INTRODUCTION

Please read this guide carefully.
Please note that diagrams are for illustrative purposes only.
User guides are also available to download from our website at youngmangroup.com

BoSS mobile GRP (fibreglass) towers are light-weight scaffold towers for use in Zone 1 applications where aluminium or steel systems are either unsafe or unsuitable. They provide indoor and outdoor access solutions where a stable and secure platform is required. Ideal for maintenance and installation work or short-term access, the highly versatile towers provide a strong working platform for a variety of heights.

This User Guide provides you with step by step instructions to ensure your system is erected easily and safely, using the 3T (Through The Trapdoor) method.

The law requires that personnel erecting towers must be competent. Any person erecting, dismantling or altering a Youngman BoSS mobile tower must have a copy of this guide. For further information on the use of mobile access and working towers consult the PASMA code of practice.

If you need further information, design advice, additional guides or any other help with this product, please contact Youngman on +44 (0)1621 745900 or email sales@youngmangroup.com

COMPLIANCES

The BoSS GRP (fibreglass) tower has been tested and certified to EN 1004: 2004 Class 3.

Instruction Manual EN1298-IM-EN

PREPARATION AND INSPECTION

Inspect the equipment before use to ensure that it is not damaged and that it functions properly. Damaged or incorrect components shall not be used.
STABILISERS / BALLAST

- Stabilisers and ballast weights shall always be fitted when specified.
- The Quantity Schedules show the recommended stabilisation. In circumstances where there is restricted ground clearance for stabilisers contact your supplier for advice. Ballast must be of solid materials (i.e. not water or loose sand) and should not be positioned to overload individual legs. Ballast should be secured against accidental removal where practicable, and be supported on the lowest rungs of the bottom frames.

MOVEMENT

- The tower should only be moved by manual effort, and only from the base.
- When moving the tower, beware of live electrical apparatus, particularly overhead, plus wires or moving parts of machinery.
- No person or materials should be on the tower during movement.
- Caution should be exercised when wheeling a tower over rough, uneven or sloping ground, taking care to unlock and lock castors. If stabilisers are fitted, they should only be lifted a maximum of 25mm above the ground to clear ground obstructions.
- The overall height of the tower when being moved, should not exceed 2.5 times the minimum base dimensions, or 4 metres overall height.
- Before use, check the tower is still correct and complete.
- After every movement of the tower use a spirit level to check that it is vertical and level and set the adjustable legs as required.
- Do not move the tower in winds speeds over 7.7 metres per second (17mph).

DURING USE

- Beware of high winds in exposed, gusty or medium breeze conditions. We recommend that in wind speeds over 7.7 metres per second (17 m.p.h.), cease working on the tower and do not attempt to move it. If the wind becomes a strong breeze, expected to reach 11.3 metres per second (25 m.p.h.), tie the tower to a rigid structure. If the wind is likely to reach gale force, over 18 metres per second (40 m.p.h.), the tower should be dismantled.

<table>
<thead>
<tr>
<th>Wind Description</th>
<th>Beaufort Scale</th>
<th>Beaufort No.</th>
<th>Speed in m.p.h</th>
<th>Speed in m/sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medium Breeze</td>
<td>Raises dust and loose paper, twigs snap off</td>
<td>4</td>
<td>8-12</td>
<td>4-6</td>
</tr>
<tr>
<td>Strong Breeze</td>
<td>Large branches in motion, telegraph wires whistle</td>
<td>6</td>
<td>25-31</td>
<td>11-14</td>
</tr>
<tr>
<td>Gale Force</td>
<td>Walking is difficult</td>
<td>8</td>
<td>39-46</td>
<td>17-21</td>
</tr>
</tbody>
</table>

- Beware of open ended buildings, which can cause funneling effect.
- Do not abuse equipment. Damaged or incorrect components shall not be used.
- Raising and lowering components, tools and/or materials by rope should be conducted within the lower base. Ensure that the safe working load of the supporting decks and the tower structure is not exceeded.
- The assembled tower is a working platform and should not be used as a means of access or egress to other structures.
- The overall height of the tower when being moved, should not exceed 2.5 times the minimum base dimensions, or 4 metres overall height.
- Before use, check the tower is still correct and complete.
- After every movement of the tower use a spirit level to check that it is vertical and level and set the adjustable legs as required.
- Do not move the tower in winds speeds over 7.7 metres per second (17mph).

