

Graphic Skills Portal

Technique Handouts

2

VISUALISING



Creating a street elevation
using Illustrator

URBAN
GRAPHICS
SKILLS

What is a street elevation in urban design?

An elevation is a view of a building seen from one side, a flat representation of one **façade**. This is the most common view used to describe the external appearance of a building.

Geometrically, an elevation is a horizontal orthographic projection of a building onto a vertical plane, the vertical plane normally being parallel to one side of the building.

Designers also use the word elevation as a synonym for façade, so the “north elevation” is the north-facing wall of the building.



“LULU Landscape and Urbanism” Atelier, Manchester School of Architecture (MSA). Y5 (2019 -20) Group 2 Street Elevation.

Street sections can be photomontage of different buildings
façades along the street:



Or an artistic representation of the street façade:

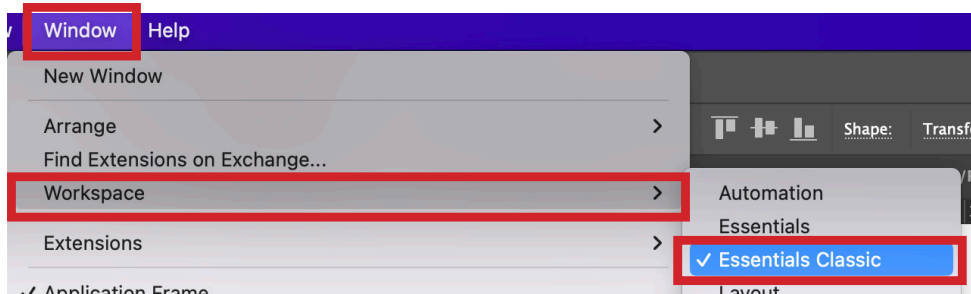


Creating is a street elevation



Use an existing basemap or a scanned sketch and drag it into Adobe Illustrator

Before you begin, set the workspace as 'ESSENTIALS CLASSIC':

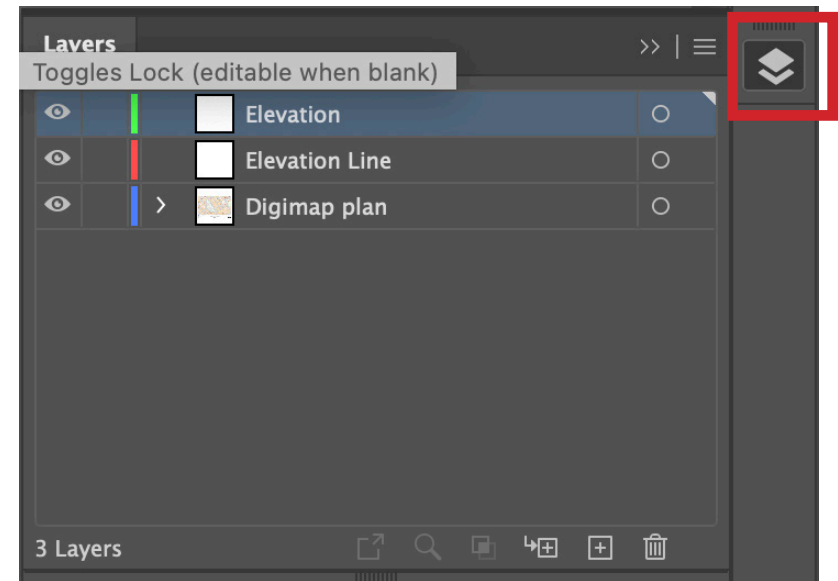


First thing, organise layers (1).

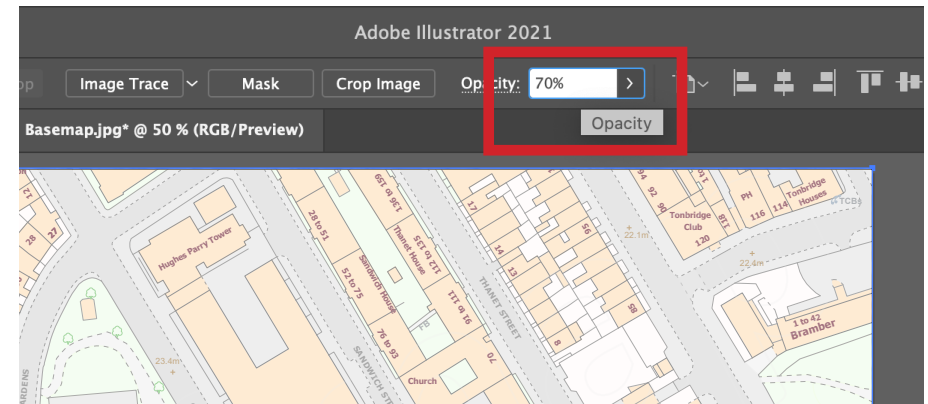
The Digimap Plan should be at the bottom in the list as a background > select it > add opacity (2)

Now, let's work on each layer.

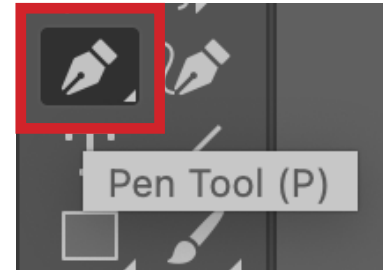
1.



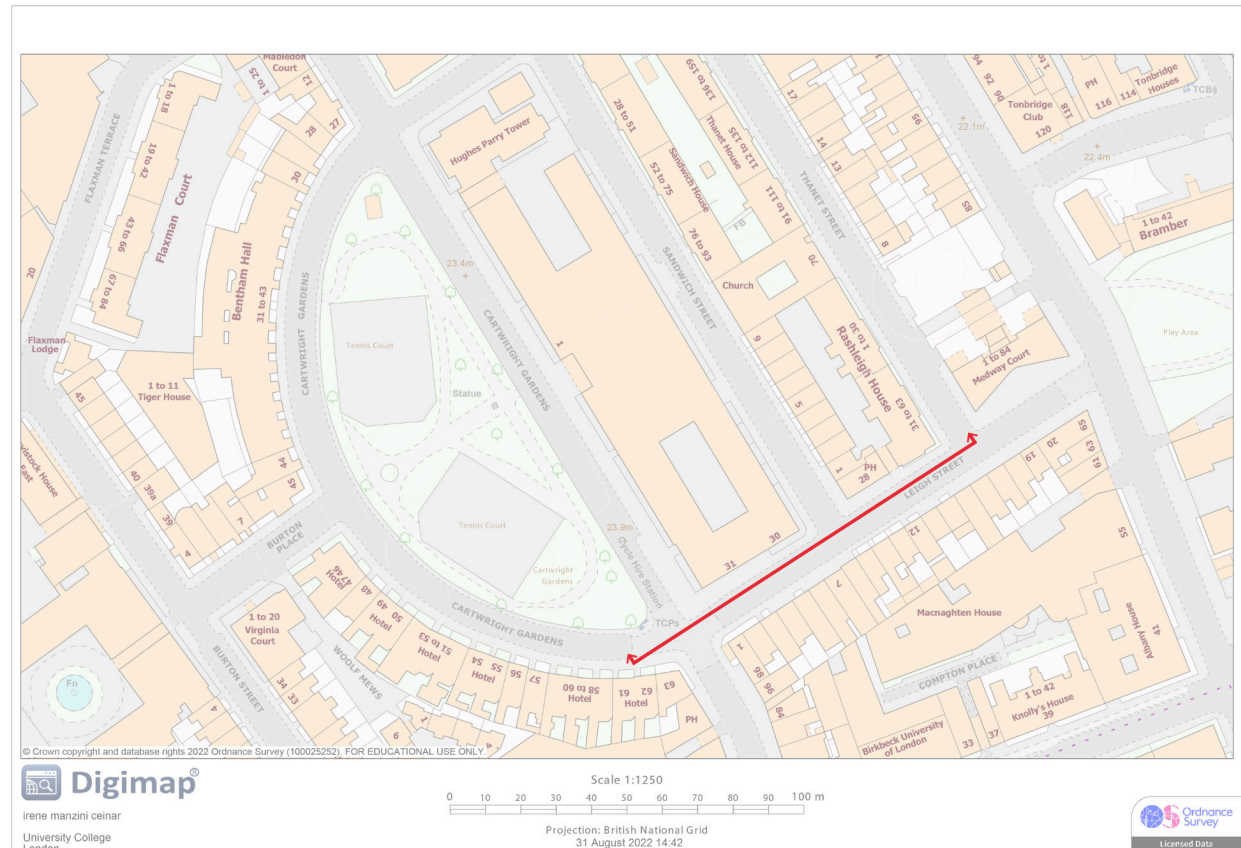
2.



