

# What is my Crown Slope Angle?

The crown slope angle is the angle measured from the back of the crown molding to the plane (horizontal, vertical or ceiling plane) in which you are making your turn.

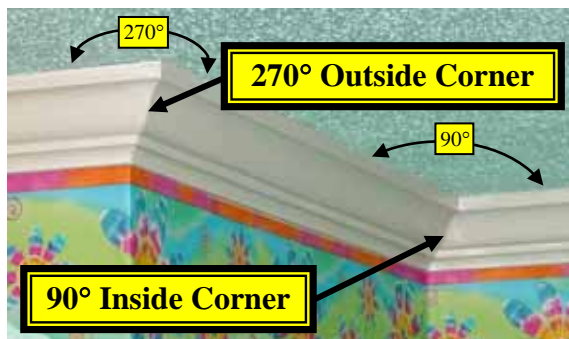
The Crown Slope Angle is the angle you need in the charts and tables. **DO NOT** use Crown Spring Angle in the charts and tables. (See "Crown Spring Angle" help file & page 34.)

## There are three crown slope angles.

1. Crown slope angle for a Horizontal turn (used for all horizontal ceilings)
2. Crown slope angle for a Vertical Turn (used for sloped ceilings)
3. Crown slope angle for a Ceiling Turn (used for sloped ceilings, p46 & p47)

## 1. Crown Slope Angle for a Horizontal turn

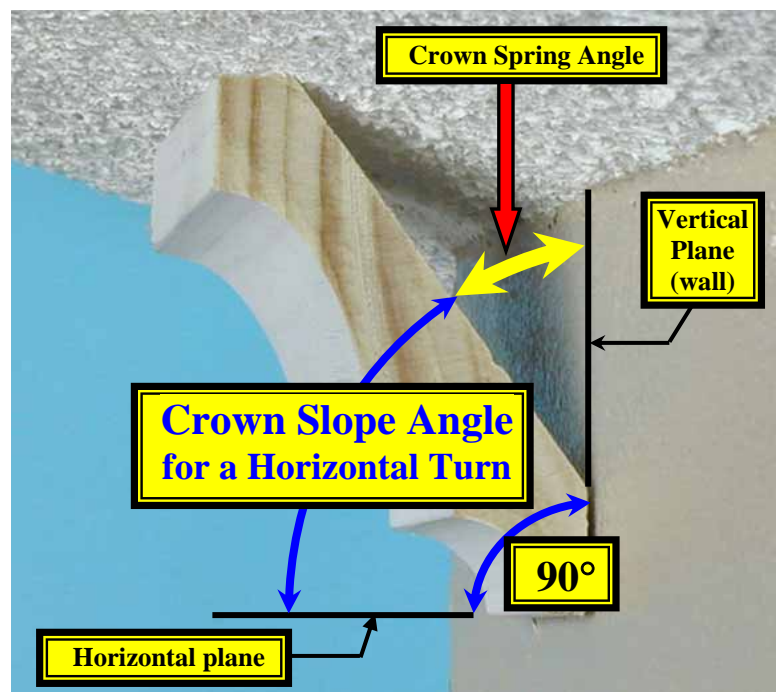
The crown slope angle is the angle from the back of the crown to the plane in which you are making the turn.



### Horizontal Turns

For all horizontal turns of your crown molding, you will need to calculate your horizontal crown slope angle. (Note: You will need to know your Crown Spring Angle)

- All crown molding turns in a room where the ceiling does not slope are all horizontal turns, either an inside or outside corner.



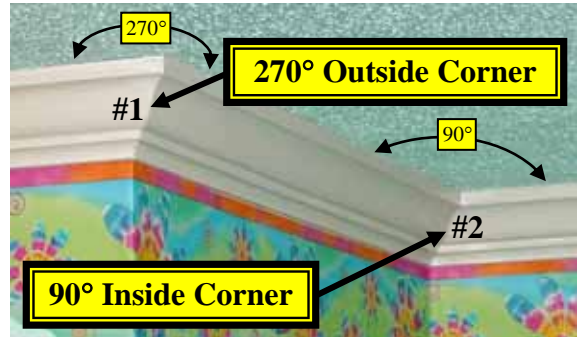
$$\text{Horizontal Crown Slope Angle} = 90^\circ - \text{Crown Spring Angle}$$

## Example: Let's make two Horizontal turns, inside & outside.

Measure your corner angle using your 24" HD True Angle® tool.

Corner 1: Horizontal, outside 270° corner  
Corner 2: Horizontal, inside 90° corner

Let's say that we are installing 38° spring angle crown molding. Since we are making these turns in the horizontal plane, we need to determine our **Horizontal Crown Slope Angle for 38° spring angle crown molding.**



## Horizontal Turns

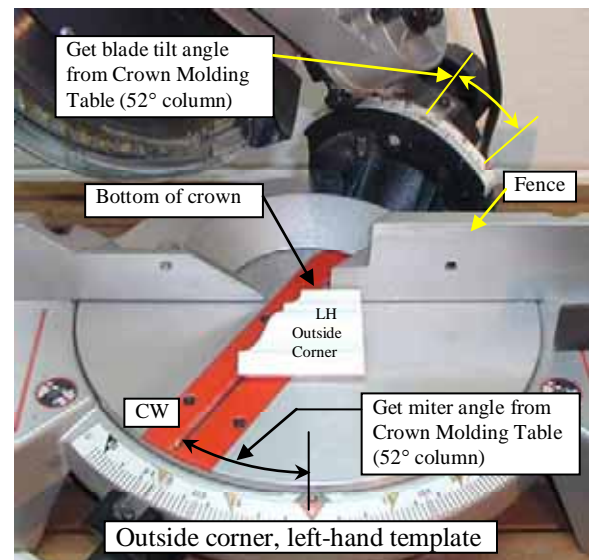
**Horizontal Crown Slope Angle = 90° - Crown Spring Angle**

