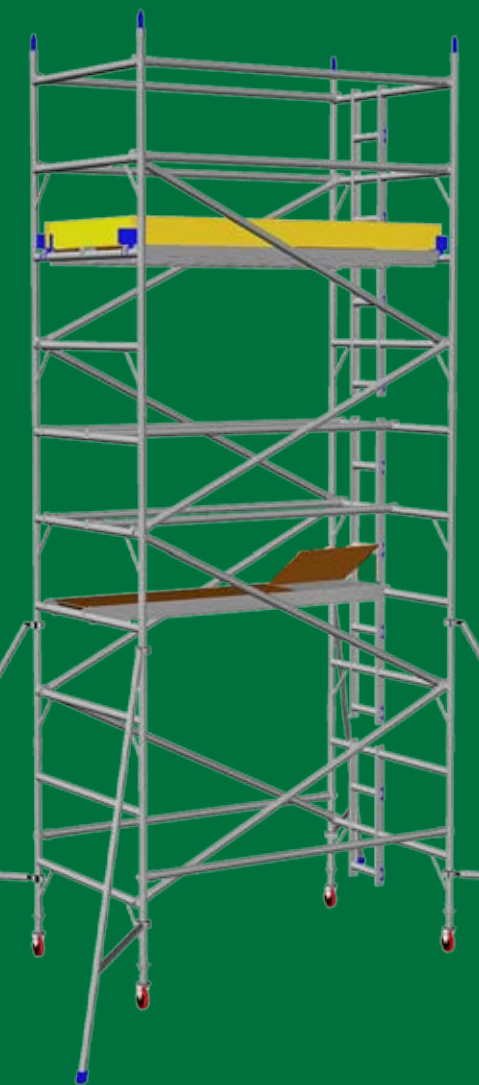


# BETA 1450/ 850 MOBILE ALUMINIUM TOWER ASSEMBLY GUIDE

**TURNER ACCESS**

[www.turner-access.co.uk](http://www.turner-access.co.uk)



## 3T - THROUGH THE TRAPDOOR METHOD

**Instruction Manual EN 1298-IM-EN**  
These instructions and the  
equipment described are in  
accordance with  
**BS EN 1298** and in compliance with  
**BS EN 1004:2004**

May 2007



# BETA 1450/850 Guide

## Introduction

**Please read this guide carefully.**

The BETA tower is a Load Class 3 tower as specified in **BS EN 1004:2004**.

This instruction manual contains all the information required to correctly assemble the BETA mobile access tower incorporating the PASMA (Prefabricated Access Suppliers' and Manufacturers Association) approved 3T (Through the Trap) method of assembly as endorsed by the Health and Safety Executive.

This Manual should be used in conjunction with a suitable Risk Assessment and Method Statement (by user) relative to the project to be undertaken, Work at Height Regulations 2005, Regulation 6(1). It must be noted that all employers have a responsibility to ensure that work methods (practices) and adequate facilities/ resources (including work equipment) are provided to eliminate or minimise risks, Work at Height Regulations 2005, Regulations 6, 7, 8 and Schedule 3 Part 2.

Please ensure you read and fully understand the manual. Follow the content during assembly and ensure that the tower is complete prior to use.

This manual must be made available to the user/ assembler at all times.

Sufficient training, combined with necessary experience, must also be considered and be appropriate to achieve competency to undertake basic mobile access tower assembly.

Only competent (and qualified) personnel should undertake erection, dismantling and alteration (and organisation, planning and supervision) of basic mobile access towers, Regulation 5, the Work at Height Regulations 2005 and consideration should be given to providing additional (minimum) training beforehand, if required (Regulation 6 (5)(b)).

For Technical advice (or further information) on TURNER Towers, please contact:

Turner Access Ltd, 65 Craigton Road, Glasgow, G51 3EQ

Tel: +44 (0) 141 309 5555 Fax: +44 (0) 141 309 5436

or e mail

**enquiries@turner-access.co.uk**

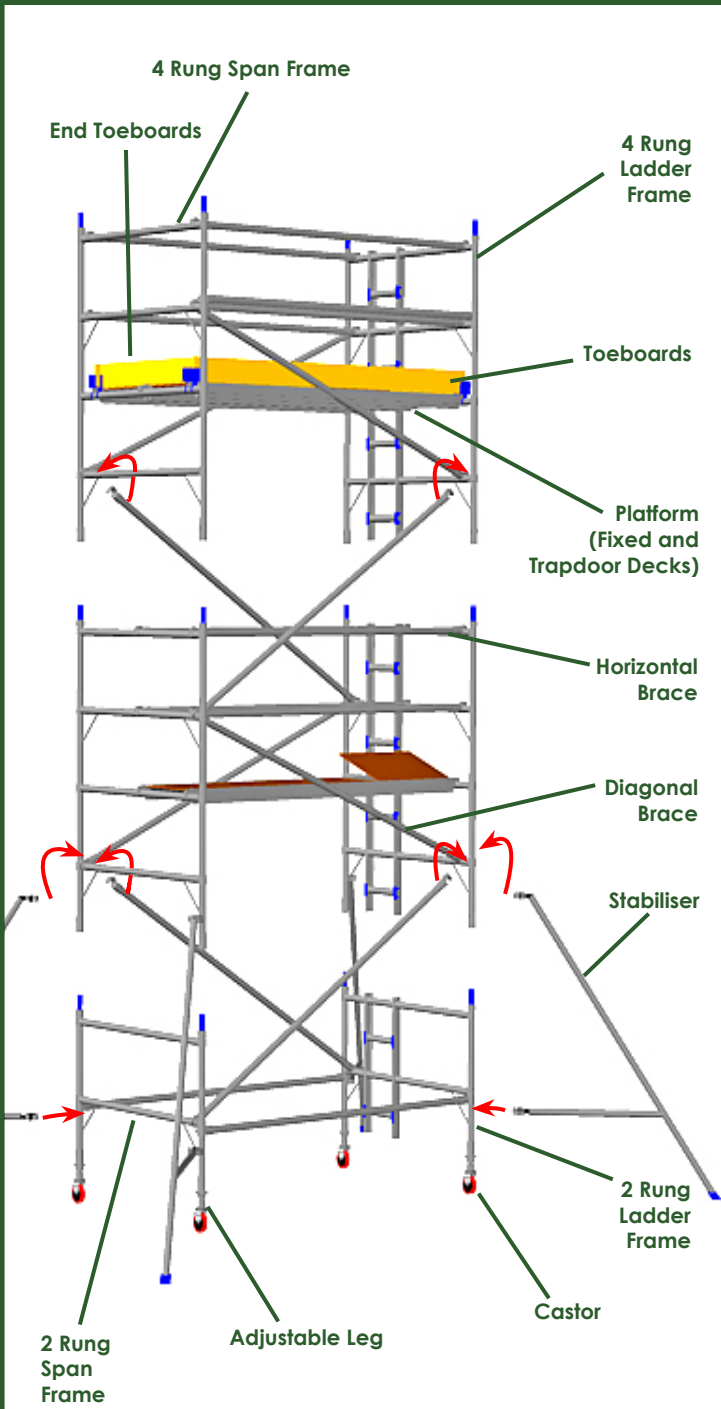
## Inspection, Care and Maintenance

Handle tower components with care to avoid damage to either the person handling the equipment or the equipment itself. Components need to be firmly secured and properly supported, when being transported, to prevent damage. In long term storage, towers should be protected from the weather. Prior to use, inspect all tower components for signs of damage or defects. Damaged, defective or incorrect components must be marked as unfit for use, withdrawn from use and either repaired or destroyed. Castors and adjustable legs should be periodically lubricated to keep them free running.

## Safety

Refer to General Safety Notes and Advice for Users.

# Components



# General Safety Notes

1. Ensure that all necessary components and safety equipment are available and operational.
2. Inspect the tower components for signs of damage or incorrect functioning prior to use. Damaged or incorrect components must not be used. Castors and adjustable legs should be periodically lubricated to keep them free running.
3. Erect Exclusion zone and fit Warning Signs to comply with Schedule 3 Part 2 (11), Work at Height Regulations 2005.
4. Ensure the scaffolding is to be erected on suitable foundations capable of withstanding the loads imposed by the scaffolding (Schedule 3 Part 1(2) of Work at Height Regulations 2005) and, where appropriate, adequate sole boards to be provided.
5. It is recommended that at least two people erect and dismantle the tower.
6. BETA mobile aluminium towers MUST ALWAYS be climbed from the inside, climbing the ladders only.
7. When lifting components or materials, always use reliable lifting material and tying methods to ensure there is no possibility of the tower overturning. Always lift from within the tower base.
8. Mobile access towers must only be moved manually, by pushing at the base.

*Ensure that the platforms are free of persons and equipment and that brake locks are off prior to movement. Beware of soft or uneven ground and overhead obstructions.*

*The tower height must be reduced to 4m high and stabilisers raised approx 25mm clear of the ground. On completing the move apply all brakes and check adjustment and stability prior to completion of tower to full assembled height.*

**Note** *Tower height must be reduced to 2m high prior to any moves if less than 4 stabilisers are used.*

9. Always inspect the tower after moving and before use.
10. Always beware of live electrical apparatus, cables or moving parts of machinery.
11. Care should be taken when using power tools, wash jets or other tools that cause lateral force.  
*The maximum lateral force on a freestanding tower at platform level is 20kg.*
12. DO NOT use boxes, ladders or other such means to gain additional height.
13. Never bridge between a tower and a building unless designed to a specification and approved.
14. Never jump onto platforms.
15. Do not use hoisting arrangements on a mobile access tower.
16. Fit side guardrails at all platforms.
17. Fit toeboards on all working platforms.
18. Fit intermediate rest platforms at 4m intervals (maximum).
19. DO NOT affix sheeting of any type to the tower.