TIES

- Ties should be used when the tower goes beyond its safe height, beyond the limits of the stabilisers, or if there is a danger of instability. They should be rigid, two way ties fastened to both uprights of the frame with load-bearing right angled or swivel couplers. Only couplers suitable for the 50.8mm diameter tube of the tower should be used. Ideally, ties should be secured to both faces of a solid structure by means of anchorages.
- The tie frequency may vary depending on the application, but they should, at a minimum, be every 4 metres height.
- For further information on tying-in a tower please contact your supplier or Youngman.

MAINTENANCE - STORAGE - TRANSPORT

- All components and their parts should be regularly inspected to identify damage, particularly joints. Lost or broken parts should be replaced and any tubing with cracks should not be used. Adjustable leg threads should be cleaned and lightly lubricated to keep them free running.
- Brace claws, frame interlock clips, trapdoor catches and platform windlocks should be regularly checked to ensure they lock correctly.
- Components should be stored with due care to prevent damage. Frames and decks should be stored in the vertical position.
- Ensure components are not damaged by excessive strapping forces when transported.
**Quantity Schedule**

### BoSS ZONE 1 to EN 1004: Available in 2 lengths - 1.8m and 2.5m

**Internal/External Use - Towers under 2.5m are outside of the scope of EN1004**

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>1.8</th>
<th>2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.8m Side Toeboard</td>
<td>3.18</td>
<td>4.42</td>
</tr>
<tr>
<td>1.8m End Toeboard</td>
<td>2.11</td>
<td>2.11</td>
</tr>
<tr>
<td>Small Stabiliser</td>
<td>4.7</td>
<td>4.7</td>
</tr>
<tr>
<td>Large Stabiliser</td>
<td>5.5</td>
<td>5.5</td>
</tr>
<tr>
<td>1.8m/2.5m Fixed Deck</td>
<td>17</td>
<td>23</td>
</tr>
<tr>
<td>1.8m/2.5m Trap Deck</td>
<td>19</td>
<td>25</td>
</tr>
<tr>
<td>1.8m/2.5m Horizontal Brace</td>
<td>2</td>
<td>2.4</td>
</tr>
<tr>
<td>1.8m and 2.5m Horizontal Brace (red)</td>
<td>6</td>
<td>6.6</td>
</tr>
<tr>
<td>1.8m and 2.5m Fixed Deck</td>
<td>23</td>
<td>31</td>
</tr>
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<td>31</td>
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</table>

**Note:** Above 8.2m it is necessary to reposition platforms during the assembly and dismantling process to reduce the self-weight of the tower and optimise the maximum safe working load.

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**Quantity Schedule**

### BoSS ZONE 1 to EN 1004: Available in 2 lengths - 1.8m and 2.5m

**Internal/External Use - Towers under 2.5m are outside of the scope of EN1004**

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</tr>
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<td>Large Stabiliser</td>
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<td>23</td>
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<td>31</td>
<td>31</td>
</tr>
<tr>
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<td>2.4</td>
</tr>
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<tr>
<td>1.8m and 2.5m Trap Deck</td>
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</tr>
</tbody>
</table>

**Note:** Above 8.2m it is necessary to reposition platforms during the assembly and dismantling process to reduce the self-weight of the tower and optimise the maximum safe working load.
**Quantity Schedule**

### 1450 Width Towers

**NUMBER OF WORKING PLATFORMS ALLOWED**

The MAXIMUM SAFE WORKING LOAD (the combined weight of the users, tools and materials) that may be placed on the tower is the total weight less the self weight of the tower. The total weight for the towers shown in the schedule is 720kg.

**Example 1:**

A 1450 tower built using the 3T method with a 4.2m platform height and a platform length of 1.8m has a self weight of 234kg.

\[
720kg \quad \text{total weight} - 234kg \quad \text{self weight} = 486kg \quad \text{maximum safe working load}
\]

**Example 2:**

A 1450 tower built using the 3T method with a 11.7m platform height and a platform length of 2.5m has a self weight of 560kg.

\[
720kg \quad \text{total weight} - 560kg \quad \text{self weight} = 160kg \quad \text{maximum safe working load}
\]

Above 8.2m it is necessary to reposition platforms during the assembly and dismantling process. This reduces the number of components and self weight of the tower to optimise the maximum safe working load.

