



MIDAS

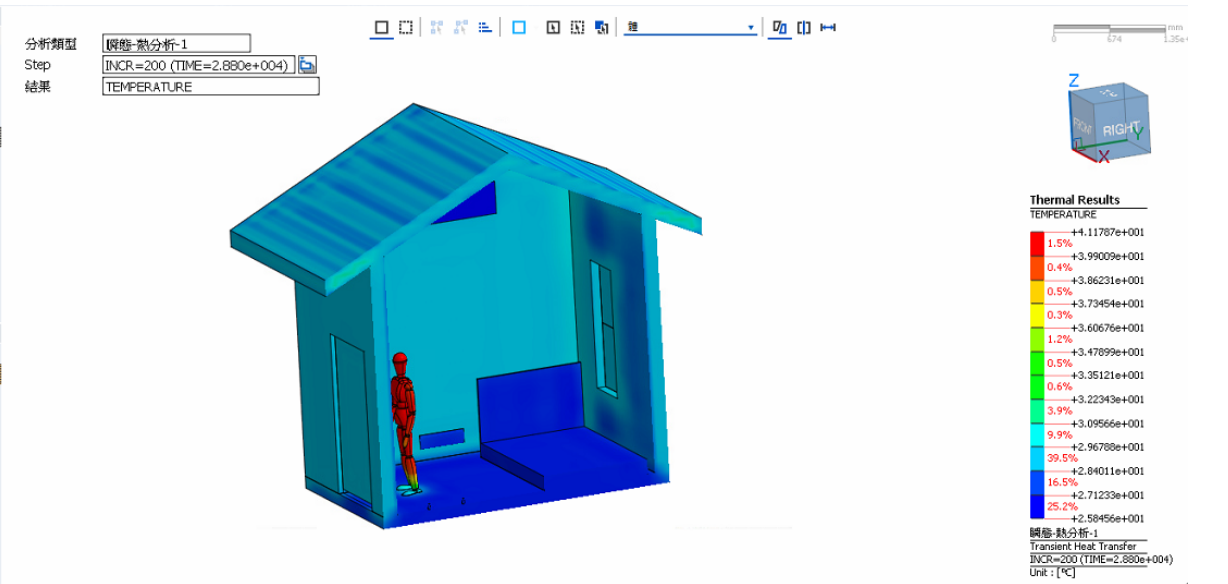
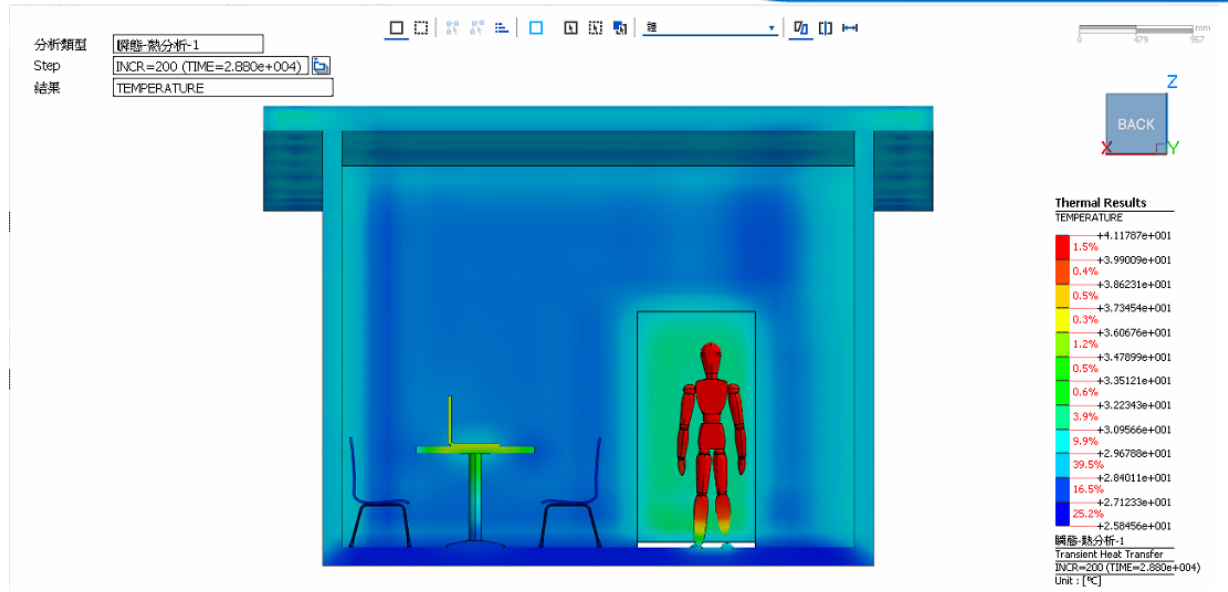
MESH FREE

瞬態熱響應
EX3. 建築通風散熱

Simple, but Everything.



