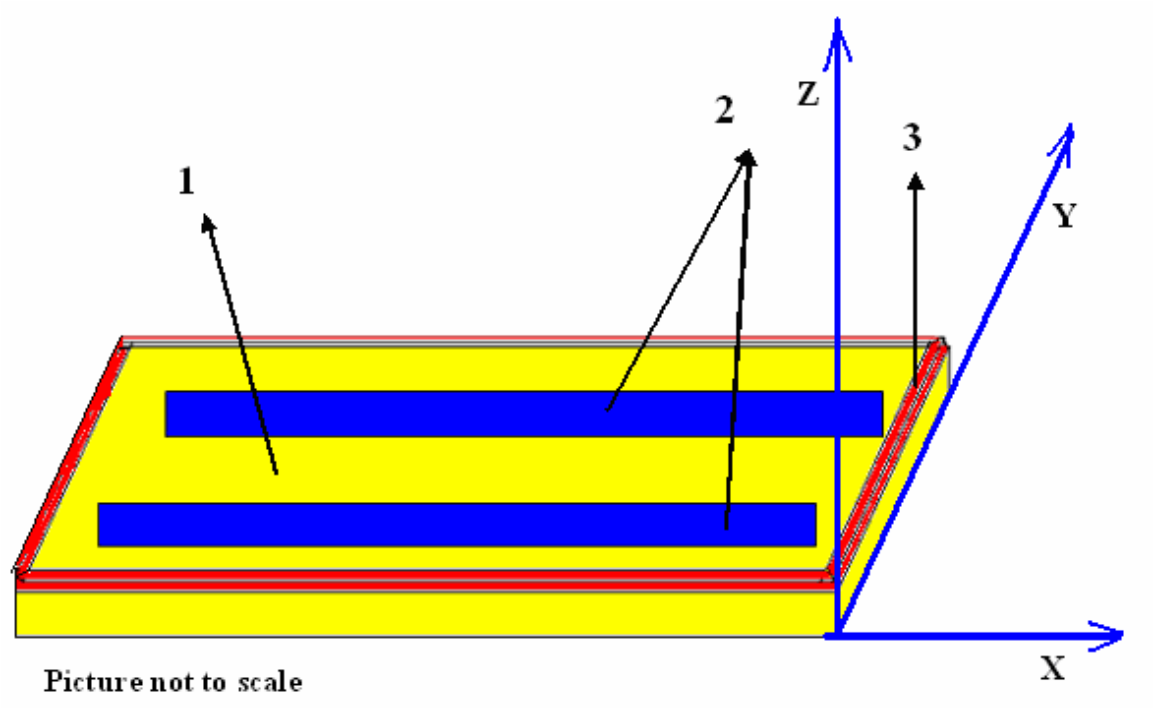
End Plate Analysis:

Initially the End plate is divided into 3 different Sections with different material properties. Thickness of Section 1 and 2 are 20mm, whereas section 3 is a angle iron

Section 1: The actual end plate material - for now it is Aluminum 6061 T6
Section 2: For simplicity in analysis, the area of holes is declared with a smaller density
Section 3: Support bracing - for now it resembles a paper, however, it will be Aluminum 7075 T6 for better strength



Material Properties

Section 1- Aluminum 6061 T6: Young's modulus = 73.1 x 10^3 N/mm^2
Density = 2.7 x 10^{-6} kg/mm^3

Section 2- Aluminum 6061 T6: Young's modulus = 73.1 x 10^3 N/mm^2
Density = 2.3 x 10^{-6} kg/mm^3

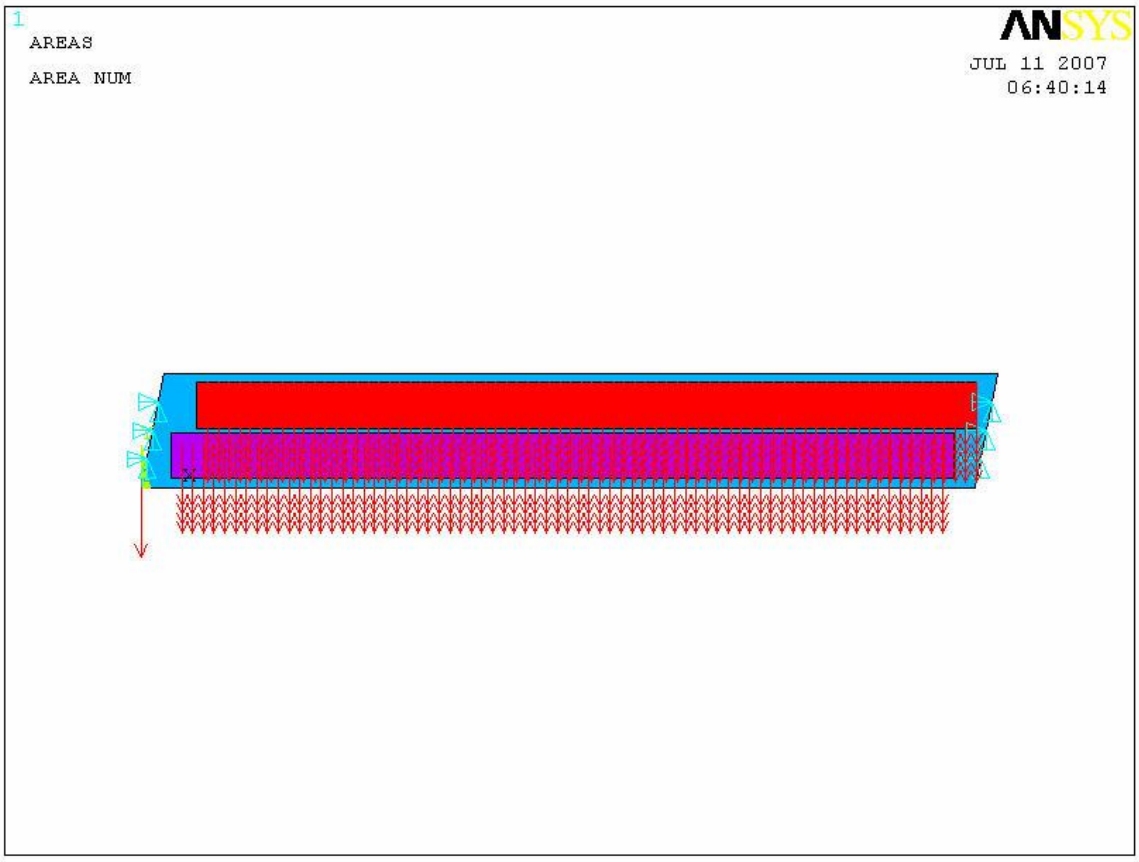
Section 3: Paper for now : Young's modulus = 10 x 10^3 N/mm^2
Density = 8 x 10^{-8} kg/mm^3
Aluminum 7075 T6: Young's modulus = 72 x 10^3 N/mm^2
Density = 3 x 10^{-6} kg/mm^3

