



Cup Lock System Scaffold Installation Manual

Issued January 2026

Cup Lock System Scaffold Manual

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⚠ DANGER

DO NOT EXCEED THE MAXIMUM INTENDED LOAD OF THE SCAFFOLD. Overloading may cause structural failure leading to collapse.

⚠ WARNING

IMPROPER ERECTION, DISMANTLING, OR USE OF SCAFFOLDING CAN RESULT IN DEATH OR SERIOUS INJURY. Only trained and competent personnel shall erect, dismantle, alter, or use this equipment.

FOLLOW ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS AND SAFETY REQUIREMENTS WHEN ERECTING, USING, OR DISMANTLING SCAFFOLDS. Failure to comply may result in serious injury or death.

⚠ WARNING

ALL SCAFFOLDS MUST BE ADEQUATELY BRACED, ANCHORED, OR TIED TO A STRUCTURE TO PREVENT TIP-OVER OR COLLAPSE. Failure to provide proper stability can result in severe injury or death.

HIGH WINDS OR SUDDEN GUSTS CAN CAUSE SCAFFOLDS TO BECOME UNSTABLE OR COLLAPSE. DISCONTINUE USE WHEN WIND CONDITIONS EXCEED SAFE LIMITS.

UNSTABLE OR UNEVEN FOOTING CAN COMPROMISE SCAFFOLD STABILITY. ENSURE THAT ALL BASES REST ON SOLID, LEVEL SURFACES AND THAT ADEQUATE MUDSILLS OR FOUNDATIONS ARE PROVIDED BEFORE USE.

⚠ WARNING

FALLS FROM HEIGHTS ARE A LEADING CAUSE OF DEATH IN CONSTRUCTION. Guardrails, toe boards, and personal fall protection equipment must be used where required by law or job conditions.

FALL ARREST SYSTEMS ATTACHED TO SCAFFOLDING MAY NOT PREVENT SERIOUS INJURY OR DEATH IF A FALL OCCURS. Additional protective measures must be used as required.

⚠ WARNING

DO NOT USE SCAFFOLDS NEAR POWER LINES OR EXPOSED ELECTRICAL CIRCUITS. Contact with electricity can result in electrocution and death.

⚠ CAUTION

INSPECT ALL COMPONENTS BEFORE EACH USE. Do not use damaged, corroded, or incompatible parts. Remove defective equipment from service immediately.

⚠ CAUTION

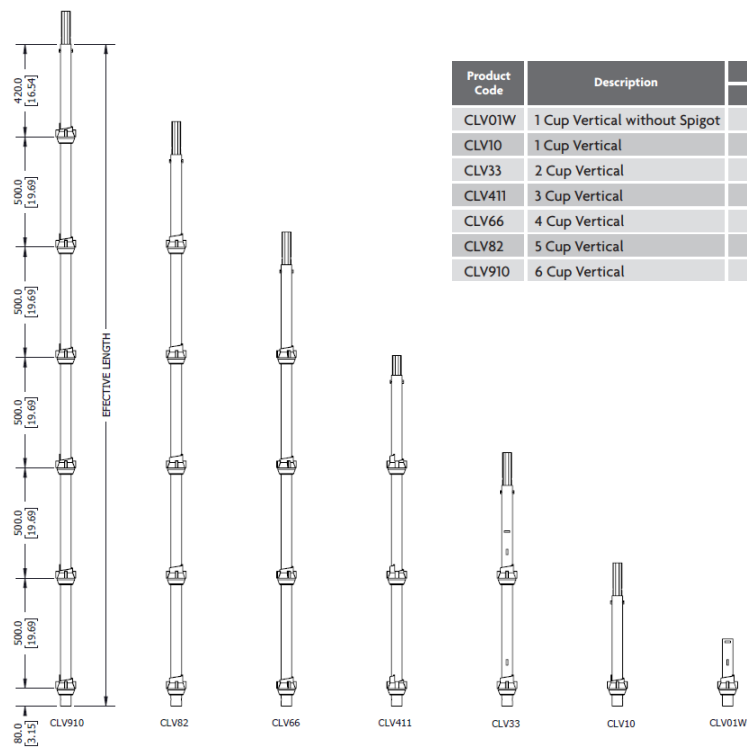
DO NOT MODIFY, WELD, OR DRILL INTO ANY COMPONENTS. Alteration of equipment may reduce strength and stability, resulting in failure.

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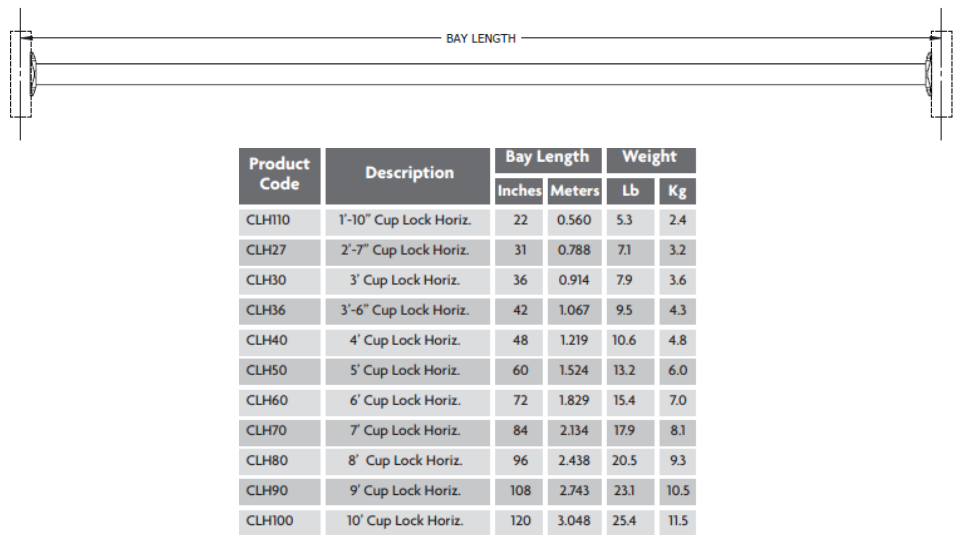
1. General Notes

Standard Components.