So now we have two corner angles (90° & 270°) and a **Horizontal Crown Slope Angle = 90° - 38° = 52°.**

**From the Crown Molding Table on p. 35, you find a Miter = 31.6°, Blade Tilt = 33.9°**

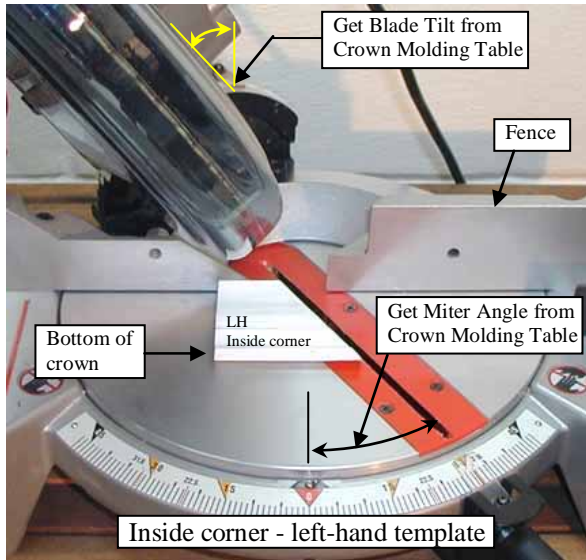
Corner #1, use Crown Molding Templates #3 and #4 as shown.

Place the desired crown molding template on your saw, face up. Orientate the position of the crown molding template, the miter and the blade tilt adjustments until you get the blade to match the bevel cut on the template. Then set your Miter = 31.6° and the Blade Tilt = 33.9°



## Corner #2, use Crown Molding Templates #1 and #2 as shown.

Place the desired crown molding template on you saw, face up. Orientate the position of the crown molding template, the miter and the blade tilt adjustments until your get the blade to match the bevel cut on the template. Set your Miter =  $31.6^\circ$  and the Blade Tilt =  $33.9^\circ$



**Congratulations. You now know all that you need to install any crown molding for any corner angle in a room that has a horizontal ceiling.**

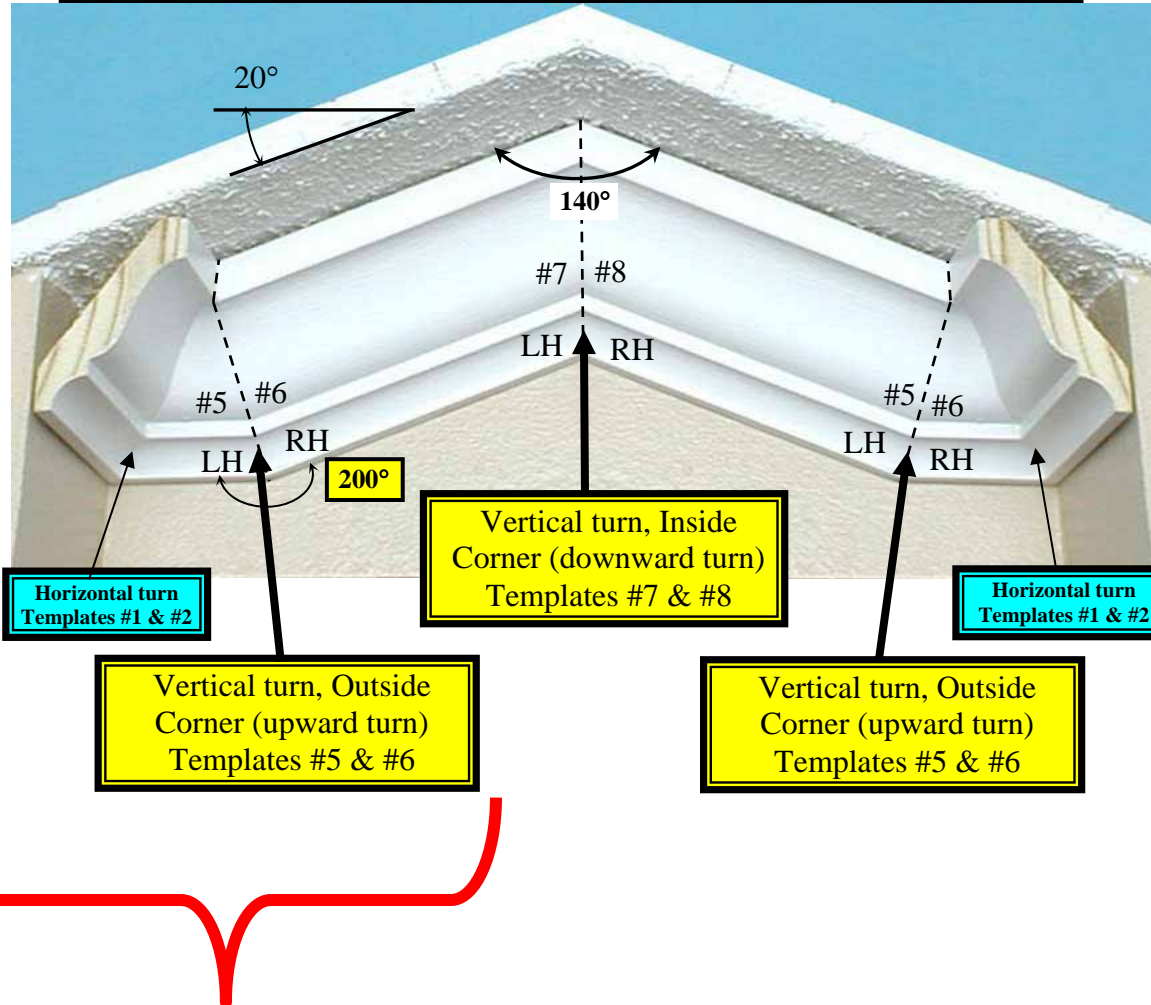
### Review: For Horizontal Ceilings.

