



SmartSpace<sup>®</sup>

Constructing a High Quality SVG  
from a Drawing

Part Number: GR\_SVG\_3.4\_EN

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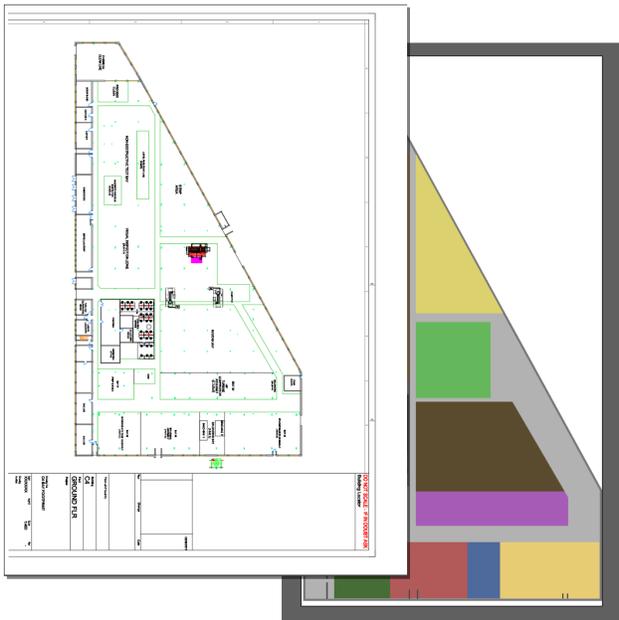
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# Constructing a high quality SVG file from a drawing

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This guide takes you through the steps required to create a vector graphic from a drawing of a site plan suitable for use as a background representation in SmartSpace.



The vector-editing tool used in the examples is Adobe® Illustrator®. This guide is not intended to provide a complete introduction to Illustrator.

The guide will cover the following steps:

- [Setting up a new document \(Artboard\) in Illustrator](#)
- [Importing a working drawing into a new document](#)
- [Creating a vector graphic based on the working drawing](#)
  - [Drawing shapes to construct the environment](#)
  - [The use of layering for efficient construction](#)
- [Coloring the constructed vector graphics](#)

- [\*Saving the completed image in SVG format\*](#)
- [\*Importing the image for use as a representation in SmartSpace\*](#)

The source file for the example is provided in a zip file [\*SVGToolchain.zip\*](#) available from the Ubisense Documentation Portal at <https://docs.ubisense.com/portal/Content/Downloads/Files/>. If you want to work through the instructions step by step, download and unzip the file to a suitable location.

## Software required

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The following lists the software required if you want to work through the example.

### Adobe® Illustrator® (trial version)

If you do not have a copy of Adobe® Illustrator®, you can download a free seven-day trial of the software.

Go to <https://www.adobe.com/uk/products/illustrator/free-trial-download.html#x> and follow the instructions on the Adobe website.

Note: You will be required to supply payment details during the download process.

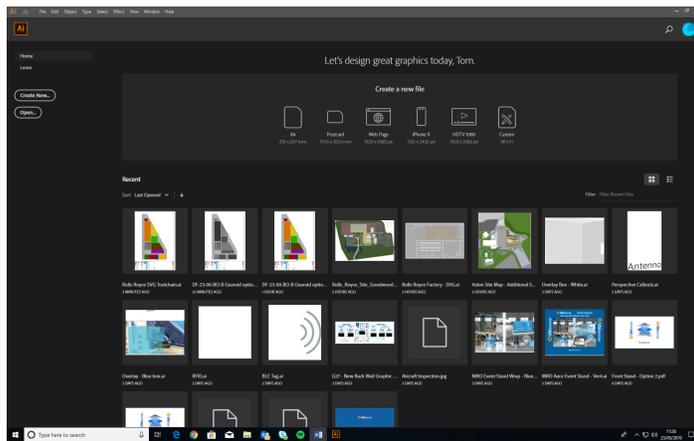
# Setting up a new document in Illustrator

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The following takes you through creating a new document in Illustrator and sizing it to fit your drawing.

1. Open Illustrator by typing **illustrator** in the Start menu.

The Illustrator startup window is displayed.



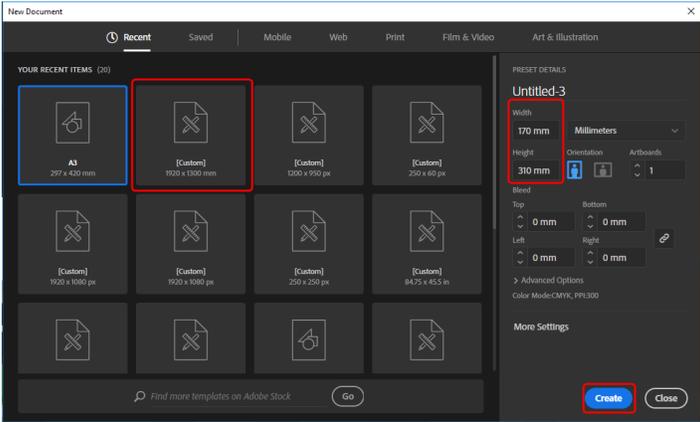
2. Create a new custom-sized document, by clicking the Custom icon in the Create a new file panel.

(You can also open a new document by choosing **File > New...** or clicking the **Create New...** button.)

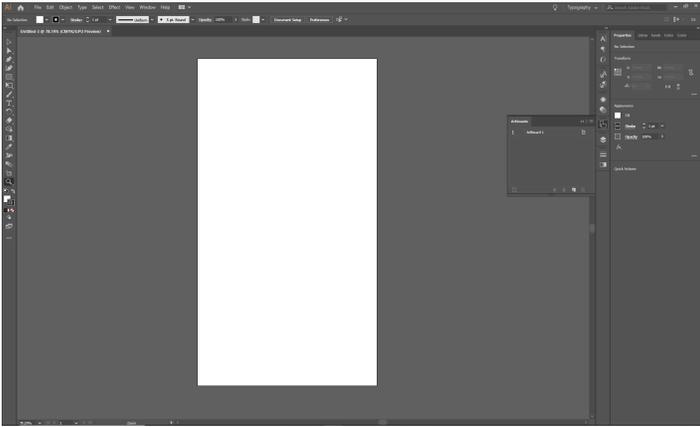
The New Document dialog will appear.

3. Specify the document's size:
  - a. Select a Custom template.
  - b. Set the dimensions as follows:
    - Width: 170 mm
    - Height: 310 mm
  - c. Choose **Create**.

Setting up a new document in Illustrator



The new blank document looks like this:



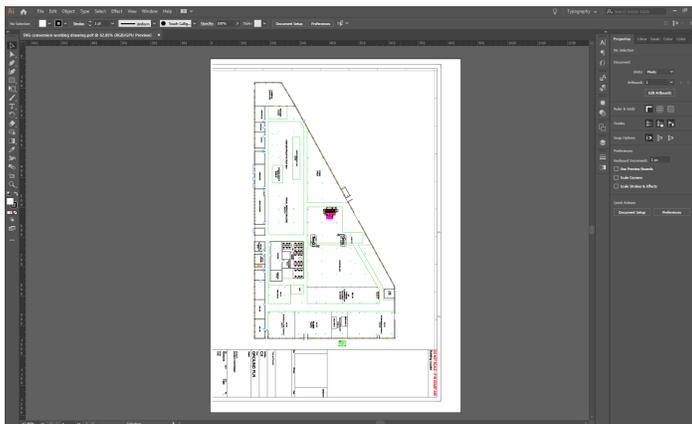
## Importing a working drawing into the new document

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After you have created a blank document, you can import the drawing and copy the required section into the new document. This is described below.

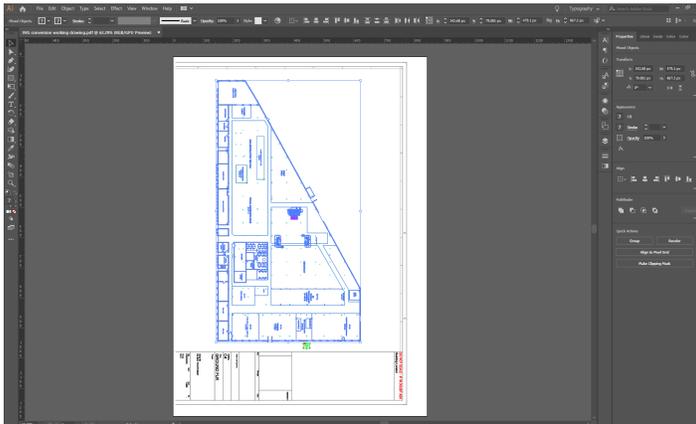
1. Choose **File > Open** (CTRL+O) and go to the directory where you unzipped the example file.
2. Select **SVG conversion working drawing.pdf** and click **Open** to open the PDF file of the SVG conversion working drawing.

