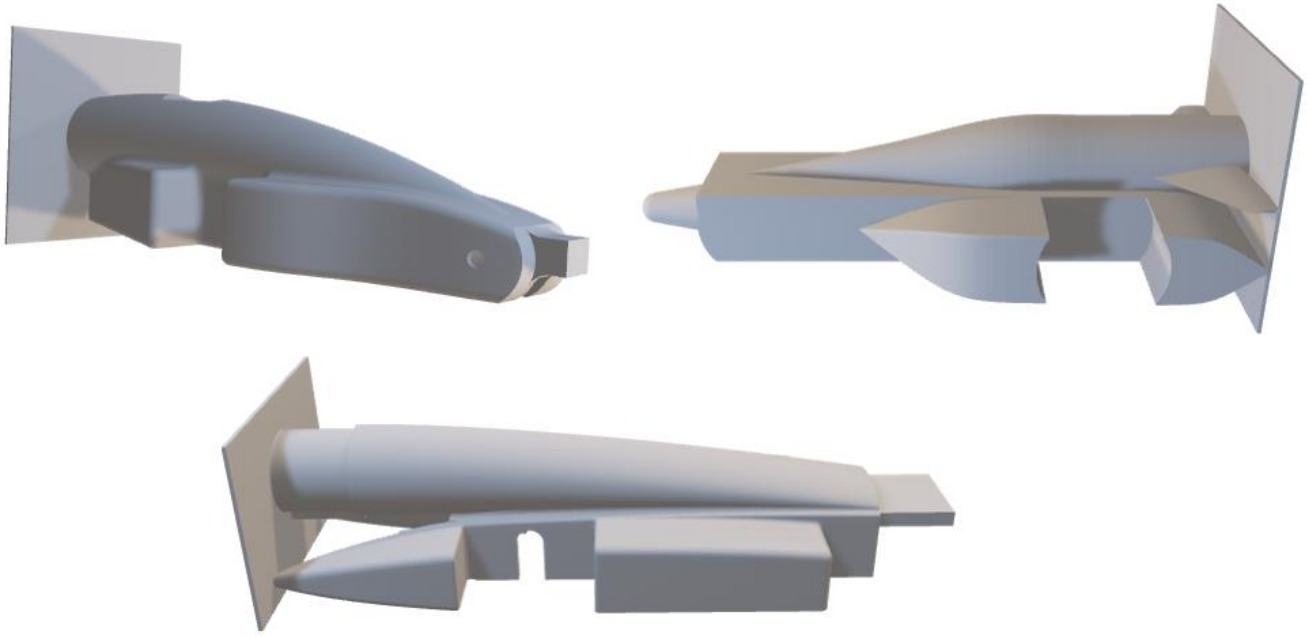
F1 in Schools - Adding the 70x70x1mm Machining Reference Plate

So you've finished your car design? What's next? We need to manufacture it, but before that if you are requesting for your car to be manufactured by Yas in Schools, a 70x70x1mm reference plate needs to be added to the rear of your car.

The reference plate is used during the CAM process to accurately locate your car model relative to the pre-machined C02 cartridge hole in the actual foam F1 Model block.

Examples of Car with reference plates below: -

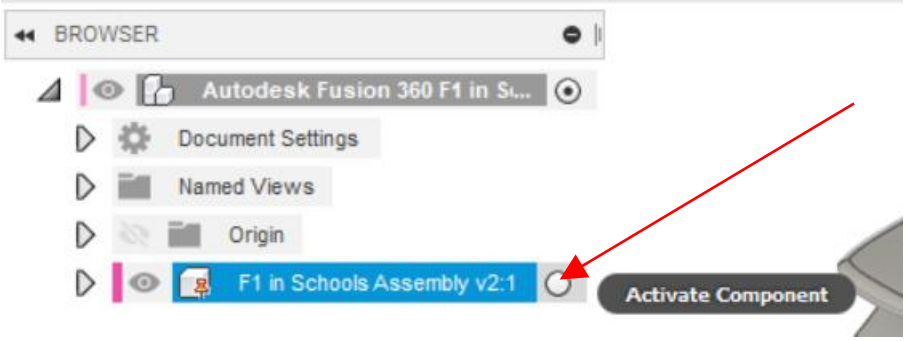


The beginners F1 in Schools car will be used as an example to add in the 70x70x1mm reference plate.

Please follow the steps shown below as guide for adding a reference plate to you car body

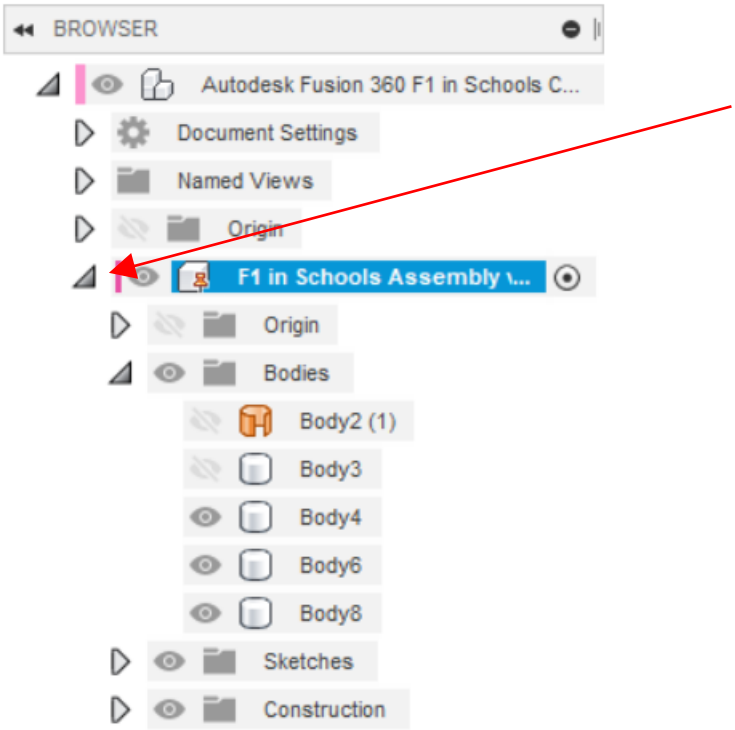
Step 1

Make sure the car assembly / car body is selected and click “Activate Component”



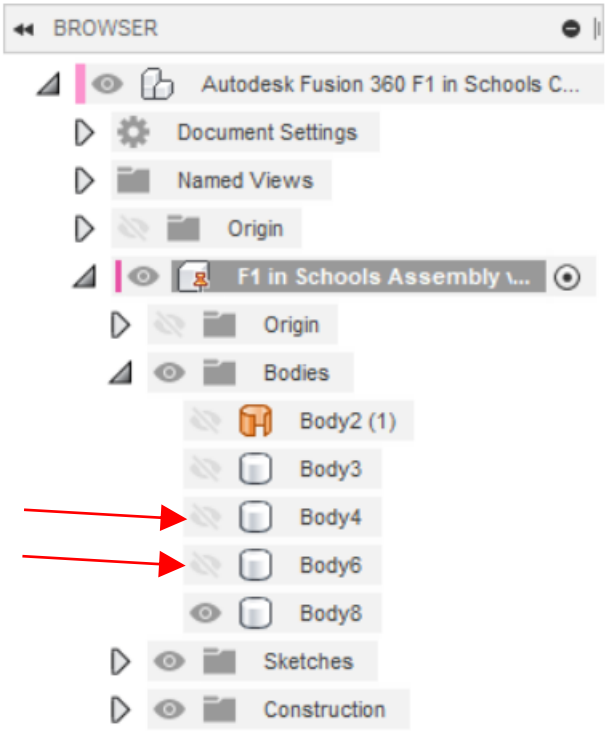
Step 2

Then click the arrow to expand the components.



