February/March 2020

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Bulletin

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Chairman's letter

Washington Building Congress is a nonprofit association made up of professionals from a variety of disciplines, all with an active interest or involvement in the Washington Metropolitan Area's real estate, design, and construction community. The organization was established in 1937 to represent the collective interests of its members by providing education and networking opportunities and by promoting the advancement of the building industry. For additional information about membership, joining a committee or the WBC Bulletin, call (202) 293-5922 or visit us on the web at www.wbcnet.org.

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The Washington Building Congress, our industry and the nation have been through some challenging times recently and I want to thank everyone for their patience and understanding. Although we have had to cancel and reschedule several events over the past few weeks, the WBC is staying positive and looking forward. On the bright side, we have added 20 new company members and 13 small business members, and reached 95% of our annual dues budget to date. Additionally, the Membership Services Committee hosted a very successful WBC 101 Coffee & Chat for prospective members at Clark Construction in February. The committee, led by Chair Melissa Farrar (Washington Gas), Vice Chair Jared Oldroyd (Clark Construction) and Board liaison Kelly McGuire (Columbia Green Technologies), is doing a fantastic job. Special thanks go to Jared and Clark Construction Group for hosting the first ever WBC 101 event.

Please take some time to enjoy this Technology and Innovation issue of the *Bulletin* featuring several outstanding articles submitted by members of the WBC Innovation Committee. The committee is headed up this year by Chair Henry Ko (Siemens Industry) and Vice Chair Janine Bilyeu (BluEdge). Thanks for putting together this great collection of pertinent industry content.

The Program and Education Committee organized the highly successful Women's Round Table version 2.0 event on February 19 with over 100 women and men in attendance. Thank you to Laura LoBue and Pillsbury Winthrop Shaw Pittman for once again hosting the exceptional evening. A donation of $5,500 from event proceeds was made to Building for Good, a new group linking charities and nonprofits with skilled construction lawyers who provide pro bono construction law service. Thanks also to the Program & Education Committee, Chair Bill Voigt (Siemens Industry), Vice-Chair Adam Lackey (Exponent) and Board Liaison Melissa Nelson (Bureau Veritas). Melissa took the lead in pulling this event together.

Regrettably, the annual Craftsmanship Awards Banquet scheduled for March 13 was postponed due the Coronavirus pandemic. We are working on a new event date for June 2020 and will announce when confirmed. We must go forward with the WBC tradition of recognizing the individual craftsmen who keep our industry strong. WBC received 255 entries this year, of which 84 were selected as award winners. I would like to commend everyone for their understanding during these challenging times. Thanks also to the Craftsmanship Awards Committee, Chair & Board Liaison Greg LaRosa (Dynalectric Company) and Vice Chair Joe Dabbs (IBEW Local # 26).

The Community Services Committee is planning for the 2020 Rebuilding Together Workday. The event, typically held on the 4th Saturday of April, will be moved to May or June due to the Coronavirus. We will be looking for volunteers for this rewarding day of giving back and plan to announce the new date once confirmed. Advanced recognition go to House Captain Andrew Tomlinson (G&M Services), Co-Captain Gael Perichon (LSM), Safety Coordinator Dave Hamilton, Jr. (G&M Services) and Trash Coordinator Paul King (Seubert & Associates). Thank you also to the Community Services Committee and Board Liaison Rob Wenger (WCS Construction).

I look forward to seeing you at an upcoming WBC program or event. Thank you for your ongoing support.

Best regards,

Brett Snyder
WBC Chairman of the Board

↓ ABC 2018, 2017, 2016, & 2014 Masonry Subcontractor of the Year

↓ ABC 2018, 2017, 2016, 2015, & 2014 Safety Training & Evaluation Process Award, Gold Level

↓ WBC 2019, 2017, & 2014 Craftsmanship Award Winner

↓ ASA 2014 Carson V. Carlisle Jr. Safety Award

↓ ABC National 2018 & 2017 Excellence In Construction Eagle Award Winner

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Industry Report

DAVIS Announces Promotions

James G. Davis Construction Corporation (DAVIS) announced forty new company-wide promotions that reflect the strength of DAVIS' core operations teams as well as the company's focus on excellence.

"With these promotions, DAVIS' operations teams will be enabled to accomplish their goals in a huge year," said Jennifer Kessler, Director of Human Resources. "We are incredibly fortunate to have a strong group of leaders who will continue to provide a great experience for our clients."

With more than 23 years in the construction industry, **Meghan Ulrich, LEED AP BD+C** has been promoted to Vice President. Ulrich uses her technical precision to plan complex projects and execute them through all stages of development. In her new position, Ulrich will continue to provide leadership, oversight and technical management across all construction operations.

Additionally, **Jim Camlek, LEED AP** has been named Director. With over 25 years of experience in the interiors market, he has excelled at successfully delivering high-end projects while exceeding time and cost objectives. Camlek is a sought-after mentor and will continue to use his leadership skills to engage with clients and teams to ensure project goals are achieved, while upholding DAVIS' high standards.