The opened PDF looks like this:



3. You only require the actual image of the factory (and not the details of the drawing). Select the factory by dragging until you have selected all of it. When you let go of the cursor, the selected objects are highlighted in blue:

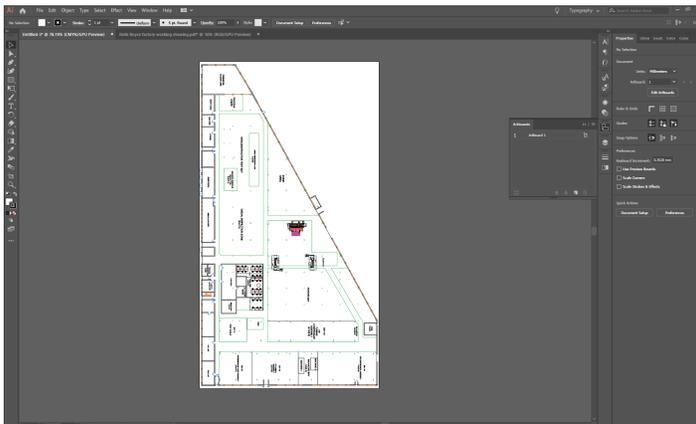
## Importing a working drawing into the new document



4. Right click your selection and choose **Group**.
5. Copy your grouped selection, by pressing CTRL+C.
6. Display the new document you created.

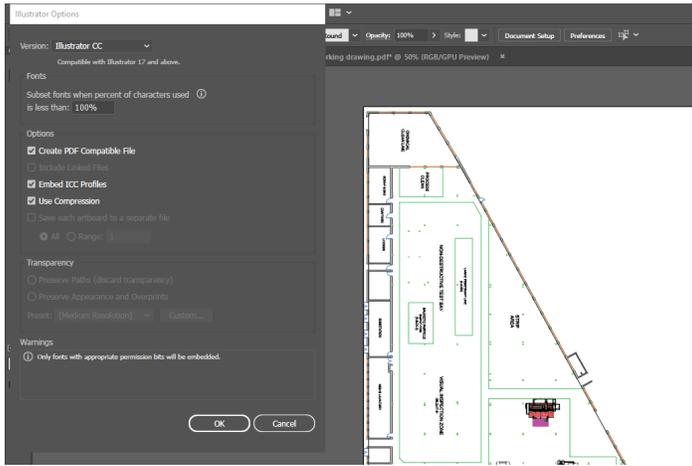
All currently open documents will be listed as tabs at the top of the workspace. Click the title of the document you created: it will be called **Untitled-x** if you haven't saved it.

7. Paste your selection from the PDF into the new document by pressing CTRL+V.  
Move it into position on the artboard by clicking and dragging it.



8. Save the new document by choosing **File > Save As...** and specifying where you would like to save it.
9. Click **Save**, and, when the Illustrator Options dialog displays, click **OK**.

## Importing a working drawing into the new document



## Creating a vector graphic based on the working drawing

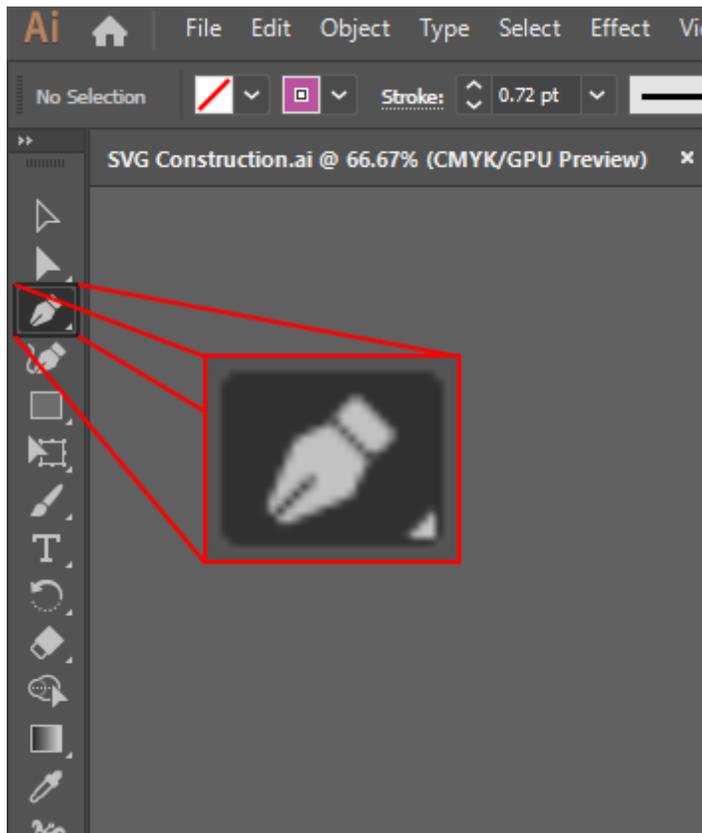
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The next stage in the process involves creating shapes to represent different areas in the building using the drawing as a template.

### Drawing shapes to construct the environment - Part 1

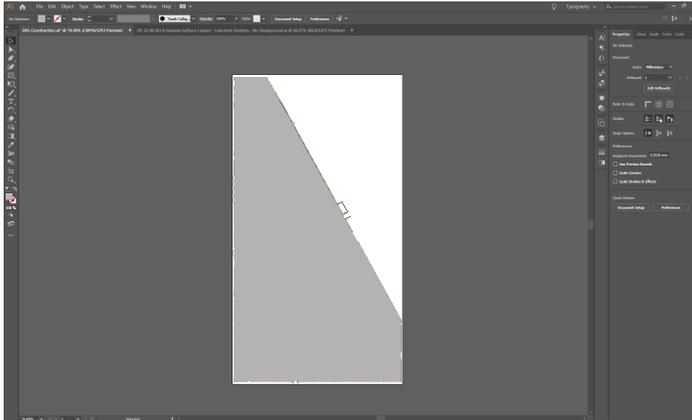
The following takes you through constructing the main floor and giving it a color.

1. Click the Pen Tool button (or press P):

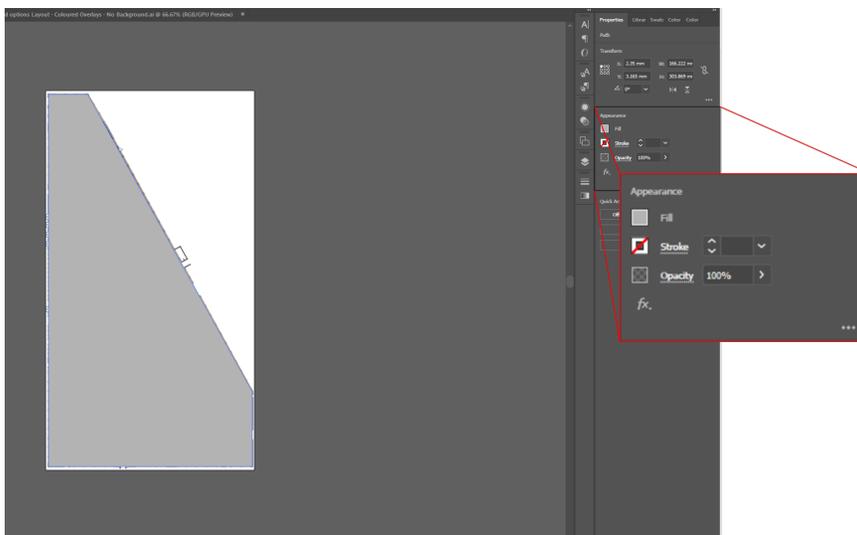


2. Recreate the shape of main floor by clicking each of the vertices around the factory perimeter in turn and then close the path by clicking on the first anchor point again:

## Creating a vector graphic based on the working drawing



3. Adjust the color in the in the Appearance panel in Properties tab on the right-hand side of the workspace:



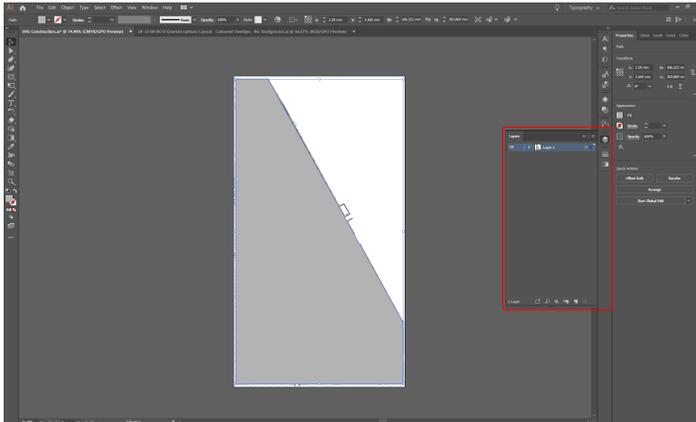
- Set **Fill** to a shade of gray by clicking the box to the left of Fill and choosing an appropriate color.
- Set **Stroke** to "no color" by clicking the box to the left of Stroke and choosing [none] (a line through the box indicates this).

