

Curved Drywall Ceilings

INSTALLATION MANUAL



Tools and Materials Required:

- Tape Measure
- Utility Knife
- Circular Saw
- Tin Snips
- Pencil
- String or Wire
- Impact Driver or Screw Gun
- Drywall Screws
- Framing Screws
- Laser
- 5/8" Plywood or 5/8" Drywall
- CTA Drywall Main Runners
- CTA Drywall Cross Tees (36", 48" or 72")
- CTA 1-1/2" Wall Angle
- Splice Plates



Concave Drywall Ceilings

Pre-Construction

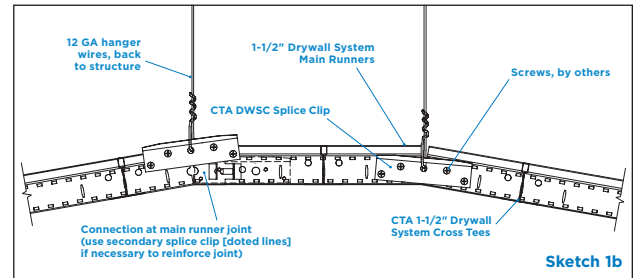
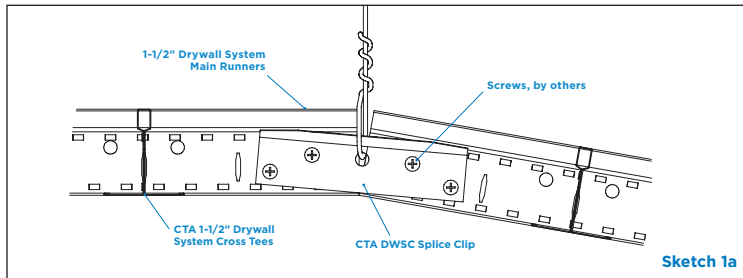
Concave barrel vaults can be constructed easily using the CertainTeed (CTA) 1-1/2" Drywall System. They provide a flexible, sturdy solution to the installing contractor that saves them time and money. Instead of requiring pre-fabrication in a factory, CertainTeed's 1-1/2" Drywall System can be modified at the job site to accommodate a variety of tee spacing and ceiling radii. The 1-1/2" Drywall System offers choices of 8", 16", or 24" centers for cross tees, as well as the ability to design a curve which fits any space and adheres to the architect's vision. For tighter radii, use 8" modules. When bending the product, remember to provide adequate support for the gypsum board.

Do not cut or splice a main runner close to the location of a cross tee while building a concave curve or barrel vault. Position the main runner splice so that it is located at the midpoint between two cross tees. If two main runners are joined, consider reinforcing the joint by using a splice clip at the bulb of the grid to allow for clearance of the main runner.

Concave Installation Instructions – 11 Steps

Step 1:

Position the main runner splice so that it is located at the midpoint between two cross tees (**Sketch 1a**). If two main runners are joined, consider reinforcing the joint by using a splice clip at the bulb of the grid to allow for clearance of the main runner (**Sketch 1b**).



Step 2:

Establish the radius of the concave curve. This is normally supplied by the general contractor or the architect. When determining the overall radius, include the thickness of the gypsum board to ensure accurate design.

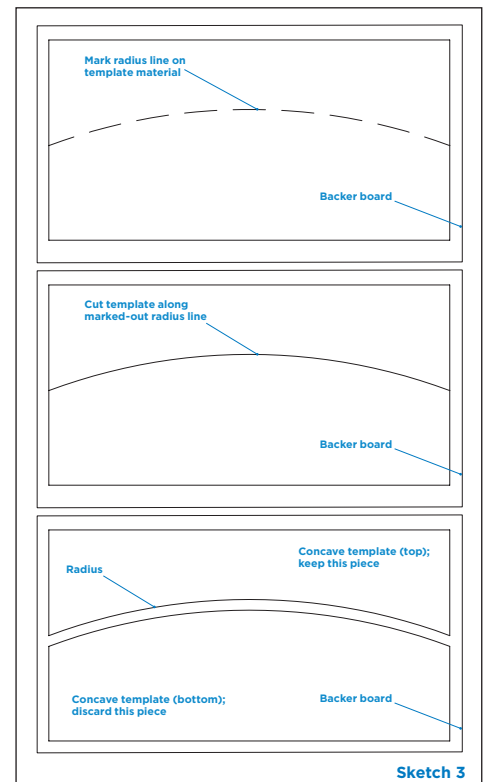
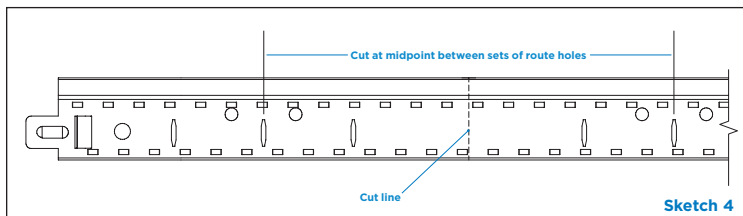
Step 3:

With a sheet of 5/8" drywall or 5/8" plywood, create a section of the curve by using a pencil and a piece of 12 GA hanger wire. The length of the template should either accommodate the entire curve (under 12') or should be at least 12' long around the curve. Cut the template along the radius pencil mark. There will be two parts left over: the inside of the curve and the outside of the curve. Locate the outside radius template on a plywood backer or form, securing the two together (**Sketch 3**).

Note: For accuracy, account for the thickness of the material being attached to framing members, i.e. 1/2" or 5/8" drywall.

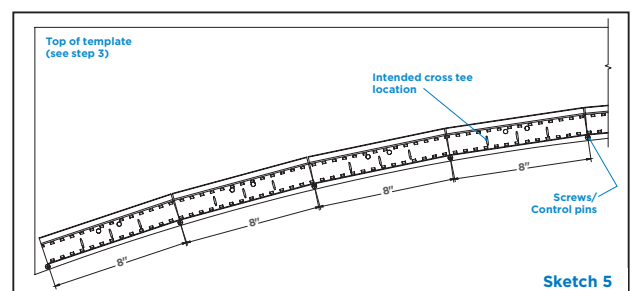
Step 4:

Cut a main runner through both the bulb and web at 8" or 16" intervals (**Sketch 4**). The cut should be at the midpoint between two cross tees. Do not cut through the flange. Only the hem of the flange can be cut, as this allows for a well-defined change in direction.



Step 5:

Bend the main runner around the template ensuring that the cut locations are pushed against the template. Install a screw through the first manufacturing hole on the left side of the main runner. This will be the starting point for this and all other main runners. Place screws against the flange at each direction change to secure the main runner in the correct position. From this point forward in the brochure, these will be referred to as "control pins". The control pins are located both below the flange and above the bulb of the drywall grid main runner (**Sketch 5**). Use a marker to trace out the position of the main runner.

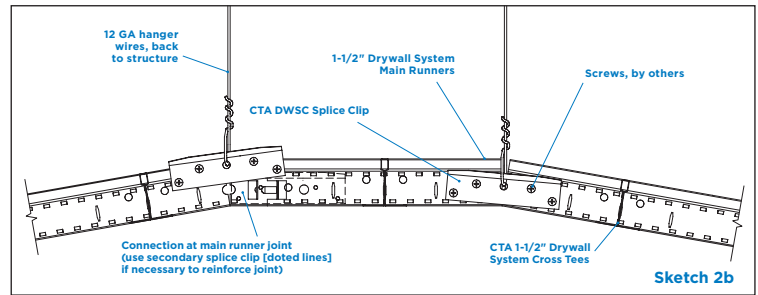


Installation for Concave Drywall Ceilings

Step 6:

Center splice plates over each joint ensuring that the hanger hole in the splice plate is exposed. Fasten each splice plate with four (4) #8 framing screws. Once all splice plates are installed, remove the control pins from the top of the main runner and set the curved main runner aside.

NOTE: As per **Sketch 2b:** If a joint is required at a main runner end, use a secondary splice clip as shown. This condition should take place only if the segmented curve is on 8" centers.



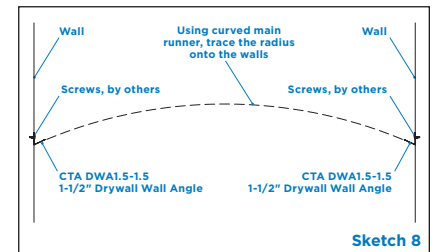
Step 7:

Repeat Steps 4 - 6 for all of the main runners, as required for the concave drywall ceiling.

Step 8:

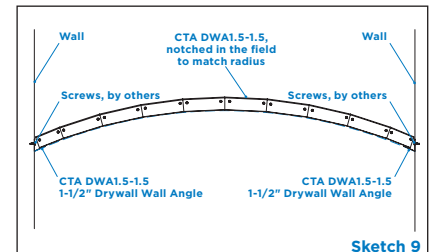
To install the lower ledge wall angle on both left and right side walls, take one piece of the pre-made main runner and place it against the end walls. Trace the shape of the barrel on the end wall surface. Install the wall angle on the side walls at the termination of the concave curve (**Sketch 8**).

