PRESIDENT'S MESSAGE

CALL TO ACTION

AND VISION

OF THE FUTURE

CERTIFICATION CORNER

BENEFITS OF GETTING THE CEP CERTIFICATION

BONUS CONTENT - TECHNICAL ARTICLE

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CLICK to watch the video, Spotlight on AACE President, Julie Owen, CCP PSP.

Julie Owen was installed as AACE President on Tuesday, June 30, at the 2015 AACE International Annual Meeting at the MGM Grand in Las Vegas, NV. Julie had served the prior year as President-Elect.

In addition to viewing this AACE Spotlight video, please turn to page 5 and read Julie’s first President’s Message to all AACE members. Titled a “Call to Action and Vision of the Future,” Julie recounts her years of section leadership service with the Southern California Section, as well as her prior AACE Board service as Director of Region 6 and Vice President Regions.
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Greetings AACE International members! I am very excited to share my first President’s Message with you. This is one of the greatest career honors that I have experienced to serve as your President. I know many of you are wondering what new vision and direction I bring to the Association. According to the Gallup Strengths Finder assessment, my natural talent themes include futuristic, learner, achiever, ideation, and strategic. This means I naturally think toward the future, generating innovative ideas and inspiring others toward my vision. I have a great deal of stamina and energy to devote to projects, the desire to make positive impacts, and I am not swayed by roadblocks. I am goal oriented, and strive to achieve goals through cooperation and collaboration. I am optimistic and enthusiastic, and love to lead teams with challenging missions. I am truly excited to lead the Board of Directors this year and look forward to realizing my goals for AACE International.

I have been a member of AACE International since 1994. I spent years in section leadership with the Southern California Section, and was fortunate to work side by side with AACE Association leaders. I joined AACE International newly out of college. I was truly amazed by the breadth of knowledge from my fellow section board members and sought to learn as much as possible. I was grateful for the access to industry experts and worked to acquire the latest trends and knowledge. I also worked diligently to obtain professional certification, obtaining both my Planning and Scheduling professional (PSP) certification and also the Certified Cost Professional (CCP) certification.

The certification process fueled my learner talent theme and spurred me to get involved in certification education. I taught the Planning and Scheduling (PSP) certification preparatory course for five years and loved sharing knowledge with students around the world. I continuously seek to improve and thrive in situations that test endurance. All of these stepping stones helped me climb the leadership ladder into the AACE Board of Directors. I served as Director of Region 6 and Vice President Regions.

As Director of Region 6, I covered a territory that included the entire western region of the United States, plus Alaska and Hawaii. I thoroughly enjoyed meeting with section presidents and helping meet needs of their constituents. I met with almost all sections during my term until I was promoted to VP-Regions. During this time, I became actively engaged in helping plan and deliver the Western Winter Workshop in conjunction with the Southern California and San Francisco Sections. This United States West Coast regional event inspired me to look for other new and innovative concepts to help further the goals of AACE International. In future President’s Messages, I will speak more about the power of regional events.

As Vice President Regions, I became active within the Women in Project Controls Committee, Young Professionals Committee and Committee for Mentoring Excellence. These committees work together to encourage diversity in the Association. Each committee has its own mission and works collaboratively to expand the reach of AACE International. The Association membership body is graying and we are actively working to attract the younger generation of professionals to carry the torch for-
ward. The Association’s long term survival requires that strategies are developed to attract and retain the next generation of professionals. To further this goal, I am heavily involved in mentoring and working globally to support young professionals.

As Vice President Regions, I also worked to increase visibility of international members and travelled to United Arab Emirates, Russia, China, Chile, Peru, and Thailand. I thoroughly enjoyed meeting people around the world and got engaged to help young professionals. For the past several years, I have co-authored technical papers with younger authors from around the world and supported their professional goals. It is incredibly rewarding to coach a young professional and watch them achieve their goal to deliver a presentation. I challenge more AACE members to follow my lead and co-author and support younger professionals to participate in technical presentations. Abstracts for the AACE Annual Meeting in Toronto are due by the end of the month. I will keep score of all of the authors that heed this message. If you deliver a joint presentation, you will be acknowledged during the Toronto meeting. For those in the international community, please know that I realize the Annual Meeting is not the only available venue for technical presentations. Please let me know if you jointly deliver in other venues and keep me in the loop. I look forward to hearing from you.

Speaking of Annual Meetings, I recently returned from the Annual Meeting at the MGM Grand in Las Vegas where the Association held an outstanding event! We had a diverse base with over 800 attendees from 26 countries. We had many first time attendees, at least 180. The technical program offered over 90 technical presentations across twelve tracks. The quality and diversity of presentations was astounding, and I loved that there was so much variety that it was difficult to choose. Once again the industrial focus was well received and packed with industry experts. John Gravel of Turner and Townsend was wonderful as he orchestrated and managed this year’s industrial focus.

One of my favorite moments was meeting my idol, Mike Abrashoff. Mike’s book, ‘It’s Your Ship,’ is one of my favorites in my management library. Mike gave an amazing keynote speech about his success in turning around the worst performing ship in the United States Navy Pacific Fleet. His story and management message was truly inspirational. I intend to emulate and learn from his message. A few key items he put forth are the need to take command and lead by example, communicate purpose and results, build up your people, generate unity, and improve your people’s quality of life. This message resonates on so many levels that I absolutely cannot wait to move our team forward.

I loved mixing and mingling with all of the professionals at the Annual Meeting. The access to experts in AACE is absolutely outstanding. What an incredible community of professionals! I helped author a presentation about my own job in program management at LA Metro. My boss and I presented our experience and recommendations to AACE International membership and truly enjoyed the experience. We had a wonderful time and purchased the entire library of Annual Meeting recorded presentations to share with our staff in our learning library. What an amazing resource to share with staff that cannot attend in person!

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Thank you for reading my first message! I am blessed and honored to serve as President. My strengths, combined with the skilled Board of Directors, amazing talent on the Associate Boards, and dedicated headquarters staff, will form the basis for a wonderful invigorating year. I cannot wait for us to get started and know the sky is the limit. Please join me in this common vision to expand the reach of AACE International, and to prepare us for the future ahead.

If you would like to contact our current president with questions or comments about The President’s Message please address your e-mail to president@aacei.org. To engage in other discussions, check out AACE International’s Online Forums at www.aacei.org/forums.
Each year the AACE International Education Board awards scholarships to deserving students; 2015 was no different. In 2015, AACE International received over 450 applications for the competitive scholarships. Of those, 112 applicants met all the criteria for review by the Sections and the Education Board. After an extensive review process, the Education Board made the final scholarship recipient selections at its spring meeting.

The final selections resulted in the awarding of over $58,000 in scholarships, ranging from $8000 to $2000, to 14 recipients from the United States, Canada, and International community. The Education Board applauds all the recipients for their continued academic endeavors, and recognizes the following students as the top recipients in this year’s competition.

**Top U.S. Recipient - Jaqueline Ng**

Jaqueline Ng was the recipient of the top scholarship for the United States applicants. Jackie is currently a second year Ph.D. candidate in the Industrial Engineering and Management Sciences Department at Northwestern University. Her research interests lie in using analytical and statistical tools in the areas of new product development and business model innovation. Prior to starting her Ph.D. studies, Jackie worked at Morgan Stanley. In her free time, she enjoys playing tennis, skiing, and traveling.

**Top Canadian Recipient - Laya Parvizsedghy**

The top Canadian recipient was Laya Parvizsedghy; a two-time top scholarship recipient. Laya is a Ph.D. candidate at Concordia University in the Building Engineering program within the Construction Engineering and Management Group. Laya has published several papers in *Structure and Infrastructure Engineering* and *ASCE* journals. Her thesis is titled, “Risk-Based Maintenance Planning of Oil and Gas Pipelines”. Prior to beginning her studies at Concordia University, Laya worked in the oil and gas industry.

**Top International Recipient - Tanvi Kalevar**

The recipient of the top International scholarship, Tanvi Kalevar, completed her undergraduate studies in architecture at BMS College of Engineering in India, and was recently accepted into the Master’s in Project Management program at the University of Connecticut. Tanvi has a strong desire for success and credits her mother with providing her the motivation to pursue her dreams. Once she is done with her graduate studies, Tanvi wants to return to India and help in the development of the nation’s infrastructure.
Want to stand out from the crowd? Want to get noticed? Looking for fame and fortune? Trying to catch that special someone’s eye? Well, before we get carried away, the first question is truly the only applicable one. Let me explain.

Let us begin with the definition of what “CEP” is. CEP stands for Certified Estimating Professional. The official description from the AACE International website is:

“A CEP is a professional with vital expertise to contribute to the economic evaluation of potential projects by supporting the development of budgets, project resource requirements, and value engineering. By applying the estimating body of knowledge as outlined in AACE’s Recommended Practice 46R-11, the CEP estimates costs of a determined scope in order to advise management on project funding decisions. The CEP’s ability to clearly communicate cost estimates, both verbally and written, to all project stakeholders is critical to their success.”

The eligibility criteria for CEP candidates is to meet the minimum requirements in order to be cleared to sit for an exam. One must have eight years industry related experience, or four years industry related experience plus a four-year industry related college degree. Verification of education must be a copy of your diploma or transcripts. Verification of industry experience must be from your employer, and include dates of service, title, and a brief description of your duties. If you are self-employed, you may submit a notarized statement of work. All verification documents must be in English or have an English translation attached, and submitted within 30 days of registration.

