

Geodesy & Surveying

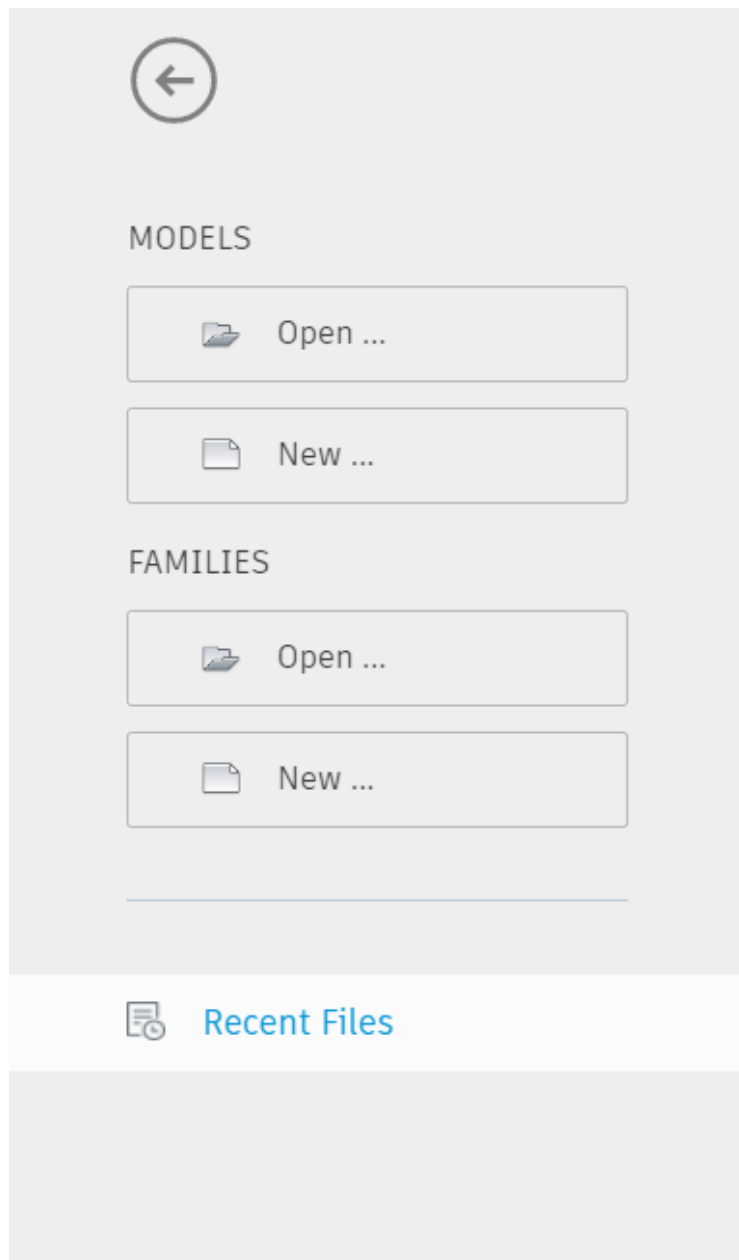
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Volume Computation Using Revit

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First Step

From the main menu open Click on New to use new template file using The “Architectural Template”

