

Green Roofs for Healthy Cities					GBCI CE HOUR APPROVALS				
Provider:	Green Roofs for Healthy Cities								
Conference:	CitiesAlive 2012: 16th Annual Green Roof and Wall Conference								
Date:	October 17 - October 20, 2012								
Session Number (User created)	Session Title:	Total minutes of Instruction:	GBCI Topic Category (Pick one only)	Session Description (100 words):	Learning Objectives (Minimum of three)	Approved GBCI CE Hours	Is session LEED-specific?	Session meets LEED-specific requirements for the following LEED AP Specialties:	COMMENTS
CA-1P	Green Roof Programs: Lessons Learned from Austin, New York and Chicago	90	Project Site Factors	Assessing green industry projects in Chicago, New York and Austin covering hurdles such as hot, dry climates and working with factors such as tax abatements and international code development and implementation.	How to approach green roof design in semi-arid climates, including considerations for water conservation. How to build municipal support for green roofs and how to incorporate green roofs into a density bonus program. Understand the improvements and lessons learned from the NYC green roof Tax Abatement policy pilot and Understand current and new code requirements for green roofs in Chicago	1.5	NO	N/A	
CA-1D	Green Wall Projects	90	Acquisition, installation and management of project materials	This session will address the following: A detailed examination of a successful, complex green wall and intensive green roof project installed in 2011 at Community Health Center in Middletown, CT. How to succeed developing and implementing a semi low-cost green walls system for a hot and humid climate in a city with a great deficit of green spaces. Innovative urban design project using a large green wall irrigated with waste water. Details about the process of design and construction of the wall, bracket supports, irrigation system, type of vegetation and maintenance.	The utilization of proper systems and components in hardscapes, softscape, wall, and boxed roof areas to guarantee compatibility among all technologies and overall project success. Learning from past mistakes, and providing information for others (in similar climates), such as errors made in a first-time installation of a 2,798 square foot, private living wall in north-east Mexico. Using not only sustainable water sources in humid climates but also incorporating aspects to encourage biodiversity such as	1.5	NO	N/A	
CA-1R	Plant Performance Research	90	Project Site Factors	This session will address the following: This research focuses on 30 months of monitoring environmental conditions, with an emphasis on thermal characteristics, for the green roof at EPA Region 8 Headquarters (Denver, CO) as compared to a "conventional" gravel ballasted roof in the proximate area. Diverse and regionally appropriate plants exist beyond sedum. The panel will discuss a variety of new and seldom used green roof plants based on their research and field trials. Each presenter will share images and characteristics of regionally appropriate plants and engage the panel and audience in a discussion of plants for green roof ecosystems of the future and their performance.	Examine the qualities of new or understudied green roof plants and learn where to obtain them and compare water use efficiency of overhead, drip, and sub-irrigation for various green roof substrates. To determine the influence of plants on water retention and compare green roof substrates to a standard greenhouse and nursery potting mix. Learn the behaviour of wind uplift on flat roofs with short parapets and see the comparison of wind effects on modular versus built-in-place assemblies in various media depths.	1.5	NO	N/A	
CA-2P	International Policy Development Experience from the Mountains of Switzerland to the Floodplains of Copenhagen	90	Water Management	This session will address the following: An overview to the different green roof policies of Switzerland. Showing the importance of having a strategy and incentives implementing green roofs into building codes/requirements. Explores the main problems on the way of green roofing in Tehran and verifies these problems under Architecture and Design topics and policy. Transforming the learning philosophy by means of green roofs calls for passion, patience and politics.	The differences of Swiss policies and importance of incentive and supportive rules in design when considering building codes and requirements. Adopting other city's experiments to Tehran terms and suggestions for existing and future buildings policy and learning from successful green roofs in other countries and continents in order to begin building a green roof industry of one's own country and city. Importance of showing and documenting that green roofs offer an alternative to conventional urban design that add value to the cities and citizens.	1.5	NO	N/A	
