INSTANT UPRIGHT

Spandeck 500 Bridged Tower
ASSEMBLY MANUAL

DESIGNATION
BS 1139-6:2014
EN1004
CEN 1298 – IM - en

SPAN 500 BRIDGED TOWER
Date: 08/11/18
Rev. 5

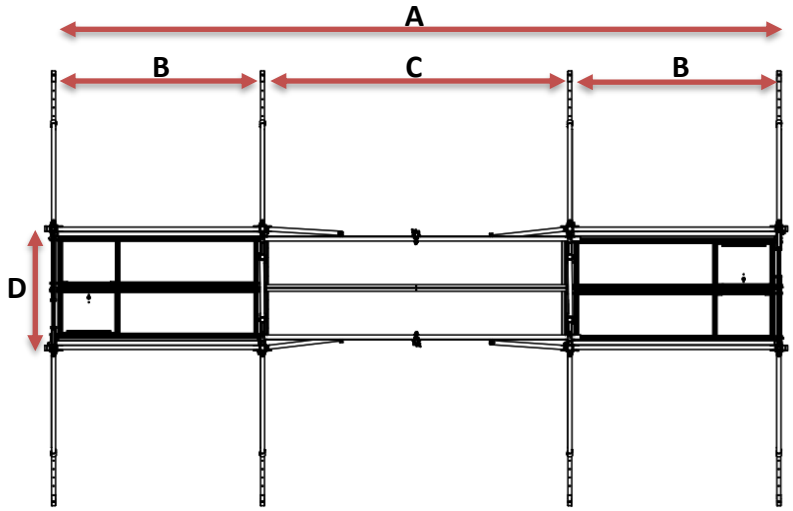
CONTENTS

DESIGN CRITERIA

This tower structure and its components have been designed in accordance with **EN1004:2004** and **BS1139-6: 2014.** The following tables show the permissible loads on the tower.

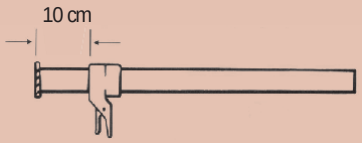
MAXIMUM SAFE WORKING VERTICAL LOAD	
PLATFORM SAFE WORKING LOAD B x D	**275 Kg over <u>two</u> platforms (evenly distributed)**
SPANDECK SAFE WORKING LOAD C x D	**275 Kg over <u>two</u> spandeck (evenly distributed)**
TOTAL SAFE WORKING LOAD ON TOWER CONFIGURATION A x D	**825 Kg Max. (evenly distributed)**

SAFE WORKING HORIZONTAL LOAD	
TOP PLATFORMS OF MAIN TOWER	**30 Kg exerted by ONE person only**



NO. OF PERSONS ON TOWER	
During USE, ASSEMBLY & DISMANTLE	**Max. 3 Persons**
Per Bay less than 4m in length	**Max. 1 Person**
Per Bay greater than 4m in length	**Max. 2 Persons**

ASSEMBLY PREPARATION



1. Preparation

- Locate the tower level adjusters on each leg at 10cm (4 inches) from the bottom of the leg.
- Unlock the interlock clips on all frames.
- When installed, always move the interlock clip to the "locked" position.
- Sort the braces into horizontal and diagonal braces - the diagonals are slightly longer.
- Unlock the brace locks.


Unlocked


Locked


Unlocked


Locked

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2. Base

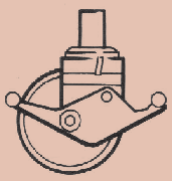
Step 1: Install castor into adjustable leg.

Step 2: Ensure interlock clips are released from the base frames (bottom frames).

Step 3: Install castor / leg assembly to frame by pushing the leg into the frame tube. This should be done with manual force only, no tools.

Step 4: Lock castors before ascending any part of the tower.

Note the locking and unlocking position for the castors as shown here.


Unlocked


Locked

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3. Locking down the platform (Windlock)

A windlock clip is installed on the platform at the hook. This is locked as shown here.


Unlocked


Locked

USAGE ADVICE

- We recommend a minimum of three people to assemble, dismantle and move the platform tower.
- Check that all components are on site and in good working order.
- Ensure that the assembly location is checked to prevent hazards during assembly, dismantling or moving and while working on the tower. Particular attention should be given to the ground condition, whether level or sloping, obstructions and wind conditions. The ground condition must be capable of supporting the tower structure.
- Towers must always be climbed from the inside of the assembly using the ladder.
- Adjustable legs must only be used to level the tower and leg extension must be minimized before the tower is moved (max 150mm).
- Lifting of components must be done inside the effective base area of the tower; components are normally hoisted using a rope.
- Moving the tower must only be done by manual effect from the base of the tower.
- When moving tower be aware of overhead hazards (e.g. electric cables).
- No personnel or material to be on the platform whilst the tower is being moved.
- When tying-in the tower, attach a tie to each upright at 4m height intervals. Ensure that couplers are suitable for 50mm diameter aluminium tube.
- Do not use boxes or steps to gain additional height. If extra height required, contact your distributor to get extra components.
- Do not lift or suspend an assembled mobile tower.
- Damaged components or components from other tower systems must never be used.
- Stabilisers should always be fitted when specified. Use the stabiliser shown on the component list according to the tower height.
- When wind exceeds Beaufort force 4, cease using the tower.
- If wind is expected to reach Beaufort force 6, tie tower to a rigid structure.
- If winds of Force 8 are forecast, dismantle the tower or remove to shelter.

MOVING TOWERS

- Wind speed should not exceed 29km/h (8.1m/s)
- Ensure leg extension is minimised (Max 150mm). Release the castor brakes.
- Raise the stabiliser feet only enough to clear obstructions, maximum 25mm.
- Ensure tower is empty (material and personnel).
- Check for overhead obstructions including electrical wires.
- Move the tower manually by applying force at the base – do not use machinery to push or pull the tower.

  Once moved – prepare the tower for use, use the pre-use safety inspection checklist at the end of this manual.
- Check all castors and stabilisers are in firm contact with the ground.
- Check tower is vertical (spirit level) and adjust legs as required.
- Reapply the castor brakes.

ASSEMBLY, USE & DISMANTLING

- As part of the risk assessment, wind conditions must be considered and reviewed regularly, depending on the duration the structure is onsite.
- When wind exceeds Beaufort force 4, cease using the tower.
- Platform must be installed with vertical distances between them not exceeding 2m when assembling and dismantling.
- If wind is expected to reach Beaufort force 6, tie tower to a rigid structure.
- If winds of Force 8 are forecast, dismantle the tower or remove to shelter
- Sheets, tarpaulins, cladding or similar, must not be attached to the tower as these will significantly increase any side loads from wind and will potentially make tower unstable.
- Beware of wind turbulence, funnelling effect around buildings and updraft on stairways.
- **The maximum allowable side load on a tower is 30kg by one person only.**
- **Warning**: Excessive side loads due to working from the tower may cause the structure to become unstable.
- The tower must not be used if there is a risk of lightning strikes.

Wind speed				
Force	Peak mph	Peak km/h	Peak m/s	Guidance
4	18	29	8.1	Moderate breeze – raises dust & loose paper
6	31	50	13.9	Strong breeze – difficult to use umbrella
8	48	74	20.8	Gale force – walking is difficult

3-T SAFETY STANDARD – THROUGH THE TRAP

WARNING
NEVER STAND ON AN UNGUARDED PLATFORM

3-T SAFETY STANDARD - THROUGH THE TRAP

This is an approved method of tower construction which, if carried out by a competent person, complies with current safety legislation.

Fig 1

Construction- basic principles

- Always install the trapdoor over the ladder (if one is fitted).
- Ensure the trapdoor hinges to the outside of a double width tower (not to the centre).
- Once the platform has been installed, climb, using the approved method and sit in the trapdoor opening.
- While seated, attach horizontal braces to the frames to form guardrails on both sides of the platform.
- See assembly instructions for specific placement of guardrails.
- 2 braces are normally required each side; although bracing frames can be used on the outside if desired or specified in the instructions.
- Only when the platform is fully guarded is it safe to stand up on the platform.

Dismantling

- Unlock the brace ends furthest away from the trapdoor.
- Sit through the trapdoor as per Fig.1
- Do not remove braces until sitting in the trapdoor.
- NEVER STAND ON AN UNGUARDED

ANCHORS, TIES & BALLAST

This tower has been designed to be self-supporting under the loading conditions set out in EN1004:2005 and does not require tying in. Tying in should be considered for potential wind conditions if the tower is left unattended. When used, selected and installed anchors in concrete and masonry must be selected and installed in accordance with BS8539. This prefabricated tower scaffold has been designed to be properly secured to a suitable adjacent supporting structure capable of withstanding the forces that will be imposed upon it by the attachment of the tower. Devices for securing the tower must be simultaneously rigid in both tension and compression and capable of withstanding and transmitting the loads imposed by the tower to the supporting structure.
If ballast is necessary, it must be secured in position and made of rigid material such as steel or concrete but excluding liquid or granular material.

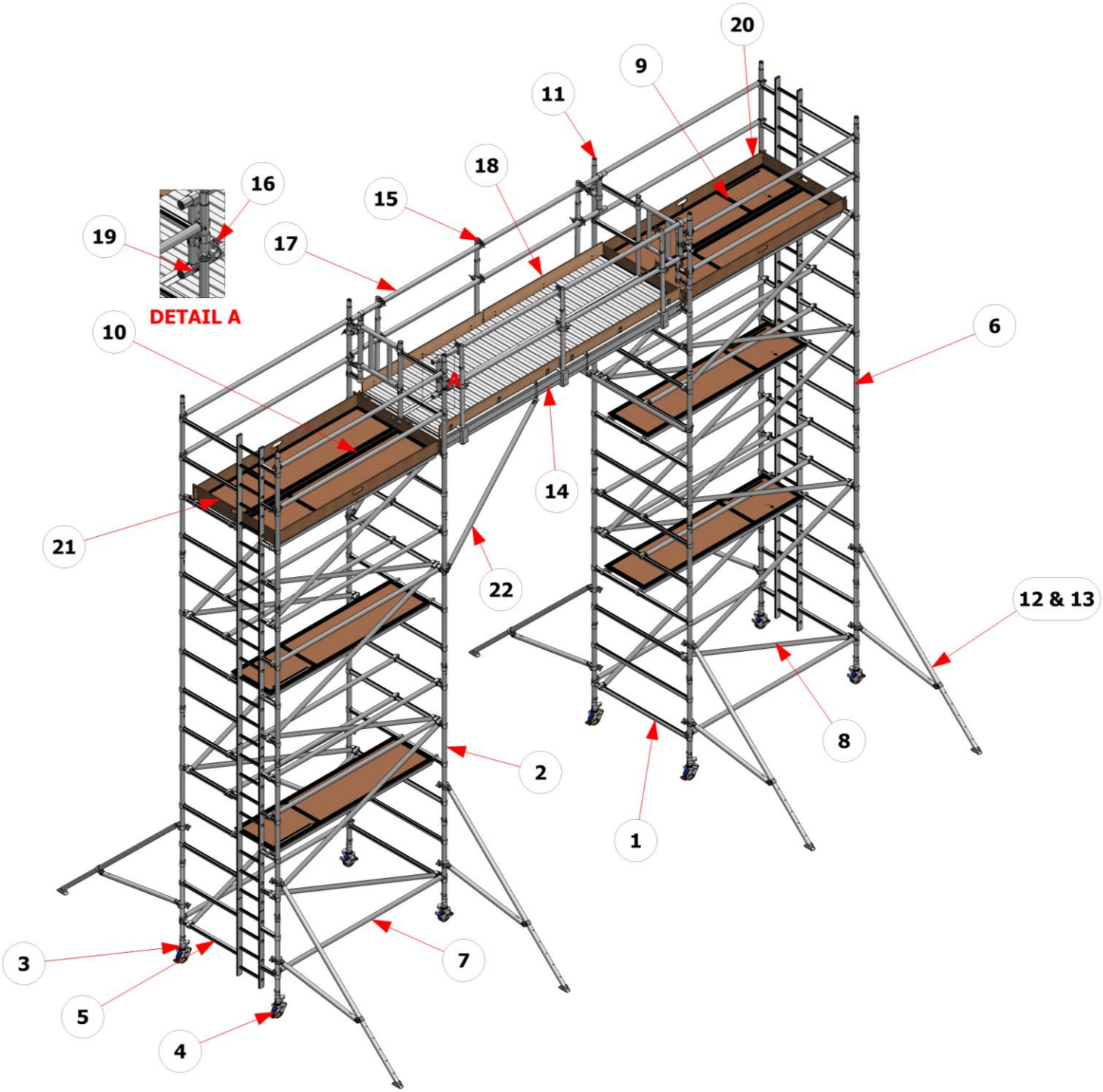
USE OF PREFABRICARTICATED SCAFFOLDS FOR ACCESS TO ADJACENT STRUCTURES

- Tower must be built on base plates and properly secured to an adjacent supporting structure to prevent movement of the tower away from the structure at the point of access.
- There must be no gaps between the platform of the scaffold tower and the place being accessed through which a person, tools or materials could fall.
- The platform of the scaffold tower and the surface onto which a person will step when accessing another place must be at the same level.
- Means of protection must be removed only for the time and to the extent necessary to gain access or egress or for the performance of a task and must be replaces as soon as practicable.
- The task must not be performed while means of protection are removed unless effective compensatory measures are in place.
- Provision must be made to prevent falls – not only from the prefabricated tower scaffold, but also from the adjacent structure.