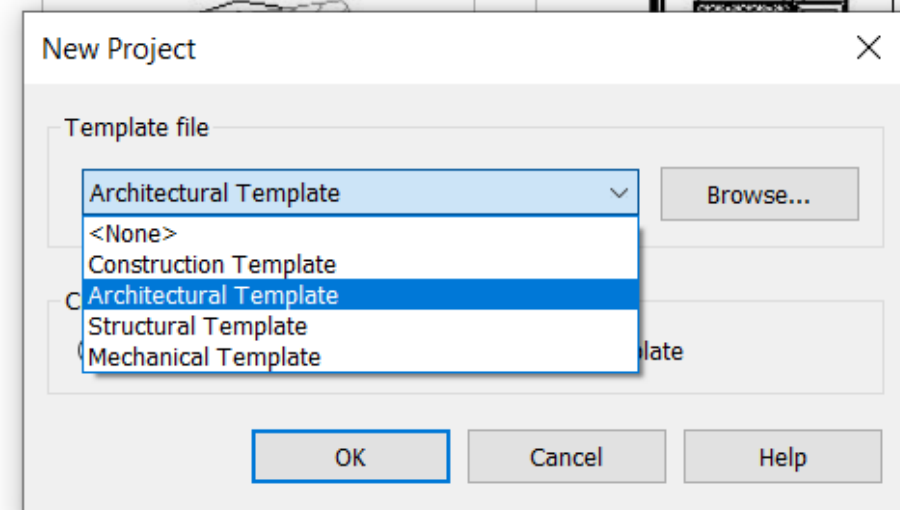


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MODELS



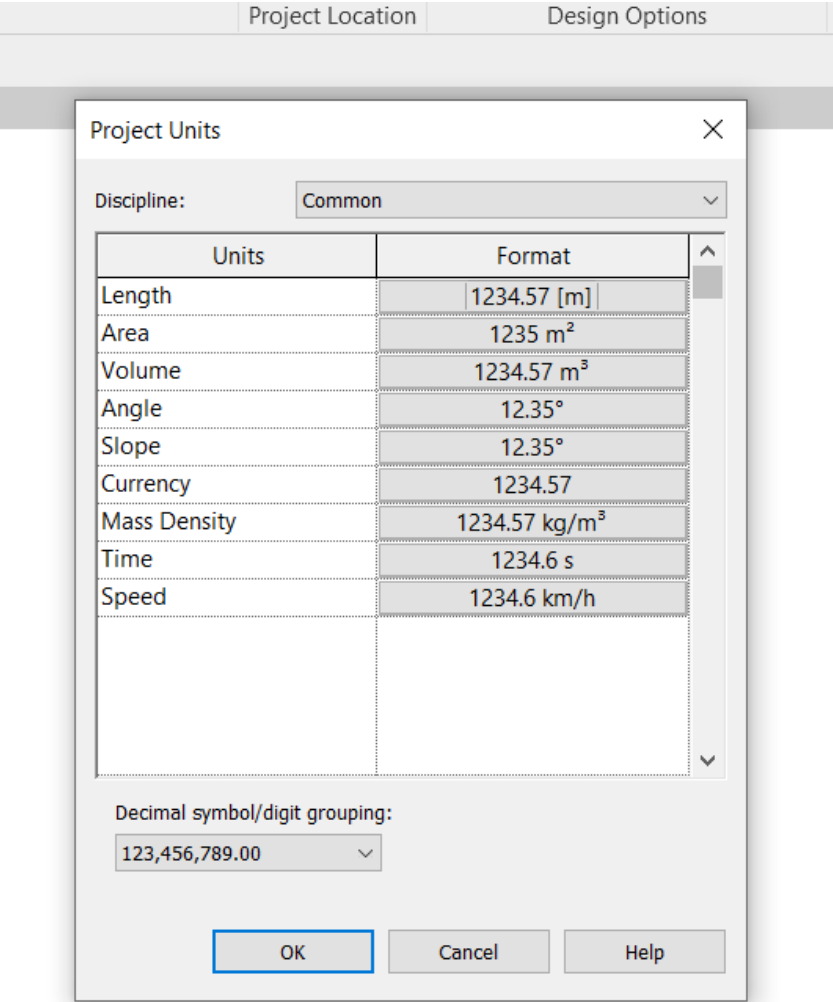
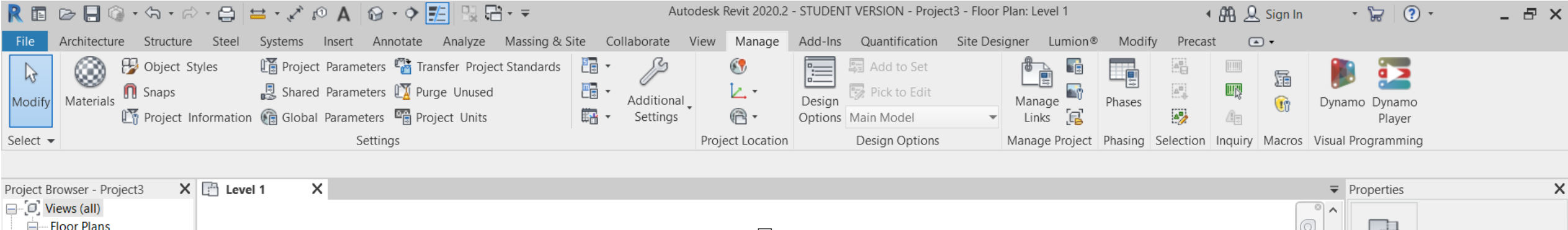
Project2



Second Step

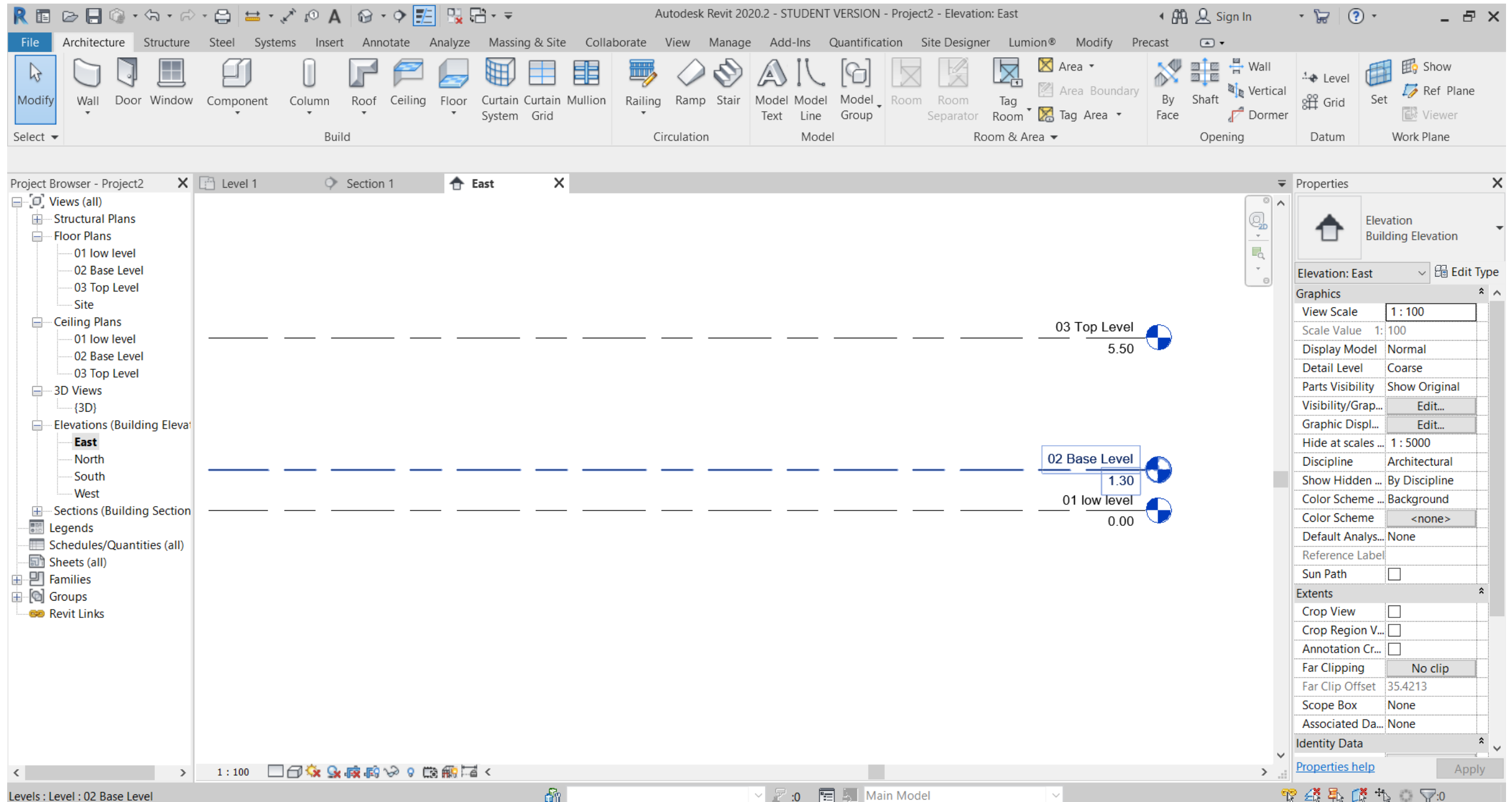
Select from the tabs the tab “Manage”.

