

## **IN THIS ISSUE:**

- How the Building and Construction Industry is Impacted by COP21
- Trains, Planes and Automobiles
- The Alliance Center's LEED Dynamic Plaque
- CA Office Growing Strong
- New Faces at Ambient Energy
- Community Involvement
- Speaking Engagements and Activities
- Project Highlights

## **HOW THE BUILDING AND CONSTRUCTION INDUSTRY IS IMPACTED BY COP21**

By Devika Kumar, LEED-AP BD+C, Sustainability Consultant, Ambient Energy



December 3, 2015 was marked as the first ever “Buildings Day” at the 21<sup>st</sup> Conference of the Parties (COP21). [Buildings contribute to 30% of the world's GHG emissions.](#)

Building emissions need to reduce drastically in order to meet COP21 goals of capping the global temperature rise no more than 2°C.

The Architecture Engineering and Construction (AEC) community has an opportunity to contribute towards the dramatic transformation that the building industry will make. The fact that leaders of over 190 countries were able to spend an entire day discussing buildings shows the industry is ready to pursue more aggressive emissions reduction targets. What does this mean for us?

Certainly more Acronyms!

ZNE, NZE, LEED, BREEAM, LBC, Cx, GHG, BECx,  
SROI, MROI, EUI, WELL, EPD, EuP, HPD, LCA

Renewable Energy and the implementation of green technology is definitely the first thing that comes to our mind when we think of reversing climate change. However, listed below are several other factors that will help us achieve COP21 goals:

**Codes and Standards** will be more stringent. Just meeting code will be harder as the basis of design is heading towards net zero energy buildings. Overtime this implementation will result in lower Energy Use Intensity (EUI) in buildings. Denver will soon adopt IECC 2015, for example.

**Certification Institutes and Green Building Programs** will see a rise in the overall percentage of buildings seeking green certification. Several very effective green building organizations exist worldwide - leveraging the use of these existing programs will accelerate this process. Exemplary performing buildings have been built when registered under LEED, Living Building Challenge, Energy Star, BREEAM and many others.

**Zero Net Energy (ZNE), Water and Waste Buildings** are rising in numbers. Achieving ZNE buildings requires a lot more collaboration and communication between the design and construction teams than what was the norm. Obtaining input from stakeholders, facility management, owners about their capabilities and budget are essential to design zero net energy, carbon and waste facilities. San Francisco International Airport and Denver Water's Operations Complex Redevelopment are two projects we are working on that are pursuing multiple Net Zero goals.

**Energy Monitoring and Controls** will be seen in more new construction and existing buildings. Tracking how a building is functioning is the key to finding opportunities to make buildings more efficient. Integrated controls systems such as SkySpark and other long term monitoring systems help buildings operate at high performance levels as it was intended in the design. Ambient Energy is utilizing SkySpark at University of Colorado, Colorado Springs.

**Building Commissioning** in several jurisdictions including California and those cities, states and counties who have adopted the IECC 2015 is becoming mandatory. Commissioning the MEP systems and the Building Envelope to ensure operations meet the design and energy performance requirements will lead to higher performing buildings. Ambient Energy has commissioned over 1 million dollars of construction projects.

**Product Transparency** will increase. In order to be modelled and analyzed, several manufacturers are already being pushed to disclose the impacts their products have on the environment (EPD) and health (HPD). Europe has initiated an ambitious program to release the energy using products directive (EuP). Life cycle analysis on more materials and systems will help build greener and resilient products.

**Green Investments and Tax Incentives** will increase. There is a larger pool of money available now than ever before to encourage developers to try out green technologies. Buildings are long term investments and assets. Since having a green property is good for branding this will incentivize land owners to include sustainability requirements into leases or sales from public to private sector transactions. [Investor Confidence Project](#), PACE and [energy.gov](#) are good resources for such programs and financing.

**Return on Investment** trends will change. The industry will have to start focusing on SROI – Social Return on Investment more than MROI – Monetized Return on Investment. The social and environment impact is key towards the carbon emission's goals and the funding for these will have to evolve in order to provide effective financial tools and resources for everyone involved in the building industry.

There will be an immense growth in manufacturing of smart technology and building integration systems. Architects and engineers will have new challenges to overcome. The utilization of space has never been more important and all the strategies listed above tie in together. There has been a lot of greenwashing under the umbrella of green building programs; COP21 declaration will help reduce this. Energy modelling software and tools are going to be more complex. Software industry is advancing in the collaborative and in depth analysis models can now perform. Young professionals will have to understand and meet the energy standards and local code requirements. Manufacturers will be required to disclose locations and materials of their products. We can no longer ignore or get bored by lengthy sustainability requirements. Post COP21 - it is time to get ON BOARD!

## **PLANES, TRAINS AND AUTOMOBILES: AMBIENT ENERGY'S TRANSPORTATION PROJECTS MAKING WAVES**

By Clayton Bartcazk, **LEED-AP, BD+C, O+M, SFP**, Sustainability Team Leader, Project Manager

Although Ambient Energy provides consulting services for many different project types including government, higher education, laboratory, library, medical, museum, and office, we have several significant transportation related projects that we're proud to have recently completed or will be wrapping up in 2016.