- Cup Lock Standard/Vertical



- Cup lock ledger/Horizontal



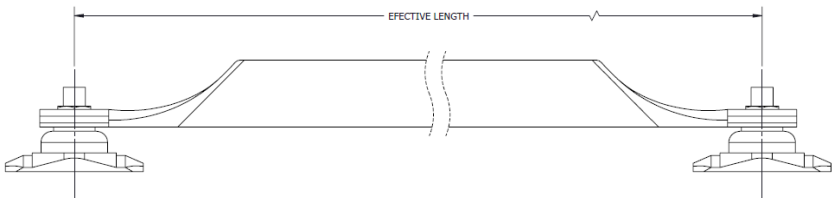
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- Cup Lock Intermediate Transom



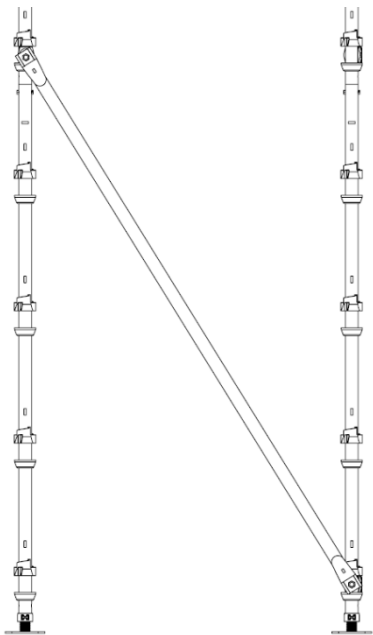
Product Code	Description	Bay Length		Weight	
		Inches	Meters	Lb	Kg
CLTI27*	2'-7" Intermediate Transom	31	.0788	0.0	
CLTI30	3' Intermediate Transom	36	0.914	10.5	4.75
CLTI36*	3'-6" Intermediate Transom	42	1.067	0.0	
CLTI40	4' Intermediate Transom	48	1.219	12.7	5.8
CLTI43*	4'-3" Intermediate Transom	51	1.300	0.0	
CLTI50*	5' Intermediate Transom	60	1.524	0.0	
CLTI70*	7' Intermediate Transom	84	2.134	0.0	
CLTI80	8' Intermediate Transom	96	2.438	16.5	7.5
CLTI82*	8'-2" Intermediate Transom	98	2.500	0.0	
CLTI100*	10' Intermediate Transom	120	3.048	0.0	

- Cup lock Diagonal



Product Code	Description	Effective Length		Weight	
		Inches	Meters	Lb	Kg
CLFB40*	4' Face Brace Swivel	92.23	2.343	16.98	7.7
CLFB50*	5' Face Brace Swivel	98.94	2.515	17.86	8.1
CLFB511*	5'-11" Face Brace Swivel	105.93	2.691	20.39	9.3
CLFB70	7' Face Brace Swivel	115.14	2.925	22.62	10.3
CLFB80	8' Face Brace Swivel	124.16	3.154	23.26	10.6
CLFB82	8'-2" Face Brace Swivel	126.05	3.202	23.32	10.6
CLFB90*	9' Face Brace Swivel	133.66	3.395	24.69	11.2
CLFB100	10' Face Brace Swivel	143.53	3.646	26.32	11.9

Note: The Face brace is designed with an intended 2 meter (6'6") vertical drop.



- Decking & Access

- Platforms must be fully planked within the perimeter of the guardrails, ensuring compliance with load capacity ratings.
- Decking ledger and vertical standard capacity must be checked when installing bird cage type scaffolding to ensure load capacities are not exceeded.

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- Safe access and egress must be provided, such as stair towers or ladders, ensuring no worker is required to climb the scaffold frame for access.
- Toeboards must be installed along all open sides of work platforms when there is a risk of tools or materials falling.

- **Load Capacity & Use Considerations**



DANGER

Failure to understand and adhere to load capacities can lead to scaffolding collapse and cause significant injury and death.

- Consult this manual and DSS Product Specific Data Sheet to determine the load rating of each scaffold component.
- The scaffold shall not be overloaded beyond its design capacity. Workers must adhere to the scaffold's load classification, whether light-duty (≤ 25 psf), medium-duty (≤ 50 psf), or heavy-duty (≤ 75 psf).
- Dynamic loads such as excessive movement, stacking materials, or impact forces should be avoided to prevent structural instability.
- If the scaffold is to support equipment, dynamic or additional loads, a qualified engineer must verify load capacity before use. Scaffold components must be checked regularly if scaffold is imposed through dynamic load.

- **Inspection & Maintenance**

NOTICE

A competent person must inspect the scaffold prior to each work shift and after any event that could compromise its stability (e.g., high winds, impact, modifications).

- Any damaged or worn components (e.g., bent braces, cracked planks, loose couplers) shall be immediately replaced before the scaffold is used.
- Modifications to the scaffold shall only be made under the supervision of a qualified person to maintain design compliance.

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- **Fall Protection**



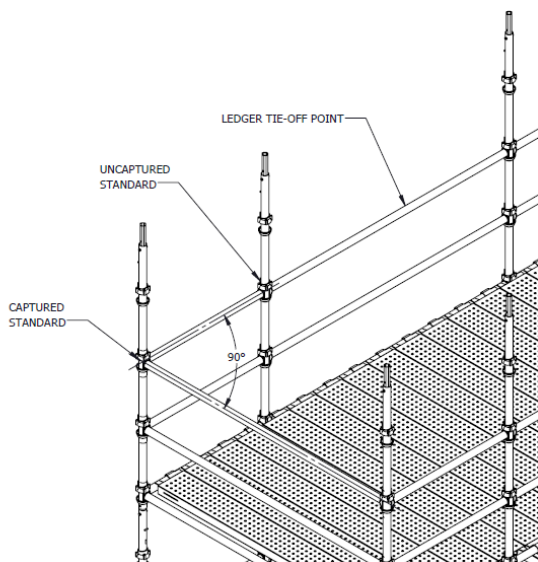
WARNING Failure to account for adequate fall protection, can lead to significant injury and death. Refer to all Federal, local and jobsite requirements regarding fall protection requirements with regard to scaffolding.