CARE AND MAINTENANCE

- Keep all equipment clean, especially spigots and sockets where frames join. Spigots should fit easily into sockets. Lubricate with light oil.
- Remove dirt or paint from adjustable legs with a light brush, lightly oil the leg locks.
- Do not strike or hammer components. Do not throw or drop onto hard surfaces.
- Lightly oil spring mechanism of the hooks.
- For transport and storage, components are best stored vertically.
- Damaged parts should be repaired or replaced. Contact your equipment supplier for advice.
- Ensure parts are not damaged by excessive strapping forces when transported.
- Refer to the Instant Upright website for a detailed inspection guide: www.instantupright.com

TOWER CONFIGURATION (6m TOWER)



PART LIST

Tower Parts List

Span 500 Double Width Bridged Tower 2 x 2.5m								
Platform Height (m)				**2m**	**3m**	**4m**	**5m**	**6m**
Work Height (m)				4	5	6	7	8
Tower Height (m)				3	4	5	6	7
Tower Weight in kg (2.5m length) *				302	384	418	450	535
Item #	**Part Number**	**Description**	**Weight (kg)**	**Quantities**				
1	40122	2 Rung Frame	4.3	2		2		2
2	40121	4 Rung Frame	7.9		2	2	4	4
3	9517-01	Adjustable Legs	1.2	8	8	8	8	8
4	5098	Castors/Baseplate	2.72	8	8	8	8	8
5	47014	2 Rung Ladder Frame	6.28	2		2		2
6	47010	4 Rung Ladder Frame	11.7	2	4	4	6	6
7	105	Horizontal Brace	2.1	18	26	26	26	34
8	40365-01	Diagonal brace	2.2	12	18	24	30	36
9	46094-03-2	Trapdoor Platform	17.12	2	4	4	4	6
10	46361	Platform	17	2	2	2	2	2
11	-	Walk through Frame	12.5	2	2	2	2	2
12	50430	Telescopic Stabiliser	4.8	8	8	8	8	8
13	9090	Large Stabiliser	6.7					
14	**Please Refer to Spandeck Configuration Table**							
15	**Please Refer to Spandeck Configuration Table**							
16	**Please Refer to Spandeck Configuration Table**							
17	**Please Refer to Spandeck Configuration Table**							
18	**Please Refer to Spandeck Configuration Table**							
19	E811-70	Special Tee Coupler	0.5	4	4	4	4	4
20	-	Long Toeboard	4.2	4	4	4	4	4
21	-	Short Toeboard	2.4	2	2	2	2	2
22	**Please Refer to Spandeck Configuration Table**							

* Spandeck weight not include in total

Spandeck Parts List

Span 500 DW Spandeck Configuration								
Platform Height (m)				**2m**	**3m**	**4m**	**5m**	**6m**
Work Height (m)				4	5	6	7	8
Tower Height (m)				3	4	5	6	7
Item #	**Part Number**	**Description**	**Unit Weight (kg)**	**Quantities**				
14**	88012-01	3.7m (12') Deck Length	30	2	2	2	2	2
	88014-01	4.3m (14') Deck Length	34	2	2	2	2	2
	88016-01	5.0m (16') Deck Length	39	2	2	2	2	2
	88018-01	5.5m (18') Deck Length	43	2	2	2	2	2
	88020-01	6.1m (20') Deck Length	47	2	2	2	2	2
	88022-01	6.7m (22') Deck Length	51	2	2	2	2	2
	88024-01	7.3m (24') Deck Length	55	2	2	2	2	2
15	88065	1.0m Guardrail Post	3.5	6	6	6	6	6
16	603	Right Angle Coupler	1	8	8	8	8	8
17	88112	3.7m Guardrail Tube	4.1	4	4	4	4	4
	88114	4.3m Guardrail Tube	4.8	4	4	4	4	4
	88116	5.0m Guardrail Tube	5.5	4	4	4	4	4
	88118	5.5m Guardrail Tube	6.1	4	4	4	4	4
	88120	6.1m Guardrail Tube	6.8	4	4	4	4	4
	88122	6.7m Guardrail Tube	7.7	4	4	4	4	4
	88124	7.3m Guardrail Tube	8.5	4	4	4	4	4
22	88111	Knee Brace Long	3.9	4	4	4	4	4
Spandeck Toeboards				**Spandeck Length (m)**				
				3.7	4.3	5	5.5	6.1
Item #	**Part Number**	**Description**	**Unit Weight (kg)**	**Quantities**				
18	88084	1.2m Toeboard	1.8			2		
	88086	1.83m Toeboard	2.9	4	2	4	6	4
	88088	2.4m Toeboard	3.9		2			4

**Quantity required if the configuration is using two spandeck at the working level

TOWER SELF WEIGHT (SW) AND TOWER LEG LOAD

The maximum castor point load P (leg load) imposed by a 6m prefabricated tower with 7.3m Spandeck on its supporting surface is as follows:

TOWER NOT IN USE:

Total SW of Tower = 1258Kg
Max. Castor Point load, P = 210 Kg

TOWER IN USE:

Total SW of Tower + Safe Working Load = 1258 Kg + 825 Kg = 2083 Kg
Max. Castor Point load, P = 350 Kg Approx.

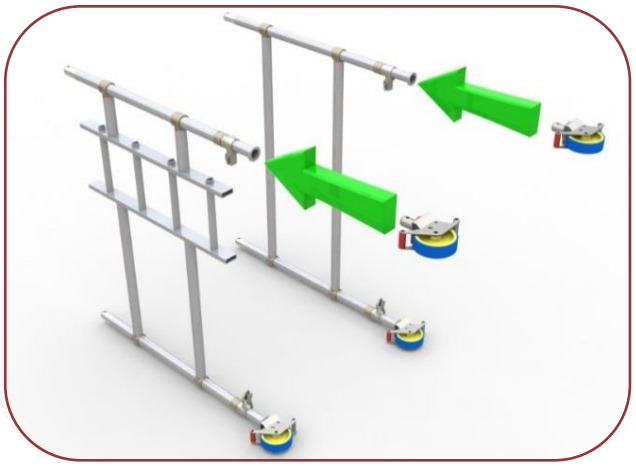
6m ASSEMBLY PROCESS

1. Push castor into adjustable leg.

   Insert adjustable leg into a 2-rung frame and lock the castor.

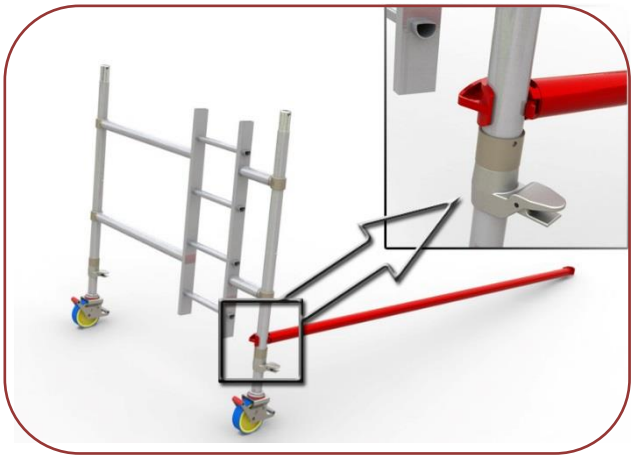
   Repeat for all other castors.

   It is recommended to allow a gap between the bottom of the adjustable leg and the leg lock for ease of levelling.



2. Fit one horizontal brace onto the vertical tube of the frame, just above the collar with the claw facing outwards. This will support the frame.

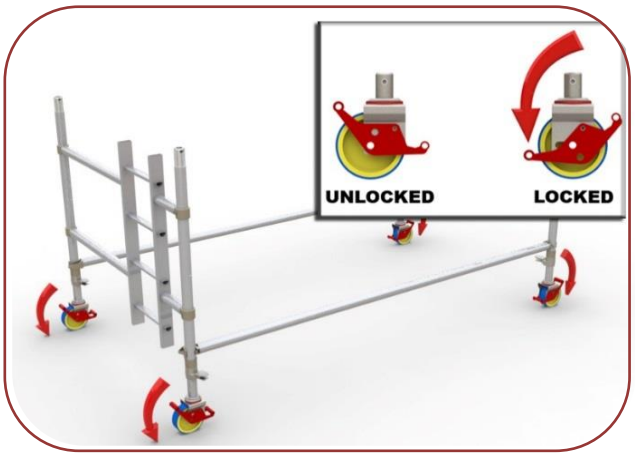
   Note: Release brace latch for ease of fitting.



3. Fit horizontal brace onto the opposite vertical tube of the frame. Position the ladder as shown and attach horizontal brace to the other 2-rung frame.

   Ensure the frames are square and level by checking with a spirit level and adjusting the legs if required.

   When tower is level and square, apply the braces as shown.



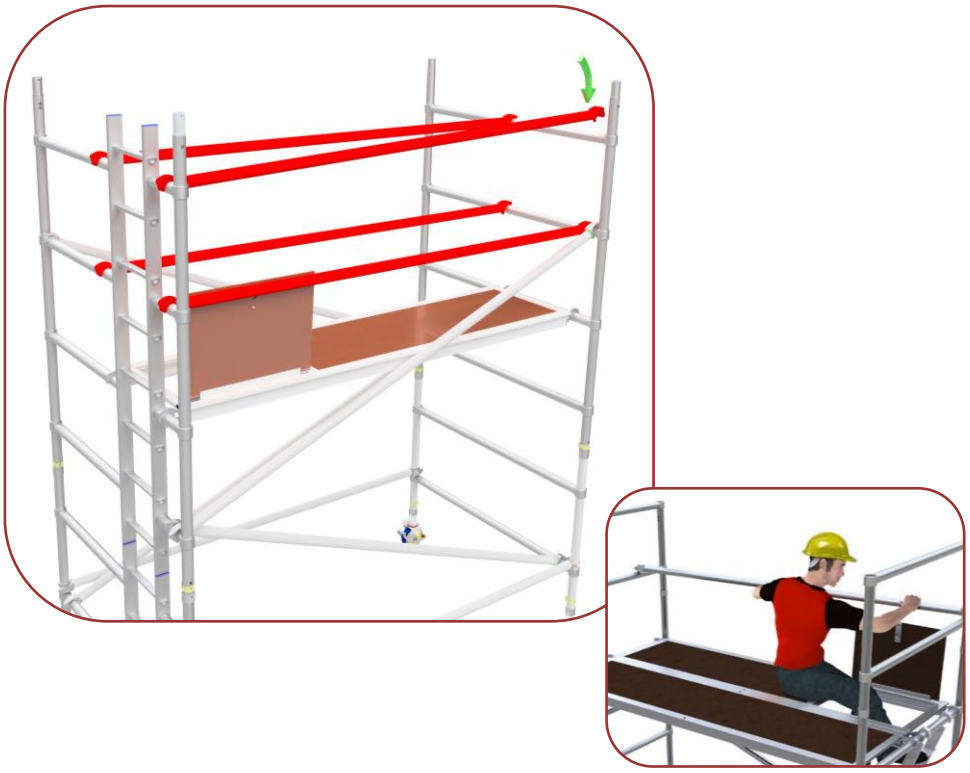
4. Fit 4-rung ladder and non-ladder frames to the 2-rung frames matching the ladder frames as shown. Insert interlock clips into frame holes to lock frames together.

5. Fit diagonal braces in the positions shown.

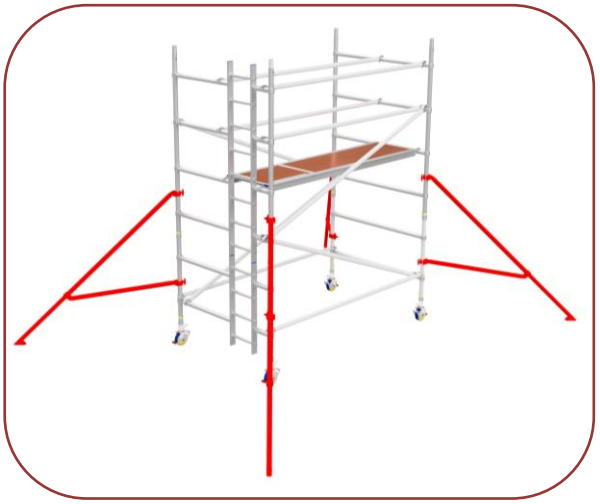
6. Install trapdoor platform on the 4th rung.
   Trapdoor platform must be installed so the trapdoor opens to the outside of the structure.

   Note: Apply wind lock when platform is installed as shown.

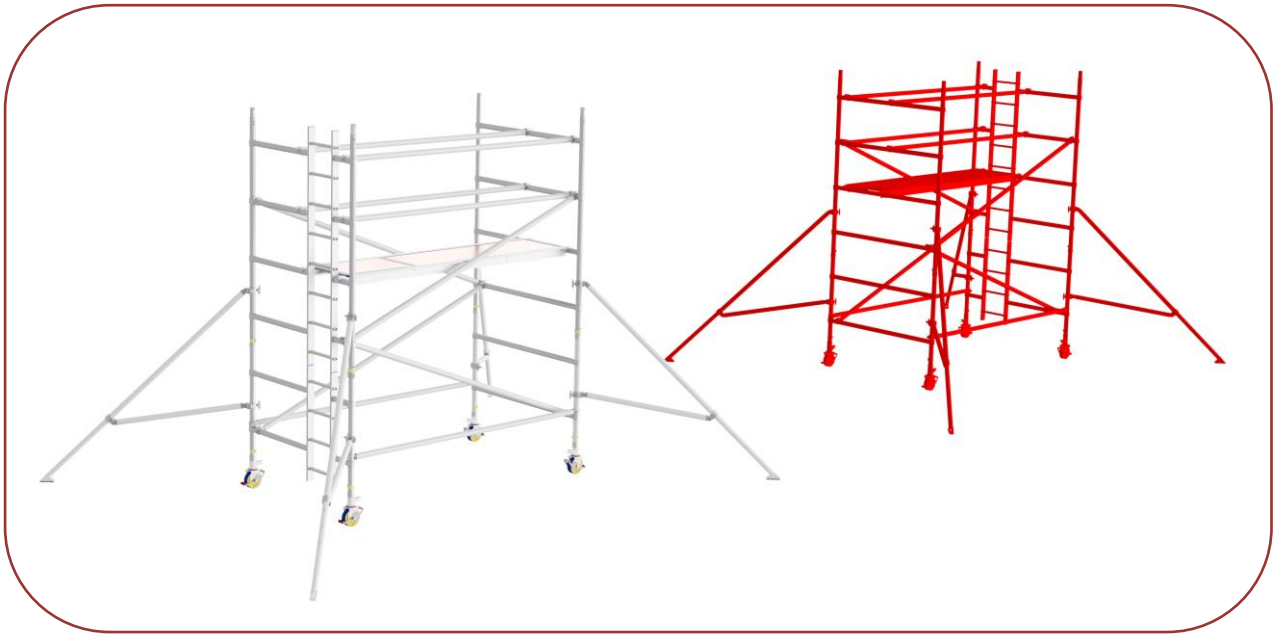
7. Using the 3T method, install the horizontal braces on the 5th and 6th rung on both sides of the platform. Install braces on the horizontal rungs.
   Do not stand on the platform until all guardrails are installed.