First thing to do is to adjust the “Units” to the desired format by Clicking on “Project Units”



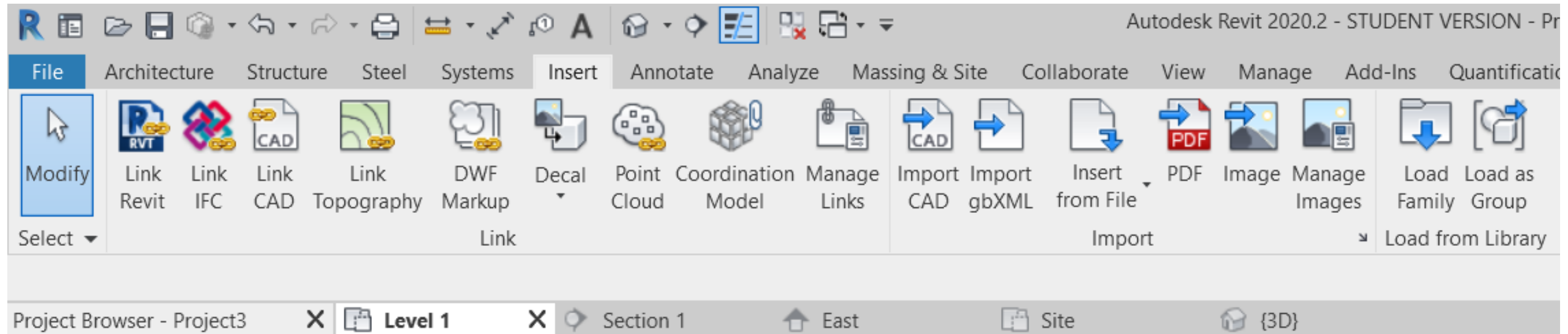
Third Step

To adjust the basic building or Cut/Fill final position heights from the view options by choosing simply from south or north or east or west elevation view from the project navigation menu.