瞬態-熱

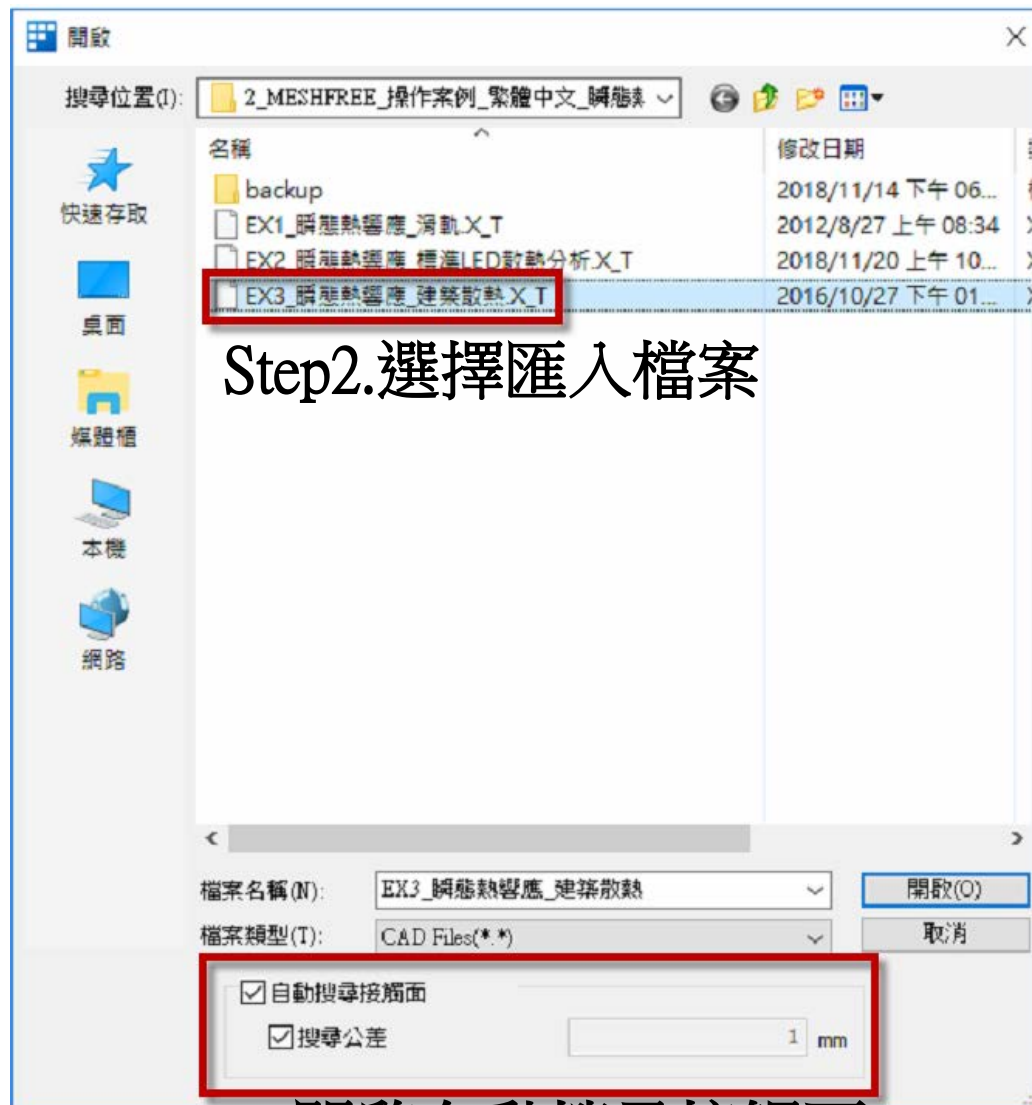




Step1.匯入3D 模型

MeshFree支援各類CAD 格式

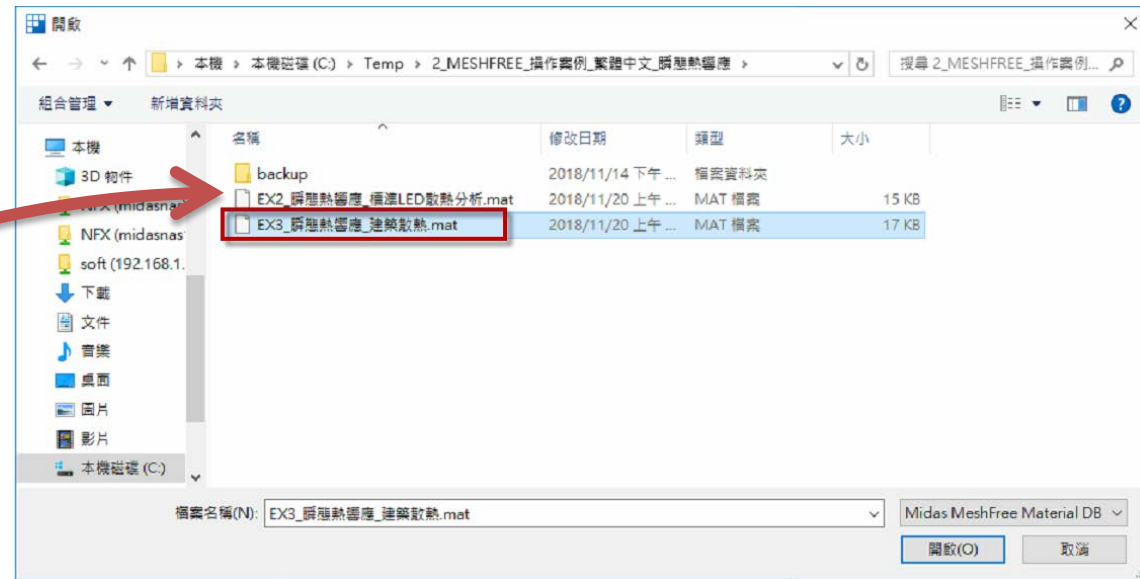
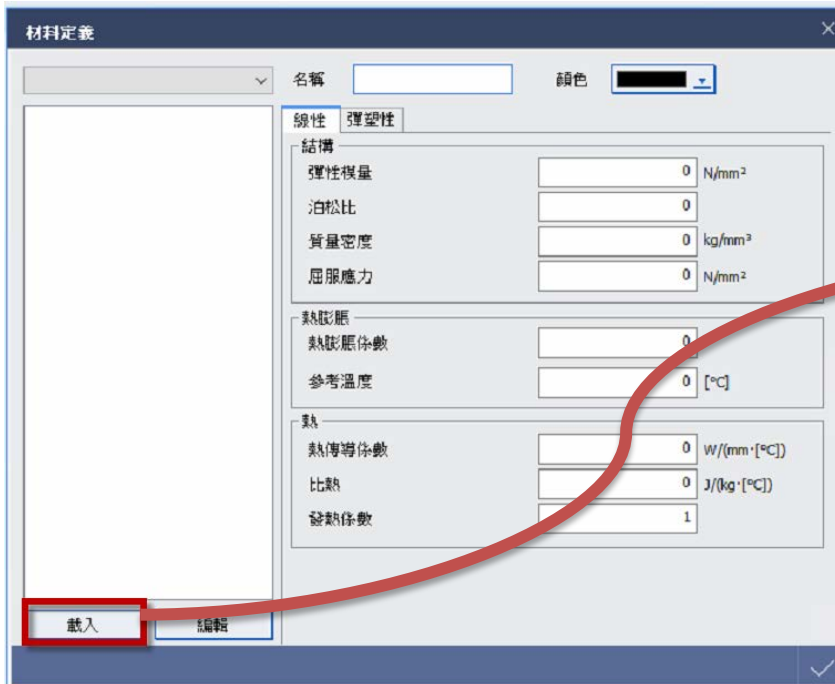
Parasolid (9 - 29) Files (*.x_t;*.xmt_tbt;*.x_b;*.xmt_bin)
 ACIS (R1 - 2017 1.0) Files (*.sat;*.sab;*.asat;*.asab)
 STEP (AP203, AP214, AP242) Files (*.stp;*.step)
 IGES (Up to 5.3) Files (*.igs;*.iges)
 Pro-E (16 - Creo 3.0) Files (*.prt;*.prt.*;*.asm;*.asm.*)
 CATIA V4 (CATIA 4.1.9 - 4.2.4) Files (*.model;*.exp;*.session)
 CATIA V5 (V5R8 - V5-6R2016) Files (*.CATPart;*.CATProduct)
 Solid Works (98 - 2017) Files (*.sldprt;*.sldasm)
 Unigraphics (11 - NX11) Files (*.prt)
 Inventor Part (V6 - V2017) Files (*.ipt)
 Inventor Assembly (V11 - V2017) Files (*.iam)
 Solid Edge (V18 - ST9) Files (*.par;*.asm;*.psm)

