Practice Management

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Perpetual Sustainability

Practice-related aspects of sustainability, addressing potential risks and the approaches firms are taking to develop sustainable designs.

Letter from the editor

By Sara R. Boyer, AIA, LEED AP BD+C

You might be thinking, "Another series on Sustainability? Again?" Yes. Because, sustainability is a perpetual topic. And this quarter's PMKC Digest comes on the heels of the September revisions to the AIA National Code of Ethics—which added new rules and ethical standards addressing sustainability—as well as Greenbuild 2018. The time is right. And the time is right now.

This quarter's issue focuses on three practice-focused aspects of sustainability: risk, net zero, and the AIA's 2030 Commitment. The AIA Trust provides an easy-to-follow article "Designing for Sustainability" to guide you through the potential risk associated with a quantified high-performing building. Through a case study, "Designing Net Zero Ready Buildings on a Budget" will encourage you to have the mindset and approach to design such a building. And "The Race to 2030" explains how one firm is undertaking the Commitment.

Under additional resources, we have also assembled many other great references for individuals and firms looking to learn more about these topics.

I hope you enjoy this quarter's edition of Practice Management Digest, and please consider the environment before you print.

Features

Designing for sustainability
By Kevin Collins, RPLU, Associate AIA

Architects are in a prime position to advise and provide solutions that are sustainable and focus on environmental needs. Find out the best way to approach drafting the contract for professional services and the provisions that should be included. Employing strong risk management practices will drive the future success of these projects.

Designing net zero ready buildings on a budget
By Chad Edwards, RA, LEED AP BD+C and Terry Liette, PE, LEED AP

The term net zero conjures up images of big budgets and expensive building systems; however, this conception couldn't be further from the truth. As architects and engineers, we have everything we need to design net zero ready buildings for the same cost as buildings that meet basic code. All it takes is the right mindset and the right approach.

The race to 2030
By Lindsey Freel and Allen Schaffer, AIA, NCARB, LEED AP BD+C, WELL AP, LBC AMBASSADOR

One firm explores how the 2030 Challenge, improved energy code, and energized clients are combatting the effects of climate change. Reporting to DDX and early energy analysis allows them to adjust their strategy and improve their outcomes.

Further reading and resources

Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming by Paul Hawken

AIA Adopts New Rules and Ethical Standards for Members – September 11, 2018 AIA press release

Designing for Sustainability by Kevin Collins – PDF of the article from this issue

Committee on the Environment – an AIA National community that serves as the community and voice of AIA members regarding sustainable design.

The 2030 Challenge as presented by **Architecture 2030**

Contribute to the Digest

The future issues of the *Practice Management Digest* are currently planned to cover topics such as firm management, talent management, and architectural writing. If you have topics related to practice management that you'd like explored or articles you would like us to consider, please contact Sara Boyer, AIA, at sboyer@moodynolan.com.

Designing for Sustainability

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By Kevin J. Collins, RPLU, Associate AIA

Architects are in a prime position to advise and provide solutions that are sustainable and focus on environmental needs. Find out the best way to approach drafting the contract for professional services and the provisions that should be included. Employing strong risk management practices will drive the future success of these projects.

Identify exposure potential related to underperformance

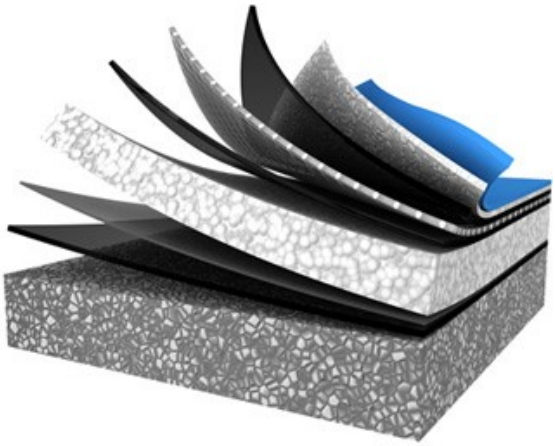
The increasing emphasis on sustainability and high-performance buildings presents both growing opportunities for design professionals and emerging risks that need to be managed. The use of green design criteria can minimize hazardous environmental consequences and reduce energy and water use. Perhaps most appealing to clients, life-cycle costs can be reduced, and the market value of the project may increase. Unfortunately, the exposure of firms to claims related to the underperformance of facilities they have designed may also increase if not managed effectively.

