



Part 6 – Walls, Floors and Ground

Introduction

To change the vector map in a fully textured battlemat, bitmap fill styles will be created. In this part, the walls, the floors and the outside ground textures will be added. Because each of these three elements will be affected by different sheet effects, new sheets will also appear.

Sheets behave like real transparent paper sheets stacked in a specific order, but most entities placed on a sheet are not themselves transparent. This means that anything on an upper sheet will mask whatever lies beneath this sheet.

The picture to the right shows how the sheets and the bitmap filled entities will be stacked.

Note that the sheets order differs from the usual CC3 templates where the ground is generally the lowest sheet. The new order is forced by the use of light effects inside the buildings whereas the landscape will be affected by the sun light.

The doubling of the walls entities on two separate sheets (**WALLS** and **WALLS TOP**) is also dictated by the use of inside lights.

The diverse light sources will be detailed in further parts.

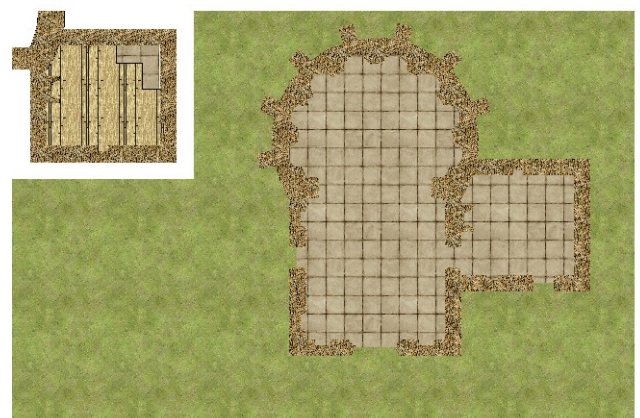
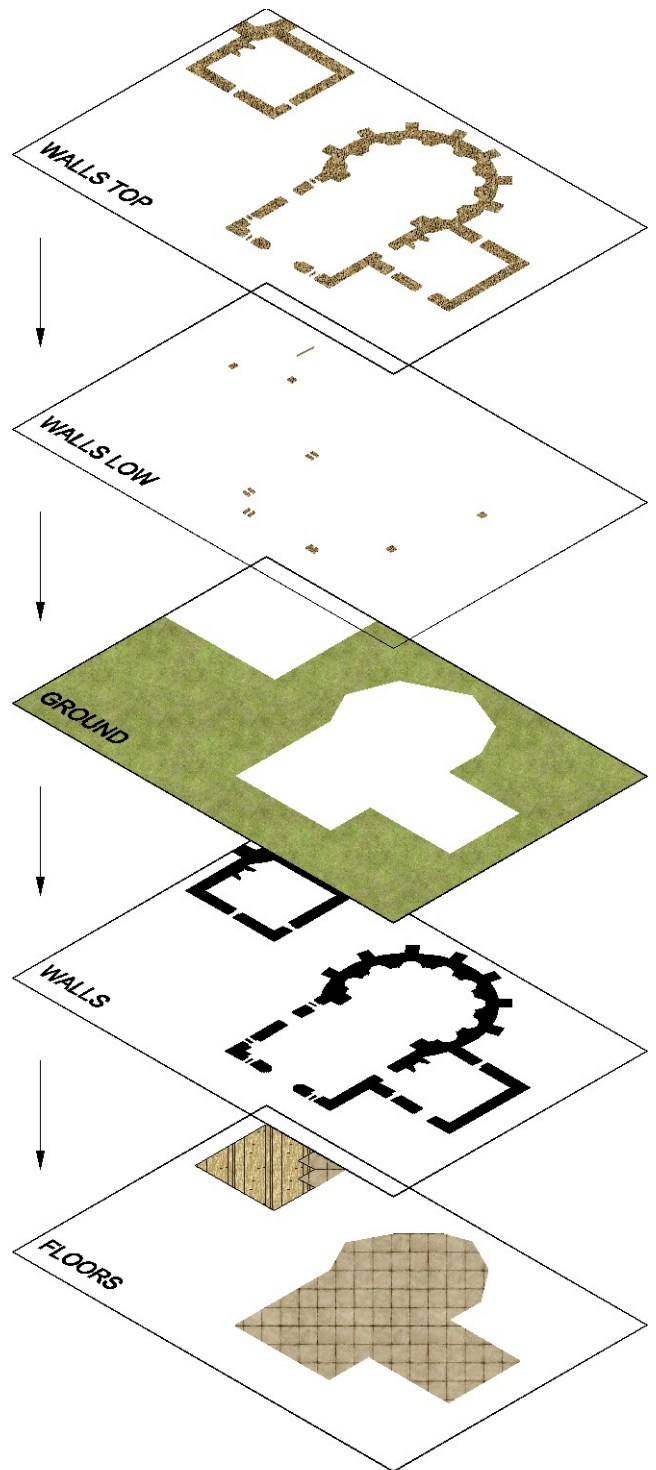
Choosing fill styles

Every fill style is based on a picture file. In most cases, this picture file is repeated as many times as needed to fill the area.

CC3, DD3 and CD3 come with a large array of such files, already used as fill styles in the various templates available. The Cartographer's Annual new settings further enlarge this selection.

To choose a fill style, browse the CC3_Bitmap\Tiles subfolders, particularly:

- CC3\Bitmaps\Tiles\Dungeons\DD3 Colors
- CC3\Bitmaps\Tiles\Dungeons\Annual John Roberts
- CC3\Bitmaps\Tiles\Dungeons\SS2\Bitmap A and B
- CC3\Bitmaps\Tiles\City\CD3
- CC3\Bitmaps\Tiles\City\CD3\Bitmap B





The web is also full of picture files usable as fill styles, but take care of copyright or terms of use notice. They are usually labeled **textures** or **patterns**. Good candidates are **seamless** (sometimes called **tiled**) pictures. It means that when you place two instances of the same picture side by side you cannot see the transition. Here are some interesting resources:

- <http://www.cgtextures.com/index.php>
- <http://www.davegh.com/index.php>
- <http://www.johnsolo.net/tex/tex.php>

