LICENSED ARCHITECT

Association of Licensed Architects

A Publication of the Association of Licensed Architects

Summer 2019



2019 BUYER'S GUIDE Edition

Perimeter Fire Barrier Systems

41 Places to Find Architecture Clients

CE Article:
Reality Capture - 3D Scanning

Large Generation Hits
Prime Homebuying Years



FIRST. AGAIN.

UL Design No. V314, the **first** ASTM E119 (UL 263) fire-retardant-treated lumber and plywood 2-Hour bearing wall assembly.

UL System No. EWS0045, the **first** NFPA 285 fire-retardant-treated lumber and plywood exterior wall system demonstrating compliance with IBC Section 1402.5.

HOOVER
TREATED WOOD PRODUCTS, INC.

Leading the way. Learn more at **frtw.com**
For technical assistance: **1-800-TEC-WOOD**



Based on UL Design No. V314, UL System No. EWS0045 requires UL Classified Pyro-Guard® fire-retardant-treated lumber and plywood.

CONTENTS

Articles

8 Fire Safety: Perimeter Fire Barrier Systems
Taking a Team Approach to Fire-Safe Construction



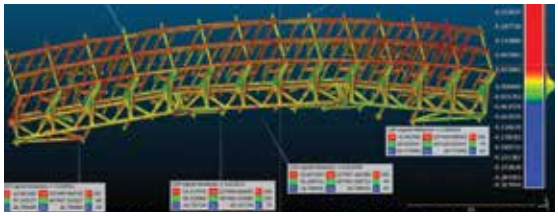
12 Feature Article:
41 Places to Find Architecture Clients



22 Millenial Home Trends:
Large Generation Hits Prime Homebuying Years



24 Continuing Education:
Introduction to Reality Capture - 3D Scanning



30 ADA Advice: Take Me Out to the Ballgame
Accessibility in Bleachers



34 Insurance: What's An Architect to Do? Choosing
a Professional Liability Insurance Policy Limit





14 Featured Firms



16

36 Zero Energy Buildings: 2019 Zero Energy Buildings
Count Nears 600, New Dynamic Tool Offers Online
Access To Project Details



Departments

President's Message	4
Continuing Education Providers/ ALA New Members	5
Buyer's Guide	18
Index of Advertisers	39

Cover Photo: *Project: Lizard Thicket Corporate Headquarters, Jefferson Browne Gresham Architects*
Photo credit: Jake Smith, momentsbyjake.com



Welcome to the Summer 2019 issue and the annual Buyer's Guide. This special issue showcases the products and services of our advertisers, continuing education providers and Affiliate members. We appreciate their support of ALA. Use this opportunity to explore all they have to offer and tuck this guide in a special place for future reference to terrific resources.

This summer we are planning a full-day private tour experience to Frank Lloyd Wright's Taliesin in Spring Green, WI. You will have time to enjoy the vast estate, countryside and even enjoy a farm to table lunch within Tan-y-deri, the home Wright built for his sister. Another tour in the works is Journeyman Distillery in Three Oaks, MI. The distillery is housed in the century old Featherbone Factory. After touring the distillery, there will be some golf fun in store on Journeyman's Welter's Folley 18-hole putting green.

Next, get ready for the 21st Annual ALA Midwest Architecture Conference on Tuesday, October 29, 2019, at Drury Lane in Oakbrook Terrace, IL. This full day event allows you to interact with other professionals in your field, participate in informative seminars, visit the Exhibit floor to meet with over 80 manufacturers and service providers, and enjoy the valuable insights of our Keynote Speaker. Your participation can earn you up to six continuing education units! Attendee registration will open in July—register early in order to secure a place in your preferred seminars. Finally, *Affiliate Members* should take advantage of a limited number of booths still available. Contact the ALA office (847-382-0630) to book your booth today.

On the evening before the conference, we will hold our Design Awards Reception to honor the winners and announce the prestigious President's Award. Join us Monday, October 28, 2019, at Drury Lane, when we celebrate our numerous award entrants whose projects will be judged on September 13th. We know you will be glad you commit to both the Awards Reception and the Conference in late October.

Another helpful reminder as you enjoy reading *Licensed Architect*… you can earn one HSW learning unit for reading the Continuing Education article and completing the ten question quiz! Lastly, be sure to familiarize yourself with our two Featured Firms, which is often a reader favorite in each issue. Impressive projects, fabulous photos, and enlightening articles highlight the firms' work. What a pleasure to share the talents and successes of our colleagues.

LICENSED ARCHITECT

Association of Licensed Architects
One East Northwest Highway, Suite 200
Palatine, IL 60067
Phone: (847) 382-0630
Fax: (847) 382-8380
E-mail: ALA@alatoday.org
Web Site: www.alatoday.org

BOARD OF DIRECTORS
Jeffrey N. Budgell, FALA, LEED AP - President
Rick E. Gilmore, FALA - Vice President
Patrick C. Harris, FALA - Treasurer
Mark V. Spann, FALA, LEED AP - Secretary
Steven H. Pate, FALA - Past President
Joanne Sullivan - Executive Director
Tom Harkins - Affiliate Director

DIRECTORS
James J. Belli, FALA
Michael Coan, ALA Emeritus
Robert Davidson, FALA
David Koscielniak, ALA
Kurt Hezner, FALA
Russell Peterson, ALA, CID
Michelle Rumsa, ALA
Robert A. Srote, ALA, MBA
Jeffery Stoner, ALA
Jeff Whyte, FALA
Lewis Wilson, FALA

EDITORIAL COMMITTEE
Lisa Brooks
Jeffrey N. Budgell, FALA
Robert Davidson, FALA
Patrick C. Harris, FALA
Steven H. Pate, FALA

A TO B PUBLISHING INC.
662 Dudley Avenue
Winnipeg, MB CANADA
R3M 1R8

PUBLISHER
Andrew Pattison
204.275.6946
marcomap@shaw.ca

EDITORIAL
Seamus Hamilton-Pattison
204.795.0364
seamus@atobpublishing.com

ADVERTISING SALES
Bert Eastman
204.997.637
bert@atobpublishing.com

Ronald Laurie
519.895.5095
ronald@atobpublishing.com

PRODUCTION TEAM
harper media
your social media strategy & web marketing partner
700 - 200 Main Street
Winnipeg, MB
R3C 1A8

DIRECTOR
Aaron Harper
204.318.1121 xt. 101
aharper@harpermedia.ca

LAYOUT & DESIGN
Joel Gunter
204.318.1121 xt. 108
joel@harpermedia.ca

ALA, Inc. serves the architectural profession. No part of this publication may be reproduced or transmitted in any form without the express written consent of the publisher.

© Copyright 2019 A to B Publishing Inc. All rights reserved. Contents of this publication may be reproduced or transmitted with written permission from the Publisher. Views expressed in this publication are not necessarily those of ALA or of A to B Publishing Inc.

Printed 07/19 in Canada.

ALA CE Providers

Please call upon our CE Providers to present seminars for you and your office.

APA – The Engineered Wood Association

Boral Light and Building Products

The Building and Fire Code Academy

Centor North America

Chicago Roofing Contractors Association

EHLS/To the Top Home Elevators

evoDOMUS, LLC

Graphisoft

Hoover Treated Wood Products

International Code Council

Leightronix

Masonite International Corp.

Ohio Storm Water Association

Woodland Windows and Doors Inc.

ALA Welcomes New Members

Professional

Mr. Stephen M. Kent, ALA
EWP Architects
Oakbrook, IL

Ms. Sally L. Levine, ALA
Levine Architecture & Design, Ltd.
Shaker Heights, OH

Mr. Peter Nagel, ALA
The Redmond Company
Waukesha, WI

Mrs. Marcy Schulte, ALA
Cuningham Group Architecture, Inc.
Culver City, CA

Affiliate

Mr. Stephen Walston
H Window Company
Marengo, WI

Senior

Mr. John Michael Halleran, ALA, NCARB
The Architects' Partnership, Ltd.
Chicago, IL

Associate

Mr. Dakota Betts
Arcon Associates
Lombard, IL

Ms. DeLantrea Bibbs
Bancroft Architects + Engineers
Elk Grove Village, IL

Ms. Maha Rhimy
Maha Rhimy
Fountain Valley, CA

Mr. Brian Tullos
ARC Architects
Frankfort, IL

New Graduate

Mr. Daniel Englund
Judson University
Elgin, IL

Mr. Timothy Hefler
Southern Illinois University
Carbondale, IL

Mr. Andreina Yepez
AY Design Lab
Chicago, IL

Student

Sarah Shavonne Barry
Bowling Green State University
Bowling Green, OH

Jonathan David Guttello
College of DuPage
Downers Grove, IL

Correction:

The ALA Golf Outing was held Friday, June 28th. We apologize, as the last issue of Licensed Architect had an error showing the date as August 28th. Please join us in June 2020 for the next outing.

KELLY P. REYNOLDS & ASSOCIATES, INC.
BUILDING CODE CONSULTANTS

NATIONWIDE
PHONE 1-(800) 950-CODE (2633)
Fax (866) 814-2633
Email: codexperts@aol.com
www.kellypreynolds.com
Free hot lines (members only)

616 Executive Drive
Willowbrook, IL 60527-5610

Corporate Office
16182 W. Magnolia Street
Goodyear, AZ 85338-5518

CVG
CHARRETTE VENTURE GROUP

We invest in small to mid-sized architecture firms.

Your firm is unique, your challenges aren't.
Get your free consultation at CharretteVG.com.



Join.



Connect. Grow.

Join ALA for the Powerful, Practical Resources and Personal Connections you can't get anywhere else

Member Benefits

Professional, Senior & Emeritus Members

- Professional Designation
- Membership Wall Certificate
- Online listing in searchable member directory
- Job Postings
- Magazine – "Licensed Architect"
- FREE unlimited access to 16 short form legal contracts
- Educational programs offered throughout the year.
- Free Consultant Hot Lines – Legal, Code, Insurance, Fire, and ADA
- Annual Events: Summer – Golf Outing; Fall – Conference and Product Show
- Logging of ALA CEU hours
- Design Awards Program for Members Only
- Member Discounts
- Networking
- Legislative Monitoring
- Volunteer Opportunities
- Mediation Services
- Voting Privileges
- Access to Insurance for Individuals, Families or Firms through JLBG Health

Associate, Student, New Graduate and Honorary Members

Same benefits as professional members with the exception of voting privileges, professional designation and short form electronic contracts.

Affiliate Members

- Same benefits as professional members with the exception of voting privileges and professional designation
- Advertising Opportunities
- Sponsorship Opportunities
- Lunch and Learns and "After 5" programs hosted by ALA
- Special member rates at the Annual Midwest Architecture Conference
- Free listing in Annual Buyer's Guide

TERRI NIELSEN
Dealer Account Rep Andersen Windows
Member since: 2002

"I value the networking opportunities. It has helped us get business. This is a nice organization to be a part of that gets us in front of architects. The architects are involved and engaged with ALA."



ALA is . . .

focused on meeting your needs. Committed to You.

Our aim is to help you succeed today and into the future.
Join ALA, and put the power of ALA membership to work today.

Application Form

Association of Licensed Architects

For more information or to join online, go to www.alatoday.org. Click on "Membership"

Full Name (Please print) Last First Middle

Current Professional Status (Check one) ☐ Partner/Principal ☐ Firm Architect ☐ Academic ☐ Other

(Please check one box for desired mailing address)

☐ Office ☐ Residence

Firm Name

Work Address

City State Zip

Firm Telephone

Firm Email/Website

Home Address

City State Zip

Home/Cell: (Include area code)

Home Email Address

Corporate Affiliation (for Industry and Professional Affiliate Members)

State of License (Professional Members)

Project types

Current Membership in other Professional Organizations

Referred by

ALA Membership Category

Choose one. Make checks payable to: ALA

- ☐ Professional–Licensed Architects . . . . . $ 235.00
- ☐ Senior–(65 years or older) . . . . . $ 105.00
- ☐ Affiliate–Industry or related professionals . . . . . $ 310.00
- ☐ Associate–Those who are Non-Licensed . . . . . $ 95.00
- ☐ Student–Full time/Accredited Schools . . . . . $ 45.00
- ☐ New Graduate-1 year free membership Must provide copy of diploma

All dues may be deducted as a business expense but not as a charitable contribution

Stay current and involved in your profession.
ALA delivers value at affordable rates.

