

EES 664, Dr. Richard Berman
Green Building Project- One Haworth Center Holland, MI
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Innovation is a term that can be used in many different contexts; sustainable design is a field where the word is often tossed around. Innovation is not a term that was traditionally applied to office furniture manufacturer Haworth; more appropriate adjectives would be staid and dependable. That is, until, they renovated their corporate headquarters in Holland, MI as an innovative LEED gold building and in the process renovated the appearance and operation of their corporation.

The former Haworth headquarters could be best described as a bunker; a hulking behemoth of reinforced concrete and narrow windows that typified the suburban office campuses of 1980's Corporate America. Each employee sat in one of a seemingly endless row of nearly identical cubicles, leaving only to use the restroom, eat, or meet with other employees in a drywall conference room, and signing out every time they did. There was also an odd but ever pervasive odor from the many personal crock pots scattered through the building (Teeman-Roseburg), which often contained, "cooked pheasant and chili cheese dip," (Chen 3). The company has long been known for its reliable but predictable office and systems furniture products. In the mid 1990's Haworth began "expanding their portfolio" by acquiring smaller niche companies with a reputation for more cutting edge design, like Italian Castelli, and Canadian SMED (Chen, 1). It was difficult, however, to take clients to the corporate headquarters (Teeman-Roseburg) as the reality of the offices projected the opposite of the modern, open, fluid, workplace future that Haworth's products were moving towards (Chen 2).

This all changed in 2006, when Haworth decided to renovate their corporate headquarters. Beginning in 2004 with their Chicago showroom, the company had been undertaking an initiative to have all the new spaces they constructed be certified to at least LEED silver standards. The headquarters renovation in Holland, MI was by far the largest of these endeavors they would undertake, and although it was registered as new construction, it was actually the total renovation of an existing building. With sustainable architects Perkins and Wills on board, Haworth began the almost total deconstruction and

renovation of their corporate headquarters, now called One Haworth Center. In addition to hiring an outside architect with an impressive LEED certified resume, Haworth also utilized its own in-house think-tank, the Ideation Group, to determine what workers most desired to change to improve their quality of work life. The biggest wishes on the “wish list” ran a striking parallel to the requirements of LEED, including clean indoor air quality, better temperature control, and the number one employee request was access to natural light (Chen, 3).

As a rating system, LEED stresses the importance of efficient energy and resource use, and reuse and repurposing of materials. Human comfort and access to natural light are also essential qualities of LEED buildings. Haworth employees woefully said that previous, “Attempts at face lifts were like, ‘Putting lipstick on a pig,’ ” (Chen 3). To begin the process of renovating the old structure to bring many of these sustainable principles to life, the existing building was stripped to the steel structure and completely re-imagined. The resulting new Haworth Corporate Headquarters is a creative, sustainable, working showroom that merges technical innovation with the history and future of the company.

Visitors to the new building are first met with a sleek wall of steel and glass, topped by a vegetated roof, that forms the skin around a new 3-story atrium space (Brandsen, 1). The steel, glass, white and red accented palette are modern and sophisticated, and lend a certain “wow” factor that was sorely absent in the previous building. The sweeping view of the atrium stretching away into the distance as one enters the building is also very striking (Teeman-Roseburg). In addition to adding some “wow” factor, the expansive windows of the atrium also bring natural light to more than 90% of the building and its occupants (Brandsen, 1). Some of the other employee-friendly features include breakout rooms and lounge spaces for informal meetings, and “refreshment centers” that serve as employee lounges.

Although the project has not been completed long enough to be LEED certified, it is registered with a possible total of 46 points, well within the range of 39-51 points needed to achieve a LEED Gold rating. They hope to be awarded nine points in the area of sustainable sites, five points for water efficiency, seventeen points for energy and

atmosphere, thirteen for material and resources, thirteen for indoor environmental quality, and five points for innovation and design process.

To make the existing site more sustainable Perkins and Will incorporated a water collection system into the green roof, and re-landscaped much of the campus with native drought resistant plants. The vegetative roof is a 45,000 sq. ft. system of interlocking plastic trays filled with drought-resistant sedum; it was installed by regional company Liveroof (Sustainability By Design: Case Study). “Multiple vegetated bioswales along building and parking areas utilize native plants to absorb and filter negligible storm water runoff from green roof.” (Brandsen,1). These features, along with low water use plumbing fixtures (Brandsen, 2), also contributed to the water efficiency of the building.

To score a large number of points the category of energy and atmosphere, Perkins and Will designed the building around efficient HVAC and lighting systems, as well as the best site orientation possible. The site was somewhat limiting, as there is an existing 1.5 million sq. ft. factory to the north of the office building (Brandsen, 1). Working around this Perkins and Will angled many of the large glass walls that allow daylight deep into the building, while utilizing high-thermal performance glass to minimize the heat load on these surfaces from the sun (SBD, Case Study). The vegetated roof significantly reduces the heat-island effect created by expanses of concrete by absorbing the heat; the roof also insulates the building and improves the efficiency of the building systems. Occupancy sensors turn off lights and lower HVAC demands when areas and meeting rooms are not engaged and daylight harvesting is also utilized in the building. The under floor HVAC system, as well as high efficiency chillers, boilers, and building maintenance systems complete the energy saving practices employed in the project (Brandsen, 2).

