The importance of correctly irrigating landscaped areas cannot be overstated.

Explore three areas impacting stone design.

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I would like to start by saying that it is a privilege to be serving as ASLA Colorado president. I officially took over the position in September at the ASLA National meeting in Washington DC. I am excited about the year ahead and all the possibilities for us as an organization. The executive committee is in the process of developing its goals, program and budget for 2011, and we plan to have it completed mid-December. We value the input of you, our members, as part of our planning process. We will be emailing out a member survey in the next couple of weeks. Please take the time to fill this out and let us know what is important to you and what you would like to see us accomplish. We will use the surveys to inform our program for next year.

On October 14th we held the annual ASLA Colorado Awards Banquet at the Brown Palace in Denver. It was a huge success with over 125 people attending. Thank you to all those who attended and thanks to all of our sponsors.

We have a number of exciting programs already lined up for next year. ProGreen is coming up in February. ASLA Colorado has had an active committee of landscape architects working with the program planning over the last year so we are in for some very good design tracks; we hope to see you there. Another exciting program we are just starting up is the Colorado HALS (Historic Area Landscape Survey) Committee which is being chaired by Ann Mullins. They are just starting the process and will be documenting many of Colorado’s historic landscapes.

The most unique part about ASLA Colorado is you the members and the diversity of work we all represent as a profession. We are doing some amazing work here in Colorado. I would like to celebrate that this year and provide opportunities for us to network and share ideas. Please do not hesitate to contact me with any questions, comments or ideas regarding the chapter and our activities. I look forward to working with you this year!

Thanks,

Kurt Munding, RLA, CID, CLIA, ASLA
Colorado Chapter President
Executive Committee

The Executive Committee is the governing body of ASLA Colorado and is chaired by Kurt Munding, Chapter President. The committee meets monthly to provide guidance and direction relating to the activities and finances of the association. Meetings typically occur on the first Wednesday, beginning at 5:30 pm, and are held at member offices along the Front Range. Attendees typically include voting and non-voting board members. All chapter members are welcome to attend or to participate in person or by teleconference.

The October meeting was held at the office of Wenk Associates, Denver. Under the direction under the new Chapter President, Kurt Munding, the committee discussed the budget outlook for 2011. In order to formulate a clear plan for the direction of the ASLA Colorado, committee members agreed to prepare individual goals for the upcoming year, and reconvene in November to discuss goals collectively. The upcoming Awards Banquet was discussed, and it was announced that Bradford McKee, the new editor of Landscape Architecture Magazine, would speak at a pre-event reception. Special thanks was given to Ian Anderson, the outgoing Chapter President, for his leadership contribution to the chapter.

The November meeting was held at the office of Design Studios West, Denver, and focused on identifying key goals and objectives for ASLA Colorado. Among the topics discussed, five key priorities were identified for the upcoming year: Continuing Education, Professional Networking, Chapter Membership, Professional Visibility, and Mentorship. The committee assigned a special task force to examine the relevancy of programs sponsored by ASLA, and to offer suggestions for improvement. A report on the recent ASLA Colorado Awards Event was given and the event was deemed a “success” by members of the committee.

Volunteer opportunities for interested members are always available. If you are interested in volunteering for a committee or an event that is hosted or supported by ASLA Colorado contact Judith Ward, Volunteer Coordinator, at jward@criticalhabitats.com. For more information on current ASLA Colorado events, be sure to visit www.aslacolorado.org and review the “Calendar” tab located on the website’s title bar. To be placed on an upcoming agenda contact Kurt Munding, Chapter President, at KurtM@dcla.net. Contact information relating to Executive Committee members can be found by clicking on the “About Us” tab on the main title bar.

Government Affairs

The “Landscape Architects Professional Licensing Act” was passed by the State in 2007. The Government Affairs/Advocacy Committee is focusing on promoting compliance by municipal and county government agencies with the State Law. The law was passed at the State level, but, to be effective, it must also be administered at hundreds of the local government public works and planning agencies. We conducted a small survey of some of the larger municipalities in the state to learn what their current policies are with respect to the Landscape Architects Licensing Act. What we found was that recognition and implementation of the state law by city and county government agencies is inconsistent. While some have updated their codes and procedures, some jurisdictions have done nothing to implement provisions requiring landscape architects to sign and seal drawings. Many local planning and public works departments still require architects or engineers to stamp plans prepared by licensed landscape architects. As a result of our findings, we have begun an advocacy outreach program to promote our profession and educate local government agencies about the State law. We are also putting together an “Advocacy Package” to be provided to key personnel at local government agencies. The package will include a letter from the president of ASLA Colorado, an 8 page promotional brochure, a copy of a letter from the Colorado State Board of Landscape Architects to local government officials encouraging compliance with the state law, and two different examples of how other communities have implemented the Licensing Act. We will continue to encourage the non-compliant agencies to update their codes and policies to reflect State law. Local compliance is important, not only for our profession, but also for the health safety and welfare of Colorado communities. This is a big project and our resources are limited so this is a great opportunity to get active in your own communities. Are your city and county government agencies in compliance with the state law? Let’s help them understand and implement the State Licensing Act. You can find a copy of the State Statute (C.R.S. 12-43) on the advocacy page of ASLA Colorado’s website.

Other phases of the compliance effort will involve outreach to allied professions, self-enforcement, possibly monitoring insurance claims through a reporting mechanism, and preparing necessary records for the sunset review of the licensure act in 2017. Discussions with legislators and others during the 2010 legislative session underscored the importance of proactively approaching the sunset review process as early as possible. We have also invited representatives from the Department of Regulatory Agencies Board of Landscape Architects to future Executive Committee meetings in order to build an ongoing relationship and establish solid lines of communication between the members of the profession and our state regulators.