CA-2D	Extraordinary West Coast Green Roofs	90	Acquisition, installation and management of project materials	This session will address the following: The VanDusen Botanical Garden Visitor Centre's creates a landmark facility while forging a harmonious relationship between architecture, landscape and ecology. It will become one of the Canada's first buildings to meet the Living Building Challenge 2.0. A goal that was achieved in part to a roof that is not simply green, but truly living. Combining contemporary architecture and landscape, the creation is a stylized, meadow with an ecological approach, a furry carpet of native and climate appropriate grasses. In addition to aesthetic considerations of color, texture, height and seasonal interest, the grasses were chosen for their tough, drought tolerant nature, their tendency to hold color throughout the summer, and their need habit to mitigate maintenance. The national team of Lisa Lee Benjamin (Evo Catalyst), Karla Dakin (K. Dakin Design), Charlie Miller (Roofmeadows), and John Greenlee (horticulturalist) demonstrated a successful, collaborative design model from concept to maintenance, working alongside client, architect and general contractor	Green roofs are different from ground landscape in every aspect of maintenance - from weeding to irrigation schedule. Therefore there must be constant education of the maintenance crews as well as creative solutions to unforeseen issues that arise. Incorporate maintenance plan early in design phase to maintain long-term relationships with the client to monitor roof. Importance of true "living" buildings serving both environmental and civic purposes as well as lessons learned from both the successes and fail of Portland's 10 year-old Hamilton West Apartments	1.5	NO	N/A	
CA-2R	Plant Performance Research 2	90	Site	This session will address the following: Expanding the plant species selection for green roofs applications and analyzing interactions involved in species combinations using tray and mat systems. This presentation summarizes a five year research program on plant selection for green roofs in dry, Mediterranean-type climates. Green roof performance varies by type of green roof and maintenance practices. Explores plant performance outcomes from three green roofs maintained with sustainable practices in Fort Worth, College Station and Houston Texas.	Plant species are suitable for green roofs in northern climates and which species form compatible combinations and conclusions on how some species perform in a mat system in a tray system. Highlights the importance of plant trials for hot, dry climates when much of the plant selection is based on research in cooler, northern climates. Report findings of plant species that may be viable in three climate zones in Texas and to outline methods used to measure plant performance.	1.5	NO	N/A	
CA-3P	Economic Performance	90	Project Site Factors	This session will address the following: This presentation will focus on the application of life cycle cost and benefit approaches to calculating the benefits of green roofs based on a research study conducted for general services administration. A detailed case study on a commercial building in Washington D.C. will be presented. The costs and benefits of this signature green roof project in Minneapolis will be described as well as added benefits associated with marketing and promotion. This presentation will focus on a methodology to help policy makers understand the cost and benefits of investing public money on green roof incentives. Factors such as storm water management, cost savings, property tax increases, air quality benefits, and job creation will be described.	Understand the marketing involved in weighing the costs versus the benefits such as renewable energy through green technologies such as a commercial building in Washington, D.C. To understand policies regarding public green roof investments including both positive and negative factors involved in such investments, including property tax increases, air quality benefits and job creation. How green storm water management can affect the costs of irrigation and flooding in regards to public investments in green	1.5	NO	N/A	
CA-3D	Exploring Green Roof Long Term Performance- Award Winning Projects	90	Acquisition, installation and management of project materials	This session will address the following: Ford Motor Company's Dearborn Truck Plant 10.6 acre living roof represents an extremely large, well established trial of thin-profile, ultralight extensive green roof technology. In the 10 years since installation, the DTP green roof has been monitored for stormwater runoff mitigation, insect community diversity, plant community development, and carbon storage capacity among other performance criteria. These data and their influence on green roof design/build opportunities and short- and long-term construction and operating costs will be evaluated. Since it's inauguration in 2004 Millennium Park has welcomed millions of visitors. This session will focus on the many lessons learned regarding the design, installation, and ongoing maintenance of this signature green roof of Chicago; Evaluating the Performance of the Intensity 809 Walnut Street Project.	Experimenting in green roof and wall fields, while maintaining a civic conscience whereby communities can be educated by project aspirations. Pushing the limits of both civic and environmental responsibilities while working within the urban government and construction environment. Learn from the intensive 16,000 square foot rooftop garden on one of Missouri's highest residential buildings, located in downtown Kansas City. 509 Walnut has much design credibility and longevity under its belt.	1.5	NO	N/A	
