

12x16 Pergola, PDF Plans

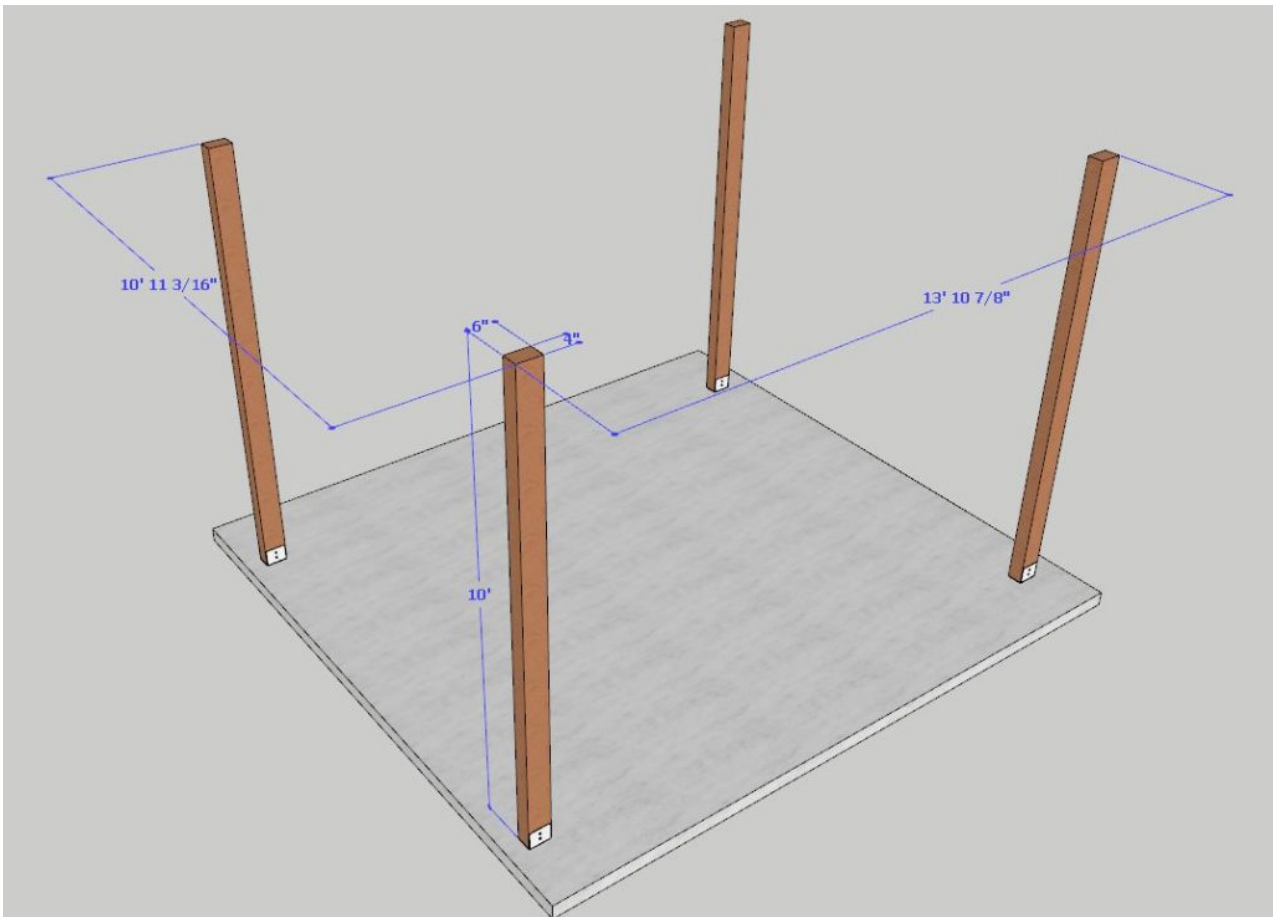
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Elvis Alcequiez

