

## Instruction Manual EN 1298-IM-EN

The ALTO HD Linked Towers are certified to BS 1139-6:2014

### 3T - Through The Trapdoor Method



# Introduction

Please read these instructions carefully and ensure that you fully understand all of the information contained herein. All of the information in this document is vital for the safe utilisation of your Alto Heavy Duty Tower in linked tower applications.

These instructions only cover the assembly of linked towers on base jacks. If a mobile linked tower structure is required, contact the manufacturer Lakeside Industries Limited for advice on loadings Tel: +44 1527 500577 or Email: [sales@lakeside-industries.co.uk](mailto:sales@lakeside-industries.co.uk).

All Alto Access products are professional quality engineered equipment designed primarily with safety in mind and meet or exceed all standards, recommendations and guidelines. Used properly, Alto access equipment will keep you safe when working at height.

This manual contains all of the information necessary to correctly assemble your Alto Heavy Duty mobile access tower equipment for linked tower applications in accordance with BS1139-6:2014 and incorporates all of the requirements of the PASMA 3T method of assembly as endorsed by the HSE.

This manual should be used in conjunction with your Risk Assessment and Method Statement and in line with the Work at Height Regulations 2005 which place an obligation on employers to eliminate or minimise risks. This manual must be made available to the user/assembler at all pertinent times.

A Risk Assessment and Method Statement must be undertaken before installation commences and should include the relevant tying-in method and tying-in locations to be applied to the specific structure being built in line with the guidance contained in this manual.

Only competent and qualified personnel should undertake erection, dismantling or alteration, organisation, planning or supervision of mobile access towers. In the case of any doubt, sufficient relevant additional training must be given beforehand to ensure safe use. For further information on the use of mobile access towers consult PASMA ([www.pasma.co.uk](http://www.pasma.co.uk); Tel +44 (0) 845 230 4041).

For any additional technical information or specific advice please contact the manufacturer Lakeside Industries Limited Tel: +44 1527 500577 or Email: [sales@lakeside-industries.co.uk](mailto:sales@lakeside-industries.co.uk).

## Certifications

The Alto Heavy Duty Tower is a mobile access tower certified to EN 1004 Class 3. These instructions cover applications outside the scope of EN 1004, within the scope of EN 1139 to ensure that the configuration of the equipment meets the relevant requirements. This tower is manufactured in our ISO 9001 accredited facility. This manual complies with EN 1298-IM-EN.

# Maximum Safe Working Loads

The safe working load of each bay of the tower is 1,500kg including its own weight as it is to be assembled on base jacks. The maximum leg load imposed by the tower on its supporting surface is 750kg when loaded to its maximum safe working load.

The maximum safe working load of any individual platform within the tower is 324 kg evenly distributed.

Working platform constraints depend upon the maximum required loading for the working platforms:

LOADING CLASS	PLATFORM LENGTH	No. OF WORKING PLATFORMS
3 (2.0 kn/m <sup>2</sup> )	1.8m long	3
2 (1.5 kn/m <sup>2</sup> )	1.8m long	4
3 (2.0 kn/m <sup>2</sup> )	2.7m long	2
2 (1.5 kn/m <sup>2</sup> )	2.7m long	3

In case of any queries on loadings, contact your supplier or the manufacturer - Lakeside Industries Limited, for advice. Tel: +44 1527 500577 or Email: [sales@lakeside-industries.co.uk](mailto:sales@lakeside-industries.co.uk).

## Inspection Care & Maintenance

Alto Access equipment is designed and manufactured to the highest standards in the industry and is stronger, more robust and safer than any comparable competitor product. Properly cared for, it will give a long and productive service life.

All Alto HD equipment should be subjected to the care and maintenance regime specified in the assembly guide supplied with your tower.

Never use any equipment which is damaged, has parts missing or is improperly assembled.

## Safety

- A risk assessment and method statement must be prepared sufficient to ensure the safe assembly, use and dismantling of a linked tower structure and the elimination or minimisation of all consequent risks.
- Check that all of the necessary components and equipment for the particular tower configuration to be built are on site, undamaged & functioning correctly. Damaged/incorrect components must not be used
- Linked tower applications may only be used with 3T Alto towers. Linked tower applications may not

be created using Advanced Guard Rail (AGR) towers.

- Linked tower applications may only be constructed using double width towers. Linked tower applications may not be created using single width towers.
- These instructions only cover the assembly of linked towers on base jacks. If a mobile linked tower structure is required, contact the manufacturer Lakeside Industries Limited for advice on loadings Tel: +44 1527 500577 or Email: sales@lakeside-industries.co.uk.
- Check that the surface on which the tower is to be located is capable of supporting the tower and its payload.
- Platforms must be installed with vertical distances between them not exceeding 2.1m when assembling and dismantling.
- Towers must always be climbed from the inside using the built in ladders (or Alto stair units if applicable). If the work carried out from the tower requires frequent carrying of equipment and materials up or down the tower, an Alto stair tower should be used in preference to a ladderspan tower.
- The tower must be levelled when erected using the adjustable jack legs.
- Two or more persons are required for the safe erection and dismantling of a tower.
- Always comply with the Work at Height Regulations 2005 when erecting, dismantling & using the tower.
- When lifting components, always use reliable lifting equipment and fastening methods and always lift from within the footprint of the tower structure to prevent risk of the tower overturning.
- Beware live electrical installations, cables, moving machinery or other obstructions when erecting, dismantling or using the tower. The tower is a conductive metallic structure.
- Do not use boxes, ladders or other items to gain additional height.
- Do not stand on guard rails for any reason.
- If the tower is to be used in connection with hoisting arrangements, this requires specific advice from the manufacturer to ensure safety. Contact the manufacturer Lakeside Industries Limited for advice on loadings Tel: +44 1527 500577 or Email: sales@lakeside-industries.co.uk.
- Fit guard rails to all Platforms.
- Fit toe boards to all Working Platforms.
- Every erected tower must be inspected at least every seven days and any tower which has been left unattended should be inspected before use to ensure that:
  1. No components have been removed or relocated incorrectly;
  2. The tower is still vertical; and
  3. No environmental or other factors have arisen which will influence safe use of the tower.