This all may sound onerous, but it is necessary that achieving the CEP certification not be “rubber stamped,” nor a minimal effort expended in order to maintain the level of professionalism AACE requires. It is not meant to be easy nor guaranteed to be passable by all. It is, in effect, a badge to proudly wear, an achievement to attach to your name, to differentiate you from the “rank and file.”

However, once achieved, what does this designation mean to you, to your peers, to your employer, to the industry in which you work?

When I decided to “go for it,” I did so on my own, not asking my employer to fund the cost. Even having worked in estimating my entire career and sitting for the exam in my 30th year in the industry, I was still very much apprehensive. I was confident that I knew “my craft” (even after 30 years, SOMETHING had to stick in my brain!), but then my apprehension turned to, “what would THEY think” if I failed? How embarrassing would it be to work in an industry for 30 years, take an exam to test your knowledge, only to “flunk” and live with that stigma for the rest of my life?!?!? Oh, the horror, the shame! Luckily I passed………!

When I received my CEP certificate, I was excited to see my name on an official industry recognition
platform, which meant a lot to me. I quickly had it framed and hung it on my office wall for all to see. Managing a large group of estimators at that time, many were curious but didn’t seem to understand what it meant, no matter how hard I tried to explain it to them. One of my younger estimators went on to eventually earn his own several years later, with approximately eight years of industry experience at the time.

I soon thereafter ordered new business cards with “CEP” after my name and also added the salutation to my email address. I was still very much proud of what I had achieved. Many coworkers outside of estimating began to ask about it, thinking I had misspelled “CPA”………go figure. Time and again, I calmly explained to them what it meant, what the designation represented, and luckily only a few of them drifted off into sleep (I’ve been told I tend to have that effect on people).

My immediate supervisor asked about it but didn’t seem too interested in the concept. I realized then that in order for an accreditation to make an impact, it has to have more visibility in the industry we work in, which can be many, as well as with each of us attaining it, to promote it every chance we get. In my present role for approximately nine months, I’ve already had one of my estimators gain his CEP as well. He had been contemplating “trying” himself for quite a while, but once I joined the company and already had my own, it prompted him to try as well. Ironically enough, he too, was extremely apprehensive about taking the exam but I could tell he knew his stuff and kept encouraging him to go take the exam, which he finally did.

Since the CEP is still a relatively new certification, in the grand scheme of things with so many diverse industries, it will take time to gain a more prestigious presence. In order to help this process along, each of us who does “hold the title,” needs to continually encourage those estimators we work with to go for it themselves! After all, sometimes encouragement from a peer is all it takes to get things moving!◆

Several members of the Certification Board were at the Cert reception at the recent Annual Meeting in Las Vegas. Shown above from left to right are: Hannah Schumacher, PSP; Bruce Bradley, CEP; Val Venters, CCP; Jeff Goodman, PSP; George Ostermayer, CCP CEP DRMP EVP PSP; Sagar Khadka, CCP DRMP PSP; Sam Griggs, CCP; Charlie Bolyard, CFCC PSP; and Jim Simons, EVP PSP. Cert Board members not shown in the photo are: Harold Dorbin, CFCC; Brian Evans, DRMP EVP PSP; Albert Kwong, CCP; Matt Machesney, CEP; Maryam Nejad, DRMP; Robin Watenpaugh, EVP; and Joe Vollbracht, EVP.
Recruiting qualified professionals has never been easier.

The AACE Career Center helps streamline your hiring process with unmatched exposure for job listing and, higher quality candidates. Because AACE members are among the most skilled and best trained total cost management professionals in the world, the AACE Career Center offers a highly targeted pool of exceptional talent, which is an asset to your business.

AACE Career Center offers:

- Quick and easy job posting
- Quality candidates
- Online reports provide you with job activity statistics
- Simple pricing options

About AACE International
Since 1956, AACE International has been the leading-edge professional society for project managers, schedulers, cost estimators, cost engineers, and project control specialists. AACE International is the authority for total cost management. Promoting the planning and management of projects, programs, and portfolios, AACE International is the largest organization serving the entire spectrum of project management professionals. AACE International is industry independent, and has members in over 80 countries.

In order to qualify for this incentive, your company must advertise an employment position with AACE International’s Career Center for at least two months. Once you hire a person for that position, regardless of the source, AACE International will give you the option of either having that new person’s membership paid for the balance of the year or a $150 credit toward registering for an AACE International credential such as CCP, CEP, CFCC, EVP, or CCT.* Should the person you hire already be a member in the current year, we will extend their membership for another full year. New hires made after October 1 will receive membership benefits for the balance of the current year plus the entire next year. If you are not familiar with the many benefits of being an AACE International member, we invite you to review our online membership presentation at www.aacei.org/mbr/presentation/
Congratulations to all 2015 AACE International Award Recipients!

AACE International was honored to recognize award winners at its 2015 Annual Meeting, June 28 to July 1 in Las Vegas. It is through such outstanding ability, service, and dedication displayed by our members that AACE International is able to continue to be the strong organization that it is. Our thanks go to you for the hard work, long hours, heartfelt involvement, and commitment to excellence that these awards symbolize. It is our great pleasure to share these awards with you and to acknowledge everything you have given to AACE. Congratulations!

Top Scholarship Recipients

Top U.S. Recipient

Jacqueline Ng – Jackie Ng is a second year Ph.D. candidate in the Industrial Engineering and Management Sciences Department at Northwestern University.

Top Canada Recipient

Laya Parvizsedghy – Laya Parvizsedghy is a Ph.D. candidate at Concordia University in Building Engineering program within the Construction Engineering and Management group.

Top International Recipient

Tanvi Kalevar – Tanvi Kalevar is working on her master’s in business analytics and project management at the BMS College of Engineering in Bangalore, India.

Outstanding Regional Director

David A. Norfleet, CCP CFCC DRMP – David is a member of the board of directors for the Rocky Mountain Section of AACE, and has been a member since 1993. He holds certifications as a Certified Cost Professional (CCP), Certified Forensics Claims Consultant (CFCC), and Decision and Risk Management Professional (DRMP). David is a qualified professional in construction claims and dispute case. He has served on the AACE International’s Decision and Risk Management Certification Task Force, and previously served on the AACE International’s CFCC Certification Task Force. David participated in the development of the certification, CFCC, and is one of its first recipients. Throughout his career, David has been a regular speaker and author of cost engineering topics and his career has spanned across various specialties including; estimating, economic analysis, forecasting, and cost control.
Brian D. Dunfield Educational Service Award

Douglas W. Leo, CCP CEP FAACE – Doug joined AACE in 1994, became a Certified Cost Professional (CCP) in 1998, and was grandfathered as a Certified Estimating Professional (CEP) in 2008; following his work on the CEP Certification Task Force. He has been active with the Genesee Valley Section, serving as an officer since 1994, including four terms as president. He was elected to AACE leadership as a member of AACE’s Board of Directors as Director-Region 2 (2002-2004). He has served as the co-chair of the Estimating Technical Sub-Committee since 2000; and as the chair of AACE’s Constitution and Bylaws Committee, since 2004. He is a frequent author and presenter at AACE’s Annual Meetings. Doug is a management consultant at DWL Project Solutions, Inc. Doug has previously been recognized by AACE as a Fellow (2012), and is also being recognized this year as recipient of the Outstanding Technical Subcommittee Chair Award.

Outstanding Young Professional Award

Abu Bakar Asif, CCP EVP PSP – Abu Bakar has been with AACE since April 2013 and is an active member in the United Arab Emirates Section and is certified as a Certified Cost Professional (CCP), an Earned Value Professional (EVP), and Planning and Scheduling Professional (PSP). Abu Bakar has worked as a planning engineer, project controls engineer, and project reporting specialist on various projects ranging from oil and gas to residential, industrial, and infrastructure in UAE, Pakistan, and Qatar. He has served as the vice president marketing of the UAE AACE Section for the current year, 2014-2015; and as the communications director from 2013-2014. Abu Bakar has also published papers about key performance indicators in July 2012, as part of his professional expertise.

Outstanding Woman in Project Controls

Marina G. Sominsky, PSP – Marina joined AACE in 2008. She is an active member of the Arizona Section, where she served as president from 2012-2013, and currently is a director-at-large. Marina has held certification as a Planning and Scheduling Professional (PSP) since 2014. She currently serves as the Senior IT project manager for Kitchell Contractors, and has been working in the project controls and information technology industry for over 15 years. She is a full member of the AACE Education Board, as well as an officer of the AACE Women in Project Controls (WPC) Committee, where she previously served as chair (2011-2014).

Outstanding SIG Award

Jeffery J. Borowicz, CCP CEP PSP – Jeff joined AACE in 1989. He became a Certified Cost Professional (CCP) in 2006 and Planning & Scheduling Professional (PSP) in 2006. He earned the Certified Estimating Professional (CEP) designation in 2010. Jeff began serving on AACE’s Technical Board in 2009 and is the co-director of Recommended Practices. He has served on local AACE Section boards in the Great Lakes, Northern Florida (Orlando), and National Capital (Northern Virginia) Sections. He has served on several of AACE’s SIGs and technical committees, including the Building Information Modeling (BIM) Committee for which he serves as co-chair. Jeff has a few Recommended Practices under review for future publication. Additionally, he has published technical articles in Cost Engineering journal, and has been an author/presenter at AACE Annual Meetings. Jeff is a senior project controls specialist at DTE Energy, Detroit, MI. He has previously been recognized with the Technical Excellence Award (2009) and the Outstanding SIG Chair (2011, 2012, and 2013).

