Decision Process -worksheet:

Date	Team name

Purpose of doing this. How are we going to make our decision? You need to develop a set of requirements to judge the possible design solutions.

Are any of the requirements that are a “must haves” versus just a need?

Convergent thinking … Narrowing the # of ideas and making a selection

Process to make your decision

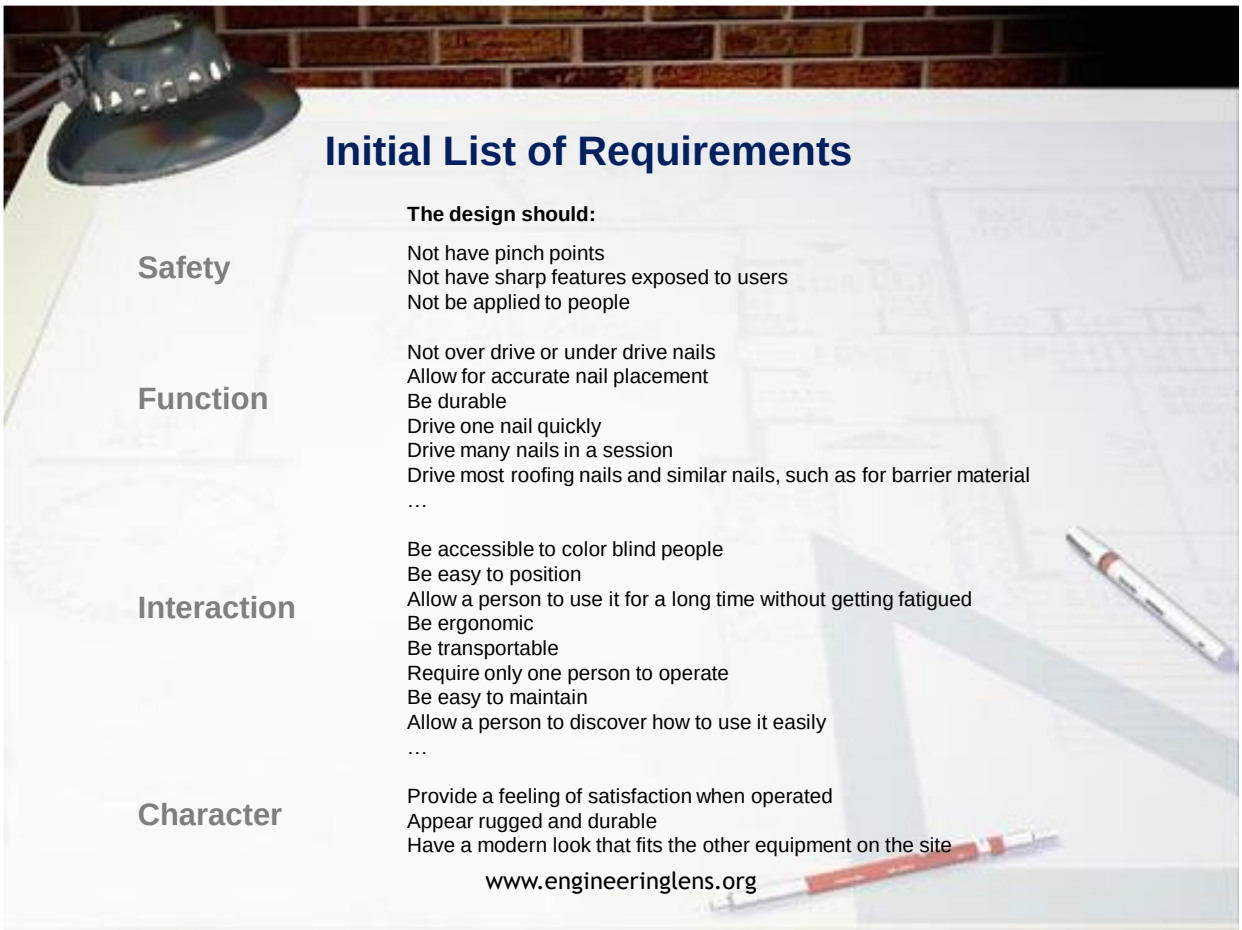
- Create the matrix of the possible solutions and the requirements
- Look at each requirement and give it a weight of 1-10
- Look at each solution and give it a weight of 1-10 on how it meets the requitement
- Multiple the requirement weight times the weight of the proposed solution and that is the # for that like item

Discussion: During the design process or problem solving we need to apply convergent thinking to narrow our option to a selection. When we have many options and are not comparing any to an existing one, the best option is to create a decision matrix where we establish a set of judgment criteria down the Y axis and weight each to its importance to judge our possibilities.

Requirement	Weight		
environment			
simple			
low cost			
Total=			

Requirements:

- Formalize what the design has to accomplish
- Safety, function, interaction, character
- “The design should…”
- Specify the need, not the solution:
  - Good: “provide space for a family of six to eat together”
  - Bad: “include a dining table in the middle of the room.”
- Science Constraints are requirements you impose on your students