Creating the WALLS fill style

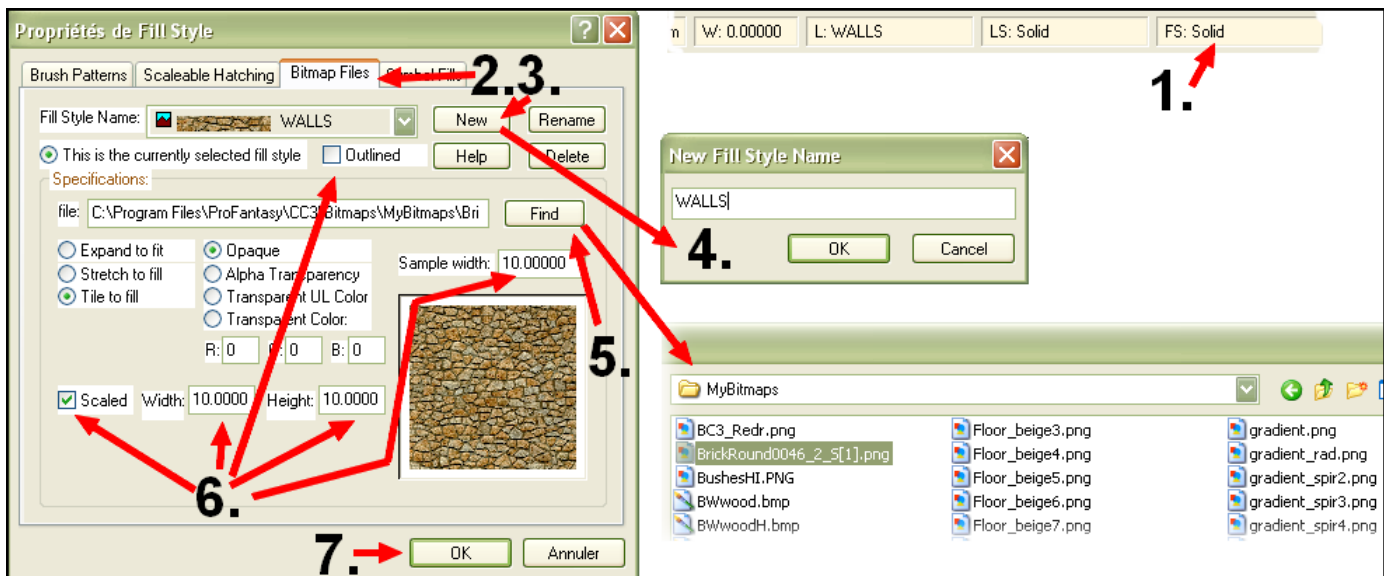
The picture file used for this tutorial can be found [here](#) (first website mentioned above). Download the file (you need to create a free account) and save it in a suitable folder (e.g. CC3\Bitmaps\MyBitmaps). Open it with MS Paint or any picture editor and save it as PNG, because CC3 doesn't accept Jpeg pictures for fill styles.

You can of course choose any other picture.

Note: the picture is cropped to respect terms of use.



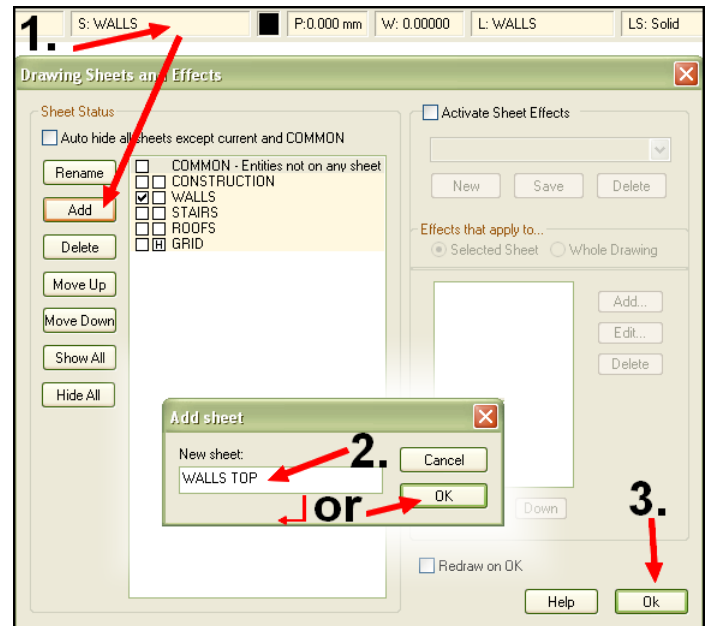
1. Click on the Fill Style Indicator
2. Click on the **Bitmap Files** tab.
3. Click on **New**.
4. Type **WALLS** in the pop-up.
5. Click on **Find** and browse to the folder where you stored the picture file and double click it.
6. Uncheck the **Outlined** box unless you want to outline the entities with a colored line. Check the **Scaled** box and set the **Width**, **Height** and **Sample Width** to **10**. This means that the picture file will be scaled to occupy a 10 CC3 units wide square. The size of 10 is empiric. If you use another file, you might have to adjust this value until you have a pleasing result. The other options should automatically be set to what you see on the picture below:
This is the currently selected fill style radio button on to use the fill style immediately
Tile to fill radio button on to enable the repeating of the pattern
Opaque radio button on unless you want part of your fill style to be transparent. Correct any wrong setting.
7. Click **OK** and save the file.





Adding the **WALLS TOP** sheet

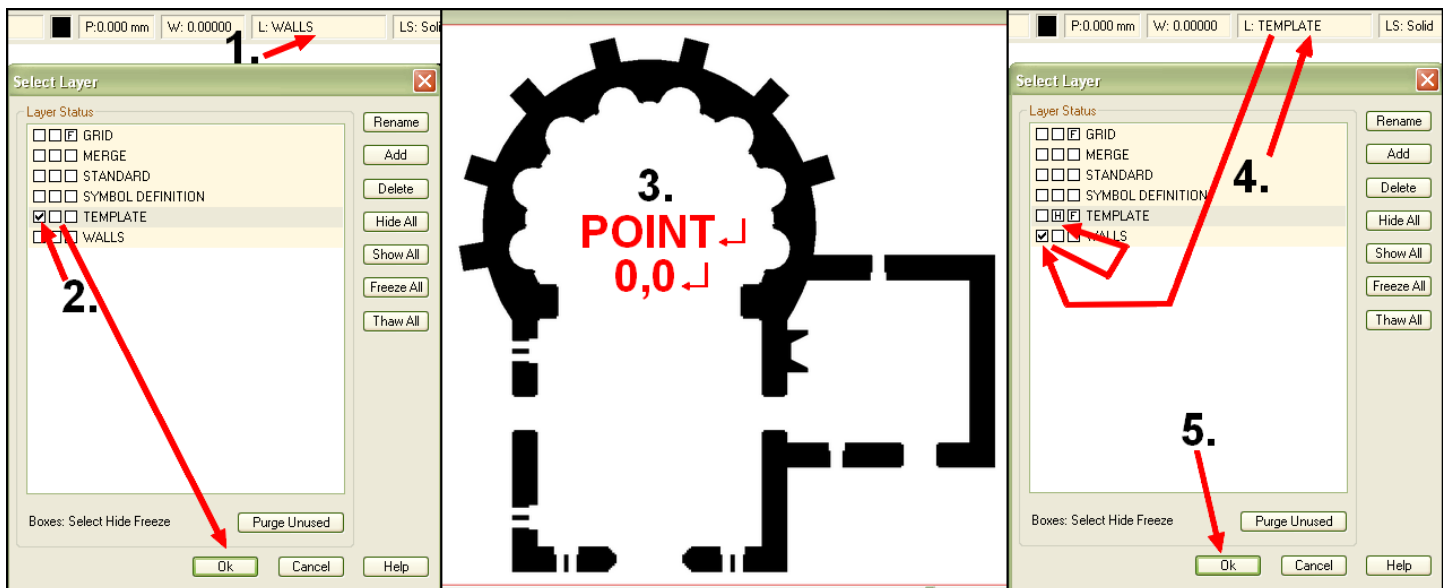
1. Click on the sheet Indicator then on the **Add** button.
2. Type **WALLS TOP** then click **OK**.
3. Click **OK** again to close the sheets list.