No matter how skilled and knowledgeable design professionals may be, there are some exposures that remain beyond their control. Clients, lenders, and brokers, as well as end-users (tenants, residents) tend to develop unrealistic expectations of how a building should perform and whether it will receive certification as a green project. Some of the factors affecting a building's performance include:

- Manufacturers and suppliers of new materials and technologies may misrepresent or

overstate the performance of their products.

- Certification programs simply cannot be managed by firms since many of the code and regulatory restraints associated with green building practices extend beyond design services.
- Performance gains and energy and water savings associated with green design rely upon very low tolerances for construction defects or laxity in the operation and maintenance of building systems. Nearly all construction and operational deficiencies are beyond a design firm's control.



Responding to such risks takes more than just design skills. As the expectation but most importantly, the standard of care, evolves, clients will expect a higher level of services. As the value of green projects increases because of financial benefits, clients will demand contractual assurances that they will realize a commensurate return on their investment in a high-performance design. As the measurement of performance increases, clients will look more closely at the differences between design requirements and the actual use of energy, water, and other operational measurements.

Managing green design risks through contract language

The most important factor in preventing claims based on the underperformance of a sustainable design is that all parties involved understand, and acknowledge in writing, the inherent risks with such a project, the factors that make the outcome unpredictable, and the limits and responsibilities of each stakeholder to manage risks.

Establishing reasonable expectations at the beginning of the project is vital. One way to avoid unreasonable contractual provisions and unrealistic expectations is by informing the client that design services are recommendations that the client has to understand and, once satisfied, accept.

When drafting the contract for professional services, provisions should be included that limit the design professional's risk, or, at a minimum, express the client's acknowledgement that not all attributes of a sustainability program are within the design firm's control. Contractual provisions such as disclaimers and other exculpatory language need to be worded carefully, and should be drafted with the assistance of local legal counsel. This is especially true when the provisions include any waiver of claims, requirements for a legal defense, or the indemnification of costs.

It is essential to avoid language or actions that could be construed to establish a warranty of service or results. At the same time, including contractual provisions that are clear on the role of the design firm is critical. The following are two examples of contractual communication tools that can lead to a client's "informed consent."

When client wants the design to meet specific sustainability criteria

Client has made Design Firm aware that Client wants a specific level of sustainability incorporated into this Project and that Design Firm shall use the standards published by specific design guidelines or certification standard for this Project. Design Firm shall research the applicable sustainability requirements and design the Project with the intention of having the Project meet the requirements. Client recognizes that a project designed to meet a specific sustainability standard might not perform as designed because of the construction, operation, and maintenance of the Project and therefore agrees that it shall bring no claim against Design Firm if the project does not perform as intended, unless the negligence of the Design Firm is the sole cause of the performance deficiency.

Client also recognizes that during the design of the Project, Design Firm shall use professional judgment in the selection of materials, products, and systems for the Project, but that Design Firm cannot and does not warrant the performance of any specified material, product, or system. Design Firm will identify for Client any material, product, or system that, in the Design Firm's judgment based on examination of available performance information, might provide Client with a benefit on this Project, but does not have adequate information on its performance in actual construction or operation. Client acknowledges that it shall look solely to the manufacturer, supplier, or installer of materials, products, or systems if performance does not meet expectations.

When client wants third-party certification of sustainability

Client has made Design Firm aware that Client intends to pursue specific certification standard for this Project. Design Firm shall research the applicable certification requirements, design the Project with the intention of having the Project meet the requirements, and document the design of the Project for submission by the Client to the certifying organization. Client recognizes that certification is not based on design alone, but also on the construction,

operation, and maintenance of the Project and therefore agrees that it shall bring no claim against Design Firm if the project is not certified as intended, unless the negligence of the Design Firm is the sole cause of the Project not being certified.

