



## The Evolving Focus of Sustainability

Adam R. Krason, AIA, NCARB, LEED AP, ALEP, Architect and Principal ZMM Architects and Engineers

Adam Krason serves as an Architect, Accredited Learning Environment Planner and Principal at ZMM Architects and Engineers. He has been involved in the design of a variety of project types, including educational facilities, recreational and civic buildings, office buildings and multi-unit residential developments.

Several projects he has collaborated on have received awards from the West Virginia Chapter of the American Institute of Architects (AIA-WV), including Edgewood Elementary School, the Logan-Mingo Readiness Center and the Girl Scouts of Black Diamond Council Volunteer Resource Center.

Krason serves on the State of West Virginia Board of Architects, the City of Charleston Municipal Planning Commission and Historic Landmarks Commission. He also serves on several non-profit boards, including the Clay Center, West Virginia Symphony Orchestra, Charleston Main Streets (past president), Charleston Area Alliance, AIA-WV (board president), Education Alliance and Goodwill Industries of the Kanawha Valley.

Krason earned bachelor's degrees in architecture and civil engineering from The Catholic University of America in Washington, DC. He is also a graduate of Leadership West Virginia.

More than 25 years ago, in 1993, the U.S. Green Building Council was established to promote sustainability in the building and construction industry. The most notable accomplishment of the group was the creation of a green building rating system, often referred to by the acronym LEED, or Leadership in Energy and Environmental Design. The original rating system (currently a fourth version is being utilized) was unveiled in 2000 and quickly became the industry standard for sustainability. The system utilizes an independent third party - the Green Building Certification Institute (GBCI) - to evaluate buildings. The GBCI verifies that design meets prerequisites and points in six categories: site selection, energy efficiency, local and recycled content materials, water conservation, indoor air quality and innovative design solutions. Based upon the number of points achieved, a project can earn either a LEED Certified, Silver, Gold or Platinum designation.

The LEED rating system had an almost immediate impact on the building design and



construction industry, and many organizations, including various federal agencies, adopted the system as a standard. This renewed focus on sustainability led to a variety of market changes. Many product manufacturers and suppliers began highlighting the sustainable nature of their products (location where it is produced, percentage of recycled content, etc.) to demonstrate that they were appropriate for use on a LEED project. Building commissioning, a process of verifying that systems (mechanical, plumbing, electrical, etc.) in new construction achieve the owner's project requirements as intended by the owner and designed by the architects and engineers, also became more common due to LEED requirements. Ultimately, even standard American Institute of Architects (AIA)



Interior: Charleston Coliseum and Convention Center, Charleston, West Virginia



agreements began to incorporate language to address sustainability and various rating systems, including LEED.

Despite clear positive impact, the LEED green building rating system has its detractors. Some people have questioned the benefit of government agencies that mandate buildings be designed to achieve a prescribed LEED certification level. The concerns appear to be related to the appropriateness of having a third-party organization establishing the standards for government projects, as well as the costs associated with the certification process. Additional concerns have been raised about the energy use of LEED buildings compared to other buildings constructed in the same time period. Without demonstrably improved energy efficiency, is pursuing LEED certification worth the cost?

Although LEED is the most widely recognized rating system, a variety of other standards and rating systems exist, including Energy Star for Buildings, the Living Building Challenge, the WELL Building Standard, the American Society of Heating, Refrigerating and Air-Conditioning Engineer's (ASHRAE) High Performance or Advanced Energy Design Guides and Net Zero Energy Buildings. While some

Exteriors: Charleston Coliseum and Convention Center, Charleston, West Virginia

of these standards and rating systems focus on the broader concept of sustainability, others, such as the ASHRAE guides and Net Zero, focus more on reducing energy usage.

For the recently completed Charleston Coliseum and Convention Center project in Charleston, West Virginia, ZMM Architects and Engineers was charged with achieving both LEED certification as well as designing mechanical and electrical systems capable of achieving high levels of efficiency. These requirements reflected both aspirational and operational goals, with the understanding that many organizations looking for convention space prioritize locations that have considered the environmental impact of the facility.