Securing a new sheet



Unless a sheet contains at least one entity, it won't save with your file. If you were to save and close the file now and open it again, you'd notice that the new **WALLS TOP** sheet would have disappeared from your map. The **TEMPLATE** layer is commonly used to store points (dots) on every sheet to prevent this:

1. Click on the Layer Indicator.
2. The **TEMPLATE** layer has three checkboxes to the left of it's name. Click on the leftmost box to check it and make the F disappear. If the middle box showed a letter, it should now be empty. Click **OK** to close the layers list.
3. Select the **Draw**→**Point** command (**POINT**↵). Verify that the **WALLS TOP** sheet is active (otherwise click on the Sheet Indicator, check the left box of the **WALLS TOP** sheet and click **OK** to close). Type **0,0**↵.
4. Click on the Layer Indicator. Check the leftmost box of the **WALLS** layer. Click on the middle and rightmost boxes of the **TEMPLATE** layer. They should respectively contain an "H" for Hidden and an "F" for Frozen.
5. Click **OK** to close the layers list.
6. Save your file as Chapel13.fcw. The new sheet is now secure.






Copying the walls with the new fill style

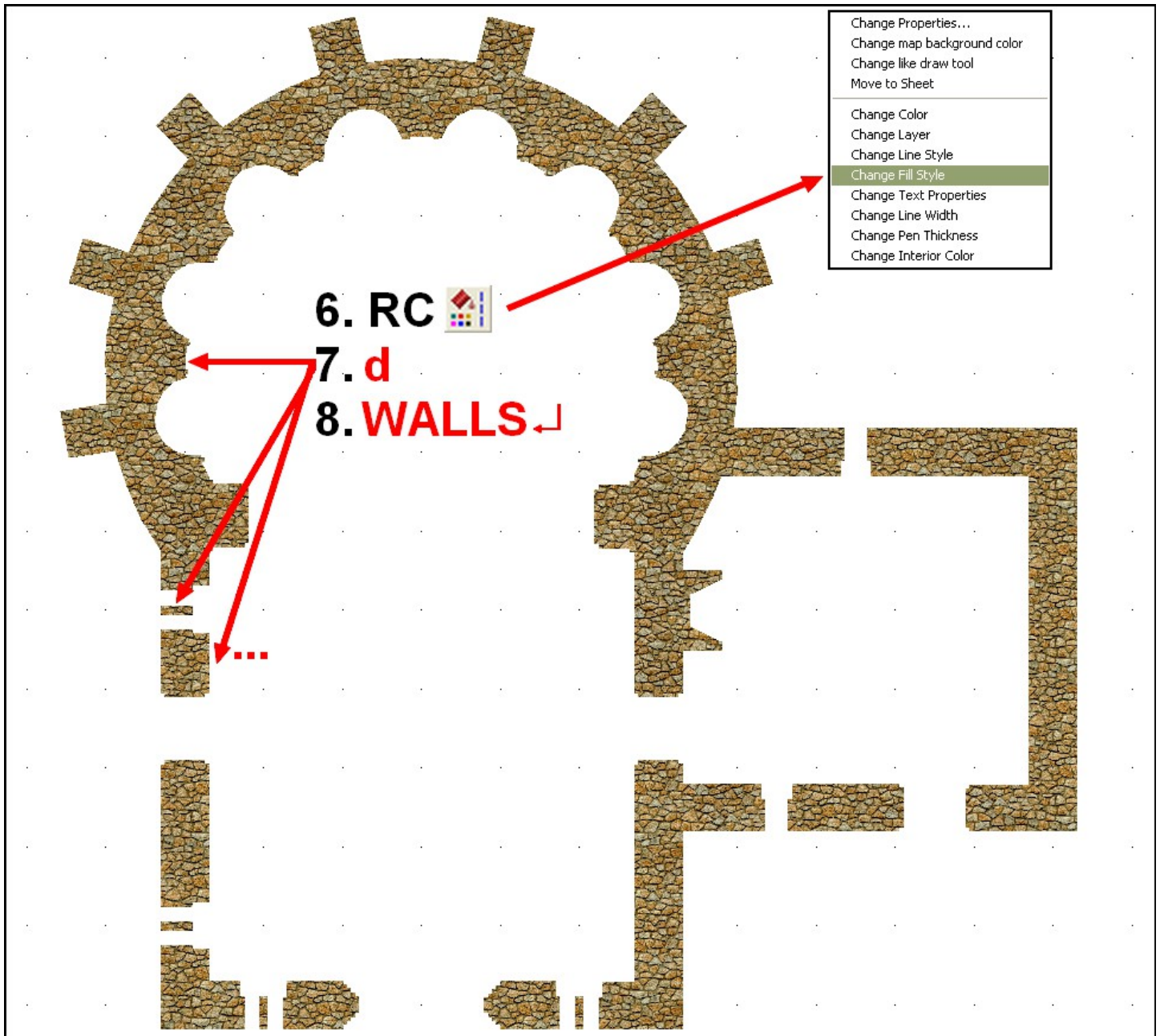
1. Click on the Sheet Indicator. Check the **WALLS** sheet left box and click **Hide All** to hide every other sheets. Click **OK**.
Verify that you only have the walls entity on screen. If not, use the *Move to Sheet* command (right-click  or **MOVSH**) to place any entity on it's rightful sheet.
2. Right-click  and choose *Copy To Sheet* (or type **COPYSHT**). Select all the walls entities one after another to verify no duplicate exists (see part 5 page 29). Duplicates won't create any difficulty here but keeping a clean map is always a good idea.
3. Right-click and choose **do it** or just hit **d**.
4. The sheets list appears. Check the left box of the **WALLS TOP** sheet. The **H** in the right box disappears, meaning that the sheet is again visible. Click **OK**.
5. Click on the Sheet Indicator again. Click on the **Hide All** button and on **OK**. The **Hide All** button was not available at step 4.

