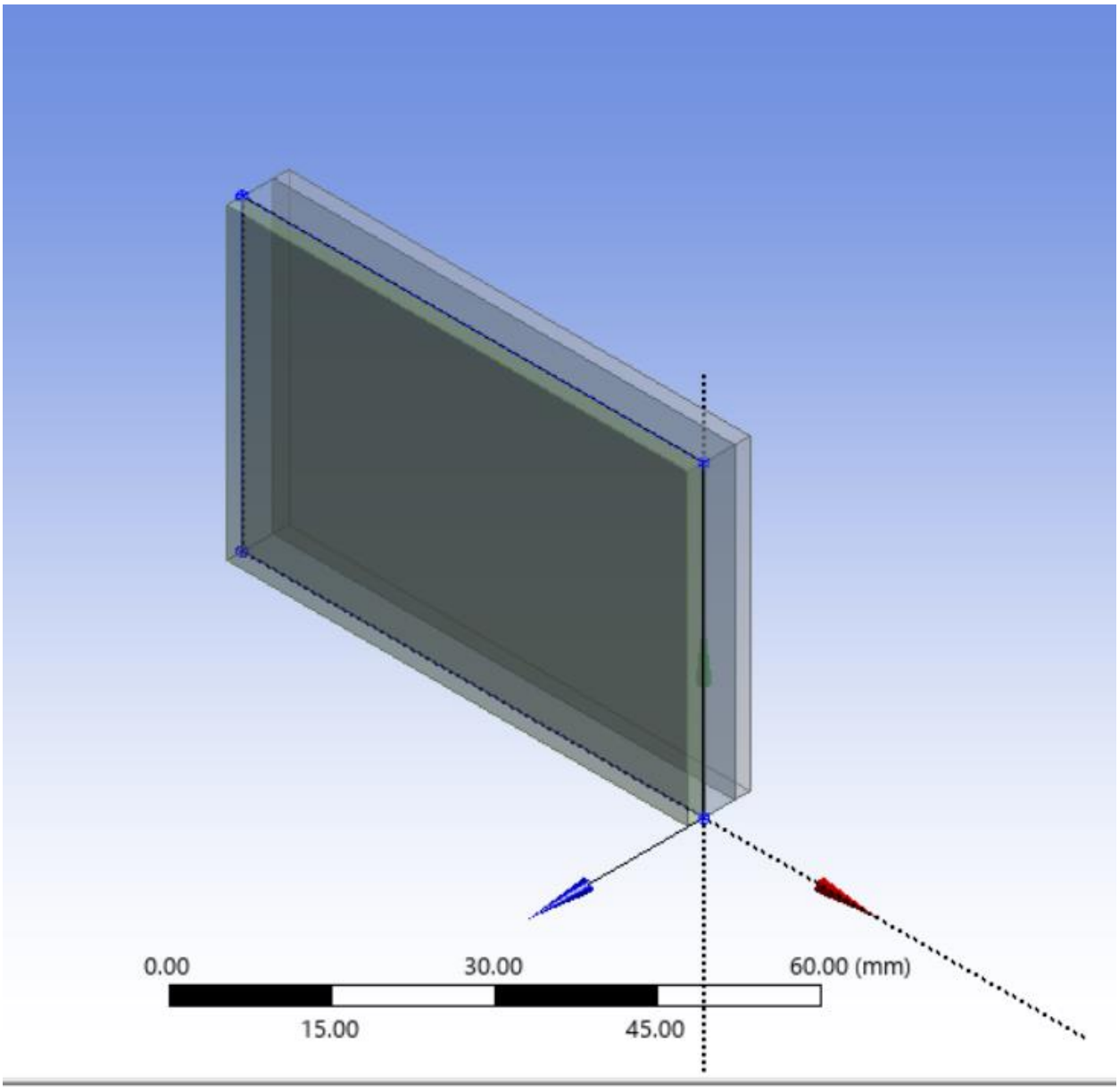
Project 21: ANSYS Thermal: Composite Wall

Problem Statement: Calculate the temperature distribution in a composite wall (glass-plastic-glass).

