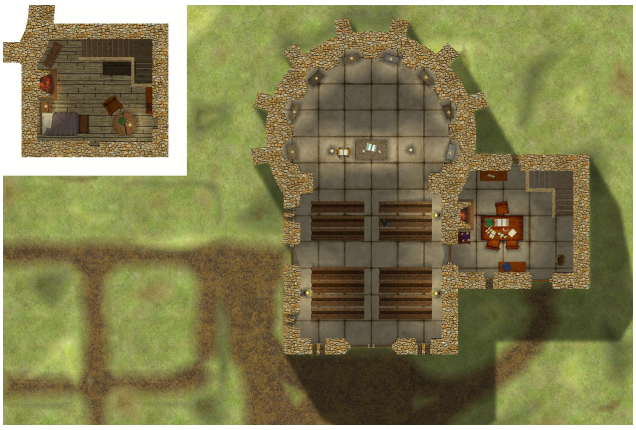
Part 10 – Light, please!

Introduction

Inside a building, light is intimately linked to symbols: representations of the object emitting the light, but also of those casting shadows. Being candles, torches, glowing crystals or fireplaces, light needs a physical source. Outside, it's the same except for the light emitted by the sun (see part 9), reflected by the moon or perhaps, in a modern setting, by powerful projectors outside the map scope.



This part will deal with

- Handling light effects,
- Adding symbols in general,
- Adding light sources.

About light effects

In CC3, light effects are made from three elements:

- A **Wall Shadow, Point Light Setup** effect applied to sheets containing entities casting shadows or at least stopping the light rays,
- A **Wall Shadow, Point Light Finalize** effect applied to only one sheet marking the last sheet affected by the lights,
- Light sources, sometimes included in symbols, that can also be added individually.

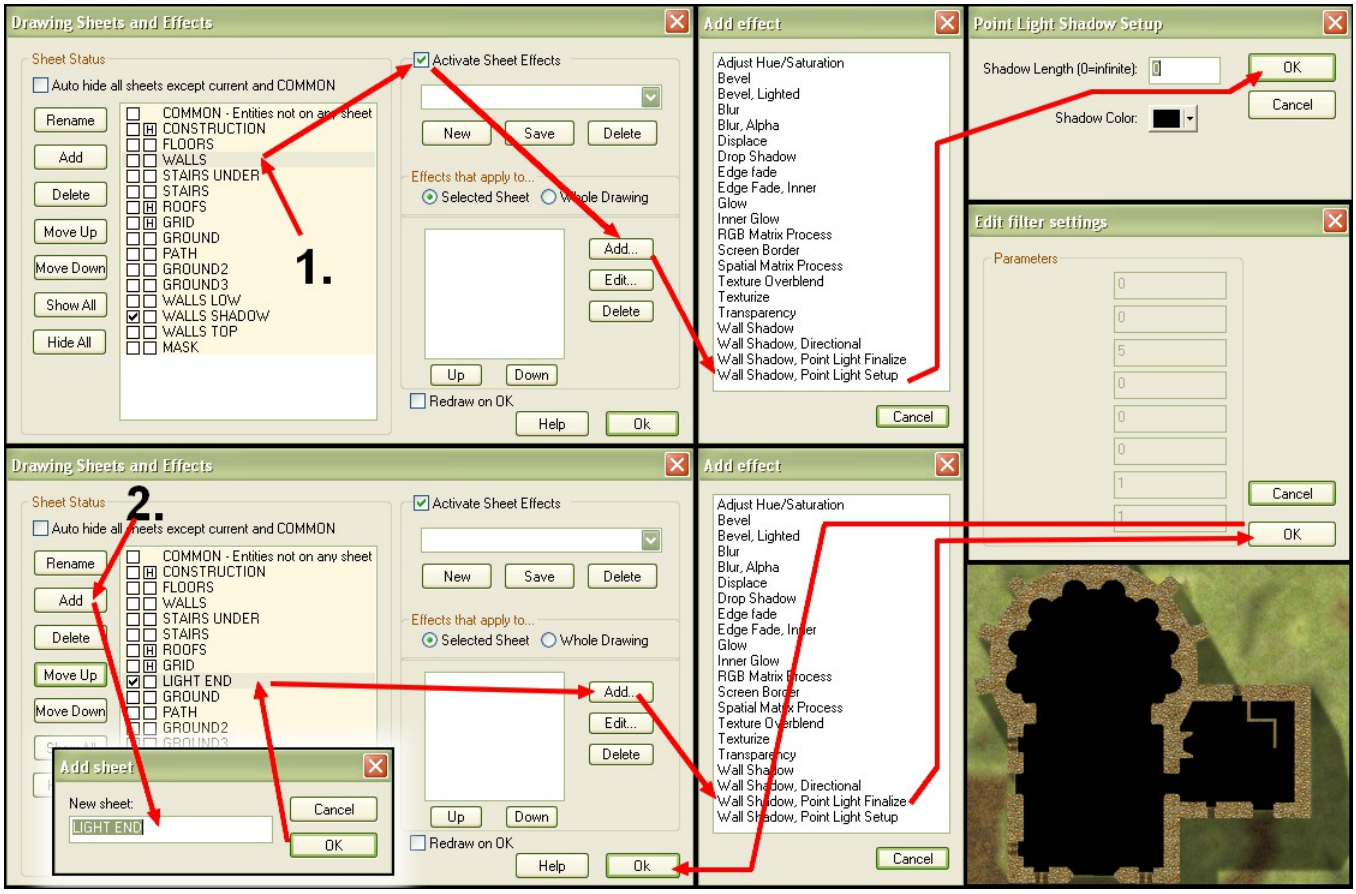
To understand how this all works together, consider the two examples below:

Left: the **Wall Shadow, Point Light Finalize** effect has been applied to a sheet above all other sheets: everything else is affected by the shadow, particularly the ground outside the building. The **Wall Shadow, Point Light Setup** effect has been applied to the **WALLS TOP** sheet and it affects this sheet too, in a very unrealistic way. This could be great for a night version.

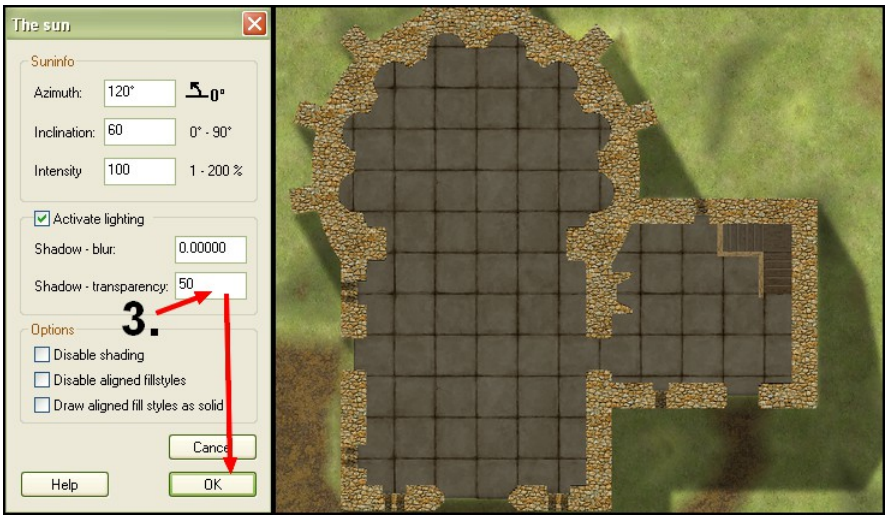
Right: the **Wall Shadow, Point Light Finalize** effect has been applied to a sheet placed just under the **GROUND** sheet. That way, every sheets containing entities outside is unaffected by the light and remains as designed. The **WALLS TOP** is also unaffected because it's placed well after the light limit sheet and because the **Wall Shadow, Point Light Setup** effect has been applied to the **WALLS** sheet, below the light limit sheet.

Setting up the light effects

1. Click on the Sheet Indicator and select the **WALLS** sheet by clicking on its name (gray line shows selected). Check Activate Sheet Effects and click the right **Add** button. Choose **Wall Shadow, Point Light Setup**. Leave the Shadow Length to 0 (meaning infinite) and the color to black (unless you want some specific settings). Click **OK** on the pop-up.
2. Click the left **Add** button and type **LIGHT END** for the new sheet name. Use **Move Up** to place it just above **GROUND** in the list. Verify that the **LIGHT END** line is grayed and click the right **Add** button. Choose **Wall Shadow, Point Light Finalize**. A pop-up appears, with all the parameters grayed up. It means there is no parameter to specify here, so just click **OK**.



Notice how the unlit areas are now pitch black, this is because no light source has been added yet. It also means that areas that won't be reached by these future light sources will stay black. While total blackness is logical in a closed, unlit, room, once you add some light, you have what is called ambient light: small light particles that erratically wander in the whole room, lighting softly even the darker areas. Ambient light can be achieved by changing the shadow transparency:



3. Right-click on ***Sheet and Effects*** and choose ***Global Sun*** (**SUNINFO**↵). Set the Shadow – transparency to 50 and click **OK** to close the pop up.

4. Before saving the map, secure the **LIGHT END** sheet because it is empty (no entity) and will stay so, its sole purpose is to mark the limit of the light effect.
   Click on the Layer Indicator and on the leftmost box of the **TEMPLATE** layer. Click **OK** to close the layers list. Launch **Draw**→*Point* (**POINT**↵) and type **0,0**↵ to place a single dot on the sheet to secure it. Click on the Layer Indicator, on the leftmost box of the **WALLS** layer then on the mid and right boxes of the **TEMPLATE** layer. They should respectively show an "H" for hidden and an "F" for frozen. Click **OK** to close the layers list.
5. Save the map.

