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many networking opportunities and of course, our magazine "Licensed Architect".

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This issue is packed with our regular and fantastic articles on ADA, Code (2015 I-Code preview), Legal, Insurance and Economic Outlook as well as the continued series on Firm Management by Rena Klein. Also in this issue is the first in a series of timely interviews with distinguished architects. Our first interview is "Talking With - Architect Rod Kruse". Rod Kruse is Principal and Design Director for the Des Moines office of BNIM Architects. Rod has twice in the last decade been Principal at a firm that won the National AIA Firm of the Year Award. Also, this issue features the work of four member firms and their architectural interiors projects.

Jeffrey Budgell

Jeffrey N. Budgell, FALA, LEED AP
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ALA Welcomes New Members - Spring 2014

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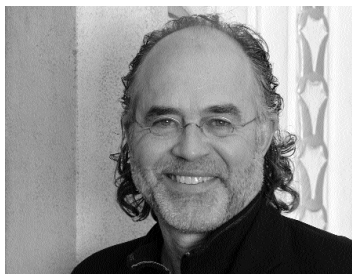
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Talking with: Rod Kruse, FAIA, LEED AP, Principal, BNIM



In his 37-year career, Rod Kruse has built a reputation as one of the Midwest's strongest design talents and as a national leader in sustainable design strategies, methodologies, technologies and practices. Kruse is a principal and leads the Des Moines office of architectural firm BNIM, which he joined in 2005. Before that, he was a principal at Herbert Lewis Kruse Blunck Architecture for 18 years.

Sought after for his bold artistic vision and his management skill, Kruse's team leadership accolades have included more than 75 local, regional and national design awards, such as the National 2013 AIA Honor Award for Interior Architecture and two National AIA Awards for Design Excellence. He was a CoreNet Innovator Award Finalist in 2012.

He has led the design of projects for the University of Iowa, Iowa State University, Grinnell College, the State of Iowa, University of Nebraska Medical Center and South Dakota State University, among many others.

Elevated to the AIA College of Fellows, he was chair of the 2012 AIA Honor Awards for Architecture, and a 2013 member of the National Jury of the AIA Committee on the Environment Top Ten Green Projects Awards Program.

1. You grew up in Waverly, Iowa. Why did you decide to become an architect?

I wasn't sure what I wanted to do, but my school counselors thought that I should consider architecture, since I had excelled in art and drafting. I was intrigued by it, and enjoyed the early classes at Iowa State University and then continued with graduate studies.

2. How has living in Iowa influenced your work?

Living in Iowa, I have never felt limited from access to the rest of the world. Iowa is a state that is progressive, but in a conservative way, and Iowans have a sense of responsibility for the longevity of a project. I have been pleased that, here in the Midwest, regardless of where I have practiced, we have been able to create projects that represent design excellence.

3. You have been a principal of two firms that have been recipients of the National AIA Firm Award—the first in 2001 with Herbert Lewis Kruse Blunck Architecture and the second in 2011 with BNIM. You have also won more than 75 other national, regional and local awards. What's your secret?

There has always been a lot of hard work, but the real key is teams of great people. One person alone does not create great architecture—it is always a team project. I consider myself a coach, and since 1987 I have been able to work with so many

Midwest-based professionals who have a relentless passion to create design excellence. We work hard and we never waiver from the pursuit of excellence.

4. Do you have a message for young architects? How do you succeed as an architect in today's world?

There are multiple ways to measure success in our profession. If you want to measure it by quality of work, you have to be passionate, love what you do and surround yourself with the right people. If you have that passion about design excellence and performance, you should choose a firm and mentors who have demonstrated and share the same values.

5. Who do you admire in design?

I am a modernist at heart, so I admire all the great masters of modernist architecture and current masters such as Steven Holl, but I also admire the Bob Berkebiles [one of the founders of BNIM—Berkebile Nelson Immenschuh McDowell, Inc.] of the world, who have taken a different path.

(Continued on page 8)



Iowa Utilities Board/Office of Consumer Advocate Building

(Continued from page 7)

6. Tell us about the Iowa Utilities Board/ Office of Consumer Advocate Building project. [Note: the project was named as an AIA/COTE Top Ten Green Projects award winner in 2012 and is certified LEED Platinum.]

I am really proud to have been a part of this project, which was a 45,000 square foot building on a six-acre site. We were presented with very specific energy reduction goals and a modest state budget. We achieved the goals with an environmentally responsible, high-performance, integrated design that reduces energy-related operating costs by approximately \$50,000 a year. While the goal initially set was to reduce energy use to 28.0 KBTUs per square foot per year, 68% below the national average, current usage is reported as 16.7 KBTUs per square foot per year, 81.5% below the national average for energy consumption for office buildings.

The building is constructed of insulated precast concrete panels and features light harvesting devices and operable windows. There's a simple weather station on the campus that alerts users when conditions are favorable for natural ventilation. Every office and workstation is equipped with an occupancy sensor that controls all non-essential outlets to reduce plug load when spaces are unoccupied.

Regardless of opinions on climate change, it makes sense to design a building to reduce consumption of natural resources, increase use of natural light and cut operating costs — all within a conventional budget.

This project and many of our projects presented us with the opportunity for replication and innovation. The lessons learned on this project are now being applied and expanded on other projects such as a facility for Qualcomm in San Diego.

7. What are some of your favorite kinds of projects?

I truly enjoy working with higher education institutions. There's considerable discussion at an intellectual level, first of all. These institutions are not one-time users of services and they generally build facilities to last. I also have a passion for residential projects — I love to see what can be done with personal space and light.



Todd Bolender Center for Dance & Creativity

8. What challenges does designing for higher education present?

The large lecture hall could be a thing of the past. The class of 2014 may be the first class that does not know life without mobile devices. This, combined with the fact that many universities have made class lectures available online and as podcasts, has created the challenge of how to entice students to come to class when they can access the lectures from anywhere at any time. One of the solutions is the active learning classroom. It's based more on self learning, dialogue, discussion and collaborative study. There may be shorter lectures in smaller rooms, and areas where students can work together in smaller groups around large screens. To accommodate these needs, we design for more and more flexibility, using movable wall and furnishing systems and allowing for technological advances.

9. Tell us about some of your renovation and restoration projects.

I am a big believer in protecting the historic quality of existing buildings. One example is the Todd Bolender Center for Dance & Creativity in Kansas City. I was not part of the talented team that developed this project, but it was an incredibly successful renovation/restoration project by BNIM.

[Note: The project received a 2013 National AIA Institute Honor Award for Interior Architecture.] The bones were there; we simply celebrated

and energized a wonderful historic structure.

I am also a believer in building new buildings for this century and for the future. By conserving resources and energy with new buildings, we can use the savings to preserve the old.

10. Any advice about weathering the hard times?

Even with our success, we still have to work hard to procure commissions. My advice is to be patient, have a vision and be adaptable. You may have to pursue and provide services you might not have regularly considered, but you will survive if your firm has flexibility and efficiency. It's also important for firms facing difficult times to have strong leadership and a positive outlook.

11. Tech or no tech?

It's amazing what our architects can create now with technology. But I believe that an architect should also be able to sketch and express ideas with pen strokes.

12. I understand you have a special affinity for white space.

Anyone can create a building that can function. But it's the space you wouldn't expect and it's the view you wouldn't anticipate that distinguish architecture from building. I define that space as white space. This white space is so important to the creation of environments that stimulate the imagination and invite participation.■

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Baby Changing Stations and Accessibility



by Kimberly Paarlberg, RA
Senior Staff Architect, ICC

There are a lot of accessibility issues in public restrooms, but do you ever think about the baby changing stations? There are two things to look at regarding accessibility:

1. If a mother or father who uses a wheelchair needs access to a baby changing station, what are the necessary technical criteria?
2. Can that baby changing station be located within an accessible stall, a family assisted-use bathroom or a single-occupant bathroom without causing a problem for access to the plumbing fixtures?

Requirements

Where changing tables are installed, the code regulates them as it would any other element in a toilet or bathing room. Section 1109.2 of the *International Building Code*® (IBC) requires that "at least one of each type of fixture, element, control or dispenser in each accessible toilet room and bathing room shall be accessible." It is not the intent of these provisions to require diaper changing tables.



Figure 1 – Diaper changing table—folded.



Figure 2 - Diaper Changing Table - unfolded

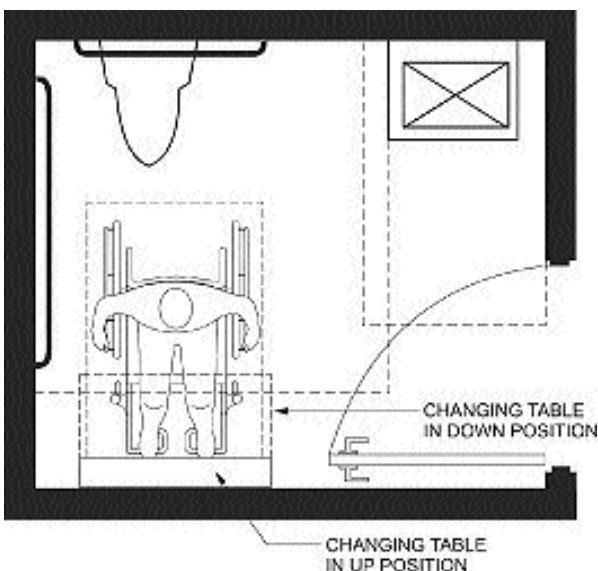


Figure 3 – Example of toilet room plan with diaper changing table.

The 2009 ICC A117.1 Accessible and Usable Buildings and Facilities (ICC A117.1) has a new section, Section 603.5, specifically dealing with the technical criteria for diaper changing stations. Diaper changing tables, when provided, must meet the criteria for reach range and work surfaces. Diaper changing tables can be fixed or the fold up type (see Figures 1 and 2). This means the handle or strap to open the folded types must be within reach ranges. When the table is folded down, or if the table is fixed, the changing surface must have knee and toe clearances and must be no higher than 34 inches above the floor.

A folding diaper changing table installed in an accessible single-occupant bathroom or the accessible stall should not, when folded up, overlap the clear floor space for any fixture (see Section 604.3.3). However, the diaper changing table can overlap the clearances when in the folded down position (see Figure 3).

Best Design Practices

Should the diaper changing station be located in the accessible stall? There is nothing in the *International Plumbing Code*® (IPC), IBC or ICC A117.1 that says the diaper changing station cannot be within the accessible stall, as long as it meets the clearance provisions. However, in multi-stall bathrooms, this is the only stall a person with mobility impairment may be able to use. While the accessible stall is not reserved for persons with disabilities, it may be considered good design practice to place the diaper changing station somewhere else in the room. On the other side of the coin, a parent might appreciate the stall as a way to contain their other children and stroller while they are changing a baby. Some designers include a wall-mounted "toddler" seat in the same area as the diaper changing station.

Should the diaper changing station be located in the family-assisted use bathroom? While not required in a family assisted-use bathroom, the intent of this type of facility is to offer everyone who needs assistance to be able to use this bathroom. This includes families with children that may be of the opposite sex of the parent they are with at the time. If diaper changing stations were provided in the women's and men's bathrooms, that same amenity also should be provided in the family-assisted use bathroom.

Conclusion

The 2003 ICC A117.1 added provisions to design for accessible toilet facilities for children who are toddlers up to the 12th grade. Adding provisions for diaper changing stations is an extension that includes the care for the youngest members of the population.

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What To Expect in the 2015 I-Codes

by Kelly P. Reynolds
ALA Code Consultant

2015 International Building Code

The 2015 I-Codes are being finalized. Here are some of the major changes you will find in some of the 2015 International Codes.

- Installation of new construction fire alarm and detection systems upon any change of occupancy.
- Fire access elevators must be capable of accommodating 3,500 lbs and needs to fit a 24" X 84" stretcher.
- Groups I-1 and I-2 will now have Conditions 1 and 2 based on the level of care being provided.
- The smoke compartment size of Group I-2 was increased from 22,500 sq. ft. to 40,000 sq.ft.
- Group E (Educational) and first responder facilities located in "tornado alley "must have a storm shelter.
- Chapter 34 (Existing Buildings) has been deleted from the IBC and is now part of the International Existing Building Code.
- Elevators requirements have been moved from Chapter 7 to Chapter 30 for all the code requirements.
- Pedestrian walkways now have specific requirements instead of exceptions.
- Smoke barriers can terminate at other than the exterior walls when separating areas of refuge and elevator lobbies.
- HVAC ductwork can completely exit a shaft and re-enter another if they are protected by fire and smoke dampers.
- A new standard for foam plastic insulation where wind resistant pressure is required.
- The occupant load for Group M (Mercantile) will be 60 sq. ft. per occupant for all floors.
- Accessible routes between stories were revised to reflect the provisions of the 2010 ADA Standard for Accessible Design and U.S. Dept. of Justice regs.
- Photovoltaic (PV) panels, modules and integrated products have been defined. New roof live-loads for these PV installations (solar panels).
- Inconsistencies between the 2012 IBC concrete requirements and the 2011 ACI 318 standard have removed duplicate requirements.