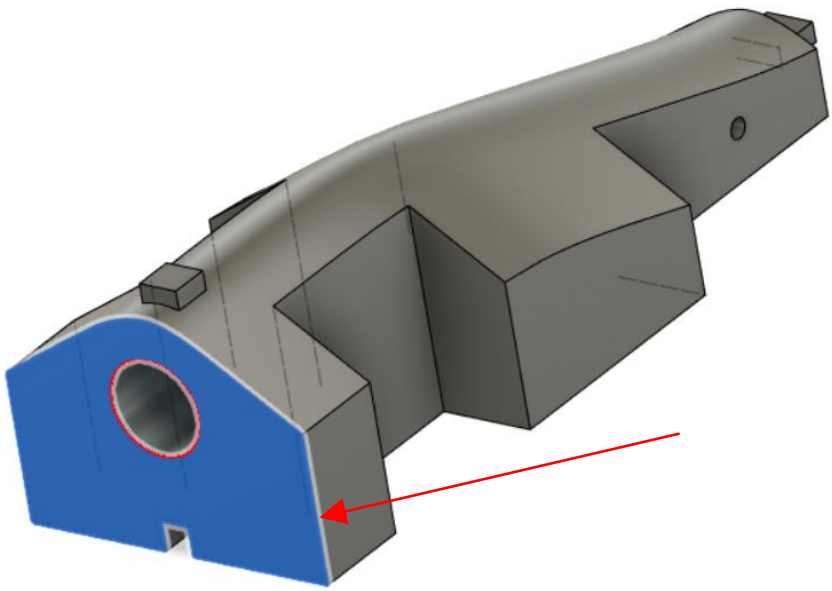
Step 3

Switch off Body 4 (Rear Wing) and Body 6 (Front Wing) to leave only the car assembly / car body (Body 8).



Step 4

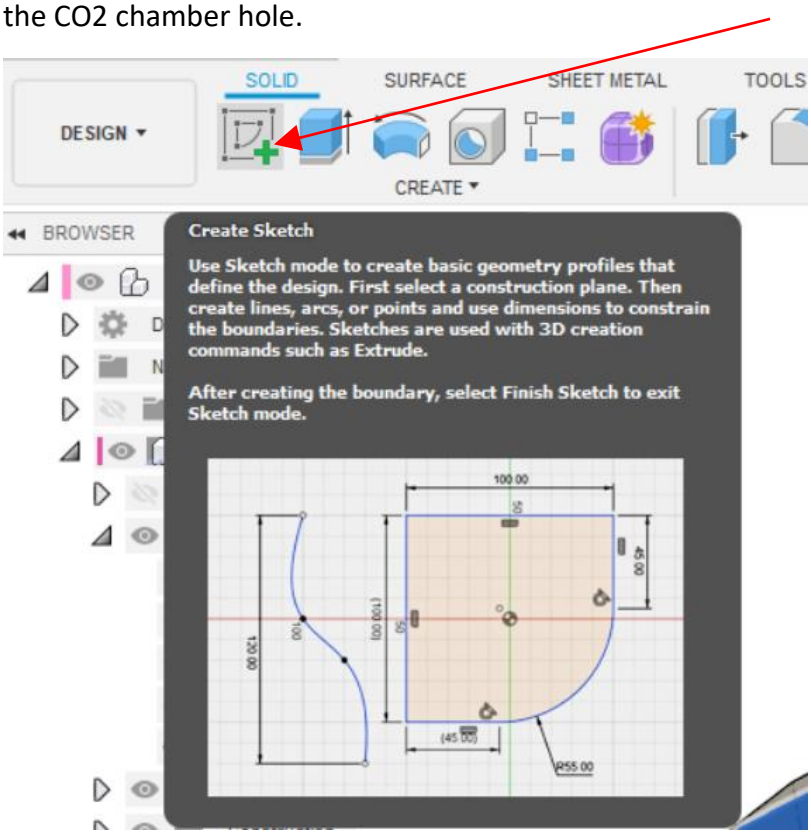
Orbit/Orientate the car to the rear to reveal CO2 Canister Chamber as shown below and select as shown.



Step 5

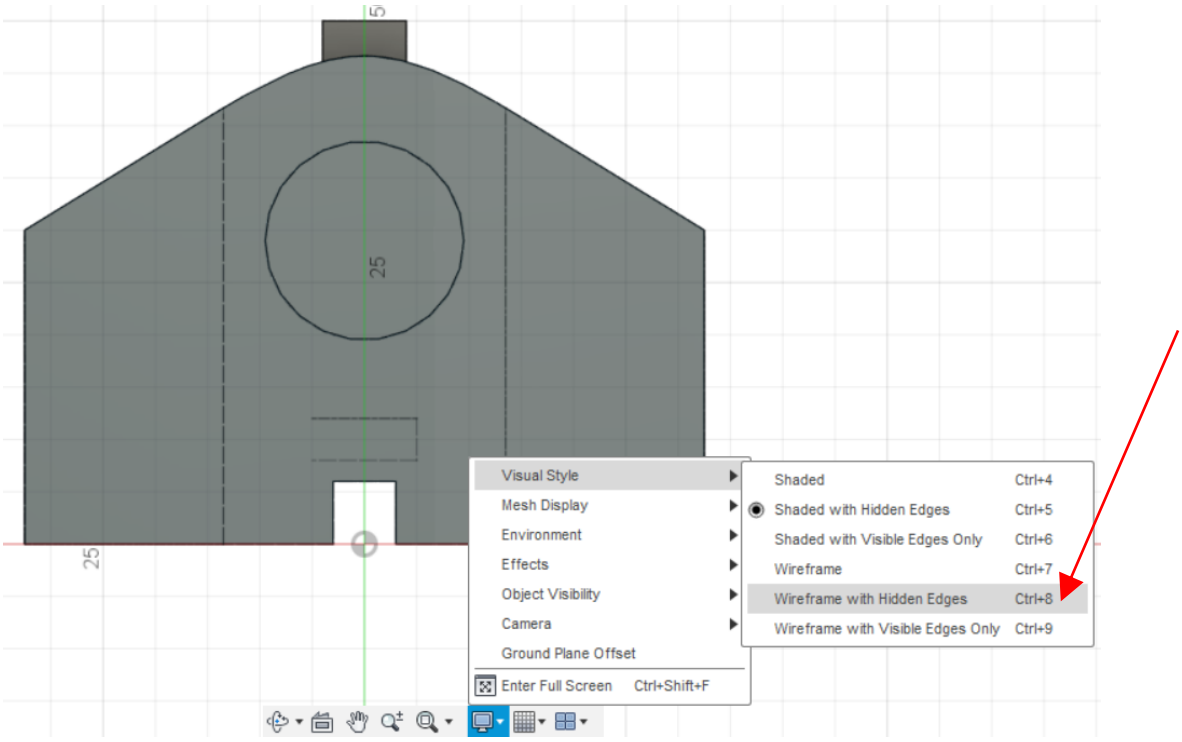
Click the “Create Sketch button” to create the 70mm x 70mm profile.

We shall use the sketch tools to sketch the geometric profile on the rear of the car which is the center of the CO2 chamber hole.