PROMOTIONS – OPERATIONS

- **Meghan Ulrich,** Vice President
- **Jim Camlek,** Director
- **Will Cox,** Project Executive

Senior Superintendent

- **Eric Cloutier**
- **Vince Collins**
- **Brad Dugan**
- **Brandon Rehberg**
- **Bill Shake**
- **Michael Smith**

Industry Report

Senior Project Manager
- **Greg Drenning, Jr.**
- **Dan Gorman**

Superintendent
- **Stephen Silcott Jr.**

Project Manager
- **Adam Abramson**
- **Melissa Consiglio**
- **Tyler Daley**
- **Christopher Davis**
- **Alec Desaulniers**
- **Jason Ellis**
- **David Hieronymus**
- **Kyle Jiron**
- **Jerry Johnson**
- **Derrick Landwehr-Brown**
- **Bryce Lenceski**
- **David Osei**
- **Walter Penney**
- **Doug Watson**
- **Max Wnorowski**

Assistant Project Manager
- **Neal Osborn**
- **Eli Tobias**

Project Superintendent
- **Willie Bruchey IV**
- **Tyler Dunning**
- **Elvin Padilla**
- **Justin Szymanski**

PROMOTIONS – NON-OPERATIONS
- **Glen Heigh,** Senior Yard Technician
- **Phil Jones,** Yard Technician
- **Giselle Moreno,** Office Services Assistant
- **Nathan Munson,** Senior Helpdesk Technician
- **David Overbay,** Financial Accountant
- **Nathalie Tadesse,** Preconstruction Manager
- **Veronica Vela,** Senior Preconstruction Manager

Ruppert Landscape Promotes Pescrille

Patty Pescrille

Ruppert Landscape recently announced the promotion of **Patty Pescrille** to regional business development manager in the Maryland region, a recently created position in the company's landscape management division.

Pescrille has over 20 years of combined experience in business development, property management and landscaping. She began her professional career as operations manager for a reputable Baltimore property management firm before joining the landscape industry as an area manager and sales manager with another leading industry organization. She joined the Ruppert organization in 2008 and has supported many Maryland branches in a business development capacity during her tenure, including Frederick, Laytonsville, Baltimore and White Marsh. Pescrille has also been instrumental in helping to build a customer base in the Delmarva market in which the company has recently opened a new location. She has been recognized on three occasions for million-dollar sales years and was honored with the company's Branch Impact Award for her dedication and contributions to the Baltimore branch in both 2009 and 2017.

As regional business development manager, Pescrille is responsible for the oversight of a specific portfolio of customers in the Maryland region. In addition, she assists with the onboarding, training, and mentoring of new business development managers in the region.

TECHNOLOGY+
INNOVATION

Nailing Down 'Design-Assist': Legal Issues in Construction Contracting

by Edward Seglias, Robert O'Brien and Matthew Skaroff
Cohen Seglias Pallas Greenhall & Furman

In late 2018, the Comcast Technology Center opened to the public after approximately three-and-a-half years of construction. Not only did the immense tower present unusual problems and solutions (such as the 125,000 gallons of water on the 57th floor used to offset swaying on windy days), but the approximate-$1.5 billion price tag reflects the hundreds of contracts and project participants that helped make the building a reality. Despite all the efforts from capable firms and contractors working on the project, it was completed about a year late and is subject to numerous claims and disputes.

Large and complex projects like the Comcast Technology Center often benefit from contractors' participation in the pre-construction design and planning phase. The traditional "design-bid-build" project delivery model generally separates design and construction: the owner hires a designer, who creates the plans and specifications, and then the owner hires a contractor to build that design. Alternatively, "design-build" projects allow owners to contract with a single entity to handle both project design and construction. Regardless of the project delivery method, collaborating with specialty contractors during the design and planning phases presents a valuable opportunity for input on the constructability of the design, sequencing of the work, and estimation of the project cost. Early input by specialty contractors can have the significant benefit of allowing parties to avoid problems that may otherwise arise after the start of construction.

In light of these advantages, the concept of "design assist" has worked its way into the project delivery matrix. Under the design assist format, project participants have used the term to refer to everything from informal input on aspects of design to actual delegation of design responsibilities on certain items on the project. while

design assist increasingly is a referenced term in construction contracts, its legal meaning has become less defined, therefore less reliable as an accepted concept within the industry.

Generally, "design assist" is understood as an agreement for a contractor or subcontractor to provide recommendations as to project design and planning. These recommendations are made to the project designer, owner or higher-tiered project participants. "recommendations" is the operative term, and the recommendations are nothing more than that. neither the designer, nor the owner, nor the higher-tiered project participants is bound to follow those recommendations. Similarly, the contractor or subcontractor is not expected to provide an engineered design for its work. Delegated design responsibility, on the other hand, generally requires the contractor or subcontractor to retain its own design professional and make final decisions as to components of the design.

