width of supported starter platform.
12. After first cantilever platform is supported from structure the maximum unsupported cantilever is 10'.



Fall protection is required by all users of SafeDeck scaffold system.

USER

1. The Competent or Qualified person is required to inspect all system connections prior to the beginning of each shift.
2. Any damaged components must be taken out of service and repaired prior to beginning of shift use.
3. Always load platform in designated loading areas of platform.

4. Always be aware of imposed loads to platform.
5. Load platform with care.
6. (GFCI) tools are required for all electrical tools, lighting, etc.

DISMANTLE

1. Check structural integrity of the entire platform before beginning disassembly of any portion of platform.
2. Dismantle the scaffold in reverse order.
3. Do not create a cantilever platform greater than 10' in length.
4. Do not throw loose components on deck creating impact load.
5. Do not load platform with loose components exceeding load capacity.
6. Remove all loose components from platform.
7. Always consider location of cantilevered section of SafeDeck to the starter platform.
8. Never stack materials in a manner that would allow them to fall to a lower elevation.