

West Bend Mutual Insurance Company Building Addition Design and Construction

Results of interviews with design and construction team members

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Pre Design Phase

Principles and Goals

When the West Bend Mutual Insurance Company recognized the need to expand its headquarters, there was no question that the original building would serve as the inspiration for this major new addition. Guided by their corporate philosophy focusing on high quality and stewardship, and the years of experience gained from occupying the first phase of the building, West Bend established core principles for design and construction of the expansion.

Preservation of the Site

Environmental stewardship of its 160-acre site was paramount in West Bend's approach. The original building is nestled into a restored prairie landscape which provides both visual beauty and natural habitat. Access to the views and nature trails provide an important amenity to the community, to local wildlife, and to the associates at WBMI. Maintaining a small footprint on the site was of paramount importance when it was time for the headquarters to grow.

Cost Effective Strategies

When West Bend first discussed the project, it was very important to them that the green building strategies selected for the design be cost effective as well as environmentally sound. They were not interested in unproven or trendy green ideas. They concentrated on energy efficient technologies that would realize an acceptable return on investment and would integrate well into a quality building created for the long term.

Maintaining the West Bend Culture

A third underlying principle involved focusing on continuity. West Bend wanted a building addition that would blend seamlessly with the existing structure. They wished to avoid the "new Building/old Building" syndrome where the addition to an existing building has obviously been attached and bears only marginal resemblance to the original structure, essentially creating a new cultural space within the building. West Bend highly values its corporate culture and wants its building and grounds to reflect that.

Team Building

Teamwork was a very important component of the West Bend project. There were the internal West Bend teams as well as the design and construction team of outside contractors that performed the technical tasks. Everyone involved in the process agrees that formation of teams early in the planning process played a major role in the success of the project.

West Bend Teams

Within the West Bend Company itself, three important teams were created. First, the company made the decision to give the existing facilities team a strong coordination and implementation role rather than simply asking for their input from time to time. This group's knowledge and experience with both the building's mechanical systems and the corporate culture of West Bend made them well qualified to drive the project. By investing their trust in the facilities team, West

Bend gained enthusiastic and committed representation with outside contractors on the main project team.

The second internal team of note was the Expansion Advisory Committee which was made up of about twenty five representatives from all of West Bend's business units. This committee was formed very early in the process to work with the architects in defining space and facility needs in the programming phase of the design. Because it represented so many different perspectives from within the company, there were initial doubts that the size of the group would prove unwieldy, but it has served well in communicating the ideas and concerns of the company at large, and it will continue to meet until the building is completed. This group also provided a line of communication back to the rest of the staff, providing updates and information about how the process was progressing.

There was also a Steering Committee made up of senior executives. The main project team, made up of the facilities staff and the outside contractors, will continue to report to the Steering committee until the building is completed.

The Design and Construction Team

Project participants talk about the analogy of the three-legged stool when discussing the main project team. Without all three legs, a stool will fail to accomplish its purpose. For a project like the West Bend addition, the project team needs the commitment of the owner, the architect and the builder or general contractor in equal measure. For this reason, West Bend brought in both the architect, Plunkett Raysich Architects, and the general contractor, C. G. Schmidt early in the planning process. Plunkett Raysich included the engineering firm of Ring & DuChateau Inc. as part of its winning proposal. This initial group built a strong foundation and the main project team was able to grow as necessary through the process.

Schematic Design Phase

Budget and Schedule

West Bend was willing to invest in high quality construction for its new addition. Because of this, its budgetary focus was on value rather than minimal cost. Project team members feel that greater value was achieved by both the high level of teamwork on the project and by the decision to take the time necessary to evaluate design options thoroughly. The project schedule was based on the projected date of occupancy, which dictated deadlines for the bid packages and construction scheduling.