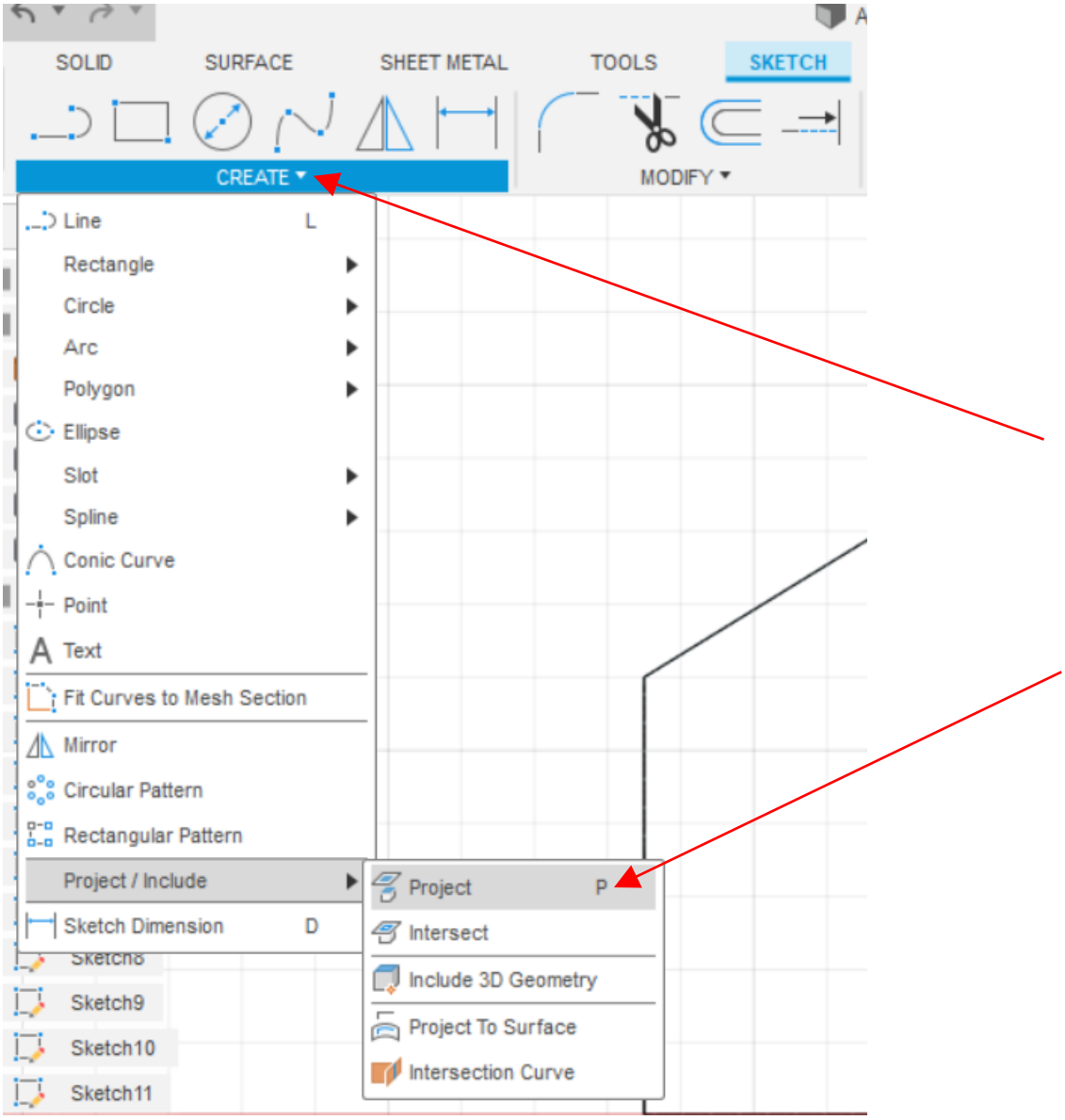
Step 6

Change the visual style from “Shaded with Hidden Edges” to “Wireframe with Hidden Edges” or on the keyboard; press Ctrl+8 as a quick shortcut.



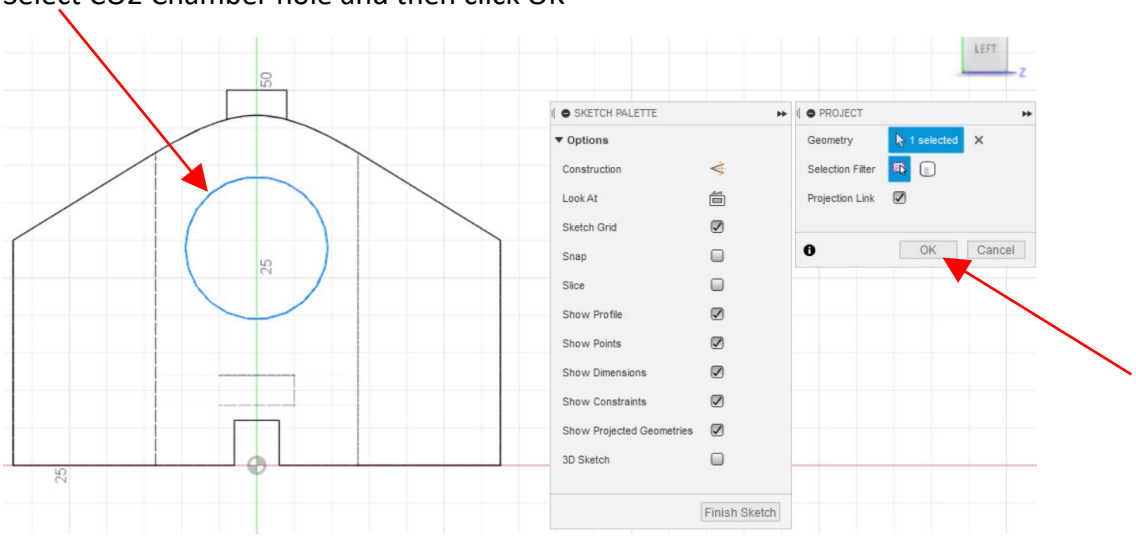
Step 7

Go to Create drop down menu and select Project or on the keyboard; press “P” as a quick shortcut.



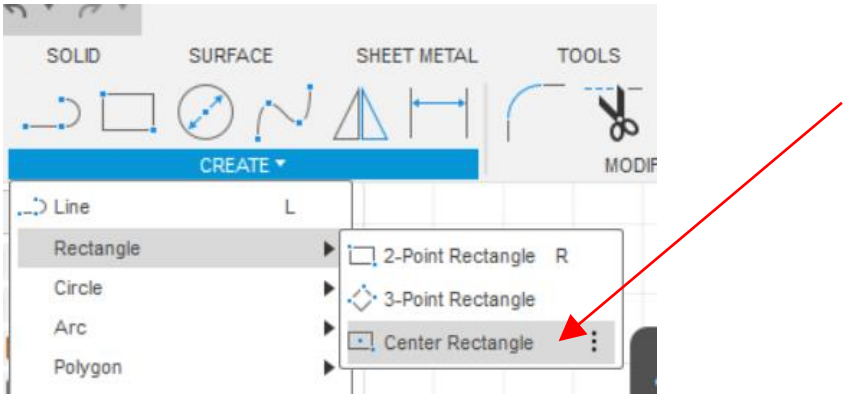
Step 8

Select CO2 Chamber hole and then click OK



Step 9

Go to Create drop down menu and select “Center Rectangle”