August 18, 2023

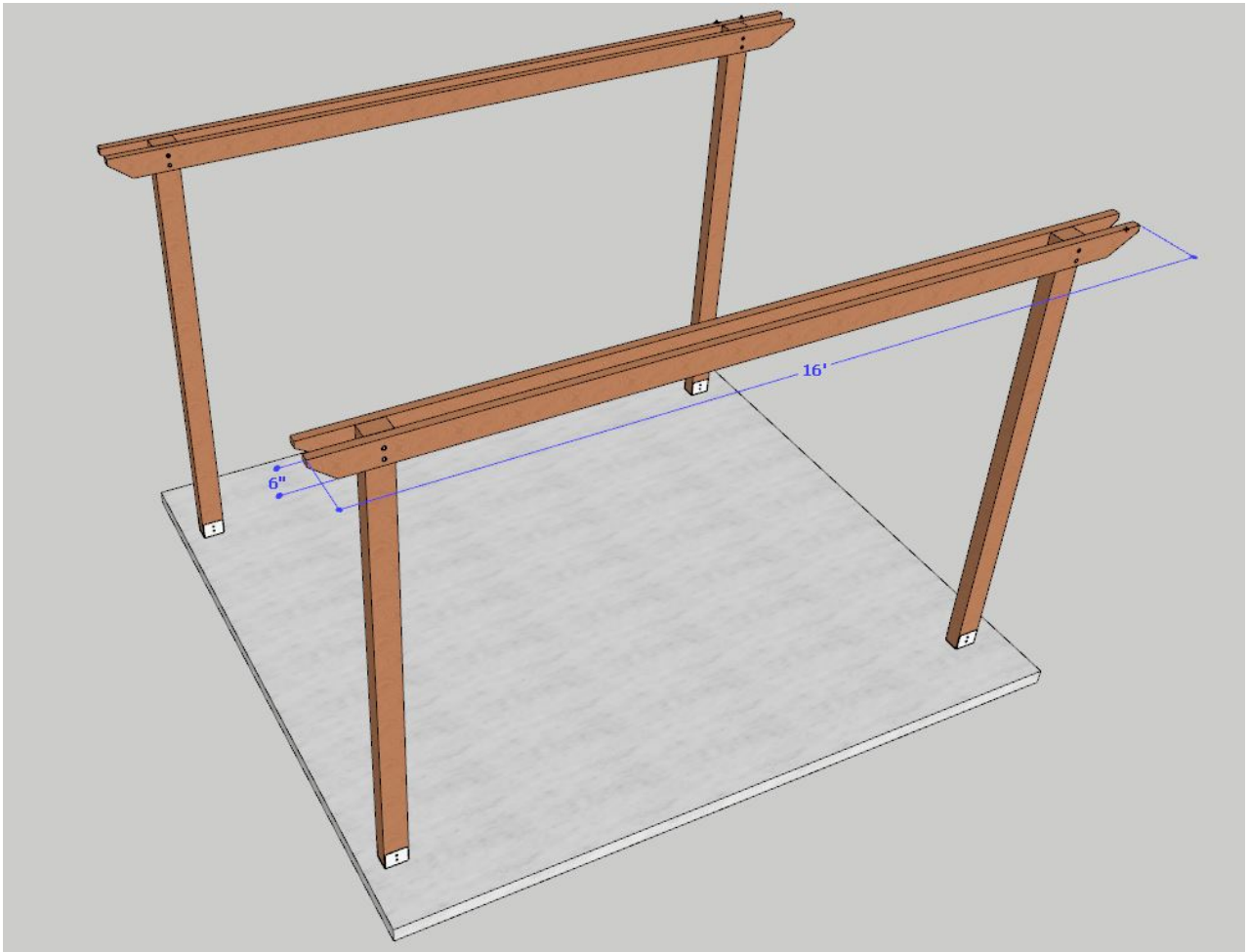
PDF drawing and exploded view: Elvis Alcequiez

The download link in PDF format for both the drawings and the cutting list is after the Instructions and Tips.

