Mechanics of Materials I:

Fundamentals of Stress & Strain and Axial Loading

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Module 12 Learning Outcomes

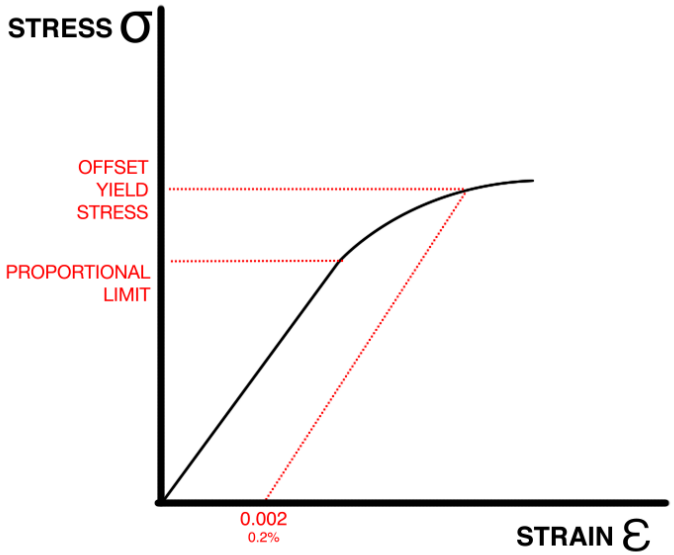
- Define/Identify Strain Hardening
- Define/Identify Permanent Strain

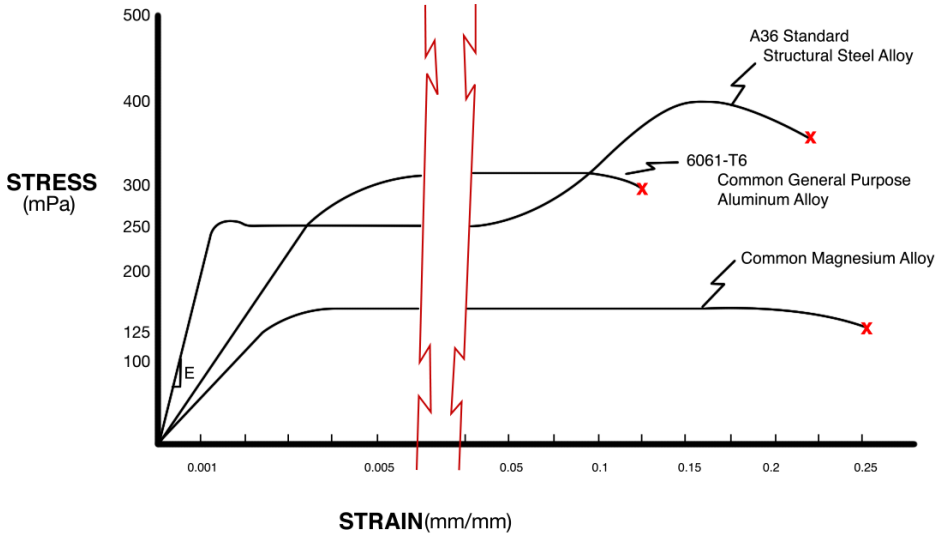
Material Properties

Materials without an obvious yield point

Yield Stress: **Lowest stress that produces permanent deformation.**

If the point of yielding is difficult to identify, typically the 0.2 % Offset Yield Stress is defined.





Material Properties

Strain Hardening (Work Hardening)

Increase Yield Stress (strengthening) of a material by plastic (permanent) deformation

Permanent Set (Residual Strain)