1. Measure your Crown Spring Angle & Horizontal Corner Angle.
2. Determine your Horizontal Crown Slope Angle =  $90^\circ - \text{Crown Spring Angle}$ .
3. Get your saw setting from the tables and use your templates to set your saw.

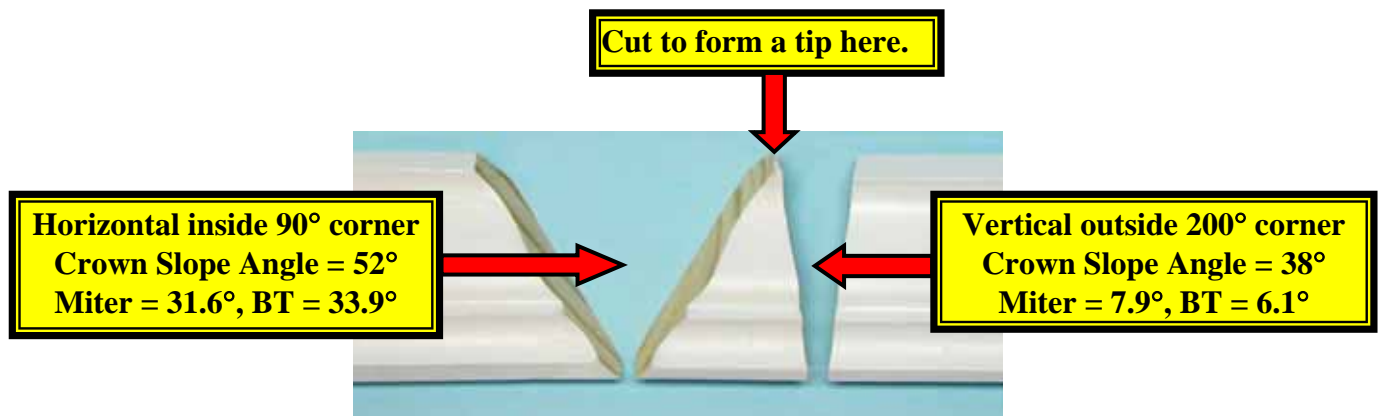
## 2. Crown Slope Angle for a Vertical Turn.

The crown slope angle is the angle from the back of the crown to the plane in which you are making the turn.

