

Adding Machining Operations to Your Inventor Designs Using Inventor CAM

Jennifer MacMillan

ASCENT



About the speaker

Jennifer MacMillan

For the past 25 years Jennifer has been teaching and developing CAD training material for both a synchronous and asynchronous learning environment. She is currently working with the Rand Worldwide company, ASCENT-Center for Technical Knowledge, where she develops and manages the training curriculum used by Autodesk Authorized Training Centers. She also has her Autodesk Certified Instructor ACI certification. Jennifer MacMillan holds a Mechanical Engineering degree from Dalhousie University, Nova Scotia, Canada.



Learning Objectives

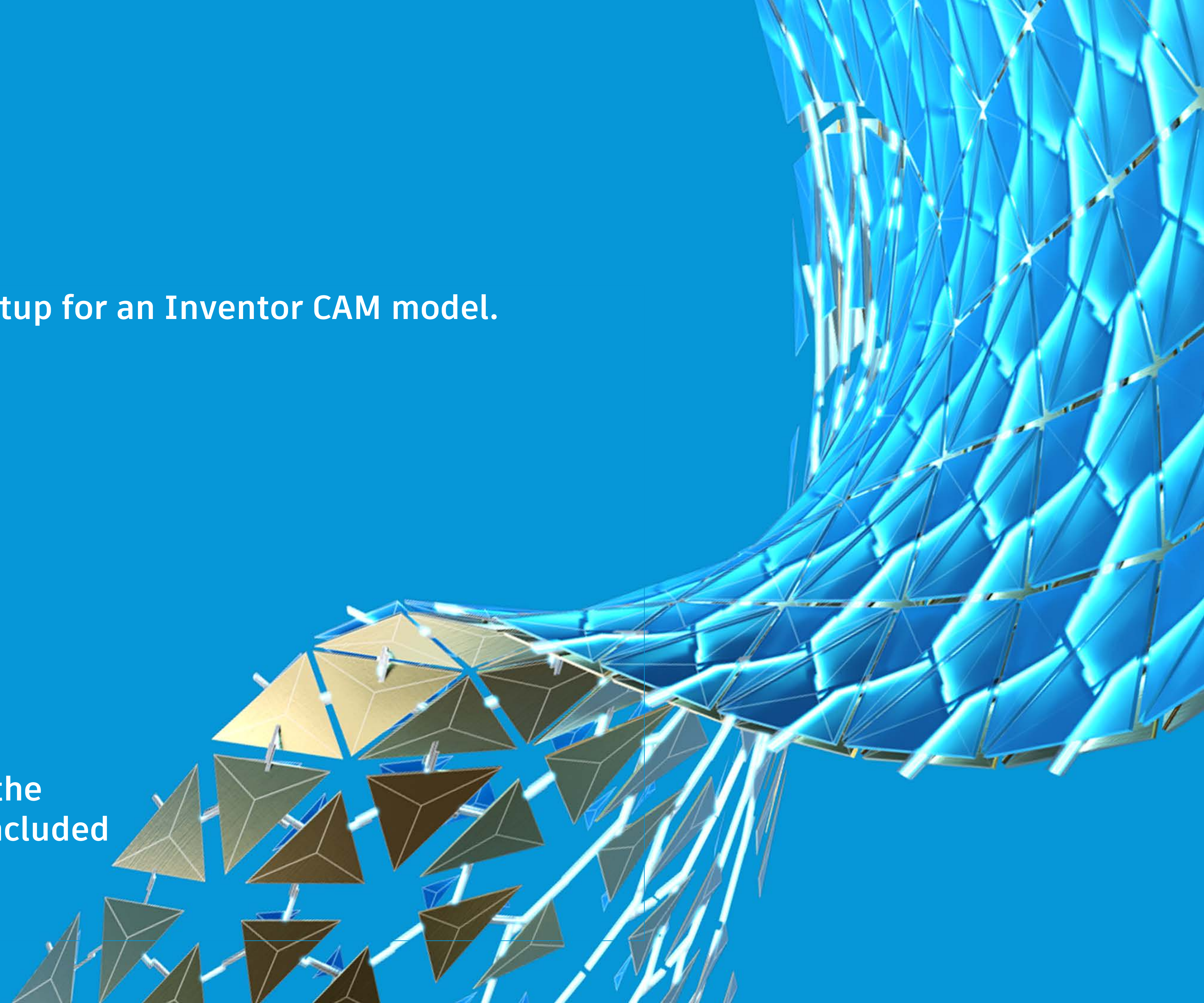
- Create the machining Setup for an Inventor CAM model.
- Create toolpaths in an Inventor CAM model.
- Simulate created toolpaths in an Inventor CAM model.
- Generate the CNC code required to machine a model.



Objective

1. Create the machining Setup for an Inventor CAM model.

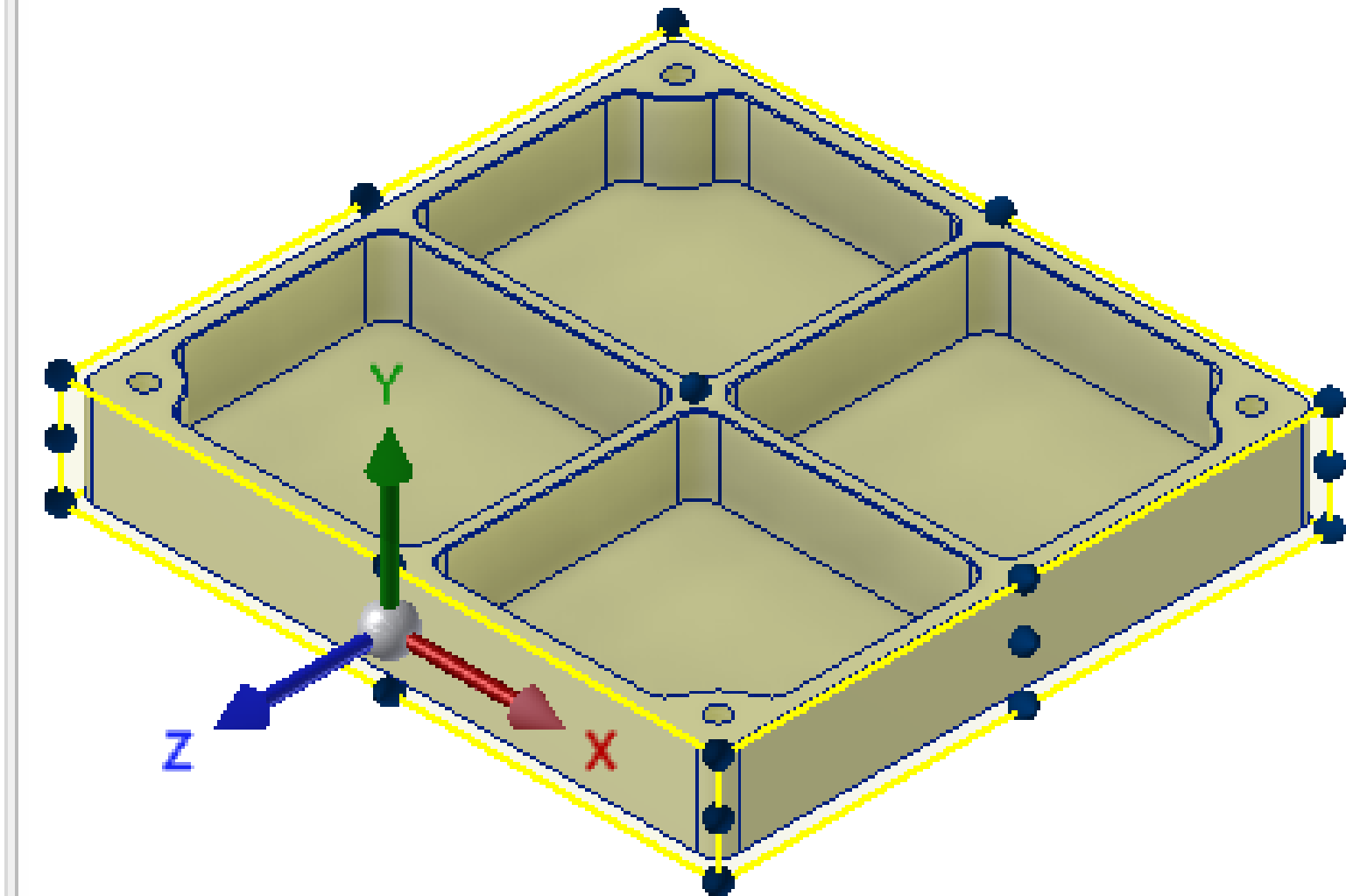
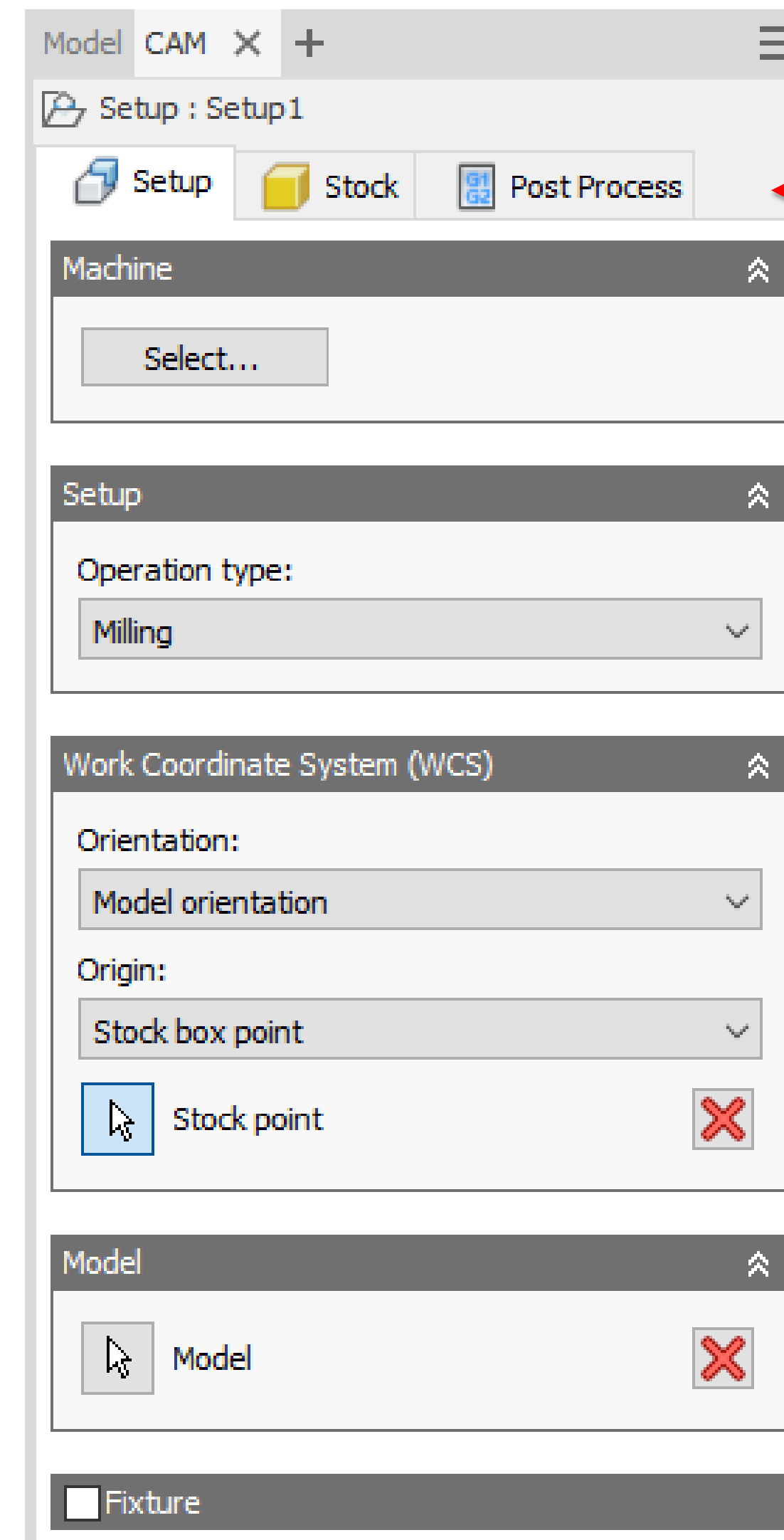
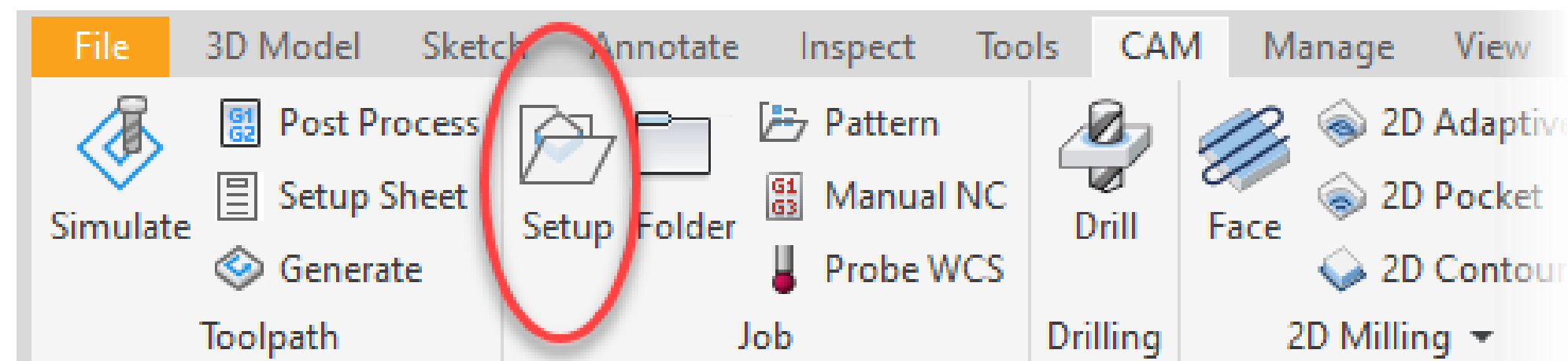
NOTE ** An introduction to the Inventor CAM interface is included in your Handout.



