ShadeTree® Canopy Systems Assembly Instructions

*Using **ShadeTree® Aluminum Overhead Tracks** supported by a Biltmore aluminum support structure*

The Biltmore

Dear Customer:

Thank you for purchasing our **ShadeTree® Canopy System**. We trust these assembly instructions will be satisfactory for your installation. If you have any questions, please feel free to call 1-800-894-3801.

And here's a special offer we'd like to make to you: Send us a photo of your new ShadeTree® installation and we will send you **$50** if we use your photo in our advertising materials. Before and after pictures will receive an additional $50. A deck or patio that is nicely furnished helps us communicate to prospective customers how nice a ShadeTree® patio can be.

We hope you enjoy your new ShadeTree® patio canopies.

Sincerely,

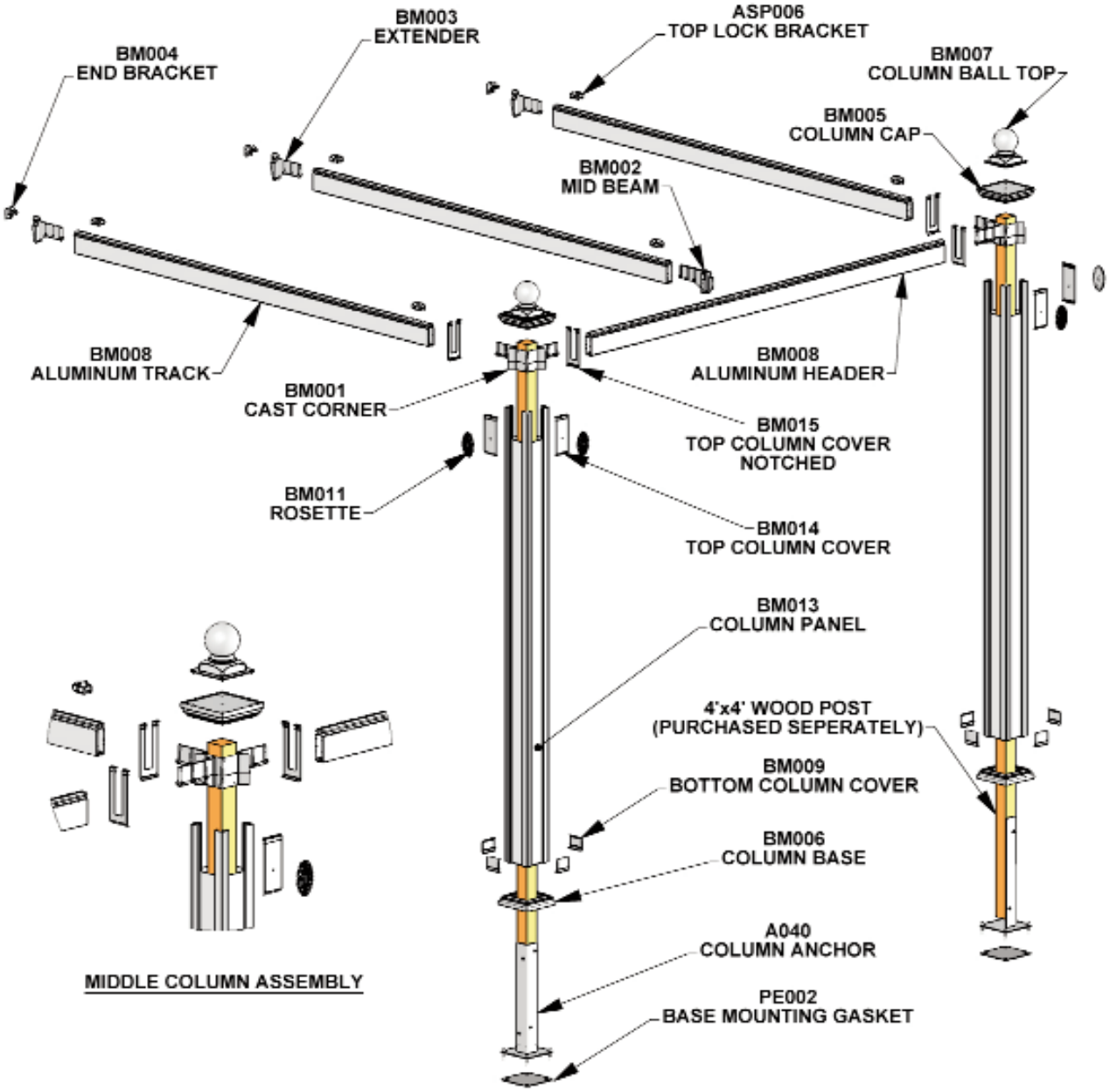
Colin LeVeque, President
ShadeTree Cool Living, LLC.

ShadeTree®
Retractable Patio & Deck Canopies

ShadeTree Cool Living, LLC | 6317 Busch Blvd. | Columbus, Ohio 43229 | **800-894-3801** | fax **614-844-5991** | www.**shadetreecanopies**.com

Complete **Aluminum** System

(supported by an **aluminum** frame)



Tools required:

1. Phillips screwdriver
2. Hand drill
3. 9/64" drill bit
4. pencil
5. bubble-type level
6. Carpenter's square
7. tape measure
8. hand saw
9. 8' ladder

If driving screws with a drill or power screwdriver, set the torque to a low setting to avoid stripping screw heads.

Other Materials Required:

You will also need 4" x 4" wooden posts for added strength inside aluminum columns. Pre-selection of pressure-treated wood is very important. Any warped or oversized lumber will not fit inside the aluminum columns. If sinking posts into the ground, treated lumber is recommended.

If mounting on a deck, patio, stepping stones, or wooden landscaping timber embedded into the ground, a wood post length of eight feet will suffice. If you wish to cement the posts 3' into the ground, 12' posts are needed. The aluminum framework should be completely assembled before cement is poured into the holes.