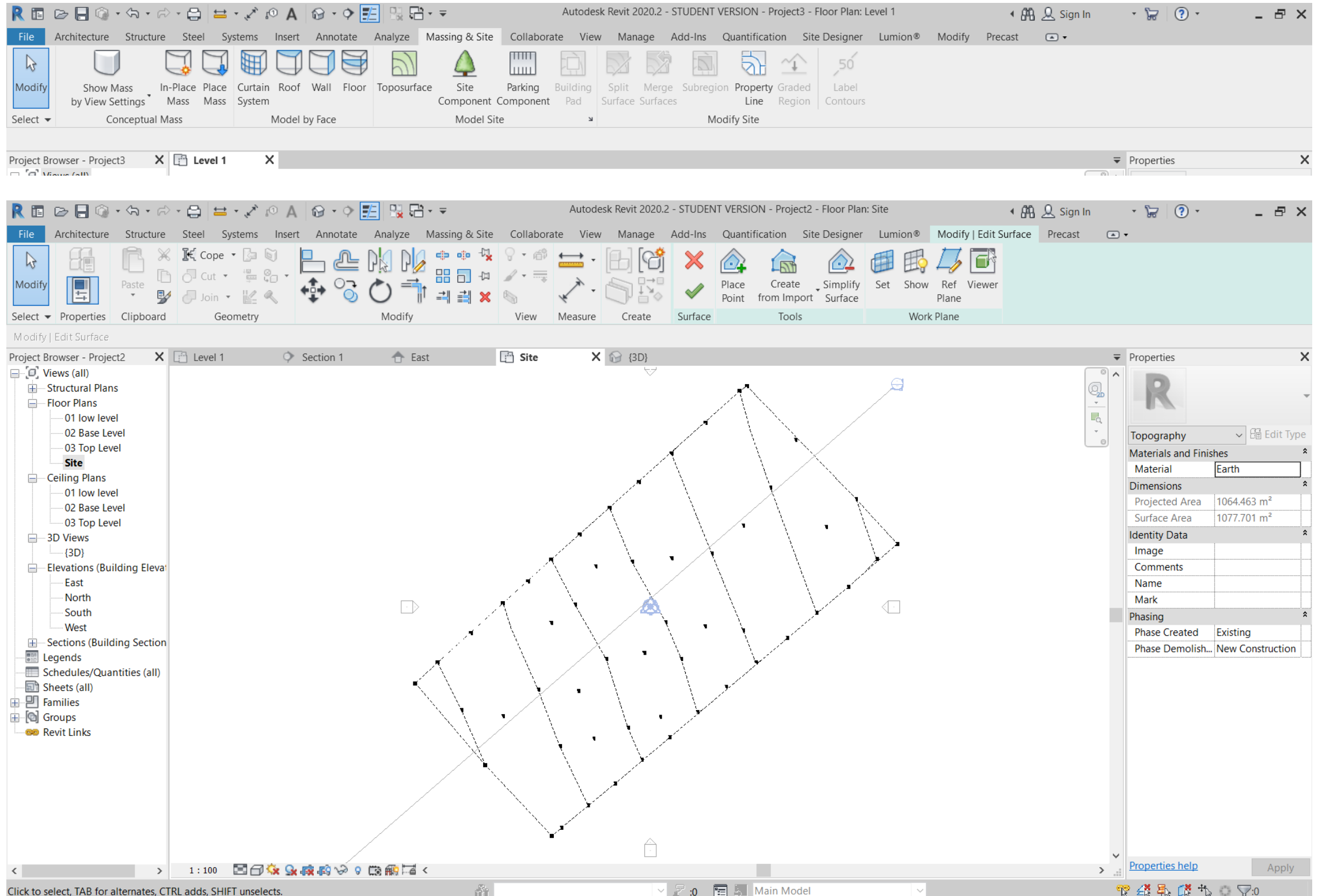
Fourth Step

To draw on an existing plan file such as PDF, DWG AutoCAD files can be imported or inserted to Revit easily from the tab “Insert” then choosing the suitable format to go with.



Fifth Step

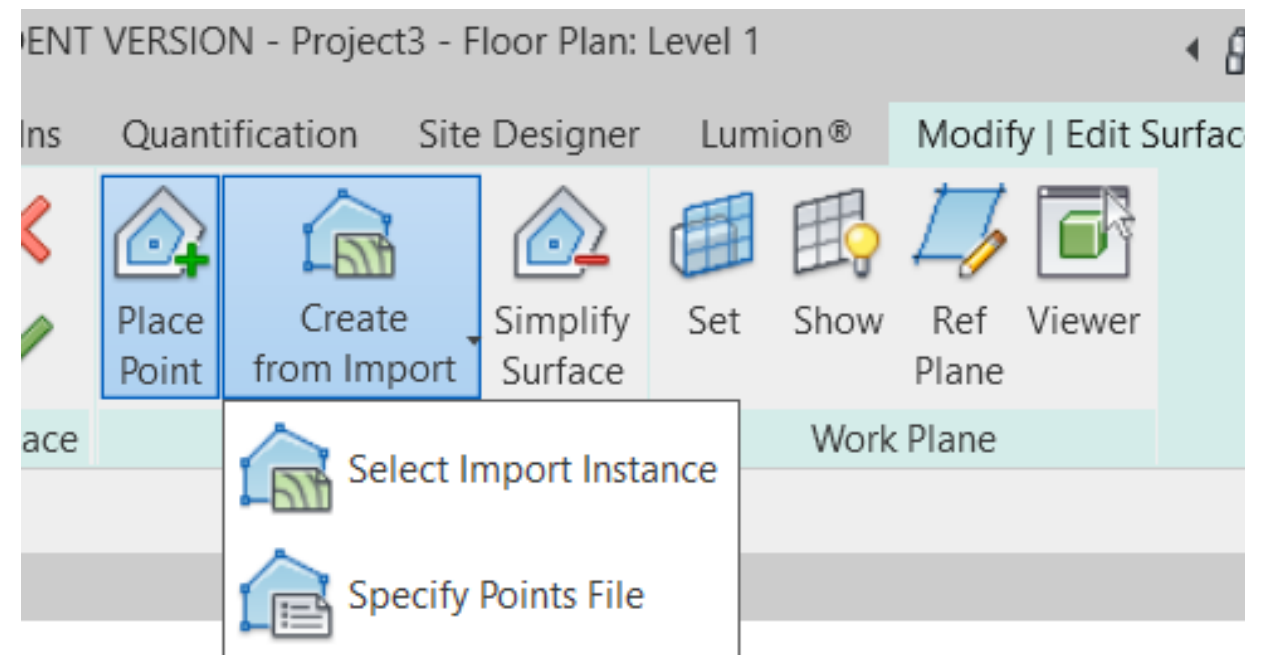
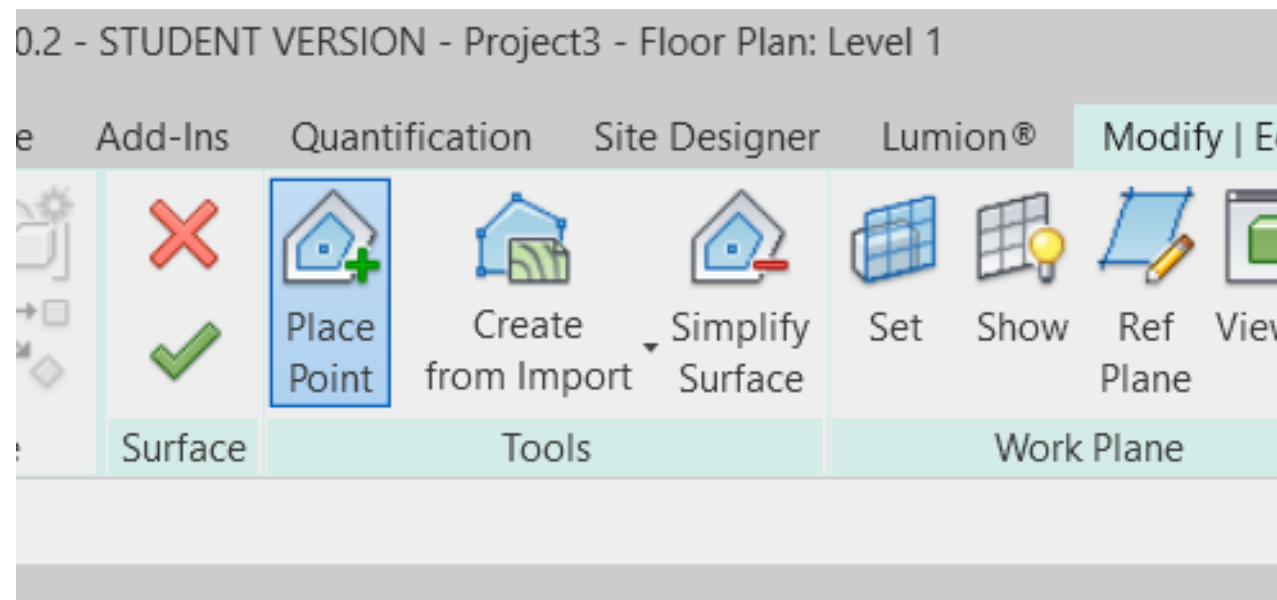
To start with topography drawing and other options first go to proper view as “**Site**” is the best suitable from top view then , click on “**Massing & Site**” tab Then clicking on **Topo surface** Ribbon on the list of ribbons.