Adding to the complication is the lack of clear definition of "design assist" from sources of law. For example, in its public improvements statute, Ohio vaguely defines "design-assist services" as simply "monitoring and assisting in the completion of the plans and specifications," see Ohio Rev. Code Ann. Section 153.501 (West). The state of Utah's regulations permit the use of "design-assist contracting" when it is determined that the contractor "has a unique knowledge of a material or product that warrants the interaction of [contractor] early on with the designer," Utah Admin. Code r. R131-4-501. However, these states, like others, fail to define exactly what legal obligations attach to "design assist contracting." The commonwealth of Pennsylvania does not yet address the term in any of its statutes or case law. Like many things in law, the ambiguity in the meaning of the term creates ground for dispute, given that participants on a construction project may use the term with different understandings. The term "design assist" is the perfect example.

It is a fundamental principle in construction that, "as between the owner and contractor, the party in control of the detailed design impliedly warrants to the noncontrolling party the adequacy of the design." Section 3:5. Implied terms and conditions—The Spearin Doctrine—Implied warranty of design, 1A Bruner & O'Connor Construction law Section 3:5. The U.S. Supreme Court long ago recognized this principle

Edward Seglias | Robert O'Brien | Matthew Skaroff

Edward Seglias, a partner with Cohen Seglias Pallas Greenhall & Furman, is a trial lawyer, noted for handling construction disputes. He has successfully tried numerous multimillion dollar construction and commercial litigation cases nationwide, including many jury trials. He is the vice president of the firm and divides his time between the Philadelphia, Delaware and the Washington, D.C. offices. **Robert O'Brien**, an associate with the firm, focuses his practice on complex commercial and construction litigation, representing subcontractors, material suppliers, general contractors, manufacturers, sureties, and developers. **Matthew Skaroff**, an associate with the firm, concentrates his practice in construction litigation and represents contractors, subcontractors, design professionals, owners, and other parties concerning private and public construction projects.

in *United States v. Spearin*, 248 U.S. 132, 133, 39 S. Ct. 59, 60, 63 L. Ed. 166 (1918). And even though courts have further developed the *Spearin* doctrine over the last century, it remains good law, with its underlying concepts a bedrock aspect of construction practice. It is also simple to understand in the abstract: an owner handing faulty or incomplete plans to a contractor in a design-bid-build scenario is generally responsible for the cost consequences of those faults or omissions when the contractor relies on those plans in good faith (though an owner and contractor both may have recourse against the designer). When a contractor is given design responsibility, the contractor will generally bear the cost for design faults or omissions. As the *Spearin* doctrine generally applies from owner to contractor, it similarly applies from general contractor to subcontractor. The predominant concept underlying the *Spearin* doctrine is control alongside good faith reliance.

But the concept of design assist in some measure has been used to cloud, if not intentionally undermine, the clarity of the *Spearin* doctrine. For example, in a design-build scenario, we have seen construction managers use provisions like the following to lock-in a subcontractor's contract price, even though the design is incomplete: The construction documents available to subcontractor for bidding and establishment of the subcontract

amount do not describe in detail all work required for the completion of the work. The construction documents shall be added by change order to this subcontract without modification to the subcontract amount.

In establishing the subcontract amount, the Subcontractor fully acknowledges, understands, and considers that the construction documents do not fully reflect the subcontract work and that further details will only be reflected in later iterations of the construction documents. accordingly, the subcontractor expressly acknowledges and agrees that it shall not be entitled to, and will not seek, any increase in the subcontract amount for providing any item that is consistent with, contemplated by, or reasonably inferable from the contract documents whether or not such items are specifically mentioned therein.

Subcontractor shall perform design-assist Services through completion of the construction documents. it is the subcontractor's responsibility to take an active role throughout the design process, review the design at all iterations and phases, and work with the designer of record to maintain the subcontract budget. At conclusion of the design, lower-tier subcontractor will sign off on a $0 change order.

