INTECH

CONTRACTORS + CONSTRUCTION MANAGERS

Sustainable News

Fall 2016

HELLO INTECH -

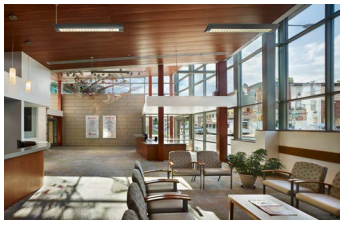
Fall 2016 is an exciting time for INTECH. Some very impressive projects are wrapping up (Museum Towers II and Rodin Square to name a few) and some showpiece projects like Hill College House and 3675 Science Center are getting underway. Within the next six months, INTECH will complete four LEED projects! The Fall 2016 edition of 'Sustainable News' will take a closer look at a few of these projects and also feature an interview with Amy Pastor and Faun Carlson of exp Global Inc., who served as the LEED consultant at the 3601 Market project.

INTECH LEED PROJECT UPDATES:

INTECH continues to add premier LEED projects to its resume:

3601 Market
Achieved LEED Silver Certification
Completed: October 2015

Way To Go!



Project HOME Stephen Klein Wellness Center
Target: Silver
Completed: December 2014
Status: Under review

University of Pennsylvania New College House
Target: Silver
Completion Date: August 2016

University of Pennsylvania FMC Tower Tennant Fit-out
Target: Silver
Completion Date: August 2016

Museum of the American Revolution
Target: Gold
Completion Date: September 2016

Museum Towers II
Target: Silver
Completion Date: November 2016

University of Pennsylvania Hill College House
Target: Gold
Completion Date: August 2017

University of Pennsylvania Richards Medical Research Laboratory Renovations
Target: Silver
Completed: August 2015
Status: Under review

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INTECH STAFF & LEED ACCREDITATION

Please congratulate Sam Still and Dave Wallis on recently passing the LEED Green Associate exam!! Be sure to also wish the following employees luck on their upcoming exams: Phil Rinaldi, Marc Kleiman, Ryan Roye, and Chad Hunara. They will soon join the 40+ INTECH employees with LEED accreditation.

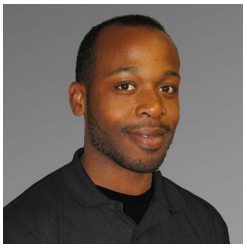
Sam Still

Dave Wallis

For those of you that are not Legacy LEED APs, please log on to USGBC.org to check the status of your continuing education hours. CE hours are required to be updated every two years. Please let Andrew O'Donnell or Ed Rowe know if you have any questions regarding your CE status.

Phil Rinaldi

Marc Kleiman



Ryan Roye

Chad Hunara

LEED ONLINE LAUNCHES NEW PLATFORM

In January, the USGBC launched a long-awaited update to LEED Online. This is another step in the right direction for the USGBC, which has tremendously improved the credit documentation and submission process for their projects. Teams using LEED v4 will be the first to experience all of the benefits of the new platform.

The new site is designed to look exactly like the old site for simple and intuitive navigation. However, the site now has multi-browser functionality, allowing users to run Internet Explorer, Firefox or Safari. All of a user's current projects are now listed in one place. No more searching through multiple pages to access project databases. Additionally, credit assignments have been eliminated. Now every project team member has access to every single credit.

Project members no longer have to worry about losing progress while operating on LEED Online as the new platform saves in the background while a user works. Access to forms, uploads, comments, and credit language is now conveniently linked to the project scorecard. A project timeline that gives an overview of all steps of the documentation and submission process is now available, which provides a real-time snapshot of progress.

The new LEED Online platform will allow project teams to spend more time achieving credits, not documenting them.

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Q&A WITH FAUN CARLSON AND AMY PASTOR OF EXP GLOBAL INC. - LEED CONSULTANT AT 3601 MARKET STREET

Faun Carlson, LEED AP
Sustainable Design Consultant

Q. exp is a large, international company that offers a wide array of services ranging from building engineering, to project management, to even commissioning. With that being said, exp has a significant focus on sustainability and offers LEED consulting. Can you please explain what the role of a LEED consultant is on a project from design development all the way through construction completion?

A. The LEED consultant is the project's sustainable expert. They drive the design team towards best practices to achieve the sustainable goals for the project. This includes running preliminary calculations for the site, water and energy credits to determine if the project goals are attainable. During the LEED charrette, the LEED Checklist is presented to the Owner, A/E and other consultants. It is at this stage, early in design, where key decisions are made to either attempt, or track, a number of credits to achieve the Owner's goal level of Certification.