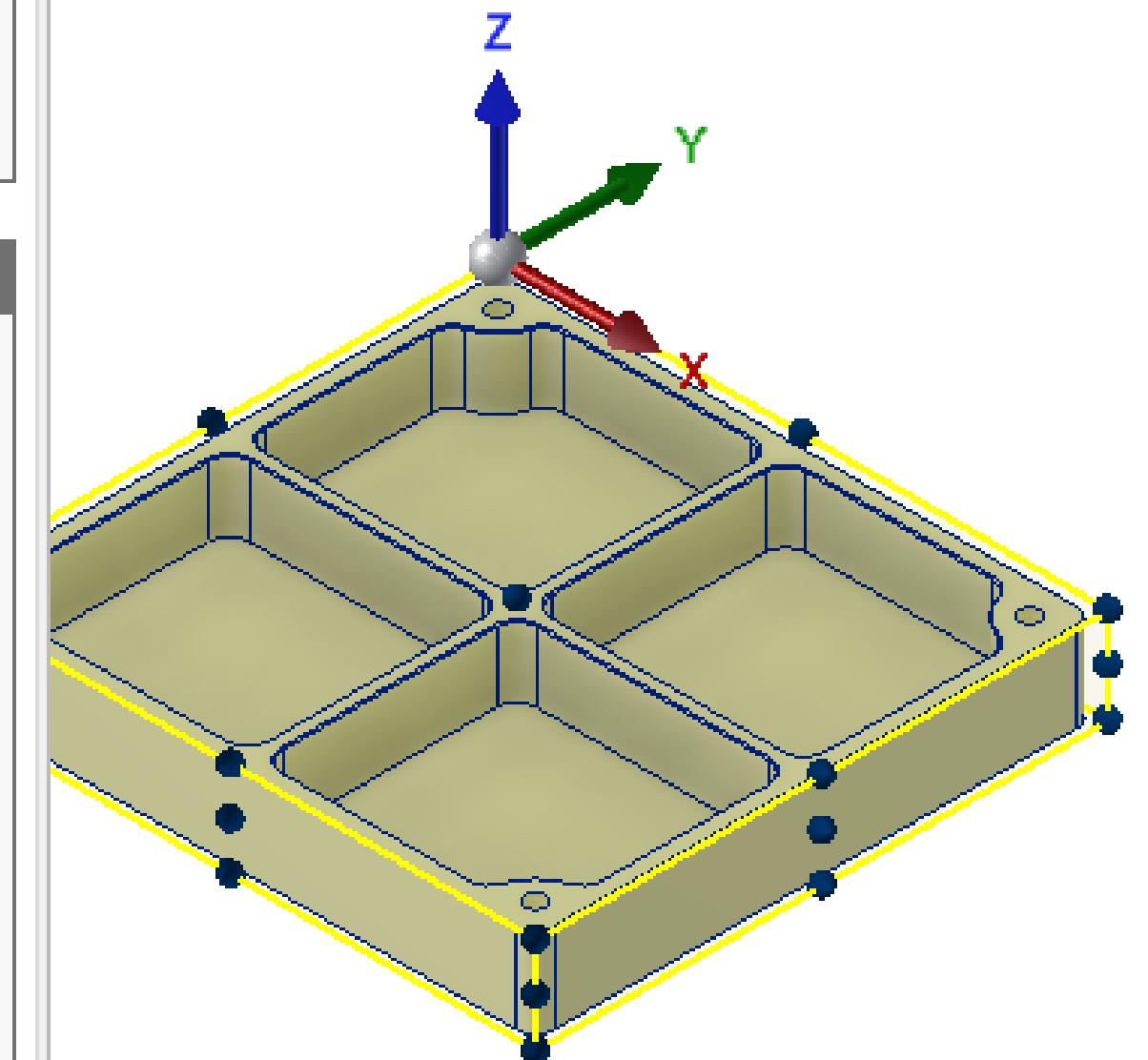
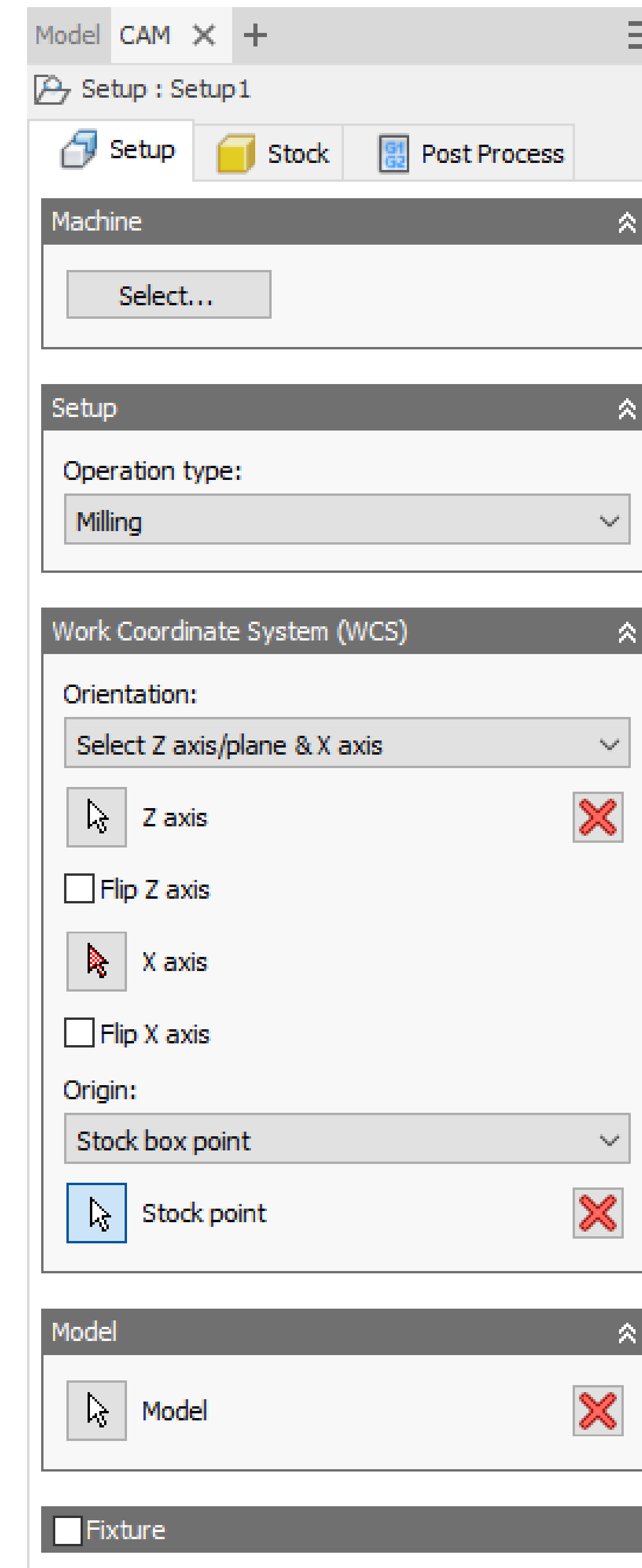
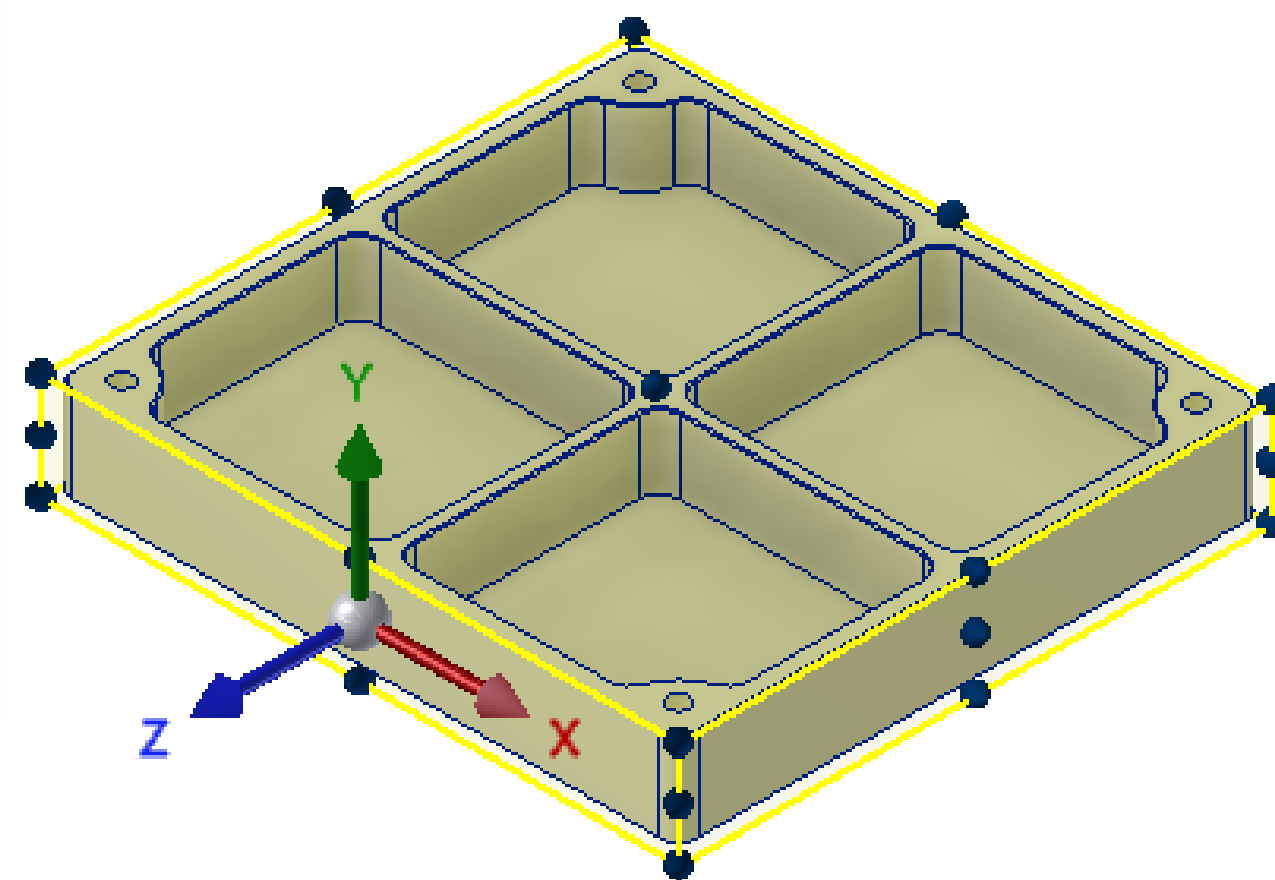
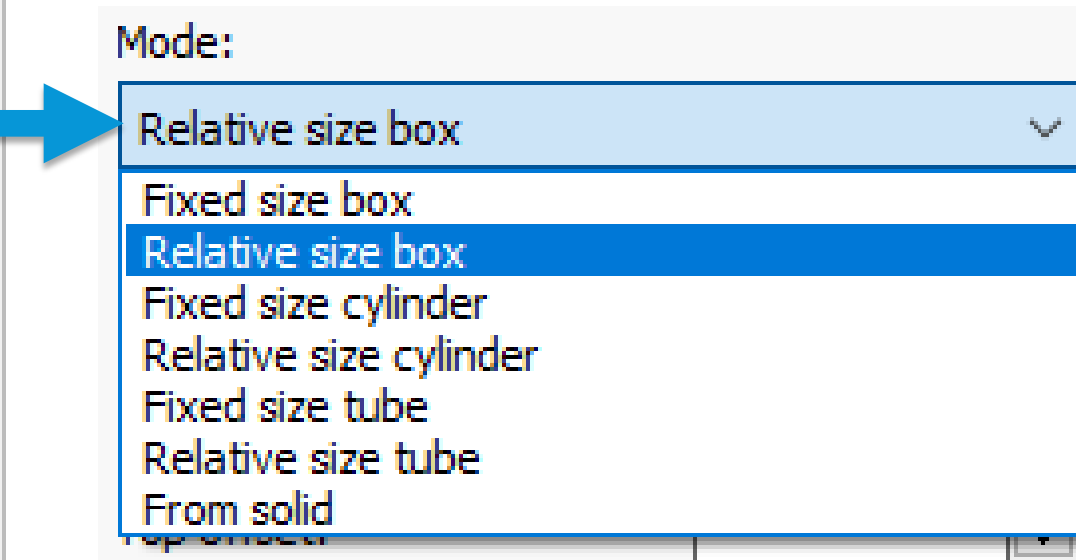
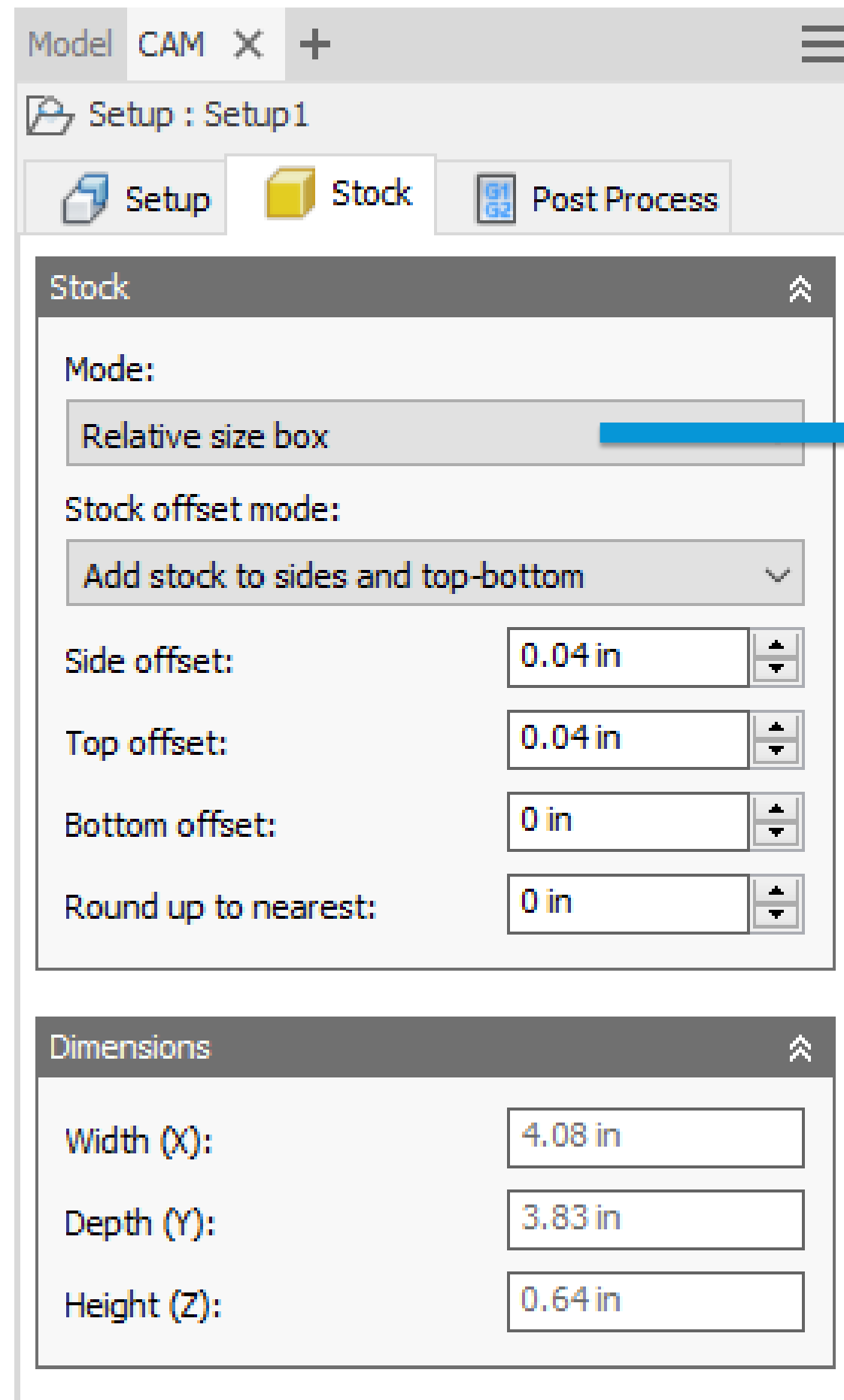
Defining the Setup