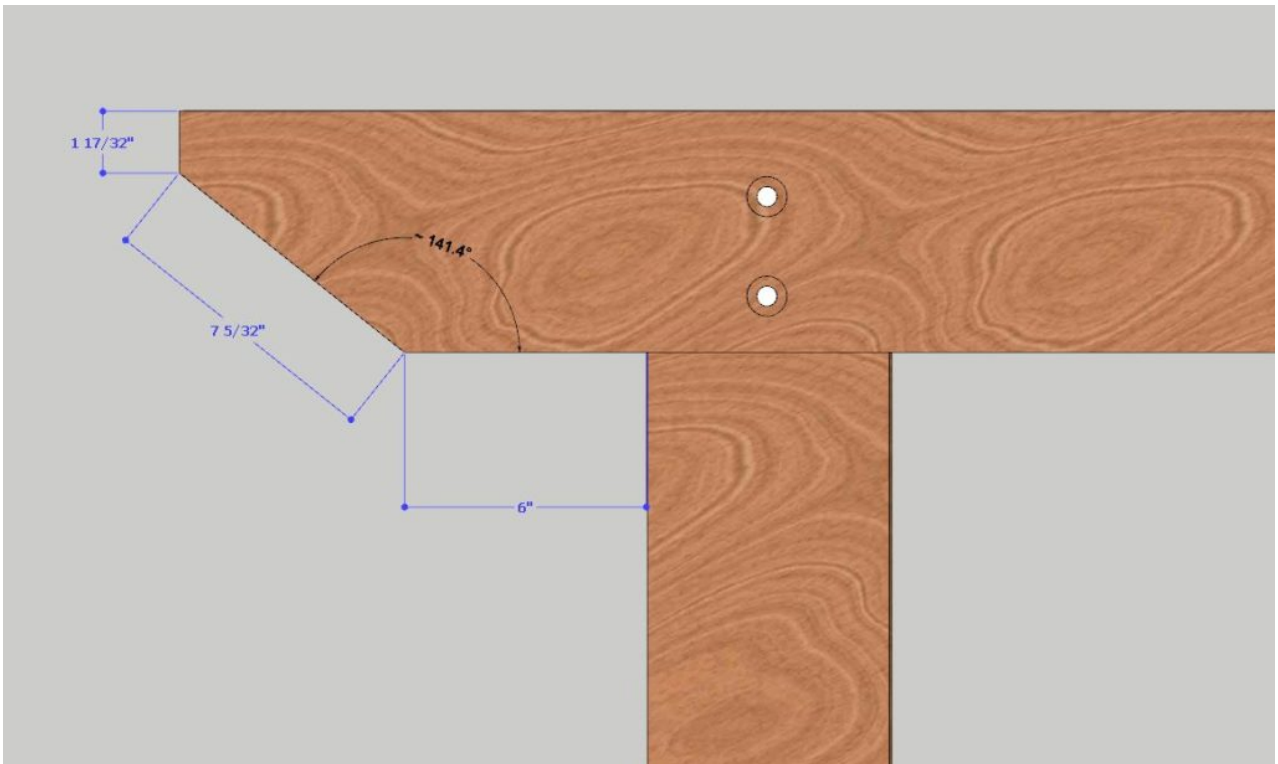


If you have a concrete base, you will place 4 4x6 inch posts 10 feet long, the base can be placed using metal anchors for 4x6 posts. If you have a concrete base, you will place 4 4x6 inch posts 10 feet long, the base can be placed using metal anchors for 4x6 posts.

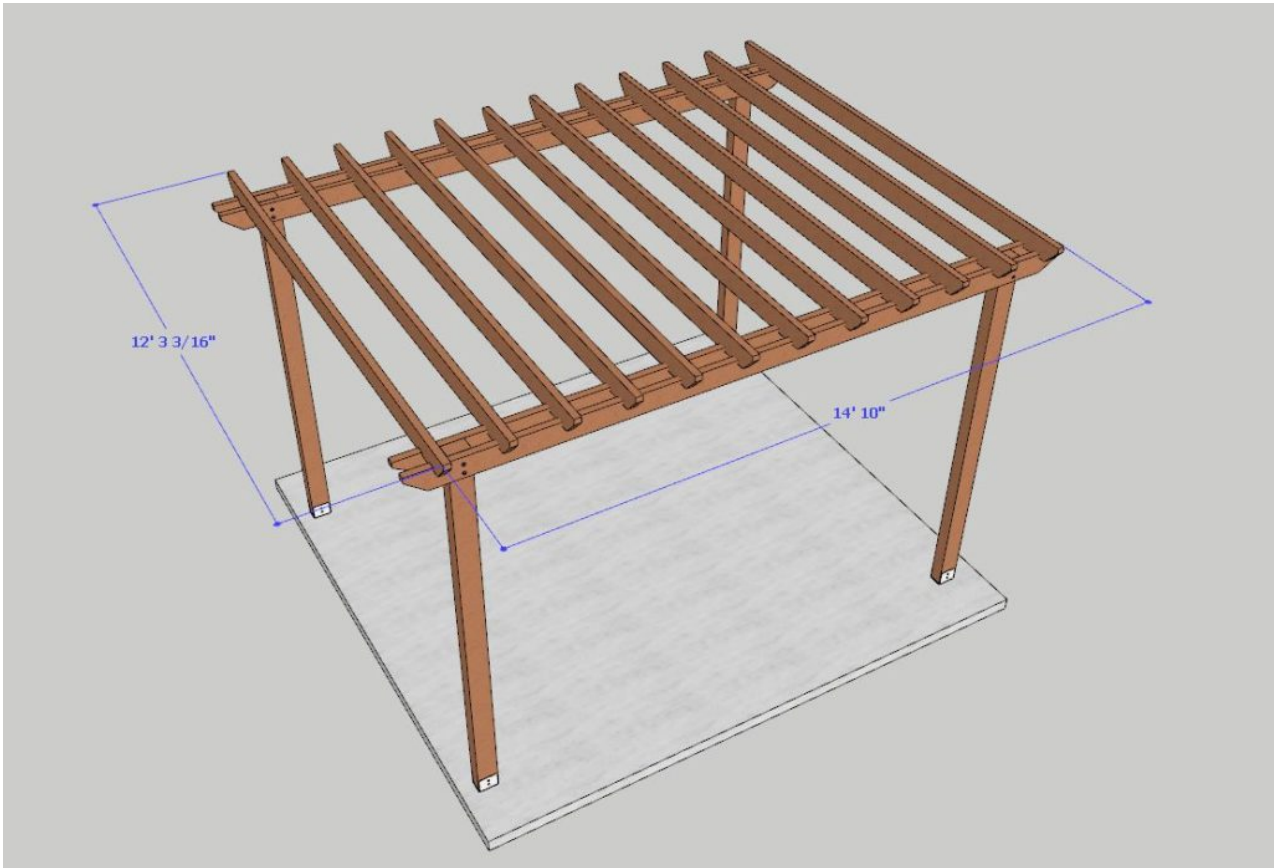
To know the type of foundation you should have in case you don't have a concrete base, check the tips and recommendations below.