Client also recognizes that during the design of the Project, Design Firm shall use professional judgment in the selection of materials, products, and systems for the Project with the goal of meeting certification criteria, but that Design Firm cannot and does not warrant the performance of any specified material, product, or system. Design Firm will identify for Client any material, product, or system that, in the Design Firm's judgment based on examination of available performance information, might provide Client with a benefit on this Project, but does not have adequate information on its performance in actual construction or operation. Client acknowledges that it shall look solely to the manufacturer, supplier, or installer of materials, products, or systems if performance does not meet expectations.

Conclusion

The need for projects that are sustainable and are focused on the broader need of the environment will continue to be an area of in need of solutions and development. Architects are in a prime position to advise and provide solutions. A continued focus on strong risk management practices to properly balance the unique risks presented on these projects will also drive the future success of these projects.

Victor O. Schinnerer & Company, Inc. and CNA work with the AIA Trust to offer AIA members quality risk management coverage through the AIA Trust Professional Liability Insurance Program, Business Owners Program, and Cyber Liability Insurance program to address the challenges that architects face today and in the future. Detailed information about both these programs may be found on the AIA Trust website, TheAIATrust.com.

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Mr. Collins has more than 25 years of experience working with design firms and other construction-related professional service firms on issues of professional liability exposure and business risks. He has spoken extensively on challenges to the design profession and a wide array of practice management issues. Kevin is the Schinnerer liaison to The AIA Trust. Mr. Collins is a graduate of the College of William & Mary in Williamsburg, Virginia where he received a B.A. in Government. He is also a member of the society of Registered Professional Liability Underwriters. Kevin may be reached at Kevin.J.Collins@Schinnerer.com or (301) 951-5412.

Designing net zero ready buildings on a budget

network.aia.org/blogs/sara-r-boyer-aia/2019/03/29/designing-net-zero-ready-buildings-on-a-budget

By Chad Edwards, RA, LEED AP BD+C and Terry Liette, PE, LEED AP

The term net zero conjures up images of big budgets and expensive building systems; however, this conception couldn't be further from the truth. As architects and engineers we have everything we need to design net zero ready buildings for the same cost as buildings that meet basic code. All it takes is the right mindset and the right approach.

Make sure the owner is all in

Like all goals, creating a net zero ready building will not happen without the buy-in of all parties. This is especially true of the owner. As designers, we can educate owners about the affordability and practicality of net zero strategies. However, if net zero is not a natural outgrowth of the client's mission and goals, then net zero strategies are unlikely to be embraced and actualized.

For example, architects from emersion DESIGN and engineers from Fanning Howey are collaborating on a net zero ready campus addition for Bethany School, a private school in Cincinnati, Ohio. The school's strong existing commitment to sustainability makes Net Zero strategies a natural outgrowth of the client's overall vision for this project. Yes, the fact that we are delivering a Net Zero Ready design for less than $225 per square foot is an important step toward making Net Zero viable. But it is the client's culture of sustainability that is the key to the project's success.

Assemble the right design team

You don't need exotic building systems to reach net zero ready, but you do need a design team with the right mindset. Architects and engineers need to be comfortable sharing ideas and working outside of their given disciplines. This is important because net zero ready buildings

require extreme creativity and laser-focused attention to the specifics of each building and site. A team member who says, "Well, this is the way we've always done it," isn't going to thrive in this environment.

The best-idea-wins mindset defined the team approach on Bethany School. From the very beginning, every team member was in the room giving input. Before there was even a floor plan, the team explored seven different window-to-wall ratio profiles and multiple construction profiles, including glazing and solar coefficients, all evaluated with the team's energy modeling data. Architects act as engineers, and engineers acted as architects. This collaborative approach, with a large amount of brain work very early in the process, is the only way to set yourself up to create a cost-effective, net zero ready building.

Don't be constrained by rules of thumb

Net zero ready buildings require perfectly-sized systems to be cost effective. Rules of thumb are not nearly specific enough to achieve this goal. During early conceptual design efforts, the entire team needs to explore building- and site-specific solutions using energy modeling tools.

