



2/2/2025

# RAPTOR BASKETBALL UNIT

Installation, Operation &  
Maintenance Manual

**PLAY HARD SPORTS EQUIPMENT**

13 Alex Fisher Drive  
Burleigh Heads, QLD 4220

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## Introduction

Thank you for choosing the Raptor Side Swing Basketball System from Play Hard Sports Equipment Australia. Our Basketball Towers are designed for durability and performance and are suitable for commercial use.

This manual provides detailed information on the installation, maintenance, usage, and warranty details of the Raptor Side Swing Basketball Tower supplied by Play Hard Sports Equipment Australia.

### Product Details:

The Raptor Side Swing Basketball Tower is an innovative multipurpose sports equipment designed for courts where space optimization is crucial. Manufactured by Play Hard Sports Equipment Australia, this versatile tower is ideal for facilities that host multiple sports activities, such as basketball, volleyball, netball, futsal and tennis. The tower has been load-tested, engineered, and certified by Structural Engineers.

### Key Features:

- **Single Pole Design:** Requires only one hole for installation, minimizing court disruption.
- **Side Swing Functionality:** Folds flat in line with the pole when not in use, maximizing court space.  
*The arms always swing to the right. Based on the court layout, it can be designed to swing to the left.*
- **Multiple Size Options:** Available in various outreach lengths to accommodate different court sizes.

### Product Specifications:

- **Models:**
  1. Standard Raptor
    - Raptor 420 (Suits 34m Tennis Courts) with 178 SQ Alum Pole
    - Raptor 445 (Suits 34.5m Tennis Courts) with 178 SQ Alum Pole
  2. Raptor – E (Suits Tennis Courts Longer than 34.5m) with 200 SQ Steel Pole
  3. Raptor – BP with 200 SQ Steel Pole
- **Height:**  
**Standard Ring/Hoop Height:** 3.05 meters; can be modified for junior height with the addition of SHFr height adjusting frame (optional)
- **Footing Option:**  
Depending on the model, the tower can be concreted directly into the ground, or base-plated.
- **Footing Size:** 600 Diameter 1400mm Deep Bored Pier with N20 Concrete
- **Material:** 178 SQ Alum Pole or 200 SQ Steel Pole and 150 x 50 RHS Extension Arm are made from Steel and then hot-dip galvanised after fabrication.
- **Basketball Ring:**
  - R11b/ProRim
  - OzRing
- **Net Tie System:** Patented Waverail system
- **Backboard:** Regulation Size 1800mm x 1050mm
  - B1810p: Polyboard Backboard
  - B1810a: Acrylic Backboard
  - B1810g: Glass Backboard
- **Turning Tool:**
  - Raptor Turning Tool

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- **Color Options:** Standard Hot-Dip Galvanized. Various paint color options are available on request.
- **Padding Options:** BP178s or BP200s
  - 2.06m high x 360 mm round cylindrical foam
  - Vertical Velcro Seam at rear
  - Multiple colours are available, and your logo can be added too

Apart from our standard product range, we offer custom basketball towers based on site-specific requirements. Please contact our team for further details.

All our product footings have been engineered to be suitable for site soil classification as Class 'A', 'S' & 'M' per AS2870. Site-specific footing and slab engineering must be done for other Soil Classes. We also offer site-specific engineering drawings if required with additional charges.