The \$70 million LA Metro Division 13 bus maintenance and operations facility in Los Angeles, CA is wrapping up



construction and will be submitting for LEED certification in early 2016. We started working on this project with Maintenance Design Group (MDG) and RNL Design in 2008 so we are excited to help the team finalize the project's goal of LEED Gold certification. This is our last LEED for New Construction (LEED-NC) version 2.2 project with all our more recent projects pursuing either v2009 or v4. Ambient Energy provided several sustainability services including daylight analysis, green materials research, and LEED facilitation during both design and construction administration.



Another LA Metro project with MDG and RNL is the EXPO Operations and Maintenance Facility in Santa Monica, CA. Ambient Energy provided LEED facilitation and commissioning services for this \$99 million state of the art light rail vehicle maintenance facility pursuing a LEED-NC v2009 Gold certification. The EXPO OMF is completing construction in early 2016 and

assuming a power purchase agreement for a PV system is finalized in time, the project may achieve a LEED Platinum certification.

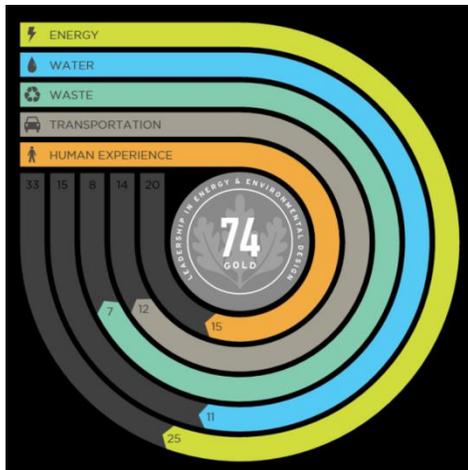
Closer to our main office, the Denver Union Station Hotel redevelopment was recently awarded a LEED Certified rating. This \$150 million renovation of Denver's historic train station was completed for Sage Hospitality by a design build team led by Milender White Construction and Tryba Architects. The renovation of this iconic building has been a wildly successful gathering place in Denver's historic LoDo neighborhood and has truly become the new heart of downtown Denver.



The \$500 million Denver International Airport Hotel and Transit Center opened last November and on Earth Day this year will link the airport

directly to downtown's Denver Union Station via a new light rail line. The 500,000 sq ft facility is pursuing LEED-NC v2009 Gold certification and may even achieve LEED Platinum. One of our biggest projects ever, Ambient Energy provided a full suite of consulting services including LEED facilitation, daylight analysis, energy modeling, measurement and verification, and commissioning. Originally designed by world-renowned Spanish architect Santiago Calatrava, the project design was completed by a team led by Gensler and built by a fusion of several general contractors including MHS (Mortenson-Hunt-Sunders) and Kiewit.

Back on the west coast, the \$51 million San Francisco International Airport (SFO) Air Traffic Control Tower is in the final stages of commissioning and LEED documentation. Pursuing a LEED-NC v2009 Gold certification, this top notch air traffic control tower was a design-build project led by Hensel Phelps Construction and Fentress Architects. Ambient Energy provided sustainability/LEED, energy modeling, and commissioning services. We were also recently hired by Parsons Brinkerhoff to be part of Project Management support services providing sustainability, Net-



Zero, commissioning and peer review services for the Terminal 1 Boarding Area B project.

All in all, Ambient Energy is honored to have the opportunity to collaborate with the project teams working on high profile projects like these and will continue to seek out transportation and airport projects in 2016 and beyond.

## THE ALLIANCE CENTER'S LEED

### DYNAMIC PLAQUE

Congratulations to everyone at the Alliance Center which recently became the first building in Colorado and the fifth in the world to be certified using the LEED Dynamic Plaque! The LEED Dynamic Plaque provides existing buildings an opportunity to be recognized for sustainable building performance in a simpler, more accessible way than LEED for Existing Buildings certification. Ambient Energy is excited to have been

involved in this project by providing Indoor Air Quality (IAQ) testing services. Contact Clayton ([clayton@ambient-e.com](mailto:clayton@ambient-e.com)) or visit [www.leadon.io](http://www.leadon.io) for more information on the LEED Dynamic Plaque.

## **CA OFFICE GROWING STRONG**

Ambient Energy's San Francisco office is growing strong with Devika Kumar, sustainability and commissioning consultant, and Ryan Lynch, commissioning engineer, working on our Bay Area and California projects. Contrary to popular belief, Renee hasn't moved to San Francisco yet, but she has been going there at least monthly since mid-year last year. Some of the projects we are working on in San Francisco include SFO's Terminal 1, Golden State Warriors Office Buildings, 706 Mission, Santa Clara Valley Courthouse, 250 Fourth Street Hotel, Silver Oak Cellars, and several others. Our focus is on providing commissioning, sustainability and high performance energy consulting services.