The first thing to do is to set the **ELEVATION LINE** using the **Line (or the Pen) tool**: A special line placed on the drawing which indicate the area of the context to see in elevation.

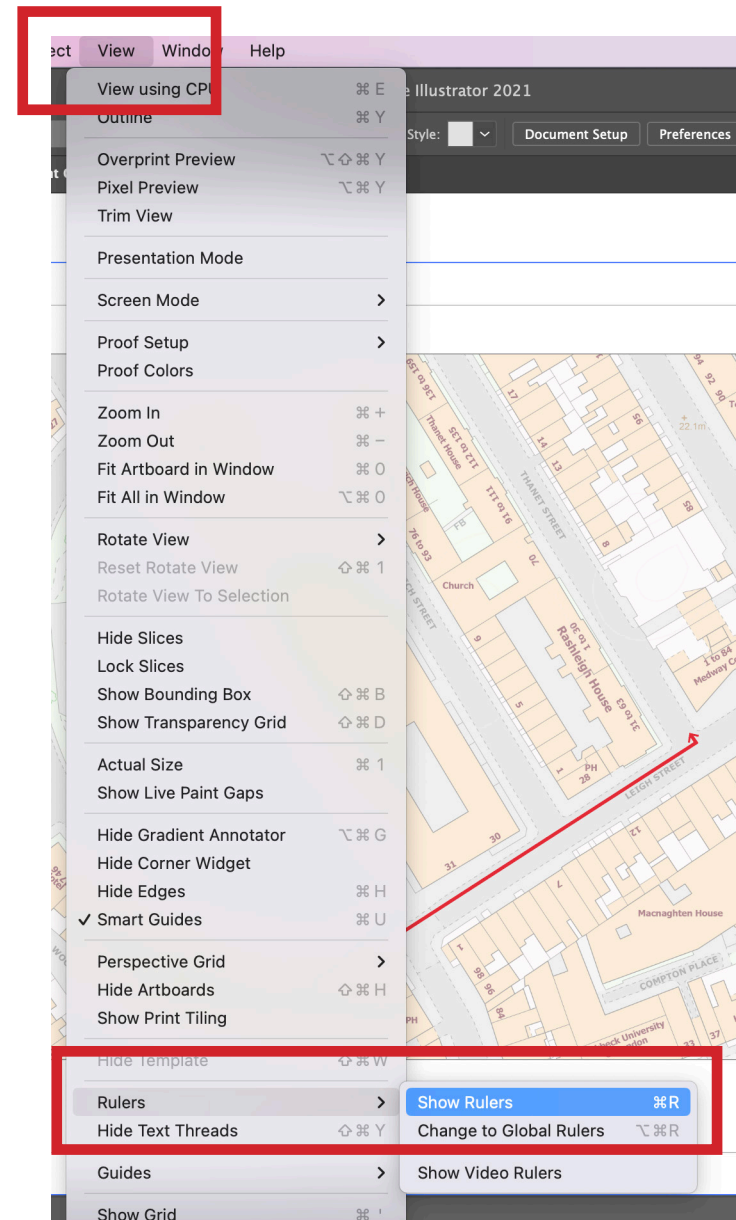


NOTE. it will be easier, especially if you are not familiar with elevations, to draw the elevation line in the middle of a street, to avoid cutting buildings (which in that case you should see them sectioned).



For your convenience, let's rotate the image according to the Elevation Line:

1. Open view > Rulers > Show Rulers
2. Rulers will appear. From the top ruler, drag a line on your drawing: This is an invisible baseline that will help you with the elevation.
3. Then, select **EVERYTHING** and rotate everything together by pressing R and start rotating with the cursor.
4. It will take a bit of try (rotate-move-rotate again), but be patient and try **to align the Elevation line (red) with the ruler baseline (light-blue).**



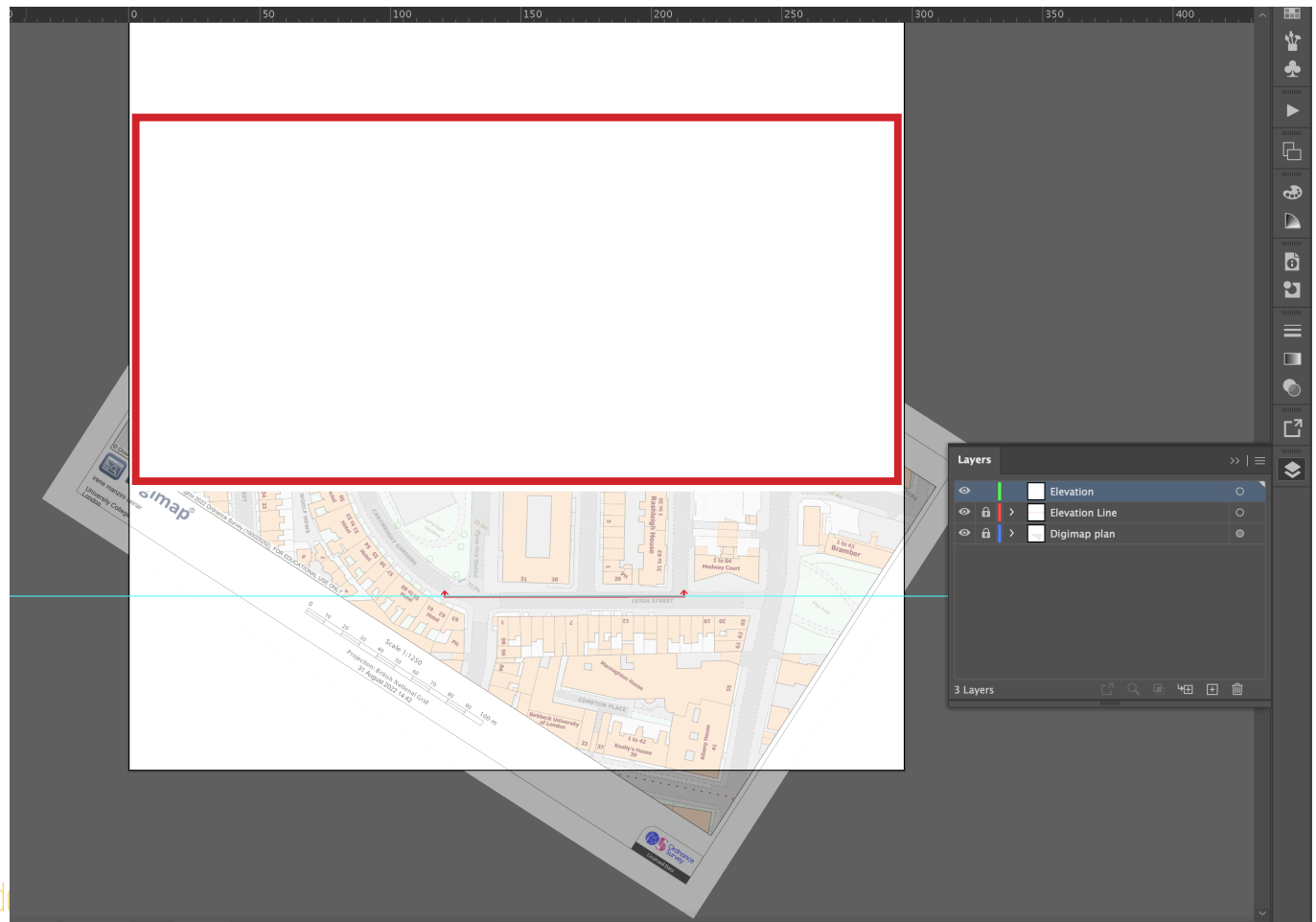
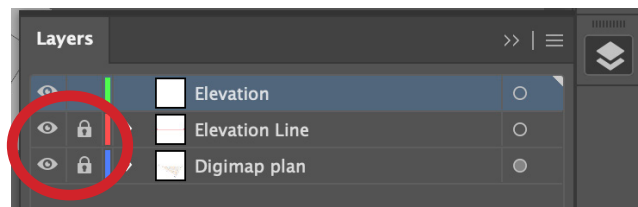
**Elevation line
(red)**