Join Us!

Association of Licensed Architects
One East Northwest Hwy.
Suite 200
Palatine, Illinois 60067

For more information contact:
Joanne Sullivan,
Executive Director,
T: 847.382.0630
F: 847.382.8380
E: joanne@alatoday.org
W: www.alatoday.org

☐ Check Enclosed
☐ Pay by Credit Card

Credit Card # _____

Expiration Date _____ Security Code _____

Signature _____

You may join online at www.alatoday.org. Click on "membership".

Perimeter Fire Barrier Systems Taking a Team Approach to Fire-Safe Construction

BY: TONY CRIMI, P.ENG., MASC, A.C. CONSULTING SOLUTIONS, INC.

Building owners and occupants often take fire safety for granted. They assume buildings are constructed with fire safety in mind and significant attention has been paid to building codes. Nevertheless, there is one particularly critical juncture frequently overlooked in fire-safe design – the void space between an exterior curtain wall and the edge of the floor. This area is addressed by perimeter fire barrier systems.

Unlike some fire safety elements that are addressed primarily through design and specification decisions, perimeter fire barrier systems require careful attention to design, specification, and installation to work properly. Consequently, they demand close collaboration by the architect, specifier, and general contractor to ensure each link in the chain is appropriately addressed.

Overview of fire and life safety according to National Fire Protection Association (NFPA) statistics, there is one structure fire in the United States every 63 seconds – nearly 40 percent of all fires are structure in nature. From 2009 to 2013, U.S. fire departments responded to an estimated average of 14,500 reported structure fires in high-rise buildings annually.

The perimeter fire barrier system is a unique building construction detail installed to protect against the passage of fire, hot gasses, and toxic smoke through the voids between the floor slab edge and a non-rated exterior wall (usually a curtain wall). Perimeter fire barrier systems are used to resist interior propagation of fire through the gap between floor and exterior wall for a period equal to the floor fire resistance rating. Additionally, a building's perimeter fire barrier system can accommodate various movements, such as those induced by thermal differentials, seismicity, and wind loads.

The challenges

A curtain wall building is a multistory structure having exterior walls not part of the loadbearing structure. As floor slabs are supported by interior beams and columns, there is a perimeter void or gap, typically ranging from 25 to 200 mm (1 to 8 in.), between each floor slab and the exterior curtain wall. Outside walls may be constructed using one of several materials, including glazing, light-gauge metals, and gypsum wallboard.

The performance of a curtain wall during a building fire, or fire test, depends on the assembly being installed, but non-rated wall system performance significantly varies. Perimeter voids are generally hidden from view after construction. Once installed, these construction gaps are rarely inspected or reevaluated unless renovations are made. They must be sealed to prevent spread of flames, smoke, and toxic gases in the event of a fire.

Evolution of ASTM E2307

Curtain wall design became common in commercial construction over the past 40 years, but there were no consensus fire test standards or testing procedures for fire protection of exterior curtain walls and floor-to-wall perimeter voids until 2004. The legacy model codes included only cursory mention of this building issue, so architects, designers, contractors, and code officials often adopted untested and uncertain solutions.

U.S. Building Codes

Since the 2006 editions, both *International Building Code (IBC)* and NFPA 5000, *Building Construction and Safely Code*, have referenced ASTM E2307 as a means of providing perimeter fire barrier joint protection installed in the space between an exterior wall assembly and a floor assembly. Its use is mandated by U.S. building codes, thereby requiring the protection of opening between a floor and an exterior wall assembly to provide the same fire performance as that required for the floor.

A notable exception to the *IBC* requirement for ASTM E2307 is for glass curtain wall assemblies, when the



vision glass extends to the finished floor level (i.e. full-height glass). In those cases, *IBC* alternatively permits the perimeter void to be protected with an approved material capable of preventing the passage of flame and hot gases sufficient to ignite cotton waste where subjected to ASTM El 19 time-temperature fire conditions for the same duration as the fire-resistance rating of the floor assembly.

Five keys to effective perimeter fire barriers

Joint systems and perimeter fire barrier systems are important elements for designers, specifiers, installers, and inspectors. These five key elements provide a simple process for a team to follow to ensure a perimeter fire barrier system is done properly.

1. Know what your local code requires.
Perhaps obvious, but this is a critical first step occasionally overlooked.

2. Specify to meet code requirements.
Select the right products and systems for your condition. This begins by understanding the nuances of the ratings reported on labels and the manufacturer's literature.

3. Avoid improper substitutions.
This starts with specification, but often comes down to the general contractor ensuring there are no inappropriate substitutions on the jobsite that run contrary to the spec and, ultimately, code. For example, spray or board foam cannot be used in place of mineral wool in a perimeter fire barrier system.

4. Install it right.
A building's perimeter containment system is not a single material, but rather, comprises the exterior curtain wall and the glazing, which is designed to impede the vertical spread of fire to higher floors from the room of origin in high-rise buildings.

5. Verify the installation was done right.
Quality assurance is critical, so much so newer codes make special inspection a requirement, as discussed later in this article.





For the purposes of ASTM E2307, the interior face is at the interior surface of the wall's framework. Tested and listed perimeter fire barrier systems do not include the interior finished wall (e.g. knee wall) details. This makes the systems applicable to all finished wall configurations. The existence of the interior wall, even if made of fire-resistant materials {e.g, fire-resistance-rated gypsum board), does not eliminate the need to have an appropriately tested material or system to protect the curtain wall from interior fire spread at the perimeter gap.

Five rules of perimeter fire barriers

There are five basic design principles for installation and successful perimeter fire containment.

1. Install a reinforcement member or a stiffener at the safe-off area behind the spandrel insulation.
This prevents bowing otherwise caused by the compression-fit of the insulation.



2. Use mechanical attachment for the mineral wool spandrel insulation – adhesives and friction-fit applications do not work.
Fire exposure temperatures based on ASTM El 19 very quickly exceeds the adhesive service temperatures resulting in failure of the adhesive-applied attachment to hold the spandrel insulation in place.

3. Protect the mullions with mineral wool midlion covers.
Without the mullion protection on the fire exposure side, the aluminum mullions and transoms soften and melt. The mechanical attachments holding the mineral wool spandrel insulation will no longer be in place, allowing the spandrel and insulation to fall out. This can result in a breach of flame and hot gasses to the floor above.

4. Ensure the insulation is compression fit (typically 25 percent, but varies by system) between the slab edge and the inside face of the spandrel insulation.
This compression fitting of the insulation creates a seal that maintains its integrity.

5. Apply an approved smoke sealant material to the top of the insulation to provide a smoke barrier to the system.
The smoke seal is commonly spray-applied to the top of the insulation and typically provides an L rating (leakage rating) of 0. In addition, a 25-mm (1-in.) over-spray, as specified, onto the floor slab and spandrel insulation to create a continuous bond.

Field inspection and enforcement

While proper design and testing of perimeter fire barrier joints is critical, poor installation and maintenance can lead to unacceptable real world performance in fires. To help



alleviate this, ASTM E2393, Standard Practice for On-Site Inspection of Installed Fire Resistive Joint Systems and Perimeter Fire Barriers, was first published in 2004, and first adopted Chapter 17 of the 2012 *IBC* for perimeter fire barrier systems installed in high-rise buildings, or in buildings assigned to Risk Category III or IV. This Standard practice covers the procedures to inspect fire resistive joint and perimeter fire barrier systems, including methods for field verification and inspection. This standard practice provides methods by which qualified inspectors verify required fire-resistive joint systems on a project have been installed in accordance with the inspection documents.

Conclusion

Perimeter fire barrier systems provide designs capable of providing continuity of the fire resistance rated floor to the exterior edge of the building for both rated and non-rated, exterior walls. This provides vertical compartmentation for the potentially large gap areas at the edge of floor slabs, to prevent fire from spreading vertically. Neglecting the curtain wall/floor void means compromising the safety of people in the building and wasted money. Mineral wool is ideally suited to provide the necessary fire safety performance. Its very high melting temperature, coupled with dimensional stability and high tensile strength, provides the superior resistance needed for these critical applications.

Ultimately, proper execution of perimeter fire barrier systems requires collaboration between architects, specifiers, general contractors, installers, and inspectors. They need to design it right, specify it correctly, avoid substitutions, and then get it installed properly.

Notes

1. This comes from the NFPA's November 2016 publication, "High-rise Building Fires Report," by M. Ahrens. Visit www.nfpa.org/news-and-research/fire-statistics-and-reports/firestatistics/fires-by-property-type/high-rise-building-fires.



41 Places to Find Architecture Clients

BY: ENOCH BARTLETT SEARS, AIA

Where can you find potential architecture clients? And where can you find not just any client, but clients who appreciate the finer intricacies of good design – and are willing to pay for it? Most firm owners have a limited toolbox when it comes to getting more visibility for their firm. The industry norm is to rely on word of mouth and person-to-person networking. Or if it's in the budget, pay a high-priced PR firm to get published. However, what if these tactics aren't enough?

This is the question I set out to answer over 10 years ago, in 2008. I was looking for the be-all-end-all source for finding and winning good clients.

What I discovered has been an interesting journey. Unfortunately, there isn't just ONE source to rule them all – as convenient as this would be. To have a consistent pipeline of demand for your firm, you'll need to focus on generating demand through multiple lead sources.

Understanding Lead Generation

When we talk about getting visibility for your firm, creating demand, or finding clients, we're talking about the overall process of acquiring a new client.

This overall process can be broken down into lead generation (marketing and business development) and sales (converting those leads and opportunities into signed contracts and projects). Furthermore, lead generation can be broken down into 4 parts:

- Attention
- Interest
- Desire
- Action

We'll call this the AIDA formula. I'd be cheating you to give you a list of 41 places to find architecture clients without first explaining the AIDA formula – because if you don't get AIDA right, your client attraction efforts will fall flat.

Attention

Step one to generating demand for an architecture firm is *getting attention* by developing an appropriate hook.

So what is a hook and how do we create one?

To answer this question, we need to look at a part of the human brain known as the reticular activating system (RAS). One of the purposes of the RAS is to filter out unimportant data in our environment.

For example, let's say you're alive 24,000 years ago. You're standing in a clearing looking at a cluster of trees. You see a sea of green as the wind rustles the leaves. The RAS is the part of the brain that puts your senses on alert when you see a movement that could be a large saber-toothed cat. Your eyes narrow as you focus on that part of the forest, just in time to see the flick of a tale as the cat readies to pounce. Thanks to your RAS, you flee – and avoid becoming a prehistoric version of 'Kibbles 'n Bits.'

In our example, the RAS filtered out the inconsequential rustling of the leaves and helped you focus on the important data that endangers your survival – the saber-tooth cat. Without the RAS, you wouldn't be able to focus on the relevant information – as all stimuli in your environment would be perceived as equally important.

Today, we don't need to worry about saber-tooth cats, but the RAS is still hard at work helping us find what we're looking for and helping us avoid what we don't want.

The RAS is important because you need to get through the filter of your clients' RAS to get their attention. You want their RAS to raise their attention, "Look here! This is really important! Pay attention!"

To do this, you must deeply understand their worries, their stress, their frustrations, and their desire as it relates

TEE JAY SERVICE COMPANY
PEDESTRIAN DOOR EQUIPMENT AND SERVICE
958 Corporate Boulevard
Aurora, IL 60502
Phone (800) 654-6144
Fax (630) 406-1456
sales@teejaydoors.com
• Automatic Swing Door Operation
• Automatic Sliding Doors
• ICU/CCU Manual Sliding Doors
• Automatic Revolving Doors
• Automatic Windows
See Tee Jay Service Company's complete online profile at
http://teejayservice.thebluebook.com
Horton AUTOMATICS The Automatic Choice
HORTON AUTOMATICS AUTHORIZED DISTRIBUTOR
(Northern Illinois and Northwestern Indiana)

to your services. Only when you *deeply understand* their frustrations and their desires can you develop your hook. If your hook is good, it resonates with your client - it stands out from the noise of competing distractions and grabs your prospect's attention.

