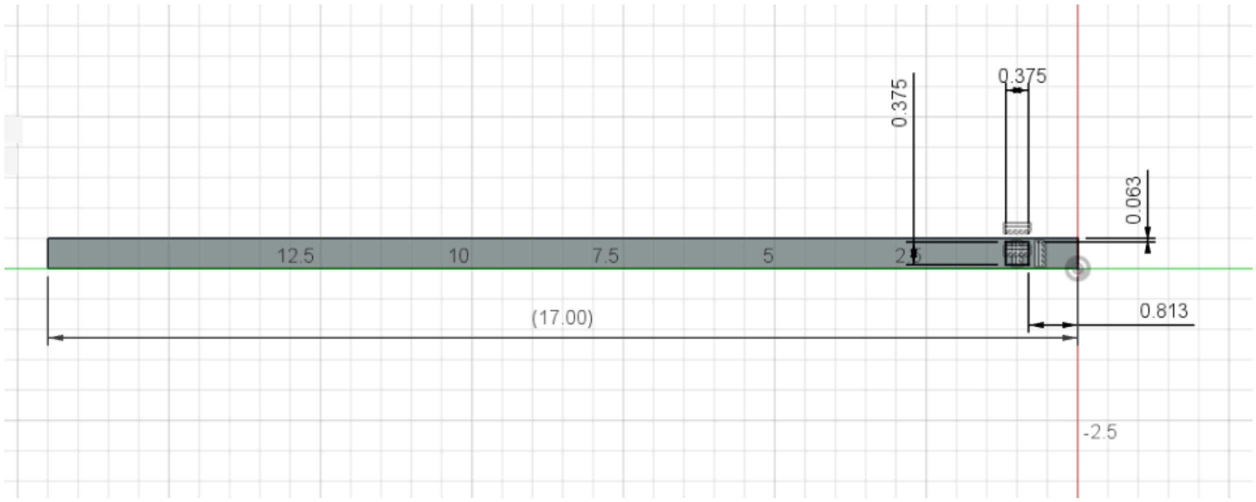
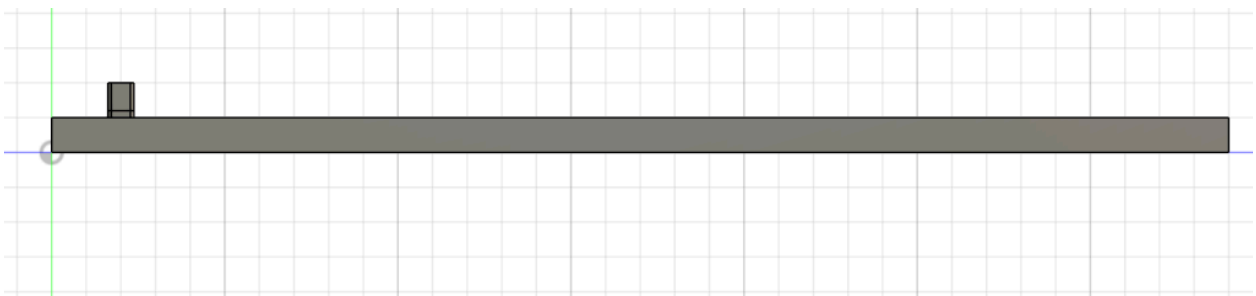
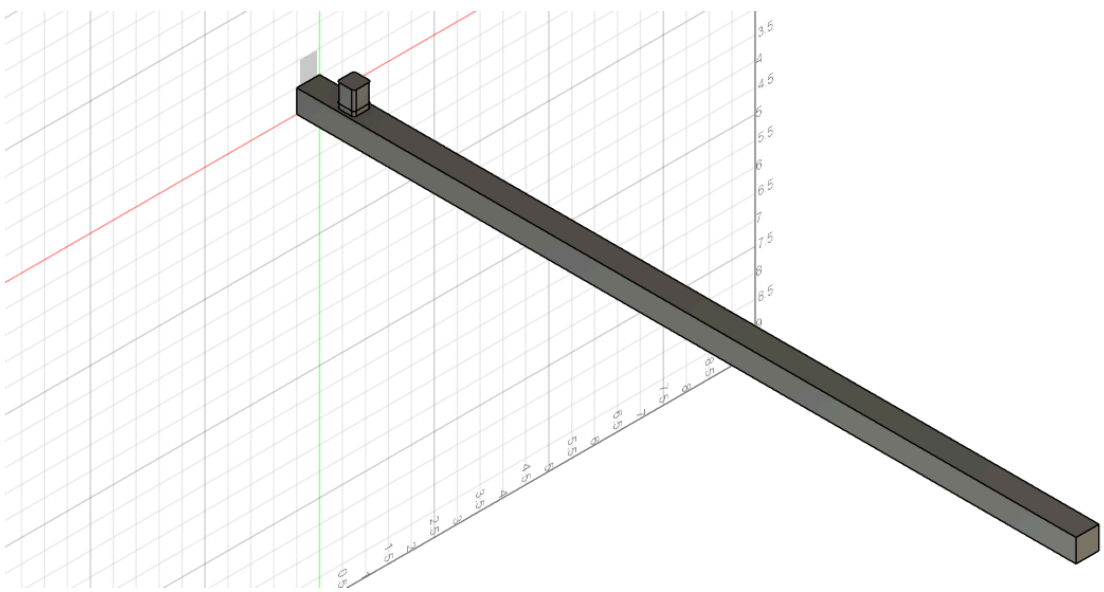
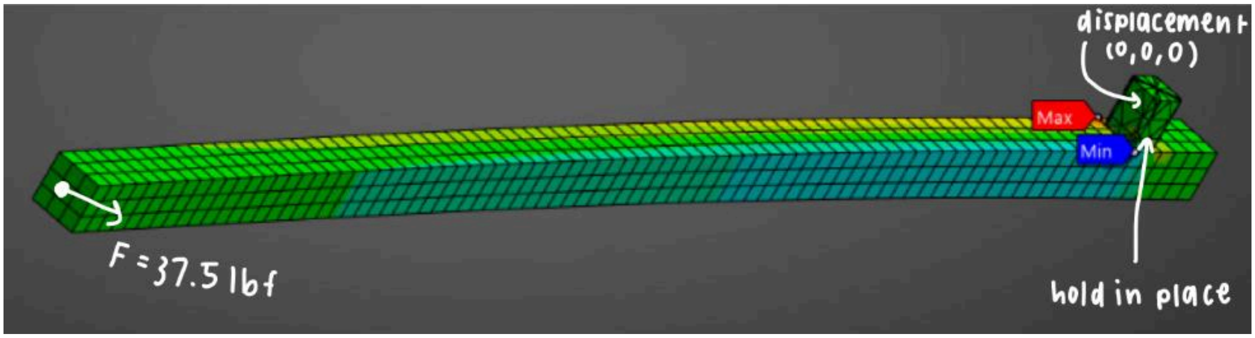
1. 