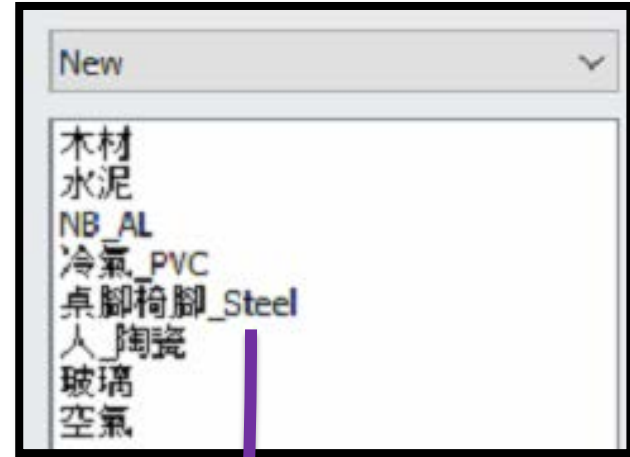
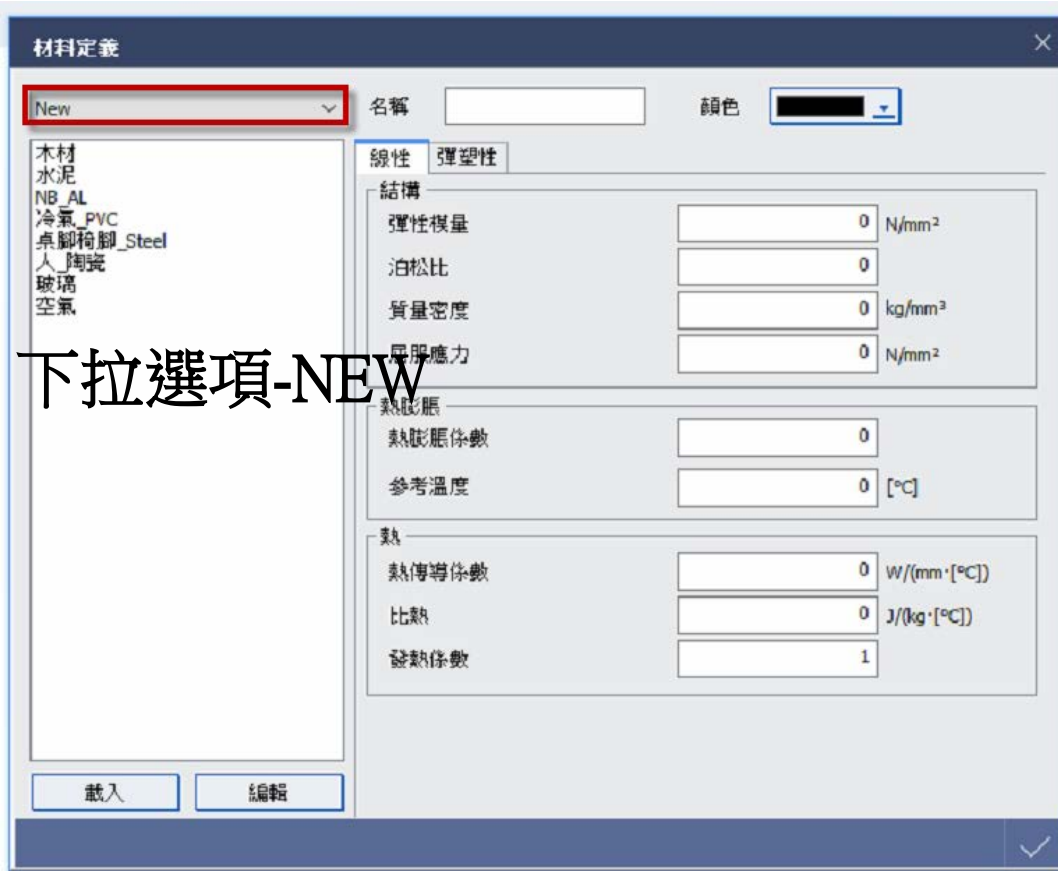