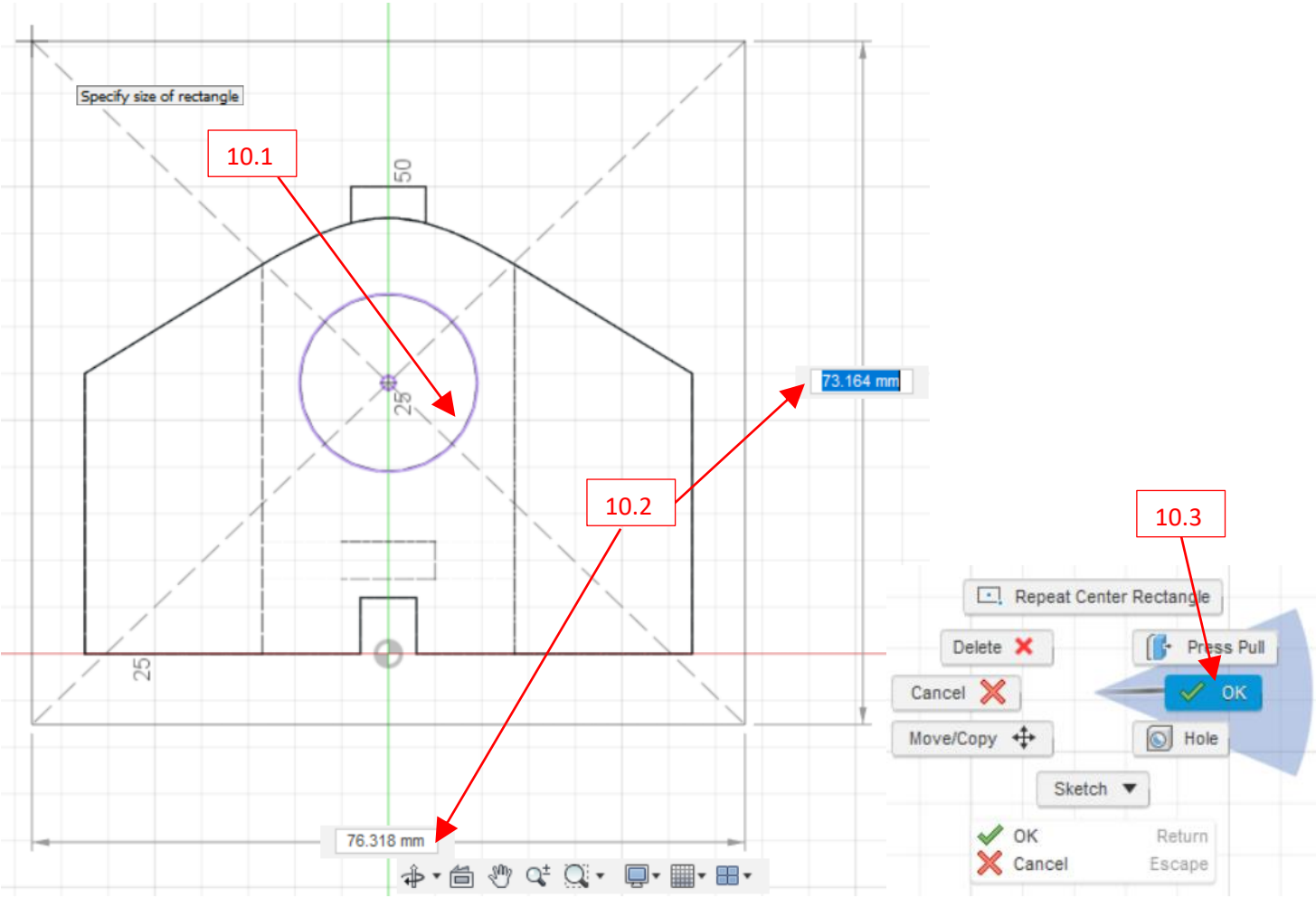
Step 10

10.1 Select Circle center point

10.2 Type in 70x70mm square, Either select the dimension input box with your mouse or press Tab on your keyboard to switch in between them.

10.3 Right click on your mouse and click OK or press Enter on your keyboard.

10.4 On the Sketch Pallete click Finish Sketch to leave the sketch mode.



Step 11

With the sketch of the 70x70mm square complete, Now use the sketch drawn to extrude a 1mm thick pad away from the rear of the car.

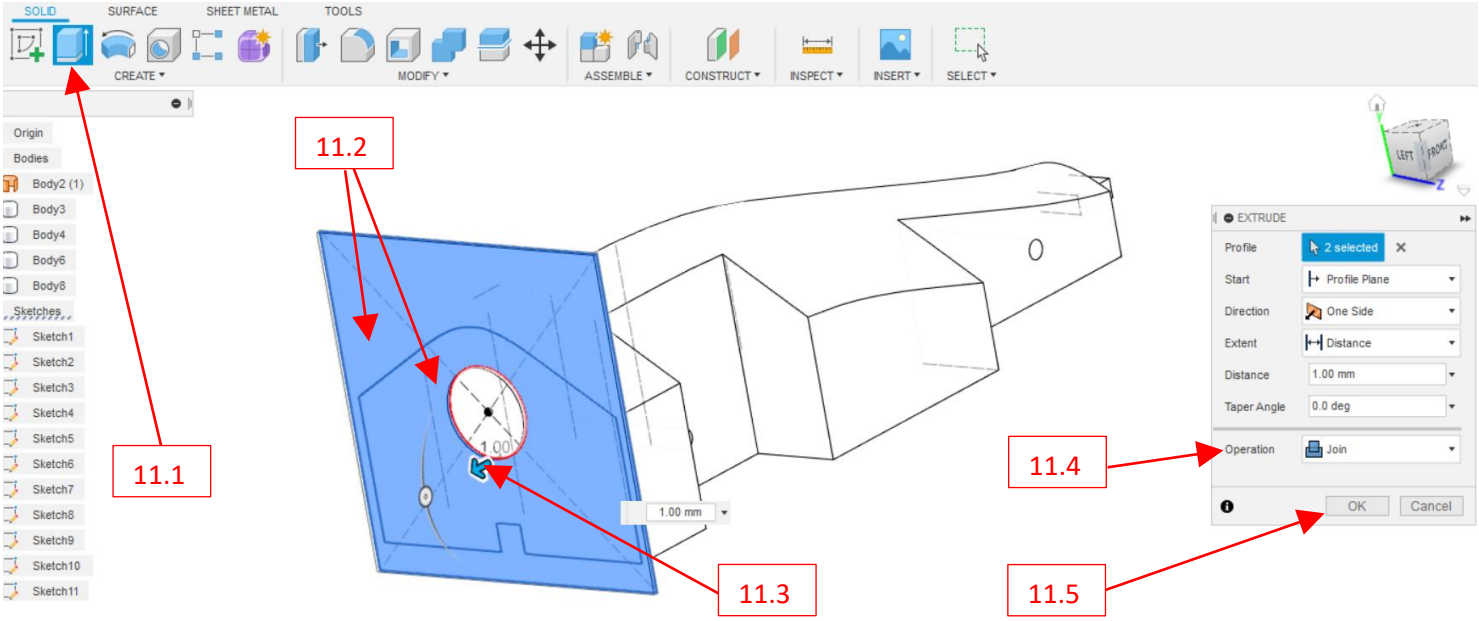
11.1 Orbit/orientate the car first for a better perspective of the CO2 Canister Chamber and select Extrude.