The Direct Scaffold Supply (DSS) Cup Lock system is engineered to withstand fall arrest forces when properly erected and secured by competent scaffold erectors. Adequate anchorage points are integrated into the system components to support personal fall arrest systems (PFAS).

This guide serves as a safety reference when using DSS Cup Lock scaffolding. DSS strongly recommends compliance with OSHA regulations, as well as all applicable local, state, provincial, and federal codes. Scaffold erection should be performed by a qualified scaffold company and reviewed by a Qualified Scaffold Engineer.

When selecting anchorage locations for tying off, the following DSS components are approved for Tie-Off Point for Fall Protection:

- **Ledgers:** Only ledgers 10 ft (3.05 m) or shorter may be used, with a single user tied off at a time.
- **Standards (Vertical Posts):** Use at the tube right above a cup node, with one user at a time. Tie-off must be at the same level as horizontal ledgers.



Standards can be:

Captured: Supported by two or more ledgers at the same cup node forming 90° angle.

Uncaptured: Must be braced by adjacent ledgers on both sides.

Trusses/Lattice Girders: Only the top chord may be used for tie-off

Davit Arm: DSS part number UDA is approved for use as an anchorage point.

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NOTICE

Do NOT use the following components as tie-off points:

- Diagonal braces
- Ladder rungs
- Handrails on swing gate extensions
- Swing gates
- Bottom chords or inner webbing of trusses

DSS recommends the following Fall Arrest Equipment to meet the fall protection standards:

- Full-body harness
- Lanyard with a deceleration device
- Double-locking snap hook for ledger attachment (do not wrap lanyard around ledger unless specifically designed for it)
- Approved anchorage device such as the DSS Davit Arm

Scaffold Structure Requirements to maintain structural integrity:

- Install diagonal braces during erection according to DSS specifications.
- Tie scaffold to existing structures:
 - ◆ At the first lift
 - ◆ At vertical intervals not exceeding 18 ft
- Horizontal ties must withstand at least 750 lbf lateral force (with a 4:1 safety factor).
- Install ties along the length of the scaffold at intervals not exceed 30 ft.
- Place ties as close to cup node points as possible.

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NOTICE

Additional OSHA & Best Practice Recommendations for Tie-Offs:

- Anchor strength: OSHA requires each anchorage point for PFAS to support at least 5,000 lbs per worker, or be part of a system designed and certified by a qualified person to provide a 2:1 safety factor.
- Training: Workers must be trained in fall protection use, anchor identification, and emergency procedures.
- Inspection: All tie-off points, fall protection gear, and scaffold components must be inspected daily and after any event that could compromise integrity (e.g., impact, weather).
- Rescue Plan: A rescue plan must be in place for retrieving a fallen worker promptly.
- Fall Distance: Ensure lanyard length and tie-off height prevent the worker from hitting lower levels (calculate total fall clearance).

Disclaimer

NOTICE

DSS disclaims any liability for damages, injuries, or losses resulting from improper placement, installation, or failure to comply with regulatory standards.

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2. FREE-STANDING SCAFFOLD (FSS)

- **Definition:**

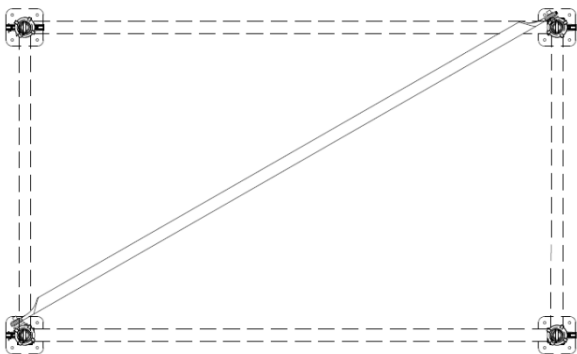
A free-standing scaffold is one that is not secured to a structure and has a height-to-base ratio of 4:1 or less, which may be achieved by buttressing or outriggers.

- **FSS - Single Bay Bracing**

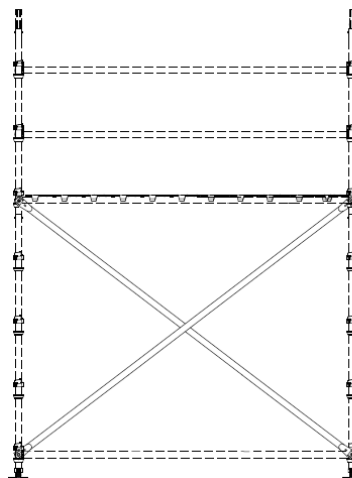
Freestanding towers should have horizontal braces installed at the base, at increments of every third lift, and beneath deck height. DSS recommends using DSS plan bracing and bracing at node level. Whether DSS plan bracing is not available or not possible to install for the bay sizing, tube and clamp may be used as plan bracing.