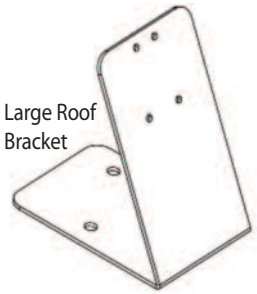
If you are sinking posts into the ground, the *Column Bases* are optional. If you prefer to use the *Column Bases*, they should be assembled onto the *wood posts* before erecting the system.

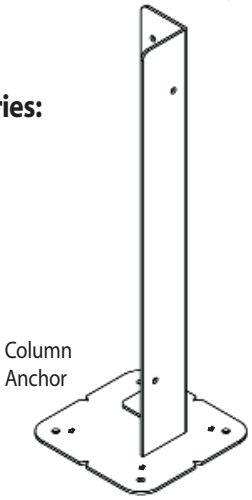
NOTE: You'll find a second pair of hands (to hold parts as the unit goes up) to be very helpful in erecting your system.

CAD –YOUR PROVIDED CUSTOM BLUEPRINT :

Each ShadeTree Pergola will ships with a custom-designed CAD drawing showing all of the dimensions neccessary for installation. Please refer to this CAD for all steps in these instructions. If a CAD did not come with your ShadeTree system, please call customer service before proceeding with installation.

Optional installation accessories:



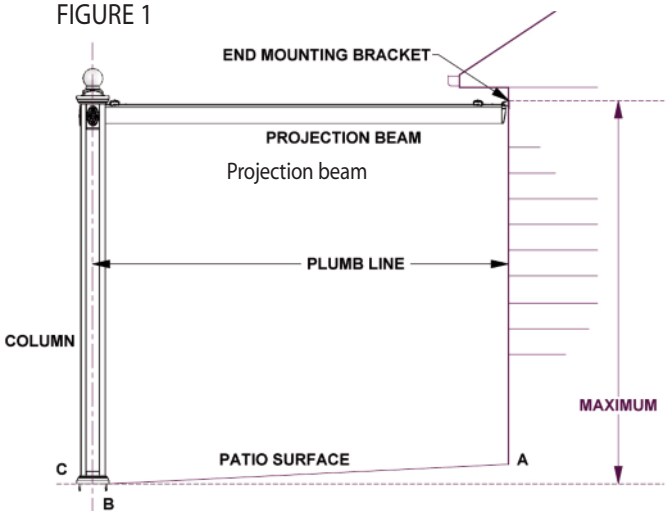


Step 1 Determine the **height** of your **ShadeTree® Biltmore** System

To determine the height at which to place the *End Mounting Brackets* (which hold the *Projection Beams*) on the house, it is important to know the maximum height of the mounting bracket relative to the maximum height of the aluminum columns.

See following illustration and dimensions to determine maximum height of End Mounting Bracket on the house.

FIGURE 1



For a standard 10' column, the maximum height to top edge of End Mounting Bracket is 9' 2-3/4" from surface on which columns will be anchored. (See vertical arrow at far right side of diagram above.)

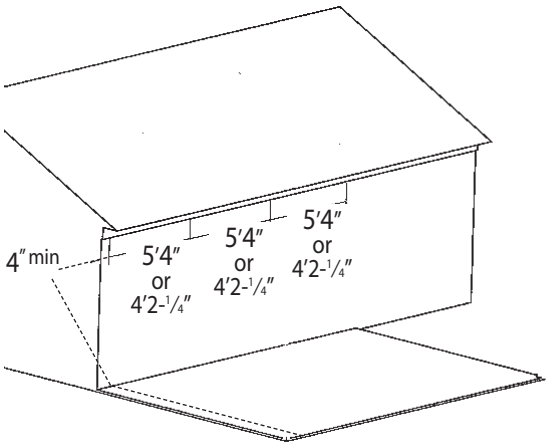
If there is no "fall" in your deck or patio surface (in most cases, there is some fall so rain will drain away from the house), you can place the *End Mounting Bracket* as high as 9' 2-3/4" from the patio surface at the house (A). However, if there is fall from your house (A) to the place where the columns are to be placed (C), it is necessary to adjust the height of the *End Mounting Brackets* to accommodate for this difference in surface levels.

See the CAD drawing that came with the system to determine distance from house to center of Column (B). To determine the "fall" from your house to the surface on which the columns will be anchored (C), extend a string level from base of house (A) to the to center line of *Column* (B) and measure the distance (fall) from level line at (B) to mounting surface (C).

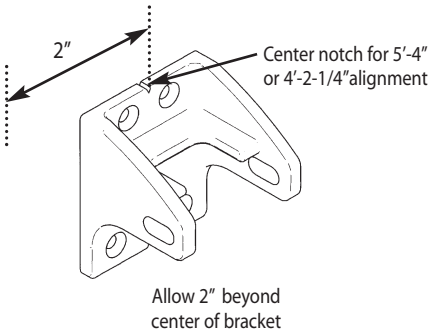
Subtract the "fall" dimension from 9 '2-3/4" to determine the maximum height (based on 10' columns, if you are using 12' or higher columns, add 2' respectively) at which the top of the mounting bracket can be installed. Mark this position temporally on the house.

Step 2 Attach **End Mounting Brackets**

Mark the center location for each *End Mounting Bracket* on the house 5-4″ or 4′-2″ apart (refer to the supplied CAD of your system). One *End Mounting Bracket* is needed for every projection beam. Be sure to allow approximately 4″ on the outside of outermost brackets for inserting bolts into brackets.

