CHIKUSA

MONSTER MOUNT

MONSTER MOUNT
INSTALLATION MANUAL

VERSION: 02.01.26 | ENG

Always use the most recent version of the installation manual before installing your Monster Mount. The installation manual is subject to change without notice. Please consult with CHIKOUSA to ensure you are utilizing the latest version of the install manual.

BRIEF DESCRIPTION

The Monster Mount is a simple and effective foundation that has been designed specifically for the CHIKOUSA Premier Solar Carports & Gazebos. The Monster Mount serves as an alternative to traditional foundations. No digging, rebar or concrete is needed when using the Monster Mount. The installation can be completed with a 2-person crew, without the need of any heavy-duty equipment or machinery. The installation should always be completed by trained professionals and/or qualified individuals, who have been adequately instructed and trained about the tasks involved with the installation, including the usage of protective devices, protective measures, relevant provisions, safety regulations and local operating site conditions and proven competence in all areas of the installation.

Please carefully read this installation manual and all other applicable documents before starting your installation. Please contact CHIKOUSA with any questions that you may have.

MAINTENANCE

The Monster Mount and all components are Hot Dipped Galvanized to provide effective, long-life protection in all conditions. The Monster Mount is made of Steel and is not combustible and will not rot, warp, shrink, and this mount is impervious to termites. After installation it is recommended that the mounts be visually inspected on an annual basis, noting any issues and immediately proceeding with approved corrective action.

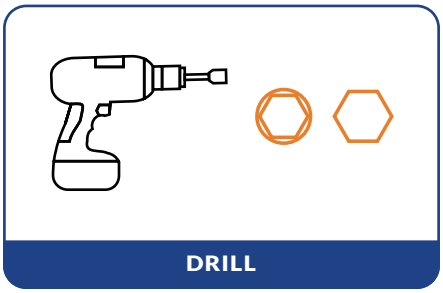
MONSTER MOUNT INSTALLATION WARNING

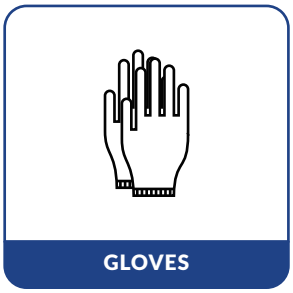
Anyone who plans to utilize the Monster Mount should call 811 or visit their state's 811 center's website a few business days before using the Monster Mount to request that the approximate location of buried utilities be marked with paint or flags so that a pile is not accidentally driven into an underground utility line. Driving a pile into a buried underground utility line can result in serious injury up to an including death.

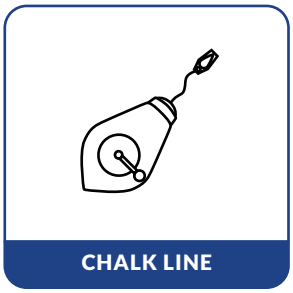
MEASUREMENT NOTE

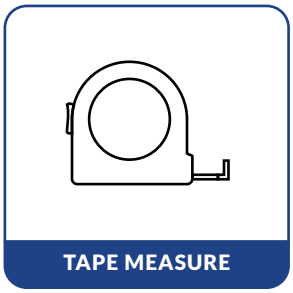
Some measurements have been converted from MM to inches. The accuracy of measurements can vary slightly from mm to inches. All measurements are available in MM for detailed accuracy.