Energy Modeling

The West Bend design team undertook energy modeling to predict the performance of the proposed design features for the new addition. Milwaukee-based Ring and Duchateau, Inc., the mechanical and electrical engineering firm on the team, worked with the Energy Center of Wisconsin to simulate the energy use of the proposed design. This process was used to determine the most cost effective measures to incorporate in the final design.

Design Concepts and Decisions

Several important design concepts were worked out during the schematic design phase. Project teamwork was critical to this process, as were the guiding principles of stewardship, high quality, and value.

Site considerations

Design began with the concept of preserving the site. One of the major challenges was providing parking for associates and visitors that would not overwhelm the prairie ambience of the site or the new building itself. There was much discussion about whether or not to build a parking garage, what size it needed to be, and where it would be located. Working with the civil engineer, the project team proposed a clever way to site the two-level parking garage near the main entrance so that it doesn't draw attention to itself. This decision enhances the building and helps create a welcoming sense of arrival on the site itself.

Old Building/New Building – blending old and new

In the schematic design phase, specific design strategies were created for avoiding old building/new building syndrome. First, the team maintained the open office layout that worked so well in the original building. Small private offices for management are located in the center of the floor and the open cubicles for the associates are arranged around the perimeter by the windows. In order to do this, the team decided that three stories rather than two would be necessary in order to avoid excessively deep spaces that would inhibit the occupants' access to daylight and views. The design team explored several organizational concepts such as interior courtyards and skylights, but decided that these ideas did not respect the design of the original building.

There were also some interesting sectional challenges where the two buildings connect on the first floor level. In order to allow appropriate ceiling heights in the large meeting spaces (dining hall, training hall, and auditorium), the design employs a ramp which is open to the commons area and gracefully ties the new and the existing buildings together.

Power consistency issues and working with utility

West Bend realized that since the original building had been built, the company had come to depend much more heavily on reliable electric power for its business operations, particularly its computer systems. This became an important factor in the design of the new building's electrical system. Working closely with its utility, We Energies, West Bend brought in power from two separate substations, and backed up the system with a diesel generator.

Repeating (or Not) Some Good Ideas

The design team considered repeating several design strategies employed in the original building. The first was updating and expanding the original thermal storage system. A thermal storage system makes ice during the night which is then used to chill water for the building cooling system during daytime hours. Savings from thermal storage come from the lower electrical rates during 'off peak' hours at night.

After careful evaluation, the design team opted to remove the existing thermal storage system and not to replace it. There were two primary considerations. First, with the new building addition, the increased size of the entire system added considerable cost to updating existing piping and components and investment in new equipment. Second, efficiencies in chiller equipment have been greatly improved since the original building was built, reducing some of the potential thermal storage savings.

Two other design options employed in the original building were carried over to the new addition because of their great popularity with the staff. First were the Personal Environmental Management units (PEMs) from Johnson Controls. These units allow individuals to control the temperature in their own work space. The use of these units drove the decision to employ a raised floor air plenum in the office areas, allowing for broad flexibility in using the open office space. The other strategy maintained from the original design was the open office concept itself. Closed executive offices are located on the interior of the building space, allowing cubicles to be arranged in the open office areas around the outside edge. Associates really appreciate the access to natural lighting and views, and these areas mirror the ambience of the original building.

LEED Rating

As part of their discussion of high project quality and stewardship of the site, the design team addressed the potential for a LEED rating on the new addition. West Bend is widely recognized as an early adopter of green building methods with their original building, which was cited in the US Green Building Council's early LEED certification manual.

The team discussed LEED certification in light of the West Bend corporate objective to perform high quality work without seeking recognition for it. They ultimately decided that the design decisions they made about systems and building construction would be based on their

commitment to green building principles and high quality construction, but that also made good business sense for the company.