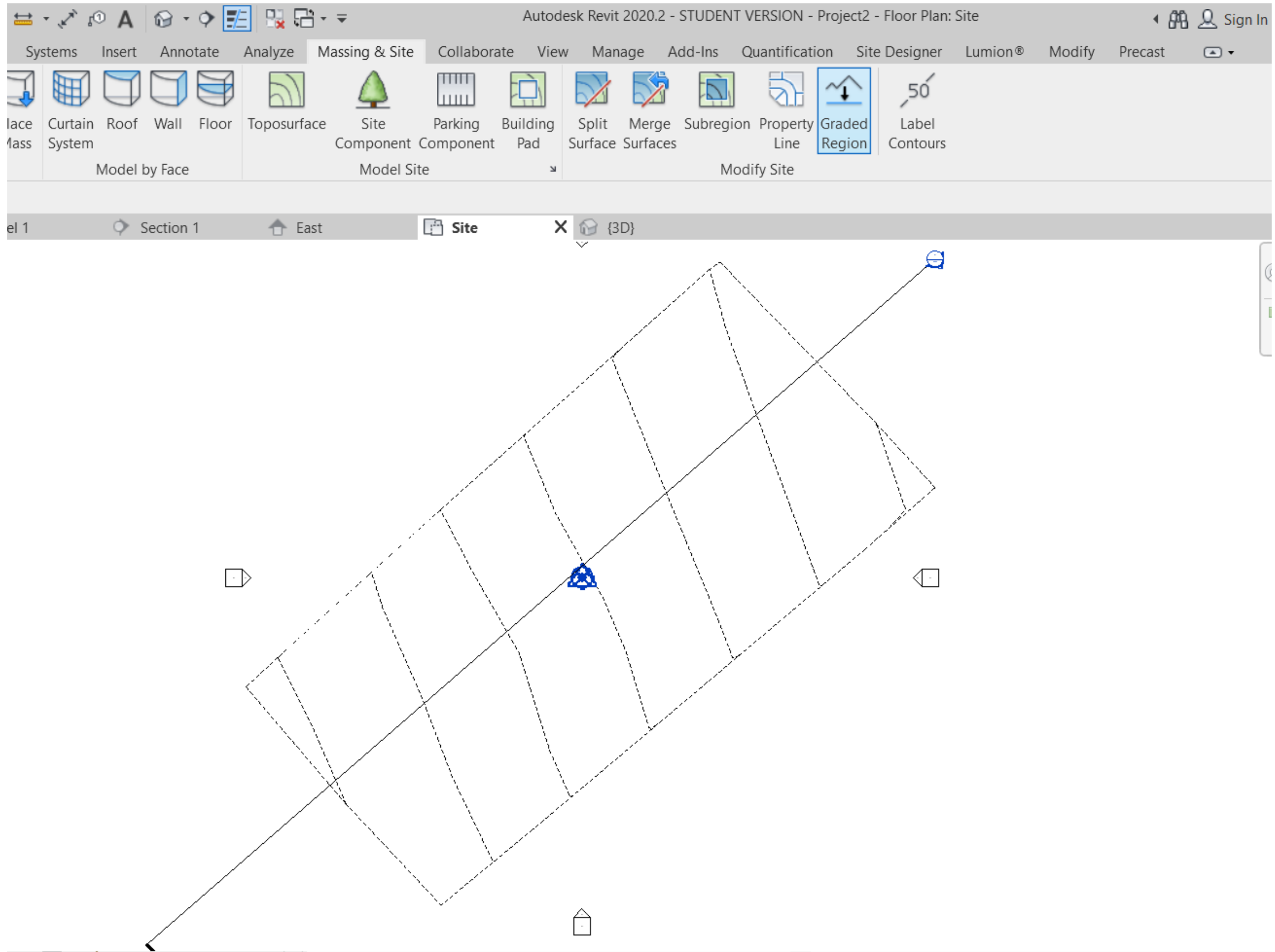
As it appears in the previous page there are few different black points on the drawing screen which are the points of the new topography and they can be inserted by clicking “**Place Point**” to draw manually

2.1 In case of any available topographical plan with real heights and contour lines it can be imported in Revit by clicking on “**Select import Instance**” can be converted to the corresponding toposurface, but this is limited to few file formats like AutoCAD DWG files for example

2.2 In case of available coordinates values based on a table sheet ,to insert them by clicking on “**Specify Points File**” and the topography points will be added automatically and the toposurface will generate automatically too.

