



Silver in Saginaw

By David R. Miller, Associate Editor
Photos courtesy of Spence Brothers

The USGBC's LEED® program is an increasingly popular option for facility owners across Michigan, including the Tri-Cities area. As more LEED-certified facilities are completed, there will always be one project team that led the way by earning this prestigious distinction first in a given region. In the Tri-Cities area, this honor belongs to construction manager Spence Brothers, Saginaw, architect Wigen Tincknell Meyer & Associates, Inc., Saginaw, and the able team of subcontractors that transformed Pioneer Hall at Saginaw Valley State University (SVSU) into a LEED Silver facility with a 45,000-square-foot renovation and a 30,000-square-foot addition.

DESIGN CHALLENGES

Mechanical and electrical engineering programs at SVSU are housed in Pioneer Hall. While students in these classes created designs for the future, the facility where they learned was stuck in the era when it was designed and built, the 1970s.

"There were very small windows that let in little exterior light," said Paul Haselhuhn, AIA, LEED AP, associate for Wigen Tincknell Meyer & Associates. "Many of the interior spaces were lit artificially. We rearranged a lot of the existing facility to get natural light into virtually every space while maintaining the structure."

Haselhuhn pointed out that 1970s

architecture was strongly impacted by two separate energy crises. Designers responded to a keen desire to keep energy costs in check with the best materials available at the time. Curtain wall systems were commonly used in the 1950s and '60s, but the glass did not perform well from an energy standpoint. Rising energy costs led to a radical design shift in the 1970s.

"It was almost a brutalist approach," he said. "There were huge facades with very little fenestration on them to allow natural light in because glass was the weak spot in the building envelope. Glass technology has improved quite a bit, and that has let us reverse some of what was done in the '70s

and '80s. Glass is still often the weak spot in the envelope, but the performance is much better than it used to be."

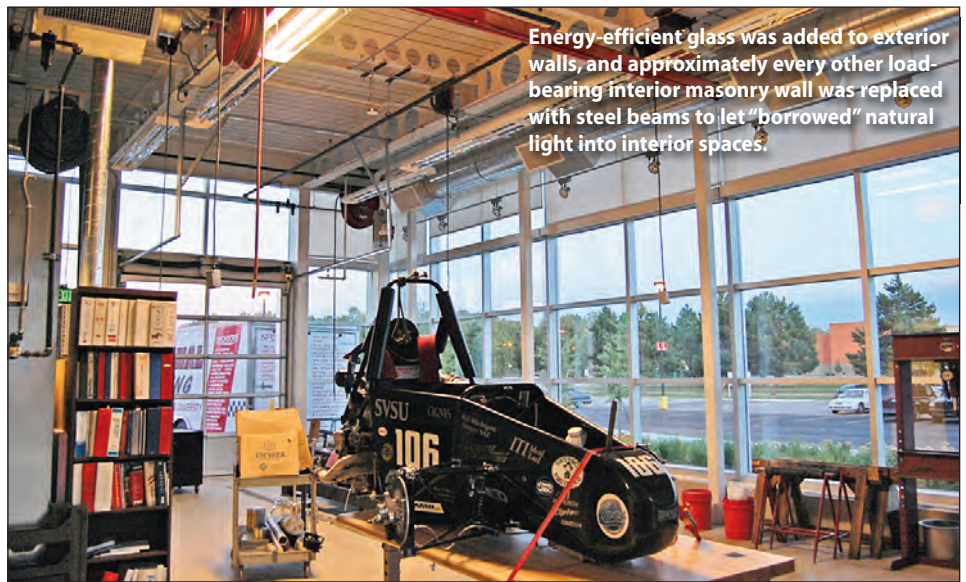
The existing building was rectangular in shape and defined by load-bearing masonry with a concrete plank deck supporting the second floor underneath a steel roof structure. Energy-efficient glass was added to exterior walls, and approximately every other load-bearing interior masonry wall was replaced with steel beams to let "borrowed" natural light into interior spaces. This approach let the project team maintain 83 percent of the building structure and envelope, thereby securing a LEED point towards certification. The glass used on the exterior of the structure performs so well that attention was quickly diverted to other energy issues.

"The weakest spot that we had to contend with was the existing walls, which were masonry block with brick veneer," said Haselhuhn. "We could not efficiently get a higher R-value into those wall assemblies. Since heat tends to rise, a building's roof can often have a greater energy impact than its walls. The project team at Pioneer Hall was able to attain energy goals by stripping off the existing roof and re-insulating. A white roof was added to reflect heat while new HVAC equipment also contributes significantly to energy goals.