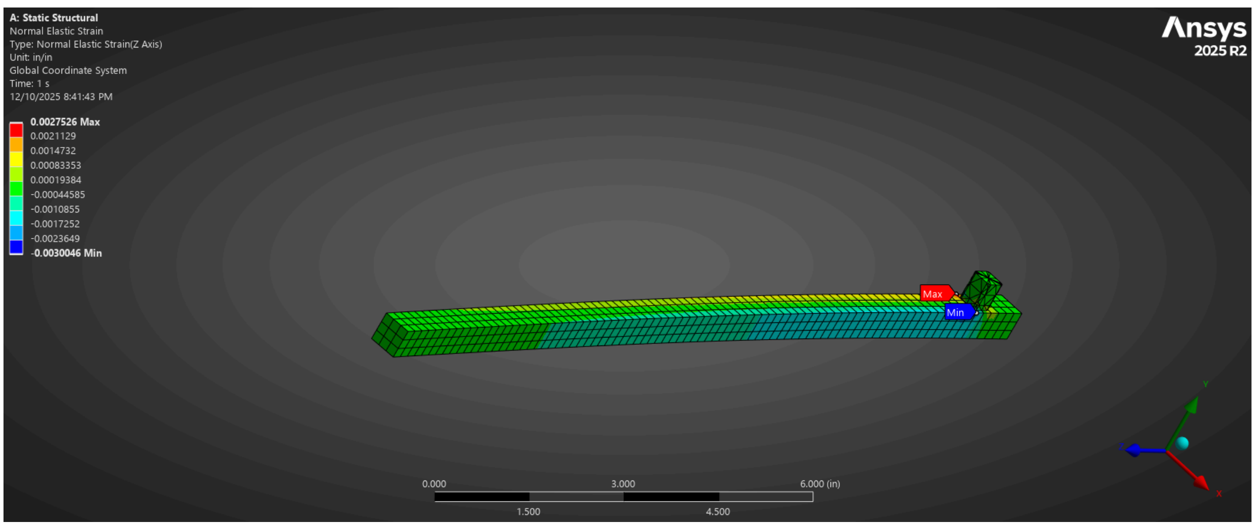
   Additional beam dimensions are that h = 0.5 in and b = 0.5 in.
   
