



Material Reuse Focus Group Summary

Michigan State University Center for Community and Economic Development

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Introduction

This study was conducted by the Domicology team at the Center for Community and Economic Development (CCED) at Michigan State University, a university center committed to creating, applying, and disseminating valued knowledge through responsive engagement, strategic partnerships, and collaborative learning. Domicology is the study of the life cycle of the built environment and abandonment. Domicologists seek to change the paradigm of the built environment to create infrastructure for reuse of building materials. The purpose of this focus group was to explore the challenges and opportunities commercial construction professionals face in working within the structural material salvage and reuse sector. However, in the process of the conversation we were able to cover other topics including how to win contracts with material reuse, methods of community engagement, and tactics to engage with other large businesses. Our funder for this project was the Michigan Department of Environment, Great Lakes, and Energy.

Methodology

Participants in this focus group were selected by the CCED. One was a contractor who worked at a company that engages in material reuse in mid-Michigan. Another was a construction manager working for a large construction company in mid-Michigan that often deals with LEED certifications and sustainability-interested clients. The third was a contractor who helped found a material reuse focused non-profit in Atlanta. This Virtual Focus Group was conducted securely via Zoom in early January 2021 with three CCED team members taking notes while Dr. George Berghorn, Assistant Professor in the Construction Management Program at MSU asked questions. This meeting was recorded and a transcript was created for the team to work from. The questions asked are listed below:

1. Could you please describe your role within the reuse economy? In other words, through your professional work? Do you generate waste that will be reused? Or are you a consumer of reclaimed, repurposed or remanufactured building materials?
2. Do you see a role for construction organizations, whether it's general contractors or sub trades companies to help talk about this with their clients? To talk about waste management in terms of waste that's being generated on site and also to talk to them about the use of recycled, reused, remanufactured materials in their projects, or is it more that you're downstream? Is it that these decisions have been made and we're just executing?
3. Are there any sort of standard form contracts that you've come across that address deconstruction? Language regarding deconstruction scope?
4. You've talked about working for universities, and there's more and more universities that are doing what MSU does in terms of having their own internal surplus operation. Have you had experience working on projects with a university? It could be MSU or others that have their own internal surplus operation. Was the contractual requirement for the capture of materials different in those cases?
5. If you're on a project with a client that has great interest in incorporating recycled or repurposed materials into their project, what considerations are you making about procurement? How do you go about locating that material for them? And does it follow your normal procurement channels? Or do you find that you have to put some different steps into place for that?

6. What are the challenges and opportunities that you see in terms of looking to source again, one of those are materials, recycled, repurposed, what are the challenges and opportunities you see in trying to source those materials or, frankly, trying to deal with residue that you're generating on your job that you may be thinking about further use of down the line?
7. As you're thinking about these challenges and thinking about these opportunities, what resources either do you currently tap into that are outside of your business? Or what resources would you like to tap into, that are outside of your business to help address some of those challenges or find some of those opportunities?
8. So within your respective geographies, then would you say that those networks that currently exist, whether it's the demo folks or the consultants or the people that are involved on the environmental side, would you say that those networks and those supply chains are adequate for what you need? Would you say?
9. What's your wish list? Like, if you could have anything that you as professionals in the built environment want to help you do a better job of being a part of this reuse sector of the economy? What would it be?
10. What would need to happen for GCS and CMS to make their participation in this reuse sector more profitable?

The findings from this focus group gave the domicology team a varied and deep set of qualitative data that was condensed into five clusters.. These clusters were business administration, client relations, building processes, professional networks, and public relations. This covers all of the issues discussed in the focus group, and this framework can help the academic community understand the next steps for material reuse.

Business Administration

Our conversation covered various aspects of running a business that is involved in the recycling or material reuse sector. Initially, participants discussed the ways that knowing about material reuse and deconstruction can allow a general contractor to save on costs for material and procurement, potentially leading to lower project bids. This was discussed as a doubly beneficial action because the work will also be more profitable work for the company as a whole. In fact, one of our focus group members told us that they worked on a large stadium in west Michigan, and the reason that contract was won was the contractors planned to reuse the timber beams holding up the ceiling in the new design, saving a large sum on procurement, transportation and saving in carbon cost of the project. It was even discussed that an unfamiliar contractor might benefit economically from working with a green building or recycling consultant before making plans.

However, the main problem identified was that this salvage and reuse work right now is not the profit center of these businesses. Right now, according to the group, salvage and reuse is used as a means of differentiating your services and winning work, but the profitable activity of your business is actually doing the construction projects. In conversation after the fact, analysts with the MSU Domicology Team noted that one of the reasons for this is likely that there is not a well defined model for a profitable salvage business, generally. One of the focus group members has worked on creating a non-profit organization in the southeast that does just this, and their main goal is resale of these salvaged materials with as little storage time as possible. The member explicitly said that this means taking prices that are lower to move a much higher volume of product, which

according to them is a less-popular strategy than what they perceived to be a more antique-like approach to finding some architectural details in a building that may be repurposed.