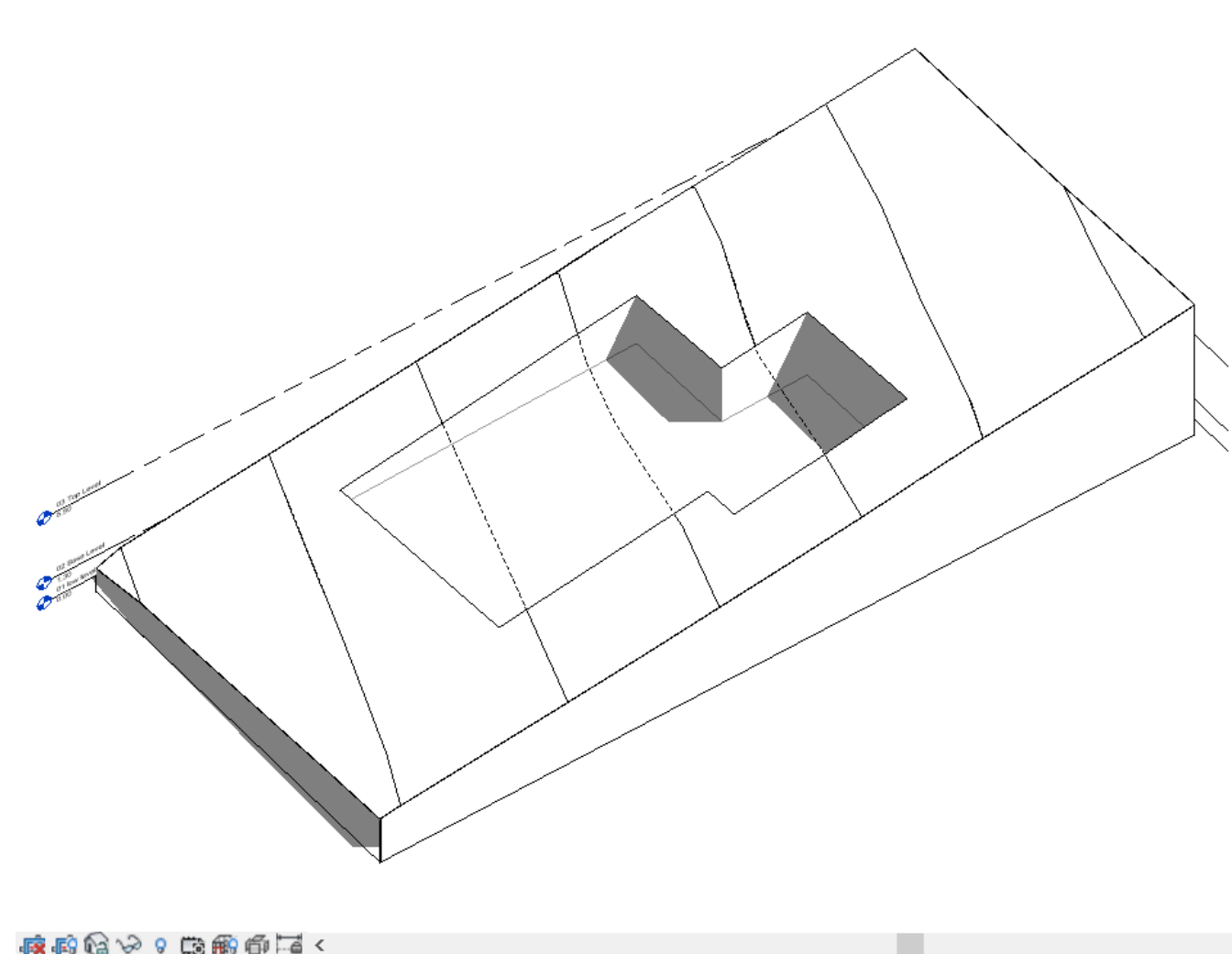
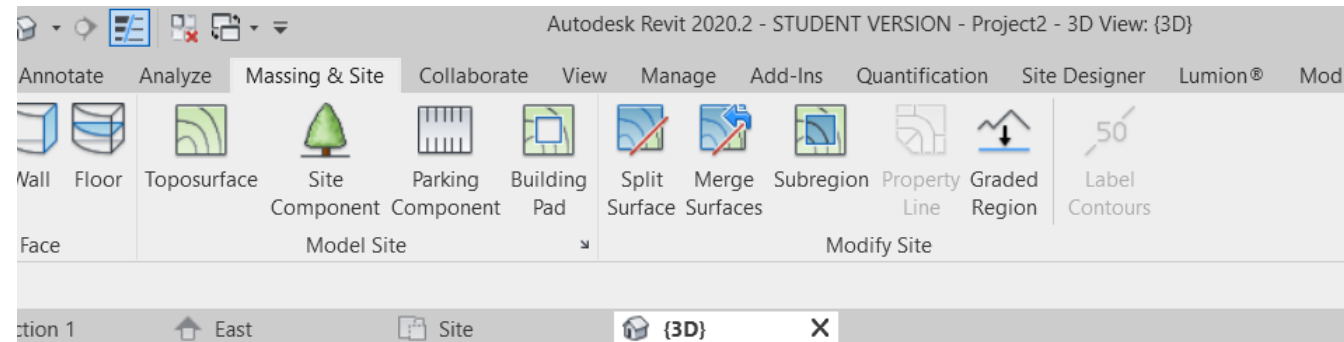
