

**U.S. EPA, Region 9
Grant X-999-696-01-1**

Lessons Learned

Deconstruction as a Small Business Opportunity

- There is invariably a cost to deconstruct buildings, and this cost usually exceeds the salvage value of the recovered building materials. Sold as-is, reclaimed dimensional lumber has a very low market value, and rarely supports the cost of deconstruction, denailing and marketing the material. Value-adding increases the profitability of salvaged lumber. It can also be extremely profitable to sell some of the material while it is “in the air,” before it was deconstructed. This practice reduces marketing, storage and transport costs, giving a greater profit margin on the sale.
- A lack of start-up capital is a significant barrier to success, limiting the ability to purchase and/or rent the proper equipment and tooling. One strategy for deconstruction start-ups is to partner with an established demolition contractor who can provide needed heavy equipment. The experience of a demolition contractor can assist in determining which products can be salvaged cost effectively. This partnership can be helpful in other ways, as it is reasonable to expect that asbestos and other environmental concerns are present in most buildings. When negotiating deconstruction contracts it is important to address the issue of liability or responsibility should unforeseen circumstances develop or the contractor default on the work.
- In most cases it will not be financially feasible to deconstruct an entire building. Instead, a combination of deconstruction and demolition will be the most successful strategy. Buildings should be viewed as a collection of component systems, such as the floor, roof, interior finishes and exterior walls. Each component should be assessed independently for salvageable materials, accessibility of materials and amount of debris. Suitable components can be identified and deconstructed, while the balance of the building is demolished.
- Beyond the work involved in actually dismantling buildings, deconstruction also stimulates employment growth for local communities in a range of salvage-related businesses. These businesses generate additional jobs requiring a range of expertise from unskilled laborers to highly skilled artisans.
- Deconstruction is hard to sustain year-round. Sales can be affected by contractual slumps that occur regardless of intensive promotional efforts or other legwork.

Combining Deconstruction and Employment Training

- In training programs, safety certification programs are especially important. Such training increases safety awareness in all aspects of the program, and also makes participants much more marketable as employees. In addition, the pride that trainees feel upon successful completion of training programs can be tremendous. The success of obtaining these certifications can buoy trainee confidence considerably.

- When running training programs it is helpful to limit the number of participants. A low supervisor-to-trainee ratio and a minimum of 8 weeks of on-the-job training is ideal for participants and can help to increase job retention after placement.
- Over-expansion can drain significant resources from deconstruction projects. Initiating more than one project concurrently can leave administrators and workers over-extended, causing major setbacks.

Reusing Salvaged Lumber

- Producing remilled dimensional lumber is rarely cost-effective. The material has often warped during drying so that it is no longer square and the original grade stamp is generally not accepted. The lumber can be resurfaced, regraded and made square again, but the increase in value is minimal compared to the cost of production. In addition, the waste factor is very high when remilling dimensional lumber to be resold as lumber, since the reclaimed material must be surfaced down to the next smaller standard dimension.
- Cost-effective use of reclaimed dimensional lumber requires higher value-added production - such as tables, moulding and trim. The added value offsets the relatively high cost of preparing the reclaimed material. In addition, defects can be cut away and discarded without losing the entire board, as is the case when material is being remilled into lumber.
- A varied product line is essential to respond to the variations in feedstock. The supply of reclaimed lumber is extremely variable. While the new wood market is subject to variations in price and supply, these fluctuations are much more pronounced in the reclaimed lumber market.

Public/Private Partnerships

- A relatively small amount of seed money can stimulate substantial financial support from government agencies, unions and private businesses. In addition, a multi-sector approach can also involve organizations in the actual deconstruction process, increasing awareness in the industry and the general public. Inviting private wood recycling enterprises to operate at a deconstruction site can raise money through sales. This money can be used to continue funding the deconstruction project.

Deconstruction on Closing Military Bases

- The long timelines involved in base closure processes can facilitate deconstruction projects, which are more time consuming than traditional demolition. However, it can be difficult to capture the benefit of this extra time during due to the lack of any precedents for licensing or contracting.
- Military funding is prohibited by Congressional mandate from being used for reuse activities. Federal funds may only be used to remove buildings which pose a health or safety threat or which could be a liability to the US Government. In some cases, communities may be able to work with base commands to use deconstruction instead of demolition on such buildings.

- Once military operations have ceased at a base, during the interim phase, the interests and concerns of the local reuse authority become very significant for deconstruction. In particular, the need to derive income from interim leases constrains the opportunities for deconstruction during this phase. This can make the reuse authority hesitant to remove buildings that have any leasing potential, even if those buildings are certain to be removed later, especially in areas with aggressive rental markets.
- In base closure the transfer process may take years (in some cases, decades). As large-scale building removal is likely to be postponed until it can be included in the developer's scope of work. Communities should use this time to advocate for the inclusion of deconstruction in the reuse planning process.