

## THE SOCIETY OF AMERICAN MILITARY ENGINEERS ARCHITECTURAL PRACTICE COMMITTEE

## ASSET MANAGEMENT & LOGISTICS SUPPORT CENTERS HOW CAN THIS BE ARCHIECTURE?

I recently started in a new position at the Coast Guard as their Deputy Civil Engineer. (The architects in the crowd will recognize the significance of the position, but also get a grin about the title). As in many military organizations, Civil Engineering (CE) (CG-43) reports to the CG-4 Logistics. Logistics in the Coast Guard has logistics centers including an Air Logistics Center, Surface Forces Logistics Center, and the Shore Infrastructure Logistics Center. The logistics centers were established to standardize logistics chains and maintenance across the Coast Guard enterprise, reduce the number of repair depots, and reduce/strategically place inventory held across the enterprise. The logisticians assumed that what would be good for ships and aircraft, would be applicable for facilities. The question is how does the Coast Guard CE community apply the logistics lessons to facilities?

This started my wheels turning. How could we make the facilities business logical, efficient, and effective? The logistics systems for ships and planes are based on having a relatively limited number of ships and planes; understanding through a thorough asset management system where those assets are located and details such as their age, usage and maintenance records; strategically targeting maintenance (both unit and depot level maintenance) to occur at the most cost effective point in an asset's life; and having a good spare parts logistics system to ensure the right parts were in the right location when required, but inventory levels were kept as low as possible and cost as little as possible.

With that understanding, how does the CE community apply the logistics model to facilities, utilities and the installations/sites as a whole? Plus, are there instances where the CE community should not apply the model? Finally, how can my architectural background help?

An asset management system for buildings and utility systems to fully understand what assets we have where as well as their age, usage, and maintenance history is certainly needed and many of the services (including the Coast Guard) have made great strides in their real property asset management systems. It also makes sense to strategically target maintenance-completing preventive maintenance (equivalent to unit level maintenance in ships or planes) in a timely fashion so buildings perform efficiently (and save valuable energy) and strategically scheduling larger periodic maintenance projects (equivalent to depot maintenance) so they avoid the costly repairs they often require if replacement is delayed too long.

From a spare parts perspective, buildings and utility systems are in many ways like ships and planes. Buildings and utility



Paula Loomis, FAIA, LEED BD+C, PMP Vice Chair for Collaboration, SAME and AIA

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## WELCOME LETTER



David A. Packard, R.A., PMP Communications Vice Chair

### Autumn

Federal workers celebrate a new fiscal year in October and, at our local SAME Post, the search is on to identify nominees for deserved recognition as we prepare for the Omaha Post's annual Holiday and Awards Event (in December). It is a great time to take stock of the fruits of our labor and give thanks for the blessings we receive. Very soon, the nominations for the Society of American Military Engineers' Urbahn Medal will be due, as well as all other SAME National awards nominations.

The Architectural Practice Committee is considering the development of appropriate recognition of those who have made significant contributions to the professions we represent and the great work we've completed. SAME is attractive to me because we hold ourselves accountable to our mission through the Distinguished Post and Streamers program. That is, we say what we will do, we do what we say, and we acknowledge what we've done. Recognition is an important part of progress and innovation.

One of my favorite magazines, *Esquire*, used to publish an annual issue devoted to the Best and Brightest. The Editor in Chief, David Granger, lamented the course of the nation at the turn of the century. He described the state of affairs in our world... "We were fat and happy as a culture, arrogant and self-satisfied, and executive editor Mark Warren and I wondered how, in such an atmosphere, anything ever changed for the better." However, he went on to say "And still, individual quests for goodness continue. Small acts and lifelong commitments both." They devoted a few pages "to a roll call of people and events that made us swell with pride or encouraged hope..."

In this issue of the APC Newsletter, we congratulate Larry Enyart, FAIA, FSAME, who was recently named 2014 LEED Fellow by the U.S. Green Building Council (USBGC) for exceptional contributions to the green building community. The program promotes the creation of a better built environment, something from which we can all benefit.