Adding non light-emitting symbols

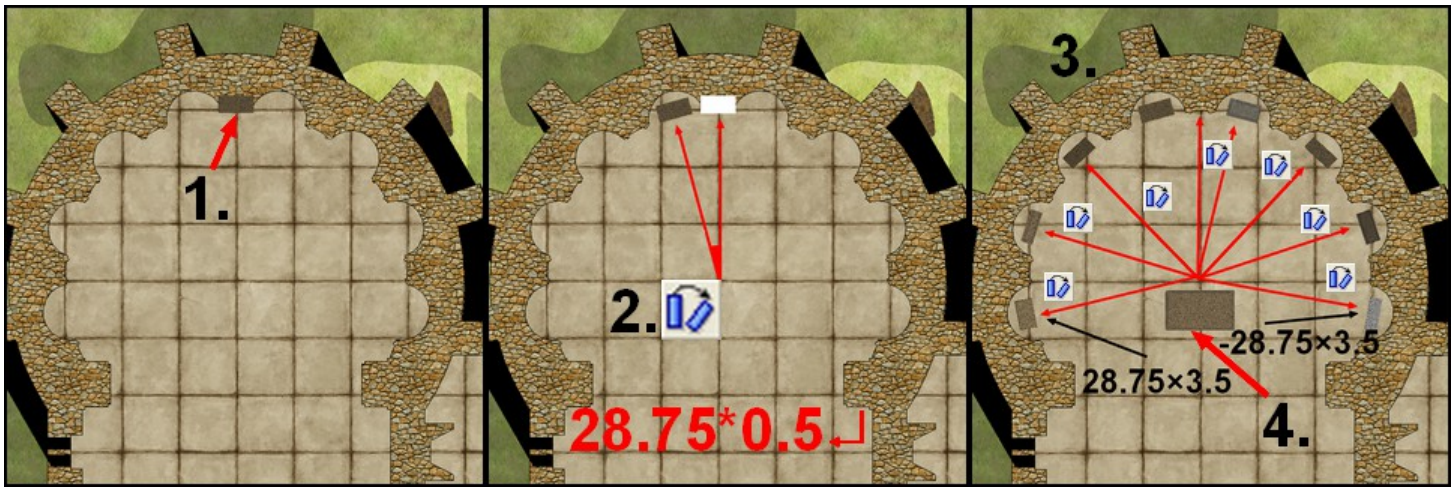
Before adding light source symbols, it's best to add the other symbols as many of them will provide support, for the candle holders for example.
CC3's well constructed symbol catalogs automatically add the sheet where a symbol is supposed to go. A new sheet is however always added to the bottom of the list, meaning graphically on top of everything else. Once done, you'll probably need to reorder the sheets.
Symbols quantity and placement is a question of personal taste so only the most important ones will be detailed. The following catalogs have been used on the example map:

- DD3 color Furniture
- DD3 color Wall Features
- CA50 Library furniture and object catalogs
- The Religious catalog freely downloadable here.
- The Beds and Rugs catalog freely downloadable here.

Adding the small altars in the alcoves

In part 4 (page 21-22), the alcoves have been added with a 28.75° angle width. This value will help to place evenly the small altars because CC3 can do all the math for you: 28.75*0.5 is a valid input for a prompt as 28.75/2 would be or even more complex expression as for example -28.75*3 – 28.75*0.5.
It is also possible to add symbols by eye, using the Control+Shift combination to activate free symbol rotation. It's however about gods, so a more precise approach might be safer.
From left to right, the angles needed here are 28.75*3.5, 28.75*2.5, 28.75*1.5, 28.75*0.5 and the opposite numbers: -28.75*0.5, -28.75*1.5, -28.75*2.5 and finally -28.75*3.5.
Remember that in CC3 a positive angle always denotes a counterclockwise rotation whereas a negative one corresponds to a clockwise rotation.