*Figure 1: Raptor Side Swing Tower in a Multi-Court*

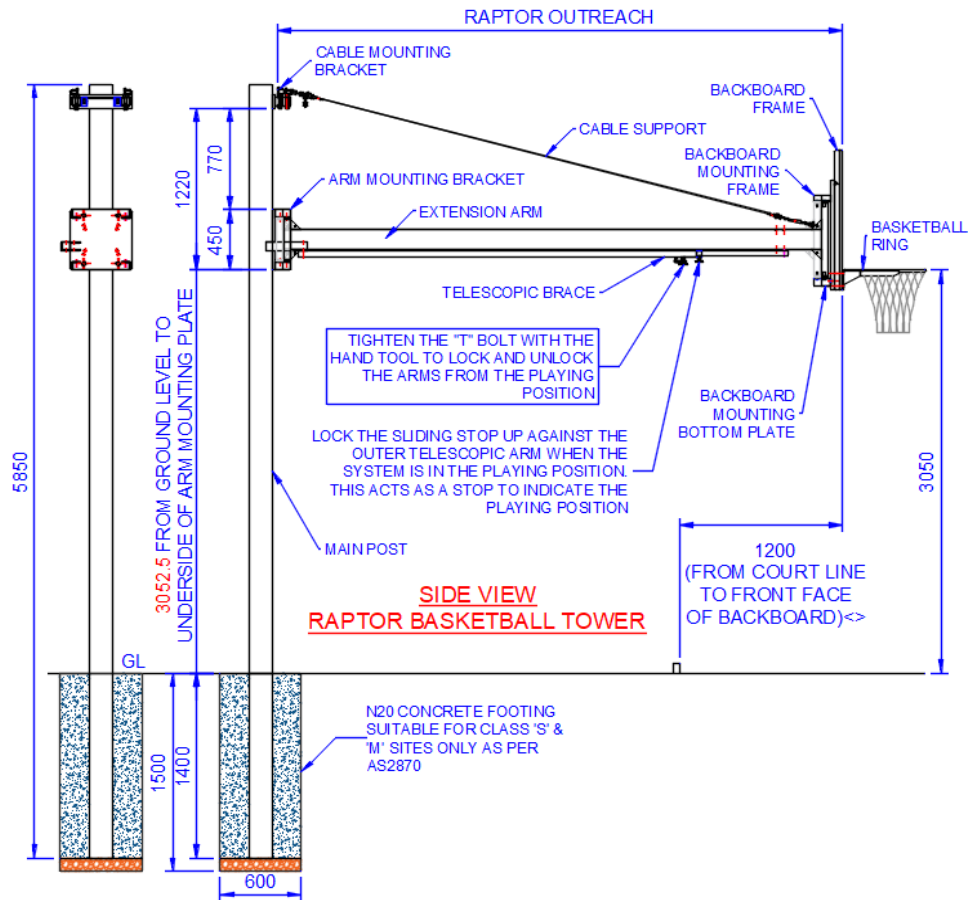
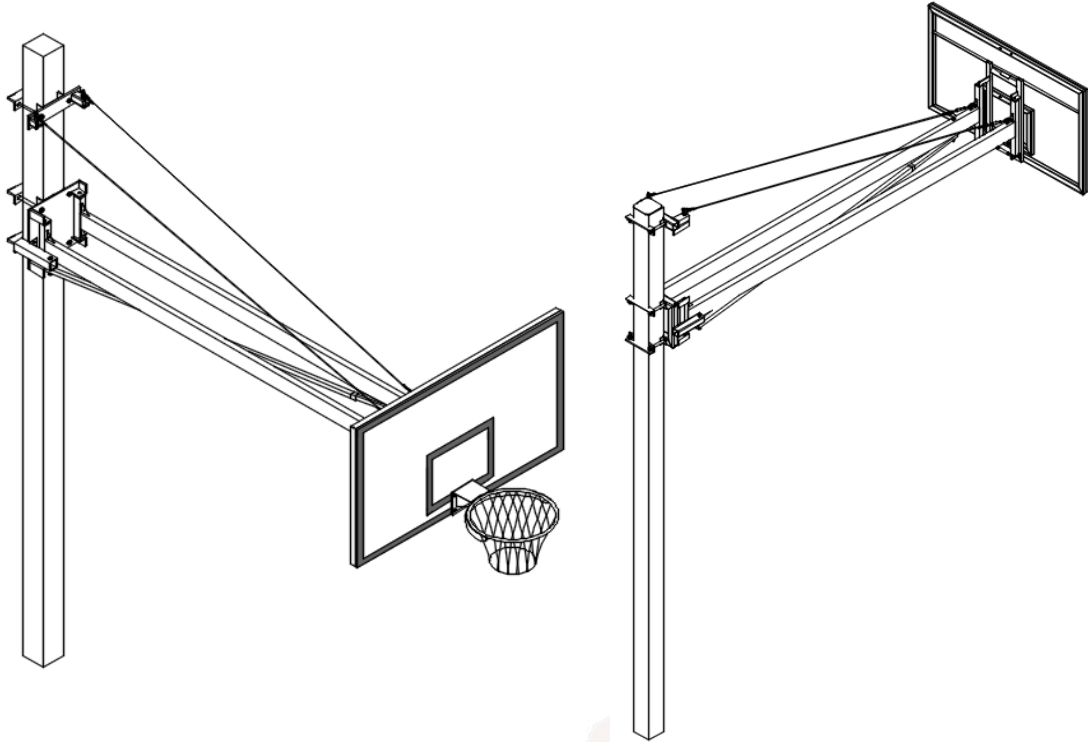


Figure 2: RAPTOR SIDE SWING BASKETBALL TOWER

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## Safety Information for the Installer:

### Important Safety Information

- **Read the Manual:** Ensure you read this manual in full before beginning assembly or installation.
- **Supervision:** Children should be supervised around the tower location during and after installation.
- **Wear Safety Gear:** Always wear appropriate safety gear during assembly and installation.
- **Avoid Electrical Hazards:** Keep electrical tools away from the goalposts and ensure the work area is dry.

### Assembly Precautions

- **Two-Person Job:** Assembly requires at least two people to ensure safety and accuracy.
- **Check Parts:** Verify all parts are present and undamaged before starting assembly.
- **Level Ground:** Assemble on a flat surface to avoid instability.

### Site Specific Precautions:

- Before commencing any groundwork, please survey the ground/field for underground electrical, water, or sewage lines and check for overhead electrical lines.
- It is advised that the soil is tested to know its strength. All our Goalposts have been structurally designed to suit 'A', 'S' & 'M' Soils per AS2870. The contractors/installers must notify Play Hard Sports Equipment of any changes to the site specification. All other soil sites would require site-specific footing and slab engineering design.
- The concrete must be of a minimum 20 MPA, with a slump of 80 – 100 mm, and a maximum aggregate of size 20mm.
- Let the concrete set for at least 4 days before commencing further work.

### Lifting Aid:

- It is advised to use a lifting aid to lift the pole and pace into the hole.
- Please use Scissor Lifts or similar to install the extension arm.

## Component List

Note: Please check your order. If any parts are missing, please call us immediately. Some of the components and bolts are pre-assembled.