So, I encourage you all to support SAME recognition programs at the local and national levels in the coming months. If you take a moment to look, you will find people who are doing amazing things...maybe it is YOU...celebrate "individual quests for goodness."

dave.

The Architectural Practice Committee will host a quarterly conference call on **Wednesday**, **October 22, 2014 from 12:00 – 1:15 pm EST.** Video conference callin number: For web connection, go to: <u>https://www.spiderphone.</u> <u>com/05698937 (This link will help</u> connect both your browser) and dial +1 212-812-2800 and enter 0569 8937 for phone connection.

Time: 12:00 pm to 1:15 pm, Eastern Standard Time; 11:00 am to 12:15 pm, Central Standard Time; 10:00 am to 11:15 am Mountain Standard Time; 9:00 am to 10:15 am, Pacific Standard Time; 8:00 am to 9:15 am, Alaska Standard Time; 7:00 am to 8:15 am, Hawaii Standard Time.

The agenda for the quarterly conference call includes an update on committee focus area initiatives, open discussion, and 1 AIA LU/HSW/SD credited presentation.

The AIA credited presentation will be given by Sharon Sartor and Erin Cox, titled "Low Impact Development Plan Overview: Planning and Tools."

The Office of the Assistant Chief of Staff for Installation Management (OACSIM) Construction Division is leading the Army's initiative for integration of Low Impact Development to meet the requirements of the Energy Independence and Security Act of 2007, Section 438. This webinar will introduce Federal and DoD LID policy, LID initiatives, future LID guidance and the LID planning tools.

Sharon Sartor is an Ecologist with the U.S. Army Corps of Engineers,

Baltimore District. Sharon works in the **Planning and Environmental Services** Branch and provides water resource management and natural resources support to Military Installations within the Chesapeake Bay watershed. Sharon is the program manager for the Office of the Assistant Chief of Installation Management's effort to integrate Low Impact Development in Army construction. Sharon is also the Co-Chair of the USACE Regional Center of Expertise for Hydrology and Low Impact Development and was an instructor for the Army Low Impact Development Training course, sponsored by OACSIM. Sharon holds a Masters in Environmental Management from Duke University.

Erin Cox is a civil engineer with the U.S. Army Corps of Engineers, Baltimore District. She works in the Site Development section of the Military Design Branch, providing civil/site design services for military construction at Installations within the Baltimore District. Her specialty within site development is storm water management, including low impact design and regulatory storm water and land disturbance permitting. Erin is a member of the USACE Center of Expertise for Low Impact Development and was an instructor for the Army Low Impact Development Training course, sponsored by OACSIM. Erin holds a bachelor's degree and master's degree in Civil Engineering from the University of Maryland, College Park. She is a licensed civil engineer in the state of Maryland.

### LAST QUARTERLY CALL

JJ Tang, APC Chair, opened the Quarterly Call on July 23 with a welcome, introductions, and a review of the APC Mission Statement and Organizational Structure Review.

JJ discussed the APC role in the JETC and once again congratulated all on the successes we've achieved in our first year as a committee. Progress continues in the completion of the Memorandum of Agreement between SAME and the American Institute of Architects (AIA), which will allow greater consistency in the way we support continuing education programs.

We have seen consistently high attendance numbers in SAME Continuing Education webinars, so we are encouraged. Rad Delaney described future webinars, including the FREE webinar on Low-Impact Design in conjunction with our next quarterly call, and BIM Lessons-Learned on DoD projects, also in October. Dave Packard will explore alternative methods of archiving our library of webinar slides, newsletters, and other pertinent information, now located on the APC webpage at <u>same.org/</u> <u>apc</u>.

Ben Moore, AICP, LEED O+M, RS&H, provided a presentation titled "Bird in Hand, Getting the Most from Existing Buildings."

Ben explored the tools that have been developed to assist building operators and their advisors "train" existing buildings to deliver greater benefits (monetary and energy efficiency). Tools considered included ENERGY STAR Portfolio Manager and its embedded Sustainable Buildings Checklist and the LEED and Green Globes rating systems developed by U.S. Green Building Council (USGBC) and the Green Building Initiative (GBI), respectively.