Step3.開啓自動搜尋接觸面

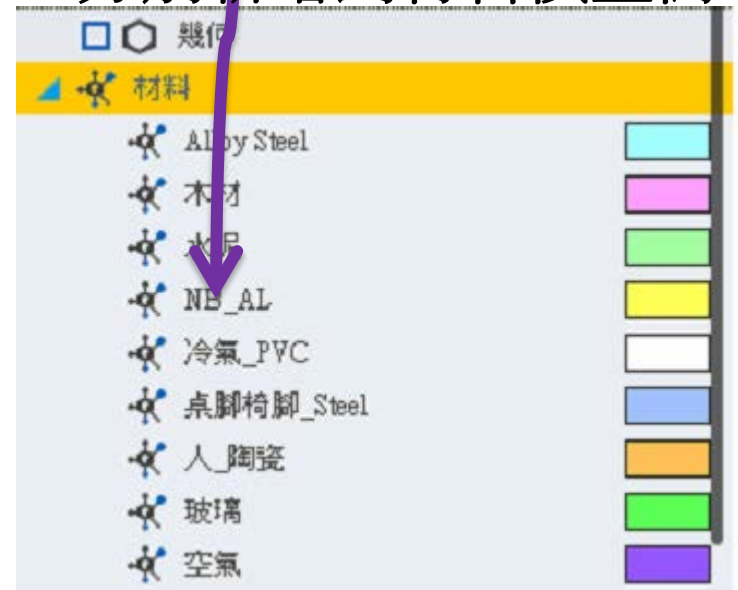


選擇匯入材料檔 EX3_瞬態熱響應_建築散熱.mat





分別新增到材料模型樹

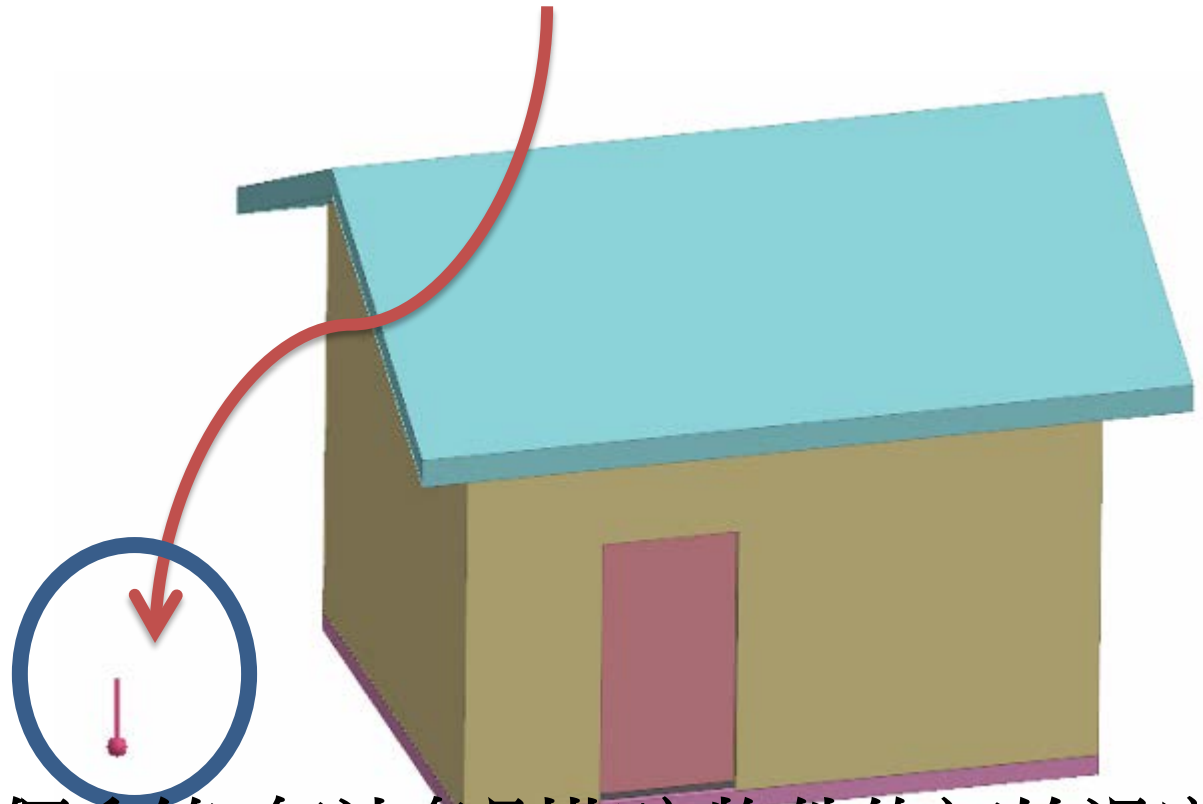
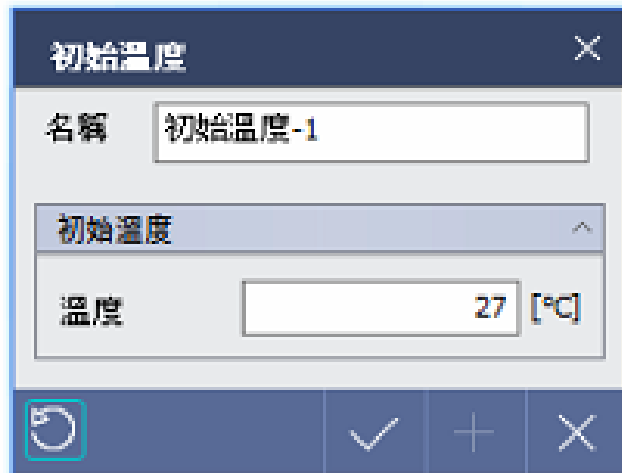