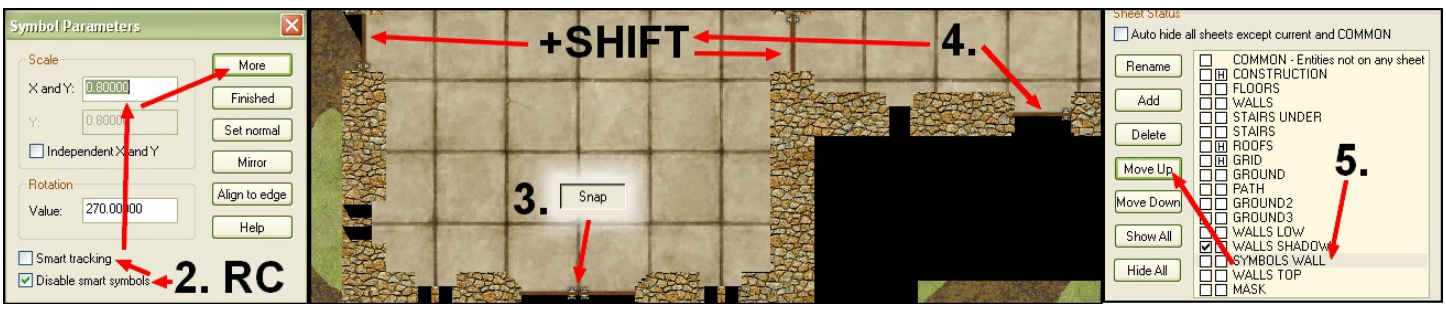
1. Choose an “atlar, sm” symbol from the Religious catalog or any other of your choice. Place this symbol where it would sit in a vertically alcove if such an alcove were to be there.
2. ***Rotate*** the symbol by any of the above angles around the sanctuary center (use snap).
3. Repeat step **2.** until all the small alcoves have found their rightful location.
4. Place an altar symbol somewhere in the center.
5. Click on the Sheet Indicator. You'll notice that a new **SYMBOLS** sheet was created through the symbols addition. Use the **Move Up** button to place it between the **STAIRS** and the **GROUND** sheets. Close the sheets list by clicking **OK**.



Adding and scaling the doors

The main doors of the nave have a width of 8' while all the other door frames are 4' wide (see part 5 page 25). The usual CC3 dungeon symbol doors are 5' (single) or 10' (double) wide which means that a scale of 8/10 = 4/5 = 0.8 must be applied to these symbols:

1. Click on the **Symbol Catalog** button and browse the CC3\Symbols\Dungeons\DD3\DD3 Color\Wall Features non-cutting.FSC catalog[7].
2. Choose the N-Door Dbl Wood symbol and right-click. Uncheck the Smart Tracking box, check the Disable Smart Symbols, set the X and Y scale to 0.8, and click **More**.
3. Making sure that the **SNAP** button is pressed down, place the symbol at the main entrance, then right-click to abort further symbol placement.
4. Add the other doors, using the N-Door Wood symbol. Press **SHIFT** and move the mouse to rotate the symbol. If the symbol isn't placed the way you rotated it, you probably forgot checking the Disable Smart Symbols box at **2.** Right-click.
5. Click on the Sheet Indicator. You'll see that a new sheet appeared: **SYMBOLS WALL**. Select it by clicking on the name (the line should be gray) and use the **Move Up** button to place it between the **WALLS SHADOW** and **WALLS TOP** sheets. Close the sheets list by clicking **OK**.



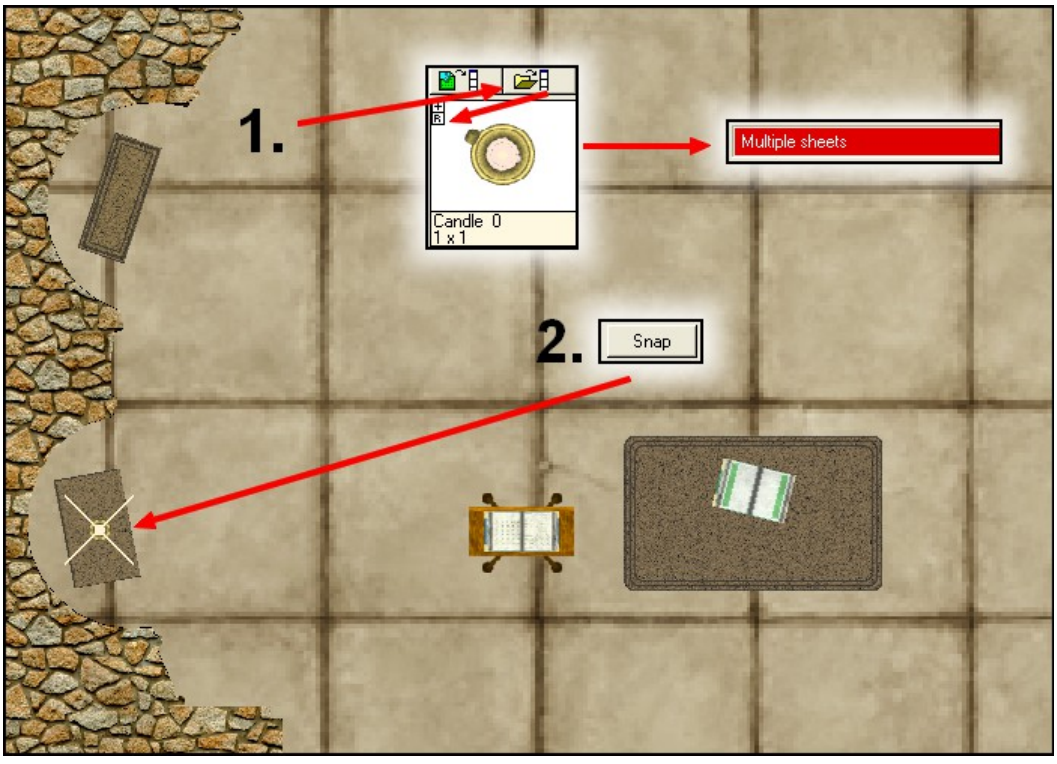
7 The cutting symbols don't cut polygons, hence the need to break the walls polygons by the CA46 tools.