Ben recognized the value each, analyzing their processes, requirements, and results. Viewed as a complete "tool box" and appropriately applied, they provide a range of benefits from enhancing a company's bottom line to helping a public agency comply with regulations.

His presentation started with ENERGY



STAR Portfolio Manager (ESPM), as a starting point for existing buildings. This web-based application is available at no charge and with little more than utility bills, a user can score a building's performance against similar facilities. With the help of an architect or engineer, the highest-performing buildings can earn a certification. Over 300,000 commercial buildings and plants currently use ESPM to track their performance, with 3.5 billion square feet certified.

ENERGY STAR Portfolio Manager opens the door to other areas of performance. Initially designed to help federal agencies comply with the government's "Guiding Principles for Sustainable Existing Buildings," ESPM's <u>Sustainable Buildings Checklist</u> is now available to track any building's operations against 26 best practices in 5 categories, including integrated design, energy, water, indoor environmental quality and materials. While mandatory for federal facilities, the checklist points the way for public sector buildings to seize opportunities to slash utility bills, improve occupant health and generate revenue from recycling.

Two prominent organizations offer thirdparty verification certification programs for existing buildings – USGBC and GBI. Much like the Guiding Principles, their LEED for Existing Buildings (LEED EB) and Green Globes for Existing Buildings systems evaluate a building's performance across several





dimensions. However, these programs offer flexibility to managers and their advisors to pursue the high-performance improvements that best fit their needs.

Over 2,300 buildings, representing more than a billion square feet, have been certified under LEED EB alone – with over 50% of the activity taking place within the last three years.

As competitors, these programs offer different advantages. LEED tends to offer depth, rigor and resources, while Green Globes may offer breadth, simplicity and speed. LEED encourages establishing a system for a "well-trained" building, while Green Globes emphasizes documentation of the process of getting there. Selection of the right system depends greatly on a building manager's objectives, budget and schedule.

Ben demonstrated that, with resources constrained, we need look no further than the buildings we already have. With the right leadership and the proper tools, existing buildings can be trained to bring benefits to us.

Ben Moore is an Energy and Environmental

Planner with Reynolds, Smith and Hills (RS&H). As a member of RS&H's Energy and Sustainability Service Groups, Mr. Moore manages projects related to resource conservation strategies, high performance and sustainable buildings and sustainable organization management. He was a contributing author to "The Convenient Guide to Climate Change Policy & Technology," published by the Nicholas Institute for **Environmental Policy Solutions and co-author** of "Re/Retro-commissioning: The Bestkept Secret You Can't Afford Not to Know," published in Strategic Planning for Energy & the Environment and "Policy to Process: Miami-Dade's Sustainable Buildings Program" published in the Proceedings of the World **Energy Engineering Conference.** 

Ben has served on the Board of Directors of the U.S. Green Building Council North Florida Chapter since 2010. He is currently Board Chair, 2013-2014. Ben is a Certified Planner accredited by the American Planning Association's professional institute and a LEED Accredited Professional with an Operations and Maintenance specialty credential maintained through the Green Building Certification Institute. He holds a Masters of Environmental Management in Environmental Economics and Policy from Duke University with a certificate in Energy and the Environment and a bachelor's degree from Haverford College.

The entire presentation is available at the SAME APC webpage, <u>http://www.same.org/apc</u>

## MEMBER NEWS



Lawrence Enyart, FAIA, FSAME, LEED Fellow, Principal and Design Architect LEA Architects, LLC 2014 USGBC LEED Fellow

### Lawrence Enyart, FAIA, FSAME, LEED Fellow: Selected as U.S. Green Building Council 2014 LEED Fellow

Phoenix, AZ – October 1, 2014 – LEA Architects, LLC announces that Lawrence Enyart, FAIA, FSAME, LEED Fellow and Principal Design Architect of LEA Architects, has been named a 2014 LEED Fellow by the USGBC. This year's 48 Fellows are recognized for their exceptional contributions to the green building community as well as for their significant achievements among LEED Professionals.

"The 2014 LEED Fellows are utilizing their extensive knowledge and experience in green building to engage their colleagues, clients and communities to create a better built environment throughout the world," said Rick Fedrizzi, president, CEO and founding chair, USGBC. "We recognize Lawrence Enyart's commitment to LEED and celebrate his individual achievements."