# General Safety Notes

20. Mobile access towers are not designed to allow them to be lifted or suspended.
21. In accordance with regulations any tower that has been erected must be inspected every 7 days (minimum) to ensure that the tower continues to comply with the regulations.

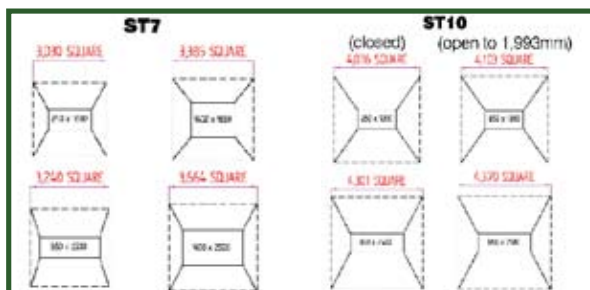
## Wind Speed Safety Rules

Where possible, tie in the tower to a rigid structure when working outdoors or in exposed conditions. When locating the tower, beware of hazards during erection, dismantling and moving with respect to wind conditions and the funnelling effect of open ended and uncladded buildings.

Beaufort Scale	Description	Air speed	Action
0-4	Moderate Breeze Small Branches move	13 - 18 mph	No action required
5 - 6	Strong Breeze Large branches bend	25 - 31 mph	Tie tower to a rigid structure
>6	Walking progress impeded	34 - 40 mph	Dismantle tower if such conditions are expected

## Stabilisers

Stabilisers should be attached so that the footprint of the tower, including stabilisers, is a square of the dimensions as shown.



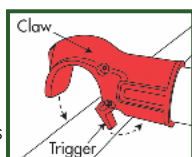
Larger stabilisers can be used at lower level to improve stability, if required.

## Braces

All braces are fitted with self-priming triggers that automatically lock when attached to the tower.

Attach braces square to the tower and remove by releasing the trigger.

When attaching diagonal braces the claws face down. When attaching handrails the claws either face down or outwards.



For ease of identification all braces are colour coded, ie. Horizontal braces have **RED** triggers and diagonal braces have **BLUE** triggers.

## BETA 1450 Ladderspan Tower - 1.8m and 2.5m (complies with BS EN 1004:2004)

### Internal/ External Use

Description	Internal Use only															
	Working Height	3.2m	3.7m	4.2m	4.7m	5.2m	5.7m	6.2m	6.7m	7.2m	7.7m	8.2m	8.7m	9.2m	9.7m	10.2m
Platform Height	1.2m	1.7m	2.2m	2.7m	3.2m	3.7m	4.2m	4.7m	5.2m	5.7m	6.2m	6.7m	7.2m	7.7m	8.2m	
125/150/200mm Castor	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
250mm Adjustable Leg	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
1450 2 Rung Ladder Frame		1	1			1	1			1	1			1	1	
1450 2 Rung Span Frame		1	1			1	1			1	1			1	1	
1450 3 Rung Ladder Frame		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1450 3 Rung Span Frame		1		1	1	1	1	1	1	1	1	1	1	1	1	1
1450 4 Rung Ladder Frame	1		1	1	2	1	2	2	3	2	3	3	4	3	4	4
1450 4 Rung Span Frame	1		1	1	2	1	2	2	3	2	3	3	4	3	4	4
1.8m and 2.5m Fixed Deck	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1.8m and 2.5m Trap Door Deck	1	1	1	1	2	2	2	2	2	2	2	3	3	3	3	3
1.8m and 2.5m Horizontal Brace	6	6	6	6	6	6	10	10	10	10	14	14	14	14	14	14
2.1m and 2.7m Diagonal Brace	2	3	3	4	5	6	7	8	9	10	11	12	13	14	15	15
1.8m and 2.5m Side Toeboard	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1.2m End Toeboard	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Toeboard Holder	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