The ASLA Colorado Executive Committee voted to oppose Amendment 60, 61 and Proposition 101. A resolution explaining the reasons for this action has been posted on the advocacy page of our website.

ASLA Colorado meets regularly with the GreenCo Legislative Committee (and their lobbyists) to keep apprised of ongoing and upcoming issues of legislative and regulatory importance. When an urgent issue of importance arises it is conveyed to the membership as an advisory in the bi-monthly E-News Bulletin. ASLA Colorado is represented in the legislature and before state agencies by the Colorado Council of Landscape Architects. Gregory Williams of Redpoint Resources LLC, and Scott Meiklejohn of Meiklejohn Consulting LLC are under contract from December-May to monitor state legislative activity and regulatory developments. They also represent ASLA Colorado at meetings involving other allied organizations on new and ongoing issues of mutual concern. Neil McLane is Vice President of Government Affairs and chair of the ASLA Colorado Government Affairs committee. This committee also oversees the activities of the Colorado Council of Landscape Architects. Neil can be reached at neil@mclaneassoc.com.
You can now join ASLA Colorado on your social networks!

As part of ASLA Colorado’s commitment to connecting landscape architecture professionals, the chapter recently rolled out pages on three social media sites: Twitter, Facebook, and BlogSpot. If you are interested in following the organization, connecting with other professionals, and receiving up to the minute information on landscape architecture in the Centennial State, feel free follow the chapter via the links below.

Twitter: www.twitter.com/aslacolorado
Facebook: www.facebook.com/pages/ASLA-Colorado/139331522784018
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If you would like us to announce an upcoming design event or social gathering, let us know at social@aslacolorado.org.
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By John Gilmore

HOK’s design of the 1,416 hectare, 6.5-million-square-foot King Abdullah University of Science and Technology (KAUST) campus in Thuwal, Saudi Arabia, is an example of a global trend of clients asking for faster, better building projects.

“In the fall of 2006, the initial challenge presented to us was to develop a master plan for a university of global importance,” says HOK Planning Group Senior Vice President Monte Wilson, who has coordinated the Planning team’s efforts on KAUST. “We also were asked to plan the full range of community and residential support that goes along with that—essentially a new town for 10,000 to 12,000 people surrounding and supporting this globally significant research university.”

The HOK Planning Group’s vision encompassed the full spectrum of community and residential facilities required to support a world-class graduate research institution. Adjacent to the university is a large research park; a town center with 2,800 residential units; and a retail and commercial center that includes a theater, public library, post office, recreational services and other facilities that support campus living.

Challenged by a schedule of unprecedented speed for such a complex project, The HOK Planning Group developed the master plan for the entire $7 billion site development between October 2006 and February 2007. The strong, clear master plan enabled the project to move quickly from a conceptual idea into detailed design and construction. Site development began just half a year after The HOK Planning Group completed the plan and less than a year after the team created the initial sketches.

Team members from every HOK discipline involved in the project—including planning, landscape architecture, programming, architectural design, interior design, structural and MEP engineering, visual communications and project management—admit they weren’t always sure they could meet this demanding schedule. But they succeeded by working harder and smarter, by drawing on the firm’s global resources and by leveraging several new technology tools.

Process

The essence of the challenge was to design the campus and 26 different buildings in a way that would allow the contractor to meet the schedule for opening the campus. To do this, HOK structured the project as a multi-office effort involving up to 300 people in 11 different offices in North America and Europe.

To kick off the project, HOK’s campus planners conducted a “Racing the Sun” master planning charrette in which designers from ten HOK offices across multiple time zones contributed their best ideas to the plan over a 24-hour span. Based on the success of the Racing the Sun planning effort, the architectural team later conducted a one-week design charrette involving people from nine offices in four countries.

KAUST is Saudi Arabia’s first LEED certified project and the world’s largest LEED-NC Platinum project. Earlier this year, it was selected as one of the “Top Ten Green Projects” of 2010 by the American Institute of Architects (AIA) Committee on the Environment (COTE).
The team worked in a way that required several efforts that traditionally happen in sequence to occur at the same time. For example, programming, architectural design and landscape design were completed simultaneously.

HOK’s team began with a conventional design process, assigning responsibilities to different offices and developing teams around these disciplines. The early result was a design that was unrelated and that featured inconsistent design approaches. Realizing that this would not work, the team had to overcome this false start, a loss of six weeks and, on the fly, devise a completely new approach and design process to channel the efforts of teams in multiple offices into one virtual design studio.

For this fresh start, a core group of five designers developed a common set of strong principles and design guidelines, as well as a completely new work strategy. The cohesive guidelines provided a fundamental sameness that allowed for systematic, efficient construction while still enabling designers to apply natural variations.

To expedite the design process, several HOK team members relocated for extended periods to work on-site with partners and suppliers. HOK also embedded team members with construction company Oger in Paris so that they could make decisions together and coordinate procurement and bidding packages swiftly.

**Technology Tools**

The schedule and scope of this project dictated that it could not be delivered through conventional means. HOK’s team used new technology to work faster and better.

The design team relied heavily on Revit, a 3D building information modeling software program that integrates the design process by allowing team members to do parametric, model-based digital design.

To reduce travel and increase long distance collaboration, HOK built new “Thunder” and “Lighting” conference rooms in several offices. These high-tech advanced collaboration conference rooms are equipped with sophisticated virtual flipchart technology that enables teams to capture, share and modify designs on a group canvas in real time. They are now being used on other projects to foster dynamic, real-time collaboration among multi-office project teams.

