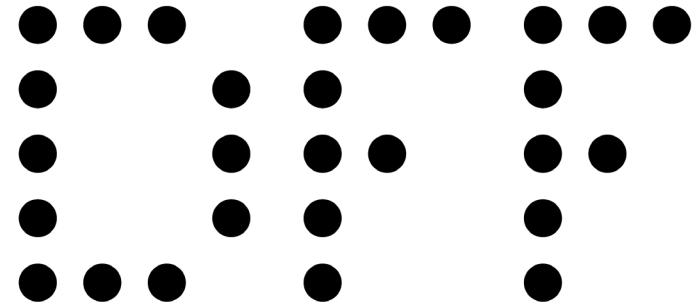


# 2.3

# 3D

# diagram work-flow

Software skills and principles for making  
diagrams



Digital Fabrication Facilities  
for Architecture



# Contents

**Intro**

**Site analysis**

**Design diagram**

**Axonometric**

# **Q: What are we doing?**

**A:**

Rhino and Illustrator can go hand in hand to generate drawings and diagrams to demonstrate the design ideas and other important details. In this guide, we will make three types of drawings with Rhino and Illustrator workflow:

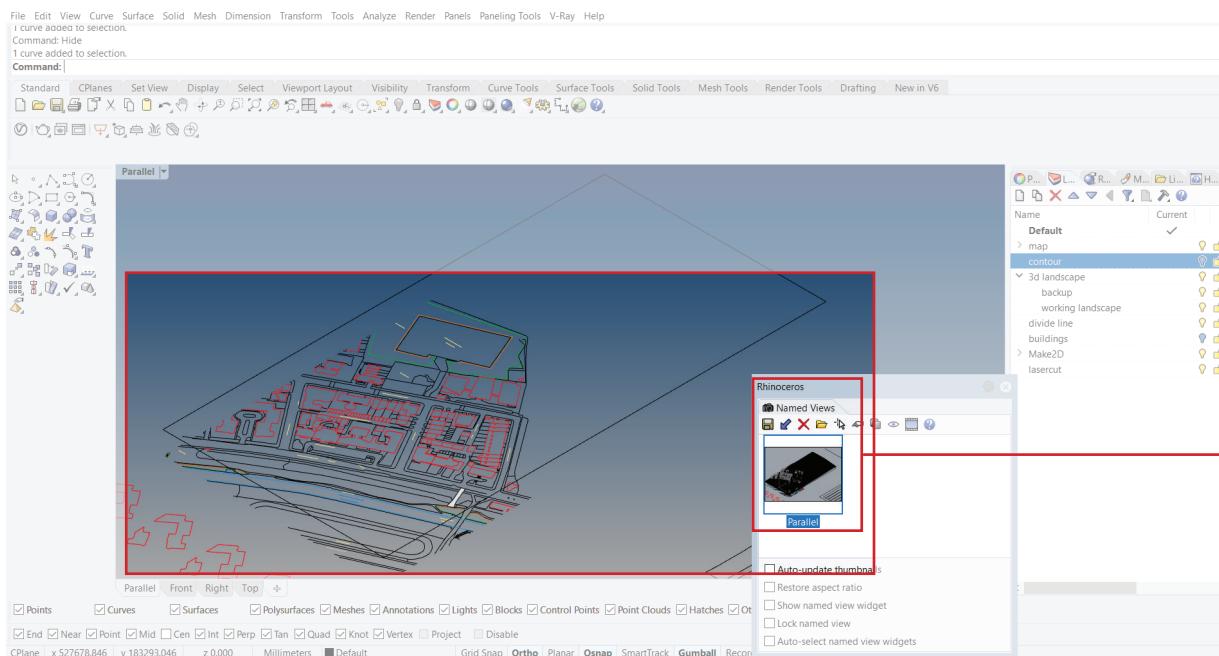
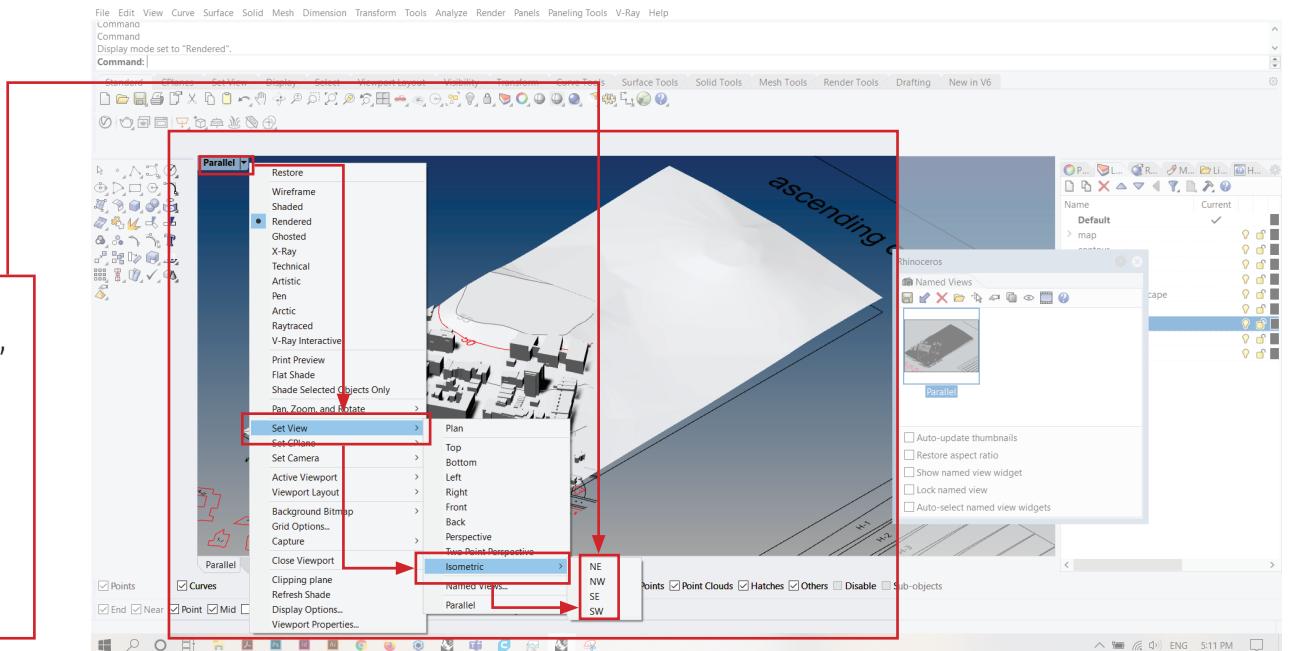
- Site analysis diagrams
- Design development diagrams
- Exploded axonometric diagrams

In order to generate the diagrams successfully, you need to keep a good habits in organising your Rhino working files.