### Internal Use only

Description	Internal Use only															
	10.7m	11.2m	11.7m	12.2m	12.7m	13.2m	13.7m	14.2m								
Platform Height	8.7m	9.2m	9.7m	10.2m	10.7m	11.2m	11.7m	12.2m								
125/150/200mm Castor	4	4	4	4	4	4	4	4								
250mm Adjustable Leg	4	4	4	4	4	4	4	4								
1450 2 Rung Ladder Frame			1	1												
1450 2 Rung Span Frame			1	1												
1450 3 Rung Ladder Frame	1	1	1	1	1	1	1	1								
1450 3 Rung Span Frame	1	1	1	1	1	1	1	1								
1450 4 Rung Ladder Frame	4	5	4	5	5	6	5	6								
1450 4 Rung Span Frame	4	5	4	5	5	6	5	6								
1.8m and 2.5m Fixed Deck	1	1	1	1	1	1	1	1								
1.8m and 2.5m Trap Door Deck	3	4	4	4	4	5	5	5								
1.8m and 2.5m Horizontal Brace	14	18	18	18	18	22	22	22								
2.1m and 2.7m Diagonal Brace	16	17	18	19	20	21	22	23								
1.8m and 2.5m Side Toeboard	2	2	2	2	2	2	2	2								
1.2m End Toeboard	2	2	2	2	2	2	2	2								
Toeboard Holder	4	4	4	4	4	4	4	4								

SB7 Fixed Stabiliser

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

4

# Quantity Schedule - 1450 3T Method

**Note** 200mm castors were used in the self weight calculations as detailed in the Quantity Schedule on opposite page.

## **Maximum Safe Working Loads (S.W.L.)**

**300kg** per platform evenly distributed.

**900kg** per tower evenly distributed.

The platform can consist of either one deck or two decks (placed side by side).

The load **MUST** be evenly distributed over entire platform area (whether one deck or two decks).

A maximum of 3 platform levels may be loaded.

The self weight of the tower components is not part of the 900kg S.W.L. per tower and has already been taken into account.

The Quantity Schedule provides for double handrails to all platforms. Toeboards have been included to one working platform only therefore additional toeboards will have to be added to any other levels that are used as working platforms and/ or for storage of materials.

Furthermore, product standards require that towers have platforms placed at least every 4m. The Schedule exceeds this requirement. The BETA tower will be built safely and therefore compliance with the requirements of the Work at Height Regulations 2005 will also be met, if the schedule is followed.

## **Ballast: Internal/ External Use**

Ballast is not required on BETA towers if using stabilisers as detailed on Quantity Schedule.



## BETA 850 Ladderspan Tower - 1.8m and 2.5m (complies with BS EN 1004:2004)

### Internal/ External Use

Description	Working Height										Internal Use only															
	1.2m	1.7m	3.2m	3.7m	4.2m	4.7m	5.2m	5.7m	6.2m	6.7m	7.2m	7.7m	8.2m	8.7m	9.2m	9.7m	10.2m	10.7m	11.2m	11.7m	12.2m	12.7m	13.2m	13.7m	14.2m	
125/150/200mm Castor	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
250mm Adjustable Leg	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
850 2 Rung Ladder Frame		1	1				1	1				1	1				1	1						1	1	
850 2 Rung Span Frame		1	1				1	1				1	1				1	1						1	1	
850 3 Rung Ladder Frame		1					1	1				1	1				1	1					1	1		
850 3 Rung Span Frame		1					1	1				1	1				1	1					1	1		
850 4 Rung Ladder Frame	1				1	1	2	1	2	2	3	2	3	3	4	3	4	3	4				5	6	5	6
850 4 Rung Span Frame	1				1	1	2	1	2	2	3	2	3	3	4	3	4	3	4				5	6	5	6
1.8m and 2.5m Trap Door Deck	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	3	3	3	3	3	4	4	5	5	5
1.8m and 2.5m Horizontal Brace (Red)	6	6	6	6	6	6	6	6	10	10	10	10	10	14	14	14	14	14	14	14	14	18	18	22	22	22
2.1m and 2.7m Diagonal Brace (Blue)	2	3	3	4	5	6	7	8	9	10	11	12	13	14	14	15							21	22	23	
1.8m and 2.5m Side Toeboard	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
0.6m End Toeboard	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
Toeboard Holder	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	

SB7 Fixed Stabiliser																										
SB10 Telescopic Stabiliser										4	4	4	4													
SB15 Telescopic Stabiliser														4	4	4	4	4	4	4	4	4	4	4	4	4

Ballast Required (kgs)																										
										25	50	75														

# Quantity Schedule - 850 3T Method

**Note** 200mm castors were used in the self weight calculations as detailed in the Quantity Schedule on opposite page.

## **Maximum Safe Working Loads (S.W.L.)**

**300kg** per platform evenly distributed.

**900kg** per tower evenly distributed.

The load **MUST** be evenly distributed over entire platform area.

A maximum of 3 platform levels may be loaded.

The self weight of the tower components is not part of the 900kg S.W.L. per tower and has already been taken into account.