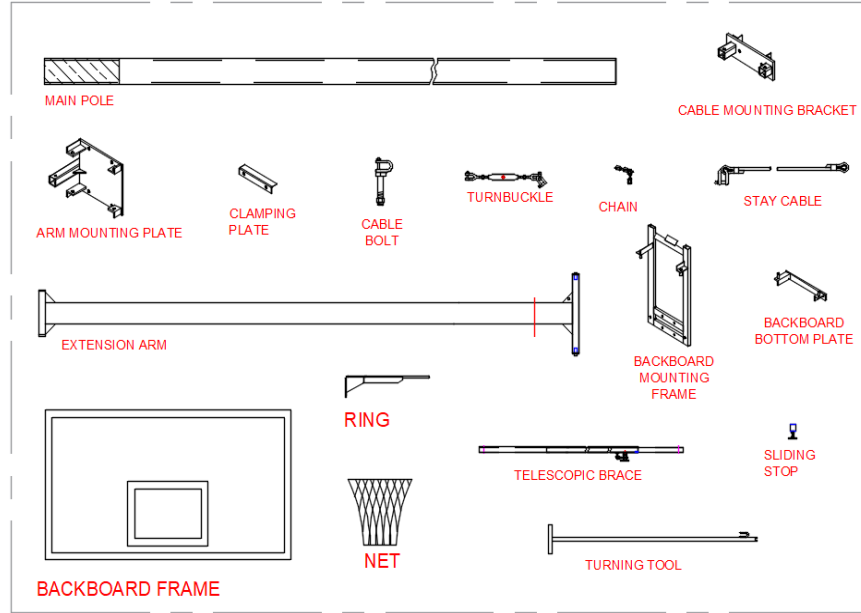


Figure 3: Typical Raptor Basketball Tower Parts List

Components	Quantity per Tower	
	RAPTOR	RAPTOR-E RAPTOR-BP
Main Post	178 SQ - 1	200 SQ - 1
Cable Mounting Bracket	1	1
Arm Mounting Bracket	1	1
Clamping Plate	1	1
Cable Bolt	1	1
Turnbuckle, Chain Link & Stay Cable	1	1
Extension Arm	1	1
Backboard Mounting Frame	1	1
Backboard Mounting Bottom Plate	1	1
Telescopic Brace & Sliding Stop	1	1
Turning Tool	1	1
Backboard Frame	1	1
Ring	1	1
<b>Bolt Kit</b>		
M20 x 400 mm H.T. Gal Hex Bolt, Flat Washer & Nyloc Nut	2	2
M20 x 240 mm H.T. Gal Hex Bolt, Flat Washer & Nyloc Nut	6	0
M20 x 260 mm H.T. Gal Hex Bolt, Flat Washer & Nyloc Nut	0	6
M16 x 240 mm H.T. Gal Hex Bolt, Flat Washer & Nyloc Nut	1	1
M16 x 150 mm All Threaded Gal Hex Bolt, Flat Washer & Nyloc Nut	1	1
M12 x 50 mm Gal Hex Bolt, S/Washer & Nut	2	2
M10 x 110mm Gal Hex Bolt, S/Washer, Nut & Double Washer	4	4
M20 Nylon Washer & M16 Nylon Washer	4 ea.	4 ea.