   
   Here is how I inputted these dimensions into Matlab:
   M = 600; % max torque (in-lbf)
   L = 16; % length from drive to where load applied (inches)
   h = 0.5; % width
   b = 0.5; % thickness
   c = 1.0; % distance from center of drive to center of strain gauge
2. The material I used is Ti-6Al-4V. Relevant material properties are listed below:

E = 16.5E6; % Young's modulus (psi)
nu = 0.36; % Poisson's ratio
su = 152.E3; % tensile strength use yield or ultimate depending on material (psi)
KIC = 82.E3; % fracture toughness (psi sqrt(in))
sfatigue = 115.e3; % fatigue strength from Granta for 10^6 cycles

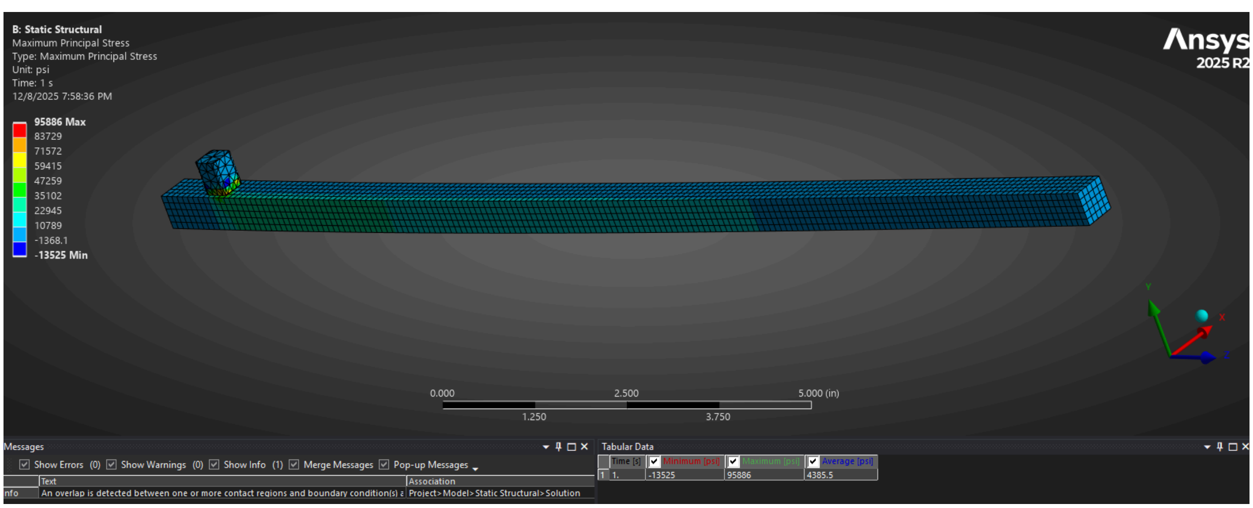
3.

