Turner Construction Company

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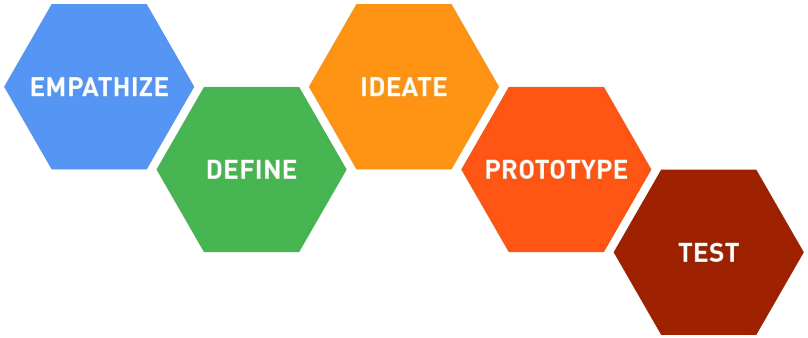
Introduction

Design Question: How might we recycle or reuse materials in order to reduce the amount that is dumped into the C&D landfill?

Possible Solutions:

- Find alternative uses for waste
- Reduce amount of materials originally ordered
- Use more environmentally friendly material
- Less destructive demolition for more usability



Context and Constraints:

- Cost and time
- Requires more labor in initial design
- Lack of incentive to implement changes

Empathize

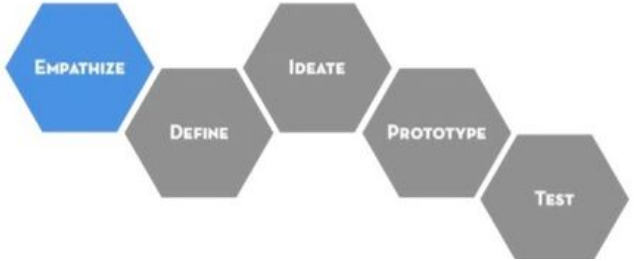
Our Builder: Suzannah Montgomery
Special Projects Division Project Manager at Turner Construction

Main Topics:

- Suzannah's previous projects- Vandy Med Center, St. Thomas Hill Center
- Current waste challenges
- LEAN Building initiative

What we wished we covered:

- Feedback on initial solutions
- Other ideas from her perspective



Define

Discussed key factors that would affect adoption of a new solution such as:

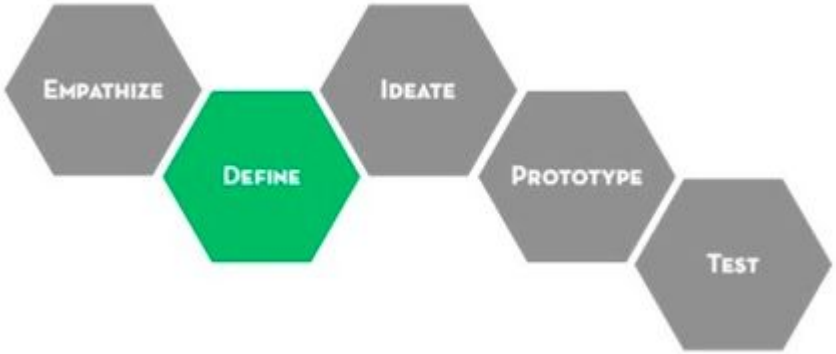
- Schedule
- Cost
- Incentives

Focused on solutions that would fulfill these factors related to construction materials

Other possible problems:

- Demolition
- New processes for recycling, etc.
- Pre Construction and prefabrication

What would we change?



Ideate

How might we change the way we use materials in order to reduce the amount of waste that is dumped into the C&D landfill?

How:

- 1st round without constraints
- 2nd round: idea must cost $1 million
- Used stars and smiles for favorite and best ideas
- Narrowed the options by stars and smiles

What worked:

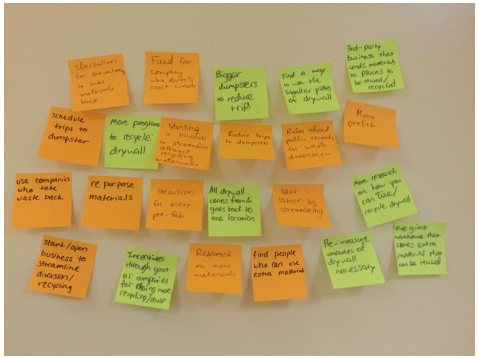
- Helpful in generating creative ideas

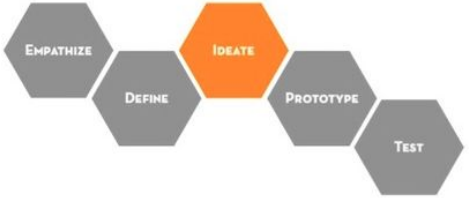
What didn't work:

- Initial brainstorming topic too narrow

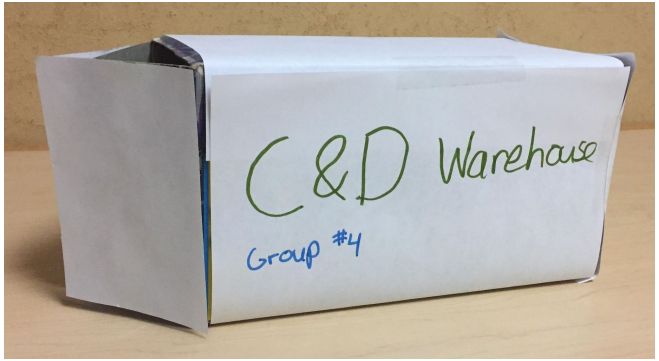
Initial Solution:

- A warehouse that stores and catalogs extra materials from C&D projects for other contractors to reuse.





Prototype 1

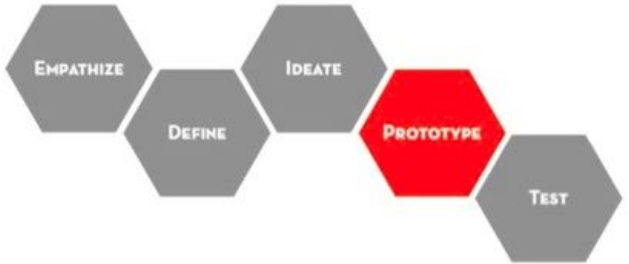


Idea: Warehouse and Catalog

- Hold excess or salvaged materials from projects
- Catalog for organization
- Contractors sell old materials to warehouse or buy at reduced price

Implementation:

- Simple and cheap “warehouse”
- Excel sheet for sample catalog



Feedback

Student 1:

- Where is the incentive?
- Would there be a pickup service?
- Would there be an inspection process before accepting materials?

Student 2:

- Why wouldn’t the contractor just save the materials?
- Who pays for the materials to be moved?
- Warehouse could be a community development project: employ underprivileged to stock and maintain
- Open to the public for shopping
- Warehouse: Home Depot :: Goodwill: Macy’s

Prototype 2

Using the feedback, we considered and edited:

- The incentives for using warehouse
- The target audience for buying material
- The people that would work in the warehouse
- The process that the material would go through

We developed a diagram to show how the process would work.

Nashville contractors are looking for more affordable options as real estate gets more expensive.

Feedback

Student 1:

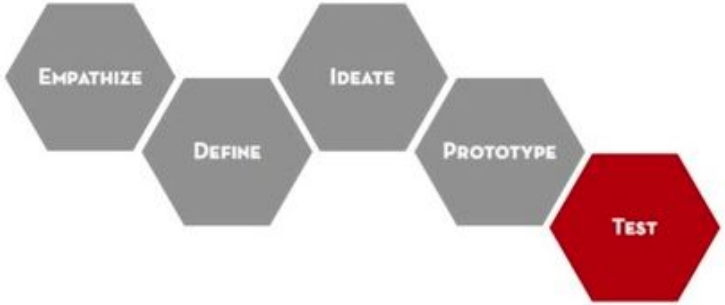
- What makes people want to use this service?
- How would it be marketed?
- Would it need climate control?
- Where are would the warehouse be located?

Student 2:

- Would it be too difficult for the contractors?
- Would the contractors be able to return the material?
- Picking up the material from contractors sounds like a good idea

Suzannah's Feedback

- Have a target audience for the warehouse
  - Who is selling the material?
  - Who is buying the material?
- Homeowners and single-customers sounds good
- Incentive: rebate on taxes
- Incentive: LEED points for reused material
- Could it be a non-profit organization?
- Unlikely that it would work for a large company like Turner to take on.



Final Proposition

- Reuse a building in Nash for the warehouse (reduce CO2 impact of building a new space)
- Community based where we employ underprivileged to work in the warehouse
- Acts as a storage/retail facility

Conclusion

Things we did well

Balanced the builder's interests with feasibility of the solution

Analyzed our process from beginning to end

Implemented feedback from builder and peers

Things we wish we could have improved

We started too broad and large scale

Focused more on profit vs. non-profit from the beginning