Outstanding Subcommittee Chair Award

Douglas W. Leo, CCP CEP FAACE – Doug joined AACE in 1994, became a Certified Cost Professional (CCP) in 1998, and was grandfathered in as a Certified Estimating Professional (CEP) in 2008; following his work on the CEP Certification Task Force. He has been active with the Genesee Valley Section, serving as an officer since 1994, including four terms as president. He was elected to AACE leadership as a member of AACE’s Board of Directors as Director-Region 2 (2002-2004). He has served as the co-chair of the Estimating Technical Sub-Committee since 2000; and as the chair of AACE’s Constitution and Bylaws Committee, since 2004. He is a frequent author and presenter at AACE’s Annual Meetings. Doug is a management consultant at DWL Project Solutions, Inc. Doug has previously been recognized by AACE as a Fellow (2012), and is also being recognized this year as recipient of the Brian D. Dunfield Educational Service Award.

Technical Excellence

Dr. Nakisa Alborz – Nakisa joined AACE in 2010, and is an active member in the New England-Boston Section. She is a LEED accredited professional with a specialty in building design and construction. Her professional work experience entails a decade of cost estimating and civil design works for consulting companies and contractors in the areas of heavy civil infrastructure, residential, and commercial properties. Nakisa was awarded the 2013 AACE US Scholarship. Nakisa has also presented at AACE’s first International Total Cost Management (ITCM) Conference in Dubai, UAE, and at AACE’s 56th Annual Meeting in San Antonio, TX.
Thomas R. Hren, PE – Thomas joined AACE in 2011. He is an active member of the Houston Gulf Coast Section of AACE International. Thomas has 30 years experience in his field. Thomas is a registered Professional Engineer (PE), and is currently the benchmarking supervisor at ConocoPhillips in the Oil and Energy Industry Department.

Eric Marcantoni, EVP – Eric joined AACE in June 2009. He is an active member in the Upcountry South Carolina Section of AACE. Eric holds over 25 years of integrated project controls experience. He holds a 2014 Earned Value Professional (EVP) Certification through AACE, as well as a CM and PMP certifications through other organizations. He currently works for Fluor, where he is a project controls manager.

Charles V. Keane Distinguished Service Award

Mark von Leffern, EVP PSP – Mark joined AACE in 2012, and has been working in his profession for 13 years. Mark is very active in the Southern California Section, having held numerous offices; such as: Newsletter Chair (20112014), Vice President (2013-2014), President (2014-2015), and Western Winter Workshop Program Chair (2014-2015). He has also sat on the Nominating Committee from (2014-2015), Regional Meetings Task Force (2013-2014), and the Young Professional Committee (20132015). Mark spends countless hours volunteering for AACE and working with student outreach programs at the University of Southern California and California State Long Beach. His dedication to young professionals and student outreach shows Mark’s drive and commitment to promote AACE and cost engineering for the future.

TCM Excellence Award

Ricardo Viana Vargas, CCP – Ricardo is a specialist in project, portfolio, and risk management; with over 18 years’ experience in the energy, infrastructure, telecommunications, information technology, and finance sectors. He is the author of 14 books and several articles about project management and cost engineering. He is director for project management at the United Nations (UNOPS), responsible for delivering more than 1,200 humanitarian and development projects in countries like Iraq, Afghanistan, Haiti, and South Sudan. Ricardo is a chemical engineer, holds a master’s degree in industrial engineering from UFMG (Federal University of Minas Gerais). He is a doctoral student in civil engineering at the Universidade Federal Fluminense (UFF). He attended a program on negotiation for executives at Harvard Law School, the Advanced Project Management Program at Stanford University, and has an executive formation in strategy and innovation from Massachusetts Institute of Technology (MIT).

O.T. Zimmerman Founder’s Award

Donald R. McNatty, PSP FAACE – Donald has been an active member since 1991, and is a certified Planning and Scheduling Professional (PSP). He is an active member in the Southern California Section. Donald has over 40 years of project management and controls experience as a consultant, contractor, and project manager. In 1980, McNatty pioneered the development and adaptation of computer technology to better manage projects. In 1986, he became involved with Primavera software. In 2010, Don was named an AACE International Fellow.

AACE International Fellows

Ron F. Cagle, CCP FAACE – Ron joined AACE in 1993. He obtained his Certified Cost Professional (CCP) certification in 2006. He has published papers at a number of different conferences; in addition to being an author/presenter at AACE Annual Meetings. Ron has been very active with the Atlanta Area Section, serving in a variety of leadership roles; including as president (2002-2003). During his tenure as president, the Atlanta Area Section received a superior section award from AACE International. Ron served as the local arrangements committee chair for the 2010 Annual Meeting. He has more than 15 years professional experience, and is currently a senior manager of project controls at RockTenn Company.

Dr. David T. Hulett, FAACE – David became a member of AACE in 1999. He is a leader in creating modern concepts and methods for quantitative schedule and cost risk analysis. He has authored two independently published books on schedule and integrated cost-schedule risk analysis, as well as articles in the Cost Engineering journal. David is the principal author of two AACE Recommended Practices (RPs.). He has presented at AACE and other professional conferences. He is President of Hulett & Associates, LLC, with consulting clients in the U.S., Canada, South America, Asia and Europe.

Marlene M. Hyde, CCP EVP FAACE – Marlene M. Hyde, CCP EVP FAACE, was named a Fellow of AACE International by the Board of Directors at their March 21-22 Board of Directors meeting in Valley Forge, PA. Marlene joined AACE in 1993. She became a Certified Cost Professional (CCP) in 1993, and an Earned Value Professional (EVP) in 2009. Marlene has been a frequent author/presenter at AACE Annual Meetings. She has served as a member on the Women in Project Controls (WPC) Committee, since its founding in 2006. She has served two terms on the AACE Certification Board (2004-2006 and 2008-2001). Marlene has been an associate member of the Education Board since 2014. She has been elected and served AACE in leadership positions on the Board of Directors:
John C. Livengood, CCP CFCC PSP FAACE – John became a member of AACE International in 2001. He became a Certified Cost Professional (CCP) in 2014, a Certified Forensic Claims Consultant (CFCC) in 2007, and a Planning and Scheduling Professional (PSP) in 2005. He has been a frequent author and presenter at AACE Annual Meetings and other conferences. John coordinates with the American Bar Association, PMI College of Scheduling, and ASCE. With these entities, at the national and local levels, he works to bring cost engineering to the industry and other professional organizations. He has been involved in developing the forensic schedule analysis texts for ABA and ASCE. He has served AACE in a variety of volunteer roles, including CFCC examination memo grader (2010-present); Ethics Task Force Chair (2010-2012); Governance Task Force (2012-2014); and Claims and Dispute Resolution (CDR) Technical Subcommittee Chair (2008-2013). He was the co-author of Recommended Practice (RP) 29R-03: Forensic Schedule Analysis, and has been a contributor to four additional RPs. John was elected and served the AACE International Board of Directors in multiple leadership roles; including Director-Region 2 (2010-2012); and Vice President Finance (2012-2014). John was recently elected as AACE International’s President Elect and will become AACE President for the 2016-2017 term. He is a managing director with Navigant in its global construction practice. He splits his time between offices in Washington, DC, and San Francisco. He has nearly 40 years experience in design, construction, and international consulting. He received his B.Arch. from Syracuse University (1975); and his J.D. from Catholic University (1982). John has previously been recognized by AACE as recipient of the Outstanding Technical Subcommittee Chair Award (2008; 2010).

Michael R. Nosbisch, CCP PSP FAACE – Mike joined AACE in 1999. He became a Certified Cost Professional (CCP) in 2001, and a Planning and Scheduling Professional (PSP) in 2004; as a result of the active role he played in the task force that developed the PSP certification. He was a member of the AACE Certification Board (2006-2007), and was the co-creator/co-instructor for the first PSP Certification Review Course. Mike has been a frequent presenter at AACE Annual Meetings and other conferences. He has been an adjunct professor at The George Washington University and the University of Southern California; teaching courses in scheduling and estimating. An active member of the Southern California Section, he served the section as its president in 2002. Mike was elected and served the Board of Directors in leadership positions including Vice President Regions (2008-2009); President-Elect (2010-2011); President (2011-2012); and Past President (2012-2013). Currently, he serves AACE as the Chair of the Government Liaison Committee. He was an infantry officer in the United States Marine Corps (1988-1994). Mike holds a BA in geology from the University of Rochester (1988); and a master’s in engineering management from The George Washington University (2000). Mike is a vice president for Project Time & Cost; responsible for sales across the western region of the United States, as well as leadership of PT&C’s EVM practice.

Edward E. Douglas, III CCP PSP FAACE Hon. Life – Edward joined AACE in October 1989, and has over 25 years of experience on construction and environmental cleanup projects. Ted is a Planning and Scheduling Professional (PSP), FAACE, and now an Honorary Life Member with AACE. Ted was presented with AACE International Fellow membership in 2010, and Outstanding Committee Chair in 2005. He is also recognized as a national speaker on construction project management and project controls. He is an active member in the Metro New York Section. Ted has served as the chair of AACE International Planning and Scheduling Committee. Ted has been an author or contributor to a number of AACE’s Recommended Practices (RPs). He has published articles on project management and has presented at AACE Annual Meetings and at AACE section meetings and seminars.