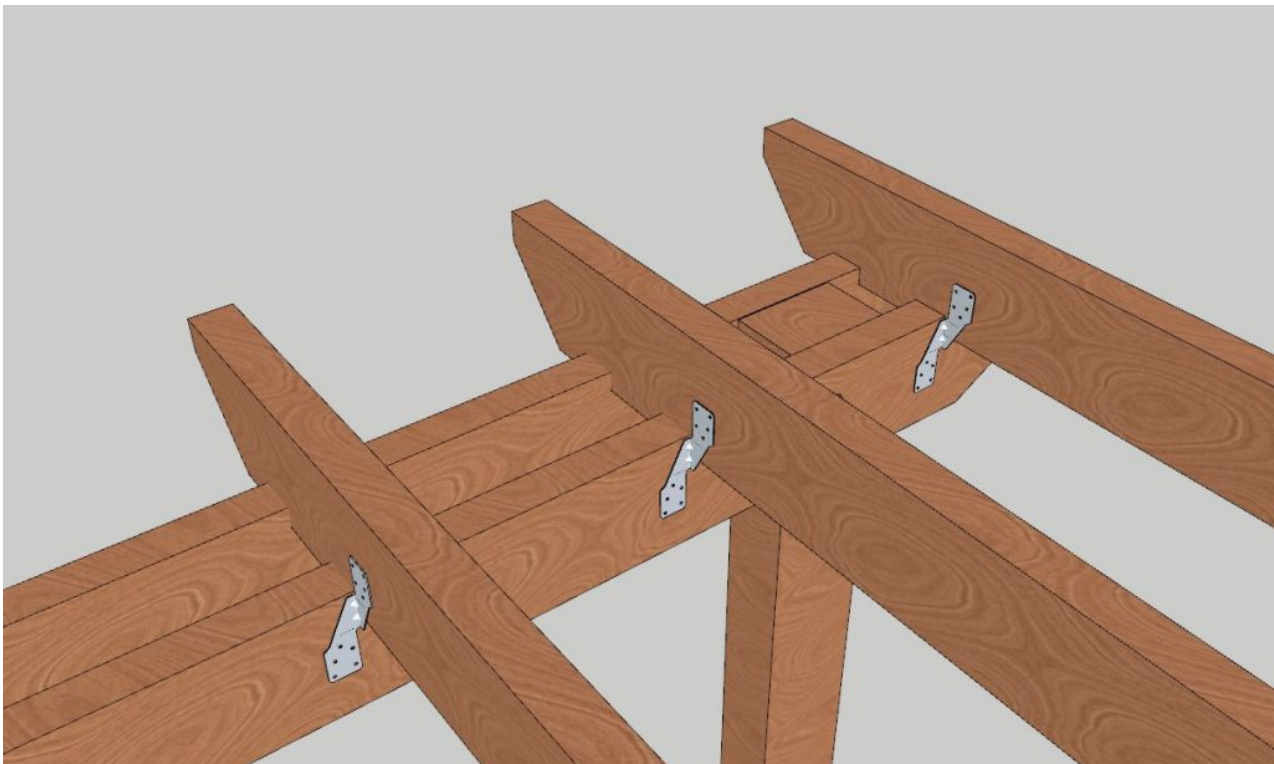
Then cut four 16-foot-long 2×6-inch rails that will align the columns and serve as the base for the gazebo roof structure.