2015 International Residential Code

- The prescriptive minimum size footing table is expanded for additional snow loads, soil bearing conditions and houses with built basements.
- The wood joists and span tables reflect the lower spans for southern pine based on current reduced values.
- Wood deck provisions expanded for additional prescriptive guidance for structural capacity joists, beams and posts. Also, an alternative prescriptive lateral load connection was added.
- Emergency escape windows, rescue openings, smoke and carbon monoxide detector requirements are re-written to provide clarity.
- Straw bale and straw clay construction has been added to the appendices.

2015 International Mechanical Code

- Condensate drain cleanout means and condensate pump interlocks have new requirements.
- Make up air for kitchen exhaust systems has been clarified about the required damper and if make up air can be supplied naturally.
- Bath and kitchen exhaust fan exhaust ducts will be limited in size to ensure intended fan performance.
- For smaller sized ducts you can now use 30 gage sheet metal.
- Duct sealing requirements tightened to reduce air leaking in common used ductwork.
- Return air requirements has been re-written to eliminate confusing text and clarify the actual intent.



I will give you other significant provisions to the 2015 I-Codes throughout the year.

Do the Work Quicker and Better

by Rena M. Klein FAIA

Architectural practice can be described as an endless and simultaneous cycle of "get the work, do the work, get the work, do the work, etc." However, managing how these tasks are accomplished is also a significant part of the effort, even for a solo-practitioner. This requires tracking of financial results to be sure, but it also includes awareness of work processes, staff satisfaction, and the ongoing need to learn in order to stay relevant in the marketplace.

While much is said of strategic planning as a tool for success in design firms, critical thinking about how the work gets done is sometimes left out of the considerations. Understanding both the tasks and the relationship building necessary to deliver projects effectively is the key to productivity and the resultant profitability.

As the construction industry enters the recovery stage of the business cycle, firm owners have the opportunity to re-craft how things are done. This does not always mean purchasing, learning, and integrating the newest technology platform. While deciding to upgrade technology may be the result of careful thinking about work processes, it is not likely to be a quick fix to the problems of ineffective project execution. In fact, integrating new technology, without careful thinking about work processes, may actually make things worse.

Routinize the Routine

When office technology was first introduced in the mid-Twentieth Century (think electric typewriters and copy machines), social scientists began to consider which types of office work were appropriate to automation. This gave birth to a discipline known as socio-technical design – thinking about how to best use the social and technological tools available to get office work done better and more quickly. They discovered that there are four different types of work, and that matching the work processes to the type of work being done can strongly influence its effectiveness.

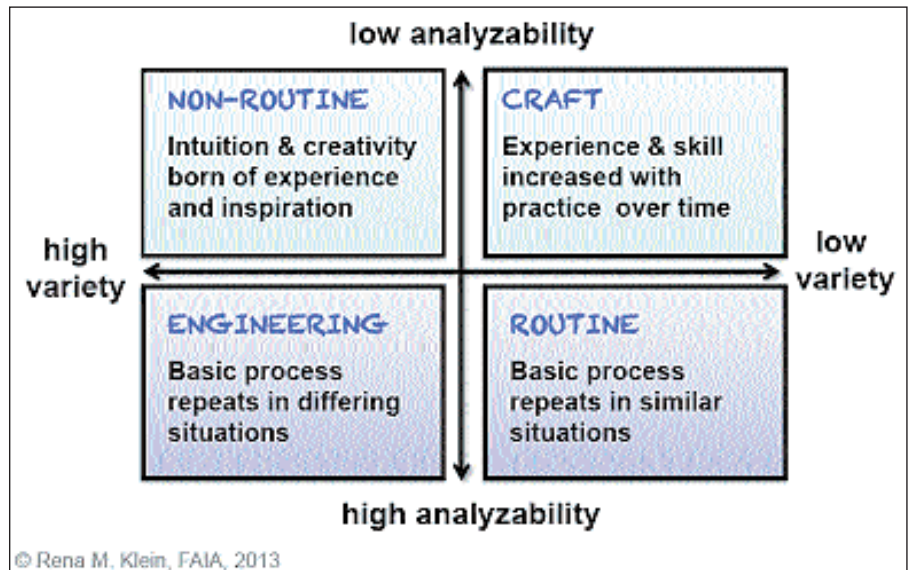


Figure 1: Types of Work

The four types of work are: routine, engineering, craft, and non-routine. All four are present in all architectural practices. The key to effective operations is that different types of work require different types of work processes. The four types are described and shown in Figure 1.

The vertical scale in Figure 1 measures a quality of work known as *analyzeability*, which means the ease by which a work task can be described with simple directions – a memo or list of sequential steps. Highly analyzable tasks are easy to describe, while low task analyzeability means it is not so easily understood and may involve a non-linear progression. The horizontal scale measures variety, which means the level of sameness encountered each time a task is undertaken.

Routine tasks or processes, shown in the lower right-hand quadrant are the same every time and are highly analyzable. There are many routine tasks in architectural practice such as recording reimbursable expenses or doing a systematic code check. Engineering tasks, in the lower left quadrant, have high variety, such as the different loading, support conditions, or material

strength encountered when sizing a beam. Yet the basic process is understandable through a step-by-step procedure that can often be prescriptive.

Craft is the opposite of engineering – low variety and low analyzeability. Craft processes, such as doing a watercolor rendering, cannot be described as a simple linear progression and take practice, with skill developing over time. Yet each time craft-based work is undertaken, the process is virtually the same, making it low variety. By contrast, non-routine work, such as design, invention, problem solving, and even some aspects of proposal writing, is always changing, often complex, and demands experience, intuition, creativity, and even, sometimes, inspiration.

Identifying and routinizing routine work can help avoid wasted time and unnecessary "reinventing the wheel." Developing standard processes that handle routine tasks in routine ways will always create more time for craft and non-routine work, which are the focus of most practices. It is important to remember that when experienced contributors are doing non-routine work, "reinventing the wheel" might be fine. In

(continued on page 14)

fact, it might be required in complex and innovative design projects. The critical issue is to differentiate between the different types of work, the different types of problems to be solved, and the processes appropriate to each.

Small firm leaders would be wise to take the time to examine the processes involved in producing the work. Make a list of the routine tasks required for the delivery of every project, such as code review or project file set up. Review business development processes too, such as tracking leads, and consider how they might be routinized. Create a work flowchart that shows the steps it takes to accomplish a routine task. Then create reusable templates, repeatable systems, and reliable checklists that help maintain accuracy and completeness every time the process is done. Think about what technological tools might aid in the quick and correct accomplishment of routine tasks—these will likely pay for themselves quickly over time. Doing this for even a few of your processes will make a difference. Solo-practitioners can also benefit from this approach by bringing efficiency to the customized way they might be accomplishing their work.

Along with routinizing the routine, doing the work better and more quickly requires reflective leadership, which means that the principals are thinking about what is going while it is going on. It also takes an enthusiastic and motivated staff. In organizations populated by creative professionals, there is a strong reinforcing relationship between job satisfaction and the bottom line. Improving staff morale and engagement can do more than financial rewards in motivating professional staff to do their best.

Excellence and enthusiasm are nurtured by creating a firm culture built on the well being of staff and owners alike. Firms that achieve a culture of mutuality, where people work hard because they care about one another, are the most resilient over time. For example, some owners might fear that if they provide professional development support to an employee, it will be a loss if that person leaves the firm. However, providing professional development support is more likely to generate loyalty and voluntary commitment, especially if a path to advancement in the firm is evident.

Job Satisfaction For Architects

Sociologist Judith Blau, in her landmark book, *Architects and Firms: A Sociological Perspective of Architectural Practices*,

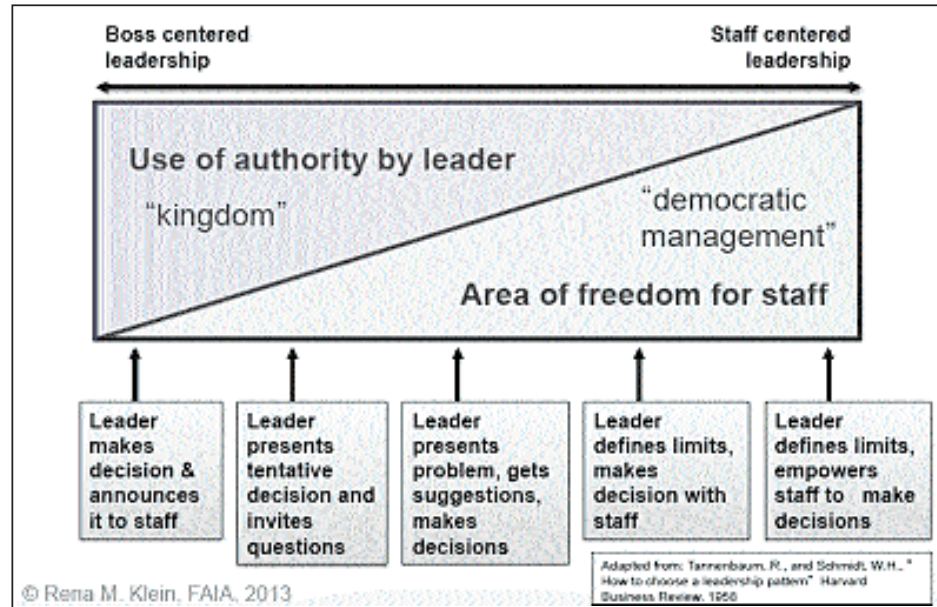


Figure 2: Leadership Style Continuum

describes the types of things that give architects job satisfaction and influence overall career contentment. This is important because in the midst of everyday practice, many of us forget how to bring meaning and satisfaction to our work. Yet to make a firm sustainable, few things are more important. Based on Blau's work and other sources, factors that promote satisfaction include:

- Opportunities to design interesting projects
- Autonomy, meaning control over one's own work
- Recognition by peers and public
- Optimal variety
- Challenge and learning opportunities
- Alignment of values and goals with that of leadership, co-workers and clients
- Feeling respected and well-liked by co-workers, consultants and clients

One of the jobs of firm leadership to create an environment where people feel that their satisfaction is important and that this concern includes all firm members. This doesn't mean that everyone always gets what they want or that a firm must be run by consensus. However, if a firm is to grow, active engagement and creative input from an intelligent and talented staff is a great asset. Solo practitioners, who clearly have significant autonomy and opportunity to design, might also consider how to improve their satisfaction in some of the other areas listed.

Leadership Style Preference

Self-awareness as a firm leader begins with

an understanding of your personal comfort zone when it comes to empowering others. How much trust are you comfortable extending and how much control do you need in order to feel secure? Your preference is likely to be to a function of your personality and experiences, and it is a hard thing to change. Figure 2 shows a continuum of leadership styles ranging from leaders who are comfortable empowering others to make most decisions to leaders who prefer to make most decisions themselves.

Many small firm founders like being completely in charge, which is not a bad thing as long as they are aware of that preference. If you are among these, you will likely be happiest with a firm of seven people or less, the number most principals can manage alone.

If you want to grow your firm beyond six or seven, you will probably have to become comfortable with trusting others to be responsible and be authorized to make decisions. Knowing where you fall on this leadership preference continuum will help you make good decisions about the size firm that you aspire to develop.

Know Yourself

No matter where you are on this continuum, employees will imitate your behaviors. What is important to partners and principals becomes important to everyone at the firm. How firm leaders behave will be how everyone behaves. When leaders "walk their talk," their values will permeate the

(continued on page 41)



Chicago's Energy Savers

Understanding the constantly changing International Energy Conservation Code, IL Energy Conservation Code and Chicago Energy Code requirements for roofs can be a challenge. Insulation, Air Barriers, Rooftop Reflectivity all are key components for rooftop compliance.

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Economic Update

by Bernard Markstein, Ph.D.
U.S. Chief Economist, Reed Construction Data

This winter dealt a nasty blow to the nation and to the economy. Bad weather disrupted transportation of goods and people, kept workers at home, and delayed many construction projects. It also added to the difficulty in interpreting the economic data.

In spite of these challenges, the economy does seem to be gaining traction. Much of the economic activity interrupted by the poor weather will be recouped in subsequent months as the weather improves.

The outlook for the economy is bright. There has been a significant reduction in the political infighting in Washington, a major source of economic uncertainty and of unnecessary hurdles for the economy. Three major pieces of legislation have been enacted into law:

- A \$1.1 trillion appropriations bill, funding federal government operations for the current fiscal year (through September 30)
- Suspension of the debt ceiling for a year, removing the threat of a federal government shutdown and debt default and the antics surrounding short-term extensions of the borrowing authority
- Passage of a \$956 billion farm bill—not perfect, but better than a patchwork of last minute continuing resolutions that had become the norm

Beyond the direct benefits of taking these partisan issues off the table for up to a year and allowing the individuals and businesses to focus on other matters, these accomplishments are an indication that Congress can perform some of its routine and necessary business. Passage of these legislative items also removes some of the uncertainty for business planning.

Third quarter 2013 real (inflation-adjusted) gross domestic product (GDP) growth notched a solid 4.1% at a seasonally adjusted annualized rate (SAAR). A preliminary estimate of fourth quarter growth reported a

not as strong, but still healthy, 3.2% increase.

Consumer spending has shown improvement. Real personal consumption expenditures growth rose from 1.8% in the second quarter to 2.0% in the third quarter to 3.3% in the fourth quarter.