NOTICE

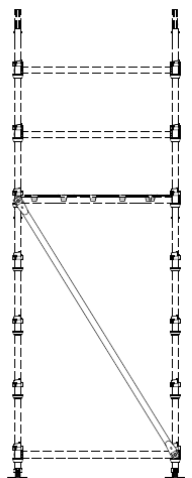
Base to deck height is not to exceed 4 times the minimum base dimension: In accordance with OSHA 1926.451(a)(1), the overall height of a freestanding scaffold tower must not exceed four times (4:1) the smallest base dimension, unless adequate buttressing, guy wires, or tie-in connections are implemented to prevent overturning. (See Section 2.2)



FSS Horizontal Braces at the base



FSS Tower with Plan Braces

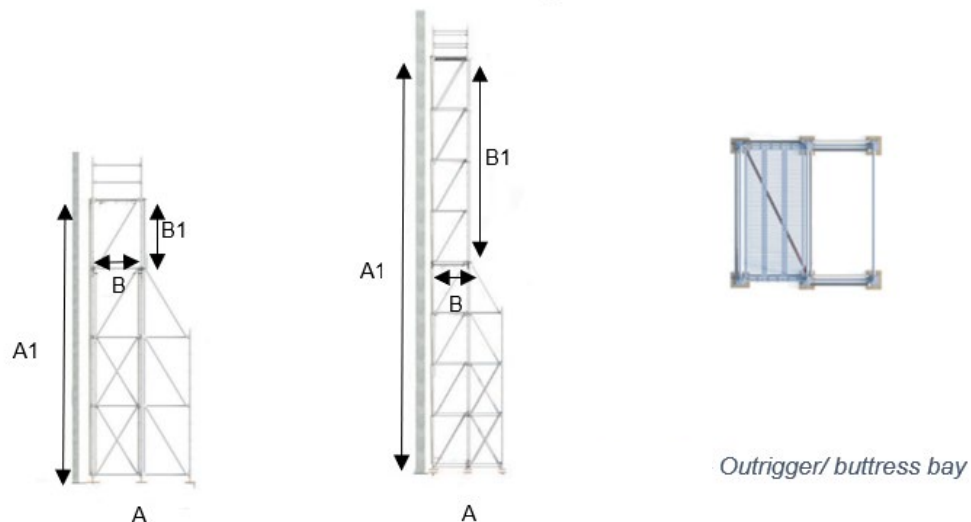


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- Base level to be braced, plan braced minimum of 3 every 3 lifts, with plan bracing beneath top working platform.
- **FSS with Outriggers / Buttress Bay**

Outriggers / Buttress bays are commonly used to enhance stability and prevent tipping in free-standing scaffold by achieving a height-to-base ratio of 4:1.

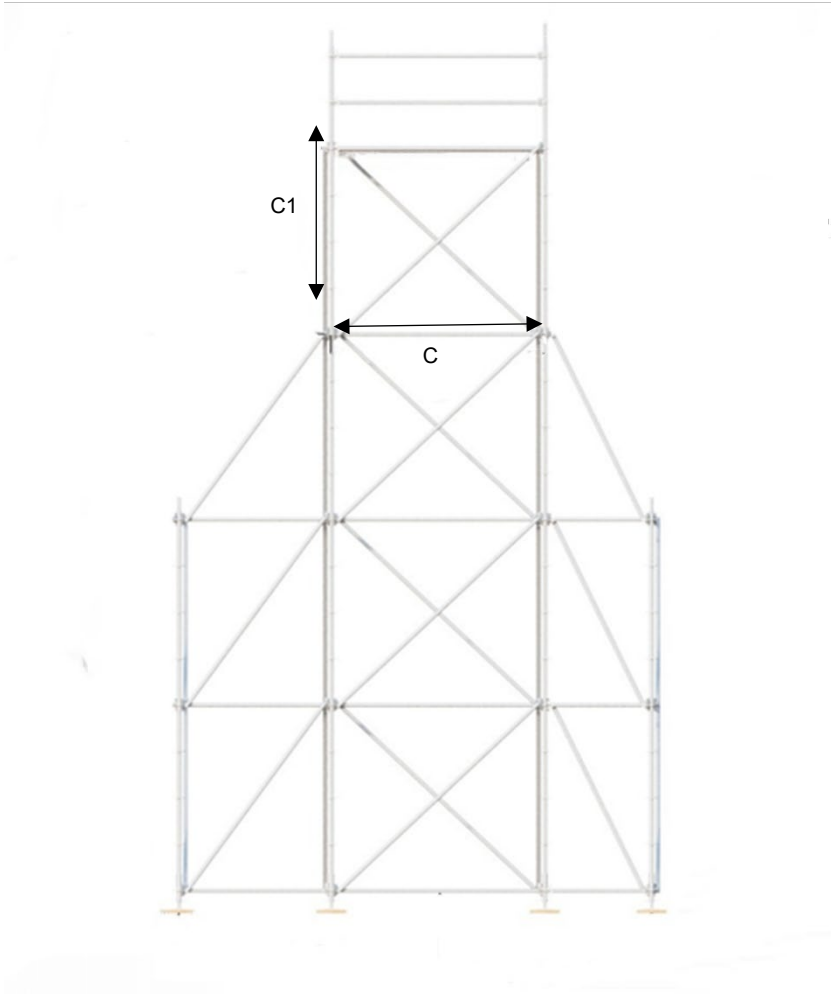
In *Figure 3*, the total height of the scaffold (A1) shall not exceed four times the total base (A), the same way that the top portion of the scaffold (B1) above the buttress/outrigger shall not exceed four times the non-buttressed width (B). In other words, buttress/outrigger is only required to increase base dimension until upper portion (B1) is within the 4:1 ratio of the minimum base width (B) and the total base of the (A1) shall not exceed four-time total height (A).



The scaffold erector is responsible for ensuring compliance with this stability requirement in all directions where the scaffold is not secured to a structure. See Figure 4.