Throughout the remaining phases, the LEED consultant will perform design reviews of the drawings and specifications, checking that the team has implemented strategies and best practices for earning the LEED credits and that these strategies are carried into the bidding and contract documents for the Contractors.

The LEED consultant is also the point of quality control for LEED Online documentation. They will confirm that the required documents have been presented for the Design submission (from the Design Team) and for the Construction submission (from the Construction team). The LEED consultant is a great resource to answer questions throughout the entire project; they are typically one of the few key team members that follows the project from Schematic Design through final Close Out of the Building.

Amy Pastor, PE, CxA, LEED AP
Director of Commissioning and Sustainability

Q. When acting as a LEED consultant on a project, what are some recommendations you make to the general contractor/construction manager to streamline the LEED documentation process?

A. If we could make one recommendation to the construction team, it would be to track the contractor credits throughout the construction process; do not wait until the building is complete. As submittals are being gathered, review them for LEED compliance, run any questions you may have by the LEED consultant, and enter them into the materials tracking spreadsheet required by LEED. Monthly status updates can then be provided to us and the owner. It also gives us confidence that the points we told the owner we would earn, are actually going to be earned.

It is also critical that a LEED submittal cover sheet is required by the subcontractors and the information they provide is closely reviewed for accuracy. A lot of times, unfortunately, the information is incorrect and if not caught right away, can be difficult to get at a later date.

As LEED consultants, we would rather get too much information or questions from the construction team than too little. When things are quiet, we get a little nervous that all appropriate data is being collected.

Q. Where do you see the future of LEED certification? Do you foresee the bar continuing to be raised by the USGBC and owners continuing to place the priority on LEED Certification or do you see a time when building owners begin taking it on themselves to design sustainability into their buildings without pursuing LEED - because it is the environmentally conscious thing to do?

A. The USGBC is always trying to stay one step ahead with sustainable design. As building codes incorporate stricter standard into base buildings, LEED will continue to evolve. A standard building designed today would basically earn a LEED v2 Silver certification. LEED 2009 made it more difficult, and the bar is raised yet again with LEEDv4. The USGB will more than likely be incorporating more living building requirements into its standards, as well as focusing on the connection the building has with the community.

Building owners may incorporate more sustainable feature into their building without certification, but the public knows a building with the LEED plaque really took the time to work them into their design.

Q. Within the AEC (architecture/engineering/construction) industry, construction appears to always be lagging behind architecture and engineering with respect to adopting sustainable practices. What can general contractors/ construction managers do to stay ahead of the "green" curve and be on pace with the architects and engineers?

A. In general, education and implementation will lead to all sectors of the industry being ahead of the curve. This applies to the entire project team, not only GC and CMs. The easiest way is to get involved with your USGBC chapter. Chapters always have interesting CEUs and presentations on green practices. Also frequently visit the USGBC website and sign up for technical updates. The LEEDuser site is also an excellent source of information. The exp earth team is on that site multiple times a day reviewing real life LEED project information.

In the end, we have worked with GCs and CMs who are well versed in sustainable practices, (material selections and the implementation of Plans and Policies required by LEED during construction), and we have also worked with contractors who have not been involved in a LEED project at all. The same, however, goes for the Design Team. There are different levels of knowledge across all disciplines in the built environment, from Owners to Operators. The best way to get all team members up to speed and on pace with the Green industry is to continue to practice and implement sustainable design into our buildings.

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PUTTING SUSTAINABILITY INTO PRACTICE

We will now take a closer look at a few projects that are currently pursuing LEED certification. Big thanks to Garichel Sosa, LEED BD+C, Will Stonelake, and Cory DiMarco for contributing updates on their projects.