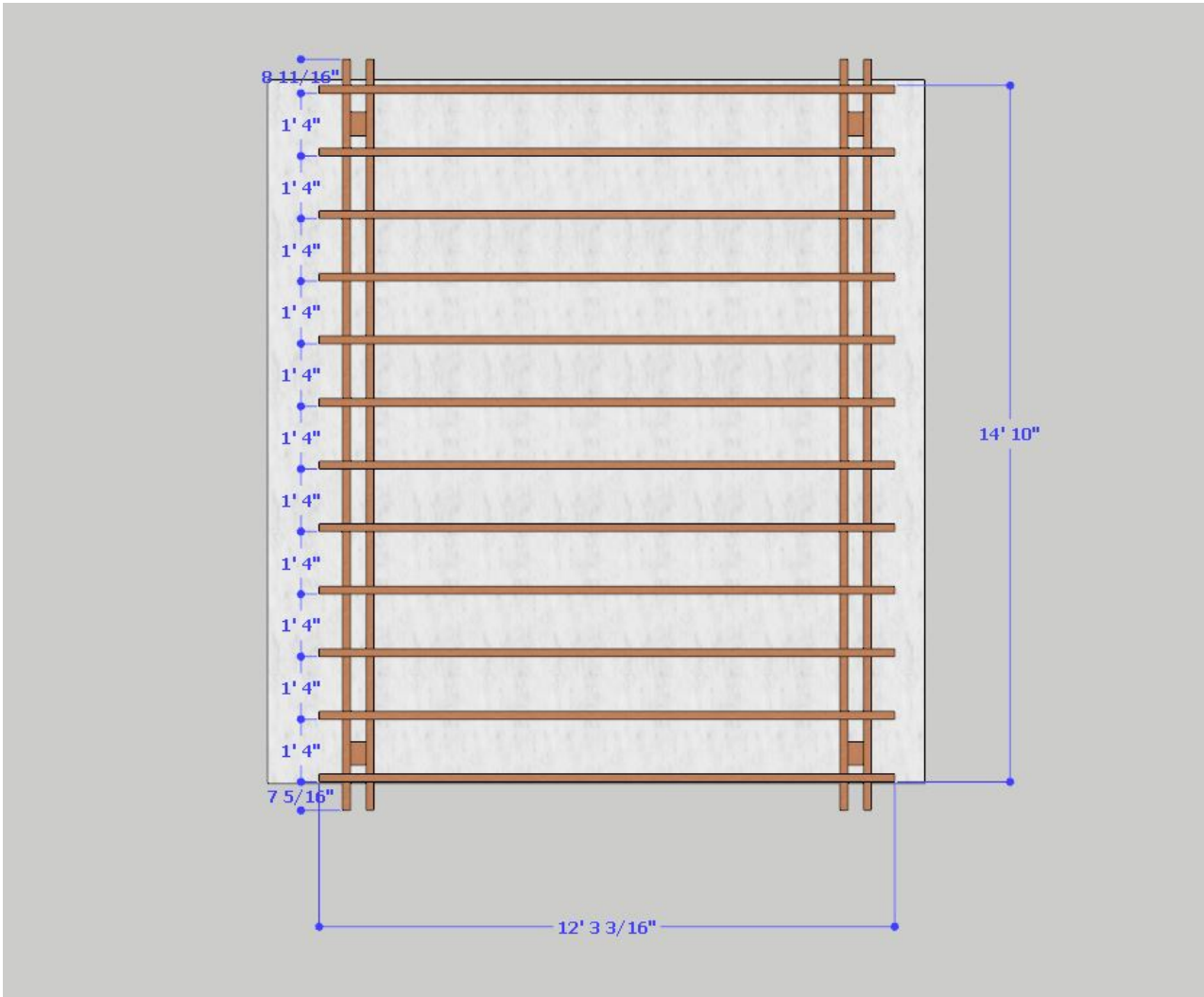
Rail profile detail



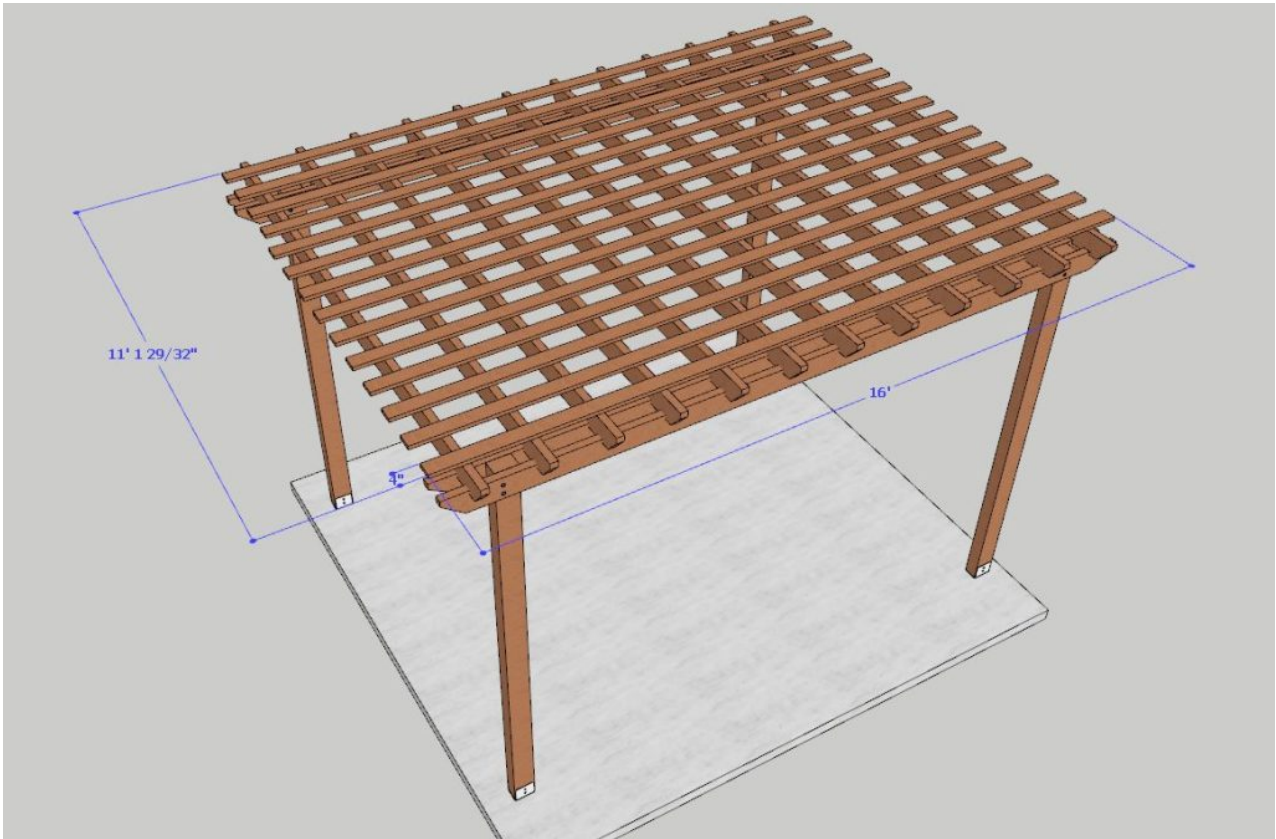
Next, we need 12 top rails 2×6 inches and 12' 3 3/16" long.