For greater heights and loads, consult Youngman for guidance.

**PLATEFORM LOADING**

On a 1450 tower a platform comprises of two decks placed side by side. The maximum safe working load (the combined weight of the users, tools and materials) that may be placed on a platform is 225kg. This must be evenly distributed over both decks.

The quantities on pages 7 and 8, will enable BoSS Zone 1 towers to be built safely and therefore comply with the requirements of the Work at Height Regulations. They include double guardrails to both platforms, and toeboards will need to be added if any levels are used as working platforms and for storage of materials. EN 1004 requires platforms at least every 4m, and these measures will exceed that requirement.

---

**Quantity Schedule**

### 850 Width Towers

**BALLAST: Internal/External Use**

There is no requirement for ballast on 1450 towers if using stabilisers as detailed in the table on page 8.

**STABILISERS**

To improve rigidity, large stabilisers can be used at a lower level than shown in the table on page 8.

**Platform Loading**

On a 1450 tower a platform comprises of two decks placed side by side. The maximum safe working load (the combined weight of the users, tools and materials) that may be placed on a platform is 225kg. This must be evenly distributed over both decks.

The quantities on pages 7 and 8, will enable BoSS Zone 1 towers to be built safely and therefore comply with the requirements of the Work at Height Regulations. They include double guardrails to both platforms, and toeboards will need to be added if any levels are used as working platforms and for storage of materials. EN 1004 requires platforms at least every 4m, and these measures will exceed that requirement.
BALLAST: Internal/External Use

Stabiliser requirements are based on calculations from EN 1004:

1. up to 8.2m (platform height) the stabilisers and ballast are shown for external use.
2. Above 8.2m the schedule is for internal use only.

For internal use only towers may be erected up to 12.2m without ballast. For greater rigidity, fit large stabilisers at a lower height.

STABILISERS

To improve rigidity, larger stabilisers can be used at a lower level than shown in the table on page 12.

<table>
<thead>
<tr>
<th>Angle of Stabiliser</th>
</tr>
</thead>
<tbody>
<tr>
<td>45°</td>
</tr>
</tbody>
</table>

NUMBER OF WORKING PLATFORMS ALLOWED

The MAXIMUM SAFE WORKING LOAD (the combined weight of the users, tools and materials) that may be placed on the tower is the total weight less the self weight of the tower. The total weight for the towers shown in the schedule is 720kg.

Example 1:

An 850 tower built using the 3T method with a 4.2m platform height and a platform length of 1.8m has a self weight of 168kg.

\[
\text{720kg} - \text{168kg} = 552\text{kg maximum safe working load (users, tools and materials)}
\]

Example 2:

An 850 tower built using the 3T method with a 11.7m platform height and a platform length of 2.5m has a self weight of 442kg.

\[
\text{720kg} - \text{442kg} = 278\text{kg maximum safe working load (users, tools and materials)}
\]

For greater heights and loads, consult Youngman for guidance.

PLATFORM LOADING

On an 850 tower a platform comprises of a single deck only. The maximum safe working load (the combined weight of the users, tools and materials) that may be placed on a platform is 225kg, evenly distributed over the deck.

The quantities on pages 11 and 12, will enable BoSS Zone 1 towers to be built safely and therefore comply with the requirements of the Work at Height Regulations 2005. They include double guardrails to all platforms, and toeboards will need to be added if any levels are used as working platforms and for storage of materials. EN 1004 requires platforms at least every 4m, and these measures will exceed that requirement.
Assembly Procedure

ASSEMBLY AND DISMANTLING PROCEDURES

When building a BoSS ZONE 1 Tower:
- To comply with the Work at Height Regulations we show assembly procedures with platforms every 2 metres in height, and, the locating of guardrails in advance of climbing onto a platform to reduce the risk of a fall.
- All platforms feature double guardrails on both faces of the tower.
- All guardrails should be 1 and 2 rungs (0.5m and 1.0m) above platforms.
- Never stand on an unguarded platform positioned above the first rung of a tower. If your risk assessment shows it is necessary, you may also need to guardrail platforms at this level.
- Always start building with the smallest height frames at the base of the tower:

<table>
<thead>
<tr>
<th>Platform Heights in Metres</th>
<th>Frame at base</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.7, 2.2, 3.7, 4.2, 5.7, 6.2, 7.7, 8.2, 9.7, 10.2, 11.7, 12.2</td>
<td>2 rung</td>
</tr>
<tr>
<td>2.7, 4.7, 6.7, 8.7, 10.7</td>
<td>3 rung</td>
</tr>
<tr>
<td>1.2, 3.2, 5.2, 7.2, 9.2, 11.2</td>
<td>4 rung</td>
</tr>
</tbody>
</table>

Where all 3 frame heights are used in a tower, start with 2 rung frames at the base, with the 3 rung frames next and the 4 rung frames on the top. Refer to the quantity schedules for detail.

TO DISMANTLE A BoSS ZONE 1 TOWER
- Remove toeboards and pass down the tower.
- Unclip farthest end of braces and immediately go to protected trapdoor position on ladder to complete removal.
- Remove upper platforms from protected platform levels below.
- Pass removed components to a colleague.

Safety Checklist

CHECKLIST

- Ensure all brace claws operate and lock correctly prior to erection
- Inspect components prior to erection
- Inspect tower prior to use and after movement
- Tower upright and level
- Castors locked and legs correctly adjusted
- Diagonal braces fitted
- Stabilisers fitted as specified
- Platforms located correctly
- Toeboards located
- Check guardrails are fitted correctly. See illustration below.

Assemble frame interlock clips are locked. See illustration below.

Ensure horizontal braces and guardrails are fitted correctly. Always fit as shown.

Refer to this checklist before using each time

Assembly Procedure

ASSEMBLY FOR 1450 TOWERS

Always start building with the smallest height frames at the base of the tower:

<table>
<thead>
<tr>
<th>Platform Heights in Metres</th>
<th>Frame at base</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.7, 2.2, 3.7, 4.2, 5.7, 6.2, 7.7, 8.2, 9.7, 10.2, 11.7, 12.2</td>
<td>2 rung</td>
</tr>
<tr>
<td>2.7, 4.7, 6.7, 8.7, 10.7</td>
<td>3 rung</td>
</tr>
<tr>
<td>1.2, 3.2, 5.2, 7.2, 9.2, 11.2</td>
<td>4 rung</td>
</tr>
</tbody>
</table>

Where all 3 frame heights are used in a tower, start with 2 rung frames at the base, with the 3 rung frames next and the 4 rung frames on the top. Refer to the Quantity Schedules for detail. The procedure illustrated shows a 4.2m platform height tower starting with a 2 rung frame.

Youngman recommend two persons are used to build BoSS Towers. Above 4m height, it is essential that at least two persons are used. Only climb the tower from the inside.

1 Push castor onto adjustable leg to secure. Insert 2 adjustable leg/castor assemblies into span frame. Base plates can be fitted to adjustable legs if it is not necessary to move the tower.
Assembly Procedure

2 Fit one horizontal brace (red) onto the vertical of the span frame, just above the bottom rung, with the claw facing outwards. The frame will now be self supporting.

3 Position the ladder frame as shown and fit the other end of the horizontal brace onto the vertical, just above the bottom rung. Fit a second horizontal brace between the bottom rungs on the other side of the frames to square the tower.

4 Fit 2 additional end frames and check the frame interlock clips are engaged. Fit 2 diagonal braces in opposing directions between the 1st and 3rd rungs. Ensure the frames are vertical and level by checking with a spirit level and setting the adjustable legs as required. IMPORTANT. Only use the adjustable legs to level the tower and not to gain extra height. Fit a temporary fixed deck on the lowest rungs of the tower. Fit the stabilisers.

5 Fit 2 more diagonals in opposite directions between the 3rd and 5th rungs of the tower. Fit a trapdoor deck on the 4th rungs of the tower with the trapdoor next to the ladder and opening towards the outside of the tower. Fit a fixed deck alongside it. Climb the ladder and, from the protected trapdoor position, fit horizontal braces as guardrails on the 5th and 6th rungs, on both sides of the tower. NEVER climb on to the platform until it is fully guarded. Guardrails should be 0.5m and 1.0m (1 and 2 rungs) above the platform in all cases. Remove the temporary deck from the lowest rungs of the tower.
Assembly Procedure

6  Add 2 more frames. Ensure ladders are always positioned one above the other.

7  Fit 2 more diagonals between the 5th and 7th rungs. Fit a trapdoor deck on the 8th rungs of the tower. Fit a fixed deck next to it.