For example, architect Jo Cowen, founder of London-based Jo Cowen Architects, works primarily with developers on multi-family, mixed-use developments. She recently started an investment fund "Jo Cowen Capital" to help fund her client's projects. Her hook is, "Work with us and we'll marry your project with the right funding." This is a great hook because Jo understands a key challenge of property developers – getting funding.

Residential architect Mona Quinn created a short booklet titled "7 Mistakes to Avoid When Renovating." When she advertised this booklet at a local home and garden show, homeowners lined up to request her information.

These are both examples of developing a powerful hook that gets your client's attention because it is aligned with what they're looking for.

Interest, Desire and Action

The next steps to generating demand for your firm are *interest, desire* and *action*. Your hook gets your client's attention – it gets them to look closer.

Next, need to turn that attention into interest. For example, if Mona's "7 Mistakes to Avoid When Renovating" guide had poorly formatted text and images, her potential clients would have tossed it in the rubbish bin instead of thinking, "Perhaps I should give this architect a call."

However, it isn't enough for your potential clients to be interested in your firm, that interest must be followed up by Desire, and finally Action. It's in the Action step that you invite your prospects to do something – give you a call, download your guide, watch your video, schedule a meeting, or take some other significant step that draws them closer to you.

This is the lead generation process simplified: get attention, amplify interest, create desire and compel action.

Mastering Lead Generation

Once you master the foundation of lead generation (the AIDA formula), you're then prepared to implement specific strategies, like marketing an informational booklet at a trade show or (if you're ambitious) starting a real estate fund.

If you mess up the AIDA formula, then the following list of 41 places to find architecture clients won't do you any good.

So with that intro, here is your list of 41 places to find architecture clients:

1. Industry Associations
2. Industry Live Events
3. Joint Venture Lists
4. Strategic Partnerships
5. Flyer Drops
6. Email Drops
7. External Databases
8. Online Forum Posting
9. Email Signature
10. Holiday Cards
11. Website / SEO
12. Contests
13. Charity / Pro-Bono Work
14. Community Boards
15. Website Retargeting
16. Service Organizations
17. Own Database
18. Google Maps
19. Referral Partners
20. Stationery
21. Direct Mail
22. Cold Calling
23. Get Published in the Media
24. Job-site Signs
25. Write a book
26. Advertising
27. Dirty 30 (strategy to identify 30 top potential referrers and stay in contact on a monthly basis)
28. Endorsed Mailing
29. Cold Email
30. LinkedIn
31. Mini-Murdoch (produce a community newsletter)
32. Guest Posting Articles / Blogs
33. Live Seminars
34. Speaking
35. Webinars
36. Press Releases
37. Trade shows
38. Referrals
39. YouTube / Online Video
40. Portfolio Websites (Behance, Architizer, ArchDaily, Houzz.com)
41. AIA Architect Finder



GinkgoHouse ARCHITECTURE



INTRODUCTION BY ANDREW WANEK, ALA

With an appreciation for the impact which design has on day-to-day lives, especially in the home, I formed Ginkgo House Architecture to focus on bringing a high level of creativity, thoughtfulness, and detail to residential design as well as non-residential projects of a similar quality and scale.

I recognize the intensely personal nature of creating a space in which to live, laugh, raise families, and entertain. In doing so, I strive to create an open and collaborative process as a conduit to a rewarding product. Implicit in the process is creating buildings that are efficient and support the inhabitants' health, and that of the greater community.



PHOTOGRAPHY: JOE DE MAIO

Historic Home Remodel and Addition - Madison, WI

This 1914 home was designed by the Madison firm of Claude and Starck, and the project won an award from the Madison Trust for Historic Preservation for a sensitive addition to an historic structure.



Photography: Shane Michael Quesinberry

Mid Mod Remodel - Middleton, WI - Lake Mendota

The original flat roof limited views and natural light. The new design raises the roof and ceiling plane to expand the vertical view and allow light deep into the newly opened floor plan.



Photography: Shane Michael Quesinberry

Northwoods Cabin - Minocqua, WI - Trout Lake

A four-season cabin that included the preservation of a season cottage built by the owner's grandparents. A new 2-story building was constructed around the original structure after placing on a new foundation.



Photography: Shane Michael Quesinberry

Green Bungalow - Madison, WI

A 1920's bungalow was updated for efficiency and style. Thickened exterior walls with new insulation, energy efficient mechanicals, lighting and appliances, and reclaimed/recycled building materials. The garage roof was reframed to accommodate 21 solar panels.



Photography: Joe De Maio

Urban Infill Custom Home - Madison, WI

The narrow lot required careful layout to take advantage of the views over a park filled with lagoons. The garage is tucked below, and the attic incorporates lofts to make the most of a small footprint.

JEFFERSON BROWNE GRESHAM ARCHITECTS



Photo Credit - Jake Smith , Moments by Jake

Bouckaert Farm

Jefferson Browne Gresham Architects

We believe in the power of Inspired Design to improve the human condition. We lead every project with a passionate focus on excellence. Every human experience we create is designed to protect, energize, encourage, and inspire people as we LISTEN first, LEAD with specific advice, and only then, DESIGN.

Jefferson Browne Gresham Architects is located just outside of metro Atlanta which allows us easy access to our projects across the US and abroad. With over 18 architects and designers in-house, we are known for our focus on excellence, strength of leadership and the requisite skill in a wide range of project types. 75% of our projects are medical, ranging from surgery centers to large medical office buildings, while the balance of our work are unique one-of-a-kind projects such as sustainable tiny home neighborhoods, treehouses, equestrian facilities, corporate headquarters, educational facilities, amenity buildings and athletic/aquatic facilities.

We don't just talk about sustainability, we live it. Our own office includes a sustainable alternative indoor urban farm, ALO Farms, and was one of the first facilities registered in the state of Georgia to pursue WELL Certification. Having been leaders in sustainable building practices since 1982, our expertise creates buildings that are good for the environment AND the health and wellbeing of the people inside them. We hold LEED AP and WELL AP certifications and use Evidenced Based Design techniques and Biophilic design queues to bring wellness and sustainability to life for our clients.



SMC3 Headquarters

World's largest dynamic glass project following biophilic and wellness design principals.



Line Creek Brewery

With a mission to develop a brewery that serves world-class beer and is a hub of community activity, Line Creek shared many of our own values. It serves locally brewed beer made with natural ingredients and we built a brewery in keeping with its inclusive, community-first mantra.



Alo Farms

Located in our own company headquarters, this completely self-sustaining farm is a model of efficiency for alternative farming methods. We provide acres of food to the local community with a fraction of the water needed by most working farms.



Lizard Thicket Headquarters

Corporate headquarters project for female owned national retail clothing brand, located in Peachtree City, GA. Applied daylighting and wellness principals.

Association of Licensed Architects

2019 BUYER'S GUIDE

Architecture Firms

aMa Architecture
Ann Alspaugh
11337 S. Forrestville Ave.
Chicago, IL 60628
ann@ama-architecture.com
773-580-2331
www.ama-architecture.com

Demonica Kemper Architects
Dominick Demonica
125 N. Halsted Street, Suite 301
Chicago, IL 60661
ddemonica@dka-design.com
312-496-0000
www.dka-design.com

Business Consultants

Charrette Venture Group
Rena Klein
4853 Southern Ave. SE
Albuquerque, NM 87108
rena@charrettevg.com
515-207-2422
www.charrettevg.com/c

Code Consultants

Building and Fire Code Academy
Richard Piccolo
2420 Vantage Drive
Elgin, IL 60124
rpiccolo@bfccs.org
847-428-2951
www.bfcacademy.com

Kelly P. Reynolds & Associates, Inc.
Kelly Reynolds
16182 West Magnolia, P.O. Box 5518
Goodyear, AZ 85338-5518
codexperts@aol.com
800-950-CODE
www.kellypreynolds.com

International Code Council
Laura Morris
4051 Flossmoor Road
Country Club Hills, IL 60478
lmorris@iccsafe.org
888-422-7233
www.iccsafe.org

Concrete

PCI - IW
Michael Johnson
107 Miami Drive
Loda, IL 60948
mike.johnson@pci-iw.org
312-505-1858
www.pci-iw.org

Conveying Equipment

DME Elevators & Lifts
Chris Powell
1973 Ohio Street
Lisle, IL 60532
cpowell@dmelift.com
630-892-7468
www.dmelift.com

EHLS/To The Top Home Elevators
Elizabeth Crandall
210 W Campus Dr, Ste B
Arlington Heights, IL 60004
elizabeth.crandall@ehls.com
847-215-9490
www.ehls.com

LiftMaster
Sam Savides
300 Windsor Dr.
Oakbrook, IL 60523
sam.savides@liftmaster.com
630-501-2674
www.liftmaster.com

Document Distribution

ARC Imaging Resources
Jodi Bastian
1429 Jeffrey Drive
Addison, IL 60101
jodi.bastian@e-arc.com
630-629-6900
www.e-arc.com

Image Grille
Ronald Schatz
1032 West Drive
South Elgin, IL 60177
rps@imagegrille.com
847-214-8283
www.imagegrille.com

Energy Analysis

Willdan
Hanh Pham
4147 N. Ravenswood Ave, Suite 300
Chicago, IL 60613
hanhp@twgi.com
773-842-7902
www.theweidtgroup.com/

Engineering

Core 4 Engineering, Inc.
Matthew Christianson
12308 Corporate Pkwy, Ste 300
Mequon, WI 53092
mchristianson@core4engineering.com
262-236-9372
www.core4engineering.com

Larson Engineering

Larson Engineering, Inc.
Joseph Tinder
1488 Bond Street, Ste. 100
Naperville, IL 60563
jtinder@larsonengr.com
630-357-0540
www.larsonengr.com
Larson's services include structural, curtain wall, civil, mechanical, electrical and plumbing for new buildings as well as renovation projects in all major market sectors. Build on what we know.

Finishes

Finishing Chicago
Clark Johnson
4 Westbrook Corporate Center, Suite 640
Westchester, IL 60154
clarkj@finishingchicago.com
630-258-3718
www.FinishingChicago.com

JG Innovations, Inc.
Allen Stowers
PO Box 8128
Janesville, WI 53547-8128
sales@jgius.com
608-314-8710
www.jgius.com
The Soffi-Steel System is a custom fabricated concealment solution for exposed mechanicals in retrofit or new construction applications. Any size, any dimension and for any situation. Residential- Commercial- Correctional Facilities.

Linetec
Tammy Schroeder
7500 Stewart Avenue
Wausau, WI 54401
tammy.schroeder@linetec.com
715-846-3714
www.linetec.com

Insurance and Financial Providers

Holmes Murphy & Associates, Inc.
Reid Just
1600 Aspen Commons, Suite 990
Middleton, WI 53562
rjust@holmesmurphy.com
800-527-9049 x-5357
www.holmesmurphy.com

MGW - A Risk Strategies Company
Michael Welbel
650 Dundee Road, Ste 170
Northbrook, IL 60062
mwelbel@risk-strategies.com
847-412-1414
www.mgwelbel.com

USI Midwest
Melissa Roberts
2021 Spring Road, Suite 100
Oak Brook, IL 60523
melissa.roberts@usi.biz
630-625-5222
www.usi.biz

Landscape Design/ Site Planning

Lurvey Supply
Daniel Wood
2550 East Dempster Street
Des Plaines, IL 60016
dwood@lurveys.com
815-363-4420
www.lurveys.com

Legal Services

Bryce Downey & Lenkov LLC
Werner Sabo
200 N. LaSalle St., Ste 2700
Chicago, IL 60601
wsabo@bdlfirm.com
312-870-5219
www.bdlfirm.com
A full-service law firm with offices in Illinois and Indiana, providing solutions for clients across the nation. The firm's continued growth is a result of an aggressive, results-oriented approach.

