







# Chief Architect®


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## Elevation Data Tools

 Select **Terrain> Elevation Data** to add elevation information to your terrain.


When terrain is generated, this data is used to calculate the surface of your site and is represented by contour lines in floor plan view and a curved surface in 3D. See [Displaying Terrain](#).

Elevation data can be specified using the **Elevation Point** , **Elevation Line** , **Elevation Spline** , **Elevation Region**  and **Terrain Break**  tools.


 Elevation data can also be imported. See [Importing Elevation Data](#).


The elevation of each Elevation Line, Spline and Region is specified relative to sea level.

In order to create rising and/or falling terrain, multiple terrain data objects with different elevation values must be used. If only one terrain data object is placed, the terrain will be flat regardless of the object's specified elevation.

 To avoid unexpected results, try to avoid drawing Elevation Data objects - including Terrain Breaks - with different elevation information at the same location.


## Elevation Points

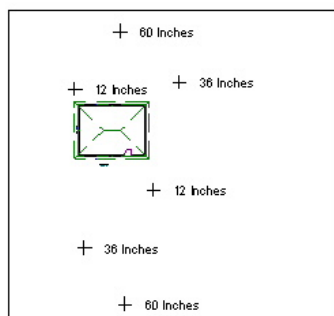
 An **Elevation Point** contains the absolute elevation data for one point in the terrain model. Typically, Elevation Points are imported rather than placed manually. Chief Architect requires many points to make an accurate approximation of your site.

 When adding elevation data manually, it is recommended that Elevation Lines and Splines be used instead of Elevation Points. Elevation Points are most effectively used when they are imported. See [Importing Elevation Data](#).

Even small sites may require over a hundred points to generate an accurate model of the terrain if it is sloped. For the sake of illustration, the images in the following example shows only a few elevation points.

### To place an elevation point

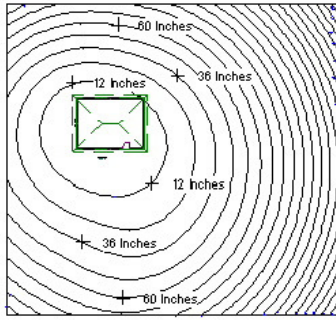
1. Select **Terrain> Elevation Data> Elevation Point**  and click in floor plan view at the point where you would like to place elevation data. See [Place Point](#).
2. The **Elevation Point Specification** dialog opens. Enter an elevation value and click **OK**. See [Elevation Point Specification Dialog](#).
3. Click somewhere else in floor plan view and the **Elevation Point Specification** dialog opens again with the last elevation value entered.



*Elevation Points before terrain generation*

4. Repeat steps 1, 2 and 3 to place additional elevation points with varied elevation values as needed.

5. Select **Terrain> Build Terrain** . See [Building the Terrain](#).





*Contour lines after terrain generation*

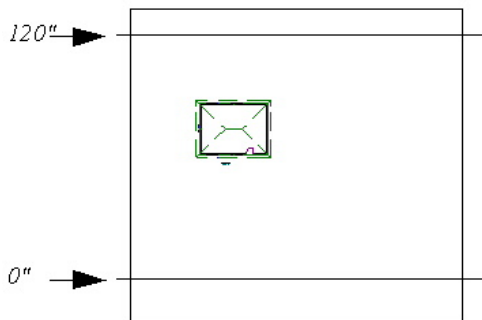
## Elevation Lines



An **Elevation Line** contains absolute elevation data for many points along a line at a constant elevation. Elevation lines can be connected to create a polyline with many straight sections. For the sake of illustration, the images in the following example show single-section elevation lines.

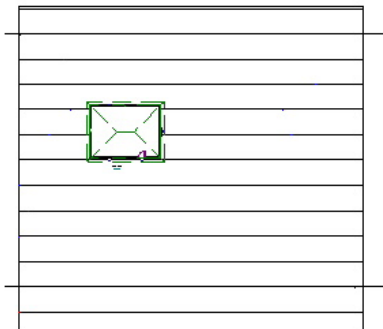
### To draw an elevation line

1. Select **Terrain> Elevation Data> Elevation Line** , then click and drag a line inside the Terrain Perimeter in floor plan view.
2. Click on the elevation line to select it, then click the **Open Object**  edit button.
3. At first, an elevation line is at elevation 0' - 0". In the **Elevation Line Specification** dialog, specify the desired elevation and click OK. See [Elevation Line/Region Specification Dialog](#).
4. Repeat steps 2 and 3 to draw additional elevation lines as needed.

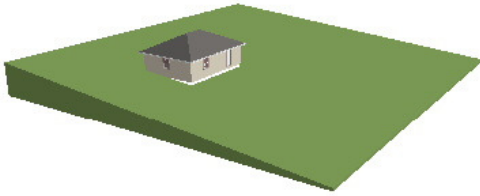


*Elevation Lines before terrain generation*

5. Select **Terrain> Build Terrain** . See [Building the Terrain](#).



*Contour lines after terrain generation*




*Full Overview after terrain generation*

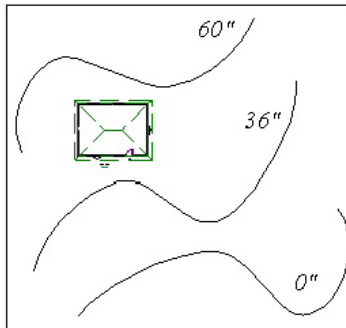
After it is drawn, an Elevation Line can be edited much the way other line-based objects can. See [Editing Line Based Objects](#).