Assembly Procedure

8  Fit 2 more diagonals between the 7th and 9th rungs. Climb the ladder and from the protected trapdoor position, fit 4 more guardrails on the 9th and 10th rungs.

Assembly Procedure

9  Repeat the previous steps until the required height of tower is reached. Fit a single diagonal at the top of the tower as shown. Fit the toeboards. The tower is now complete.
Assembly Procedure

For 1450 width towers over 8.2m it is necessary to reposition platforms during the assembly and dismantling process to reduce the number of components and optimise the safe working load of the tower.

IMPORTANT: It is not necessary to reposition guardrails. Diagonals and stabilisers are omitted in this diagram for clarity.

Dismantling Procedure

To take down the tower reverse the building sequence. When removing guardrail braces, unlock the 4 claws furthest from the trapdoor and then return immediately to the protected position within the trapdoor. You may then unlock the claws at the other ends of the guardrails to remove them from the tower.

Assembly Procedure

ASSEMBLY FOR 850 TOWERS

Always start building with the smallest height frames at the base of the tower:

<table>
<thead>
<tr>
<th>Platform Heights in Metres</th>
<th>Frame at base</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.7, 2.2, 3.7, 4.2, 5.7, 6.2, 7.7, 8.2, 9.7, 10.2, 11.7, 12.2</td>
<td>2 rung</td>
</tr>
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<td>2.7, 4.7, 6.7, 8.7, 10.7</td>
<td>3 rung</td>
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<tr>
<td>1.2, 3.2, 5.2, 7.2, 9.2, 11.2</td>
<td>4 rung</td>
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</table>

Where all 3 frame heights are used in a tower, start with 2 rung frames at the base, with the 3 rung frames next and the 4 rung frames on the top. Refer to the quantity schedules for detail. The procedure illustrated shows a 3.2m platform height tower starting with a 4 rung frame.

1. Insert adjustable leg/caster assemblies into end frames and lock the castors, see diagram step 1 (page 17). Base plates can be fitted to the adjustable legs if it is not necessary to move the tower. Fit 2 horizontal braces to the 850 end frames as shown in steps 2 and 3 for the 1450 tower procedure (page 18).

2. Fit a trap door deck on the 2nd rung with the trap door next to the ladder. Fix guardrails on the 3rd and 4th rungs on both sides of the tower.
3. Fit 2 diagonal braces in opposing directions between the 1st and 3rd rungs. Ensure the frames are vertical and level by checking with a spirit level and setting the adjustable legs as necessary. Fit stabilisers (see notes on page 30). Fit the next pair of end frames and check the frame interlock clips are engaged. IMPORTANT: Only use the adjustment on the legs to level the tower and not to gain extra height.

4. Fit 2 pairs of diagonal braces in opposing directions between the 3rd and 5th rungs and the 5th and 7th rungs. Locate a trapdoor deck on the 6th rung, with the trapdoor next to the ladder.

5. Climb up the inside of the tower and from the protected position of the trapdoor, fit guardrails to the 7th and 8th rungs (in that order) on both sides of the tower.
Assembly Procedure

6  Continue the procedure until the required working height is reached, adding additional pairs of end frames, diagonal braces and fitting trapdoor platforms, as shown on previous steps. At every platform level, add horizontal braces as guardrails from the protected position within the trapdoor, (as shown in step 5).

Fit a single diagonal at the top of the tower as shown.

Fit the toeboards

The tower is now complete.

Dismantling Procedure

7  To take down the tower reverse the building sequence. When removing guardrail braces, unlock the 4 claws furthest from the trapdoor and then return immediately to the protected position within the trapdoor. You may then unlock the claws at the other ends of the guardrails to remove them from the tower.

Stabilisers

Attach one stabiliser to each corner of the tower and fully extend telescopic sections. Secure top and bottom clamps. Ensure clamps are rigidly fixed to prevent movement.

When moving tower, check for obstructions and lock feet a maximum of 25mm off the ground. Unlock the castors, and move tower. After moving check all castors are locked and stabilisers are repositioned and in good contact with the ground.