**Ruler baseline
(light-blue)**



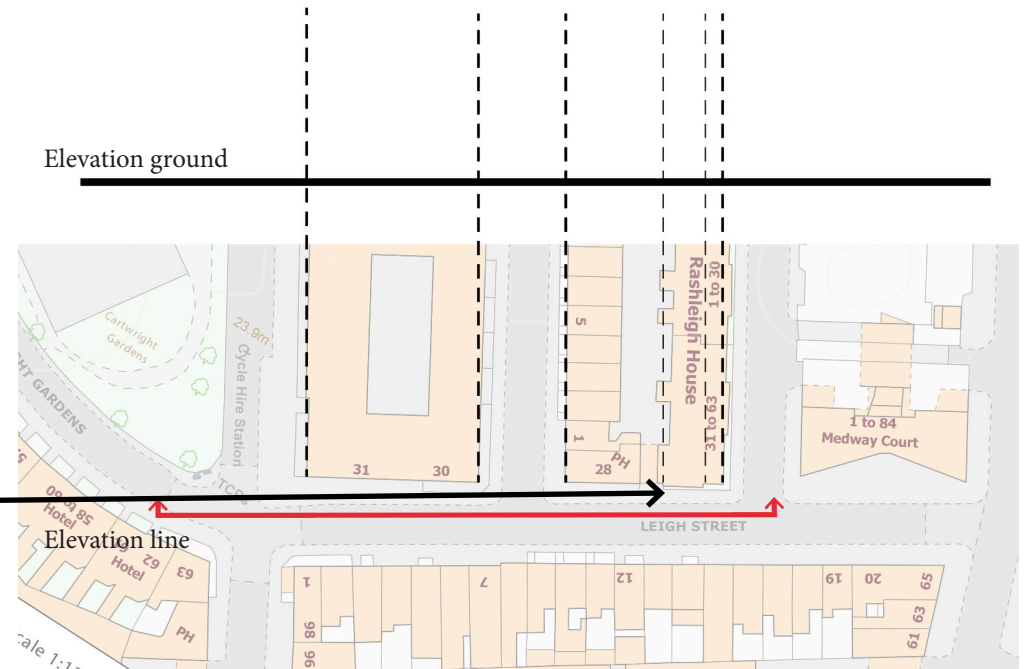
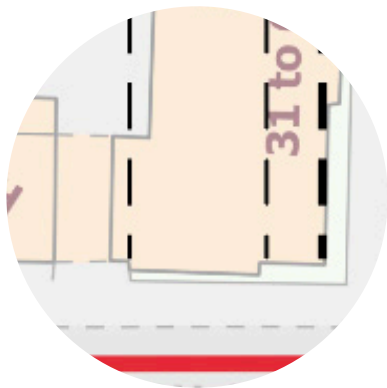
On the layer “Digimap Plan” use the **Rectangle tool** to create a white box to cover the base map ONLY on the upper level of the Elevation Line.

Then, **lock** “Digimap Plan” and “Elevation Line” layers, and stay on “Elevation”.



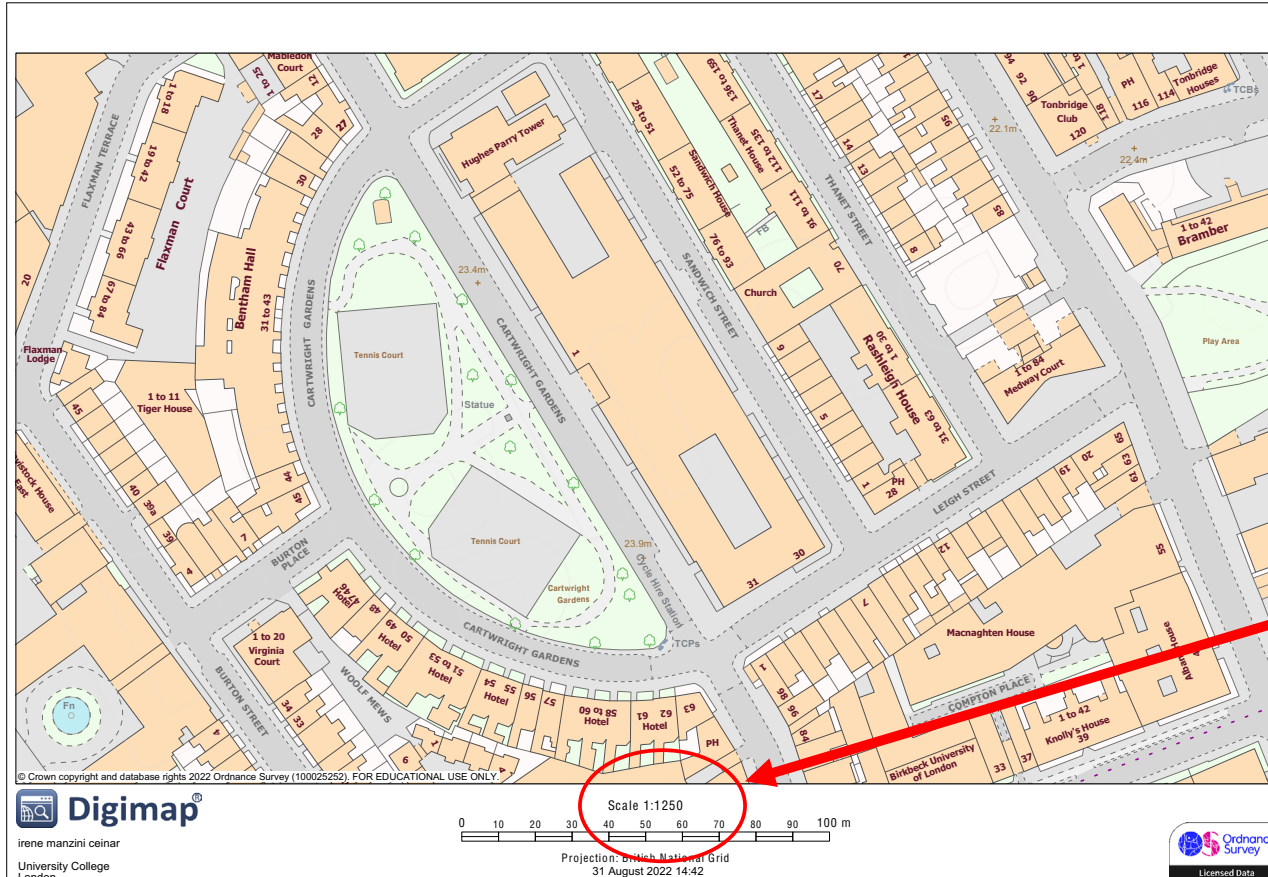
Now, let's start drawing the elevation – **NOTE. the process is the same of drawing the street section, but in this case ONLY the facade will be visible, not the interior of the buildings.**

1. Trace a horizontal straight line using the **Line tool** + keep pressing **Shift** to go straight: This will be the **GROUND** of the elevation.
2. Trace vertical dashed lines every time a orange building overlaps the Elevation Line (red): These will be the **guidelines to draw the buildings in the elevation.** NOTE. in the case of Elevations, every corner of the buildings should be traced.



3. Now, we should calculate the height of the buildings in **SCALE.**

THE IMPORTANCE OF THE DRAWING SCALE



NB. An important element is the **SCALE**. You should know that Digimap exports in A4 paper size, and you always have the scale mentioned at the bottom of the map. This is fundamental to draw the height of the building (and the right height of the storeys) later in the elevation

In this case, the scale is **1:1250**

To calculate the height of the buildings (and of each storey) in the drawing, you should consider the scale of the basemap (if you never scaled it).

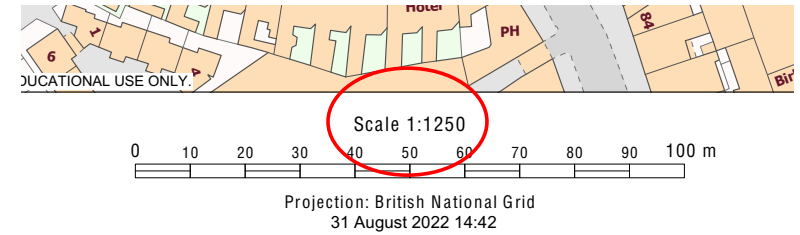
1. Go to

https://www.ginifab.com/feeds/cm_to_inch/scale_converter.html

2. In the calculator, add:

- the Scale Ratio **as in the baseline**: 1250
- Real Length as the average height of a storey: **3m**
- Scale Length will appear as consequence – NOTE to have this in **cm**