Top portion of the scaffold (C1) above the buttress must be at min 4:1 for the non-buttressed width (C)

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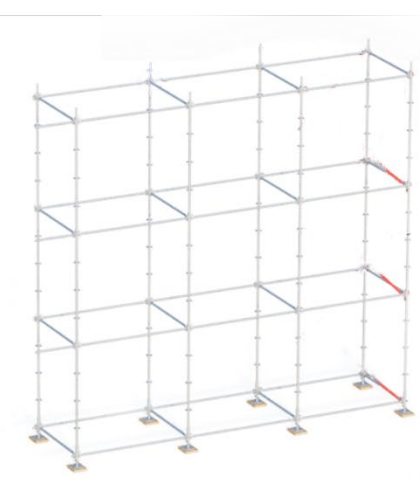
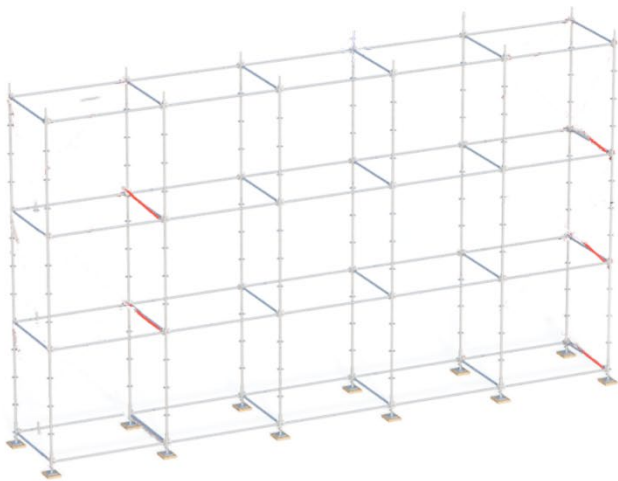
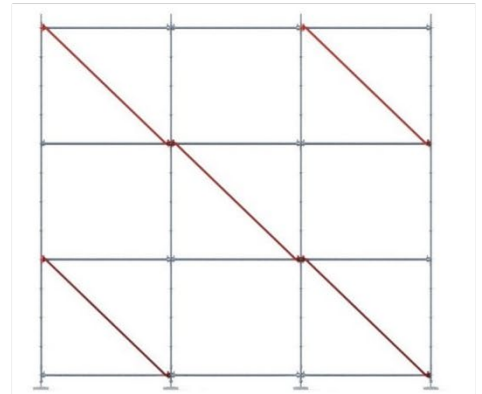
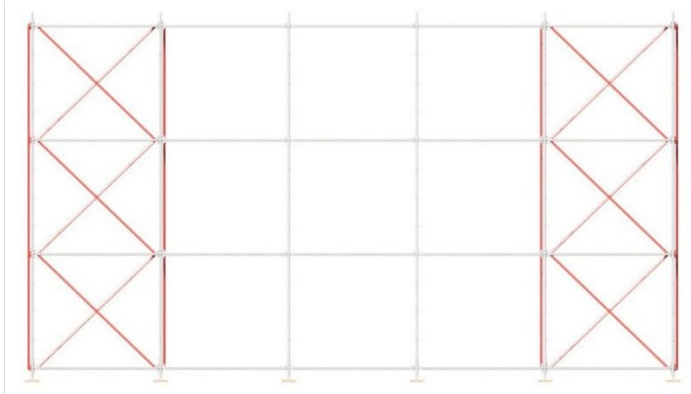


FSS Buttress

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- **FSS – Multi-Bay Bracing**

Tower Diagonal Bracing is required at a minimum of every fourth bay, not to exceed 30' or 9M between braced bays. Each diagonal brace secures laterally the bay to each side of the braced bay.



Bracing for Multi-Bay Scaffold

Transverse bracing required at each end, and at intervals in between not to exceed 30', or every fourth bay through diagonal bracing or outrigger bracing.

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- **FSS - Birdcage**

Definition: A birdcage scaffold is a self-supporting, independent scaffold structure consisting of more than two rows of standards in both longitudinal and transverse directions, interconnected by ledgers and transoms as shown in Figure 6. This scaffold type is primarily intended for work conducted at a single elevation, such as ceiling installations, maintenance, and other overhead tasks.

- **Erection and Safety Requirements**

NOTICE

Erection and dismantling of birdcage scaffolds constructed from modular scaffolding systems must strictly adhere to the designer's specifications and applicable safety regulations (e.g., OSHA 29 CFR 1926 Subpart L or relevant local codes) to ensure compliance with structural integrity and worker safety requirements

- **Birdcage Structural Control Measures.**

To ensure stability and prevent collapse, the following control measures shall be implemented:

- 1) Bracing Requirements.**

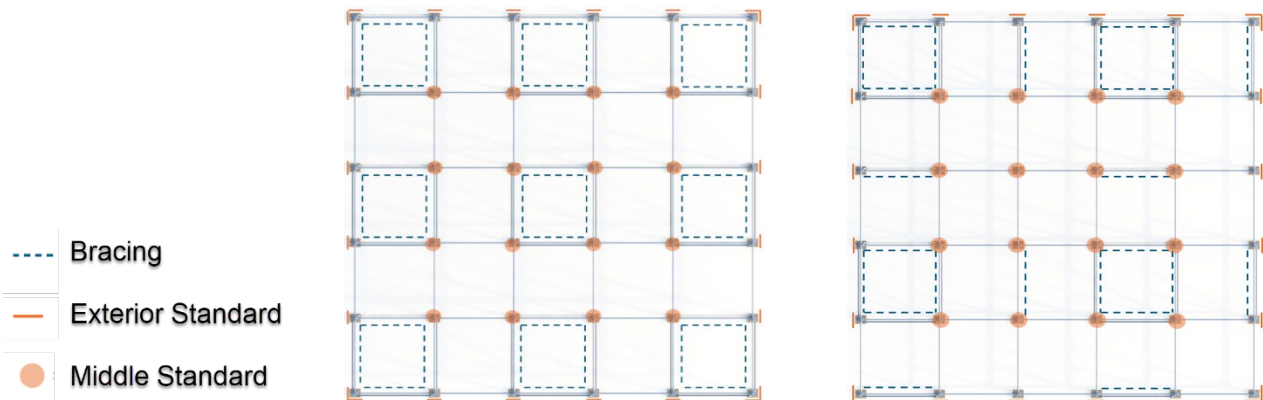
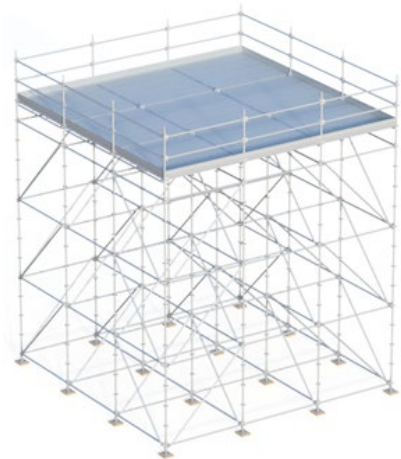
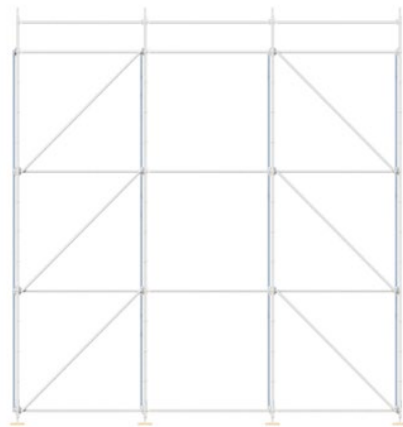
- a) Untied birdcage scaffolds must be reinforced with lengthwise bracing along each outer longitudinal row of standards to prevent excessive movement or deformation.
- b) Longitudinal bracing or a tied face shall be installed at a minimum of every third longitudinal row of standards to maintain lateral stability.
- c) The outermost row of standards on each face, as well as every third internal row, shall be secured with longitudinal bracing to enhance structural integrity.
- d) Transverse bracing shall be installed at a minimum of every fourth bay along the scaffold's end sections to provide additional stability and resistance to lateral forces.