For example, conventional wisdom says that a high performing building should have more glazing on the south than the north. But during the energy modeling process for Bethany School, our team found the opposite to be true. For this building, on this site, more glazing on the north meant fewer glare issues, and less glazing on the south meant less heat gain and the ability to eliminate solar shades.

By going beyond rules of thumb and customizing design strategies to the site, the Bethany School addition is projected to be 18.7 percent more energy efficient than the average local vacant building. Right now, the project's Energy Use Intensity is tracking at 17 kBtu per square foot, making Bethany School one of the most energy-efficient schools in the nation.

Understand all project costs

Understanding all available cost-savings strategies is a big part of making Net Zero Ready buildings affordable. If you are looking at solar panels for renewable energy, find a contractor who will help establish your dollars per watt, which becomes your go/no go rubric for energy efficiency strategies. If you can implement an energy-efficiency strategy for below the renewable dollars per watt, then you do it.

Also, you should be aware of potential funding sources for high performing buildings. Depending on the marketplace and the type of client, there may be funding in the form of tax breaks, grants or rebates. Make sure to include these additional funding sources in your analysis of first costs and long-term operating costs. The website www.dsireusa.org is a great resource to explore available funding related to energy efficiency and renewable energy in your area.

Test and retest

Constant evaluation is a critical part of the net zero approach. As part of the Bethany School project, the design team continually tested the energy efficiency of the design using energy modeling. The initial modeling provided a framework for broad concepts. Modeling during design development and construction documentation allowed the team to stay on target and

make sure that we were still achieving our goals. The team will also be working with Bethany School to evaluate to the building's performance after construction. The goal is to achieve true net zero energy usage, not just a target in a model.

Continuously improve

Designing a net zero ready building is similar to running a marathon. You must build up to your goals by improving over time. If you don't have a client who is ready to embrace Net Zero, you can still improve the overall energy efficiency of your designs. Practice the techniques outlined in this article, and you will start down the path of design for net zero ready buildings.

Just remember, as a design industry we have the technology and tools to create high performing buildings on almost any budget. You just need the right mindset and the right approach. And you can start today

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Chad Edwards, RA, LEED AP BD+C, is a principal architect with emersion DESIGN, an architecture firm located in Cincinnati, Ohio specializing in cost effective, high performing buildings. Terry Liette, PE, LEED AP, is Chief Engineering Officer for Fanning Howey, a national, integrated architecture and engineering practice specializing in learning environments.

The race to 2030

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By Allen Schaffer, AIA, NCARB, LEED AP BD+C, WELL AP, LBC AMBASSADOR and Lindsey Freel

AIA 2030 Commitment, the challenge, and DDX

The AIA 2030 Commitment helps to provide a collective framework and metrics to benchmark our movement towards a common goal for a carbon neutral future. 2018 marks the third year Moody Nolan has reported to the commitment, recording data for nearly 300 projects. *{Editor's note: The AIA 2030 Commitment is to encourage architects to meet the target energy reduction goals of Architecture 2030's 2030 Challenge.]* The AIA Design Data Exchange (DDX) enables efficient analysis of our entire portfolio, allowing for continuous evaluation and evolution of strategy further informed by the lessons learned on individual projects. Since our first year participating in the AIA 2030 Commitment, these shifts in strategy have resulted in a 7% improvement in our average EUI. The DDX provides a means to compare performance internally as well with our peers which provides a basis of discussion for how to continue to improve and advance collectively.