## Using layering for efficient construction

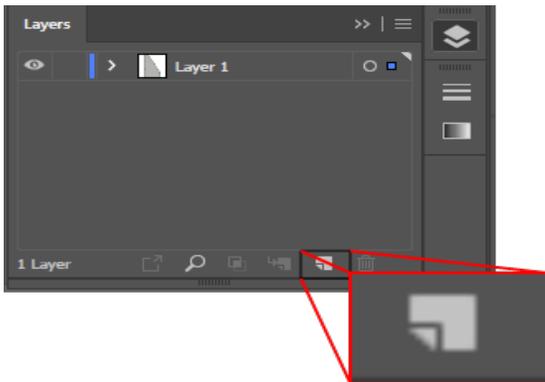
While you are constructing multiple shapes based on the working drawing, you don't want the main floor you have just created to obstruct your view of the drawing. To avoid this you can move it to a separate layer and hide it.

1. Open the Layers panel.

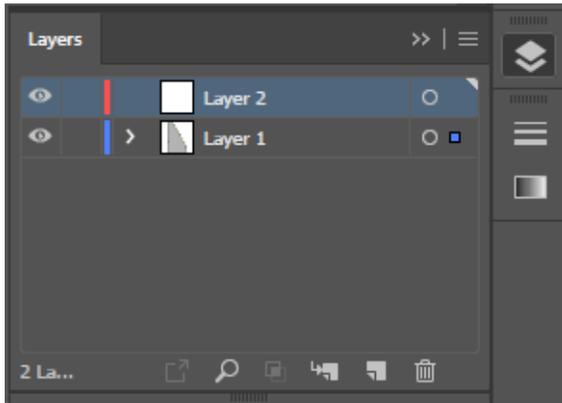
Click its title in the right-hand part of the workspace, or press F7. You can undock the panel by dragging it into the workspace:



2. Create a new layer by clicking the Page icon:



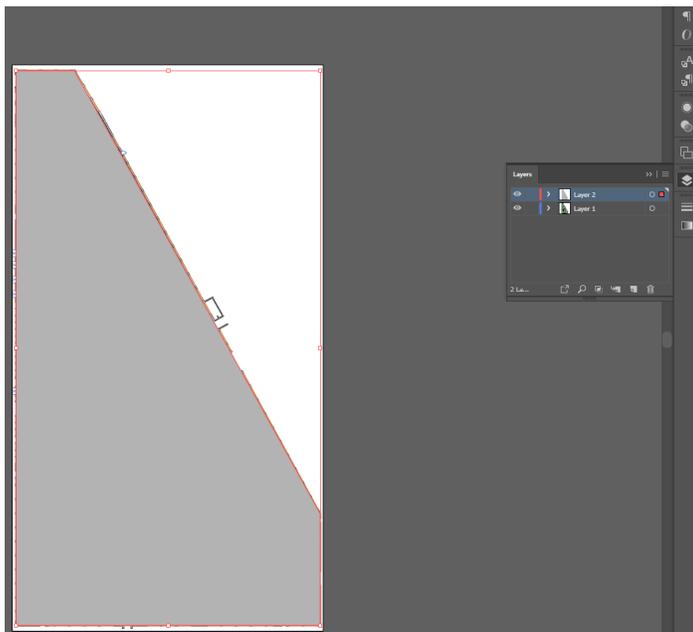
A new layer is added to the list:



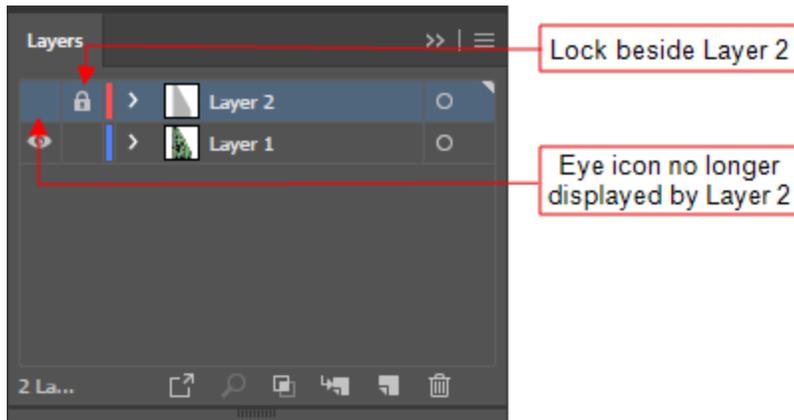
3. Move the shape you created from Layer 1 to Layer 2:
  - a. In the Layers panel, click the arrow beside Layer 1 to list all the items in that layer.
  - b. Select the shape you drew by clicking the target button.
  - c. Select Layer 2.
  - d. Choose **Object > Arrange > Move to Current Layer**.

(You can also select the shape you drew and drag it from Layer 1 to Layer 2.)

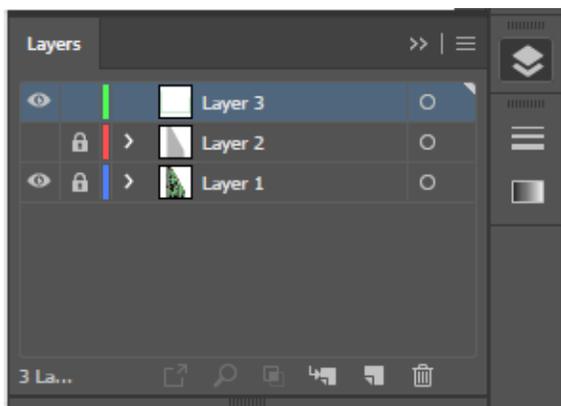
4. The copied shape will have a red line if it has been successfully placed on the new layer:



5. After you have moved the shape, lock the layer by clicking in the Edit column (a lock icon appears), and then hide it by clicking the eye icon in the Visibility column (the eye icon disappears):