### Elevation Splines

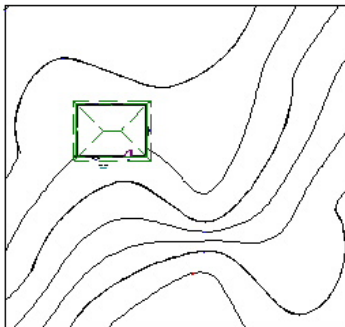


**Elevation Splines** can be used to form complex curves and shapes. Like elevation lines, elevation splines contain absolute elevation data for many points along a constant elevation.

To place an elevation spline, select **Terrain> Elevation Data> Elevation Spline**  and click and drag multiple sections in floor plan view. See [Splines](#). Elevation splines are initially placed at elevation 0' - 0" and must be opened and assigned an elevation. See [Elevation Line/Region Specification Dialog](#).



*Elevation splines before terrain generation*



*Contour lines after terrain generation*



After it is drawn, an Elevation Spline can be edited much the way other spline-based objects can. See [Editing Spline Based Objects](#).

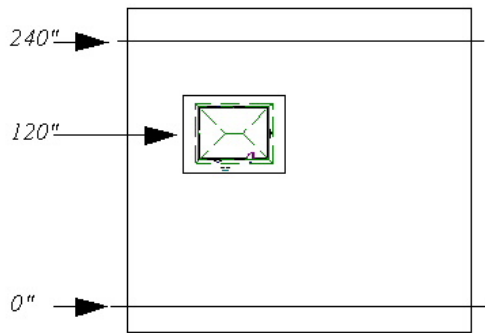
### Elevation Regions



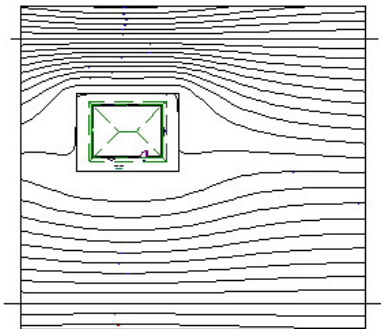
An **Elevation Region** contains absolute elevation data for an enclosed region and is ideal for creating a flat surface in your terrain.

#### To create an elevation region

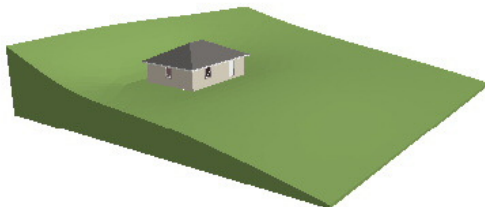
1. Select **Terrain> Elevation Data> Elevation Region** .
2. There are two ways to add a Terrain Modifier to your plan:
  - Click once to place an 8' (0.6 m) square feature at that location.
  - Click and drag from end to end to draw a feature sized as needed. See [Rectangular Polyline](#).
3. Click on the region to select it, then click the **Open Object**  edit button.
4. At first, an elevation line is at elevation 0' - 0". In the **Elevation Region Specification** dialog, specify the desired elevation and click OK. See [Elevation Line/Region Specification Dialog](#).





*Elevation lines used to create a terrain grade,  
elevation region used to create building pad.*



*Contour lines after terrain generation*




*Full Overview after terrain generation*

An **Elevation Region**  can also be created by drawing a closed polyline using **Elevation Lines** .

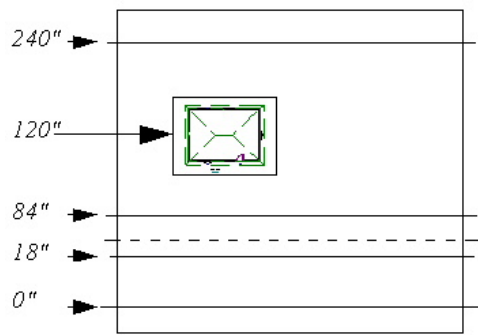
After it is drawn, an Elevation Region can be reshaped much the way other closed polyline-based objects can. See [Editing Closed-Polyline Based Objects](#).

### Terrain Breaks

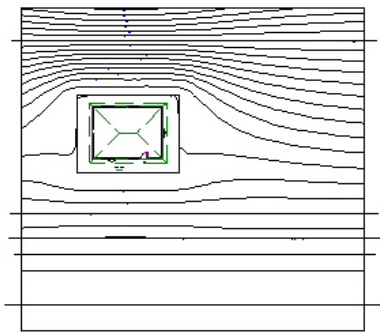
 A **Terrain Break** creates a division along the terrain surface that affects terrain generation. Elevation data on one side of the terrain break does not affect the terrain generation on the other side, allowing you to create immediate drops in terrain.

To place a Terrain Break, select **Terrain> Elevation Data> Terrain Break**  and click and drag a line in floor plan view.

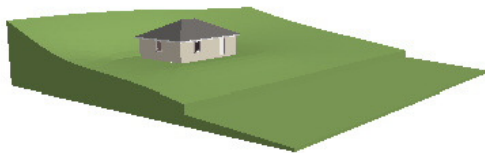
- If the Terrain Break divides the terrain perimeter into two separate pieces, the terrain data on either side is calculated independently and smoothed separately, resulting in sharp terrain contours.
- If the Terrain Break does not extend completely from one side of the terrain perimeter to the other, the areas near each end of the Terrain Break are blended.




*Elevation lines create the grade, elevation region creates the building pad, and the terrain break (dashed) creates a vertical drop.*



*Contour lines after terrain generation*



*Full Overview after terrain generation*

The **Retaining Wall**  tool creates a similar effect by drawing a Terrain Break as well as a retaining wall that rests against the break. By default, the top height of the retaining wall matches the terrain on the high side of the break and the bottom matches the low side. See [Retaining Walls](#).