Adding the furniture
As mentioned before, symbol quantity and placement is a question of personal expression.
The pew in the nave also came from the Religious symbol catalogs. The bed from the Beds and Rugs catalog. The ground level table and all the chairs are from the DD3 Furniture catalog. The bookcases, books and scroll are from the CA50 symbols catalog. The second level table, chests, nightstand and wardrobe are from a (yet) unpublished catalog but you should find some adequate symbols in the DD3 Furniture catalog.

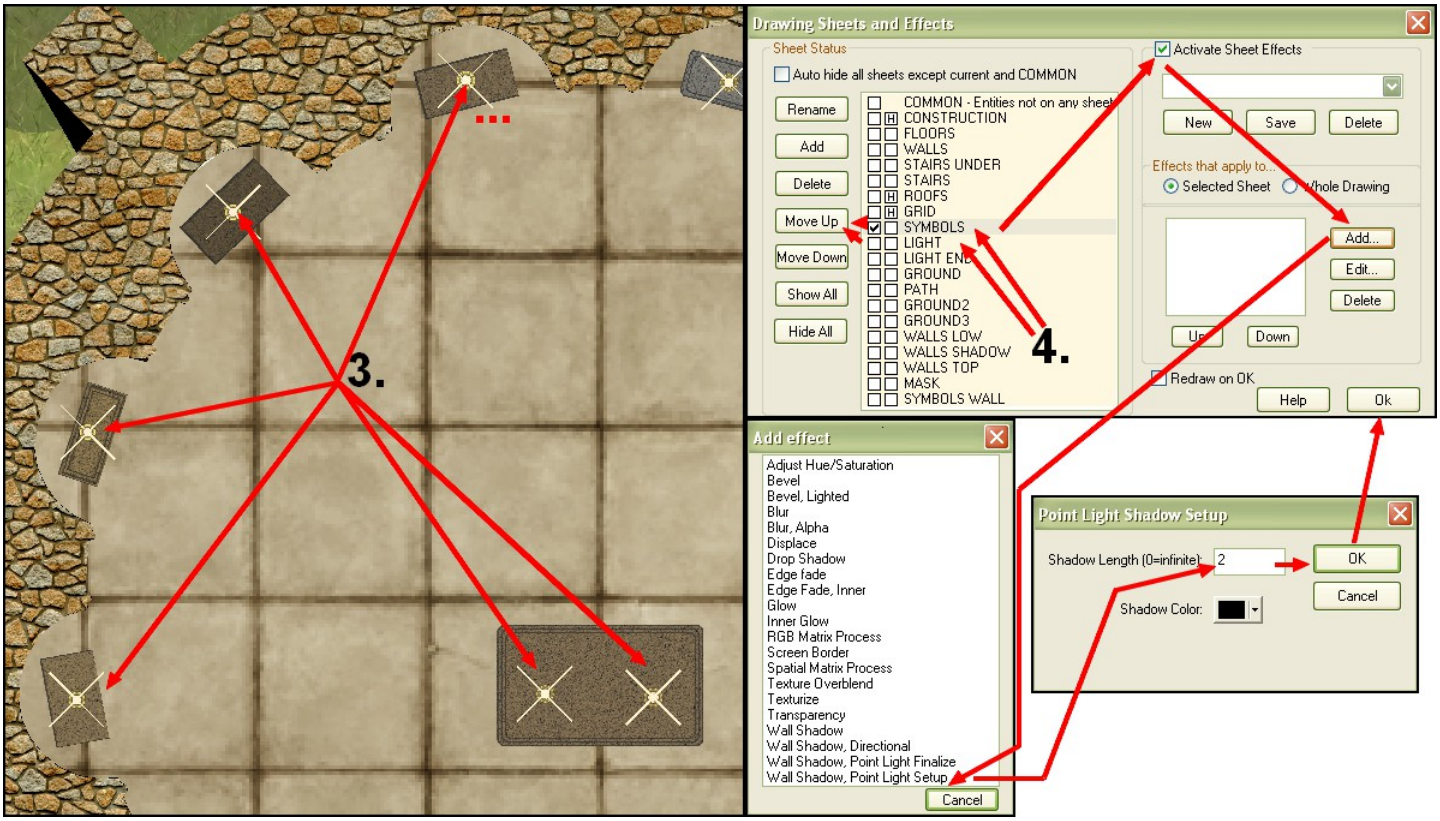
Adding light symbols

- If you own the Cartographer's Annual Volume 2 (2008, issue 19) you should have a **Lights** menu and the CC3\Symbols\Dungeons\DD3\DD3 Color\CA_19 Light Sources.FSC catalog that includes all the DD3 symbols representing light sources combined with light entities.
- The Religious catalog also features light sources symbols including light entities: the Candle and Candle Huge symbols collections (respectively 10 and 9 different symbols).
- The last way to add light symbol is to use a usual symbol followed by the **Lights**→***Add Light*** (**ADDLIGHT**↵) command. If you don't own CA19, don't see a **Lights** menu and don't want to download the Religious catalog, you can also add a light by using the keyboard **ADDLIGHT**↵ command. This will be detailed further down.