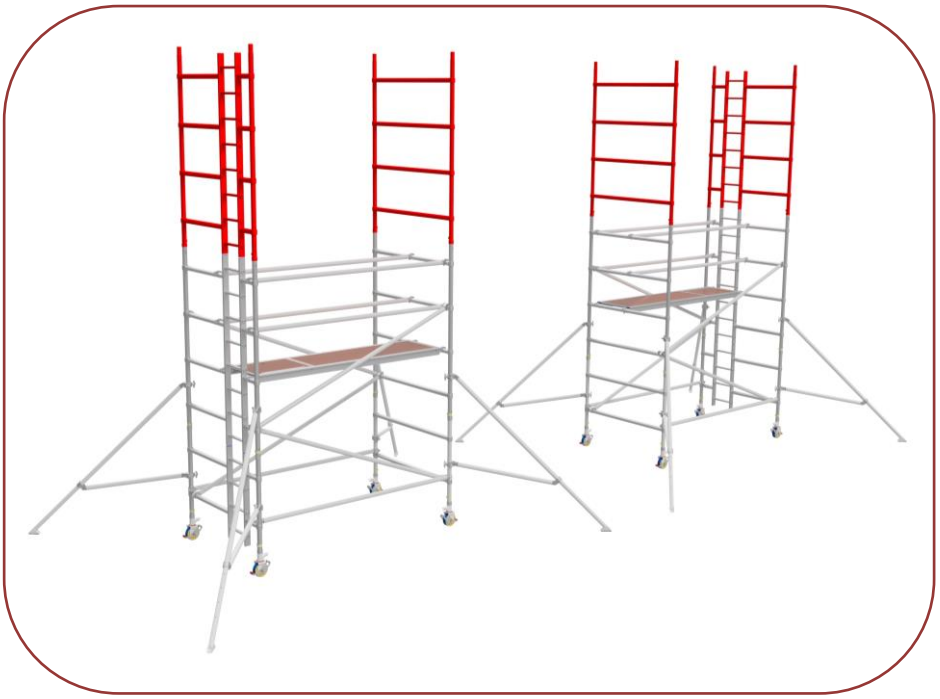
8. Install stabilisers as shown. Position the lower clamp so that the lower arm is as close to horizontal as possible. Adjust the length of the leg when using telescopic stabilisers. Ensure stabiliser foot has a firm contact with the ground.



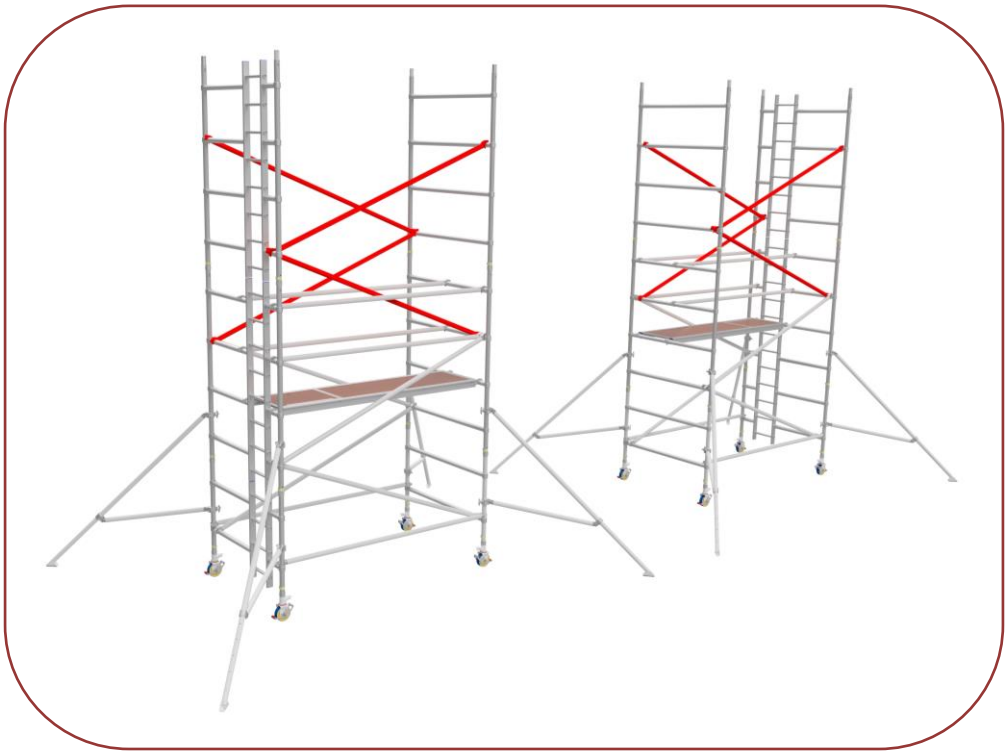
9. Repeat steps 1-8 for the second tower structure and position as shown.



10. Install the next level ladder frames and non-ladder frames.



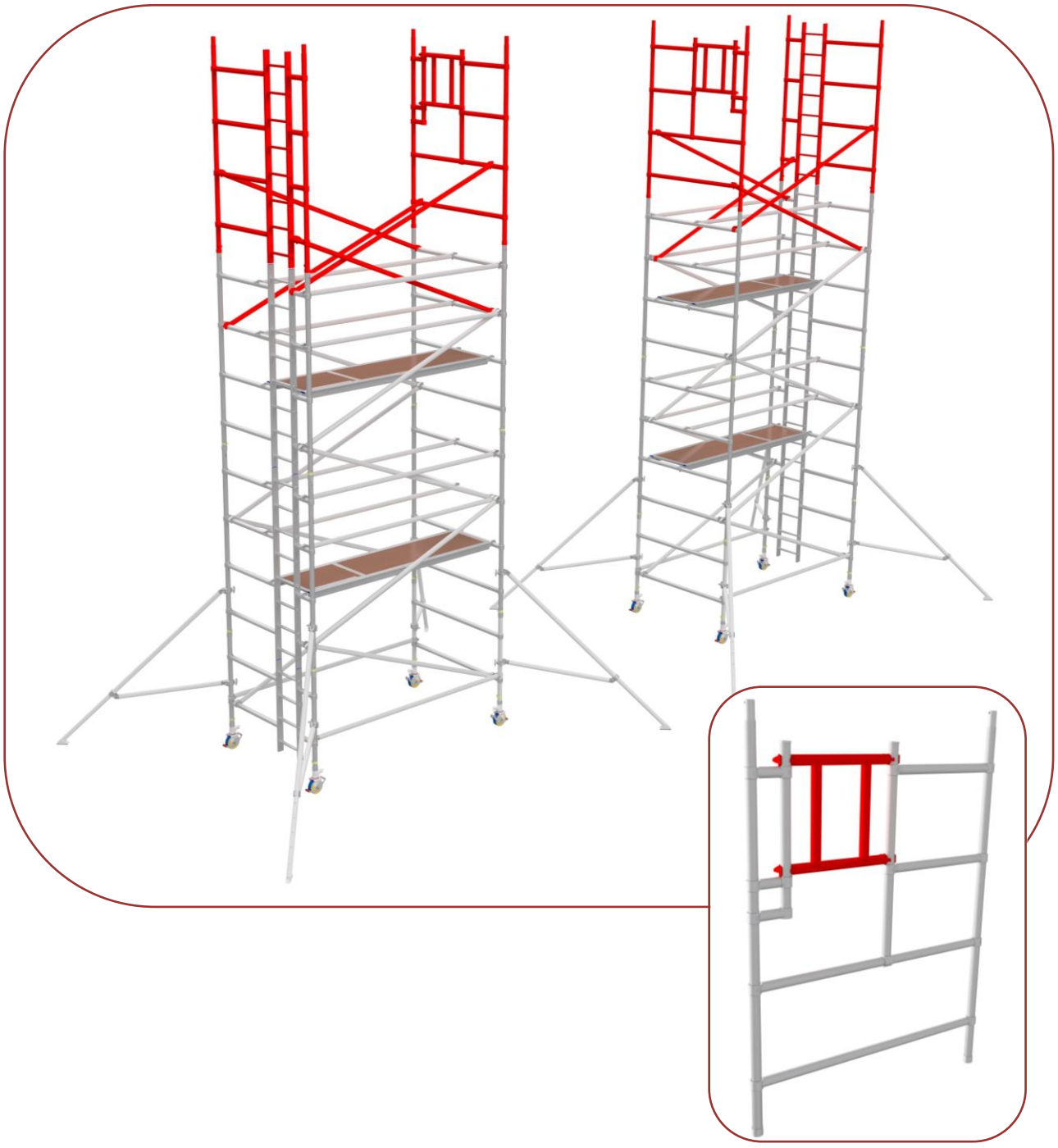
11. Install the four diagonal braces from the 5th to the 7th and from the 7th to the 9h rungs on both sides as shown.



12. Install the next level of platforms and horizontal braces as shown.

***Repeat steps 10-12 to build to higher levels. When building to <u>top level</u> of tower proceed to step 13**

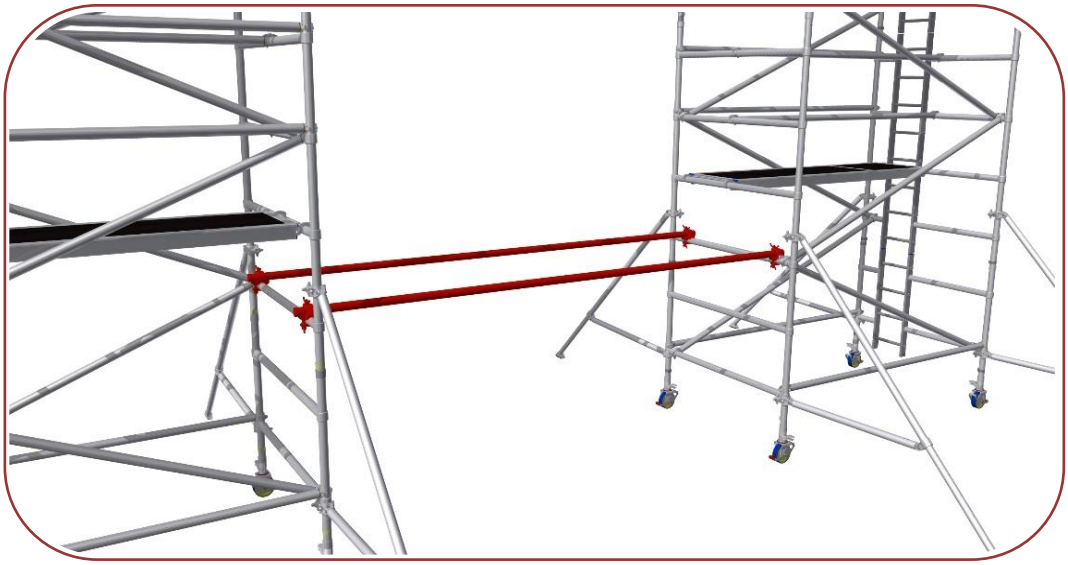
13. Install the next level ladder frame and walk through frame. Install the temporary gate at ground level. Ensure the temporary gate remains locked.
14. Install the four diagonal braces on both sides as shown.



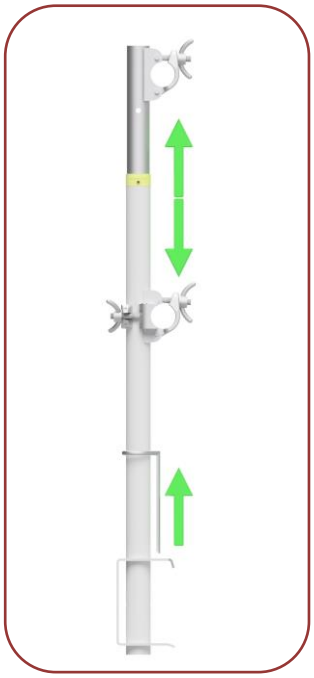
15. Install the trapdoor and non-trapdoor platforms on the 12^{h} rung of the tower structures. Note the orientation of the trapdoors.
16. Using the 3T method, install the horizontal braces on the 13th and 14th rungs as shown on both towers.

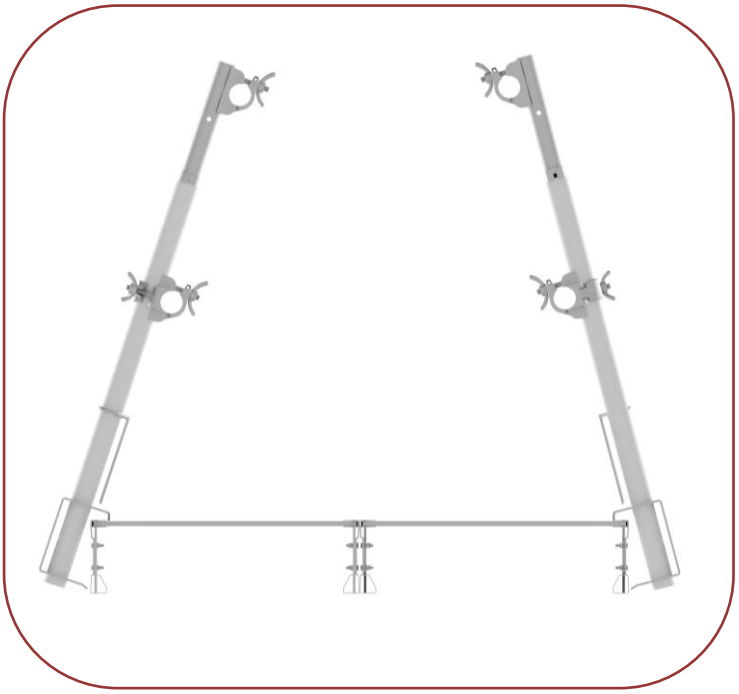
17. Place a loose horizontal brace in hooks at each end of a spandeck. Rest two spandeck handrails across horizontal braces, running parallel to spandeck. Fix right angle couplers between each handrail and brace at each end. Detach couplers from horizontal braces (couplers fixed to handrail now have centres as spandeck).