REQUIRED INSTALLATION TOOLS


DRILL


GLOVES

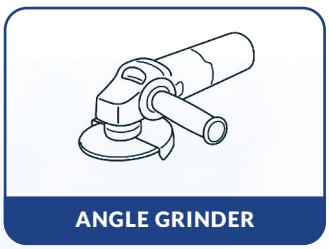

CHALK LINE


TAPE MEASURE


RUBBER MALLET


HARDHAT


SAFETY GLASSES


ANGLE GRINDER

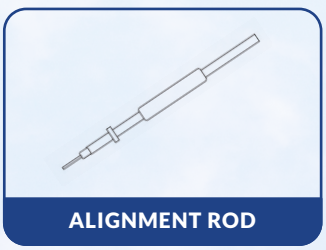

HAMMER

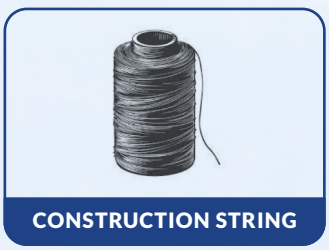

SLEDGE HAMMER

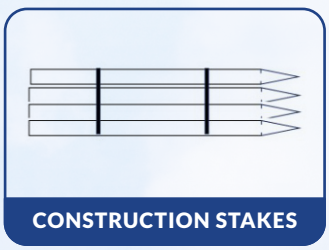

SMALL MAGNETIC TORPEDO LEVEL


HEX SOCKET


JACK HAMMER


ALIGNMENT ROD


CONSTRUCTION STRING


CONSTRUCTION STAKES

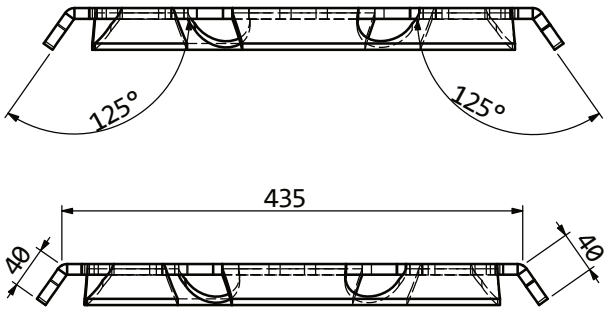

LASER LEVEL


COLD GALVANIZED SPRAY PAINT

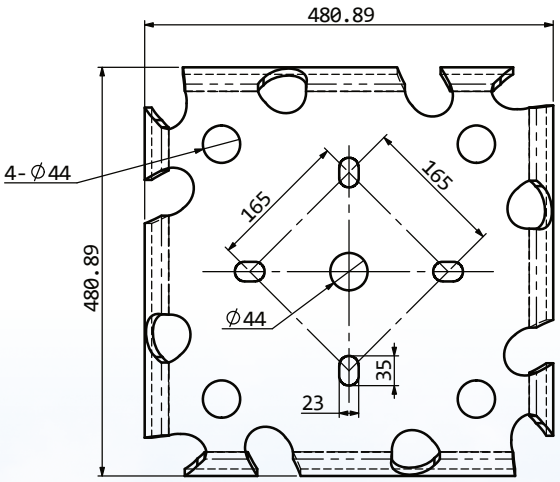

POST DRIVER ATTACHMENT


MANUAL POST DRIVER

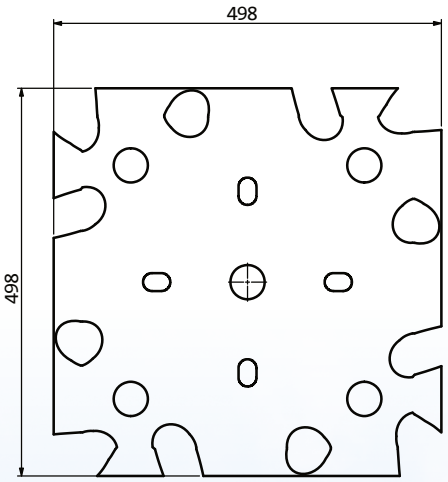
MAIN COMPONENTS



Side



Top

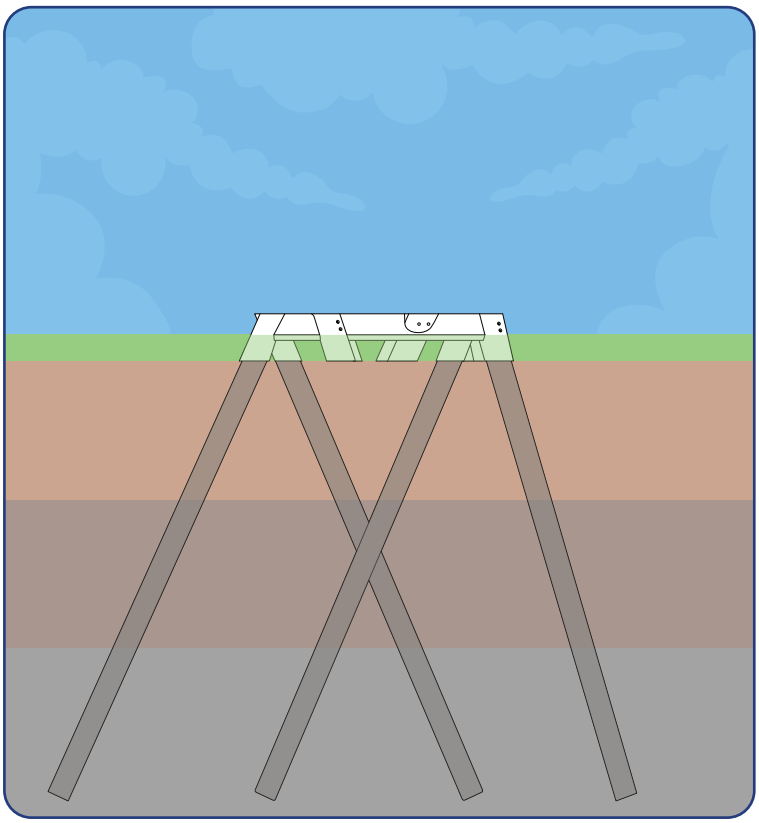


Bottom

4 PILES

TEK SCREWS

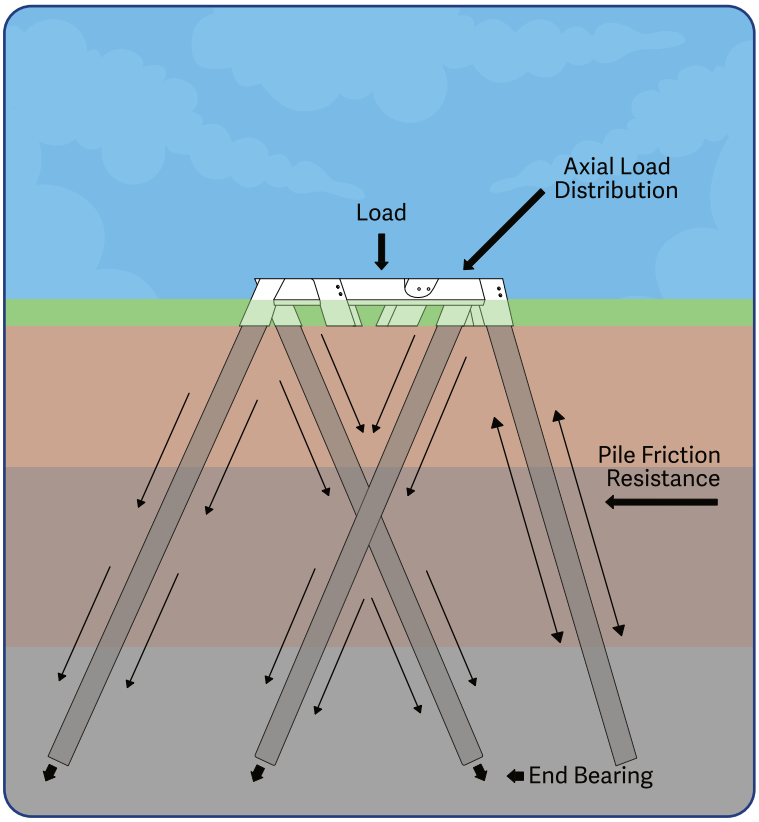
MONSTER MOUNT DESIGN PRINCIPLES



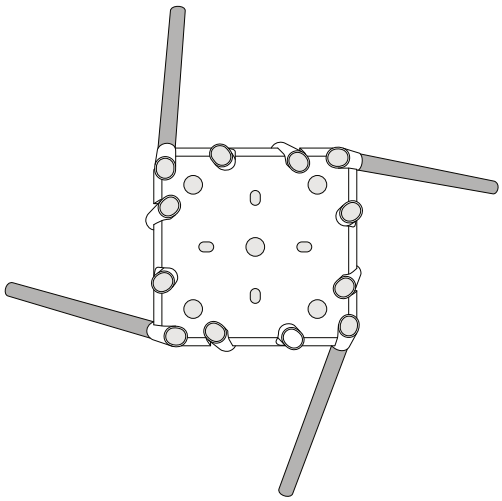
The Monster Mount is a pile cap anchor system that utilizes 3 main aspects to create a foundation system.

The combination of friction, end bearing and axial support provided by the incline piles geometric configuration create the Axial Load Distribution.

The Monster Mount has 3 main design factors- Structural Capacity of the Monster Mount Anchor components, Structural Integrity of the pile material, and the Structural capacity of the Founding material.



Axial Load Distribution



MONSTER MOUNT OVERVIEW

"The Monster Mount represents the pinnacle of engineering in sustainable footer systems. By merging cutting-edge design with eco-conscious materials, we deliver a solution that significantly optimizes both project timelines and budgetary efficiency."

Engineering Principles

The Monster Mount engineering factors are based on piling technology using a combination of friction and bearing to achieve load capacities in varying soil types and environmental conditions.

The Monster Mount's design capacity calculations are based on the working stress method, using refined geotechnical data to determining friction and bearing pressure.

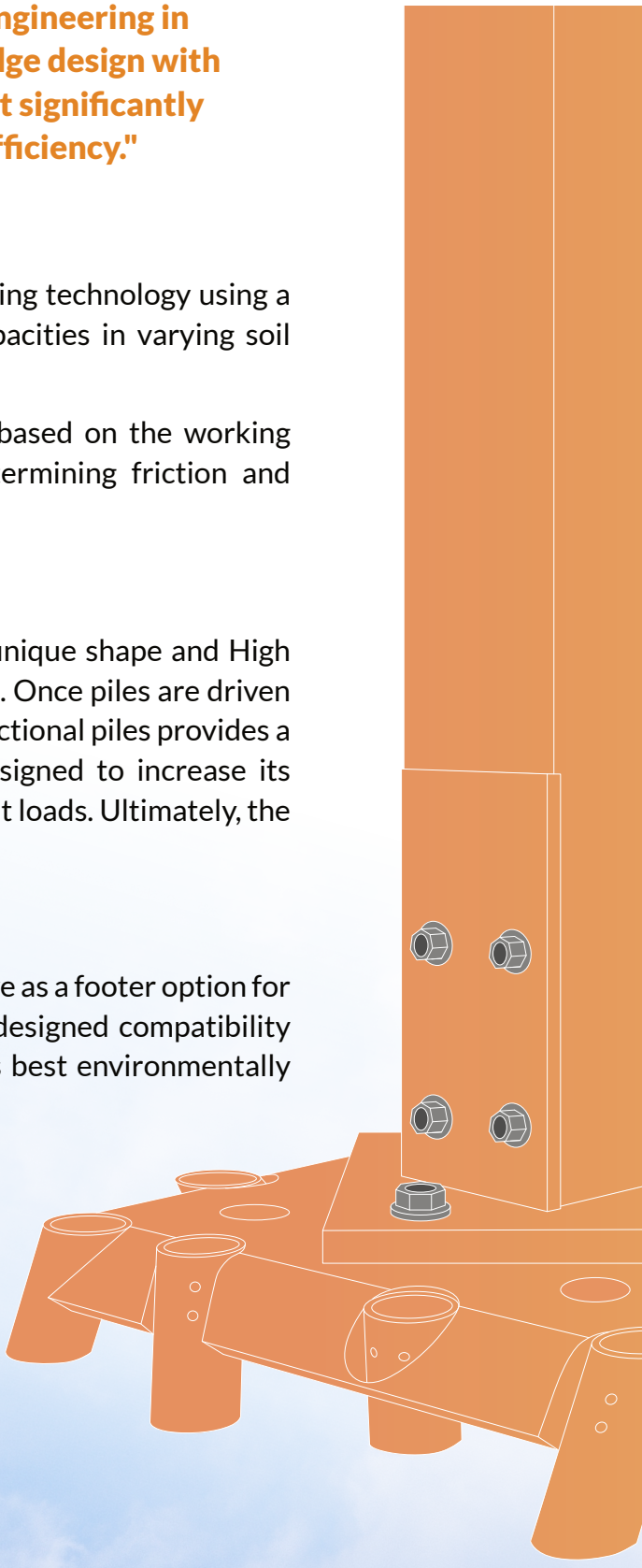
Monster Mount System

The Monster Mount is an all-in-one system, where the unique shape and High strength steel combines to create a very efficient pile cap. Once piles are driven And the cap secured, the opposing forces of the multi directional piles provides a solid, stable, and economical footing. The system is designed to increase its efficiency When resisting gravity, uplift, shear and moment loads. Ultimately, the soil structure absorbs the applied stress.

Design Compatibility

The Monster Mount has been specifically designed to serve as a footer option for the CHIKOUSA Premier Carport Line. This engineered designed compatibility saves both time and costs while providing the industry's best environmentally friendly footer design.

Note: *In some cases, the Monster Mount can also work with the CHIKOUSA Maximo 185 Carport Line with site-specific engineering approval.*



WARNING

The Monster Mount should NOT be installed on wet or saturated ground.

SOIL TYPES, AND RELATED LOADS

Clay: Allowable Bearing (6,700 lbs) and allowable Pullout Values (4,500 lbs), at full embedment depth.

Sand: Allowable Bearing (4,833lbs) and allowable Pullout (1,350 lbs), at full embedment depth.

Recommended Soil Values:

CLAY

Soil Type	Liquid Limit, LL (%)	Plastic Limit, PL (%)	Moisture Content, w (%)	Undrained Shear Strength, S_u (kPa)	Cohesion, c (kPa)	Internal Friction, (^{0})	Effective Cohesion, c' (kPa)	Effective Internal Friction, (^{0})	Secant modulus of Elasticity E_{so} (MPa)
Clay	75	22	23	19	13	14	0	34	9-19

SAND

Soil Parameter	Soil Depth (m)	CPT	SPT	Lab
Friction Angle (^{0})	0-1	36	-	-
Young's Modulus (MPa)		3.7	-	-
Mouisture Content (%)		-	-	-
Soil Unit Weight (kN/m^3)		16.2	-	-
Friction Angle (^{0})	1-2	38	32	-
Young's Modulus (MPa)		17.7	9.5	-
Mouisture Content (%)		-	-	2.4
Soil Unit Weight (kN/m^3)		17.2	-	-

MONSTER MOUNT INSTALLATION WARNING

Safety Notes:

Warning:

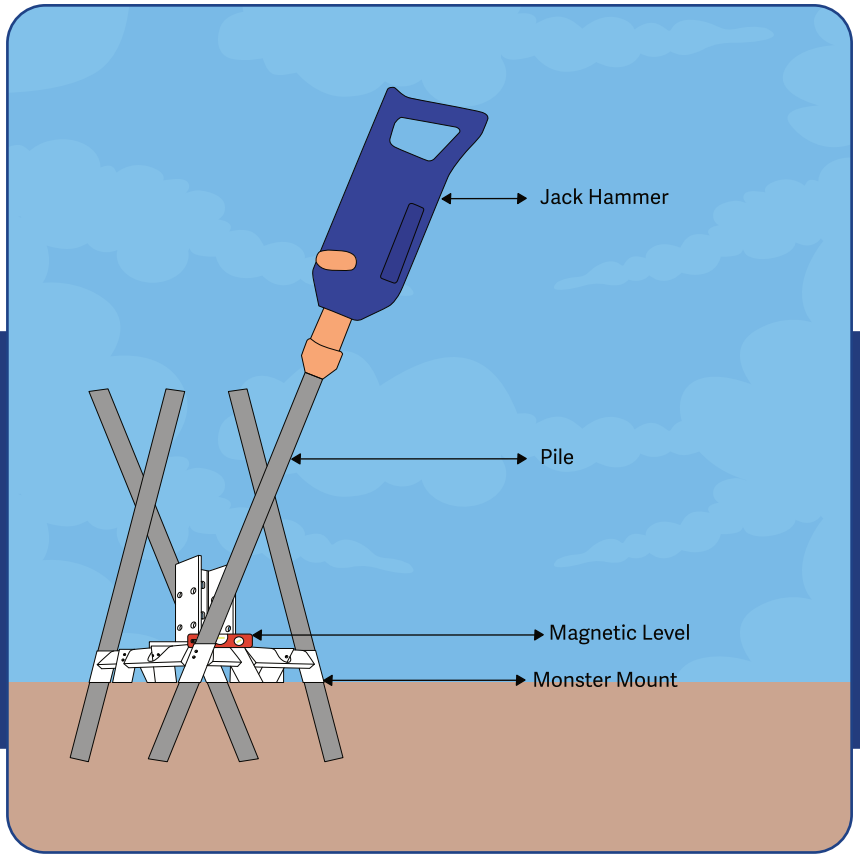
Anyone who plans to utilize the Monster Mount should call 811 or your state's 811 center's website a few business days before using the Monster Mount to request that the approximate location of buried utilities to be marked with paint or flags so that you don't unintentionally drive a pile into an underground utility line.