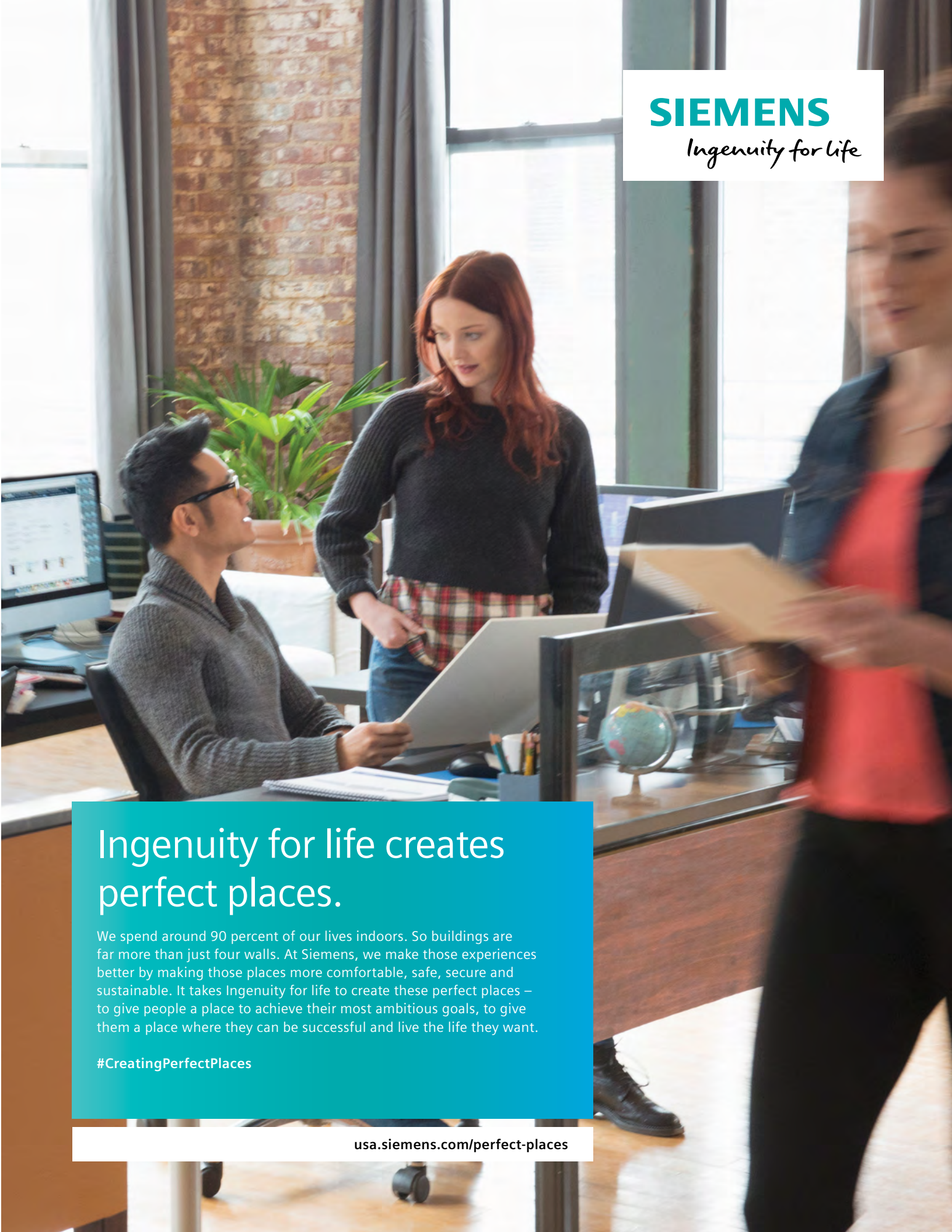
Under the language of this provision, the subcontractor nominally has no recourse for increased scope and costs that result from the final design. If the subcontractor bid at one price before the design was complete, an owner, designer or construction manager can point to this provision in defense of any subcontractor claim for increased costs based on the final design. although this arrangement may have a hint of bait-and-switch, the ambiguous use of "design assist services" in this provision provides cover to argue that *Spearin* does not apply.

The provision above, however, is not an uncommon version of design assist that stealthily imposes the consequences of delegated design responsibility. It in no way requires the designer or the construction manager to follow the recommendations of the subcontractor on the design, yet it holds the subcontractor liable for the cost consequences as if subcontractor had complete control.

So, what are a contractor's or subcontractor's options if it inds a provision imposing responsibility without giving control? First, to the extent the contractor or subcontractor can negotiate, it should do so. It should negotiate away any ties between assisting with design and the final cost of its contract, or it should take on full design control and responsibility for the specific items at issue, with a cost reflecting the increased responsibility. Should it go the former route, it may be wise to split the design-assist and construction responsibilities into separate contracts signed at separate times. If a contractor or party rely in good faith on that design subcontractor chooses to bear full design control and responsibility, it should ensure that it retains the appropriate licensed professionals as not to violate Pennsylvania's laws on the practice of architecture and engineering.

Second, if a contractor or subcontractor finds itself after the fact dealing with claims under a provision that imposes responsibility without giving design control, it should look back to fundamental principles of construction law. Under the *Spearin* doctrine, certain factual scenarios should provide clear grounds for striking exculpatory clauses like those discussed above, such as where a designer has specifically rejected a subcontractor's recommendations and chosen more costly options. In instances where a designer's decisions contradict original design assumptions at the time of bid, a contractor or subcontractor has additional support for the argument that the provision should be set aside, and the claimant should bear no responsibility for increased costs.

As design-assist arrangements with ambiguous terms see more widespread and creative use, we anticipate seeing more litigation focusing on the obligations that come with the arrangement. We also expect to see that litigation arrive in Pennsylvania at some point in the near future. When it inevitability does, the underlying principles from *Spearin* should be remembered when the courts are officially asked to nail down the meaning of "design assist": who bears ultimate control over the design component at issue, and did the other party rely in good faith on that design (or lack thereof)?