**These are examples of a Vertical Turn**  
Cathedral ceiling with a 20° slope

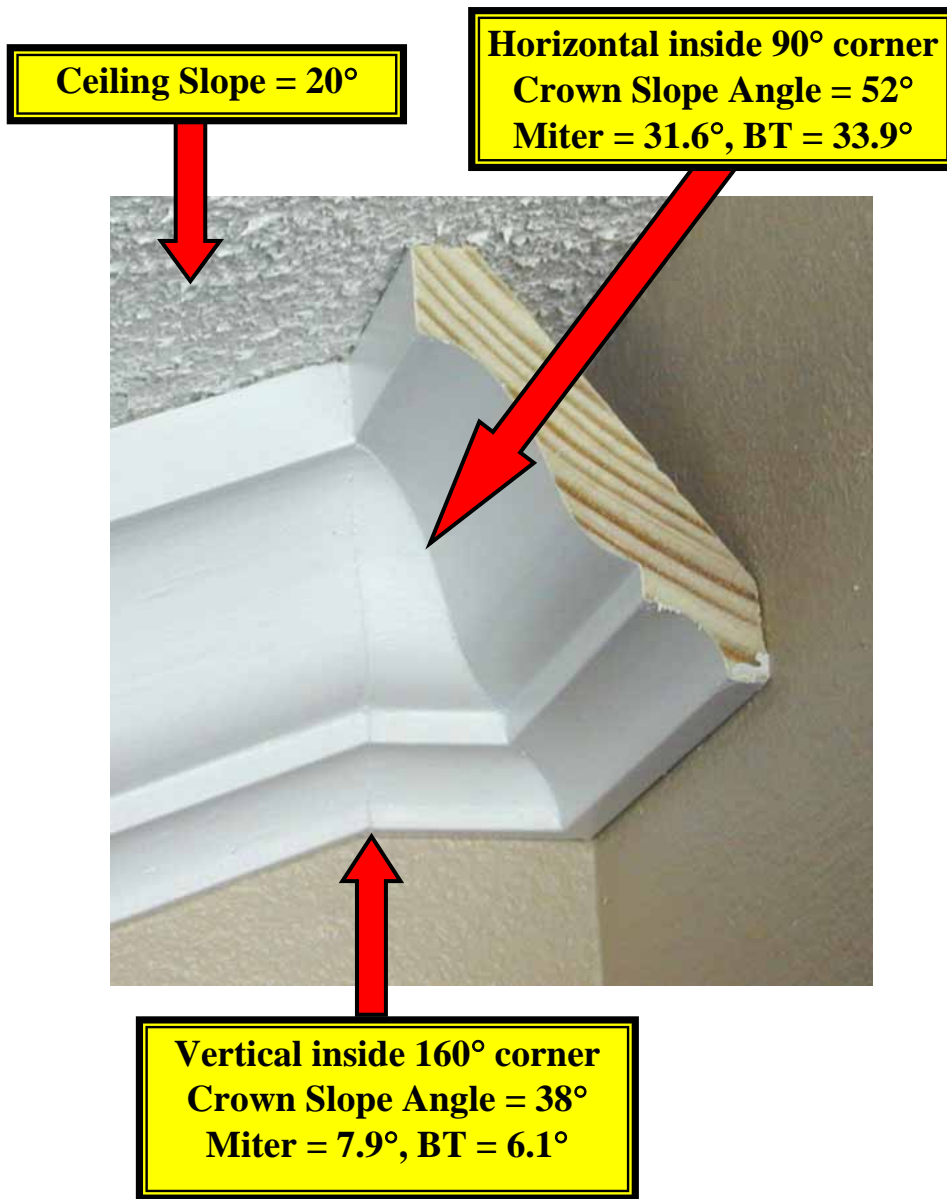


The transition consists of a horizontal turn and a vertical turn (see photo below).  
(Remember that I am using 38° spring angle crown molding.)



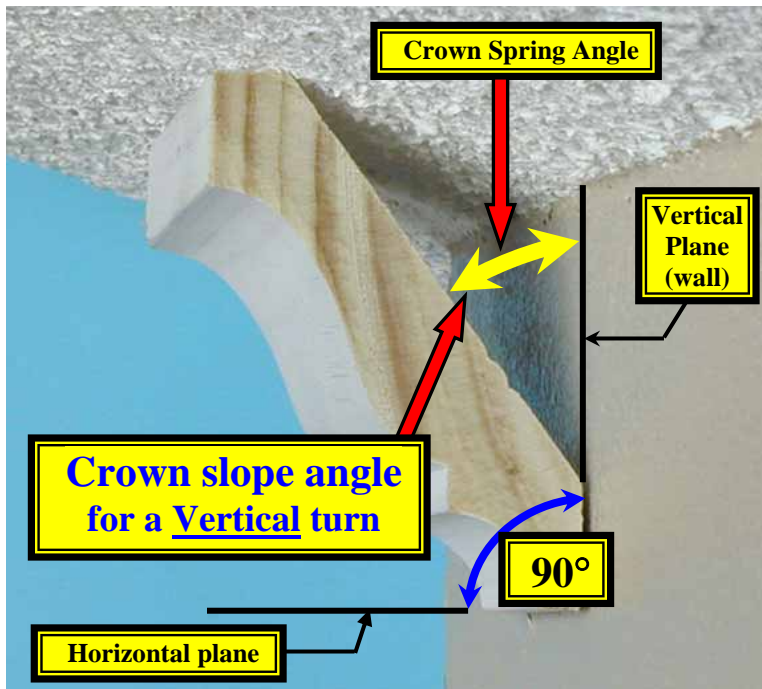
What if my ceiling stops at the top of the room?

The only difference is you have a vertical inside corner instead of a vertical outside corner.



Use your templates and the saw settings to make the perfect cut.

## How do I determine my Vertical Crown Slope Angle?



The **Crown Spring Angle** is the angle from the back of the crown to the wall.

The **Vertical Crown Slope Angle** is the angle from the back of the crown to the plane in which you are making a turn.

Since the vertical plane is the wall, the **Crown Spring Angle** and **Vertical Crown Slope Angle** are equal.

**Vertical Crown Slope Angle = Crown Spring Angle**

You now have all the information about **Horizontal Crown Slope Angle** and **Vertical Crown Slope Angle**. You now know how to measure your crown spring angle and then determine your Crown Slope Angle depending on how you are going to make a turn, either horizontal or vertical. Now measure your corner angle with your 24" True Angle tool and make the perfect cut each and every time. ☺

### Remember:

**Horizontal Crown Slope Angle =  $90^\circ$  - Crown Spring Angle**

**Vertical Crown Slope Angle = Crown Spring Angle**

### 3. Crown slope angle for a Ceiling Turn

The crown slope angle is the angle from the back of the crown to the plane in which you are making the turn.

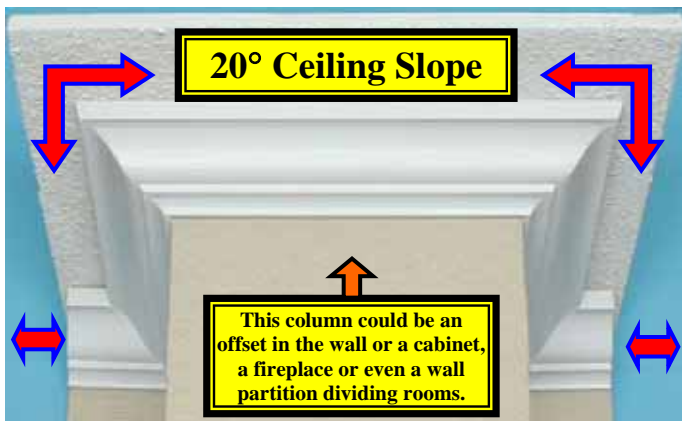
The third way to turn your crown is in the plane of the ceiling. This is perhaps the most difficult turn to understand, but these turns are necessary if your room (with a sloped ceiling) has any outside wall corners.