811 protects you and your community! Hitting a buried line while driving a Monster Mount Pile can disrupt utility service, cost money to repair, or cause serious injury or death. Always contact you 811 center, wait the required time for utilities to respond to your request, and ensure that all utilities have responded to your request before driving a pile into the ground.

You will need to know the address of where you plan to dig, including the county and nearest cross street, as well as the type of project you're completing and the exact area on the property where you're planning to install the Monster Mounts. Whether you Call 811 or make your request online, you'll need the same info.

Warning:

Appropriate safety equipment must be worn when installing The Monster Mount.



1. Jack Hammer
2. Pile
3. Torpedo Level
4. Monster Mount

INSTALLATION STEPS

Step 1 : Site Preparation

Measuring and Marking

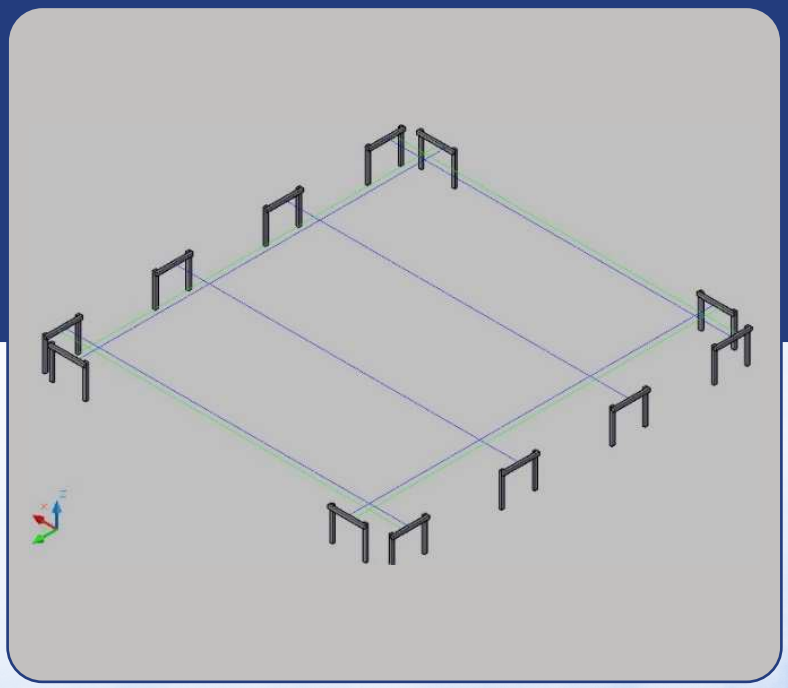
Accurate measurement and marking are critical phases of the installation process; once the Monster Mount piles are secured, repositioning is a labor-intensive and complex task. To ensure precision, project managers should utilize a tape measure, string line, laser level, or a combination of these methods to determine exact placement.

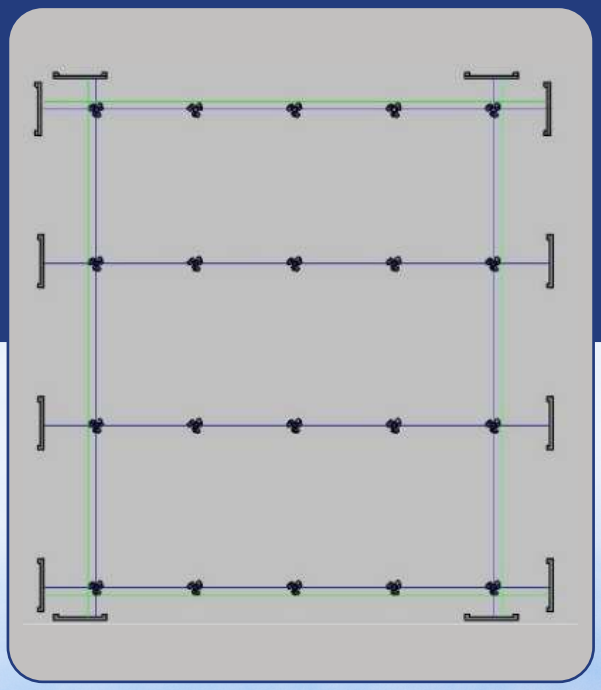
Prior to commencing, verify that all 811 and safety protocols have been strictly followed and that all underground utilities have been clearly identified and located on-site.

Once the initial layout is finalized, mark the center lines and individual mounting locations for each Monster Mount.

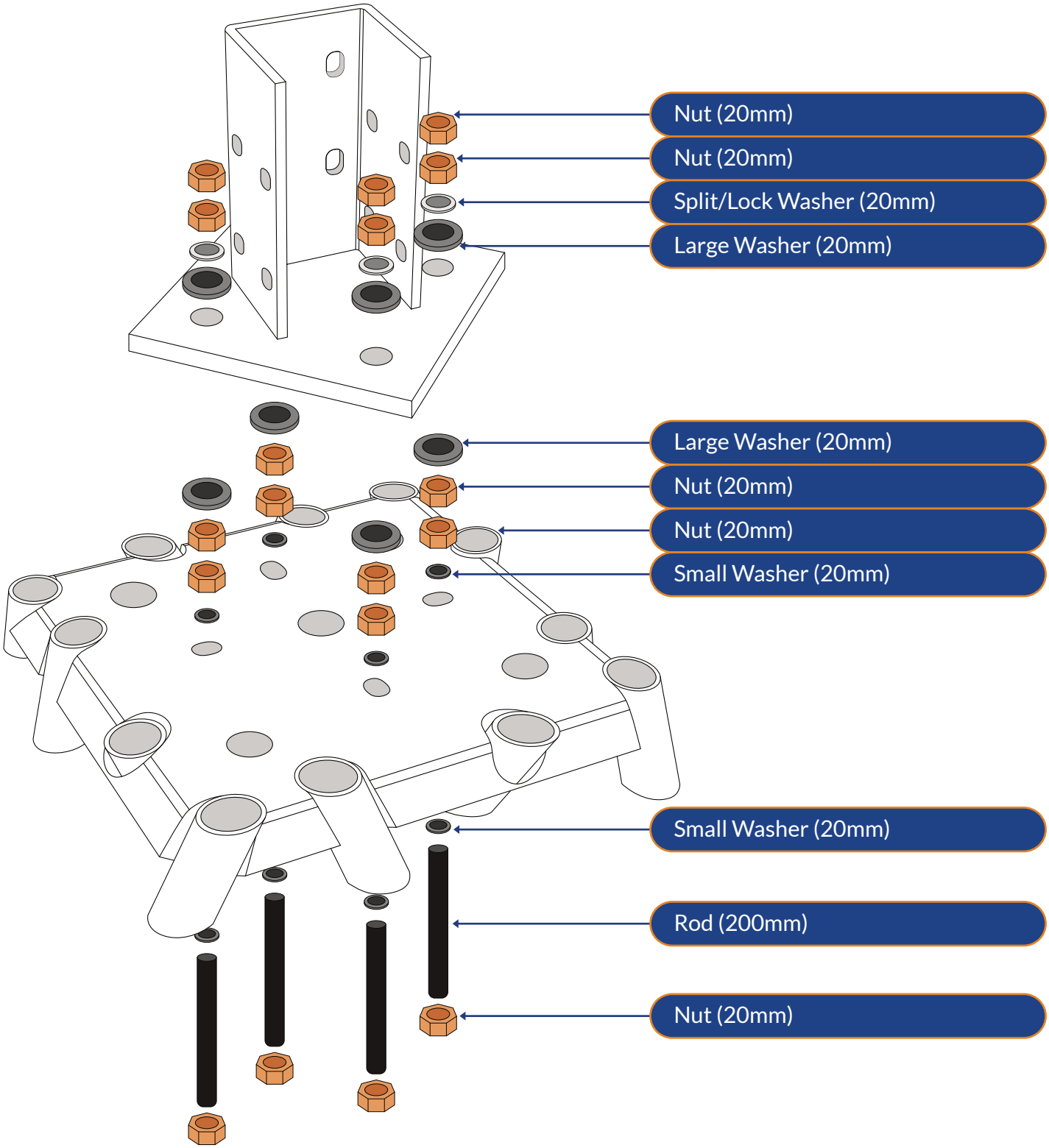
Tip: *Setting up profiles and running string lines down the Monster Mount center lines will help to accurately mark the Monster Mount locations.*

Tip: *Placing the string line as close as possible to the ground can increase accuracy and make it easier to mark the Monster Mount locations.*