Investment in nonresidential structures has not fared as well. After surging 17.6% in the second quarter, it climbed a still robust, but slightly weaker, 13.4% in the third quarter, but fell 1.2% in the fourth quarter. This drop appears to be largely a temporary setback due to weather disruptions and uncertainty about the possibility at that time of a federal government shutdown and the unresolved debt ceiling issue.

With the economy performing better, the

**“Rising house prices
are now slowly helping
to improve property
tax receipts.”**

Federal Reserve felt comfortable enough to begin to wind down its program known as Quantitative Easing (QE). The Fed reduced its scheduled purchases of long-term assets from \$85 billion per month to \$75 billion per month in January. It then reduced planned purchases to \$65 billion per month starting in February.

The Fed seems to be on course to reduce the size of its monthly long-term asset purchases by \$10 billion each month. Once the Fed is no longer accumulating long-term assets, it will begin to allow its holdings of those assets to run off (or, if necessary, to sell them)—presumably by increasing the amount of the runoff/sales by \$10 billion per month each month. So far, the Fed's action has had only a minor impact on long-term interest rates.

The size of these reductions should be kept in perspective. The Fed currently holds about \$4 trillion in assets, up from just under \$900 billion when QE began. By

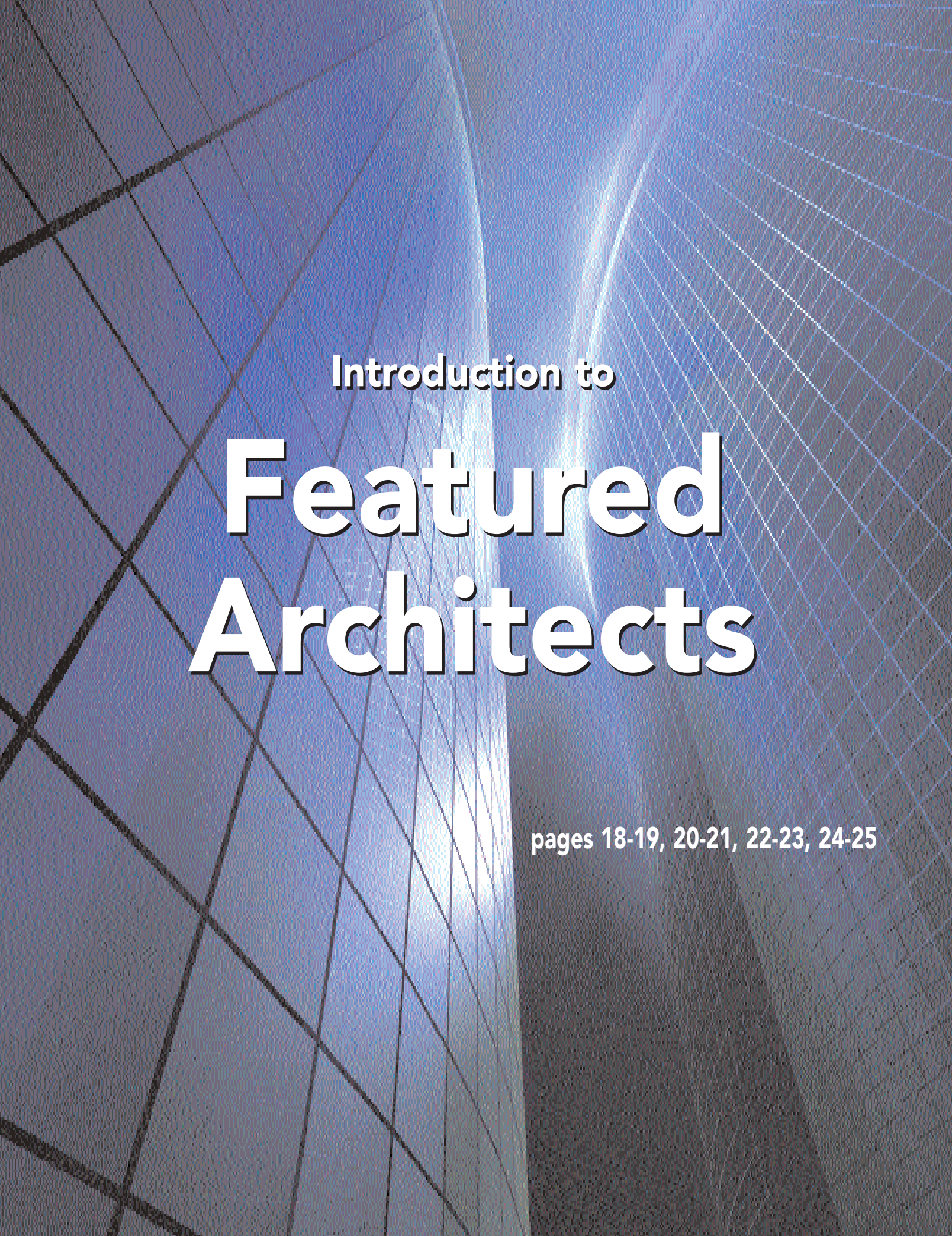
taking relatively small steps in unwinding QE, the Fed is able to gauge how well the economy is reacting to this shift in purchases as new data become available. Based on how the economy performs relative to its expectations, the Fed can adjust its asset purchases and sales accordingly.

Meanwhile, the Fed stated it will continue to hold short-term interest rates at their current near-zero level until the unemployment rate reaches 6.5% and as long as inflation remains low. Even given this guideline, the Fed is concerned about the risk of deflation, which could prove troublesome for the economy and difficult to combat. Consequently, the Fed expects to maintain low interest rates for a fairly long period even after the unemployment rate falls below 6.5%. The change in the chair of the Federal Reserve from Ben Bernanke to Janet Yellen is unlikely to have much effect on the direction of policy.

Nonresidential building construction struggled throughout 2013. Current dollar construction spending was essentially unchanged (up 0.1%) for the year. Given that the spending numbers are not adjusted for inflation, real activity declined. The failure to expand was due to institutional building construction, where all categories in the group were down for the year. Construction spending in the largest institutional category, education, fell 7% and for the second largest category, health care, fell 3%. The "For Lease" group did well, thanks to lodging construction surging 26% and commercial (mainly retail) construction advancing 7%. Manufacturing construction rose a moderate 5%.

Heavy non-building (civil) engineering construction spending fell 3% in 2013. The largest category, power construction, plunged 11% while the nearly as large category, highway construction, increased a modest 1%. The dramatic drop in power construction should be taken with a grain of salt since this group is subject to significant revisions when more data are available. In the next tier,

(continued on page 30)



Introduction to

Featured Architects

pages 18-19, 20-21, 22-23, 24-25



The **ASK Studio** of Architects Schipper Kastner is located in Des Moines, Iowa and produces results with the talents of 12 studio members. Within the past decade our work has been well received critically with over forty publications and awards nationally, regionally and locally. We are appreciated highly by our clients who award us with a 94% repeat client ratio.

Our work is rooted in our client's definition of success and resolute respect for place, its beauty, fragility and spirit. Architecture is the art and science of building disciplined by function, economy and ecology. The most basic of architecture meets human needs through rational problem solving and fundamental space. In its most artful form, architecture serves to advance or mirror culture and uplift the spirit. We believe that all projects, regardless of budget or means, deserve the considerations that aspire to be architecture. We embrace the challenges of discipline. Through discipline we define and discern success and excellence.

Regarding this course of invention we find mettle in the ruminations of Pablo Picasso: "Forcing yourself to use restricted means is the sort of restraint that liberates invention. It obliges you to make the kind of progress that you can't even imagine in advance.

I do not seek. I find."



Give Them Shelter

Our Studio believes that gifting our talents allows architecture to exist where it may otherwise not and serve those who may otherwise not be served. The pro-bono shelter at Corinthian Gardens serves as a place for smokers to be protected, while keeping their activities away from others. The shelter uses the properties of reflection to be opaque and private during the day and transparent and safe at night.

Photography: Cameron Campbell, Integrated Studio



Health CARE

Our Studio believes our spaces make a difference in the lives of users and care must always be given to elevate buildings beyond budgets, codes and common expectations. The Fleur Heights Care Center show-cases an environment that reflects the joys of living and a care for spirit. Wellness is aided through materials, colors and rhythms akin to hospitality spaces rather than hospital uses.

Photography: Cameron Campbell, Integrated Studio

Practice Where You Preach

We are a Midwest design firm. We are rooted in a landscape of functional sculptures and relentless organic rhythms of crops all bounded by a Cartesian grid. It is a simple model. The design of our studio is intended to speak of this place in a way that does not cartoon the ideals we wish to reflect, but instead use deferential references that as an assembly will result in significance that is architecture - elevating the expectations of ourselves and acceptance of our clients.

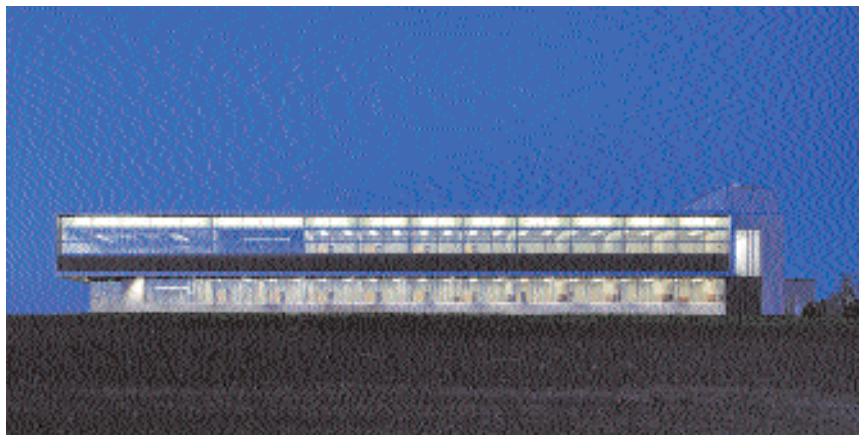


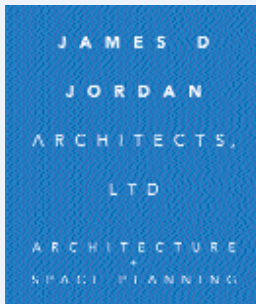
Photography: Timothy Hursley

Speaking Without Words

The Diamond V World headquarters is the symbolic identity of the animal nutrition and health expert and the actual face of the client's existing mill. The industrial materiality and cadence of the existing mill is reinterpreted as a refined assemblage of ribbon windows, an elevated frame, and rhythmic mullions. The structure is resolute in affirming the client's commitment to innovation, technology and quality.

Photography: Cameron Campbell, Integrated Studio





James D Jordan Architects, Ltd. (JDJ) has been engaged in the design of workplace environments for over a decade. JDJ's uncompromising work ethic and successful project delivery have created strong business relationships with a diverse clientele of building managers, brokers and corporations, all with the common denominator of JDJ's committed personal service.

JDJ's interior architecture and space planning services produce user-focused workplace environments that are tailored to meet the clients' budget and unique requirements. A collaborative studio approach places clients' sensibilities and aspirations at the heart of each design process.

In tandem with these services, JDJ provides landlord services for several buildings in the Chicago area. We recognize that building owners and leasing agents must efficiently meet the requirements of their tenants. We embrace this challenge and regularly work within tight deadlines and strict budgets, delivering projects on-time and on-budget.



Akoo International

Rosemont, IL

The workplace design is an extension of the company's vibrant and hip culture. A dynamic plan was created to accommodate private offices, open workstation areas, conference rooms and ample brainstorming areas.

Photographer: Tony Soluri Photography



Amata Office Centers

Naperville, IL

JDJ Architects designed the Amata Office Centers in four locations. Effective space planning provided panoramic views in as many suites as possible while exploiting the remaining interior space to create valuable collaboration areas. A contemporary reception aesthetic was detailed to fit the image of diverse tenants.

Photographer: Pablo Jones



Cavanagh Law Group

Chicago, IL

The office design mirrors the prominent image of Cavanagh Law Group. Dark walnut custom millwork contrasts with the white marble and clear glass partitions, creating a transparent, competitive law firm environment.

Photographer: Pablo Jones

Columbia Centre

Rosemont, IL

In conjunction with the building owners, JDJ planned a thoughtful renovation that revitalized the buildings' lobbies and common areas. The welcoming new environment creates a positive first impression to attract and maintain tenants and provides an edge over competing buildings in the area.

Photographer: Dustin Halleck Photography



The team at Myefski Architects is motivated by the catalyst that innovative architecture with a purpose can pervade the structures we inhabit to transform our attitudes and shape our relationships. From initial inspiration to final implementation, Myefski Architects are passionate about telling a story with their work. This means developing spaces that are multi-faceted, yet inherently simple; architecture that is highly functional, environmentally sensitive, aesthetically pleasing and meaningful to its occupants.

Founded by John W. Myefski in 1994, the firm's focus has evolved over its 20-year history to embrace the needs of both residential and commercial clients. The firm's technical prowess



and design savvy with architecture, urban planning and interiors draws on John's 28 years of experience servicing homeowners, business owners and developers in the Midwest, West Coast and Western Europe. Rooted by John's leadership acumen and building on his reputation for modern design, the team at Myefski Architects takes risks and presents endless possibilities in order to create dynamic spaces that champion client goals.

