LICENSED ARCHITECT

Association of Licensed Architects

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2020 FALL Digital Edition

Cultivate Relationships to Build Business

Continuing Education: Air Barrier Systems

ADA Advice: Kitchen & Bathroom Outlets

Exterior Insulation: Wind-Washing & Heat Loss

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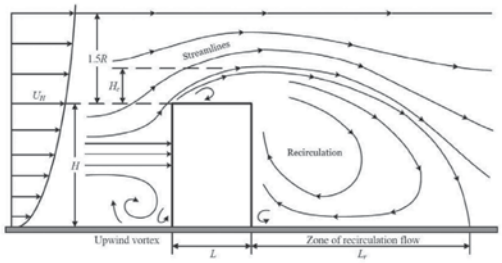

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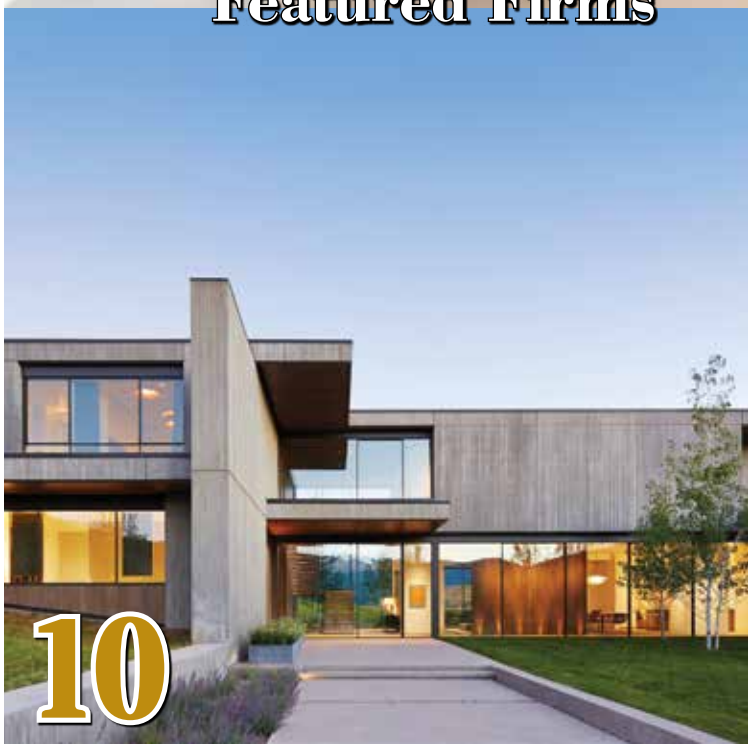

Departments

COVER: Woodland Modern
Architect: Robbins Architecture
Photography: Steve Hall, Hall+Merrick

PRESIDENT'S message

We are entering my favorite time of the year – Autumn. Many of the leaves have fallen but there are some wonderful colors still around. The weather is getting cooler with that familiar chill in the air. The holidays will soon be here and while they may not be the same as past years, maybe they will bring some new excitement as we celebrate a bit differently.

The year is not finished yet and ALA has a busy schedule of events to help finish up the year! Most importantly, the ALA 2020 virtual Conference is November 4, 5 and 6 from 12:30 to 4PM. If you have not signed up, you can right up to the start and during. The keynote speakers are fantastic - Julie Snow, Snow Kreilich Architects (Wednesday); Nicola Springer, Kirksey Architects (Thursday); and Heidi Ruehle, FLW foundation will give a video tour of the renovated Unity Temple (Friday). In addition there will be educational seminars where you can earn LU's towards renewal of licensure. And, a virtual Exhibit Hall where you can explore manufacturers and their products. Please support ALA in our efforts to support our membership by signing up today and participating in the show. Thank you for your investment in ALA and our profession!

We held the Design Awards judging on October 16th and have 23 winning projects. We had a great response despite the pandemic. There were a large variety of projects and all were outstanding. I want to congratulate all the firms that participated for their excellence in design. There will be a virtual presentation of the awards in December.

Please renew your membership by December 31st. We count on your support.

ALA will be announcing a schedule of programs for 2021. If you are like me, you may be wondering what will "2021 be like." Let's remain optimistic and hopeful that it might be moving toward what we used to know.

Until next time, best wishes to all of you.

LICENSED ARCHITECT

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Cultivate Relationships to Build Business

Practice Clarity
Helping Architects Build Business

BY: JEAN LEATHERS, PRACTICE CLARITY

During this tumultuous time, the question I am asked the most is, "How do I build my business during COVID-19?" This is a valid question considering that whole market segments have shut down, we are mostly working from home, conferences and association meetings are no longer in person, and we're left trying to build relationships virtually rather than over meals, coffee, or drinks. Yes, the times have changed, but many of the tried and true practices of building trust-based, meaningful relationships remain the same.

Check the psychology of your approach

We all need new business to stay afloat. Some seasoned folks are comfortable staying in touch via phone, email and video calls. But there are plenty of architects who have been building their businesses based on repeat business and referrals who are now finding themselves in a position to need to prospect for work.

The key to success is to remember the right frame of mind, the right perspective, so you're building the relationship and not trying to sell your services.

Of all the types of buyer-seller transactions, professional services is the most sophisticated process and requires the highest degree of trust to close a deal. At the base level of a pyramid of buyer-seller transactions and the trust required to close a deal, does it matter who rings you up at the pharmacy or grocery store checkout? Probably not. And the level of trust required for the transaction looks like, "Did I get the right change?"

Move up the pyramid to more complex, higher dollar item purchases, say a luxury car. Now you're starting to care about the relationship with the dealer and

with the sales professional. The number of times you'll make this purchase is relatively low, compared to the volume of transactions at the pharmacy or grocery story. There is a higher degree of trust involved in the sale.

So, where do architects stand? At the apex of the pyramid. Generally, the number of transactions is the fewest, the dollar volume is the highest, and the product is services, so you're beginning with little but trust to initiate the transaction. In other words, you can't show a potential client what their house, building, restaurant, office will look like because you haven't designed it yet. This type of transaction requires a very high level of trust to close.

So how do you develop meaningful, trusting relationships? Following are three essential ways in which we can cultivate relationships that lead to work.

1. Be authentic

There has never been a time when authenticity has been more important when cultivating relationships that lead to work.

We're living in a time when the boundaries between work and home life are being blurred because of work from home mandates due

to COVID-19. On Teams or Zoom meetings, we get a glimpse into the lives of our clients, colleagues and work associates that makes engagements feel more personal than ever before. Kids show up in the background, a dog barks off screen, a delivery arrives so we step out for a moment. All of this has drastically changed the playing field of work.

We used to have the ability to separate our work and home lives in such a way that our business engagements were devoid of personal information and news. We dressed in corporate attire, had perfectly coifed hair, people wore make up. Today we are seeing beyond those formalities. We are truly getting to know one another on a personal level. And we like it.