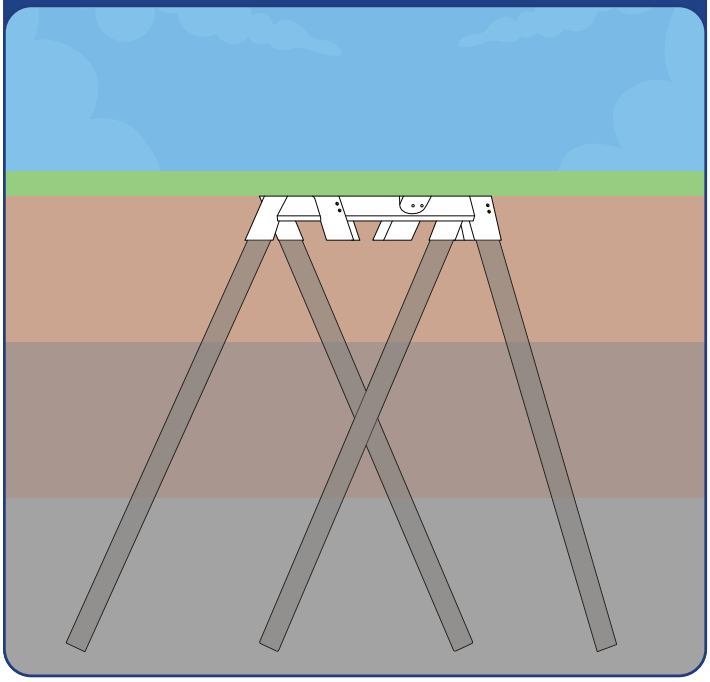


Step 2 : Attach the Base Plates to the Monster Mounts with the Hardware provided



Step 3 : Determine If You Want To Install The Monster Mount Below Grade Or At Grade

Below Grade Installation

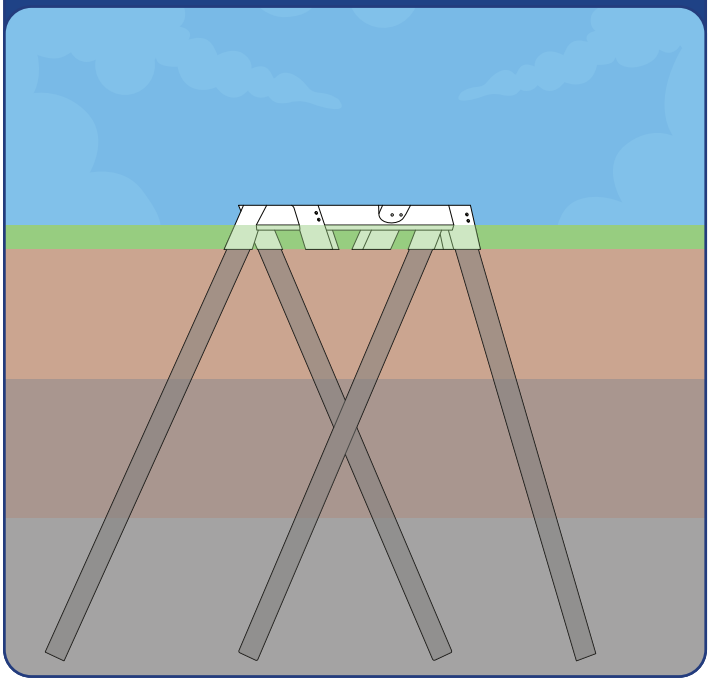


1. Installing Below Grade

- Place Monster Mount in desired location
- Outline location and amount of space that will be needed for installation
- Dig out marked space to desired depth
- Ensure that mounting location is level, please note a hammer or sledgehammer can be used to gently tap the Monster Mount as needed for leveling

Note: If you are wanting to just see the base plate at grade dig out approximately 4” of dirt for Monster Mount placement.

At Grade Installation



2. Installing At Grade

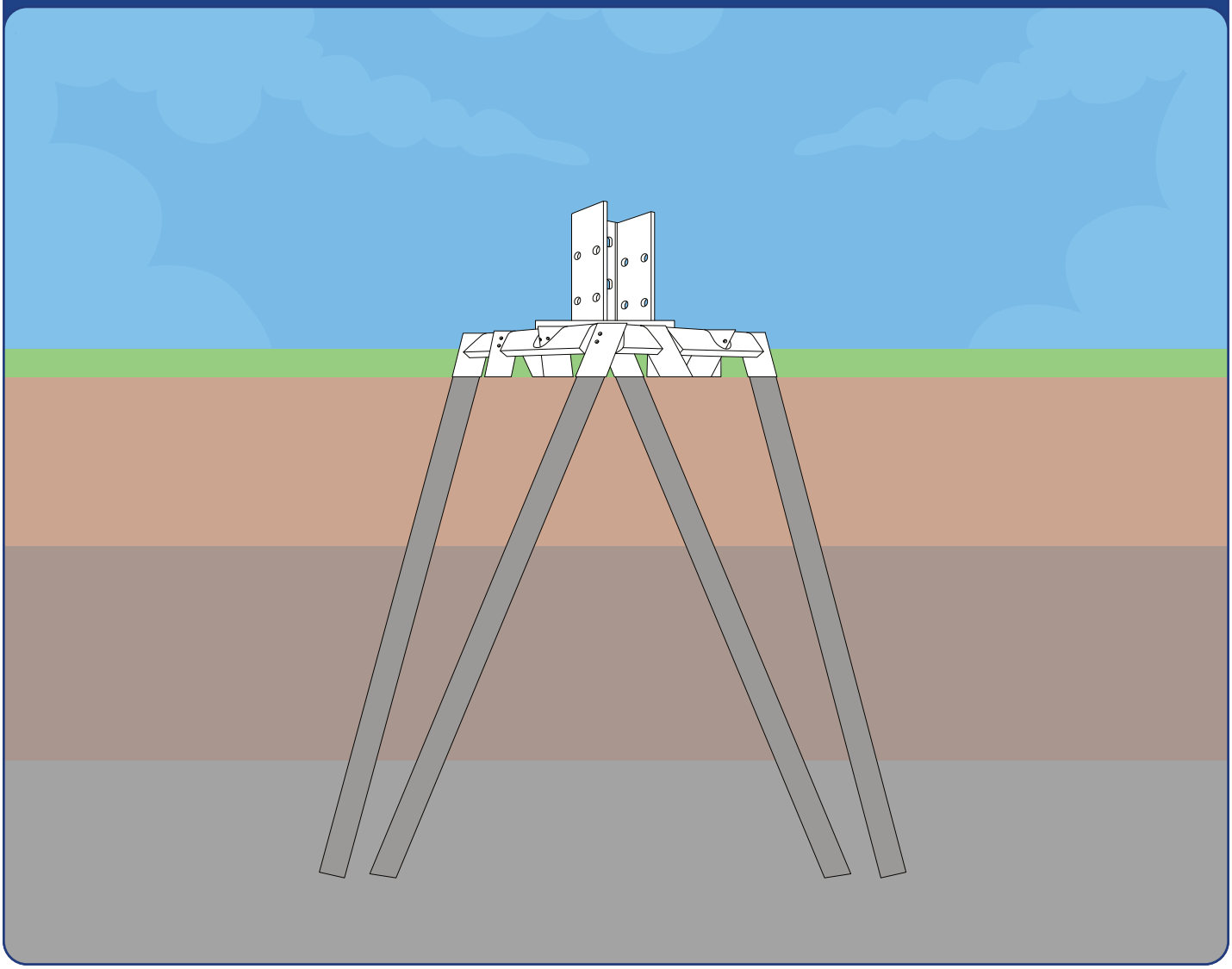
- Place Monster Mount in desired location
- Outline location and amount of space that will be needed

For Installation

- Place Monster Mount on top of ground
- Ensure that Mounting location is level, please note a hammer or sledgehammer can be used to gently tap the Monster Mount as needed for leveling

Step 3 (Continued)
Determining Below Or At Grade Installation Considerations

At Grade Installation with Base Plate



1. At grade you will visually see the entire Monster Mount
2. Below grade the entire Monster Mount can be covered where only base plate is shown.
3. Does installation site/customer want the additional Height an at grade installation provides?
4. Does the installation site require a combination of At Grade and Below Grade due to on-site sloping conditions?