Project Focus: University of Pennsylvania - FMC Tower Fit-Out
EAc4 - Green Power

INTECH is currently completing the fit-out of floors 2-5 of the new FMC Tower for the University of Pennsylvania. Located at the corner of Walnut and 30th Street, FMC Tower is a new 49-story tower containing a total of 830,000 SF of mixed use space. The client, University of Pennsylvania, intends to move in at the end of August 2016. The project team is seeking LEED Silver certification under LEED 2009 for Commercial Interiors. LEED 2009 for Commercial Interiors addresses the specifics of tenant spaces primarily in office and retail.
An important part of the design team's plan to achieve LEED Silver is green power. The owner of the building has engaged in a 2-year energy contract to receive the tenant's electricity from 100% wind-powered sources in the hope of achieving five points for green power. Independent of LEED, green power can help meet environmental, financial, stakeholder relations, economic development, and national security objectives. By diversifying electricity sources, an owner realizes financial benefits by hedging against risk posed by electricity price instability, fuel supply disruptions, additional environmental regulations, and electricity blackouts (if green power is generated on site). Green power is also an easy way for an owner to meet organizational environmental objectives and generate positive publicity.

Building owners have three options while purchasing green power; direct purchasing, indirect purchasing, and renewable energy certificates (RECs). Direct purchasing is exactly what it sounds like- purchasing green power directly from a renewable energy supplier. Indirect purchasing is where customers pay a small premium to the utility company so that the power the utility company purchases comes from a green source (wind, solar, geothermal, etc.). Indirect purchasing is typical in areas where electricity markets are closed and customers must purchase the power provider assigned to their area. Renewable energy certificates (RECs) are a tradable commodity sold on the open market by producers of green energy. RECs are also the most popular way to purchase renewable energy. Buying RECs supports the production of more renewable energy and offsets the buildings carbon footprint. Renewable electricity can also be generated on site; however, this is the least common application in the Philadelphia market.

Commercial buildings are not the only properties that can use green power. In Pennsylvania, a resident can choose the company that generates his/her electricity. This means that residents can choose to have their electric supplier provide green/renewable energy. This was made possible with Pennsylvania's Public Utility Commission's PA Power Switch program. Options for your area are easily accessible at **www.papowerswitch.com**. The U.S. Department of Energy's Green Power Network Web Site, **www.eere.energy.gov/greenpower**, provides state-specific pages that indicate all green power offerings for every state.

Green power is only one credit that the design and construction team are pursuing. INTECH is specifically responsible for tracking construction waste management, recycled content, regional materials, and low-emitting materials for adhesives, paints, flooring, wood, and furniture. The project's LEED scorecard is attached at the end of the newsletter for reference.

Project Focus: Museum of the American Revolution
EQc3 - Construction Indoor Air Quality Management Plan

Located in the historic district of Philadelphia, the Museum of the American Revolution will house artifacts and relics telling the story of how our nation achieved its independence. Sustainability has been a major driving force behind both the design and construction of this project as this building is targeting LEED Gold certification. The design of the building includes a 28,962 SF green roof and high-efficiency mechanical systems. The construction team is focused on maximizing recycled content for materials installed in the building, indoor air quality, and construction waste management. Good indoor air quality is a focal point of sustainability in construction as exposure to harmful chemicals and pollutants must be reduced to the lowest risk possible to ensure everyone is in a healthy and safe environment.

Prior to construction an indoor air quality management plan is established that breaks down the various items that must be addressed in order to attain proper indoor air quality. Items addressed in the plan include: Hazard identification, control procedures for HVAC systems, and Indoor air quality controls. Major contributors to bad indoor air quality are dust, odors, and microbial contamination created during the construction process. In order to keep the building clear of these contaminants generated through the various construction activities, we set up carpenter cutting stations outdoors when possible or in contained, well-ventilated areas, all masonry cutting is done outdoors and sweeping compound is used during clean up to keep dust particulates down. Additionally, we use construction walk off mats at every entrance and dust curtains in areas where indoor cutting takes place in order to reduce any particles migrating through the building.

Odors will originate from VOC's found in sealants, paint, solvents, fuels, and cleaning agents. To reduce the potentially harmful odors generated during construction, we keep the areas well-ventilated, gas-powered equipment and generators are placed so exhaust is directed away from enclosed spaces and adjacent buildings and all exhaust pollution is directed outside of the building using filtration when required. Microbial contamination may become present in the form of mold from organic based materials that are exposed to wet weather or water leaks. To stop this from occurring, any water accumulation that comes in contact with building material is vacuumed or mopped and fans are put in place to assist in drying the area. Insulation and drywall is stored above the floor and wrapped in plastic to keep it from coming in contact with water and moisture. Any material that remains wet or damp and is identified as having the potential to form mold is discarded from use on or in the building.