The firm headquarters is located in downtown Evanston within the historic landmark Chandler's Building. A branch office was recently opened in Marquette, Michigan to service clients in the upper Midwest.



American Junkie / The Attic

American Junkie, a 320-seat restaurant, transforms into one of Chicago's hottest nightclubs, The Attic, during the late evening hours. Design highlights of this industrial-chic space include the second floor retractable roof and an operable street front wall where guests experience the stunning views and energy of its River North location.



Photographed by: Anthony Tahlner



mBank of Marquette

Anchoring the corner of this urban square, mBank accommodates retail banking on the first floor and commercial lending and executive offices on the second floor. The third floor allows for future expansion and is made accessible to all levels, including the underground parking garage, by a vertical circulation tower.

Photographer: LeClair Photography

Private Residence on Lake Geneva

Positioned on the shores of Lake Geneva, this 5,200 sf shingle-style family home evokes an East Coast architectural character. Special attention was given to instilling intimate qualities and moments within the spacious rooms that allow the growing family to experience the tranquil feel of a small lakeside home.

Photographer: Werner Straube



The Hub at Madison

A vibrant street level commercial atmosphere and prized amenities provide resident patrons of this mixed-use student-oriented development with an unparalleled living experience. The 960-bed development is designed with condo-style layouts and finishes; an in-house fitness center/spa; 24/7 study areas that are secure and comfortable; and, a focus on sustainability.

Staybridge of Marquette

The Staybridge Suites Hotel, an 84-unit extended-stay hotel, dominates the Liberty Way development at 80,000 sf. Its design is reflective of the rhythm of Marquette's historic buildings featuring native red sandstone, and features a two-story entry lobby and great room with sweeping views of Lake Superior and the Marquette hillside.

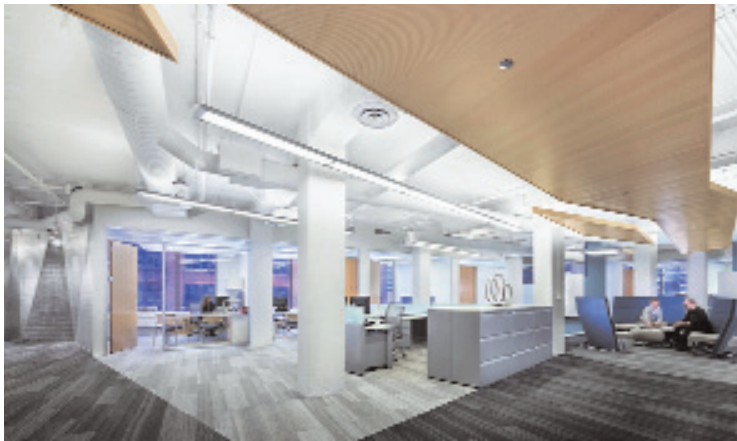




NELSON was formed in 1977 as an interior design firm. Since that time, the company has grown to an integrated services firm offering a full range of architecture, design, engineering and strategic services. With nearly 400 Teammates in 35 locations around the world and strong experience in a broad range of industries, we work with more than 20 percent of companies in the Fortune 100 and is nationally ranked as a "Top 5" firm specializing in Corporate Office Design on Interior Design Magazine's Top 100 Giants list. We also specialize in sustainable design and advisory services, the legal workplace, the financial industry, advertising/media firms, retail design, academic buildings, healthcare, government buildings and multi-family housing.

NELSON's mantra is Focused on Creation, Passion to Deliver. In everything we do, we are committed to providing exceptional services and delivering outstanding results. We value equally both design and delivery, taking our cues on what to emphasize from what our clients value. Above all, we view our clients as partners and we are committed to our combined success.

Looking to the future, we're excited to discover new ways to bring value to our clients while providing anytime/anywhere service in the most efficient, effective and beneficial ways possible.



Goldman Ismail Tomaselli Brennan & Baum LLP

The rapidly growing Chicago office of Goldman Ismail Tomaselli Brennan & Baum LLP made a unique real estate decision to re-locate from a traditional Class A office building in Chicago's Central Business District to a turn-of-the-century loft building in the city's rapidly expanding West Loop. The new space is highly flexible and offers additional collaborative spaces.

Photo: Padgett and Company



Digitas

This global digital ad agency wanted a space that promoted their culture of combining technology with creativity and looked nothing like a typical office. The space embodies collaboration, experimentation and innovation. The result is a "Warehouse of Ideas" and a factory producing creativity.

Photo: Padgett and Company

Infinite Peripherals

NELSON designed a functional "jewel box" for Infinite Peripheral's new 5,000 square foot headquarters office space adjacent to a large warehouse in Elk Grove Village, IL. The vision for the office included the words "modern," "cool," "industrial," "collaborative" and "lofty," similar to the high technology products that they develop for clients.

Photo: Halkin Mason Photography



NELSON Chicago office

NELSON chose the architecturally significant Inland Steel Building at 30 West Monroe Street as the site for its new Chicago office. The bright, open, highly visible space helps to raise the company's profile and also serves as a "living lab" for the balance of collaborative and individual spaces that NELSON is developing for corporate clients.



Photo: Halkin Mason Photography

Red Frog Events

Red Frog Events is an event production company based in Chicago, Illinois. A loft provides the backdrop for this fun, casual and interactive environment. The highly branded design focuses on spaces and elements that reflect the essence of their youthful culture and business and is built around a "Camp Red Frog" theme.

Photo: Padgett and Company





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Second Chances for Buildings

- Evaluating Timber Structures -

by Timothy M. Crowe, ALA, SE, PE
Wiss, Janney, Elstner Associates, Inc.

Renovating and repurposing existing buildings helps to unburden landfills and get the most out of the embodied energy these structures possess. Restoring buildings with wood structural systems offers opportunities to take advantage of the inherent warmth, character, and appeal of these assemblies. Owners and designers can capitalize on the character of these structures, which may have outlived their previous uses or occupancies, and give them a new life. These may be historically significant buildings that are still intact, older buildings that are experiencing serviceability issues, or structures with deferred maintenance. Wood structures, when properly maintained, can last for centuries—but if not properly cared for these structures can be vulnerable to an early demise.

Accurately assessing the suitability of older wood framed structures is necessary to ensure that the full value of these structures is realized. This is particularly true as modern building codes impose demands on buildings when alterations are introduced. The latest versions of the International Building Code require repairs of existing structures that exceed permissible stress values by a margin of 5 percent based on the design loads for proposed changes

in building use. Similar triggers for structural remediation are introduced by seismic and wind load demands stipulated in the codes. Inaccurately identifying the capacity of existing wood framing components can result in the implementation of unnecessary strengthening or replacement of structural components, or conversely, omitting needed repairs that should be provided. Assessing these buildings can become daunting tasks for project planners who are unfamiliar with these older systems.

It is necessary for inspection programs to be developed for the specific individual buildings to be evaluated, as the structures are unique. However, there are some shared aspects that should be kept in mind. The following is an overview of wood material characteristics and evaluation issues that must be considered as part of a renovation or restoration project.

Building background: Accurate reference materials are not readily available for timber-framed structures that have been around for 100 years or more, or even for structures erected only 40 to 50 years ago. However, obtaining background information regarding the date of the building construction and past building occupancies can provide valuable information on design assumptions that were likely made and permissible stress values that were



Figure 1. Timber floor construction in 1890s Chicago warehouse building.

used. Permissible stresses in wood framing members have changed through the years as the industry has gained more knowledge regarding the effects of member size and wood defects. This also has to do in part with changes in forestry practices and the unavailable older growth wood materials, and more recent corrections have resulted from in grade testing procedures. Other changes occurred in response to lessons learned through testing advancements made in the industry. For example, in the nineteenth and the majority of the twentieth century, allowable direct tensile stress levels were based on extreme fiber bending stresses, derived from modulus of rupture (MOR) tests until more appropriate full sized tension testing of members was performed in the 1960s. It was realized at this time that basing the allowable tension stress levels on bending strengths was not conservative, which led to a reduction in tension stresses permitted by the code. This also led to changes in the fabrication practices for glued laminated members (glulam) in the 1970s, with the addition of requirements for special tension laminations in glulam layouts.

(Continued on page 33)



Figure 2. 1860s timber trussed roof.

Using Documentation To Reduce A&E Professional Liability Risk

by Dan Buelow
Managing Director Willis A&E

When it comes to managing professional liability risk, documentation is one area all design firms need to take very seriously. It is important to recognize that professional liability risk, which is by far a design firm's greatest risk, is a "long-tail" exposure. It can take months if not years for a professional liability claim to fully develop. A lot of time can pass from the time a Design Professional starts a project to the time the project is substantially completed, to when an allegation of an error or omission is made against the firm - to the time the firm is dragged through mediation, arbitration and/or litigation. Simply put, a design firm needs to have good documentation protocols in place in order to tell its "story" well into the future. If an Architect or Engineer firm finds itself in a dispute with no meaningful documentation, it will most likely end up incurring significant expense and possibly damaging the firm's client relationships - and its reputation. The importance of documentation cannot be overstated.

The Three Forms of Documentation

It's important that a design firm has clear and consistent documentation practices in place on all its projects. There are three forms of documentation that a design firm should pay particular attention to when developing the firm's standard procedures: contracts, certified receipt transmissions and memos to file.

1. Contracts - It's a fact that most claims against Architects and Engineers are due to unmet expectations versus actual design error. Consultants should use the contract negotiation process as a vehicle in establishing expectations with their clients. It's reasonable to assume that if you find your prospective client to be an unreasonable bully during the contract negotiation phase, the quality of their character most likely won't improve much

once you sign the dotted line and they become your client. If and when a suit is brought against your firm the first thing your attorney and insurance claims representative will ask you for is a copy of your contract and any supporting documentation.

2. Certified Mail/Return Receipt - There are often times throughout a project when it would be a good idea to formally memorialize your communications. One example would be in the event of value engineering in order to clearly state your position and have clear record of client decisions. Another example would be in the event you don't have a contract in place and want to put your new client on notice that until you do have a fully executed agreement in place you will be working under your firm's terms and conditions. Sending these types of correspondence via certified mail and/or return receipt email is highly recommended.

3. Memo/Documents to The File - Along with your contract, any amendments and certified transmissions you will also want to retain all relevant memos to file. Anything that would help "tell the story" of what transpired on a given project can go a long way when someone picks up the file in the future. This includes field notes and meaningful emails. While these notes and emails can be of tremendous benefit as supporting documentation, it has to be recognized that documentation is a double-edged sword. Just as the Consultant needs to take precaution with the contracts they sign, the design firm's staff needs to be judicious in their use of day-to-day communications including field notes, marketing materials and emails.

■ **Beware of Emails** - Emails are both retrievable and discoverable. The problem with emails is that people tend to be far too

informal with them and will often put something in an email that they would never put in a letter. A good assumption to go by is that you have never deleted an email in your life. Voicemails are also a problem now as they are often being converted to emails and retained without your knowledge. The best risk management advice you can offer your staff is to treat your business as a business. All staff should be instructed to keep emails short and to the point and to avoid extraneous, inflammatory and/or informal messages. Avoid phrases such as "Boy Bob, we sure screwed up on this one!"

Another thing to watch out for when it comes to emails is getting caught up in the "reply all" vortex. If you find yourself being copied on emails that you don't feel pertain to you, it's a good idea to ask, via "reply all", to be removed from any future correspondence. One example of this would be correspondence pertaining to job site safety or construction means and methods.

■ **Leave Your Wide Angle Lens at Home** - It's not unusual for a firm to have thousands of pictures on file of their projects. A good rule of thumb David Ericksen, of the San Francisco law firm Severson & Werson, recently shared with me is the "rule of 3 or 300." Taking and retaining only photographs of projects up close or very far away is a good practice. Plaintiff attorneys have been known to use a design firm's own photographs against them depicting site conditions or specific project details in a photo the A&E unwittingly snapped. Its good practice to be judicious in the pictures you take and to only take and retain photographs of very specific detail - at around three feet away - or distant shots with little detail - at or around three hundred feet away.

(continued on page 30)

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■ **Managing Scope Creep** – It's important for the design firm to amend their agreements if and when there is a material change in scope. Firms failing to do so may very well find themselves in a position where they don't get fully compensated for their work –and/or take on risk outside their contract's scope of services. With the recent economic downturn we've seen more clients attempting to set-off fees reasonably due the consultant in return for not bringing legal action against them. A firm with good documentation practices is less susceptible to this. Another pitfall we find our A&E clients exposed to is the redesign trap. Design Professionals tend to be problem solvers – and all around nice, accommodating folk. In other words they often find themselves working for free. One way to manage this through documenta-

tion is the use of the \$0 invoice. Every time your client wants you to provide an additional service that for whatever reason you won't be charging for, you should consider submitting a \$0 invoice. The advantage of this practice is that not only can it help tie the additional work back to your original contract, it can prove helpful when the firm wants to start charging for these additional services.

Conclusion

Documentation plays a critical role in managing design professional liability risk. Design firms should have clear and consistent practices in place when it comes to documentation. All staff of the A&E firm should be educated on the firm's documentation protocols from contract negotiation to how they conduct themselves

when it comes to field notes and emails. With sound documentation practices in place, a design firm will often find itself in a much better position to extricate itself from and even avoid costly disputes or claims. Lastly, it's important that all members of the design firm are educated on the firm's standard procedures when it comes to documentation. This is one area of your practice where literally everyone can make a profound impact – positive or negative – in managing your risk.