Geometry:



Material Properties:

4	Glass, soda lime (common glass)		Soda-lime glass (Corning 0080) Data compiled by Ansys Granta , incorporating various sources including JAHM and MagWeb. ANSYS, Inc. provides no warranty for this data.
5	Plastic, ABS (high-impact)		Acrylonitrile Butadiene Styrene (High-impact, Injection Molding) Data compiled by Ansys Granta , incorporating various sources including JAHM and MagWeb. ANSYS, Inc. provides no warranty for this data.
6	Structural Steel		Fatigue Data at zero mean stress comes from 1998 ASME BPV Code, Section 8, Div 2, Table 5-110.1

Properties of Outline Row 4: Glass, soda lime (common glass)

	A	B	C	D	E
1	Property	Value	Unit		
2	Material Field Variables	Table			
3	Isotropic Thermal Conductivity	1.003	W m^-1 C^-1		

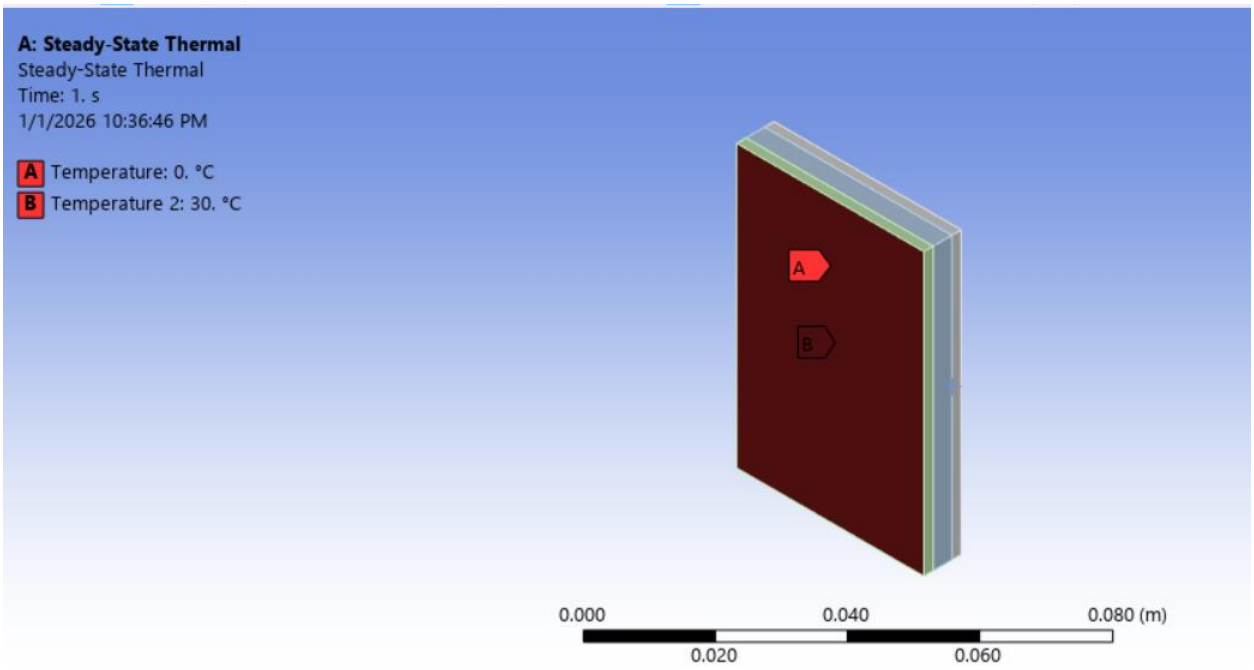
5	Plastic, ABS (high-impact)		Acrylonitrile Butadiene Styrene (High-impact, Injection Molding) Data compiled by Ansys Granta , incorporating various sources including JAHM and MagWeb. ANSYS, Inc. provides no warranty for this data.
6	Structural Steel		Fatigue Data at zero mean stress comes from 1998 ASME BPV Code, Section 8, Div 2, Table 5-110.1

Properties of Outline Row 5: Plastic, ABS (high-impact)

