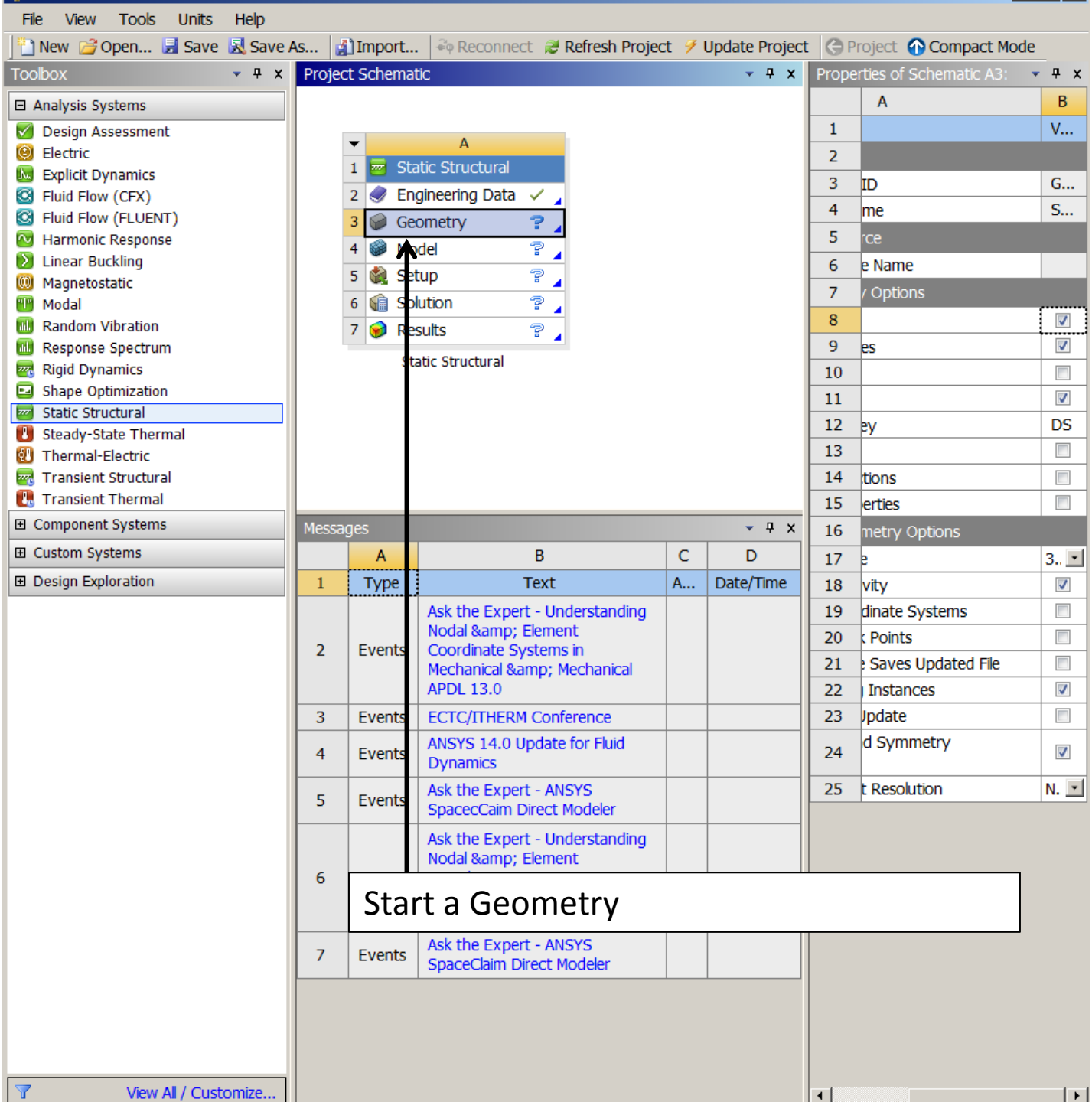
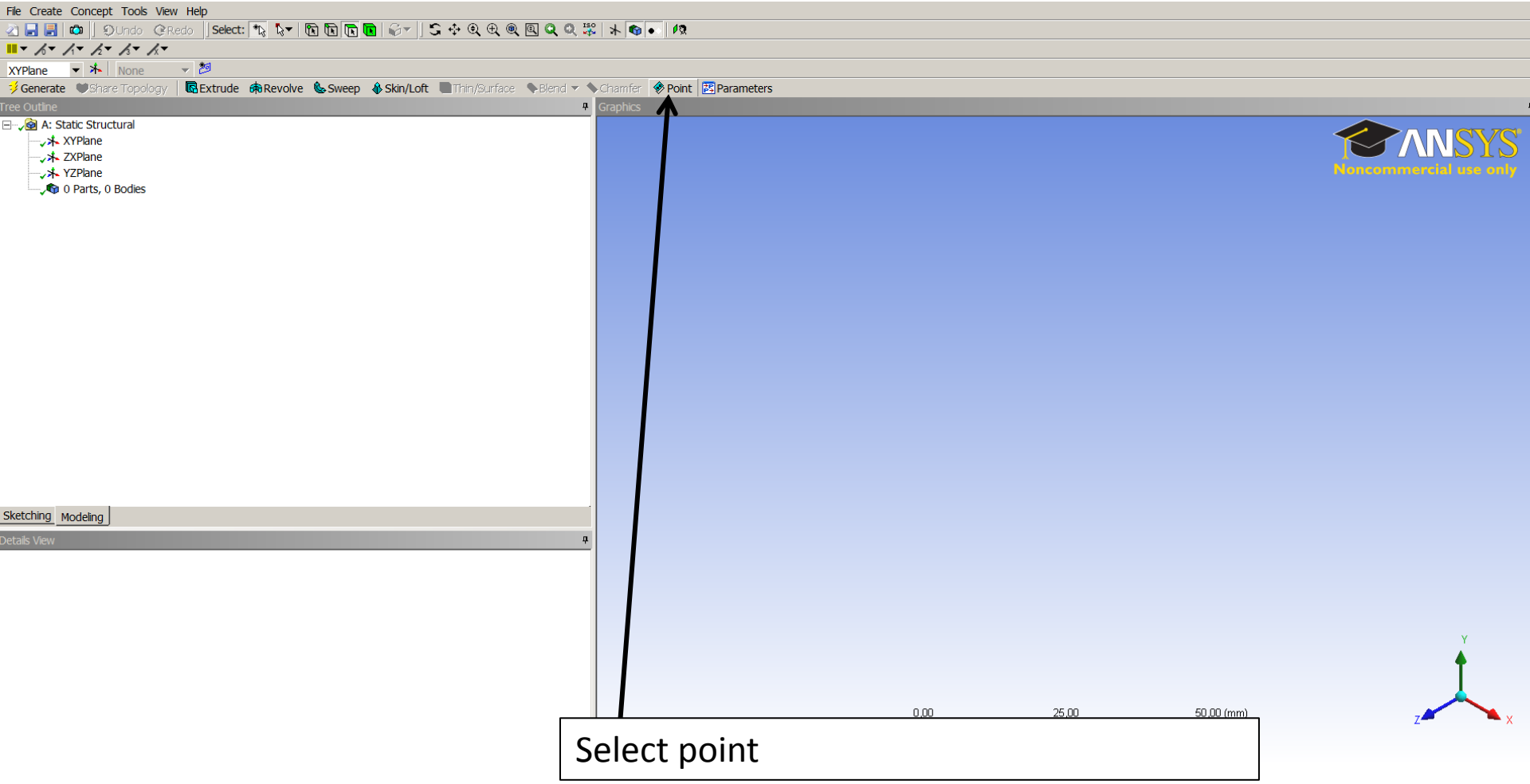
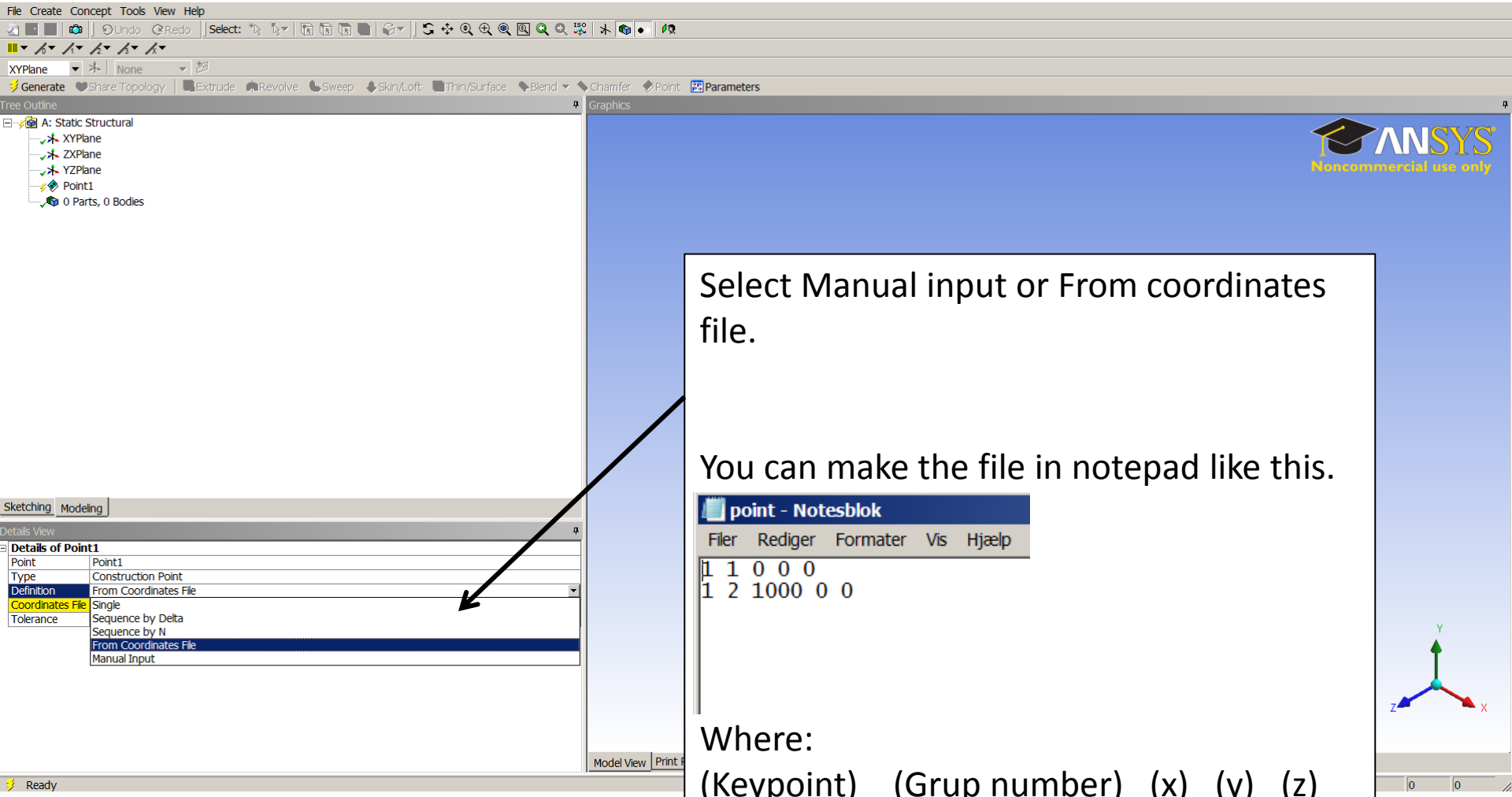
Beam model
Workbench 14.0