- If it is intended to sheet the structure in any way, contact the manufacturer for advice before installing sheeting. Tel: +44 1527 500577 or Email: sales@lakeside-industries.co.uk.
- When a prefabricated scaffold tower is used as a means of access to another place (for example a flat roof) the following precautions must be taken whether or not a cantilever is used as part of the structure:
  - The tower must be built on adjustable base jacks 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 gap between the platform of the prefabricated scaffold tower and the place being accessed through which a person, tools or materials could fall or partially fall or which could cause a person to trip.
  - The platform of the prefabricated 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 particular task and must be replaced 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.

## Erecting & Dismantling the Tower

All linked tower structures using Alto HD equipment must be built and dismantled in accordance with the step by step instructions set out below and having regard to the working at height regulations and Health & Safety legislation.

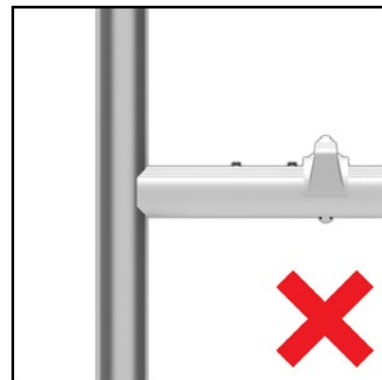
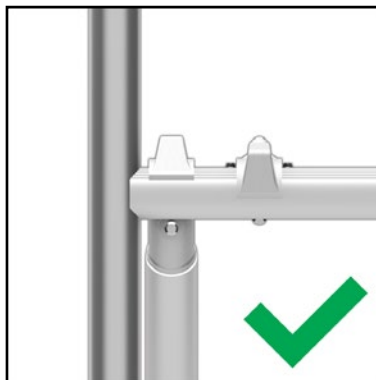
### Frames

Frames **must** always be assembled with the offset conical head fitting pointing inwards towards the centre of the tower.

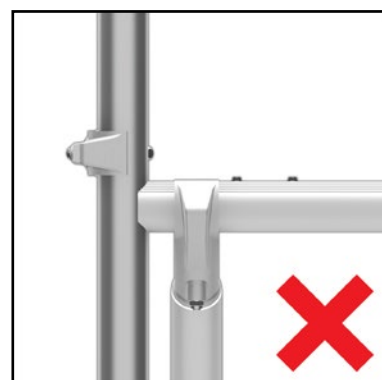
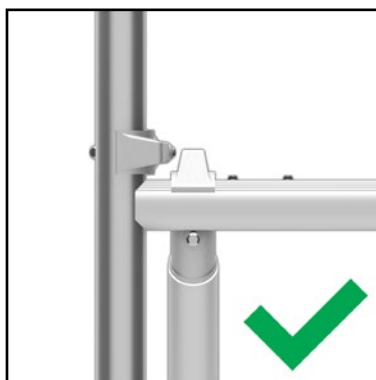


# Braces

All braces are fitted with spring loaded pins that automatically lock the brace into position when attached to a tower. Brace hooks **must** be located either over the rung screw heads, between 2 screw heads or between the frame upright and a screw head to prevent lateral movement.



Diagonal braces **must** always be located with the claw opening facing down. Horizontal braces must be located with the claw facing either down (on the rung) or outwards (if on the upright).

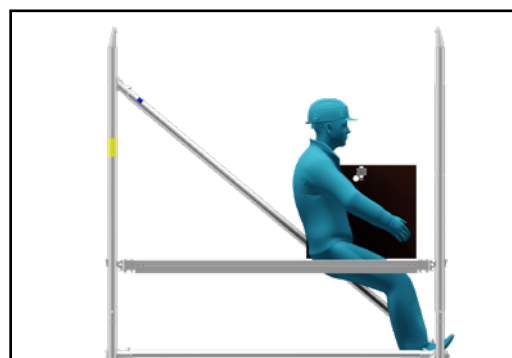


## 3T Method Explained

The “3T” or “through the trapdoor” method is one of the two permitted ways of assembling a tower without the assembler being at risk of falling. This tower is a 3T tower.

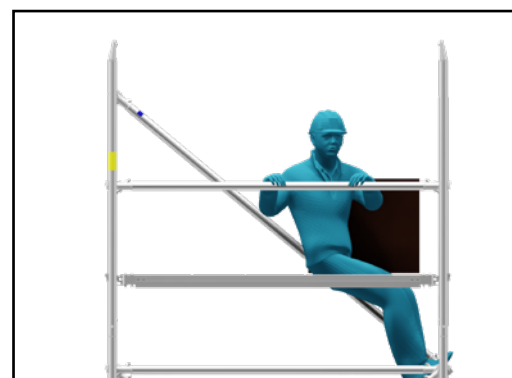
### Step 1:

As each new level of platform is installed, the operative takes up a working position in the trap door of the platform, standing on the ladder and leaning back against the edge of the trapdoor aperture.