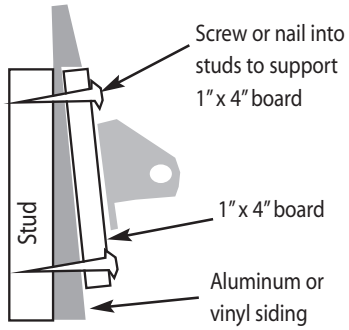


Mount the *End Mounting Brackets* on each center mark, using the center notch as a guide. The brackets should be mounted so that the the slanting edge of the bracket is to the top (as in illustration). Be sure to mount the brackets level with each other. Use a 9/64″ drill bit to drill pilot holes. Wood screws are included (1-1/4″ screw c)… any other type of screws (such as masonry screws for brick or stone) can be purchased from your hardware store. The Bracket can be used as its own template for marking pilot holes.



When mounting to house, brackets must be attached to well-secured wood, brick or stone.

- If mounting to a house with wood siding, or to wood trim, use the 1-1/4″ #10 wood screws with the painted heads (screw c).
- If mounting to a masonry wall (brick or stone) concrete fastening screws must be used. Consult your hardware store for the best fastener for your situation.
- If attaching to stucco, aluminum, or vinyl siding, the screws must make contact with wood. On two story houses, this can usually be done in the area of the second floor joists. When no wood can be found to carry the canopy load, it is recommended to attach a 1″ x 4″ board to the home (see illustration below) … horizontally at the height desired for the canopy. The board can then be secured by screws into each stud. On aluminum or vinyl siding, tighten the bottom screws only enough to hold board snugly. Over-tightening can compress the siding. The board can be painted or stained to match the siding.

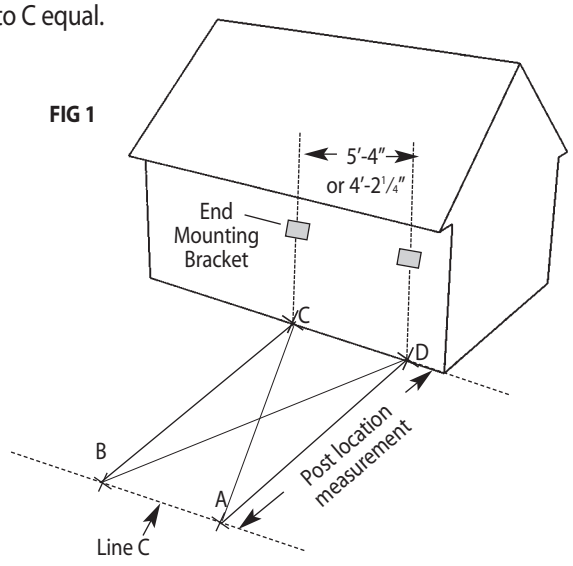


Step 3 Determine location of **Aluminum Columns**

Using the CAD for your system, measure out from the house to the location of your first *Aluminum Column*(A). Measure out from the house a second time to the location of your second *Aluminum Column*(B). Be sure that points A & B are on a line (C) that is parallel with the wall to which the End Mounting Brackets are attached.

To ensure that your system will be square, measure the distance from point B to point D. Then measure the distance from point A to point C. Move points A and B right or left to get B to D and A to C equal.

FIG 1



Step 4 – Preparing the **surface**

If you do not have a level surface (most patios have a slight slope to shed water), you may need to cut the columns that are to be placed on the high side of the mounting surface. You should first establish the difference in elevation (you can use a level and tape measure if necessary). Next measure up, from the bottom of the column, the difference in elevation, and place a mark on the column. **(You should only cut the column from the bottom).** It is important that your ShadeTree structure be built so the beams and headers are level. A deck or patio is an ideal surface. Another option is to set 4x4s into 3' deep hole and encase in concrete.

Mounting higher than the maximum mounting point.

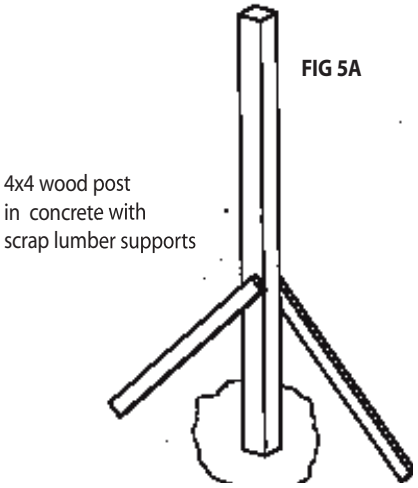
If it is desirable to mount higher on the house than the 9' 2-3/4" shown in Fig. 5A, you can do this by building post support "pillars" of brick, stone or other material. This can be an attractive way to achieve a higher positioning of the mounting brackets and thus a higher overall pergola system.

Step 5 - **Internal Post** assembly
(set or surface-mounting)

Step 5 - Option A: **Wood posts set in concrete:**

Dig holes and **secure posts**

You will need 12' or longer 4x4 posts when setting posts into concrete. We recommend that you use pressure treated lumber for this application. Once you have determined the post locations, you can begin digging the holes. You should dig the holes to a depth of 3 feet. Mix concrete according to manufacturer's instructions and pour into holes. Check that wood posts are plumb and extend at least 9' 2-3/4" above ground level. Stabilize the posts temporarily by attaching scrap lumber into the posts as illustrated in Figure 5A.