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2) Support & Stability

- a) Birdcage scaffold shall not be to support formwork unless explicitly designed, engineered, and approved for such a purpose.
- b) The Scaffold must be plumbed and leveled during assembly, and no forced fitting of members shall be allowed.
- c) Base plates or adjustable jacks must be used to distribute loads properly and prevent settlement or movement of the scaffold.

NOTICE If the height of the scaffold exceeds four times the minimum base dimension, it must be tied or braced to a stable structure per OSHA or local engineering requirements.



FSS Birdcage Scaffold

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3. NON-FREE-STANDING SCAFFOLD (NFSS)

Definition: Scaffolds that are secured to a structure against tipping or displacement.

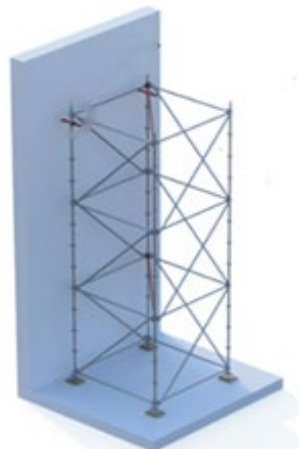
- **General**

NOTICE Per OSHA 1926.451(c)(1)(ii) "Guys, ties, and braces shall be installed according to the scaffold manufacturer's recommendations or at the closest horizontal member to the 4:1 height and be repeated vertically at locations of horizontal members every 20 feet (6.1 m) or less thereafter for scaffolds 3 feet (0.91 m) wide or less, and every 26 feet (7.9 m) or less thereafter for scaffolds greater than 3 feet (0.91 m) wide. The top guy, tie or brace of completed scaffolds shall be placed no further than the 4:1 height from the top. Such guys, ties and braces shall be installed at each end of the scaffold and at horizontal intervals not to exceed 30 feet (9.1 m) (measured from one end [not both] towards the other)".

NOTICE For compliance, scaffolding must also adhere to wind loads, lateral forces, and structural stability per OSHA 1926 Subpart L and ANSI standards. If your scaffold is particularly tall or exposed to high winds, an engineer should confirm the adequacy of the tie spacing. See Wall Tie Scaffold

- **Wall Tie Scaffold**

DSS aligns with common industry wall anchor standards every 15 feet (4.6m) vertically and 21 feet (6.4m) horizontally), but this must be verified against site-specific engineering requirements.



Wall Tied Scaffold

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- The complete system must be secured to the wall using a suitable wall anchor or plate, installed in accordance with engineered specifications to maintain scaffold integrity and prevent displacement.
- These anchors must be installed in accordance with engineering specifications to ensure proper load distribution and compliance with safety regulations.

Typical Scaffold Ties Configurations

- **Single Tie:** Wall tie anchors consist of an anchoring tube incorporating a specialized hook (3) or pigtail, which securely attaches to the designated wall tie plate or anchor (1). A right-angle coupler (2) is utilized to affix the anchoring assembly to the scaffold structure, ensuring stability and load transfer. See Figure 8.
- **Triangulated Tie:** When direct placement of wall anchors is not feasible, triangulated anchors may be utilized at a 45° angle to maintain scaffold stability. A triangulated anchor assembly consists of an anchoring tube with a specialized hook (3) or pigtail that connects to the wall tie plate or anchor (1), couplers (2) that secure the assembly to the scaffold structure, and a wall anchor or plate for structural attachment. See Figure 8.