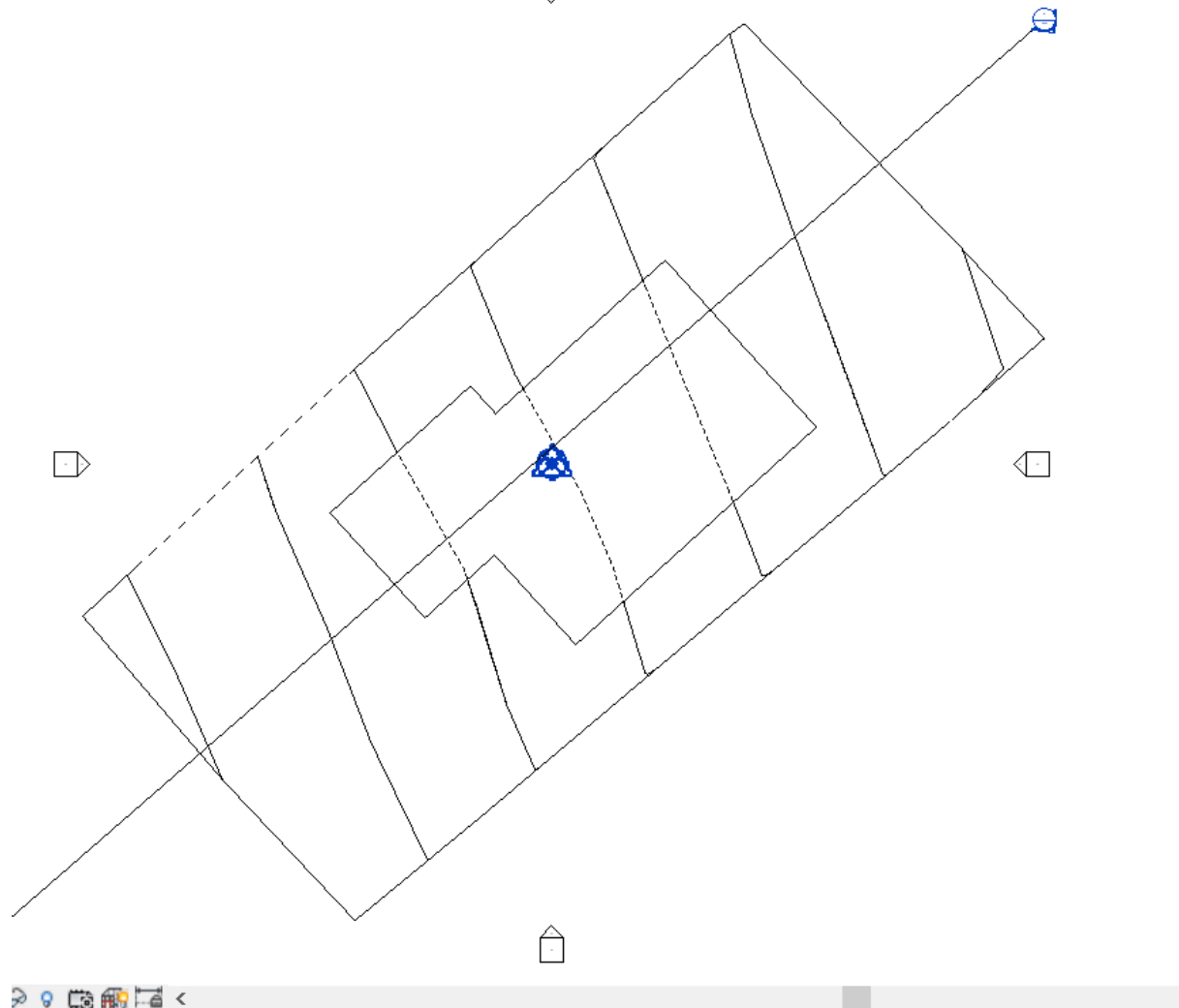
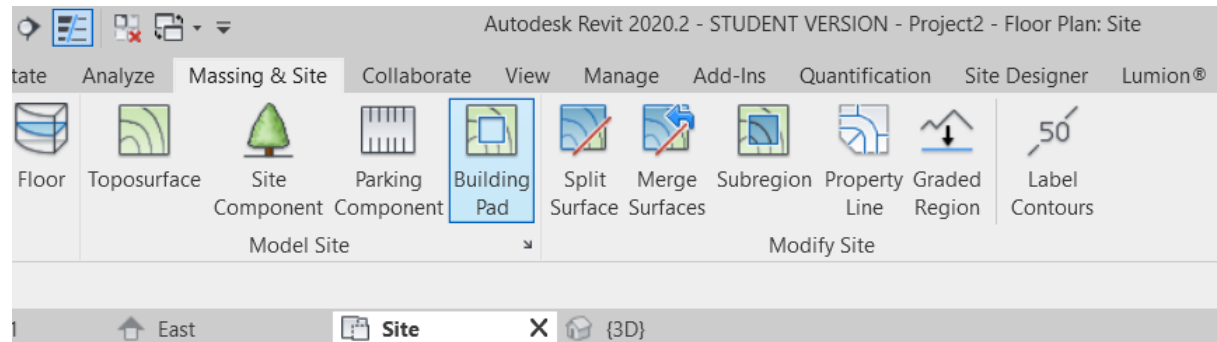