**Please note the document shows you the principle and in practice details may vary.**

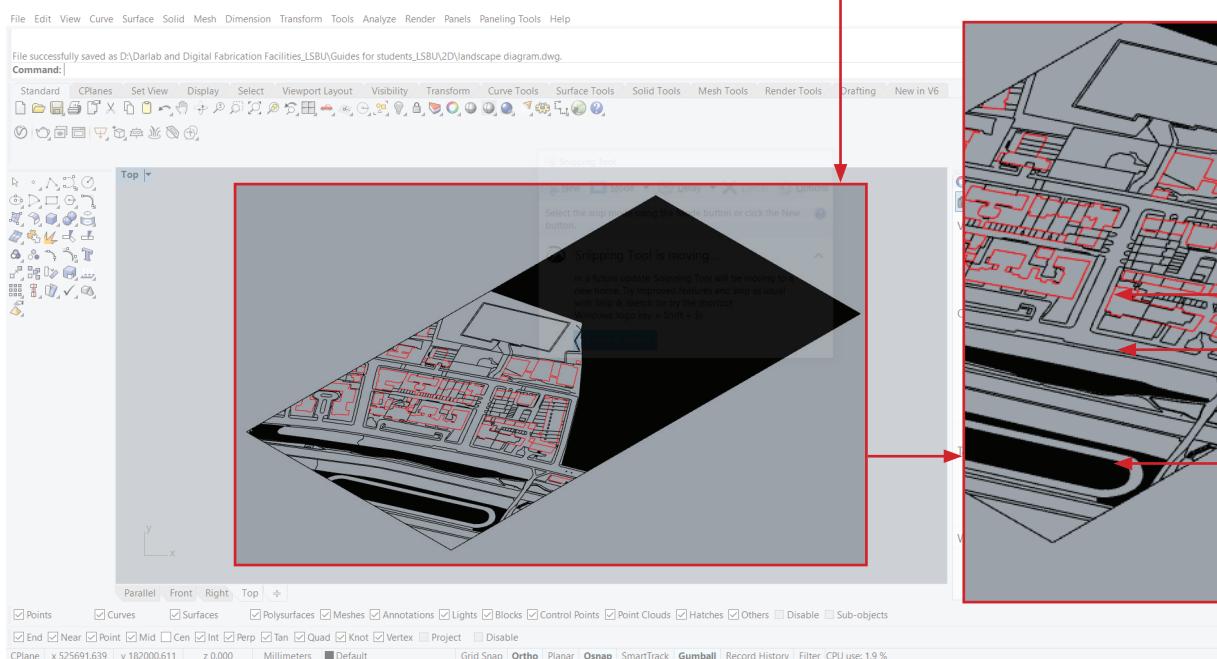
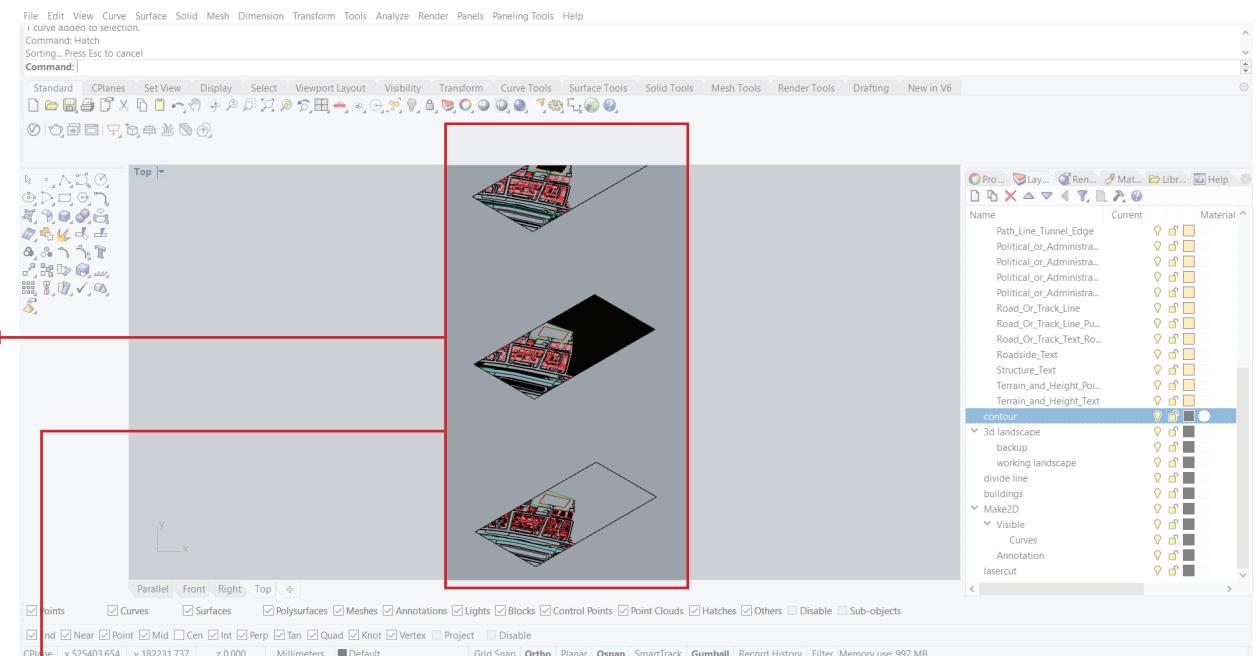
To make a successful site analysis diagram, you need to compile multiple layer of information onto a single set of diagrams.

1. To make diagram from Rhino model, follow these steps to set the model to Isometric view for all models used for diagram generation. We will not show this process again in other diagram process followed.



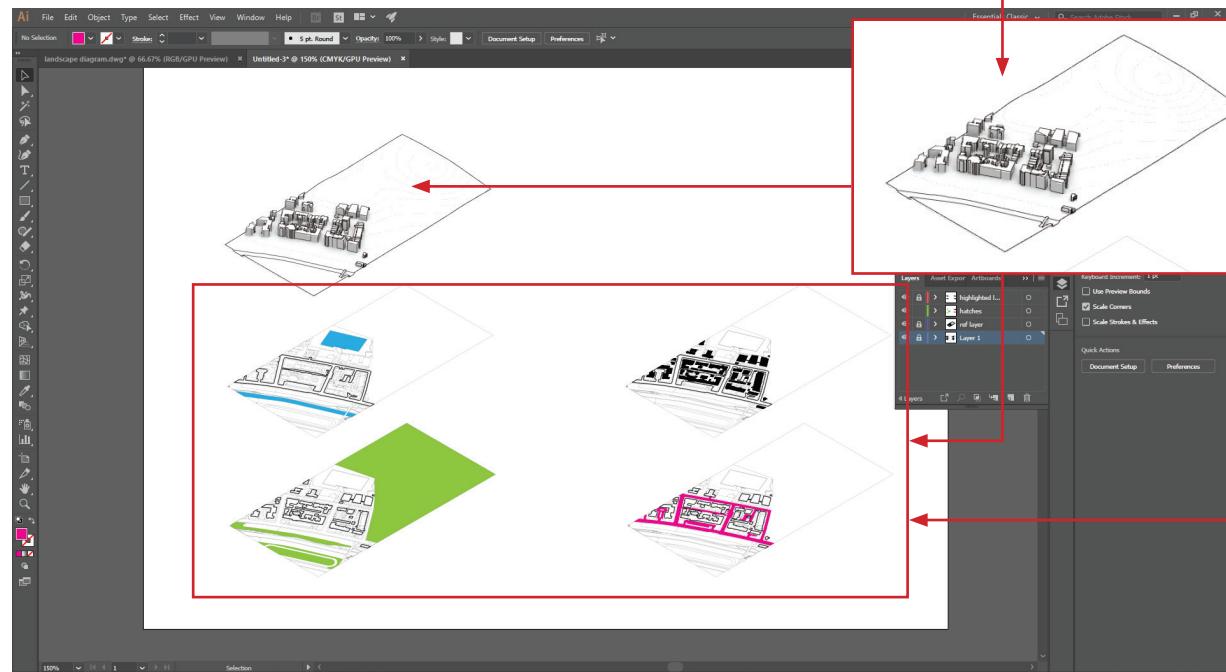
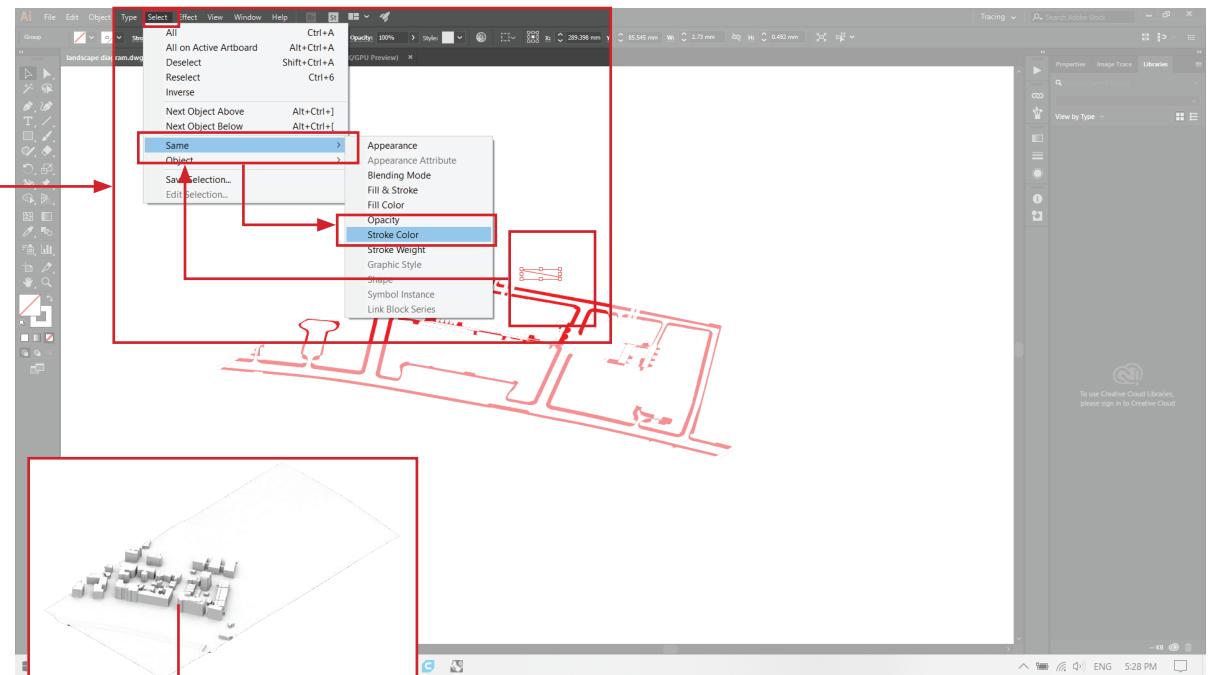
2. Use "Named views" command to launch the window panel. Click the save icon to save the current view. To restore view, simply double click on the saved view. This tool can help you to restore your isometric view quickly so you don't have to reset the view every time you exit. To pan, hold down "shift" and use right click to navigate the window view.