11.2 Select the two profiles as shown below

11.3 Distance is 1.00mm (make sure the Extrude arrow direction is away from the Car)

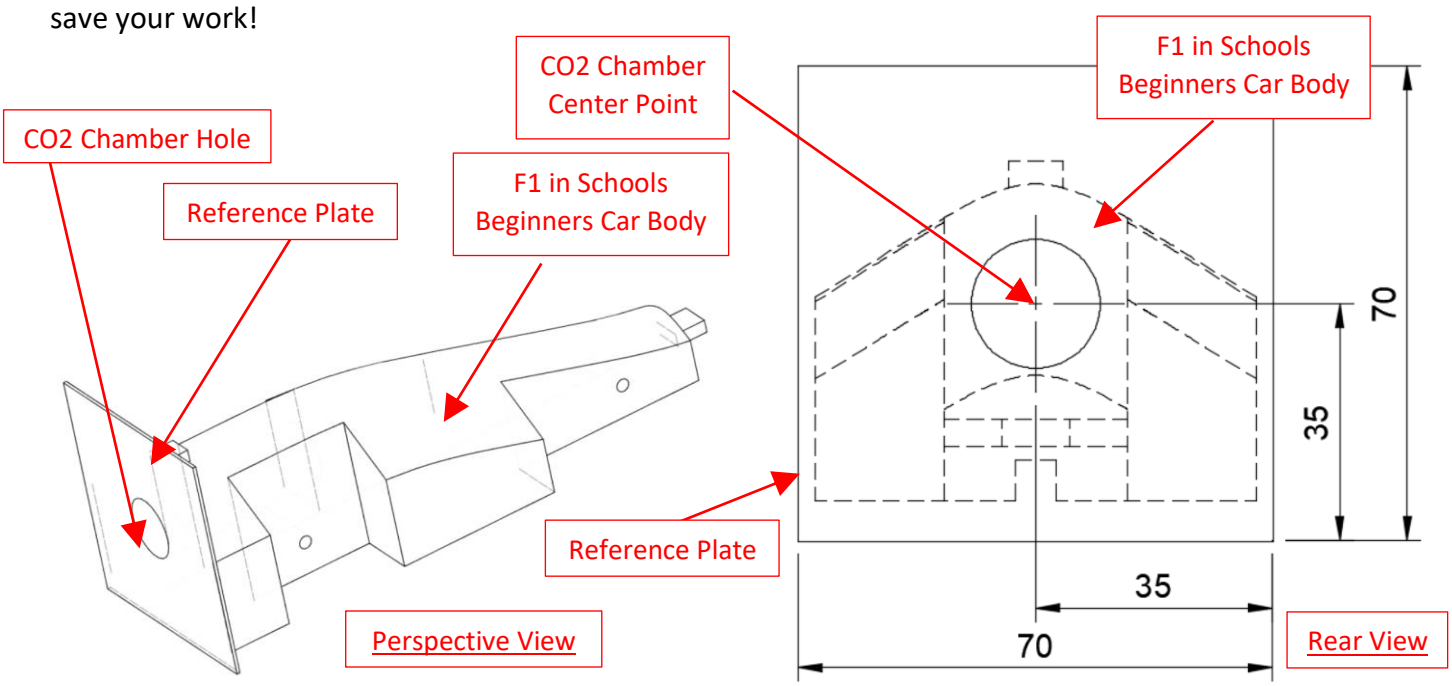
11.4 Select & choosing "Join" operation will combine the Reference plate to the Car Body.

11.5 Then on the Extrude Tab, Click OK



Step 12

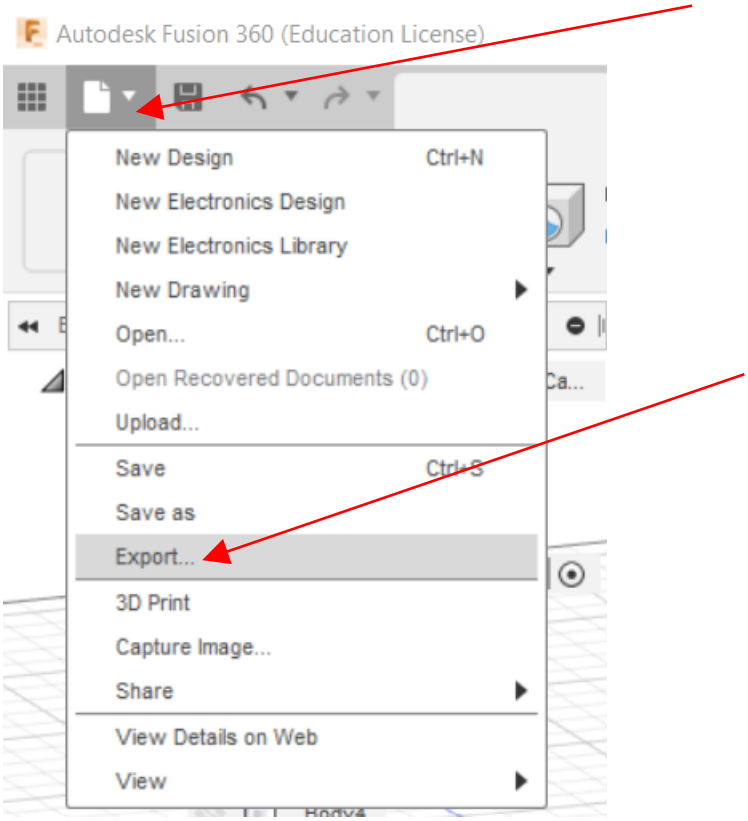
You have now successfully created the reference plate and it should look similar to the below! Once Reference plate has been extruded it should be in the center of the CO2 Chamber center point. Be sure to save your work!



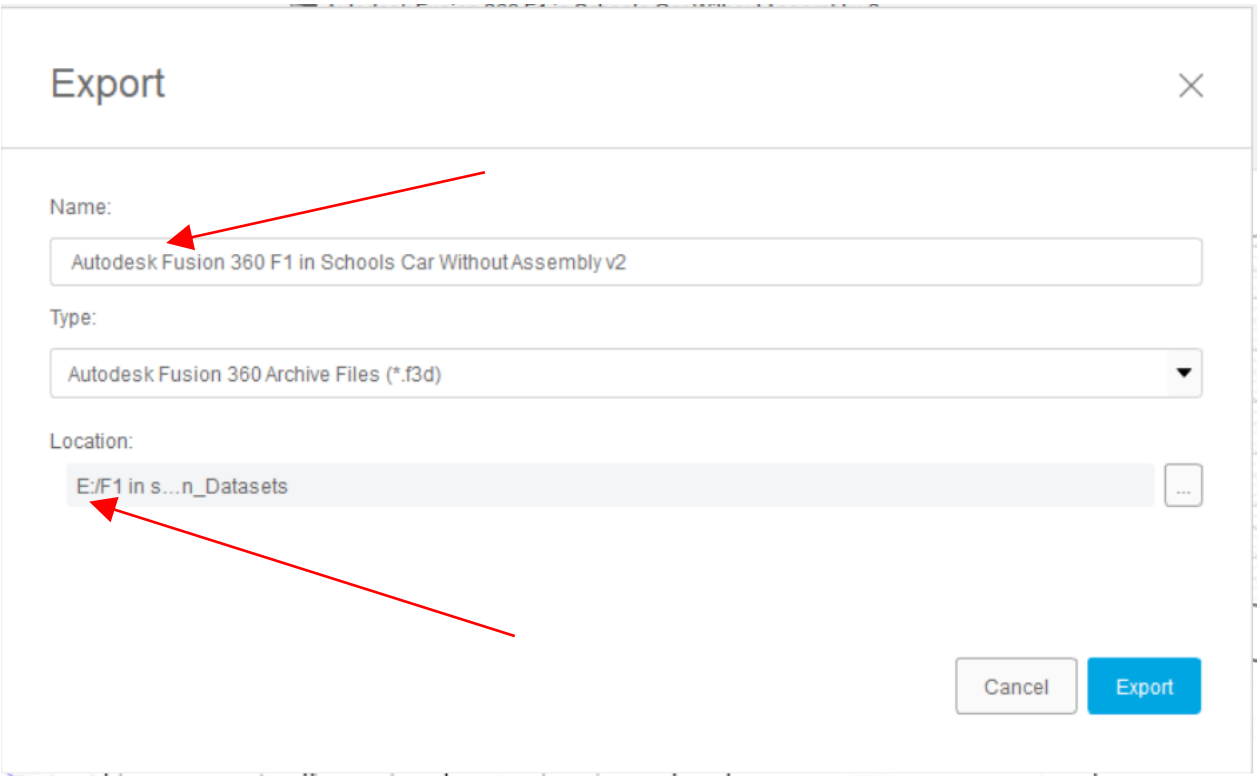
Step 13

Now export your car assembly / car body to .STL File Extension Format, which can be done in two ways.