The setup defines the following:

- Machine/Operation type being used
- Work coordinate system (WCS) of the model
- Model geometry being machined
- Stock that the model will be machined from
- Post process settings

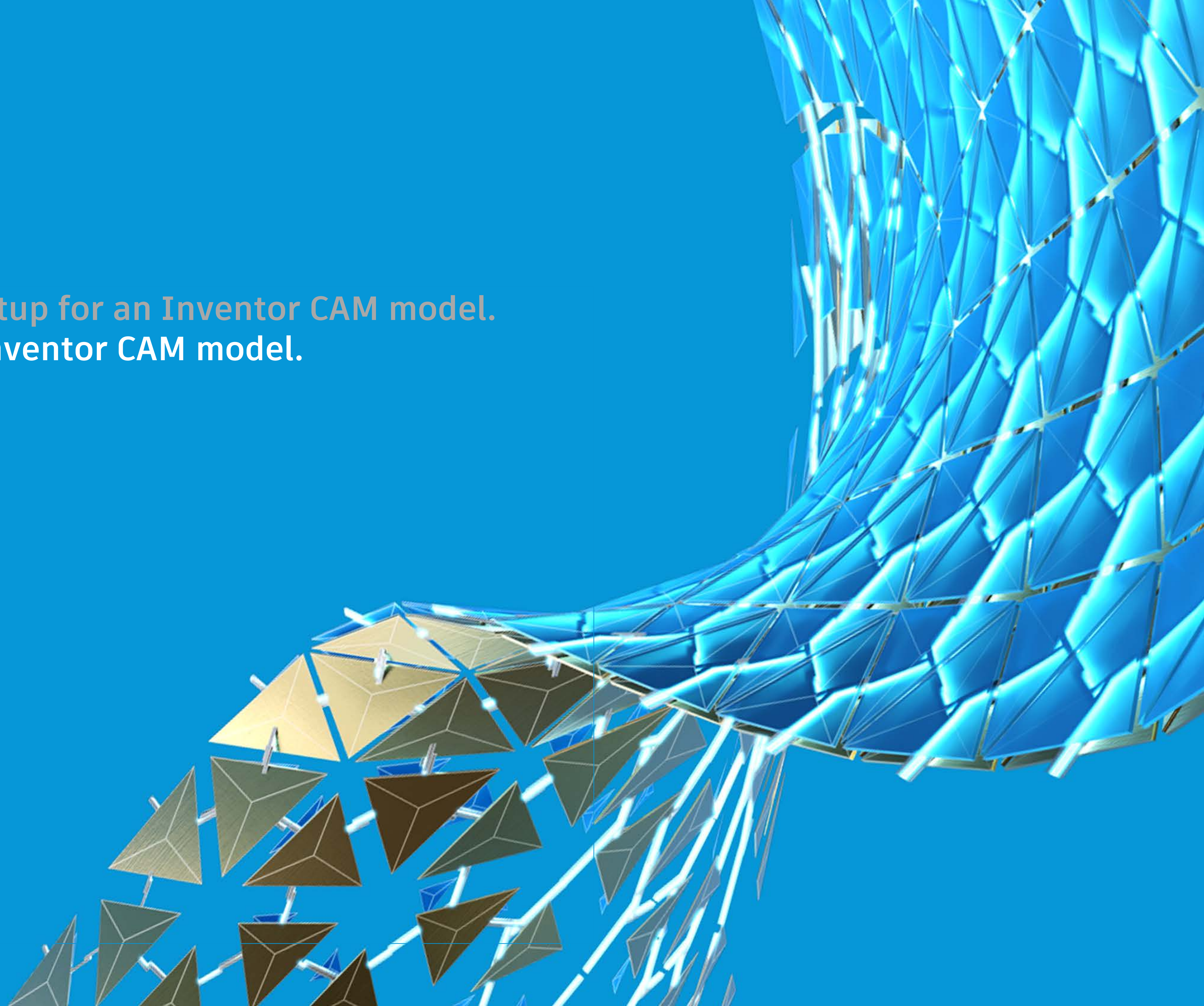


Defining the Setup



Objective

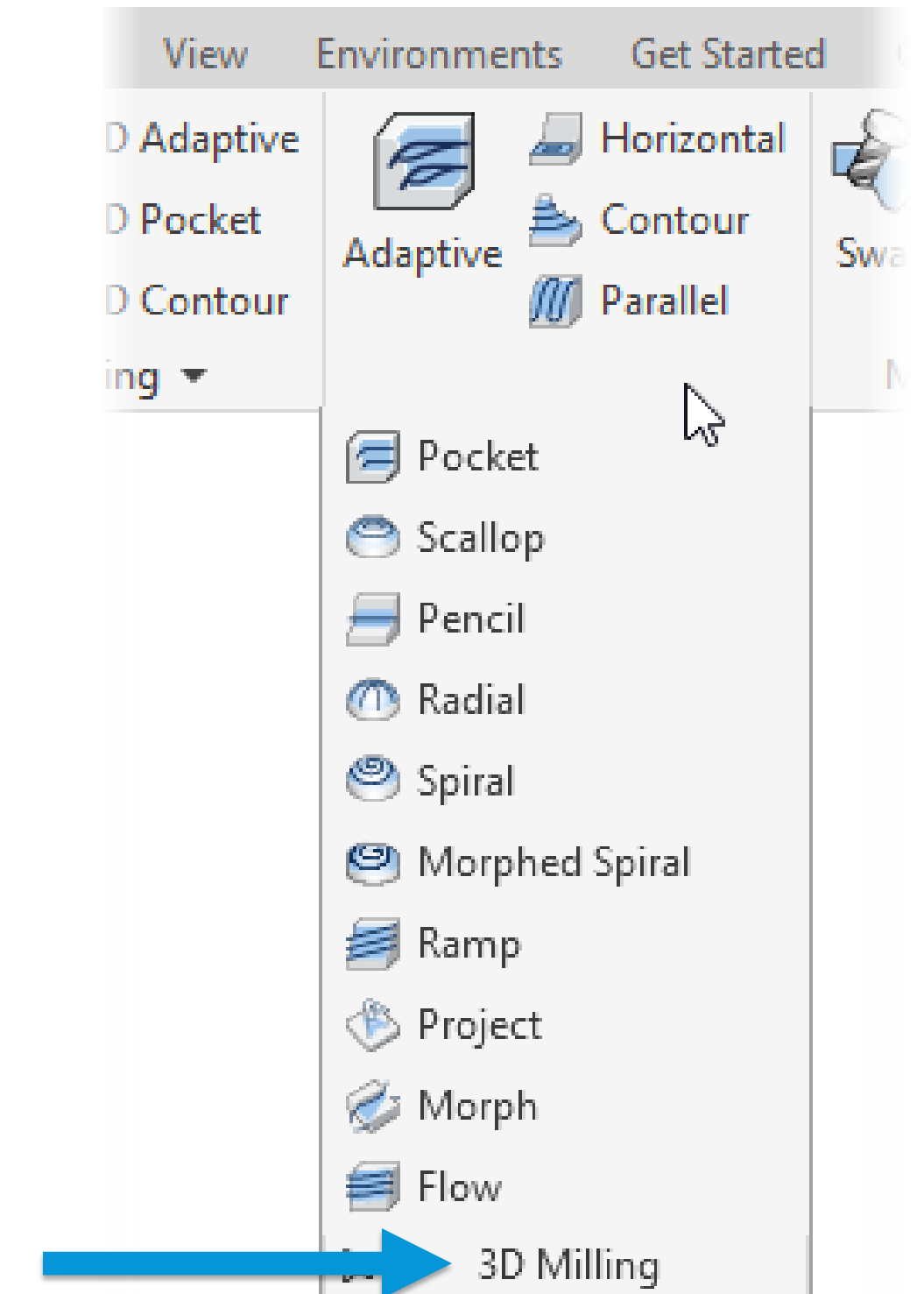
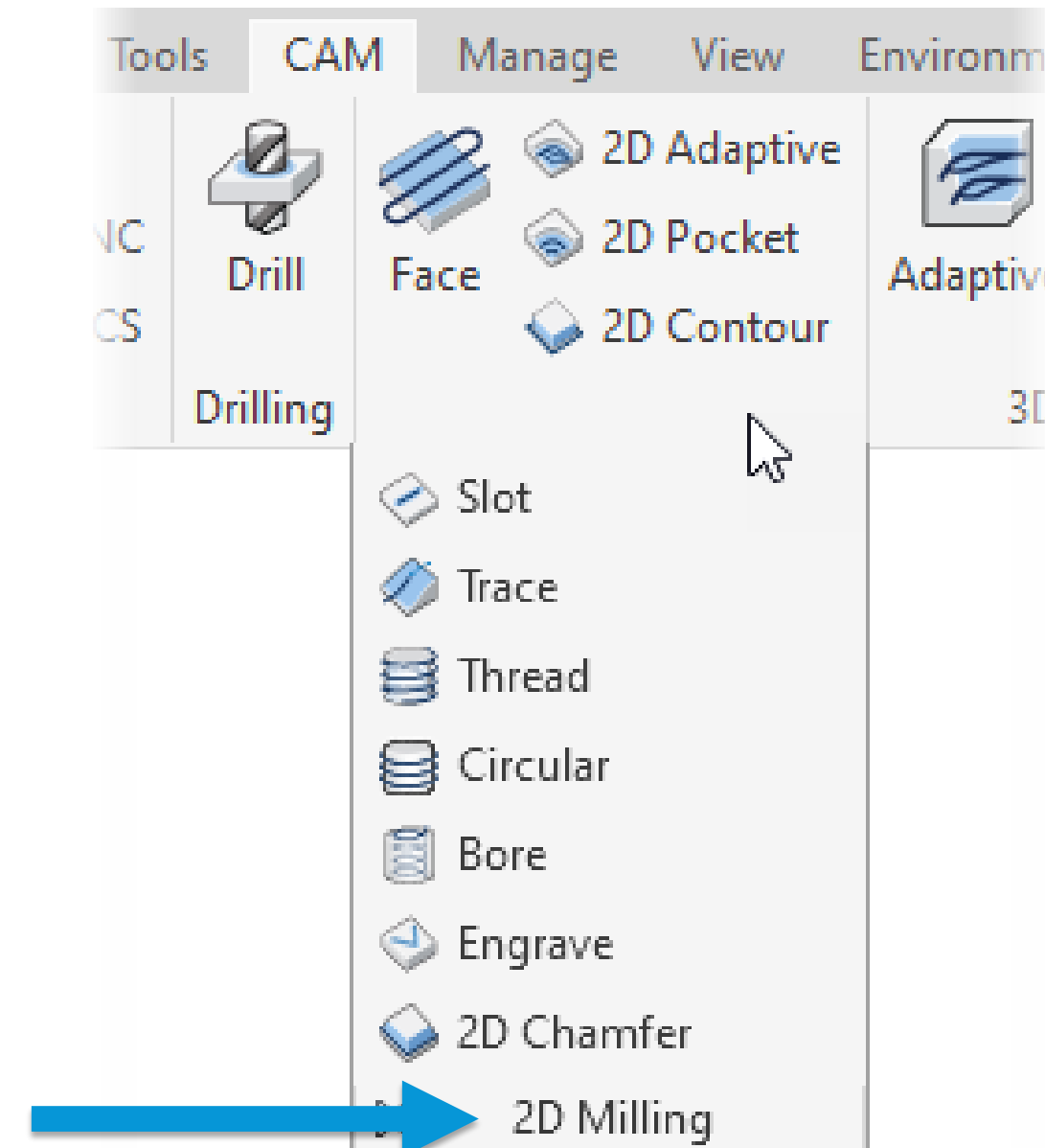
1. Create the machining Setup for an Inventor CAM model.
2. Create toolpaths in an Inventor CAM model.