HOK defined the Program of Requirements for hundreds of buildings—including the town center’s commercial/housing component for 10,000 to 12,000 people—in just four months. Facility programming and interior design teams from eight HOK offices working on multiple buildings collaborated to produce a single deliverable for all campus furniture, fixture and equipment (FF&E) specifications. The team created a proprietary new software application in which data input by interior designers was mined and placed into a customized Facility Requirements System that consolidates furniture specifications and other attributes. More than 7,000 items were specified within a two-month time period. This centralized effort greatly improved the quality, efficiency and accuracy of the specification process.

**A Template for Future Projects**

This KAUST “mega-project” is an example of an emerging worldwide design and construction trend of clients asking for faster projects. HOK is incorporating these innovative tools and approaches into our work for other clients. The successful KAUST approach will serve as a template for other projects with large manpower needs or multi-office requirements.

**John Gilmore** has been with HOK for 8 years. John brings the story of HOK to life for the world, literally. As a senior writer, his words shine an intelligent light on the people, projects and experiences of the firm on the web, in print and in speeches given all over the globe.
Rhodes Architectural Stone is frequently asked for recommendations concerning stone design because of our experience reclaiming or dismantling antique stone installed centuries ago and based on our deep knowledge of quarrying and finishing stone. In fact, we were asked so often, we created an educational lecture series on stone design, use and specification. Our most popular Lunch and Learn lecture Stone Specification is the basis for this article wherein we touch upon key elements that contribute to and detract from enduring stone design. This article will explore three areas impacting stone design and explore the solutions revealed in historical precedents, including mason’s miter, stone design principals and grain orientation.

**Mason’s Miter Versus a Carpenter’s Miter**

The wood carpenter practice of mitering two 45 degree cuts to create a 90 degree corner became an option in stone only after the World War II invention of the diamond saw blade. The fast and inexpensive carpenter’s miter is a proven winner for wood, but has potential downsides in stone. To illustrate this point, please examine the below assembled images of stone installations utilizing a carpenter miter and the preferred mason’s miter. It’s important to note each mason’s miter option should be evaluated on aesthetic, performance and price.

Exposed stone cut to an angle less than or equal to 45 degrees leaves stone vulnerable to break or chip. Carpenter miter cuts undermine stone’s promise to endure centuries of use. Even granite’s lifespan is shortened when introduced to a 45 degree exposed edge (far right).

Only consider the mason’s miter where the corner remains a 90 degree face of solid stone to protect both the stone and substructure from interaction with man and nature.

The L-shaped paver presents an uninterrupted solid stone corner and reflects historical precedence.

The wall cap return is L-shaped to protect the corner with directional hand finish applied at 45 degree angle.

The most affordable option is the shiplap edge. The solid stone corner is the width of the veneer and is hand finished to match the face. This protects the corner and is visually credible.
Another option for the modern mason is the quirk miter. The internal edges meet at a 45-degree angle and the exposed edge presents a solid stone ≥90-degree edge.

In each example of a mason’s miter, the corner has either a full return or a minimum 90-degree stone edge to best endure man and nature’s interaction with the stone for centuries to come.

**Stone Design Principals**

Architects have long admired patterns in stone design regardless of period or continent of installation. Careful design and craftsmanship are recognized by pleasing to the eye proportions and symmetry achieved by several common stone mathematic principals. Two of the most prevalent principals are the “Middle Third Rule” (also known as “1/3 Rule”) and the “Golden Ratio.” The Middle Third Rule states joints should always be placed within the middle third of the following stone course to achieve balance and strength.

The Golden Ratio is argued by scholars to date as far back as the Great Pyramids of Giza. The Golden Ratio establishes the optimum length size of a paver or veneer based on a multiple of its height (Height determined by the Designer). To calculate the ideal length of a rectangle using the Golden Ratio, either multiply the rectangle’s height by mathematical equivalent of Phi 1.618 (not to be confused with Pi = 3.14...) or follow the instructions below by drawing an arc to locate the natural point “a” (length size for the most pleasing proportion).

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**Grain Orientation**

The grain direction in natural stone is well known for the aesthetic brilliance it lends design; however, not as well known is the role grain plays in determining performance and stone’s longevity, particularly in exterior applications where weathering occurs. Stone can endure centuries of wear, yet sedimentary stone (limestone and sandstone) can sometimes fail after only 10 to 100 years, often due to installation with an improper grain orientation known as “face bedding.” Face bedding installation places the grain direction perpendicular to the ground which is contrary to its nature bedding plane and promotes delamination. When specifying sedimentary stone (limestone and sandstone) in exterior applications, designers should specify the grain orientation to ensure the stone is quarried, fabricated and installed with the grain parallel to the original bedding plane to avoid face bedding. The following images illustrate grain orientation and its potential impact.

![Limestone quarry displays grain orientation parallel to the original bedding plane.](image)
This stone was installed with improper grain orientation (face bedding), which leaves stone vulnerable to delamination (as shown).

To avoid potential delamination when designing limestone or sandstone for external vertical and horizontal surfaces, please specify the grain orientation be parallel to the bedding plane and insist grain orientation be noted in the shop package. Fortunately there are hundreds of high quality, high density limestone and sandstones to select for exterior application. By insisting on proper grain orientation and stone principals in design, design professionals ensure stone will achieve its legacy promise and ensure clients’ pride for generations to come.

Steve Alamin brings a breadth of leadership experience in global sourcing, manufacturing and construction with luxury brands. After working on numerous design/build projects for 20+ years, he joined Rhodes Architectural Stone to bring the quarry’s role closer to the designer’s table and deliver more environmentally friendly natural stone.
By Sarah Chase Shaw

Unhealthy street trees are good indicators of the vigor of our urban centers and cities, home to approximately 80% of our population. Like the Apocalypse, tree mortality announces the end of a lively place where people gather and important decisions are made. Consider this fact: trees are the only infrastructure that increases in value after installation, yet when prioritized with water meters, electric and gas lines, and road and curb widths, they rank near the bottom.