Of course these businesses face immense challenges in accomplishing their goals of reuse. Often, according to both contractors, it is difficult to anticipate costs of transportation, storage, and labor, so it is worthwhile for professionals to go to their largest suppliers and ask them to meet with material reuse consultants to develop new strategies. One of our focus group members shared an example with a national building supplies manufacturer, where they were shown a way to deconstruct wooden pallets that saved thousands of dollars on shipping. This impressed this company and they came back to the contractor and asked for more ways to recycle and save money in the budget. The lesson that the contractor took away was that their biggest suppliers have access to more capital, more R&D and more consulting -- and as such, they are going to be part of new solutions and innovations in building material salvage and recycling.

Client Relations

All parties agreed that clients of all sizes are very open to cost effective or cost negative recycling solutions. One contractor said that the triple-bottom-line business plan is “people, planet, profit,” but they find more success with “profit, people, planet.” However, the larger or more publicly engaged a client is, (these included a nationally recognized auto manufacturer and a large university) the more likely they are to adopt green standards or reuse programs, because of their reputation in a community. LEED, a set of green standards administered by the US Green Building Council that may be certified for a fee on new buildings, drives many of our respondents’ clients to consume recycled or reused materials. However, it was reported that due to the cost of LEED accreditation there are many clients who will not be nudged to recycle or reuse through this program. It was suggested among respondents and well received that if there were free or very low cost certifications for these clients, more would be drawn to recycled and reused material. Often a client will be happy to pay a comparable price to a different supplier or for a mix that contains recycled contents instead of entirely virgin materials, and the respondents experienced this. A major Michigan grocery chain was named as a client who in the past has shown resistance to on-site pallet deconstruction until the cost/benefit assessment was done and they were clearly projected to save money. After that program began, the grocery chain inquired into other sustainability programs that could lead to profit increase.

One other issue discussed was how clients handle material leaving their site. Often, according to a contractor, the contracts and specifications they inherit on these projects are usually very particular about the ownership of waste material, and only allow for it to be sent to a landfill. Often by the time a contractor is onsite, as all our respondents noted, there will be little time or incentive for most managers or architects to go back and consult with their legal teams, then revise and sign a new agreement that allows for reuse. Still, all of the actors in the process report wanting to recycle and do not want this material going to a landfill. In review of this conversation, the CCED Domicology team noted that often the reticence to change legal language about ownership of reusable material or of waste has to do with liability for potential harm that may incur as a result of these materials. Liability was reported to be a major subject of internal debate at a large university in Georgia, where often discussion of internal salvage and reuse operations hinge on the potential for theft and harm that storage of reused material can hold.

Building Process

Participants in the focus group agreed that other professionals they work with in the process have positive feelings about recycling and recovering materials. However, respondents also noted one challenge has to do with how these materials are specified, and another major hurdle is how early on in the process these materials can be designed for what? All respondents noted that in a renovation or new construction, the earlier a material from onsite can be specified for, the better spent other money will be in the budget and on the project. If a construction manager is trying to get materials reused, they will be more effective in specifying and writing into the contractual language measures that will facilitate reuse. They can influence the language of specifications and they can require a certain material to be recycled or come from another site. Better yet, agreed the group, would be getting the design team to be fully fluent and literate in material salvage and reuse.

In the words of one participant, *“If a designer is doing everything right, they can design with a given material in a given quantity, because it is on site, and because it is reusable. What ought to be avoided is showcasing one, artistic recycled element in a sea of wasteful material.”* Ideally, according to CCED Researchers, a designer has consulted with their build team on constructability. In a scenario where *“The build team gets onsite and realizes there is more or less material onsite that is usable than what they had planned, At that moment, the design team should be able to change their design and get it reapproved by clients and regulators”*, proposed one contractor. Often designers are happy to change their designs. According to one general contractor, they approached a design team and said a slate tile was usable onsite, and they immediately replaced a virgin element in their design. Another time though, a different contractor brought up an amount of lumber that they had found onsite, but the design team created a design that requested four times the available amount. It is essential that the design team, the engineers and the other members of the planning team are able to be flexible and immediately change their designs if new suitable materials are recovered or discovered while work is occurring onsite.

One potential solution that was identified is getting a standardized deconstruction/ material recovery inventory process out to the professional community that can be picked up and systematized for other projects. This would be to be a page or set of pages in the construction documentation that outlines what is usable onsite, how it ought to be stored, and how these materials will be usable in the finished design. Right now, according to the focus group, what most demolition documents outline is what will be destroyed, what landfill it will be dumped in, and who will get proceeds from valuable scrap metals like copper. This is a good start, but it does nothing to specify what will be usable in a new design. Larger clients (universities, etc.) will often stop by a worksite and inform the team that these or those specific elements will be retained for reuse like light posts, so these contractors and managers believe these clients see the value in reuse and salvage to some extent. All of our respondents agree that a deconstruction document would be a great advantage for material reuse and salvage operations. The Domicology research team noted that assessment tools and other items exist that may be able to address or act as a starting point in creating these standards.