Creating Toolpaths

A toolpath must define the following:

- The tool that will be used to cut the stock
- The geometry that will be cut
- Tool clearance, retract, feed, model top/bottom heights
- How the tool will cut the geometry (passes & linking)



Creating Toolpaths

The image displays a CAM software interface with three main panels. The left panel, titled 'Face : Face1', shows a tool selection dropdown with a red arrow pointing to '#1 - Ø2" face (2" Face Mill)'. Below this is a 'Coolant' dropdown set to 'Flood'. The bottom panel, 'Feed & Speed', contains various feed rate settings. The right panel, 'Face1: Select Tool', shows a list of tool types on the left and a table of selected tools on the right. A blue arrow points from the tool selection dropdown in the left panel to the 'Face1: Select Tool' panel. A 3D model of a part is visible in the background.

Feed & Speed Settings:

Parameter	Value
Spindle speed:	6500 rpm
Surface speed:	3403.39 ft/min
Ramp spindle speed:	6500 rpm
Cutting feedrate:	65 in/min
Feed per tooth:	0.002 in
Lead-in feedrate:	65 in/min
Lead-out feedrate:	65 in/min
Ramp feedrate:	65 in/min
Plunge feedrate:	30 in/min
Feed per revolution:	0.00461538 in

Face1: Select Tool Panel:

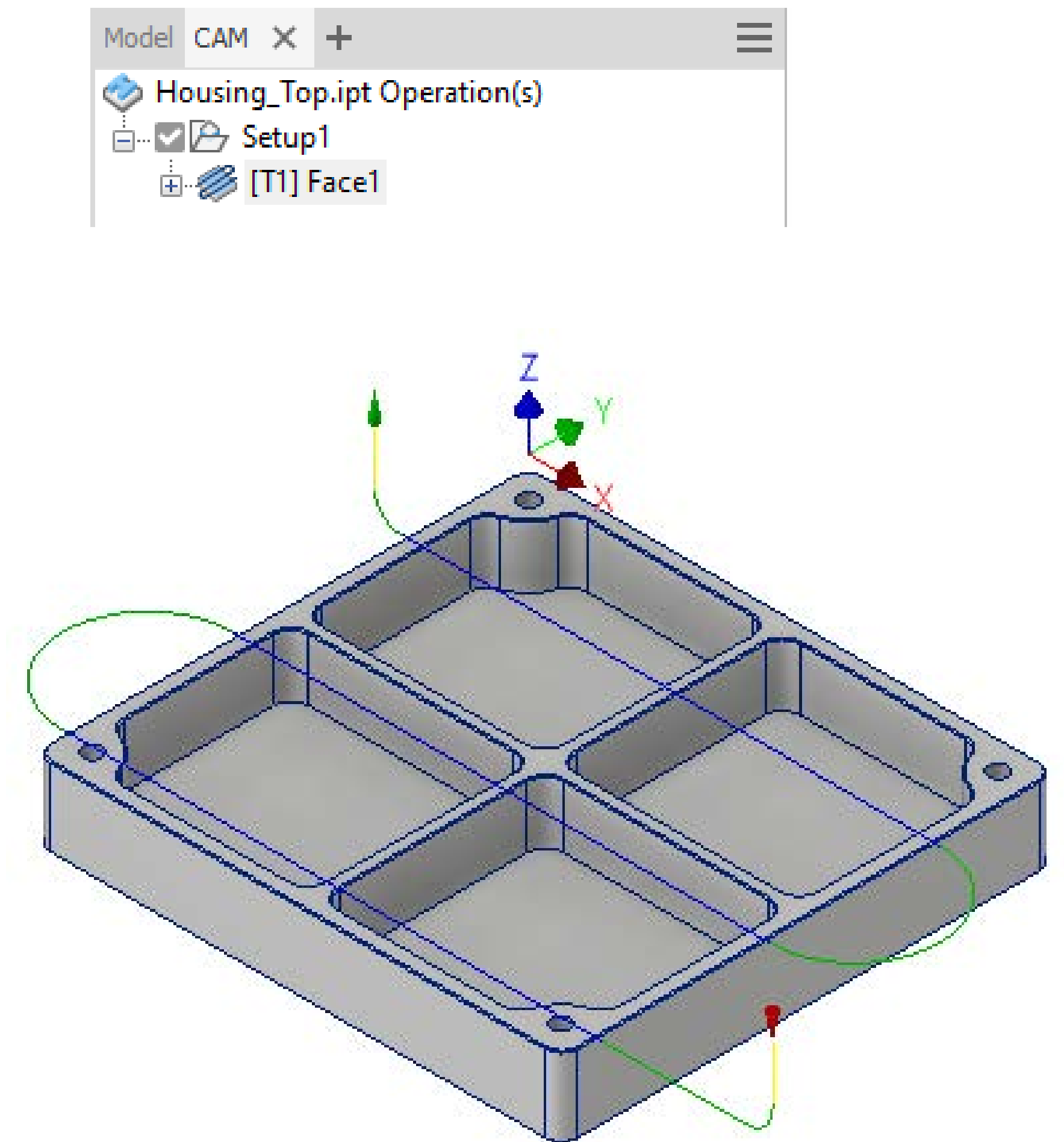
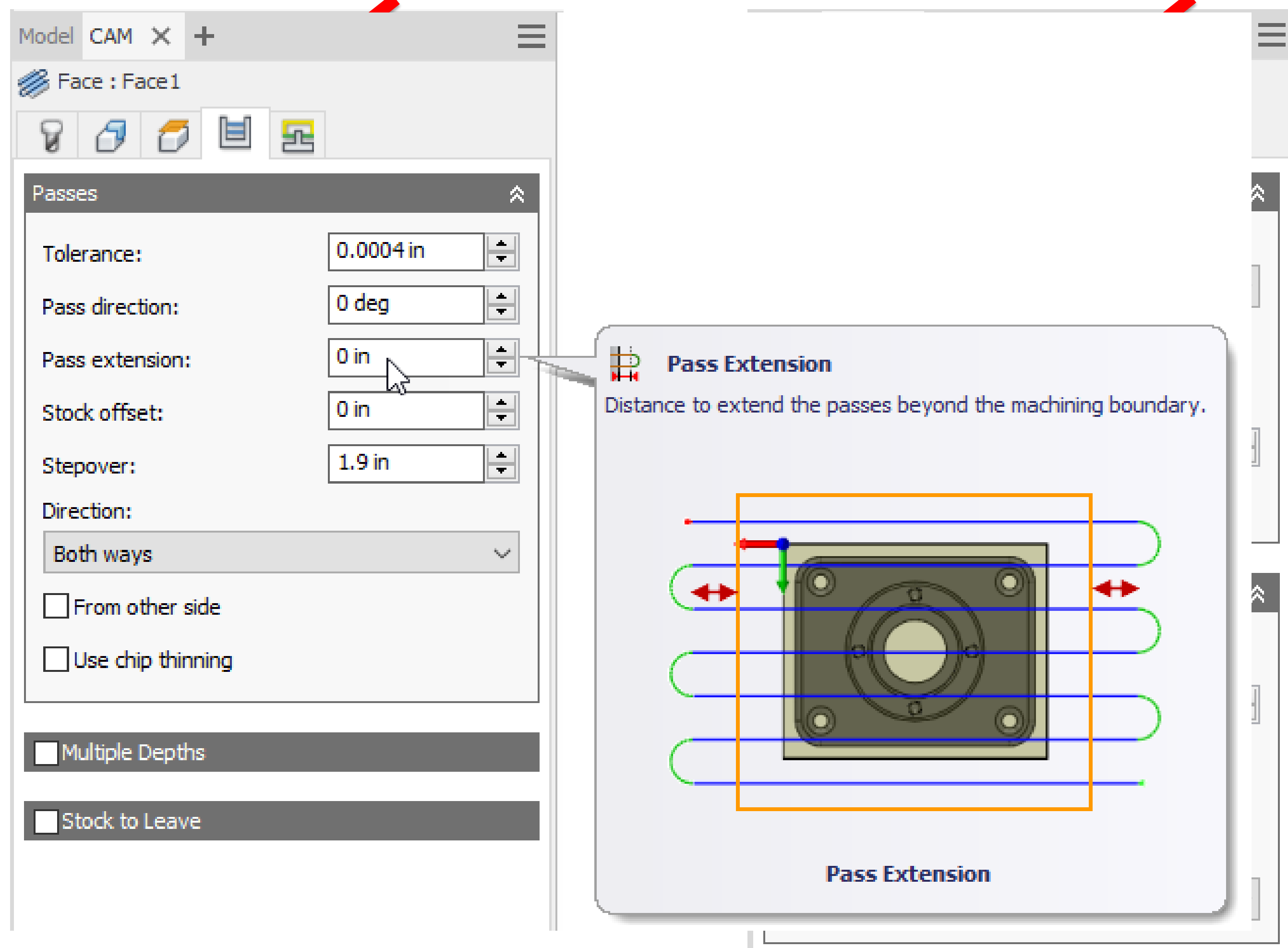
Text contains:

☒ Show Operations

Name	Number	Diameter	Corner Radius	Angle	Type	Vendor	Product ID	Description
#1 - Ø50mm face	1	50 mm	0 mm	0°	Face Mill			
#1 - Ø2" face (2" Face Mill)	1	2"	0"	0°	Face Mill	Maritool	MSAP16-...	2"

