Developing an Objectives-Constraints Tree

Creating a graphical representation of design objectives and constraints

The development of an Objectives-Constraints Tree proceeds from the Attributes List and PCC.

- The hierarchy of the Objectives-Constraints Tree comes from the results of the Pairwise Comparison Chart.
- Primary objectives are listed in the first level of the tree.
- Secondary objectives are grouped as subsets of the primary objectives. The same concept holds for subsequent levels of the tree.
- Constraints should be listed as a subset of related objectives.
- The other objectives and constraints listed in the tree come from the Attributes List.
- Objectives are listed in rectangular boxes, and constraints are listed in ovals.

Below is an example (not exhaustive) of an Objective-Constraints Tree for a ladder design.

Objectives
- Safe
- Stable
- On floors
- On level ground
- Stiff
- OSHA req.
- Insulator
- Marketable
- Useful
- Indoors
- Electrical maintenance
- Outdoors
- Of right height
- < $200
- Portable
- Light in weight
- Small, transportable
- Durable

Constraints
- Safe (Subsets of “safe”)
- Marketable (Subsets of “marketable”)