To be selected, LEED Fellows are nominated by their peers, undergo an extensive portfolio review, must have at least 10 years of experience in the green building industry and hold a LEED AP with specialty credential, among other requirements. The evaluation process is carried out by the LEED Fellow Evaluation Committee and supported by the Green Building Certification Institute (GBCI).

" I am very humbled by this significant Honor but really it honors the professionals in my firm", Enyart said. LEED Fellow Larry Enyart's significant commitments to Sustainable design were recently recognized when he won several USGBC AZ "Heavy Medal Awards" for a LEED Platinum and LEED Gold Projects. Larry's firm was awarded the prestigious 2012 AIA AZ Sustainable Firm of the year Award which honors the continuing work by an Architect who has produced distinguished award winning sustainable architecture over a period of ten years, and he has made significant contributions to the USGBC; this has created a significant impact within the building profession and the USGBC community. Additionally, Larry Envart received the AIA Western Mountain Region Silver Medal for his design and his leadership; with significant "hands on" sustainable design contributions to the Nation, the USGBC, and the profession transcending all boundaries.

The 2014 LEED Fellows will be recognized in New Orleans at the Greenbuild International Conference and Expo from Oct. 22-24, 2014. A complete list of 2014 LEED Fellows can be viewed at <u>usgbc.org</u>.

## MEMBER NEWS

### **Newly Licensed Architect**

Our very own, Yvonne Lee, APC Graphic Artist, STOA Architects, recently passed her final Architectural Registration Exam. She graduated in 2011 from Washington University in St. Louis with her Master in Architecture. Upon graduation she began working as an Architectural Intern at STOA Architects in Pensacola, Florida.

"After 7 years of school, 3 years of internship and 7 exams, I'm glad that

I've finally achieved a lifelong goal: becoming a licensed architect I know I still have a lot to learn but at least I've completed the first step! "

Yvonne is looking forward to the next step in her professional career and wants to stress the importance of obtaining professional licensure.

"My dad always told me to 'finish what you start.' I think obtaining my [architect] license is definitely the finale to all those years of school and internship."



**Yvonne Lee, AIA, NCARB** SAME APC Graphic Artist APC Pensacola Post Liaison

## SERVICE BRANCH LIAISONS

Three APC Service Branch Liaisons have been identified to advise the committee on initiatives benefiting service branch architects and to assist in communications between service branch architects and SAME. The Service Branch Liaisons are listed below.

These liaisons have been informing their communities on the opportunity

for participation by architects in SAME training activities and are communicating information about professional and career development opportunities within their ranks. Please do not hesitate to contact them and express your topical interests. Join the dialogue!

Branch	Name	Email
Army	Ed Gauvreau, USACE HQ	edmond.g.gauvreau@usace.army.mil
Navy	Kathleen Reid, NAVFAC Atlantic	kathleen.o.reid@navy.mil
Air Force	Gene Mesick, AFCEC	gene.mesick@us.af.mil

## ARCHITECTURAL LIAISONS

SAME Architectural liaisons help coordinate architectural programs within their local SAME post as well as coordinating shared programs between SAME and local architectural organizations (such as American Institute of Architect chapters, architectural schools, Boy/Girl Scout Architectural troops, local high school programs, etc.). Scott Leister is now the APC Architectural Liaison Coordinator. If you are interested in becoming a SAME Architectural Liaison, please contact Scott for more information: <u>richard.</u> <u>leister@us.af.mil</u>

SAME Architectural Liaison teleconferences are held regularly. If you're interested in participating, please contact <u>Scott Leister</u>.