Urban environments are not kind to living things. In fact, American Forests estimates that the average life expectancy of a downtown urban tree is just 13 years. Common causes of tree mortality include:

- Damage to roots or soils from adjacent construction activities
- Air pollution
- Physical damage from vandalism
- Trees planted in “death pit” spaces that are too small
- Improper planting techniques
- Rocky and compacted soils
- Lack of water
- Too much water
- Lack of soil volume
- Salts and other chemical compounds applied to roads in winter

Multiple studies have shown the value of urban street trees. Consider these facts:

Trees are Good for Business. A study conducted by the University of Washington confirmed that consumers respond positively to shopping environments with tree-lined sidewalks and other landscape improvements. Some customers even said they would be willing to drive further and pay more for parking in a well-landscaped business district, suggesting that greater revenues from shaded parking could offset the costs of parking space loss. In addition, the study claims that products, on average, are priced 11% higher in landscaped districts – and this included low-price, impulse-buy convenience goods as well as higher end merchandise, and implication that trees can provide a significant “amenity margin”.

Trees Strengthen Community. People get along better with their neighbors when there are trees around. A study commissioned by the Natural Resources and Environmental Sciences at the University of Illinois concluded that outdoor spaces with trees are used significantly more often than identical spaces without trees. And, when good neighbor to neighbor relations occur, individuals tend to be more physically and mentally healthy, less likely to neglect or abuse their children, and less likely to rely on costly social services in times of need.
**Trees Increase Home Values.** Homes with trees are generally preferred to comparable homes without trees. The price difference between the two is as much as 7%, with variables in place for socio-economic conditions and actual definition of tree presence.

In community development scenarios, tree and open space preservation can add as much as 37% price increase, a fact that helps bolster the prohibitive up-front site development costs.

**Trees are Good for the Environment.** There is no end to the investigations on this conclusion. Trees reduce water treatment costs and impede soil erosion by slowing stormwater runoff. In fact, research conducted by the USFS suggests that, in a 1-inch rainstorm lasting over 12 hours, the interception of rain by the canopy of the urban forest in Salt Lake City reduces surface runoff by about 11.3 million gallons, or 17%. Trees also cool air temperatures, act as natural pollution filters, and produce oxygen while absorbing carbon dioxide. If you want to know more about the economic and ecological benefits of trees in your region, go to the National Tree Benefit Calculator, a project of Casey Trees and the Davey Tree Company, at www.treebenefits.com.

Trees are an amenity we cannot afford to lose, but how do we insure their survival in our cities and urban environments? Let’s start with the basic planting medium. Trees need soil. It is estimated that up to 80% of all tree problems are soil related, and in urban areas, problems increase as soil quality and volume decrease due to buildings, paving and excessive grading. Research completed at Cornell University indicates that trees need 2 cubic feet of soil volume for every square foot of canopy area. In fact, most urban trees have less than 1/10th the rooting volume needed to survive. Colorado soils are rocky and naturally compacted. Obviously, this is not a good combination for promoting tree growth.

Put a tree in a 5’x 5’ tree well, commonly referred to as a “death pit” by foresters and arborists alike, smother the root ball with rocks and soil, compact it to not less than 95% Proctor density, and you have a dead tree. The cost for planting a tree using this method: $1,000. There are other options for ensuring that trees can live long and healthy lives even under the most dire of circumstances. The cost for planting a tree using one of these other methods: $3,000-$5,000.

So, why exactly should you invest $3,000-$5,000 in one tree when you can spend the same amount of money for five trees? The answer is simple. Five thousand dollars gets you a tree that will—barring disease and natural disaster—last 50-70 years. Whereas one thousand dollars gets you a tree that might live for 12 years, at best. And, every time a tree reaches the estimated lifespan of 12 years, it costs approximately $1,200 to remove and replace it. For Jim Myer, Arboreal Inspector for the City and County of Denver, the goal is simple. “Our main objective is to increase the life expectancy of Denver’s street trees by maintaining a healthy urban forest. If we have to spend more to see an increase in the average life expectancy of a tree with the added benefits of less infrastructure damage and more storm water retention, then the investment is worth it.”

What is the best method for achieving a healthy urban forest? The answer to getting a tree to grow, according to James Urban, is building the required soil system to meet the design objectives. “I have seen trees that cost up to $20,000 in the deep inner city where growing a tree is a high priority. The key is to establish a continuum of soil disturbance. If you decide that all soil is bad, then you are wasting money. Landscape architects must become smart enough about soil to understand the long-term benefits of it. And, there is an over-dependence on irrigation, or an assumption that irrigation is the answer. Clearly, there is a need for irrigation for establishment, but if soil volumes are large enough and correctly designed to harvest water, fairly large trees can grow.”