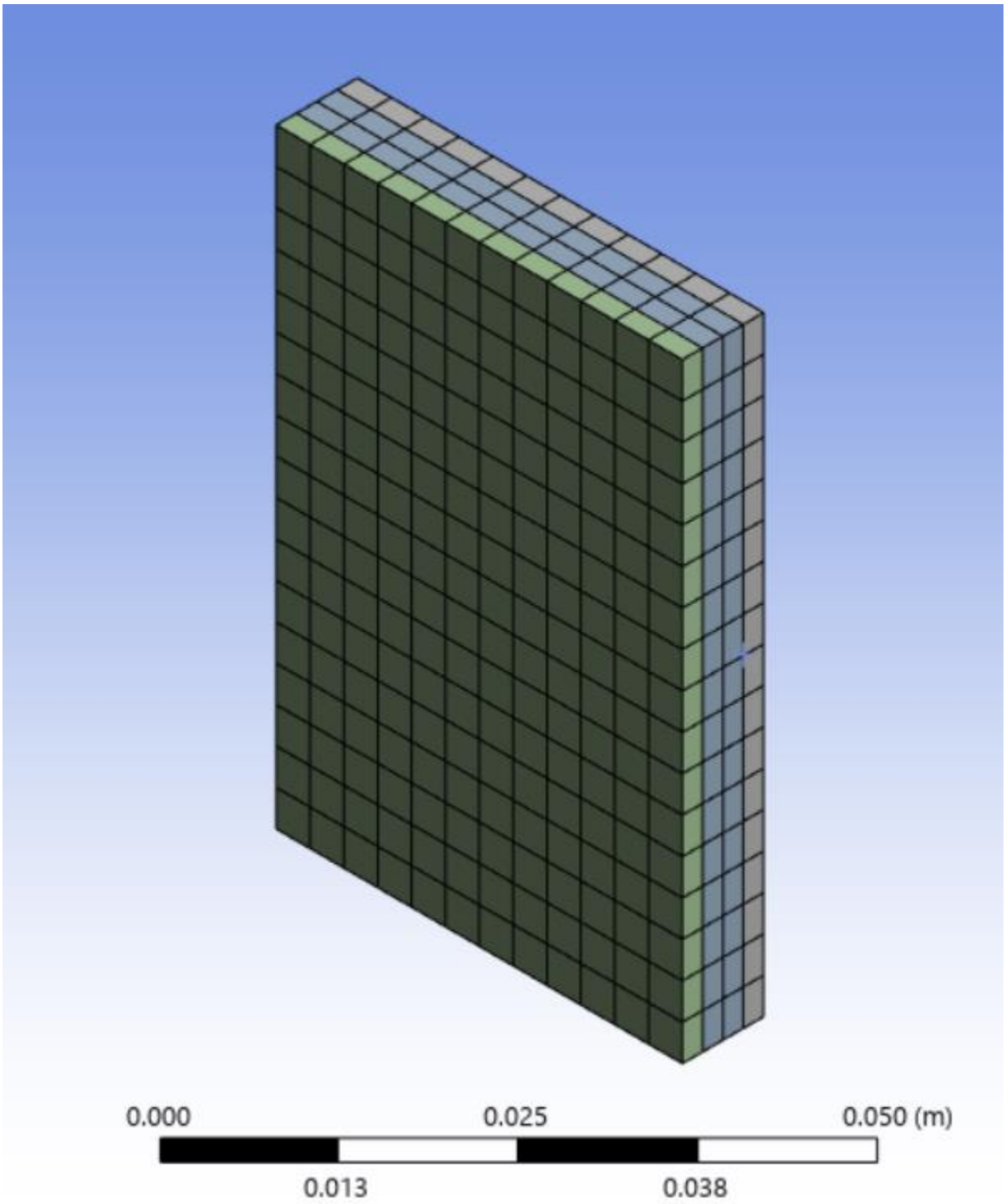
	A	B	C	D	E
1	Property	Value	Unit		
2	Material Field Variables	Table			
3	Isotropic Thermal Conductivity	0.1997	W m^-1 C^-1		

Boundary Conditions:

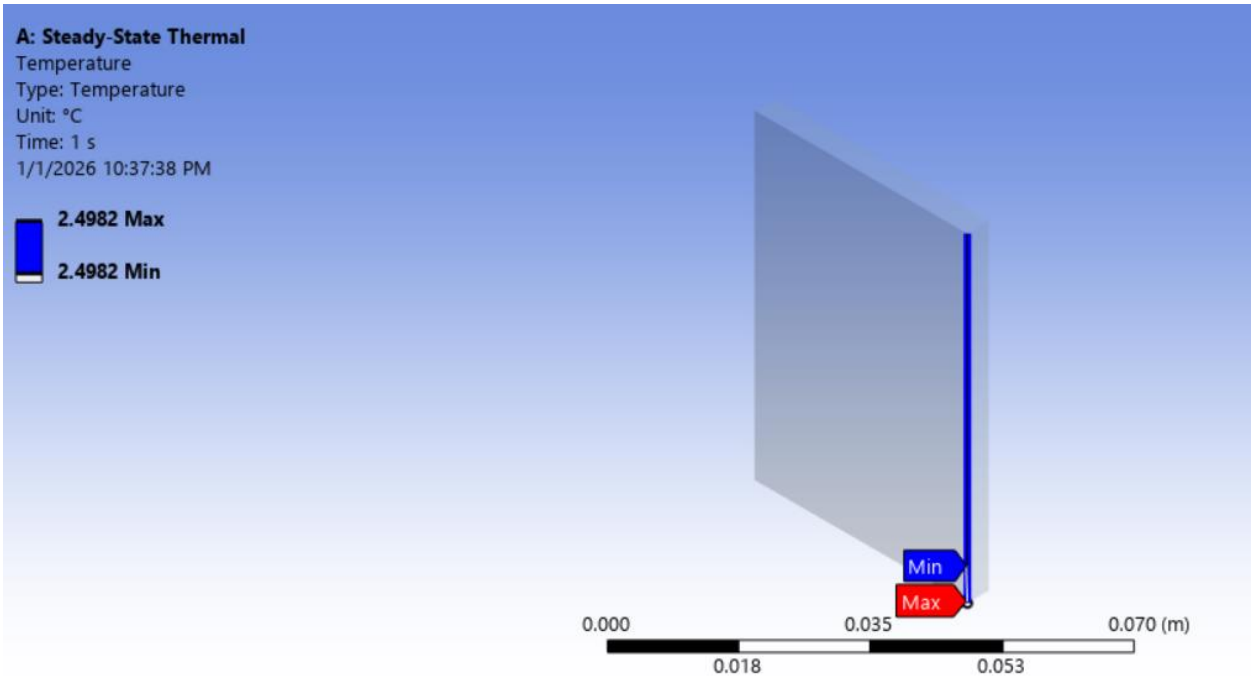
Outer glass temperature is 0 degC. Inner glass temperature is 20 degC.