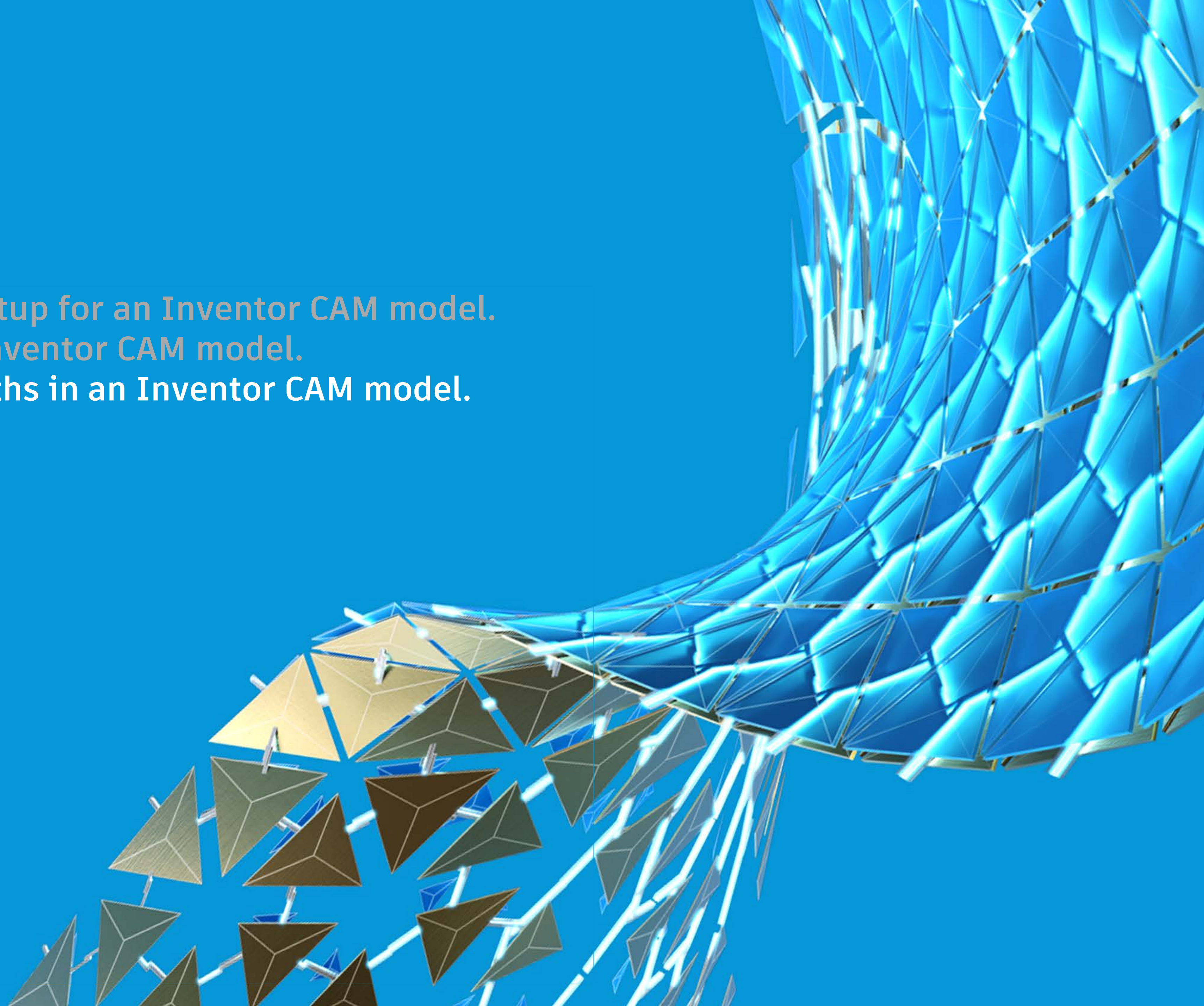
Buttons: New Mill Tool, New Mill Holder, New Turn Tool, New Library, Edit, Select, Cancel