The Quantity Schedule provides for double handrails to all platforms. Toeboards have been included to one working platform only therefore additional toeboards will have to be added to any other levels that are used as working platforms and/ or for storage of materials.

Furthermore, product standards require that towers have platforms placed at least every 4m. The Schedule exceeds this requirement. The BETA tower will be built safely and therefore compliance with the requirements of the Work at Height Regulations 2005 will also be met, if the schedule is followed.

## **Ballast: Internal/ External Use**

Ballast is not required on BETA towers if using stabilisers as detailed on Quantity Schedule.

## **TIES**

If the safe tower height exceeds that as detailed in the Quantity schedule or the optimum base dimension cannot be constructed or other such factors that may affect the tower stability then, it will be necessary to rigidly tie the tower into an adjacent structure, using tubes and couplers suitable for coupling to the tower that has tube diameter of 50.8mm.

# Daily Checks

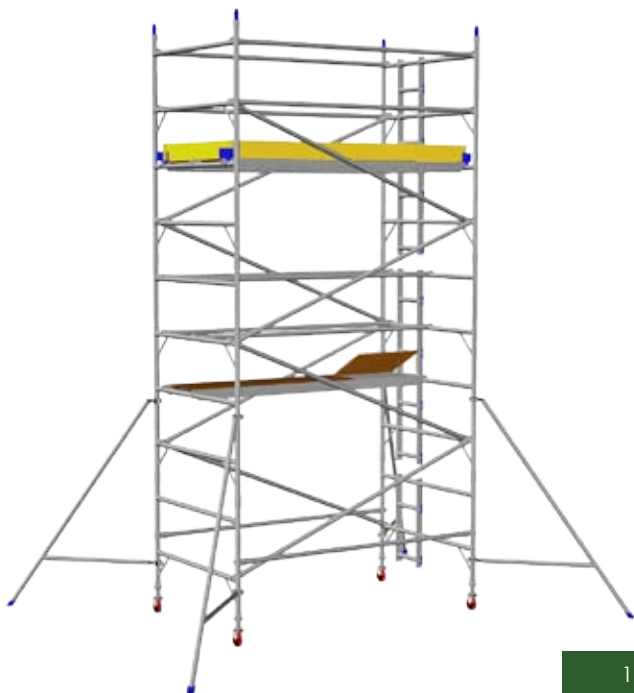
The tower must be checked on a daily basis and after any significant weather changes e.g. high winds, snow, frost.

Use the checklist below prior to use.

- Tower is vertical and square
- Tower structure is correct and complete
- Braces correctly fitted and secure
- Castors locked/ legs correctly adjusted
- All castors, base plates and stabilisers are in contact with the ground
- Toeboards located and fixed correctly
- Correct stabilisers fitted, adjusted and secure
- Hand rails fitted and secure
- Platforms locked and secure in position

If a box has not been ticked, do not use the tower until the fault is rectified.

Where a fault is found, access to the tower must be stopped.



# Assembly Procedure 1450 Tower - 3T

This method of assembly has been approved and endorsed by both PASMA and the HSE and is known as the 3T method (Through The Trap).

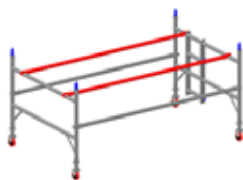
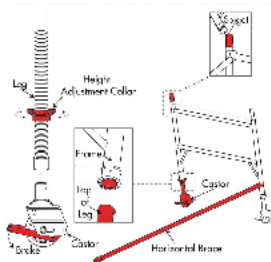
In order to fully comply with the Work at Height Regulations 2005, Turner Access recommend using Advanced Guardrails (Ask for the BetaGuard®).

## NARROW WIDTH TOWERS

Narrow width towers are assembled following the same steps as explained for span towers, except that all platforms are trapdoor platforms.

### THE BASE SECTION

1. Fit two legs and castors (or base plates) to one 2 rung span frame (see illustration) and two legs and castors to one 2 rung ladder frame. Turn the height adjustment collar on each leg until approximately 100mm from the lower end. Insert each leg until the collar is in contact with the frame's tubing.
2. Set each castor brake on by moving the brake lever fully down.
3. Attach two horizontals to the upright of each frame, above the first rung and square the two frames to each other.  
**Note** It may be advantageous to place a platform at low level to assist in "squaring" tower.
4. With the aid of a spirit level, you should now make any necessary adjustments to level the tower by turning the adjustment collars.
5. Attach two temporary horizontal braces to 2nd rung of frame.
6. Add one 2m (4Rung) frame and one 2m ladder frame on top of base (1m) frames.



7. Attach two diagonal braces to the bottom rung of each base frame, with braces being placed at least 50mm (one tube width) from outer edge. Then attach the other end of both braces to the bottom rung on the opposing 2m frame.