That's why it's so important today to simply be yourself. Putting on airs, using smoke and mirror tactics to project a "presence" have fallen by the wayside. We need to be authentically ourselves.

2. Develop the right mindset in your approach

Your approach to a potential client is critical. Understanding the right mindset to approach your clients is what will help you feel comfortable when building new relationships. This means it is critical to understand the difference between selling, business development and client development.

Selling

We all know what it feels like to be sold to. You come away with a somewhat slimy feeling. You know the other person is in it to get something – commission, recognition, bonus, you name it. The poet e. e. cummings once said, "a salesman is an it that stinks to please." I think we all know what he means. So, whatever you do, don't go out into the marketplace trying to "sell" architectural services. It simply doesn't work.

What does that look like? Contacting a prospective client—or even a current client—focusing on your firm. You do a dog and pony show, presenting your projects, walking through pretty images of projects you've done for other clients, then ending up asking if there's any work they might consider you for. That's selling. It doesn't work for architects!

Business Development

Business development is what we do when we're in our conference room talking about what markets and market segments we want to go after, who the clients are, whom we'd like to target, and what we're going to do to get work.

This is a very firm-centric model. It's essential, of course, to strategize where you'd like to go with your business and with whom you'd like to work, but this approach stinks equally badly of "what's in it for us?" If we take it onto the playing field when we talk with clients, we are coming from the wrong perspective. Psychologically speaking, this is why we feel uncomfortable about building relationships.

Client Development

This is the most comfortable and effective perspective for pursuing new work. Client development is all about your prospective or existing client. We're taking a hard look at what the client needs to do to grow *their* business. It is client-centric thinking.

To be prepared to engage in a client development meeting, we likely need to do some research. Public company? Read the annual report. Municipality? Read meeting minutes. Private company? Research via LinkedIn and other public sources. Residential? Look at demographics to determine where growth is, then meet with realtors, bankers, contractors, etc., to find prospects.

Client development sounds like this, "So how has your company adjusted to the COVID-19 situation? If your employees are working from home, are you planning to bring them back in? If so, when? How do you see your space evolving to accommodate the reintroduction of staff? What's happening in the markets you serve? How are you adjusting your growth plans to accommodate the changes in the marketplace?" These are the kinds of questions that demonstrate to your client that you care about them and their business.

3. Give your clients your attention and time

Building trust requires three things: authenticity, attention and time.

Authenticity

We've already discussed the most important factor: authenticity. The key to this is being willing to be open, even vulnerable. When reaching out to potential clients, it means being the first one to talk about something personal. Make the call about getting to know them as a person before diving into the business discussion.

Attention

Building a solid relationship requires paying attention. What does this look like in a business environment? Here's a great example. Recently a client and I were going over a list of dormant clients. One was a church that had gone through the permitting process and the permits were due to expire in a month. He was able to reach out and renew the permits, even though we knew the church had no monies for moving forward. That's paying attention. The church was incredibly grateful. By making this gesture, my client is continuing to build trust and remain top of mind.

Time

It takes time to build relationships and there's no short cutting it. It's worth noting that it takes between six and eight contacts with a new client for them to remember your name. With that said, it's best to stretch out your contacts with prospective clients. Aim for six touches. This could look like:

1. An introductory email (preferably with an introduction from a colleague or client) asking for a phone call or virtual meeting. Don't include a lot of firm information or attach a brochure yet. We need to do that later in the process.

2. If the person is open to a meeting, then you'll engage in an email or two to schedule the meeting.

3. Be the one to send a calendar invitation; after all, you're the one who requested the meeting. But more importantly, you can label the call, video call, or meeting. Be sure to put your name first and their name second so you appear in their calendar correctly.

4. Have the meeting. Open casually to break the ice. Then explain why you wanted to meet: to explore if there's a fit and if it makes sense to do business together. Ask questions that demonstrate your expertise. Only talk about your firm if they ask you questions about your firm. Conclude by asking if they think there's a fit and then ask if there's any way you can be of help at the moment.

5. Follow up after the meeting with an email or handwritten note with a business card. Here's when

sending information about the firm may be appropriate. Remember, however, that the potential client has already checked you out online by visiting your website, so don't clutter their inbox or mailbox with unnecessary information.

6. Follow up in two weeks, then two months. This should be in your calendar, so you don't forget. Determine the right length of time for following up from here.

This formula gives you six to eight contacts. Hopefully after all this, your potential client will remember your name, company and how you might be of help.

Having meaningful and trusting relationships is the lifeblood of a successful architectural practice. The right mindset, approach and strategies will help you strengthen existing and build new relationships so your firm can weather the difficult times and grow into the future.

CANOPY
ARCHITECTURE • DESIGN

Canopy is a social impact practice composed of 11 architects and designers established in 2009. Our firm brings over 80 years of professional experience in roles ranging from pre-development, design, community engagement, document, and construction administration. We believe in a collective design process, influenced by all project participants, using architecture as a vehicle for positive change.

Whether it's a home, multi-use facility or other project type, the context, the local elements that connect people together-- is important in our process. Canopy lives to imagine, develop and create places where people live, meet, learn, and, ultimately, connect together.

We are an MBE Certified architecture firm by CMS Illinois. We carry LEED AP and Certified Passive House Professionals (CPHC) to deliver a variety of climate-based and other performance driven projects throughout the region.

Photography: Sarah Crowley

Canopy Studio

"The Canopy Studio" is symbolic of our firm's commitment to sustainability through preservation, we see this project as a reflection of our sensibilities to honor the past, present, and future in our work.

Photography: Chris Barrett

Oso

OSO is a new construction, 5-story 48-unit affordable housing project in the Albany Park neighborhood. We worked closely with the affordable developer and local community groups to establish a program of 1- and 2-bedroom affordable apartments, community rooms, tenant amenities, a public courtyard, and an art mural wall -- all nestled in the heart of the neighborhood.

Enlace

This 3-story building uses materials common to the neighborhood, brick and glass block, applying them in innovative ways to create an aesthetic familiar with the surroundings and at the same time new and inviting, creating a welcoming space that accommodates both office needs and a new community space.

Photography: Sarah Crowley

1630 Cullerton

Located in a dense Chicago neighborhood in Pilsen, the 1632 Cullerton project is targeted as a LEED certified multi-generational facility (3-units) housed within an 1880s historical Italianate home and a new modern 2-story building.

RobbinsArchitecture

Robbins Architecture is a design oriented residential architecture firm located on Chicago's North Shore. Using principles of modern design, the firm is known for designs that radiate warmth and livability. The practice is led by founder Celeste Robbins with an expansive portfolio of award winning and published projects all across the United States.