To that end, Urban, in conjunction with DeepRoot, has established a modular framework of interlocking cells that are constructed as an underground planter which can be backfilled with a large volume of high quality, uncompacted soil. Known as Silva Cells, this
product can be placed in any configuration to match the geometry of a site. The Silva Cell’s claim to fame is this: with proper installation, planting, irrigation and care, the tree should grow and flourish, reaching the half-century mark and beyond, and the worries and costs associated with ripping of sidewalks or replacing the tree are slim to non-existent. In a recent cost analysis report prepared for DeepRoot by the Kestral Design Group, a hypothetical study compared an urban tree with pavement suspended over adequate uncompacted soil volume (aka Silva cell) and an urban tree with insufficient uncompacted soil volume. Not surprisingly, the benefits point in favor of the Silva Cell. The urban tree, with insufficient uncompacted soil volume costs less to install ($4,000) than the tree with Silva Cell application ($8,000), but over the lifetime of the tree, the Silva Cell application costs benefits far outweigh the lifecycle costs of the tree without the Silva Cell application. According to Leda Marritz, Marketing Manager for DeepRoot, “One of the big challenges that we face with acceptance of the Silva Cell is cost-related. People love the concept and want to deliver big trees to their clients and site developments, but don’t have the wiggle room on the budget for trees that they might for other site amenities.”

The Urban Horticultural Institute at Cornell University introduced its structural soil system in the mid 1990’s. CU Soil is a designed medium, consisting of one-size, sharp-edged gravel shaped like crushed ice. A specialized gel binds it to dirt during the mixing process so that the soil fills in the pores. Because it is dense and rigid, pavement applications can be applied around the base of trees with little impact or compaction to the soil surrounding the root ball. The product is expensive, albeit not as costly as Silva Cell, and controversial amongst “tree people” because its consistency - 80% structure (gravel) and 20% soil - reduces the actual amount of permeable space available for root growth.

If lieu of soil replacement, there are other options for increasing the longevity of urban street trees. At its Recycling Center, the City of Aspen is using a Root Barrier in a new 6’ wide planting strip. Root barriers effectively redirect roots down and away from hardscape, which, in this case, is very useful as the selected street trees are Narrowleaf Cottonwood, a tree whose shallow roots are known to wreak havoc on sidewalks and other infrastructure. Root barrier is most effective for new construction, particularly in narrow planting
strips where roots can reach into break-out zones with plentiful soil and water. This is an economical solution for increasing longevity and decreasing infrastructure nightmares. 100 yards of root barrier is approximately $150.

Rubber sidewalks are high-density paving tiles made with recycled California tire crumbled rubber combined with polyurethane binder and colorant, then molded with heat under compression. These interlocking pavers are beneficial for areas around trees because they can be lifted for root pruning or infrastructure issues. Recently, the City of Aspen installed 1800 s.f. (or 360 l.f.) of rubber sidewalks along its Main Street (S.H. 82), a heavily-used thoroughfare which is lined on both sides by historically significant and mature cottonwood trees. Rubber sidewalks were used for a section of sidewalk where the trees would have been severely impacted and suffocated by concrete. The results have been highly successful in that the material was able to withstand a mountain winter with little evidence of heaving or breakage. However, according to City Forester Chris Forman, “…there is still a significant amount of sub-grade work necessary to install this system. Thankfully, most of the tree roots in this area were running parallel to an adjacent ditch. This allowed the earth work to be completed with minimal harm to the shallow fibrous roots found in the area. If concrete was “floated” on grade, the impacts would be the same as utilizing the rubber panels. The big benefit with the rubber walkway is the hope that it will tolerate much more root expansion than does asphalt or concrete.” Rubber Sidewalks run $32/s.f., therefore their use in the City will be limited to areas where the negative impacts to trees from traditional sidewalk material is most acute.

Narrowing street widths can facilitate the preservation of the urban tree canopy and the growth of new street trees. In 1998, the Chicago Bureau of Forestry requested to change the width of city streets in a new development from 42’ to 38’. The project was re designed, and that extra 4’ made the difference of saving 60 trees that would have been removed otherwise.

Many urban forestry departments attach a value to urban trees using the Guide for Plant Appraisal, a product of the Council of Tree and Landscape Appraisers and published by the International Society of Arboriculture. Trees that cost only $500 to install are easy targets for removal. However, if a tree is valued at $40,000, suddenly a substantial cost becomes real, and it changes the perception of the future treatment of that tree.

And finally, the least technologically focused, but perhaps the most intuitive method to increasing the lives of urban trees is to find a healthy mix of species. Anne Desjardins, principal of Lime Green Design in Denver thinks that mixing tree species is an interesting solution because it is a different way to keep our urban forest healthy, “Like Silva Cell, CU structural soil, and soil amendments, it is another way to insure the healthy growth of our urban forest.”

Sarah Chase Shaw is a landscape architect and free-lance writer. After receiving a master’s degree in landscape architecture from Cornell University, she began her career as a landscape architect at Design Workshop in Aspen. She is the author of New Gardens of the American West: Residential Landscapes of Design Workshop (2003) and Garden Legacy (2010), a second compendium of residential landscapes by Design Workshop. Other recent work by Sarah can be seen in Urban Land, Garden Design, and Western Art & Architecture. She lives in Aspen and can be reached at sarahshaw@sopris.net.
The importance of correctly irrigating landscaped areas cannot be overstated. Water is the catalyst in the soil/plant relationship. It is fairly obvious what happens to the plant material with too little water. However, too much water can deplete oxygen to the roots and promote shallow growth, among other things. With ever-tightening water restrictions, agency regulations, climate change, and a struggling economy, water conservation is as important as it has ever been. Weather-Based Irrigation Controllers (WBICs) help conserve our most precious resource while saving clients money in the short and long term.

Experts estimate that 20-30% of water used by landscape irrigation systems is wasted through either water distribution or control. Water distribution can be visually controlled by regular maintenance and adjustment of the irrigation system (i.e., broken heads, leaks, water spraying onto hardscapes, and runoff). It isn't too difficult to recognize when water running down the sidewalk. Irrigation control is much more subjective, however. Most irrigation maintenance personnel have a fairly good grasp on how zone timing should programmed given the type of irrigation used. However, many of these same personnel set zone timing based on the worst case scenario, which tends to be the hottest, driest periods of the season. Irrigation managers slightly adjust irrigation systems in the spring and the fall, but they still tend to err on the side of overwatering. This is usually due to customer request, fear that plant material may be lost, or the thought that more water applied early will provide a healthier plant when warmer, drier days arrive. Weather-based controllers take this subjective portion of water use out of the maintenance personnel's control and lets the technology do the work.