#### **Important:**

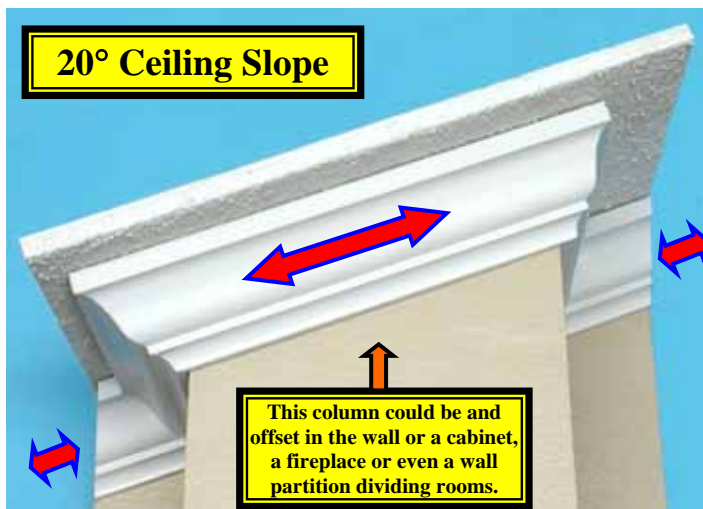
For an outside wall corner (with sloped ceiling), you must turn the crown molding in the plane of the ceiling. For each outside corner turn in the ceiling plane you must also turn either the inside corner before or after the outside corner, in the plane of the ceiling in order to correct the crown spring angle. (Do not panic ... I will explain ☺)

#### How do I determine my crown slope angle for turns in the plane of the ceiling?

**There are two condition for making a turn in the plane of the ceiling.**

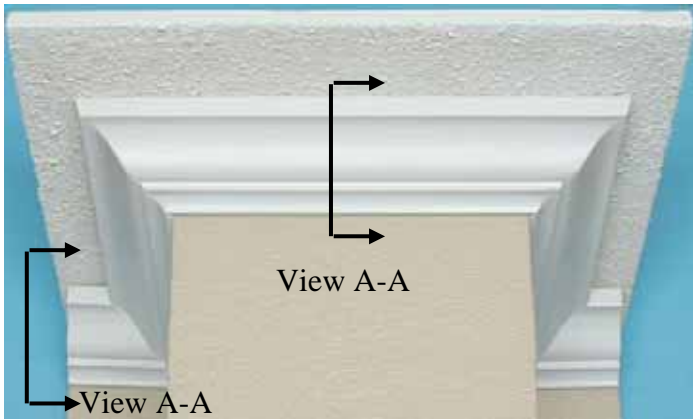


**Condition 1, (see page 46)**  
Crown running horizontal and you need turn your crown in the plane of the ceiling because of the outside corners.



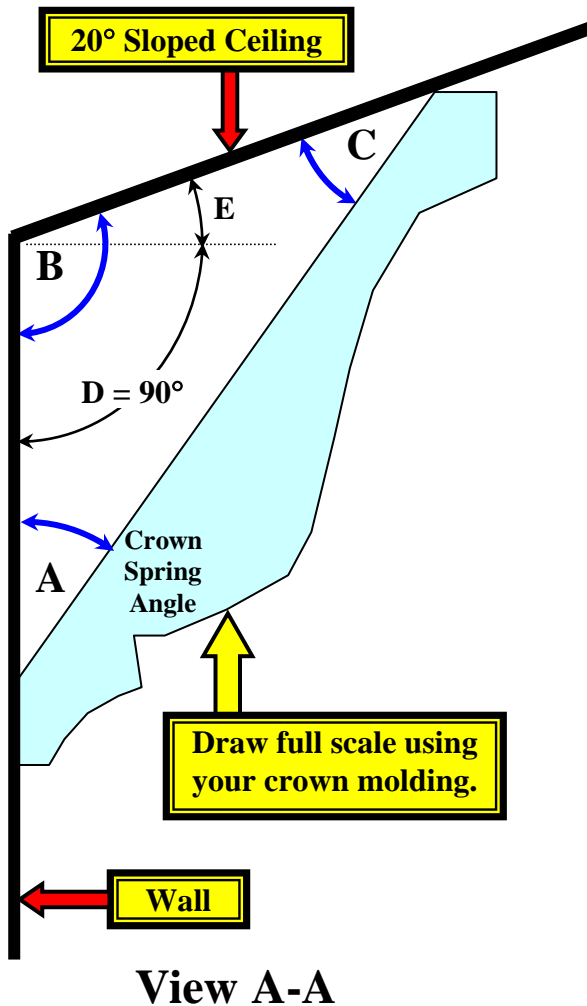
**Condition 2, (see page 47)**  
Crown running up or down the ceiling slope and you need to turn your crown in the plane of the ceiling because of the outside corners.

Before we can continue this lesson, there are a few simple things you should know about triangles.



Ceiling turns, Condition #1, Horizontal to Sloped

Lets take a look at Condition #1 and view the two cross sections "A-A". Measure your ceiling slope and, using a piece of your crown molding, draw yourself a full-scale drawing. See my example below using 38° spring angle crown and 20° sloped ceiling.