1. Click on the **Symbol Catalog** button and browse the CC3\Symbols\Dungeons\DD3\JDRSCS\JdR_Religious.FSC catalog (it should be there if you followed the instruction from the zip file). Alternatively browse to the CA_19 catalog mentioned above if you own it. Select a candle symbol or click on the small "R" box to activate random selection. A cross appears on the screen and the status bar (top left) turns red and reads "Multiple sheets". The symbols is made of two entities: a bitmap file depicting the object, placed on the **SYMBOLS** sheet, and a light entity placed on the **LIGHT** sheet. Both sheets are automatically added to your map (unless they already exist).
2. Turn the Snap off (clicking the **SNAP** button toggles the snap on/off) and place the symbol on a small altar. The cross is still visible and is used to locate and identify a light source.

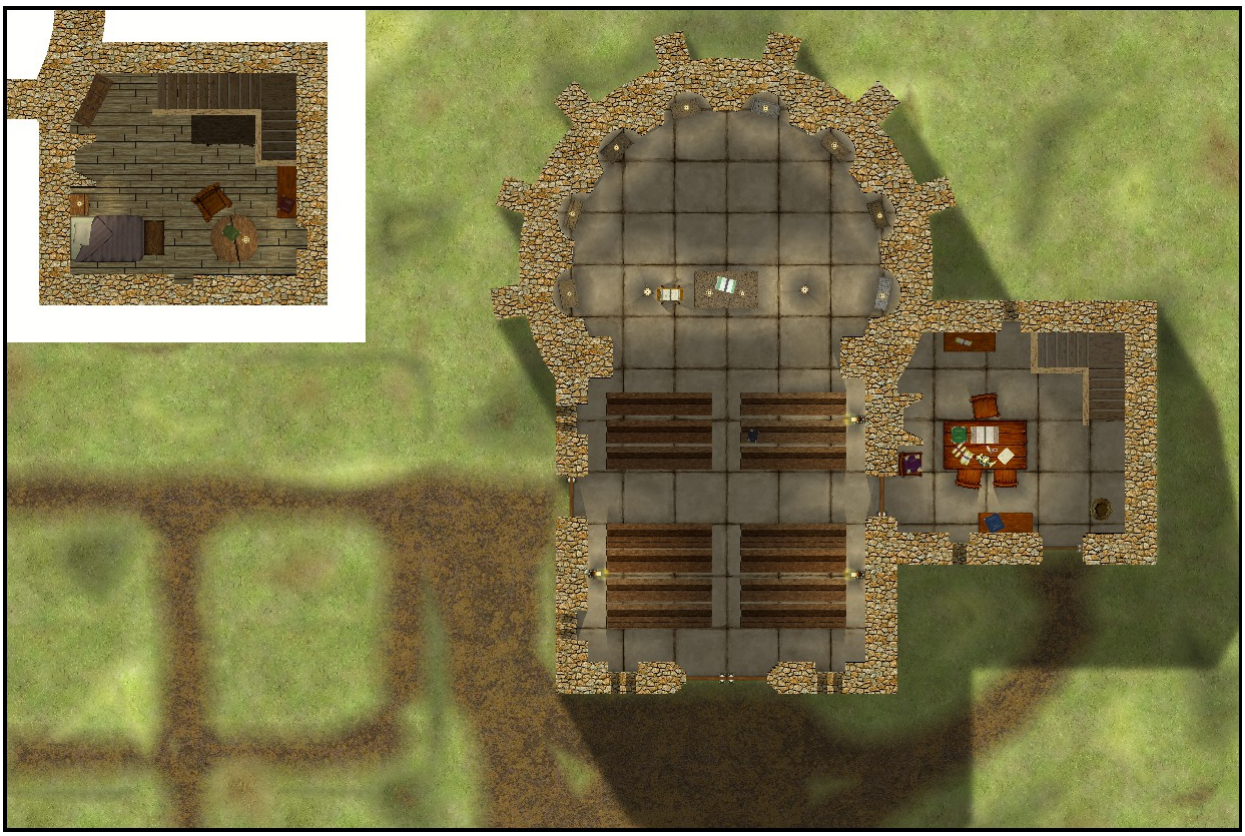


3. Place a candle symbol on every altar and two on the main altar.
4. Click on the Sheet Indicator. The two new sheets: **SYMBOLS** and **LIGHT** have been added at the bottom of the list. Select (gray line) the **LIGHT** sheet and move it with the **Move Up** button above the **LIGHT END** sheet. Select the **SYMBOLS** sheet and move it above the **LIGHT** sheet. Check the **Activate Sheet Effects** box then click the right **Add** button. Choose **Wall Shadow, Point Light Setup** and specify 2' for the Shadow Length and click **OK** to close the pop-up and **OK** again to close the sheets list. This is to ensure that the symbols themselves also cast shadows. These shadows stay closer to the symbols than the walls shadows, hence the length of 2 instead of infinite (indicated by 0).