Creating Toolpaths



Objective

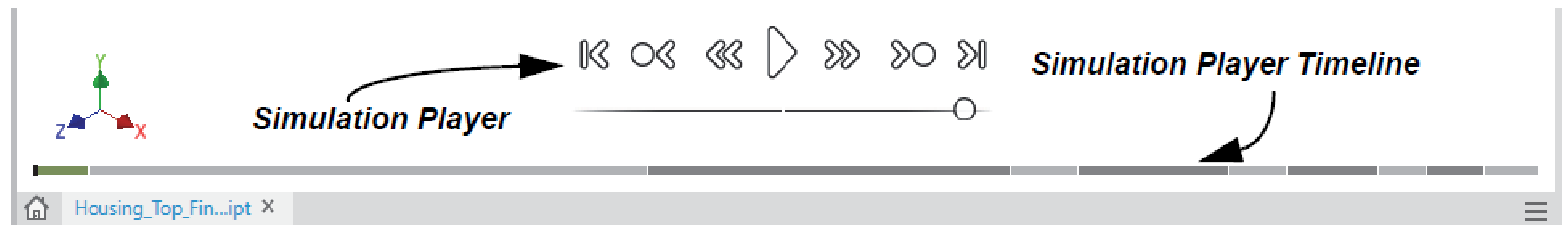
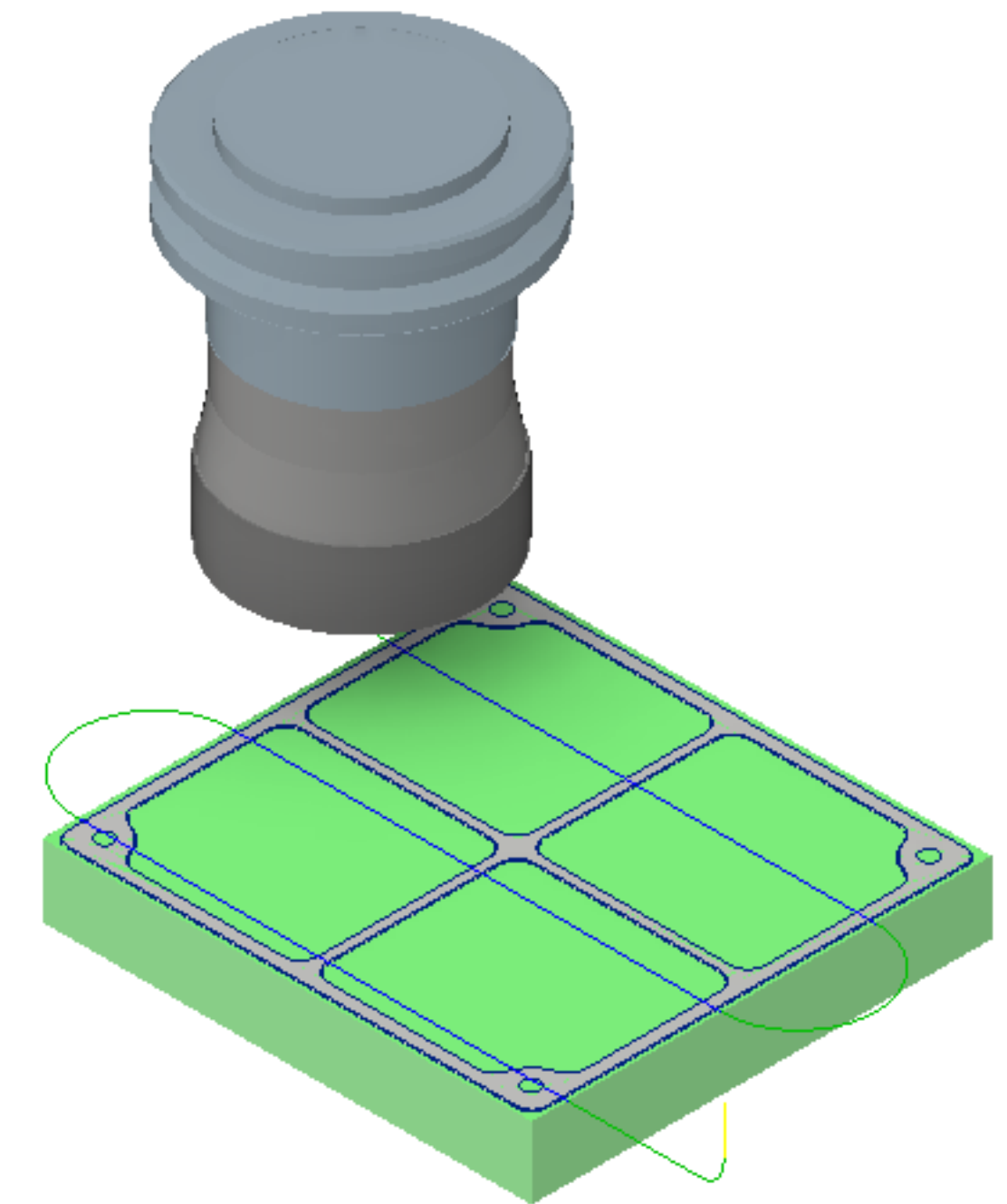
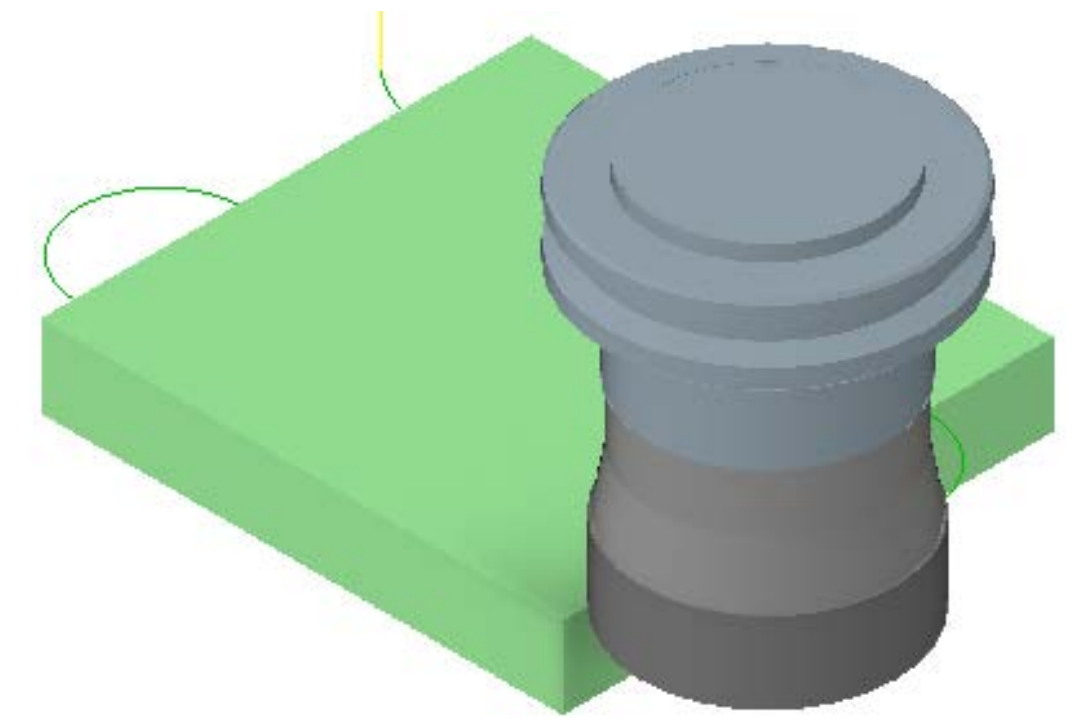
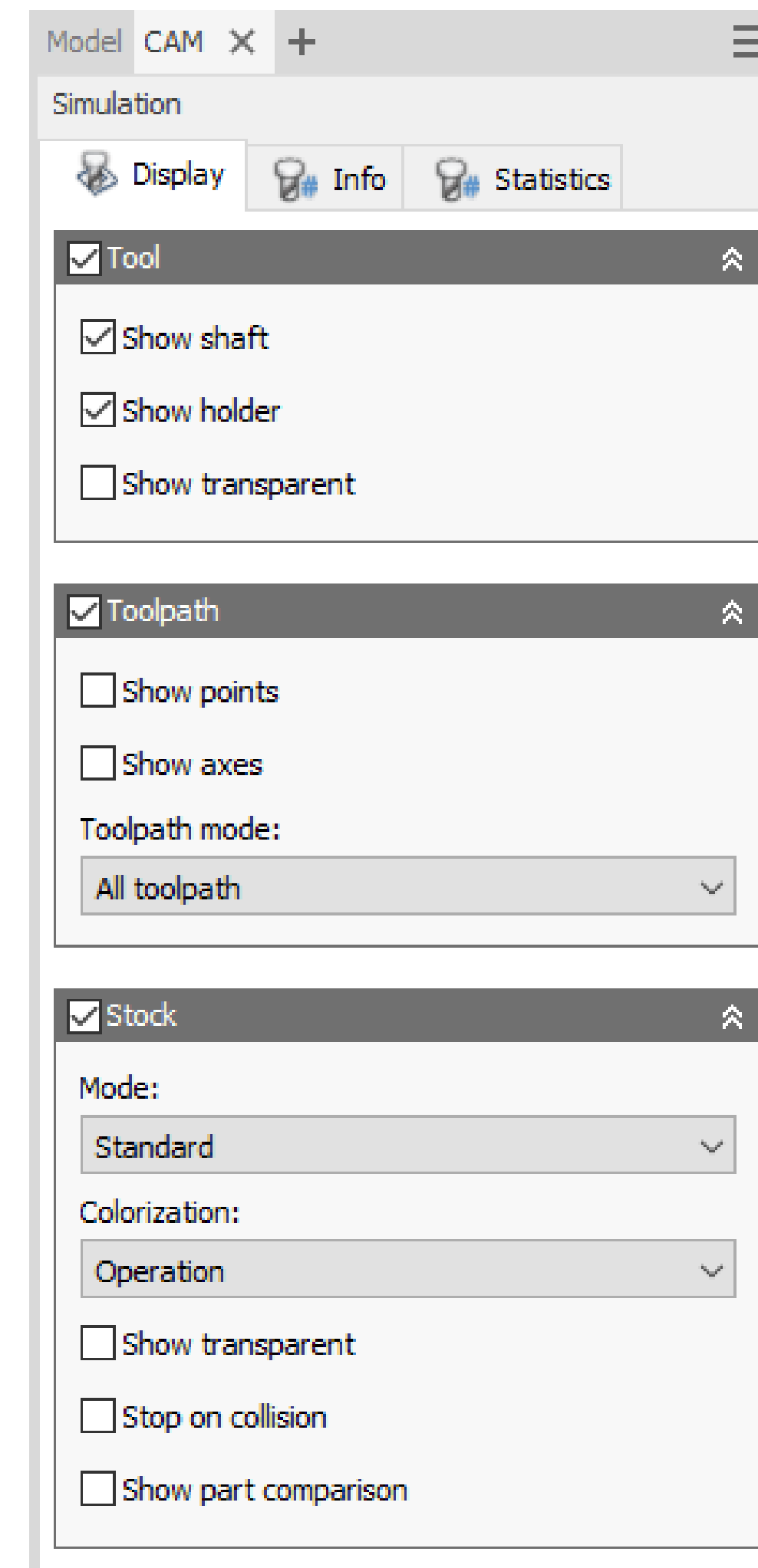
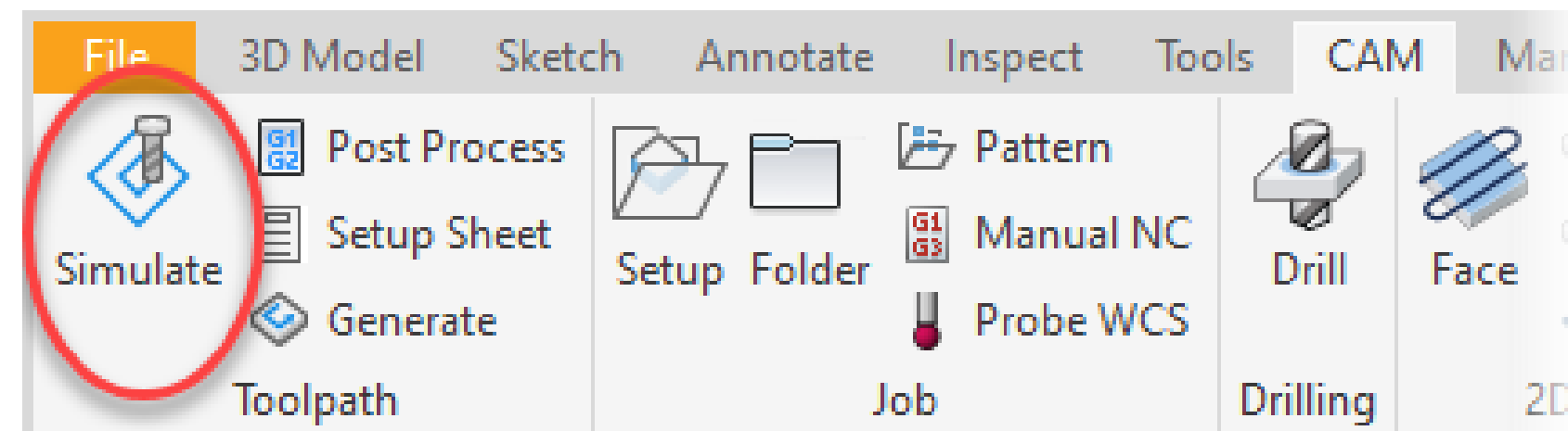