For two decades, WBICs have been in use on extremely large sites, agencies with multiple sites, and golf courses. This technology usually involved purchasing and maintaining an expensive on-site weather station and software. However, recent technological advances have made it both more user-friendly and cost-effective for smaller sites, even in residential applications. In areas where water conservation is of the utmost importance, some agencies and municipalities require weather-based smart controllers and may even provide rebates for customers who utilize them.

Consider a client with a fairly large site with five acres of manicured, cool season turf. In the Rocky Mountain West, yearly water usage for that parcel of turf will be approximately 6.2 million gallons. At Denver Water Board’s current water rate for treated domestic water of $4 per 1,000 gallons used, that would equate to a yearly water bill of $24,830. Taking into consideration that a weather-based controller would conservatively reduce water usage by 20%, one could save that client nearly $5,000 per year in water costs; not to mention the savings of 1.25 million gallons of water. It is important to note that if a weather-based smart controller is installed on an older existing irrigation system or a system with inadequate coverage, water savings could be significantly less. In these situations, it is important to consult an irrigation professional before specifying or installing these devices.

Weather-based irrigation controllers utilize historical or actual evapotranspiration (ET) rates to help replace the water used by the plant material for duration of time. ET is defined as the process of transferring moisture from the earth to the atmosphere by evaporation of water and transpiration from plants. There are many factors that determine ET rates. These include solar radiation, temperature, wind, humidity, and even elevation. The controller automatically
irrigates as the water content of the soil approaches the wilting point, but will not exceed soil saturation based on the irrigation system’s specific precipitation rate. Jerry Wright of the University of Minnesota explains this concept best in “Irrigation Scheduling Checkbook Method.” Each day an ET value is measured from a weather station and withdrawn from the soil. In the following days, successive ET values are withdrawn and a deposit must be made, either by irrigation or rainfall before the soil moisture balance reaches zero. Keep in mind that once a withdrawal is made, a deposit is not made until the balance approaches zero (which equates to 50% of maximum allowable depletion). Once the irrigation system or rainfall makes the deposit, soil moisture is replenished and the cycle repeats itself. The Checkbook Method also ensures that the soil moisture content does not hover around saturation in order to promote deep root growth. One case study revealed that in June of 2009, a client had irrigated only three times in 30 days utilizing an ET based smart controller.

Once ET data is accumulated by a remote or on-site weather station, ET rates are received and calculated by either a weather data service, on-site irrigation software, or ET controller interface. The irrigation schedule is then automatically adjusted depending on specific data. Specific data may include irrigation precipitation rates, soil types, plant types, directional aspects, and even slopes (all of which are typically entered into the on-site software or controller interface). For example, an irrigation manager assigns a turf zone to activate and operate for fifteen minutes, every day. Irrigating this particular zone would distribute approximately 2.0 inches of water per hour. Once the ET data is logged, the controller realizes that the plant material and the soil only used 0.15 inches of water that day. Based on the specific data of the turf zone, the controller will override the manager’s assigned schedule until enough water is depleted from the soil to warrant irrigating.

There are a number of ways ET data can be accumulated and distributed. Solutions are typically addressed based on specific site information and can be dependent on client needs and budget. Moreover, products differ greatly from manufacturer to manufacturer. ET data can be accumulated by way of an on-site or community weather station. There are even more ways data can be distributed. It can be distributed via the internet, paging broadcast service, cellular service, radio broadcast, and conventional phone lines. Some of these services may be subject to monthly charges for which the client would be responsible for over the life of the irrigation system. It is important to consult an irrigation professional to figure out which ET system would be most useful and cost effective for your client.

It is important that a concerted effort be made toward conserving water because of the current economic market and water’s value as a resource. Weather-based smart controllers help sites and irrigation managers achieve conservation. Even though this technology has been around for quite some time, it is now available and should be considered for use on a wide range of landscape projects to aid in conserving water, reducing budgets, and promoting healthy plant material.

**Jason Naughtin**, CLT, CID is a project manager at HydroSystems-KDI, Inc. located in Lakewood, CO. He has been involved in the green industry for 15 years. He has gained experience in commercial and residential irrigation systems through maintenance, construction, and now design.
Q & A with Cynthia Raber, Chief Information Officer for Design Workshop  By Sarah Shaw

What is a network server?
A network server is a computer that provides various shared resources, such as software and hardware to workstations and other servers on a computer network. The shared resources can include disk space, hardware access, and e-mail services. Servers are usually built with more powerful components than individual workstations. For example, a server will usually have more random access memory (RAM) installed than a workstation, and the processor is more robust than a workstation. While this may increase the price of the server relative to a single workstation, the overall cost can be significantly lower to an organization.

In addition to the shared services these computers provide, network servers also help simplify the management tasks for network and systems administrators. By centrally locating these services on a single computer rather than on an individual workstation, configuration changes and security updates need only be applied to the network server rather than to hundreds of individual workstations. For example, one common function of network servers is to provide access to printers across the network. Workstations accessing these printers obtain the necessary software from the network server. If an updated version of that software becomes available, network administrators only need to apply the update to the server. Another cost savings is using network licenses for software that is too expensive to put on individual workstations, for example Autodesk’s 3D Max Studio, or Microsoft’s Project.