3. So, now you know that each storey in your section should be **0.24 cm**

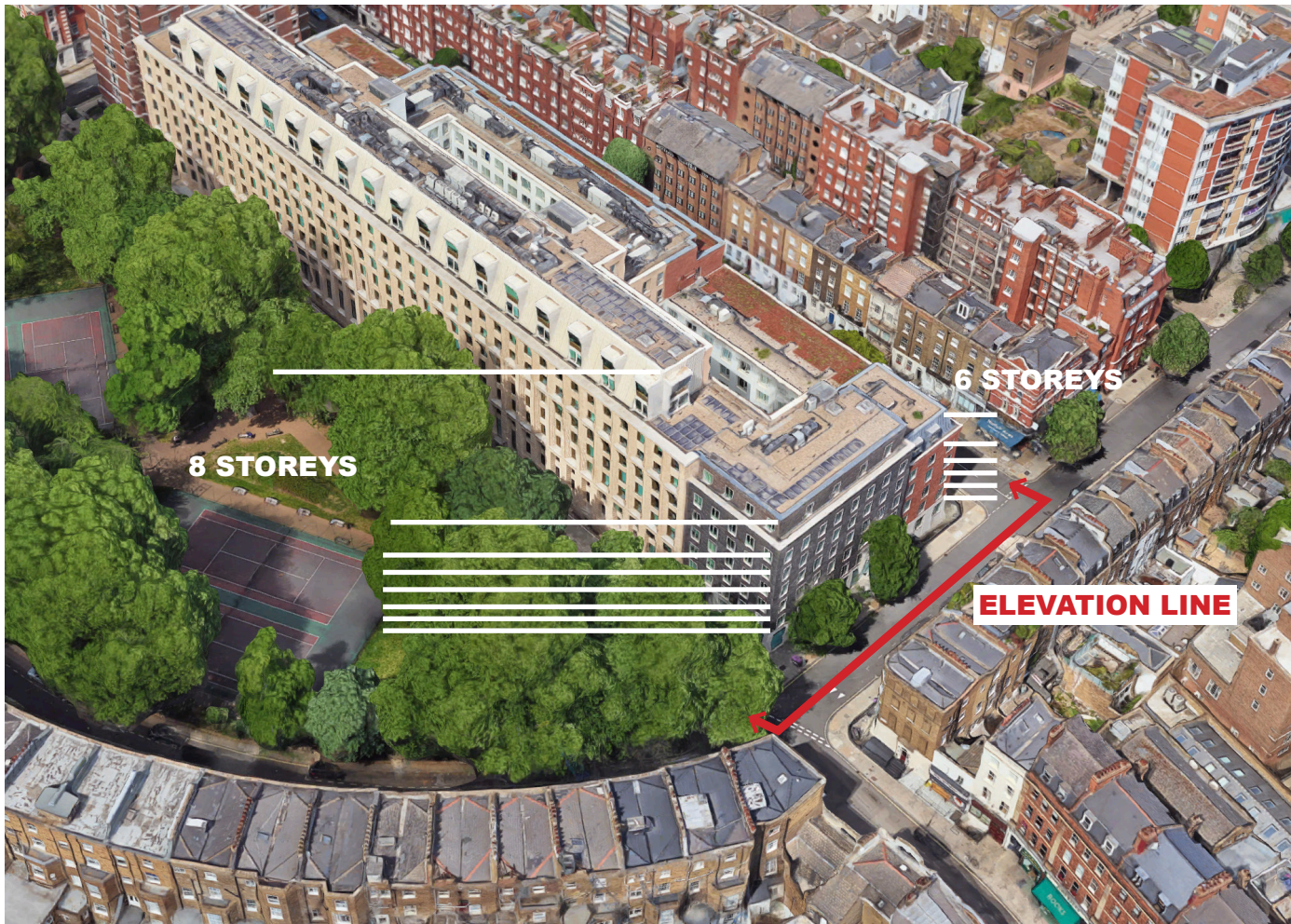


Scale Conversion Calculator

Scale Ratio	1	:	1250
Real Length	3		meters
Scale Length	0.24		cm

However, you do not know how height is the building. To discover this, you should count the storeys on Google Maps (count how many rows of windows has the building).

Repeat the process for each building.

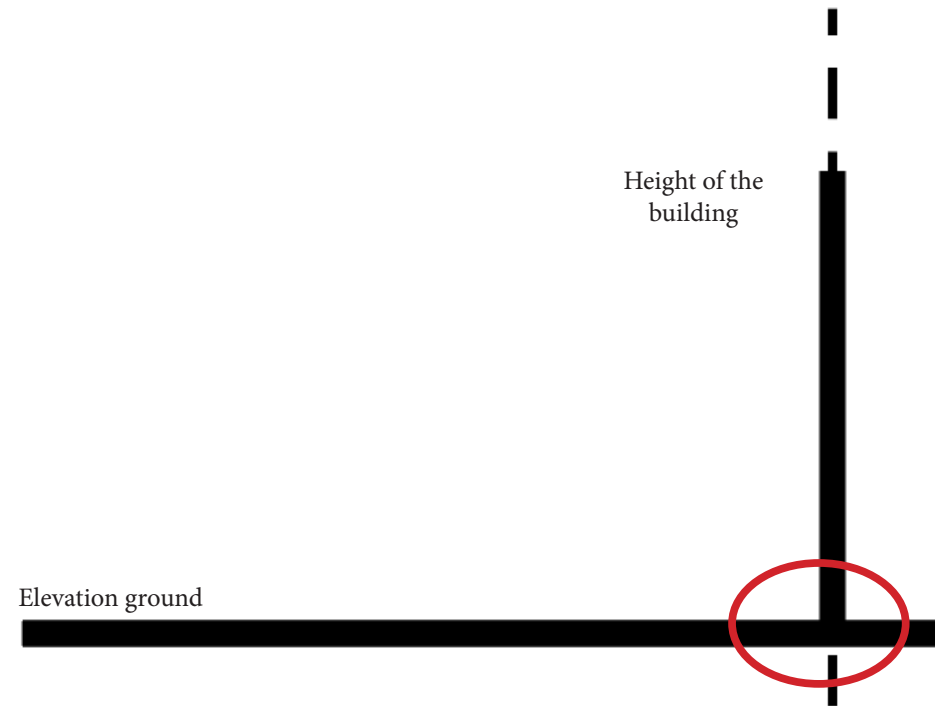
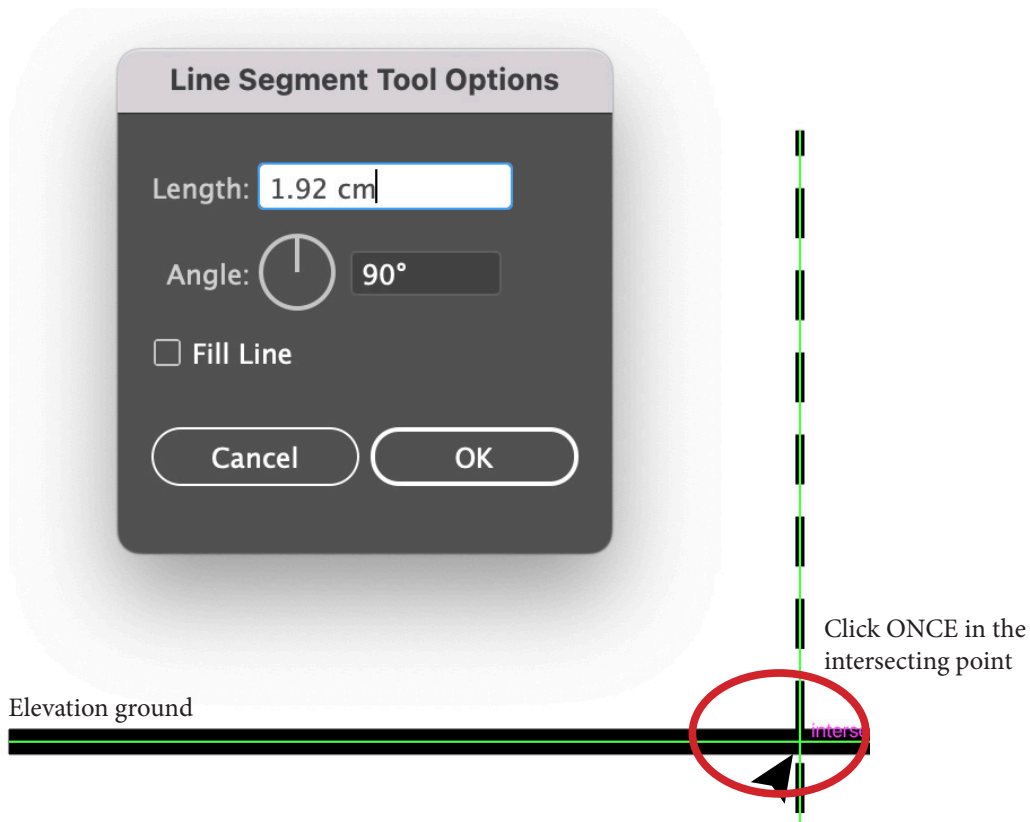
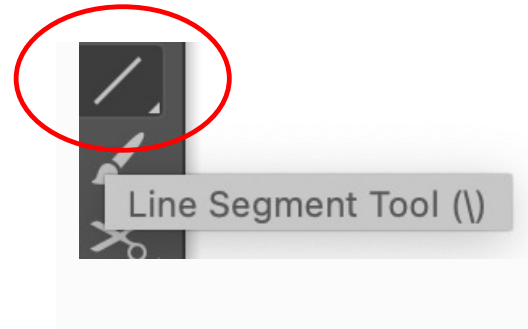


Therefore, you should multiply the number of the storeys for 0.24 cm to dimension the height:

$$8 \text{ storeys} \times 0.24 = 1.92 \text{ cm}$$

In Illustrator, use the Line Segment Tool and just click one on the GROUND line > a window will appear > **set 1.92 cm (or 19.2 mm) & 90° vertical** > OK

The line that will appear is the height of the building. Repeat this process for all the buildings.

