

Activity 5.2a - Centroid Activity with MDSolids

Purpose

The moment of inertia is defined as the second moment of an area about an axis. For beams and columns, the moments of inertia about the centroidal axes are needed. After finding the centroidal locations, the moments of inertia may be calculated. For very simple shapes it is fairly easy to find the Centroid. As the shapes become more complex they must be broken down into simpler forms to be dealt with.

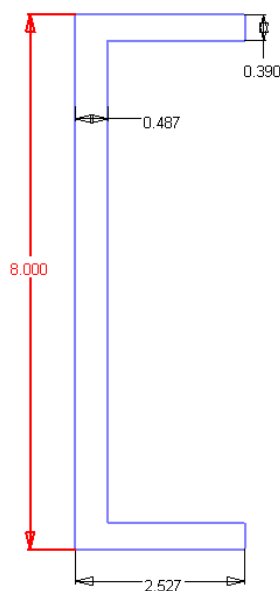
Equipment

MDSolids or Inventor program
Paper and pencil

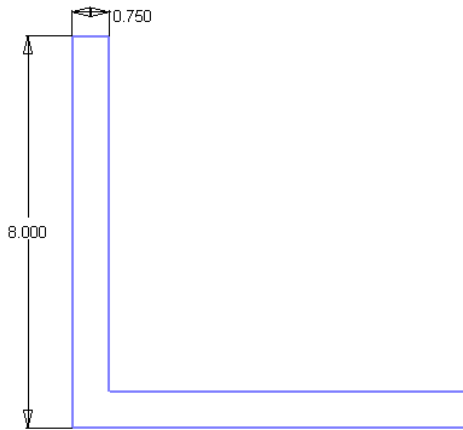
Procedure

Find the centroid location for the following shapes using MDSolids or Inventor.

Problem 1: C Shape (American Standard Channels)



Problem 2: L Shape – Equal Legs



Problem 3: Sketch and dimension your own unsymmetrical shape and calculate the centroid location.

Conclusion

1. Is there a coordinate relationship between the location of the centroid of the individual shapes that make up a complex shape and the centroid of the complex shape?
2. How is finding the centroid useful in determining the strength of the shape?

3. Does the location of the centroid have anything to do with the balance of an object?