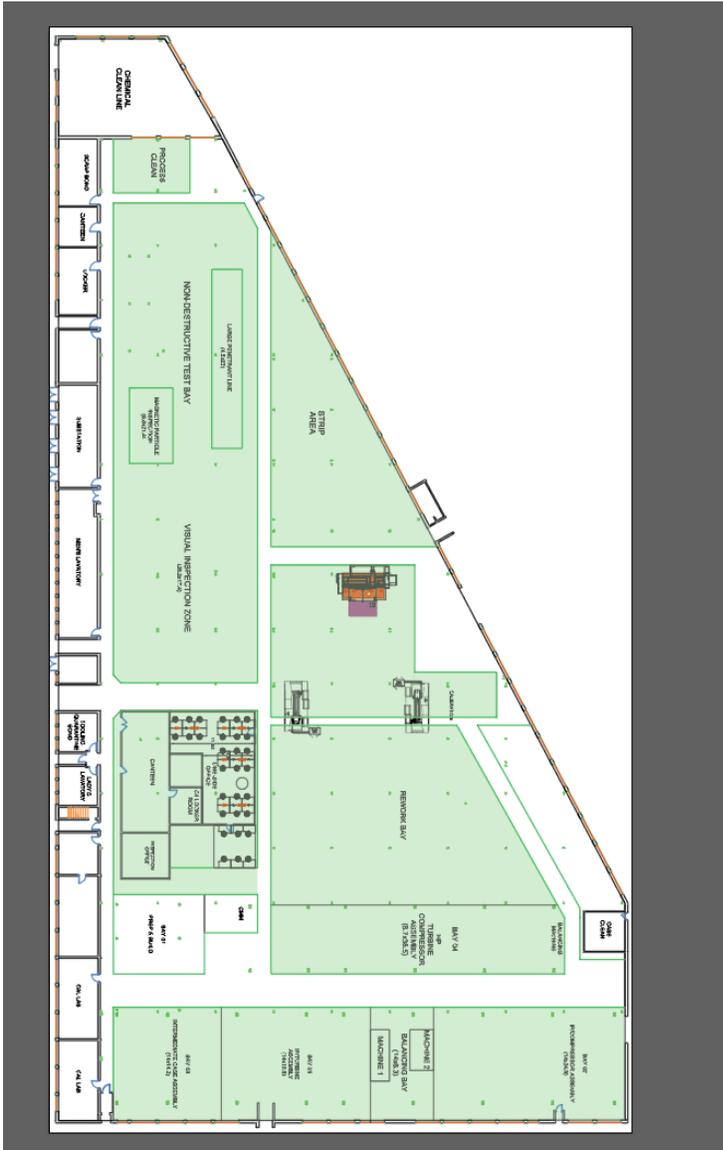


6. You can prevent the working drawing getting in the way by locking its layer. Then create a new layer to place the rest of the shapes on. Your Layers panel will look like this:



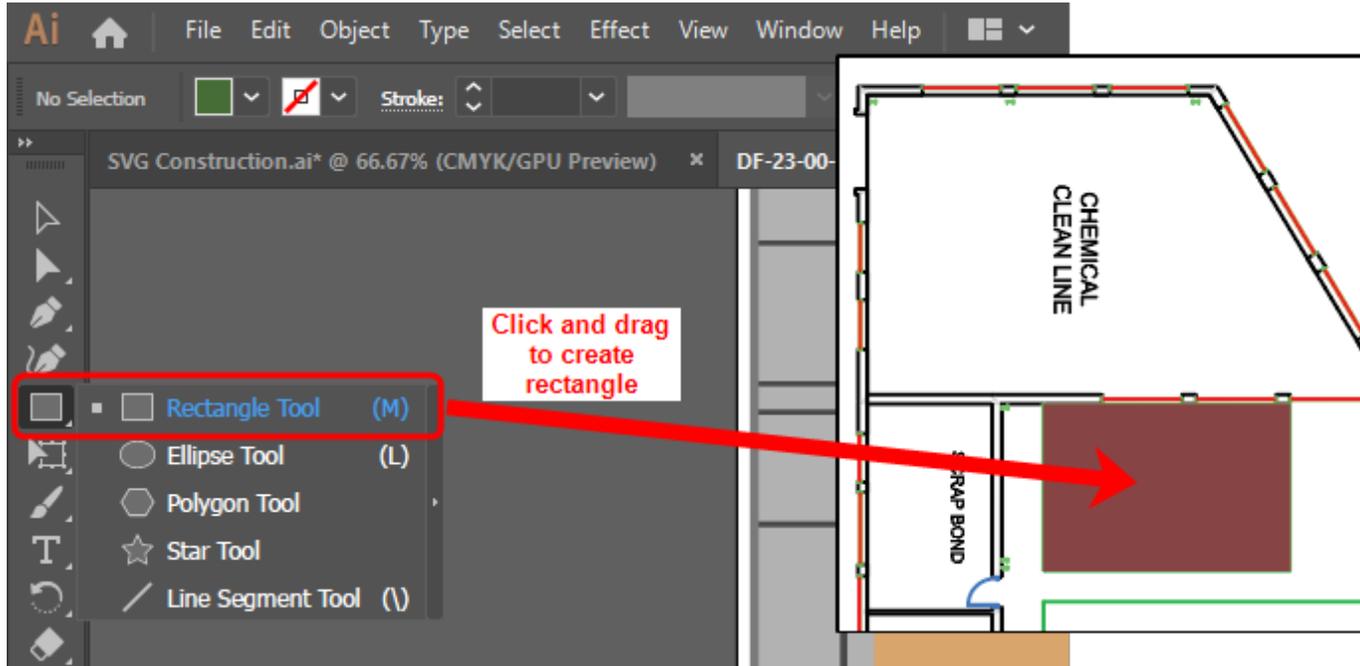
## Drawing shapes to construct the environment - Part 2

With the main background created and a new layer set up to work in, the next step is to create colored zones/shapes for each of the factory sections: highlighted in green in picture below.



1. The process for creating each of these areas is exactly the same as creating the main floor. Select the Pen tool and outline each section to create a shape. Alternatively if the shape is a simple rectangle, use the Rectangle tool (located just below the Pen Tool) by clicking and dragging to create a shape of the appropriate size:

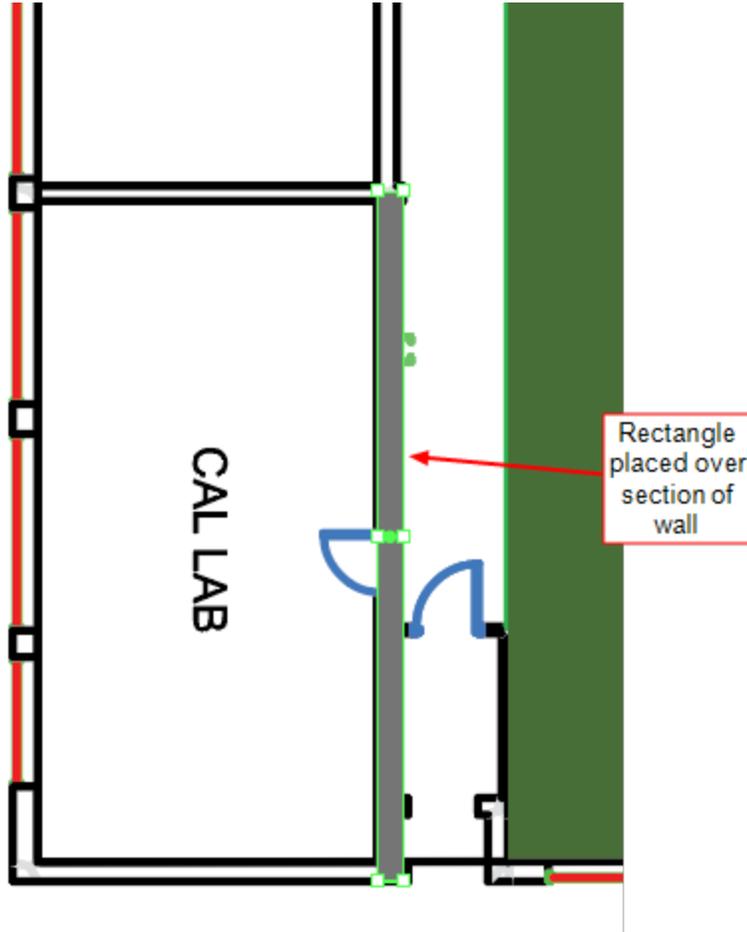
Creating a vector graphic based on the working drawing



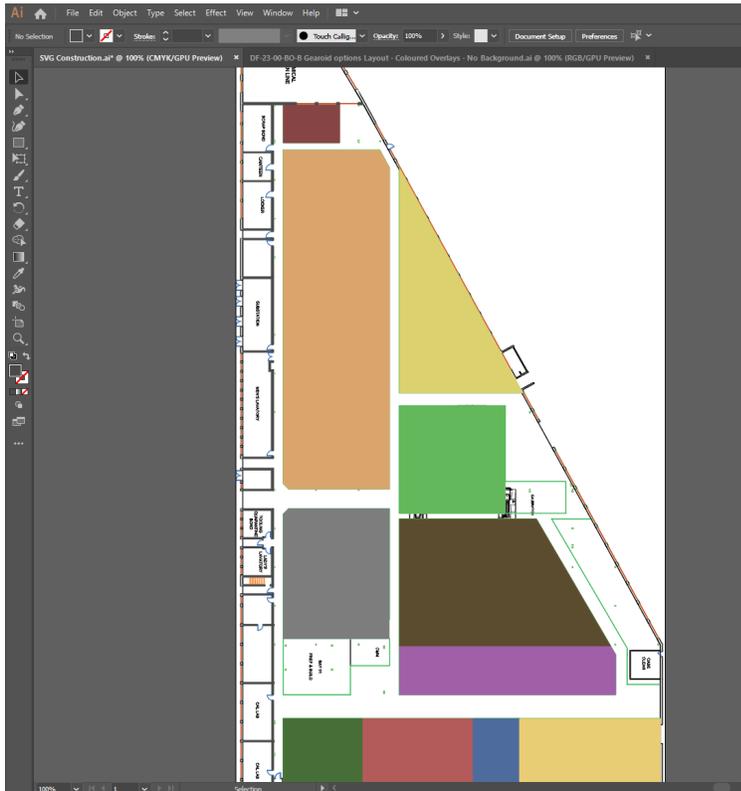
2. Give each section a different color using the process described [above](#). The file will look something like this:



3. The next step is to construct the walls on the left-hand side of the drawing. This uses a similar process to creating the factory sections, but using only narrow rectangles on top of any walls:



With all the wall sections added, the file looks like this:

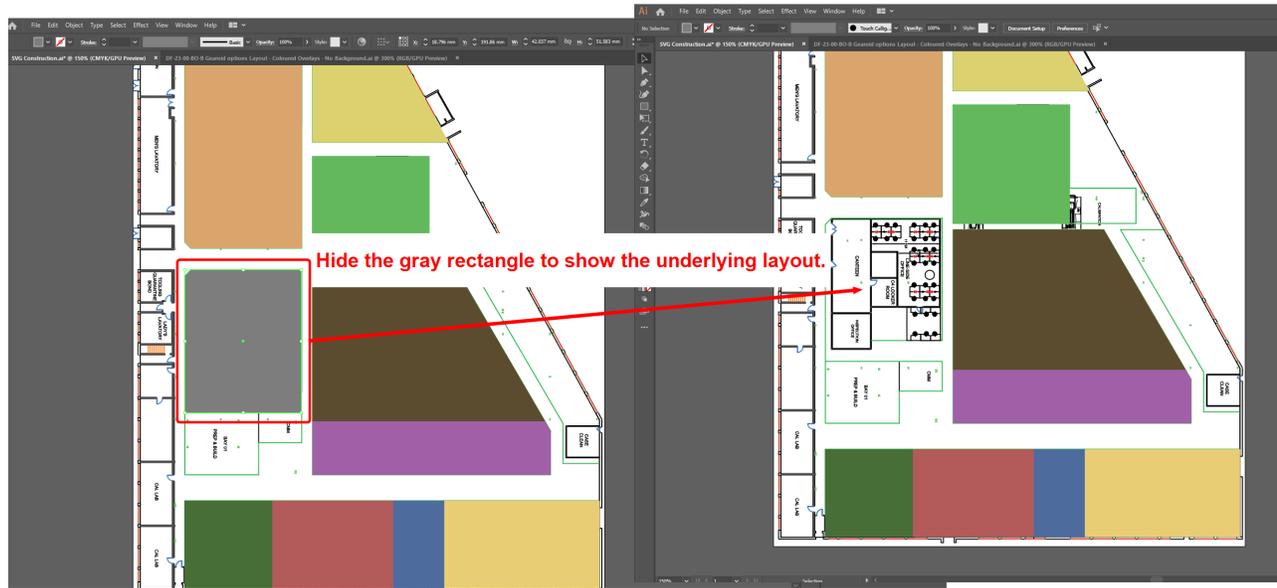


## Adding final shape details

The following steps take you through adding the final details and the external wall of the building.

## Creating a vector graphic based on the working drawing

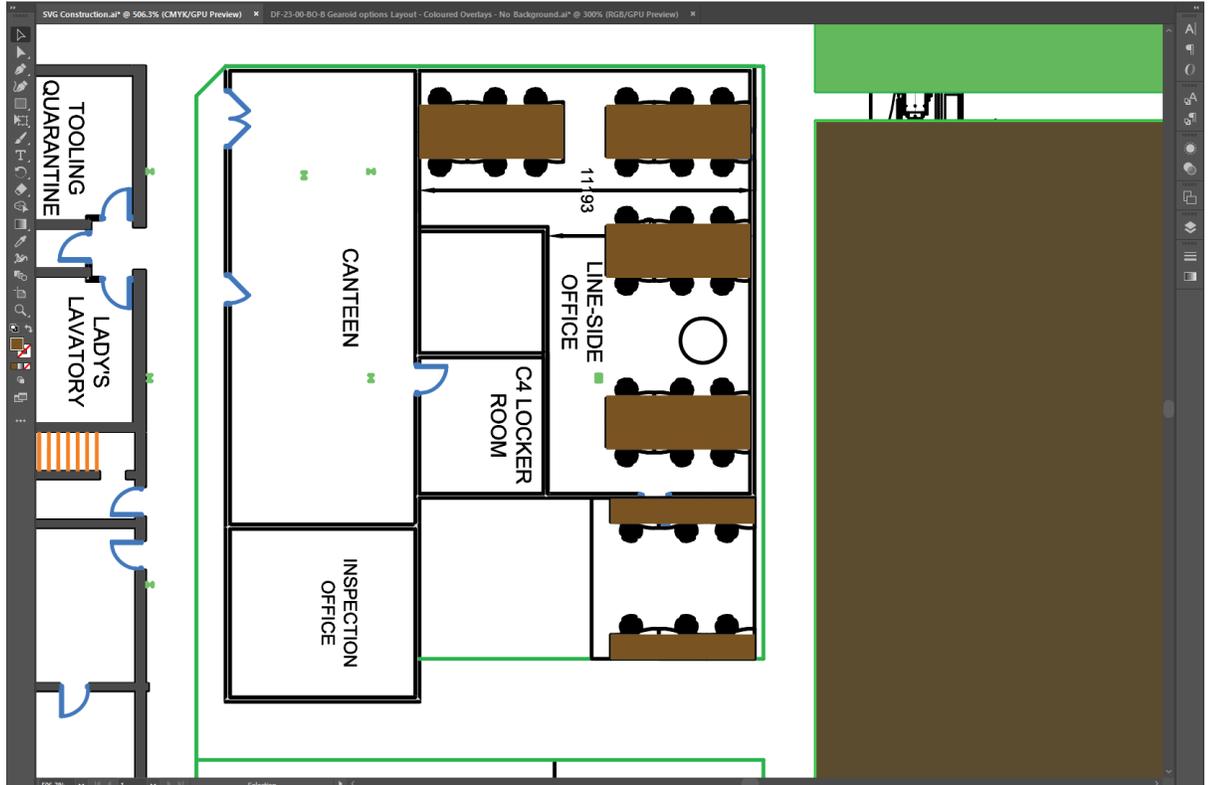
1. Create the small office with chairs, tables and internal walls.
  - a. Display details of the office on the drawing by hiding the rectangle that defines it:



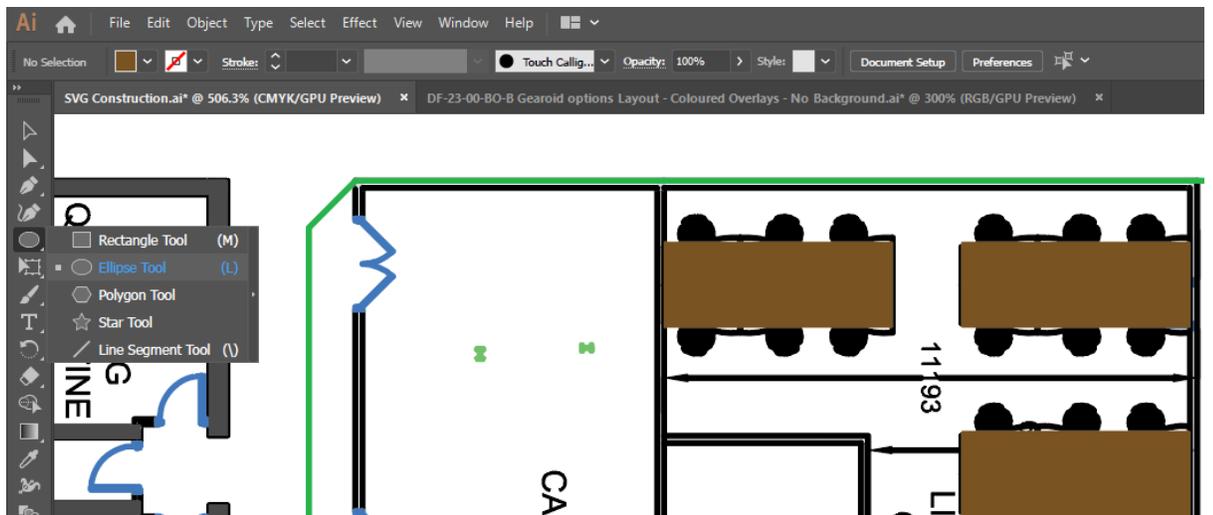
You hide the rectangle by selecting it and choosing **Object > Hide > Selection** (or by selecting it and pressing CTRL+3).