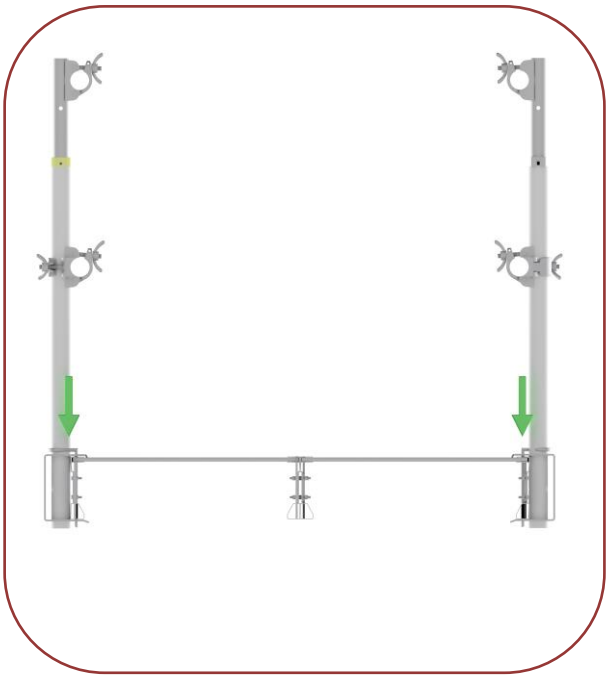
18. Temporally couple both towers together by fixing couplers mounted on handrail to horizontal tubes of the tower frames. Adjust the position of the second tower as necessary to achieve the same tower spacing as the couplers. Make necessary adjustments to ensure both towers are square to each other and apply the brakes.

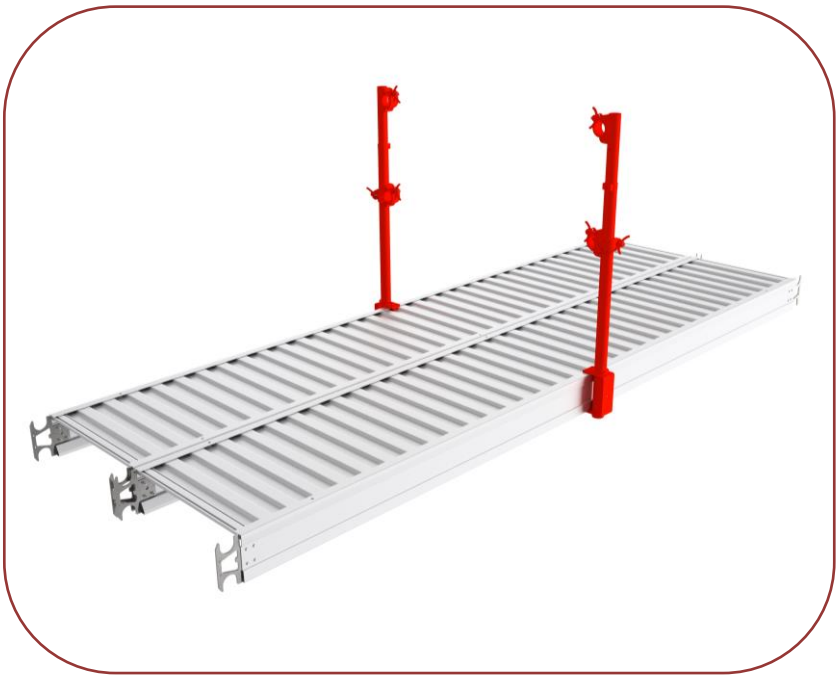


19. Install the spandeck posts and handrail while the spandeck is on the ground. Adjust the Spandeck guardrail posts to have centre distance of 450mm below top coupler. Slide the pin up the tube to allow for installation.
20. Mount the required number of Spandeck guardrail posts to the side of the spandeck. Do the same for the opposite side of Spandeck.
21. Slide the locking pin into the designated hole of the Spandeck, positively locking the post into position.
22. Remove the spandeck handrails from the base and install them to the guardrail posts.



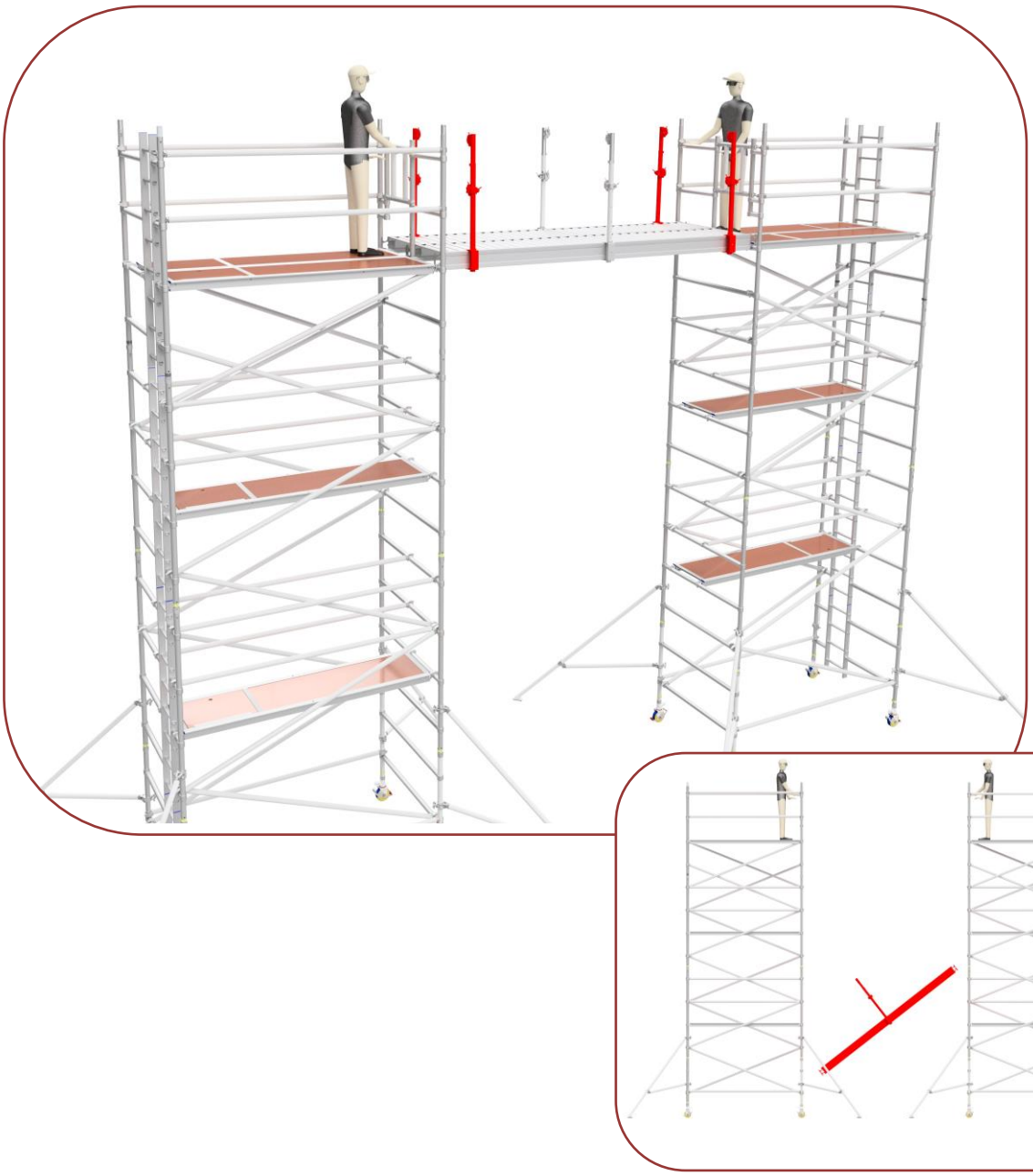




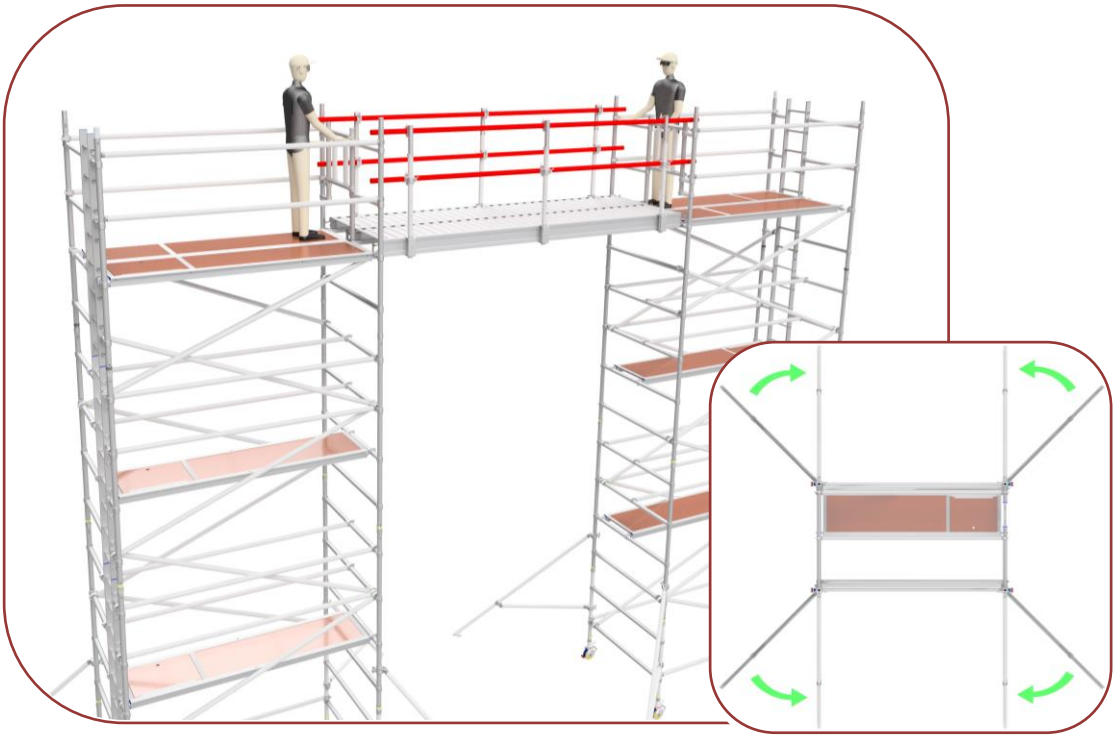


23. Securely tie a suitable rope to each end of the spandeck (manual lift). If mechanical lifting is to be used to position the spandeck, a suitably competent person should undertake a specific lifting and handling assessment together with a specific method statement to ensure that the operation can be safely undertaken.
24. Manually hoist one of the spandeck sections to the working level, one or more persons may be required on each tower or as specified in the mechanical lift and handling method statement. Spandeck should be hoisted so that it is inclined long its length to ensure adequate clearance for the spandeck between the towers.

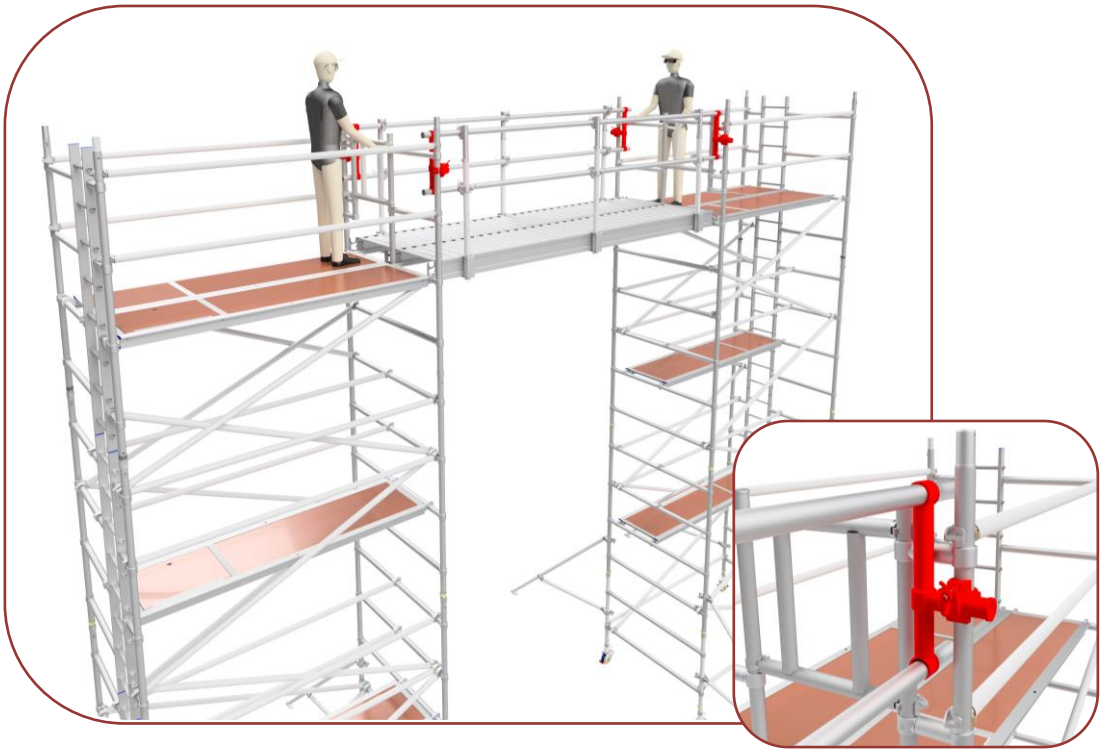
    Note: Ensure there is nobody in the vicinity that may be at risk of injury during lift process
25. From the safety of the tower, install the remaining four guardrail posts as shown.