Dan Buelow is Managing Director of Willis' Architects and Engineers division. With over 700 design firm clients nationwide, Willis A&E is exclusively dedicated to providing insurance and risk management solutions to Design Professionals.

ECONOMICOUTLOOK

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transportation construction was up 9% and water and sewer construction was up 1%.

The Reed forecast is for total construction spending to increase 9% this year, with nonresidential building construction spending and heavy engineering both increasing 6% and residential increasing 14%. For 2015, the Reed forecast is for total construction spending to rise 11%, non-residential construction spending to rise 8%, heavy engineering also to rise 8%, and residential to rise 16%.

Among the factors driving this forecast are the following:

➤ **Lodging.** Companies have increased their travel budgets following austerity measures during the recession and immediately thereafter. Leisure travel has increased as employment has improved and as households have felt more secure in their various job situations. Both will expand further in 2014 and 2015, encouraging more renovation and new building of lodging.

➤ **Office.** Although the square footage per employee has shrunk, the need for additional employees and reduced operating costs (coupled with pressure for "green" space) will push up spending on both new office construction and renovation/retrofitting older space.

➤ **Retail.** The Internet may have dramatically changed the landscape for brick and mortar stores in some categories (most notably for books and electronics), but the inroads for other sectors is limited or nonexistent. Grocery stores, restaurants, and various services (e.g., hair care) will not be supplanted by Internet alternatives. Larger retailers have successfully carved out niches in the market while also adopting the Internet as another sales tool and distribution channel. Rising employment and expanding residential construction largely drive this category.

➤ **Health care.** Uncertainty surrounding the Affordable Care Act kept many health care providers on the sideline. The massive foul ups surrounding the launch of the federal online portal for the health care exchanges created additional uncertainty for healthcare providers. But with many new people with health care insurance, the need for new facilities in new locations will increase.

➤ **Education.** For private education, the recovery from the recession and the rebound in the stock market has meant resurgence in both contributions and the market value of portfolios. Expansion plans previously put on hold have been revived, and new projects are

being put forward. Meanwhile, public education in much of the nation suffered from reduced tax revenues as property values fell and faced anti-new tax/anti-new bond issues sentiment. Rising house prices are now slowly helping to improve property tax receipts. Soon, parents will begin to complain about crowded and/or deteriorating classrooms, pushing for new facilities. This pressure, however, will take time to build. Approval of new plans and new bond issues will also take time.

Risks to the U.S. economy and commercial construction that could lower the growth forecast and increase the risk of recession have fallen significantly, but remain.

➤ Sharp reductions in government spending in the short run

➤ A sustained spike in interest rates most likely due to the Federal Reserve being too aggressive in unwinding its asset purchase program (QE)

➤ Sovereign debt default by one or more major European countries

➤ One or more countries abandoning the euro

➤ Significantly higher oil prices (roughly 50% a barrel or higher) for a sustained period (two months or longer). ■

Certifications Of Contractor's Payments

by James K. Zahn, FALA, FAIA, Esq
Sabo & Zahn, Attorneys at Law

Upon execution of an Owner / Contractor Agreement, the Contractor should provide the Owner and Architect with an original Contractor's Sworn Statement indicating the total contract amount agreed to by the parties and the names and contract amounts of all of the subcontractors and material suppliers to be used on the project. The total contract amount should be listed at the bottom column beneath all of the subcontractor line items. After the payout process begins, any adjustments to the total contract amount, accompanied by executed Change Orders, should be also be listed, indicating the new total adjusted contract amount. There should be columns indicating monies previously paid, the amount of the requested payment, and the balances remaining to complete the project.

Whenever an Architect agrees to perform Contract Administration Services for an Owner, the Architect must pay particular attention to how he or she reviews the Contractor's submitted Application(s) for Payment and supporting data before certifying any amounts to be paid to the Contractor based upon that submission. The Architect's certification to an Owner that the Contractor is entitled to the amount of payment requested, or to a reduced amount determined by the Architect, can easily expose the Architect to potential liability if the Architect certifies payments exceeding the amount of Work actually performed to date. The Owner is relying on the Architect to professionally evaluate the Contractor's Work to determine if the Contractor is entitled to the requested payment(s).

AIA Document B101-2007, addresses this matter by stating that: "The Architect shall review and certify the amounts due the Contractor and shall issue certificates in such amounts. The Architect's certification for payment shall constitute a representation to the Owner, based on the Architect's evaluation of the Work ... and on the data comprising the Contractor's Application for Payment, that, to the best of the Architect's knowledge,

information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents." Once everything in the Application for Payment is reviewed, the Architect can determine the amount of the payment that the Architect will certify to the Owner.

After receiving the Architect's certification of the amount due to the Contractor, the Owner then either makes the payment, adjusts the amount of payment to be made, or refuses to make the payment. That is ultimately the Owner's sole decision, not the Architect's. The Architect is merely providing his evaluation of the Work in progress, based upon the architect's observations, the Contractor's Application for Payment, and the data accompanying the Application for Payment.

On some projects, payments are made only upon immediate exchange of waivers of lien for the exact amount of the payment. These projects often are administered by title companies who collect the waivers of lien from the contractor and all subcontractors and material suppliers before processing or exchanging any payments. Title companies accustomed to processing construction payments to contractors provide a valuable service to Owners and Architects, while at the same time reducing liability exposure to both parties for any overpayments or payments not supported by proper paperwork.

On other projects, the Contractor is paid upon exchange of his waiver of lien in the amount of the payment. Then the Contractor pays his subcontractors and material suppliers with funds he received for the first payment. The Contractors make those payments in exchange of waivers of lien from all of the subcontractors and material suppliers that are being paid. When the Contractor submits for his next Application for Payment, he attaches the subcontractors' and material suppliers' waivers of lien he previously collected as proof to the Owner that the Contractor paid the subcontractors and material suppliers the amounts the Contractor previously requested for the subcontractors' work and materials

supplied. The staggered waiver system works as follows:

FIRST APPLICATION FOR PAYMENT (Under a Staggered Waiver System)

The First Application for Payment must be accompanied by the Contractor's Waiver of Lien to date of the application for the full amount of the requested payment. The First, and all future Applications for Payment should be notarized and always list each and every subcontractor, their respective contract amounts, and the amounts representing the requested payments, and balances left to complete the work and materials supplied by each respective subcontractor and material supplier. This First Application for Payment should indicate the exact payment amounts that the Contractor is going to pay each of his subcontractors and material suppliers from the monies he receives from the Owner as payment based upon the First Application for Payment. The Contractor's and subcontractors' contract amounts should match the amounts previously stated on the Contractor's Sworn Statement given to the Owner upon, or shortly after, the execution of the Owner/Contractor Agreement, and before any payments are made to anyone.

Under this system, the Waivers of Lien from the subcontractors will be staggered from the Contractor's First Application for Payment and be included as an attachment to the Contractor's Second Application for Payment, usually bases upon a one month payment cycle. All Waivers of Lien submitted on behalf of subcontractors will continue to be staggered thereafter, until the Final Application for Payment. The Owner's first payment should not be made without a fully completed and notarized First Application for Payment, a Waiver of Lien to date of the application in the full amount of the requested payment from the Contractor, and receipt by the Owner of the Architect's Certificate for Payment.

SECOND APPLICATION FOR PAYMENT

In the Second Application for Payment, the

(continued on page 32)

Contractor will request payment for all Work performed and materials supplied to the date of the second application, listing all subcontractor and material suppliers' amounts being requested, indicating previous payments made to all subcontractors and material suppliers from the first payment received, listing the new Contractor and all subcontractor and material supplier balances to complete, and so forth.

The Architect reviews the Second Application for Payment carefully, reviews the data submitted by the Contractor including all Waivers of Lien to date from the Contractor and all subcontractors and material suppliers, and should check all columns to make sure they add up. Do not rely on anyone else checking the addition of all column amounts. Any changes in the Work or requests for extra payments should be accompanied by a written executed Change Order adjusting the total Contract Sum. Subcontractor's names and their respective line item amounts should not change from the prior First Application for Payment unless accompanied by a written Change Order explaining the change. Never allow a Contractor to change the line item amounts for his subcontractors or material suppliers without the proper paperwork, specifically a written Change Order. Owners and Architects sometimes feel that whatever a Contractor does with his subcontractors' or material suppliers' contract amounts does not matter, as long as the total contract amount stays the same. The truth is, it does matter! Whenever there is a dispute over money, all of the Applications for Payment will be examined under a microscope. Any errors will likely be blamed on the Architect. All Architects should demand that the Contractor keep accurate paperwork.

Following an evaluation of the Work at the project site and a careful review of the amounts stated on the Contractor's Second Application for Payment, the Architect should pay particular attention to the Waivers of Lien to date that the Contractor is submitting for himself and all of his subcontractors to support the Contractor's Second Application for Payment. Since the Waivers of Lien are normally staggered, did the Contractor submit all Waivers of Lien substantiating the subcontractors' waivers of claims for the payments they were to receive under the First Application for Payment? Are all of the Waivers of Lien notarized and properly executed? If not, no further payments for that subcontractor should be made with this or any other Application, until all waivers are properly submitted. It is not unheard of that Contractors have been known to prepare and submit fraudulent subcontractor's Waivers of Lien. If they are not notarized, the Architect

may be held responsible for certifying the payments to the Owner, who then makes the payment. Many times, Contractors are paid by an Owner and then the Contractor fails to pay his subcontractors or the material suppliers the amounts requested on the previously submitted Application for Payment, or any amount at all in some cases. At that point, the subcontractors and material suppliers still have mechanics lien rights for the payments due since they did not receive the payment. The Contractor received the funds and keep them for himself. If you, as the Architect, failed to obtain a Waiver of Lien from any such subcontractor or material supplier and certified an additional payment to the Contractor, then you will have a difficult time explaining to the Owner why he may have to pay that particular subcontractor(s) and material supplier(s) again. The Owner will most likely have to pay twice, since the subcontractor never received his money from the Contractor, even though the Owner paid the Contractor for that subcontractor's work under the line item in the previous Application for Payment. If a title company is used, this situation will not likely arise.

THIRD THROUGH FINAL APPLICATION FOR PAYMENT

The same procedures stated above apply to the Third through the Final Applications for Payment. However, for the Final Application for Payment, the Architect must inspect that all punch list items have been corrected to the Architect's satisfaction, ascertain that all extended warranties and equipment manuals, if any, have been provided to the Owner, and that properly executed and notarized Final Waivers of Lien for the Contractor and all subcontractors and Material suppliers have been presented with the Final Application for Payment. Staggered Waivers of Lien are not allowed for the Final Application for Payment. After receipt of all of the foregoing, the Architect can then issue a Certificate for Payment to the Owner constituting that to the best of the Architect's knowledge, information and belief, the Work is in compliance with the requirements of the Contract Documents and the final balance due the Contractor and noted in the Final Certificate is due and payable.

In my previous articles, I have stressed the advantages of using a title company to help with this complicated payment process. Title companies will have no hesitation in disallowing payment to the Contractor, or any of his subcontractors, if the Contractor's Application for Payment is incomplete, incorrect, or not notarized. The title company is another safeguard for the Owner, and the Architect, assuring that payments will be made only when justified, and then only when

a properly executed Application for Payment is accompanied by proper backup data and authorization for payment by the Owner to the title company. This extra set of eyes being involved in the payout process is worth every dollar it costs, especially if there is a dispute over money on the project. The title company will ascertain whether the Owner's property remains free of mechanics liens throughout the entire process. This is service that Owners and Architects are normally will not, or are unable, to perform.

Many Architects fail to realize the importance of performing a proper evaluation of a Contractor's Application for Payment. The evaluation should always include everything I've stated above, and it should also include one additional consideration. Whenever the Architect evaluates the Contractor's Application for Payment, the Architect should also make sure in his own mind that, after the requested payout is made by the Owner, there will still be enough money left to finish the project. If the Architect over-certifies payments to the Contractor, and the original Contractor defaults or goes bankrupt, everyone will look to the Architect to pay for any amounts exceeding the original contract amount that the successor contractor requires to complete the project. This is a very dangerous exposure for the Architect, especially if the Architect has been lax in demanding accuracy from the original defaulting Contractor in the paperwork constituting his Applications for Payment. Many courts have held that had the Architect performed his Contract Administration Services properly, especially relating to Contractor payment issues, the Owner would never have been damaged. Therefore, many courts have held the Architect liable for the difference in cost of the new contract amount over that of the original contract amount.

The moral of the story is, if you are going to provide the Owner with Contract Administration Services including Certifications of Payments to the Contractor, those certifications must be performed using your best professional skill and care.

Note: The preceding article is not legal advice and should not be relied upon. It is merely the author's opinion. It is highly recommended that you consult with your own attorney regarding any construction administration services relating to the above subject matter.