Photography: Steve Hall, Hall+Merrick & Steve Freihon, Tungsten LLC

Mountain Modern

This home responds to its Rocky Mountains site with a sweeping, modern design. Expanses of glass wrap the home to introduce light and blur the separation between indoors and out. Inside, a series of sunlit spaces flow into one another, gradually breaking down the scale of the site.

Ravine House

Set atop a ravine along Lake Michigan, this modern home embraces the beauty and drama of the landscape for an expansive connection with nature through every season. A careful design creates street-side privacy, while still allowing light to filter through.

PHOTOGRAPHY: STEVE HALL, HALL+MERRICK

PHOTOGRAPHY: STEVE HALL, HALL+MERRICK

Woodland Modern

A two-story modern form complements the serenity of this home's setting. Setbacks and roof overhangs were used horizontally to reduce the overall scale keeping the home from dominating its context. Inside, spaces traditionally organized as separate rooms are joined together to create a light and open informal floor plan.

Introduction to Air Barrier Systems: Controlling Air Leakage and Moisture Movement

BY: CONLEIGH BAUER, WR MEADOWS

To protect a structure from moisture intrusion, one must look at the entire building envelope working together. Underslab, below-grade, above-grade, roofing, and transitions between these systems must provide equal protection against water and air. While this article explores only one of these systems, keep in mind its context with the other components in the building envelope. Control layer continuity and material compatibility are the most important factors in designing comprehensive moisture protection for the building envelope and its occupants.

Furthermore, the air barrier assembly acts as an important part of the water control layer in addition to the air control layer. The purpose of the air barrier system is to prevent moisture in all its forms from negatively impacting the structure and the occupancy experience.

Aluminum Sheet Membrane

High Performance Buildings

As building science has developed, the air barrier system has become increasingly recognized as crucial to moisture protection and whole building energy conservation. Uncontrolled air movement causes the loss of conditioned air, the influx of moisture through unconditioned air, the potential for organic growth into occupied space, and premature deterioration of materials. Most locally adopted energy codes now require air barriers to prevent leaky buildings and the unnecessary energy loss of conditioning of these spaces.

In addition to controlling moisture, curbing air leakage protects the assets of the building, extends the working life of equipment, and supports a longer life cycle of the building. Stopping uncontrolled air flow controls sound, particulate matter, odors, and gaseous substances from entering the building. A well-designed air barrier system promotes healthy indoor air quality, prevents mold, and allows the building to function as intended for the occupants.

The Hydrologic Cycle

In order to understand how moisture moves through a structure, one must understand how water moves in nature. The hydrologic cycle is the continual shift between liquid water to water vapor through evaporation and condensation.

Rain or other precipitation may enter the structure through gaps or cracks in the building envelope. Liquid water not only moves high to low due to gravity, but also horizontally and against gravity due to due to surface tension and capillary action. Smaller openings actually allow water to penetrate further due to water's unique chemical properties.

Water vapor is a high energy single H2O molecule. Water vapor diffusion is the migration of these single molecules through the atomic negative space of a solid substrate. Water vapor will attempt to move from high concentrations to low concentrations

Liquid Applied Air Barrier

until equilibrium is reached. Because the interiors of our structures are conditioned, there is typically a vapor drive. The direction is dependent on the climate where the structure is located and the time of year. For example, a warm humid summer will create a vapor drive from exterior to interior, while a dry cool winter will create a vapor drive from interior to exterior. However, vapor diffusion is a slow process which moves very little water above grade, especially when compared to air transport.

Air transport moves significantly more water vapor into our structure than vapor diffusion because the molecules don't have to fight through another substrate. Air moves similarly to a liquid. Suspended water vapor is carried very quickly through the air similar to the flow of a river. Air movement can move up to 100x more moisture than vapor diffusion alone. In regards to structures, each gap or crack, change in material, or change in direction is an opportunity for air to enter. There can be thousands of these transitions, which make the air barrier layer significant in preventing water vapor molecules from entering.

Liquid Membrane Vapor Permeable Air Barrier

In reality, water vapor itself has little effect on the building envelope. However, water vapor has the potential to condense into liquid water after it has entered, and liquid water poses a serious threat. This change of state is referred to as the *dew point*. Dew point is dependent on the relative humidity of air and the ambient temperature. As warm, humid air cools down, its capacity to hold moisture decreases. At a certain point, the air will not be able to hold the suspended water vapor molecules anymore and those molecules will condense into a liquid. In a perfectly designed and installed wall enclosure, the dew point will always occur within the insulation because that is where the temperature change should occur. However, gaps in air control layer can bring unconditioned air further into the structure and change the location of the dew point.

How Does Air Enter?

Air flow is subject to multiple pressures that push and pull air into and out of our structures. Positive *wind pressure* forces unconditioned air in the conditioned space, while negative pressure pulls conditioned air towards the exterior. *Stack pressure* is a result of warm air rising and cool dense air sinking, which creates a positive pressure at the top of the building and therefore a negative pressure at the base. The taller the structure, the more intense the stack pressure. If unprotected, a strong negative pressure at the base will pull in air, moisture, and potentially harmful soil gases such as radon or methane from the soil below grade. *Fan pressure* occurs from the mechanical system that draws air throughout the building, creating both positive and negative pressures. Holes in the building can cause infiltration of unconditioned air, and exfiltration of conditioned air, causing the HVAC system to consume more energy than necessary.

Liquid Synthetic Rubber

Controlling Air Leakage

Controlling air leakage is the substantial task of covering all gaps and cracks in the building envelope. Special attention must be made to any change in material or change in direction. This can add up to thousands, or hundreds of thousands, opportunities for air to pass through the wall enclosure. This task cannot be left up to the air barrier membrane alone. The air barrier system is made of multiple assemblies, and each assembly is made of individual components. For example, primers, mastics, tapes, transitional membranes, reinforcing membranes, joint filler, and mechanical fasters are some of the components included in the air barrier assembly. The air barrier assembly joints with other assemblies, like windows and doors, to form a complete the air barrier system. Each component must work together and performance as well as the main membrane to minimize punctures, withstand pressures, and accommodate movement due to thermal changes. All components and systems must be chemically compatible, equally durable, and resist deterioration over time.

Permeable vs Impermeable

Do you need a vapor barrier? In short, no. For most wall systems, in most climates, it is advantageous to use a permeable membrane over a vapor barrier. No air barrier system is 100 percent perfect. The wall will get wet at some point during the life cycle of the building. However, water is not necessarily a problem in the short term. If the air barrier allows water vapor to pass through, the wall is able to dry faster than with a vapor barrier. An impermeable vapor barrier can be used, but it requires additional coordination with the other components in the building enclosure. One vapor impermeable material within the wall is acceptable, because moisture can dry towards the interior or the exterior. However, two vapor barriers within the same wall enclosure can trap moisture indefinitely and cause long term problems. Current energy code requires continuous exterior insulation for most commercial structures, which is vapor impermeable material at the recommended thickness. A vapor barrier would not be recommended in this case.

