

# -FEBRUARY-

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## MONTHLY REPORT

“WE DO NOT ENHERIT OUR LANDS FROM  
OUR ANCESTORS, WE BORROW IT FROM  
OUR CHILDREN.”

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## SUMMARY

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One of the lessons learned throughout this travelling fellowship is that there are not many buildings which have been specifically designed for deconstruction. At times, this has brought frustration to me; however, I have been able to overcome the situation by trying to understand various reasons why such a design is not considered. Reasons range from lack of education, to economics, to code restrictions. Some buildings have been designed for deconstruction but at the end life of the building, either no market was present for the materials or they did not meet building code anymore. Such things as this makes it hard to predict the needs of the future. Even if the codes were to remain the same, buildings can go through various renovations and remodels in order to meet the existing demands. This action sometimes results in the initial design and ambitions being lost. For these reasons, I have expanded my research to buildings which have;

- used high amounts of reclaimed materials or recycled content or natural materials
- been deconstructed with a high values of materials reclaimed
- flexible and adaptable designs

Though I am considering a larger variety building construction types, I feel that this research will help determine ways in which buildings, their components and materials can effectively be reused instead of being sent to a landfill.

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## INTERVIEWS/CONFERENCES/PROJECT VISITS

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This month I was fortunate enough to find quite a few buildings which have been designed to support deconstruction as well as material reuse and natural building materials. This is mainly because in the Netherlands, a government funded project was initiated in order to find ways in designing industrial, flexible and demountable (IFD) buildings. This project helped fund over 100 buildings throughout Netherlands and have proven that it is possible to design such buildings as long as there is some financial incentives.

The first IFD building to be mentioned is the Delftech Park building located in Delft, Netherlands. The idea was to invest more during the design phase in order give the company more options in creating a durable and long lasting building. Careful selection of the buildings, materials, components and assemblies gave the building flexibility in changing in the future if needed to. Some of the flexible options include adjusting the exterior façades without the need of a crane, adding and subtracting floor space, and converting the car parking area to additional office spaces are present. All of these options allow for the buildings to change if the need to change is present. The building also exposes its connections and can be disassembled and brought to a new site and reassembled with only a demand for a new concrete slab for the building to sit on.



Another IFD building in which is located in Delft is the XX Office Building. A typical office building only lasts 20 years because either the company in which is in the building goes out of business, expands, or builds new in order to keep up with technology. The architect (also a professor at TU Delft) designed this building as an experiment in order to understand what building materials are needed in order to design an office building which only lasts 20 years. Designing for deconstruction was one of the main drivers in order to reducing the environmental impact. The building has all mechanical connections, standard sizing throughout the building and the materials were carefully selected. I was able to speak with a person who works for a company which has been in the office building since it has been constructed nearly 10 years ago. She was able to show me around the building as well as explain some of the minor maintenance issues and lessons learned from the design. Though this building has 10 years more to go, the hope is to use this experimental project as a basis for future office buildings to come.

Another building which has implemented D4D into the design is the Ice Hotel located in Kiruna, northern Sweden. This building is unique because it has to be built every year out of ice which is collected from the lake that is right next to it. The construction of the Ice Hotel has been present for the past 20 years but the level of complexity is being raised every year with more rooms, flat roofs (instead of vaulted) as well as the integration of systems such as lighting, security and electricity. The Ice hotel does not support a plumbing or heating system so another building close by is used for the tenants. Though this type of construction can only be constructed in colder climates and close to a lake or ice factory, it is inspirational to see an area which had no purpose years ago now be seen as a worldwide tourist attraction through the construction of natural materials.



Focusing on the reuse of materials, the Zwolle Earthship is the third Earthship that I have seen on this fellowship. I have been very inspired by the design and unique construction of these projects. These buildings are completely “off grid,” meaning that it supplies its own electricity, water, water treatment, food, and heat. The only company to design such buildings is located in Taos, New Mexico.