- b. Add the tables, by creating rectangles and coloring them brown:

Creating a vector graphic based on the working drawing

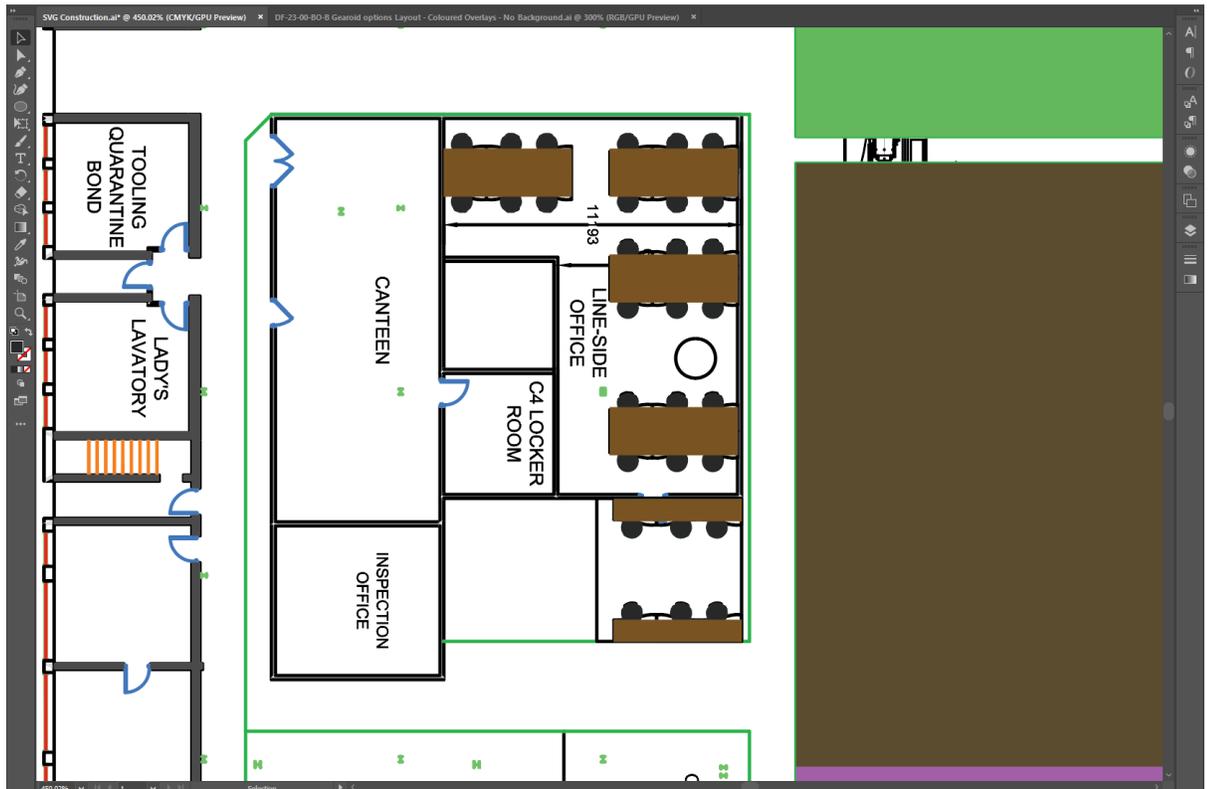


- c. Create the chairs with the Ellipse tool. Clicking and hold the Rectangle tool and choose Ellipse Tool (or press L):



Click and drag diagonally to draw an ellipse. If you want to create circles, hold down Shift and drag to scale the circle.

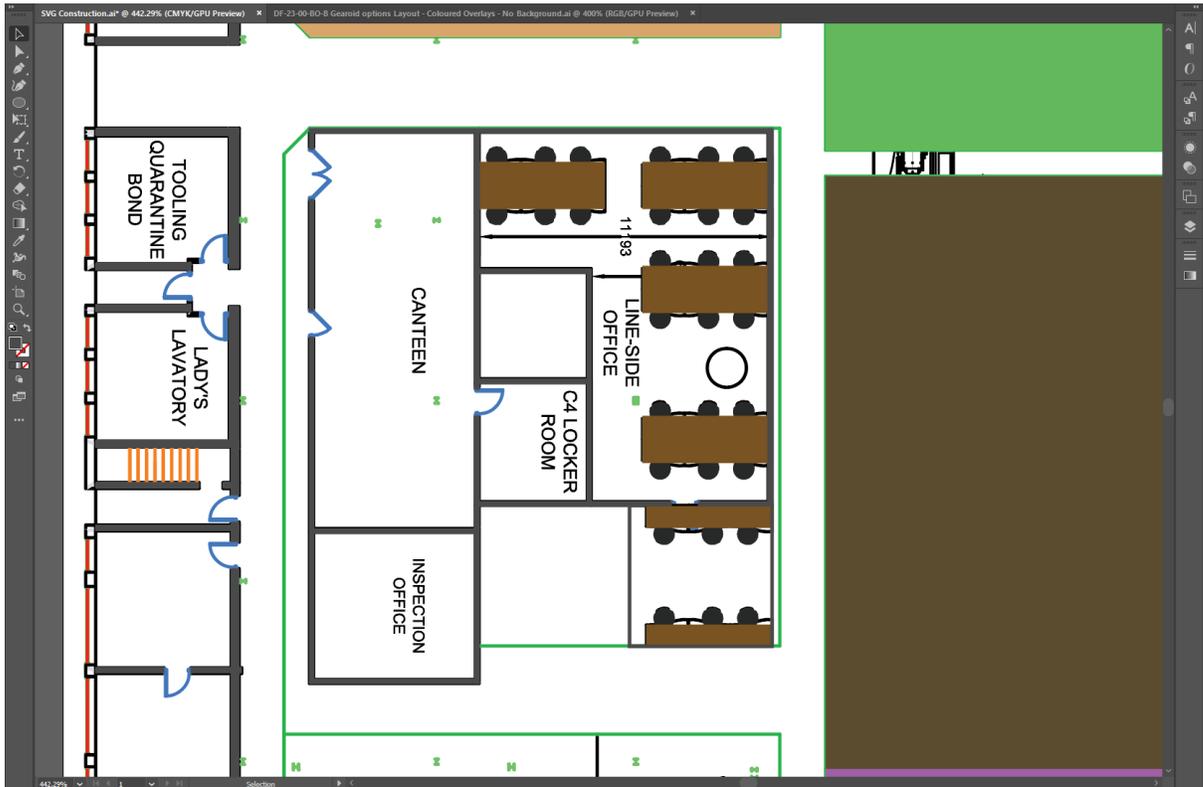
The area will now look like this:



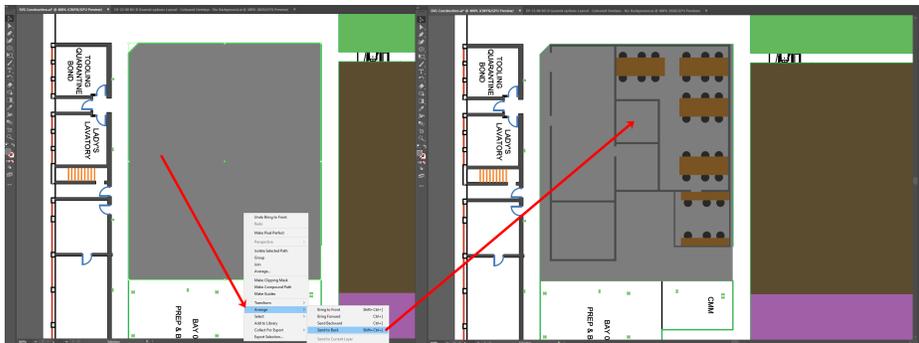
2. Create the internal walls the same way the larger walls were [created previously](#), by generating multiple rectangles anywhere walls are marked out.