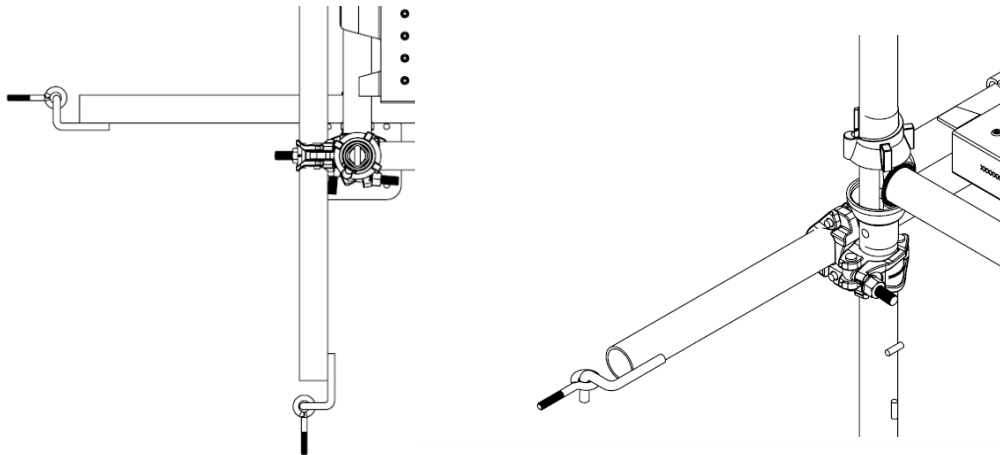


Figure 1 - Triangulated tie (left) and Single tie (right)

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- **Guy Wire Restrained Scaffold Tower**

- When guy-wiring a freestanding scaffold tower, the guy wires must be installed to maintain compliance with the 4:1 base-to-height ratio, thereby preventing excessive slenderness and instability.
- The angle between the upper guy wire and the ground shall not exceed 45° to ensure proper load distribution and structural integrity. All guy wire anchors must be designed and installed to adequately resist overturning forces, as determined by a qualified engineer.
- Guy Wires to be rated as per tie-in requirements and secured as per engineering or design requirements.

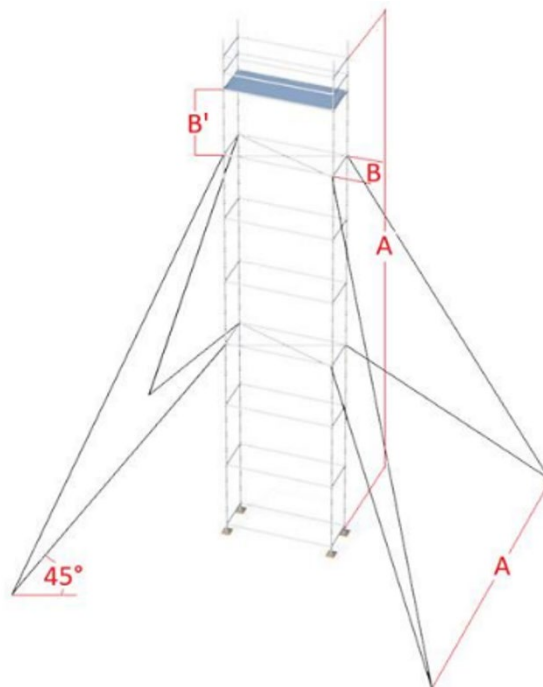


Figure 2 - Guy Wire Scaffold Tower

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- **Cantilever Scaffold**

- Cantilevers must be tied back at deck level to sufficient anchor able to prevent overturning.

Cantilevered scaffolds that are not secured with tie-backs must be stabilized using a buttress or counterweight system capable of preventing overturning, ensuring compliance with safety requirements and structural integrity.

NOTICE Supported scaffolds with a height-to-base width (including outrigger supports, if used) ratio of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means as per OSHA 1926.451(c)(1)

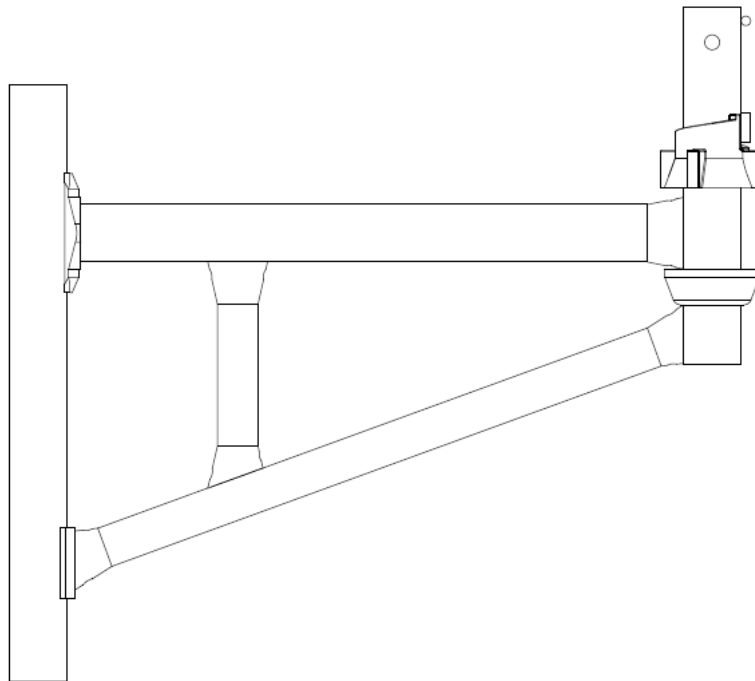
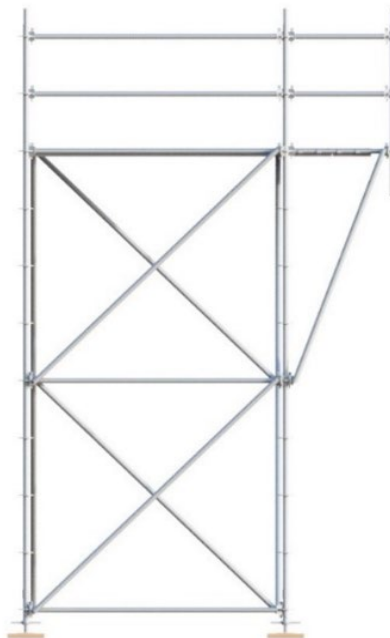


