Whole Systems and Lifecycle Thinking for Sustainable Design

1. Define the problem by looking at the whole system
2. Prioritize objectives by assessing life-cycle impacts
3. Brainstorm solutions by looking at the whole system
4. Use metrics to evaluate & choose

Sustainable Design Strategies

**Energy**
- Clean renewable source
- Reduce energy losses
- Improved controls
- Right-size components
- Improved logistics

**Materials**
- Use less material
- Recycle materials
- Avoid toxics
- Embodied energy
- Embodied resources

**Lifetime**
- Durability
- Recyclability
- Repair & Upgrade
- Reuse & Re-mfg.
- Product Stewardship

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