Heley Duncan & Melander, PLLP
Eric Heiberg
8500 Normandale Lake Blvd, Ste 2110
Minneapolis, MN 55437
eheiberg@heleyduncan.com
952 - 841-0001
www.heleyduncan.com
Heley, Duncan & Melander delivers innovative, sophisticated legal and business solutions for design professionals. From contracting to dispute resolution, we help our clients manage risk in all aspects of their practice.

Husch Blackwell
Joshua Levy
555 East Wells Street, Suite 1900
Milwaukee, WI 53202
Joshua.Levy@huschblackwell.com
414-978-5554
www.huschblackwell.com
Husch Blackwell's team partners with clients at every stage of a construction project. Our expertise helps structure projects that minimize risk while leading to greater profitability and client success.

Masonry

Capital Stoneworks
Jim Larson
180 Shepard Ave
Wheeling, IL 60090
jim@capitalstoneworks.com
847-456-6210
www.capitalstoneworks.com

Custom Building Products
Howard Jancy
7711 Center Ave., Suite 500
Huntington Beach, CA 92647
hjancy@cbpmail.net
312-515-9215
www.CustomBuildingProducts.com

General Shale Arriscraft
John McKevitt
1975 Aucutt Road
Montgomery, IL 60538
john.mckevitt@generalshale.com
331-223-6028
www.generalshale.com

Illinois Brick Company
Deborah McGlynn
8995 W 95th Street
Palos Hills, IL 60465
dmcglynn@illinoisbrick.com
708-237-5606
www.illinoisbrick.com

Rauch Clay Sales Corporation
Paul Rauch Jr.
3037 S. Christiana Ave.
Chicago, IL 60623
rauchjr@rauchclay.com
773-254-0775
www.rauchclay.com

Metals

Alumi-Guard
Taylor Coley
2401 Corporate Blvd.
Brooksville, FL
tcoley@alumi-guard.com
352-754-8555
www.alumi-guard.com

Chicago Metal Supply
Ski Wysocki
4940 W Grand Ave
Chicago, IL 60639
ski@chicagometalsupply.com
773-227-6200
www.chicagometalsupply.com

Openings

AluSpec Inc.
Gregg White
1240 Emerald Terrace
Sun Prairie, WI 53590
jane@aluspec.com
608-825-4838
www.aluspec.com

Andersen Windows, Inc.
Kellan Dillon
2310 Cowper Ave.
Evanston, IL 60201-1844
kdillon@andersencorp.com
312-375-1876
www.andersenwindows.com

Bovard Studio, Inc.
Ronald Bovard
2281 Business Highway 34
Fairfield, IA 52556
info@bovardstudio.com
641-472-2824
www.bovardstudio.com

Centor North America
Jack Wiliams
966 Corporate Blvd., Suite 130
Aurora, IL 60502
jack.williams@centor.com
630-957-1000
www.centor.com

H Window Company
Stephen Walston
39750 Jensen Road
Marengo, WI 54855
swalston@hwindow.com
715-292-0866
www.hwindow.com

Marvin
Audre Cek
4142 Milford Lane
Aurora, IL 60504
audrecek@marvin.com
630-470-0119
www.marvin.com
Marvin is a fourth-generation family-owned and -operated business, headquartered in Warroad, Minnesota, with more than 5,500 employees across 15 cities in North America. The Marvin portfolio of products is designed to provide exceptional solutions for any project.

Pella
Chris Carpenter
27545 Diehl Road, Suite 100
Warrenville, IL 60555
ccarpenter@pella.com
630-675-4750
www.pella.com

Schweiss Bifold & Hydraulic Doors
Mike Schweiss
72121 470th Street
Hector, MN 55342
schweiss@schweissdoors.com
507-426-8273
www.schweissdoors.com
Schweiss Doors has been the leading manufacturer of bifold liftstrap doors, hydraulic one-piece doors and designer doors for over 35 years. We provide large and small custom-made doors for aviation, agricultural, industrial, commercial and residential uses.

Tee Jay Service Co., Inc.
Jillian Jungels
Marketing Coordinator
958 Corporate Blvd.
Aurora, IL 60502
jajungels@teejaydoors.com
630-406-1406
www.teejaydoors.com
Tee Jay Service Company has been servicing Chicagoland area since 1964. We take pride in serving our customers every need when it comes to all their automatic door needs.

Woodland Windows and Doors, Inc.
Rano Mariotti
25W355 Lake Street
Roselle, IL 60172
Ranom@woodlandwindows.com
630-635-2009
www.woodlandwindows.com

Publishing

A to B Publishing, Inc.
Andrew Pattison
662 Dudley Avenue
Winnipeg, MB
marcomap@shaw.ca
204-275-6946
www.atobpublishing.com

Site Construction

Atlas Restoration
Martin Sobelman
11441 Melrose Ave.
Franklin, IL 60131
msobelman@atlasrestoration.com
847-415-9600
www.atlasrestoration.com

Software/BIM

GraphiSoft
Marianne Sims
60 Hickory Dr.
Waltham, MA 02451
msims@graphisoft.com
617-485-4206
www.graphisoft.com
ARCHICAD 23 by GRAPHISOFT is a best in class Open BIM solution featuring dramatic performance enhancements, newly fortified ecosystem workflow connections that help architects work faster and more collaboratively.

Vectorworks, Inc.
Jenifer Niziolek
7150 Riverwood Drive
Columbia, MD 21046
jniziolek@vectorworks.net
443-542-0434
www.vectorworks.net

Specialites

BathFitter
Anthony Whitemiller
309 Era Drive
Northbrook, IL 60062
awhitemiller@bathfitter.com
847-770-6719
www.bathfitter.com

Klaus Multiparking Midwest
Donna Wagener
1033 Bryn Mawr Avenue
Bensenville, IL 60106
donna@klausmidwest.com
630-390-5974
www.klausmidwest.com

Technology

Automation Design + Entertainment
Peter Cook
6475 Technology, Suite A
Kalamazoo, MI 49009
peter@automation-design.com
269-324-6072
www.automation-design.com

Leightronix, Inc.
Sara Mason
1125 N. Cedar Rd.
Mason, MI 48854
smason@leightronix.com
517-694-4800
www.leightronix.com

Thermal and Moisture Protection

ACH Foam Technologies
Jim Nugent
730 S Cornell Ave
Villa Park, IL 60181
jnugent@achfoam.com
708-363-2164
www.achfoam.com

Advanced Building Products, Inc.
Patrick Duffy
283 Inverway Rd.
Inverness, IL 60067
pduffy@abuildingproducts.com
847-705-9190
www.advancedbuildingproducts.com

Chicagoland Roofing Council
William McHugh
4415 W. Harrison St., #540
Hillside, IL 60162
bill@chicagoroofing.org
708-449-5266
www.chicagoroofing.org

DECRA Metal Roofing
James Sardegna
Light Commercial Manager
Capron, IL 61012
jsardegna@decra.com
815-914-1604
www.decra.com
Manufacturer of stone coated steel roofing in the design of TILES, SHAKES and SHINGLES. Proven worldwide for over 6 decades, these metal roofing product enhance and protect any sloped roof.

Henry Company
Scott Wolff
6519 Burning Tree Circle
McHenry, IL 60050
swolff@henry.com
312-310-6300
www.henry.com

IKO
Matthew Ibach
235 West South Tec Drive
Kankakee, IL 60901
matt.ibach@iko.com
(847) 533-6420
www.iko.com

Parksite
Matthew Reed
38W631 Callighan Place
Geneva, IL 60134
mreed@parksite.com
630-788-0969
www.parksite.com

WickRight, Inc.
Diane Knight
16365 West Arlyd Road
Prairieview, IL 60069
knight@wickright.com
312-720-1456
www.wickright.com

Wood, Plastics and Composites

APA - The Engineered Wood Assocation
Matt Brown
9204 S. 250 E.
Hamlet, IN 46532
matthew.brown@apawood.org
214-930-7075
www.apawood.org

Chicago Regional Council of Carpenters
Keith Jutkins
12 E. Erie
Chicago, IL 60611
kjutkins@carpentersunion.org
312-787-3076
www.chicagoflooring.com

Countryside Woodworking
Brian Kaufman
550 N CR 240 E
Arthur, IL 61911
countrysideww@ibyfax.com
217-543-4190

Hoover Treated Wood Products, Inc.
James Gogolski
154 Wire RD
Thomson, GA 30824
jgogolski@frtw.com
800.TEC.WOOD
www.frtw.com
Hoover Treated Wood Products, Inc., supplies a comprehensive portfolio of pressure-impregnated, kiln-dried after treatment lumber and plywood for fire-retardant and preservative applications. Schedule your Lunch & Learn (HSW credit) today!

Huber Engineered Woods
Brian Shores
1052 185th Street, Ste. 300
Homewood, IL 60430
brian.shores@huber.com
312-505-8308
www.huberwood.com

Rulon International
Jason Schaum
2000 Ring Way
St Augustine, FL 32092
jschaum@rulonco.com
773-991-6606
www.rulonco.com

Weyerhaeuser
Joe Youman
1500 Eaglebrook Drive
Geneva, IL 60134
joe.youman@weyerhaeuser.com
630-778-7070
www.weyerhaeuser.com

Wood Products Council
Archie Landreman
1405 16th Street. Ste. 2481
Racine, WI 53403
archie@woodworks.org
262-672-4746
www.woodworks.org

LICENSED ARCHITECT

Association of Licensed Architects

Large Generation Hits Prime Homebuying Years

BY: SHELLY GIEWALD, DAILY HERALD CORRESPONDENT

Millennials have been reluctant to say yes to home-ownership. Affordability, high student loan debt, and tighter lending practices have prevented many of them from jumping off the fence into the housing market. While homeownership for millennials – the largest generation in U.S. history – is lower than that of their parents and grandparents, they are now hitting their prime homebuying years. They're in their 30s, marrying and having children – and looking to buy a new home.



That's good news for area builders who offer new-home communities targeted toward millennials, designed to appeal especially to this group of buyers.

Airhart Construction features Stafford Place, a new row-home community in Warrrenville, IL, that attracts millennials who haven't owned a home or who may not have the means to purchase a large, four-bedroom house, said Christy Whelan, director of sales for the builder.

Heley Duncan
&Melander PLLP

Mark J. Heley, Attorney at Law
Eric R. Heiberg, Attorney at Law
Valerie Sims, Attorney at Law
Stephen F. Buterin, Attorney at Law

8500 Normandale Lake Boulevard
Suite 2110
Minneapolis, Minnesota 55437

Direct (952) 841-0219
Main (952) 841-0001
Fax (952) 841-0041
Toll Free (866) 841-0080
mheley@heleyduncan.com

Similar to a townhouse, row homes have a smaller footprint and are maintenance free with snow removal and yard care provided. However, they are single-family homes with no shared walls.

"It's really a charming community where homes feature open floor plans and a private roof terrace with a wine bar that is perfect for entertaining," Whelan said.

"They've been a popular choice for millennials who like having all the fun of building a new home – selecting colors and making custom changes to fit their lifestyles."

Stafford Pace sits close to Wheaton, IL, and near the expressway and train. Some buyers are still working in the city, and they want easy access to highways and transportation.

With fresh exterior designs and an urban flair, Grammercy Square, in Aurora, IL, by M/I Homes has great appeal for millennials. The community offers two series of homes: the Charleston Series with two-story townhouses and the River North Series featuring three-story townhouses – all with an

open-concept entertaining space. The community provides lawn care, snow removal, and exterior maintenance.

Millennials entering the housing market will certainly make an impact on the new construction industry, and builders will focus on their needs when building any new home.

What are millennials looking for when they purchase a house?

“They want new,” Whelan said. “They don’t want someone else’s kitchen. They like the idea of homeownership because they’ve been renting an apartment or living with family members, but they’re not jumping into a house with a lot of square footage.”