Figure 3 – Cantilever Detail in Scaffold

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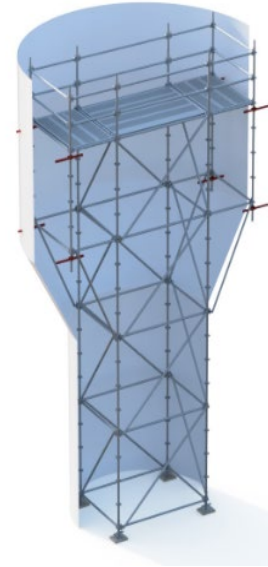
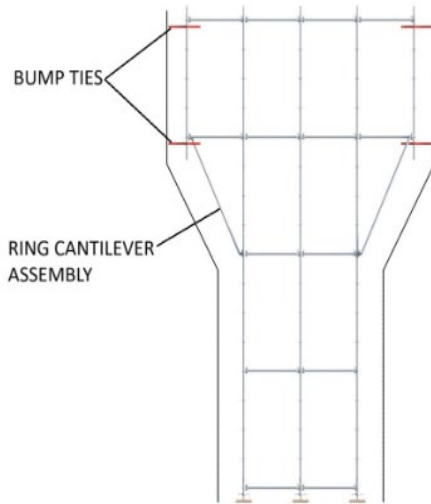


Scaffold Tower with Cantilever

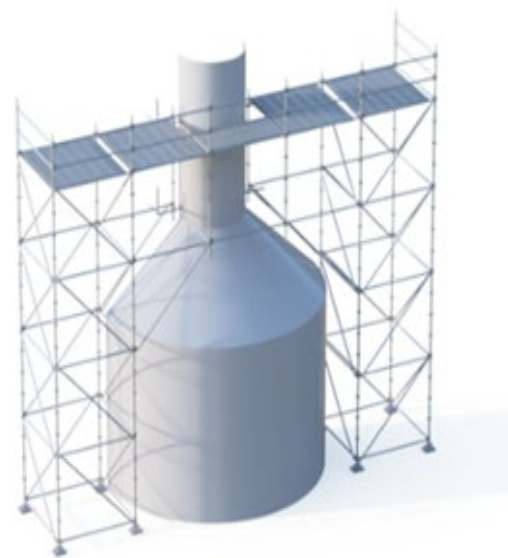
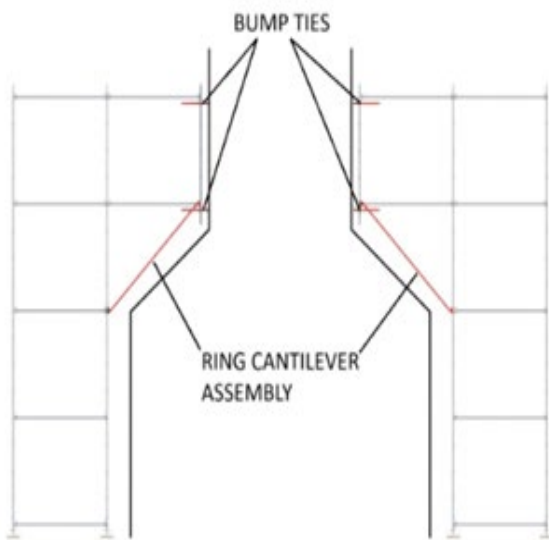
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- **Cantilever Assembly in Tanks.**

When a scaffold is built inside or outside of a tank, cantilever towers are used to follow the shape of the tank and bump ties are required at the top of the tower, at the top of the cantilever and at deck level.



Cantilever Scaffold in Interior Tank



Cantilever Scaffold in Outside Tank

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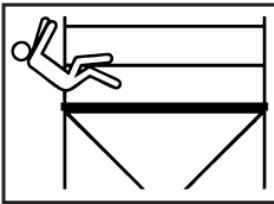
4. Product Label Identification

For your safety and to ensure proper use, each product is marked, as space allows, with the following:

- 1) **Traceability Code** – Permanently stamped on each product. This code links to documentation of all quality control processes the part has undergone during manufacturing. Provide this code to your sales representative if additional information on a specific product is required.
- 2) **Country of Origin** – Permanently stamped on each product, indicating where the product was manufactured.
- 3) **Warning Label** – Affixed to each product, as space allows. Always read and follow the instructions on the label together with this manual.

NOTICE

Products manufactured prior to April 1,2026 may not include the Warning Label.



⚠️WARNING

Fall hazard when assembling, using, moving, or dismantling this scaffold.
CAN CAUSE SERIOUS INJURY OR DEATH.
Consult a competent person and follow company safety guidelines. Do not move scaffold while occupied.
Use only components compatible with the DSS scaffolding system in use.

SAFETY INSTRUCTIONS — Refer to the DSS User Guide for usage and load ratings.

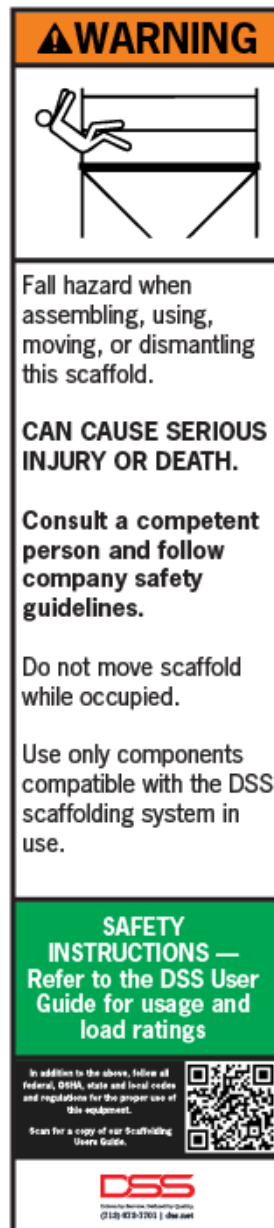


In addition to the above, follow all federal, OSHA, state and local codes and regulations for the proper use of this equipment.
Scan for a copy of our Scaffolding Users Guide.



DSS
Diverse Safety Systems
(713) 673-7701 | dss.net

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Important:

- Do not remove, cover, or alter any labels or markings.
- Ensure all labels and marking remain visible and legible throughout the product's service life.
- If any label or marking is missing or unreadable, contact DSS for a replacement before using the product.