Harry W. Jarnagan, PE CCP FAACE Hon. Life – Harry joined AACE in April 1985, and has over 29 years in project and controls management; in various specialties such as public works, nuclear power, environmental remediation, and transportation sectors. Harry was recognized as an AACE Fellow (2005); Award of Merit (2006); and AACE President Elect (2000-2001); President (2001-2002); and Past President (2002-2003). During his time at AACE, Harry was the founder and first president of the Genesee Valley Section in Rochester, NY; the treasurer, vice president, and president of the East Tennessee Section in Knoxville, TN; the chair of AACE’s Certification Board, AACE International Vice President of Finance, prior to serving as AACE President.
Award of Merit

Anthony J. Werderitsch, PE CCP CFCC FAACE Hon. Life – Tony has been an active member of AACE since 1971, and is currently involved with the Great Lakes Section. With over 40 years of experience in major engineering and construction projects, he has assisted in the education of thousands of corporate, government, institutional, and associations’ representatives. He is currently the Executive Vice President of Administrative Controls Management Inc., he is a registered Professional Engineer (PE), Certified Cost Professional (CCP), Certified Forensic Claims Consultant (CFCC), as well as being honored as an Honorary Life Member (1995). Tony has also co-authored two ACM books: Project Management Planning & Scheduling and the Fundamentals of Cost Estimating. He has written and presented numerous papers to professional groups and industries about Total Cost Management (TCM). He serves as an expert on construction delay claims.

Industrial Appreciation Award

Jacobs – Since 1947, Jacobs has progressed from a one-man engineering consultant to a publicly traded Fortune 500 company. With over 70,000 employees located across the United States and various international locations, Jacobs aims to better serve the needs of its clients by positioning its offices near clients. In order to assess the needs of all their clients, Jacobs has increased its reach and improved the overall growth of the company by acquiring over 70 other businesses. Through this, Jacobs has become a fully integrated global organization that aims to satisfy the needs of a growing clientele. As stated on the company website, Jacobs aims to remain constant to its commitment to a relationship based business model that is focused on safety, quality, and ethics. This creates the foundation of who they are as a company. By creating and maintaining strong client relations, Jacobs is a pioneer in leading the cost engineering profession.

Lifetime Achievement Award

Clive D. Francis, CCP FAACE Hon. Life – Clive joined AACE in 1970, and became a Certified Cost Professional (CCP) in 1977. During his membership, he has been very active with the Great Lakes Section; where he served as president, vice president, and secretary. He was also very active with the Montreal Section while he worked there. Clive previously served as a member of the AACE Technical Board, where he was responsible for the development of the Cost Engineers Notebook. He has been a member of the AACE Education Board (2007-present). Clive has been elected and served in a variety of leadership positions on AACE’s Board of Directors: Director, Region 4 (1991-1993); Vice President-T/E/C (1999-2001); Vice President-Administration (2001-2003); President Elect (2003-2004); AACE President (2004-2005); and Past President (2005-2006). Clive has previously been recognized by AACE as a Fellow (1992); Award of Merit (2007); O.T. Zimmerman Founder’s Award (2013); and as an Honorary Life Member (2014).◆

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- Outstanding Technical Subcommittee Chair
- Outstanding SIG Chair Award
- Technical Excellence Award

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Eneida was born in Albania and grew up in Athens, Greece. Growing up she was very much involved in residential and commercial construction through her family’s construction business. She was involved in the field work, as well as the management of her family’s company for over eight years and got the chance to work in the south of Europe and Canada. She developed a passion for construction early on and decided to adhere to the construction industry.

After obtaining a finance degree she began her career working as a civil, structural, and architectural estimator for a large industrial construction company in the Edmonton area in Canada. She prepared estimates for over 25 large scale oil and gas and industrial projects and led mid-size team of estimators to the successful submission of multiple bids to client companies in the Alberta area.

She later switched careers and started working as a cost controller for various engineering and procurement companies, including Snamprogetti Canada and SNC Lavalin. She got the chance to work on large projects completed in the Northern Alberta area, such as the Husky Horizon and CNRL Booster Pump House for Snamprogetti, as well as multiple small city electrical projects for CNRL Lavalin.

Eneida spent most of her career working on multibillion dollar oil extraction projects on the Northern Alberta region of Fort McMurray as a cost analyst. Initially she worked for Suncor Energy, a major Canadian oil and gas owner, on the extraction site, on a $1.4 B (Canadian) reclamation (environmental) project. She got the chance to steward the project during its construction phase, as well as to close out. Throughout the project, Eneida overlooked a total of 60 contractors under both reimbursable and lump sum contracts. During the project closeout, she followed the AACE manual for proper project cost close-out and performed large benchmarking exercises, as well as proper contract closing and asset resale.

Eneida obtained the AACE Certified Cost Technician (CCT) certification in 2012, and is a strong believer that it opened many doors and made her a very marketable candidate. Over the last three years, she has used AACE articles as a reference for multiple presentations and as a personal manual of what is considered acceptable worldwide in project controls.
Eneida is currently writing her technical paper and looking forward to obtaining a CCP certification in 2015, as well as all the learning that comes with it.

After that she worked for Cenovus Energy, on a $3B (Canadian) SAGD project, located in the Cold Lake Area. During this time she used her site experience and knowledge in order to automate earned value calculations based on site data and actual costs; making earned value analysis part of all cost reports for the project. This helped greatly the total cost management of the project and aided in the improved collaboration between construction management, project management, project controls, and SCM.

She obtained the AACE Certified Cost Technician (CCT) certification in 2012, and is a strong believer that it opened many doors and made her a very marketable candidate. Over the last three years, she has used AACE articles as a reference for multiple presentations and as a personal manual of what is considered acceptable worldwide in project controls. She is currently writing her technical paper and looking forward to obtaining a CCP certification in 2015, as well as all the learning that comes with it.

Eneida’s personal philosophy is that, “Change should be a constant; there is always a better way to do things, nothing to fear just a new concept to embrace.”

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A webinar will be offered at noon eastern time on Thursday, Aug. 13, by the AACE International Women in Project Controls Committee.

The “WPC Presents Webinar” is titled, “Cost and Schedule Risk analysis—A Necessary Reality Check.” We are optimists by nature. This is proven project after project, by fighting to meet project schedule and budgetary goals. Cost and schedule risk analysis faces that optimism head on. Before a project’s reality check, it is very common for a project’s schedule and budget to calculate out to a less than five percent probability of occurrence. How do we insert that dose of reality before we commit to a baseline? Gather a group of people from representative disciplines, review the estimate and schedule, and talk about what could go wrong—or right! In this webinar attendees will talk through the process for a cost and schedule risk workshop, look at the deliverables, and discuss the benefit for your projects.

The WPC Presents webinar presenter will be: Laura A. Williams, CPIM, PMP, PMI-SP—Laura is a project controls supervisor and project risk analyst for EDG, Inc. (www.edg.net), headquartered in Metairie, LA, providing project controls and risk analysis services for domestic and international projects in the oil and gas business sector. In addition, she provides project management process and software classes, along with specific training for certifications in project management.

Her 32 years of project management experience also includes working for Project Management Methodologies (PMM), where she provided consulting services in all aspects of project management and project controls, as well as PM process and tool training. She also worked for the Lockheed Martin Corporation, where she planned and scheduled projects at Vandenberg AFB (CA), in Denver (CO), and in New Orleans (LA), including earned value analysis and program master planning. In addition, she provided project management process and software training, systems analysis with a focus on an integrated scheduling environment, as well as providing technical and management direction for the implementation of MRPII software.

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A Framework For Life Cycle Cost Analysis Sustainability Features in Buildings
Dr. Nakisa Alborz

Abstract: Sustainability has been heightened to a new level of importance, as a result of the current global race for commodities and conservation of the environment. Buildings are of particular interest since they are significant contributors to the consumption of resources. Since the inception of the LEED (Leadership in Energy and Environmental Design) rating system, there has been a constant increase in the number of LEED certified “green” buildings. Do green buildings truly provide financial benefits? What framework needs to be in place and followed to gauge these benefits? This article focuses on the creation of a framework for the life cycle cost assessment of sustainability features in the areas of mechanical, electrical, and plumbing components; further subdivided into “green” and “non-green” base construction, consumption, operations and maintenance costs to generate percent savings or percent added cost. The findings of the research were also compared to leading researchers in the field of costs of building green. A recently designed and constructed dormitory of a major higher education institution, that was awarded an LEED-Gold Certification, served as the basis for case study research for this article. This article was first presented as OWN.1174 at the 2012 International Total Cost Management Conference in Dubai. It went on to be awarded the 2014 International Cost Engineering Council (ICEC) Ken Humphreys Young Student/Practitioner Award.

As the global population and demand increases; the depletion of resources has started to have economic ramifications, resulting in a scarcity of resources and increases in commodity costs. Buildings are the largest contributors of energy consumption and pollution within the natural environment. Buildings are the source of 40 percent of CO2 emissions in the U.S., higher than any other country excluding mainland China [5]. Buildings currently account for 80 percent of electric expenditures and 72 percent of all electricity consumption in the U.S. [2]. According to the United States Green Building Council (USGBC), buildings account for 39 percent of energy use, 40 percent of raw materials use, 30 percent of waste output (136 million tons annually), and 12 percent of potable water consumption [9].

If each building reduced its consumption and carbon footprint overall, such reductions would have significant impacts. In recent years, “Green” (sustainable) buildings have gained popularity, to address these environmental and commodity consumption concerns. Clients have always been cost aware, but recently with the trend of incorporating sustainable high performance features in buildings; owners are interested to know what financial benefits they can reap from such adoptions.