You might think millennials want a city lifestyle. Younger millennial renters prefer an urban setting, but those who are purchasing a home want a suburban location. One reason is often they no longer want to share walls. When they buy, they prefer a single-family home to a condo, Whelan said.

M/I homes also sees that millennials want a suburban location near shopping, dining and entertainment along with strong school districts. They also like parks, jogging trails and greens space, said Cheryl Bonk, vice president of sales and marketing for the builder. Jeremy Lund, sales director for Shodeen Homes, agrees that these amenities are key for millennials.

Millennials want a home with the open-concept design and a lot of space to entertain; they don’t want the traditional two-story home, Lund said. Bonk agrees that open concept floor plans are a must for millennials in both townhouse and single-family designs.

This generation values connections and relationships, and they have a strong desire for the open plan that brings people in the home together. Jay Dulla, executive vice president at Meritus Homes, adds that along with open plans, they like 9-foot or 10-foot ceilings on the first floor. Also in demand are the spa baths, well-known name-brand features (windows, appliances, fixtures) and a lot of the grays that have been popular during the last few years, he said.

Millennials also go for earth tones, soft colors, lots of blues, greens, browns, and the idea of bringing the outdoors inside, all on trend.

Lund believes that millennials and baby boomers are closer than we think in their home choice because they both prefer a ranch-style floor plan. Millennials are out of college; they’ve had an apartment on one floor; and they want a single floor plan. Shodeen Homes does offer Southfork, a popular ranch plan that both age groups favor.



These young people aren’t thinking like we and our parents did with a traditional home. They think creatively about what they’re going to do with the space in their homes, Whelan said. Who said a dining table must be placed in the dining room? Today, you might find a pool table in that space. And take a large open kitchen area: picture it as a hearth room with a fireplace, large island with lots of seating and the dinette area furnished with small couches for a cozy entertaining area.

Energy efficiency is a top priority with millennials as it saves them money and improves our environment, Bonk said. “Millennials have grown up with a lot of technology and ‘smart home’ features and options are becoming more and more important to them.” They want integrated home technology and many are willing to spend more money for it.

These young people remember their parents going through the housing crash in 2007, and they’re very conscious about finishes and choices inside the house, Lund said. “They want to spend money where they see a payback. They do a lot of research online and look at their home as an investment.”



Introduction to Reality Capture: 3D Scanning the Existing World, and Integrating into BIM

BY: AMBER DELLANGELO, S.E., P.E., SENIOR PROJECT MANAGER AT LARSON ENGINEERING, INC.

What is Reality Capture?

Reality Capture is the act of using a laser scanner, drone, or 360 camera system to analyze and capture a space or object in order to produce a digital representation of it.

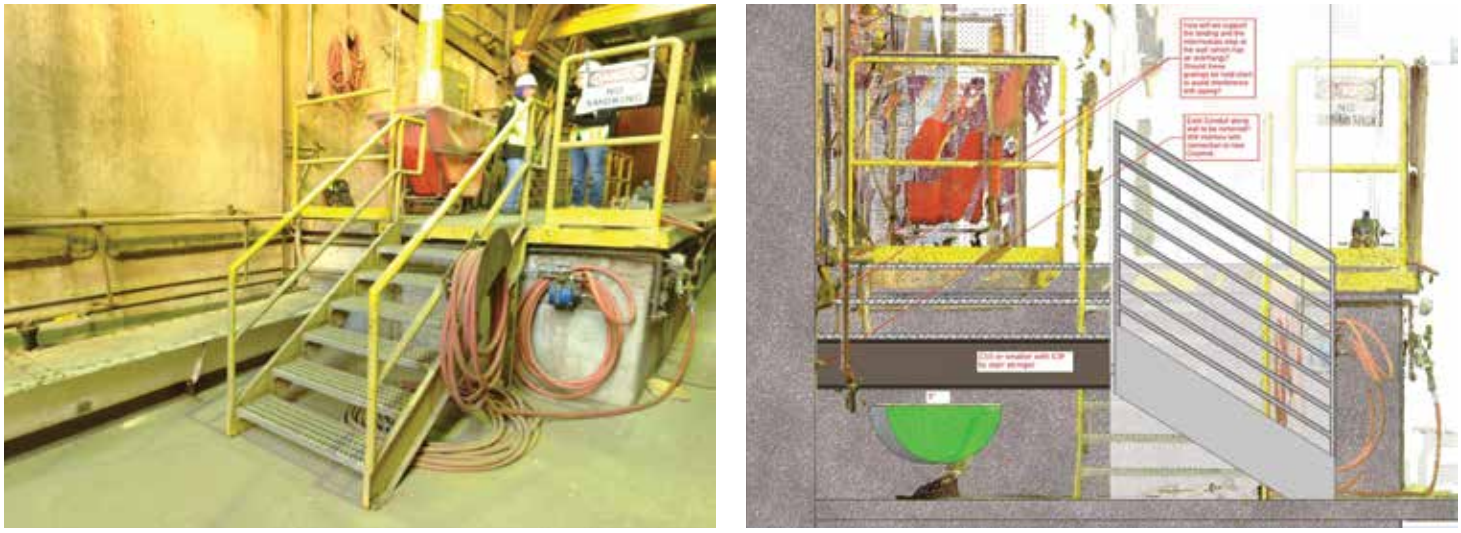
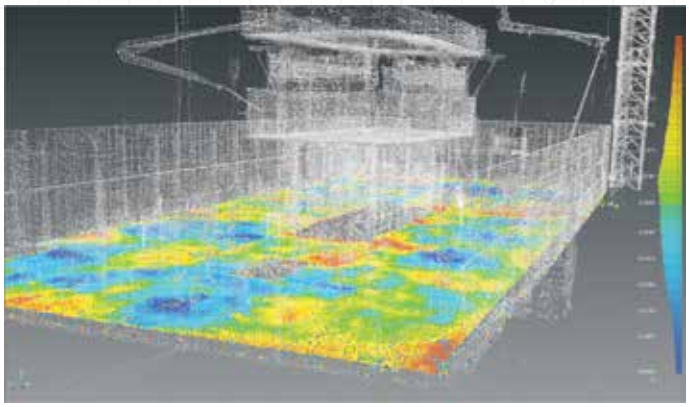


Figure 1: Comparison of photo on left and scanned data points with modeled stair and landing on right

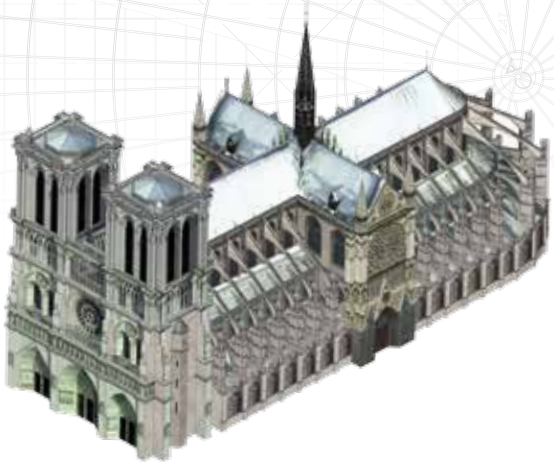
What industries are using Reality Capture?

Reality Capture is being used by Architects, Engineers, Contractors, and Owners to accurately "see" elements (structure, piping, details) of existing structures requiring renovations or additions. The design team can review As-Built conditions by overlaying the captured data (point cloud) with the building model or any model for the proposed existing space. General Contractors are able to monitor construction in real time by scanning a freshly poured concrete floor to determine high and low spots before the concrete has set. Contractors are able to scan a project for floor flatness and obtain a colorized map of floor deviation. Civil engineers will be happy to know that captured data can be adjusted to a project's benchmark elevation and linked to a control point. In addition, site topography can be obtained for use on project drawings.

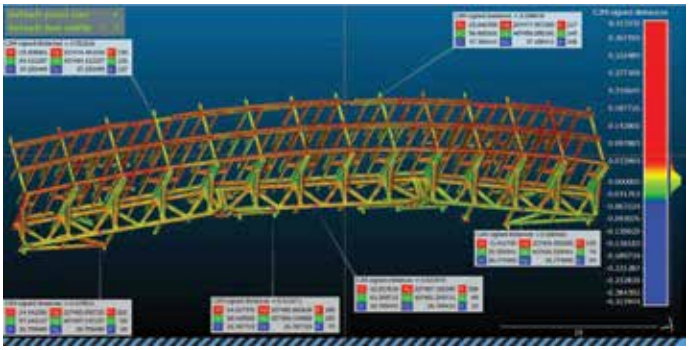
Outside of the A/E/C arena, Reality Capture has become important in the fields of forensics and even the insurance industry as accident investigation can be improved by acquiring a large amount of data quickly, before the loss of evidence. Reality Capture is perfect for projects with a focus on historic preservation. Notre Dame Cathedral in Paris, France, which recently was partially destroyed in a fire, has thankfully been scanned, preserving intricate details of the historic church. Interior designers find value in showing existing spaces being repurposed or remodeled. Finally, the product design and reverse engineering fields are being propelled by 3D scanning of objects.



Scanning for floor flatness



Point Cloud for historic preservation



As-built deviation



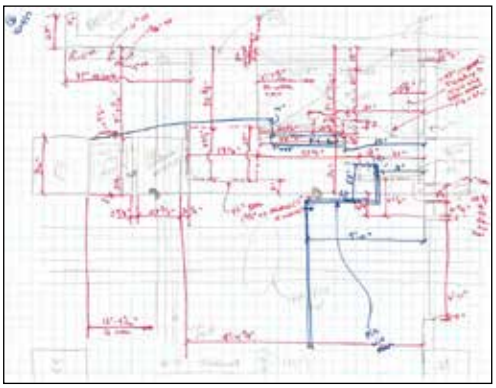
Scanning during concrete pour

Figure 2: Industries using Reality Capture

What are the advantages of using 3D Scanning?

Reality Capture presents many advantages over the traditional methods of mapping an existing space or object. The primary advantages are accuracy and speed of acquiring massive amounts of data, both of which can translate into real cost savings. Traditional methods of documenting existing conditions involve pencil and paper and a tape measure or distance finder. There are at least three opportunities for a tape reading from the field to be incorrectly translated into a digital representation in a drawing. First, the field operator could mis-read the tape. Second, the field engineer recording the dimension could incorrectly take down the dimension. The recorder may not be able to hear their partner on the other end of the tape calling out the proper dimension, or they may draw their dimension on paper in the incorrect location. Third, the drafter could incorrectly translate the field notes when creating the CAD layout. It's easy to mistake 1'-1" for 11". 3D scanners are accurate to within a few millimeters.

Additionally, the distance between an existing concrete wall and an adjacent piece of equipment can be measured at hundreds of points if scanned whereas traditional methods obtain one or two distances usually. The scanned wall will show bows in plan and section that hand measurements could not duplicate as accurately.



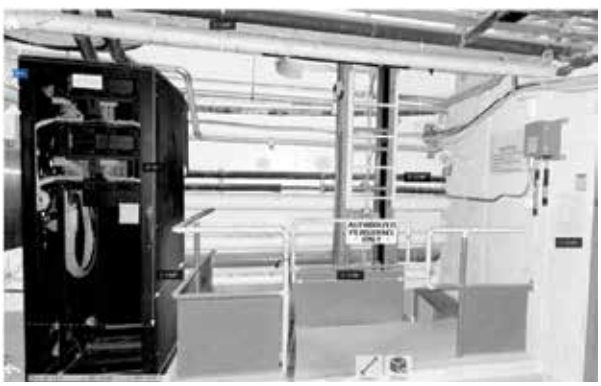


Figure 3: Comparison of hand measurements with the accuracy and flexibility of pulling dimensions from Scanned Data

Another key advantage is clash detection. Drop your new element into the point cloud of the existing space to see what interferes and to locate the best overall placement. Let the entire team review the options for relocation in order to determine the most cost-effective placement. Another advantage of using 3D scanning is increased employee safety in high risk or restricted environments. The scanner allows for noncontact data capture from a distance. Imagine a live downed power line in an industrial facility preventing employees from accessing the necessary data required to work the solution to the problem. Enter a 3D scan that can give the facility the critical information needed without the risk of sending an employee near the hazard. Another benefit is the ability to capture data not easily accessed. Drones can capture images and data from the top of a grain silo normally only accessed via a caged ladder. Finally, it is likely the 3D scan has captured so much data, that costly return sight visits due to missing data are a thing of the past. Often times, one does not know they need a piece of information until they are back in the office transposing field notes to CAD.