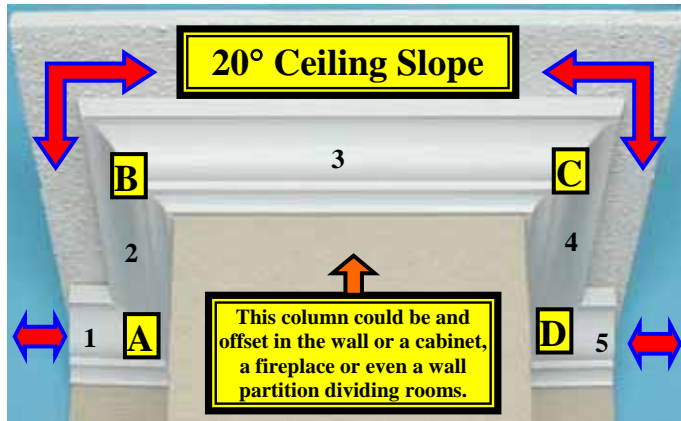
Here are a few things that you should know about triangles and what each angle represents. A, B, C, D & E are all angles.

1.  $A + B + C = 180^\circ$  (always, for any triangle)
2.  $A = \text{Crown Spring Angle}$
3.  $B = \text{the angle from the wall to the ceiling. (see bottom page 42)}$
4.  $D = 90^\circ$
5.  $E = \text{ceiling slope}$
6.  $\text{Ceiling Slope } E = B - D$
7.  $\text{Vertical Crown Slope Angle} = A = \text{Crown Spring Angle.}$
8.  $\text{Horizontal Crown Slope Angle} = 90^\circ - A$
9.  $\text{Crown Slope Angle for Ceiling turns (Condition 1, page 46)} = C = 90 - A - E$

**Ceiling Crown Slope Angle =  $90^\circ - \text{Crown Spring Angle} - \text{Ceiling Slope}$**   
 (This is for Condition #1, page 46, horizontal to sloped.)



**Let's do an example for turns in the plane of the ceiling,  
Condition #1, page 46, Horizontal to Sloped**



Measure your corner angles.



**Note:**

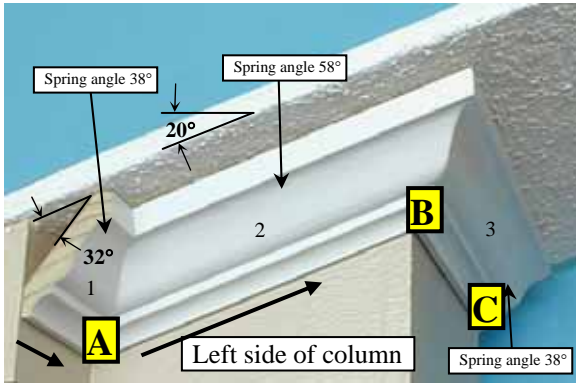
Always place your True Angle® tool flat on the ceiling when measuring corner angles for turns in the plane of the ceiling (Condition 1 or 2).

**Corners A and D measure 90° & Corners B and C measure 270°.  
I am using 38° Spring Angle crown molding.**

What is my Crown Slope Angles for A, B, C & D?

**Ceiling Crown Slope Angle (Condition #1) = 90° - Crown Spring Angle - Ceiling Slope  
Ceiling Crown Slope Angle (Condition #1) = 90° - 38° - 20°  
Ceiling Crown Slope Angle (Condition #1) = 32° (all 4 corners)**

Now let's take a look at Condition 1 turns in the ceiling plane.  
**Condition 1: Crown turns from Horizontal to Sloped.**



Corners A, B, C, & D are **Ceiling Turns** (Cond. 1).

Crown Slope Angle =  $32^\circ$  (same for all 4 corners-- Why? See below).

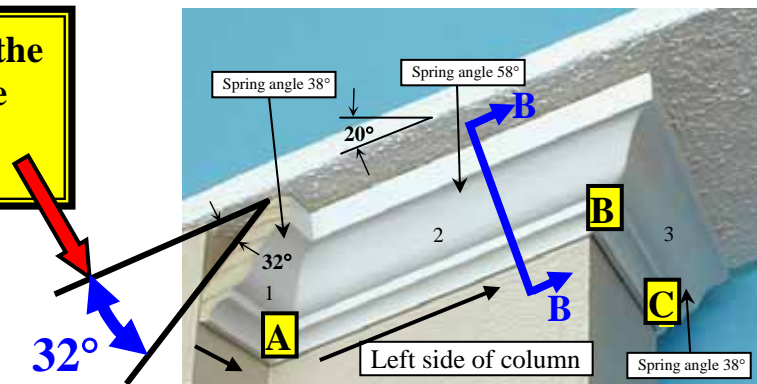
Crown Spring Angle =  $38^\circ$  for crown 1, 3 & 5 and  $58^\circ$  ( $38^\circ$  spring angle +  $20^\circ$  ceiling slope) for crown 2 & 4. Why does crown spring angle change? See below.

**Why is my Crown Slope Angle constant and my Crown Spring Angle changing back and forth for a ceiling turn?**

**Remember the definition of crown slope angle,**

*The crown slope angle is the angle from the back of the crown to the plane in which you are making the turn.*

This is the angle from the back of the crown to the plane in which we are making the turn (ceiling plane).