Energy consumption, operations and maintenance are especially of interest. Over the life of the building, it is these costs that are the largest contributors to overall costs. Clients who want to employ sustainable design and construction practices are also interested in knowing what their potential higher initial construction investment will be and does it make economic sense? So, how can this information be provided to the...
This article will examine a framework developed to carry out the economic analysis process, indicating what inputs are to be studied and tracked to both make the case for green buildings; and provide owners with a method, which can be employed to measure the benefits or added costs. The case that was analyzed was a green dormitory facility of a leading academic institution, 15,088 square meters in size and housing 232 students.

Life cycle cost analysis of building components are already being adopted by some clients. In the future, institutions such as the USGBC will require them as part of the LEED accreditation process. Currently, they are being piloted by the USGBC; and clients who incorporate this pilot credit are awarded an innovation point (a category within the LEED rating system).

When adopting high performance technologies in their facilities, owners with a vested interest in their facilities will want to know where they are realizing benefits and what their added initial construction costs will be.

Many higher education institutions are updating their facilities, or building new ones to accommodate future generations of students and the institutions growth plans. It only makes sense to provide clients with accurate and pertinent information that they will require to make efficient decisions. Service providers must be able to provide clients with a framework of what must be undertaken to be able to provide services; such as facility inventorying, energy auditing, and performance benchmarking.

The objective of this research was to explore the life cycle cost analysis (LCCA) aspect of "green" investments. The objective of the methodology was to identify key data and create a framework for the collection of the various inputs required to run an LCCA. Focusing on the various components of interest in this research, "green" and "non-green" electrical, mechanical and plumbing (water) values were generated. This methodology resulted in inputs of base construction, consumption, operations and maintenance costs, and mapping of an LCCA framework. The framework also resulted in answers to whether or not building a sustainable "green" building actually provided any financial benefits in savings and consumption of electricity, gas or water; and whether the operations and maintenance costs were in fact decreased, or if they were higher in nature. The study focused on quantitative metrics looking at base construction costs identified as green (sustainable construction) and non-green (traditional construction), consumption costs of electricity, water, and gas; in both green (with sustainable features) and non-green (if the project was to be designed in the traditional methods) and the operations and maintenance costs of the sustainable building as compared to two other similar dormitory buildings which were designed and constructed using traditional means and methods.

**Methodology:**

**Framework of Life Cycle Cost Analysis Inputs**

Life cycle cost analysis (LCCA) incorporates the total cost of constructing and operating a building over a selected time period or over the life of a building. There are various qualitative and quantitative components that can be used in an LCCA, referred to as inputs for our purposes. To establish a point of comparison between the green dormitory, and a non-green dormitory facility various inputs were used in the LCCA. Figure 1 outlines the series of inputs used in this analysis to generate a comparative cost basis. The first tier of inputs, including the Green (Sustainable) and Non-Green (Traditional Construction) inputs, are subdivided into various other inputs: construction, operations and maintenance, and consumption costs. These inputs are further sub-divided into mechanical, electrical, and plumbing (water) inputs.

In order to run this analysis a building lifespan and discount rate were selected to reflect current market trends and validity of the analysis. Further definition is provided as to these parameters. To account for potential changes, an uncertainty sensitivity analysis can be undertaken of the parameters using different discount and escalation rates.

![Figure 1 — LCCA Framework](image)
Adjustment Factors
In the preparation of inputs, various adjustment factors were required to establish an appropriate baseline for the costs to be applied in the LCCA. Escalation and de-escalation factors were used to establish a uniform timeline to July 2009. This timeline was selected based upon information received from the institution's facilities department on the utilities billing cycle. Location and size factors were used to modify RS Means pricing, in order to reflect appropriate costing and size comparison conditions. In some cases, a need for cost neutralization was seen. Therefore, unit prices were neutralized to the unit pricing per measure of commodity the institution paid. This was in order to allow for a true comparative analysis of benefits/costs. In using client data, it is imperative that adjustment factors and values are on the same timeline and are selected appropriately to ensure apples to apples comparison.

Discount Rate.
To find the present worth of future financial benefits or costs, discounting was applied at a rate of seven percent accounting for the time value of money [5]. Since the discount rate is the investor’s opportunity cost of money over time and the minimum acceptable rate of return, this percentage may vary depending on the investor and current market conditions. For the purposes of this study, a value of seven percent was selected. The discount rate is the combination of the real interest rate, plus the rate of inflation. When this study was performed, the real discount rate for a 20 year investment was 2.7 percent and 2.9 percent for 2009 [7]. Based on the CIA fact book, the projected inflation rate was -0.3 percent, with a 3.8 percent inflation rate in 2008 [3, 4]. The 2008 inflation rate of 3.8 percent and the real discount rate of 2.9 percent were selected, resulting in a total discount rate of 6.7 percent which is in line with the seven percent selected discount rate.

Escalation and De-Escalation Rates.
Based on industry standards, publications such as Global Insight, and private industry journals, an escalation and de-escalation rate of six percent was used. This rate may vary quarterly depending on market conditions and supply/demand of various resources. Escalation and de-escalation factors were compounded and arrived at using the standard compounding formula.

Neutralization.
In the case of the electrical unit pricing, and natural gas unit pricing, there were discrepancies in the various unit pricing costs realized by the actual versus the various design cases used in the LEED submittals by the designers. The LEED template unit costs differed from those realized by the institution; therefore, the costs were neutralized to reflect the unit pricing paid by the owner to the various utility companies. This was done to project a real world scenario of comparative case cost analysis.

Location and Size Factors.
In the development of the “Green” and “Non-Green” construction costs, the RS Means SF Cost Guide 2010 was used to develop some of the comparative data [8]. The national averages provided in the RS Means Square Foot Cost Guide were adjusted for location, using the weighted average for the location of the institution. To adjust for sizing discrepancies, the Square Foot Project Size Modifier was applied.

Building Life
In selecting a time frame for analysis it is imperative that the owner has realistic expectations of the life of the building. In this case, the life has been assumed to be forever, since academic institutions are less likely to sell their assets. A 25-40 year assumption is typical for a building that is to last forever. In this analysis, a 25 year period was assumed [1].

Framework of Consumption Costs
To generate a series of inputs required for yearly commodity consumption costs, three components mechanical, electrical, and plumbing were analyzed. “Green” and “Non-Green” costs were developed for these three parameters for the purposes of this analysis.

“Green” and “Non-Green” Costs.
The dormitory base construction costs were provided by the builder and used in the establishment of comparisons between the base “Green” costs and the “Non-Green” costs. The construction costs provided were escalated and add-ons allocated to capture an “All-In” cost of construction. The Work Breakdown Structure (WBS) of the construction cost estimate provided by the builder reflected pricing per bid package. A “Guaranteed Maximum Price (GMP)” cost and a “Current Amount (CA)” cost was provided. These costs were adjusted and listed below the line items allocated to provide the “All-In” cost of construction. These below the line items added an additional 14.99 percent and 16.13 percent respectively to the GMP and CA. The reason for this differential in the add-ons was because of an increase in “CM Contingency Amount” from the original GMP costs. The allocated CA costs of the mechanical and electrical portions were isolated and compared to RS Means listings for mid-size (4-8 floors) high-end (3/4 percentile) dormitory mechanical and electrical square meter costs. The cost per bed and dormitory square meter costs were also compared to provide a ballpark sense of how much more was spent. This analysis generated the base “Green” and “Non-Green” construction cost inputs in the LCCA.

Mechanical and Electrical Costs.
The mechanical portion of the consumption costs were derived based on an Energy and Atmosphere Credit 1 LEED Template, developed by the designers and submitted to the USGBC for LEED certification. Based on this document, the Baseline Design Case (BDC-non green) consumption and
Proposed Design Case (PDC-green) consumption was extracted and used in the analysis. The unit pricing was neutralized to reflect the owner’s special billed rates. The actual case consumption was provided by the owner’s Facilities department. Consumption energy use and costs were compared and used as inputs in the LCCA.

Water Costs.
The water (plumbing) portion of consumption costs were based on a Water Efficiency Credit 3 LEED Template developed by the designers for LEED certification. Based on this document, the BDC (non-green) consumption and PDC (green) consumption was extracted and used in the analysis. The unit pricing was already neutralized to reflect the owner’s billed rates. The actual case consumption was provided by the owner’s Facilities department.

Framework of Operations and Maintenance Costs
The maintenance costs were compiled from information provided by the owner’s facilities department; looking at the major mechanical, electrical, and plumbing works. O&M information was gathered for the sustainable building in question. Two other similar use non-green dormitory buildings were also used to compare the sustainable building to. The data for the comparative same-use buildings was adjusted for size. The owner’s facilities department provided total costs for the operations and maintenance of the various facilities which were then analyzed in terms of dollars per square meter and dollars per student. The data was compared to determine whether there was a percent savings or added cost in operating and maintaining a green building.

Results

Construction Costs

Green and Non-Green Costs.
A comparison of the three fourths percentile of the RS Means’ dormitory facilities to the sustainable dormitory yielded the results shown in Table 1 [8]. In “Non-Green” construction, the mechanical and electrical costs encompass 37.50 percent of the total cost; in the case of the dormitory facility this was a total of 27.97 percent. Interpolating between the percent of total costs and adjusting for the percentage decrease in the owner’s expenditure for mechanical and electrical items, the owner paid roughly $0.57 on every $1.00 that was spent in a “Non-Green” application on mechanical and electrical items. The total cost per bed comparison indicated a much higher percent added cost of 46.11 percent, but based on the square foot cost, the percent added cost was 5.9 percent. The cost per bed seemed unusually high and this differential could be as a result of scope differences between the dormitory facility and RS Means’ data.