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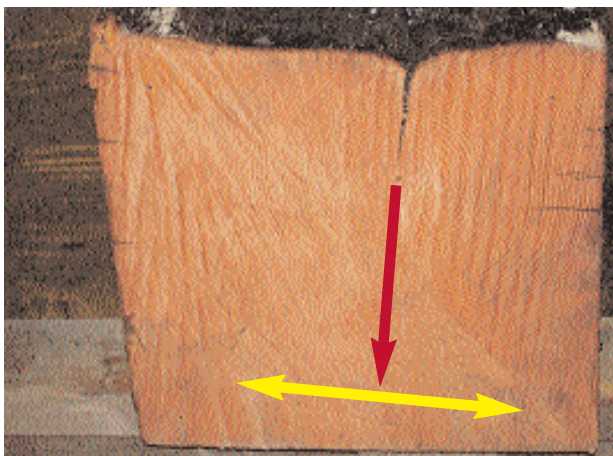


Figure 3. View of timber looking at end grain. The red line designates the radial orientation of the grain, out from the center of the tree, and the yellow double arrow designates the tangential orientation. Note the checking of the timber perpendicular to the tangential orientation at the sides of the members. This is where the greatest amount of shrinkage or swelling of the member is expected with changes in moisture content.

Wood is a hygroscopic and anisotropic material:

Wood has different physical material properties in different directions (along the grain, tangential to the grain, and radial-ly). Wood is generally strongest in tension and compression along the length of the grain and less strong in the tangential and radial directions. Wood has very little tensile strength perpendicular to grain.

Wood is a dynamic material that reacts to its environment differently than steel, concrete, or masonry. Wood is hygroscopic and will readily absorb moisture from, or desorb moisture to, the atmosphere depending upon the levels of humidity exposure. Moisture content will increase or decrease as the wood acclimates to the environment and achieves its equilibrium moisture content (EMC). These moisture contents are typically higher in the summer months and lower over the winter, depending upon relative humidity and dry-bulb temperature. In conditioned buildings of the Midwest, moisture contents of wood average about 7 percent in the winter and can range from 8 to 12 percent in the summer. As the EMC varies, dimensional changes (shrinking and swelling) will occur. Moisture absorption rates differ depending on the grain orientation (i.e., wood will take on and release moisture more rapidly along the grain than it will tangentially or radially, coinciding with the path of moisture through the tree from which the wood was obtained). Similarly, the extent of swelling or shrinking of solid wood material will be different in the three orientations, with the greatest amount occurring in the tangential direction; about

one-half of the tangential movement will occur radially, and the least amount along the length of the grain (about 0.1 to 0.2 percent of the tangential movement). Many variables affect the amount of shrinkage and swelling, and will differ within members of the same species. Drying times and temperatures also affect the extent of shrinkage. The varying strengths and non-uniform dimensional changes can result in checking and splitting of a wood member. In addition, restraints from connection details and incompatible framing assemblies can result in

splitting of the wood material if seasonal shrinking and swelling are not accommodated, and need to be examined as part of the structural evaluation.

Non-destructive testing procedures are also valuable in assessing underlying material conditions, such as determining the amount of decay and/or insect damage, or documenting concealed connection assemblies that are not readily observed during a visual examination. With the use of probing instruments, boring of wood materials, and resistance drilling techniques, the extent of weakened or deteriorated material can be more accurately determined. Additional studies have demonstrated that infrared thermography, x-ray, and ultrasonic testing techniques can be beneficial at assisting with the evaluation of underlying conditions.

Keep wood dry:

Given the susceptibility of wood to moisture, it is imperative that the water-shedding and weathering characteristics of the overall building be reviewed when evaluating wood structural elements. If enough moisture is present, the EMC of the wood can reach its fiber saturation point (generally 25 to 30 percent) and decay can set in. In the early stages of decay, significant

strength loss of the material can occur. Wood members need to be properly protected and moisture should be efficiently shed down and away from the structure. This is particularly important near the roof, with framing near grade or with exterior exposure, and with members that are supported by masonry walls. Conditions of excessive moisture are not always visually apparent, and moisture meters in conjunction with hygrometers are required to assess drying and wetting behaviors of materials. It should be noted that dielectric moisture meters (pin-less type) do not effectively measure moisture beyond the wood surface. Although pinless meters may be beneficial in assessing moisture content in finish materials that are less than 1 inch thick, in order to obtain accurate moisture content measurements of framing members, resistance-type moisture meters with needle penetration that is at least 20 percent of the member section are necessary. In addition, multiple readings at different locations should be taken, as moisture contents will vary across and along individual members.

Watch the heat: When subjected to excessive temperatures, wood experiences strength loss. As wood exceeds about 80 degrees Celsius (176 degrees Fahrenheit), degradation of the wood material can occur depending upon duration of exposure and moisture content. In fire situations, at about 300 degrees Celsius (572 degrees Fahrenheit), wood will decompose and provide a charring layer that serves to insulate the underlying material and protect it from further degradation. Consequently, in a fire, the extent of weakened

(Continued on page 34)



Figure 4. Advanced decay of wood members in the attic of an 1850s wood framed building. Note that the screwdriver is fully embedded into the rafter.



Figure 5. Decorative and structural exterior wood column, which was exhibiting unanticipated checking, is being evaluated for moisture content with a resistance-type moisture meter.

wood material will exceed the layer of black char as the temperature is reduced through the material zone beyond. The extent of char, including the heat damaged zone beyond, is referred to as the effective char layer. To properly determine the strength of fire damaged timbers, the full thickness of the effective char layer needs to be accurately assessed.

Identifying the strength: Wood strengths also vary based on species, rate of growth, specific gravity, defects such as knots and grain slope, and moisture content. As these characteristics are not all visually apparent, obtaining material samples is critical to accurately identifying the wood. With the assistance of a qualified wood scientist, species identification, density characteristics, and evidence of decay can be evaluated on material samples. This information, in conjunction with accurately identified knot sizes and positions, slope of grain, and member dimensions, can be used to determine appropriate allowable stress levels.

Industry standards identify permitted stresses on solid sawn wood materials based

on the presence of defects in accordance with rules that are developed by agencies authorized by the American Lumber Standards Committee. Using grading principles in conjunction with data obtained from testing small clear wood samples, material is visually graded by examining defects including grain slope, presence of knots, and checks. In general, based on the extent of these observed defects and the size of the member in question, allowable

design stresses are established. These values are further scrutinized by in-grade testing of full sized members. Today's engineered wood assemblies, such as plywood, glulam, laminated veneer lumber (LVL), and parallel strand lumber (PSL) are able to attain greater allowable strengths than their solid sawn counterparts, as the size, number, and locations of the natural defects can be controlled in the wood material.

Allowable stresses for existing wood materials may also be evaluated by destructive testing. If warranted, depending upon structure type and loading demands, more intrusive measures can also be implemented, which may include extracting members or elements from the structure for full size testing of the complete cross-

section, or laboratory examination and testing of small clear samples can be performed. The small clear samples can then be evaluated based on observed material defects.

Renovating and repurposing existing timber structures requires a careful approach that considers the material history, environment, and relationship of the wood structural system to the entire building assembly. These structures must be evaluated on a case-by-case basis by a professional familiar with timber construction so that material strength characteristics and load paths are understood when determining the adequacy of the existing structural system. This information is necessary to educate the owner or architect to ensure that reasonable approaches are understood, and to reach the best possible solution to capitalize on the character of older and contemporary structures. When properly evaluated, the adequacy of the existing timber structures can be understood and the owner and designer of the restored building can have confidence in the future durability and serviceability of the structure.



Figure 6. View of wood sample extraction from a fire damaged timber.

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✓ Categories

- | | |
|--|--------------------------|
| 1. Residential I – Single Family Homes | 5. Institutional |
| 2. Residential II – Multi Family Homes, Apartments | 6. Religious |
| 3. Commercial/Industrial | 7. Unbuilt Design |
| 4. Renovation | 8. Interior Architecture |

✓ Judging Criteria

These entries are subjected to a "blind" adjudication where the information of the participants is hidden from the jury. Entries are judged on the basis of: Program Solution, Site and Space Planning, Overall Design Solution, Construction System and Details.

Projects are classified by category and the judges may designate Merit, Silver or Gold awards as they see fit across all categories. The prestigious Presidential Award is selected by the National Board President and it can be from any award category.

✓ Awards

Award winners will have their projects displayed at the prominent ALA Design Awards Banquet scheduled for November 14th at the Metropolis in the historic district of downtown Arlington Heights, IL.

All the winners will be published in the December issue of *Licensed Architect*, a publication of the Association of Licensed Architects.

Fees: **ALA Members:** \$125 for first entry, \$100 each additional entry
Non Members: \$275 for first entry (includes a one-year ALA membership),
\$100 each additional entry

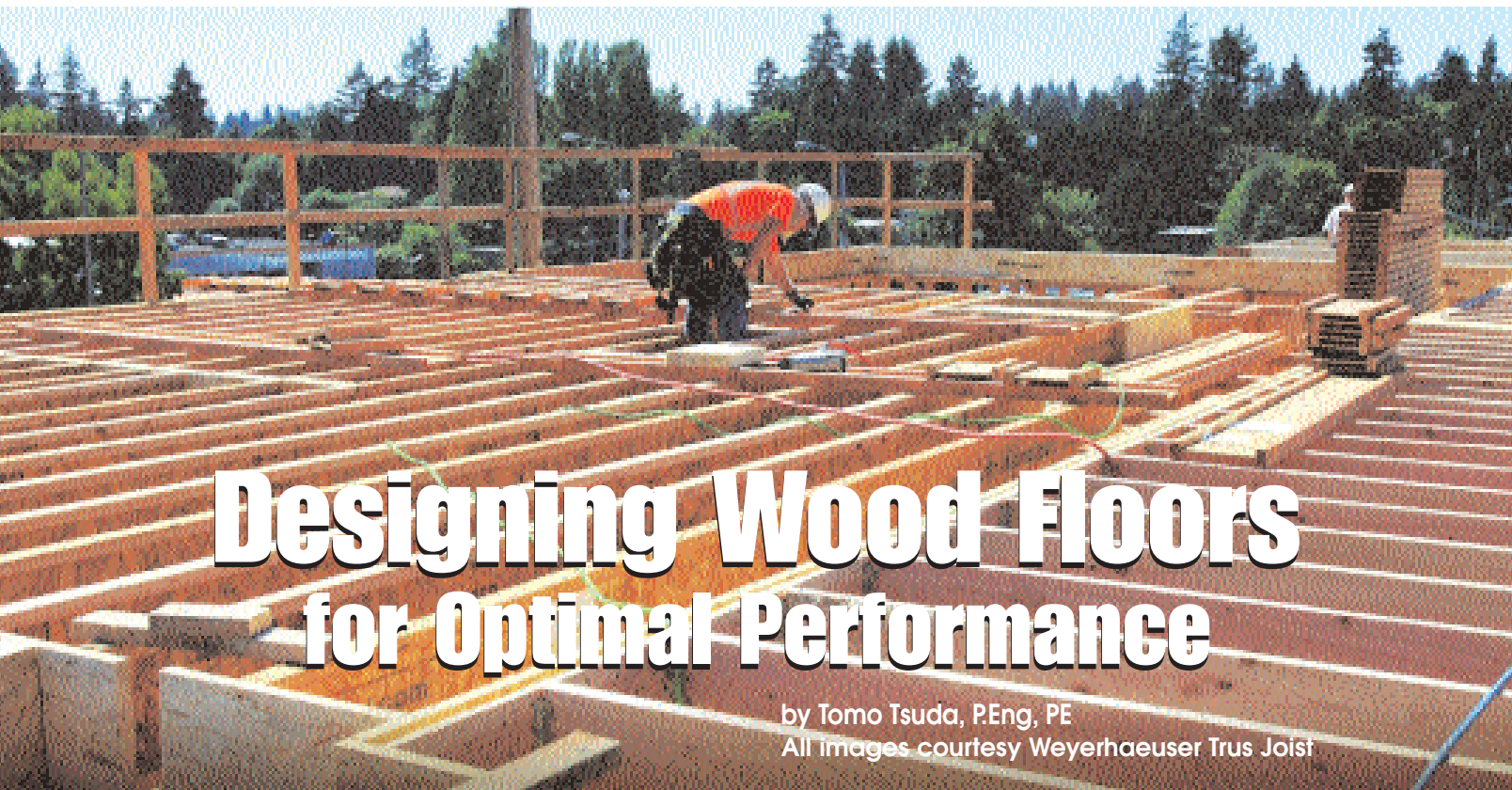


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Designing Wood Floors for Optimal Performance

by Tomo Tsuda, P.Eng, PE

All images courtesy Weyerhaeuser Trus Joist

The impact of product choices and installation methods

Learning Objectives:

- Learn the physics behind floor vibration.
- Review assembly components that affect a floor's performance.
- Summarize economic considerations for wood floor framing.
- Discuss installation considerations for overall performance.

When designing a wood-framed floor system for multi-family projects, building to meet the prevailing building code is only one step in the performance spectrum. Less clear-cut are the issues surrounding occupant comfort-how much the finished floor bounces under everyday use, or in special cases related to increased load or foot traffic.

The size and thickness of floor framing materials, along with the spacing of members and the manner in which they are installed, directly influences how stable the floor feels, and how well the finished flooring on top performs over time. Although these elements may not be required to ensure the building's strength or durability, they are often critical for ensuring occupant satisfaction and perceptions of overall quality.

This article outlines the physics behind floor vibration, identifies problem areas where perceived movement is most likely, and examines strategies for avoiding performance issues.