Though this type of construction is very earth-friendly, it is not ideal for every location as found out by Ralf Palmers who has designed a building of similar type. Ralf has called his building a “solarship” and was initially used to heat the building during the winter months. But because Ralf is located in Sweden the majority of the days are overcast and during the winter months the angle from the sun is relatively low which makes it very difficult to receive enough solar heat gain for the solarship. Ralf is interested in establishing an eco-

village and is looking multiple ways to use natural building materials. He believes in the perma-culture living concept and wants his buildings to be as harmless to the environment as possible.

CitizenM is a newly established hotel company which based its room design on one modular component. The prefabricated units arrive at the site and are craned into place reducing the overall construction duration by up to 5 months. The company focuses on providing standardized flexibility to their clients at low cost. Multiple areas to socialize are provided on the ground floor as well as customized environmental settings in each room. Carel Van Haute works in the Development Department of CitizenM and spoke with me about the constructability with these buildings and how the modules can be removed and replaced if needed. This construction technique also allows for easy expansion and contraction depending on the location demands from traveling clients. The modules can be removed quickly but the actual material extraction and reuse of the modules still needs improvement.



Catarina Thormark has written many documents on building deconstruction, material reuse and the motivations for D4D. I was fortunate enough to spend a half-day with her talking about projects happening in Sweden, Norway and other locations around the world. We spoke about ways to make the [www.design4deconstruction.org](http://www.design4deconstruction.org) website more effective for researchers, clients, manufacturers and designers. She has introduced me to a PhD



student in Norway who is currently researching D4D concepts in thesis. Catarina and I went for a site visit to the first building, in Sweden, which has been built out of all recycled and reclaimed construction materials. She pointed out the materials which were used and talked about her published works on the building.

In order to organize all of these case studies about which I am writing, Abdol Chini and I had a meeting to discuss

the rating system which I created in greater detail. He also introduced me to the new CIOB website which has numerous publications on the D4D concept. This information will help strengthen the information for the fellowship.

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**WEBSITE**

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I have gotten some great feedback on the website and am in the process of transforming it in order to make it as effective as possible. One point worth mentioning was brought up by Catarina. She suggested that I ought to try to create a forum area to post questions. These questions will be available for all to see and to respond to. This idea helps strengthen the potential usage of the website once it is completed and up and running.

I am still in the process of uploading my case studies; however, I am also trying to create more case studies at the same time. I prefer to create new case studies over getting caught up with posting them online because I can always add them at the end of the travelling portion of this fellowship. I would like to see this website be used as an educational tool in the future as well as hope that it will spark some brains for new design concepts.

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**PERSONAL LIFE**

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Something very special about Stockholm is that it has a large number of museums worth visiting. There are approximately 100 museums within the city and I am a person with many interests so keeping occupied is not an issue. I have been able to get cultured with the Scandinavian lifestyle and other regions of the world as well. These types of experiences inspire me by different lifestyles and I believe that with this exposure, it will help me in the future. One of the most beneficial museums which I have visited was the Skansen Open Air Museum. This exhibit has been dedicated to the old lifestyles of the Swedish heritage. The museum demonstrated what they used to eat, the types of jobs they had, how they survived harsh climates, and even transported old buildings from all over the as well as the types of buildings had. The unique construction technique of this region has been very inspirational for me because D4D was a standard for them without them realizing the environmental benefits. I have purchased a few books on the Swedish construction technique (called "Skiftesverk").



I was able to go fishing in with a local captain in Rotterdam. He and I were sharing fishing stories and talked about the different fish species and how to fish for them in the waters. We started to talk about the fishing equipment and then decided that we both needed to go out to try and catch something. The whole experience was unlike anything else, the casting style, bait and rigging was all foreign to me. The only thing that remained the same was my luck when fishing. We were able to catch one fish and had to throw it back because it is too small. The weather was not with us that day so we had to cut our fishing time short. Nonetheless, it was a great time and a completely new way of being involved with the local people.

Once again “thank you” for this wonderful opportunity and if there is anything that ought to be addressed more directly, please feel free to email me at [stephand@msoe.edu](mailto:stephand@msoe.edu).