The addition to Pioneer Hall also reflects the type of education that occurs within its walls. Exposed ceilings put overhead mechanical and electrical systems on display, while windows offer unobstructed views into mechanical rooms. Students can even track the output and efficiency of mechanical units with strategically placed computer screens. Students hoping to design mechanical and electrical systems of their own will undoubtedly be inspired as they see the systems that make Pioneer Hall habitable. They should also realize that Pioneer Hall's comfortable environment would not have been possible without contractors who could translate design ideas into concrete reality.

DIGGING FOR SILVER

A significant amount of mechanical work was needed to boost energy efficiency in the existing section of Pioneer Hall. The team of architects, engineers and contractors needed to find a way to incorporate this work into a structure that was not designed to accommodate it. If they could not find a way, they might have ended up sitting in a structure that shares a name



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Exposed ceilings put overhead mechanical and electrical systems on display.



Extensive exterior glass lets passersby experience the excitement of Pioneer Hall.

with their ingenious solution.

"We added a structure on the roof that we called The Doghouse," said Brian Keeler, LEED AP, project manager for Spence Brothers. "The floor-to-ceiling heights were very limited and we needed more than what was available. The Doghouse structure runs the entire length of the existing building and it houses all of the ductwork, which would not have fit in the original ceiling space."

The Doghouse measures approximately 12 feet wide, but is only four feet high to prevent it from being seen at ground level. Even with its modest height, the metal clad structure let contractors squeeze in all of the necessary ductwork. Many of the most basic aspects of the project required this type of innovative thinking. Subcontractors also had to adapt to different methods of obtaining materials.

"Normally, I wouldn't be concerned with where the masonry on the job comes from, as long as it fits the specification," said Keeler. "On this job, subcontractors needed to be very specific about where they were

buying their products."

Distance from point of manufacture to the jobsite is carefully considered on LEED projects to minimize the environmental impact of shipping. Subcontractors deservedly receive much of the credit for the achieving sustainability goals in this area, but Keeler was quick to point out that national manufacturers are also becoming valuable partners in this process as they adapt to LEED. Materials leaving the site received similar scrutiny, as LEED-NC allows a one-point credit for recycling 50 percent of the debris leaving the site and a second point for recycling 75 percent. Spence Brothers made a conservative estimate of obtaining one point, but garnered both available points by recycling an amazing 90 percent of the materials leaving the site.

Perhaps the most impressive testimonial for the project comes from SVSU, itself. The college celebrated the completion of its first LEED-certified facility by immediately embarking on construction of a new College of Health and Human Services building. The project team led by construction manager

Spence Brothers and architect TMP Associates, Inc., Bloomfield Hills, is seeking LEED Silver on this project, as well. Pioneer Hall was the first facility to earn LEED certification in the Tri-Cities area, but thanks to the outstanding success of the project, it certainly will not be the last. ☐

THE FOLLOWING SUBCONTRACTORS AND PROFESSIONAL CONSULTANTS CONTRIBUTED THEIR SKILLS TO THE PROJECT:

- Asphalt Paving – Saginaw Asphalt Paving Co., Saginaw
- Civil Engineering – Civil Engineering Consultants, Auburn
- Concrete Foundations and Slabs – R. C. Hendrick & Son, Saginaw
- Drywall and Ceilings – Tri-City Acoustical Company, Saginaw
- Electrical – Taunt Electric Company, Gladwin
- Electrical Demolition, Cutting and Capping – Van Herweg Electric, Freeland
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- Hard Tile and Soft Tile – Standard Tile, Saginaw
- Irrigation System – Turf Tech, Inc., Birch Run
- Joint Sealants – Premier Caulking, Grand Rapids
- Laboratory Casework – Farnell Equipment Company, Troy
- Landscape Architect – Mark Robinson & Associates, East Jordan
- Landscaping – Bell Landscaping Co., Saginaw
- Masonry – Edgar Boettcher Masonry, Bay City
- Masonry Foundations and Masonry Work – McMath Masonry, Inc., Freeland
- Mechanical Demolition, Cutting and Capping – John E. Green Co., Saginaw
- Mechanical and Electrical Engineering – Peter Basso Associates, Inc., Troy
- Mechanical, HVAC, and Piping – Mid State Plumbing & Heating, Mount Pleasant
- Metal Wall Panels – C.L. Rieckhoff Company, Inc., Taylor
- Miscellaneous Steel Work – Howard Structural Steel, Saginaw
- Painting – Niles Construction Services, Flint
- Retro Floor – MIS Corporation, Saginaw
- Roofing – Mid Michigan Roofing, Saginaw
- Site Electrical – Bender Electric, Inc., Saginaw
- Structural Engineering – MacMillian Associates, Bay City
- Structural Steel and Metal Deck – Delta Steel, Inc., Saginaw
- Technology – Innovative Technologies Group, Saginaw
- Testing and Balancing – Hi Tech Test and Balance, Freeland
- Window Shades – Curtain Call, Rochester Hills

Subcontractors and professional consultants listed in this feature are identified by the general contractor, architect or owner.



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