CA-3R	Grey Water Performance and Evaluating Irrigation Research Methods	90	Water Management	This session will address the following: Direct side-by-side tests of green roofs irrigated with grey water and potable water were conducted in a laboratory setting, and the performances were compared. Synthetic grey water of repeatable composition, developed for waste water recycling technology, was used. Green roofs all had the same growing media of the same depth, and were exposed to identical climatic conditions. Plantings included yuccas and periwinkle that were mature. Evaporative cooling was measured in steady state laboratory conditions using a low-speed wind tunnel built specifically for measuring thermal performance of green roofs. This research focuses on the quantification of building temperature reduction from an innovative living wall wastewater treatment system. The research entailed the use of 5 replicate buildings with conditioned interior space. The impact on energy use was also evaluated. Because green roof substrates tend to be coarse to allow adequate drainage at shallow depths they possess reduced water holding capacity and capillary movement of water compared to typical growing substrates and natural soils. For this reason, drip or sub-irrigation may not be the most efficient irrigation method. This study quantifies the effectiveness of overhead, drip, and sub-irrigation for various green roof substrate types.	After an extensive study on the effects of grey water on green roofs showcasing many benefits are shown such as lower costs for cooling energy and similar plant viability to potable water. Synergistic effects of integrating bioliths such as living walls, living columns, and constructed wetlands. Comparison of living wall system to an extensive green roof in reducing building envelope temperatures; importance of substrate on the design of living wall or green roof energy studies. To determine the influence of plants on water retention and to determine the effectiveness of a water retention fabric to hold water and reduce runoff.	1.5	NO	N/A	
CA-4P	Lessons Learned from the Pioneers of Green Roof Policy: Toronto, Chicago and Portland	90	Project Site Factors	This session will address the following: Toronto's by-law and ecoroof program have resulted in over two million square feet of recently approved and permitted green roofs. The Green Roof by-law contains a construction standard for all green roofs in the city as well as requirements for green roofs to be built on most new construction. This presentation will highlight these policy initiatives and describe some of the challenges that were overcome in its implementation; Chicago is home to more than five million square feet of green roofs. This presentation will review the policies and programs that have resulted in the implementation of green roofs with emphasis on the latest monitoring and tracking initiatives. The City of Portland Ecoroof Program started in 1996 when a city employee constructed an experimental ecoroof on his garage. From this small start, the program has expanded and helped support the construction of over 50 green roofs totaling over 30 acres on buildings of all types and sizes. This presentation will provide an overview of how the incentive works with the private sector and general public to sustain the Portland green roof movement.	Overcome challenges put in place by municipal governments and construction standards in order to implement the construction of over two million square feet of approved and permitted green roofs in Toronto. Collecting data and lessons learned about ecoroof incentive projects and gain visibility and provide education about ecoroof benefits. Encourage policies to be put in place like Portland's City to Green Initiative (C2G) that pushes for vegetated stormwater systems, in order to associate green industries with the landscape of your city.	1.5	NO	N/A	

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CA-4D	Exploring Green Roof Long Term Performance- Award Winning Projects 2	90	Acquisition, installation and management of project materials	This session will address the following: This award winning project features an extensive green roof on varying degrees of slope. The performance of this system over the past nine years will be a focus of this session. Peter MacDonagh and Michael Krause, will review several significant green roof projects in the Twin Cities. Topics include design considerations, construction techniques, performance data, owner's perspective, and how these projects helped drive green infrastructure policy	Learn from the construction company who built this award winning, 16,000 square foot, private, sloping green roof with over 6,000 sedum- what the owner's call their green meadow. How the slope can affect the design, construction and uses of a green roof and how owners perspectives on the overall finished project can affect the public's reception of a green roof. Successes and lessons learned of two acclaimed green roofs in the Twin Cities, Minnesota, including design considerations, construction techniques, and performance data.	1.5	NO	N/A	