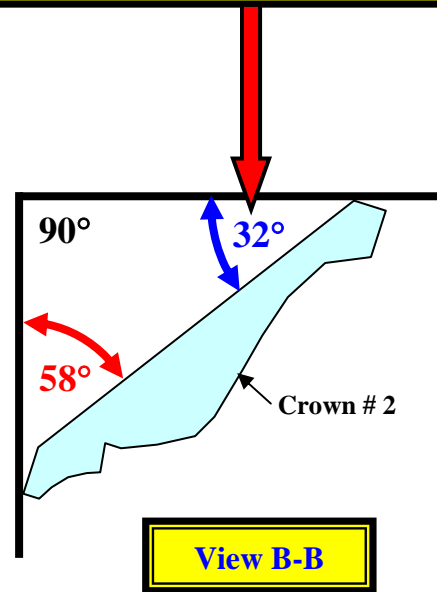
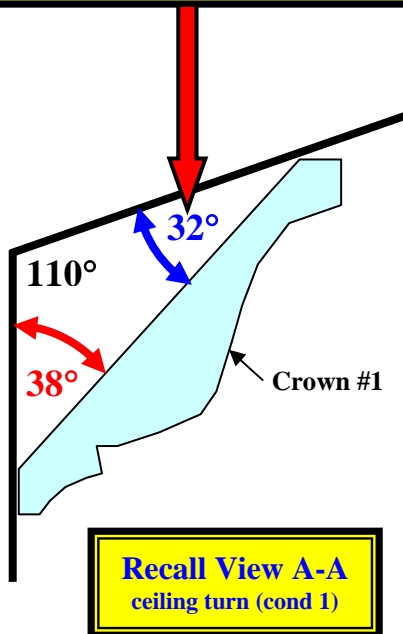
**Note:**

The Crown Slope Angle is always the same for both pieces of crown that form a joint. Both ends of the crown at joint A are cut using the same crown slope angle ( $32^\circ$ ) and the same corner angle. They are simply cut as mirror images of each other using the same miter and blade tilt. This means that the angle from the back of the crown to the ceiling is  $32^\circ$  for both pieces of crown molding #1 & #2, as well as joints B, C & D.

To best understand, look at sectional views “A-A” & “B-B”

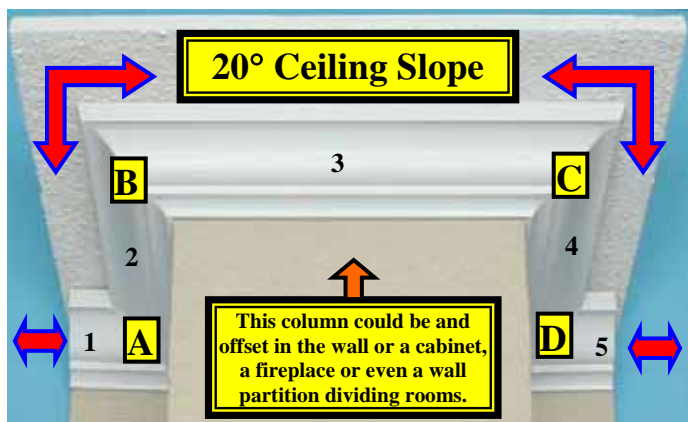
**Crown Slope Angle for Joint A = 32°.**

*Again, this will be the same for both ends that are cut for joint A.*



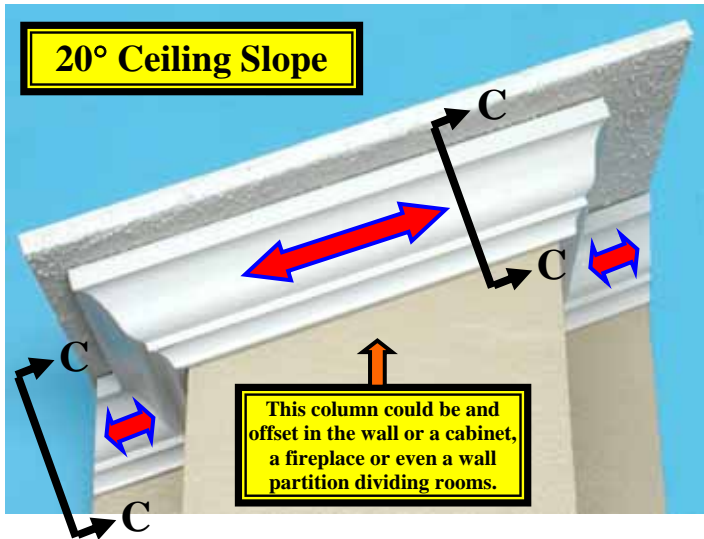
The **spring angle changes** for ceiling turns, because the crown slope angle is the same for both ends of crown molding that form the joint. Remember earlier “the sum of all of the angles of any triangle is equal to 180°.” So, if the crown slope is equal to 32° and you know the angle between the ceiling and wall, you can determine the crown spring angle and how much it changes.

Conclusion for Ceiling turns, Condition 1, page 46.



**Remember:**  
 The Crown Slope Angle is *always* the same for both pieces of crown that form a joint.  
  
 The Ceiling Crown Slope Angle (Condition 1, horizontal to sloped) = 90° - crown spring angle – ceiling slope.