Post	Name	Email	Company
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Dallas	Laura Lavelle	Laura.Lavelle@jacobs.com	Jacobs
Denver	Joe Cruz, AIA, NCARB	joe@ihamail.com	Iron Horse Architects
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Washington DC	Franklin Kaye	fkaye@eypae.com	ЕҮР

## UPCOMING CONFERENCES

### NOVEMBER 2014

NW/SW Joint Engineering Training Symposium November 3-6, Double Tree Hotel (Portland, OR)

<u>SAME FY 15 Industry Day</u> November 6, UNF University Center (Jacksonville, FL)

Emerging Leaders Alliance Conference November 10-12, Hyatt Regency Reston (Reston, VA)

### <u>Mid-Atlantic JETS</u> November 12-14, Westfields Marriott Washington Dulles (Chantilly, VA)

Ohio Valley and Great Lakes JETS November 19-21, Louisville Marriott Downtown (Louisville, KY)

### DECEMBER 2014

Basics of Business Development in the A/E/C Marketplace December 8, Kansas City, MO

Competing Successfully for DoD Architect-Engineer Contracts December 8, Kansas City, MO

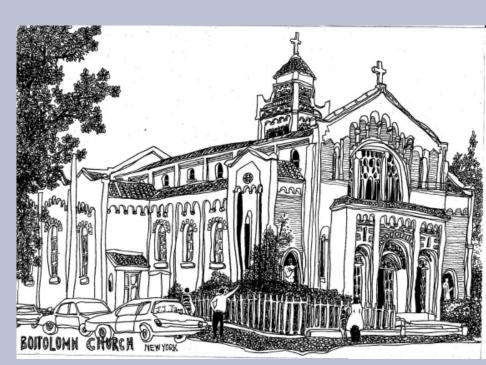
SAME Small Business Conference December 9-11, Kansas City, MO

For more information on upcoming SAME events, please visit: <u>http://www.same.org/index.php/</u> <u>events/calendar-of-events</u>

## ARCHITECT'S FIELD SKETCH CORNER

In today's architectural practice, architectural design concepts have been conveyed predominately through computer images to others. Even though these images can offer us very realistic feel for our design, but what is missing in most cases is the connection between the artistic emotion of an architect and his design product. To that end, architect's freehand sketches are the most direct translation of his design thought and emotion on paper. Therefore, it is more intimate and closer to our hearts.

- JJ Tang, AIA, APC Committee Chair



## CONTINUING EDUCATION

### BIM - Lessons Learned on DOD Projects

What better way to understand the application of building information modeling (BIM) in practice than to hear about it from the agencies and practitioners themselves? Join us to review project case studies outlining the successes and revealing the most valuable lessons learned by all stakeholders. A panel of practitioners and agency representatives will dissect and discuss requirements developed by NAVFAC and USACE.

### **Moderators:**

Richard A. "Rad" Delaney, AIA, FSAME, CDM Smith

### Speakers:

Mitch Corneluis, LEED AP, Integrated Construction Manager, Mortenson Construction, Inc.

Jason Fairchild, CAD/BIM Community of Practice Leader, HQ USACE

Rachel Riopel Wiley, RA, NCARB, LEED AP/BD+C, Regional BIM Director, HDR Architecture, Inc.

#### Why You Should Attend

Gain insight into DOD projects and how BIM is being approached from an agency perspective

### Who Should Attend

Architects Engineers Consultants Contractors Owners BIM Managers Model Managers Project Managers

Last day to register is October 28, 2014. This webinar is hosted by the Architectural Practice Committee. For more information please visit: <u>https://membership.</u> <u>same.org/cgi-bin/eventsdll.dll/</u> <u>EventInfo?sessionaltcd=584\_BIM\_</u> <u>WEB14</u> or contact Nicole Matthews at <u>nmathews@same.org</u>



## COLLABORATION WITH AIA

The Architectural Practice Committee was created to support the community of architects within the Society. Four areas of focus include collaboration with AIA, continuing education opportunities for the profession, Urbahn sessions at SAME regional conferences, and communications of information to the community. Collaborating with other Architecturally focused organizations, such as the American Institute of Architects (AIA), allows SAME and the Architectural Practice Committee to share SAME's commitment to supporting all its members, not only engineers.

See one of the most recent Post collaborations below.