How is 3D Scanning accomplished?

There are many products on the market today, utilizing different forms of 3D scanning technology. The main types of scanning technologies all rely on line-of-sight vantage points for capturing data and include:

1) Phase-based scanning uses a laser to detect distance by measuring the phase shift of the returning laser energy.
2) Time of Flight 3D Laser Scanning uses a laser to detect distance by measuring the time it takes for the laser to make a round trip back to the scanner.
3) Laser Triangulation Scanning uses a laser beam and camera, along with trigonometry to determine the shape and size of the triangle associated with a specific point.
4) Structured Light Scanning measures the deformation of a light pattern on a shape.
5) Photogrammetry reconstructs a 3D space from 2D captures and computer algorithms.

A Phase-based Scanner such as the FARO FOCUS S350 (pictured below) sends a class I (safe to the eye) laser beam to a rotating mirror. The mirror deflects the laser into the surrounding space while the scanner rotates. Light bounces off the surrounding objects and is reflected back to the scanner. Phase shift calculations determine the distance an object is from the scanner. Single point measurements are repeated up to 976,000 times per second. Raw scan files (.fls) consisting of approximately 100-300 MB of data are stored on a removable SD card in the scanner. Raw scans are then processed and registered into a point cloud containing millions of points. Users can also utilize an On-Site Registration function to eliminate the need to post-process scans back in the office. An integrated High Dynamic Range (HDR) camera captures detailed imagery in color to overlay the scan data, colorizing each data point.

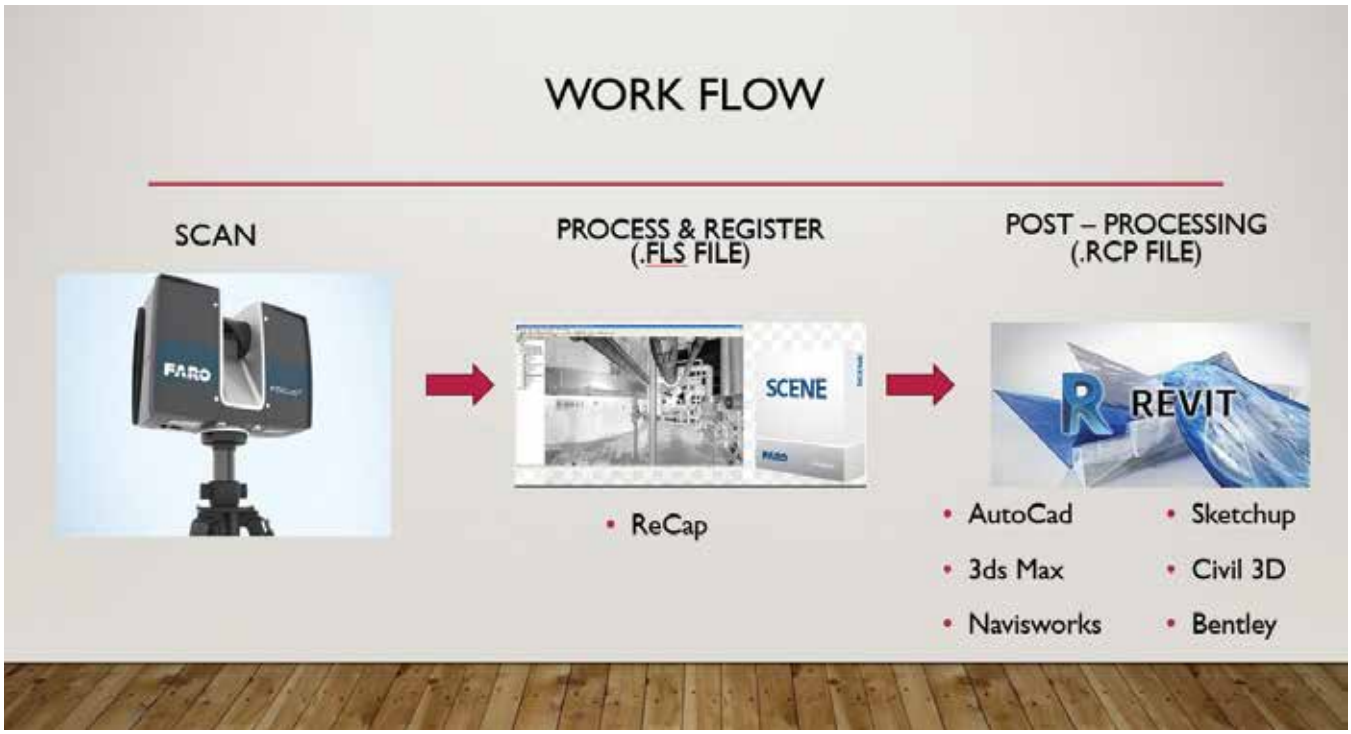


Figure 4: 3D Scanning Work Flow

The work flow diagram you see above demonstrates what happens after scanned data is captured using the FARO FOCUS S350 scanner. A proprietary software communicates with the scanner and then processes and registers the raw scans together into a point cloud. This process can be acccomplished manually or automatically depending on the amount of overlapping data present in the adjacent scans. Spherical or flat paper targets can be used to ensure adjacent scans (with little overlapping data) can be linked together. After the point cloud is registered, it can be viewed or used in or on a number of different platforms such as Revit, AutoCAD, Navisworks, etc.

What can I do with my registered Point Cloud?

1) Wow potential clients in interviews using a 3D color representation of the project.
2) Model existing elements to be used with BIM.
3) Create a demolition plan.
4) Use it for clash detection with proposed elements.
5) Import an Inventor or SolidWorks model to be viewed along with the point cloud.
6) Show clients what the existing space looks like in the new configuration. Points representing existing elements can be deleted from the point cloud.
7) Use the latest technology to your advantage. Point clouds can be visualized using Virtual Reality as well as Augmented Reality.

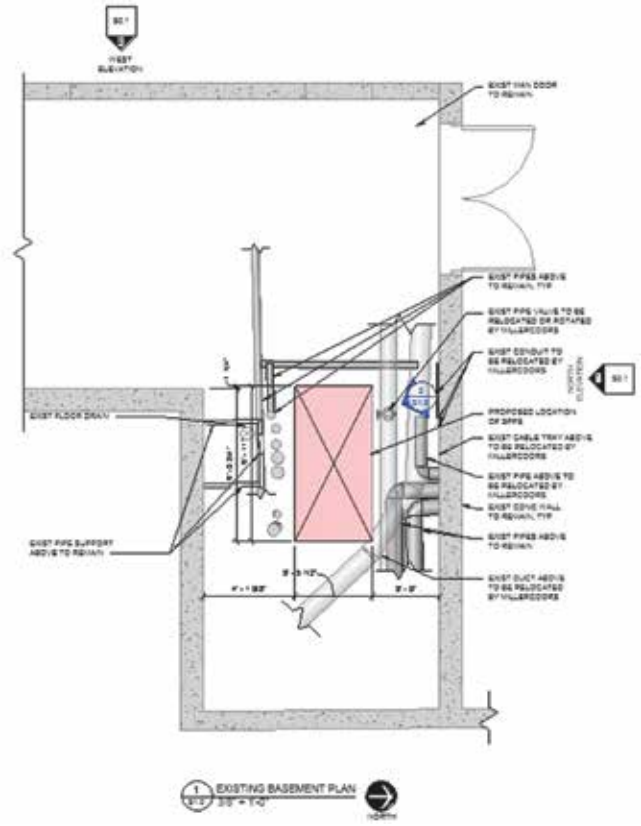


Figure 5: Example of Existing Plan View and Proposed Location of New Element. Note interference in lower right corner of red shaded area

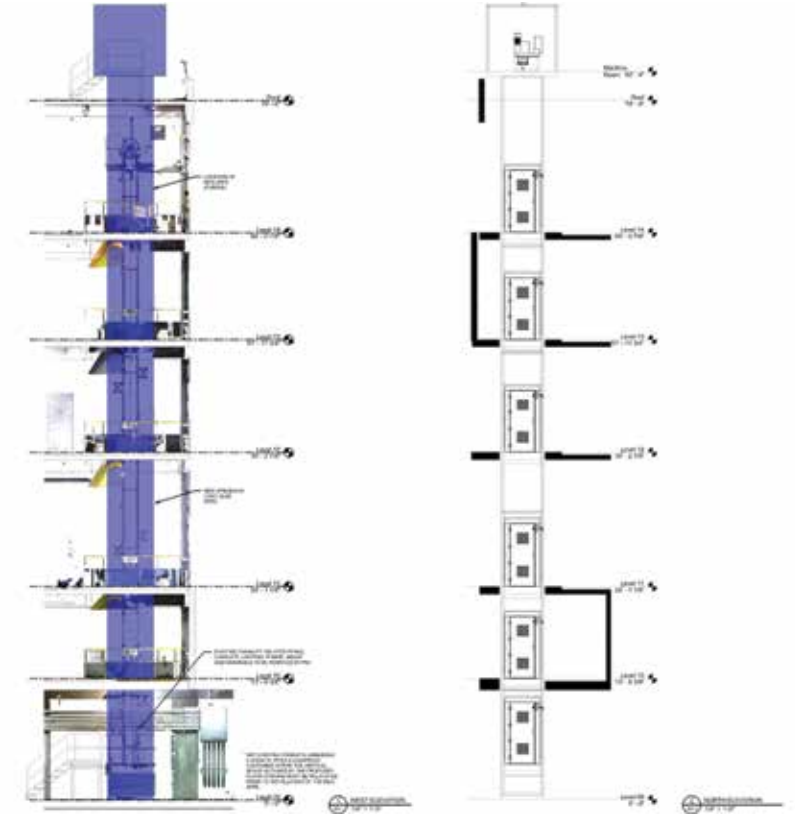


Figure 6: Example of Proposed Elevator Shown in Existing Space

Does 3D scanning have practical value for my clients?

Ready or not, the digital age is upon us. More and more applications are becoming paperless, wireless, and smart in their abilities to communicate. While 2D drawings still have value, 3D PDFs and models are becoming the norm. If a picture is worth a thousand words, a 3D representation is worth an entire library. Clients and consultants alike are innovating and adopting new technologies every day. The way we exchange knowledge is ever evolving. The popularity of 3D models and 3D spaces will only increase, and progress will continue on its exponential scale. With a little creativity and ingenuity, we can realize value added for ourselves and our clients.

Test Questions

Reality Capture: 3D scanning

1. When using a 3D scanner, one must never look directly at the laser beam.
   a. True
   b. False

2. 3D scanners will scan anything in their line of sight.
   a. True
   b. False

3. The size of a point cloud file, comprised of numerous registered raw scan captures can be quite large.
   a. True
   b. False

4. Revit can import a raw scan (.fls) file before the file has been processed and registered.
   a. True
   b. False

5. 3D scanning can only be accomplished in black and white.
   a. True
   b. False

6. The primary advantages of using 3D scanning include accuracy and speed of acquiring large amounts of data.
   a. True
   b. False

7. Placing targets in a space that is to be scanned can help the registration process.
   a. True
   b. False

8. Point clouds are being used in conjunction with Building Information Models (BIM) to detect clashes.
   a. True
   b. False

9. General Contractors complain that the 3D scan takes too long to be useful.
   a. True
   b. False

10. Point clouds cannot be linked to site survey.
    a. True
    b. False

ALA/CEP Credit: This article qualifies for 1.0 LU of State Required Learning Units and may qualify for other LU requirements. Valid through June 2021.