Step 4 : Setting the Monster Mount with Base Plate attached

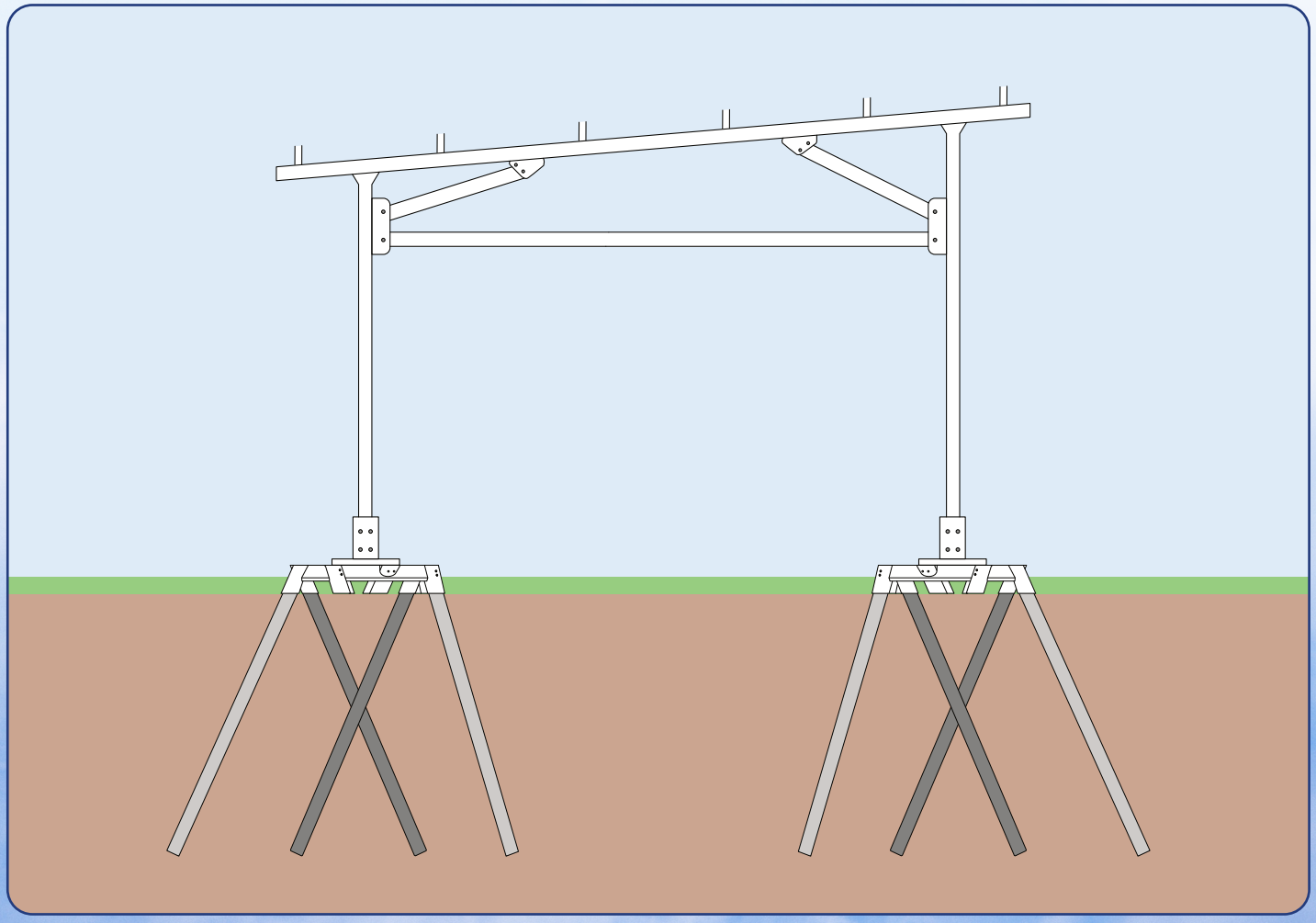
Adhering to the following sequence ensures structural integrity and a streamlined installation process:

Deployment: Position the Monster Mounts, complete with attached Base Plates, at their designated measured locations.

Leveling and Alignment: Utilize both a torpedo level and a laser level to confirm that all units and Base Plates are perfectly level and plumb.

Structural Integration: Proceed with the construction of the CHIKOUSA Premier Carport, pausing operations immediately following the installation of the C-Channels.

Tip for Maximum Efficiency: *By assembling the CHIKOUSA Carport or Gazebo structure onto the Monster Mounts before installing the piles, you significantly reduce the margin for measurement error, resulting in a more efficient and expedited installation.*



Selecting a Jackhammer Adapter for Pile Driving:

(There are multiple options to choose from for the adapter)

Post Pounder

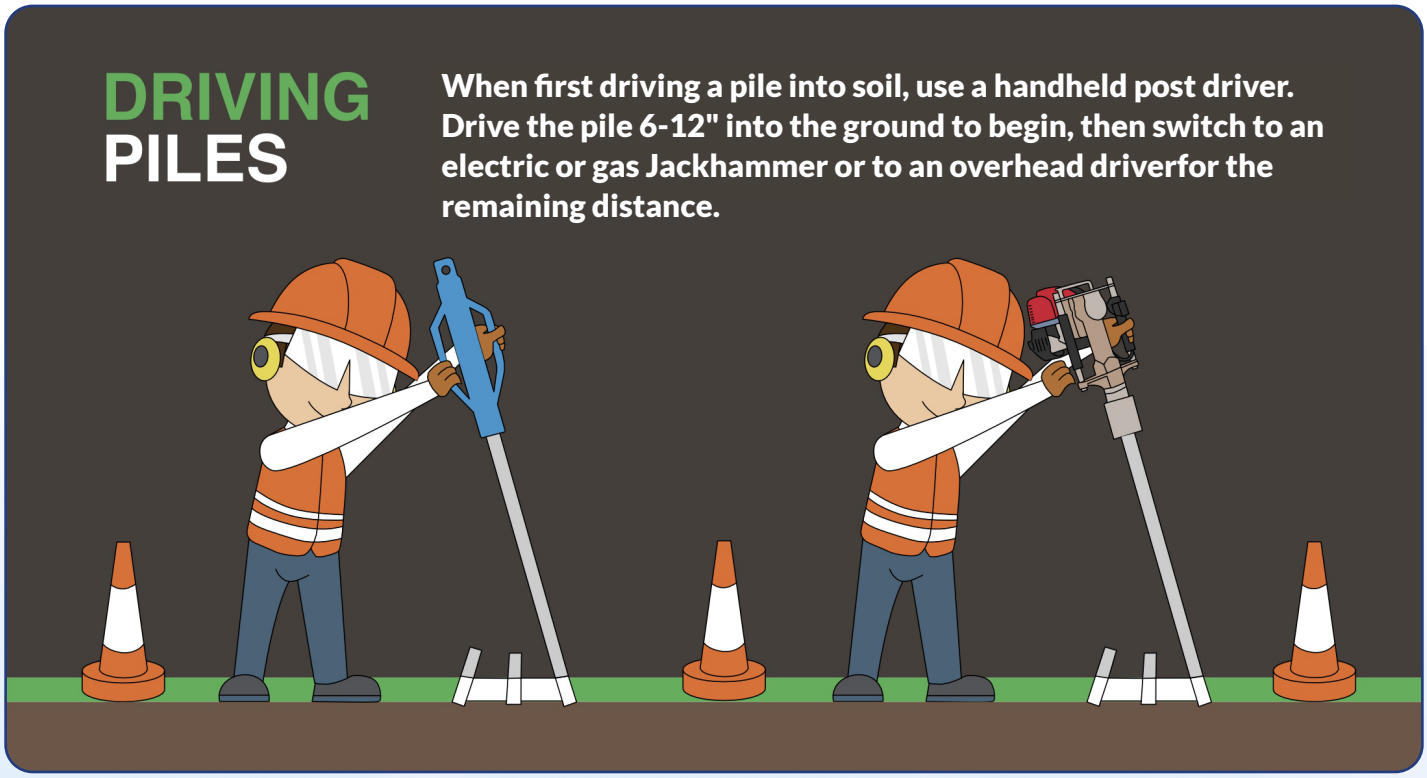
Pin Driver With Flat Head

Pin Driver With a Recessed Head

T-Post Driver & Shank

NOTE: The Jackhammer make and model along with the on-site Soil conditions, and installer experience will help determine which Jackhammer adapter will work best.

Step 5 : Driving Piles

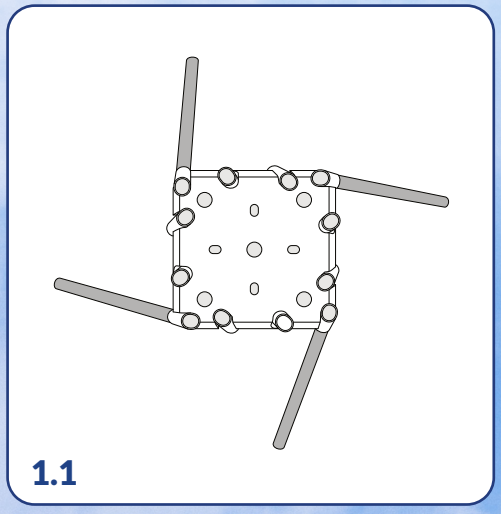


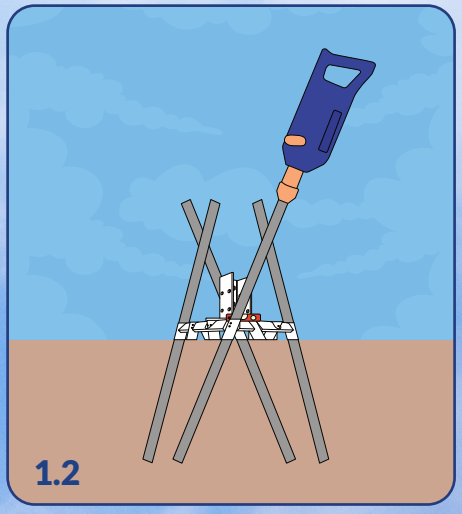
1. Ensure Monster Mount is level
2. Initially drive the piles 6-12” using a handheld post driver
3. Drive the 4 piles at the 4 corners of the Monster Mount (see illustration 1.1)
4. Using a Jackhammer or an overhead driver- drive each post ½ way down (see illustration 1.2)
5. Use Torpedo Level to ensure Monster Mount is level

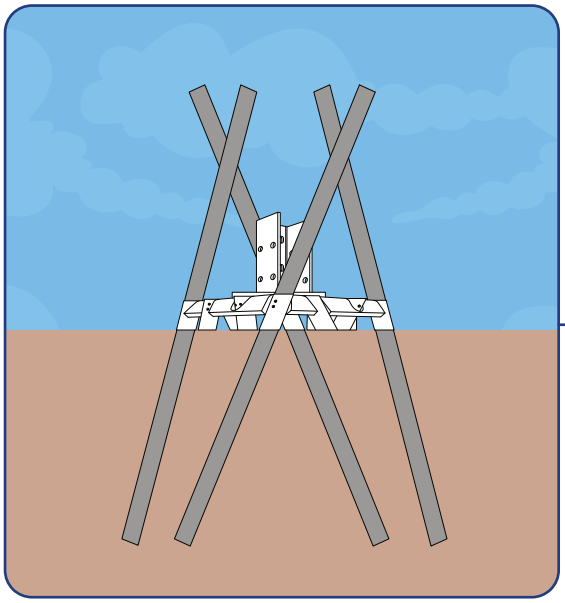
Note: *A sledgehammer can also be used to drive the piles into the ground.*

Note: *When driving piles with a jackhammer it is important to keep the jackhammer driving attachment square with the top of the pile.*

Tip: *When installing piles- drive opposing corners to help keep the plate position.*