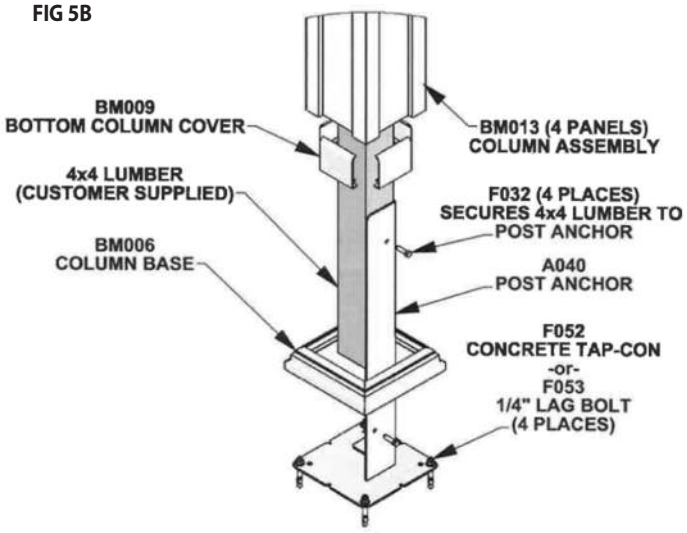


Step 5 Option B – **Surface-Mounting** using **Column Anchors**

Attach **wood post** to **Column Anchor**

With Anchor in vertical position on the ground, attach each wood 4x4x10' post onto the *Column Anchor*. Pre-drill for the 1/4" x 1 3/4" long lag bolts using a 3/16" drill bit. Install the 4 lag bolts through the steel support into the 4x4 wood posts.

FIG 5B



Step 6 Assemble the **Columns**

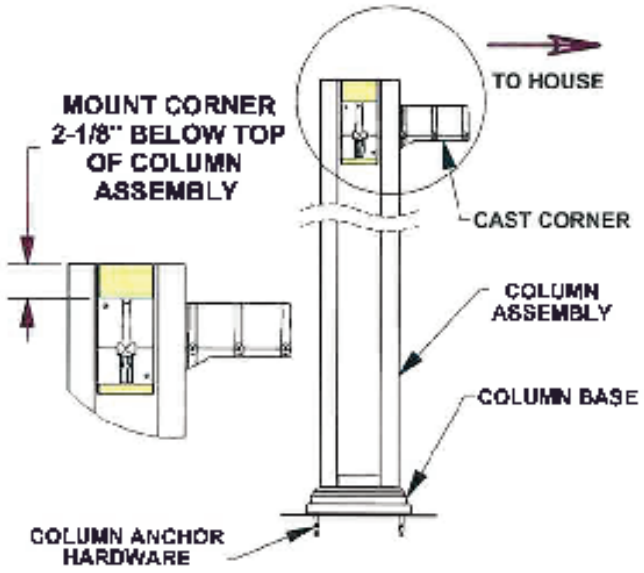
Each Biltmore *Aluminum Column* consists of 4 panels that simply snap together. Lay down a panel on a clean smooth surface with the channel and ridge side facing up. Position a second panel so that the channel of the second is over the ridge of the first panel. Using a rubber mallet, gently hammer the edge of the second panel so the ridge of the first locks into the channel of the second. Repeat this process with a third and fourth panel.

Once you have the two corners of the *Aluminum Column*(s) assembled, wrap them around the Wood Posts and lock them together with the notched end at the top. Have your helper hold up the *Aluminum Column Assembly* while you position the *Bottom Column Covers*. Lower the *Aluminum Column Assembly* into the bottom channel of the *Bottom Column Covers* (see Fig. 5B3 above) and lock them together.

Slide the *Column Bases* over the *Aluminum Column Assembly* and *Bottom Column Covers*. Repeat this process for all of the *Aluminum Columns*.

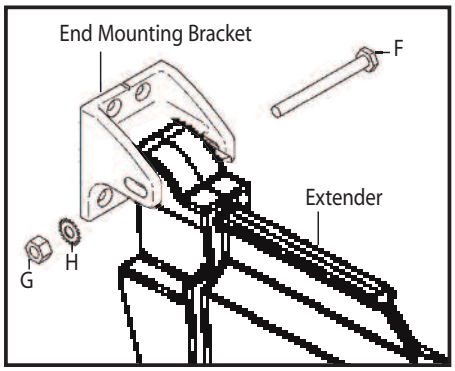
Step 7 Attach **Corner Brackets**

Slide the *Cast Corner Bracket* into th the top of the *Column Assembly*. Position sthe Bracket so that it is 2 1/8" below the top of the *Column Assembly* and then lightly screw the *Bracket* into the wood post. Ensure that the vertical *Column Assembly* is square with the mounting surface and with the house.



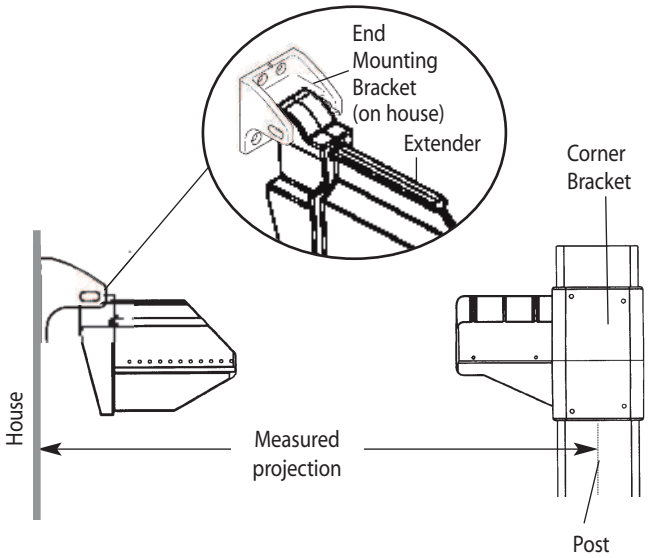
Step 8 Temporarily Attach **Extenders**

Attach an *Extender* to each the two outside *End Mounting Brackets* on the house using the 2-3/4" bolts (F), lock washers (H) and nuts (G) provided. Be sure the top of the *Extender* is up (as shown.) Loosely hand-tighten the nuts.