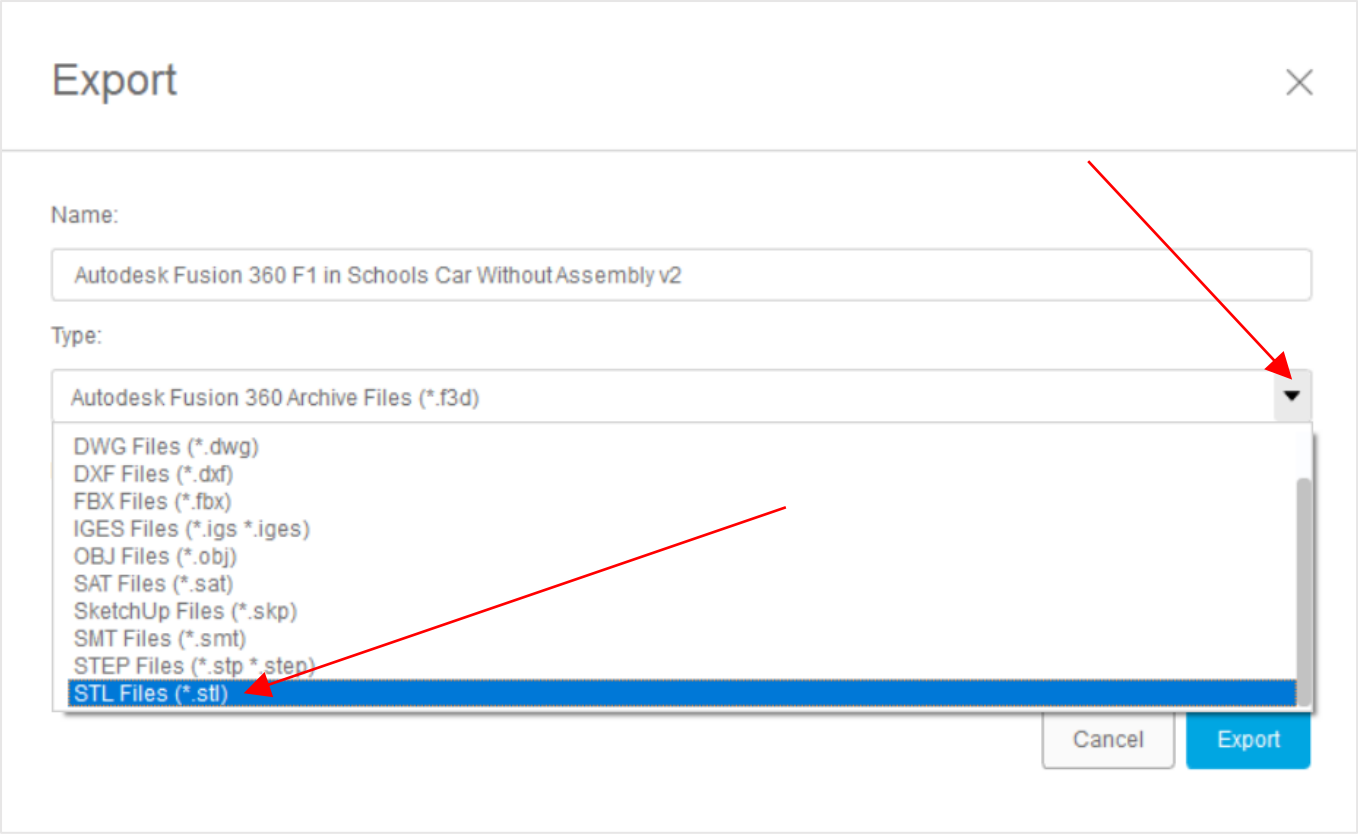
1. Click File and select Export.



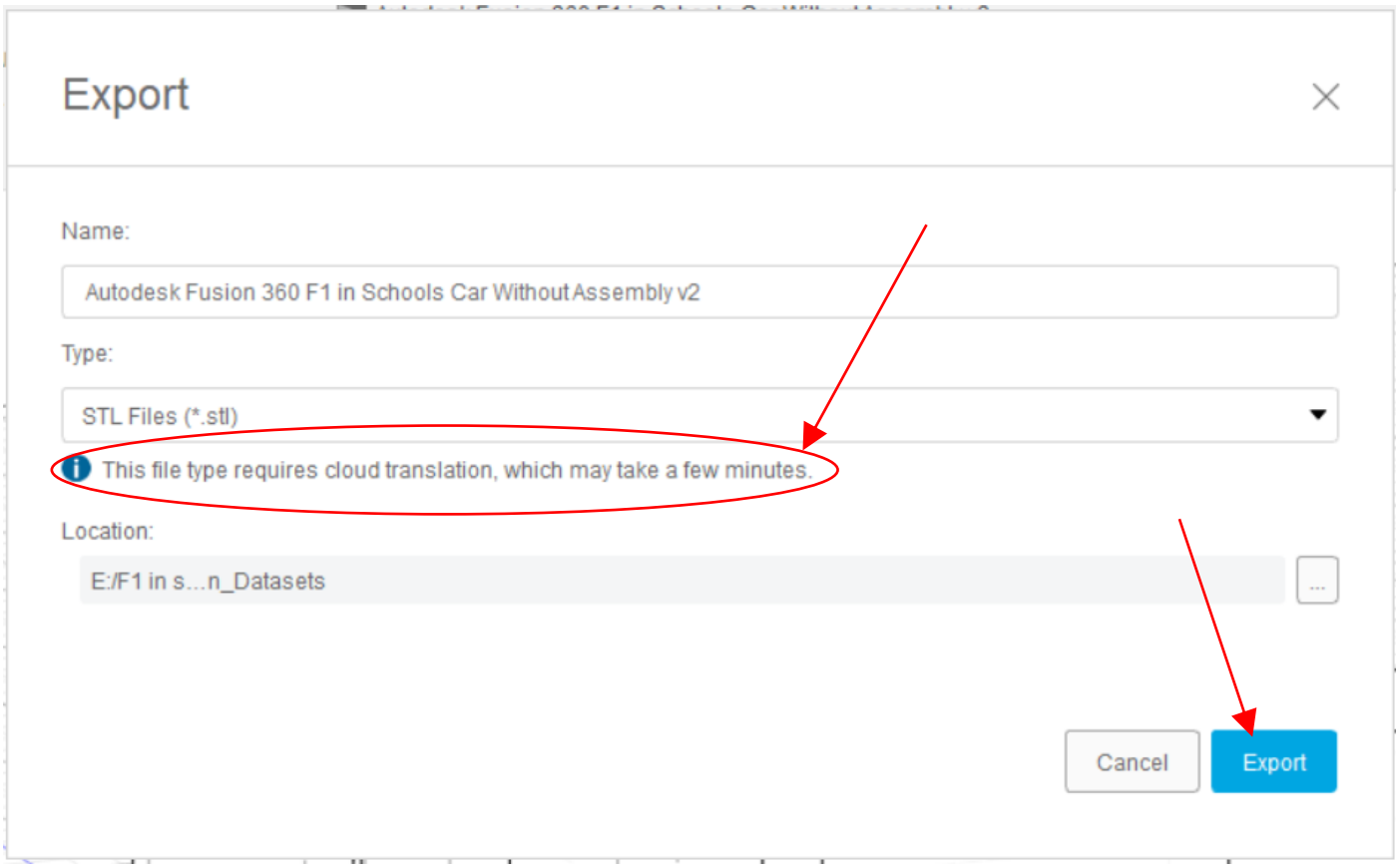
Rename the filename and identify the location of where you want to save the STL file, in this case shown below the file is saved in E: drive