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# Footing Details

## 1. Raptor Footing Details

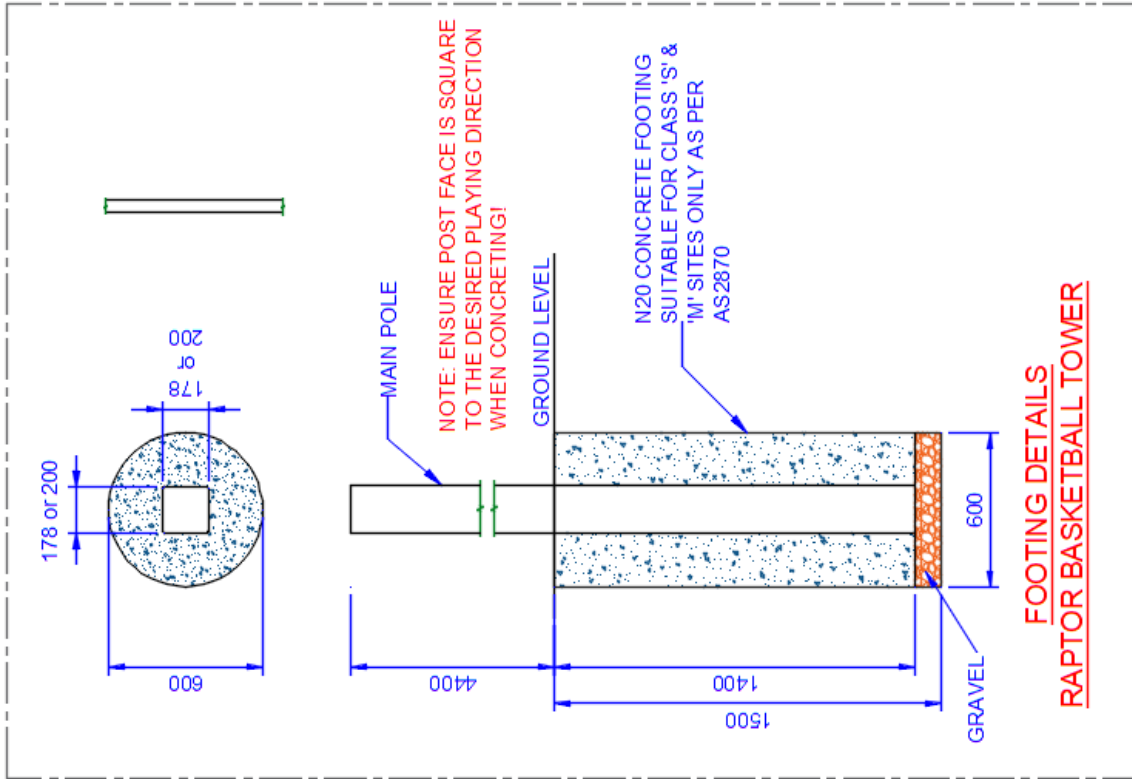


Figure 4: Raptor Footing Detail

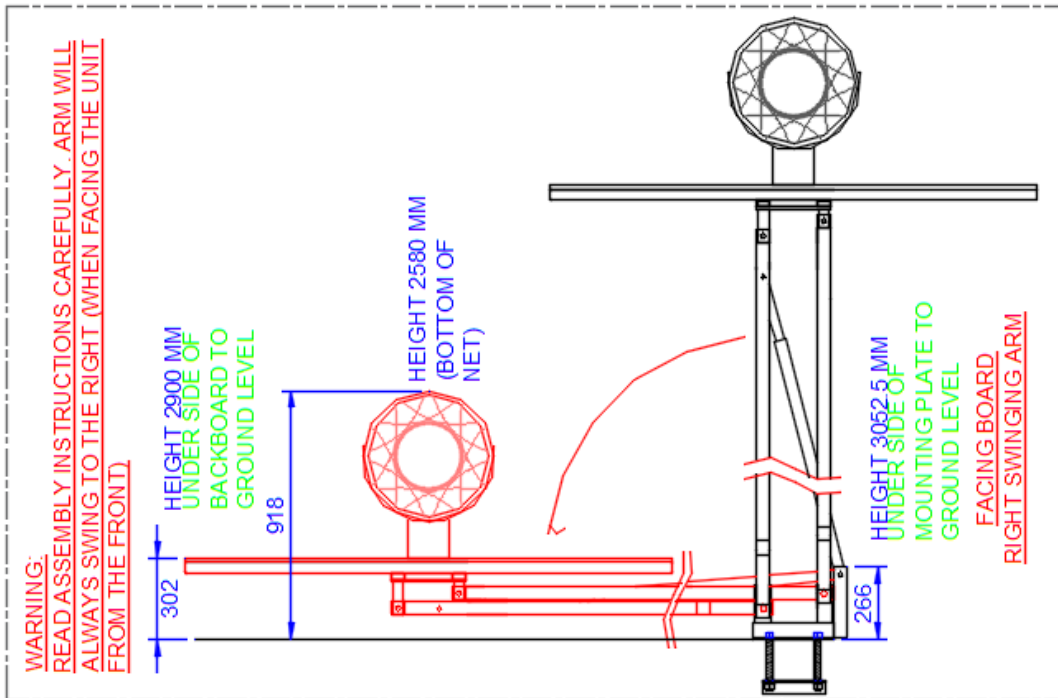


Figure 4: Raptor Side Swing Details

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## 2. Raptor-BP Footing Details