Contact Information:_____

Last Name:_____

First Name:_____ Middle Initial: _____

AIA # if applicable:_____

Firm Name: _____

Address: _____

City:_____ State:____ Zip:_____

Tel.: _____ Email: _____

Credit Card No:_____

Expiration Date:_____

PAYMENT: ALA/AIA/CEP Credit or Certificate of Completion:
Cost: $15 (ALA Members) $20 (non-members)
❑ Check or ❑ Credit Card

❑ Please send me a certificate of completion (required by certain states & organizations) that I may submit.

Your test will be scored. Those scoring 80% or higher will receive 1 LU Credit.

Fax: 847-382-8380
Address: Association of Licensed Architects,
One East Northwest Highway, Suite 200
Palatine, IL 60067
Attn: ALA/CEP Credit

Certification: (Read and sign below)
I hereby certify that the above information is true and accurate to the best of my knowledge and that I have complied with the ALA Continuing Education Guidelines for the reported period.

Signature: _____ Date: _____

Tuesday, October 29, 2019
Drury Lane Conference Center, Oakbrook, IL

Learn
Connect
Grow
In One Day!



Keynote Address:
Blair Payson, AIA, LEED AP
- Principal, Olson Kundig

Over 17 Educational Seminars:

Earn up to 6.0 ALA and AIA Continuing Education Credits (most HSW)

Visit with national and local architectural product and service companies

Early Bird Rates Through September 20th

Register at ALATODAY.ORG

ALA MIDWEST ARCHITECTURE CONFERENCE



Take Me Out to the Ballgame Accessibility in Bleachers



References: 2018 International Building Code (IBC), 2017 ICC 300 Standard on Bleachers, Folding and Telescopic Seating, and Grandstands (ICC 300) and the 2009 ICC A117.1 Accessible and Usable Buildings and Facilities (ICC A117.1) (Note: There is a 2017 edition of the ICC A117.1, but it is not referenced in the 2018 IBC).

BY: KIMBERLY PAARLBERG, RA, INTERNATIONAL CODE COUNCIL

The baseball season is heating up. Nothing is better than a summer night and watching your home town team. Where the seating is provided by bleachers, the ICC 300 Standard on Bleachers, Folding and Telescopic Seating, and Grandstands is applicable. The ICC includes ways to exit from the bleacher itself, but references the IBC for means of egress once you are off the bleacher and for accessibility provisions. (ICC 300 Section 310.1, 404.1, 404.2)

Batter up – what is a bleacher?

It is important to have a clear understanding of what a bleacher is. Anyone who has been to Wrigley Field has heard about the "left field bleachers"; but just having bench seats without backs does not always qualify as a bleacher. The definitions (IBC Section 202, ICC 300 Section 202) are:

BLEACHERS, Tiered seating supported on a dedicated structural system and two or more rows high and is not a building element.

GRANDSTAND, Tiered seating supported on a dedicated structural system and two or more rows high and is not a building element.

FOLDING AND TELESCOPIC SEATING, Tiered seating having an overall shape and size that is capable of being reduced for purposes of moving or storing and is not a building element.

No, it is not a typo. The definition of bleachers and grandstands are the same; and there is no size limit



Example of wheelchair space locations in telescopic bleachers.

Example of wheelchair space locations in a bleacher

for when you move from one type to the other. Common nomenclature often uses grandstands to meet both large bleacher systems and open air assembly seating on a tiered floor system. The key is that the bleachers/ grandstands are rows of seats that are part of a separate support system that is on top of a flat floor or a level slab on grade, not rows of seats located directly on a tiered floor system. If that independent system bleacher/ grandstand system can fold up against a wall, then that is folding and telescopic seating. Many large arenas that can reconfigure their space for different venues will often include a combination of both floor levels with seating and bleacher systems. Bleachers, while the commonly only have bench seats, can also have seats with backs and armrests. This discussion is only about bleacher requirements for accessibility.

First Base - How many wheelchair spaces are required and where?

The ICC 300, Section 310.1, references the building code for accessibility. Many designers are at first confused by the requirements in IBC Table 1108.2.2 and the ICC A117.1 Table 802.2.2, thinking they are requirements for the same thing. However, the IBC indicates the number of wheelchair spaces, and the ICC A117.1 provides the number of groups (i.e. wheelchair space locations) as part of the dispersion requirements within the seating area. The IBC specifies the number of 'wheelchair spaces' required based on the number of seats provided. The ICC A117.1 (Section 802) includes additional information on the wheelchair spaces and the dispersion of wheelchair space locations. For example, a 1000 person assembly seating would be required to have 10 wheelchairs spaces with companion seats, but those seats could be located in as few as 3 different locations.

WHEELCHAIR SPACE: A space for a single wheelchair and its occupant.

WHEELCHAIR SPACE LOCATIONS: A space for a minimum of a single wheelchair and the associated companion seating. Wheelchair space locations can contain multiple wheelchair spaces and associated companion seating.

The criteria for where in the seating to locate the wheelchair space locations is addressed for both line of sight (ICC A117.1 802.9) and dispersion (ICC A117.1 802.10). Where the wheelchair space locations are behind other rows of seats, there are criteria for a line of sight over seated persons or



Example of accessible route for ingress and egress.

standing persons. In venues where the typical crowd behavior is to stand during exciting and critical times of an event, such as many sports venues, spectators in wheelchairs shall be provided a line of sight over any standing spectators in front of them (ICC A117.1 802.9.2, 802.9.2.1, 802.9.2.2). Table 802.9.2.2 provides technical criteria for how to determine that depending on the row spacing and the height of the risers.

Dispersion is split into horizontal (side to side, ICC A117.1 802.10.1), distance from the event (front to back, ICC A117.1 802.10.2) and by type (e.g. benches or seats with backs, ICC A117.1 802.10.3). Given the construction of a bleacher system, there are specific allowances for wheelchair spaces and wheelchair space locations.

There is an exception for the horizontal dispersion where the wheelchair spaces are located in the 2nd and 3rd quartile. For a bleacher system located on one side of a football field, this would be the seats between the 25 yard lines. Basically the intent is that if the wheelchair spaces are located within what is considered the best 50% of the seats, the side to side dispersion requirement can be waived. What is considered the best seats will vary depending on the placement of the seating around the event and the type of venue.

For distance from the event, bleachers have an exception that allows for the seats to be located only in the row that is the point of entry to the system. For most bleachers, this is the bottom row of the bleacher. Keep in mind that wheelchair spaces and companion seats need to be integrated (ICC A117.1 802.6), so that means the wheelchair spaces have to be inset into the front row, not separated out in front of the system or over to the side.

Dispersion by type would apply where some of the bleacher seating was different, such as seat with or without backs. While not as easily identifiable as a type, consideration should also be given to the operational aspects, such as a facility with some reserved seats and some open seating, where an area would be set aside for a special fan section, or where some seats may cost more than others.

Second base – What are the requirements for the wheelchair spaces?

"Wheelchair space" dimensions (Sections 802.3 and 802.4) are not to be confused with the "clear floor space" dimensions in Section 305. Both are based on the size of a standard wheelchair, but wheelchair space dimensions vary depending on occupancy and arrangement.

In a bleacher system, wheelchair spaces are typically backed into at the front of the bleacher. Single spaces are 36" wide, but where two wheelchair spaces are located next to each other, the spaces only have to be 33" wide (ICC A117.1 802.3). The spaces need to be at least 48" deep. While the space can overlap the space between individual rows (i.e., aisle accessways), they should not overlap the required cross aisle width (ICC A117.1 802.5, 802.5.1). That way someone can remain stationary in the wheelchair space while other spectators may be moving to their seats, or leaving to go buy a hotdog or a beer. A cross aisle wider than required for means of egress (ICC 300 Section 405) may be required to address this. At this cut out in the bleacher system, there will be a drop off at the footboard for the seats behind the wheelchair spaces. Where this drop off is less than 30 inches, a guard is not required, however, some designers chose to provide some type of barrier for safety reasons. This barrier can use the sight constraint allowances that allows for a 26 inch height (ICC 300 408.1).

Companion seats (IBC Section 1108.2.3, ICC A117.1 802.7, 802.7.1, 802.7.2) are required next to each wheelchair space. The intent is to have the shoulders of the person sitting in the wheelchair space aligned with the shoulders of the person in the companion seat so they can talk during the game, the same as two friends sitting next to each other in the standard seats. For the wheelchair space, that shoulder is assumed to be 12" from the rear of the wheelchair space.

In addition to the wheelchair spaces, 5% of the aisle seats in the bleacher system (i.e. designated aisle seats) are for persons with mobility impairments. Persons that have difficulty moving down the spaces between the individual rows (i.e., aisle accessways) can request these seats. Since these persons might have canes, crutches or difficulty moving, the designated aisle seats should be close to the accessible route. A few steps to get to these seats are acceptable. Designated aisle seats, must be identified by some type of mark or symbol (ICC A117.1 Section 802.8.2).

Third Base – How does the emergency evacuation requirements for persons using the wheelchair spaces (i.e. accessible means of egress) affect the bleacher system design?

ICC 300 includes means of egress requirements for the bleacher, such as number of exits, travel distance, aisle width, treads and riser requirements for the stepped aisles, handrails and guards (ICC 300 Chapter 4). For bleacher systems with 250 occupants or less, only one means of egress is required from the bleacher itself (ICC 300 Table 404.1). Where the bleacher is in a room or space confined by walls or fences, the IBC requirements for means of egress apply to that room or space. For example, a folding and telescopic bleacher in a school gym with 600 seats would need at least two means of egress off the bleachers, but at least 3 exits from the gym (IBC Section 1006.2.1.1).

What typically gets missed is the requirements for accessible means of egress. Where one means of egress is required, at least one accessible means of egress is required. Where two or more means of egress are required at least two accessible means of egress are required (IBC 1009.1), Therefore, where bleacher systems are raised so there is a cross aisle at the front of the seating leading to exit stairways at each end, while one ramp is needed to provide an accessible route to the wheelchair spaces (IBC 1104.3), where there are more than 250 seats, two ramps will most likely be needed for accessible means of egress (IBC 1009.1). A person leaving a wheelchair space can travel back the same route they came in before they have two choices of ways to leave as long as they can meet the common path of travel limits (ICC 300 Section 407.4.1). For outside seating, that is a maximum length of 50 feet. For the standard high school football bleachers, this would most likely mean with wheelchair spaces located across the front row of the raised bleach system, the cross aisle would have to have a ramp at each end. If the designer chose the dispersion option to locate the wheelchair spaces in the 2nd and 3rd quartile along the front row, a centrally located ramp might meet the criteria for accessible ingress and egress, provided that the bleacher system is not elevated very high above grade. The travel distance for common path of travel would be measured from the wheelchair spaces along the accessible route to the bottom of the ramp where there were two accessible routes away from the bleachers.

Home plate – Coming to the end of the run…

The IBC does address accessibility to press boxes (IBC Section 1104.3.2). Where access to the press box is directly from the bleacher and the press box is less than 500 square feet in area, the press box is not required to be accessible.

Regardless of how large or small the bleacher system, accessible seating must be incorporated into the design. This includes temporary bleachers brought out for parades or seasonally. Consideration must be given for placement of the wheelchair spaces, as well as the routes to and from the wheelchair spaces. So while you are checking out that summer baseball game, take a look at the bleacher system you may be sitting on. And for those of us in Chicago...

"Rooting for the Cubs is not easy, but the best things in life never are."
– Dennis Farina

What's An Architect to Do? Choosing a Professional Liability Insurance Policy Limit

BY MELISSA ROBERTS, AAI, VICE PRESIDENT, USI INSURANCE SERVICES LLC

It is one of the first questions that a new Professional Liability insurance buyer asks, and a common inquiry from architects considering their renewal policy options: What is the right limit of liability for my firm? While the only way to really know this answer is to possess the kinds of fortune telling powers of the other-worldly Zoltar, there are three buckets to dip from for more earthly guidance. These include: knowing what laws, rules and regulations govern Professional Liability insurance buying decisions; identifying other external forces imposing requirements for the amounts and types of coverage purchased; and considering the limit of liability that meets your own financial objectives.