Aalborg Universitet Esbjerg
Søren Heide Lambertsen


File View Tools Units Help
New Open... Save Save As... Import... Reconnect Refresh Project Update Project Project Compact Mode
Toolbox
Analysis Systems
Design Assessment
Electric
Explicit Dynamics
Fluid Flow (CFX)
Fluid Flow (FLUENT)
Harmonic Response
Linear Buckling
Magnetostatic
Modal
Random Vibration
Response Spectrum
Rigid Dynamics
Shape Optimization
Static Structural
Steady-State Thermal
Thermal-Electric
Transient Structural
Transient Thermal
Component Systems
Custom Systems
Design Exploration
View All / Customize...
Project Schematic
A
1 Static Structural
2 Engineering Data
3 Geometry
4 Model
5 Setup
6 Solution
7 Results
Static Structural
Start a Geometry
Messages
A B C D
1 Type Text A... Date/Time
2 Events Ask the Expert - Understanding Nodal & Element Coordinate Systems in Mechanical & Mechanical APDL 13.0
3 Events ECTC/ITHERM Conference
4 Events ANSYS 14.0 Update for Fluid Dynamics
5 Events Ask the Expert - ANSYS SpacecCaim Direct Modeler
6 Ask the Expert - Understanding Nodal & Element
7 Events Ask the Expert - ANSYS SpaceClaim Direct Modeler
Properties of Schematic A3:
A B
1 V...
2
3 ID G...
4 me S...
5 rce
6 e Name
7 / Options
8
9 es
10
11
12 ey DS
13
14 tions
15 erties
16 metry Options
17 e 3..
18 vity
19 dinate Systems
20 k Points
21 e Saves Updated File
22) Instances
23 Update
24 d Symmetry
25 t Resolution N.