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Picture 1.
AGU Headquarters.

Net Zero Energy Design:
Highlights of the American Geophysical Union Headquarters Renovation Project

by Henry Ko
WBC Innovation Committee
Photography by Beth Bagley

This past October, the WBC Innovation Committee and a few board members had the pleasure of touring the newly renovated American Geophysical Union (AGU) headquarters at 2000 Florida Avenue NW. This renovation project was a first of its kind in the Washington, D.C. area. The renovation incorporated a net zero energy design, which means that the total amount of energy used by the building on an annual basis is equal to or less than the amount of renewable energy created on-site. To achieve this design goal, there was focus on four key engineering principles: generation, reduction, reclamation, and absorption.

Generation

Since the footprint and size of the AGU HQ is relatively small and limited, the renovation's design was heavily influenced by its generation capacity of renewable energy. AGU's renewable energy generation will come from a solar panel array above their pent-

house roof as well as some south-facing panels to be installed along a vertical surface. The total solar array is designed to have a 250kW output. The electricity generated from this system will feed the building's electrical demand and return any excess production to the grid to offset consumption from the grid when sunlight is not present.

The power generated by the solar array is in direct current (DC), which is what many of our devices today run on – computers, phones, printers, appliances, lighting, etc. However, electricity is primarily transmitted through the utility grid by alternating current (AC) to our homes and buildings, and then converted to DC for our devices. This conversion from AC to DC current results in an efficiency loss of up to 20 percent. With this in mind, AGU has implemented a DC power grid throughout the building, allowing them to utilize power generated directly from their solar array without conversion. This maximizes the efficiency and utilization of renewable energy created on-site. When solar energy is not available, the building is able to use the city's AC grid and rectify power for DC workstations and lights. As power generation from the solar array will be limited by capacity and sunlight, AGU sought to implement energy efficient designs utilizing new technologies and unique strategies.

Reduction & Absorption

One of the designs that made this renovation project unique and a first of its kind in DC was the implementation of a municipal sewer heat exchanger system. This system utilizes the municipal sewer water for heating and cooling, much like a geothermal system would be utilized, to align with reduction and absorption strategies. It reduces energy consumption when compared to mechanically cooling and heating with chillers, boilers, and cooling towers. It also leverages the surrounding energy resources by absorbing heat from the municipal wastewater system to heat the building and rejecting heat to the wastewater for cooling. There are two sub-components to this system. The wet well outside the building screens the solids, returning them to the storm and wastewater sewer. The heat exchanger, located inside AGU's building, has two features that increase efficiency: an air compressor that agitates the sewer water, as well as a cleaning carriage that removes debris from the "clean water" pipes. **(Picture 2.)**

For cooling, a water to water heat pump utilizes the wastewater heat exchanger to cool its condenser water. The chilled water that is generated is then pumped throughout the building to radiant panels located in the ceilings. **(Picture 3.)** Radiant cooling panels in the lobby By utilizing radiant panels instead of traditional forced air systems, additional energy savings are realized by eliminating fan energy from an air handler. Another positive effect of utilizing radiant cooling panels is less ambient noise in occupied spaces. While it may take some getting used to, not having a forced air system does lower the overall decibel level quite dramatically!

Picture 2. *Wet well being installed.*

Picture 3. *Radiant cooling panels in the lobby.*

Working in conjunction with the radiant cooling panels is a dedicated outdoor air system (DOAS), which provides heat and outdoor ventilation of air. The building control system monitors the quality of the indoor return air and the outdoor air and will modulate the amount of outdoor air being brought into the building. If the return air quality is equal to or better than outdoor air quality, then less outdoor air is utilized, reducing the energy consumption required to condition indoor air.

To help improve the quality of the recirculated air within the building, AGU implemented a hydroponic phytoremediation (hy-phy) wall that runs vertically through all floors of the building. **(Picture 3.)** This is essentially a living plant wall, which acts as a return

(Left) Picture 4. *Living plant wall on one level of the building.*

(Right) Picture 5. *Open views through the electrochromic glass from the top of the staircase.*

air filter for the DOAS unit and a scenic gathering place on each floor. The return air is circulated through the root system of the plant wall, which naturally cleans and filters out carbon dioxide and air pollutants. So, in addition to reducing energy consumption, the plant wall plays a large role in the reclamation engineering principle by reusing conditioned air.

AGU has implemented building standard temperature setpoints of 68 (heating) and 78 (cooling). While these temperatures may not be what many are used to, they are still comfortable conditions and easily adaptable with appropriate clothing as needed.