Illinois, like most states, does not have a requirement for architects to obtain Professional Liability insurance as part of the licensing process, but there are government-related programs that do. For example, the City of Chicago's Department of Buildings Self-Certification Program requires that applicants produce evidence that they maintain Professional Liability insurance "with limits of not less than $500,000 per claim and $1,000000 in the aggregate for all claims during the policy period" according to their Enrollment Application form (rev 9/12/12).



The next bucket to discern the elusive, adequate limit of liability, includes other external entities that make demands to form your insurance decisions. This group, depending on the contractual relationship and the contract provisions, may include clients, project owners, contractors, building owners, and lenders, among other stakeholders. These requirements often reflect limits of liability that are higher than those that would be purchased otherwise. It seems that project owners and their advisers muddle contractor insurance requirements with design professional requirements, or have incorrect Professional Liability claim information, leading to requests for higher than expected limits of liability. It is not unusual for the construction value of a job to be eclipsed by the contract's Professional Liability insurance requirements.

If this contractual requirement for a higher-than-otherwise purchased limit of liability is not the norm for your firm, most Professional Liability insurance companies will offer the option of adding the higher, additional limit of liability by endorsement to your existing policy for just one project, or in some cases, for all projects for a single client. The cost, availability, and underwriting guidelines vary widely among insurers, but this can be a

more affordable method for securing unusually high limits.

If the first two buckets have not divined the answer of the best fitting limit of liability, the final bucket on claim statistics, insurance premiums, and peer benchmarking calls for the comprehension and application of Professional Liability policies. Here are a few concepts to consider:

- The limit of liability you purchase almost always **includes claims expenses**. According to Victor O. Schinnerer & Co., Inc., the managing general agent for the CNA Architects Professional Liability program, average defense costs ranged from $31,000 per claim up to $55,000 per claim over a ten-year period from 2008 to 2017. According to Victor O. Schinnerer's most recent publication of *From Risk to Profit: Benchmarking and Claims Studies*, "Even if CNA makes no payment to correct harm, defense costs can be significant." The study indicates that almost one-third of claims close with defense payments only. Professional Liability insurer, AXA XL advises that, in general, they pay more in claims expenses than settlement.

- The limit of liability you purchase is likely to be both the per claim and the **annual aggregate limit**. The aggregate limit is the most that the insurance company will pay out for all claims combined, including claims expenses, during one annual policy term, (meaning that the limit of liability selected may need to stretch to cover multiple claims). While the number of claims per 100 firms insured through the Schinnerer and CNA program declined since its peak of more than 40 in 1983, the current average hovers near 20 reported claims per 100 insured firms.



- All Architects Professional Liability policies are written on a **claims made basis** with a retroactive date clause. A policy must be in force at the time a claim is made, and the wrongful act causing the allegations must occur after the retroactive date. For some design firms, the current policy could be expected to bear the risk from claims on projects since the establishment of the firm.

These concepts, along with the following questions will help grant your wish for an appropriate Professional Liability limit for your practice:

1. **What are other design firms purchasing?** $2,000,000 has replaced $1,000,000 as the most common limit of liability. According to Professional Liability insurer AXA XL, the single most common limit of liability for architects in their program is $2,000,000 per claim with a $2,000,000 annual aggregate. In the American Council of Engineering Companies' 2018 Professional Liability Survey, 42% of the respondents indicated they purchase $2,000,000 in limits (followed by 22% purchasing $1,000,000 in limits).

2. **What do Professional Liability claims cost?** According to Schinnerer's *From Risk to Profit: Benchmarking and Claims Studies*, depending on firm size, the average paid claim costs from $113,000 to over $500,000. These limits are averages. On the claim payment continuum, many claims close with no payment at all, so too many claims pay much higher than the average. Your wish is more likely to cover the highest reasonable risk – not the average.



Some insurers make very low limits of liability available, in some cases as low as $100,000 per claim. This no longer covers even the lowest average – let alone leaving any remaining limit to pay subsequent claims in the same policy term.

3. **What size projects do you work on?** This is a good starting point for your conversation on limit, but some claims, like claims arising from injuries, have no relationship to the value of the project. Here is a good place to apply the earlier concept of the aggregate limit of liability.

4. **What are the premiums?** Higher limits are generally incrementally less expensive. For example, it seldom costs twice as much to double your limit of liability. At the end of the process, the insurance premium will play a large role in your ultimate decision.

In the absence of a crystal ball, your thoughtful, intentional and serious approach to selecting the appropriate limit for your firm will reduce the risk of uninsured or underinsured claims and improve your fortune for a long and successful business life.

2019 Zero Energy Buildings Count Nears 600, New Dynamic Tool Offers Online Access To Project Details

ARTICLE PROVIDED BY THE NEW BUILDINGS INSTITUTE

Every year, New Buildings Institute (NBI) digs into its extensive Getting to Zero Buildings Database and analyzes the information collected from thousands of low-energy projects across the United States and Canada in order to offer the market an official count of zero energy (ZE) buildings and related trends. ZE is defined as ultra-low energy projects that consume only as much power as can be generated onsite by clean, renewable resources. However, this definition is evolving to consider multiple buildings in a campus or neighborhood that use a larger, central solar array.

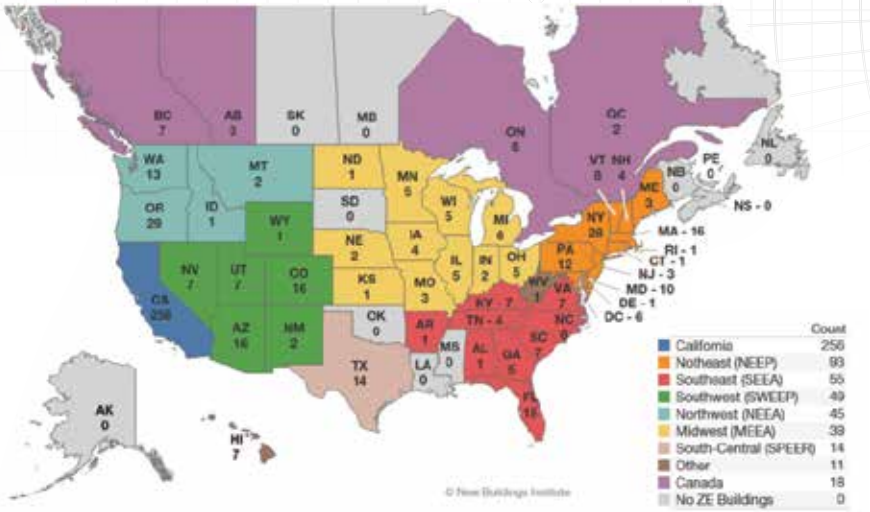
The official **2019 count is 580** certified, verified, and emerging projects, according to the 2019 Getting to Zero Project List that NBI released. That is a 10-fold increase since NBI started tracking buildings in 2012. Verified and certified buildings have provided energy use and power production data to NBI to validate their ZE status, or have been reviewed and approved by the International Living Future Institute's zero energy certification or the U.S. Green Building Council's LEED Zero program. Emerging buildings are those that have a stated goal of achieving zero energy, but do not yet have 12-months of energy use and production data to share or have not yet hit the zero energy performance target.



Growth in the count is confirmed by reported plans to invest in zero energy buildings over the next 10 years, according to Johnson Controls' 2018 Energy Efficiency Indicator Study. Clay Nesler – Vice President of Global Sustainability and Industry Initiatives at Johnson Controls – presented the findings during a webinar, explaining that of their customers surveyed, "61% of U.S. respondents are very or extremely likely to have one or more facilities that are nearly zero, net zero, or positive energy or carbon status within the next 10 years."

"That is an amazingly high number considering if we had asked this question only four years ago, we probably would have been in the single digits," Nesler said.

"Qualitatively, if we look at our data over the past five years, the trend toward net zero energy and carbon buildings is advancing twice as fast as we saw with green building



certification. It is in fact, the key trend driving investment."

In addition to growing private-sector investment, more and more states and cities are calling for zero energy and zero carbon building goals in their policymaking and for their own buildings. From Washington State to Virginia, governors are issuing executive orders and pursuing upgrades to energy codes. Legislatures are passing bills to require zero energy, and increasingly zero carbon, performance outcomes for both residential and commercial buildings. Cities likewise are using building energy policy as a lever to reduce carbon locally as buildings are responsible for up to 75% of carbon emitted in cities. Programs are being implemented that provide technical support and financial incentives that are spurring market adoption.

ZE'S MAGIC NUMBER: 22 EUI

Of the documented projects, the median gross site energy use intensity (EUI) is 22 kBtu per square foot per year. That means ZE-verified buildings on average use 60% less energy than other comparable existing U.S. commercial buildings, and 46% less than new buildings under California's Title 24.

"How low can they go?" asked Cathy Higgins (NBI Research Director) when sharing the analysis.

"It's pretty amazing to me to see buildings operating at less than half the energy use of standard buildings, and even 40% less energy than the most advanced building codes in the country [CA Title 24]," she said.

The growing number of projects and technology application trends also show an increasing capability of the market to deliver on zero energy performance. Higgins reviewed the mainly "off-the-shelf, market-ready" technologies applied in the ZE building set including:

- Heat Pumps
- Ventilation: Natural, Dedicated Outdoor Air Systems (DOAS), Demand Control Ventilation (DCV)
- Highly Efficient Thermal Envelope
- Building Orientation & Glazing Ratio
- Solar Control – Shading
- Daylighting Access and Controls
- Energy Management Systems
- Building Dashboards
- Radiant Heating/Cooling & Chilled Beams
- Plug Load Reductions
- Energy Recovery Systems

In addition to the *Zero Energy Project List*, NBI released a new online tool that offers users access to information about the ZE buildings on the list and shows where they're located on a map. The dynamic database allows searches on location, size and building type, and generates charts and graphics conveying the appropriate information. To access resources, visit the sites below:
www.newbuildings.org/resource/2019-getting-to-zero-project-list/
www.newbuildings.org/resource/getting-to-zero-database/
www.newbuildings.org/webinar/getting-to-zero-buildings-count-and-trends-for-2019/

For more zero energy resources and to learn about our Getting to Zero Forum this October 9-11 in Oakland, visit www.gettingtozeroforum.org.



Association of
Licensed Architects

ALA Career Center

Find and Post Architecture Jobs



The ALA Career Center was created to give employers and job seekers a better way to find each other and make that perfect fit.

Create an Account Today!

alatoday.org/careers

Employers

- Create an account
- View job posting packages
- Post a job
- New! Post internships for FREE for 60 days!

Job Seekers

- Create an account
- Upload your resume
- Browse jobs
- FREE resume review by TopResume

Call for assistance 888-491-8833

Ext. 2580 (Extension required)

Index of Advertisers

ADVERTISER	WEBSITE	PAGE
Bryce Downey & Lenkov LLC	www.bdlfirm.com	9
Charrette Venture Group	www.charretteVG.com	5
Enoch Sears AIA	www.dreampracticewebinar.com	13
Heley, Duncan & Melander PLLP	www.heleyduncan.com	22
Hoover Treated Wood Products	www.frtw.com	Inside Front Cover
Husch Blackwell	www.huschblackwell.com	10
JG Innovations, Inc.	www.jgius.com	11
Kelly P. Reynolds & Associates, Inc.	www.kellypreynolds.com	5
Larson Engineering, Inc.	www.larsonengr.com	37
Marvin Windows	www.marvin.com	Outside Back Cover
Schweiss Doors	www.schweissdoors.com	23
Tee Jay Service	www.teejaydoors.com	12

LICENSED ARCHITECT

Association of Licensed Architects



MODERN PRINCIPLES. MARVIN INNOVATION.

Introducing a modern line unlike any other.

For Marvin Modern, we considered every detail, from product to packaging to installation, resulting in a line of windows and doors that's as beautiful to design and work with as it is to live with.

Discover it at **marvin.com/modern**.

MARVIN®

© 2019 Marvin Windows and Doors. All rights reserved. ® Registered trademark of Marvin Windows and Doors.