Is one server adequate for multiple offices?
For firms with multiple offices, a distributed IT infrastructure—meaning that each office has its own set of servers for quicker response to data—is useful. This comes in handy for continuous quick and easy data retrieval even if the wide-area network (WAN) goes down. This type of system can become cumbersome because of the costs associated with supporting the replication of servers for each office. And, as any IT associate will agree, a major issue of multiple servers is the ability to perform remote support, generally with non-technical people, when a hands-on approach is necessary. In Design Workshop’s case, we have more servers in our Denver office to handle the expensive applications that we use firm-wide like SQL for Deltek, SharePoint for our Portal, and X1 for our data search engine.

What is involved in maintaining a server?
Depending upon the size of the firm and the number of offices tied into a main server, maintenance can be a full-time job. Part of my job includes staying abreast of any issues with the servers and keeping maintenance contracts current so that when a server does fail, the vendor has the parts on hand to repair it. I continuously update our disaster recovery plan to ensure that in case of a server failure, the end user is not sitting idle for too long.

Occasionally, we have to take our server down for repairs. However, we try to reduce that amount of time by performing preventative maintenance on a daily basis. This year we had one major issue in one of our offices caused by a power outage that fried the primary server. I was able to get the office up and running within a couple of hours and then, once I was physically in that office, I was able to get the hardware fixed and the office back on its primary server.

How often does a server need to be replace or upgraded?
Generally, we replace or upgrade systems every three years. However, the recession has made it so that we are working with equipment that is 5 years-old and in need of replacement. The worst case scenario is a server failure and data loss.

What are the biggest obstacles you face in your work day?
Time is always a critical component of my day. We need time to maintain the current infrastructure we have and still continue to come up with ways to improve the speed and access to the data when needed. We have six locations with a total of 48 servers and over 100 desktop/laptop devices to support, not including the devices that we have out to contractors so they can have access to our network.

No matter what product you have protecting your equipment, the end user is the one part of the system you have no control over. We have been inundated with viruses, spyware, and malware recently, and we have had to rebuild individual’s devices because they download or open e-mails from people they don’t know that have these nasty elements attached to them.
THE CORE OF WATER EFFICIENT IRRIGATION IS HERE
Hard Decisions  By Susan McCabe

Fall of 2010 seems like a good time to reflect on what has happened in the landscape industry over the last two years. Now that “Black October” is behind us, what changes have occurred and what predictions are being made about the future? To answer these questions, I interviewed landscape architects from various sectors of the industry: five landscape architecture studios, four design/build firms, and four sole proprietor design firms. Hard decisions, loss, determination, perseverance, following the money, a sprinkling of luck, and a large dose of humility describes almost everyone, from the small, one person design firms to the large multi discipline studios. Similar to my experience of supplementing design work by taking advantage of opportunities to install small jobs and manage properties, most firms have experienced significant change. Ironically, the work I was doing as I thought about this article was a great description of these last two years: digging holes, preparing soil for new growth, and planting end of season bargain plants. “It was like falling into a dark hole,” someone said. “We saw it coming and made hard decisions to prepare ourselves,” others commented. And when asked about current conditions, most agreed that, “clients are guarding their money and looking for a bargain.”

An unspoken goal that seeped through every discussion is to do whatever it takes to survive this economic downturn. The stories varied in scale and severity, but included many of the same components: project holds and cancellations, scrambling to find work, fellow employees and friends losing their jobs, salary reductions, benefit reductions, part-time employees, contract employees, fierce competition, lower fees for the same work, large marketing budgets, little or no profit margins, cautious clients, bankrupt clients, bargain hunters, and extending technology updates. The landscape architects practicing during the depressed economy of the 1980’s seemed to take it all in stride, describing these tough times as just another dip in the cycle. But even they agreed, that this time the world wide character made it worse. In the 1980s, if someone lost their job it was possible to find another by relocating to a different part of the country.

Predictably, job layoffs have been the most difficult part of this recession. Since the first quarter of 2008, most people I interviewed have reduced their work force by 20-50 percent. And many who had lost jobs are now doing other things: Graduate school, career changes, or just returning home to regroup. Someone told me that in discussions with other design professionals, there is genuine concern about a generation of designers being lost to the profession. Though job cuts have occurred across the board, all indicated that they are currently a little top-heavy, and don’t see the large staffs, heavy workloads, and profit levels of 2005 and 2006 ever fully recovering. When asked to predict how long before business grows in earnest, the typical response was at least two years, and some feared five.

And now for the good news, in this dark and gloomy landscape, most people I interviewed are seeing small glimmers of light. One of these glimmers is gratefulness. Everyone expressed gratitude for something: a diverse portfolio and/or client base, government and public projects, clients who are self-financed, the ability to hire back a few people in the last few months, an expertise in an area still in demand, like environment, storm water systems, arborist work, expert witnessing, and for the design/build firms- maintenance. Gratitude was also expressed for deciding to move an office to a better location, building up good relationships and contacts over the years, the ability to keep morale up, being around in the 1980’s and having that experience under their belt, the ability to stay away from credit dept, and seeing their business becoming more efficient. Another glimmer of light for most is a cautious optimism about the immediate future. As one person put it, “projects have finally stopped stopping.” Though no one thinks the economy is turning around, most are currently experiencing an increased work load and believe they will at least break even, if not show a modest profit moving into 2011.

Susan McCabe is a licensed landscape architect with over 30 years of experience. She has been self-employed for 18 years and has a BLA from the University of Illinois and an MA in Urban Design from the University of Colorado. Susan is also a Master Gardener and fitness instructor and credits these skills for keeping her in the black over the last two years. Her sweetest and most challenging projects are her three children, Conor (19), Grant (18), and Megan (14).
State of the Chapter Membership

We start the 2010-2011 year with 485 professional members. As you might expect our membership declined in the current economy. Membership is down 10% when compared to the 2009-2010 year.