In order to maintain proper indoor air quality in the museum, control procedures are implemented to protect the pathways for air distribution in the HVAC system. All HVAC equipment is protected from contamination; duct is delivered to the site wrapped in plastic so nothing can get on the inside. The HVAC contractor must visually inspect the equipment weekly and correct any deficiencies, and all protection must be maintained until the unit is put into operation. If systems become contaminated from activities generating harmful debris, the HVAC duct and associated equipment must be cleaned prior to start up. Indoor air quality is a very important aspect of any building and our goal at the museum is to ensure that a healthy indoor and outdoor environment is maintained at all stages of the project and throughout the life of the building.

Project Focus: University of Pennsylvania - Hill College House
SSc7.2 - Heat Island Effect - Roof

Hill College House, located at 3333 Walnut Street, is one of the University of Pennsylvania's largest undergraduate dormitories. Designed in 1958 by Eero Saarinen, Hill College House has become an internationally recognized architectural landmark. The 2016/2017 renovation will be Hill's first major renovation since its completion in 1960 and is part of the University of Pennsylvania's Penn Connects 2.0 Phase II sustainability agenda. The target will be LEED Silver certification with the anticipation that Gold is achievable with the majority of these credits coming from the Sustainable Sites category under LEED 2009 for New Construction and Major Renovations. One of the points the design team is targeting in the sustainable sites category is Credit 7.2 - Heat Island Effect – Roof.

According to the EPA, "The annual mean air temperature of a city with 1 million people or more can be 1.8–5.4°F (1–3°C) warmer than its surroundings." This is due to the Urban Heat Island Effect in which the surfaces of the urban area such as roofs and pavement reflect less sunlight versus rural areas where the surfaces are more reflective. Urban area surface materials typically have a low albedo (measure of reflectivity) in which heat is absorbed therefore increasing surface temperatures.

The average increase in temperature in urban areas can have several negative affects on the community and the global climate. An increased temperature in the summertime typically means increased energy consumption to provide cooling needs which leads to increased greenhouse gas emissions. Air quality is also reduced as increased air emissions and higher temperatures lead to the increase in smog formation.

In order to combat urban heat island effect, there are several strategies that can be implemented in urban areas including green roofs, cool roofs, cool pavements, and increased planting of trees and vegetation. At Hill College House, Mills + Schnoering Architects will utilize a cool roof which is a roof designed to have a high solar reflectance index (SRI). The current roof is black EPDM with a low solar reflectance index. This will be removed and replaced

with a Sure-White EPDM roof by Carlisle. This white colored roof has a high SRI value of 94 which exceeds the required 78 per credit 7.2. This highly reflective cool roof will transfer less heat into the building requiring less demand on the new cooling system.

The roof is not the only place where the design team is targeting points for heat island effect. A total of thirty four new trees will be planted inside the moat around the perimeter as the design team targets a total of twenty two points in the sustainable sites category.

CONSTRUCTION WASTE MANAGEMENT REPORT

INTECH Construction, LLC
Period From January 1, 2015 through March 31, 2016

	Total Waste (TONS)	Total Diverted (TONS)	Percent Diverted from Landfills
UPenn, FMC Tower Fit-Out	23.26	22.65	97%
Rodin Square	1,628.46	1517	93%
UPenn, Richards Medical Research Labs	216.64	174.24	80%
3737 Chestnut	1,695.21	1,496.06	88%
Museum of American Revolution	331.59	300.09	91%
3601 Market	1,121.94	1,058.37	94%
Congregation Rodeph Shalom	129.58	103.29	80%
UPenn, New College House	14,382.96	13,875.87	96%
500 Walnut	180.65	166.79	92%
Residences at Two Liberty Square	325.27	261.20	80%
One Riverside	277.62	262.79	95%

Museum Towers II	296.16	269.06	91%
One Logan Hotel	601.56	523.88	88%
Academy House	0.49	0.39	80%
76ers Practice Facility	205.16	172.30	84%
GRAND TOTALS	**21,416.55**	**20,203.98**	**94%**

Congratulations to the INTECH project teams for reaching a 94% average for the last 15 months - Well done!

CALENDAR OF UPCOMING EVENTS

Attached to the newsletter is the DVGBC Fall events calendar for 2016. Please let Ed Rowe or Andrew O'Donnell know if you are interested in attending this event or any others on the calendar.

Click Here for Upcoming DVGBC Events

We hope you enjoyed this Fall 2016 edition of Sustainable News.

Andrew O'Donnell, LEED AP
Project Director

Ed Rowe, LEED AP
Assistant Project Manager