File Create Concept Tools View Help
Undo Redo Select:
XYPlane None
Generate Share Topology Extrude Revolve Sweep Skin/Loft Thin/Surface Blend Chamfer Point Parameters
Tree Outline
A: Static Structural
XYPlane
ZXPlane
YZPlane
0 Parts, 0 Bodies
Sketching Modeling
Details View
Graphics
ANSYS
Noncommercial use only
0.00 25.00 50.00 (mm)
Y
Z
X
Select point



Select Manual input or From coordinates file.

You can make the file in notepad like this.

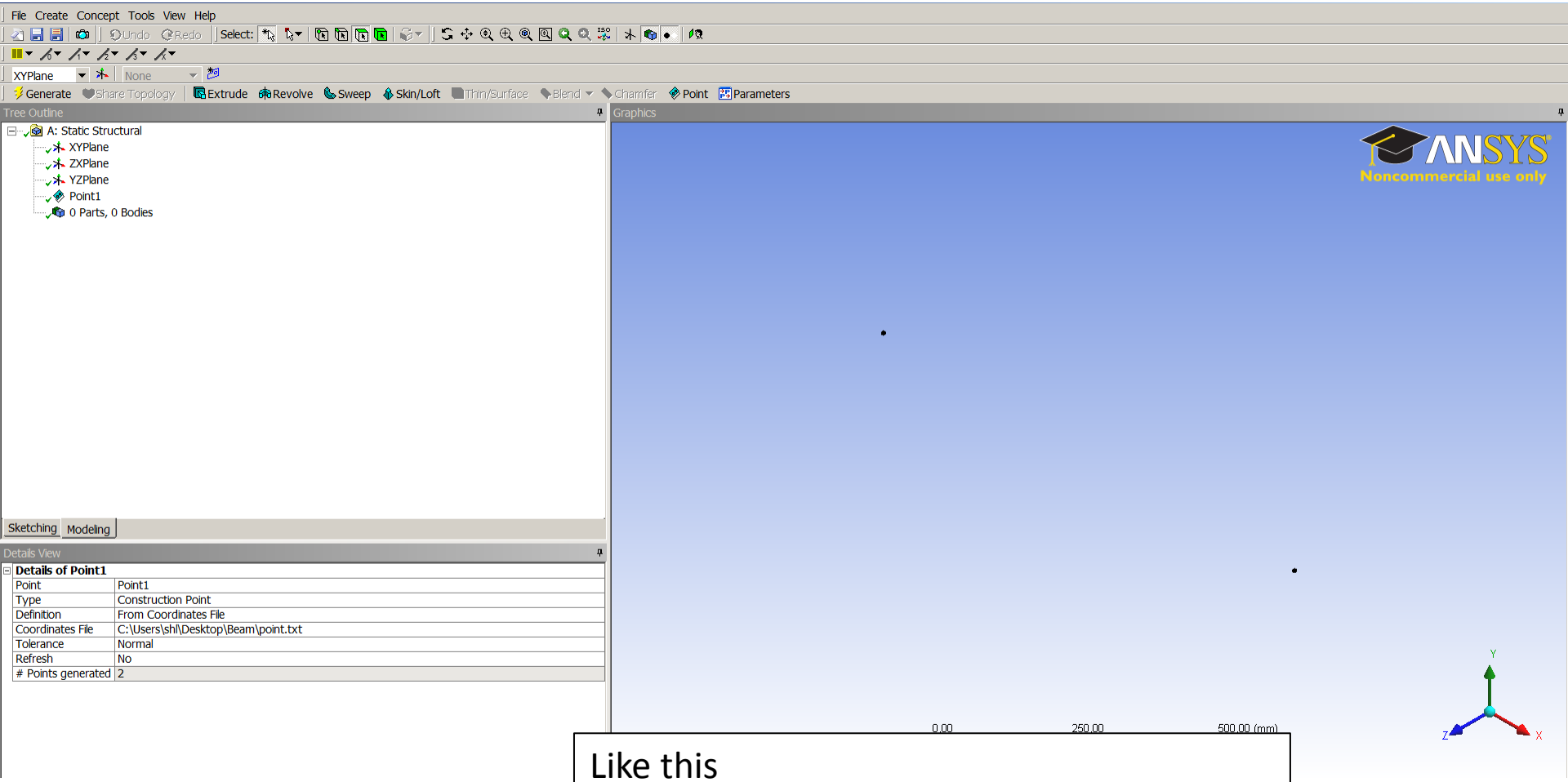
point - Notesblok

Filer Rediger Formater Vis Hjælp

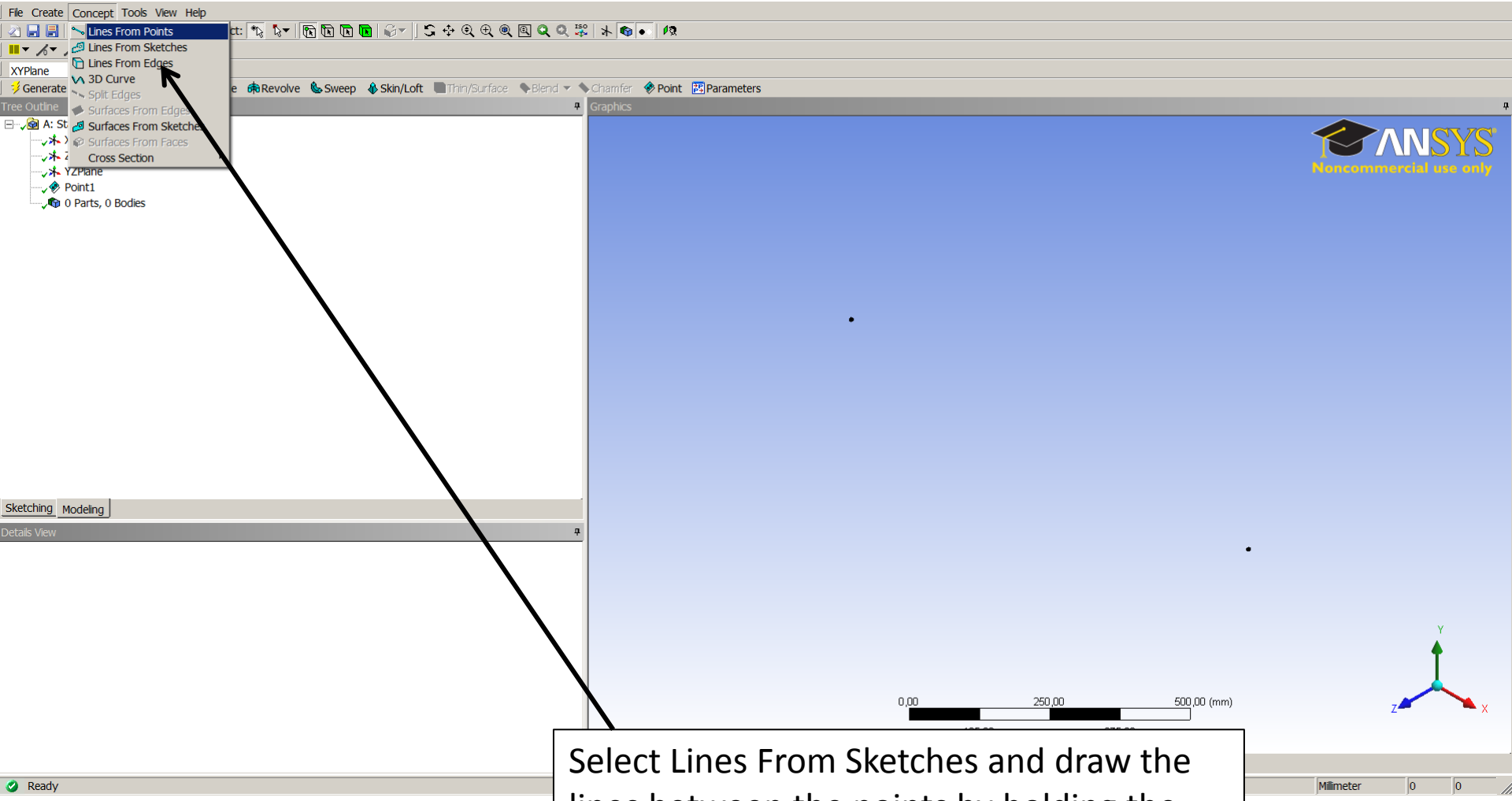
```
1  1  0  0  0
1  2  1000  0  0
```

Where:

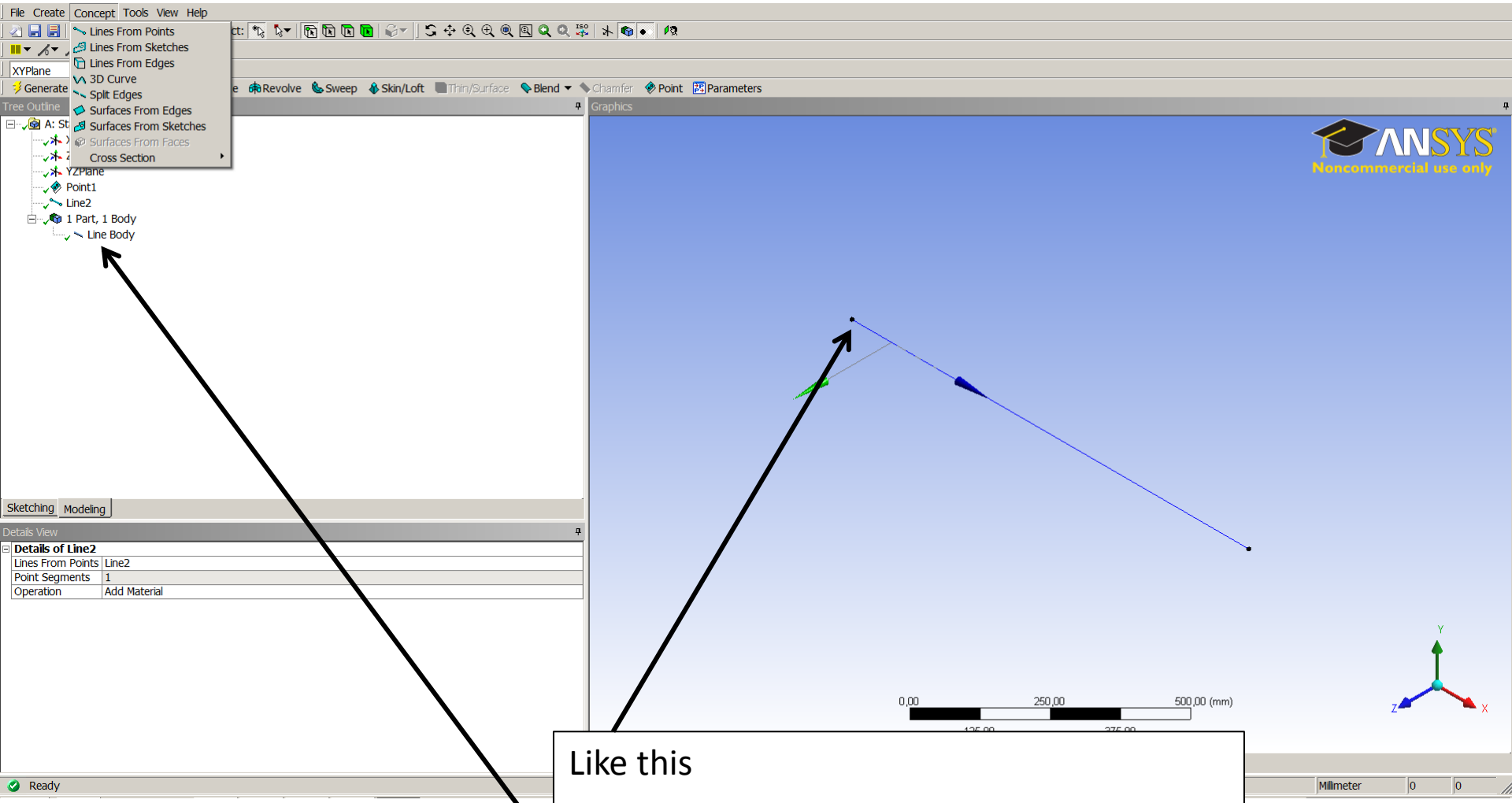
(Keypoint) (Grup number) (x) (y) (z)