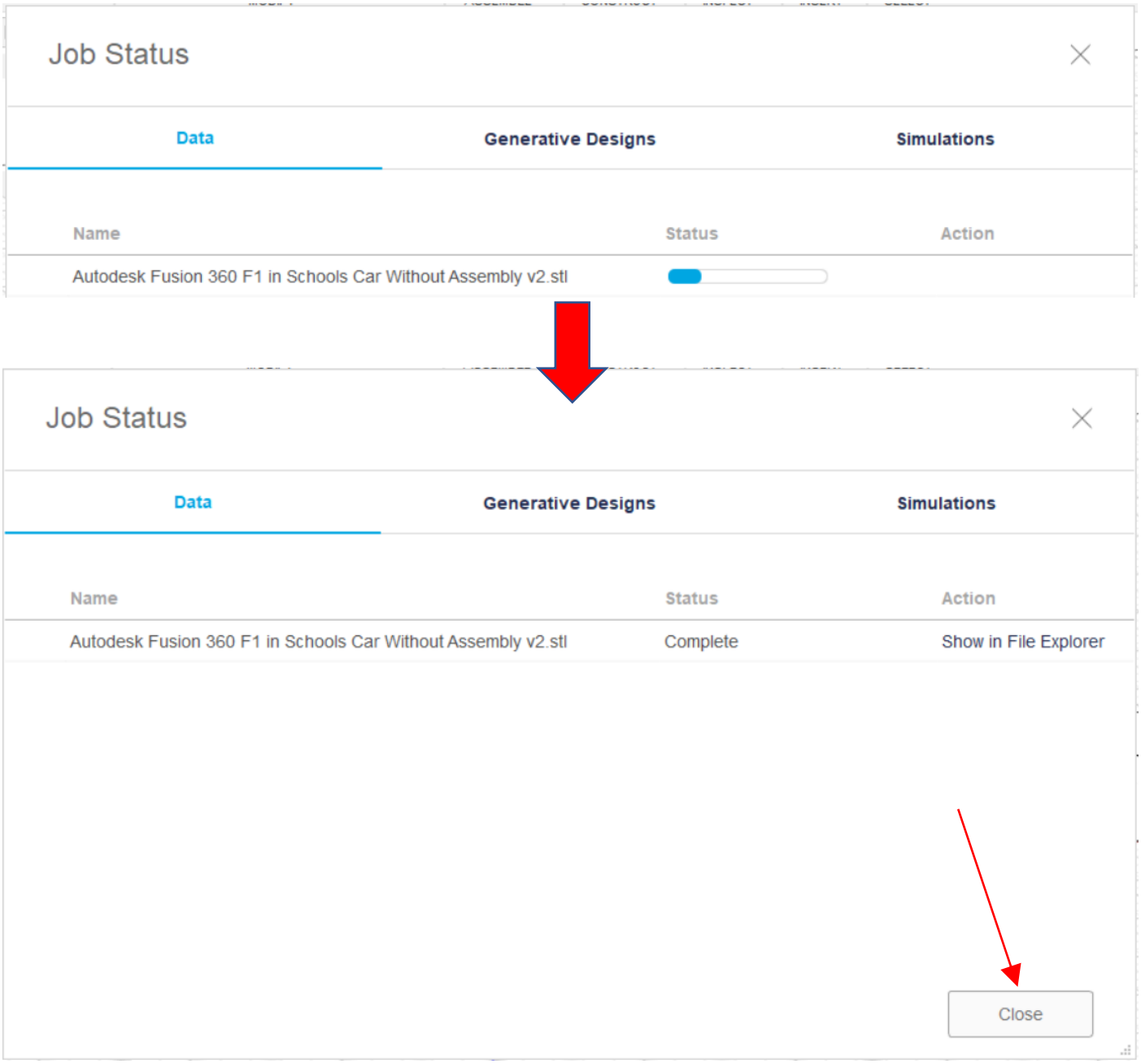


Next click the drop-down arrow list and scroll to the bottom to select STL Files (*.stl)

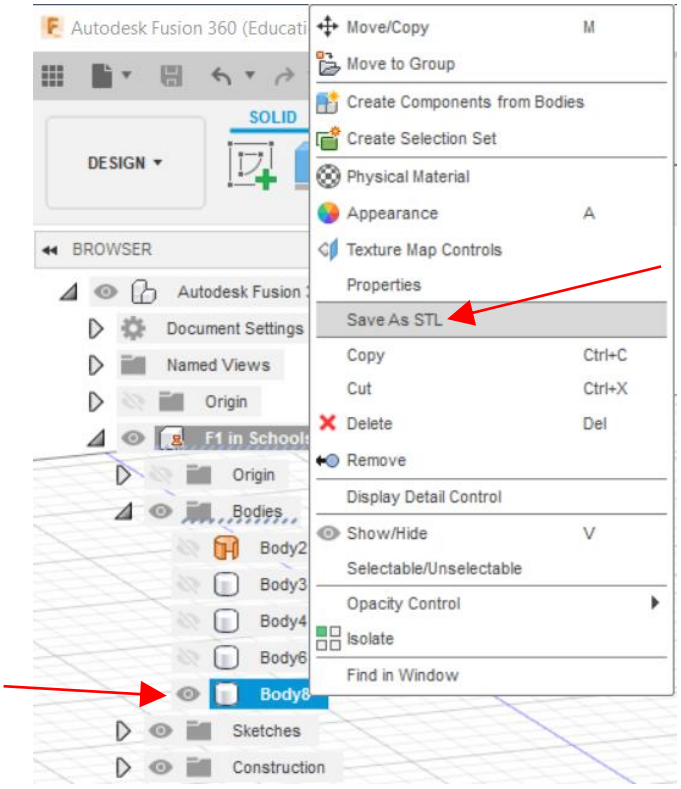


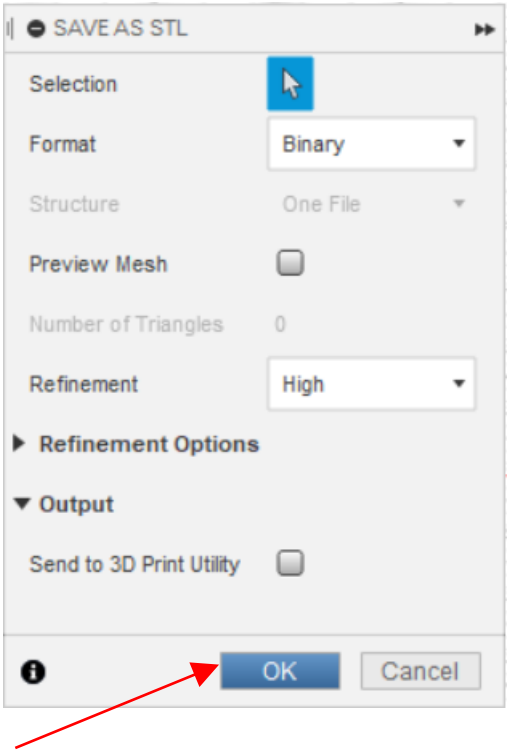
Click Export and as noted below when .STL is selected the file may take a few minutes




Job Status
Data
Generative Designs
Simulations
Name
Status
Action
Autodesk Fusion 360 F1 in Schools Car Without Assembly v2.stl
Job Status
Data
Generative Designs
Simulations
Name
Status
Action
Autodesk Fusion 360 F1 in Schools Car Without Assembly v2.stl
Complete
Show in File Explorer
Close

2. Or alternatively right click on the car assembly / car body (Body 8), the Save as STL window will appear then click OK.