CA-4R	Thermal Performance of Green Roofs and Walls at Different Scales	90	Project Site Factors	This session will address the following: A green roof research experiment was established to evaluate the differences in three vegetation types (turfgrass, groundcover herb, and shrub) in terms of thermal and energy performance in a 12 month period. Reducing Urban Heat Islands: Simulating Aggregate Green Roof Performance. Currently, Dr. Tilley's research is focused on the design and benefits of vegetated building envelopes (i.e., walls and roofs). His Ecosystem Engineering Design Lab has partnered with Green Roofs for Healthy Cities to determine the thermal properties of various green wall designs. Dr. Tilley teaches Design for Urban Water & Energy, Energy & Environment, CAD for Ecology, and Embodied.	Understanding the differential role of vegetation types on thermal performance of green roofs such as the discovery of a suspended temperature inversion above grass green roof and a subcanopy temperature inversion in the shrub green roof. Do green roofs reduce the urban heat island at a scale which is relevant to many planning and development decisions? Energy conservation based on experiments conducted from 2010 to 2011 in Maryland comparing building's energy uses with and without green facades.	1.5	NO	N/A	
CA-5P	Voluntary Standards: Sustainable Sites, LEED, and the Emerging Green Roof and Wall Rating System	90	Acquisition, installation and management of project materials	This session will address the following: Sustainable Sites is well on its way to completion and promises to revolutionize the way we design building and maintain landscapes in America. Will introduce attendees to Sustainable Sites and focus on the green roof and wall elements. The U.S. Green Building Council's LEED family of rating systems incorporates green roofs and walls and will describe new developments with these products; Green Roofs for Healthy Cities is developing the rating system/tool for green roofs and walls and the first phase of this effort will be presented and discussed.	American standard to be put into play to revolutionize design of constructed and maintenance landscapes. Suitable only for North American climates? New developments on the U.S. Green Building Council's ever-evolving LEED certification rating system. Working towards changing LEED policies to lessen the negative impacts of the built environment on the health of people and on natural resources. Lessons from first phase of developing an industry standard green roof and wall rating	1.5	NO	N/A	
CA-5D	Lessons Learned from a Manhattan Green Roof Retrofit, the Largest Green Roof in Hialeah, and Four Green Roofs in Cincinnati	90	Project Site Factors	This session will address the following: Retrofits of two existing buildings with green roofs--owned by Jack Renshaw & Sons and located in the heart of Manhattan Transforming existing building rooftops into green roofs can be quite complex - it all comes down to the current conditions. An owner, architect and landscape designer will present two case studies to illustrate how the existing building and roof conditions played a large part in informing the design and the budget of both projects; Seaport Farmers' Market Green Roof overlooking Halifax Harbour has proven a big hit with the Halifax community. Rooftop access via 300 foot long public deck to create a major new public space for the community. A constructed success, the designed planting and Soprema system has proven a big hit. A Cincinnati non-profit collaborated with the public and private sector to turn a former gas station into an environmental education center, home to four accessible green roof systems embedded with state-of-the-art monitoring devices.	Participants will learn how structural loading requirements factor into retrofitting existing roofs for green roof installation. Become familiar with principles of Parapet, Guardrail Requirements and Alignment and become aware of operations and maintenance issues related to Green Roof benefits. Designed planting versus random seeding and why mockups matter. Compare the costs of structural reinforcement of existing roofs with the cost of building additions to support vegetated roofs before getting wrapped up in a particular design concept.	1.5	NO	N/A	