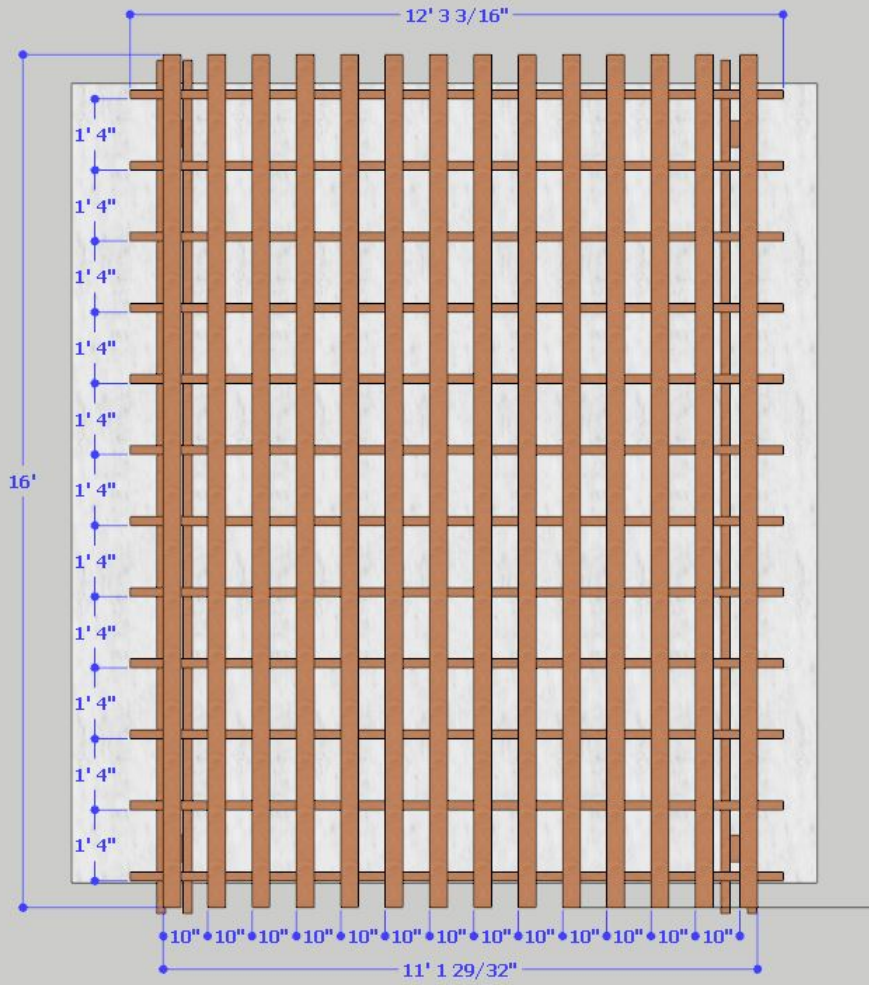
If preferred, you can use hurricane tie metal anchors on the top rails.



