

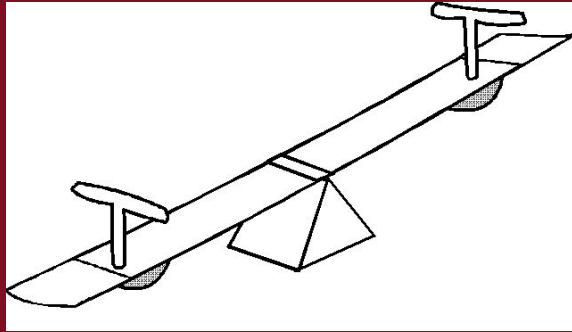
Topic 5

How Structures Fail



Levers

- A lever is a device that can change the amount of force to move an object
- Levers rest on a fulcrum - where the lever bends



Where is the fulcrum here?

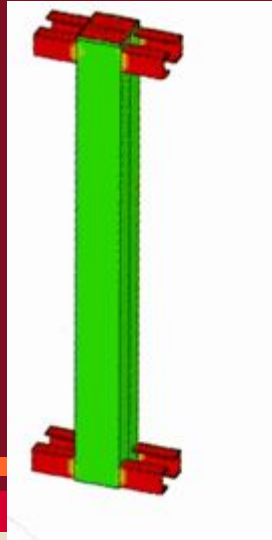


How Materials Fail

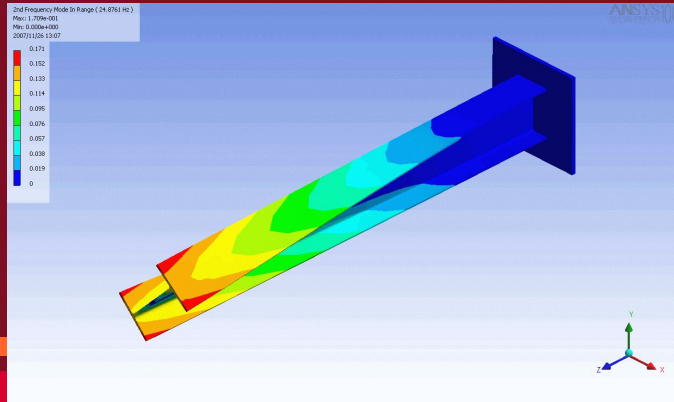
- Shear - A crack can appear in the material, and break apart



Bend or buckle - If you put pressure on structure, the metal folds and compresses



- Torsion - Twisting forces can cause material failure



Making use of stress

- We can put these stresses to good use
- Ex - skis bending provides more contact with the snow, better control
- Cars buckle on purpose, in order to decrease the energy in a crash

Shear - car parts are designed to slip past each other, speeding up or slowing down until they are moving the same speed

Twist - Twisted yarn is much stronger than straight fibres, but is still long enough to use



Questions

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