The image is a composite of four screenshots from a software application, illustrating the steps to copy walls to a new sheet.
1. The first screenshot shows the 'Drawing Sheets and Effects' dialog box. The 'Sheet Status' section has 'WALLS' checked. The 'Hide All' button is highlighted with a red arrow and the number '1'.
2. The second screenshot shows a pink gear-shaped wall entity on a grid. The text '2. COPYSHT' and 'd' are overlaid on the image, with red arrows pointing to the entity. Below the image, it says 'Pink = selected'.
3. The third screenshot shows the 'Drawing Sheets' dialog box. The 'WALLS TOP' sheet is checked, and the 'Ok' button is highlighted with a red arrow and the number '4'.
4. The fourth screenshot shows the 'Drawing Sheets and Effects' dialog box. The 'WALLS TOP' sheet is checked, and the 'Hide All' button is highlighted with a red arrow and the number '5'.






6. Right-click on the **Change Properties** icon  and choose **Change Fill Style**. See sidebar if this is not available.
Alternatively use the keyboard version: **CHANGEFS**↓.
7. Select all the walls entities one by one to verify that no duplicate exists. Right-click **do it** or **d**.
8. Type **WALLS**↓ or right-click to see the Fill Style list, select the **WALLS²** bitmap fill style then click **OK**.
9. Save the map.



Change Properties versus Edit Properties

These two commands are alike and their icons are also very similar.

If you don't see the **Change Fill Style** option after right-clicking, you probably clicked **Edit Properties**  which shows a big 1 because only one entity can be edited at a time.

² We now have three features named "WALLS", a sheet, a layer and a fill style. Feel free to alter the names.



Adding the low walls

Low walls include window sills, the low parts of battlements, and parapets.

Because they usually use the same fill style as the full height walls, they need a specific sheet and only the sheet effects will bring out the difference.




1. Click on the Sheet Indicator. Click the **Add** button and type **WALLS LOW** in the pop-up.

2. Click once on the **Move Up** button to place this new sheet between **GRID** and **WALLS TOP**. Click **OK** to close the sheet list.

If you stop here, secure the sheet (see page 33), otherwise continue as entities will be added immediately, making securing unnecessary.

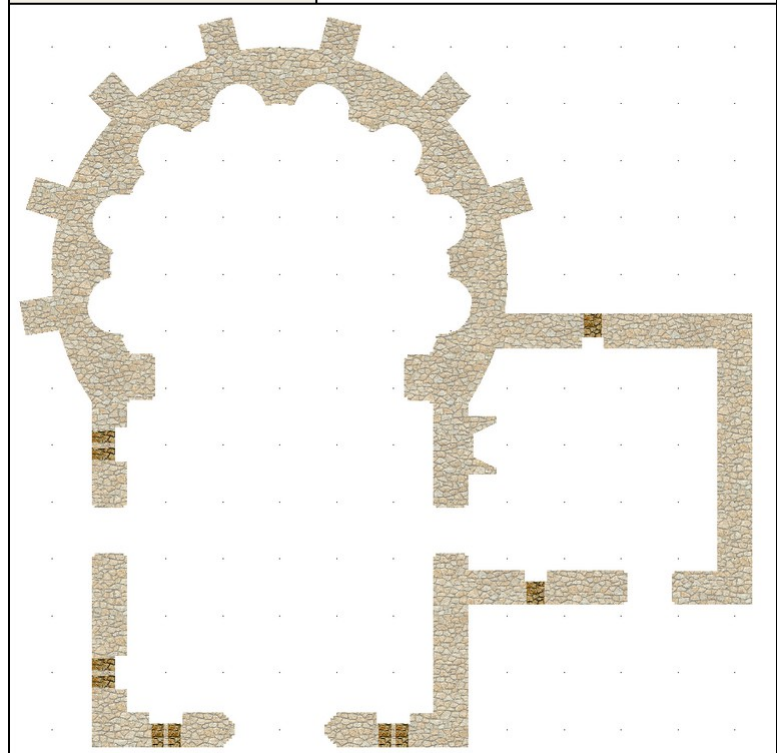
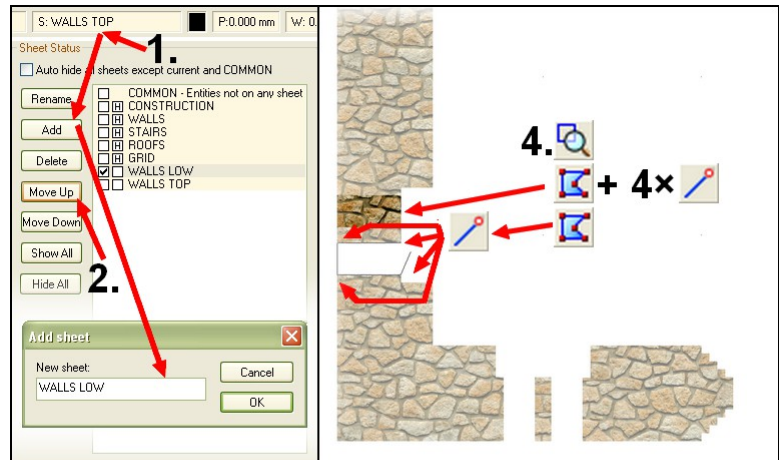
3. Make sure the current fill style is set to **WALLS**. If not, click on the Fill Style Indicator and make it current.


Note: if the Bitmap Fill Style tab is not active and you click on it, the **WALLS** fill style will look like it's selected because it's the first (and only one) in the list. To effectively select it, turn the **This is the currently selected fill style** radio button on before closing the list with **OK**.

4. **Zoom**  on the windows and using the **Polygon**  tool (**POLY**↵) combined with the **Endpoint**  modifier (**F5**) fill the openings made in the walls by the windows.

5. Save the map.

Note 1: For this example drawing, the **WALLS TOP** sheet has been affected by a transparency effect to clearly differentiate the walls and the low walls.



Note 2: Since all the windows are either horizontal or vertical, the **Box**  tool (**BOX**↵) could here be used by selecting only diametrically opposed endpoints for each opening.

About sheet ordering

Layers are always ordered alphabetically and it doesn't matter because the layers order has no visual impact on the map (as long as they are visible).

With sheets, the order is very important because non transparent entities mask everything on the sheets below.

However the order you see in the Sheets List is the reverse of what happens on the map: **the lower on the list, the higher on the map**.