**3.** Create multiple 2D graphics with “make2D” command in Rhino to use as different diagrams for later use in Illustrator. Try avoid using one single 2D graphic to convey different message. For example, if you want to show a diagram with different elements such as water, green space, streets, existing buildings etc, make one graphic for each of these elements in Rhino. This will significantly speed up your workflow. The reason is that Rhino is better at editing 2D graphics and Illustrator is better for colour and publishing.



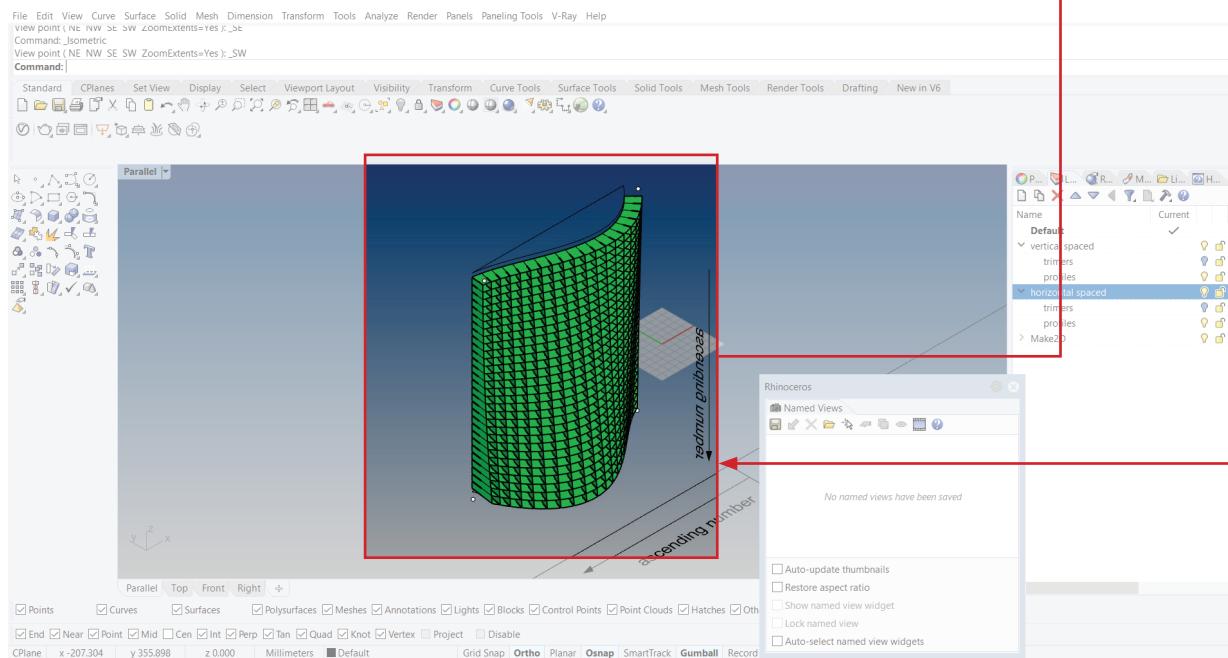
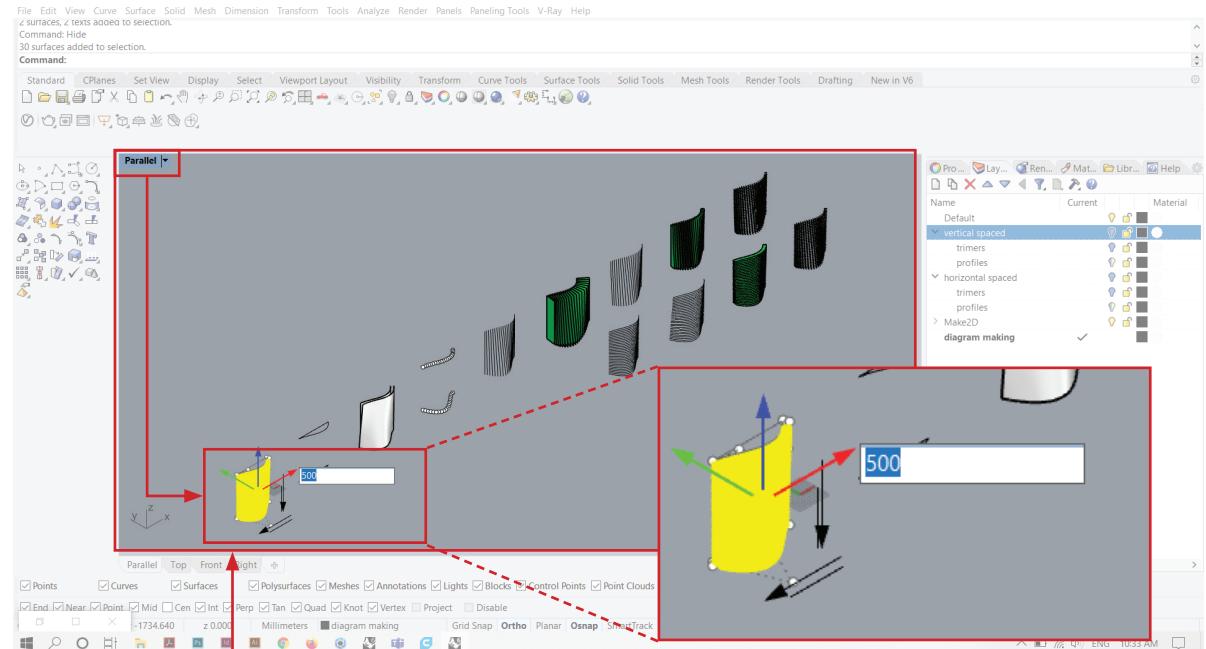
**4.** Set line colour and hatches to the part you would like to highlight in your diagrams. This way , it will be easier for your to quickly select these parts in Illustrator in your work-flow. Once you are done, use “export selected” command to export your graphics in DWG format.