依照圖示分別指定材料



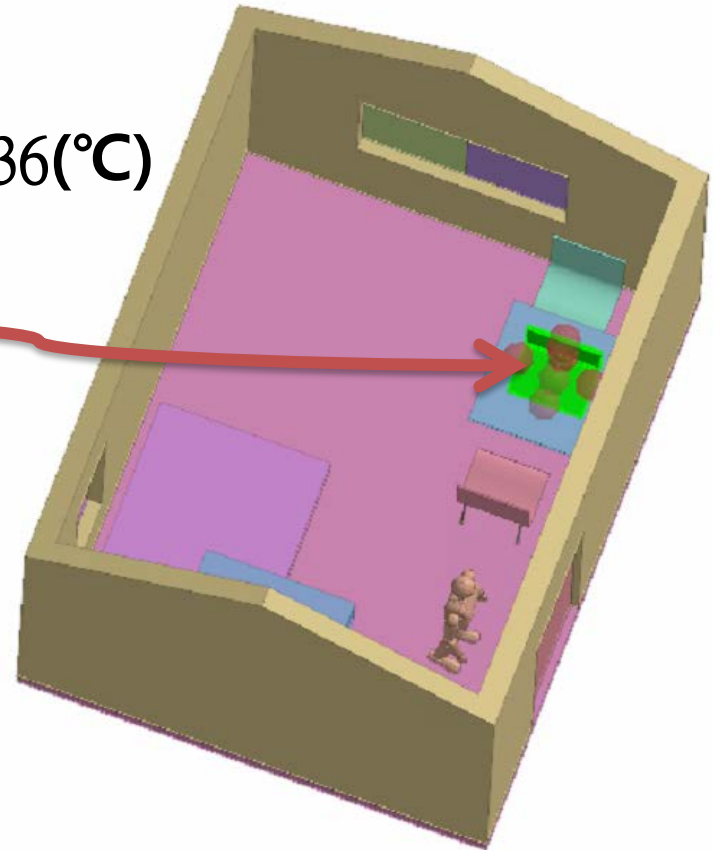
初始溫度定義標誌



註:初始溫度是針對整個系統,無法各別指定物件的初始溫度



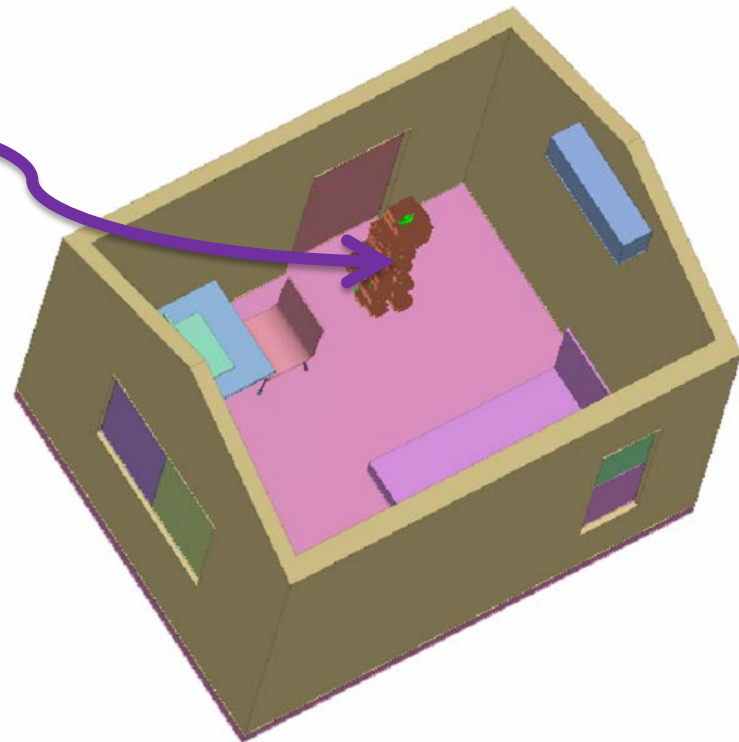
NB 假設維持 36(°C)





載荷

人體單位體積熱源 1 E-6 Watt/mm^3





空氣熱對流係數: 5×10^{-5} (W/mm² °C)

特徵選取建物外表面特徵

熱對流

名稱: 熱對流-1

已經選取 13 個幾何特徵

環境溫度

數值: 1 [°C]