After finalizing drawing the topo surface the next step is to duplicate the toposurface by clicking on “Graded Region” and by this the new toposurface will be as “New Construction” in Phase by checking the properties menu.



Sixth Step

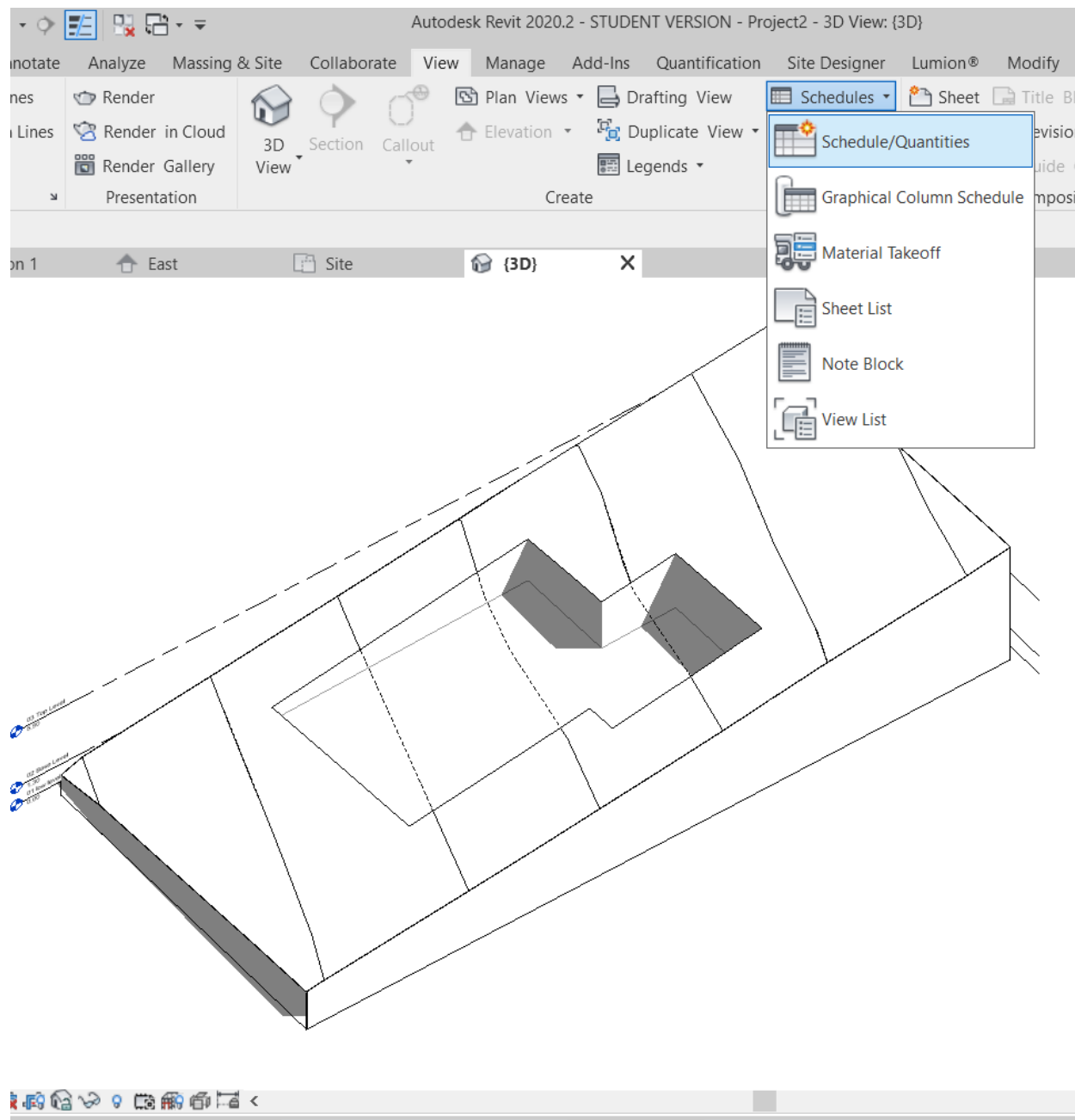
The new cut region can be easily drawn by setting up a “Building Pad” on the toposurface and after drawing precisely the footprint of the building pad which it can be the foundation level of the project, so the result after clicking on finish sign the new degraded surface will appear and the building pad will create a void of perfectly cut mass, and this mass of earth is the “Cut” volume.



Final Step – Viewing & Scheduling Cut & Fill

After creating the building pad successfully by clicking on it we can look on the properties and see below as the cut and fill values are appearing.

To schedule the values first to click on View tab then clicking on “**Schedules**” and select “**Schedule/Quantities**”, then clicking on topography from the list and next is set the rules and the fields of schedule as we like to see it then to click on create, and this will create the schedule of volume of Cut/Fill automatically



This screenshot shows the 'Topography Schedule' table in Autodesk Revit 2020.2. The table is titled '<Topography Schedule>' and has four columns: 'Name', 'Cut', 'Fill', and 'Net cut/fill'. The table contains the following data:

	A	B	C	D
	Name	Cut	Fill	Net cut/fill
		0.00 m³	0.00 m³	0.00 m³
EARTH SURFACE		0.02 m³	0.77 m³	0.75 m³
CUT VOLUME		724.56 m³	0.00 m³	-724.56 m³

The Project Browser on the left shows the hierarchy of the project, including 'Views (all)', 'Structural Plans', 'Floor Plans', 'Ceiling Plans', '3D Views', 'Elevations (Building Elevation)', 'Sections (Building Section)', 'Legends', 'Schedules/Quantities (all)', and 'Topography Schedule'.