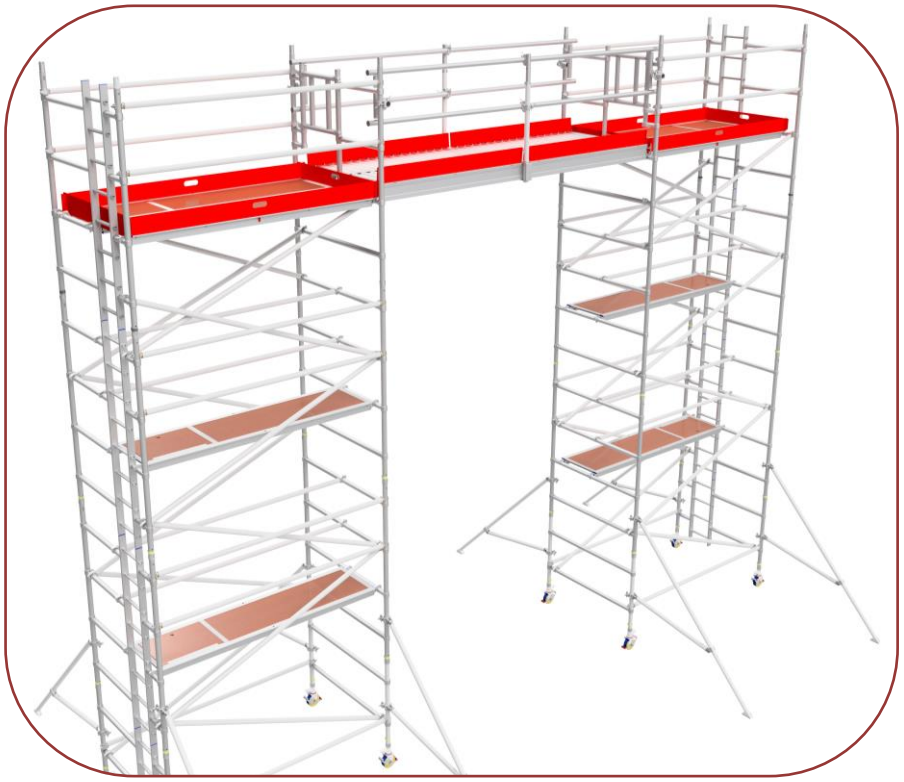
26. Securely tie a suitable rope to one end of the handrail tube. The handrail tube should be passed to the opposite tower by rope while the other person secures the other end. With a person at each end of the handrail tube, from the protection of the tower, securely fasten the tube to the spandeck post couplers. With both ends of the tube secured, secure the handrail to the middle spandeck post.
27. Reposition the outriggers so they are 90 degrees to the platform as shown. Ensure nobody is on the tower while this is carried out.



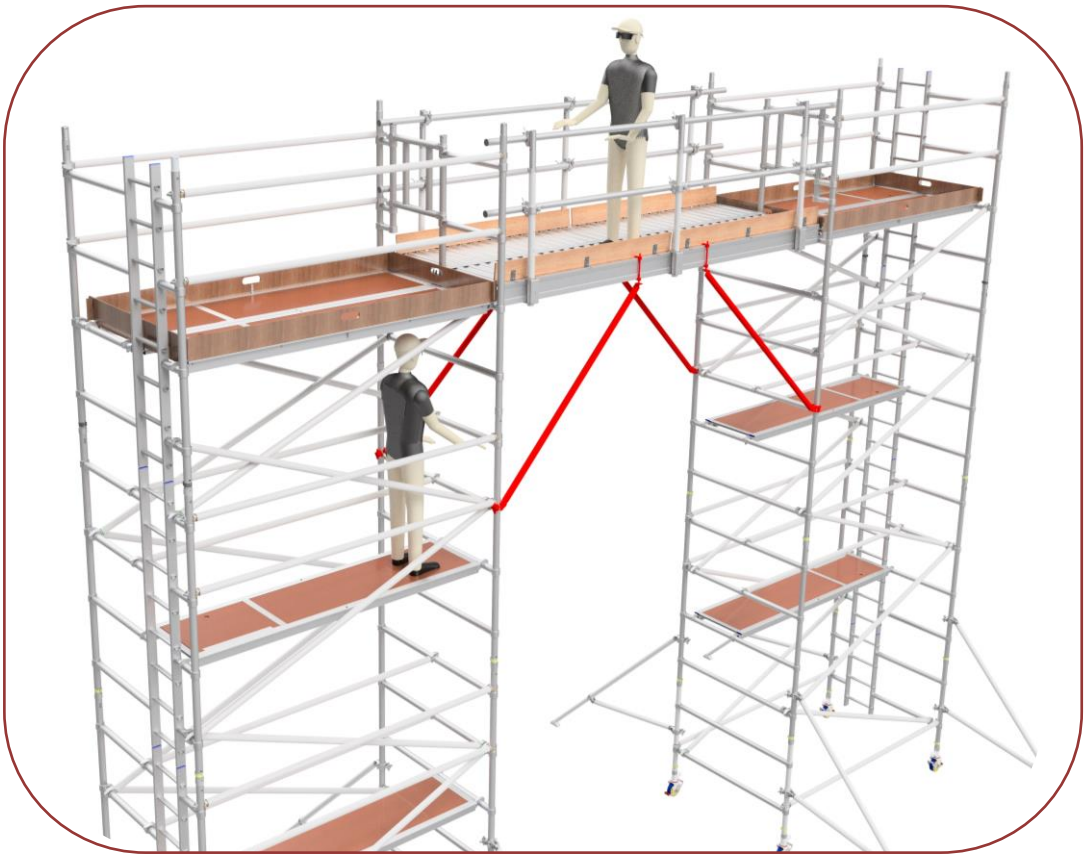
28. Install the T-coupler as shown.



29. Install toe boards as shown.



30. Install knee braces as shown



5m ASSEMBLY PROCESS

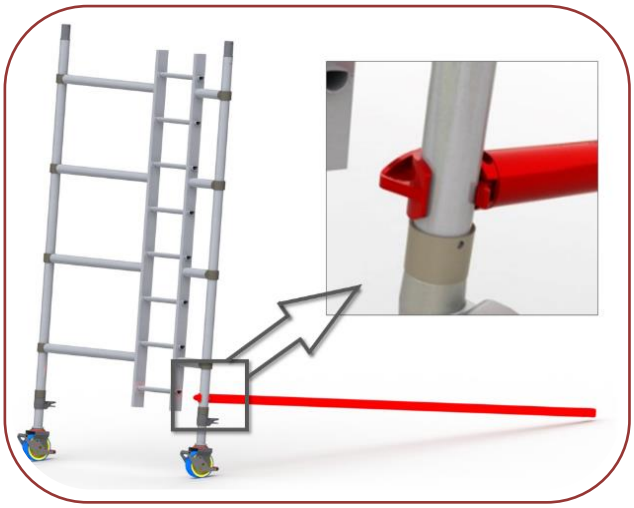
1. Push castor into adjustable leg.
   Insert adjustable leg into a 4-rung frame and lock the castor.

   Repeat for all other castors.

   It is recommended to allow a small gap between the bottom of the adjustable leg and the leg lock for ease of levelling.

2. Install one horizontal brace onto the vertical tube of the frame, just above the collar with the claw facing outwards. This will support the fame.

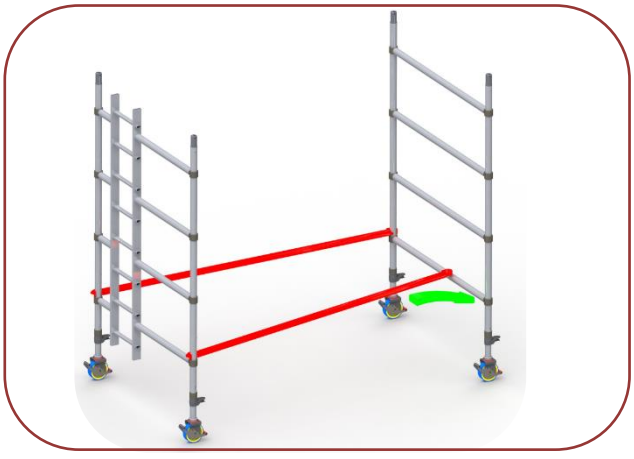
   Release brace latch for ease of fitting.



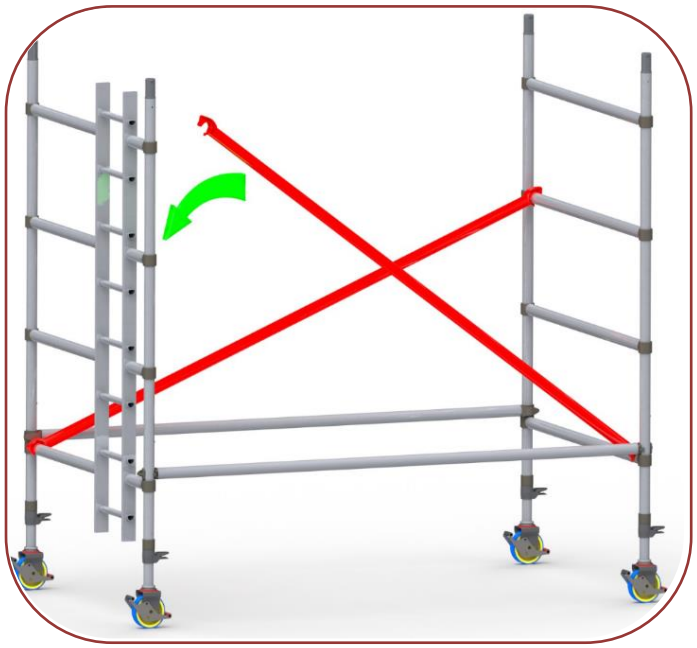
3. Fit horizontal brace onto the opposite vertical tube of the frame. Position the ladder as shown and attach horizontal brace to the other 4-rung frame.

   Ensure the frames are square and level by checking with a spirit level and adjusting the legs if required.

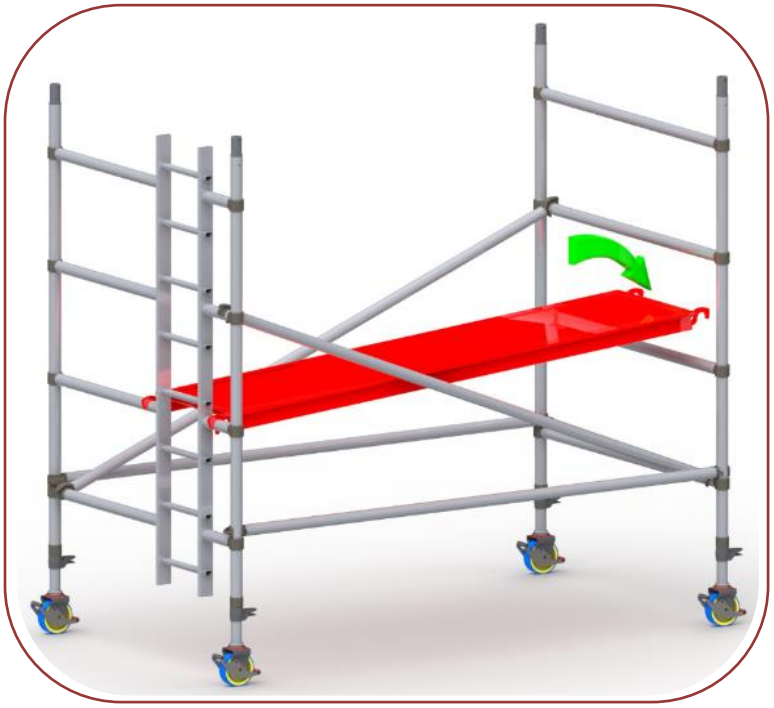
   When tower is level and square, apply the braces as shown.



4. Install the diagonal braces at the rung positions shown below.

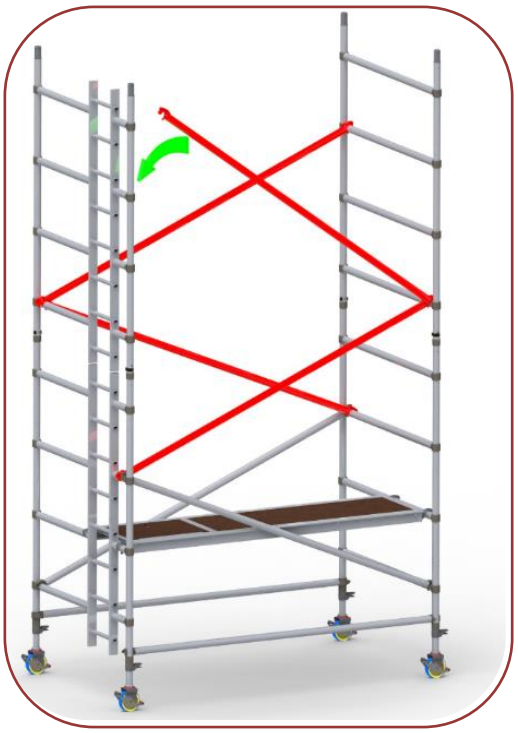


5. Install temporary platform on the 2nd rung up to allow for installation of the next frames, diagonals, and platforms.



6. Fit the 4-rung ladder and non-ladder frames to the 4-rung base frames. Ensure that the ladder frames are in line as shown. Insert interlock clips into frame holes to lock frames together.

