

Moment of a Force

Description

This project is intended to give a sense the moment of a force. It looks at the effect of distance on the magnitude of an overturning moment

Goals

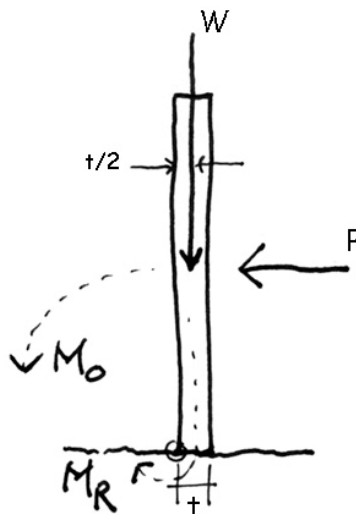
To review dead load calculation

To observe the effect of position on an overturning moment using a physical model

To show calculate a moment based on equilibrium

Procedure

1. Calculate the total weight (W) in pounds of the wooden block. The block measures 6"x2"x1.5" and has a density of 48 PCF.
2. Place the block on a surface so that $t=2"$ and apply a load P with your finger at 1" above the surface to tip the block. You may need to restrain the block from sliding.
3. Make a sketch of the system and calculate first the resisting moment of the wall M_r . Then set this resisting moment equal to the overturning moment M_o . Next solve for the force P needed to overturn the block.
4. Now move your finger to the mid height of the block at 3".
5. Again make a sketch of the system and calculate the force P needed to overturn the block.
6. Move your finger to the top of the block at 6" and again calculate the force P needed to overturn the block.
7. Finally, press hard on the top of the block and again try to tip it from the side. Now it is much different. What has changed? Approximately what is the resisting moment, M_r now?



Due

During recitation