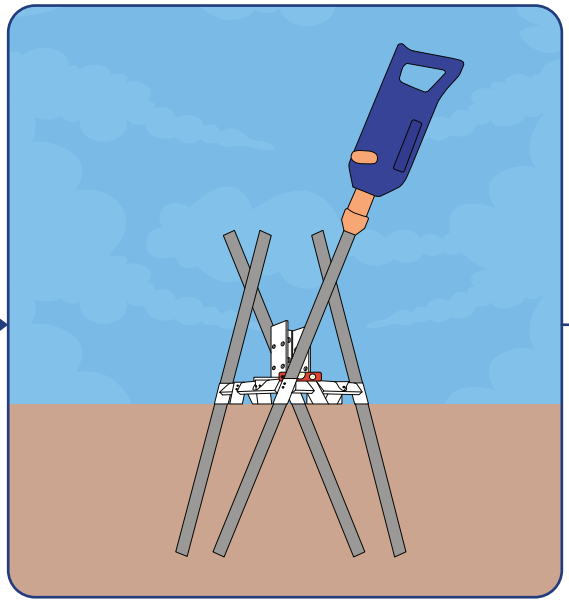

1.1


1.2



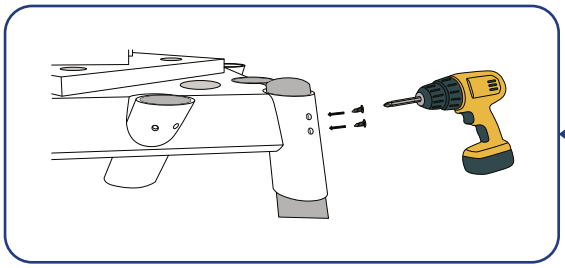
1. Ensure all Monster Mounts and Base Plates are level & plumb

   Tip: *You can use a sledge hammer or the jackhammer to adjust the Monster Mount slightly during installation as needed.*



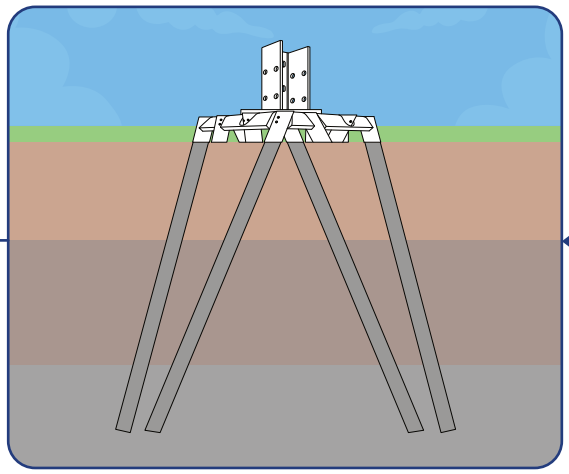
2. After the piles have been driven ½ way there will be minimal adjustment. It is important to keep the Monster Mount plumb while driving the piles.
3. Finish driving the piles all the way into the ground.

   Tip: *Drive piles in sequence of opposing corners on each Monster Mount.*



5. Fixing the piles to the Monster Mount. Using a drill fix the piles to the Monster Mount frame, there are 2 pre-drilled holes in each pile guide that mark the location for the tek screws.

   Note: *In some cases bolts may be used to connect the piles to the Monster Mount frame.*

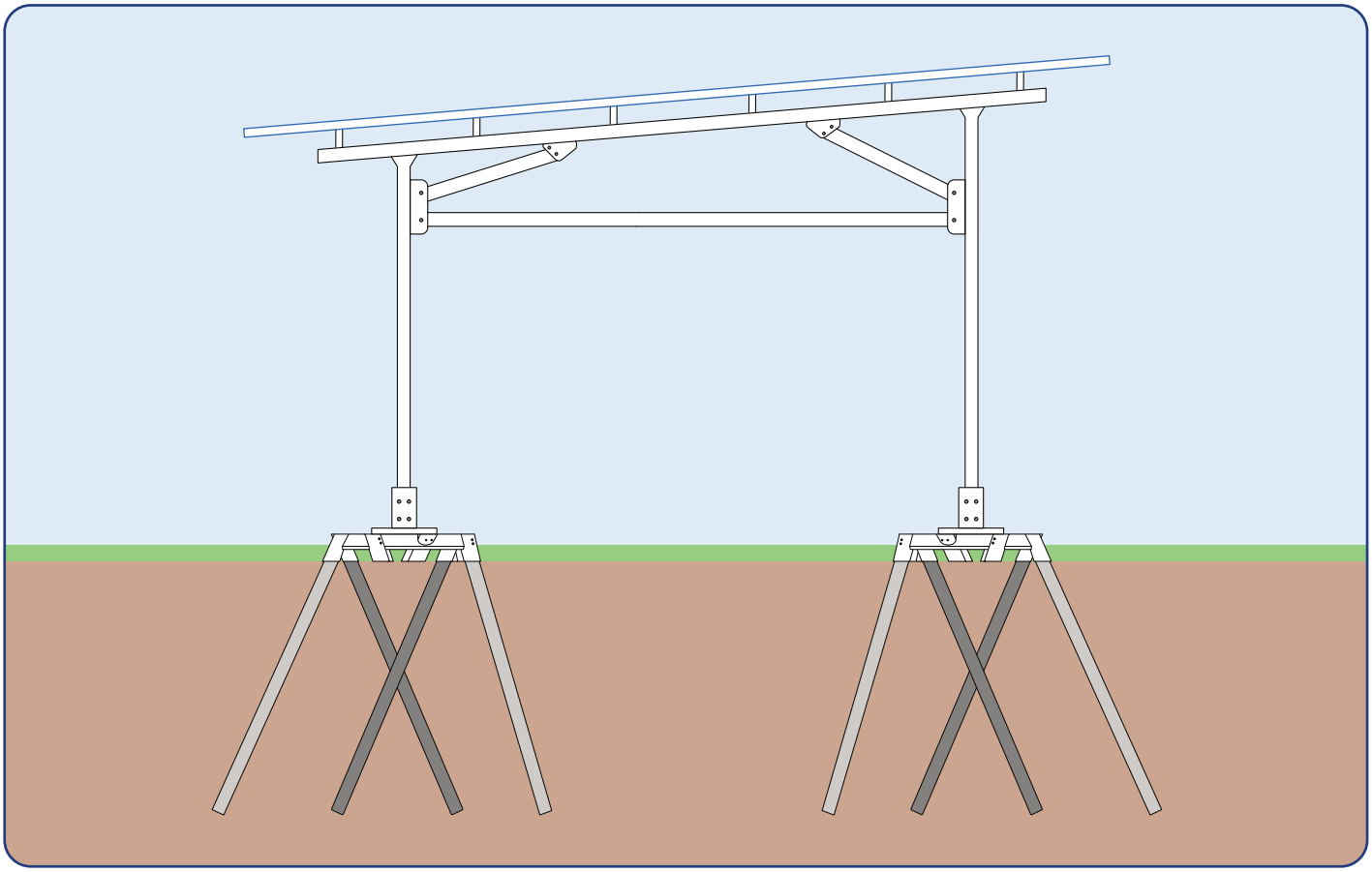


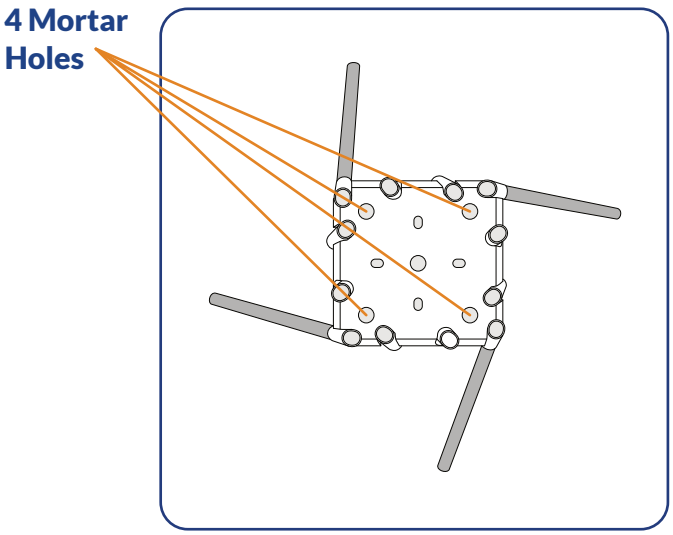
4. Monster Mount and Base Plate will be flat and level after installation.

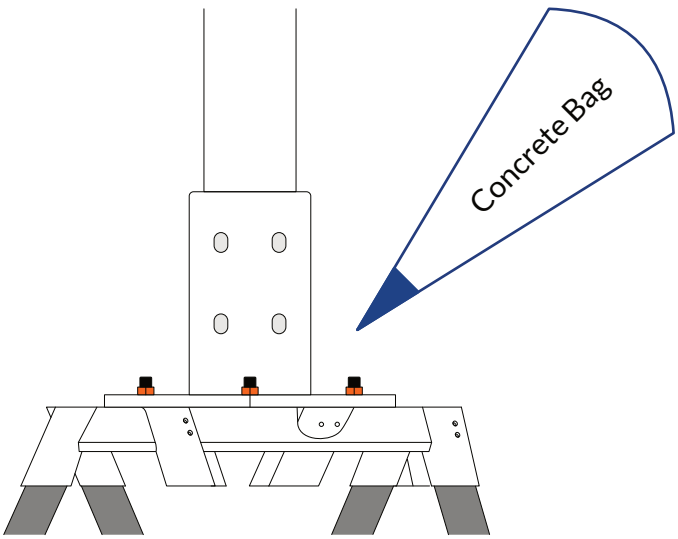
Work Safe-Be Safe!