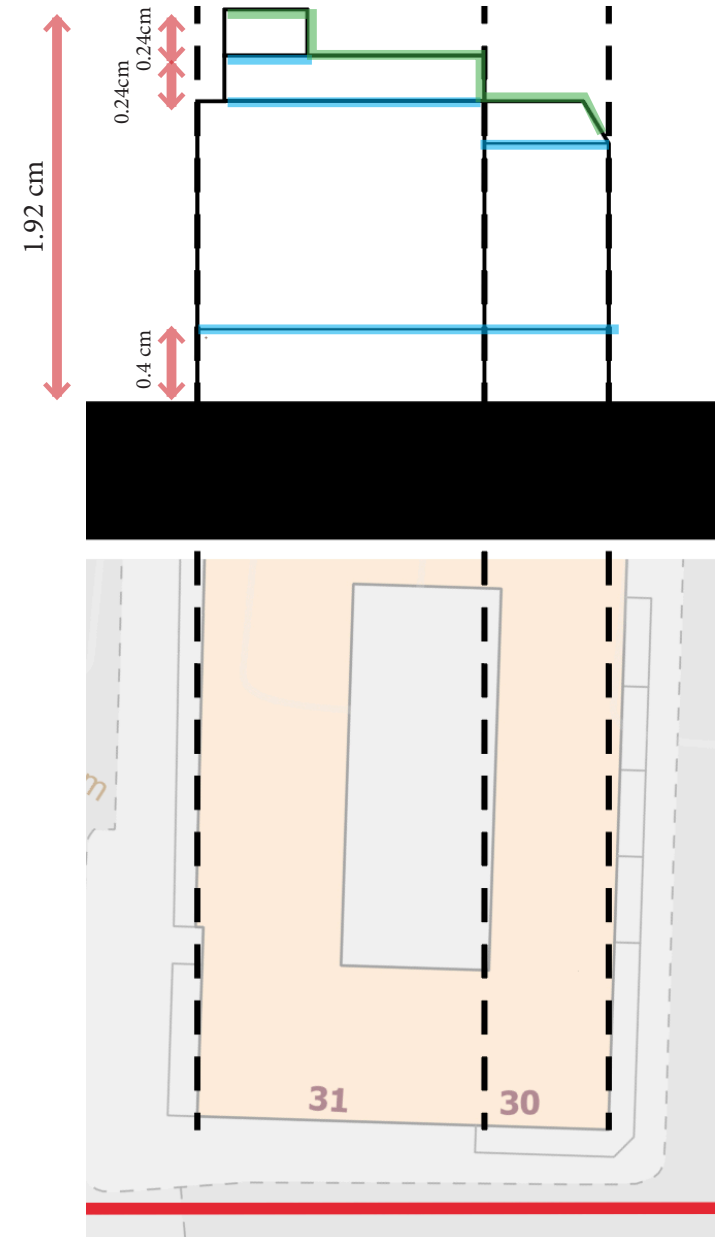


Now, using the **Pen tool**, you can create your building by looking at the real appearance from Google Maps.



NOTE.

you can also start adding lines where materials change – i.e., from bricks to tiles – using thinner strokes (**blue lines**) and differentiate the roof design based on the existing (**green lines**). Remember that all should be in scale, and **1 storey is equal to 0.24 cm** in your drawing (apart from the ground floor that generally is around 5m = 0.40 cm in your drawing)



Always looking at the real Google images, reproduce the windows. In the case of something already existing, we rarely know the real dimensions of windows, so we have to guess. Otherwise, if the entire building is designed by you, there are some standard sizes for windows.

Standard Dimensions for Window Types

Window Type	Standard Dimensions (ft x in)
Double or Single Hung	2 ft X 3 ft (2030)
	2 ft X 4 ft X 4" (2044)
	2'8" X 4 ft (2840)
	2'8" X 5'2" (2852)
	4 ft X 6 ft (4060)
Sliding	3 ft X 2 ft (3020)
	3 ft X 3 ft (3030)
	5 ft X 3 ft (5030)
	6 ft X 4 ft (6040)
Pictured or Fixed	3 ft X 2 ft (3020)
	5 ft X 3 ft (5030)
Casement	1'7" X 1'4" (1714)
	1'7" X 2'5" (1725)
	2'3" X 2'3" (2323)
	2'9" X 2'9" (2929)
	3'5" X 2'5" (3525)

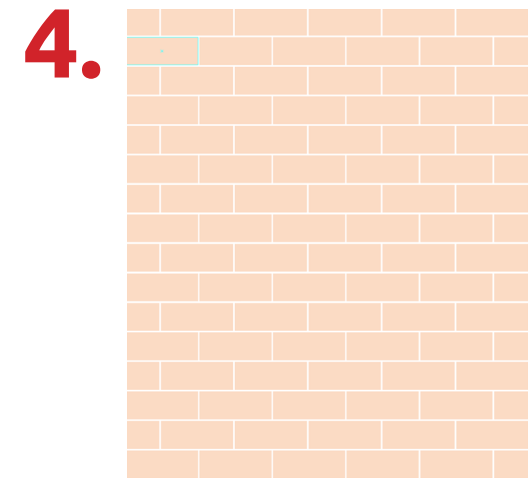
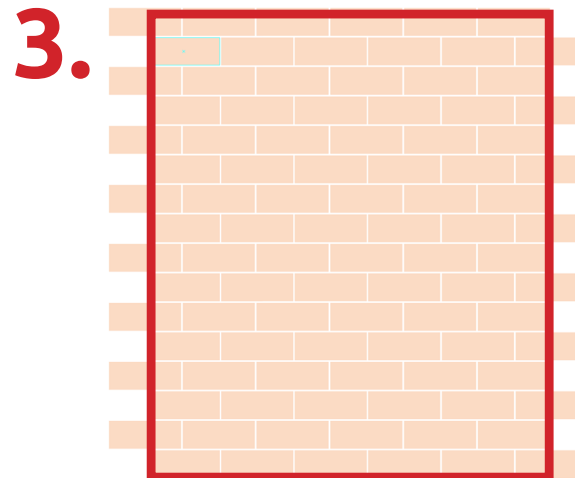
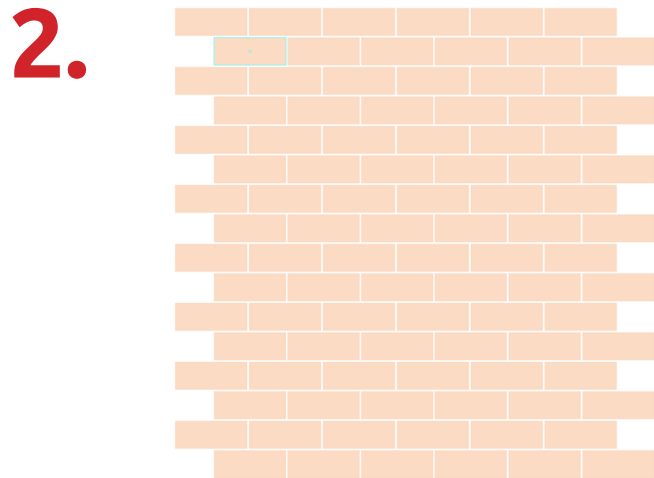
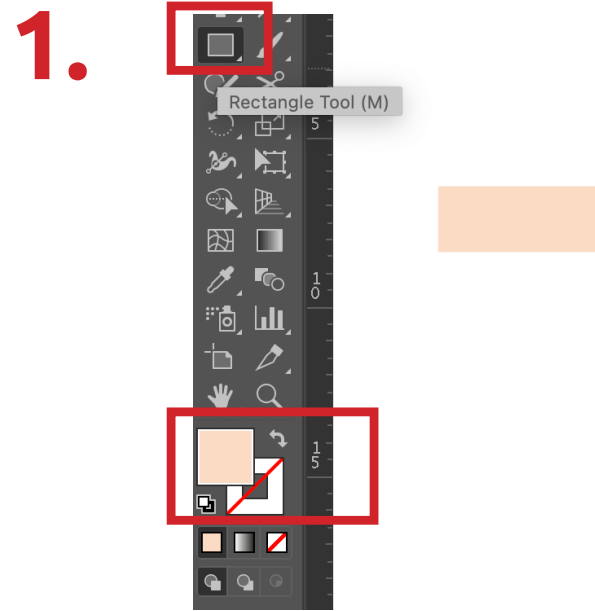
You can also remove the dashed guidelines and start adding details.