Step 9 Measure the length of the **Projection Beams**

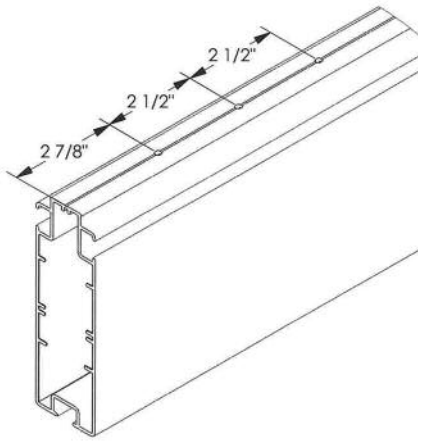
Have your helper hold the Column Assembly square. Hold the *Extender* level. Measure the distance from the *Extender* to the *Corner Bracket* as shown in the illustration below. This measurement will tell you exactly how long your *Projection Beams* must be. Compare this measurement to the actual length of the *Projection Beams* that you purchased to determine how much needs to be cut (if any.)



If your application requires projection beams shorter than provided, please follow step 10. If you are satisfied with the projection length, proceed to step 11.

Step 10 Shorten **Projection Beams** (optional)

Cut the desired length off one end of the *Projection Beam* with a hack saw or miter saw. It is recommended to cut the length from the end of the *Projection Beam* closest to the house. Ensure that the cut is square. Redrill the six mounting holes in the end of the *Projection Beam* using the 9/64" drill bit. For the holes on top of the *Beam*, measure along the scribed centerline already present on the *Beam*. Drill the hole locations per the dimensions shown below. Repeat this process for all *Projection Beams*.

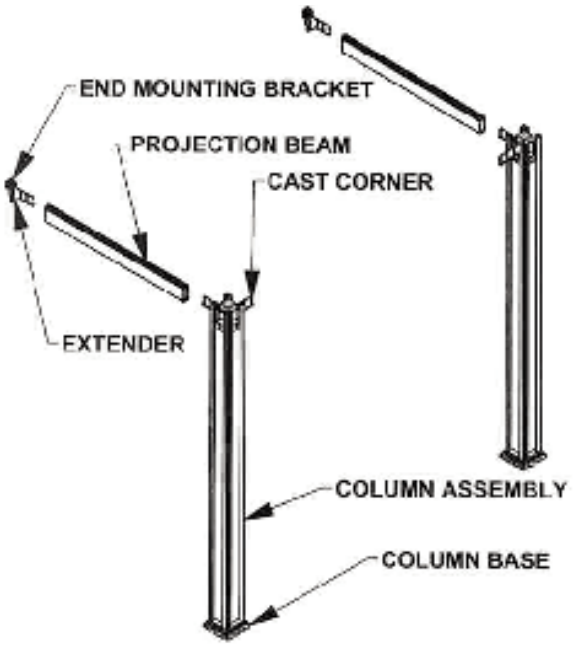


Step 11 Connect outside Projection Beams

All of the *Projection Beams* have notches cut in the tracks that allow for the insertion of the canopy rollers. The outside *Projection Beams* are notched on one side only; the side of the beam that is not notched faces outside of the structure and the side that is notched faces inside. The *Projection Beams* that are notched on both sides go on the inside of the structure.

Remove the Extender from the End Mounting Bracket on the wall. Assemble the outside *Projection Beam* by inserting the arm of the *Corner Bracket* and the arm of the extender into the *Projection Beam*.

To help secure the *Projection Beam* during the assembly process, insert two 7/8" tapping screws (A) into the *Projection Beam* through both the *Extender* and the *Corner Bracket*. The two holes on the top of the track at the *Extender* connection must be drilled into the *Extender* with the 9/64" drill bit to a depth of approximately 1".



Step 12 Attach a **Projection Beam/Column Assembly** to the Wall Bracket

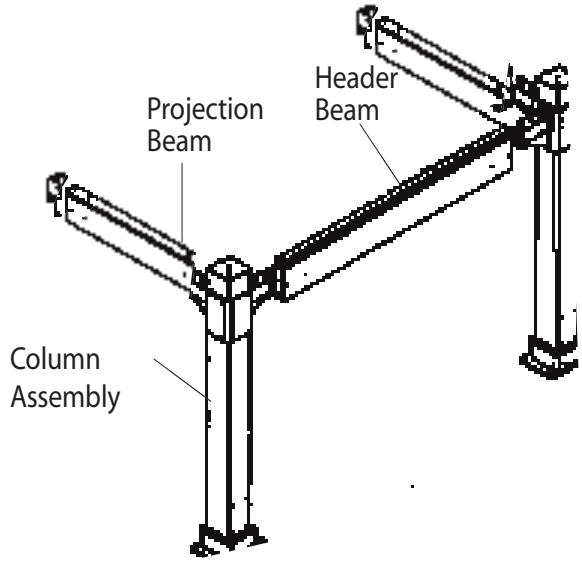
Attach one *Projection Beam/Column Assembly* to one of the outside *End Mounting Brackets* on the house using the 2-3/4" bolts (F), lock washers (H) and nuts (G) provided. Be sure the top of the *Extender* is up (as shown.) Loosely hand-tighten the nuts.

Step 13 Connect **Column Assemblies**

Insert the arm on the *Corner Bracket* of the attached *Projection Beam/Column Assembly* into the end of the *Header Beam*.

Attach the other *Projection Beam/Column Assembly* to the *End Mounting Bracket* on the wall. Place a bubble level on top of the *Header Beam* to confirm that it is level. If it is not, reposition the *Corner Brackets* and lower or raise the *Corner Brackets* on the Wood Post as necessary. Once level, drill eight 9/64" holes through the existing mounting holes on the *Corner Bracket* and into the Post. Fasten each corner with eight 1-1/4" Tapping Screws (B).