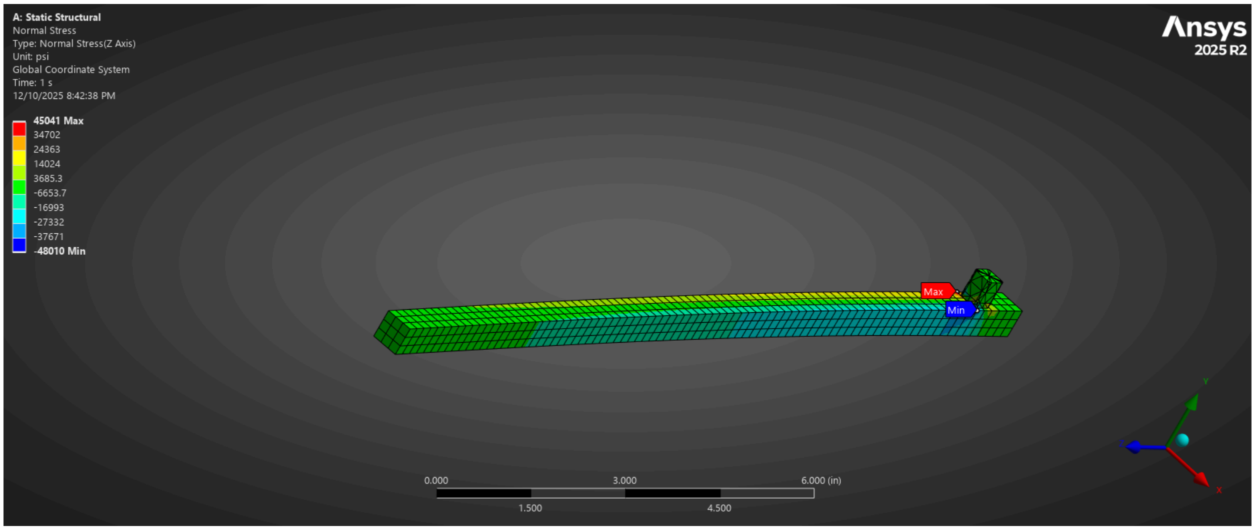


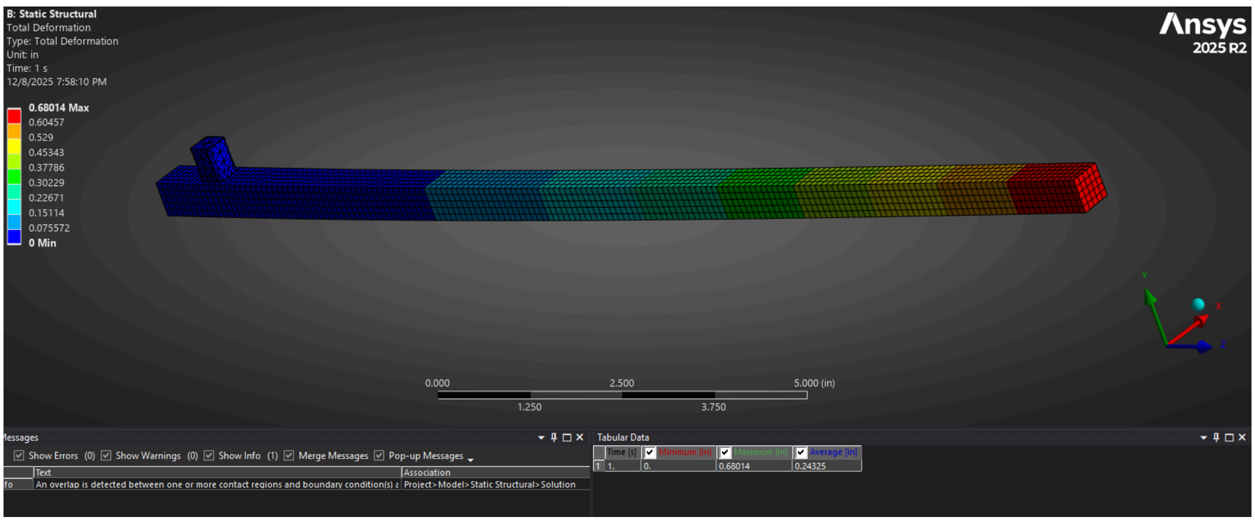
4.