The completed result will look like this:

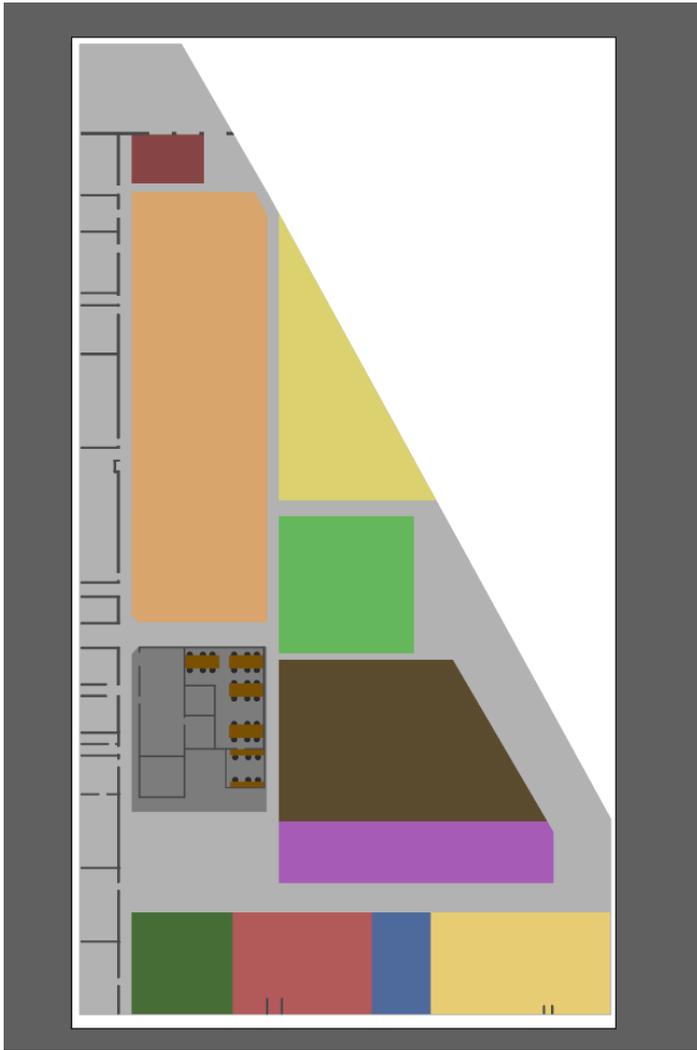
## Creating a vector graphic based on the working drawing



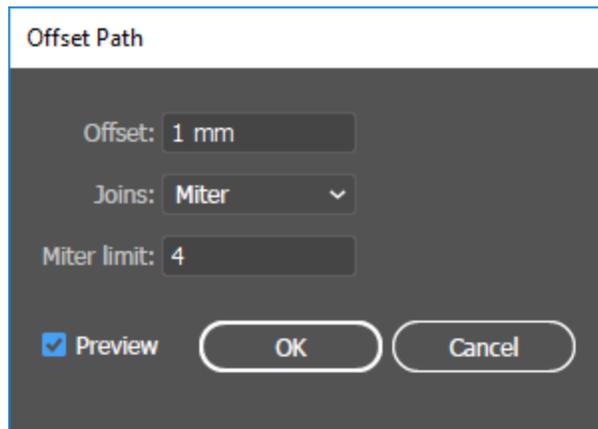
3. Unhide the floor section by choosing **Object > Show All**. Make sure it is behind the shapes you have just added, by right-clicking it and choosing **Arrange > Send to Back**.



4. Show the layer with the main background in it again (toggle the Visibility mode beside Layer 2) and hide the working drawing layer (toggle the Visibility mode beside Layer 1).  
The design now looks like this:



5. Add an outline to the main floor to create the main walls.
  - a. Copy and paste the main floor. (You will need to unlock the layer first!)  
Press CTRL+C, then CTRL+B to paste the new shape directly behind the original one.
  - b. Hide the original floor shape so you can work exclusively on the copied version.  
Select the shape and choose **Object > Hide > Selection**.
  - c. With the new floor layer selected, choose **Object > Path > Offset Path** to display the following dialog:

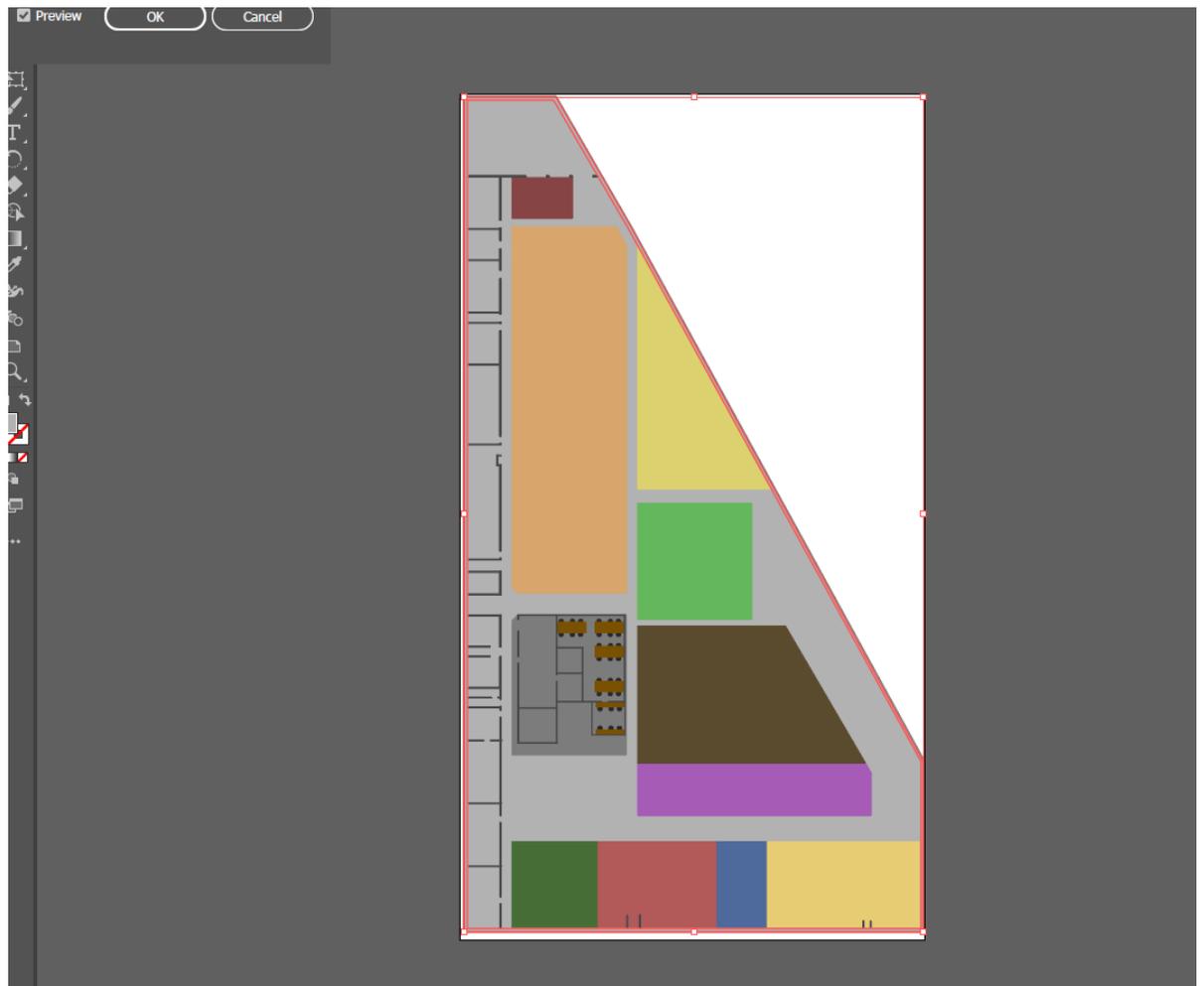


d. At **Offset** box, type **1 mm**.

Make sure you click the preview box so you can see how it will look.

