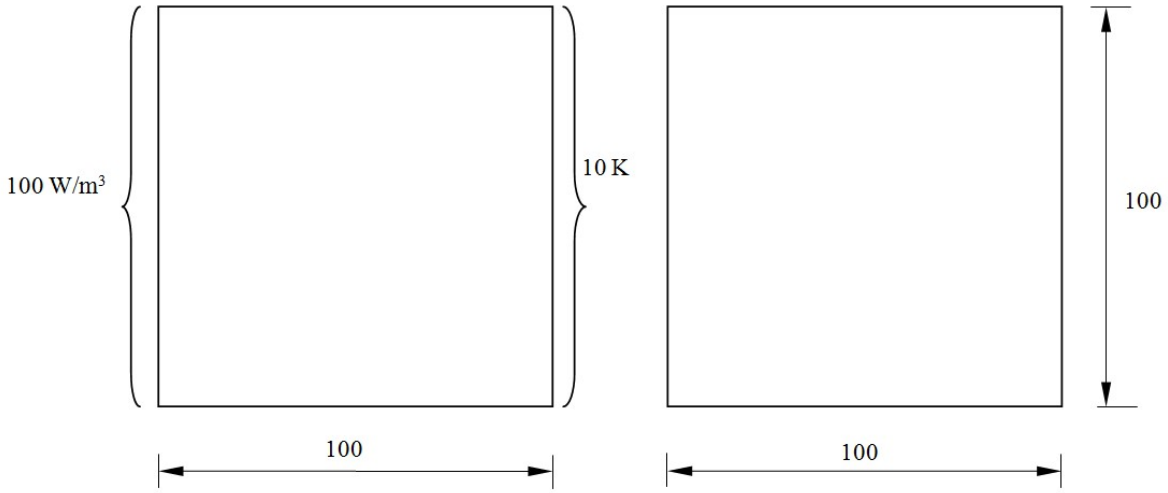
HEAT TRANSFER ANALYSIS OF A CUBOID WITHSPECIFIED TEMPERATURE AND HEAT GENERATION BC



Cuboid size : 10*m*X10*m*X10*m*

Element size : 2*m*X2*m*X2*m*

Temperature BC : 10*K*

Heat Generation : $100 W/m^3$

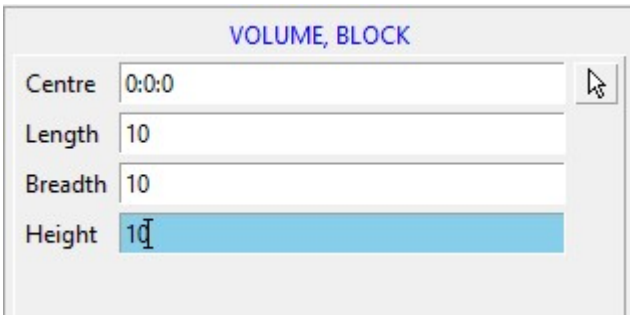
PROCEDURE

1 Createvolume

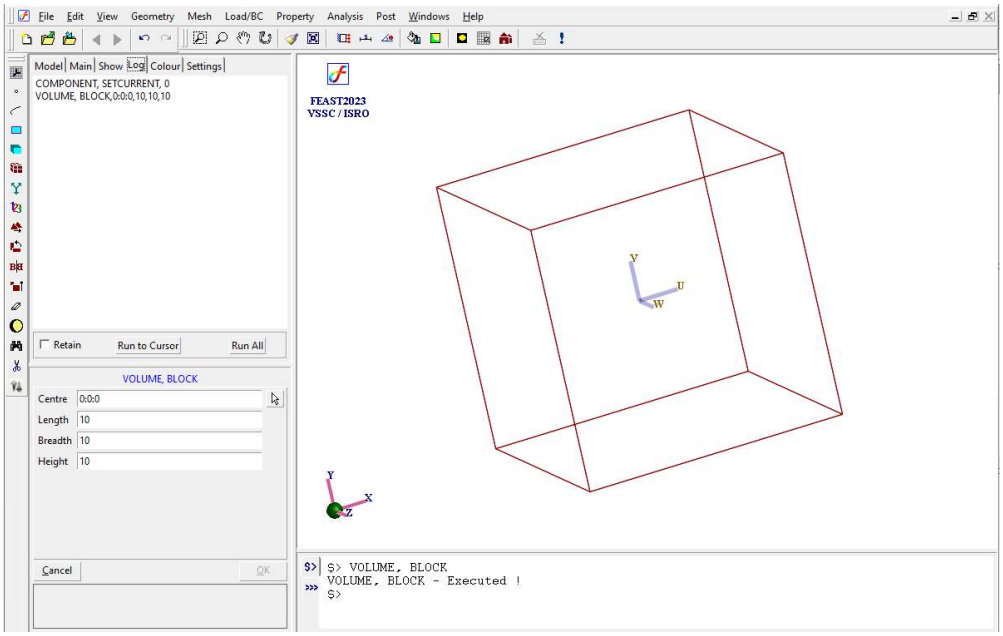
Menu : Geometry →Volume→ Create →Block

Commands : VOLUME,BLOCK

Parameters : (To be filled by the user)



At the end of the above operations, your screen looks like this.



2 Meshing using brick elements

Menu : Mesh →MeshGen→HEXA

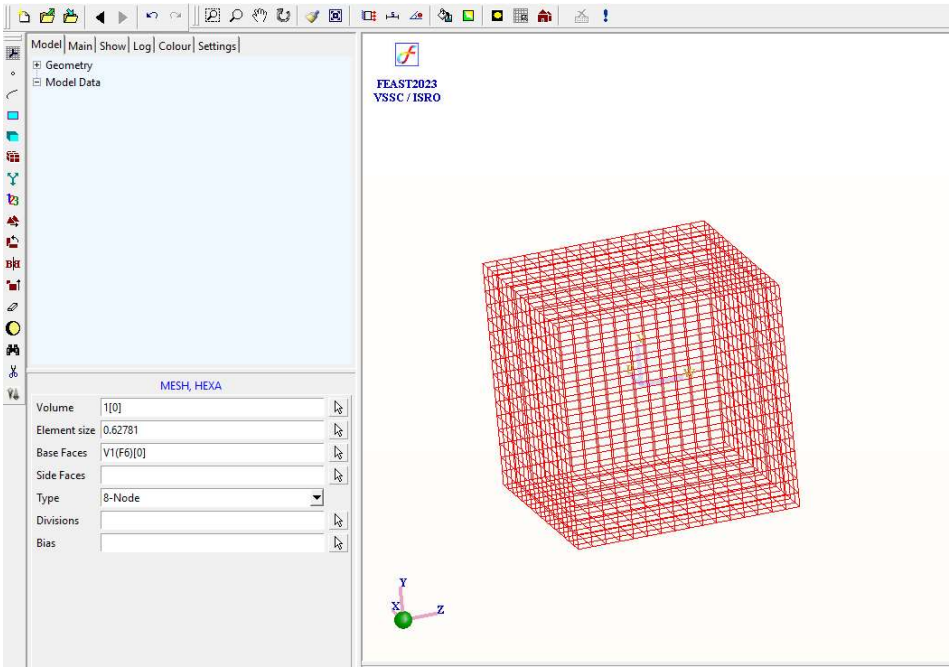
Command : MESH,HEXA

Parameters :

Volume	Use mouse to select the volume
Elem size	0.62781
Base Faces	Select the One Face on Volume (Ex:V1(F6)[0])

Side faces	
Type	8-node
Divisions	

At the end of the above operations, your screen looks like this.



3 Set the analysis type

Menu : Analysis → Analysis Type

Command : ANTYPE, ADD

Analysis Types	HT Steadystate

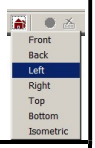
4 Specifyheat transfer boundary conditions

Menu : Load/BC →Thermal→Temperature

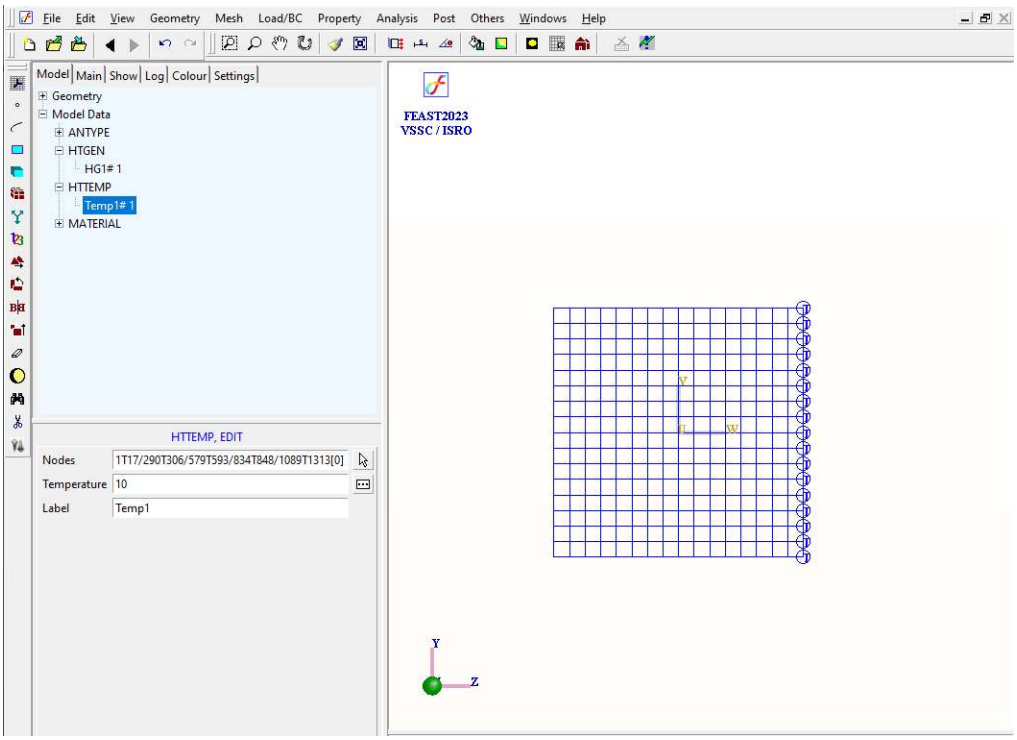
Command : HTTEMP, ADD

Parameters :

(i) Temperature

Node IDs	Select the left edge nodes by setting the project to left view from the view direction icon in menu bar 
Temperature	10
Label	Temp1

At the end of the above operations, your screen should look like this.



(ii) Heat generation

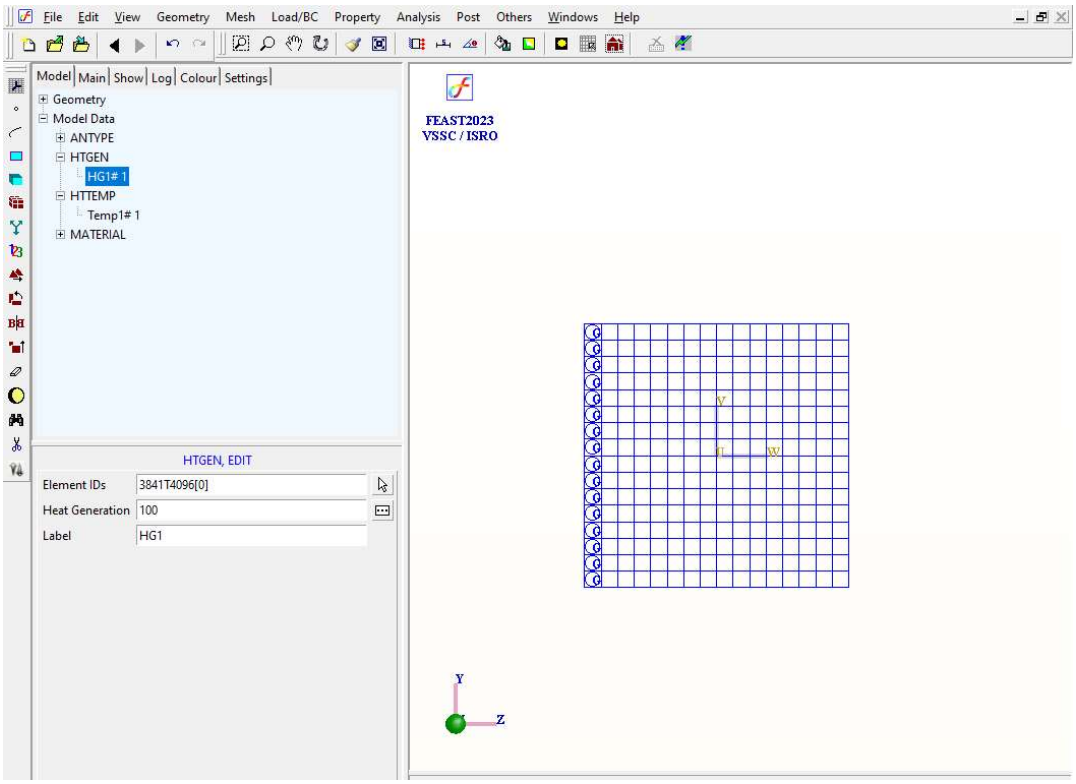
Menu : Load/BC →Thermal→Heat Generation

Command : HTGEN, ADD

Parameters :

Element IDs	Select the right boundary elements by setting the project to left view from the view direction icon in menu bar
Heat Generation rate	100
Label	HG1

At the end of the above operations, your screen should look like this.

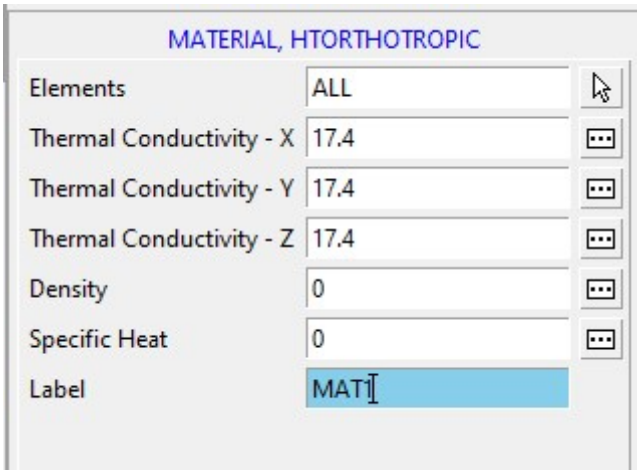


5 Specifymaterial properties

Menu : Property → Material →Thermal→Orthotropic

Command : MATERIAL, HTORTHOTROPIC

Parameters :



6 Save the project model

Menu : File → Save

7 Submit the job into FEAST

Click **Run Solver** button 

After the solution is completed the message *"Finished successfully"* appears in the *message box.*

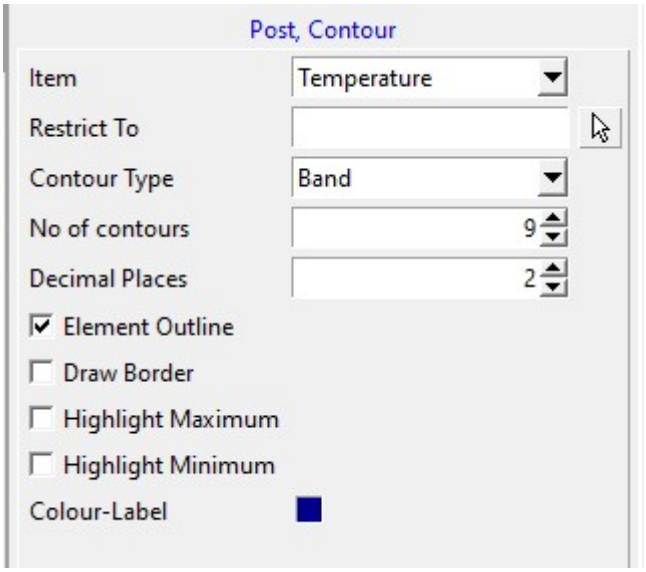
8 Perform post processing

a) Contour

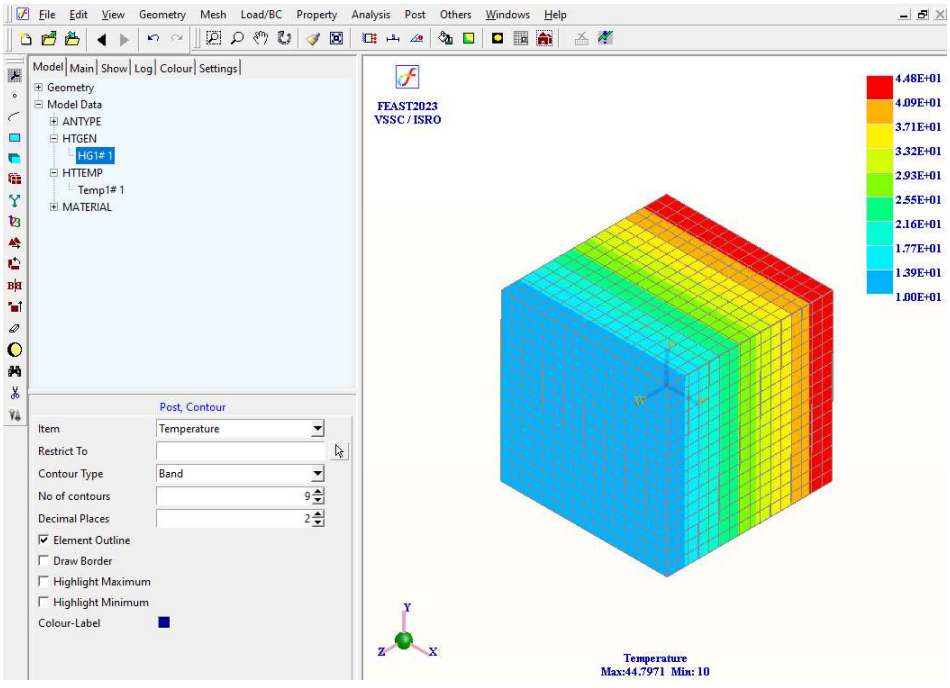
Menu : Post →Contour

Command : Post, Contour

Parameters :



At the end of the above operations, your screen should look like this.



b) Output file can be seen in *.OUT