8. Attach two more diagonal braces (in accordance with brace pattern) from 1st rung to 3rd rung of upper frame.
9. Remove temporary horizontal braces.

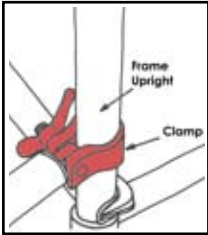
The base is complete

# Assembly Procedure 1450 Tower - 3T

## Stabilisers

When specified, the correct stabilisers or outriggers must always be used. See Quantity Schedule.

When using standard stabilisers, fit them now.



To attach the stabiliser, fit the upper screw clamp to frame below casting, then fit the lower screw clamp as low as possible to the frame upright.

Stabilisers should be attached so that the footprint of the tower, including stabilisers, is a square of the dimensions shown on page 5. Ensure that the stabilisers are in firm contact with the ground.

## Notes

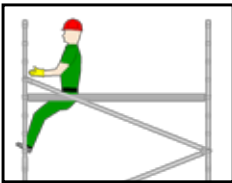
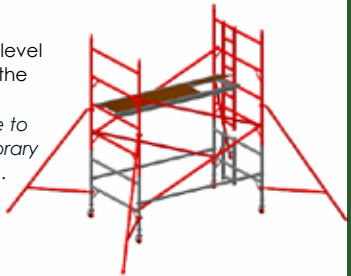
*It may be advantageous to ensure that stabilisers are fitted from frame side as shown.*

*It may only be possible to fit extended stabilisers after upper frame has been placed.*

*If repositioning stabilisers when in position then screw clamps MUST be loosened prior to movement then re-fixed.*

10. Place a trapdoor platform at 2m level (4 rungs from ground) and set to the ladder side of the tower.

**Note** *The trapdoor platform hinge to be set to outside of tower (temporary only to assist in assembling tower).*

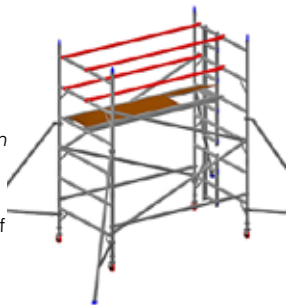


11. Operative should then climb through the trap and rest against the platform (just below base of back) with feet firmly placed on ladder rungs (as shown).

12. Fit horizontal braces to both sides of platform at 1st and 2nd rungs above platform level to form guardrail protection to single platform only.

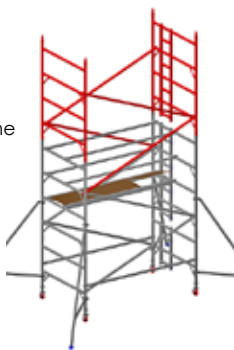
**Note** *It is safe to use the platform when horizontal braces have been locked and secured in place.*

13. Add two more 4 rung frames on top of the existing frames.



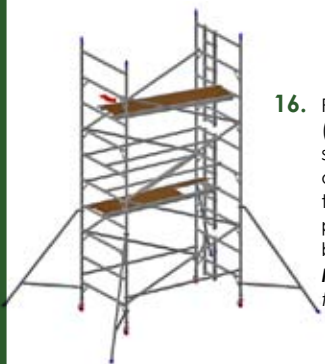
# Assembly Procedure 1450 Tower - 3T

14. Attach two diagonal braces from lower frame to upper frame in accordance with bracing pattern.
15. Attach one more diagonal brace from 1st rung to 3rd rung of upper frame.

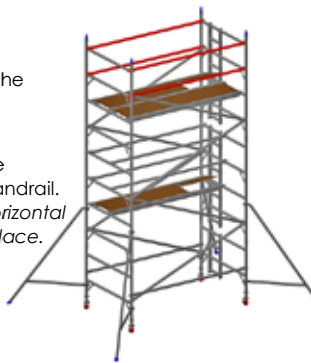


16. Place fixed platform initially at 4m level (diagonally) and slide across to opposite side of tower (as shown) from where operative is standing below then place trapdoor platform ensuring that trap is placed at same side to trap on platform below.

**Note** Ensure that the trapdoor hinge is to the outside edge.



17. Repeat step 11 and climb through the trap.
18. Fit horizontal braces to both sides of platform at 1st and 2nd rungs above platform level to form permanent handrail. *It is safe to use the platform once horizontal braces are locked and secured in place.*



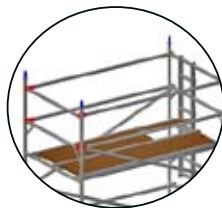
Repeat steps 13 to 18 until desired height has been reached (max. height 8m outdoors and 12 m indoors).

## DISMANTLING THE TOWER

The following instructions describe the steps necessary to dismantle the BETA tower utilising the 3T method.