7. Install the diagonal braces at the rung positions shown.



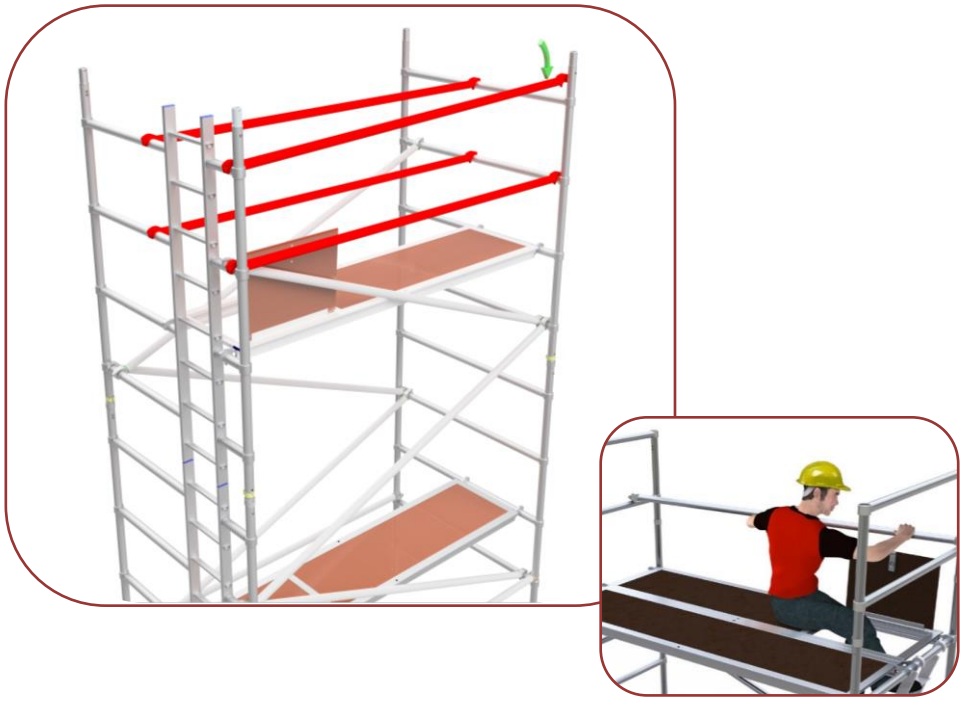
8. Install trapdoor platform on the 6th rung up.

   Trapdoor platform must be installed so that the trapdoor opens to the outside of the structure.

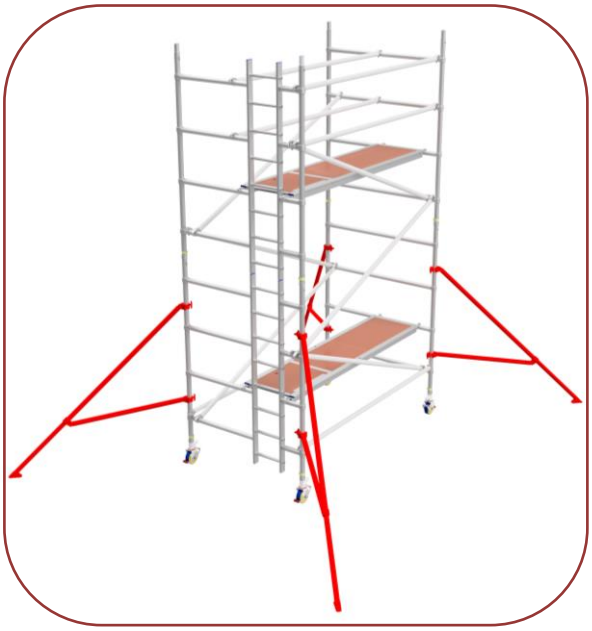
   Note: Apply wind lock when platform is installed as shown.

9. Using the 3T method, install the horizontal braces on the 7th and 8th rung on both sides of the platform. Install braces on the horizontal rungs on both sides.

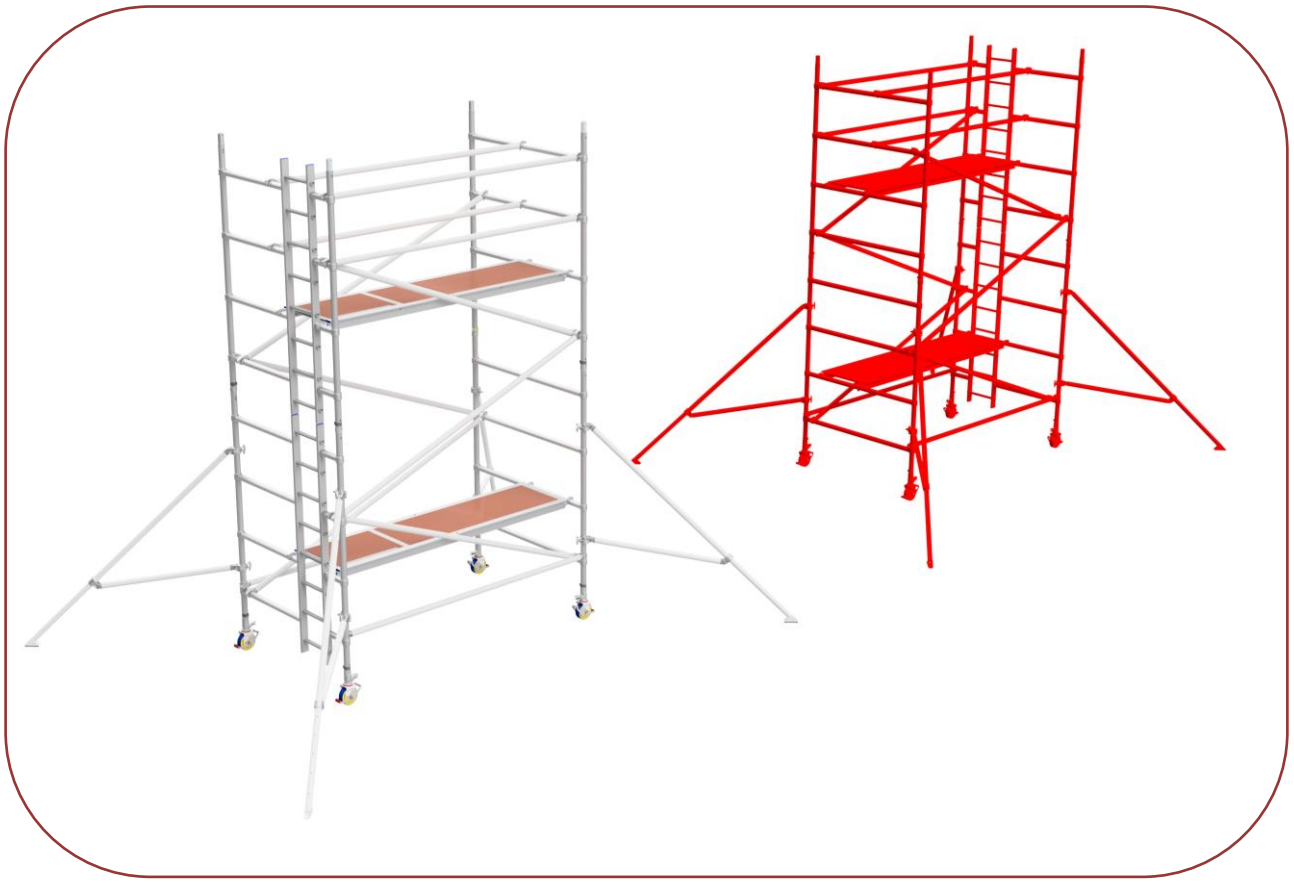
   WARNING: Do not stand on the platform until all guardrails are installed.



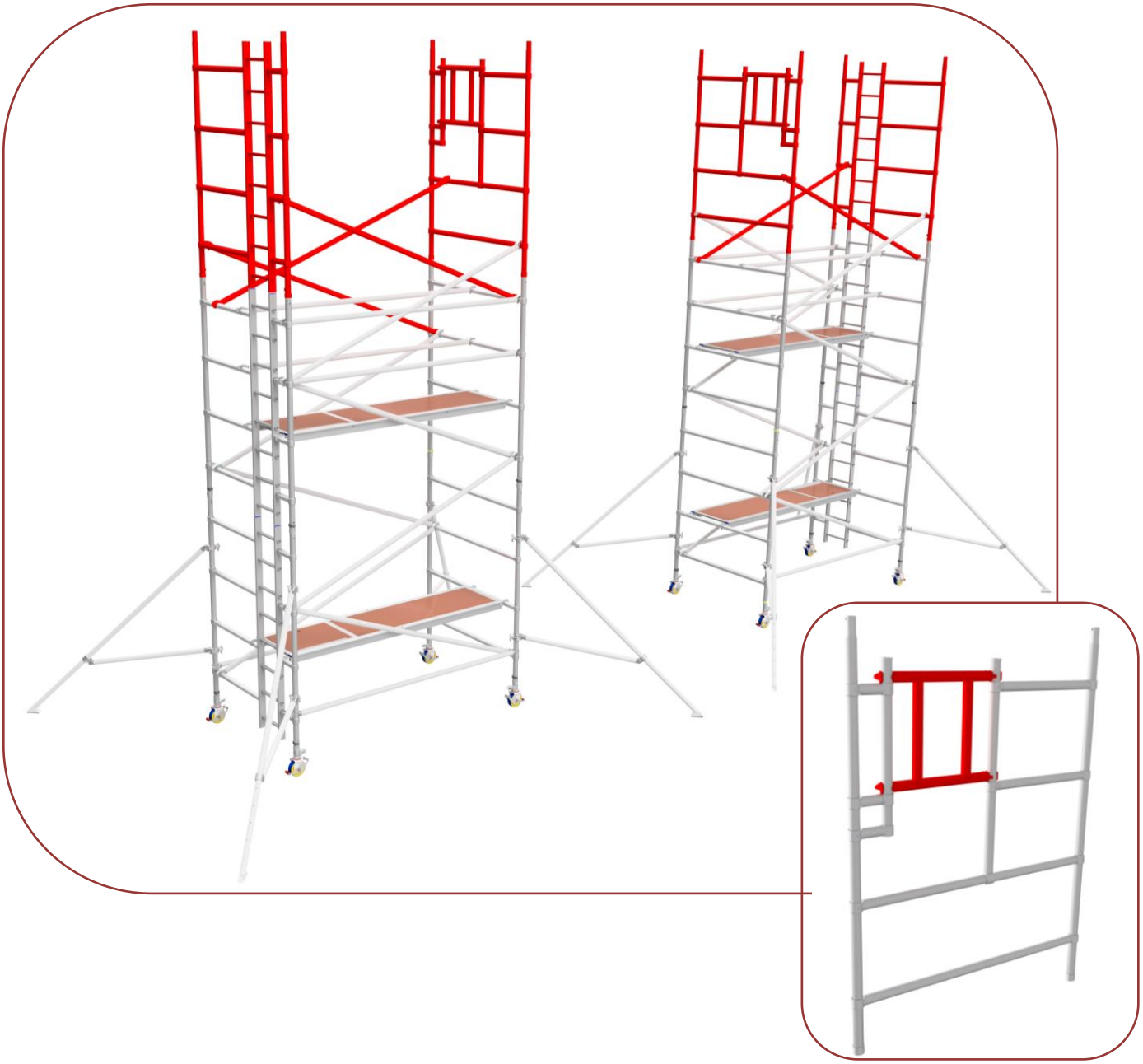
10. Install stabilisers as shown. Position the lower clamp so that the lower arm is as close to horizontal as possible. Adjust the length of the leg when using telescopic stabilisers. Ensure stabiliser foot has a firm contact with the ground.



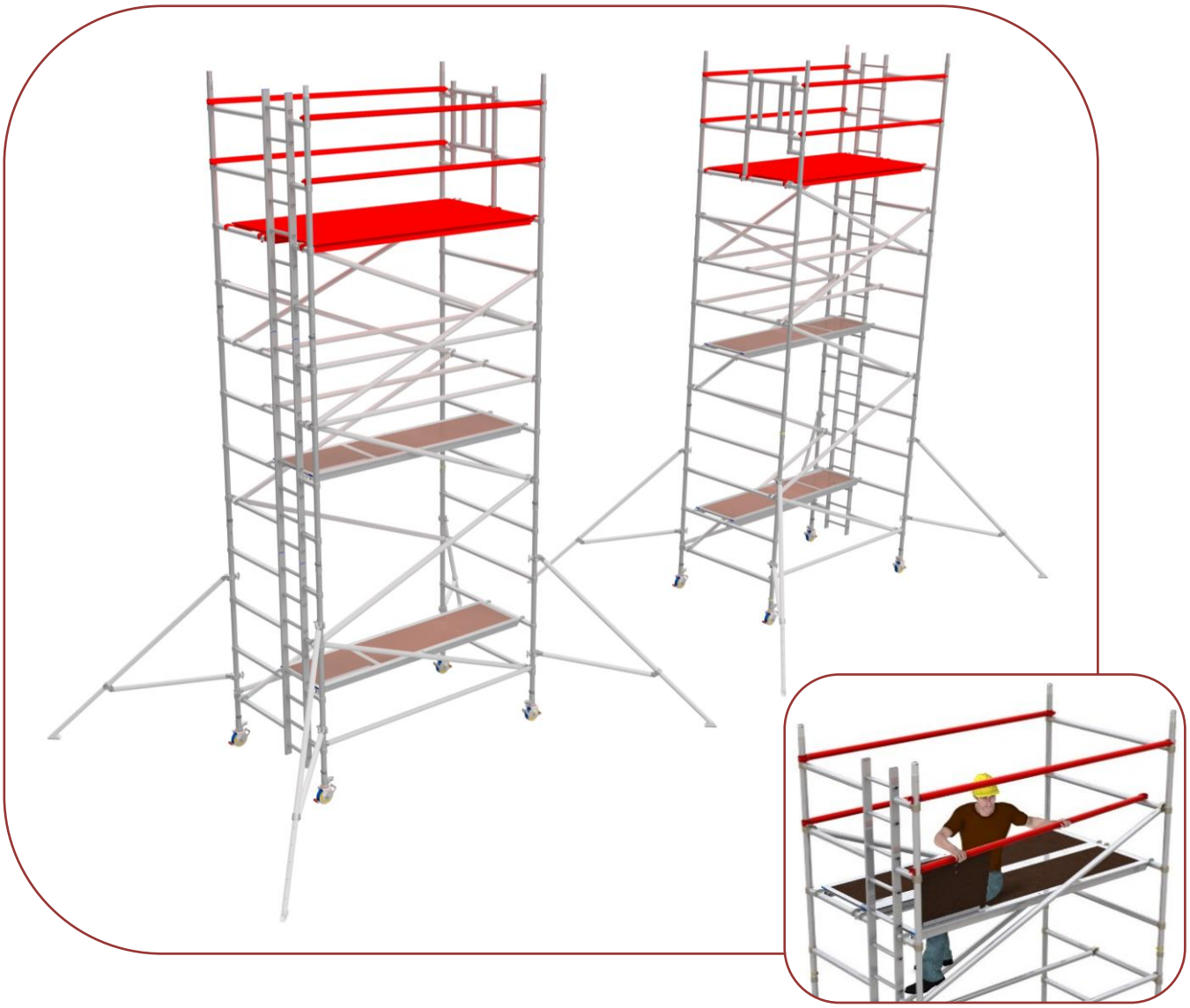
11. Repeat steps 1-10 for the second tower structure and position as shown.