熱對流係數

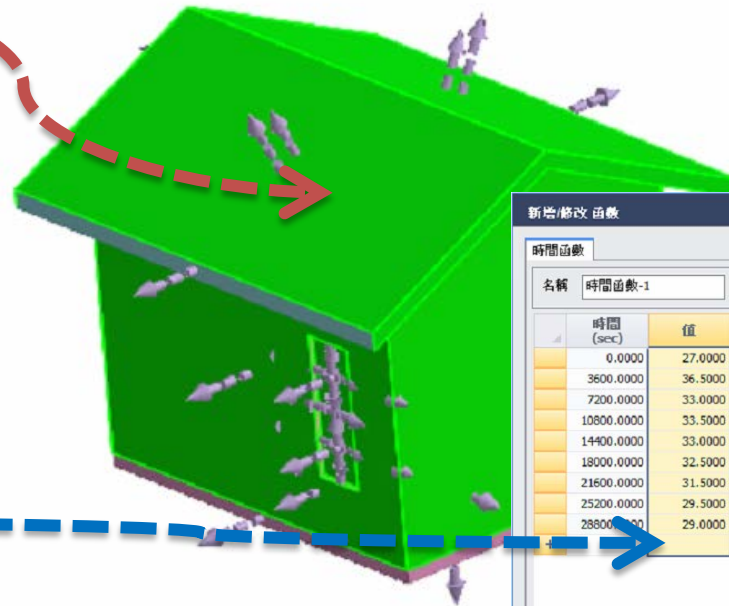
數值: 5e-005 W/(mm²·[°C])

時間函數

常數

使用者定義

時間函數



新增/修改 函數

時間函數

名稱: 時間函數-1

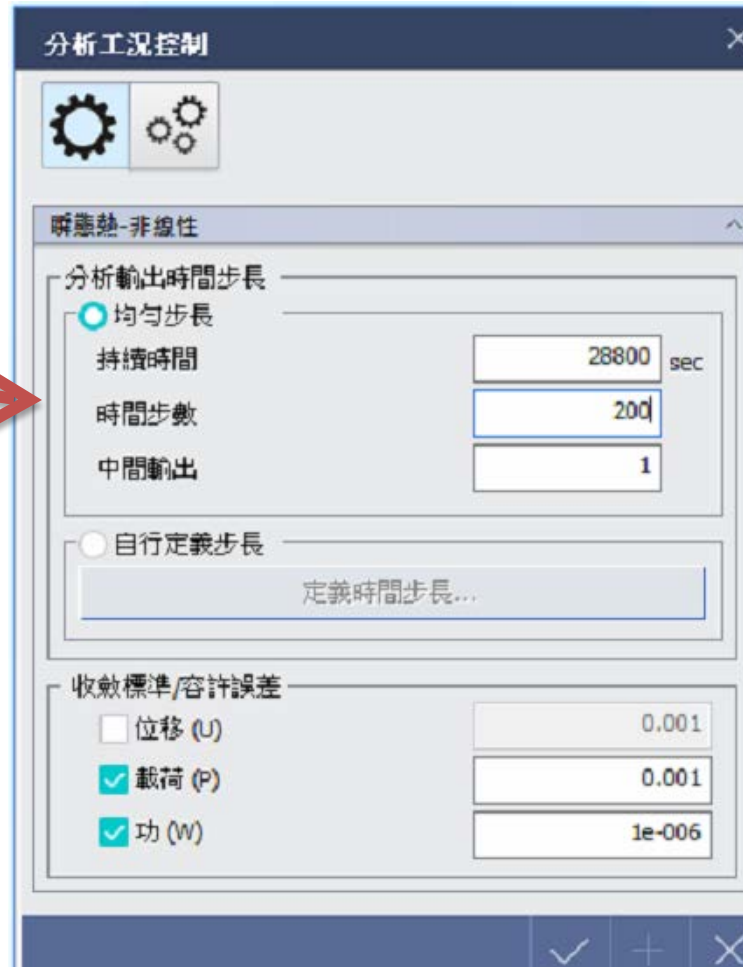
時間 (sec)	值
0.0000	27.0000
3600.0000	36.5000
7200.0000	33.0000
10800.0000	33.5000
14400.0000	33.0000
18000.0000	32.5000
21600.0000	31.5000
25200.0000	29.5000
28800.0000	29.0000

1 比例值

時間-熱對流溫度變化=環境溫度×時間函數



1. 計算8小時(28800sec)
2. 等分成200次計算(每144sec計算一次)