Air Membrane Materials

There are many varieties of air barrier products, but most can be sorting into a few categories. *Self-Adhered Sheet Membranes* offer the benefit of a uniform thickness straight from the factory. However, detailing and penetrations can be difficult due to the rigidity of the membrane. *Fluid Applied Membranes* are generally easier to install and less labor intensive. However, spraying the product requires special equipment. In urban settings, overspray may be a concern. Applying at a uniform thickness is critical, and also more challenging. The thickness must be checked frequently using a *wet mil gauge* to ensure proper coverage. If *Insulating Board Stock* or *Integrated Sheathing* is used for the air control layer, it must be detailed as such. Meaning all joints, penetrations, and transitions must be sealed. *Mechanically fastened commercial wrap* is challenging to install, but works well if done correctly. All nails must be gasketed and seams taped. When issues occur, it can be very difficult to trace where the issue stems from, because moisture can move very quickly behind the membrane.

When selecting a product, it is paramount to consider product durability. Air barriers are not maintenance systems. Once the wall cavity is enclosed, the air barrier becomes very expense to repair. These systems should last as long as the wall. Budget concerns should be balanced in terms of material cost, labor costs, and schedule, and which is the highest priority to the owner. Chemical compatibility between the other assemblies and systems is a must.

Air Barrier System Design

Keep it simple! Decide which layer provides the air barrier and maintain continuity. Pay special attention to detailing, penetrations, and the sequencing of transitions. It is important to develop details that are clear and simple to construct in order to minimize installation errors. Dedicate a plan review for the air barrier system to walk through important transitions, like roof-to-wall, foundation-to-wall, and wall-to- door/window. Angles and joints must support the same air pressures as the air barrier material without displacement. One should be able to trace the air barrier system as a continuous line in the drawings.

Site specific considerations include the local code requirements and climate conditions. If the project is located in an area with constant heavy rainfall, then a liquid membrane might not suit the needs of the project.

Pre-Installation Meeting

After creating a well-thought-out design, comprehensive details, and clear specifications, a pre-installation meeting will ensure that the design is executed correctly. This meeting should involve all trades that will interact with the air barrier system. Discuss all details for airtight transitions and connections, including the sequencing of materials and trades. This meeting will also define expectations for surface precreation and quality of installation. The pre-installation meeting also serves as a final check that all joined materials are compatible.

Test Questions

Air Barrier Systems

1. Which of the following can cause the loss of conditioned air, the influx of moisture through unconditioned air, the potential for organic growth in the occupied space, and the premature deterioration of materials?
   a. Uncontrolled air movement
   b. Uncontrolled daylight exposure
   c. Uncontrolled thermal transmittance
   d. Uncontrolled solar radiation

2. What is the role of the air barrier system in the building envelope?
   a. Controlling the movement of water
   b. Controlling the movement of air
   c. Controlling the movement of water and air, preventing moisture in all forms from negatively impacting the structure and occupancy.
   d. Filtering conditioned air

3. What factors influence the migration of water vapor?
   a. Where the structure is located
   b. The climate
   c. The time of year
   d. All of the above

4. What must be accomplished in order to control air leakage in a building envelope?
   a. The building envelope must be constructed with no gaps or cracks.
   b. All gaps and cracks in the building envelope must be covered up and special attention must be paid to any change in material or change in direction.
   c. The building must be equipped with a negative pressure HVAC system.
   d. It is not possible to control air leakage in the building envelope.

5. Which of the following is a variety of air barrier product?
   a. Self-adhered sheet membrane
   b. Fluid-applied membrane
   c. Mechanically fastened commercial wrap
   d. All of the above

6. Water vapor diffusion is the migration of single H2O molecules through the atomic negative space of a solid substrate.
   a. True
   b. False

7. Water vapor will attempt to move from low concentrations to high concentrations until equilibrium is reached.
   a. True
   b. False

8. Stack pressure is a result of warm air rising and cool dense air sinking, which creates a positive pressure at the top of the building and therefore a negative pressure at the base.
   a. True
   b. False

9. When designing an air barrier system, one should be able to trace the air barrier system as a continuous line in the drawings.
   a. True
   b. False

10. Liquid water moves high to low due to gravity, but will not move horizontally against gravity due to surface tension and capillary action.
    a. True
    b. False

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Outlets in Kitchens and Bathrooms: Plug into the Details

Based on 2018 IBC and 2009 ICC A117.1.

BY: KIMBERLY PAARLBERG, RA, SENIOR STAFF ARCHITECT, INTERNATIONAL CODE COUNCIL

The National Electrical Code (NEC) requires outlets in kitchens. This article discusses accessibility to outlets over a counter. The NEC says every piece of counter 12 inches or wider must have an outlet over it. In addition, there must be at least one outlet every 4 feet. When you have an L-shaped piece of counter, this effectively puts at least one outlet in the back corner. The ICC A117.1 requires a clear floor space of 30 x 48 inches in front of a counter so a person in a wheelchair can reach the outlets. This in itself sounds fairly simple, but the details can spark confusion.

Outlets in commercial kitchens are exempted as elements of employee workstations (IBC Section 1103.2.2). Therefore, this discussion concerns kitchens within Accessible, Type A and Type B dwelling units, and accessible kitchens outside a dwelling, such as kitchens within a club house or community room.

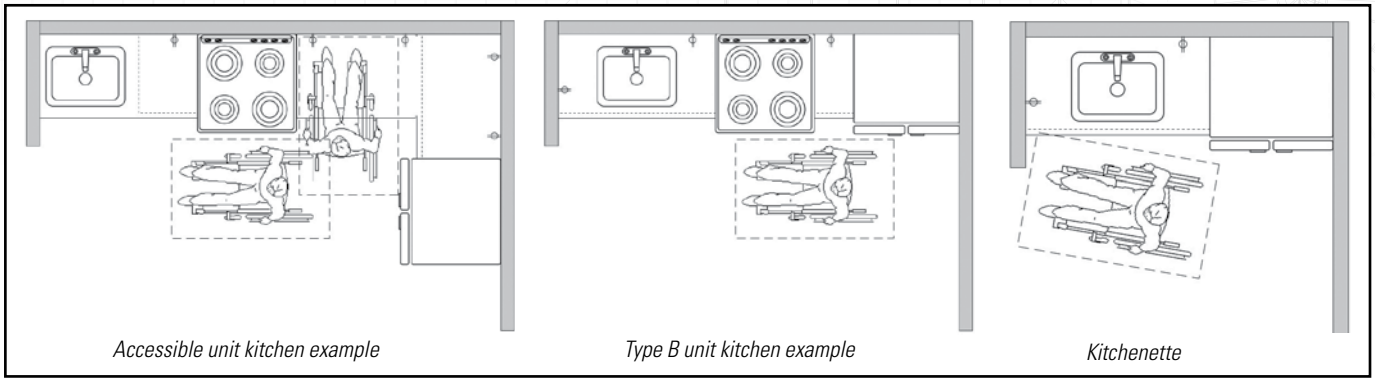
There are three things to consider: (1) placement of the clear floor space in relation to the outlets; (2) reach depth; and (3) the height of obstructions.