### Step 2:

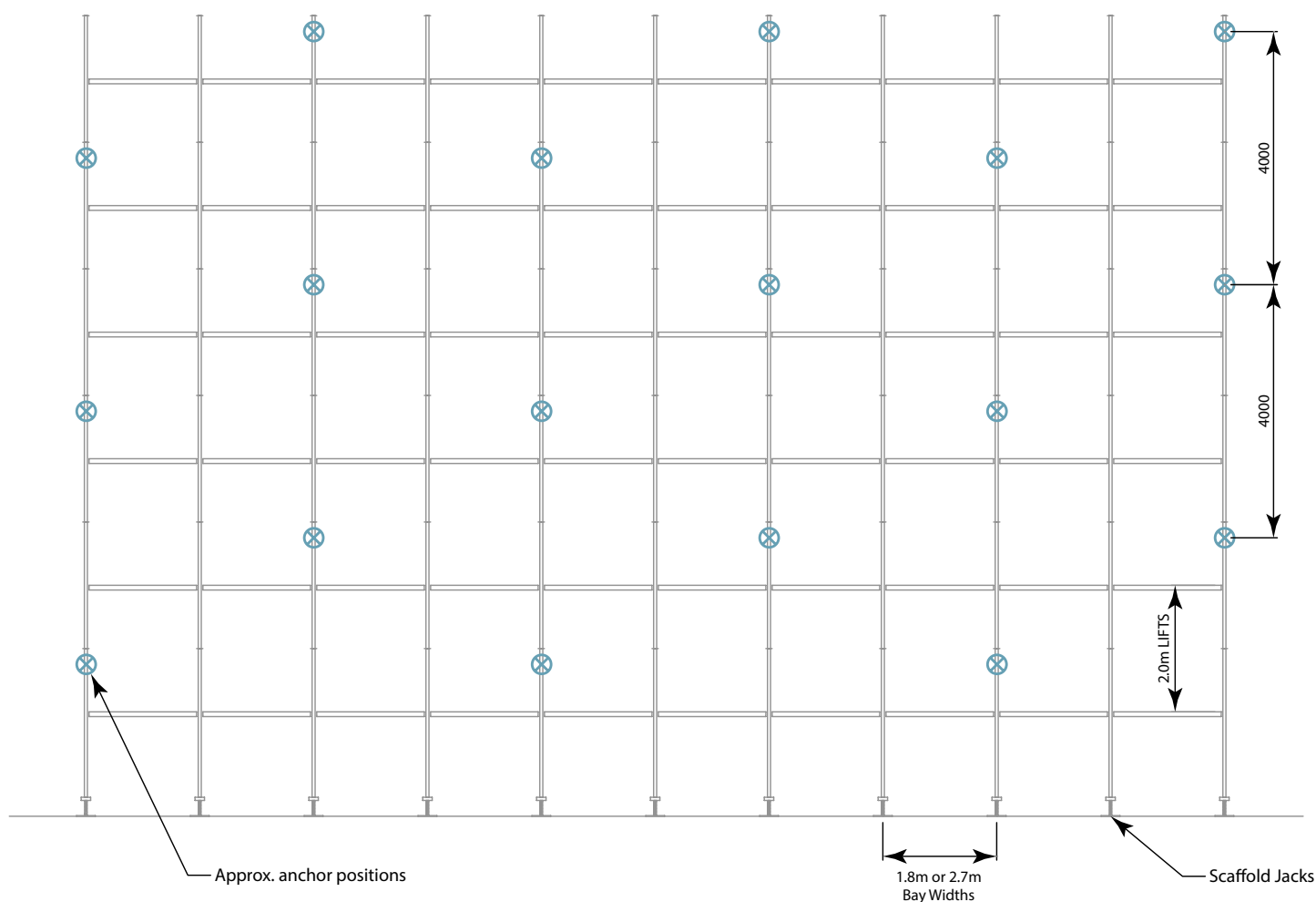
From this position fit the horizontal braces 500mm and 1000 mm above the platform (i.e. on the first and second available rungs). If the far end of the braces don't fully engage when they are put in place, the operative fully engages it when first climbing up onto the platform. This process ensures that operatives never have to stand on an unguarded platform.



# Tying In

Linked towers must never be built as free-standing structures. Suitable stability solutions must be used. The following points must be observed:

- A Risk Assessment and Method Statement must be undertaken before installation commences and should include the relevant tying-in method and tying-in locations to be applied to the specific structure being built in line with the guidance contained in this manual.
- Never build linked towers without having adopted and correctly installed the permitted stability solution.
- The permitted stability solution is to securely tie the linked tower into an adjacent rigid structure capable of withstanding the forces that will be imposed upon it by the attachment of the tower.
- The tying in pattern should ensure that the uprights of the tower are tied in a minimum of every 4 metres, both laterally and vertically in an alternating pattern. In practice this means that “every other frame and every other lift” is tied in. Additionally, both ends of the structure must be tied in at 4 metre intervals.



- If it is impracticable to tie the tower in to a suitable adjacent rigid structure, users must contact the manufacturer Lakeside Industries Limited for advice on possible alternative solutions. Tel: +44 1527 500577 or Email: sales@lakeside-industries.co.uk.
- When used, select and install anchors in concrete and masonry must be selected and installed in accordance with BS 8539.
- 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.
- Linked Alto HD towers which are properly tied in to an adjacent rigid structure should be able to withstand all but the most extreme UK weather conditions.

## Signage

The following information shall be prominently displayed at the base of the assembled tower:

The maximum number of working platforms	This information is given under "maximum safe working loads" above.
The maximum number of persons permitted on the working platforms	This is 2 persons per platform
The maximum number of persons permitted on the tower during assembly and dismantling	This is 2 persons per platform
The maximum safe working load on working platforms	This is: 324kg per platform unit (i.e. 648kg for a double width platform)
The maximum safe working load of the tower	This is 1,500kg per bay including its own weight assembled on base jacks
The load class of the tower	Class 3 unless the decision has been taken to de-rate the linked tower assembly to allow additional working platforms as outlined under "maximum safe working loads" above.