For this reason, the **UP** button is here used to make the **WALLS LOW** sheet go **under** the **WALLS TOP** sheet. In future versions of Campaign Cartographer, this way of ordering the list may change.

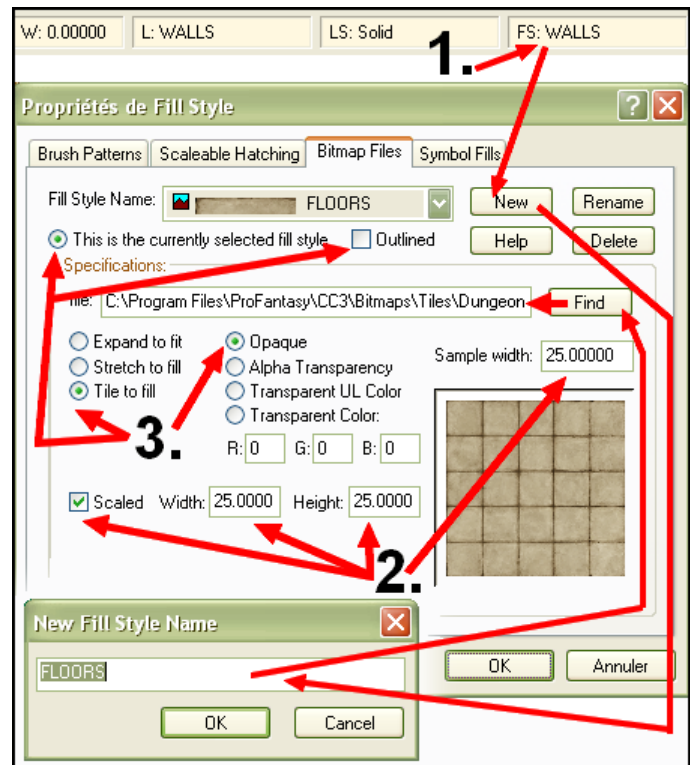




Creating the FLOORS fill style

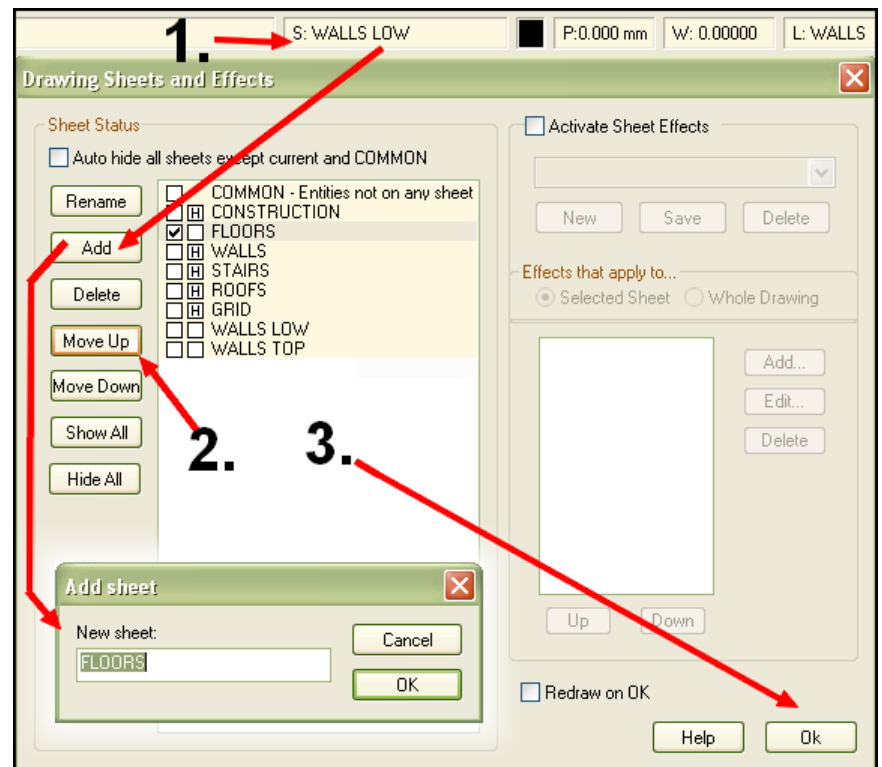
This tutorial uses a picture file available with the [free June 2011 issue of the Cartographer's Annual](#) by Jon Roberts: CC3\Bitmaps\Tiles\Dungeon\Annual Jon Roberts\Flagstones_brown_HI.PNG.

1. Click on the Fill Style Indicator and on the **Bitmap File** tab if necessary. Click **New** and type **FLOORS** then click **Find** and browse your files to select the Jon Roberts file or choose the picture you'd like.
2. Check the **Scaled** box and set the **Width**, **Height** and **Sample** width to 25 or any value you deem appropriate for the selected picture file. The Jon Roberts annual fill style is made of a 5x5 grid of square tiles. The width and length of 25 are chosen because it correspond to the 5' spaced grid.
3. Uncheck the **Outlined** box unless you want to outline the entities with a colored line. Set the **This is the currently selected fill style** radio button on to be able to use immediately this new file style. Set the **Tile to fill** radio button on to enable the repeating of the pattern. Set the **Opaque** radio button on unless you want part of your fill style to be transparent.
4. Save the file.



Adding the FLOORS sheet

1. Click on the Sheet Indicator, then on **Add**. Type **FLOORS** (or click on the **OK** button instead of ↵).
2. Click on the **MOVE UP** button to place the new sheet between **CONSTRUCTION** and **WALLS**.
3. Click **OK**.
4. **If you stop here, secure the sheet** (see page 33), otherwise continue as entities will be added in a moment, making securing unnecessary.



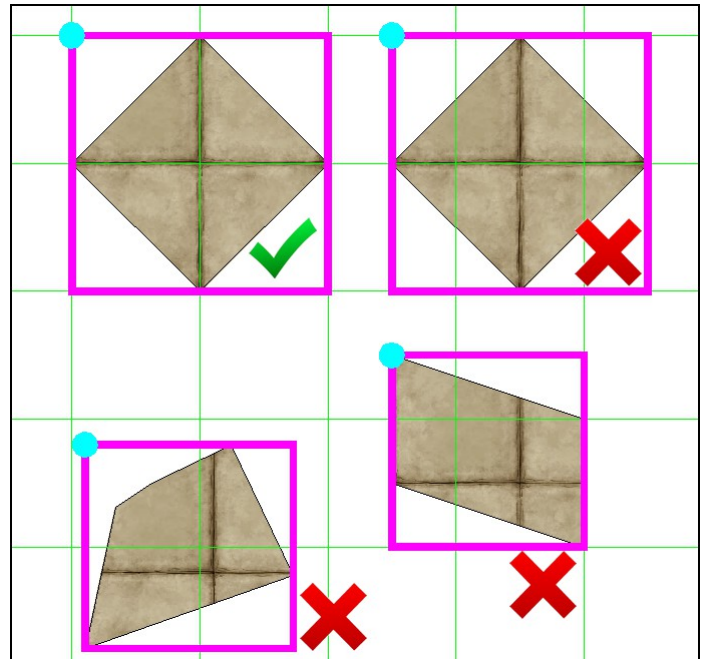


How to handle fill styles with a grid pattern


The selected bitmap file has an advantage that is also a drawback: the tile-like pattern. It is an advantage because you don't need to add another grid over it. It is a disadvantage because the fill style won't follow the established grid pattern unless you design the polygons carefully: their virtual bounding boxes must have the top left corner on a grid node (see picture right). This top left corner is the origin of the fill style.