Possible placement of the clear floor space. A stock kitchen cabinet is typically 36 inches high and 24 inches deep, with a 1-½-inch lip overhang for the countertop. A standard range is 25-1/12 inches to 29 inches deep and 36 inches high. A standard refrigerator is 28 –33 inches deep. Therefore, the range and refrigerator are going to stick out farther than the counter. Where there is less than a 48-inch stretch of countertop on either side of the refrigerator or oven, it is impossible to get the clear floor space immediately adjacent and parallel to the face of the cabinets. For the range, there is the option of a countertop cooktop and wall oven to keep the depth at 24 inches. But these appliances are typically a greater cost than a standard range.

For the refrigerator, you could build a recess, but there are a couple of issues: 1) the extra construction cost of building an alcove instead of a straight wall, 2) possible loss of circulation/functionality on the other side of that wall, and 3) the doors have to be out past the front edge of the counter enough to allow the doors to swing open, or the space has to be made wider to accommodate the door swing. There also is the option of a “counter depth” refrigerator, but again, this costs more than a regular refrigerator and has the same issues with the doors opening. It is not practical to require a clear floor space flush with the cabinet face for every outlet. The clear floor space will be offset by the appliances.

Reach depth. Even if you have a 48-inch stretch of countertop, the standard 1-½-inch lip of the counter provides a 25-inch depth of reach. The obstructed side reach in the A117.1 Section 308.3.2 shows an obstruction with a maximum depth of 24 inches. From a usability point of view, the cabinet below is the obstruction to the wheelchair, not the countertop. Pulls on the cabinets or drawers are not considered an obstruction, so it seems logical and consistent to allow the same protrusion for the counter lip. I have seen the idea of surface mounting outlets forward a couple of inches. While that addressed the depth, it still does not solve the height issue; our next point for discussion.

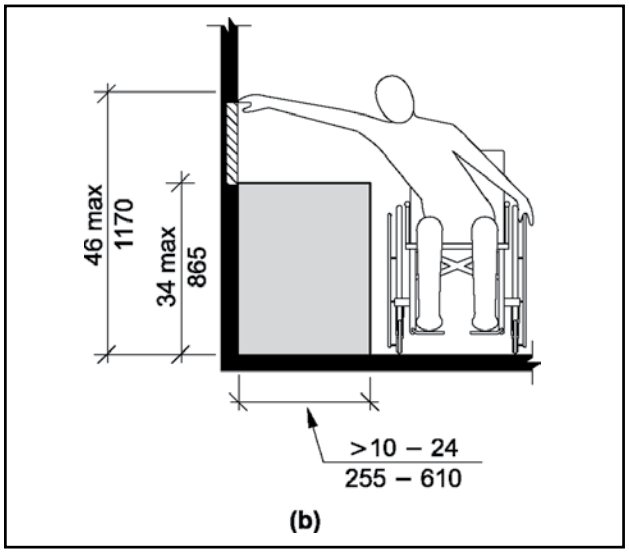
Height of an obstruction. In a fully accessible kitchen, the work surface and sink have a maximum height of 34 inches.



Accessible unit kitchen example *Type B unit kitchen example* *Kitchenette*

Outlets above the accessible work space where knee and toe space are provided will be within reach. Nothing in the kitchen requirements say the remainder of the kitchen counter has to be set at 34 inches. However, ICC A117.1 Section 308.3.2 shows reach over an obstruction with a maximum height of 34 inches. If a designer places the outlets on the back wall over the cabinets, the obstructed reach would appear to force the entire counter to a height of 34 inches maximum to allow reach for the outlets. There are issues with using the lower cabinet height throughout the kitchen: Standard ranges and dishwashers are built assuming a 36-inch high counter height. Standard stock cabinets are constructed for a 36-inch height. There are 34-inch stock cabinets available, but those are typically made for bathrooms, so storage features and options would be limited.

What are the options if a standard 36-inch cabinet is used? The obstructed reach allows for a reach depth of less than 10 inches over a higher counter—so there is the option of putting the outlet on side walls instead of the back wall, or reaching the outlet from the end of the cabinet instead of the front. There is the option of outlets on the front or side of the cabinets; or the pop-up/tombstone outlets. The outlets on the front of the cabinets typically would require the removal of some drawers, which is possible the most accessible storage areas in the kitchen. However, the outlets on the side of the cabinets is an option often used on kitchen islands. The cords hanging over the front of the counter would be a safety hazard for someone moving around in the kitchen and possibly snagging the cord with their wheelchair, as well as a hazard for any small children who might be in the kitchen. Pop-up/tombstone outlets are expensive, and the depth required also would result in losing a number of the drawers in the kitchen.

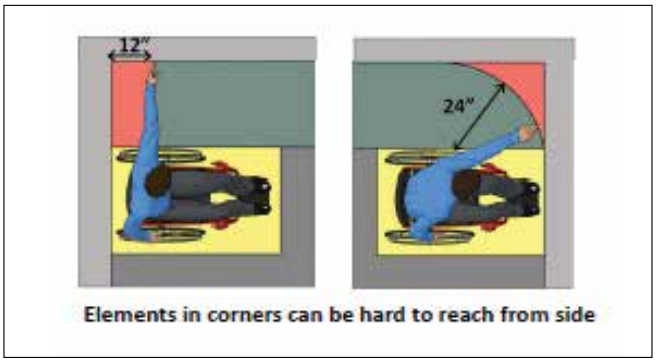


ICC A117.1 Fig. 308.3.2(b) – Obstructed high reach range

Putting outlets on the underside and front edge of the upper cabinets seems like a good solution for depth, but there is still the reach height. If you lower the upper cabinets to get the outlets to a height of less than 48 inches, the counter space under the upper cabinets is not high enough for many countertop appliances such as coffee makers, blenders or standing mixers. The 2009 ICC A117.1 removed the requirement for the upper cabinets to be within reach range in Accessible unit kitchens due to this concern.

Personally, I believe the building block provisions for reach were designed for accessible work surfaces. The impact on kitchen design combined with NEC outlet requirements was not evaluated to the level of detail currently being scrutinized.