Professional Networks

Unfortunately, according to the group, a lot of knowledge and understanding of material salvage and reuse is collected informally. Contractors here and there treat it as a

way to gain new business, but generally there is little to no public access to material reuse practices. Right now, the best many construction managers and contractors in our region can do is choose the right team for a job that has reuse expertise. The Domicology research team agrees that is not a sustainable solution. One of the focus group participants, a contractor, saw this problem in their community and helped found a non-profit organization that works to buy recycled materials and circulate them as quickly and cheaply as possible to other job sites. These firms are using the expertise they already have access to and expanding its application to help their community. Analysts noted that as a non-profit, often this creates a tax incentive for for-profit organisations to write-off the value of their donated materials. According to the focus group many demolition and construction contractors have this knowledge and expertise already, they're just highly discouraged from doing work outside the contract.

LEED-accredited professionals are also a part of material reuse and salvage right now. According to our construction manager, these LEED-accredited professionals would be their go-to expert in salvage and reuse. In terms of leading the way for the deconstruction revolution in America, LEED may be underequipped, according to the analysts. First, the scope of LEED can be rather limited, and secondly it does not do anything to reach projects in the mid to low budget range. In fact, our respondents believed that as project budgets decrease, so too was the presence of green or recycling language in contracts likely to decrease, unless there are economic savings associated. The idea of free, cheaper, tiered systems of green certification or even just a set of standards was welcomed by all respondents.

The size of a firm came up frequently in this discussion. Often repeated was the idea that a larger quantity ordered from a large supplier would be much more likely to have a custom recycled option than a smaller order from a smaller supplier. It was mentioned that these sorts of orders present a great opportunity for the large supplier. They have access to material testing, research and development facilities, and chemical engineers who are all better equipped to come up with brand new innovations in materials than a lot of our contractors and managers are. The real ask from the contractors and managers was for more interbusiness communication; wherein the architects, planners, construction managers and contractors at a regional level could all be aware of what is leaving a job site and what is planned to go in at a new job site. Ideally, these networks would be able to communicate on both a regional (city/metro) and statewide basis. It was proposed that if a party separate from these individual companies were to coordinate what is being demanded and supplied across the region, this will facilitate new companies to spring up that can profit from these trades. It would even suffice to simply have a directory of what firms in a region are engaged in material salvage and reuse.

Public Relations

According to our construction manager respondent, and agreed upon by the others, there is growing interest and demand for recycled materials. That is undeniably a good thing, but it was noted that some companies engage in greenwashing, in which they mislead the public about the effects their work is having on the environment. This was reported to have been the case with a major midwestern grocery chain, who has a few of their construction sites designated as "zero waste sites." According to one of our respondents, it is well known that this company's zero waste sites are sites that generate plenty of waste and debris, that material is simply shipped to a different site and dumped in a different landfill. This is dishonest, and leads only to diluting the industry with green

advertising while denying the practices that will actually heal our environment. Kent County's Net Zero Initiative was named as an example of a respected, non-greenwashed effort to reduce C&D waste in the county, and it has been successful.

It was also understood that a lot of the land use issues across the country are very diverse. In Detroit when an abandoned building comes down usually a lot of people are satisfied, but in Grand Rapids not so much. One contractor was having dumpster "diving issues", where members of the community would sneak onto the site and take usable materials out of the dumpster. The situation almost escalated into a conflict when the construction team learned of it, but our respondent suggested they assess what was being stolen from the dumpster, and asked around to community members to see what was needed or desired from the project by the community. They worked out a plan to leave an open box outside the perimeter of the site that neighbors could legally extract reusable materials from. It worked, and that was how salvageable waste was dealt with for the remainder of the project. People were happy to take materials from the bin, there was no more tension between the project and the community. In the opinion of the analysts, one of the best ways for a construction company to connect with their community, however, is to give them a well-paying, high quality job. And as our respondents noted, that is one of the main draws of deconstruction. In towns like Flint, Detroit, Lansing, or Marquette, the largest decline in workforce over the past thirty years has been in manufacturing. If a worker does need a job in manufacturing, the quality of their work will be very low, often in a factory. By investing in deconstruction, these companies are bringing well-paid local manufacturing jobs back to their communities.

Conclusion

Next steps for the building community have been identified in all areas of the focus group. If there are not adaptable, green standards available for very low budget projects, many clients will be left with no choice. Contractors could benefit from more deconstruction cost estimation tools, and from a business model that could make money on handling salvaged materials. As these businesses do more deconstruction work, they will need to coordinate with their suppliers and clients to ensure standards of quality as well as new methods in recycling and salvage. Clients are interested in these processes, but they are limited by the other working communities that they rely on. Designers, engineers and managers need to understand how to inventory their sites for reusable materials. Ideally, projects and companies would be able to communicate with each other and with their design teams to use and approve materials from other sites in the area. And lastly, many companies and communities would benefit from higher paying, higher quality jobs in deconstruction and hand demolition.

The domiciology team was pleased with the data gained from this focus group, future options are being considered for a new focus group featuring other stakeholders in the material salvage and reuse sector. The intention of this summary is to be referenced by other researchers to guide their interventions in the construction and demolition industry's recycling initiatives.