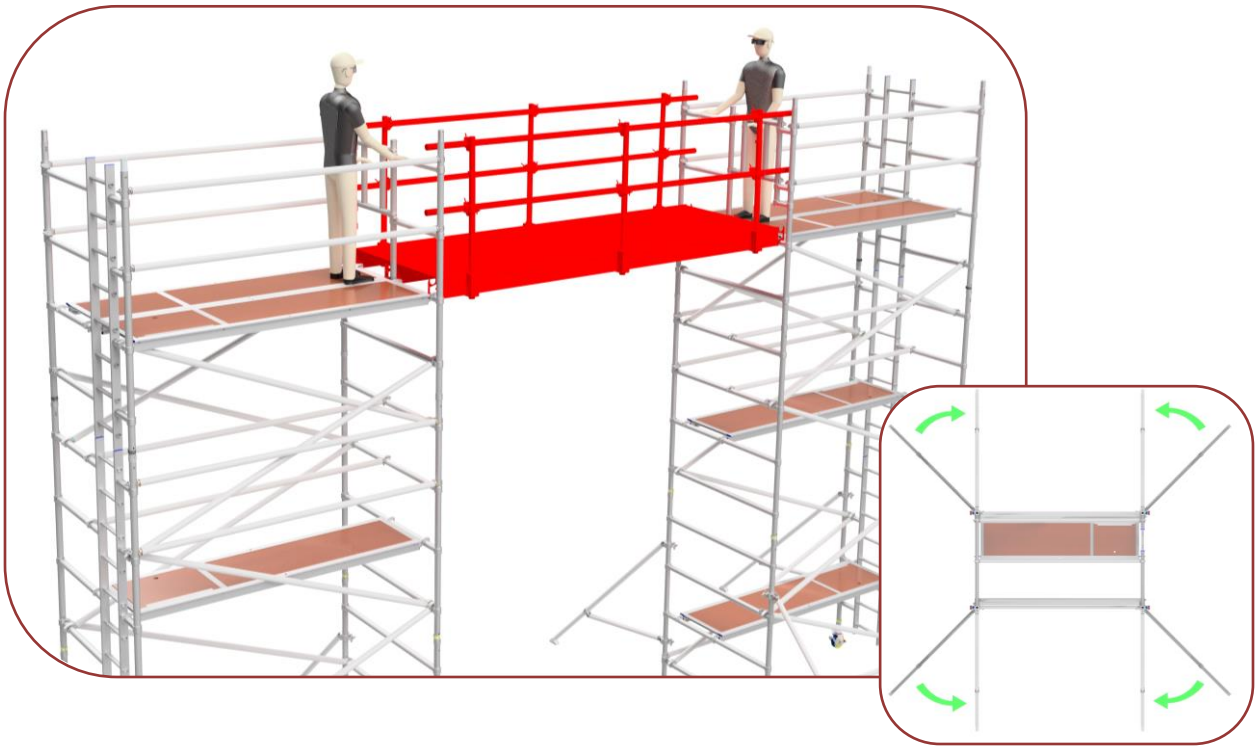
31. Install the next level ladder frames and walk through frames. Install the temporary gate at ground level. Ensure the temporary gate remains locked.
12. Install the four diagonal braces on each tower from the as shown.



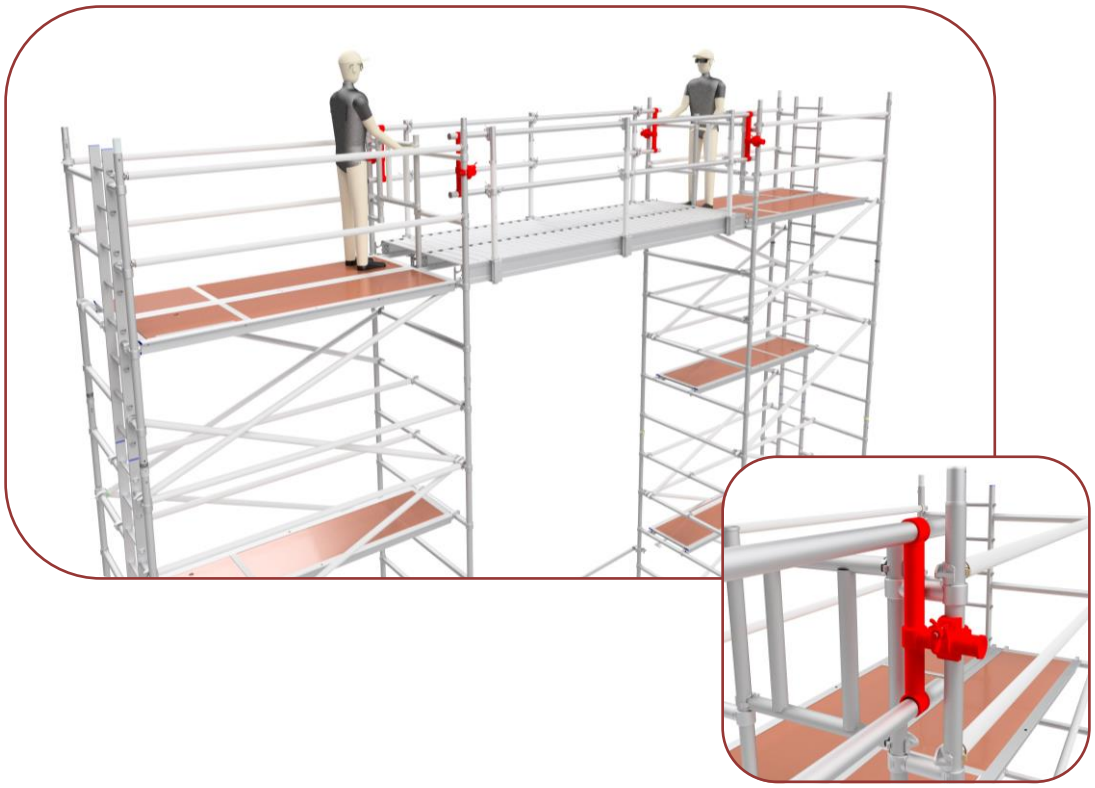
13. Install the trapdoor and non-trapdoor platforms on the 10th rung of the tower structures.
    Note the orientation of the trapdoors.
14. Using the 3T method, install the horizontal braces on the 11th and 12th rungs as shown on both towers.



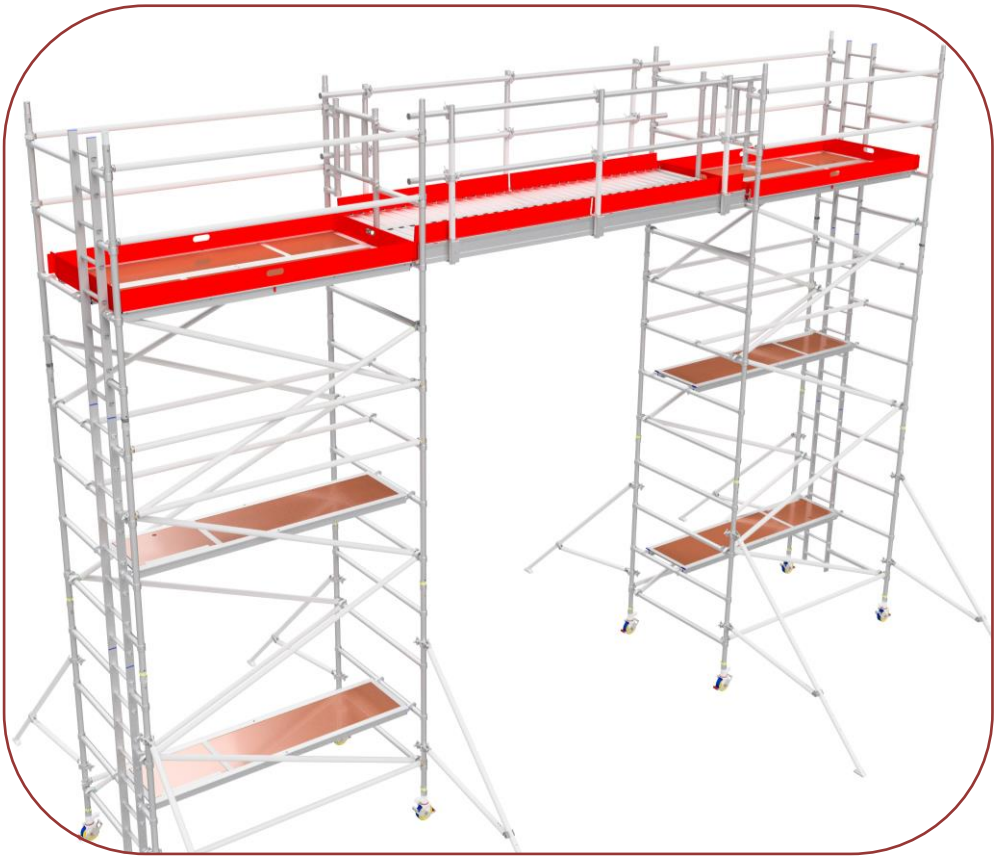
15. Follow steps 17-27 from the 6m build to install spandeck safely.
16. Reposition the outriggers 90 degree to platform as shown.



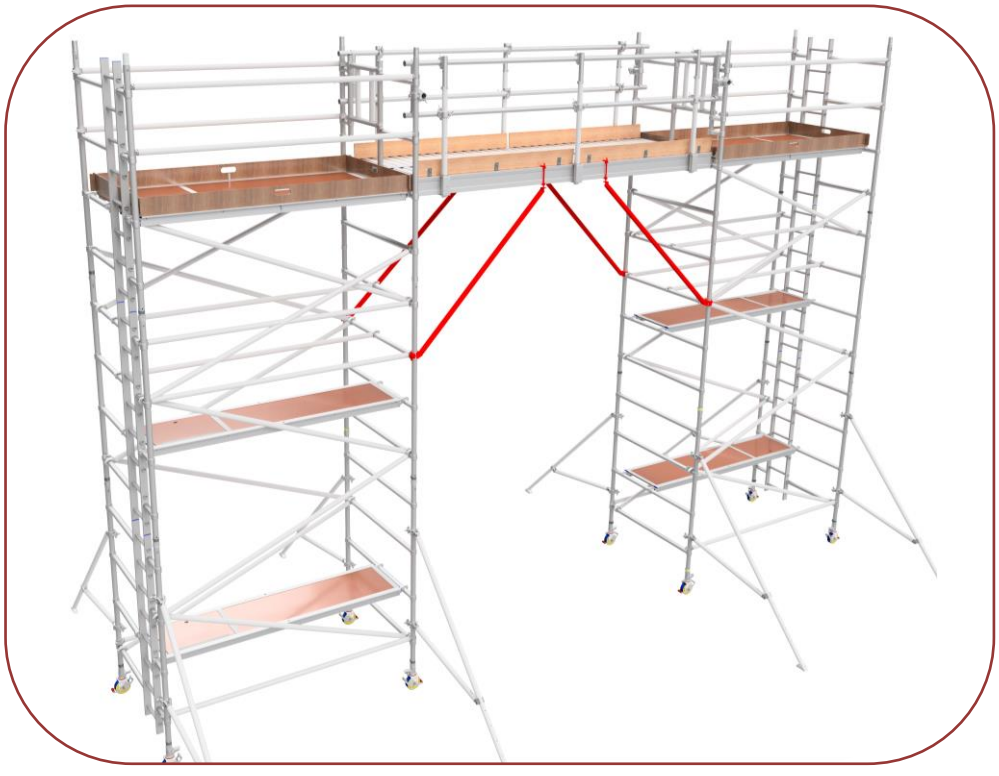
17. Install the T-coupler as shown.