For your safety and that of others, take particular care not to allow components to fall to the ground since this will not only result in damage but may cause serious injury.

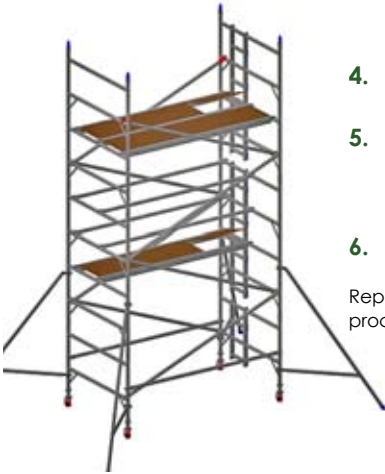
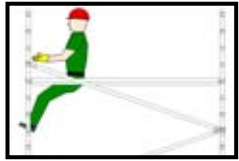
1. At top platform level unlock horizontal braces at furthest positions from the trap before descending through the trap.



# Assembly Procedure 1450 Tower - 3T

## Dismantling the Tower

2. As before, sit through the trap and rest against the platform (just below base of back) with feet firmly placed on ladder rungs.
3. Remove horizontal braces and pass down to operatives below.



4. Descend to platform level below and remove top platform.
5. Standing on platform, unlock diagonal brace fixed at upper frame then remove diagonal brace completely.
6. Remove upper frames.

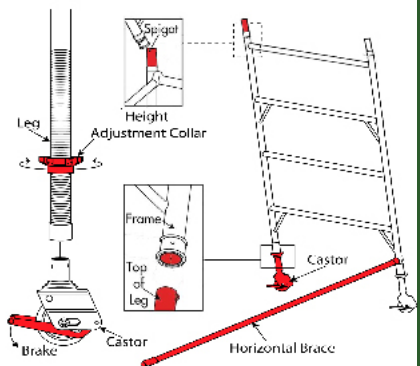
Repeat steps 1 to 7 until dismantle process is complete.

## ODD HEIGHT TOWERS - 3T METHOD

1. Fit two legs and castors (or base plates) to one 4 rung span frame (see illustration) and two legs and castors to one 4 rung ladder frame. Turn the height adjustment collar on each leg until approximately 100mm from the lower end. Insert each leg until the collar is in contact with the frame's tubing.
2. Set each castor brake on by moving the brake lever fully down.
3. Attach two horizontals to the upright of each frame, above the first rung and square the two frames to each other.

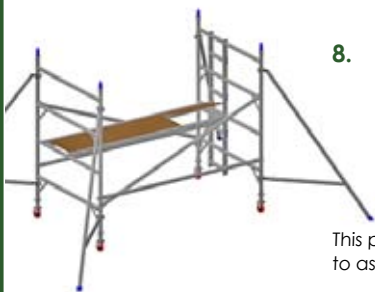
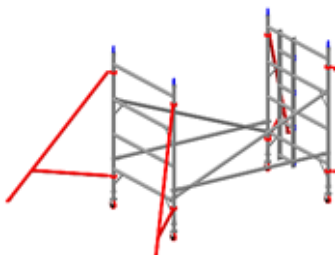
**Note** It may be advantageous to place a platform at low level to assist in "squaring" tower.

4. With the aid of a spirit level, you should now make any necessary adjustments to level the tower by turning the adjustment collar.



## Odd Height Towers

5. Attach two diagonal braces to the bottom rung of each base frame, with one brace being placed so the brace hook is as far to the outer edge as possible, the other brace hook should be placed at least 50mm (one tube width) from outer edge.
6. Then attach the other end of both braces to the third rung on the opposing 2m frame.
7. Fit stabilisers (see Stabilisers section)

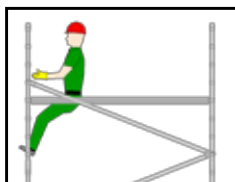


8. Place a trapdoor platform at 1m level (2 rungs from ground) and set to one side of tower.

**Note** The trapdoor platform hinge to be set to outside of tower (temporary only to assist in assembling tower).

This platform may be used temporarily to assist in the erection of the tower.

9. Operative should then climb **through the trap** and rest against the platform (just below base of back) with feet firmly placed on ladder rungs (as shown).



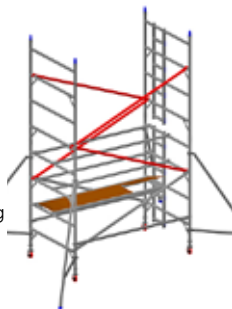
10. Fit horizontal braces to both sides of platform at 1st and 2nd rungs above platform level to form guardrail protection to single platform only.