To better retain the energy used to heat and cool the building, AGU vastly improved upon the building envelope during the renovation. Throughout all the exterior walls, they added a layer of spray foam insulation with a high R (resistance) value. All windows were also replaced with new electrochromic glass, which can automatically tint and untint, allowing heat to be reflected when the sun is out. Use of this glass also eliminates the need for blinds, so they always have full, unobstructed views throughout the building. **(Picture 5.)**

Reclamation

When focusing on the reclamation principle, AGU considered strategies to reuse water and air. As mentioned earlier, the DOAS unit and living plant wall are key to reusing the conditioned air within the building. For the reuse of water, AGU implemented a stormwater reclamation system. This system collects rainwater from the roof and condensate water from the DOAS system. After filtering, treating, and conditioning the water, it is then used for flushing toilets and onsite

irrigation, saving a large amount of water. It was apparent when visiting a restroom that the water wasn't your typical fresh municipal water because of its color, but AGU and its occupants have learned to embrace it!

Throughout the renovation process, AGU also tried to reuse as many materials as possible and minimize waste. One example of this effort was with the exterior brick facade. During the renovation, many bricks had to be removed while working on select parts of the exterior. AGU wanted to reuse as much of the brick as possible, so more than 5,000 bricks were carefully removed, cleaned, and reinstalled. This was very well executed as it takes a very keen eye and close inspection to find any differences between new and reused bricks.

Another unconventional step that AGU took with recycling materials was reusing their old toilets. In their second life, the thrones were repurposed to become flooring and countertops. **(Picture 6.)** The old toilets, windows, sinks, and broken bricks were crushed and made into their own custom terrazzo composite. When standing over the beautiful flooring, one would not think of these old, unwanted objects, but AGU did a great job of repurposing the material and incorporating them into their eye-catching design.

Picture 6. *Conference room tabletop made from AGU's custom terrazzo.*

Pushing the Envelope

AGU did not hold back when it came to this whole building renovation. They implemented a lot of brand-new technologies and designs in one project to accomplish their goals. There were many challenges and risks that they were aware of going into the project but faced them head-on to push the envelope on sustainability and net zero energy design. While projects of this nature may not be financially feasible for many now, they will be as these types of technologies and designs become more standard and tested.

TECHNOLOGY+ INNOVATION

DC BEPS is Coming! 4 Things to Know

What You Should Know about DC's Latest Energy Legislation

by Jeffrey Salay, PE, CEM, LEED AP
Senior Principal at GHT Limited

1. What is BEPS?

BEPS stands for the District's Building Energy Performance Standards – and it's a key component towards achieving the aggressive sustainability goals set forth by the District to become the healthiest, greenest, most livable city for all residents by 2032. The plan includes the following goals:

- **50% reduction in greenhouse gases by 2032**
- **Carbon neutrality by 2050**
- **50% reduction in District-wide energy use by 2032**
- **100% renewable electricity in the District by 2032**

DC's commitment to this vision is spelled out in the Clean Energy DC Omnibus Act of 2018. The Building Energy Performance Standard (BEPS) program is one of the first programs established by the District to help achieve these aggressive goals – BEPS sets forth specific energy performance thresholds that building owners will be required to meet by 2026. The thresholds are still being determined, but it is contemplated that "the standard will be "at least" the local median ENERGY STAR score by property type (or equivalent metric)." As of this blog's publishing date, commercial office buildings should be looking to achieve an ENERGY STAR score of 68 or higher and multi-family property types should be looking to achieve an ENERGY STAR score of 64 or higher. (Source: **https://doee.dc.gov/node/572252**) Properties which score below this median threshold will need to improve their performance per the BEPS pathways described on the following page.

DC BEPS Implementation Timeline

2018

DC signs the Clean Energy DC Omnibus Amendment Act of 2018, establishing BEPS and a vision for Sustainable DC

2019

DC engages leadership from the building community to create BEPS Task Force to advise DOEE on implementation

DC building owners receive Energy Benchmarking DC scorecard

2020

BEPS Task Force will publish results of their findings, with recommendations on compliance pathways

2021

Beginning January 1, 2021, all private DC buildings >50,000 SF will need to comply with BEPS benchmarking requirements

2023

Beginning January 1, 2023, all private DC buildings 25,000-49,999 SF will need to comply with BEPS benchmarking requirements

2026

Non-compliant buildings must select performance pathway or prescriptive pathway, make improvements and achieve compliance by 2026

2032

DC targeting 50% GHG reduction and 50% District energy use by 2032

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For the latest news and updates, visit http://www.ghtltd.com/beps

2. How will it affect me as a building owner?

Building owners will need to benchmark their buildings beginning in 2021 – if a building registers below the required performance threshold, the owner will be able to choose multiple pathways to make improvements and bring the building into compliance within a period of five (5) years (2026).
Those pathways include:

- **A performance pathway:** buildings required to demonstrate >20% decrease in normalized site energy use intensity (the equivalent of total energy consumed on site per square foot). This demonstrated decrease will be averaged over the last two years preceding the first year of the 5-year compliance cycle.

For example: DOEE will compare the average normalized site energy use intensity from calendar years 2019 and 2020 to the average normalized site energy use intensity from calendar years 2024 and 2025

- **A prescriptive pathway:** DOEE will provide a list of cost-effective energy efficiency measures to be implemented which will generate comparable savings to the performance pathway; the BEPS task force will be generating this list in collaboration with DOEE by the conclusion of 2020.

