Thermal Stresses in a Bar

Problem Specification

A steel bar (E = 2.0E10 Pa,  = 0.3,  = 1.2E-5) with the dimensions shown below is placed between two walls. On one side, the bar is rigidly fixed to the wall and on the other, there is a 2 mm gap between the wall and the bar. What is the stress in the bar after the temperature increases?