**5.** Once you open up Illustrator, simply drag and drop your DWG file from Rhino with any import options that may appear as it does not need to have scale. You may see that some lines are white. To fix this, simply select one line and use select same stroke colour option to select all of white colour lines and correct them to the right colour of your choosing. Also use thinner line weight and lighter colour for other parts that you do not wish to highlight.



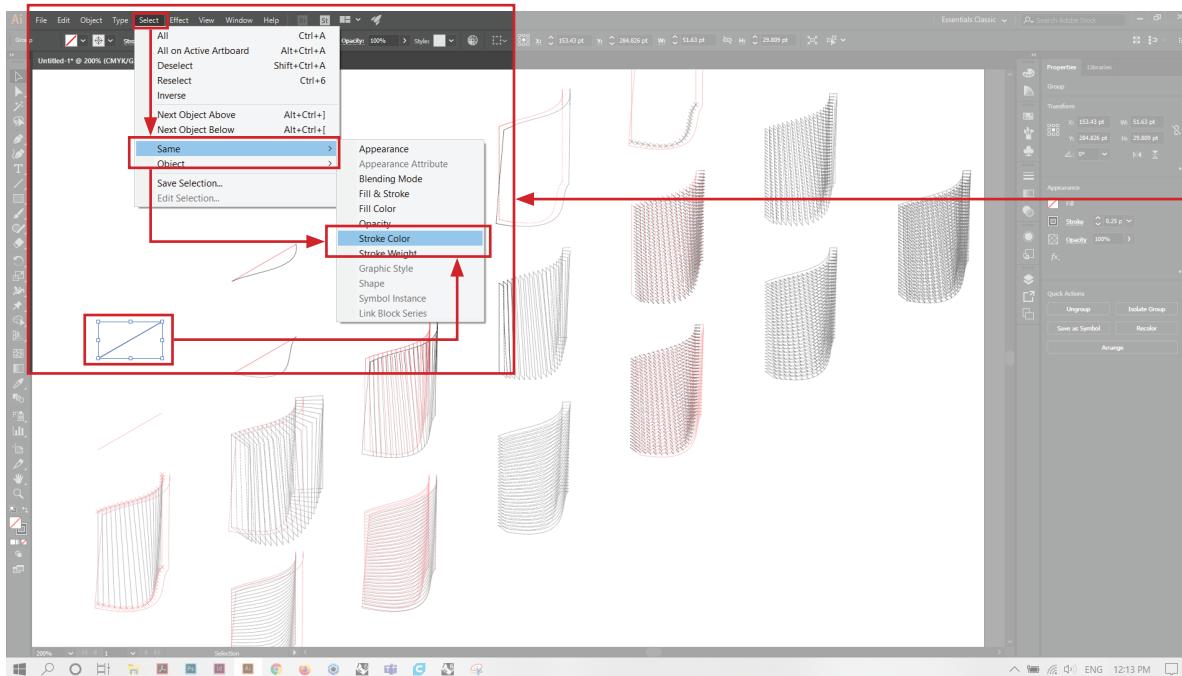
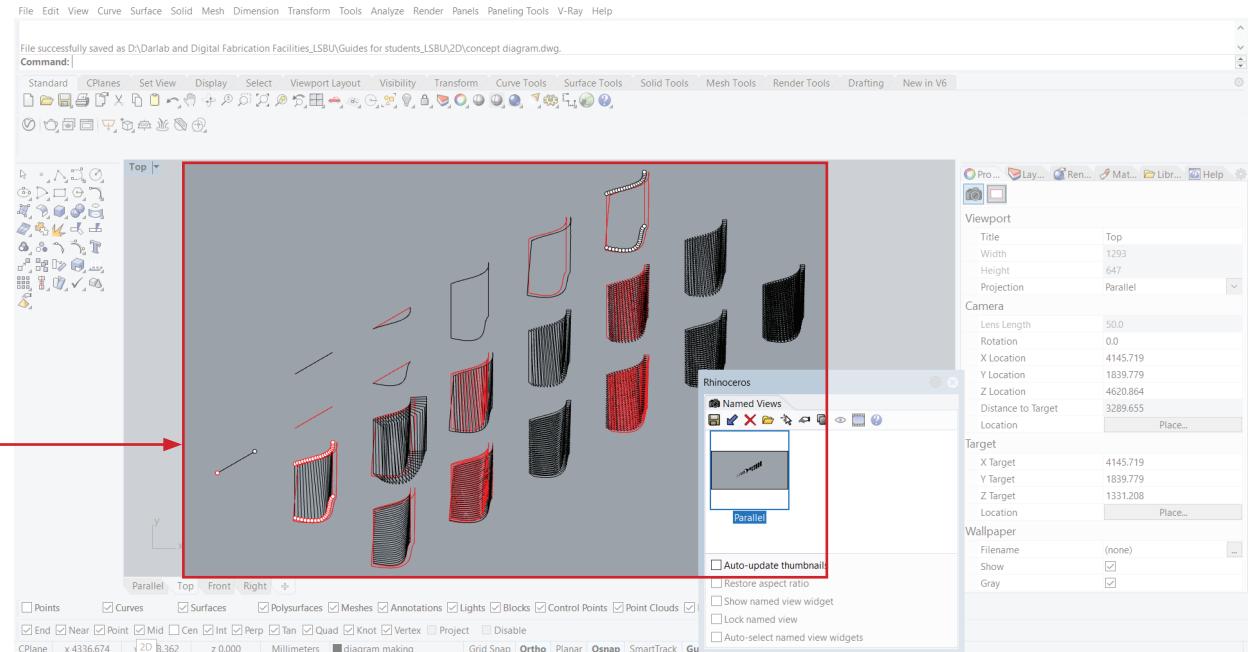
**6.** You can overlap 2D vector graphics with simple rendering. To compile your diagram, simply scale and fit the image to match with the 2D graphics. You can also assign different colours and line weights to different diagrams. Choose a colour that will make sense. For example, use blue to represent water and green to represent greenspaces. Make full use of layers and "select same" command to select separate colours that you want to highlight.

To make a good design diagram, you need to show visually each incremental step in the design process. In order to make this effectively, set up your model properly inside Rhino. First, set isometric view as shown in the previous step in site analysis diagram. Then, start reverse engineer your model to generate your diagram. Also , remember to include the diagram of your final model and place them in a prominent place. This way you can help people clarify what message your diagram is trying to convey.