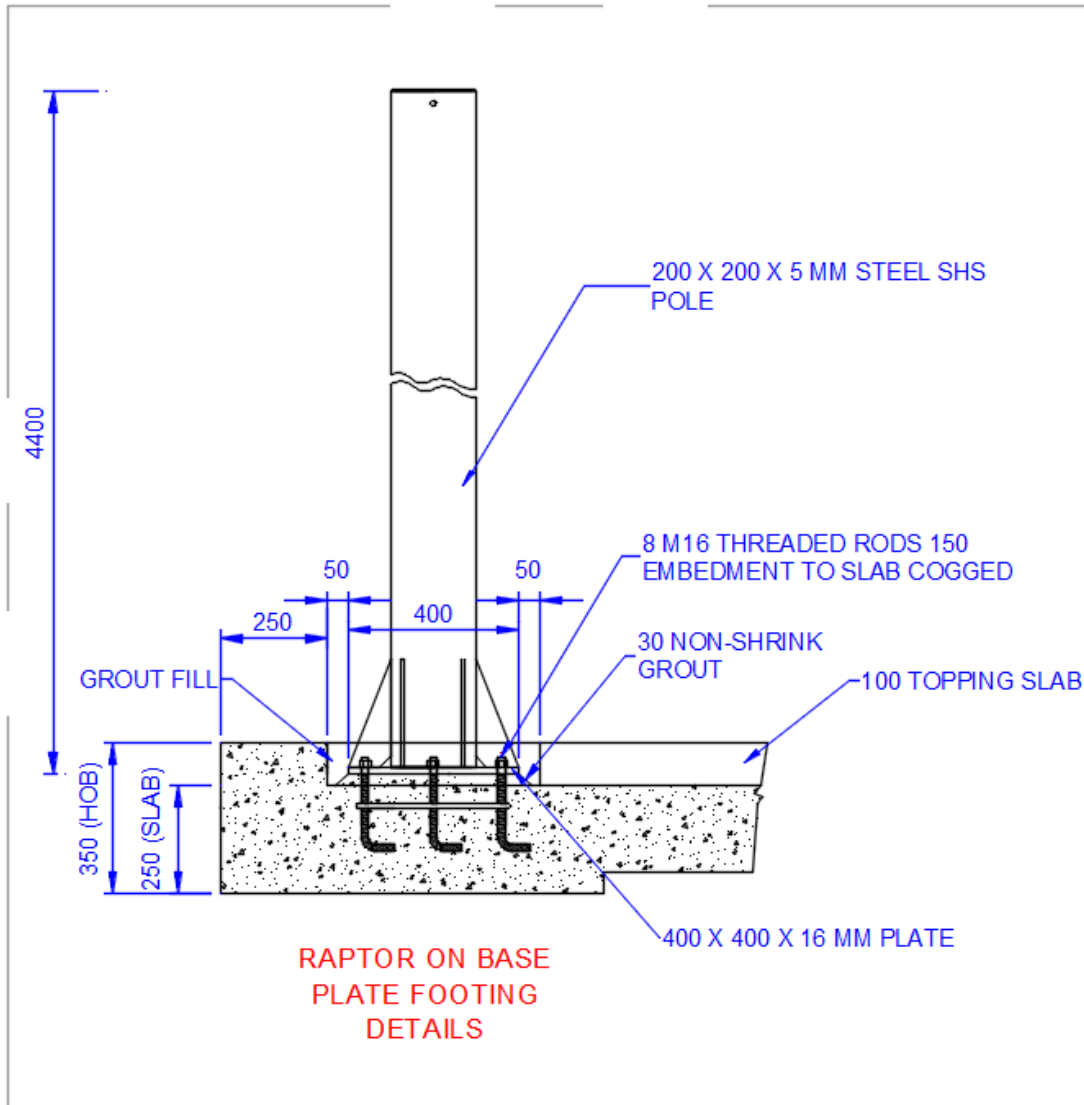


Figure 5: Typical Raptor-BP Footing Detail

**Note:** This is a reference footing detail for the raptor on a base plate. All Raptors on BP must be re-engineered as per the site slab condition for additional costs.

### Installation Instructions:

#### 1A. Site Preparation:

- Before commencing any groundwork, please survey the ground/field for any underground electrical line, water line and sewage line. Also, check for any overhead electrical lines.
- It is advised that the soil is tested to know its strength. All our towers have been structurally designed to suit 'A', 'S' & 'M' Soils per AS2870. The contractors/installers must notify Play Hard Sports Equipment of any changes to the site specification. All other soil sites would require site-specific footing and slab engineering design.

## 1B. Post Installation:

### A. Raptor/Raptor-E Concreted to the Ground:

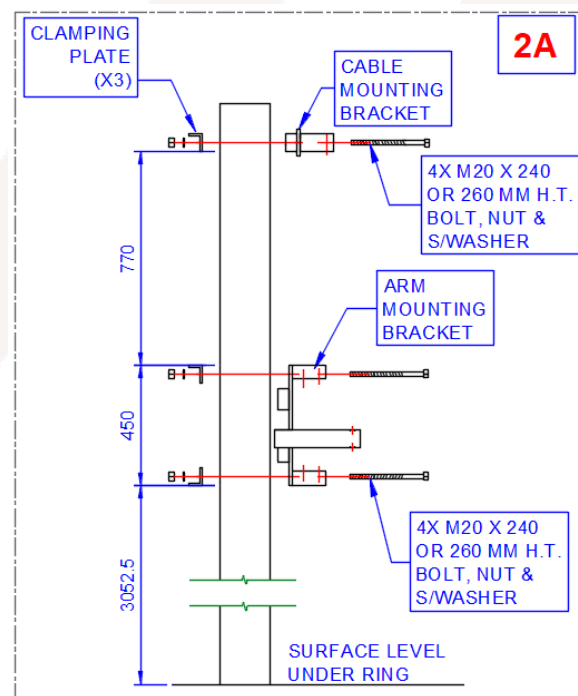
- Bore Drill a 600 mm Diameter and 1000 mm Deep Hole.
- If the Ground Level at the hole position is lower than the playing surface, box up around the hole site to achieve the concrete depth of 1000mm. *(Please be mindful that only 100mm of box-up is acceptable)*
- Insert the main post into the hole and ensure it is centred, correctly oriented and at a correct distance from the basketball court.
  - *Please refer to Figure 3 for further details. The post must be installed in a specific orientation as shown in the Figure, and the Installer/Contractor is responsible for ensuring that.*
- Pour the concrete into the hole. *(Prevent any concrete from getting inside the post)*
- Ensure the post is fixed while pouring the concrete into the hole.
- The concrete must be of a minimum 20 MPA, with a slump of 80 – 100 mm, and a maximum aggregate of size 20mm.
- Trowel the concrete sloping away from the pole to prevent water from pooling around the post base.
- While the concrete mix is fresh, use a spirit level to check that the post is level in all axes.
- Let the concrete set for at least 4 days before commencing further work.