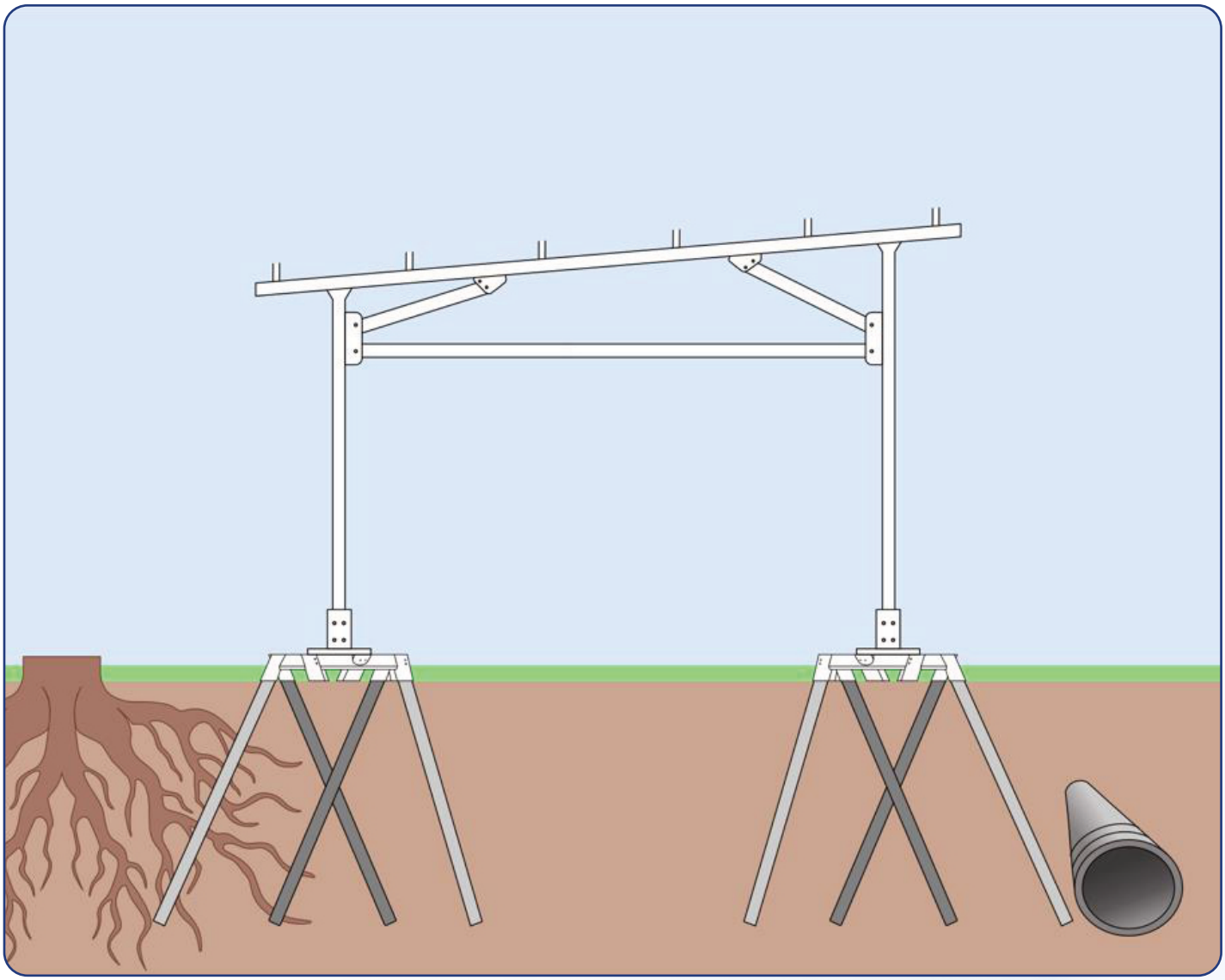
Step 6 : (Optional) Squirting Concrete/Mortar Into The Open 4 Holes On Top Of Monster Mount

Mortar or concrete can be squirted into the 4 open holes using a mortar bag. This mortar will help mitigate any potential settling issues.









Utility Services

Before beginning any installation, identify all underground utility services or obstructions. If you suspect a driven pile may interfere or come in contact with any utility obstruction **STOP** all work and consult with an engineer.

Tree Root Interference

Before beginning any installation, identify all tree root areas or obstructions. If you suspect a driven pile may interfere or come in contact with any tree root **STOP** all work and consult with an engineer.

Obstruction Response & Assessment

If a pile ceases movement during the driving process, **STOP** driving immediately to assess the cause. Ensure that all other piles within the system are driven to at least 50% of their required depth to provide necessary stabilization for the Monster Mount before proceeding with troubleshooting.

To diagnose the obstruction, apply one or two firm strikes with a sledgehammer and observe the feedback:

Elastic Feedback (Bouncing): Typically indicates a flexible obstruction, such as a utility pipe or a significant tree root.

Solid Feedback: Suggests a rigid, isolated obstruction, such as a rock. (Refer to the official Rock Policy for further guidance).

Standard Operating Procedures for Specific Obstructions

1. Utility Lines or Pipes

Immediate Action: **STOP** & Cease all site operations immediately.
Expert Consultation: Consult with a qualified engineer before resuming any activity.
Relocation Protocol: If you have confirmed the obstruction is not a utility line, utilize the alternate mounting hole on the Monster Mount closest to the point of refusal.

- If the second attempt is successful, proceed with the standard installation.
- If the second attempt also meets refusal, attempt a third drive using the next adjacent mounting hole located closest to the 1st refusal hole.
- If the third attempt fails to reach the required depth, **STOP** work and consult a qualified engineer.

2. Tree Root Interference

Minor Roots: For smaller root systems, the pile end may be cut at a 45° angle to facilitate driving through the obstruction via jackhammer.
Significant Roots: If a large tree root system is encountered, **STOP** all work and consult with a qualified engineer to evaluate structural and biological impacts.

3. Addressing Standard Refusal

Each Monster Mount requires a total cumulative embedment depth of 16 feet

Included Hardware: 4 piles (4' length each).
Standard Setup: Install all 4 piles to their full 4' depth to meet the 16' requirement.

If a pile cannot be driven to its full depth due to ground refusal, you must utilize additional piles to reach the 16' total. The Monster Mount provides **12 perimeter attachment holes to accommodate extra piles.**

Example: If you encounter refusal at 2' for every pile, you must install 8 piles driven to 2' each to achieve the required 16' total embedment.

Embedment Depth Reference Table
To maintain structural integrity the sum of all driven depth depths must equal **16 feet.**

If Refusal Occurs At:	Total Piles Required	Cumulative Depth
4 Feet (Full Depth)	4 Piles	16'
3 Feet	6 Piles*	18' (Mimimum 16')
2 Feet	8 Piles	16'

Rock Policy

These guidelines govern the installation when subsurface obstructions are encountered.

1. Subsurface Assessment & Refusal Standards

Standard Embedment: With a minimum of 4 piles, each pile must reach a depth of 4 feet or the cumulative total of all piles embedment must be 16 feet
Defining Refusal: Refusal is officially reached if pile penetration is less than ¼" per 15 seconds of sustained jackhammer operation.
Equipment Specifications: This refusal standard is based on a jackhammer with a minimum impact rating of 45 joules.

2. Material-Specific Guidelines

Exclusion Zones: Monster Mount systems should not be utilized in areas characterized by hard igneous, metamorphic, or sedimentary rock, such as solid granite or slate.
Soft Rock & "Floaters": In softer rock formations, our piles are designed to "core" into the material under sustained pressure. You may increase jackhammer capacity or utilize pre-drilled pilot holes to achieve the designated minimum depth.
Rock Penetration: Even when encountering rock, a minimum penetration of 4–8 inches into the rock layer is required.

3. Mitigation & Remediation Strategies

If a point of refusal is encountered before reaching the 4-foot target depth, execute the following steps:

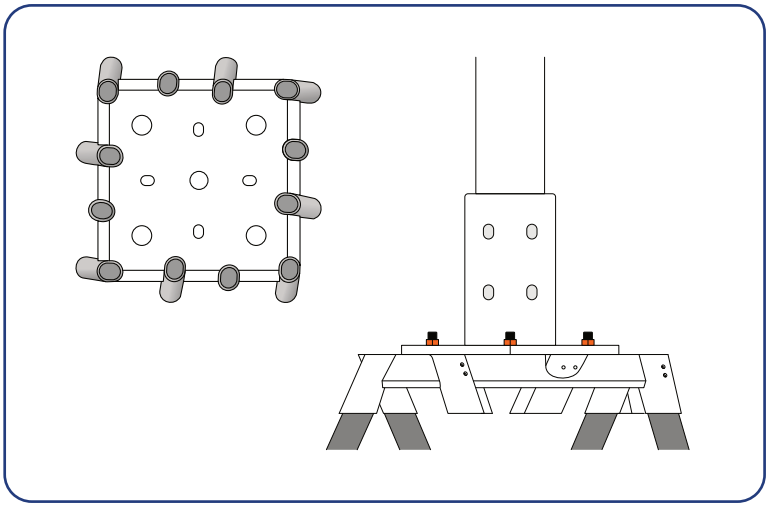
Repositioning: Determine if the Monster Mount footing can be slightly adjusted to bypass the obstruction entirely.
Alternate Entry: Utilize an alternate mounting hole on the Monster Mount base, selecting the one closest to the initial trial hole to avoid the rock.
Refusal Assessment: If a pile stops moving, cease driving immediately to assess the situation.
Stabilization: Ensure all other piles are driven at least halfway into the ground to stabilize the Monster Mount before troubleshooting the obstructed pile.
Diagnostic Test:

- Strike the pile firmly with a sledgehammer.
- Elastic Feedback (Bouncing): Likely a utility pipe or tree root.
- Solid Feedback: Indicates an isolated rock obstruction.

4. Engineering Consultation Requirements

Professional engineering approval is mandatory under the following conditions:

Utility Encounter: If a utility line or pipe is suspected, **STOP** all work immediately.
Failed Redundancy: If three attempts using alternate mounting holes fail to achieve the required depth.
Insufficient Depth: When the minimum embedment depth cannot be achieved after all mitigation attempts.
Configuration Changes: Any alternate configuration or depth acceptance requires certified engineering verification.