Pro Tip: When deciding where to locate the laser level, it is recommended to place it at the lowest elevation of the barrel vault/concave curve. This will act as the benchmark for the ceiling. Record the elevation difference between the benchmark and the intended hanger wire elevation for each segment of the barrel vault/concave curve.



Step 9:

Using the line traced on the end wall in the previous step, mark and cut the wall angle to match the curve of the drywall main runners. Fasten the segmented wall angle to the end wall. (**Sketch 9**)



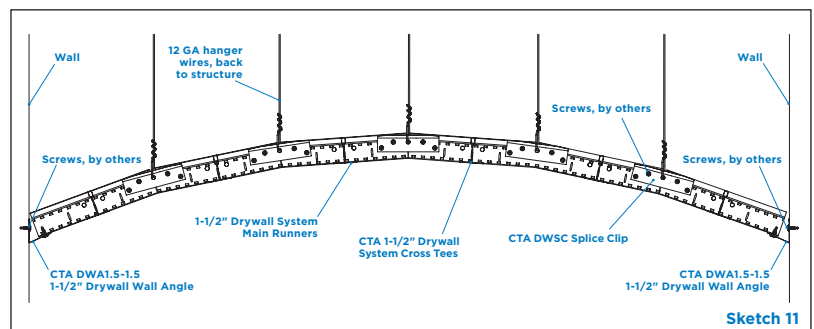
Step 10:

Set a piece of main runner on the wall angle and mark the elevation point of each hanger hole on the splice clips. Record these elevations. Install the hanger wires in the desired locations, making sure that all hanger wires are lined up and located at a splice clip. Once all of the hangers are installed, start placing the pre-formed main runners. Level each hanger wire, matching them up with the previously-recorded elevations. Next, install the cross tees at the necessary locations to provide the proper support for the curved drywall ceiling. DO NOT twist the hangers at this point.

Step 11:

Once all of the suspension system components are in place, be sure to check each hanger wire location for elevation based on the recorded positions. Tie off the hanger wires once the system is straight and level.

There should be a consistent concave curve that provides all the necessary support for the drywall board to be attached. Follow the directions and recommendations of the gypsum manufacturer when curving gypsum board in the field. (**Sketch 11**)



FOR CONVEX CURVES, PLEASE REFER TO THE CONVEX CURVE SECTION



Convex Drywall Ceilings

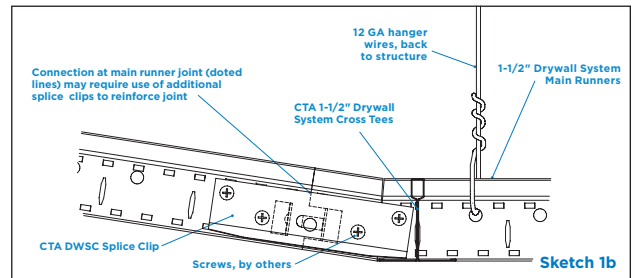
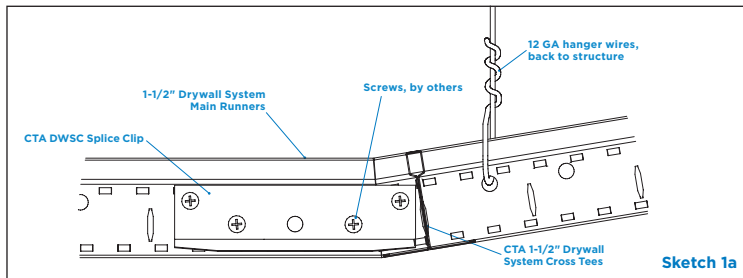
Pre-Construction

Convex barrel vaults can be constructed easily using the CertainTeed (CTA) 1-1/2" Drywall System. They provide a flexible, sturdy solution to the installing contractor that saves them time and money. Instead of requiring pre-fabrication in a factory, CertainTeed's 1-1/2" Drywall System can be modified at the jobsite to accommodate a variety of tee spacing and ceiling radii. The 1-1/2" Drywall System offers choices of 8", 16", or 24" centers for cross tees, as well as the ability to design a curve which fits any space all while adhering to the architect's vision. For tighter radii, use 8" modules. When bending the product, remember to provide adequate support for the gypsum board.