To secure the *Header Beam*, screw two 7/8" Tapping Screws (A) through the pre-drilled holes on the top of the *Header Beam* into the *Corner Brackets* at both corners.



Step 14 Check to make sure the **Assembled Outer Frame** is **SQUARE**

Measure the distance from one *Projection Beam/Column Assembly* to the opposite outside *End Mounting Bracket* on the house. Then measure the distance from other *Projection Beam/Column Assembly* to the opposite outside *End Mounting Bracket* on the house. Both measurements must be the same for the system to be considered square. You must make any necessary adjustments to ensure that it is square before permanently anchoring the *Columns*.

Step 15 Permanently Anchor **Column Assemblies**

If cementing wood posts in the ground, square all vertical posts using a bubble level. Add cement to holes & resume assembly once cement is dry.

If anchoring Column Assemblies, before drilling holes into the surface, be sure that the *Column Anchor* alignment notches are aligned with the centerlines of the other anchors. Fig. 15.

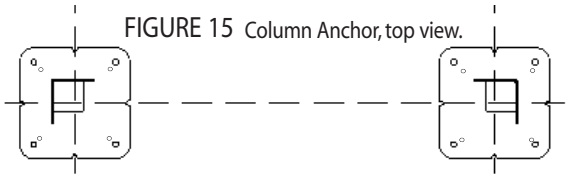
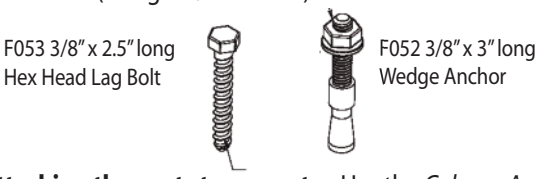


FIGURE 15 Column Anchor, top view.

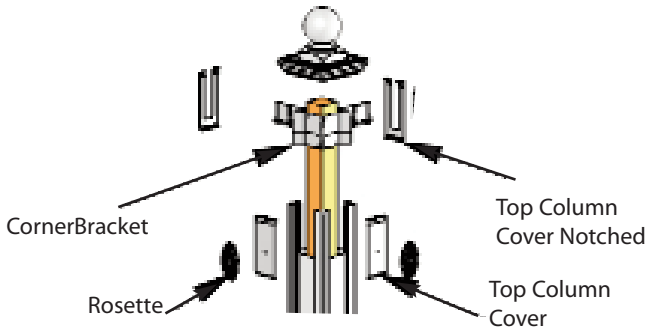
If attaching to a wood surface Use the *Column Anchor* as a template and pre-drill - using the inner holes, not the outer -for the 3/8" x 2 1/2" lag bolts that will secure the *Column Anchor* to your surface (using a 1/4" drill bit).



If attaching the posts to concrete. Use the *Column Anchor* as a template and pre-drill - using the inner holes, not the outer - for the wedge anchors with a 3/8" masonry bit, and use the provided 3/8" x 3 long wedge anchors. After pre-drilling the holes, use a hammer to drive in the wedge anchors.

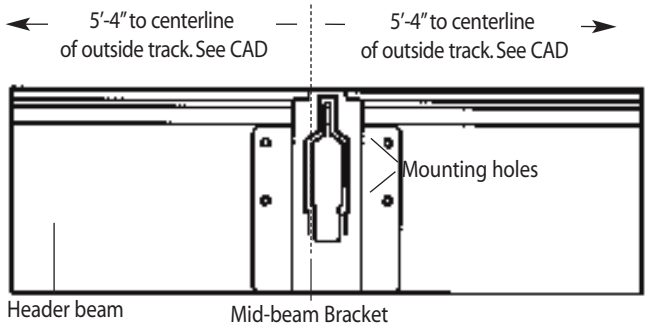
Step16 Assemble **Column Covers**

Insert the *Top Column Cover Notched* into the *Column Assembly*, under the Corner Bracket. The *Notched Column Cover* rests on the *Column Assembly*. Then insert the *Top Column Cover (BM014)* on the sides that do not have the *Corner Brackets* in them. If you intend to use the rosettes, you should drill a hole in the BM014 (using a 5/16" bit) that is centered left to right, and 4" up from the bottom edge of the Cover. Apply Liquid Nails on the pin of the rosette (plus a small amount on the back surface of the rosette). Insert the pin into the drill hole and allow to dry.



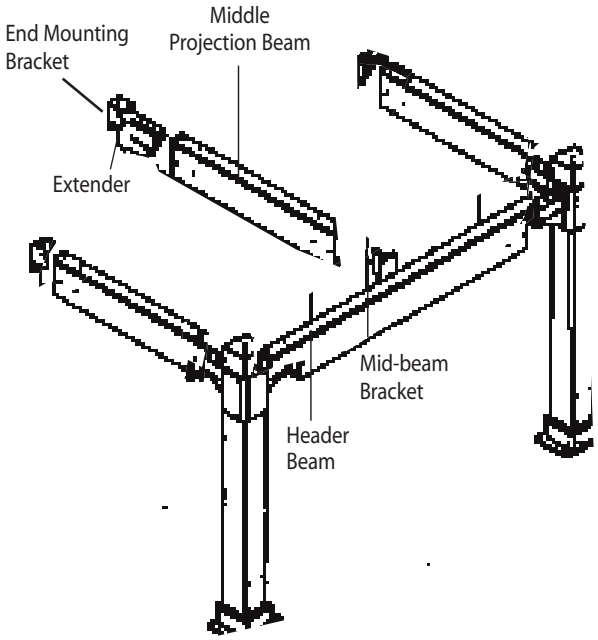
Step 17 Assemble **Mid-beam Bracket**

If you have purchased a one-canopy system, skip steps 17 & 18. Measure inward from the centerline of the outside track 5'-4". Place the *Mid-beam Bracket* on the cross beam at this distance. This location should be directly across from the End Mounting Bracket on the house (step 1.) Using the *Mid-beam Bracket* as a template, mark the four mounting hole locations. Remove the bracket and drill through one side of the *Header Beam* with the 9/64" drill bit. Secure the *Mid-beam Bracket* in place with four 7/8" Tapping Screws (A).