Based on the dormitory (Current Amount) square meter costs, the facility is 5.90 percent higher in cost, indicating that for every $1.00 that was spent in traditional construction, the owner spent $1.06 for “Green” construction. The green premium (added cost for building “green”), based on the results above, is $147.25 per square meter or (5.9 percent). A leading researcher in the area of costs and benefits of green buildings, Gregory Kats, performed a study on the costs and benefits of building green offices and schools (constructed between 1994 and 2004) for the California Sustainable Building Task Force [5]. One of the findings indicated that the green cost premium ranged from 0.66 to 6.5 percent of the total cost of the facility. Based on the LCCA research presented herein, 5.9 percent falls within that range. Clients want to know how much added initial costs are associated with building sustainable buildings. The method outlined in this article provides them with the ability to track and measure these costs. Creating a historical database is also helpful in providing clients with the necessary information needed to estimate their initial added construction costs to build “green”.

### Table 1 — Construction Costs

<table>
<thead>
<tr>
<th>Type of Comparison</th>
<th>RS Means</th>
<th>Dormitory Facility</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dormitory-$/SM</td>
<td>$2,336.20/SM</td>
<td>$2,483.45/SM</td>
<td>Owner’s Costs were 5.9% higher</td>
</tr>
<tr>
<td>Per Bed Total Cost</td>
<td>$110,539.93/bed</td>
<td>$161,507.38/bed</td>
<td>Owner’s Costs were 31.6% higher</td>
</tr>
<tr>
<td>Electrical-$/SM</td>
<td>$233.58/SM</td>
<td>$206.67/SM</td>
<td>Owner’s Costs were 13.02% lower</td>
</tr>
<tr>
<td>Mechanical &amp; Electrical-$/SM</td>
<td>$874.68/SM</td>
<td>$702.78/SM</td>
<td>Owners Costs were 24.46% lower</td>
</tr>
</tbody>
</table>

### Table 2 — Neutralized Consumption Unit Pricing

<table>
<thead>
<tr>
<th>Input</th>
<th>Type of Energy</th>
<th>Unit of Measure</th>
<th>LEED Template U/P</th>
<th>Owner’s Price U/P</th>
<th>Other U/P</th>
<th>Selected U/P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical</td>
<td>Natural Gas</td>
<td>Therms</td>
<td>$1.30</td>
<td>$0.23 (Nstar Gas)</td>
<td>N/A</td>
<td>$0.23</td>
</tr>
<tr>
<td>Electrical</td>
<td>Electricity</td>
<td>kWh</td>
<td>$0.14</td>
<td>$0.13 (National Grid)</td>
<td>$0.16</td>
<td>$0.13</td>
</tr>
</tbody>
</table>
Consumption Costs: “Green” and “Non-Green” Costs

The consumption costs, shown in Table 2, were extracted from the LEED Template data filed with USGBC: Energy and Atmosphere Credit 1, and Water Efficiency Credit 3: Water Use Reduction.

Mechanical Costs.
The baseline design case (BDC) and proposed design case (PDC) projected an annual energy usage (natural gas) of 76,641.20, and 42,803.90 therms respectively; providing a percent savings of 44.15 percent. In the actual case (AC), the sustainable dormitory facility residents consumed 33,665.00 therms with a percent savings of 56.07 percent to the BDC and 21.35 percent to the PDC in costs and energy use.

Based on a detailed view of 60 LEED rated buildings, “green” buildings result in a 25 to 30 percent savings in energy, compared to “non-green” buildings [6]. Comparing the sustainable dormitory building to this range, the building fell short by 3.65 percent. Even though the owner experienced lower savings, they still saved $0.11/SM/year. Table 3 shows the percent savings metrics per year.

Electrical Costs.
The baseline design case (BDC) and the proposed design case (PDC) projected an annual electricity consumption of 2,606,107.80 and 2,076,781.60 kWh, respectively generating a percent savings of 20.31 percent. In the actual case (AC), the sustainable dormitory residents consumed 1,102,800.00 kWh, a 57.68 percent savings to the BDC and a 46.90 percent savings to the PDC in costs. Comparing the sustainable dormitory to the industry range indicated above, of 25 to 30 percent, the owner surpassed it by 16.90 percent.

The 46.90 percent is a substantial percent savings above the 25 to 30 percent range, resulting in $8.72/SM/yr in savings. Table 4 shows the percent savings metrics per year.

Water Costs.
The baseline design case (BDC) and the proposed design case (PDC) projected an annual water consumption of 9,079.5 CM/yr and 6,275.32 CM/yr respectively, generating a 30.89 percent savings in consumption. In actuality, the sustainable dormitory residents consumed 12,368.64 CM resulting in a 36.26 percent underestimation to the BDC; and a 97.15 percent underestimation to the PDC.

This analysis resulted in no percent savings, but percent added costs; a finding not supported by the claims of the USGBC and the work of Gregory Kats. Table 5 shows the percent added cost metrics per year.

Based on further investigation of the unusually high water consumption; it was found that the sustainable dormitory actual water consumption included values excluded from the LEED template calculations. The LEED template calculations did not include: HVAC make-up water, washing machines, drinking fountains, service sinks (mechanical rooms), mechanical rooms, public toilets, and wall hydrants (building perimeter and in parking lot). The designer suggested that a 20 to 30 percent range reduction factor be applied. An analysis, with a 25 percent reduction in the actual consumption was generated for a more accurate comparative analysis between the LEED assumptions and the Actual Case.

25 Percent Reduction in the Actual Case Consumption Costs: When the Actual Case was reduced by 25 percent, the BDC and PDC are still lower in their assumptions and therefore there are no savings realized. In the case of the BDC, the added cost is too low and therefore it is assumed to be negligible. Table 6 summarizes the percent savings and added cost values based on the findings:

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<th>Input</th>
<th>Type of Energy</th>
<th>Unit of Measure</th>
<th>LEED Template U/P</th>
<th>Owner’s Price U/P</th>
<th>Other U/P</th>
<th>Selected U/P</th>
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<tr>
<td>Mechanical</td>
<td>Natural Gas</td>
<td>Therms</td>
<td>$1.30</td>
<td>$0.23 (Nstar Gas)</td>
<td>N/A</td>
<td>$0.23</td>
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<tr>
<td>Electrical</td>
<td>Electricity</td>
<td>kWh</td>
<td>$0.14</td>
<td>$0.13 (National Grid)</td>
<td>$0.16</td>
<td>$0.13</td>
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Table 3 — Mechanical Consumption Costs

<table>
<thead>
<tr>
<th>Case Comparison</th>
<th>Percent Savings</th>
<th>Comments</th>
<th>Savings/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC v. BDC</td>
<td>57.68%</td>
<td>BDC was 57.68% higher</td>
<td>$13.45/SM/yr</td>
</tr>
<tr>
<td>AC v. PDC</td>
<td>46.90%</td>
<td>PCD was 46.90% higher</td>
<td>$8.72/SM/yr</td>
</tr>
</tbody>
</table>

Table 4 — Electrical Consumption Costs

<table>
<thead>
<tr>
<th>Case Comparison</th>
<th>Percent Savings</th>
<th>Comments</th>
<th>Savings/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC v. BDC</td>
<td>-36.26%</td>
<td>BDC was 36.26% lower</td>
<td>$0.54/SM/yr</td>
</tr>
<tr>
<td>AC v. PDC</td>
<td>-97.15%</td>
<td>PCD was 97.15% lower</td>
<td>$1.08/SM/yr</td>
</tr>
</tbody>
</table>

Table 5 — Water Consumption Costs

<table>
<thead>
<tr>
<th>Case Comparison</th>
<th>Percent Savings</th>
<th>Comments</th>
<th>Savings/yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC v. BDC</td>
<td>-2.19%</td>
<td>BDC was 2.19% lower</td>
<td>$0.00/SM/yr</td>
</tr>
<tr>
<td>AC v. PDC</td>
<td>-47.86%</td>
<td>PCD was 47.86% lower</td>
<td>$0.54/SM/yr</td>
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Table 6 — Water Consumption Costs (25% Reduction)
Summary of the Consumption Costs.

The results show the owner realized savings in the area of electricity and natural gas consumption, but failed to do so in the area of water consumption. As a result of this study, along with another one that was undertaken by the designers; this issue is currently under analysis. Owners benefit from such tracking and trending mechanisms to understand when there is a problem and can take steps to remedy the problems.

Operations and Maintenance Costs

The operations and maintenance costs of the sustainable dormitory for the MEP components totaled $4.41 per year per square meter, the average value used for the three years that data was provided. The provided data indicated the following costs per year for yearly operations and maintenance: $5.27/SM, $4.31/SM and $3.88/SM for the years 2011, 2010, and 2009 respectively. This indicates an upward trend in the costs spent in operating and maintaining the facility. The yearly operations and maintenance costs for the baseline same use comparable buildings were as follows: building MH: $4.63/SM/yr, $6.24/SM/yr, $6.03/SM/yr for the years 2011, 2010, and 2009 respectively. This indicates a general upward trend in increased costs of operations and maintenance per year, also in the case of the baseline buildings which have no green features.