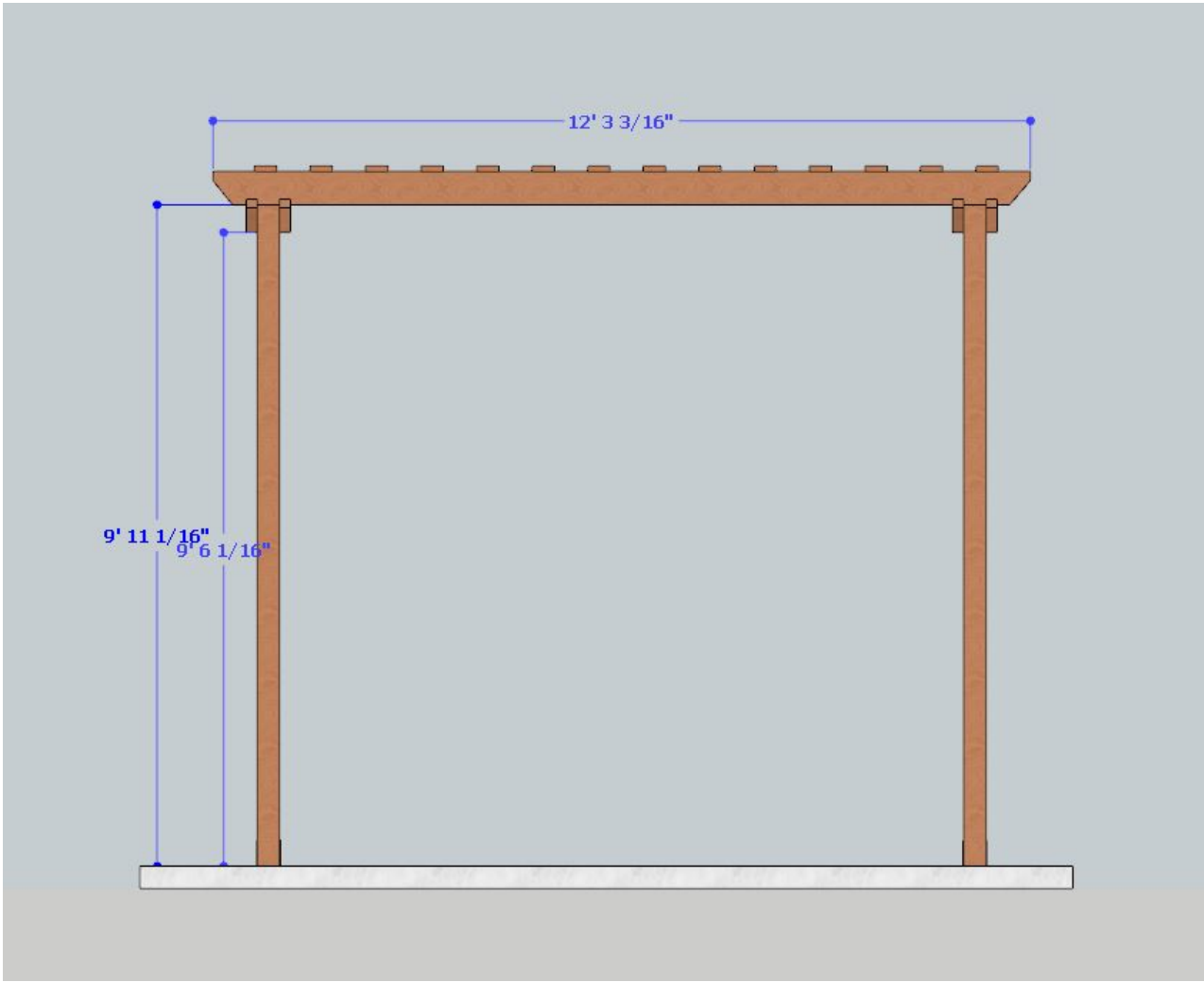
Plan view, top rail separation space



Then, place 14 1×4-inch by 16-foot-long top brace boards on the top rails.