- Other compliance paths, as established by DOEE

This past summer, DOEE held a series of information sessions to create a BEPS task force — comprised of A/E/C industry professionals, owners and government representatives. This group will work through 2020 to review program requirements, advise DOEE on compliance and serve as a resource to the greater building community. DOEE will publish the task force findings at the conclusion of 2020, including clearly defined pathway parameters and information on penalties for non-compliance.

3. When does this take effect?

Building owners who operate buildings under 50,000 SF will be subject to a rolling compliance schedule as follows:

- **Privately-owned buildings >50,000 SF: beginning January 1, 2021**
- **District-owned buildings >10,000 SF: beginning January 1, 2021**
- **Privately-owned buildings 25,000-50,000 SF: begin benchmarking January 1, 2022**
- **Privately-owned buildings 49,999-25,000 SF: beginning January 1, 2023**
- **Privately-owned buildings 10,000-25,000 SF: begin benchmarking January 1, 2025**
- **Privately-owned buildings 24,999-10,000 SF: beginning January 1, 2026**
- **Second BEPS compliance cycle begins for buildings >25,000 SF January 1, 2027**
- **Third BEPS compliance cycle begins for buildings >10,000 SF January 1, 2033**
- Building owners who operate campus-like facilities, including universities and hospitals, will be subject to a campus-wide standard currently under development with DOEE. Compliance regulations and deadlines will be established at a later date.

4. How do I get started?

From compliance and financing to ENERGY STAR scores, we know the BEPS program right now brings more questions than answers. GHT Limited's Operations & Energy Services team is here to help! Not sure about your current ENERGY STAR score? Wondering what improvements you will need to comply in 2021? Contact our team today for a site survey and energy audit to find out where you stand!

Jeffrey Salay, PE, CEM, LEED AP is a Senior Principal at GHT Limited, a leading MEP engineering design firm in the Washington, DC Metropolitan area. Jeffrey leads GHT's Operations and Energy Services (OES) studio and supports clients in ENERGY STAR benchmarking services, ASHRAE energy audits and other energy studies, and design energy efficiency upgrades. For more than 25 years, he has served as a trusted partner to building owners and operators alike in developing energy management strategies which reduce building energy usage and its impact on the environment. For questions or to set up a meeting, he can be reached at jsalay@ghtltd.com.

TECHNOLOGY+ INNOVATION

WBC Innovation Committee Tours Shapiro & Duncan Prefab Shop

Shapiro & Duncan's fabrication shop, located in Landover, Maryland, features over 51,000 square feet outfitted with state-of-the-art workstations and hoisting equipment for cutting, welding and joining all types and sizes of pipe. Thank you to Mark Drury and Don Zeiders for organizing the February 2020 site tour for the WBC Innovation and Regional Development Committees.

Delivering Accuracy, Quality and Productivity

With its state of the art equipment and staff of qualified employees, the fabrication shop is able to fabricate and assemble accurately any type of piping configuration from the simplest riser to complex mechanical and boiler rooms. The shop's controlled environment enables Shapiro & Duncan to maintain a high degree of quality and a constant level of productivity regardless of weather or project site conditions.

Communication is Key

Prior to any fabrication, Shapiro & Duncan processes coordinated drawings using CAD Pipe software to produce the necessary detail making certain that all prefabricated items will properly fit within the mechanical design. All drawings are then reviewed and approved on the job site. Once fabrication begins, communication continues between the shop, CAD operators and job site.

Limitless Capabilities

With eight acres of outside storage capacity, training facilities, office space and parking, the fabrication shop has all the capabilities needed to successfully complete projects that require a large numbers of assemblies, intense time constraints, complex welding needs and custom fabrication requirements. The fabrication shop is a one of the reasons Shapiro & Duncan remains in the forefront of the industry.

TECHNOLOGY+ INNOVATION

Mass Timber Floor Example. Photo: ArchDaily.

Mass Timber and Implications for the DC Market

by Neil Agarwal
G.E. Frisco Co., Inc.

Over the past several years, the number of mass timber buildings has been growing globally. While still in its nascent years, interest and awareness surrounding mass timber construction continues to increase, particularly in the United States. Mass timber is a category of wood products that are large engineered panels and posts, which can be used structurally for wood construction. It can include non-engineered wood timbers as well, but much of the conversation today focuses on the engineered panels and posts. Some specific types include cross-laminated timber (CLT), nail-laminated timber (NLT), and Glue-Laminated Timber (glulam). Based on the existing International Building Code (IBC), traditional wood frame construction has been limited to six stories or 85 feet. However, the new code expected to be part of the 2021 IBC would allow for up to 18 stories of mass timber construction.