### B. Raptor-BP:

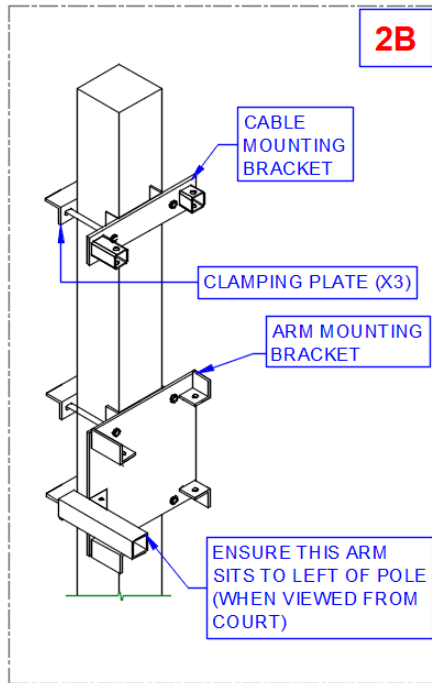
- The Raptor-BP post installation depends on specific site location and each footing must be engineered.
- Please contact our team for further details.

## 2. Attaching Mounting Plates:

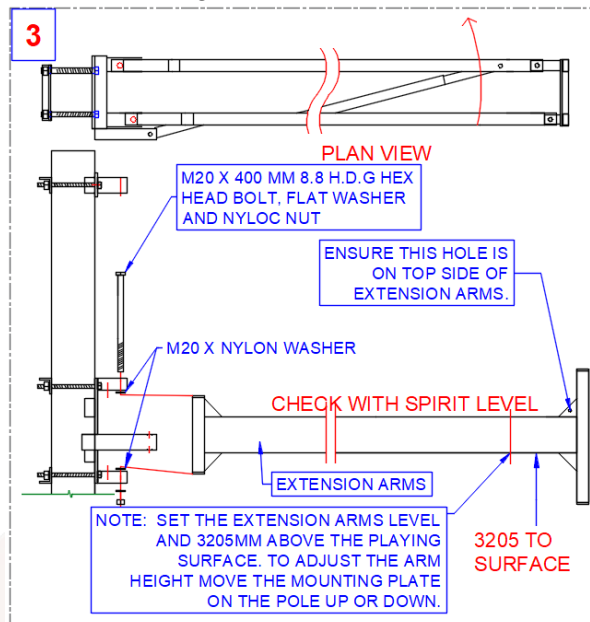
- Once the concrete is set, attach the extension arms mounting plate and cable mounting bracket to the post.



- Use the supplied M20 X 240 or 260 mm H.T. Gal Hex Bolt and the angle clamping plates to attach the plates.
- Ensure the plates are installed at the correct height.

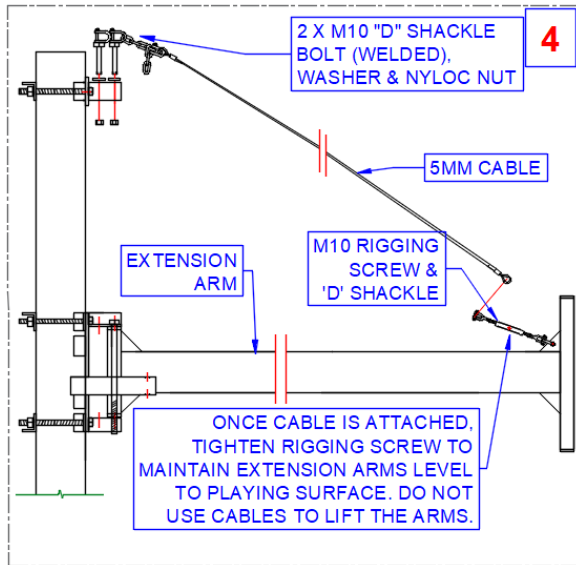


- Align the bolt holes and insert the nuts without damaging the bolt threads.
- Run all the nuts up the bolt shaft until finger tight and use wrenches to tighten the bolts to achieve a snug fit.



### 3. Attaching the Extension arm:

- To attach the extension arms to the mounting plates, use the supplied M20 x 400 mm H.T. Gal Hex Bolt, and Nyloc Nut.
- Do not forget to put an M20 nylon washer on either side of the arm bracket that attaches to the plate.
- Check to ensure the arms are at the correct height from the playing surface.
- **Adjust the mounting plate height if necessary.**

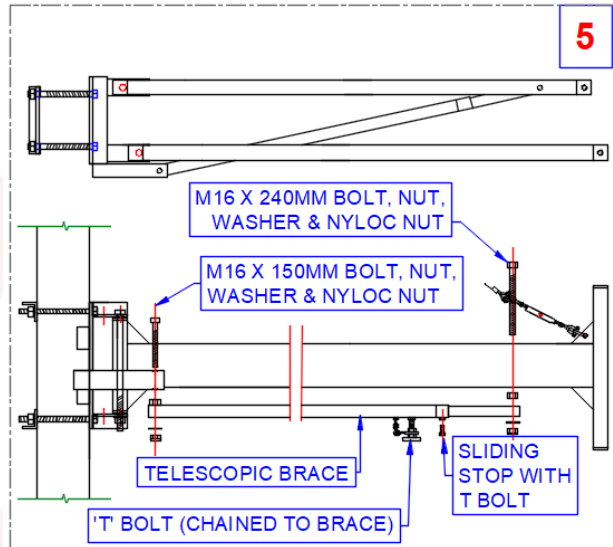


**4. Attaching the Cable Bracket:**

- Insert the supplied cable bolt (M10 'D' Shackle Welded to M20 H.T. Bolt).
- Then, attach the stay cable, chain link and rigging screw to both the extension arms as per the orientation shown in the figure.
- Use the rigging screw to ensure that the arms are level. *Check with Spirit Level.*