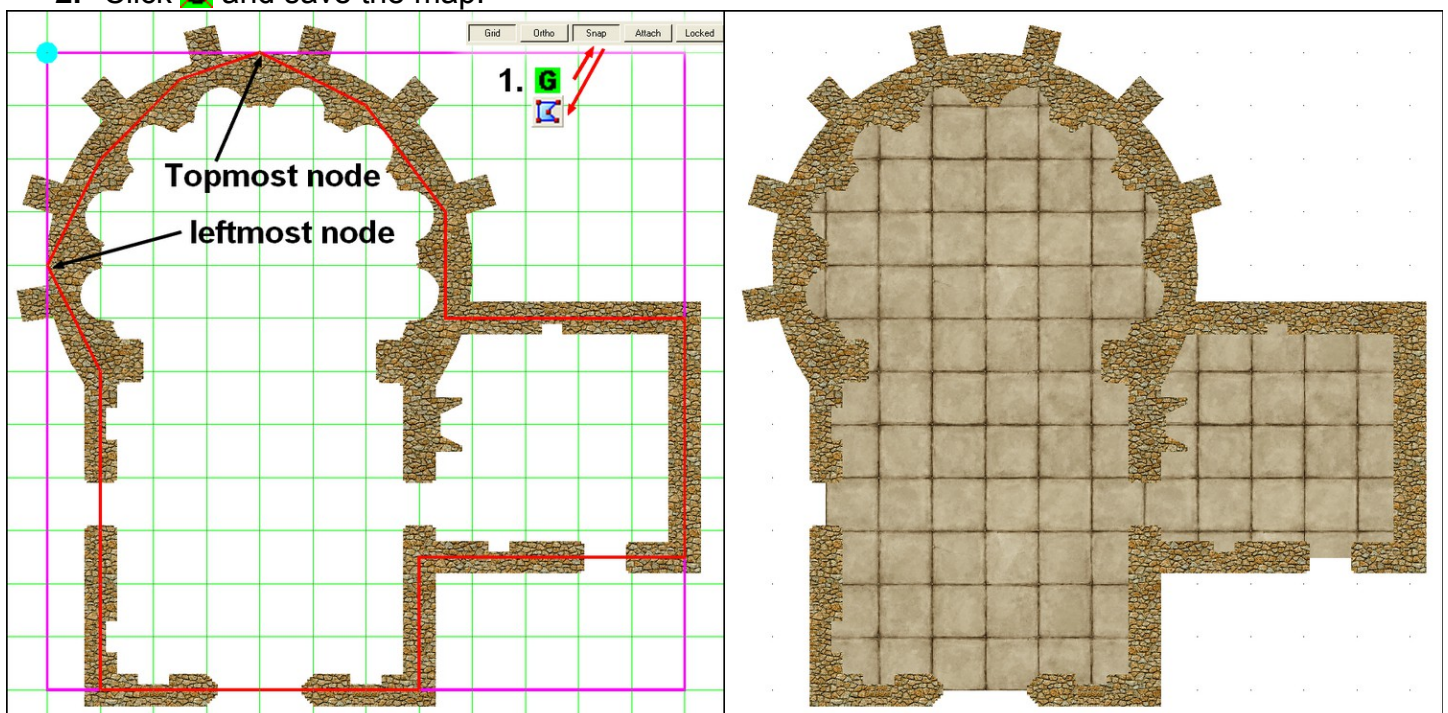
A bounding box is the smallest possible rectangle, with horizontal and vertical sides, circumscribing a shape. They are in pink, the fill style origins are in blue. Only the top left example has an alignment of both the pattern grid and the map grid.

To align the fill style with the map grid, all the polygons or multipolys using this fill style must conform to this rule. You achieve this by making sure that the leftmost node is on a vertical grid line and the topmost node on a horizontal grid line. What happens with the rightmost and bottommost nodes is irrelevant.



Creating the Floor

1. Click **G**. Make sure the **SNAP** button is pressed down and use the *Polygon*  tool (**POLY**,↵) to draw a shape inscribed in the walls, following the aforementioned rule. Right-click to end.
2. Click **G** and save the map.



The left picture is academic: the floor polygon is represented by its red outline. The bounding box is in pink and its top left corner is the blue disc, the rightmost and bottommost nodes do not need to be on grid lines and are not indicated. The right picture is what you get after *Redraw*.

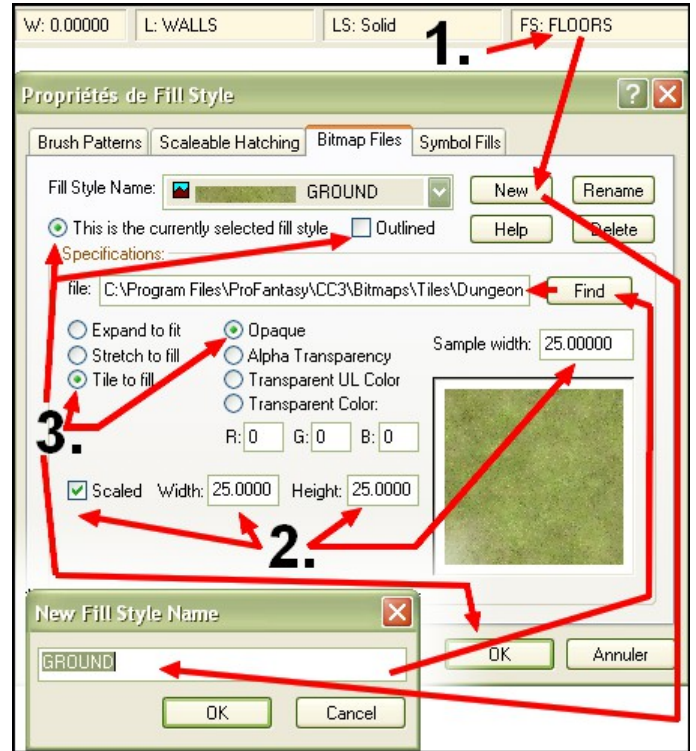




Creating the GROUND fill style

The fill style used for the grass can also be found in the free Jon Roberts Annual:
CC3\Bitmaps\Tiles\Dungeon\Annual Jon Roberts\Grass_green_HI.PNG