The diagram illustrates the process of translating a floor plan into a building elevation. A floor plan at the bottom shows a room with a large window area, with dimensions 31 and 30. A red arrow points from this area to a building elevation above. The elevation shows a multi-story building with a grid of windows. A red arrow points from a specific window in the elevation to two photographs on the right. The top photograph shows a row of three large, narrow windows with a black metal fence in front. The bottom photograph shows a blue door with a small window above it, also with a black metal fence in front.

Let's add some **PATTERNS** for the different materials of the facade.

BRICKS - on the same canva in Illustrator (but aside from your elevation), start creating your own brick pattern.

1. Use the Rectangle tool and draw a brick using the appropriate color.
2. Copy and paste the same several times by leaving a bit of space in between.
3. Once you have a portion of pattern big enough, create a big rectangle on top of the bricks
4. Select everything (rectangle + bricks) > right click > Make Clipping Mask

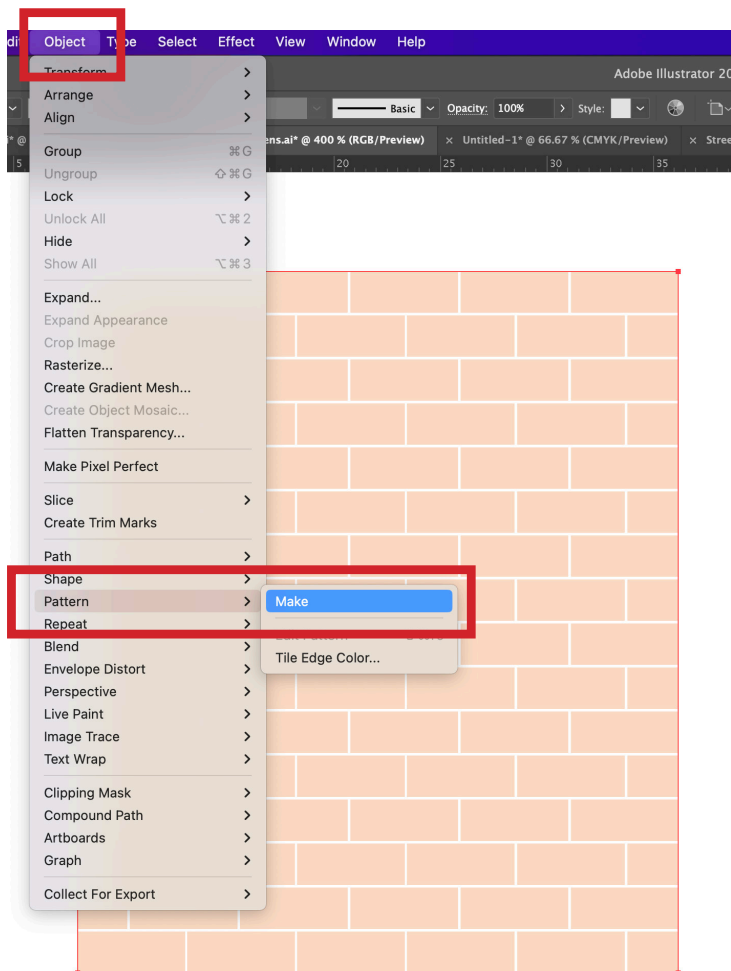


5. Select it > Object > Pattern > Make

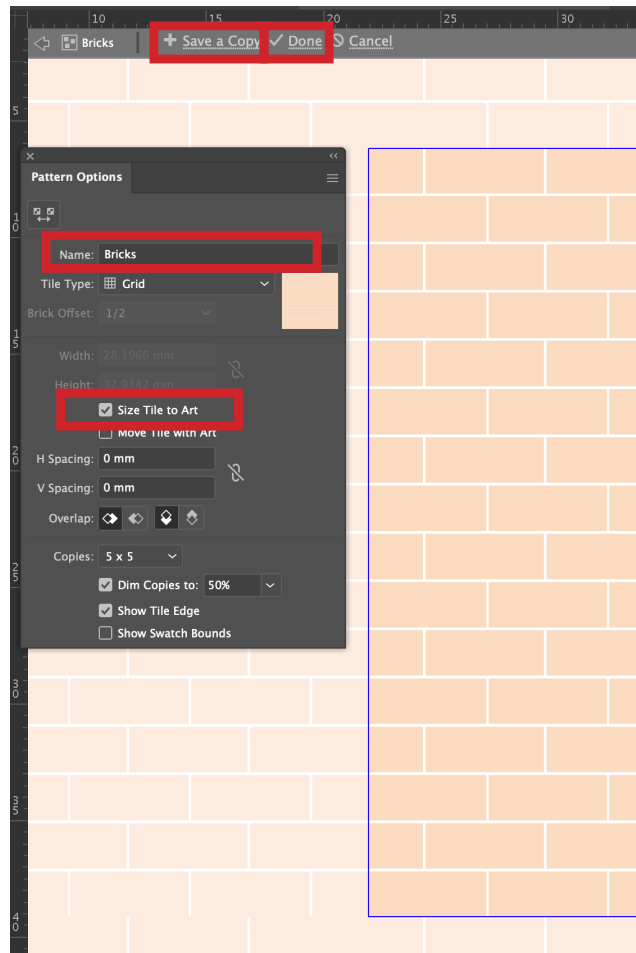
6. A window will appear. Rename the Pattern as 'Bricks'; Tick the 'Size Tile to Art' > Save a Copy > Done

7. Once saved, you will always have the pattern in that file into 'Swatches'

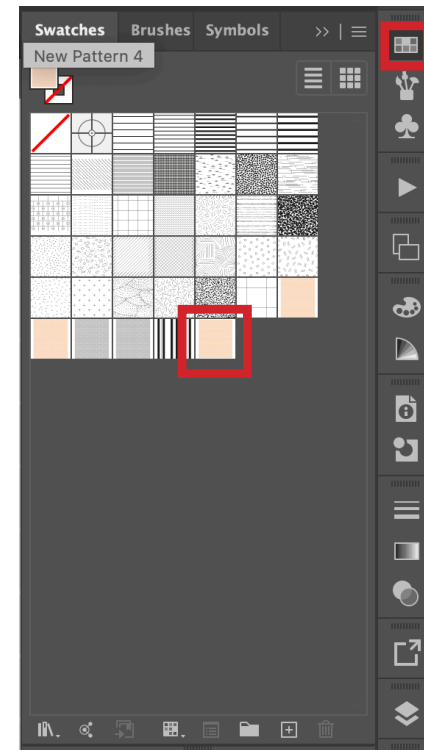
5.



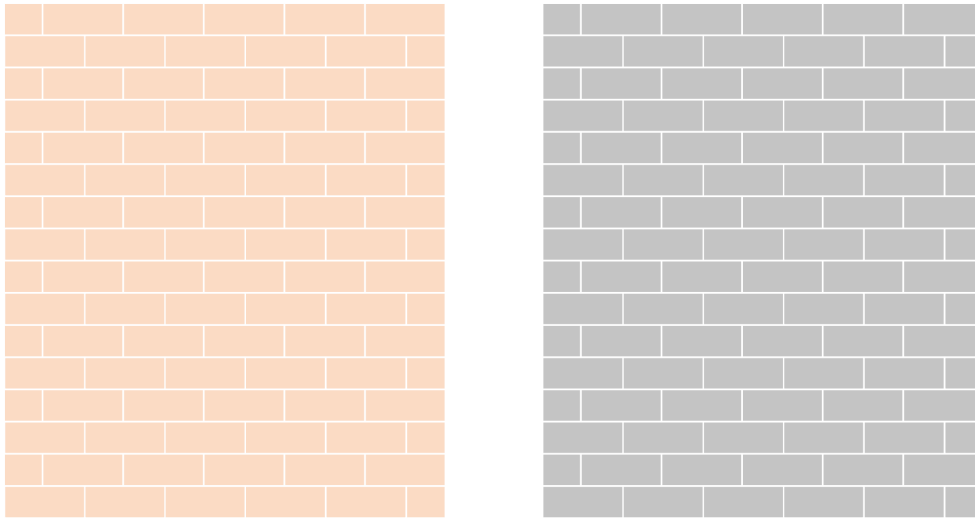
6.



7.



Repeat the same process for all the patterns you need.