# Component Schedule

## COMPONENT SCHEDULE FOR PLATFORM WORKING HEIGHTS USING 5 RUNG STARTER FRAMES

This schedule shows the parts required for each bay of linked tower structures for the heights shown assuming that access is required at one end of the structure only.

Each structure is defined as a starter tower with any number of additional bays. Counting from the starter tower as "1", bays will either be even or odd numbers.

The end bay can be either even or odd and the relevant part changes are shown to produce the correct end configuration

CODE	PART DESCRIPTION	3.4m Platform Height					5.4m Platform Height					7.4m Platform Height					9.4m Platform Height					11.4m Platform Height				
		Start Tower	Even Bay	Odd Bay	End Bay		Start Tower	Even Bay	Odd Bay	End Bay		Start Tower	Even Bay	Odd Bay	End Bay		Start Tower	Even Bay	Odd Bay	End Bay		Start Tower	Even Bay	Odd Bay	End Bay	
2233	HD Adj. Base Jack (silver collar)	4	2	2			4	2	2			4	2	2			4	2	2			4	2	2		
2001	HD 1.4m Base Frame	1		1			1		1			1		1			1		1			1		1		
2212	HD 1.4m 5 Rung Ladder Frame	1	1				1	1				1	1				1	1				1	1			
2002	HD 1.4m Main Frame				1					2					3					4						5
2213	HD 1.4m 4 Rung Ladder Frame	1					2					3					4					5				
	Walkthrough 'H' Frame	1	1	1	-1		2	2	2	-2		3	3	3	-3		4	4	4	-4		5	5	5	-5	
	1.2m timber toeboard	1			1		1			1		1			1		1			1		1			1	
	1.8m timber toeboard	2		2			2		2			2		2			2		2			2		2		
	2.7m timber toeboard		2					2					2					2					2			
	Toeboard corner clips	4	4	4			4	4	4			4	4	4			4	4	4			4	4	4		
2040	HD 1.8m Brace	10		10			14		14			18		18			22		22			26		26		
2041	HD 2.7m Brace	4	10	4			6	14	6			8	18	8			10	22	10			12	26	12		
2044	HD 2.7m Platform		3					5					7					9					11			
2202	HD 2.7m Trap Platform		1					1					1					1					1			
2201	HD 1.8m Trap Platform	2		1			3		1			4		1			5		1			6		1		
2043	HD 1.8m Platform	2		3			3		5			4		7			5		9			6		11		

TOTAL SELF-WEIGHT OF TOWER (KGS)	178	165	143	-2	253	234	204	-6	329	302	265	-10	404	371	325	-13	479	439	386	-17
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# ASSEMBLY INSTRUCTIONS - All Platform Working Heights

## Step 1

Insert the base jacks into the base of the 5 Rung Base Frame and 5 Rung Ladder Frame.



## Step 2

Connect 2 horizontal braces to the uprights of the first frame in the area just above the bottom rung. Make sure that the braces are connected from the inside of the tower facing outwards. Make sure that the frame head fittings are pointing inwards into the tower.



## Step 3

Connect the 2nd frame to the horizontal braces in the same position that they are located on the first frames. Make sure that the frame head fittings are pointing inwards into the tower.





#### Step 4

Connect 2 standard diagonal braces to the frames as shown. Keep the diagonal braces as close to the frame uprights as possible. Ensure that they run in opposite directions to each other.



#### Step 5

Install a trap platform and a plain platform on the 3rd rung up and 4 horizontal braces as guard rails. Using a spirit level, ensure that the framework is completely level by adjusting the legs. Twist the serrated collar on the base jack to adjust up & down.

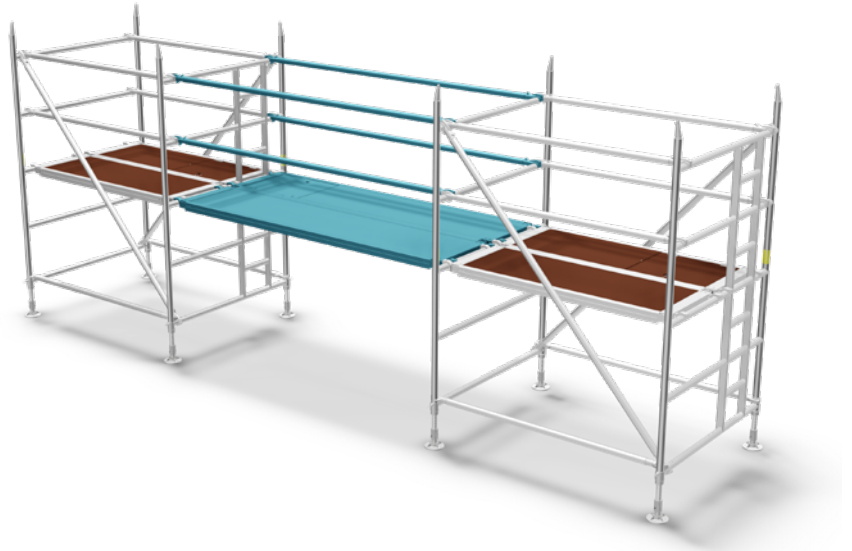


#### Step 6

Repeat steps 1 to 5. Ensure that one of the ladder frames on one of the towers is on the inside face of the assembly - as shown.