Step 18 Connect **Middle Projection Beam**

Insert the arm of the *Extender* and the arm of the *Mid-beam Bracket* into the *Middle Projection Beam*. Secure the beam by inserting two 7/8" Tapping Screws (A) into the beam at each end.



Step 19 Shortening **Canopy Length** (optional)

If you had to shorten the projection beams, you will most likely want to shorten the canopy length by the same amount. If you do not shorten the canopy, you will have more scallop to the canopies which may cause the rollers to shift/move more than if they were tighter. This can create a more roller noise than may be desired.

Lay the canopy on a flat clean surface. The extra fabric length should be removed from the back end of the canopy. This is the end opposite the handle. Remove the *Roller Sleeve* assemblies at both ends of the back canopy *Cross Member.* To do this, first fully extend the *Roller*, then push down on the locking tab and pull *Roller Sleeve* outward (Fig. 2A).


Fig. 2A


Fig. 2B


Fig. 2C

Remove the *Fabric Clamp*. To do this, insert a flat head screw driver between the canopy fabric and the *Fabric Clamp*. Pry upward to release the *Fabric Clamp* (Fig. 2B).

From the back end of the canopy, measure the same distance that was taken off the track length. Make a mark at this distance on both outside edges of the fabric (Fig. 2C).


Fig. 2D

Place the *Bottom Cross Member* (aluminum) underneath the canopy, centering it on the two marks. Position the *Bottom Cross Member* so the punched square holes at the ends are facing downward. Holding the *Bottom Cross Member* in this position, reassemble the *Fabric Clamp* by snapping the *Fabric Clamp* in place at both ends and pressing down, working toward the center (Fig. 2D).


Fig. 2E

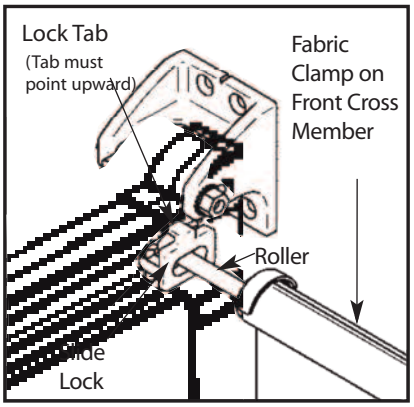

Fig. 2F

Insert the *Roller Sleeve* assemblies back into the *Bottom Cross Member*, ensuring that the locking tab engages the corresponding punched square hole in the *Bottom Cross Member* (Fig. 2E).

Measure the canopies to ensure the desired length is correct before trimming off excess canopy material. Remove the canopies and place on a flat, clean surface. To remove the excess canopy material, use the edge of the *Fabric Clamp* as a guide when cutting with a sharp utility knife (Fig. 2F).

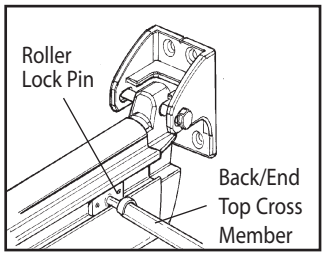
Step 20 Installing the **Canopies**

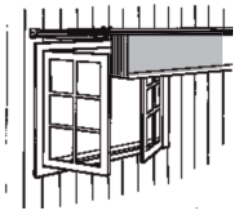
You can now insert the *Canopies*, starting at the end of the beams closest to the house. Insert the *Rollers* at the ends of each *Cross Member*; insert the front *Cross Member* first. The front *Cross Member* is the one that has a *Slide Lock* on each end. When inserting, ensure that the *Lock Tab* is pointing up as shown here. Be sure that the canopy is oriented so that the *Fabric Clamp* is facing up as shown, while the aluminum *Cross Member* is oriented down. Continue inserting the remaining rollers until the entire *Canopy* is up. Install remaining *Canopies* using the same procedure.



Step 21 Locking the end of the canopy

A *Roller Lock Pin* is provided to hold the *Cross Member* nearest the house in a fixed position. It will arrive already inserted in the canopies in the last cross member. Once in place, it can be secured with set screws. The locking pin will hold the last *Cross Member* firmly in place. Repeat on each track. (On masonry houses, it is necessary to leave a few inches between the canopy and the house to prevent scuffing of the canvas during windy weather).





If existing obstacles (casement windows, doors, etc.) keep canopies from retracting against the house, **extra canopy roller lock pins** can be put into the next rollers on the canopies. As a result, canopies will retract only to the desired position, clearing the obstacle. It will be necessary to insert a grommet hole in the locked out panel to allow the rain to drain.

Step 21 Installing the **Top Lock Brackets**

Pull each canopy section out to the position where you want it to end. Place a *Top Lock Bracket* on the top of the track in the orientation shown in Fig. 2A. Tighten set screw 1 on both sides of the *Top Lock Brackets* with the Allen wrench provided (I) . . . making sure that the *Top Lock Brackets* are completely pushed down on the track before tightening.

Test the snap-in *Top Lock Bracket* and tighten or loosen the adjusting screws as required for the desired tension. The recommended tension setting procedure is to turn the adjust screw clockwise until it stops, and then back the adjust screw out six full revolutions Repeat this step on each lock mechanism.

Pull each canopy back to the fully retracted position. Place another *Top Lock Bracket* on each track at this point, in the orientation shown in Fig. 2A. Tighten the set screws.

