Displaying a Structure's Shadow in Floor Plan View

The information in this article applies to:

QUESTION
How can I show where the shadows fall in floor plan view?

ANSWER
Sun Angles allow the shadow cast by a building at any time of the year to be displayed in floor plan and rendered views.
A Sun Angle arrow is a marker that displays in floor plan view and indicates the angle of the sun at a specific time and location on the Earth. Multiple Sun Angles can be created in floor plan view, each with different specifications.

Sun Angles are parallel light sources. Their location and direction are defined on a per plan basis. To accurately define the Sun's location relative to the model, use the North Pointer tool.

**To create a Sun Angle**

1. Make the first floor or foundation level the current floor. Sun Angles can only be created on these floor levels.

2. In floor plan view, select **CAD> Lines> Sun Angle** and click in the drawing area where the Sun Angle arrow should display.

3. In the **Sun Angle Specification** dialog, specify the Sun Angle's **Earth Data** and other
information and then click **OK**.

4. After it is created, a Sun Angle can be moved to a different location in floor plan view. Shadows are not affected.

A Sun Angle's position is specified by Latitude and Longitude. The following table lists a sample of latitude and longitude values for some cities:

<table>
<thead>
<tr>
<th>City</th>
<th>Latitude</th>
<th>Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atlanta, GA</td>
<td>33.44°N</td>
<td>84.23°W</td>
</tr>
<tr>
<td>Chicago, IL</td>
<td>41.53°N</td>
<td>87.38°W</td>
</tr>
<tr>
<td>Denver, CO</td>
<td>33.44°N</td>
<td>104.59°W</td>
</tr>
<tr>
<td>Mexico City</td>
<td>19.24°N</td>
<td>99.09°W</td>
</tr>
<tr>
<td>New York, NY</td>
<td>40.43°N</td>
<td>74.01°W</td>
</tr>
<tr>
<td>Perth, AU</td>
<td>31.56°S</td>
<td>115.50°E</td>
</tr>
<tr>
<td>San Diego, CA</td>
<td>32.42°N</td>
<td>117.09°W</td>
</tr>
<tr>
<td>San Francisco, CA</td>
<td>37.46°N</td>
<td>122.25°W</td>
</tr>
<tr>
<td>Seattle, WA</td>
<td>47.36°N</td>
<td>122.19°W</td>
</tr>
<tr>
<td>Sydney, AU</td>
<td>33.52°S</td>
<td>151.13°E</td>
</tr>
</tbody>
</table>

5. When rendering an exterior view, Chief Architect will use the Default Sun unless a sun angle exists. To specify which sun angle is being used, select **3D>Lighting>Adjust Sunlight** make sure **Use Sun Angle** is selected, and then select the desired sun angle from the drop down menu below and click **OK**.

6. Select **3D> Lighting> Toggle Sunlight** to toggle on or off the light from the active Default Sun or the current Sun Angle.

Once a sun angle has been created, shadows can be created.
To display shadows created by a Sun Angle in Camera Views

1. Within a Camera view, select **3D > Camera View Options > Toggle Shadows** to toggle shadows on or off in the view.

   **Note:** In X8, with the camera view open select 3D > Edit Active Camera, put a check next to Show Shadows, and then click OK.

2. Navigate back into a Floor Plan view, click on the Sun Angle line to select it, and choose **Open Object**.

   ![Sun Angle Specification dialog](image)

   - On the **Lighting Data** panel, check the **Casts Shadows** checkbox and click **OK**.

3. To display the shadow in floor plan view, with the Sun Angle arrow selected, click the **Make Shadow** edit button, or click the **Make Shadow** button on the **Earth Data** panel of the **Sun Angle Specification** dialog.

   If no Terrain Perimeter has been created, shadows fall on an imaginary plane at height zero, the default height for the first floor.

   If a Terrain Perimeter exists, shadows are modified to indicate where the real shadow would fall on the actual terrain.

   Multiple Sun Angles can be placed in the same plan to allow the simultaneous display of shadows cast at different times in floor plan view.

   Specify different line colors and/or fill styles for shadows cast by multiple Sun Angles in the Sun Angle Specification dialog on the Line Style and Fill Style panels respectively.
To display shadows created by a Sun Angle in Rendered Camera Views in X7 and prior products

1. Navigate to **Edit> Preferences> Render**.

   On a Mac, browse to **Chief Architect> Preferences> Render**.

2. On the **RENDER** panel, check **Show Shadows** under the Preview Options and/or Final View Options and Click **OK**.

3. Next, select a Sun Angle and click the **Open Object** edit button.

4. On the **LIGHTING DATA** panel of the **Sun Angle Specification** dialog, make sure that **Casts Shadows** is checked, and click **OK**.
5. To display the shadow in floor plan view, with the Sun Angle arrow selected, click the **Make Shadow** edit button, or click the **Make Shadow** button on the **EARTH DATA** panel of the **Sun Angle Specification** dialog.

If no Terrain Perimeter has been created, shadows fall on an imaginary plane at height zero, the default height for the first floor.

If a Terrain Perimeter exists, shadows are modified to indicate where the real shadow would fall on the actual terrain.

There are several ways to delete the shadow created by a Sun Angle:

- In floor plan view, select and delete the defining polyline.
- In floor plan view, select and delete the Sun Angle arrow.
- In floor plan view, select the Sun Angle Arrow and click the **Delete Shadow** edit button.
- In the **Sun Angle Specification** dialog, click the **Delete Shadow** button.