1. Click on the Fill Style Indicator and on the **Bitmap File** tab if necessary. Click **New** and type **GROUND** then click **Find** and browse your files to select the Jon Roberts picture or one of your own choice.
2. Check the **Scaled** box and set the **Width**, **Height** and **Sample** width to 25 or any value you deem appropriate for the selected picture file.
3. Uncheck the **Outlined** box unless you want to outline the entities with a colored line. Set the **This is the currently selected fill style** radio button on to be able to use immediately this new file style. Set the **Tile to fill** radio button on to enable the repeating of the pattern. Set the **Opaque** radio button on unless you want part of your fill style to be transparent.
4. Click **OK**.
5. Save the file.

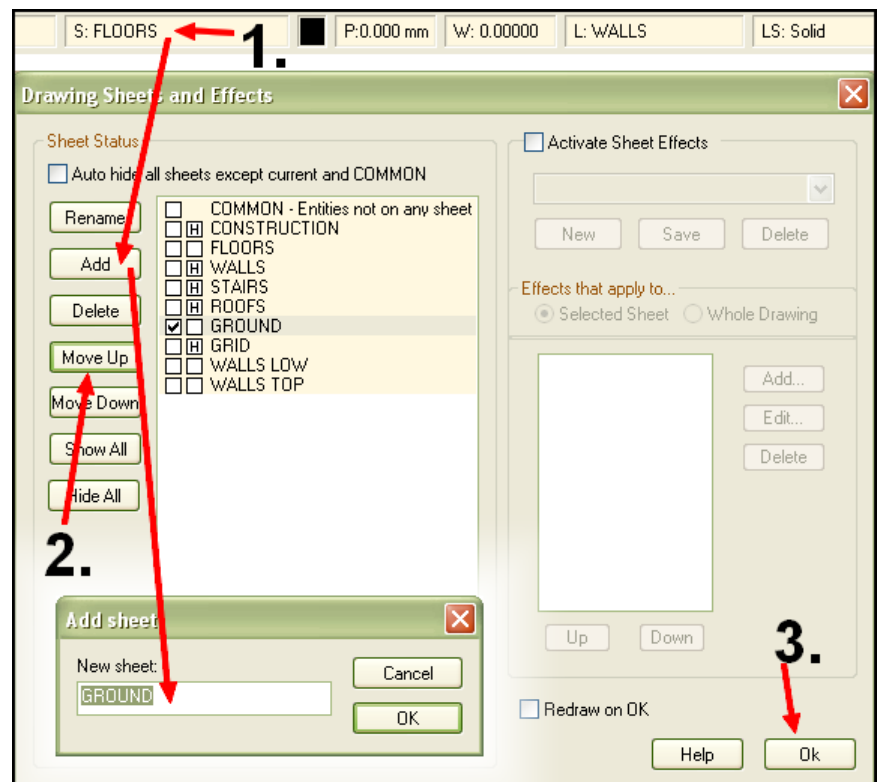


Adding the GROUND sheet

In most dungeon styles, the outside ground is a rectangle covering all the map area on a background sheet far under all the other sheets.


The choice of light effects makes it unpractical here. In order to leave the ground unaffected by the shadows projected by the lights effects only to be used inside the building, it must sit above the above the **FLOORS** sheet.

1. Click on the Sheet Indicator, then on **Add**. Type **GROUND** (or click on the **OK** button instead of ↵).
2. Click on the **MOVE UP** button to place the new sheet between **ROOFS** and **GRID**.
3. Click **OK**.
4. **If you stop here, secure the sheet** (see page 33), otherwise continue as entities will be added in a moment, making securing unnecessary.