Construction Documents Phase

Early Bidding

The C.G. Schmidt Construction team knew they wanted to gather a strong team of subcontractors to perform the work, and they recognized that it was essential to identify them and bring them on board as soon as possible. Schmidt also knew there would be a greater choice of high quality firms early in the building season before everyone had committed their resources to other projects. Working with the West Bend design team, Schmidt decided to get the mechanical, electrical and plumbing drawings out for bid when the plans were about 80 to 90 percent complete, and requested a guaranteed maximum price from the bidders. In this way, they were able to prequalify a list of qualified subcontractors.

The West Bend team was fortunate to end up working with the mechanical contractor that had been maintaining the systems in the original building, and with whom they had an excellent working relationship. They were also happy to work with Staff Electric and JF Ahearn Plumbing and Fire Protection (?), two highly respected subcontractors. Schmidt Construction was pleased to be able to integrate their subcontractors into West Bend's teamwork approach, smoothing the final preconstruction stage of the project.

In-house Expertise

The West Bend design team was able to draw on the project owner for design details to connect the addition to the existing building. Because the company writes policies on construction and building projects, it has on staff an expert on envelope, windows, flashings, gutters and roofing. He was brought into the team to consult on the best practices, and to avoid repeating mistakes made on the original building. The facilities team also continued to refine design concepts for the mechanical and electrical systems in the new addition.

Construction Phase

Environmental Considerations on Site

Once construction began, limiting the impact of the project on the site became a major consideration. Since the original building was constructed, West Bend had invested extensive landscaping resources into restoring the native Wisconsin prairie on their property. The possibility that these efforts would be jeopardized during the two-year construction period was unacceptable.

Schmidt Construction limited their staging area for construction materials, the location of construction trailers, and parking for workers to the surface parking area on site. This meant careful scheduling for use of materials and increasing sensitivity to the need for having more vehicles on site. Once the parking structure was completed, parking conditions eased considerably.

Construction workers also took care to avoid the trunks and root systems of established trees on the site in order to preserve their safety and health. This approach presented its own challenges, but maintained the integrity of the existing landscape and assured a swift visual assimilation of the new building addition into the West Bend site. Construction crews were also careful to control silt and sediment erosion from the site through established control measures.

Perhaps the biggest challenge to maintaining a light footprint on the site was the precise coordination and scheduling needed to complete the final paving. The entrance to the West Bend headquarters is a long and narrow driveway off of 18th Avenue. The paving team accomplished their work in phases in order to allow continued access to parking and materials storage for other construction teams.

Recycling

West Bend found that it didn't need a formal recycling program on site beyond providing the appropriate receptacles, because recycling already makes economic sense. Much of the construction waste, such as scrap metal, was recycled because of growing prices in the market. Construction crew members were accustomed to using the bins for paper, plastic and the other recyclables.

Integrating Construction into the West Bend Workday

It was very important to West Bend that the company be able to function normally during the two-year construction timeline. Much of the construction phase planning involved finding ways to make the bustle and noise generated in building the new addition as non-intrusive as possible. Some of these efforts included working on weekends and during off hours to complete particularly noisy or awkward tasks, like pouring new footings and foundations near the main computer server room.

The design team found that the teamwork approach gave them the confidence to make complex decisions about the construction schedule in advance. They were able to begin construction of the addition away from the existing building, moving toward the ultimate connection between the two. This resulted in more efficient use of the building crew's time and less disruption to West Bend staff. West Bend was pleased with Schmidt's efforts to prevent intrusion of the building process.

An Opportunity to Learn

For the most part, West Bend Associates have enjoyed being in the midst of a construction project. Not only was it interesting to watch their new building grow day by day, and to observe the many skilled tasks needed to accomplish its construction, but these particular observers received some professional education as well. West Bend writes insurance in the property casualty industry including worker's compensation policies for construction contractors. Some of the subcontractors on the job were West Bend customers. The Associates got the chance to see a construction site in action, gaining greater understanding of what is involved in getting these jobs done.

Lasting Impressions

West Bend design team members found personal as well as professional satisfaction through their involvement with this building project. Each of those interviewed expressed their appreciation for the experience.