There is the exception for a second outlet in a stretch of countertop (ICC A117.1 Exception 2 of 1002.9, 1003.9 and 1004.9), but that typically exempts only the back corner outlet over an L shape since it still requires one accessible outlet. There is an exception for dedicated outlets (ICC A117.1 Exception 1 of 1002.9, 1003.9 and 1004.9), but that typically covers only outlets for major appliances or an outlet within an appliance barn. Outlets in accessible kitchens outside a dwelling are not addressed in ICC A117.1 requirements for operable parts or kitchens (ICC A117.1 309 and 804); however, a designer can use the exceptions for dedicated outlets and duplicative outlets in IBC (IBC Section 1109.13 Exception 2 and 3). The intent for the scoping is such that kitchens are the same as within a unit addressed in ICC A117.1 Chapter 10.



Plan view of side reach range (Drawing courtesy of US Access Board)

The 2009 ICC A117.1 provided an exception within Type B units for switches and electrical outlets over cabinets that are the standard 36-inch height with a 25-½-inch depth countertop (ICC A117.1 1004.9 Exception 10). This is consistent with the Fair Housing Design Guidelines. While this does not address the clear floor space placement question, it does at least take away the depth and height concerns for Type B units. For best design practice, when looking at outlet placement, it must be consider that the true reach for side approach is really only the center 2 feet of the 4-foot length.

It was proposed to the ICC A117.1 development committee that the 36-inch high cabinets with 25-½-inch deep counters was appropriate in all kitchens when looking at reaching for outlets. The committee chose to wait for a wheeled mobility study in progress at the time to have technical data to back up any allowance within Accessible and Type A dwelling units and accessible kitchens.

Unfortunately, while this study is now complete, "reach over an obstruction" was not included so there is no technical data to provide to the A117.1 committee to revise this requirement.

In my opinion, appliances sticking out further than the base cabinets, cabinet pulls and the standard countertop edges are not "obstructions" for reaching outlets. For best design the outlets should be located to meet NEC requirements and for the best possible access for reach; such as on a side wall or located to consider the true reach illustrated earlier in this article. Providing additional outlets in more accessible locations could be a viable alternative to attempting to provide full access over every piece of countertop. Any alternatives (ICC A117.1 Section 103) must be approved by the authority having jurisdiction. For example, recently I saw a product that put a series of outlets inside a drawer. While this most likely was designed for people to charge phones and ipads off the counter, it did place outlets in an accessible location.

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Exterior Continuous Insulation: Wind-Washing and Heat Loss

BY LANCE WILLIAMS, ARCHITECTURAL SALES MANAGER, ATLAS ROOFING CORPORATION

Part Three of our series on continuous exterior insulation discusses wind-washing and its effect on R-Value. For the final entry of our three-part series on modern building techniques using exterior continuous insulation, we'll begin with yet another mathematician and philosopher you may have heard of: Albert Einstein. Einstein once said, "Peace cannot be kept by force; it can only be achieved by understanding."

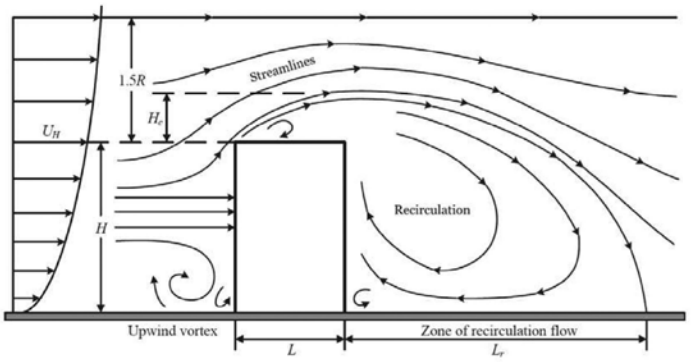
This lofty quote provides a good frame of reference for building and architecture now or at any time in history. Challenges created by circumstances outside of a builder's control, like those from weather, are more often tamed with intelligent solutions based on the most current knowledge, rather than costly "brute force" over-building tactics.

When it comes to the energy-robbing effects of wind-washing, simply adding more insulation to the exterior of walls may not be an effective solution. Instead, understanding the way wind-washing may affect insulation R-value in walls with exterior continuous insulation will allow the builder to plan for, and factor in, air movement due to wind-washing and minimize negative effects on the insulation.

RISKS OF NOT CONSIDERING THE WIND ON INSULATIVE VALUES

Without proper planning, wind-washing can unknowingly present a risk to the insulation properties of a building.

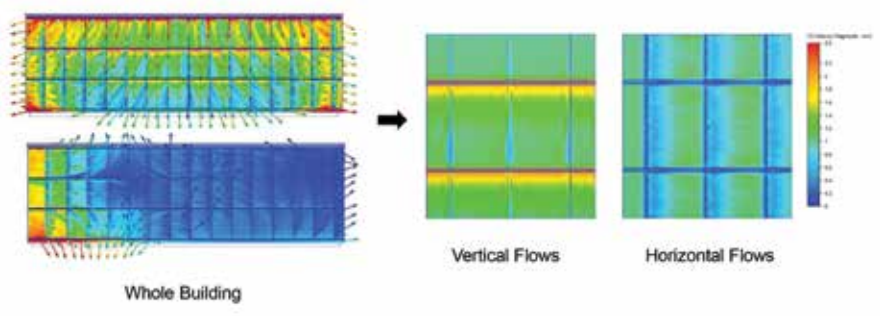
As the wind moves air across the exterior surface of a building, and therefore across the surface of exterior continuous insulation installed on buildings with ventilated rainscreens and cladding, it can create forced convection that reduces an insulation's R-value. When that happens, it can also create hot and cold spots on walls or push unconditioned air into a conditioned space.



Building Airflow (Modified from ASHRAE Handbook, 2014, Chapter 45)

Building designs with ventilated rainscreens for cladding systems improve moisture movement, but have the likelihood of creating small turbulence pockets and multi-directional air flows that contribute to the effects of wind-washing. The decreased R-Value can be measurable when the air penetrates the insulation through open pores in fibrous insulations like mineral wool or fiberglass-based insulation. Also, small openings in unsealed, friction fitted insulation slabs can add up to noticeable heat transfer when wind-washing is measured.

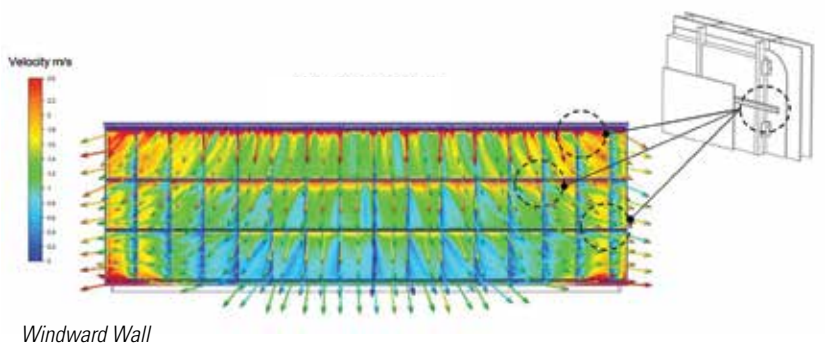
Persistent wind-washing causes issues over the life of a building. Even in milder climate zones, different parts of a building will experience varied temperature fluctuations between day and night, and between southern or



A unidirectional inlet results in simple flow regimes

northern facing walls exposing it to different levels of heat transfer.