18. Install toe boards as shown.



19. Install knee braces as shown



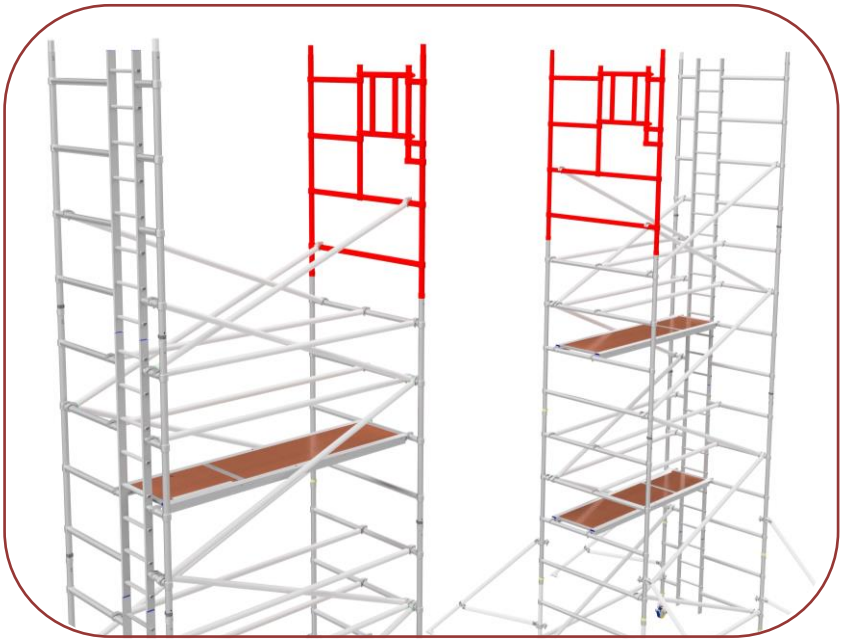
ALTERNATIVE BUILDS

Over an obstruction:

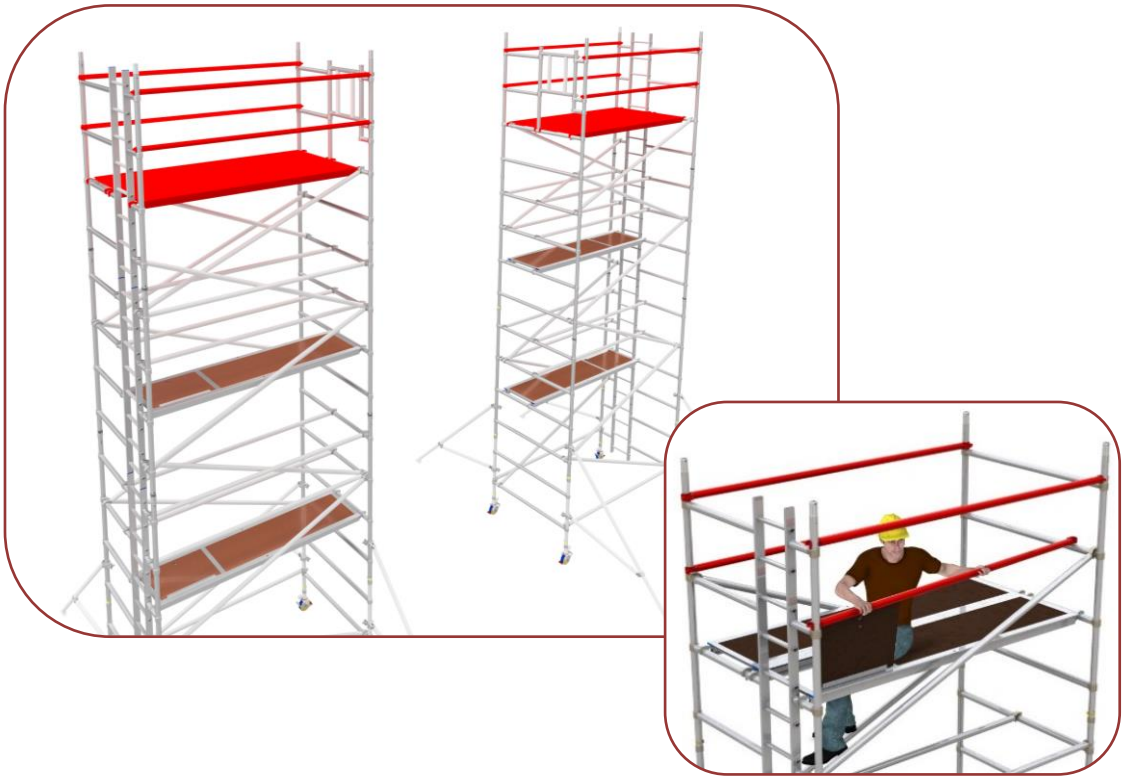
- If the spandeck cannot be hoisted up between the towers there are some alternative options;
    - Install spandeck as instructed in 6m build sequence and move tower into place.
    - Rope the spandeck from the side of the towers.

Using a single Spandeck

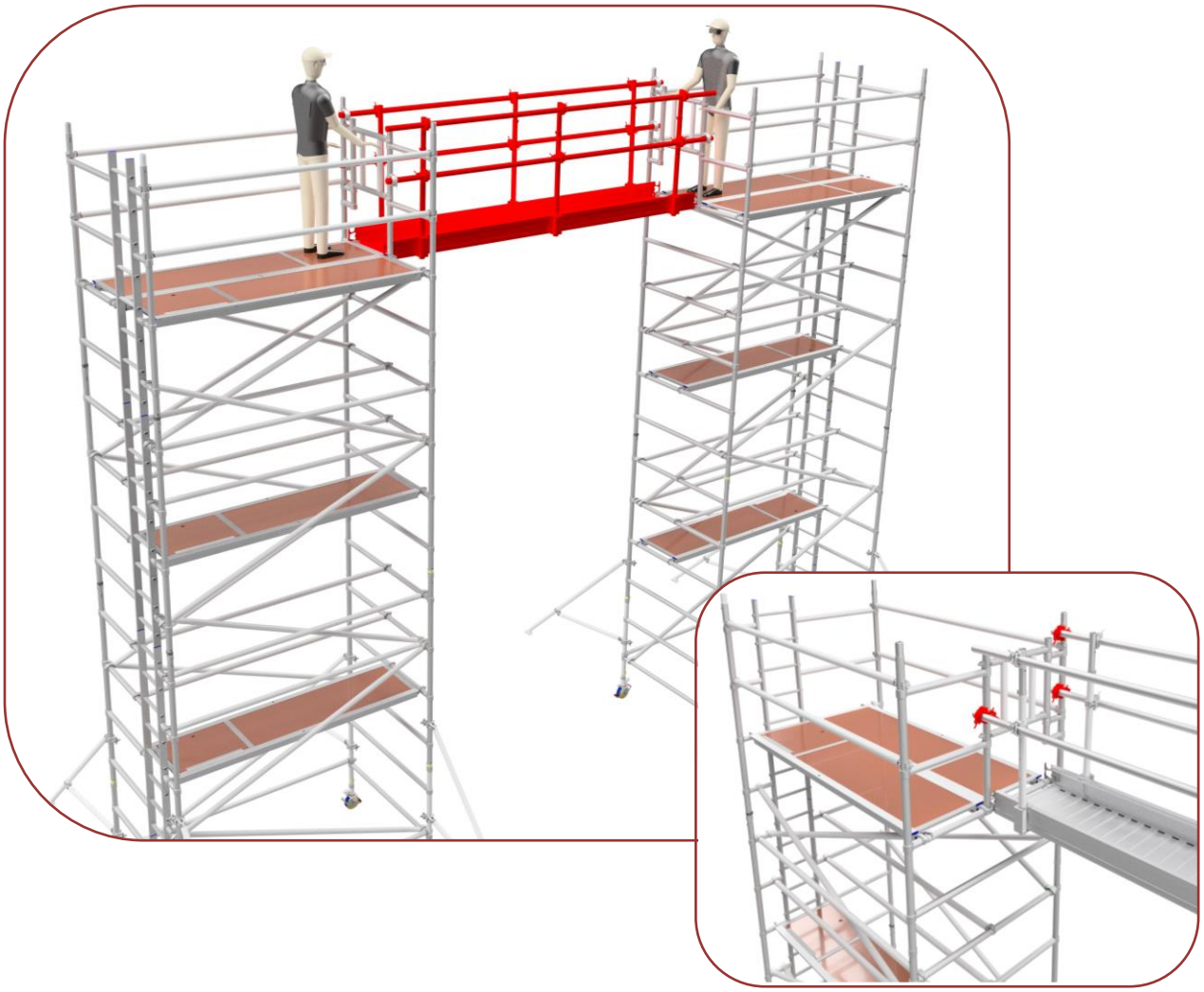
- Assemble both towers as described in previous build sequences.
- Install the walk-through frames ensuring that the frame openings are positioned on the same side as shown below.



- Install the trapdoor and non-trapdoor platforms on the 4th rung above the platform below. Note the orientation of the trapdoors.
- Using the 3T method, install the horizontal braces on the vertical tube as shown on both towers.



- Install the spandeck following the steps from the 6m build sequence, steps 17-27
- Use right angle couplers to couple on the handrails to the tower as shown below.

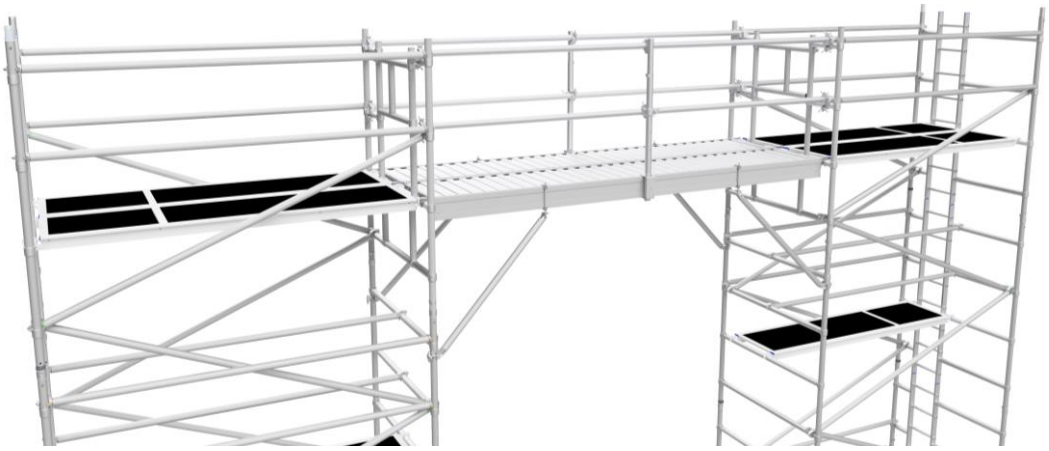


USE OF KNEE BRACES WITH SPANDECK

- When a Spandeck is used as a bridging platform between two towers, it is essential that each tower is sufficiently stiff. Each tower should comply therefore with the requirements of EN1004:2004, so that no additional knee bracing is strictly needed. However, stiffening by knee bracing in this instance is so easy to do, and so beneficial in improved stiffness, that user frequently add knee braces as a matter of routine. ***Instant Upright Recommends that knee brace stiffening is applied when the Spandeck is fitted at a height of 2m or greater.***

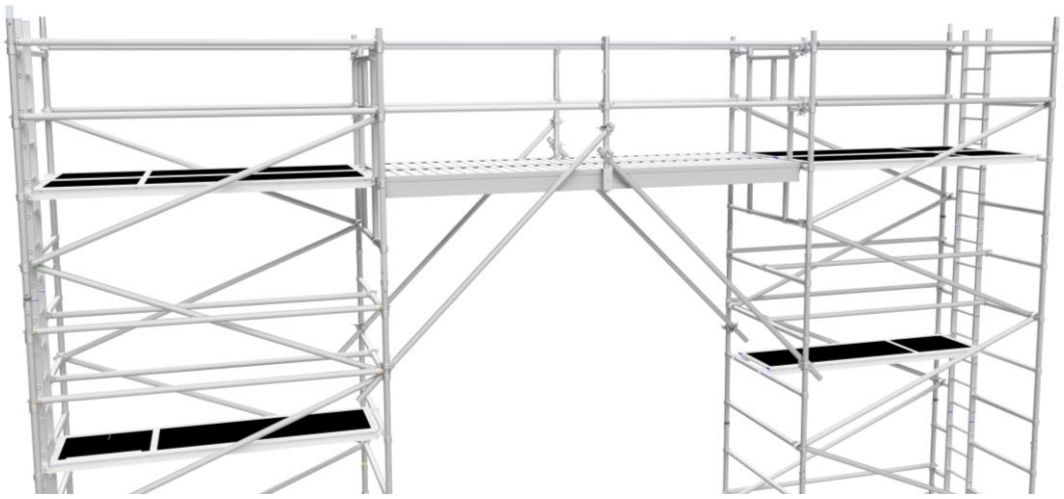
- The knee brace is fixed between the Spandeck side extrusion and a vertical frame, and is normally fitted at an angle of about 45 deg. The end of the knee brace which clamps to the clamp to the Spandeck has a swivel fitting to enable the other end to clamp to a vertical tube, whether directly in line with the side of the Spandeck or not.

- Knee brace stiffing can be achieved by fitting diagonal tube and coupler from a low position on



the central Spandeck post to the tower at either side. One set of these braces is sufficient if the assembly is static, but if the assembly is mobile, a set of these tube and coupler braces should be fitted to either side of the Spandeck.

Note: Knee braces are not used to increase the load capacity of the Spandeck



DISMANTLING / MOVING TOWERS

To dismantle, follow the build process but in reverse order noting the following.

- To remove the guardrail frames or braces, first unlock the hook at the end away from the trapdoor.
- Sitting through the trapdoor, unlock the near end hook and remove the brace.

To Move the tower to a new position, first prepare the tower.

- Wind speed should not exceed 29 km/h (8.1 m/s).
- Ensure leg extension is minimised (Max 150mm) Release the castor brakes.
- Raise the stabiliser feet only enough to clear obstructions.
- Ensure tower is empty (material and personnel).
- Check for overhead obstructions including electrical wires.
- Move the tower manually by applying force at the base - do not use machinery to push or pull the tower. Once moved - prepare the tower for use. Use the pre-use inspection checklist at the end of this manual.
- Check all castors and stabilisers are in firm contact with the ground.
- Check tower is vertical (spirit level) and adjust legs as required.
- Reapply the castor brakes.

Pre-use safety inspection checklist

Description	Yes
Towers are vertical (spirit level) and adjust legs as required	
Castor brakes are reapplied	
All horizontal & diagonal braces are installed	
Stabilisers fitted and have a firm grip with the ground	
Windlock on all platforms are engaged	
Interlock clips are engaged	
Toeboards are installed	

This checklist should be used if the tower has been moved or modified or if any damage is suspected. This checklist be used at intervals determined by the risk assessment or by the manger on site.

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