Another large LEED points gain on the project was made in the category of materials and resources. Haworth and their collaborators were extremely devoted to ensuring that as little waste as possible left the project site destined for a landfill. LEED allows up to 2 points for the diversion of 50% and 75 % of construction waste from a landfill. In the first phase of deconstruction, 3,966 yards of waste was generated, of which more than 98-99% was reused, repurposed, or recycled (SBD, Deconstruction). Gently used furniture and carpet tiles were donated to area schools and charities, like the

nearby Black River Public School, which was engaged in a renovation project of its own. Much of the glass, 9.23 tons, and concrete dust, 3.25 tons, removed during deconstruction were reused to make more than 8,000 concrete masonry units for the new building (SBD Deconstruction, 3). Other concrete waste was used in the paving for the new entrance and parking structure. “Even such relatively minor items as door locksets were removed intact and reused in other Haworth facilities,” (Bendsen, 1). The new atrium also showcases a reception desk and three-story wall constructed of “timeless timber” that was salvaged from the bottom of the Great Lakes and beautifully repurposed and restored as a visual focal point (Cangeloso, 4).

It is important to note that Haworth, their architect and their construction manager did not refer to the critical initial phase of the project as demolition, but rather as deconstruction. Deconstruction represents a fundamental shift in thinking from the old bull-dozer and wrecking ball idea of demolition. In traditional demolition and construction, nearly everything ended up in a dumpster. In contrast, deconstruction entails the careful disassembly of an existing structure, so that its finite parts and pieces, like carpet tiles and door locksets, can be re-used or properly recycled.

One Haworth Center is also capable of scoring many LEED points in the category of indoor environmental quality. A great deal of this is made possible by the raised flooring system, brand name Tekrete that is utilized through out the new building. This unique system gives the company the ability to manage their electric and data wires in accessible configurations under foot, rather than in the inaccessible walls and ceilings (Cangeloso, 1). It also provides energy efficient under floor heating and cooling, which allows each employee an individual floor diffuser in their workspace and control of their individual thermal comfort. This has helped to improve the building’s energy efficiency more than 30% from the old structure. This improvement may seem modest, but it must be considered in the context of the transition from an insular concrete bunker-like structure to one with a 20 % larger square footage and a three-story glass atrium that allows views of the landscape to 90 % of the interior (Brandsen, 1). Other decisions made to improve the indoor environmental quality included locating the printers in designated rooms with separate ventilation systems to keep the particulate and related off gasses out of the general populations’ work area (Cangeloso, 4). It forces employees to walk a bit

father to the printer, but it helps them breathe cleaner air, and perhaps, it makes them think twice before they print a document and wonder, “Do I really need a paper copy of that expense report?”. A permanent ban was also instituted on personal crock pots, much to the delight of previously offended vegetarian employees, and sales people who are now able to walk potential clients through a chili-free living showroom of Haworth’s products (Chen, 2).

The products that Haworth makes were became green, healthy, and sustainable years ahead of the company headquarters. All of these cubicle systems, chairs, desks, and tables are now showcased through out One Haworth Center (SBD, Case Study). They are all upholstered with high recycled-content fabrics, all the chairs and composite board products are Green-Guard Certified, as low VOC emitting materials, and the ergonomic features of chairs, task lights, and desk accessories contribute to both employee happiness and LEED points. Low-VOC carpet tiles by Interface were utilized as floor covering in many of the office spaces, and contain between 39 and 66 % recycled content; further contributing to the project’s LEED score (Brandsen, 2).

Another highly sustainable principal of the design was based on the fact that Haworth had acquired moveable wall company SMED a number of years before the project was initiated, and wanted to utilize the reconfigurable wall system (now called Enclose) to its full potential. This desire developed into a highly modular design with a minimal number of drywall partitions, which are located only around core building functions, like mechanical rooms, toilet rooms, and elevators. Practically every other partition in the building is an Enclose partition, reconfigurable and considered furniture as opposed to fixed. Haworth, their collaborative partners, and LEED see this as an innovation that reduces cost, energy, and creates “Negligible installation/reconfiguration waste” when, inevitably, a floor or department needs to be reconfigured to meet changing needs (SBD, Case Study, 2). Moveable partitions generate a fraction of the waste that drywall does when it is demolished and rebuilt. Modular walls are also cost and labor saving in comparison with drywall construction. There is very little difference in the acoustic isolation between the two methods of construction, and often partial glass or transoms in moveable partitions allows daylight through to the inner offices (Teeman-Roseburg).

Although it is overall a highly successful project, One Haworth Center is not without its shortcomings. Although there are secure bike storage, locker and shower facilities provided for those who choose to bike to work, the location of the project in a suburban office park setting does have its drawbacks. Haworth encourages its employees to carpool and gives incentives to purchase alternative fuel vehicles (SBD, Case Study, 3), but the site is accessible only by personal auto, or a rather lengthy bike ride, with no public transportation options. The trade off seems to be the savings of fifteen million dollars the company gained by not constructing a brand-new building, which reporter Blair Kamin says is, “proof positive that architectural recycling pays”. There is also something to be said for the reuse of the site, and the fact that instead of relocating to a more urban and transit accessible environment Haworth repurposed it’s existing location and did not allow it to become a brownfield.

The second phase of One Haworth Center is targeted to be complete in December 2008. Soon after commissioning the building will hopefully receive its LEED Gold certification. With this monumental accomplishment, Haworth will have made an amazing transition from staid and stodgy to a company that leads by example and practices the principles that it preaches and sells everyday.

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