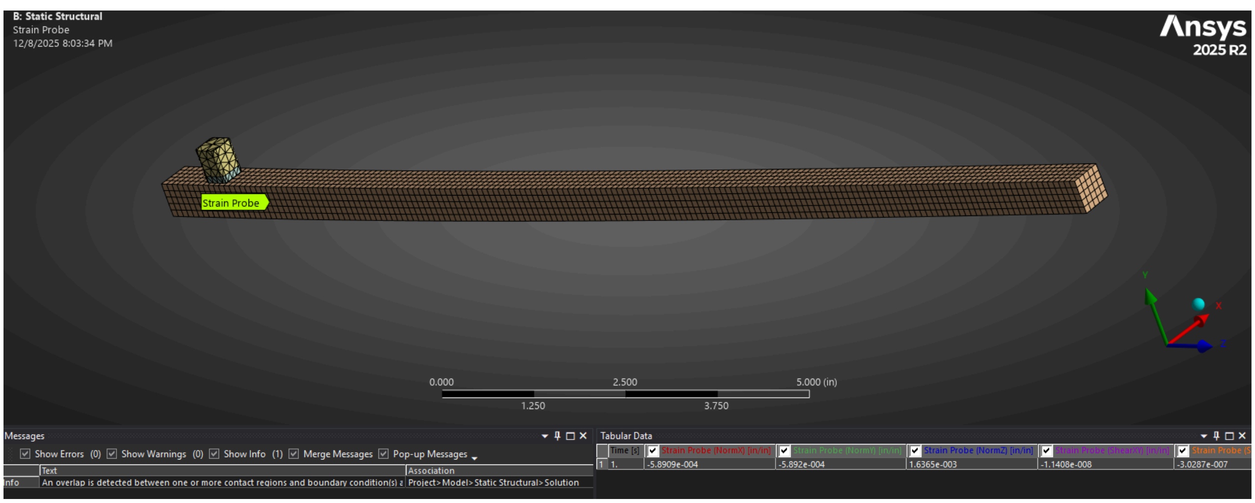


5.



6. 





I gathered that the maximum normal stress at the strain gauge is 45041 psi. The load point deflection is 0.68014 in. Using the probe, the strain was 1.6365e3 in/in.

7. From the strain probe, I got a strain value of 1.6365e3. To get the sensitivity, I multiplied this by 1000, which is 1.6365e6.

8. I selected the following strain gauge at 45 degrees with a half-bridge design to give better sensitivity and cancellation of any error in bending strain due to the opposing orientation of the gauges on each side. I selected these rosettes: https://www.dwyeromega.com/en-us/3-element-0-45-90-planar-compact-rosette-strain-gauges/SGD-3-ELEMENT45/p/SGD-1-350-RY23 which have a 45 degree component that fits onto either side of the wrench in the strain gauge location. The dimensions are Carrier Length: 6.8 mm, Carrier Width: 10.5 mm, which fits the dimensions I chose.