Coating for aluminum has to be discussed

Case 1:

Loads:

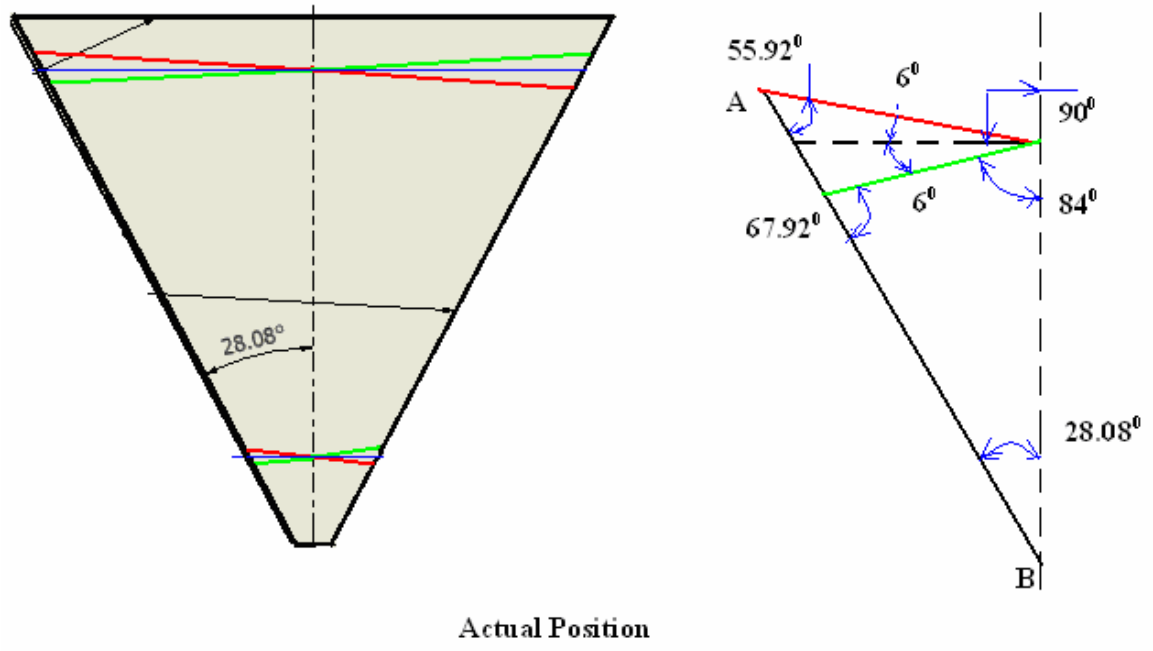
Load is applied over Section 2; the total load applied over Section 2 is 680 pounds. Gravity is considered while applying load. However, the end plate in this model is laid horizontal. The ends of the plate are constrained for movement. The load will be applied Perpendicular.



Case 2:

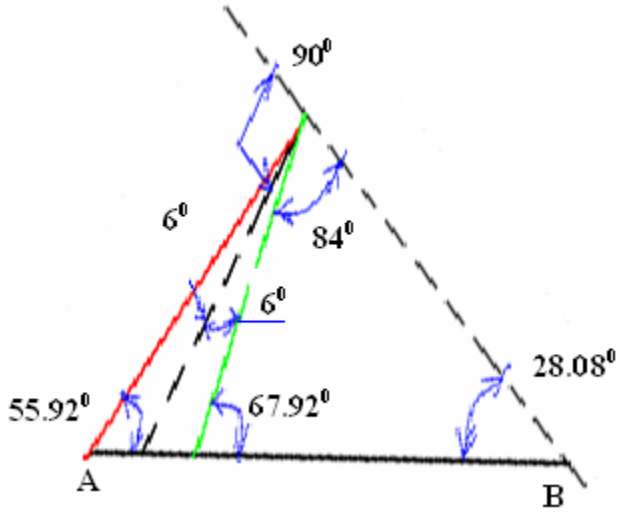
Loads are applied at 6 degrees as stated in the actual problem. The same load is resolved into x and y directions. Gravity is considered even in this case

'A' is towards the Back plate and 'B' is towards the Nose plate



Actual Position

Section 2 will have 2 loads, each of 340 pounds making an angle of 55.92^0 and the 67.92^0 with the plane of end plate. Then the load applied by each wire is resolved into horizontal and vertical components.



Horizontal Position *(In case 2, Analysis will be made in this position)*