The 2021 IBC changes would have major implications for design and construction. In particular, the increased height restriction is likely to influence architecture and design in the DC market, where many buildings fall below the new 18 story height limit. Most buildings above four to six stories require steel and concrete construction today, but mass timber would be an alternative solution. The alternative is not just about design preferences. Cost and other efficiencies could drive the discussion and decision for developers and owners to choose mass timber over steel and concrete. Because mass timber is relatively new, the cost is not guaranteed to be cheaper just yet. There is, however, strong reason to believe that it will be cheaper in the long-run as more mass timber buildings are constructed. The following could yield potential cost advantages:

- **Pre-fabrication:** The mass timber panels and posts are pre-fabricated which allows for faster construction and better scheduling in the field. This would save time and money in labor
- **Labor Requirements:** Less labor would be required for assembly in the field than current construction. This

(Top) Sample Construction. Photo: Swinerton.
(Bottom) Sample Modern Mass Timber Building. Photo: 25 King in Brisbane, Australia.

could also partially address issues around labor shortages as well.

- **Less Materials:** Current design preferences have shown an affinity for exposed wood. Glulam posts and beams and CLT staircases can serve both a structural and architectural purpose and eliminate drywall or ornamental materials.
- **Lighter Weight**: Mass timber has significantly lower weight compared to steel and concrete. This would allow for a smaller footprint and less expenditure on the foundation.

In order for these to be realizable cost savings, developers would need to consider mass timber construction from the onset of project design. These savings would be the primary driver of long-term adoption for developers, but other factors support a growth in mass timber construction:

- **Sustainability:** Wood is a more sustainable and carbon-neutral material than steel and concrete. Growth in mass timber construction could reduce the carbon footprint and help address issues around climate change.[1]
- **Productivity:** A study out of Japan has shown that employee productivity increased when surrounded by natural wood.[2] While this is only one study, if reaffirmed by others, this could lead to wider adoption, especially by forward-thinking companies.
- **Safety:** When thinking about wood construction, a primary concern is fire and natural disaster safety. Research and testing is ongoing, but so far it has proven to be structurally safe in conjunction with other suppression systems.

The DC area already has two notable mass timber buildings with Hitt's Co|Lab in Falls Church and the Martha C. Cutts Gymnasium in DC, and developers are actively considering it for other projects. With all of the potential benefits, the DC market is potentially only at the beginning of a mass timber boom.

[1]https://e360.yale.edu/features/as-mass-timber-takes-off-how-green-is-this-new-building-material
[2]https://asia.nikkei.com/Business/Business-trends/Wooden-workplaces-work-wonders-for-Japanese-productivity

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christopher consultants, ltd. (christopher) was founded in 1982 and is a full service civil engineering, surveying, planning and landscape architecture firm headquartered in Fairfax, VA. In their 38-year history, christopher has had the opportunity to work on many high-profile and award-winning projects in the region and has completed projects throughout the Mid-Atlantic, across the United States and select international locations.

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Columbia Green Technologies offers innovative green roof solutions for extensive, semi-intensive and intensive roof gardens. Cities across North America are using vegetative roofs to manage environmental issues related to stormwater, urban heat island and loss of habitat. Our products were engineered to maximize stormwater retention and create an environment for optimal plant health. We partner with leading manufacturers of waterproofing materials to offer a complete, single-source warrantied solution for every type of roof construction. We are committed to improving our environment and economy; our products are made in the United States and support low impact development, LEED building.

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Konstructure LLC

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William Kendrick Company is a 98-year-old, Washington, DC-based, third-generation promotional products and apparel company, and a CBE Certified provider.

Calendar of Events

Dates and times subject to change.

Please check
www.wbcnet.org
for the latest information
about event status.

April 2020

TO BE DETERMINED

May 2020

TO BE DETERMINED

June 2020

June 8, 2020
GOLF OUTING
Golf Club at Lansdowne
and Belmont Country Club
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The topics listed below will be covered as feature articles in upcoming issues of the **Bulletin**. Persons interested in contributing information or advertising should contact WBC before the third week of the month preceding the issue. The **Bulletin** is published six times a year by WBC.
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Editorial Calendar

December / January	Members Giving Back
February / March	Technology & Innovation
April / May	To Be Determined
June / July	Rebuilding Together
August / September	Marketing & Communications
October / November	WBC Leadership & Committees

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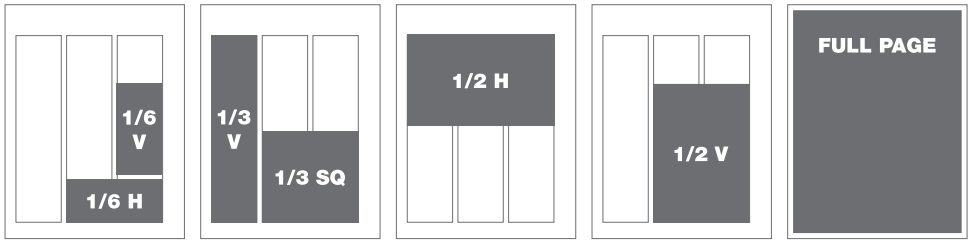

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