Convex Installation Instructions - 11 Steps

Step 1:

Cut and/or splice the main runner directly beside the intended cross tee locations while building a convex curve (**Sketch 1a**). Position the main runner splice above the route hole so as not to impede the installation of a cross tee. If two main runners are joined, consider reinforcing the joint by using a splice clip at the bulb of the grid to allow for clearance of the main runner (**Sketch 1b**).



Step 2:

Establish the radius of the convex curve. This is normally supplied by the general contractor or the architect. When determining the overall radius, include the thickness of the gypsum board to ensure an accurate design.

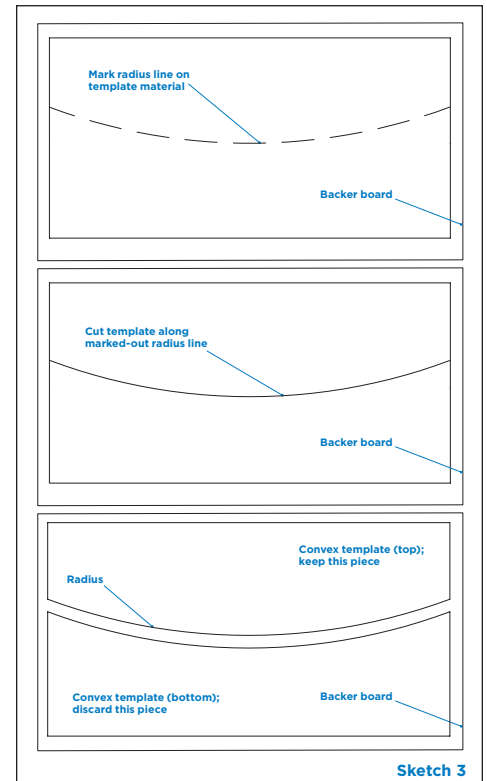
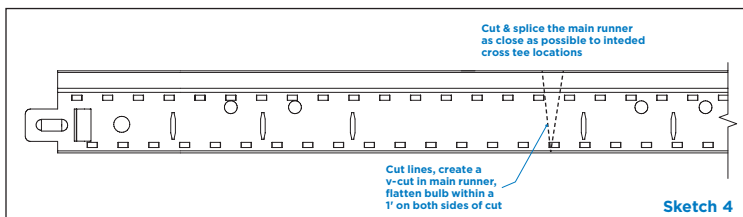
Step 3:

With a sheet of 5/8" drywall or 5/8" plywood, create a section of the curve by using a pencil and a piece of 12 GA hanger wire. The length of the template should either accommodate the entire curve (under 12') or should be at least 12' long around the curve. Cut the template along the radius pencil mark. There will be two parts left over: the inside of the curve and the outside of the curve. Locate the inside radius template on a plywood backer or form, securing the two together (**Sketch 3**).

Note: For accuracy, account for the thickness of the material being attached to framing members, i.e. 1/2" or 5/8" drywall.

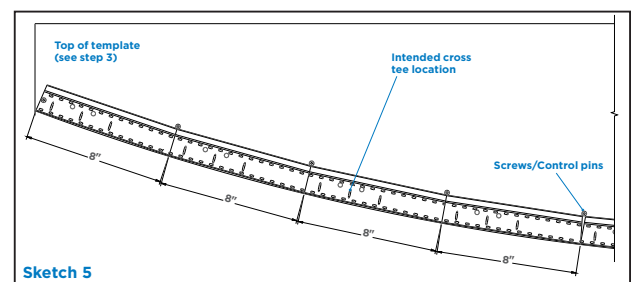
Step 4:

Cut a main runner through both the bulb and web at 8" or 16" intervals (**Sketch 4**). The cut should be directly beside the intended cross tee locations. This cut should form a V-shape, and the bulb on either side of the cut should be flattened to ensure that the main runner stays on plane. Do not cut through the flange. Only the hem of the flange can be cut, as this allows for a well-defined change in direction.



Step 5:

Bend the main runner around the template ensuring that the cut locations are pushed against the template. Install a screw through the first manufacturing hole on the left side of the main runner. This will be the starting point for this and all other main runners. Place screws against the flange at each direction change to secure the main runner in the correct position. From this point forward in the brochure, these will be referred to as "control pins". The control pins are located below the flange and above the bulb of the drywall grid main runner (**Sketch 5**). Use a marker to trace out the position of the main runner.