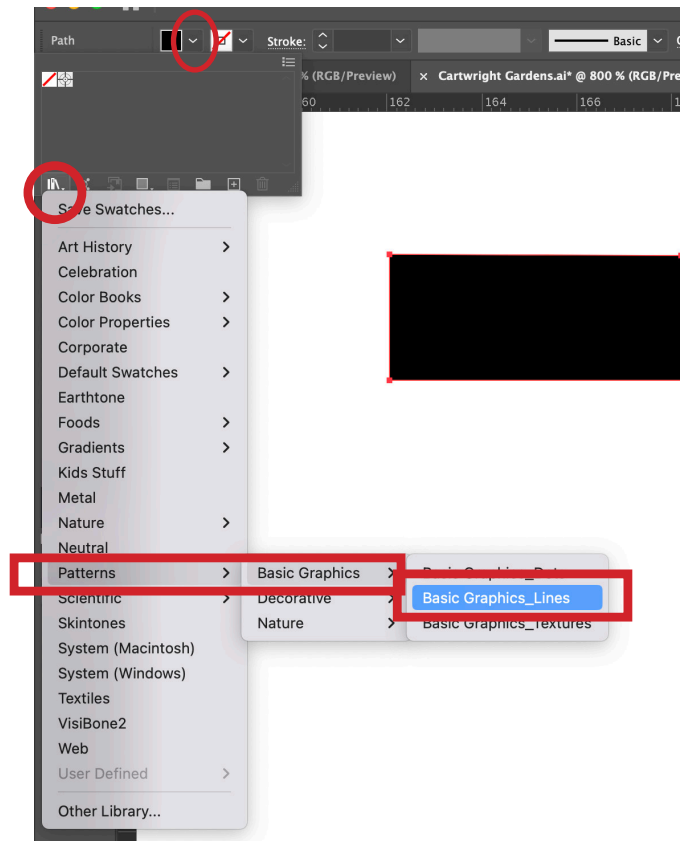
However, remember that Illustrator already provides some basics ones:

1. Create a shape of any color using the **Pen tool**.
2. Select it and open the drop-down menu on top > Click the **Swatch Libraries Menu** > **Patterns** > **Basic graphics** > **Basic Graphics_Lines**

1.

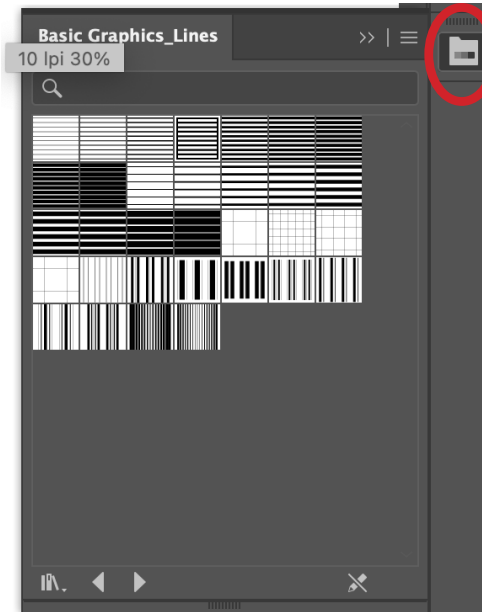


2.



3. Choose the pattern from the folder appearing on the right-side menu.
4. Check that you are adding the pattern to the fill and **NOT to the stroke.**
5. Move back and forward to see the other pattern families.

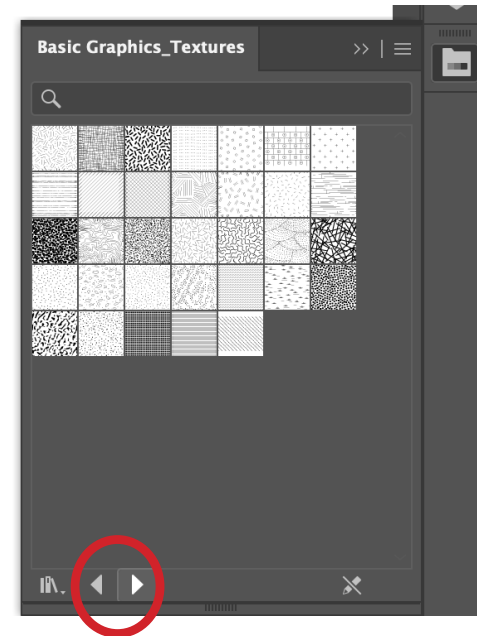
3.



4.

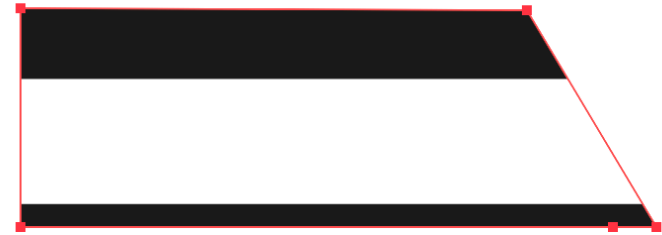


5.

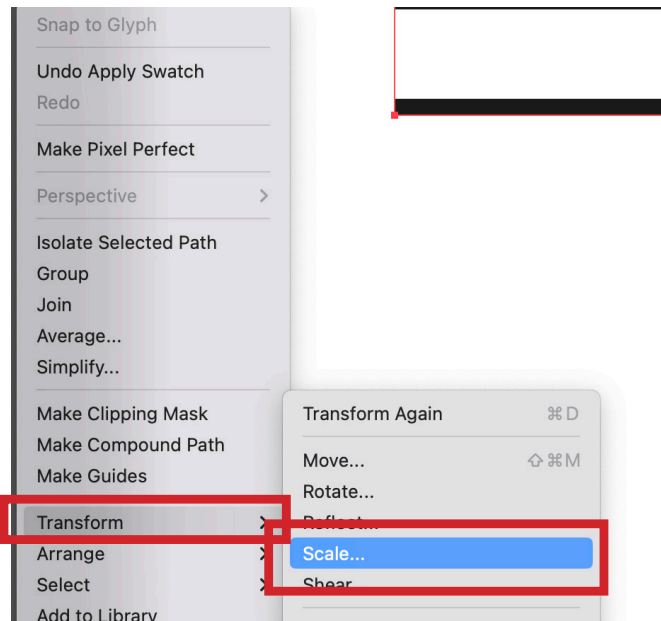


6. It may happen that the pattern is in a wrong scale or inclination compared to the shape you have.
7. So, you need to select it > right-click > Transform > Scale
8. A window will appear > deselect 'Transform object' and adjust the scale as you prefer.
9. You can do the same for the rotation.

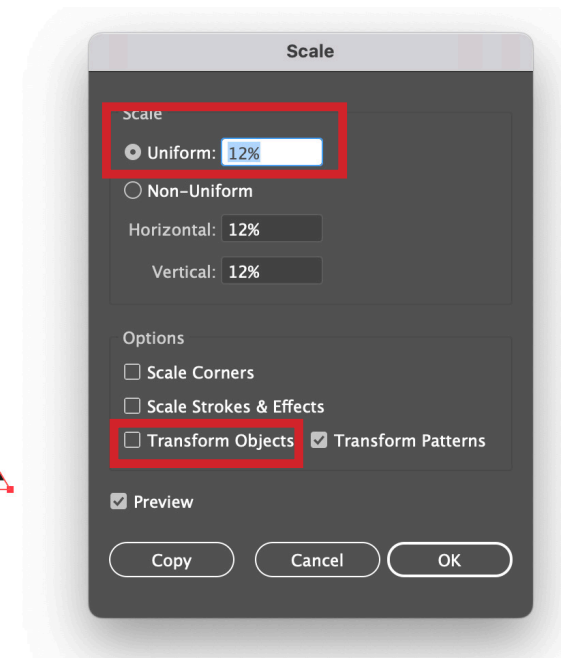
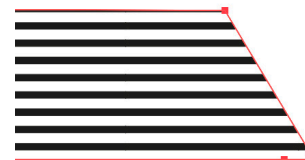
6.



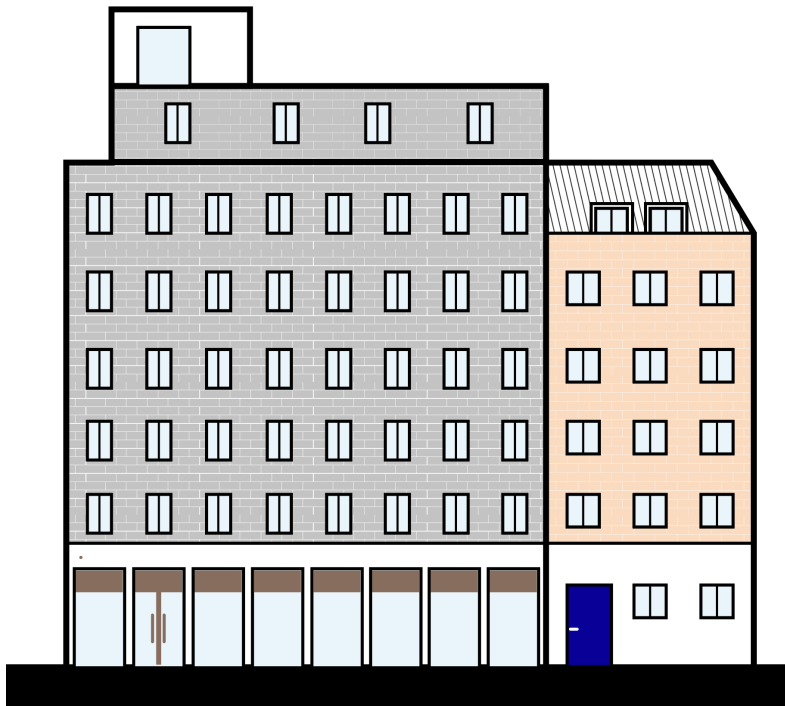
7.



8.



Now you can finally add all the layers you need to your elevation. To do this, you need to create a new layer called 'Patterns' and on it design some shapes to which assign the chosen patterns.



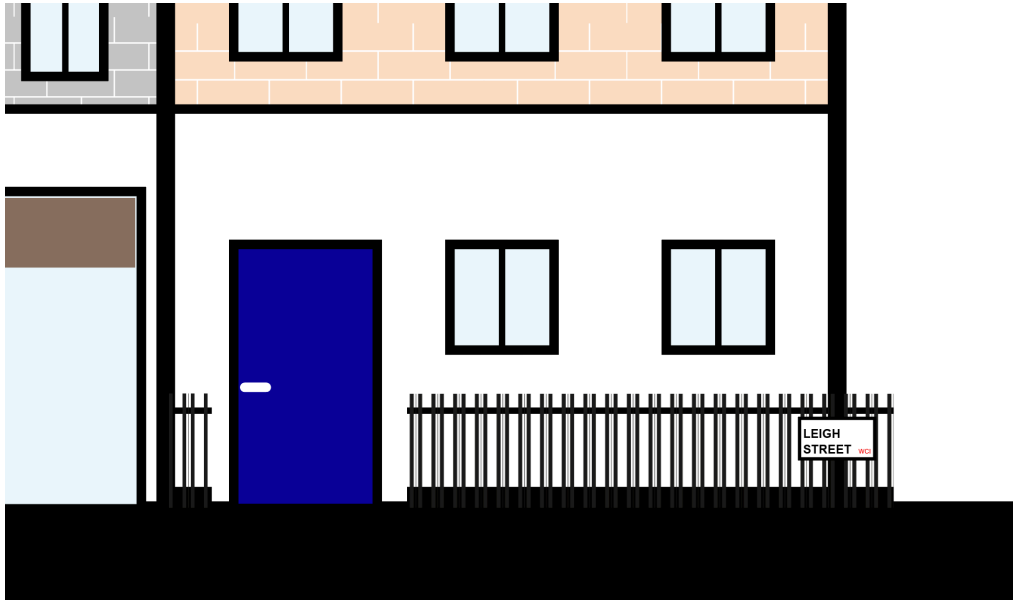
Lastly, add details to make the elevation more interesting. Those could be existing fences, small changes in the pavement, signages, cars, people etc. **NOTE. Use a new layer for details, and add a bit of opacity to it, so those would not affect or hide your elevation.**



Repeat all those steps for all the buildings you want to show in your elevation.

TIPS.

in the case of fences, you can just use a ready made Basic Graphics_Lines and then play with lines and line tickness.



For trees, you can download some from <https://meye.dk/> and add different species together with different percentage of opacity.

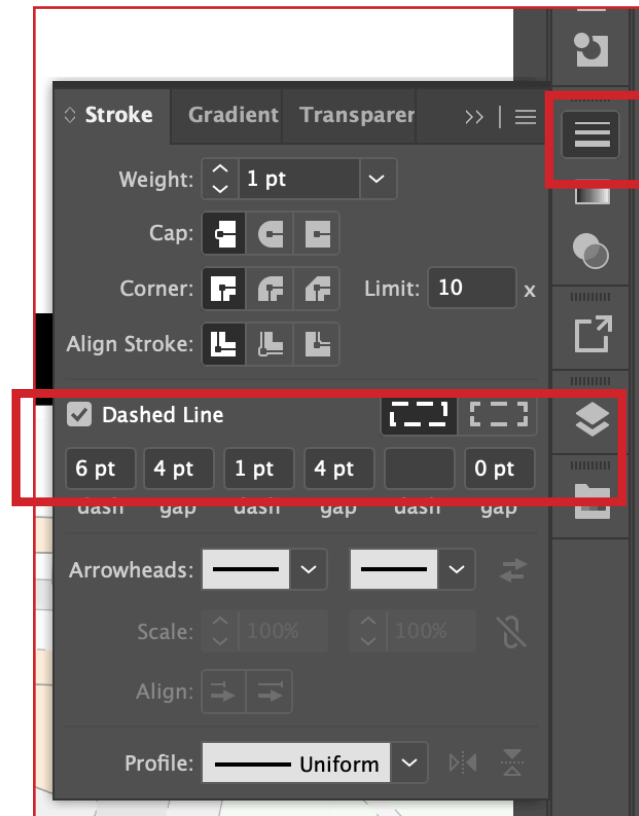
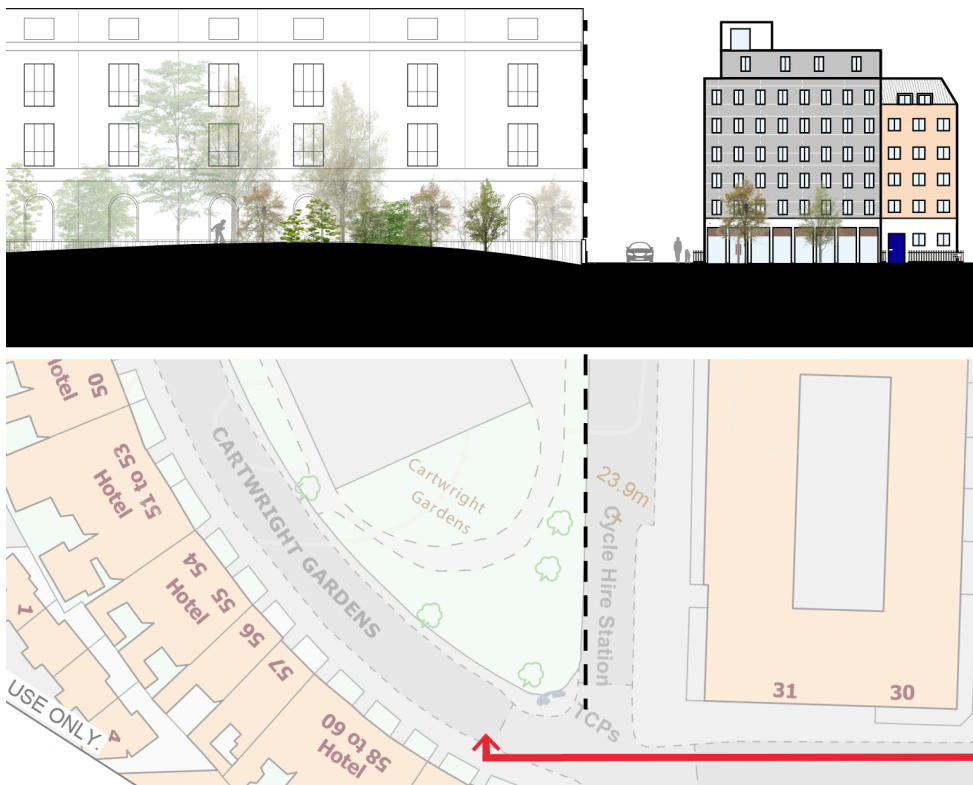


Generally, in street elevation **is also good to show what is further away**, not just in the foreground. For doing this the process is always the same, but everything should be lighter and lines must be thinner.

Always use the dashed guidelines to see where background things began. However, the elevation could not be too long, so when you stop it, you should use a **line stretch-dot** that defines the end of the design but indicates that in the real context that elevation continues.

How to draw a **stretch-dot line**?

Use the **Stroke panel** and play with the dashes.



The elevation is ready!

you can now switch off the Digimap plan on the background and any other guidelines. You can also add text and labels.



Street Elevation – Scale 1:1250

One last thing: **HAVING A KEY PLAN IS ALWAYS A GOOD IDEA**, otherwise it will be impossible to understand where you took the elevation from.

The key plan could be small on top and out of scale



Street Elevation – Scale 1:1250



THE BARTLETT