The baseline cases in this case were buildings MH and DH, these dormitory halls do not have any sustainability features; however, they had been renovated in recent years. They are of similar use, but a size, therefore the information was adjusted to account for this size differential. The sustainable dormitory is 2.61 times larger than building MH and 2.81 times larger than building DH. When the operations and maintenance costs are increased by the same factor, the following results are shown in Table 7.

Based on Table 7, it can be deduced that the operations and maintenance costs of the sustainable dormitory are substantially lower than those of building MH & DH. The operations and maintenance costs were four percent of the total costs. Table 8 outlines the various percent savings comparing the sustainable dormitory to the baselines.

Comparing the actual costs (percent of total analysis for the operations and maintenance portion) to findings in the work of Gregory Kats, it can be seen that the overall O&M fell below the standard cost distribution [6]. Typically, five percent of the total costs fall within the scope of the operations and maintenance; in the case of the sustainable building it fell at four percent.

Based on the work of a leading researcher in the area of sustainable buildings and cost savings, the typical O&M costs are five percent; and of that five percent, there should be a 16 percent reduction if the building is “green” [6]. In the case of the sustainable dormitory, there was a 25 percent (four percent O&M) reduction.

Based on the results, creating a framework for owners to both track and understand the costs involved with building “green” can be easily established, as long as the service provider is able to accurately track the pertinent information. Tracking and monitoring such information will provide owners with the historical data required to carry out such life cycle costs analyses. Owners may also want to measure and track different metrics which can easily be accommodated by the creation of subsystem LCCA runs or overall building LCCA runs.

Based on the research that was carried out, the framework provided the client with the ability to measure their benefits or added costs through the various energy and operations and maintenance parameters that were selected.

In order to effectively carry out such an analysis, there has to be a consensus between all stakeholders as to what parameters are to be measured and whether or not the data is readily available to do so, and if not how the data may be organized. Data mining can be a cumbersome task and the owners need to have processes in place to ease the process; such as bill tracking, easily accessible costing information from past projects, and their typical operations and maintenance costs. The benefit of this framework is that it is easily translatable between varied types of construction, and can also be carried out on a more detailed sub-system level if the client wishes to do so.

The sustainable dormitory building studied performed within the range of

<table>
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<th>Average Cost $/SM</th>
<th>Building</th>
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<tr>
<td>$4.41/SM</td>
<td>Sustainable Dormitory</td>
</tr>
<tr>
<td>$14.75/SM</td>
<td>Building MH</td>
</tr>
<tr>
<td>$20.45/SM</td>
<td>Buildings DH</td>
</tr>
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</table>

Table 7 — Operations and Maintenance Average Costs per Square Meter

<table>
<thead>
<tr>
<th>Comparison of Buildings</th>
<th>Percent Saving %</th>
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</thead>
<tbody>
<tr>
<td>Sustainable Dormitory to Building MH-7% 25 years</td>
<td>8.59%</td>
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<tr>
<td>Sustainable Dormitory to Building MH-5% 25 years</td>
<td>11.49%</td>
</tr>
<tr>
<td>Sustainable Dormitory to Building DH-7% 25 years</td>
<td>12.16%</td>
</tr>
<tr>
<td>Sustainable Dormitory to Building DH-5% 25 years</td>
<td>15.59%</td>
</tr>
</tbody>
</table>

Table 8 — Operations and Maintenance Percent Savings

Conclusions

Based on the results, creating a framework for owners to both track and understand the costs involved with building “green” can be easily established, as long as the service provider is able to accurately track the pertinent information. Tracking and monitoring such information will provide owners with the historical data required to carry out such life cycle costs analyses. Owners may also want to measure and track different metrics which can easily be accommodated by the creation of subsystem LCCA runs or overall building LCCA runs.

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In order to effectively carry out such an analysis, there has to be a consensus between all stakeholders as to what parameters are to be measured and whether or not the data is readily available to do so, and if not how the data may be organized. Data mining can be a cumbersome task and the owners need to have processes in place to ease the process; such as bill tracking, easily accessible costing information from past projects, and their typical operations and maintenance costs. The benefit of this framework is that it is easily translatable between varied types of construction, and can also be carried out on a more detailed sub-system level if the client wishes to do so.

The sustainable dormitory building studied performed within the range of
acceptable financial and consumption performance for a building with high performing sustainable features. The operations and maintenance costs were also acceptable, as they were within the industry range as outlined by leading researcher [6]. The baseline cases of building MH and DH indicated higher spending per square meter to maintain the facilities; versus the sustainable dormitory, a LEED-Gold building. These findings fortify the performance of “green” buildings as compared to their “non-green” counterparts in terms of financial costs and benefits.

Some of the key ingredients in developing the inputs to generate metrics, which result in trending and performance, which should be adopted to run such LCCA analysis are as follows:

• Detailed information of the facility in question: Building type/use and characteristics, building modifications or potential changes, sources of energy and providers, any existing conservation/energy saving measures.
• Tracking of yearly consumption costs and usage (therms, kWh, CM).
• Inventory of the various MEP building systems (HVAC, heating plant details, cooling plants, lighting systems and controls, and renewable energy source or potential).

Creating such an inventory will help owners in ensuring their facilities are efficient and if they are not; it provides a roadmap to what needs to be addressed. Of course, projects may be phased and scored on their level of importance and client requirements. There are many resources available to generate quick back of the envelope metrics. However, as contractual language will change to hold designers and constructors to certain agreed upon performance standards, the ability to track and measure building performance will become key in delivering on contractual obligations by service providers and industry professionals and meeting owner requirements.

REFERENCES

ABOUT THE AUTHOR
Dr. Nakisa Alborz, is a professor from Boston, MA. She can be contacted by sending email to: nalborz@hotmail.com

FOR OTHER RESOURCES
To view additional resources on this subject, go to: www.aacei.org/resources/vl/
Do an “advanced search” by “author name” for an abstract listing of all other technical articles this author has published with AACE. Or, search by any total cost management subject area and retrieve a listing of all available AACE articles on your area of interest. AACE also offers pre-recorded webinars, an Online Learning Center and other educational resources. Check out all of the available AACE resources.

IN MEMORIAM - JOHN BIRCHLER
AACE International Emeritus member, John Birchler, 94, of Indianapolis, died April 26, 2015. A Mass of Christian Burial was conducted at 3 p.m., on April 28, at St. John The Evangelist Catholic Church, 126 W. Georgia Street, Indianapolis, with visitation from 2 p.m. until time of service. Arrangements were provided by the G.H. Herrmann Madison Avenue Funeral Home. ◆
COMP is a comprehensive package of benefits designed to encourage companies to develop the skills of their total cost management employees through AACE membership.

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www.infinitrac.com

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www.oecindustrial.com

OMV Aktiengesellschaft  
www.omv.com

Parsons Corporation  
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The Brazil Section hosted a claims course in Sao Paulo, Brazil June 18-19 with 60 attendees. James G. Zack, Jr., CFCC FAACE, of Navigant Consulting, taught the claims course.

The East Tennessee Section’s May 7th lunch hour section meeting was at the Golden Oak Grill Buffet in Oak Ridge, TN. The guest speaker was Steve Low, senior project manager for Superior Air Handling in Aiken, SC.

Mr. Low started his presentation by stressing the importance of the work that project management, project controls and estimating professionals do, day in and day out. Then, he took a potentially bland topic, Nuclear Quality Assurance Standard (NQA-1) and turned it into quite an interesting and lively explanation and discussion session. He worked such items as the Price Anderson Amendment Act (PAAA) and the Code of Federal Regulations—specifically 10 CFR 21 (the nuclear section of CFR), as many of the section’s local members are familiar with the nuclear industry.

Low finished his talk by briefly touching on the importance of communication; the process of it, and the necessary feedback required to make it work.

The East Tennessee Section’s April 27th meeting was the annual joint meeting event with our friends from the East Tennessee Project Management Institute (ETPMI). Calhoun’s Taste of Tennessee BBQ location in West Knoxville’s Turkey Creek area served as the dinner-time venue for nearly 50 attendees.

The guest speaker was D. Ray Smith, the historian of the Y-12 National Security Complex. Mr. Smith provided nearly an hour of interesting facts and anecdotes about Y-12 and the Oak Ridge, Tennessee area, starting with the Manhattan Project’s beginning during WWII, and continuing up to the area’s role in present-day world affairs and scientific events.

Ray’s knowledge of Y-12 and the other U.S. government sites throughout the Oak Ridge area has been gathered during his 42 years (and counting) of employment at the site. Through his fact-laden talk you could just imagine the overwhelming project management, estimating, and scheduling challenges that presented themselves each and every day for roughly 18 months during the Y-12 site’s initial construction.

Mr. Smith wrapped up his presentation by giving an update.
on legislative progress in Washington toward National Park status for the three main Manhattan project sites (Oak Ridge, TN – Los Alamos, NM – Hanford, WA). The reality of that status is closer than ever (hopefully within a year or less) at this writing.

Hawaii Section

The Hawaii Section hosted a “Lunch and Learn” on Friday, June 12, which featured a presentation on, “Project Scheduling Basics” by Barry Cassell of Cassell Consulting. Mr. Cassell is a trainer for Construction Technology programs such as Oracle/Primavera P6, Timberline, On Screen Takeoff and RIB U.S. Cost Success Estimator. Over two dozen attended the presentation from many different organizations.