The Challenge

Perceptions of unacceptable floor performance have challenged designers for years. Normal working loads, usually from the movement of occupants, sometimes result in floor motions considered annoying by others. This can occur even on floors where design

loads are extremely large compared to the forces generated by a person walking. Conforming to static deflection criteria, as dictated by building codes, does not always eliminate this potential problem.

Manufacturers have investigated performance issues for floors framed with joists and structural composite lumber products. In one case, extensive floor performance survey results were linked with research and theory to the perceptions of floor users. The results of this research can aid specifiers in determining which factors are most likely to contribute to performance and how to make adjustments based on a balance with cost. However, it is first necessary to examine the physics behind the problem - the fundamental dynamic properties and their relative effects on a floor.

■ Frequency

Research has shown most people agree low frequencies, particularly in the range of 8Hz or less, are uncomfortable. By adjusting the details of the floor system (as described in this article), it is possible to raise the frequency of a floor system to a level more widely acceptable.

“While it is desirable to obtain the highest possible rating for all floors, there are always economic factors that may have an impact on performance.”

■ Amplitude

Large floor movements are generally more noticeable, regardless of frequency. Amplitude increases with span.

■ Damping

If the wave motion caused by a moving load rapidly reduces, the movement is less noticeable regardless of frequency and amplitude. Damping increases with the addition of a ceiling and a solid partition transverse to the joists.

Adding mass reduces damping. Typical dynamic wave motions and damping related to mass are shown in Figure 1.

The addition of a poured topping on the deck increases the floor's transverse stiffness, which is a positive effect. The added mass, however, decreases damping, which can have a negative effect. An appropriate method of accounting for these contradictory outcomes is still being investigated.

Assembly components

Various floor assembly components will have an effect on a floor's performance.

■ Basic stiffness

This is a combination of joist depth and span. Greater basic stiffness increases frequency and assembly stiffness. For a given span, increasing the joist depth results in the greatest increase in basic stiffness.

■ Joist spacing and deck stiffness

Reduced joist spacing or increased deck thickness generally improves floor performance by increasing assembly stiffness.

■ Composite action

'Composite action' is a measure of how the assembly's deck component interacts with the joist to effectively increase basic stiffness. Having this thicker deck, or use of construction adhesives, improves composite action for short-term dynamic loads.

■ Continuity

Joists that are continuous over several supports generally enhance floor performance because they deflect less than the same joist in a simple span application. Care must be taken if such joists continue into an adjoining occupancy as these members can transmit vibration and sound through the floor assembly.

■ Ceilings

A directly applied (not suspended) gypsum ceiling or strapping-minimum 1x4 applied flat to the joist at 1.5 m (5 ft) on-center (oc) or less-improves floor performance. Assembly stiffness and damping are slightly increased.

■ Bridging/Blocking

Bridging/blocking and strapping properly installed at 2.4 m (8ft) oc or less enhance floor performance. Bridging/blocking and strapping should be continuous from wall to wall (or support beam) and evenly spaced along the

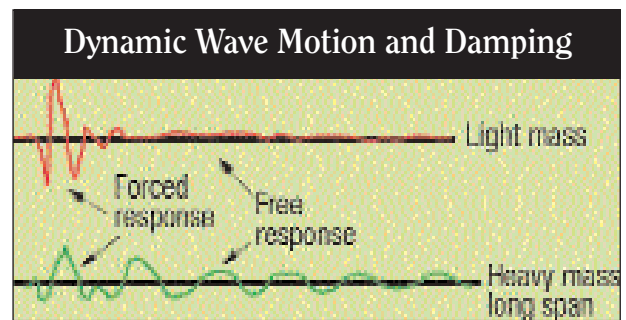


FIGURE 1

This graphic demonstrates how added mass reduces damping.

floor span. When interruptions from HVAC equipment (e.g. a duct running parallel to the joists in the floor cavity) and/or changes in joist depth occur, there must be proper consideration for detailing.

■ Beams

When joists are supported on beams, there is a small increase in deflection under normal working loads, which slightly reduces floor performance. Beams designed for relatively large tributary floor areas have less effect.

■ Additional contributing factors

Full-height framed partitions that are transverse to the joist and away from supports have the effect of damping vibrations, which improves floor performance. However, such partitions must be solidly connected to the floor assembly.

It is important to remember a floor assembly deflects even under light working loads. Bridging that splits during installation, and any ductwork rubbing against joists, can produce noise that may reduce the perceived quality of the floor.

The most effective and economical technique for ensuring good floor performance is the identification of the proper depth, series, and spacing for the floor joist during the design phase. A deeper, stiffer joist is the most economical solution for increasing floor performance for a given span.

Performance versus cost

While it is desirable to obtain the highest possible rating for all floors, there are always economic factors. Proprietary software tools can account for the unique variables affecting performance to determine an appropriate rating; the program can also list the components required to reach this rating. It considers the floor assembly in addition to joist stiffness to rate the performance.

(Continued on page 38)



The rating system can be targeted to different client preferences, or even to individual areas of the floor, taking into consideration how different rooms will be used and occupied. For instance, different areas of a condominium unit could require different actions. As an example, a rec room designed for entertaining might be considered separately from the dining area or kitchen. Other considerations include whether rental apartment unit floors be considered the same as those in expensive condominiums from a floor performance stand point. (This might depend on the size of the rental units and the target market.)

The system gives designers a comparison

cost value based on an input cost of decking and the volume of floor joists in the assembly. This is not precise cost per area, but it gives a reasonable relative number. Some experimentation with varying components of the assembly offers the designer a good feel for how to obtain the best value in the assembly, from both cost and performance rating standpoints. For example, depending on building details, it may cost very little to increase joist depth. In other cases, a smaller joist section at reduced spacing may be the best choice.

Problem areas

Although it is important to ensure the entire structure meets strength and service requirements, there are a few areas of a floor more likely to attract attention from occupants. Therefore, these are the most logical points of focus.

■ Long spans next to short spans

In a room in which there are long span joists parallel to short spans, the occupant may perceive the floor to be more solid in areas with short spans. To accommodate these differences in floor performance, designers can tighten the spacing of the joists or employ stiffer joists.

■ Long spans combined with higher dead loads

In multi-family projects, open floor plans, combined with heavy

kitchen islands or concrete toppings, can be another trouble spot. To reduce the possibility of unacceptable vibration, the size of members under the dead load can be increased, or spacing tightened up, even when the code allows for wider layout.

■ Joists used to their maximum spans

When reaching the maximum strength or deflection limit for a certain joist, the floor system may be economical and strong enough, but it also may undergo more deflection or bounce than expected. Depending on the client's expectations, it may be better to consider an alternative, stiffer floor assembly, and evaluate the effect on performance to make the best system choice.

Installation considerations

Along with product specification considerations, the floor system's actual installation plays a significant role in overall performance related to occupant comfort. Framing contractors should adhere to the following standards to reduce the chance for squeaky floors:

■ Floor system

For the floor system, all subflooring fasteners must hit the supporting joist members, with all supports solid and level. Hangers, when used, must be installed in accordance with manufacturer's instructions.

■ Subflooring

To provide proper spacing, oriented strand-board (OSB) and plywood subfloor panels should be spaced with a 3.2-mm (1/8-in.) gap at all edges and ends—this accounts for naturally occurring expansion, enabling avoidance of buckling. Many premium floor panels have tongue-and-groove edges designed to self-gap.

Wet lumber can lead to dimensional changes as the joists dry, resulting in nail pops and floor squeaks. Wood subfloor panels should be allowed to dry if they get wet, especially if installed under sensitive finish materials such as hardwood.

To avoid nail pops, pullouts, and shiners (all of which can cause squeaks), the correct nail size and spacing must be specified, ensuring the nails penetrate the floor joists and sink fully. Generally, nails (i.e. 6d ring or screw shank, or 8d common) should be spaced 152 mm (6 in.) oc along supported panel edges, and 305 mm (12 in.) oc on the panels' interior supports, or as specified on the construction drawings (which may call out a longer nail for a thicker deck or



In multi-family projects, bouncy floors may lead to occupant dissatisfaction. Long spans next to short spans, long spans under dead loads, and joists used to maximum spans are three areas that may be particularly prone to deflection, but that also can be easily addressed with minor floor system design modifications and product changes.

may need higher diaphragm capacity). For panels thicker than 25 mm (1 in.), 10d nails should be used.

It is also important to remember glue-nailed construction techniques are optimal for ensuring a flat, stable floor. One should specify solvent-based glue meeting ASTM D3498, *Standard Specification for Adhesives for Field-gluing Plywood to Lumber Framing for Floor Systems*; in cases where latex subfloor glue is required, careful selection is necessary due to the wide range of performance between brands.

Contractors should apply glue per manufacturer's specifications and ensure the joists are dry and free of dirt. Many manufacturers recommend applying a continuous (1/4-in.) diameter glue bead to framing members, and using a serpentine pattern for supports that are (3 1/2-in.) or wider. Two beads of glue should be applied to panel joint locations; a 3.2-mm (1/8-in.) bead at the tongue-and-groove joints can further improve floor performance. Since the glue should not be allowed to develop a skin or dry, it should be applied onto only one or two panels at a time.



While it is desirable to obtain the highest rating for all floors, there are always economic considerations for wood framing.

Installers must be reminded not to use a sledge hammer to force tongue-and-groove joints tightly together, as this can damage the panels and close up the required gap. After the floor system's installation, it is critical to walk it, checking for squeaks or bounce beyond what is expected. It is easier

to remedy the problem now than after the interiors are finished.

Conclusion

Even when built to code, many floor systems still have room for performance improvement. Design choices upfront - such as joist spacing, stiffness, or continuity can significantly affect the floor system performance for occupants. 'Performance-focused' design, combined with reasonable care during installation, can help avoid potential occupant dissatisfaction down the road.



The size and thickness of floor framing materials and member spacing/installation influence how stable the floor feels, and how well the floorcovering performs in the long term.

Author

Tomo Tsuda, P.Eng, PE, is an engineer for codes, standards, and product engineering with Weyerhaeuser Trus Joist. He has worked with the company for more than 15 years, including a decade in Japan. Tsuda is a licensed civil engineer in British Columbia and Idaho. He can be contacted at tomo.tsuda@weyerhaeuser.com.



ALA Continuing Education Questionnaire -

Designing Wood Floors for Optimal Performance

by Tomo Tsuda, P.Eng, PE

Learning Objectives:

- Learn the physics behind floor vibration.
- Review assembly components that affect a floor's performance.
- Summarize economic considerations for wood floor framing.
- Discuss installation considerations for overall performance.

Program Title:

Designing Wood Floors for Optimal Performance

ALA/CEP Credit: This article qualifies for 1.0 HSW LU of State Required Learning Units and may qualify for other LU requirements. (Valid through March, 2016)

Instructions:

- Read the article using the learning objectives provided.
- Answer the questions.
- Fill in your contact information.
- Sign the certification.
- Submit questions with answers, contact information and payment to ALA by mail or fax to receive credit.

QUIZ QUESTIONS

1. What affects the performance of a wood flooring system?
 - a. size of floor framing materials
 - b. spacing of members
 - c. thickness of floor framing materials
 - d. all of the above

2. "Composite action" is a measure of how the assembly's deck component interacts with the joist to effectively increase basic stiffness.
 - a. True
 - b. False

3. Joists that are continuous over several supports deflect more than the same joist in a simple span application.
 - a. True
 - b. False

4. A directly applied gypsum ceiling or strapping improves floor performance.
 - a. True
 - b. False

5. Bridging/blocking and strapping should be continuous from wall to wall (or support beam) and evenly spaced along the floor span.
 - a. True
 - b. False

6. The most economical solution for increasing floor performance for a given span is:
 - a. Fasteners
 - b. Nail size
 - c. A deeper, stiffer joist
 - d. Hangers

7. Wet lumber does not lead to dimensional changes as the joists dry, resulting in nail pops and floor squeaks.
 - a. True
 - b. False

8. Correct nail size and spacing should be specified to avoid:
 - a. Shiners
 - b. Pullouts
 - c. Nail pops
 - d. All of the above

9. It is also important to remember glue-nailed construction techniques are optimal for ensuring a flat, stable floor.
 - a. True
 - b. False

10. Installers must be reminded to use a sledgehammer to force tongue-and-groove joints tightly together.
 - a. True
 - b. False

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Signature: _____ Date: _____

(continued from page 14)

entire organization. When they do not, their lack of integrity will also be imitated. Whether aware or not, leaders of small firms determine their firm's culture and set the tone through modeling behavior consistent with their values, vision and purpose.

Research in neuroscience has discovered the brain chemistry behind how leaders influence the feelings and actions of their followers. As reported in the article, *Social Intelligence and the Biology of Leadership*, scientists have identified cells known as mirror neurons, which are found throughout the brain. "This previously unknown class of brain cells operates as neural Wi-Fi, allowing us to navigate our social world. When we consciously or unconsciously detect someone else's emotions through their actions, our mirror neurons reproduce those emotions. Collectively, these neurons create an instant sense of shared experience."

The importance of this discovery to small firm leaders is the recognition that you must be very aware of what you are doing and what subtle messages are being sent. If staff members continually behave in ways that displease you, either the staff doesn't understand what is expected and needs

some coaching; or perhaps, the staff is mirroring your unintended or unconscious attitudes or behaviors.