Over the last several years, the focus of sustainability has shifted to reflect a growing recognition of the importance of energy efficiency from both an

Continued on Page 51

on the critical path of the construction schedule will likewise delay the completion date of the project. To determine when and why the project was actually delayed, construction litigators and their scheduling experts must obtain relevant project documents – including the foreman's daily logs from the general contractor or multiple prime contractors and all project meeting minutes – so that an "as-built" construction schedule can be created.

The "as-built" construction schedule relies upon project documents to show how the project was actually built. It also accounts for the construction of each building component (e.g., foundations, steel erection, concrete slabs, decking, roofing, masonry walls, etc.), identifies the critical path of the construction project and graphically shows when construction activities actually started, the duration of those activities, when the activities were finished, the predecessor activities and the successor activities. The "as-built" construction schedule can then be compared to the "baseline" and updated schedules to determine precisely when project delays occurred and the reason or root cause for the project delays.

## Using Scheduling Analysis to Defeat Delay Claims

Contemporaneous schedule analysis of the root cause of delays provides a tool for the owner to not only prove when the delays started, but also what caused the delays. It also gives the owner the best chance to get the project back on track for timely completion.

With the scheduling analysis, the owner can demonstrate that it was not the cause of the delay. Just as important, the scheduling analysis also shows who was responsible for the delay. This information may help the owner assess liquidated damages against the party responsible for the delay or back-charge the party responsible for the delay for the economic impact of the delay.

In the event the owner had a hand in the event giving rise to the delay, the scheduling analysis may show that the contractor complaining about the delay waited too long to make a claim against the owner (e.g., a claim was made more than 21 days from when the contractor knew or should have known it was being delayed by the owner). Courts considering the issue have determined that claims that are not made within the 21-day time frame by affected contractors are waived.

In the authors' experience, the scheduling analysis often shows that the contractor complaining about being delayed actually caused its own delay. To be sure, a competent scheduling analysis is an important tool for an owner in defending against and defeating contractor delay claims.  $\mathbb{V}$ 

## Notes:

- <sup>1</sup> Logical ties required by the order of construction. Typically, the sequence of individual trades.
- <sup>2</sup> Logical ties required by crews within a trade as they work from one area to another.
- <sup>3</sup> Such as phasing requirements, the opening of asphalt plants, or time related specifications.



## The Evolving Focus of Sustainability

Adam R. Krason (continued from p. 15)

environmental and cost perspective. While the LEED rating system considers "Energy and Atmosphere" as one of six categories of sustainability, the concept of net zero buildings more narrowly focuses solely on building energy consumption.

While there are a variety of definitions for a net zero building, ASHRAE, the organization that establishes the energy standards that are referenced in our building codes, defines a net zero building as one which, on an annual basis, uses no more energy than is provided by the building's on-site renewable energy sources. Simply stated, it is a building that annually makes more energy than it uses.

The federal government has again taken a leadership role by advancing the net zero standard with a mandate that all new federal buildings that are entering the planning process in 2020 or thereafter be designed to achieve zero-net-energy by 2030. Several organizations, including the American Institute of Architects, are supporting the 2030 Challenge, which states that all new buildings, developments and major renovations shall be carbon-neutral by 2030.

The decision to develop a net zero building requires a commitment to two primary endeavors. The first is to design the building in a manner that reduces energy consumption to a minimal level. Once the building has been designed to reduce energy consumption, the second requirement is to install an on-site renewable energy system that generates as much energy as the building will utilize per year.

While the current focus of sustainable design places an emphasis on energy efficiency, it remains important to consider the more broad-based concepts of sustainability, and to remain vigilant – through the design and construction process – about reducing the consumption of non-renewable resources, minimizing waste and, most importantly, creating inspiring, safe and healthy buildings.  $\mathbb{V}$