MONSTER MOUNT INSTALLATION CHECKLIST

ITEM	QTY	CHECKED
Monster Mount		
Piles		
Tek Screws		
Post Driver Attachment		
Base Plate Attachment Hardware		
Jack Hammer		
Power Drill		
Spare Drill Battery		
Magnetic Level		
Tape Measure		
String Line		
Hammer		
Sledge Hammer		
Ear Muffs / Ear Plugs		
Safety Glasses		
Gloves		
Cold Galvanized Spray Paint		
Generator (if needed)		
Fuel Can (if needed)		
Extention Cord		
Laser Level		
Appropriate Drill Bits		
9" Grinder & Spare Disk		
Construction Stakes		
General Tool Kit		
First Aid Kit		
Sunscreen		

Date : _____

Peron Checking : _____

Notes

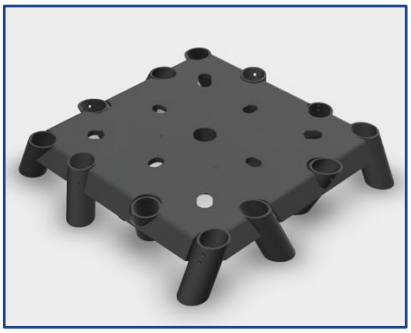
CHIKOUSA MONSTER MOUNT

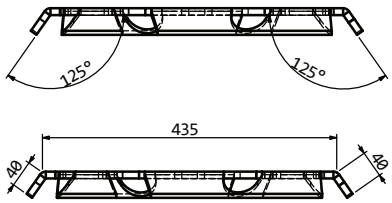
DATA SHEET

The CHIKOUSA Monster Mount utilizes ground breaking piling technology. The Monster Mount has been specifically designed to eliminate concrete foundations when installing either the CHIKOUSA Premier Solar Carport/Gazebo or the Maximo 185 Carport/Gazebo. Please note that a site- specific plan approval is required for usage with the Maximo 185 version. The Monster Mounts unique, patented, geometric configuration and design is the most advanced ground attachment within the solar market today. The Monster Mounts unique configuration makes it a superior choice to conventional footer systems. The Monster Mount comes with 12 perimeter cylinder pile mounting options requiring 4 piles (4' Length). Once installed the Monster Mounts 4 piles lock into the ground resulting in an unmatched bearing capacity and pull-out resistance. The biggest advantages of the Monster Mount are cost savings, install time savings, and ease of installation.

MONSTER MOUNT

Install Site : Soil
Material : Q235 Steel
Dimension : 19" x 19"
Treatment : Hot-Dip Galvanized
Use : Foundation
Part# : CK-GT-001-019-880
Quantity : 1
Weight : 53lbs

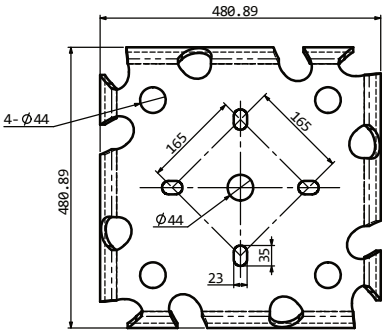




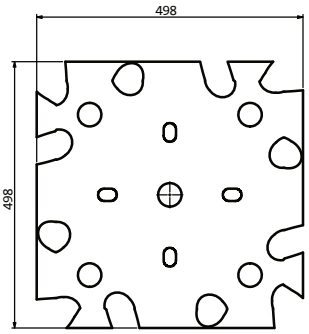
Side

STEEL PILE

Material : Steel Q235B
Dimension : 47" x 1.5"
Treatment : Hot Dip Galvanized
Use : Foundation
Part# : CK-HT-107
Quantity : 4
Weight : 20lbs



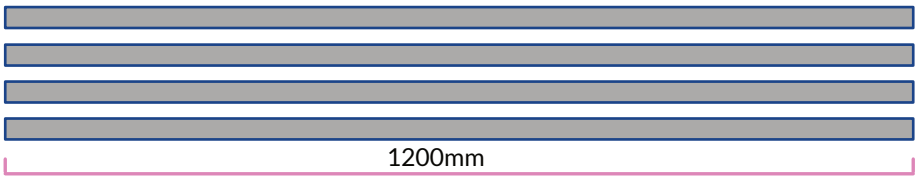
Top



Bottom

HARDWARE

5/16" X 1" or 8mm X 25mm Screw
Quantity : 8
Use : Parts Attachment
Part# : CK-JST410-0800
Type : Hardened Carbon Steel (Fu = 120ksi)



The Monster Mount is a complete system where the unique shape and high strength steel combines to create a very effective foundation. Once the piles are driven in and the base plate is secured, the opposing forces of multi-directional piles provide a solid and stable footing. The Monster Mount was designed to increase efficiency when resisting gravity, uplift, shear, and moment loads. This system ensures that the surrounding soil absorbs the majority of the applied stress.

The Monster Mount has proven to be an easy and cost-effective solution. This system can be utilized in a wide variety of soil types. The Monster Mount is fast and easy to install in most climates and geographic locations. Site disturbance is minimal, and the mounts are removable, reusable, and recyclable.

Environmental Advantage: Minimal environmental impact (small footprint).
Materials are non-polluting to the install site and environment.

CHIKOUSA

TKCG
TK CONSULTING GROUP LLC

1/28/2026

Chiko Solar Mounting Solutions

RE: Structural Certification for ChikoUSA Monster Mount

This Letter certifies the loading criteria and design basis for the testing and analysis of the ChikoUSA Monster Mount System. All information and test data provided by ChikoUSA comply with the following building codes and typical specifications:

Building Codes:

- ASCE/SEI 7-16, Minimum Design Loads for Buildings and Other Structures, by American Society of Civil Engineers
- 2018 International Building Code (IBC).

When the ChikoUSA Monster Mount is installed as per manufacturers' installation the Monster Mount will be adequate to support the loads as follows:

Required Ground Penetration	42	in
Uplift Capacity Sand / Clay	1,350 / 4,500	lbs
Bearing Capacity Sand / Clay	4,833 / 6,700	lbs

Please note this evaluation only applies to Monster Mount Product as installed per manufacturer installation manual. It shall be the responsibility of the install to verify that the components installed on this system do not exceed the values above in base reactions.

Sincerely,

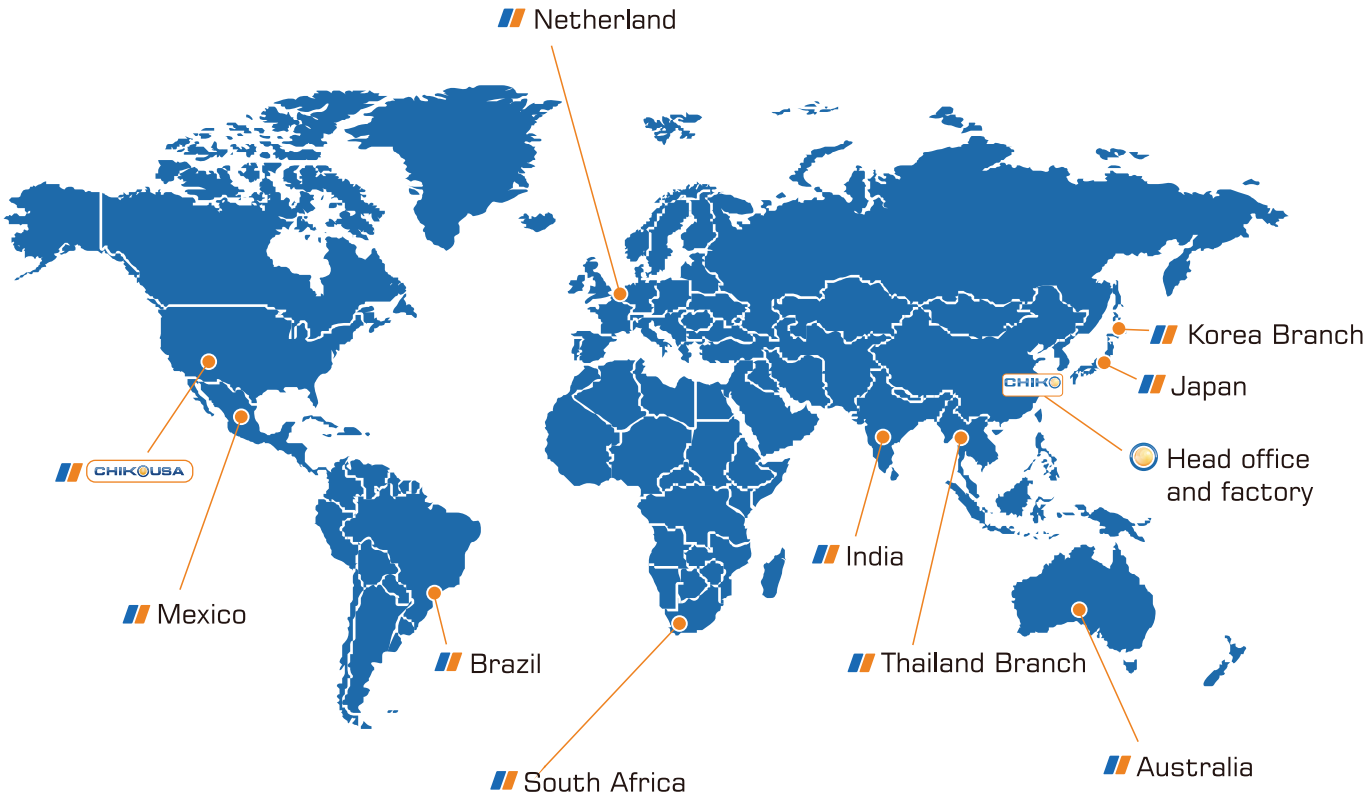
Taqi Khawaja, PE

STATE OF TEXAS
TAQI KHAWAJA
142361
LICENSED
PROFESSIONAL ENGINEER

(Above Certification Letter is can be provided for all 50 states)

WORLD LEADING

MANUFACTURE



CHIKOUSA

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