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Simulating Toolpaths

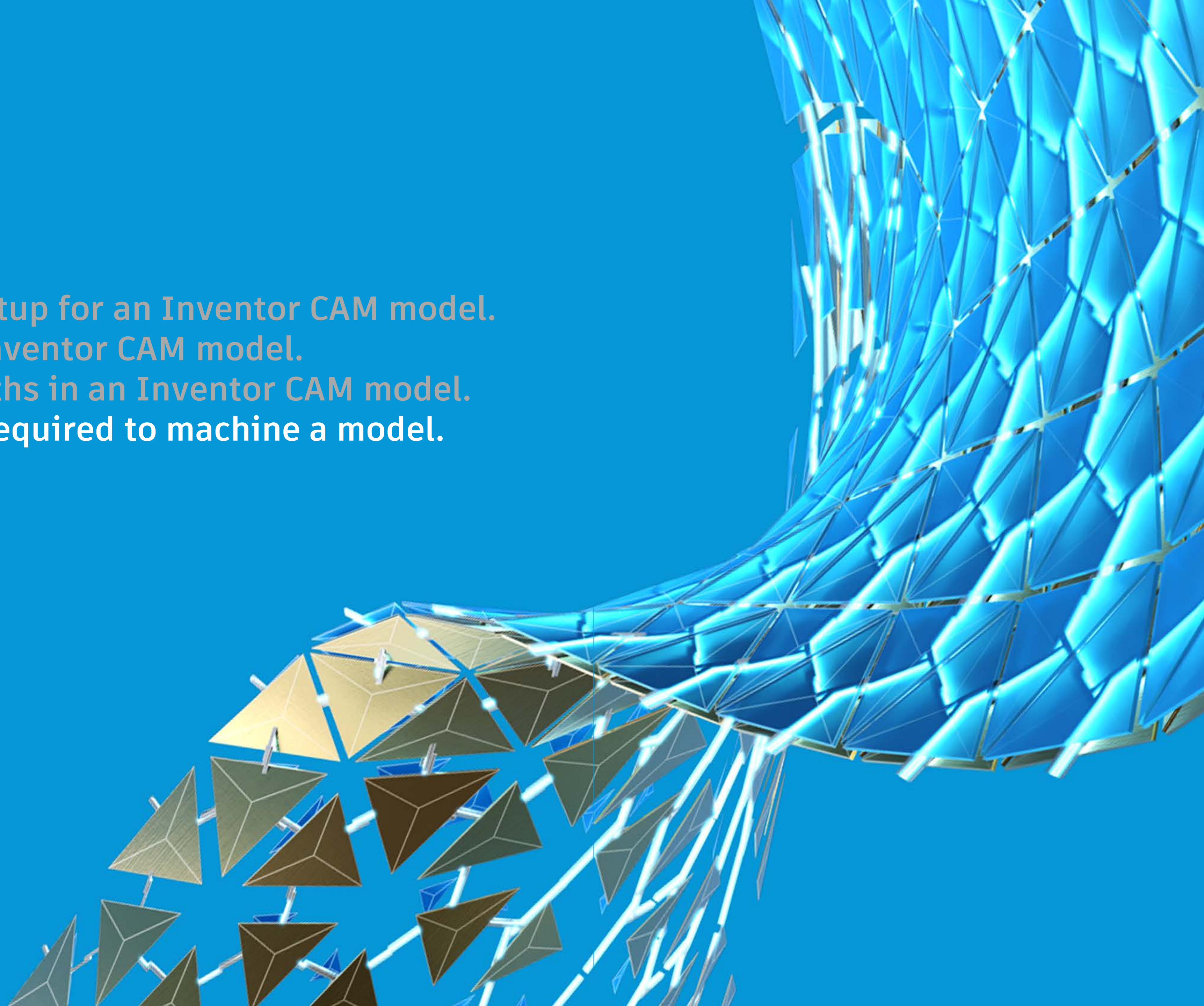
A simulation can be run on any of the following to visualize machining the Inventor model:

- Toolpath
- Setup
- Operation



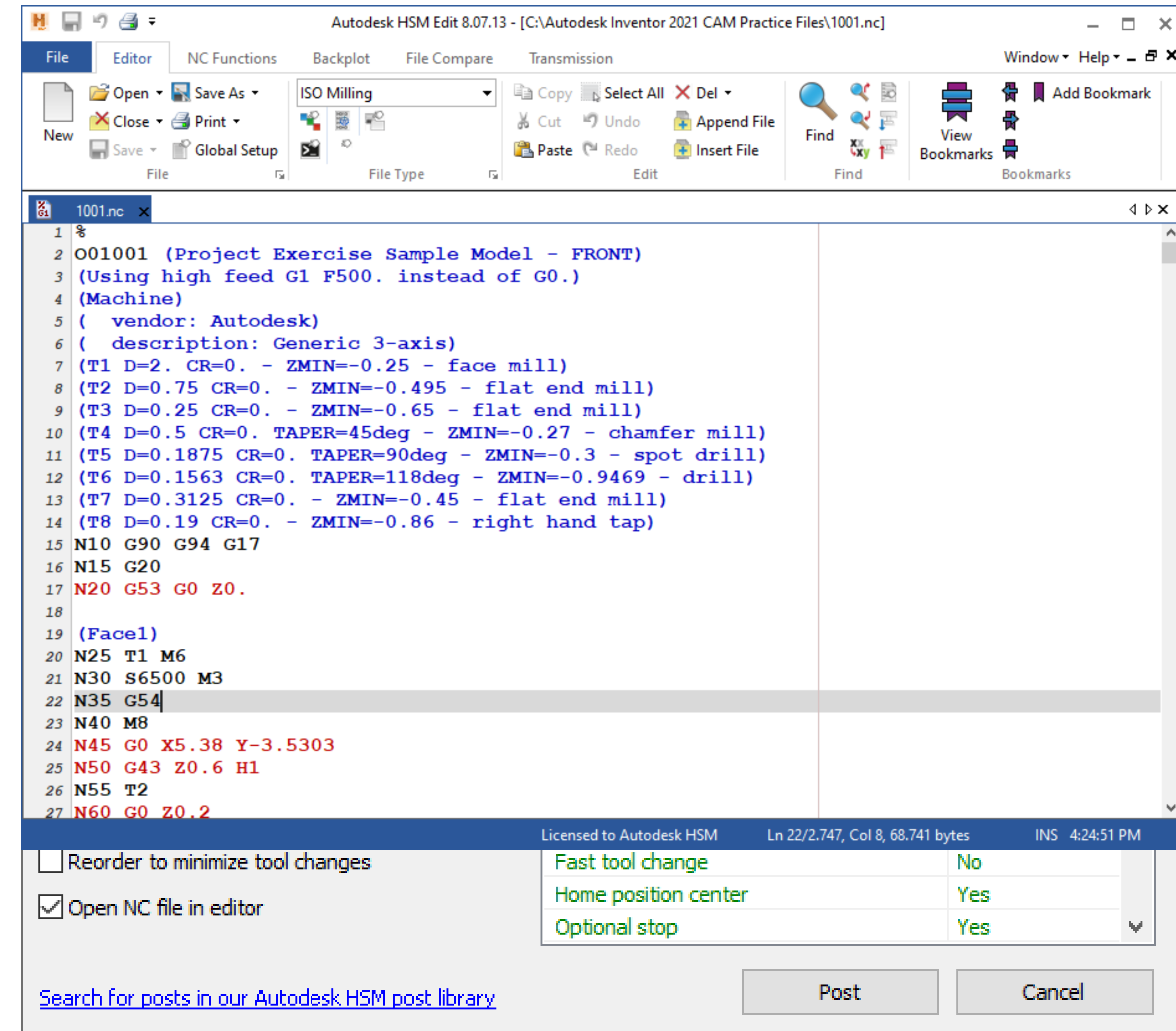
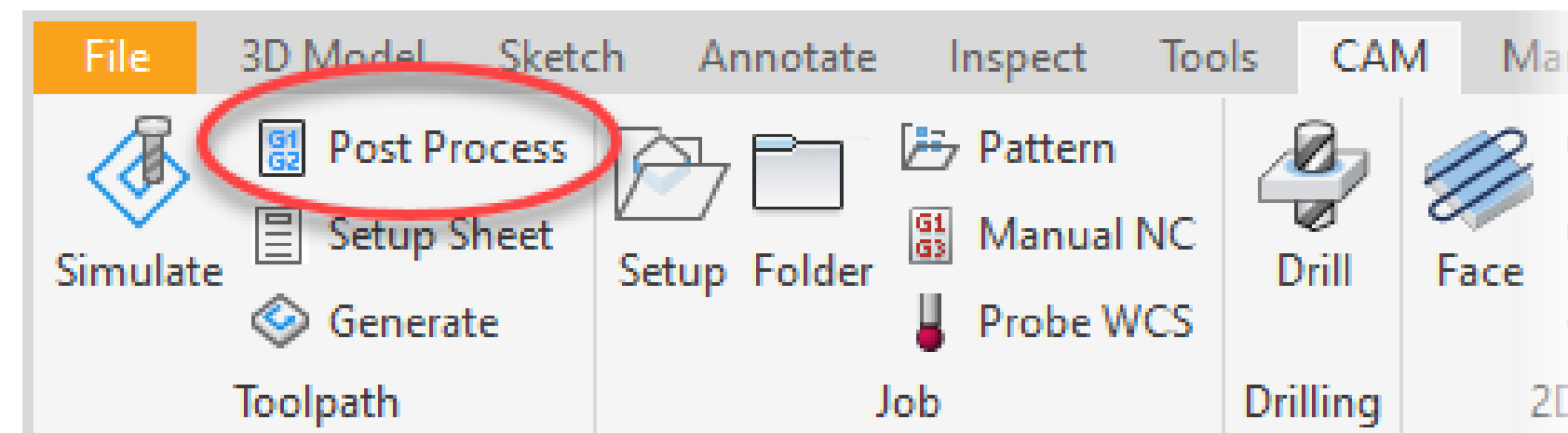
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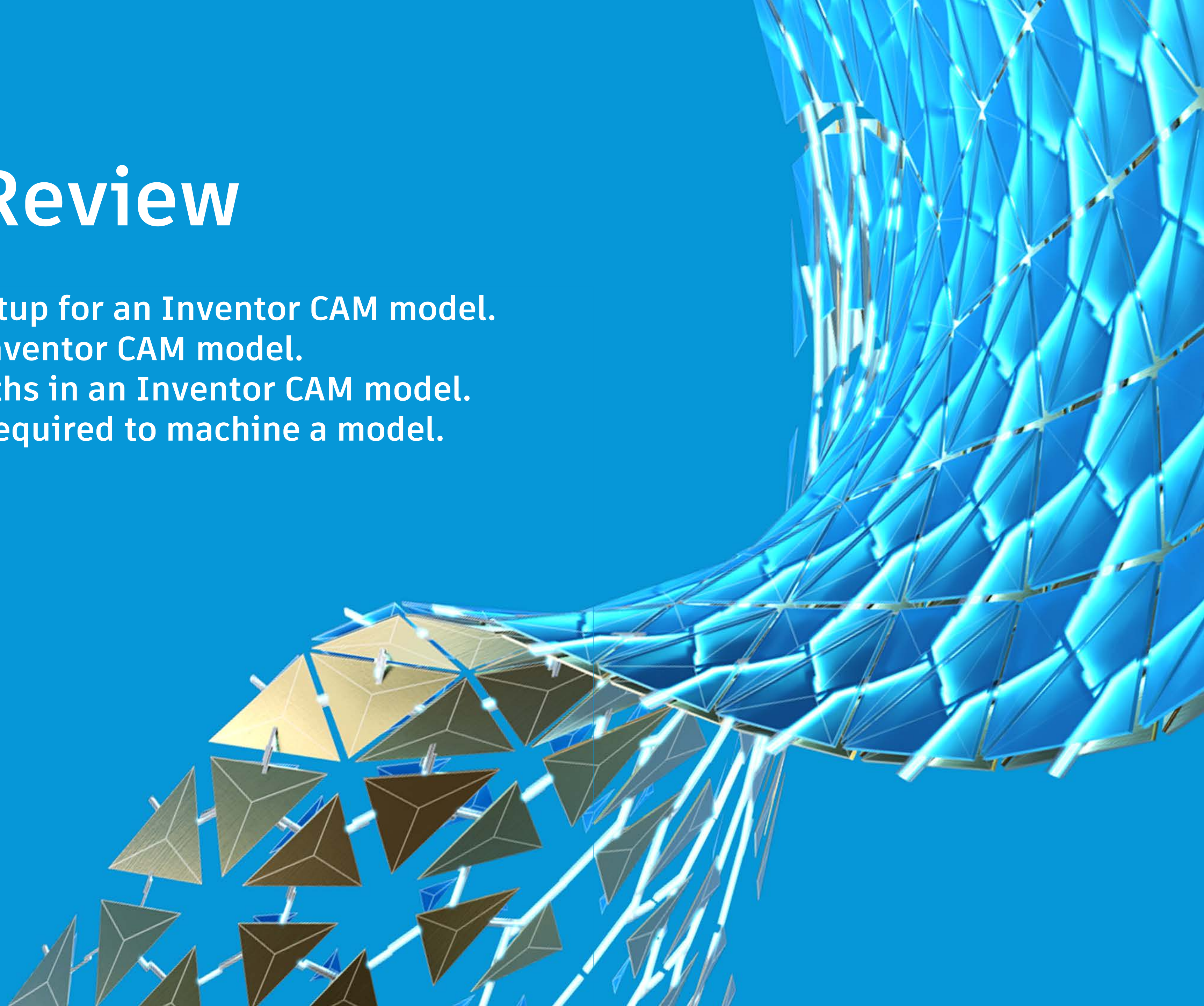
Generating CNC Code

Once all the setups and toolpaths have been created, the CNC code can be generated through Post Processing the data into code so that it can be read by the machine.



Objectives Review

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THANK YOU!



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