Energy inefficiency also can cause wear and tear to a building's mechanical components like air conditioning systems, or create unexpected energy costs and decreased HVAC service life.



Windward Wall

Not all insulation is created equal when it comes to an increase in heat transfer in relation to wind-washing. Fibrous materials like fiberglass and mineral wool allow more air to permeate the open pores, which can lead to an increased heat transfer estimated to be between 4 to 42% when air flow is just 1 to 2 meters per second. To understand how this is relevant to building design, cities like Boston, New York, Chicago, San Francisco, Seattle, Atlanta and many other major cities have annual average wind speeds of over 4 m/s.

USING CI TO MINIMIZE THE IMPACT OF WIND-WASHING

Exterior continuous insulation that has closed cells and a smooth, non-porous surface, such as polyiso foam board, better negates the impact of wind-washing on designs with ventilated windscreens. These types of CI are considered to be non-gapped, wind impermeable insulation.

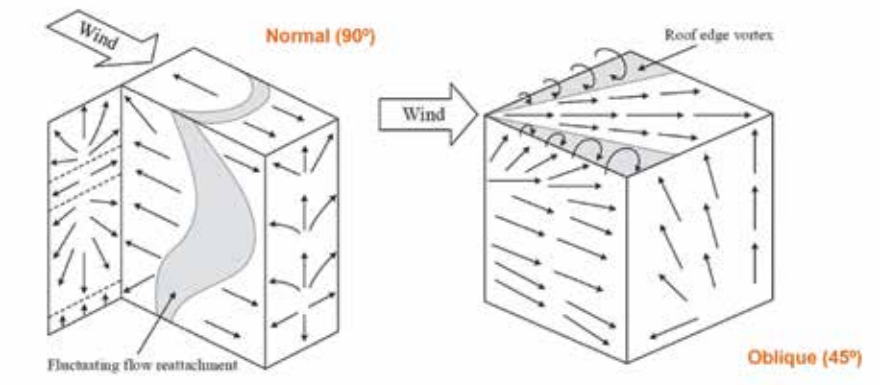
Since architects and builders can rely on the consistent behavior of closed cell foam board insulation, it allows building envelope designs that resist the potential effects of wind-washing.

This in turn, allows more confidence that the insulation will meet the expectations established at the design phase.

In fact, using a closed-cell insulation with no edge gapping, such as polyiso, can avoid up to approximately 62 percent increase in convective heat loss due to wind-washing.

Using a rigid, closed cell, exterior continuous insulation helps minimize the effects of wind -washing, compared to other types of exterior insulation. This is especially important in buildings with no wall cavity insulation as wind-washing effects are greatest in these applications.

However, the devil is in the details, and exterior continuous insulation requires attention to those details during installation. When it comes to building construction, proper installation is important to every aspect of a project, and well-installed CI has multiple advantages that become even more significant once you understand that air movement plays more of a factor in effective R-value than may have previously been understood.



Surface Flow (Modified from ASHRAE Handbook, 2014, Chapter 45)

As covered earlier in this series, correctly installed polyiso foam board insulation can help to negate the effects of R-value robbing thermal bridging by creating a barrier to keep out or control airflow. Now we have to add the wind-washing factor when selecting and installing continuous installation.

Polyiso foam board panels are easier to install properly compared to other materials when it comes to tight, gapless insulation, as they can be closely abutted to one another and the edges sealed to create a smart building envelope that is resistive to wind-washing.

The same can't be said for a fibrous, mineral-based CI product that can develop ragged edges, gapping and can be difficult to tightly fasten to the backup wall.

Architects and builders that want the best material to control the effects of wind-washing and better enable well executed installation are likely to consider polyiso foam board as their first choice.

CONCLUSION

In our three-part series on exterior continuous insulation, we've learned about CI's performance in relation to fire, moisture and air.

We've established how exterior continuous insulation can help builders achieve their goals through simplicity, reliability and consistency by selecting high performance polyiso.

Using the principles we've discussed, along with ideas from Blaise Pascal, Aristotle and Albert Einstein, architects and builders can create safe, comfortable, functional buildings.

2020 Student Merit Awards

The Association of Licensed Architects congratulates the following students for their academic excellence, numerous awards, honors, and significant achievements in the schools of architecture. We believe these winners will be assets to the profession of architecture in the future and continue to excel in their education and professional pursuits.

This year we had 27 winners from 17 colleges and universities. Each recipient received a complimentary one-year membership to ALA and award certificate.

Bin Sayeed Bakhti
Miami University
Master of Architecture
Bin not only loves designing, but also enjoys observing, analyzing, rethinking, and discussing all things Design.

Brett M. Cooper
Ferris State University
Bachelor of Science in Architecture and Sustainability
Brett Cooper will earned a BS in Architecture and Sustainability in May 2020. Brett demonstrates excellence in the classroom, design creativity, and leadership in program events and AIAS. He has made the Dean's List all 8 semesters since fall of 2016. In addition to many academic scholarships, he received the Outstanding Architectural Technology student in May of 2018. Brett will remain at Ferris State one year to earn a BS in Facility Management; then continue to earn a NAAB accredited degree.

Kamila Czyszczon
Harper College
Architectural Studies
Kamila is a dedicated student who strives to excel in all that she does. She is highly motivated and contributes much to the classroom culture.

Nia Damgova
Drury University
Master of Architecture

Kate Davenport
Judson University
Master of Architecture
Kate is an excellent student with broad interests. She was a varsity athlete (basketball) throughout her undergraduate studies at Judson University. Upon graduation, she spent a year working with a design build firm in southern California before returning to Judson for her Master's degree. Kate is the Graduate Fellow of Digital Fabrication, and takes on many other leadership roles within the department of architecture.

Qingqing Deng
University of Illinois at Urbana-Champaign
School of Architecture BSAS
Qingqing Deng grew up in China. She is now in her 4th year at UIUC. With a GPA of 3.95, she has won several prizes and recognitions including Dean's list, Gargoyle Society Award, Excellence and Edward C. Earl Prizes, David Luebkeman Architecture Scholarship and MOA Design and Build Competition. She has worked as an architectural intern in varied companies such as Hong Kong Huayi Design Consultant Ltd. and Ingame Office. Qingqing is going to pursue her master of architecture.