記憶體大小

- 1.計算速度
- 2.分析準確性

匯出計算資訊

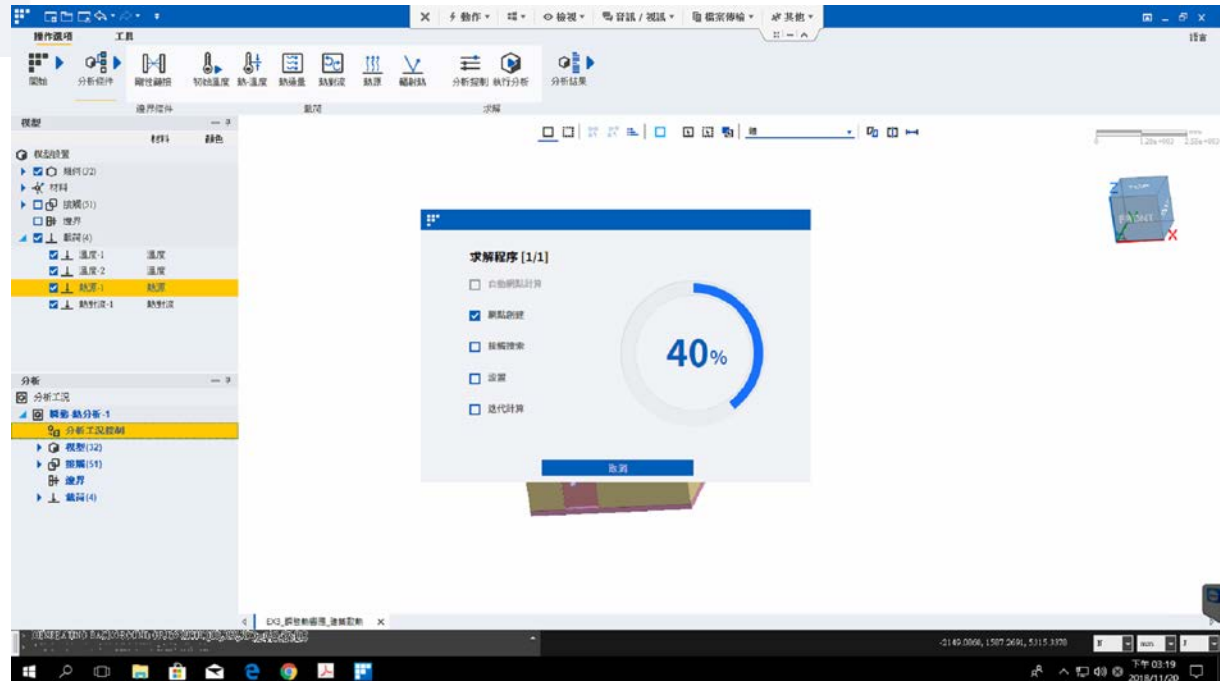
Export Mec File

49%

匯出幾何數據...

取消

進行求解



The screenshot displays the MIDAS MeshFree software interface. The main window shows a 3D model of a mechanical part with various material and boundary condition assignments. A 'Solving Progress' dialog box is overlaid on the model, indicating that the solution process is 80% complete. To the right, a graph titled 'Maximum Temperature vs. Global Time' shows the temperature fluctuations over time. The graph's y-axis represents 'Maximum Temperature' ranging from -3.00e+002 to 2.00e+002, and the x-axis represents 'Global Time' ranging from 0.00e+000 to 1.50e+004. The data points show a sharp initial drop followed by a gradual rise and stabilization.

求解程序 [1/1]

- 自動網點計算
- 網點創建
- 接觸搜索
- 設置
- 迭代計算

80%

Maximum Temperature vs. Global Time

Global Time	Maximum Temperature
0.00e+000	0.00e+000
1.00e+000	0.50e+000
2.00e+000	-1.50e+000
3.00e+000	-2.50e+000
4.00e+000	-1.50e+000
5.00e+000	1.50e+000
6.00e+000	1.00e+000
7.00e+000	0.80e+000
8.00e+000	0.70e+000
9.00e+000	0.60e+000
1.00e+004	0.50e+000
1.10e+004	0.40e+000
1.20e+004	0.30e+000
1.30e+004	0.20e+000
1.40e+004	0.10e+000
1.50e+004	0.00e+000

取消

RESULT SUMMARY
MAXIMUM TEMPERATURE : 6.4599E+001 (40752)

-1933.0459, 3077.7600, 5643.7428

下午 07:00
2018/11/20



查詢

反力

曲線結果

結果檔

分析結果

分析結果數值查詢

結果座標: 8181.34, -4386.27, 3745.1

顯示	位置	值
<input checked="" type="checkbox"/>	1.98e+003, 1.93e+003, ...	2.75557e+001
<input checked="" type="checkbox"/>	-150, 3.74e+003, 329	2.70136e+001
<input checked="" type="checkbox"/>	949, 1.15e+003, 2.61e+...	2.84222e+001

分析步

多分析步結果表

多分析步結果圖

分析步: 結果

- Transient Heat Transfer : INCR=0 (TIME=0.000e+000)
- Transient Heat Transfer : INCR=1 (TIME=1.440e+002)
- Transient Heat Transfer : INCR=2 (TIME=2.880e+002)
- Transient Heat Transfer : INCR=3 (TIME=4.320e+002)
- Transient Heat Transfer : INCR=4 (TIME=5.760e+002)
- Transient Heat Transfer : INCR=5 (TIME=7.200e+002)
- Transient Heat Transfer : INCR=6 (TIME=8.640e+002)
- Transient Heat Transfer : INCR=7 (TIME=1.008e+003)

