

Demolition or Deconstruction?

By Marisa Hegyesi and Brian Yeoman

With the investment of a little extra time and money, many of the components of an old building can be salvaged and reused rather than disposed of in a landfill.

You are faced with demolishing an old building to make room for a new, state-of-the-art building. Do you just demolish the old, or do you invest a little extra time and money to deconstruct it? Do you try to do your fair share to recycle and reuse, and in turn take a small step toward protecting the environment? Or do you just dump the demolition debris in a landfill because the tipping fees are cheap?



The University of Texas Health Science Center (UTHSCH) was recently faced with these questions when it began planning the design of its new School of Nursing and Student Community Center with Berkebile Nelson Immenschuh McDowell Architects (BNIM). As part of the university's commitment to sustainability, the design team is pursuing certification under the US Green Building Council's LEED? Green Building Rating Program? for the new building. But before the new building could be constructed, the old Graduate School of Biomedical Sciences (GSBS), a 37,368 square foot building built in 1974, had to be removed from the site.

Demolition is the accepted practice - especially in Texas, where landfill costs are very low and the land is cheap. The average rate for a local landfill is \$9.95 per cubic yard. But UTHSCH, a proponent of The Natural Step program, wanted to do more than just design a new sustainable building - it also wanted to ensure that removing the old building wouldn't create a negative impact on the environment. It began working with BNIM to investigate how the old building could be "deconstructed," generating the least amount of waste possible and maximizing the salvage of material being removed from the project.

At first the university's goal was to have no materials landfilled, but the team quickly found this goal to be impossible. BNIM created drawings, wrote specifications and developed guidelines, and a more realistic goal was set to recycle/reuse at least 70% of the total building.

A joint venture between Jacobs Engineering and Vaughn Construction as construction managers, and D. H. Griffin of Texas, Inc., as the deconstruction contractor, played a major role in supporting the -UTHSCH's new deconstruction policy.

Saving the Earth One Piece at a Time

The team looked carefully at every aspect of the GSBS building to

determine how to best remove it from the site. The metal hardware from the doors was removed and separated for recycling. The wood doors were taken and chipped into a landscape cover.

The UTHSCH inventoried the building's furniture and equipment so that it could be taken to surplus or reused. A.G.V., Inc., auctioneers and liquidators specializing in refurbishing and selling used office furniture, removed and sold the majority of the remaining furniture. Laboratory Construction Specialists (LCS), Inc., was able to salvage a great deal of the laboratory casework and laboratory bench tops; the remaining casework items were salvaged by the UTHSCH and private individuals, with much of the laboratory casework set aside for use in other UTHSCH's buildings. Iso-Tex Diagnostics, Inc. was able to salvage and reuse several large pieces of laboratory equipment, including two large glass refrigeration units, a Subzero refrigerator and an autoclave.

Much of the landscaping that surrounded the old GSBS building, including small deciduous trees, palm trees, shrubs, plants, light poles and benches, were removed and relocated throughout the campus. Large trees that could not be transplanted were cut down and taken to the UTHSCH's Urban Ecology Research Park to be chipped into mulch by a solar-powered chipper.

Almost all of the 1,012 square yards of carpet were removed and given to DuPont for recycling. The remaining carpet was reinstalled in Iso-Tex Diagnostics, Inc.'s Friendswood, TX, facility.

The age and energy inefficiency of the fluorescent lights removed from the building did not make them good candidates for reuse, but the ballasts, bulbs, metal housings and plastic lenses were recycled.

Through Armstrong's Ceiling Reclamation Program, 14.28 tons of ceiling tiles were recycled. The tiles were taken to the local Armstrong plant where they were added to the raw mix and reemulsified to create new ceiling tiles. This program not only diverts waste material from the landfill but also reduces the amount of fresh raw material depleted from the earth.

In an effort to reuse building materials, the face brick (approximately 50,000 bricks) was removed from the building prior to deconstruction. The brick was then stockpiled so it could be cleaned and palletized for use at a later date. The UTHSCH even went so far as to remove the canopy connecting the North and South wings of the building so that it can be reassembled and reused at a later date in a new location.

Continuing the Quest for Sustainability

In the end, the UTHSCH, with the assistance of BNIM, Jacobs, Vaughn, D. H. Griffin and others, not only met their goal of recycling/reusing 70%, they surpassed it. Table 1 shows a breakdown of the tonnage of material salvaged, recycled and

landfilled.

This project proved that deconstruction is a viable option for any organization that is trying to become more sustainable in its operations. Based on the success of this project, the university plans to use the same environmental and sustainable building practices to deconstruct any other buildings that may need to be removed in the future.

Editor's note: For more information about The Natural Step program, see the article in this issue.

Marisa Miller Hegyesi, MIB, is the communications officer for the Office of Facilities Planning and Campus Development at UTHSCH. She can be reached at marisa.m.hegyesi@uth.tmc.edu. Brian K. Yeoman is associate vice president for Facilities Planning and Campus Development at UTHSCH. He can be reached at brian.k.yeoman@uth.tmc.edu.