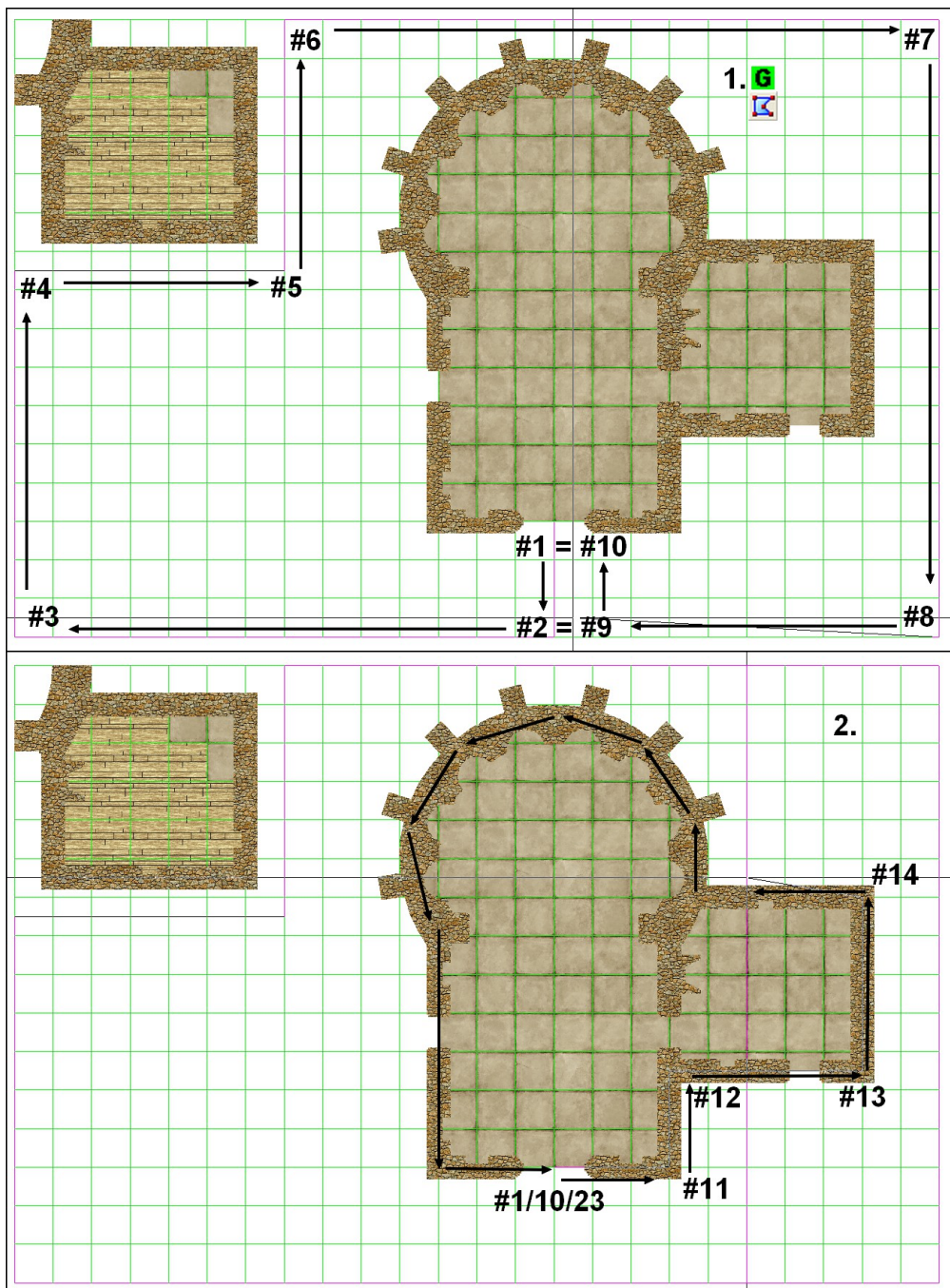


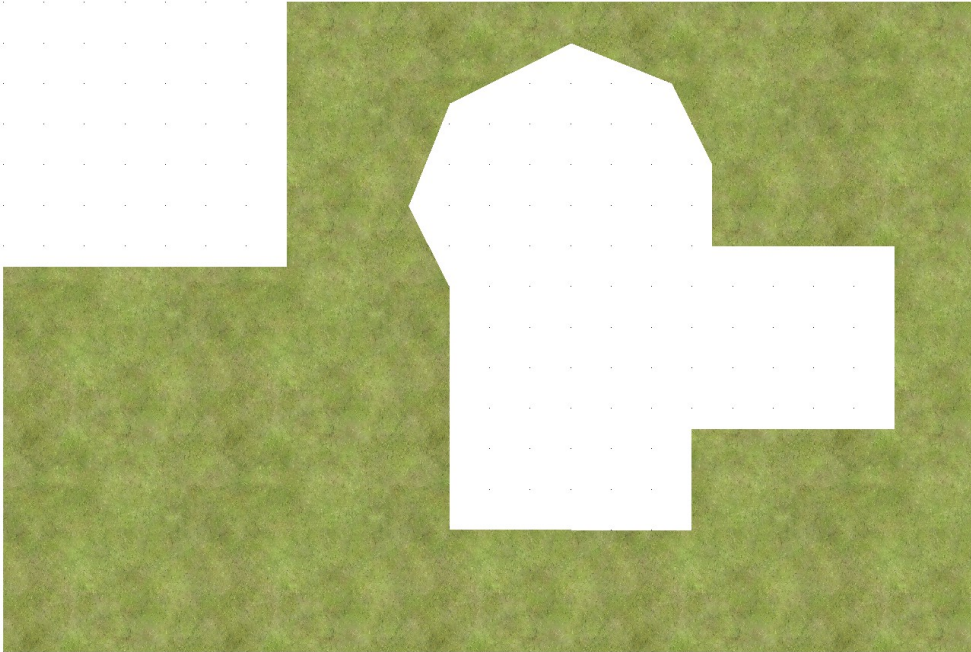


Creating the grassy ground

1. Click **G** and make sure the **SNAP** button is pressed down. Draw the **Polygon**  (**POLY** ↵) by starting at the midpoint of the outside edge of the main door (point #1 see picture next page). Drop vertically down to the border (point #2). Continue around the map (#3-#8) clockwise and come back to the second point (#9 = #2) then the first (#10 = #1).
2. Turn around the chapel (#11+) counter-clockwise to end a third time at point #1. Right-click. This way we define a polygon which looks like it has a hole without resorting to a multipoly. This enables quick editing of the ground polygon in case a change of size is suddenly necessary.

Note: An insert of the second level of the priest's quarter has been added in the top left corner of the map. The walls were made using the method described in parts 3-5. The fill style for the wooden floor is: CC3\Bitmaps\Tiles\Dungeon\SS2\Bitmap B\Wood Planks Pine h_VH.PNG



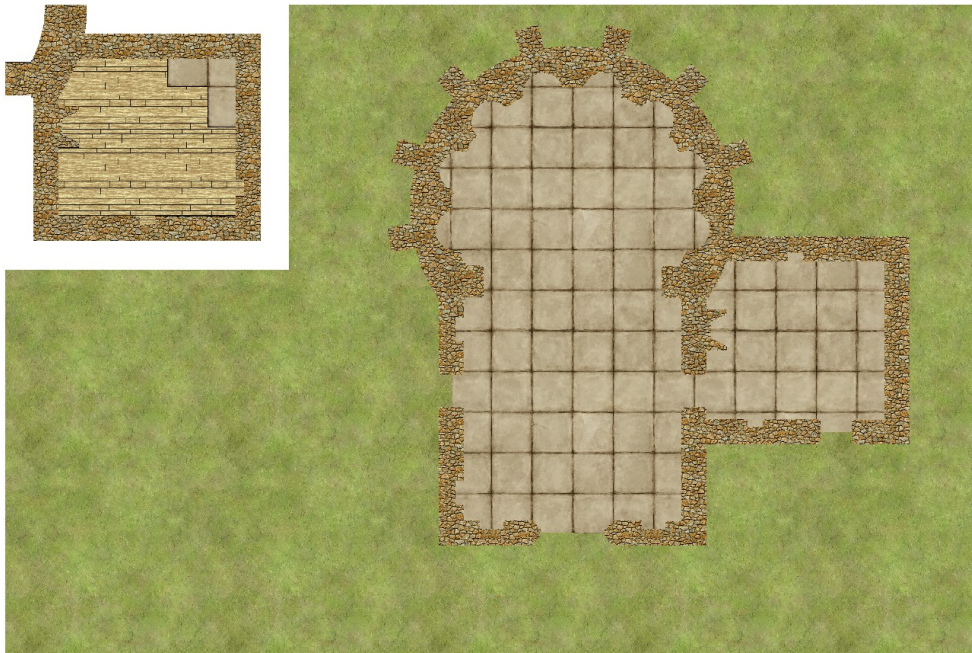


The ground polygon with all other sheets hidden. It looks like a multipoly but is in fact a polygon with two times the same side.

Conclusion

In this part, by starting to transform the vector map from part 5 in a textured battlemaps, we also discovered:

- How to create fill styles from a picture file
- How a tiled picture used in a fill style is applied to entities
- How to add new sheets and how to secure them
- How sheets are ordered



In next part, more work will be done on the grass, adding new fill styles, new sheets and a first sheet effect.