5. Save the file.
6. Launch the **Light→** ***Hide Light Symbols*** (**LIGHTHIDE**↵) command to hide the location crosses.

All the other symbols from the example map came either from the Cartographer's Annual #29 symbol catalog (candles and torches) or from the Religious catalog (huge candles on both sides of the main altar), and were added the same way:



Adding a light entity: the fireplaces

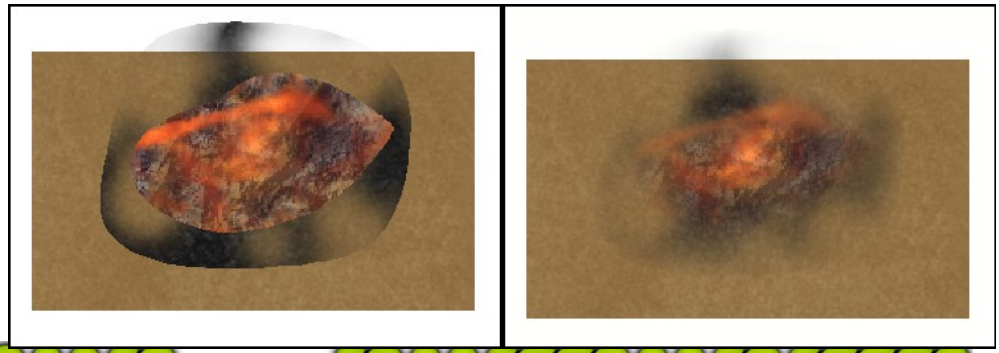
Before adding the light source, design the objects: the fireplaces wall parts have already been added in part 4 (page 20) and to create the stone, the ashes and the glowing embers, no symbol is used but three more sheets and fill styles are used (see part 5 for the steps detailing these operations):

- The **FIREPLACE, STONE** sheet has no effect and uses the **STONE** fill style CC3\Bitmaps\Tiles\Dungeon\DD3\DD3 Color\Stone Brown Flat_VH.png file scaled by 10x10.

- The **FIREPLACE, ASH** sheet has an **Edge Fade, Inner effect** with a width of 1 and uses the **ASH** fill style CC3\Bitmaps\Tiles\Dungeon\DD3\DD3 Color\Dirt Grey 5 T_VH.png file scaled by 10x10. The Alpha Transparency radio button is checked instead of Opaque.

- The **FIREPLACE, FIRE** sheet hase the same **Edge Fade, Inner** effect (width = 1) and the **FIRE** fill style C:\Program Files\ProFantasy\CC3\Bitmaps\Tiles\Dungeon\SS2\Bitmap A\Lava_VH.PNG file scaled by 25x25.

The supports are rectangles, the ashes a smooth polygon and the fire a smaller smooth polygon:
Left picture: no effect, right: sheet effects activated.



Now add the light to the fireplace:

1. Use **Light**→***Show Light Symbols*** (**LIGHTSHOW**↵) to make the crosses visible again and control the position of light sources. Launch the **Light**→***Add Light*** command (**ADDLIGHT**↵). The cross-hair cursor appears. Click somewhere near the center of the fireplace to place a light source for the fire.
2. At the prompt, type **@4,0**↵ to indicate a light radius of 4' then right-click to accept a 360° light emission. A pop-up appears.
3. Click on the colored square and choose a bright orange light (e.g. color 151). Set the intensity to 100%. Click **OK** to close the pop-up. You can ***Copy*** this light to another fireplace now.

Note 1: if you don't have any symbols including a light source, you need to first add a usual symbol (ie with no light entity) then the light source by using the **ADDLIGHT**↵ command.

Note 2: finding the right parameters for a light source if often a trial by error process. The **Lights** menu has an ***Edit All Lights*** command (**LIGHTS**↵) where all the lights are listed by their coordinates which quickly turns difficult when you have a lot of lights (the light sources from symbols are also in the list). The best way is to right-click on the ***Edit Properties*** icon and choose ***Numeric Edit*** or its keyboard shortcut **EDIT**↵, then to click on the cross to select the light source to modify.

A nice and cozy office...