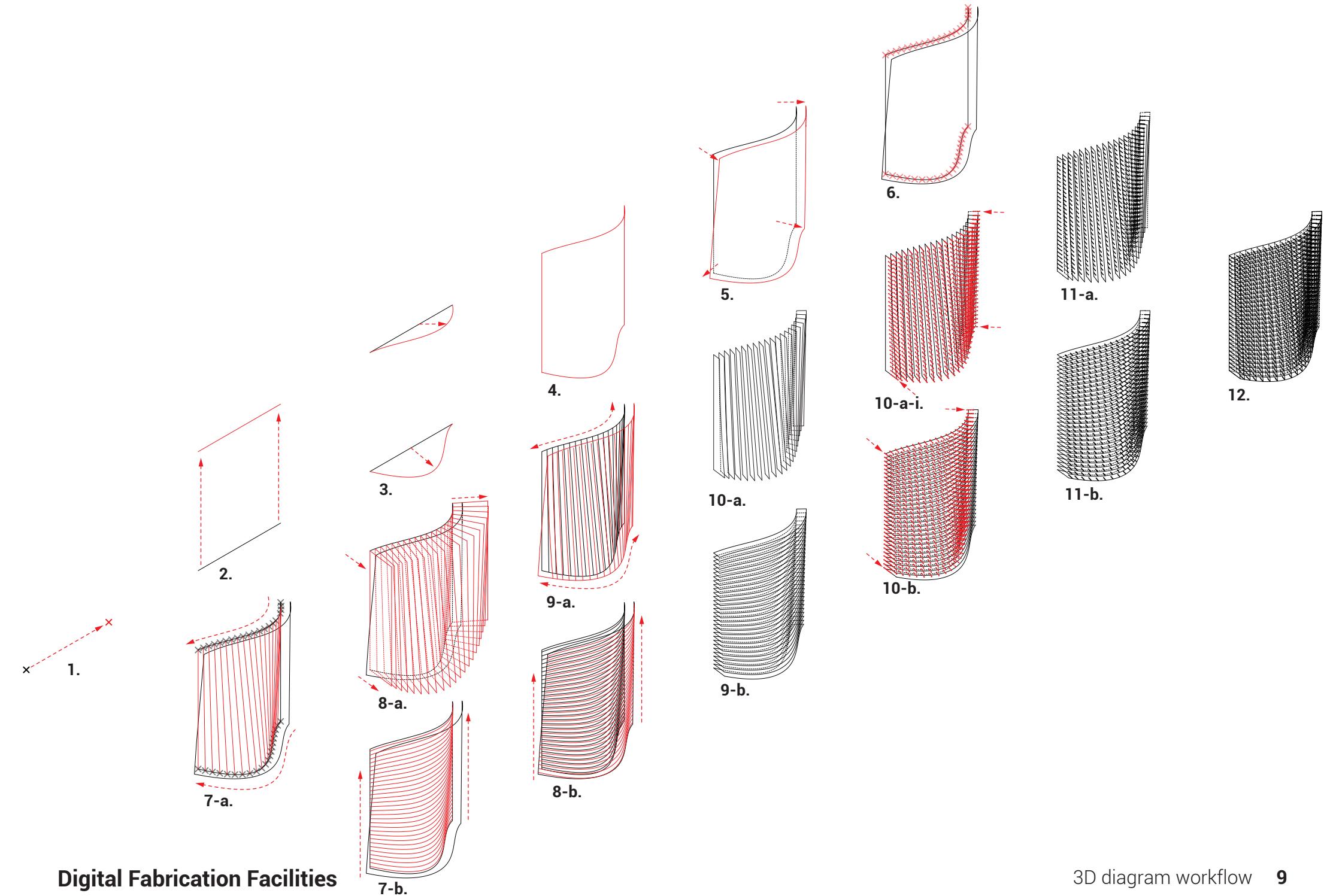


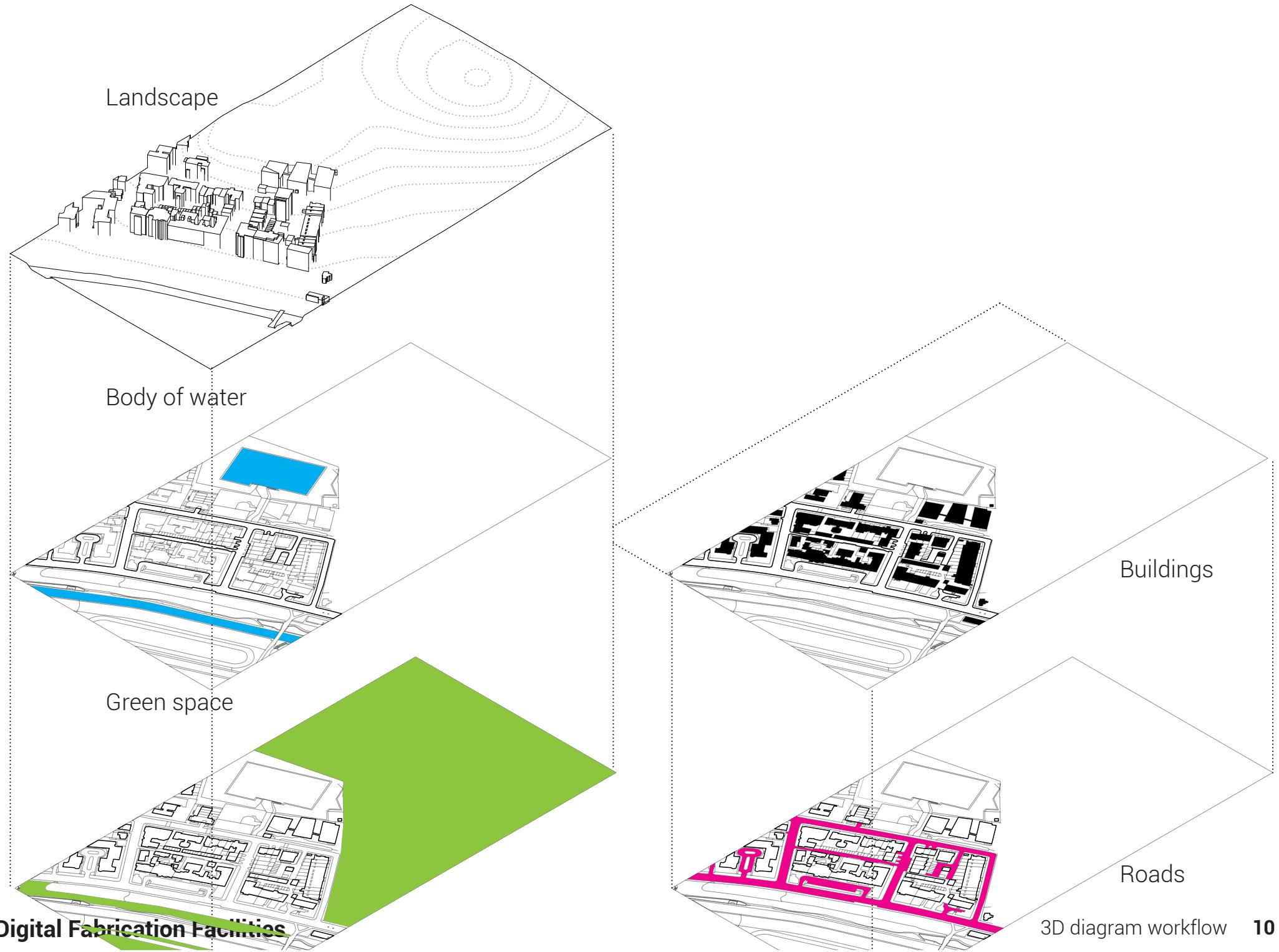
**7.** Make full use of the "gumball" command to move objects in the appropriate location. You can type in the distance you would like to move so that your diagram will look consistent. You can easily reverse engineer diagrams if your model is made in Grasshopper. You can also use "copy" command and select "in Place" option. Then move with "gumball". Also use "dupEdge" command to extract borders edges from your model. Once you have finalised the model, then, use "make2D" command to extract 2D graphics.