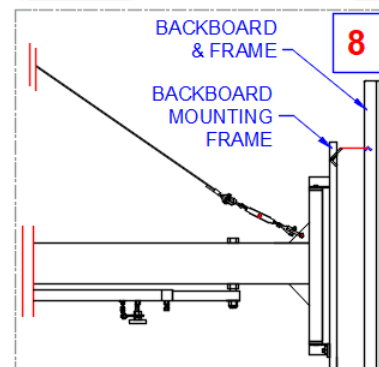
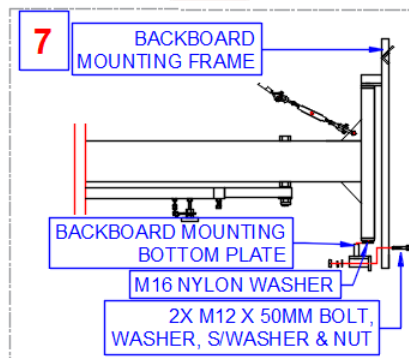
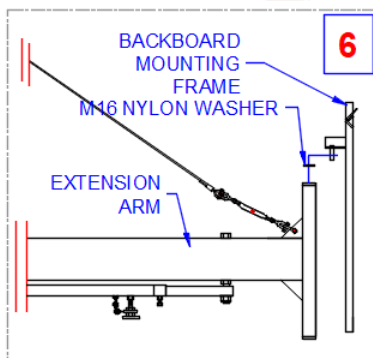
**5. Attaching the Telescopic Brace:**

- Then attach the telescopic brace to the frame.
- Use an M16 x 150 mm Bolt, Washer & Nyloc Nut to attach the bigger section of telescopic brace to the arm at the mounting plate.
- Then, slide the sliding stop over the telescoping arm as shown, this is critical to ensure that the brace will work as intended.
- Then, attach the telescoping arm to the extension arm farthest to the mounting plate arm using M16 x 240 mm Bolt, Washer & Nyloc Nut.



**6. Attaching the Backboard Mounting Frame:**

- Sit the backboard mounting frame to the extension arms.
- Use the Nylon washer in between.



### 7. Attaching the Backboard mounting bottom plate:

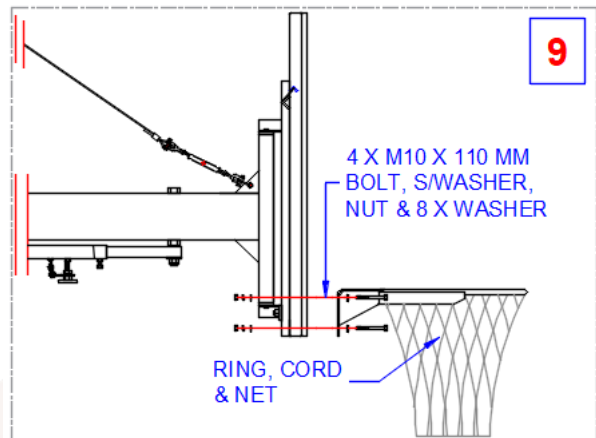
- Lock the backboard mounting frame to the extension arm using the bottom plate and M12 x 50 mm Gal Hex Bolt, Washer & Nut.
- Place the M16 Nylon washer in between the plate and extension arm.

### 8. Attaching the Backboard Frame:

- To attach the backboard, hang the frame via an angled bracket at the back end of the frame on top of the bracket at the extension arm.

### 9. Attaching the Ring

- Align the bolt holes in the backboard, the extension arm and the ring and insert the M10 x 110mm Gal Hex Bolt, Double Flat Washer, Spring Washer and Nut without damaging the thread.
- Run all the nuts up the bolt shaft until finger tight and use wrenches to tighten the bolts to achieve a snug fit.



- ### 10. Check all measurements are correct and that the telescopic brace has been set up to lock in the correct position (See Figure ).

*Note: Use anti-seize lubricants on all bolts during the installation process.*

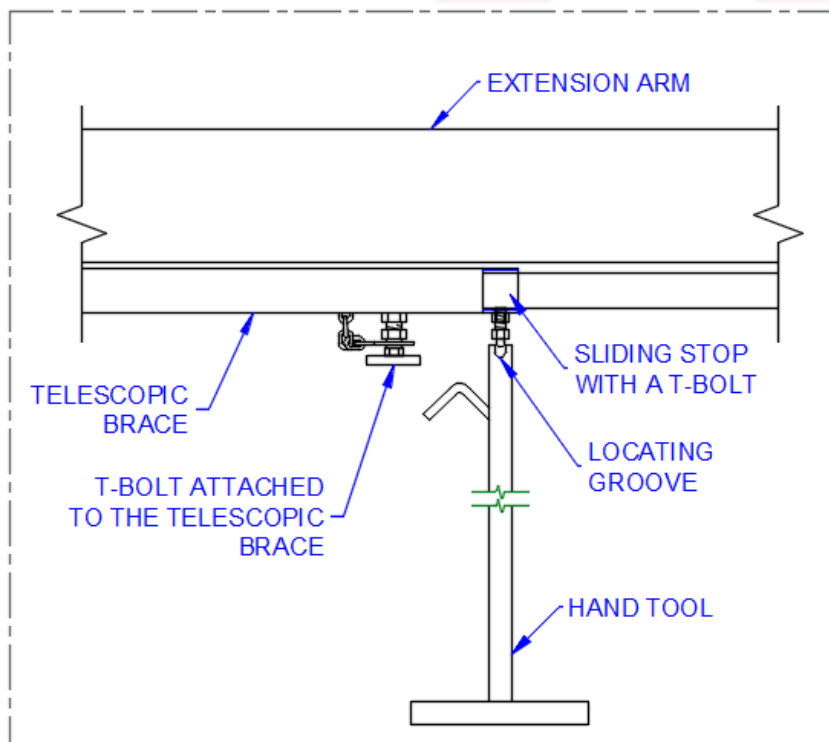
## Operating Procedure:

The Raptor Side Swing Basketball Tower is easy to operate and can be operated by a single person.

1. When the unit is fully assembled and installed in the playing position, it is its resting/stored position. The system is held in its position by the telescopic arm and the sliding stop located underneath the extension arms as shown below. Both the T-bolts must be securely tightened at all times unless while moving the arms.



2. To swing the frame, place the locating groove on the hand tool over the T-bolt in the sliding stop, and rotate the hand tool counter-clockwise to loosen the bolt. Ensure the bolt is sufficiently undone so the arms can move however ensure the bolt does not come completely out.



3. Then follow the same procedure to undo the T-bolt in the telescopic arm.

4. Once the telescopic brace becomes loose, place the hook in the hand tool over the basketball ring and swing the arms towards the right. The arms will rotate 90 degrees to the right.



5. Then, slide the sliding stop, and tighten the T-Bolts on both telescopic brace and sliding stop to prevent any movement of the arms.
6. To get the arms back to playing position,
  - Repeat steps 2 & 3,
  - Swings the arms left to the playing position,
  - And repeat steps 5.

***Note: During high wind conditions, the unit should always be stored in the playing position. Not following this instruction might damage the tower and void the warranty.***

## Maintenance:

All our towers are designed to require a minimal level of maintenance. However, it is advisable to do:

- **Regular Inspections:** Check for any signs of wear or damage. Tighten bolts and replace nets or padding as needed.
- **Cleaning:** Clean the posts with a damp cloth to remove dirt. Avoid harsh chemicals that could damage the paint. If the poles have been scratched over the intended period of use, lightly scuff the area apply 2 coats of zinc-rich primer for galvanised parts and apply 2 coats of choice of paint.
- **Weather Protection:** During high wind conditions, the unit should always be stored in the playing position.

## Safety Guidelines (Usage)

The owner of this equipment is responsible for ensuring all players are aware of these conditions for the safe use and operation of the equipment.

1. **Padding:**
  - Ensure padding is securely attached to reduce injury risk.
2. **Supervision:**
  - Supervise play, especially with younger players, to ensure safety.
  - Prevent players from hanging from the ring or climbing up the posts to prevent serious injury.
3. **Height Adjustment:**
  - If there is an option for a height-adjusting frame, care must be taken while operating the height-adjusting frame mechanism.
4. During visual inspection, if the bolts are loosened or the post or footing is damaged, the basketball system should not be used until repaired.
5. During high wind conditions, the unit should always be stored in the playing position



## Certificate of Compliance:

All our products have been structurally designed and are made using structural-grade steel. All the workmanship is completed following the relevant Australian Standards. Our Products comply with the following Australian Standards.

1. AS/NZS 4100:1998 Steel Structures
2. AS/NZS 1554.1:2014 Welding of steel structures
3. AS/NZS 1664 Aluminium structures
4. AS/NZS 1665:2004 Welding of aluminium structures
5. AS/NZS 1170.0 Structural design actions – General principles
6. AS/NZS 1170.2 Structural design actions – Wind actions
7. AS/NZS 2312.1:2017 Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings
8. AS/NZS 2311:2017 Guide to the paintings of buildings
9. AS/NZS 4680:2006 Hot-dip galvanized (Zinc) coatings on fabricated ferrous articles

All our Basketball Towers meet the QLD Education specifications for basketball equipment. April 2023. All our towers have been load and cycle tested according to those specifications, which are the most stringent tests required in any State in Australia  
All our products are designed and manufactured here in Australia.



## Warranty Certificate:



*When you purchase a Play Hard Sports Equipment product you have the peace of mind in knowing that your product is covered by Play Hard Sports Equipment's manufacturer's warranty against faulty workmanship and materials.*

*The Basketball Tower Structure has 25 years of warranty. The Backboard has a 10-year warranty, the ProRim has a 25-year warranty, the OzRing has a 10-year warranty and the padding if supplied has a 2-year warranty for the padding and the net has a 1-year warranty.*

*The warranty covers damage or failure of the product during normal intended use. The warranty does not include damage to the product resulting from accident, misuse, improper installation, operation, or unauthorised repair or alteration. Products manufactured for home use are not guaranteed for use in commercial applications.*

*If the product should become defective within the warranty period, please get in touch with Play Hard Sports Equipment customer service:*

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