*It is safe to use the platform when horizontal braces have been locked and secured in place.*

11. Add two more 4 rung frames on top of the existing frames.



12. Attach two diagonal braces from lower frame to upper frame in accordance with bracing pattern.
13. Attach one more diagonal brace from 1st rung to 3rd rung of upper frame.





# Assembly Procedure 1450 Tower - 3T

## Odd Height Towers

14. Place fixed platform initially at 3m level and slide across to opposite side of tower (as shown) from where operative is standing below then place trapdoor platform ensuring that trap is placed at same side to trap on platform below.

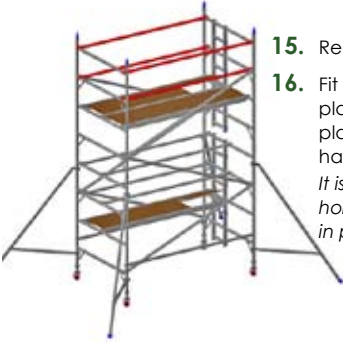
**Note** Ensure that the trapdoor hinge is to the outside edge.



15. Repeat step 9 and climb through the trap.

16. Fit horizontal braces to both sides of platform at 1st and 2nd rungs above platform level to form permanent handrail.

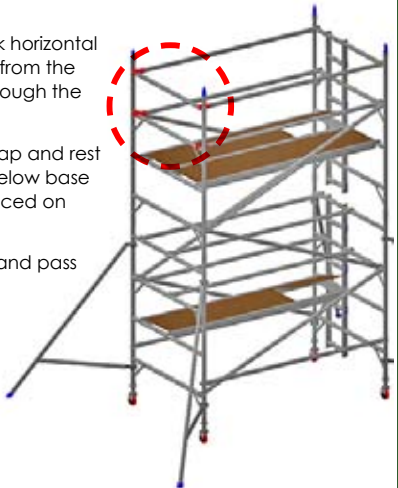
*It is safe to use the platform once horizontal braces are locked and secured in place.*



Repeat steps 11 to 16 until desired height has been reached (max. height 8m outdoors and 12 m indoors).

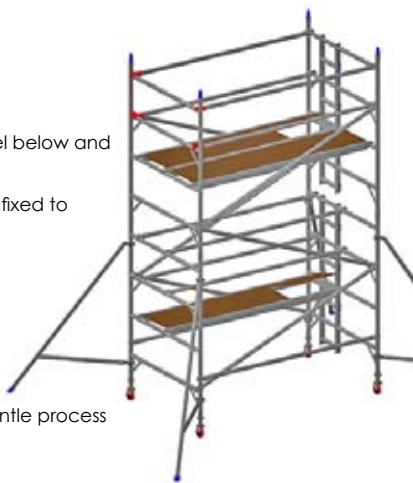
## DISMANTLING THE TOWER

1. At top platform level unlock horizontal braces at furthest positions from the trap before descending through the trap.
2. As before, sit through the trap and rest against the platform (just below base of back) with feet firmly placed on ladder rungs.
3. Remove horizontal braces and pass down to operatives below.



# Assembly Procedure 1450 Tower - 3T

3. Descend to platform level below and remove top platform
4. Remove diagonal brace fixed to upper frames.
5. Remove upper frames.



Repeat steps 1 to 5 until dismantle process is complete.

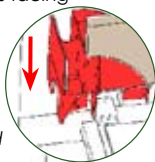
## TRAINING

These instructions do not take the place of proper training. Consult your supplier for details of specific training courses for users of mobile access towers.

## TOEBOARDS

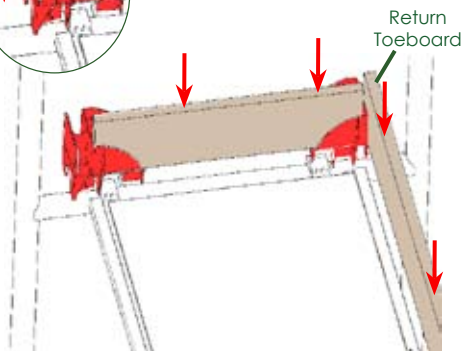
Whichever position the working platform is assembled toeboards must be fitted.

Position toeboard clips facing each other and lock in position over rung by firmly pushing down. *Toeboard clip will automatically engage when pushed down (as shown).*



Fit appropriate size of toeboard into slots on toeboard clips.

Fit toeboard clip at opposite end of return toeboard and fit appropriate size of toeboard into clip slots.



**Repeat this process until entire working platform has toeboard protection.**





For Technical advice (or further information) on BETA Towers, please contact:  
Turner Access Ltd, 65 Craigton Road, Glasgow, G51 3EQ

Tel: +44 (0) 141 309 5555 Fax: +44 (0) 141 309 5436  
Email: [enquiries@turner-access.co.uk](mailto:enquiries@turner-access.co.uk)

# BETA Tower