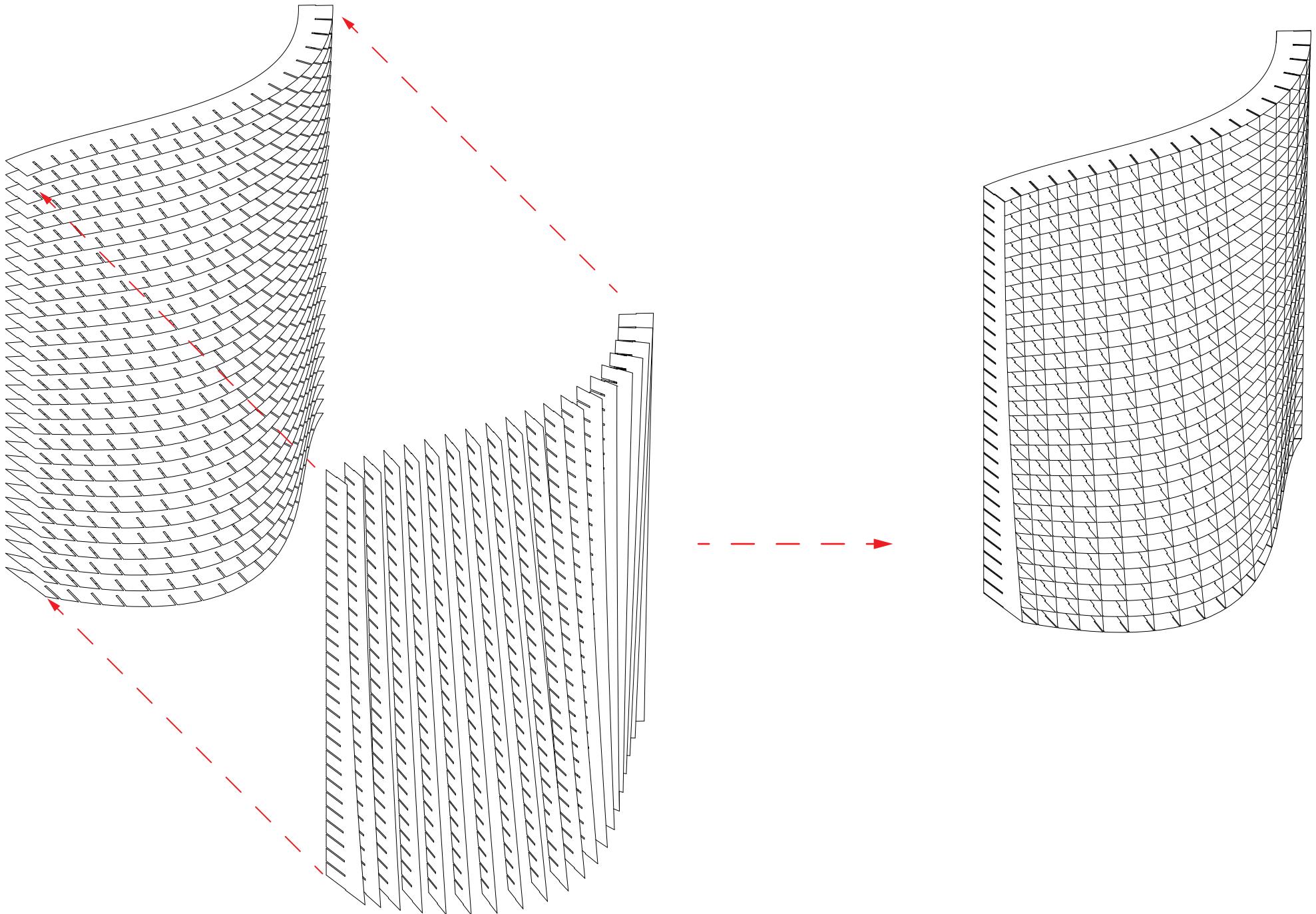
**8.** Set different colour to your 2D graphics for the parts you would like to highlight. You should usually highlight one incremental change at a time each step of the diagram. The colour you chose does not have to be the final colour in your diagram, but it will significantly make the next step easier.

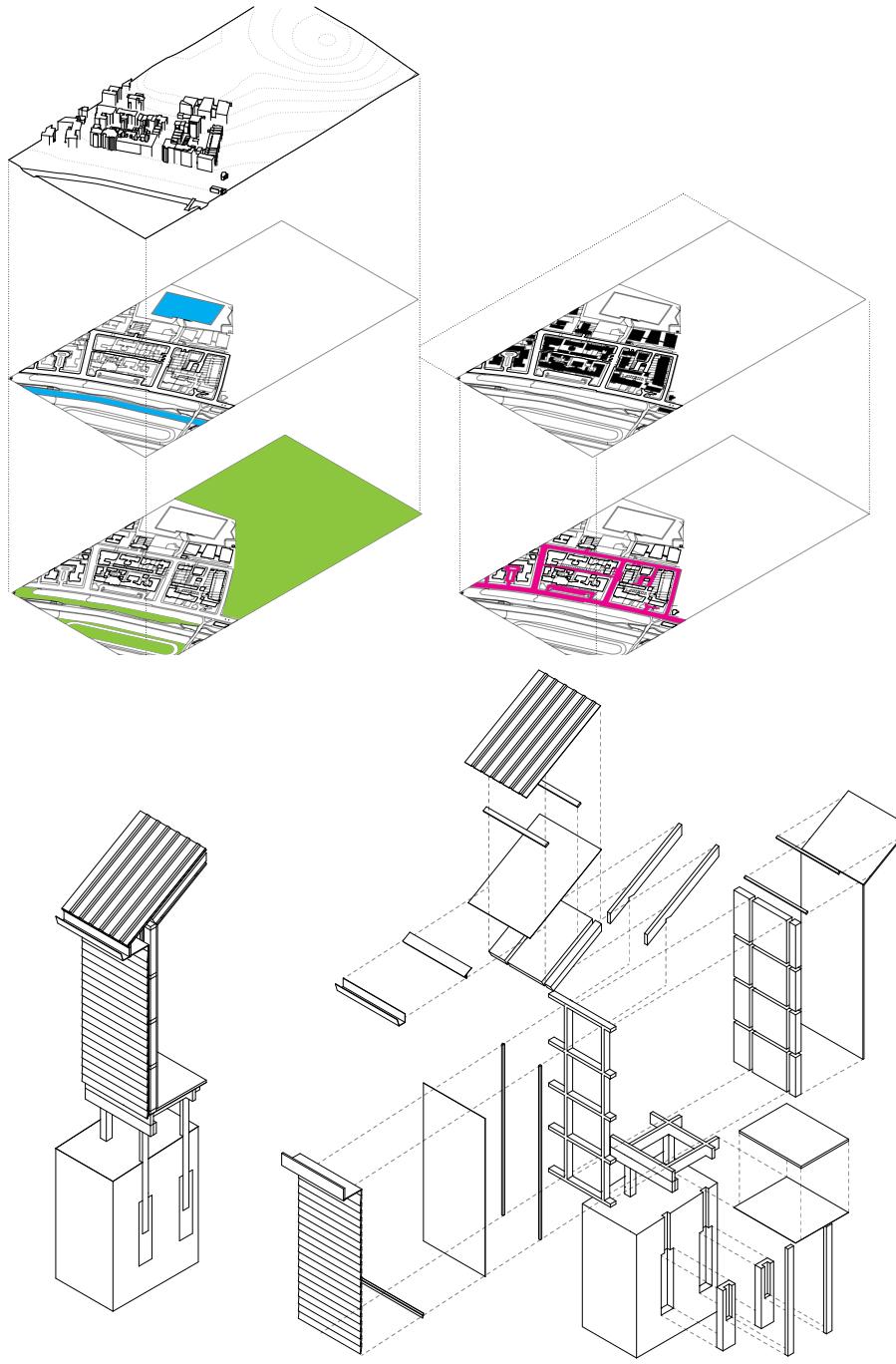


**9.** Once you open up Illustrator, simply drag and drop your DWG file from Rhino with any import options that may appear as it does not need to have scale. You may see that some lines are white. To fix this, simply select one line and use select same stroke colour option to select all of white colour lines and correct them to the right colour of your choosing. Also use thinner line weight and lighter colour for other parts that you do not wish to highlight.