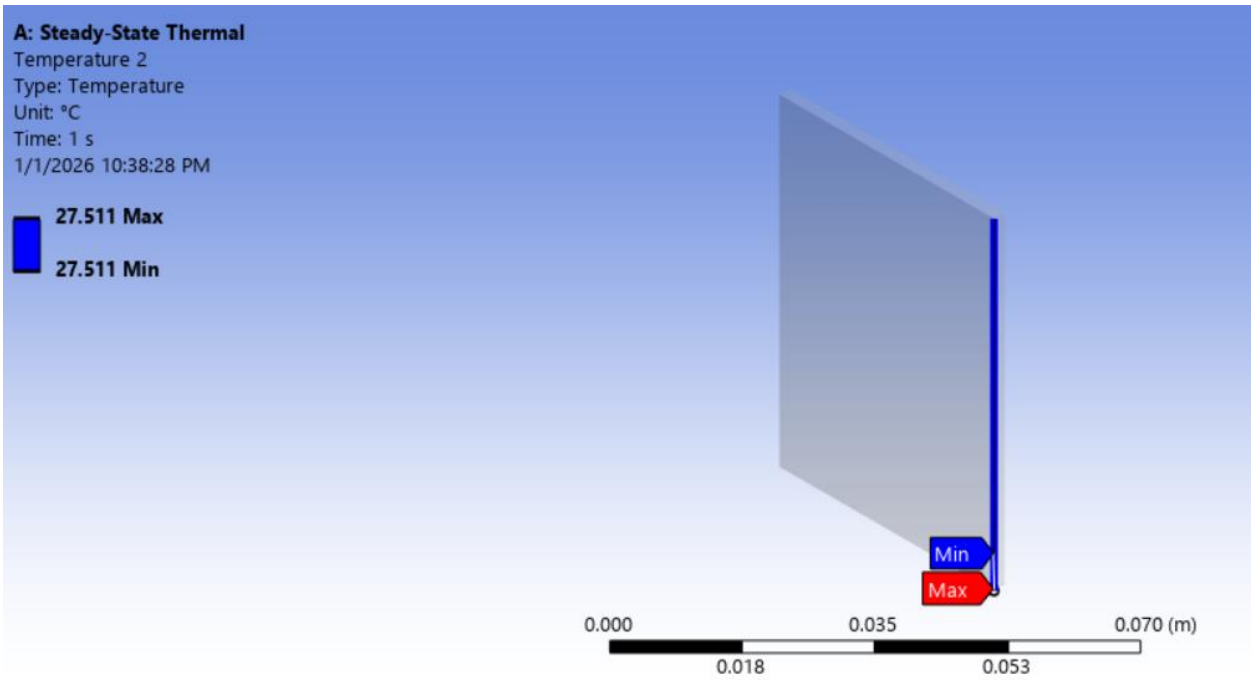


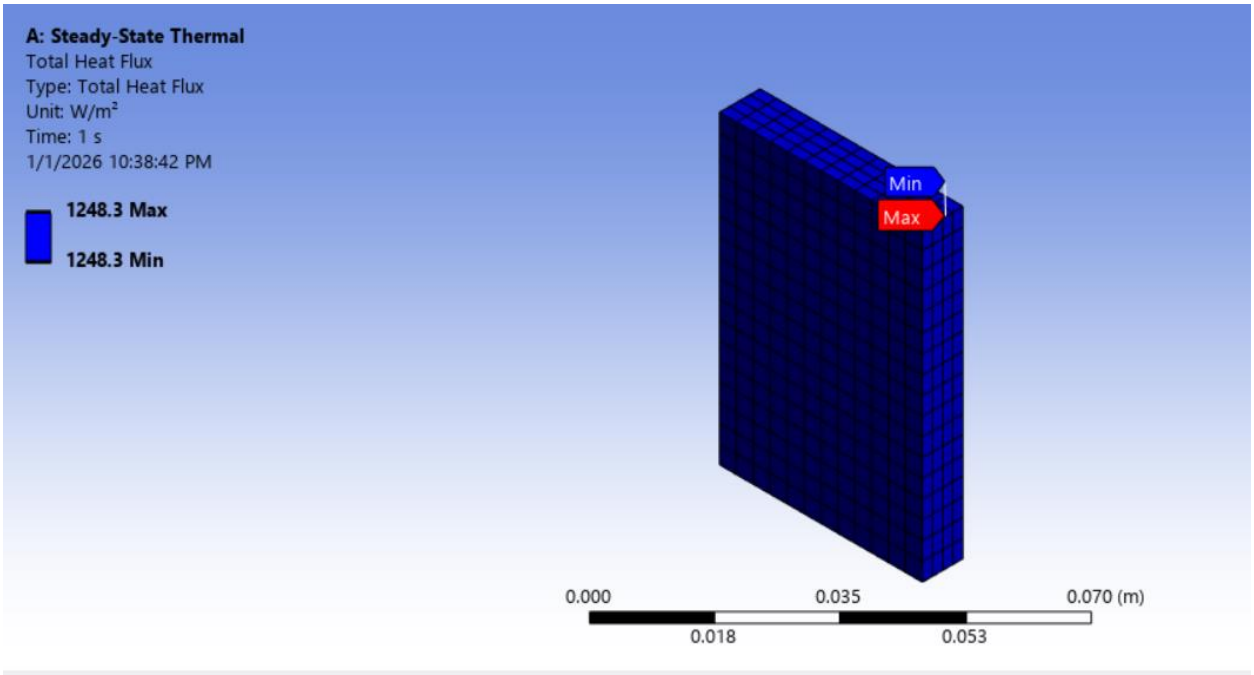
Mesh:



Results: Temperature at the contact surfaces and total heat flux.






A: Steady-State Thermal
Total Heat Flux
Type: Total Heat Flux
Unit: W/m²
Time: 1 s
1/1/2026 10:38:42 PM
1248.3 Max
1248.3 Min
Min
Max
0.000
0.035
0.070 (m)
0.018
0.053