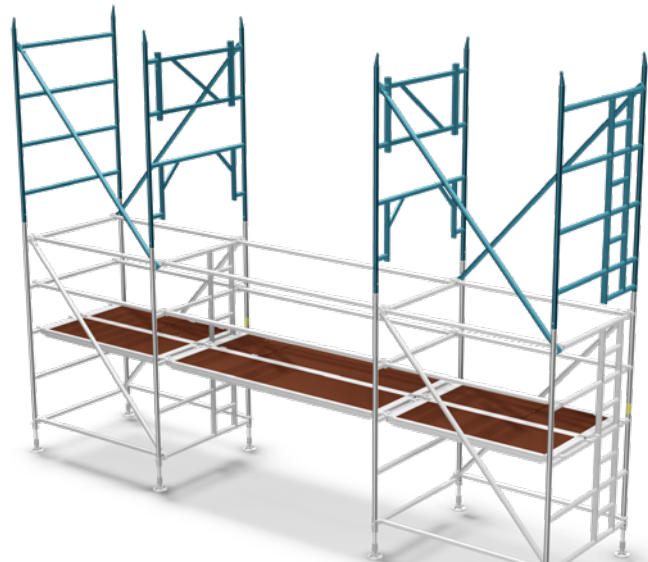
## Step 7

Connect the 2 towers together using 1 plain and 1 trap linking platform (either 1.8m or 2.7m long). Make sure that the 2 towers are the same height by using a spirit level on the linking platforms, and they are in line with each other along the length of the run. Now add 4 guard rail braces of the appropriate length in the positions shown.



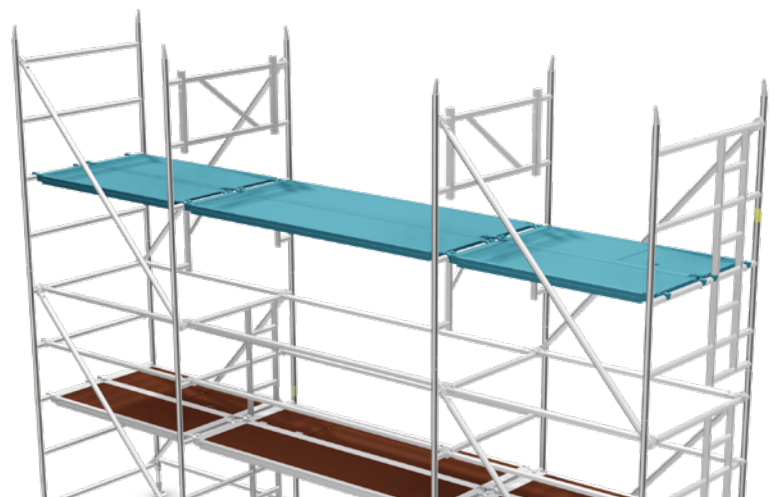
## Step 8

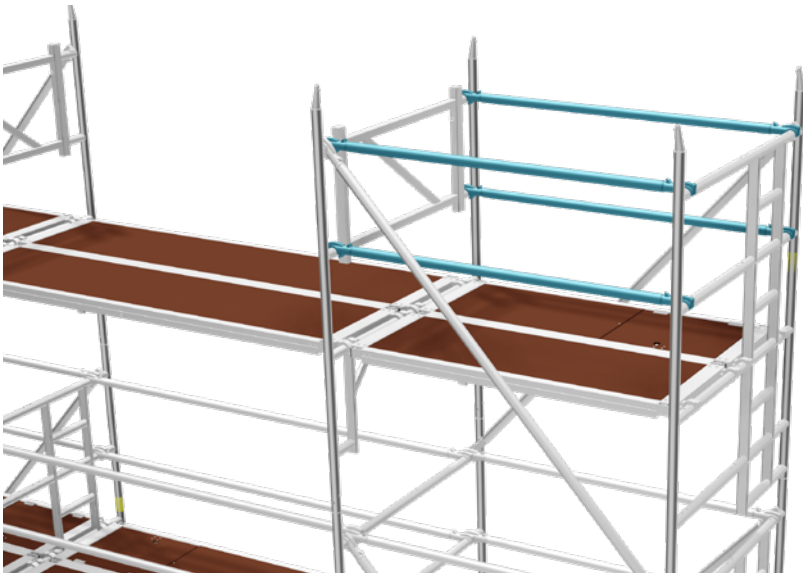
Working off the platforms, install the next level of appropriate frames. The one end of the run will always use ladder frames (as the base frame below it). The opposite end of the run will always use plain frames. The middle frames will always be the 'H' frames. Use diagonal braces as shown to support the frames. Ensure all 'H' frames have the removable guard rail panel installed in them.



## Step 9

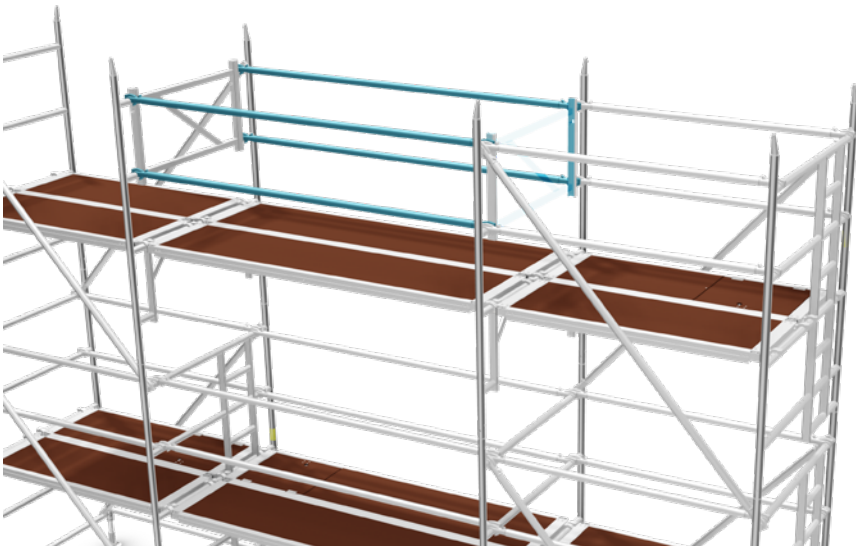
Now install the next level of platforms. Only use trap platforms where there is a vertical ladder access to be located on the structure. All other platforms are to be plain versions. Ensure all wind latches are fully engaged,





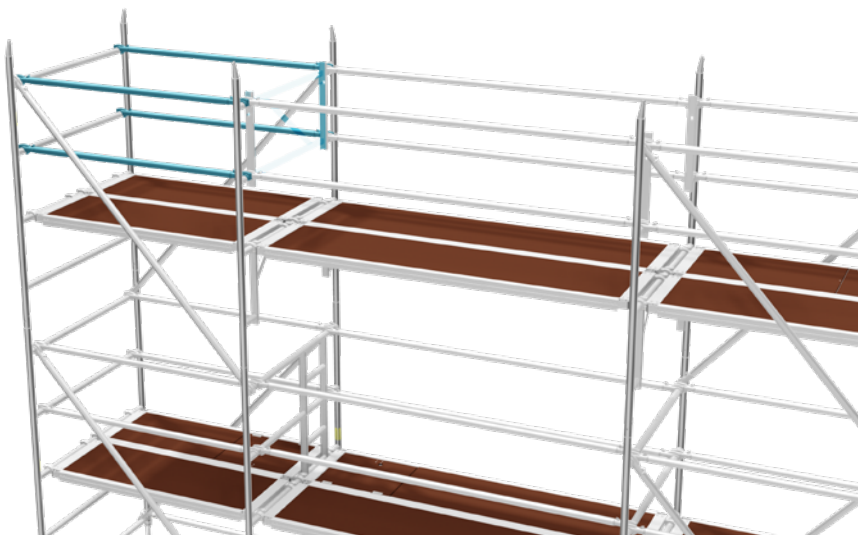
### Step 10

Starting from the ladder tower, install 4 guard rail braces using the 3T method.



### Step 11

Working from within the guard railed tower, install the braces for the linked platforms. Make sure that the end of the brace furthest away is resting on the appropriate rung. Once all the braces are completely engaged on the nearest end, remove the panel inside the 'H' frame and store it safely until it is required again. Now move to the opposite end and fully engage the braces.



### Step 12

Now repeat step 11 until all bays are fully guard railed, making sure that the 'H' frame panel is kept in the frames until all 4 braces in the bay in front are engaged.

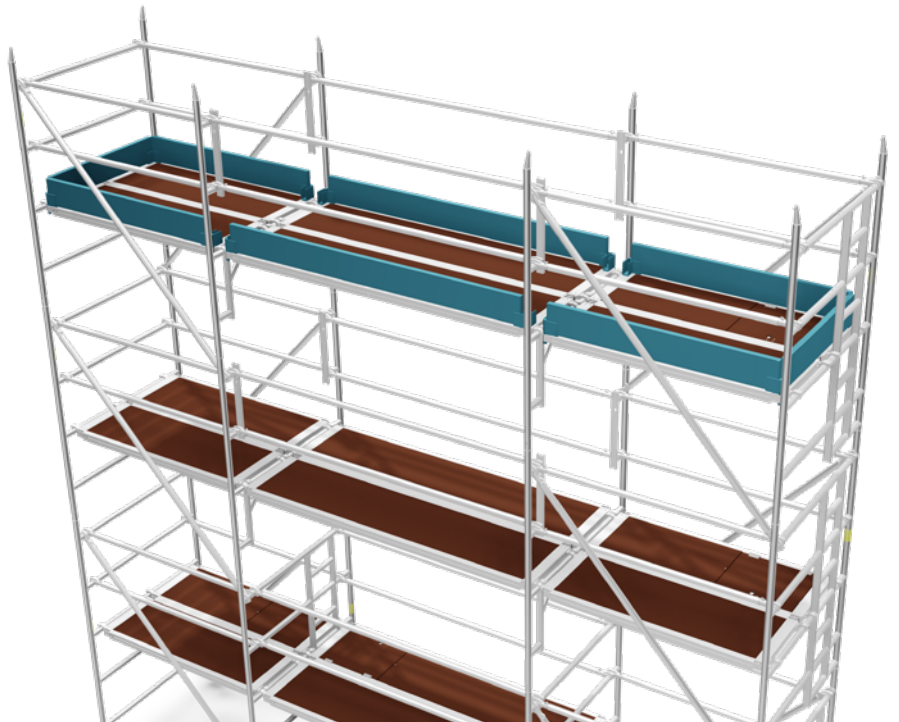


At this point, install the appropriate tying in method for this level, as specified in the method statement. Refer to the “Tying In” section for more information.

### Step 13

Repeat steps 8-12 until the final working platform height is established.

Finally, install the toeboards to all platforms on all working levels.



## DISMANTLING INSTRUCTIONS - All Platform Working Heights

### Step 1

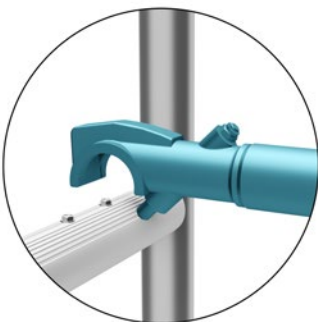
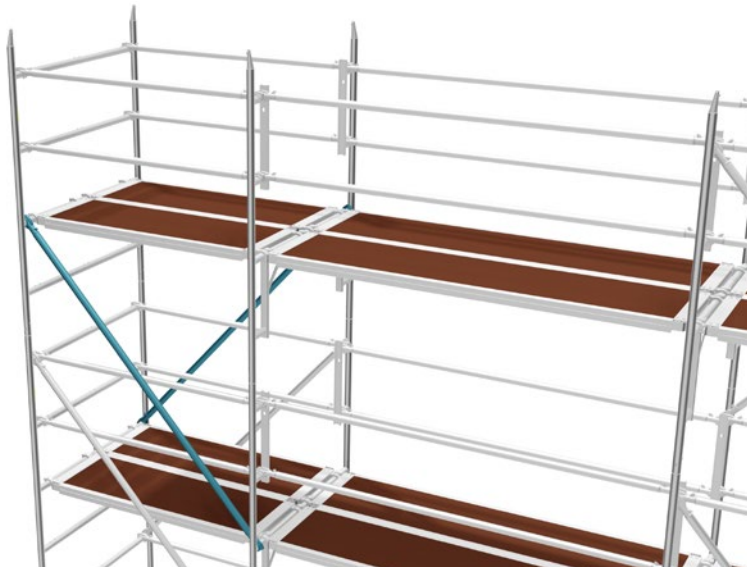
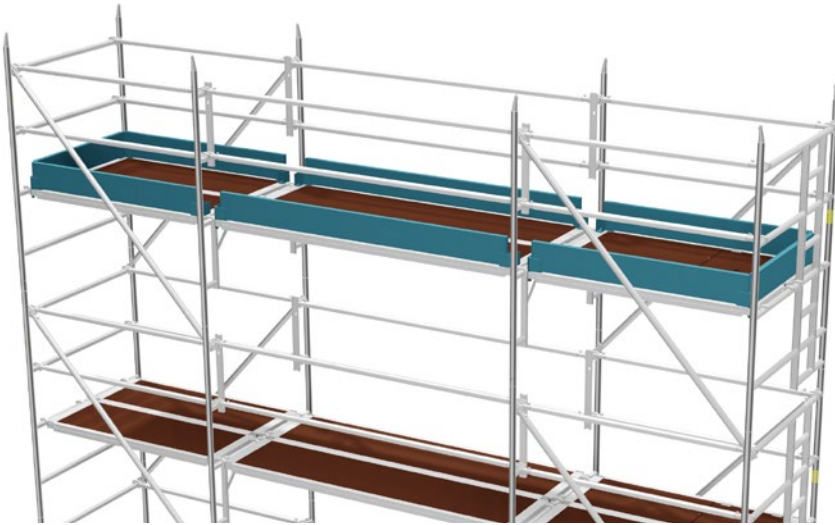
The dismantling procedure requires a minimum of 2 operatives to complete the task safely. To start, first remove the toeboard assembly from all working platform levels and disconnect tying in from the highest level only.

### Step 2

Starting at the end of the structure with no ladder frame (if only one ladder frame is installed) relocate the diagonal braces downwards so the top hook is located on the same rung as the uppermost platform - as shown. This can be done by using one operative on the top platform and one operative on the platform underneath.

### Step 3

Next, unclip the 4 guardrail BRACES from the end frame ONLY. Once all 4 are resting on the rung as shown, move directly back to the next bay.



## Step 4

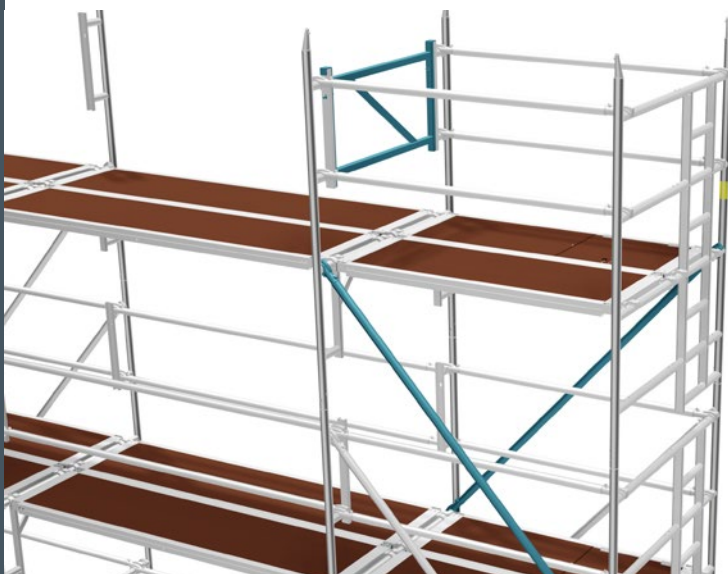
Now install the Guard Rail Panel into the walkthrough 'H' Frame. Ensure that the panel is fully engaged and the spring loaded pins are fully located into the holes provided. At this point the panel should not be able to lift out without unlocking the pins.

Repeat steps 3 & 4 until the final bay is reached.



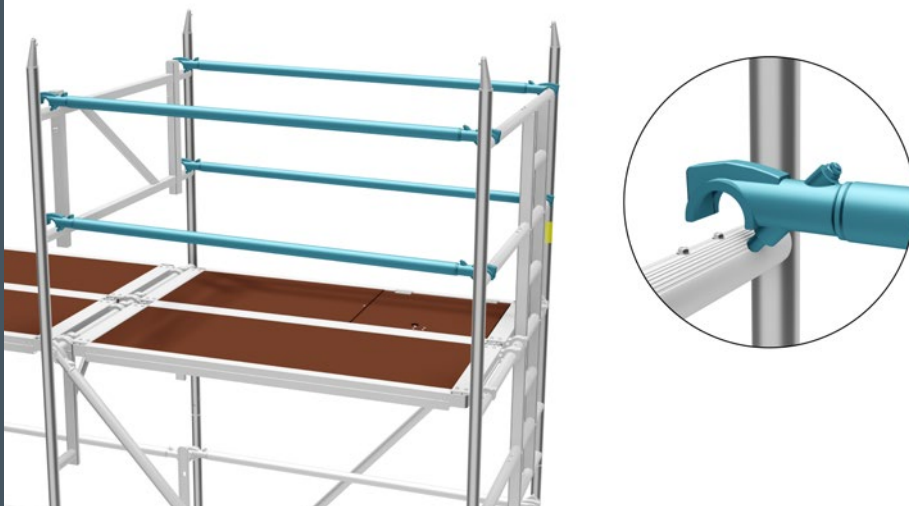
## Step 5

Once the final guard rail panel is fitted into the walkthrough 'H' Frame, relocate the diagonal braces as shown, as done in step 2.

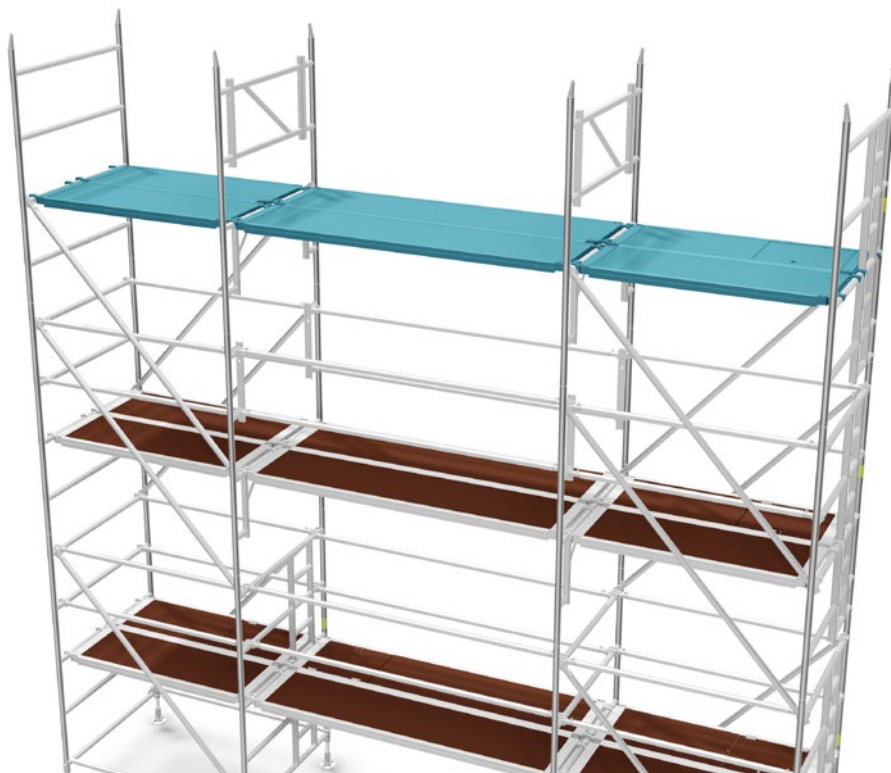


## Step 6

In the final bay, remove the 4 guardrails by first disconnecting each brace at the end furthest away from the platform trap door (as done in Step 3). Then immediately take up the protected position detailed in the 3T method. Whilst standing through the trapdoor as per the 3T method, disconnect the braces completely.

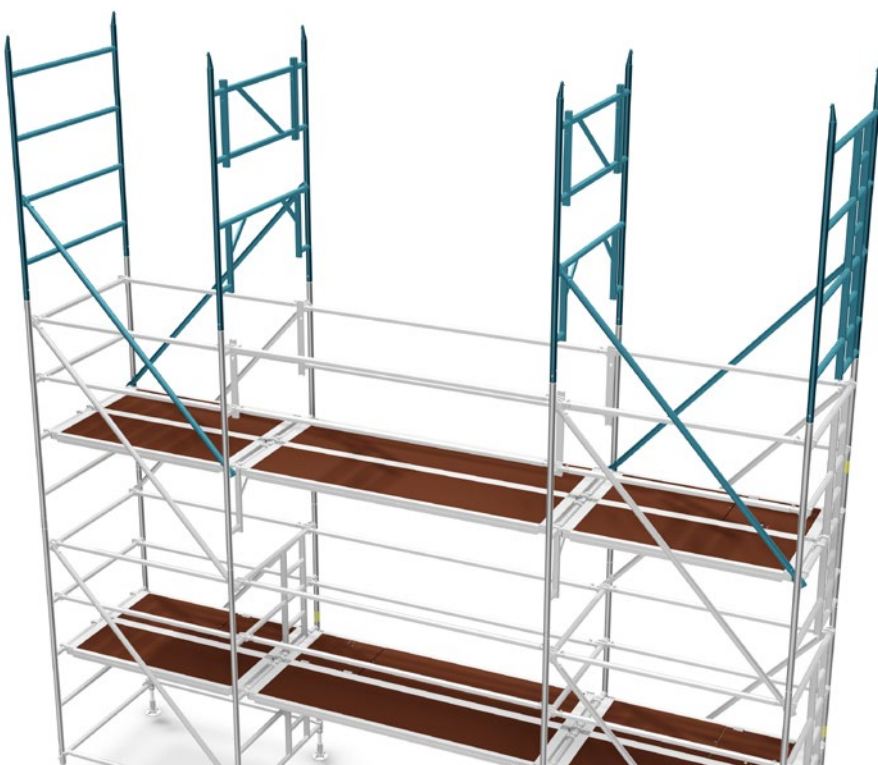






### Step 7

Now, working from the platforms below, the upper platforms can be removed along the whole structure.



### Step 8

The recently relocated diagonal braces can now be taken off, followed by all the upper frames - as shown.

At this point, repeat steps 1-7 until the structure is dismantled or the new working platform height is achieved.

# THE HEIGHT of SAFETY


For further information regarding our range of access products and services, please get in touch with us:

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Manufacturing Member

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