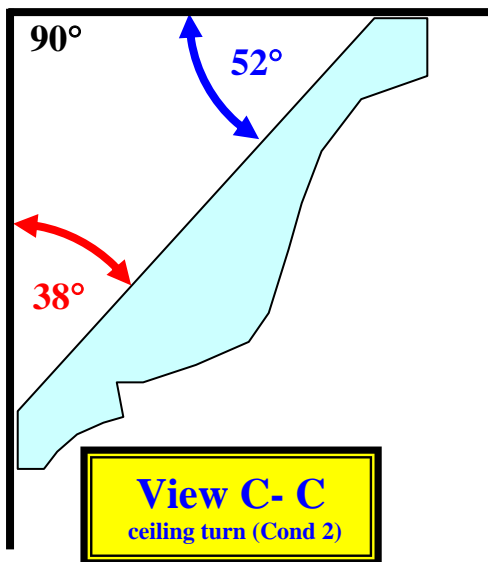
Now, let's do an example for turns in the plane of the ceiling,  
**Condition #2, page 47, Sloped to Horizontal.**



**Condition 2, (see page 47)**  
 Crown running up or down the ceiling slope and you need turn your crown in the plane of the ceiling because of the outside corners.

What is my Crown Slope Angle for Condition 2, ceiling turns?

To best understand Condition 2, let's look at sectional view "C – C"



**Condition 2, (see page 47)**

- Crown Spring Angle = 38°
- 90° + 38° + 52° = 180°
- Ceiling slope = 0° (in view C-C)

Crown Slope Angle =  
 90° - Crown Spring Angle - Ceiling Slope

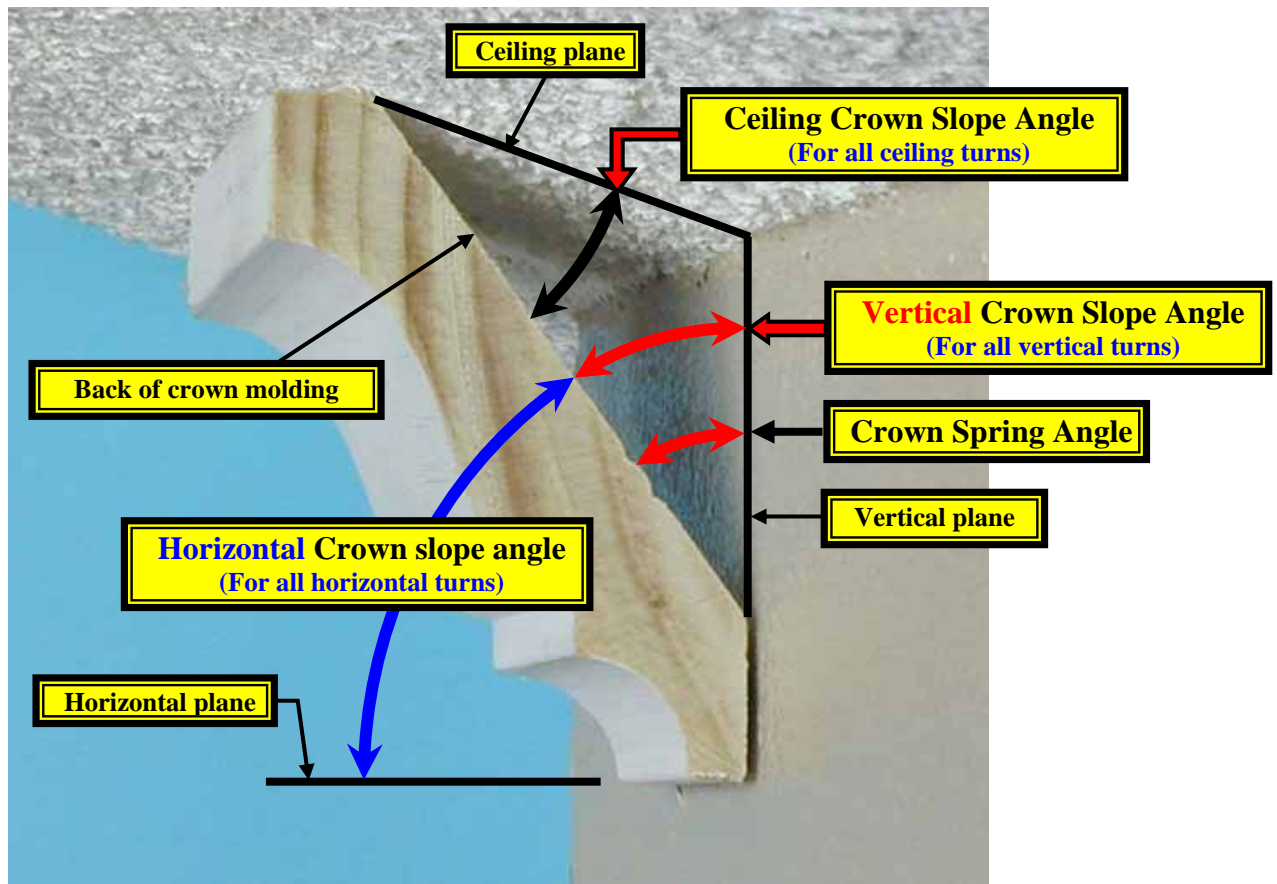
Crown Slope Angle = 90° - Crown Spring Angle

Crown Slope Angle = 90° - 38° = 52°

# Summary

## What is my Crown Slope Angle?

The crown slope angle is the angle from the back of the crown to the plane in which you are making the turn.



**Crown slope angle for horizontal, vertical, and ceiling plane turns**

Horizontal Crown Slope Angle =  $90^\circ$  - Crown Spring Angle

Vertical Crown Slope Angle = Crown Spring Angle

Ceiling Crown Slope Angle =  $90^\circ$  - Spring Angle - Ceiling Slope