Timothy Hefler
Southern Illinois University
Masters of Architecture
Timothy graduated in May of 2019 with a Bachelors' Degree in Architectural Studies from SIU. He took part in forming a chapter of Alpha Rho Chi at SIU where he served as Philanthropy Chair and Vice President. He has also served as our Student Licensing Advisor for the past three years helping to guide students on their path to licensure. After graduating in August of 2020, Timothy plans on working in an architectural firm as he continues his own path to becoming a licensed architect.

Michelle Jackson
Southern Illinois University
Bachelor of Architectural Studies
Michelle graduated May of 2020 with a Bachelor of Architectural Studies degree, as part of Tau Sigma Delta, and while also serving as the current 2019/2020 President of AIAS here on this campus. Michelle has excelled in both academics and leadership roles and plans to continue her education here at SIU in the Master of Architecture program this summer, where she will then go on working towards becoming an Architect.

Nash Kennedy
University of Illinois at Chicago
Bachelor of Science in Architecture
Nash has been involved in all aspects of student life in the School of Architecture during his time at UIC. He has participated in special projects and exhibitions, assisted with summer programs for prospective students, and worked in the School's Project Lab helping others with their models and projects. Throughout the program, Nash has exhibited strong academic and design work that has been selected on multiple occasions for exhibition in the School's annual Year End Show.

Joseph Koslow
Ball State University
Master of Architecture
Joe has demonstrated an exceptional passion for his final thesis project in the M. Arch program. His subject area research into the impact of climate change on communities was top in the class and his final project is continuing that excellence. Joe will become an exemplary member of the architectural profession. This award is in recognition of his ability, work effort, commitment, and achievement throughout the year.

Max Kokensparger
Bowling Green State University
Bachelor of Science in Architecture
Max Kokensparger, a top undergraduate student, is known for his investigation into the many roles and functions of the architect as well as to generate most interesting design inventions. He plans include to pursue advanced degree in architecture as well as to become licensed architect.

Noah Legare
University of Notre Dame
BArch
Noah Legare has interned in the Milwaukee office of Plunkett Raysich, and at Private Financial in Appleton, Wisconsin. He spent his junior year in Rome, Italy with Notre Dame's Rome Studies Program. After graduation he plans to work with Merrill, Pastor & Colgan Architects in Vero Beach, Florida. For his thesis he is designing a Wilderness Retreat Lodge in Grand Teton National Park.

Shubhangini Malhotra
Illinois Institute of Technology
Master of Architecture
Shubhangini currently maintains a 4.0 gpa in her program.

James J. Mustillo
Miami University
Bachelor of Architecture

Emmet Norman
Triton Community College
Architecture Associates Degree
Emmet has proven himself to be an outstanding, hardworking student in both his technical and design classes. He has demonstrated a great work ethic, and sets the standard for other students in the class. Emmet is President of the student Architecture club and organizes activities and encourages younger students. He is also a tutor for the first semester drafting students. Emmet is a great asset to every class, and comes with a positive attitude.

Mackenzie (Mack) Pearson
Ball State University
Bachelor of Architecture
Throughout the year, Mack Pearson has demonstrated a tremendous work ethic and commitment to his professional education. Mack established the bar for how a steady, consistent work effort is essential in the development of excellent, well reasoned architecture in this year's undergraduate thesis studio. Mack also is tremendously supportive of his fellow students. For his affirmation of the studio learning environment and professionalism, Mack Pearson is an exemplary candidate for this award.

Pimpakarn Rattanathumawat
Illinois Institute of Technology
Bachelor of Architecture
Prim currently maintains a 4.0 grade point average. She is the recipient of several annual Award scholarships including the Dwight T. Black Memorial Scholarship in 2018 and 2019. She was also a nominee for the 2019 AIA Chicago Student Award. Prim was selected by ZGF to complete a summer internship at their New York office in 2019. She also received second place in the Association of Collegiate Schools of Architecture's Steel Design Student Competition in 2019.

Caleb Rutter
Judson University
Bachelor of Arts, Architecture Studies
Caleb is an excellent student who balances two collegiate sports and high performance in every course. In addition Caleb is married and balances all three aspects of his adult life in a way that humbles his faculty and fellow students. We could not imagine a more deserving undergraduate for this honor.

Larissa Sattler
Washington University in St. Louis
Master of Architecture

Isabel Souza
Bowling Green State University
Master of Architecture
Isabel Souza, a top graduate student, is known for her innovative thinking of design and as an outstanding teaching assistant. She is always willing to help others and makes exemplary contribution to a healthy studio culture. She plans to become a licensed architect.

Madeline Speicher
University of Notre Dame
Master of Architecture
Madeline Speicher has interned at PGAV in St. Louis, and has spent one semester in Rome, Italy with Notre Dame's Romes Studies Program. She received her BS in Architectural Studies at the University of Illinois, where she studied abroad in Spain. For her Master's thesis she is designing a Spanish style hotel in the Disney Theme Park and a new Spain Pavilion at Epcot in Orlando, Florida.

William Stauffer
University of Illinois at Chicago
Master of Architecture
Some of Will's accomplishments during the March program at UIC include contributions to faculty work in the 2019 Lisbon Triennale and 2020 Venice Biennale, collaboration on the 2020 Douglas A. Garofalo Exhibition, recognition of his work in the annual Year End Show and Portfolio Day events, and work as co-editor of the Fresh Meat Journal. Will is currently interning with Norman Kelley, Inc., and plans to work with a Chicago-based architecture firm after graduation from UIC.

Efrain Torres-Cruz
Joilet Junior College
Associates of Architectural Studies
Efrain is an excellent student; academically the best in his studio courses. His projects are thorough and well-thought out. However, Efrain is always assisting others in class and tutoring those that need help. Efrain is not only passionate about architecture, he is also submersed in the sustainability efforts across our campus; determined to change his world.

Andres Vitela
Andrews University
Master of Architecture
Andres has excellent architectural design skills. ARE is his main goal. Andres is involved in architectural professional work beyond his studies. He started his IDP during his fourth year.

Ammar Waheed
College of DuPage
Pre-Architecture
Ammar has been a consistently strong and enthusiastic student. He has a perfect 4.0 gpa while also serving as an academic tutor and leader of the Architecture Club. He can be counted on to contribute to class discussions, support his class mates and do more than his share of group work.

Riad Khalil Wehbi
University of Illinois at Urbana-Champaign
Master of Architecture
Riad received his BSAS from the University of Illinois in 2018. He was frequently nominated for Earl Prize during that time. Now he is now a second year Master of Architecture student. He has a 3.8 gpa and is a leader in his program. He has received 2nd place in the Graduate Studio Excellence Award and he was chosen to participate in the esteemed Plym studio with Suchi Reddy and Kevin Erickson. Riad serves as an ambassador in the graduate program. He would like to start his own firm.

Claire Wiley
Washington University in St. Louis
Bachelor of Science in Architecture

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