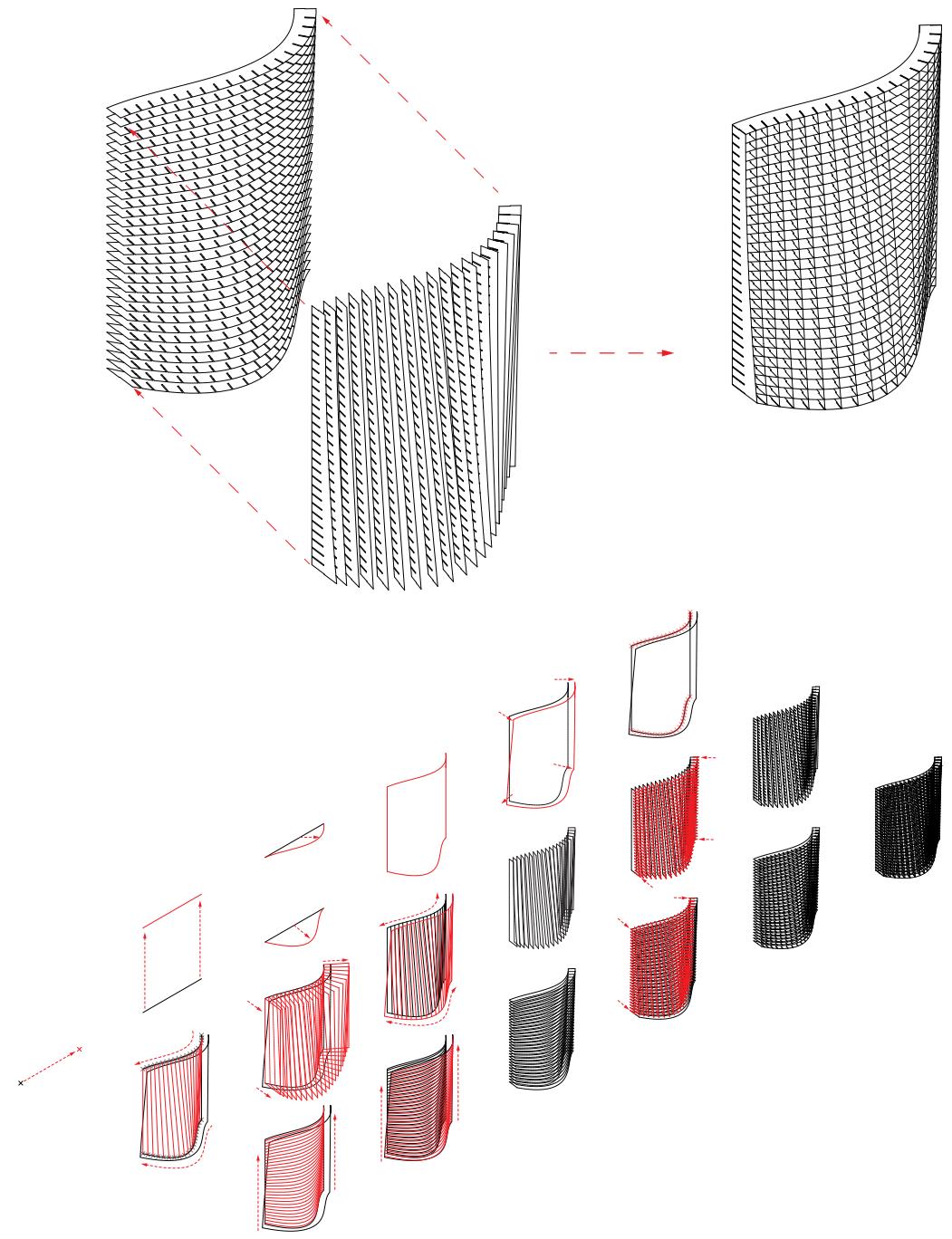








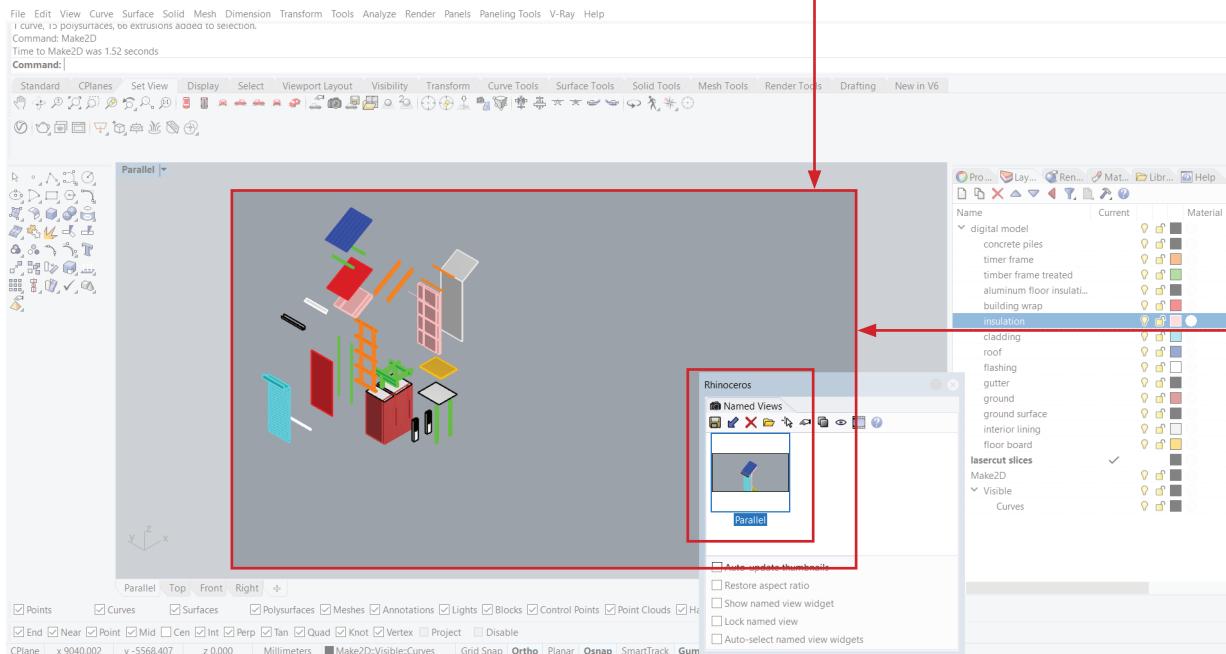
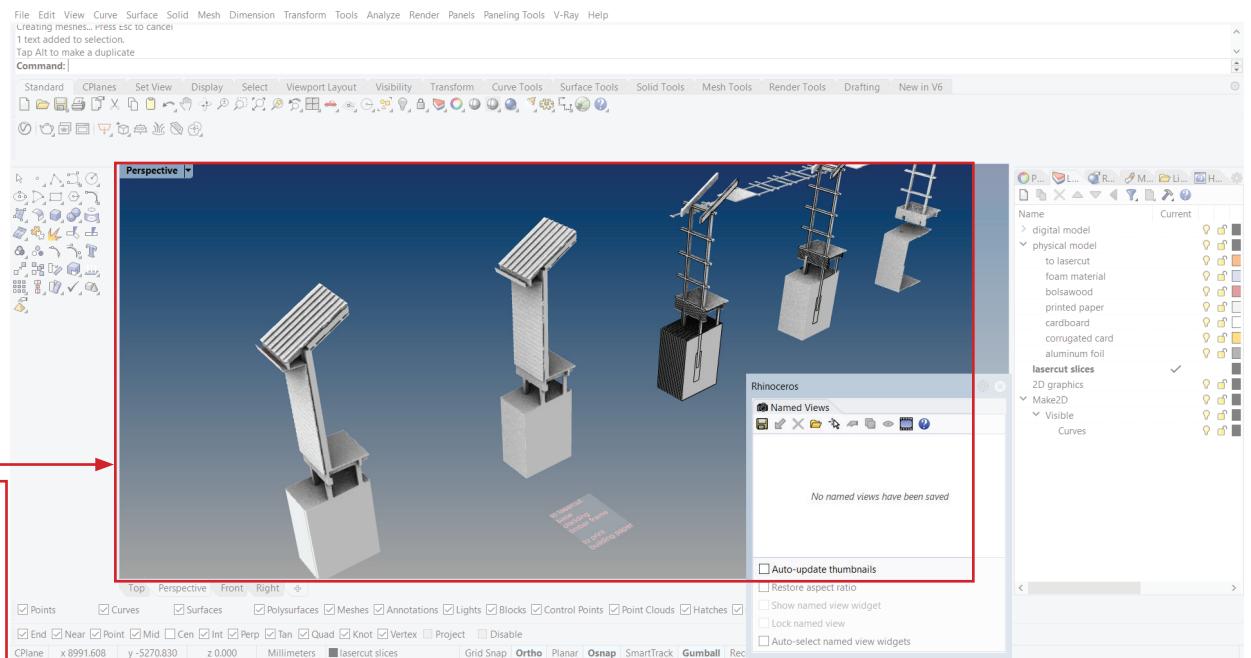
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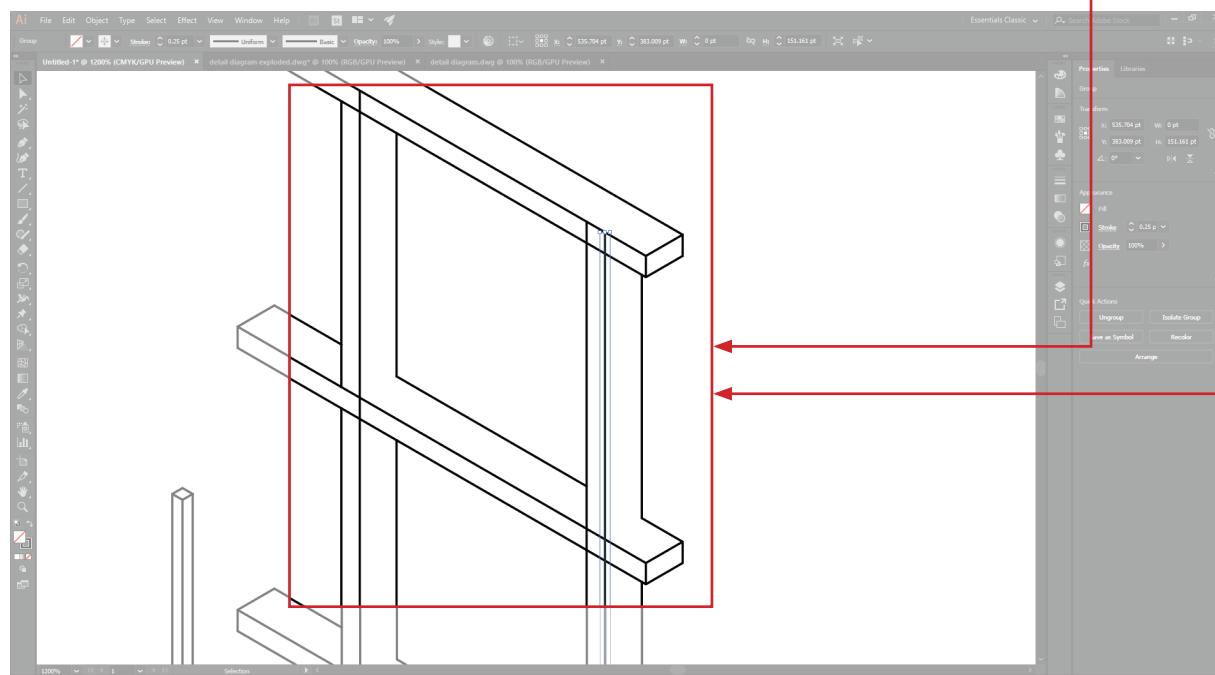
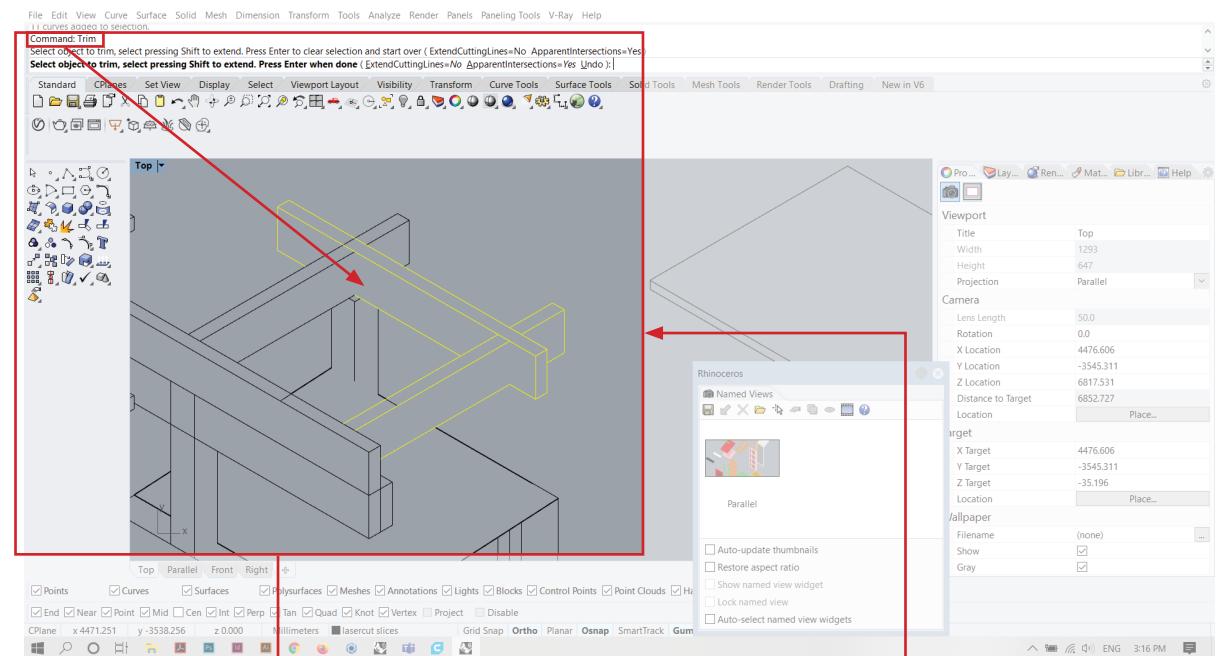
To make a successful axonometric diagram, you will need to set the view to isometric first. Then, you need make the diagram looks exploded, which will show the assembly logic of the design.

10. To make the diagram look "exploded", make a copy of it from your original model, then start moving pieces with "gumball" command. Try not to make any pieces overlap in the exploded diagram.



11. Use "Named views" command to launch the window panel. Click the save icon to save the current view. To restore view, simply double click on the saved view. This tool can help you to restore your isometric view quickly so you don't have to reset the view every time you exit. To pan, hold down "shift" and use right click to navigate the window view.

Keep in mind that Rhino has better line editing capability than Illustrator. Once you have "make2D" of your model, there will be some errors. Use "trim" and "extend" command to fix these errors. Of course, if you miss out these errors, you can also use line and pen tool in Illustrator to fix these errors.



**12.** Once you are done editing, use "export selected" command to export your graphics in DWG format. In Illustrator, simply drag and drop your DWG file from Rhino with any import options that may appear as it does not need to have scale. If you want to make the drawing to scale then choose the original size option. You may see that some lines are white. To fix this, simply select one line and use select same stroke colour option to select all of white colour lines and correct them to the right colour of your choosing.