Flat symbols

All the symbols added ended on the **SYMBOLS** sheet. Because this sheet is affected by a **Wall Shadow, Point Light Setup** effect, all these symbols cast shadows. Placing a flat symbols on this sheet, like a rug for example, will make the object look like it's floating above the floor. Therefore a new sheet must again be created:

1. Create the **SYMBOLS FLAT** sheet and place it between the **FLOORS** and **FIREPLACE STONE**. Verify that the left box of the **SYMBOLS FLAT** sheet is checked.
2. Place any flat symbol on the map. They should go on this last sheet.

Note: Many of the DD3 symbols use the **SYMBOLS*** default sheet. The "*" character, also known as a wildcard character, is a substitute for anything following the "SYMBOLS" chain. It means here that while the **SYMBOLS FLAT** sheet is the current sheet (left box checked in the sheets list), any symbol will go this sheet. The **Options** button in the **Symbol Manager** pop-up shows the sheet a symbol will go onto. You can also look at the Sheet Indicator after selecting a symbol to know the sheet it will end on. If it isn't the target sheet, you can click on the Sheet Indicator to force the sheet you want for the selected symbol.

Conclusion

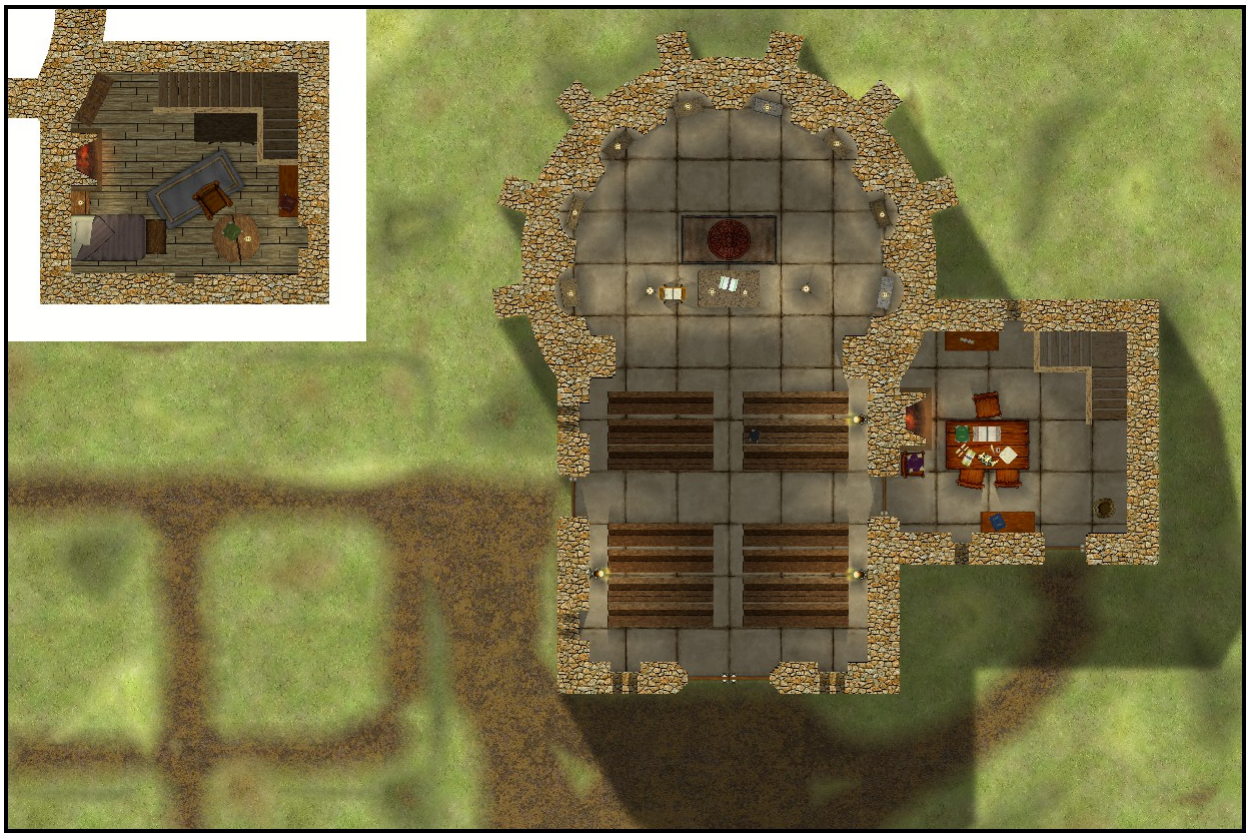
The light effect is made of two separate effects:

- the **Wall Shadow, Point Light, Setup** effect that specifies the length and color of shadows cast by all the entities on a sheet
- the **Wall Shadow, Point Light, Finalize** that marks the last sheet affected by the shadows generated by the first effect.

You also need light sources and to add one you can

- use a symbol whose definition already includes a light source
- place a light source individually with the **Lights**→***Add Light*** command (**ADDLIGHT**↵)
- Copy an already existing light source

Light sources are usually combined with symbols, either representing the light emitting object or the object casting shadows, sometimes even both.



In the last part, symbols will be added outside, which will lead to even more sheets.