Top view



front view

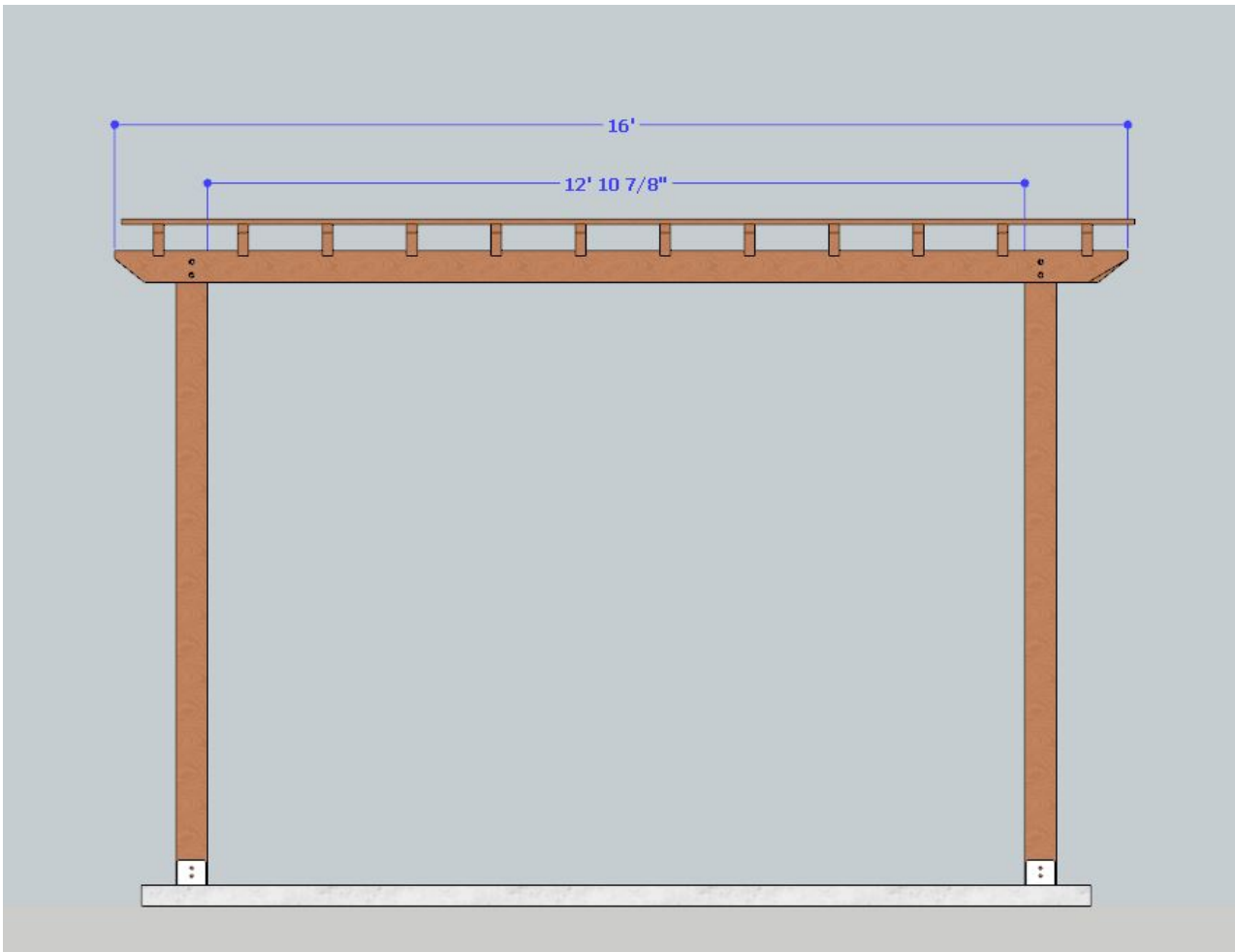


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Cutting List

No.	Description	Qty.	Rough	Finished
6" x 4"				
A	6x4 Post	4	10' 1"	10'

No.	Description	Qty.	Rough	Finished
Wood slats / 6" x 2"				
B	16' Rail	4	16' 1"	16'
C	2x6x12 top rail	12	12' 4 3/16"	12' 3 3/16"

No.	Description	Qty.	Rough	Finished
	Top brace boards / 4" x 1"		L	L
D	top brace board	14	16' 1"	16'

Instructions and tips

How deep should the foundation be for a 4x6 pergola pole?

Building a foundation for a gazebo involves several considerations, including the local soil type, the expected weight of the structure, the local climate (particularly in areas prone to frost), and local building codes.

Here are some general steps and recommendations:

1. **Frost Line:** In areas prone to freezing temperatures, it's important to set the foundation below the frost line to prevent frost heave, which can lift and damage the structure. The frost line varies depending on your geographical location. In many places in North America, for instance, this can be anywhere from 12 inches (in warmer climates) to well over 48 inches in colder regions.
2. **Concrete Footings:** It's common to use concrete footings for gazebos. For a 4x6 post, a typical footing might be at least 12 inches in diameter and go below the frost line.
3. **Post Anchors:** Once the concrete footings are poured and cured, you can use post anchors embedded in the concrete to hold the 4x6 posts securely. This prevents wood-to-ground contact, reducing the risk of rot.
4. **Weight of the Structure:** If your gazebo is particularly heavy or if it will support additional weight (like from hanging plants, lights, or swings), you may need deeper or wider footings to distribute the weight.
5. **Soil Type:** Sandy and loose soils generally require deeper footings than more compact soils.
6. **Local Building Codes:** Always check with local building codes and regulations. There might be specific requirements for depth, width, and type of foundation based on your location and the type of structure you're building.
7. **Other Foundation Options:** If you're looking for a temporary solution or if your local codes allow it, you might consider using ground anchors or heavy-duty stakes instead of concrete footings. These can be easier to install but might not offer the same level of stability as concrete footings.

What type of bolts are used to support the 2×6 rail to the 6×4 inch posts on a pergola?

When attaching a 2×6 rail to 6×4 inch posts on a gazebo, it's important to use strong and durable hardware. Here's a breakdown of the type of bolts commonly used for such applications:

1. **Lag Bolts (Lag Screws):** These are heavy-duty screws that are larger than standard screws. They provide strong connections between wooden pieces. For attaching 2×6 rails to 6×4 inch posts, a common size might be a 3/8-inch diameter lag bolt, but the length will depend on the design (usually long enough to go through the 2×6 and at least 2 inches into the 6×4 post).
2. **Carriage Bolts:** These are rounded-head bolts that are used when a smooth finish is desired on the side where the bolt head will be visible. The squared section beneath the head prevents the bolt from turning as the nut is tightened. Again, the diameter and length will depend on the specific design and how the connection is being made.
3. **Through Bolts:** Sometimes, you might use a bolt that goes completely through both the 2×6 rail and the 6×4 post, secured with a washer and nut on the other side. This can provide a very strong connection, especially if more than one bolt is used at each connection point.
4. **Post Bases and Brackets:** While not bolts, there are specialized metal connectors and brackets designed for wood connections. They can offer additional strength and alignment assistance. These might require specific types of fasteners, such as structural wood screws or nails.
5. **Washers:** Always use washers with your bolts to distribute the pressure of the bolt head or nut and to reduce the chance of the bolt head or nut digging into the wood.

When choosing bolts or any fasteners:

- Opt for **corrosion-resistant materials** like galvanized steel, stainless steel, or specially coated fasteners, especially if the gazebo will be exposed to weather or if you live in a humid or coastal area.
- **Pilot Holes:** Before inserting the bolts, it's good practice to drill pilot holes. This prevents the wood from splitting and ensures proper alignment.
- Always consider the weight and the expected load on the gazebo. If the gazebo is expected to support a heavy roof or other added weight, you might need to adjust the size and number of bolts accordingly.

[Download PDF Drawing](#)

[Download Parts List](#)