## **NEW FACES AT AMBIENT ENERGY**



Crystal Lutgens joined Ambient Energy in October of 2015 as the Marketing and Business Manager. She is a Colorado native and enjoys, hiking, trail biking and hot yoga. Stepping away from the A/E/C industry for a bit made her realize what she was missing and she is excited to get back into the game.



Ryan Lynch joined the Ambient Energy Commissioning Team in January 2016 and is working from the San Francisco office. Ryan is a licensed mechanical engineer in the State of California with 10 years of experience in building engineering. Projects include commissioning, retro-commissioning, energy audits, measurement & verification, and energy modeling. Ryan holds a Master of Science degree in Engineering from the University of Colorado's Building Systems program and a Bachelor of Science degree in Civil Engineering from the University of Rhode Island.

## **COMMUNITY INVOLVEMENT**



Clayton Bartczak was recently nominated to the Colorado Chapter of the US Green Building Councils Board of Directors. <http://usgbccolorado.org>

USGBC Colorado was the 15th chapter to be recognized by U.S. Green Building Council and is part of a nationwide network of local chapter's that all contribute to the mission of transforming the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life.



Tracey has been nominated to the Building Commissioning Associations Southwest Chapter. [www.bcx.org](http://www.bcx.org)

The Building Commissioning Association (BCA) is an international non-profit organization that serves as the recognized authority and resource on commissioning. Our membership is made up of professionals from the commercial building industry, committed to the highest standards and practices for the commissioning process.

Kevin Perri, Commissioning Engineer at Ambient Energy and Jim Dent, Preconstruction Director at Weifield Group Contracting, will explore the impacts the 2015 IECC mandates will have on the AEC community as it relates to design, construction, costs, and commissioning of commercial buildings. Last week Kevin and Jim presented to the City and County of Denver @cityandcountyofdenver, Swinerton Builders @swinerton, and JE Dunn Construction @JEDunn. During these presentations various options are discussed to comply with the 2015 IECC in terms of energy efficiency and commissioning and how it all compares to the 2009 IECC which the state of Colorado was formally following. #swinerton #JEDunn #CityandCountyofDenver #AmbientEnergy, #WeifieldGroup

## **UPCOMING SPEAKING ENGAGEMENTS AND ACTIVITIES:**

- Feb. 18 - Tracey putting on a webinar on the Commissioning Impacts for LEED Version 4 for BCA Southwest Chapter
- March 2-4, Renee to attend Airport Design and Construction Symposium, March, Salt Lake City

[http://www.aaae.org/AAAE/AAAEMemberResponsive/Events/2016/03/160201/CCO\\_Master.aspx?New\\_ContentCollectionOrganizerCommon=1#New\\_ContentCollectionOrganizerCommon](http://www.aaae.org/AAAE/AAAEMemberResponsive/Events/2016/03/160201/CCO_Master.aspx?New_ContentCollectionOrganizerCommon=1#New_ContentCollectionOrganizerCommon)

- April 21-22, Clayton speaks at Rocky Mountain Green, Colorado Chapter of USGBC's annual conference, Denver  
[http://usgbccolorado.org/content.php?page=rocky\\_mountain\\_green](http://usgbccolorado.org/content.php?page=rocky_mountain_green)
  1. Brick by Brick: How affordable housing organizations are implementing sustainable design and construction in the U.S. and abroad
  2. The Alliance Center and LEED: Dynamic Plaque and the Future of Ongoing Certification with USGBC
- April 29, Linda and Eric speaking on Net Zero Energy Lessons Learned at Rocky Mountain ASHRAE Conference, Denver
- May 11-13, Clayton to attend Living Futures, Seattle  
<http://www.livingfutureunconference.org/>

## **ON THE BOARDS NATIONWIDE:**

- Private Residence, Living Building Challenge Consulting, Boulder, CO
- University of Northern Colorado, Campus Commons, Sustainability and Energy Consulting, Greeley, CO
- Santa Clara Valley Courthouse, Contractor Support for LEED Compliance, San Jose, CA
- Orlando Airport On-Call, Program and Project Management Services, South Terminal C, Phase I, Orlando, FL
- Alliance Center Ongoing Commissioning, Direct Current (DC) Power Migration Programming Support, Denver, CO
- Denver International Airport, Facility Conditions Assessment On-Call, Denver, CO
- South Dakota Army National Guard, ASHRAE Energy Audits, Various sites, SD
- Recently Awarded the City of Aspen Civic Space Relocation Project – Commissioning Services

## **PROJECT HIGHLIGHTS**

**Ambient Energy is busy! Here are some of the projects we have been working on over the past quarter.**

- Denver International Airport, Facility Conditions Assessment On-Call, Denver, CO

- South Dakota Army National Guard, ASHRAE Energy Audits, Various sites, SD
- San Francisco International Airport, Terminal 1, Project Management Support Services, San Francisco, CA
- Private Residence, Living Building Challenge Consulting, Boulder, CO
- Denver Water Campus Redevelopment, energy, sustainability and commissioning consulting, Denver, CO
- Colorado Higher Education: CSU Chemistry, CSU Biology, CSU Art, CSU Medical Center, and UNC Campus Commons