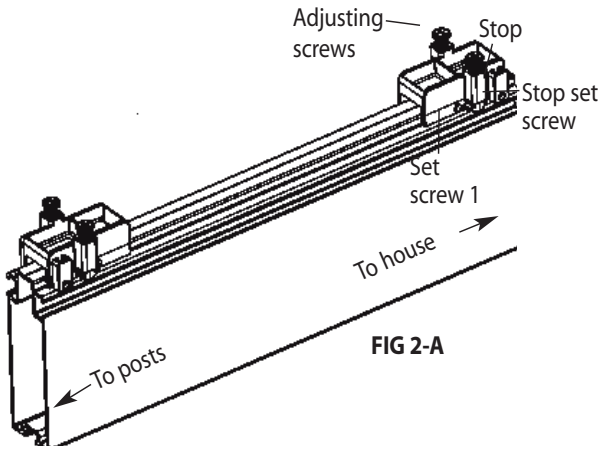


FIG 2-A

NOTE: The locking system is designed to release the canopies in high winds to protect the canopies. The adjusting screws can be used to adjust the tension. Do not over-tighten, as this could increase the chance for canopy damage in high winds.

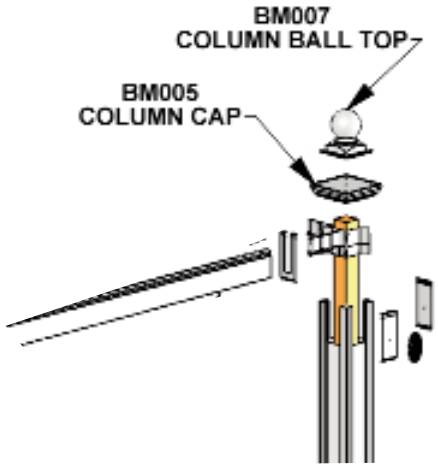
Step 22 Adjusting the **handle height** (optional)

Each canopy has the handle overhang approximately 18" from the tracks. This drop handle is for opening and closing the canopies. However, if you must have less than an 18" overhang, follow the instructions below for shortening the handle.

1. Remove all screws in the handle and open the handle the entire width.
2. Cut the fabric to the desired length.
3. Carefully close the handle and re-insert the screws provided - do not overtighten.
4. Reinstall the top caps in the end of the handle.

Step 23 Attach **Caps** to Columns

If more than 2" of *Post* is exposed above the *Corner Fitting*, you can cut the excess with a saw before assembling the *Column Caps*. Place one *Column Cap* on top of each *Column Assembly*. If you wish to secure the cap permanently on top of the *Column Assembly*, apply a bead of clear silicon caulk (not provided) to the inside wall of each cap before assembly or simply screw the Cap into the wood post.



Care and **cleaning** of your ShadeTree® Canopies

1. **ShadeTree® tracks** should be cleaned regularly to keep debris and dirt from accumulating and interfering with the rollers. Simply use a mild detergent with a small soft brush, such as a toothbrush, and gently wipe or brush along the inside of the tracks. To maintain a smoothly operating system, apply a paste car wax such as Kit™ or Turtlewax™ to the roller tracks. Allow the wax to dry then wipe off with a clean, soft cloth. **Note: Do NOT use oil or any wet lubricant, such as WD-40, on the tracks as it would attract more dirt.** For ultimate performance, use **ShadeTree® EasyRider Track Lubricant**.

2. **Fabric** should be cleaned regularly before substances such as dirt, roof particles, etc., are allowed to accumulate on and become embedded in the fabric. The fabric can be cleaned without being removed from the cross members. Simply brush off any loose dirt, roof particles, etc.; hose down and clean with a mild natural soap in lukewarm water (no more than 100º F.) Rinse thoroughly to remove soap. DO NOT USE DETERGENTS! For ultimate performance, use **ShadeTree® Canopy Cleaner Mold & Mildew Stain Remover**.

3. For stubborn stains soak the fabric for approximately 20 minutes in a solution of no more than 1/4 cup (2 oz.) natural soap per gallon of water at approximately 100º F. Rinse thoroughly in cold water to remove all of the soap. Note: Excessive soaking in bleach can deteriorate sewing threads. This method of cleaning may remove part of the water repellency and the fabric should receive an application of an air-curing water-repellent treatment, such as APCO, UNISEAL, SUNSEAL or similar products, if water repellency is a factor. For ultimate performance, use **ShadeTree® Canopy Cleaner Mold & Mildew Stain Remover** and **ShadeTree® Water Repellent**.

4. When washing or cleaning, DO NOT SUBJECT TO EXCESSIVE HEAT as the fabric will shrink. DO NOT STEAM PRESS OR DRY IN ELECTRIC OR GAS DRYERS, but allow to air dry.

5. In cases where canopies are taken down & stored, they should be cleaned and allowed to air dry, before being stored in a dry, well ventilated area.

How to **remove** ShadeTree® Canopies for **end-of season storage:**

1. Remove the **Top Lock Brackets** at the "retracted" end of each track (see step 16.)

2 Remove the **Roller Lock Pin** which holds the last Cross Member in a fixed position (see step 15.)

3. Then simply roll the **Cross Members** out of the "retracted" end of the track. The tracks can remain up year-round.

4. **If a canopy is dirty** and requires washing before storage, simply spread the canopy on a driveway or other flat surface. Wash, using a broom and bucket of warm water and a mild soap, such as Ivory Snow.

Be sure to rinse well by hosing with a clear water. Allow to air-dry completely in the sun before rolling canopies up for storage. **(Do not store wet canopies!)**

Here's a chance to earn **$50**!

We regularly use pictures in our advertising materials. If you send us reproducible pictures of your new ShadeTree® canopy installation, and we use them in any of our advertising, we will send you $50. Interesting before-and-after pictures will receive an additional $50. Of course, attractive landscaping and patio furniture will be a factor in selecting pictures to be used. Architects, builders and installers will receive credit mentions in the advertising.