Elections for officers were conducted for 2015-16 with terms running through the end of May 2016. Congratulations to the following new officers; President, David Ladines; Vice President, Maelyn Uyehara; Secretary, Joseph Uno; Treasurer, Cristo Rojas; Director of Social Media, Gregory Treese; Past President, Kristy Kastner, PSP.

Southern California Section

On May 19, the Southern California Section’s final dinner meeting of the year was conducted. Carlos Vara, from Secretariat International, provided a presentation on the Panama Canal Expansion Project and highlighted some key features of the expansion, current progress, scheduling, cost estimating, program management, and dispute resolution services that Secretariat International provides. After the presentation, awards were handed out to the outgoing Southern California Section Board. The Section also recognized AACE President Julie Owen for her continued dedication to the section, to AACE, and to the profession.

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Golden updated the sections on changes at Headquarter as far a staff and within the AACE organization. Many questions were asked and a very informative meeting was enjoyed by all.

During February, Section members watched the Annual Meeting Presentation “Games Contractor Play” and later had one the authors, Joe Lukas, PE CCP, available for a Q&A part of the meeting. Very interesting!

During the November 2014 meeting, Section members watched the Annual Meeting Presentation “Law of Schedules” and later had one the authors, John Livengood, CCP CFCC PSP, available for a Q&A part of the meeting. Very good meeting!

During the September 2014 meeting, Section members and guest(s) met in Lawrenceburg, IN, to tour the new completed $55 million “Lawrenceburg Event Center and Hotel.” The tour was led by Project Executive Bruce Tomlin from Messer Construction. Dinner and a presentation followed the tour.

During the August and September 2014, the Executive Board met several times to develop a program for the upcoming year.

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HASHTAGGING YOUR WAY TO SOCIAL MEDIA RELEVANCE

Jay York

Not so many years ago, many people probably paid little attention to that pound sign on the computer keyboard. You know, the one that looks like this: #.

Then along came Twitter and what we have come to call the “hashtag,” and social media marketing was changed forever. Yet not everyone takes advantage of hashtags the way they should, and that’s unfortunate because if you are not using hashtags you are missing out on exposure for you and your brand. When you are on social media sites such as Twitter or Instagram, your goal should be to become part of the conversation. The hashtag allows more people to find your contributions to that conversation. Without them, you miss out on lots of eyes that could be viewing your content.

For example, let’s say 1,000 people follow you on Twitter. Not counting re-tweets, only 1,000 people will see your posts if you don’t use a hashtag. Add the hashtag, though, and you start picking up momentum because the post has the potential of being seen by, and re-tweeted by, any number of people. A common hashtag, such as #love, can position your post to be seen by potentially millions of people.

But be warned. While there are great benefits to hashtags, there also are pitfalls. Hashtags don’t come with exclusivity. Anyone can use them, so a hashtag can become a weapon that works both for you and against you. Critics of your brand, or just the usual assortment of Internet trolls, may attempt to hijack your hashtag, putting you or your business in a bad light. A prime example of a hijacked hashtag happened a few years ago when McDonald’s, apparently hoping for a flattering conversation about the restaurant chain, introduced #McDStories on Twitter. #McDStories went viral, but not in a good way as the Twitter world had a field day tweeting unflattering tales of their alleged bad experiences with the restaurant.

Use proprietary hashtags. One of the advantages to a proprietary hashtag, such as “Orange is the New Black’s” hashtag #OITNB, is that it is linked directly to your brand. These hashtags typically are not used as widely as a more generic hashtag, but the goal is to brand yourself through the hashtag with the hope it could go viral.

Since social media has become such a vital element of any comprehensive marketing strategy, understanding all of the nuances is critical. A hashtag may not look like much, but it’s really a powerful tool that is a double-edged sword. If used correctly it can greatly bolster your marketing reach. Used incorrectly, it can have adverse effects or unintended consequences. With social media, your hashtag is your brand, so use it wisely.

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When Will Your Section News Submission Be Published?

The digital Source magazine includes all “Section News” submissions. Source has a submission deadline of two months in advance of the issue date. Please review the following production schedule. It lists the submission periods for the six bimonthly issues of Source magazine in 2014.

2015-2016 Source Section News Submission Schedule

February 2015
• Items submitted from Oct. 16 - Dec. 15, 2014

April 2015
• Items submitted from Dec. 16 - Feb. 15, 2015

June 2015
• Items submitted from Feb. 16 - April 15, 2015

August 2015
• Items submitted April 16 - June 15, 2015

October 2015
• Items submitted June 16 - Aug. 15, 2015

December 2015
• Items submitted Aug. 16 - Oct. 15, 2015

February 2016
• Items submitted from Oct. 16 - Dec. 15, 2015

April 2016
• Items submitted from Dec. 16 - Feb. 15, 2016

June 2016
• Items submitted from Feb. 16 - April 15, 2016

This production schedule is based upon production schedules at AACE headquarters, as well as our printer having two to three weeks production time to take our in-house files and convert them to the Nxtbook software for posting. Enhanced features like audio, video, website links, and more will be a part of each issue of the Source. Some technology features will require additional production time and earlier deadlines. The magazine is to be ready for posting by the first of the month.

Within 2 to 3 business days of submitting a “Section News” item, you should receive a return confirmation e-mail that your submission was received at AACE headquarters.

How to Submit Text and Photos

Please submit any and all text as a part of the e-mail or as a Microsoft Word file attachment. Please submit any photo or photos as individual attachments in tiff or jpg formats. Do not embed photos in Microsoft Word files.

For photos to be used, we require either large original files or print size photos at 300 dpi (dots per inch). We can convert large 72 dpi submissions into the required 300 dpi. This process shrinks the size of the original submission. We cannot use photos taken on cell phones. For photos to be published, they must be in focus, of print quality, and wide enough to fill the width of the column layout.

Please include the names and titles of each person shown in any photos. Please list names from left to right or refer to those shown as being above left or right. For group photos please list names from left to right, beginning with the front row and working to the back. Do not list the Section officer first unless he or she is photographed on the left with guest speakers on the right.

All submissions should be e-mailed to editor@aacei.org. Please use the official name of the Section as approved by the AACE Board when the Section’s charter was approved. Never refer to the Section as a chapter.

Contact AACE Concerning Missing Submissions

Generally, all submissions received in the above scheduled times will be published in the listed issue. Items are not held because of space restrictions. There is no waiting list and no preference is given to one Section over another. Questions about incomplete submissions or failure to follow these submission guidelines could delay publication. Text will be published without submitted photos if the photo does not meet the listed quality requirements.

If a submission is not included in the designated issue, please e-mail or call the Managing Editor to ensure that it has not been lost or misplaced. Call or e-mail if you do not receive a confirmation e-mail within 3 business days of submission.

AACE reserves the right to edit all submissions and/or to refuse to publish any submissions determined by the Managing Editor or the Art Director to not meet the standards of the journal. Any appeals of these decisions will have a final decision determined by the Executive Director.

Any Section representative with questions is advised to e-mail editor@aacei.org or call the Managing Editor during regular business hours (9 a.m. to 5 p.m. Eastern Standard Time, Monday-Friday, except holidays and special closings.)
The 2015 AACE International Annual Meeting was June 28 to July 1 at the MGM Grand in Las Vegas, NV. More than 8,000 attended, representing 26 countries. Of these, 180 were attending an AACE Annual Meeting for the first time. There were over 90 technical papers presented in 12 tracks, based on primary topic areas. Following are some of the Annual Meeting activities and events captured as digital photo images.
Scott J. Amos, Editor, 2007
This updated and expanded guide for fundamentals is an excellent choice for anyone interested in a concise reference to all aspects of the profession. The new 5th edition includes twenty-seven chapters on estimating, manufacturing and operating costs, scheduling, planning progress and cost control, and much more. This is a very useful book for those studying for the certification exam. 450 pages

CCP Certification Study Guide, 1st Edition
Michael B. Pritchett, CCP, Editor, 2006
The AACE International CCP Certification Study Guide provides an all-encompassing reference text to prepare for the exam. The CCP Certification Study Guide provides background information on how to become certified; gives those studying for the certification exam a single reference text that includes theory, worked problems with answers, references, and a full discussion of key topics; allows students to maximize their study time; and provides a concise overview of the fundamentals of cost and project management.

PSP Certification Study Guide, 1st Edition
Peter W. Griesmyer, Editor, 2008
This study guide is intended to assist you in your study and review of the overall topics as one step toward successful Planning and Scheduling Professional certification. The outline provides a listing of the terms you should know & topics for which you should have a good understanding of how to apply the concepts to solve problems. Each chapter also contains sample exercises, which test your knowledge of that chapter's concepts. Additional sample questions are provided in an appendix.

EVP Certification Study Guide, 2nd Edition
Ken Cressman, CCP EVP and Gary C. Humphreys, Editors, 2009
This study guide is intended to assist you in your study and review of the overall topics as one step toward successful Earned Value Professional certification. The outline provides a listing of the terms you should know & topics for which you should have a good understanding of how to apply the concepts to solve problems. Each chapter also contains sample exercises, which test your knowledge of that chapter's concepts.

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Cost Engineering Terminology; Cost Estimate Classification System; Estimate Preparation Costs in the Process Industries; Project Code of Accounts; Required Skills and Knowledge of a Cost Engineer; Roles and Duties of a Planning and Scheduling Engineer; Profitability Methods; plus many more.

The Total Cost Management Framework
John K. Hollmann, PE CCP, Editor, 2012

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