# can struction®

DESIGN AND BUILD COMPETITION BENEFITING MANNA FOOD PANTRIES

NAME & DESCRIPTION OF STRUCTURE

In honor of our brave service members, we have chosen to recreate the Wounded Warrior Project logo surrounded by the American Flag. The Wounded Warrior Project is a non-profit, veterans' service organization that offers a variety of programs, service and events for wounded veterans of the military actions following September 11, 2001. Their vision is "to foster the most successful, well-adjusted generation of wounded service members in our nation's history." For more information about this organization please visit:

http://www.woundedwarriorproject.com



INGREDIENTS

Chef Boyardee Bush's Beans Hanover Beans (Assorted) Assorted Vegetables





On September 29, 2014, the Northwest Florida Chapter of the AIA hosted their 7th Annual CANstruction competition. SAME Pensacola Post sponsored a team of SAME members, local engineers and architects. The SAME team came together as "Team AmeriCAN" to design and build a sculpture made entirely of canned foods. With the help of generous sponsors, SAME Pensacola Post raised over \$2000 worth of cans, which were all donated to MANNA Food Pantries, a local nonprofit food bank in Pensacola. Team AmeriCAN also received enough support to allow them to donate more than \$700, in the form of a check, to the Wounded Warriors Project, which was the inspiration for their design. The CANstruction competition is a fantastic way for local SAME members to showcase their design talents while supporting a local community event that benefits a local non-profit charity.

## FIRM PROFILES







From feasibility studies to design and construction management, Samaha brings together the talent and expertise necessary to deliver client success to the mid-Atlantic region. Centrally located in Fairfax, VA, we provide architectural, interior design, and planning services.

Our core areas of expertise are organized around municipal, state, and federal clients, and include PK-12, industrial, public safety, health care, and private institutions. For over 55 years our clients have turned to Samaha for cost efficient, creative designs. Our integrated project delivery and use of BIM technology ensures client success for a variety of building and project types.

Complementing our approach is our commitment to a collaborative process, high performance design, principals of sustainability, and the application of new technologies to enhance design, project delivery, and construction.

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URS is a leading provider of planning, engineering design, construction, environmental, information technology and technical services for DOD, DHS, FEMA and other government agencies. We provide watershed management, flood control, transportation infrastructure improvements, environmental, disaster support, contingency and other construction services. URS also maintains military vehicles and aircraft,

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trains military pilots, provides base operating services, and offers missioncritical systems engineering and technical assistance. We operate and maintain government facilities, manage chemical demilitarization, and conduct emergency preparedness exercises throughout the U.S. URS is a leader in the use of sustainable practices for virtually all types of infrastructure, facilities, and energy-related projects.

### CLIENTS

Government agencies: United States Europe Middle East Asia/Pacific Private sector corporations worldwide

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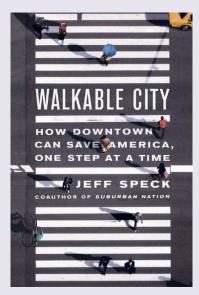
systems are made up of myriads of parts, but unlike ships and planes no two buildings or utility systems are exactly alike. Many times if buildings perform the same function their floor plans are different and even if the floor plans are the same, the building sections (floor, walls, and roof) are different due to their location in the world and their local ecosystem and context. Further, due to construction contracting processes most buildings, even if they have the same footprint, are built by different contractors who use different products and systems. So, where it might make sense to buy parts for ships and planes centrally and strategically locate those parts, a similar process to buy parts for buildings and utility systems would likely create large spare parts inventories. (However, central buys of items like light bulbs might make sense if the cost savings were significant).

So how do we as architects and engineers ensure that our "spare parts system" is effective and efficient? My response (after several weeks of thinking) was the Installation/Site Standards/Compatibility Plan. (DoD folks will recognize this tool.) There was no way that we could get the buildings to be as similar as ships or planes (nor should they be). But we could use the same palette of materials on buildings. This palette of materials does a number of things. On the exterior of the buildings, using a palette of materials for the walls, roof, windows, etc. , help create a compatible architectural plan. Instead of having buildings with a wide variety of materials, the smaller palette helps the installation hold together as a campus. The palette of materials also helps decrease the number/type of finish materials that needs to be stored. They would decrease maintenance requirements. The interior finishes, electrical fixtures, mechanical units, and other building items can be addressed in a similar fashion, meaning that fewer parts would have to be stored. Lastly, if these parts were selected on a life-cycle cost method the buildings would require much less maintenance.