An outline forms as the preview displays:

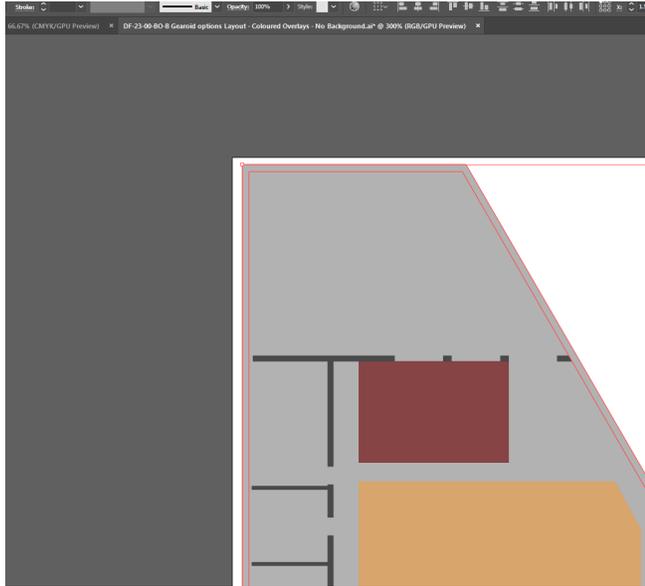
## Creating a vector graphic based on the working drawing



- e. Click OK and a new shape will be generated which is 1 mm larger (offset) all round than the original shape.

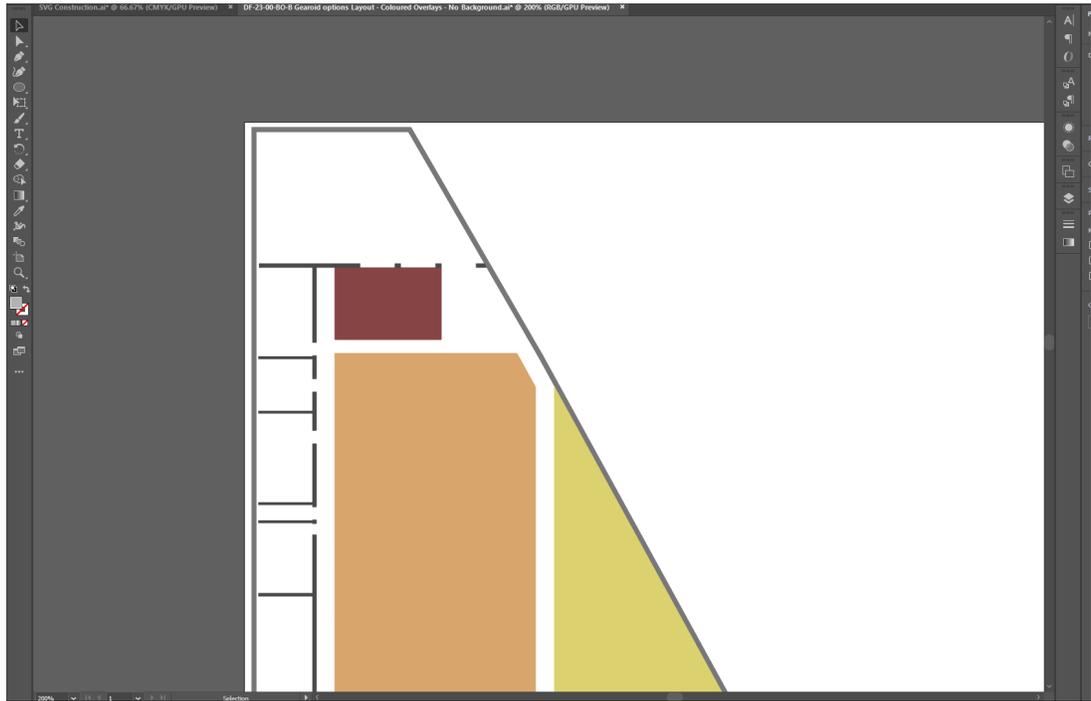
Shown here with both layers selected:

## Creating a vector graphic based on the working drawing

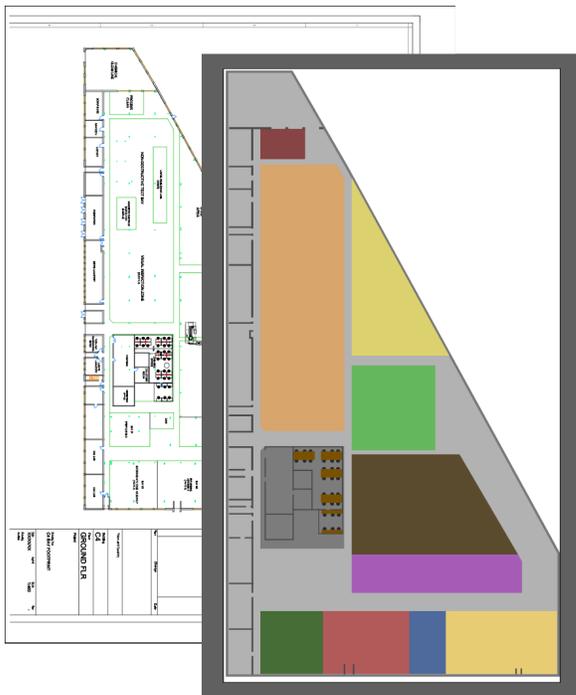


- f. Select the inner (smaller) shape and choose **Object > Path > Divide Objects Below**.  
It will initially look like nothing has happened. However when you delete the inner shape, only the outer shape will be left.
- g. Delete the inner shape.
- h. Set the color of the outer shape to be a dark gray:

## Creating a vector graphic based on the working drawing



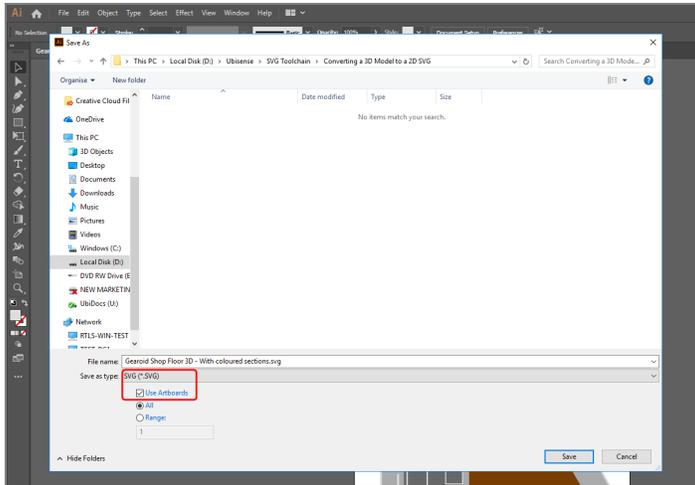
6. Unhide the original shape and the completed graphic looks like this:



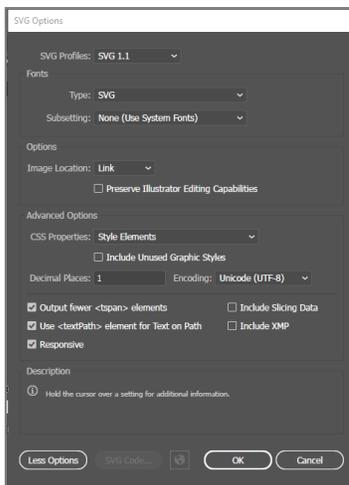
# Exporting a vector graphic from Illustrator

With file editing complete in Illustrator, the final step is to save the result as a vector file (.SVG).

1. Choose **File > Save As...** and in the dialog, ensure the file type is set to **SVG (\*.SVG)** and that **Use Artboards** is checked:



2. Give the file a name.
3. Click **Save** and then click **OK** to save the default settings in the SVG Options dialog:

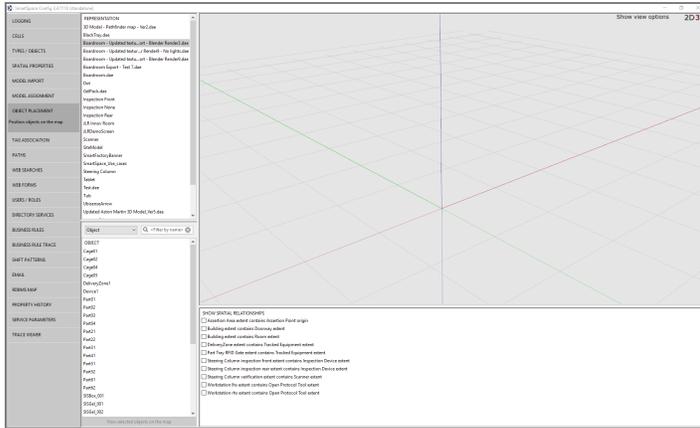


This will provide you with an SVG file which can be successfully imported into SmartSpace.



If necessary, you can resize and set the origin of the model. See *Model import* for further information on importing representations into SmartSpace.

5. Open the OBJECT PLACEMENT tab.



6. Drag the file that you just imported into the workspace:

