

Reconstruct Detroit

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Subject:

Using technological and economical investigations and frameworks to explore the idea of repurposing and reconstructing existing buildings as they stand derelict and abandoned, this project aims to UPCYCLE and REUSE building components to reduce the embedded energy footprints of homes in Detroit. In Detroit there is a massive need for rebuilding, and in order to do so the current plan is to demolish each abandoned home, including some that were built less than five years ago and left unfinished, and then rebuild over them. This process costs \$8-10K per property, and about two months per property [4]. This process is energy intensive, utilizing massive amounts of embedded energy in raw materials and this process is extremely slow and expensive.

Thesis:

I would like to propose a method to rebuild Detroit, but this does not mean I intend to plan out the regrowth of the entire city. It means that this project will attempt to offer a means by which to reconstruct newer buildings, perhaps by placing the materials in an inventory and re-used when Detroit is ready; or potentially even on site, so that the deconstruction and construction become fused into the same process. This will allow for reduced costs in materials that are being reused and building costs may be cheaper, and more efficient. This proposal will consist of methods for efficient deconstruction with the help of some technology exploration, and then continue next semester to imagine the repurposing methods and application to the city. Next semester's part of the thesis will hypothesize the re-use of the building material and potential applications.

Methods and Schedule:

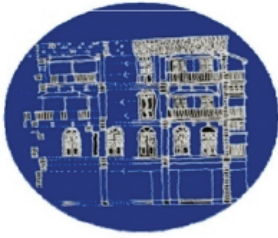
In the first two weeks I would like to grasp the deconstruction of a building. Through intensive research I want to understand the costs, the time it takes, and everything about the process. This will allow me to build up a new proposal for exactly how to improve upon the process. I will spend the next week gaining an understanding of parts of a building and how they can be taken apart. I am considering focusing on specific materials in order to simplify this part of the project. I will then be exploring the process of deconstruction and experiment with robotic systems as a potential aid. This last part would take the rest of the semester. My hope is that I can provide a method for deconstruction that can be used on site and taken to nearby buildings that, in this project's context, would already be repurposed to house these materials. The next semester would begin with exploring how to reconstruct the buildings, and what this could mean for the city of Detroit. I am interested in demonstrating how different materials can be reused for architecture in a way such that the land value is higher and may begin to attract people back into the city. This will require a lot more research into material properties and finding efficient and cheaper ways to re-utilize them. The first couple weeks would involve the research: I will collect the data for various materials, and after learning about each of their uses, re-uses, methods of re-purposing, etc, I will begin to ask the question of how I can then take one of these materials and create a system that can efficiently be UPCYCLED. This part is unclear in terms of scheduling as of right now, I would like to speak with various professors to develop it further.

A quick example of what I can specifically imagine for my project right now, though still not thoroughly formed, is one where I start by understanding how to deconstruct brick for the fall semester. This might mean grinding it into a powder and re-making the units, or it could mean plucking them off as square panels and reusing them as they are, or becoming something different entirely, such as pavement. This is where the spring semester comes in; it could be spent understanding how to take these various methods and reapply them for different purposes. My work here would be more about the manufacturing process and the potential it can lead to. It is by no means an attempt to plan the regrowth of the city's urban development, but simply a method for how it could be done more economically and environmentally friendly.

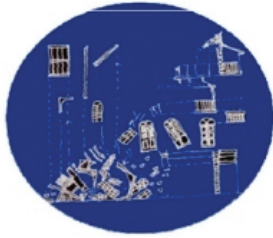
Bibliography:

- 1) Building with reclaimed components and materials : a design handbook for reuse and recycling : William Addis
used as inspiration for re-use methods
- 2) Building with Secondhand Stuff: How to Re-Claim, Re-Vamp, Re-Purpose & Re-Use Salvaged & Leftover Building Materials: Chris Peterson
used as inspiration for re-use methods
- 3) Deconstruction : theory and practice: Christopher Norris
used as reference for deconstruction methods
- 4) <http://www.dailypaul.com/293936/detroit-blight-map-lists-buildings-approved-for-demolition> : explains cost of demolition
explains cost, time factor, and plan of current demolition strategy in Detroit
- 5) <http://realestate.msn.com/dont-demolish-that-old-house-recycle-it> : news article about unbuilding homes successfully
compare to [4], shows deconstruction might be better
- 6) <http://srda.co/studio/research2> : SRDA firm project
used as inspiration for how to re-apply materials meaningfully
- 7) <http://www.union.wisc.edu/bmra/presentations/Chien.pdf>
detailed precedent on a recy
- 8) Recycling buildings : renovations, remodelings, restorations, and reuses : Elisabeth Kendall Thompson
used for examples of recycled buildings
- 9) Salvage Secrets: Transforming Reclaimed Materials into Design Concepts: Joanne Palmisano (Author) , Susan Teare (Photographer)
used for examples of recycled materials, not necessarily for building materials.
- 10) Unbuilding: Salvaging the Architectural Treasures of Unwanted Houses : Bob Falk , Brad Guy
used as inspiration for re-use methods

Precedents:



derelict



dismantled



reconstructed

SRDA is a firm in India that has considered the deconstruction and repurposing of a building and its parts. It focuses more on the memory of the building and keeping some parts in tact. [6]



US Army Corps of Engineers took on a project where every piece of the building was repurposed. This is a great precedent which talks about the pros and cons of the project, where all of the materials went, the methods, and the cost. This is a good start for comparing cost and time.