So, amazingly enough, what started as a request to make facilities maintenance function like logistics, turned into promotion for installation and architectural compatibility plans. What a wonderful turn of events. So next time you are pressed to use the Lean 6 Sigma method or make architecture respond like logistics systems take heart. Good architecture is often the answer. If you have thoughts please let me know - we'd be open to all the good ideas.

## ARCHITECTURAL BOOK REVIEW

"Walkable City: How Downtown Can Save America, One Step at a Time" by Jeff Speck



Although more of an urban planning topic than architecture, Jeff Speck approaches the issue of "the walkable city" as a "simple, practicalminded solution to a host of complex problems that we face as a society, problems that daily undermine our nation's economic competitiveness, public welfare, and environmental sustainability." Jeff identifies the host of ills and problems borne out of auto(mobile)-centric cities, then presents tens steps to achieve walkability in any community, large or small. The notion of "induced demand", the phenomenon that

occurs when the supply of roadways is increased which lowers the time cost of driving, but causes more people to drive which, in turn, causes yet MORE congestion. Jeff's writing style is informative yet entertaining. Some of the points he makes will surprise you, but cause you to think about our role in the urban environment in a different way. His comments on traffic engineers are golden. Jeff is also a very good speaker, so check him out on-line...and read this book!

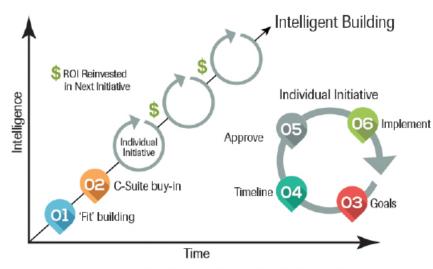
- Dave Packard, RA, PMP

## **Part 1 : What Does "Intelligent Building" Mean Today?** *by Kurt Karnatz, Robert Knight, and Rick Szcodronski*

www.facilitiesnet.com/buildingautomation/article/What-Does-Intelligent-Building-Mean-Today

The discussions around "smart systems" and "intelligent buildings" have increased dramatically in the past five years, and for good reason — competition. Buildings are being forced to look at all aspects of their design — management, amenities, and operations — to be more attractive to owners and occupants than their competitors. At the same time, market pressure from consumers is forcing buildings to keep up with the rapid pace of innovation. Hence the move to smart or intelligent buildings.

Over the last half-decade, smart phones have gone from cool new gadgets to essential tools for conducting business. Temperature and lighting controls have gone from just thermostats and switches on the walls to WiFi-controlled from a mobile app. In this competitive market, tenants are asking questions about what the cellular coverage is like or what type of control they will have to reduce the energy consumption of their HVAC and



In the six-step process that leads to the master-plan goal of an intelligent building, an individual smart initiative can be seen as a loop that builds on the success and measured ROI of earlier initiatives. lighting systems.

It is difficult to get through a day without hearing discussions about "big data," or the "Internet of Things" (IoT) in the news. As these solutions become commonplace over the next several years, they will enter the commercial building market with its thousands of devices that are controlling and monitoring systems and are ripe for data extraction and analytics.

But what does it actually mean to be a "smart" or "intelligent" building? "Smart" is used to describe advanced sensors, actuators, and related devices. A smart device or system is operated by a microprocessor, has programming to execute a predefined set of actions or sequence of operation, and communicates with external systems via some form of data network. "Intelligent" is used to describe a combination of smart devices and systems, with supervisory software enabling coordination and collaboration between the smart items. True intelligence implies the ability to automatically adjust operating parameters interactively between smart items to optimize building functionality. Optimization may benefit energy savings, occupant comfort, safety and security, or operational productivity, but at the core, an intelligent building is greater than the sum of its smart parts.

Since so many new technologies out there show promise, how does a building owner select the right solution or even ensure that the technology is a wise investment? THE SOCIETY OF AMERICAN MILITARY ENGINEERS ARCHITECTURAL PRACTICE COMMITTEE

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