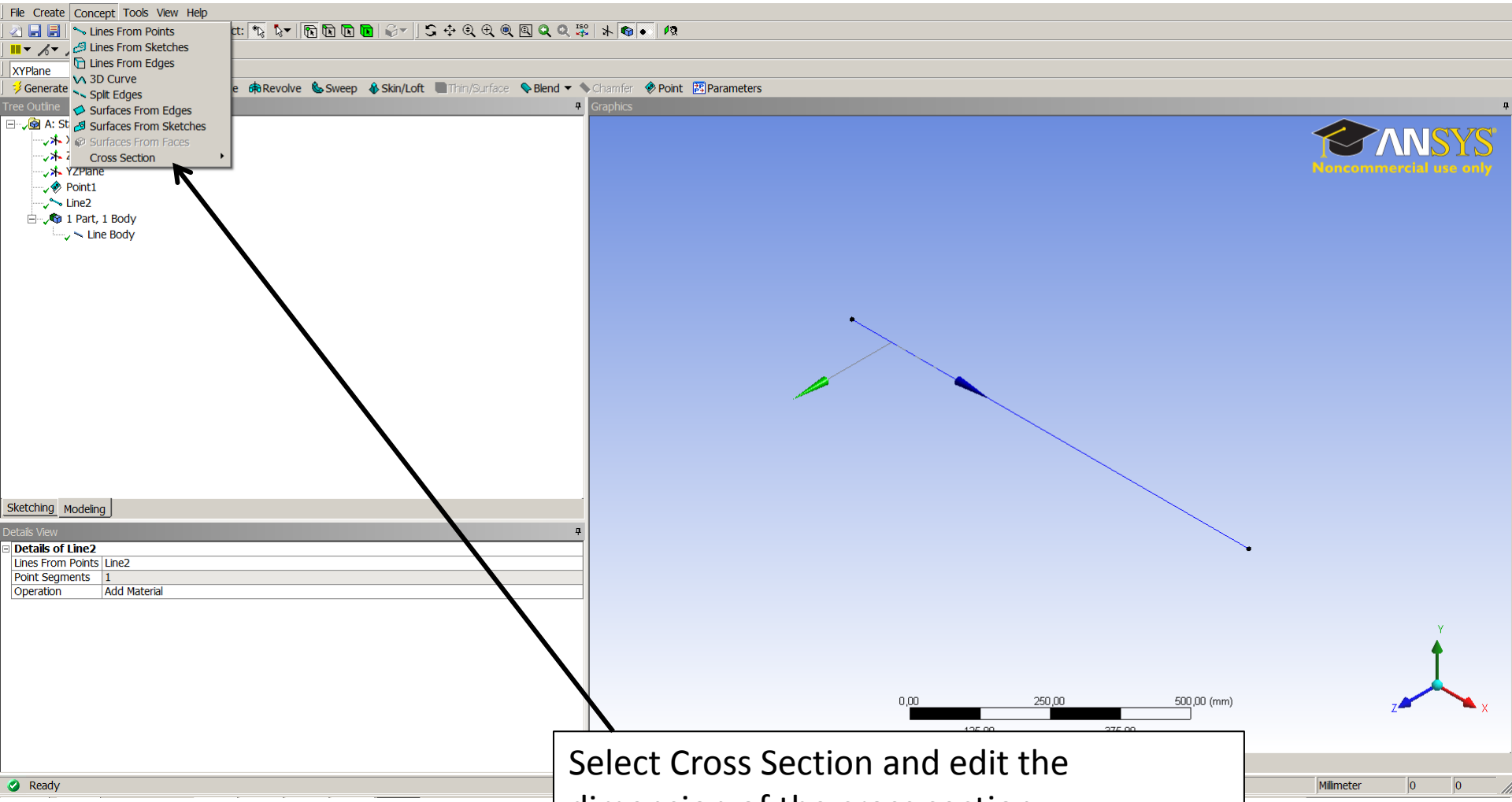

File Create Concept Tools View Help
Undo Redo Select:
XYPlane None
Generate Share Topology Extrude Revolve Sweep Skin/Loft Thin/Surface Blend Chamfer Point Parameters
Tree Outline
A: Static Structural
XYPlane
ZXPlane
YZPlane
Point1
0 Parts, 0 Bodies
Sketching Modeling
Details View
Details of Point1
Point Point1
Type Construction Point
Definition From Coordinates File
Coordinates File C:\Users\shl\Desktop\Beam\point.txt
Tolerance Normal
Refresh No
Points generated 2
Graphics
ANSYS
Noncommercial use only
0.00 250.00 500.00 (mm)
Y
Z
X

Like this

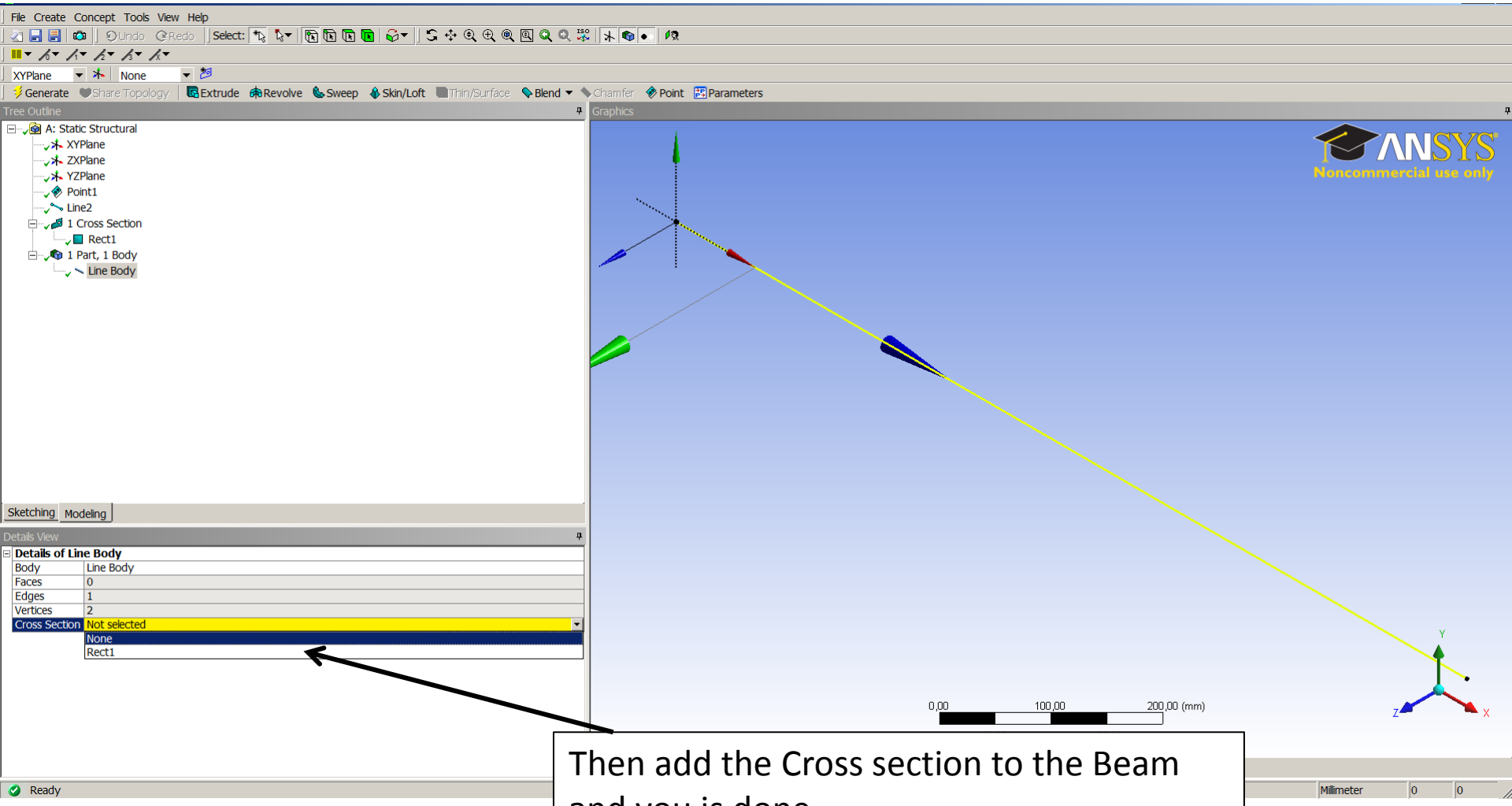


Select Lines From Sketches and draw the lines between the points by holding the Ctrl bottom on the keybord and use the mouse.

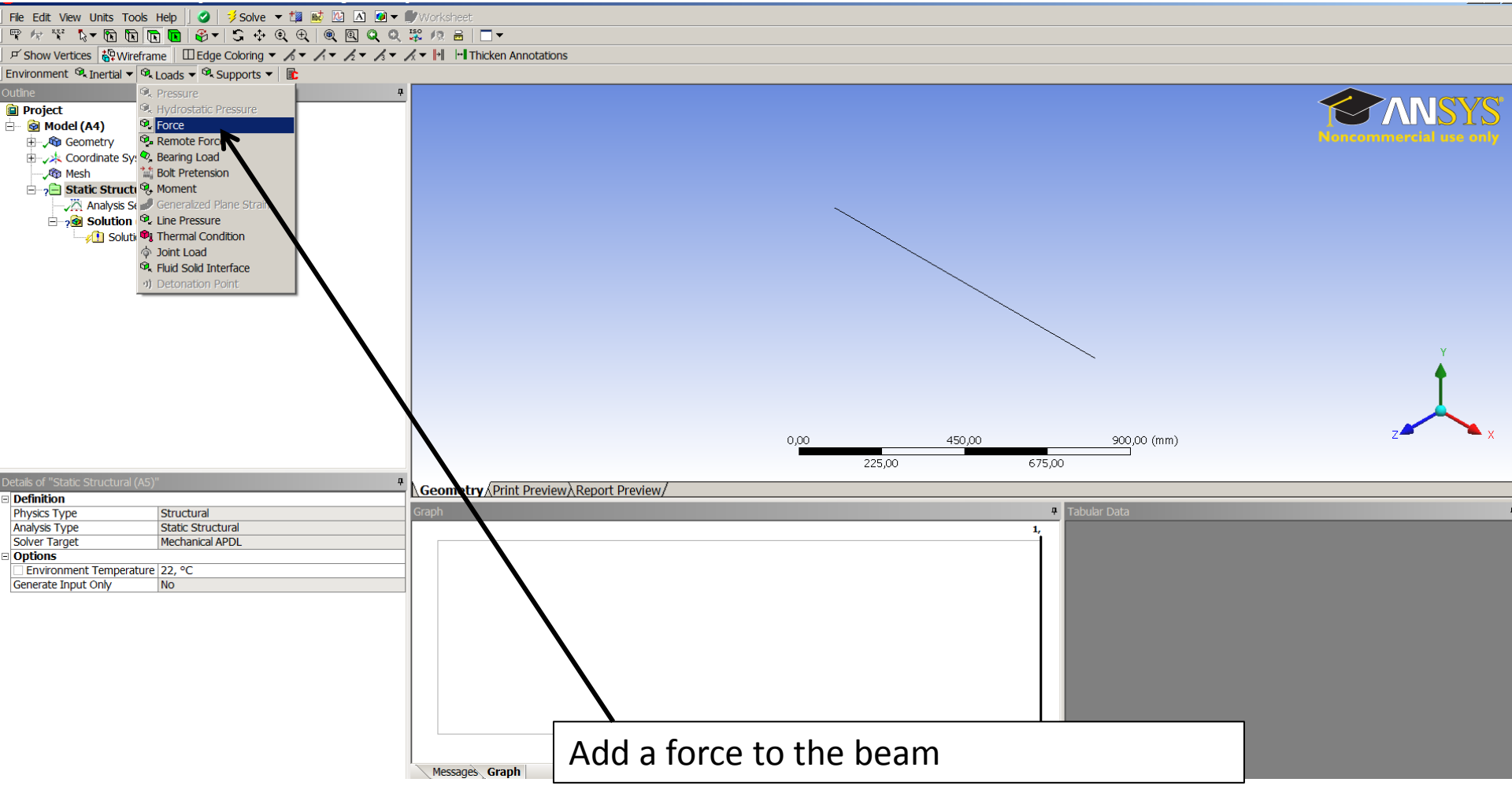

File Create Concept Tools View Help
Lines From Points
Lines From Sketches
Lines From Edges
3D Curve
Split Edges
Surfaces From Edges
Surfaces From Sketches
Surfaces From Faces
Cross Section
XYPlane
Generate
Revolve
Sweep
Skin/Loft
Thin/Surface
Blend
Chamfer
Point
Parameters
Tree Outline
A: St
YZPlane
Point1
Line2
1 Part, 1 Body
Line Body
Sketching
Modeling
Details View
Details of Line2
Lines From Points Line2
Point Segments 1
Operation Add Material
Graphics
ANSYS
Noncommercial use only
0,00
250,00
500,00 (mm)
Y
Z
X
Like this
Line body
Ready
Millimeter
0
0



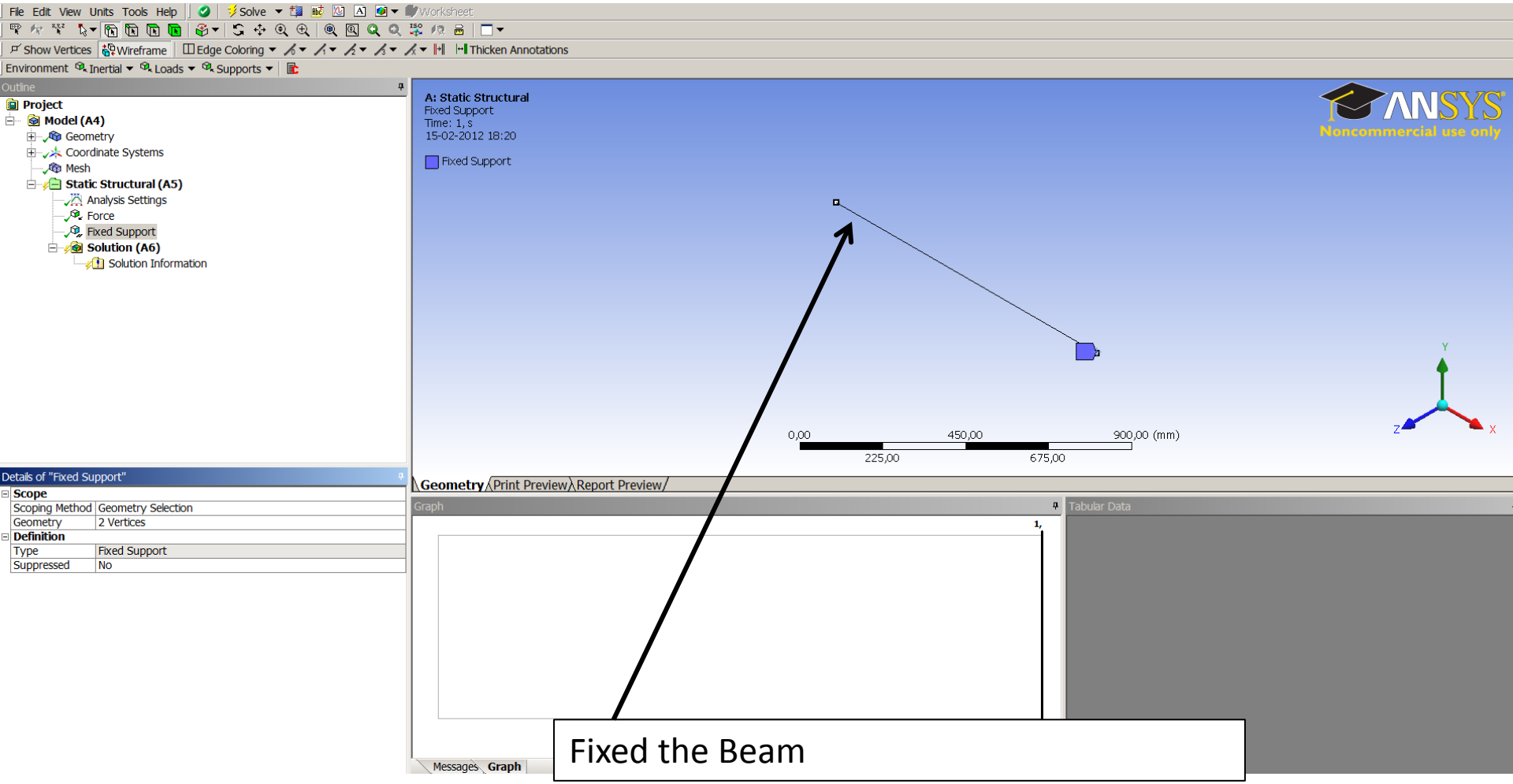
Select Cross Section and edit the dimension of the cross section.

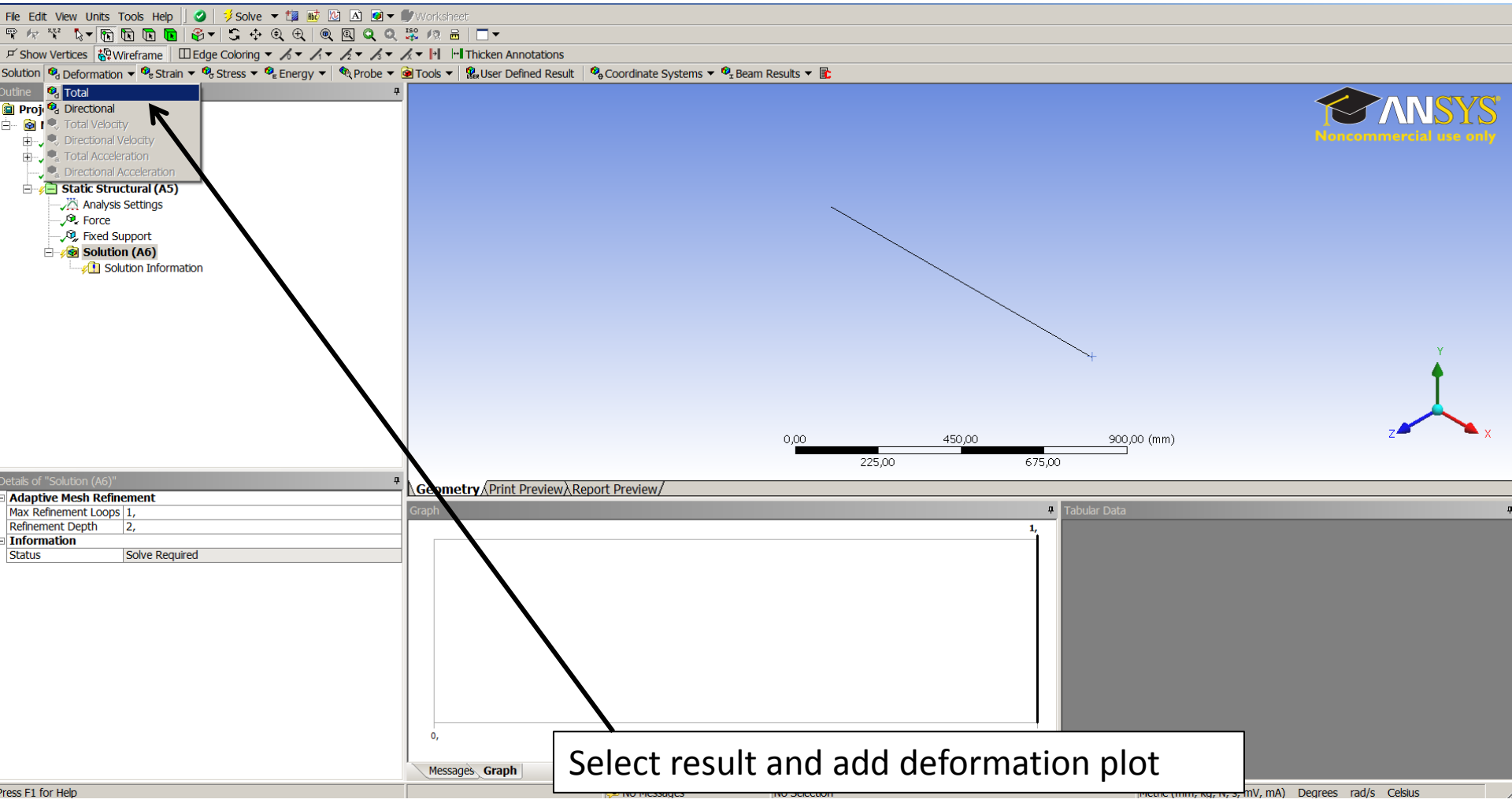


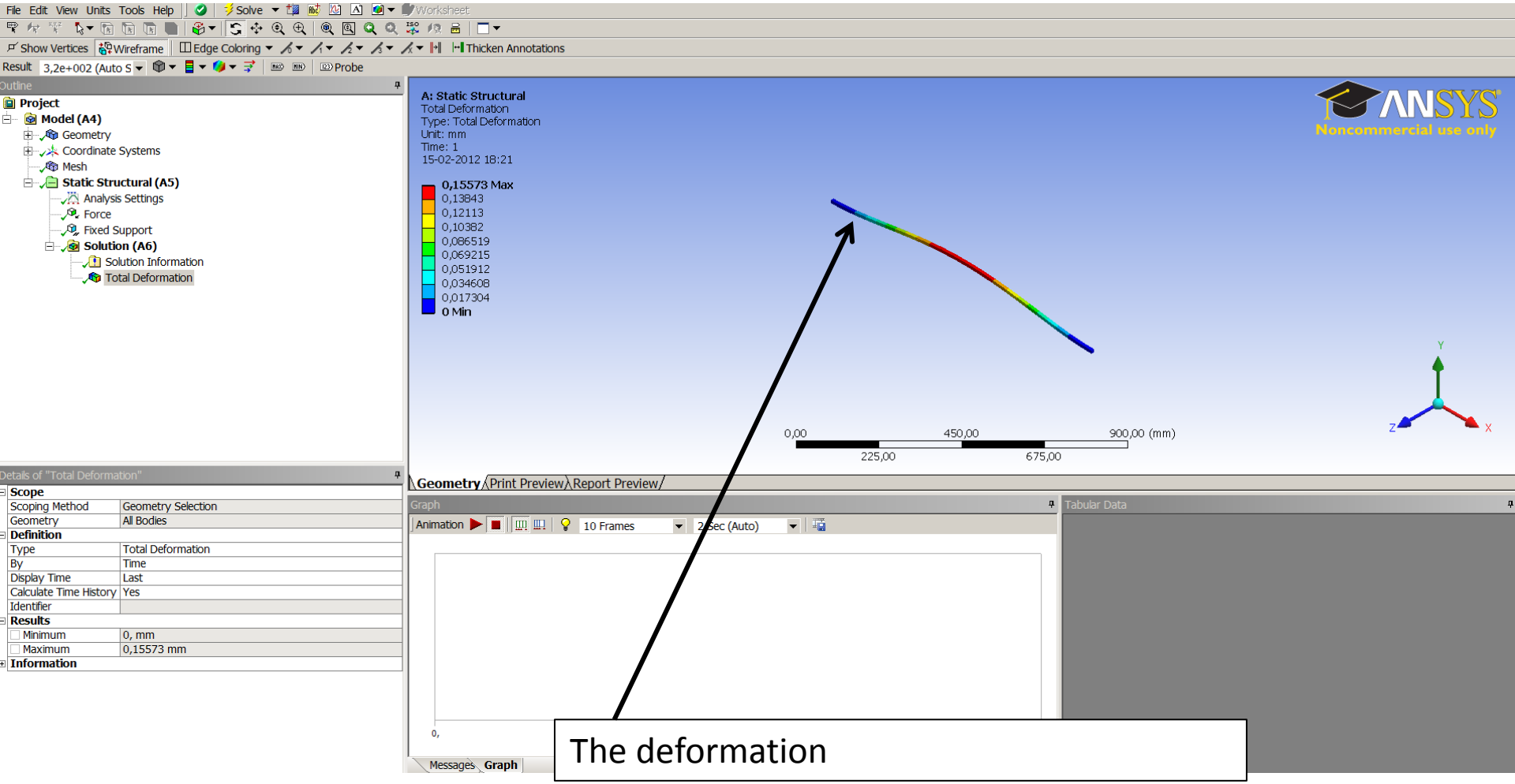
Then add the Cross section to the Beam and you is done



Add a force to the beam


File Edit View Units Tools Help
Solve
Worksheet
Show Vertices
Wireframe
Edge Coloring
Thicken Annotations
Environment
Inertial
Loads
Supports
Outline
Project
Model (A4)
Geometry
Coordinate Systems
Mesh
Static Structural (A5)
Analysis Settings
Force
Fixed Support
Solution (A6)
Solution Information
A: Static Structural
Fixed Support
Time: 1, s
15-02-2012 18:20
Fixed Support
ANSYS
Noncommercial use only
0,00
450,00
900,00 (mm)
225,00
675,00
Y
Z
X
Details of "Fixed Support"
Scope
Scoping Method
Geometry Selection
Geometry
2 Vertices
Definition
Type
Fixed Support
Suppressed
No
Geometry
Print Preview
Report Preview
Graph
Tabular Data
Messages
Graph
Fixed the Beam


File Edit View Units Tools Help
Solve
Worksheet
Show Vertices
Wireframe
Edge Coloring
Thicken Annotations
Solution
Deformation
Strain
Stress
Energy
Probe
Tools
User Defined Result
Coordinate Systems
Beam Results
Total
Directional
Total Velocity
Directional Velocity
Total Acceleration
Directional Acceleration
Static Structural (A5)
Analysis Settings
Force
Fixed Support
Solution (A6)
Solution Information
ANSYS
Noncommercial use only
0,00
450,00
900,00 (mm)
225,00
675,00
Geometry
Print Preview
Report Preview
Graph
Tabular Data
Details of "Solution (A6)"
Adaptive Mesh Refinement
Max Refinement Loops 1,
Refinement Depth 2,
Information
Status Solve Required
Messages
Graph
Press F1 for Help
Select result and add deformation plot


File Edit View Units Tools Help
Solve
Worksheet
Show Vertices
Wireframe
Edge Coloring
Thicken Annotations
Result
3,2e+002 (Auto S
Probe
Outline
Project
Model (A4)
Geometry
Coordinate Systems
Mesh
Static Structural (A5)
Analysis Settings
Force
Fixed Support
Solution (A6)
Solution Information
Total Deformation
A: Static Structural
Total Deformation
Type: Total Deformation
Unit: mm
Time: 1
15-02-2012 18:21
0,15573 Max
0,13843
0,12113
0,10382
0,086519
0,069215
0,051912
0,034608
0,017304
0 Min
ANSYS
Noncommercial use only
0,00
450,00
900,00 (mm)
225,00
675,00
Y
Z
X
Geometry
Print Preview
Report Preview
Details of "Total Deformation"
Scope
Scoping Method
Geometry Selection
Geometry
All Bodies
Definition
Type
Total Deformation
By
Time
Display Time
Last
Calculate Time History
Yes
Identifier
Results
Minimum
0, mm
Maximum
0,15573 mm
Information
Graph
Animation
10 Frames
2 Sec (Auto)
Tabular Data
0,
Messages
Graph
The deformation