Initial List of Requirements
The design should:
Safety
Not have pinch points
Not have sharp features exposed to users
Not be applied to people
Function
Not over drive or under drive nails
Allow for accurate nail placement
Be durable
Drive one nail quickly
Drive many nails in a session
Drive most roofing nails and similar nails, such as for barrier material
…
Interaction
Be accessible to color blind people
Be easy to position
Allow a person to use it for a long time without getting fatigued
Be ergonomic
Be transportable
Require only one person to operate
Be easy to maintain
Allow a person to discover how to use it easily
…
Character
Provide a feeling of satisfaction when operated
Appear rugged and durable
Have a modern look that fits the other equipment on the site
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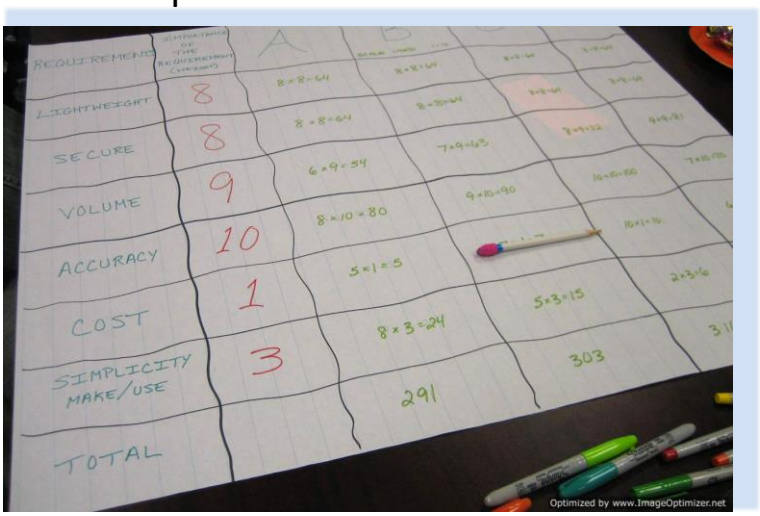
Example:


REQUIREMENTS
A
LIGHTWEIGHT
8
8 × 8 = 64
SECURE
8
8 × 8 = 64
VOLUME
9
6 × 9 = 54
ACCURACY
10
8 × 10 = 80
COST
1
5 × 1 = 5
SIMPLICITY MAKE/USE
3
8 × 3 = 24
TOTAL
291
9 × 10 = 90
5 × 3 = 15
303
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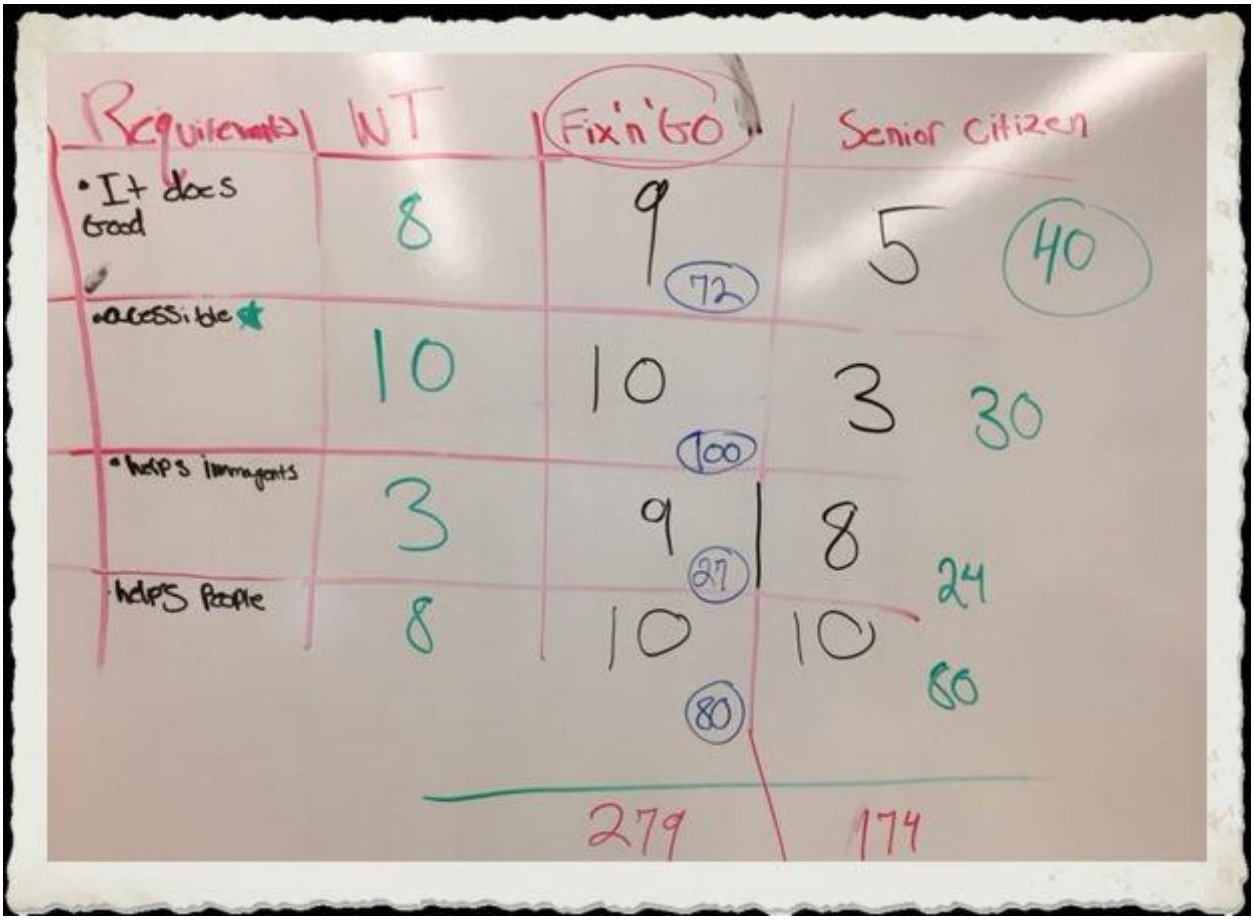
Requirements
NT
Fix'n'Go
Senior citizen
• It does Good
8
9
72
5
40
• accessible
10
10
100
3
30
• helps immigrants
3
9
27
8
24
• helps People
8
10
80
10
80
279
174