For example, the research shows that the tone of delivery in giving feedback is actually more important than the content of the feedback, and that those leaders who are positive, in a good-mood, and quick to smile are more likely to be more effective. As explained in the article cited above, "If leaders hope to get the best out of their people, they should continue to be demanding but in ways that foster a positive mood in their teams. The old carrot-and-stick approach alone doesn't make neural sense; traditional incentive systems are simply not enough to get the best performance from followers."

Whether it is the result of brain chemistry or some other ways to influence, firm leaders can use their ability to model values, vision, and ethics as a management tool. Robert Haas, former CEO of Levi Strauss & Co., calls these "conceptual controls." It is the ideas of a business that are controlling, not some manager with authority.

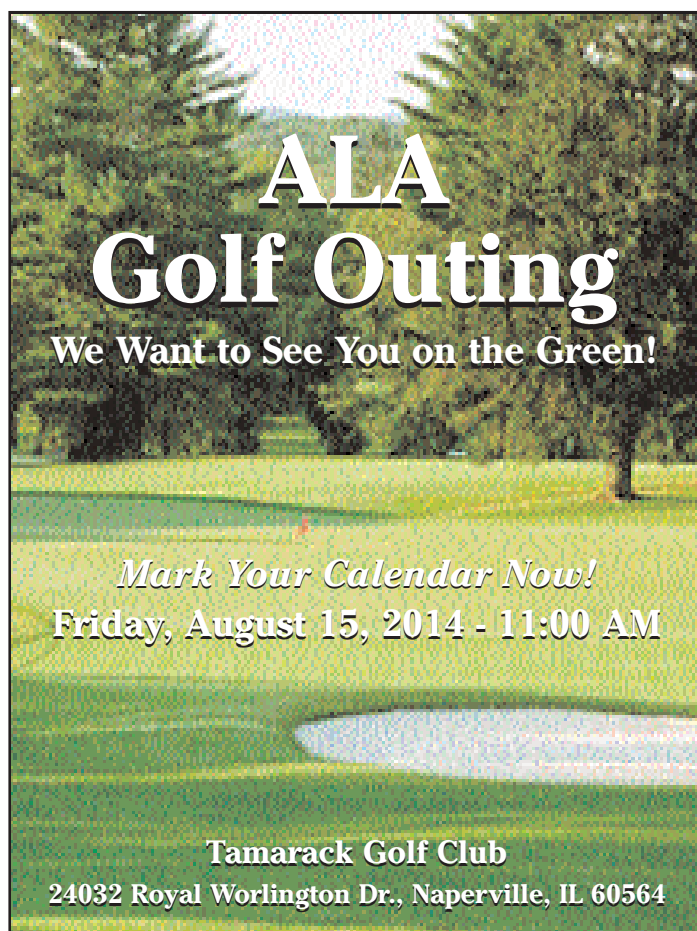
That said it becomes even more important for firm leaders to be critically reflective - that

they mean what they say and say what they mean. Consider these suggestions to become a better leader for your firm:

- Know yourself – be aware of your habits, tendencies, leadership style
- Know your values – think about what is really important to you; what would make you feel like your firm is successful
- Know your purpose – examine why you are practicing, what are the most satisfying aspects of your work? Are the people you work with part of that?
- Encourage knowledge sharing and continuing education – create a learning organization where everyone participates in acquiring new knowledge and teaching one another
- Spend time coaching, teaching and mentoring – use frequent design pin-ups of ongoing projects as educational and involvement opportunities

About the Authors

Rena M. Klein, FAIA, principal of RM Klein Consulting, is a specialist at helping you run your firm better and is the author of *The Architect's Guide to Small Firm Management* (Wiley, 2010). For more information please see <http://rmklein.com>



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2013 ALA Design Awards Banquet

November 8, 2013



Over 130 architects, building professionals, clients and guests attended the ALA Design Awards Banquet on Friday, November 8th to honor the 2013 Design Award Winners at The Metropolis Ballroom in Arlington Heights. Geoffrey Baer, the Emmy Award-winning producer for WTTW Channel 11, was our emcee for the evening. Geoffrey's architectural insights and humor were enjoyed by all throughout the evening.

Prior to dinner, attendees viewed the boards of all 96 entries while enjoying hors d'oeuvres and drinks at a cocktail reception generously hosted by: Andersen Windows,

IMAGINiT Technologies, Marvin Windows and Doors, and Moen/Creative Specialties International.

After dinner, the 2013 Design Award Program winners were recognized. The Gold Medal, Silver Medal and Merit certificates were awarded to forty-one projects by architectural firms from Illinois, Iowa, Indiana, Michigan, Missouri, and Wisconsin. The Presidential Award, named for ALA's founder and first President, Don Erickson, was awarded to Brent Schipper, ALA of ASK Studio for the Giovannetti Community Shelter in Urbandale, Iowa.

ALA thanks the distinguished and discriminating panel of judges who gave their

time and expertise in selecting the winners. The 2013 judges were: Mike Breclaw, ALA, AIA, LEED AP Principal and Director of Design with OKW Architects; Stephen Cavanaugh, ALA, LEED AP Principal and Regional Design Leader with DLR Group; Cheryl A. Ciecko, ALA, AIA, LEED AP President of CCG + Architects, Inc.; Robert Davidson, FALA, AIA, LEED AP Chief Architect for the Austin Company in Cleveland, Ohio; Keelan Kaiser, AIA, LEED AP BD+C Chair and Professor of the Department of Architecture at Judson University and practices at Serena Sturm Architects.

A special thank you goes to the Design Awards Committee: Chairman Steven Pate, FALA; Jury Chairperson LeRoy Herbst, FALA; Assistant Jury Chairpersons: Richard Barnes, ALA and Matthew Kramer, ALA; Howard Hirsch, ALA; Joanne Sullivan and Lisa Brooks.

Presidential Award Winner

Brent Schipper and Mike Kastner, ASK Studio



Gold Award Winners



Muller & Muller, Ltd.



Stephen Bruns, Bruns Architecture



UrbanWorks, Ltd.



*Brent Schipper and Mike Kastner, ASK Studio -
Winner of Presidential, 1 Gold and 2 Silver Awards*

Silver Award Winners



*JGMA
Winner of 1 silver and 2 merit awards*



*Daniel Aitilove, Dewberry Architects Inc.
Winner of 2 silver and 1 merit award*



*STR Partners
Winner of 1 silver and 1 merit award*



*Brian Meade and Scott Pointon, Dewberry Architects Inc.
Winner of 2 silver and 1 merit award*



*Kate Payne and Mark Nevenhoven, INVISION Architecture
Winner of 2 silver and 2 merit awards*



*Tom Herr, Kevin Manning, Rev. Bonnie Beckonchrist, David Kuhlman
Jaeger Nichola Kuhlman & Associates*



*Carl Janssens, Chris Duff, Karl Heitman and Josh Myers Heitman Architects Inc.
Winner of 1 silver and 1 merit award*



Forest Walton, Duncan G. Stroik, LLC



*Susan King, Chauncey Hoffman, Henry Roberts and Jerry Levine
Harley Ellis Devereaux - Winner of 1 silver and 2 merit awards*

Merit Award Winners



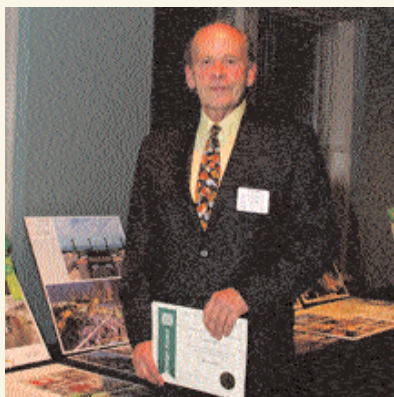
Jack Murchie
SMNG-A Architects



Ron Harrison
Cannon Design



Kevin Bochenek and David Olsen
The Jenkins Group



Frank Torchia, NELSON



Rada Doytcheva, RADA Architects Ltd.



Richard Tepp, NELSON



Mike Voorheis and Tom Lassin
Holabird & Root



Jason Korb and Kevin Kinney
Korb Tredo Architects



Chauncey Hoffman and Jeff Jeno
Harley Ellis Devereaux and The Architects Enterprise



Megan Kindelin
Johnson Lasky Architects



Sushil Joshi, John Hanna, Sam Pavlovic and Richard Ngipin
Hanna Architects - won 2 merit awards

ALAWISCONSIN

From the desk of David J. "Koz" Koscielniak, President, ALA Wisconsin

ALA Wisconsin had the distinct privilege of hosting a repeat performance for the much talked about program: "Mistakes Architects Make and How to Avoid Them". The venue for our evening meeting on February 20th was set up to inspire a round table discussion of those situations that we wish to avoid. We were also very fortunate to have James J. Belli, FALA as our facilitator for this topic and the discussions that ensued. Jim is uniquely qualified to promote a valid discussion on this very subject as his firm Belli & Belli Architects and Engineers has been in business continuously for nearly 70 years. No matter your age or level of experience, Jim brought to the table many situations that most of us are likely to encounter at some stage of our practicing architecture every day. Although some of the topics discussed may be dismissed as common sense, we all know that there is a premium on that virtue, especially as it relates to our client's expectations and compensation of our services. While it was good to look back at the mistakes and errors of our ways, we certainly have been made aware of the business practices that we need to employ to lessen the impact of any mistakes that may cross our path most any day.

This program is directly in line with the 2014 program objectives of the ALA Wisconsin Board. We are advocating to focus and promote programs that are inspired by "Office Practice" and the realities that face each one of us every day as we derive our livelihood from our creative profession. Relevant topics of contracts, fees and getting paid for our work are on the table. We are targeting the 2014 calendar to offer chapter programs and meetings on a regular basis at a pace of every two months. We seek to complement this previous program

with another one in the same genre for the fall of this year.

We are pushing toward April which will feature a program on masonry construction. We are coordinating a visit in June to the Forest Products Lab in Madison, Wisconsin to be hosted by our favorite "wood man" and one of our ALA Wisconsin Board members, Archie Landreman. The third Thursday of August, (August 21) will mark our next annual "ALA Wisconsin Cookout" at the South Shore Yacht Club. Rest assured, the topic will be wet and the beverages will be flowing.

All ideas are welcomed, so we want to hear from our members as to the things they wish to delve into that will be of value to their own practice. Our annual ALA 2014 Architecture Conference and Product Show will take place in September and the year will wrap up with the annual awards dinner in December.

A year of activities has been proposed for your participation. We cannot do it without you. This is your organization. Your involvement is key to making ALA a most relevant part of your profession and we look forward to seeing you, as well as hearing from you this coming year.



ALA Wisconsin members discussed "Mistakes Architects Make – and How to Avoid Them" at a roundtable discussion moderated by James Belli, FALA.

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"No Architect Left Behind Series" – Season VI

Upcoming Events:

- April 8:** "Egress and Accessibility"
- June 10:** "What Is the 'IEBC' and Why Would I Use It?"
- August 12:** "Liens, Collections and Document Ownership"
- October 14:** "Round Table Discussion: Architect Liabilities"
- December 9:** "The Importance of a Professional Geotechnical Report"

Online registration is available at alatoday.org or call the ALA office at 847-382-0630.

ALA Missouri presents its 2014 Continuing Education Series. This series allows architects to acquire 12 Learning Units per year in 6 convenient sessions. The sessions are scheduled every other month over an extended 2-hour lunch period – a boxed lunch is included. The seminars can be reserved individually or for the entire series. Members are eligible for a membership discount, and anyone is eligible for the Series discount. All seminars are held at the Masonry Institute of St. Louis, 1429 Big Bend Blvd., St. Louis, MO 63117.

ALA ILLINOIS

Upcoming April Program:

Illinois Accessibility Code: History, Implementation and Future of Accessibility

with Doug Gamble, *Senior Technical Specialist with the Capital Development Board*

Date: Wednesday, April 9, 2014

Time: 8:00 – 11:30 AM

Location: European Crystal Conference Center, Arlington Heights, IL



Doug Gamble, Senior Technical Specialist with the Capital Development Board, will speak on accessibility, explaining the history of Illinois Accessibility Law and how it relates to the Federal Americans with Disabilities Act. His talk will focus on how the code is being interpreted, enforced, and implemented by different governing bodies. Doug will review important definitions and explain specific IAC requirements vs. 2010 ADA requirements.

As a member of the committee that will be revising the Illinois Accessibility Code, Doug will also outline changes he foresees being made to the code that will affect the future access to Illinois' built environment.

To register, call the ALA office at 847-382-0630 or online at alatoday.org.

Cost: Members \$65.00 / Non-Members \$75.00

Attendees earn 3.0 LU in HSW.

ALA and AIA approved.

January Meeting:



Dr. Andreas Tselebidis (left) of BASF spoke on High Performance Concrete at Meridian Banquets in Rolling Meadows.



ALA Director Jeff Whyte, ALA talked with program sponsor, Brad Huiner of Prairie Material.

February Meeting:



Matt Novesky and Katie Francis spoke on the rope techniques used and challenges faced for Wiss, Janney, Elstner's Difficult Access Team while inspecting hard-to-reach locations.



Sponsor Jason Clesle of Atlas Restoration was busy meeting attendees at the Glen Club in Glenview.



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