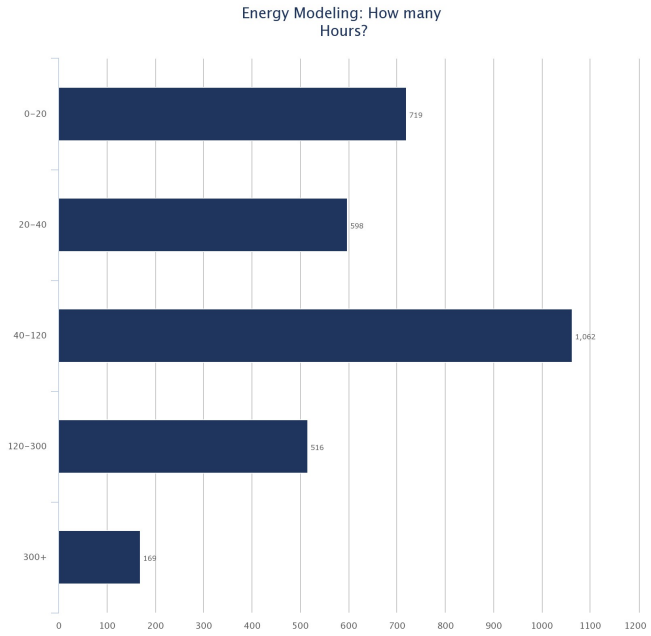
Advancing the energy code

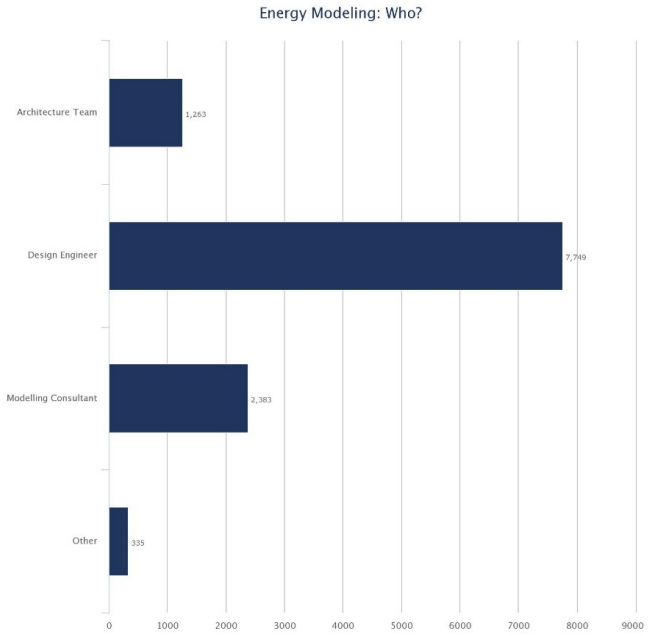
We are only beginning to be able to draw comparisons related to the advancement of ASHRAE Standard 90.1. The stringency of the new standard is best illustrated by the recent completion of two nearly identical projects designed by our team, one certified with LEEDv2009 and the other with LEEDv4, achieved an energy cost savings of 46.8% and 23.4% respectively, with the only difference reflecting the advancement of energy code.

As peers continue to reinforce the importance of energy modeling in the design process, our Sustainable Design Leadership Team has increased investment in early energy analysis. Passive strategies for energy savings are best identified in these earliest stages, placing a reliance on

early, conceptual and iterative energy analysis by the design team. Separate from a "true" energy model, this early analysis involves educating our teams to define baseline metrics and leverage new tools to inform decision-making. More than a shift in design process, this embodies a cultural shift in the way we are accustomed to working. Increased collaboration among local and regional firms and the introduction of third-party certification credits driving integrative processes has helped streamline some of the challenges associated with the 2030 goals, but we have found many still exist with regards to defining project scope, fee, and collaboration amongst all parties.

Our teams are also working to identify which tools and methods are most effective for particular sets of constraints. For example, early energy analysis is most effective when there is control over site selection, orientation, or form, but in many of our projects these elements are predetermined and inflexible. A framework to best guide our team as to which strategies are most impactful in specific scenarios would allow us to efficiently analyze our designs and create sustainable impact on all projects.





Cities and institutions leading advancement

As the private sector continues to invest in Corporate Social Responsibility (CSR) and Environmental Social Governance (ESG), major companies are beginning to partner with the public sector to drive the goals of the 2030 Challenge. 2030 Districts have helped define local and regional climate change action plans, fuel investment in green infrastructure, and most

importantly, bring stakeholders together to drive sustainable growth. Colleges and universities are joining these forces, adopting their own green building standards and mandating new investments pursue third-party certification. As a result, Requests for Proposals are defining increasingly aggressive Energy Use Intensity (EUI) and Water Use Intensity (WUI) targets while also asking more complex questions associated sustainability, health and wellness. These proposals are reinforcing the investment in our firm on sustainable design education and resources.

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