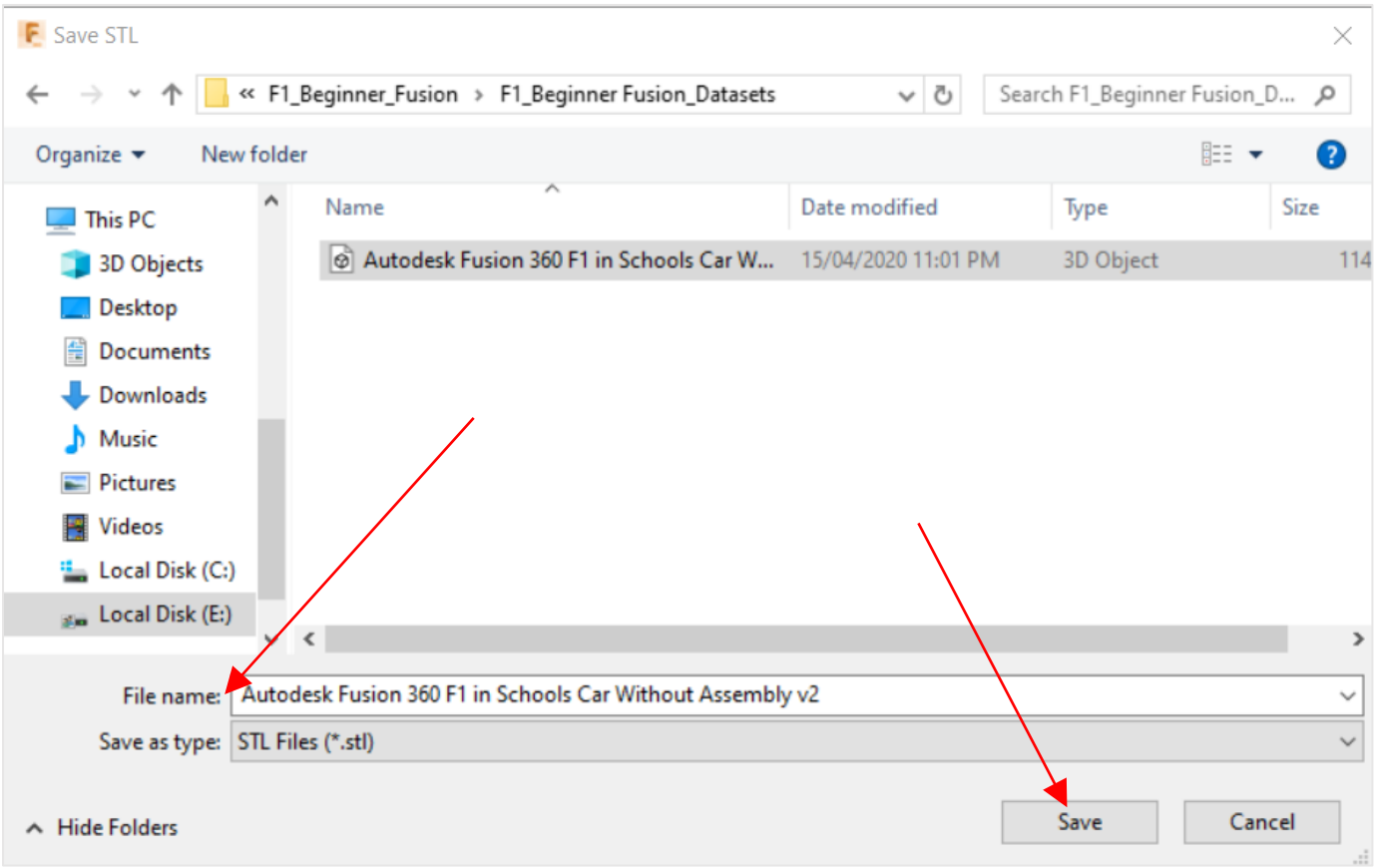
Change the filename and identify the location of where you want to save the STL file and click Save.

TIP: Manage your files in one folder location and rename your files with “Revision 1” or “Rev 1” in case there any changes/updates are made to file. This is so that you keep track of the progress made and to avoid confusion with multiple files generated.

For Example :

Team Vellfire Car Body Revision 1 OR Team Vencera Car Body Rev 1

Team Vellfire Car Body Revision 2 OR Team Vencera Car Body Rev 2

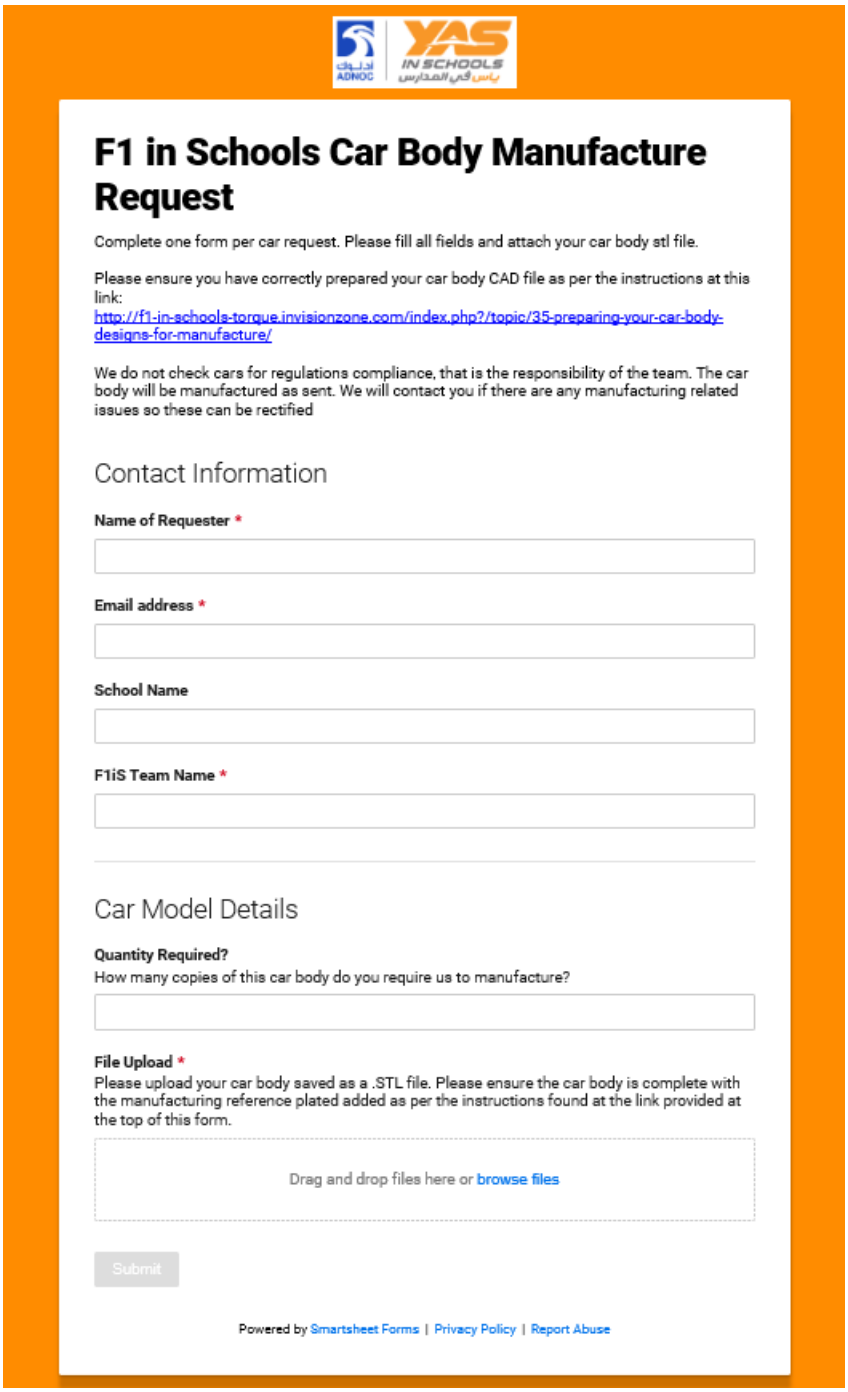


Step 14 – Task Completed!

Finally click the link below to fill in the Car Body Manufacturing Request Form and upload your Car Assembly / Body.

Click Submit once you've filled it all in!

https://app.smartsheet.com/b/form?EQBCT=81279f3644b0422fa03f696e65aff6fb



F1 in Schools Car Body Manufacture Request

Complete one form per car request. Please fill all fields and attach your car body stl file.

Please ensure you have correctly prepared your car body CAD file as per the instructions at this link:
http://f1-in-schools-torque.invisionzone.com/index.php?/topic/35-preparing-your-car-body-designs-for-manufacture/

We do not check cars for regulations compliance, that is the responsibility of the team. The car body will be manufactured as sent. We will contact you if there are any manufacturing related issues so these can be rectified

Contact Information

Name of Requester *

Email address *

School Name

F1iS Team Name *

Car Model Details

Quantity Required?
How many copies of this car body do you require us to manufacture?

File Upload *
Please upload your car body saved as a .STL file. Please ensure the car body is complete with the manufacturing reference plated added as per the instructions found at the top of this form.

Drag and drop files here or browse files

Submit

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