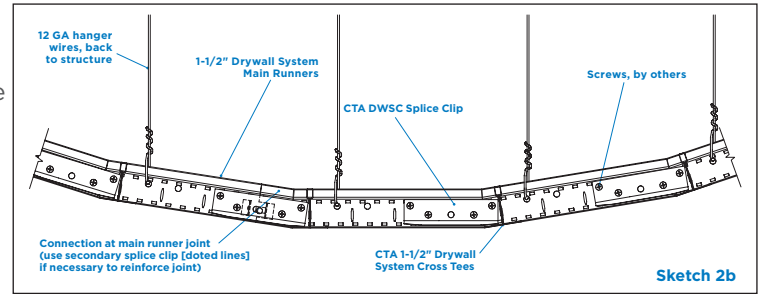


Installation for Convex Drywall Ceilings

Step 6:

Center splice plates over each joint ensuring that the hanger hole in the splice plate is exposed. Fasten each splice plate with four (4) #8 framing screws. Once all splice plates are installed, remove the control pins from the top of the main runner and set the curved main runner aside.

NOTE: As per **Sketch 2b**, if a joint is required at a main runner end, use a secondary splice clip as shown. This condition should take place only if the segmented curve is on 8" centers.



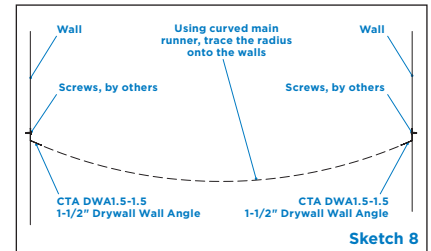
Step 7:

Repeat Steps 4 - 6 for all of the main runners, as required for the convex drywall ceiling.

Step 8:

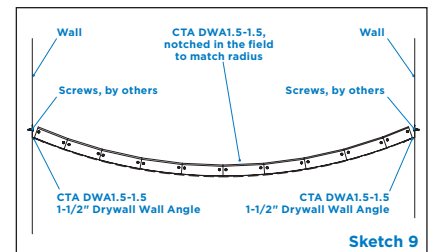
To install the upper ledge wall angle on both left and right side walls, take one piece of the pre-made main runner and place it against the end walls. Trace the shape of the convex curve on the end of the wall surface. Install the wall angle on the side walls at the termination of the convex curve (**Sketch 8**).

Pro Tip: When deciding where to locate the laser level, it is recommended to place it at the lowest elevation of the convex curve. This will act as the bench-mark. Record the elevation difference between the bench-mark and the intended hanger wire elevation for each segment of the convex curve.



Step 9:

Using the line traced on the end wall in the previous step, mark and cut the wall angle to match the curve of the drywall main runners. Fasten the segmented wall angle to the end wall. (**Sketch 9**)



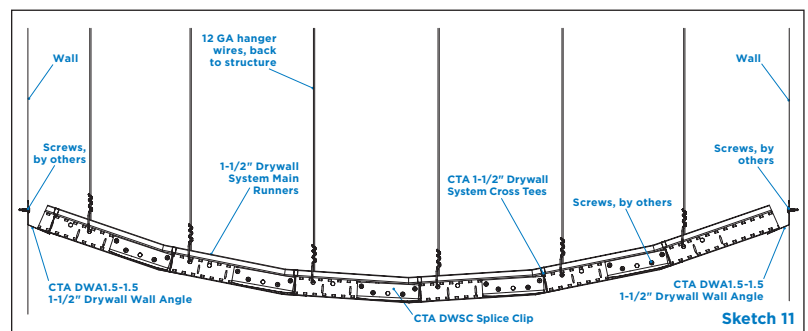
Step 10:

Set a piece of main runner on the wall angle and mark the elevation point of each hanger hole on the splice clips. Record these elevations. Install the hanger wires in the desired locations, ensuring that all hanger wires are lined up and located at a splice clip. Once all of the hangers are installed, start placing the pre-formed main runners. Level each hanger wire, matching them up with the previously-recorded elevations. Next, install the cross tees at the necessary locations to provide the proper support for the curved drywall ceiling. DO NOT twist the hangers at this point.

Step 11:

Once all of the suspension system components are in place, be sure to check each hanger wire location for elevation based on the recorded positions. Tie off the hanger wires once the system is straight and level.

There should be a consistent convex curve that provides all the necessary support for the drywall board to be attached. Follow the directions and recommendations of the gypsum manufacturer when curving gypsum board in the field. (**Sketch 11**)



FOR CONCAVE CURVES, PLEASE REFER TO THE CONCAVE CURVE SECTION



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