CA-5R	Wind and Water Performance in Hot Climates	90	Project Site Factors	This session will address the following: A summary of State of Florida-sponsored research on the effects of hurricane wind uplift on full-scale modular and built-in-place green roof assemblies. We are testing how green roofs may function in arid environments using model scale houses located at Biosphere 2. Our experimental design looks at the interaction of plant species, soil type, and irrigation regime on soil water availability, plant function and health, and building energy budgets. The Ranaquea Green Roof project is grant funded by the New York State Attorney General's office and the National Fish and Wildlife Foundation with the main intent of providing hydrology modeling data to the scientific community at large. This project, which will apply native vegetation to 1/3 of a 2,000' roof, simultaneously aims to bioremediate runoff and inhibit large stormwater volumes from flowing into the adjacent Bronx River.	Behaviour of wind uplift on flat roofs with short parapet and comparison of wind effects on modular versus built-in-place assemblies in various media depths. Attention to climate and native ecosystem properties, and functions should inform green design. Can successfully apply ecological design and green infrastructure in arid cities with minimal water cost. Insight into green roofs funded by municipal offices when providing data such as hydrology modeling to the scientific community.	1.5	NO	N/A	
CA-6R1	Biodiversity Opportunities in Green Roofs and Walls	90	Project Site Factors	This session will address the following: Green facades have only recently been incorporated into the American green building industry and are particularly relevant in urban areas where ground-level space is limited and vegetation is scarce. Increased wildlife habitat is often proposed as a benefit of the technology, but little experimental data exist to understand the magnitude and quality of the benefit. Research findings from an observational field study examined wildlife habitat potential of green facades in the Washington, D.C. metro area to test whether green facades had a higher number of arthropods and a more diverse assemblage of arthropods than non-vegetated building facades; Swiss research programs are working on functional green roof technologies with light weight approaches combining the issue of storm water management and biodiversity. Different systems are developed and compared as well as specific habitat conditions proved for various animal groups.	Research findings into green facades and their benefits to buildings (energy conservation) and the general public (increased air quality). Beneficial outcomes to both the inhabitants of urban areas with limited ground-level vegetation and thriving insect population. Advancements into light weight substrates on buildings with low load capacities. Developing and comparing different habitat conditions for various animal groups and different substrate needs for multiple climate conditions and roof slopes.	1.5	NO	N/A	
CA-6R2	New Rooftop Vegetable Garden Technology	90	Project Site Factors	This session will address the following: The evaluation of six vegetable and herb species for production in an extensive green roof systems and management practices to minimize the impact on green roof benefits. This study covers two years of data on a cool season crop of leaf lettuce, radicchio, and two years of data on a warm season crop of tomatoes from fall 2010 till summer 2012.	Production on a green roof can have similar yields to at grade production. Management through use of mulch or fertilizer can improve production and vegetable cultivars benefit better from some forms of mulch than others. Ability to grow vegetables under extreme weather conditions and ability to extend the growing season on a green roof. Acceptable vegetable production and yields can be achieved in a three-inch extensive green roof with adequate fertilizer	1.5	NO	N/A	
CA-6D	Reviewing Performance- Chicago City Hall and Peggy Notebaert Nature Museum and the Top Ten Trends	90	Acquisition, installation and management of project materials	This session will address the following: Chicago City is an iconic green roof which launched the City of Chicago's green roof policy and programs in 2007. Find out how it and the award winning Peggy Notebaert Museum have evolved and performed over the past ten years; Greenroofs.com has been compiling our fast-paced Top 10 List of Hot Trends in Green roof & Green wall Design now for six years, and 2012 has some familiar topics as well as some real stunners! As once only conceptual über-sustainable "eco-fantasy" buildings become "eco-solution" realities, we find designers' imaginations are running even more rampant in their quest for greening the built environment. And for the first time with the new format, we'll be able to slow the pace down and delve deeper into each highlighted project, including short video interviews with selected designers!	Learn from two 10 year-old successful green roof projects from a leading city in sustainable green roof and wall industries both receiving municipal support and funding, such as the Illinois Environmental Protection Agency. Using well-known buildings and landmarks in order to showcase regional biological environments such as the prairie plants native to the Chicago region used in the green roof on Chicago's City Hall. After 6 years, Top 10 Trends winners having moved away from a focus on cutting-edge design and towards aesthetics becoming subservient to environmental and social functionality and attempting to tackle concerns such as global warming, stormwater run-off and decreased biodiversity in urban areas. Combating problems in urban world of the built environment versus nature and acknowledging responsibility over ecological issues in order to increase overall productivity of built structures.	1.5	NO	N/A	