- Losses are primarily in private sector both in multi-disciplinary and landscape architecture firms. Most of the growth was in the academic sector followed by the public sector.
- Geographically our greatest loss was in Colorado. Wyoming maintained its membership (Go WY!). There is a slight increase membership from beyond out chapter border. Within our chapter boundaries the Denver/Boulder area saw the greatest decrease followed by the southern area, then the western area. The north area actually increased its members.
- The division between genders has stayed in the same 70/30 range.

We helped five members maintain their membership through the Dues Relief Program offered by National ASLA. This program allows a member to maintain their membership status when circumstances make payment burdensome. We were happy to help these members. If you know of someone who could use this program please tell them to send a brief explanation of their need to Kurt Munding, ASLA Colorado President, kurt@dcla.net.

For our second year of contacting lapsed members we found the same reasons applied for the 2009-2010 year. The most dominant reasons being:

- job loss,
- employer’s no longer funding membership, or
- changes in personal finances.

What we also found consistent is that members are choosing to maintain their Landscape Architect license rather than renew their membership. Communicating the strong relationship between membership and licensing will likely be a high priority for the Committee this year. To our new members – “Welcome”. To all of you that continue to support the profession through your membership – “Thank You”. To all members we look forward to meeting you.

ASSOCIATION HAPPENINGS

2010 ASLA Colorado Awards Banquet

The annual ASLA Colorado awards banquet was held at the historic Brown Palace Hotel on October 14th and was attended by nearly 150 people. The evening started with a keynote address from the new editor of Landscape Architecture magazine, Brad McKee. View his presentation online at www.aslacolorado.blogspot.com/.

See the award winners online at www.aslacolorado.org/awards/. Thank you to all of our sponsors and industry partners that helped make this possible, including Landscape Forms, Hunter Industries, Rain Bird, Turner, DHM, Williamson Photography, Ken’s Reproduction, ECI Site Construction, Site Works, Design Workshop, AECOM, Valley Crest and Landtech Contractors. We look forward to an even more successful awards program and banquet next year.

New ALSA Colorado Members

Paul W. Boals, ASLA – Greenspace Inc.
Evan W. Brady, Associate ASLA
Tamara Delaplane, ASLA
Angela D. Dye, FASLA – A Dye Design Inc
Denise George, ASLA – DHM Design
Kimmerjae Johnson, ASLA – Bluestem Studio LLC
Earnest L. Keiser, Jr., ASLA
Ann E Komara, ASLA – University of Colorado Denver
Andrea Lind, ASLA – National Park Service
Kim Nelson, ASLA – Naturescape Designs Inc
Michael A. Pisano, ASLA – National Park Service
Joe A. Porter, FASLA
Kelly Smith, ASLA – AECOM - Fort Collins
Kelly Spokus – Colorado State University
Teresa Urbanowski, ASLA – National Park Service
Karen Wolf, Associate ASLA – Trinidad History Museum

Firm News

Centennial Park Grand Opening

RIFLE, Colorado – More than 600 residents turned out on September 25 to celebrate the Grand Opening of the new $3.5 million Centennial Park, located in Rifle, Colorado. Led by the Rifle City Council, the celebration for completing Phase I of the park featured a barbeque, jumping castles, and a disc jockey on the new stage next to The Great Bowl, a large central green designed for community events, festivals, and informal games. The park, which was constructed on time and within budget, was designed by Design Concepts CLA, an award-winning community and landscape architecture firm located in Lafayette, Colorado that specializes in parks, playgrounds, and school landscapes. Design Concepts also created the construction documents for Phase I of the park.

“Centennial Park is an amazing park,” says Aleks Briedis, recreation director for the City of Rifle. “The park will bring the community
together with trails and a place for residents to congregate and socialize. We also hope travelers will get off the interstate and stop to enjoy the park. This is a great addition to the city."

The 14-acre linear park is located along Rifle Creek in the heart of the city and connects to the historic downtown on the south end and the county fairgrounds on the north end. It features a "walk through time" along the creek with interpretive areas that highlight the city’s rich history over the past century and its natural environment and cultural diversity. The historic timeline, which follows an existing trail, includes four waysides representing Rifle’s history from 1895 to 1935. The waysides offer seating, shade, and interpretive signs that explain the city’s history and provide a perspective of events that were happening in the world. During the opening celebration, teenagers gathered at one of the waysides to point out where they lived on a grid of the city.

One challenge of designing the park, which is located in a flood plain, involved accommodating occasional flood waters and seasonal high flows from the creek and ensuring the park could be cleaned up quickly and maintained efficiently. In August, the park design was tested successfully when, half-way through construction, Rifle Creek overflowed its banks and flooded the park to a depth of over three feet following a sudden thunderstorm upstream. The site was cleared of tree and plant debris within two days, with no significant structural damage. The park design handled the stormwater with devices such as a trench drain in the sunken amphitheater to return water to the creek, tree selections such as spruce, willow, and cottonwood that can tolerate wet conditions, and bridge rails that collapse with huge water surges rather than damming the creek.

A new berm along the creek constructed as part of the design kept the stormwater from flooding the back yards of neighboring homes.

“Working with the City of Rifle and the community throughout the design process was a great experience and gave us an opportunity to create a wonderful recreational amenity for the community,” says Shanen Weber, Design Concepts’ principal in charge of the project. “We’re excited and pleased to see the first phase of the park constructed and look forward to the next phase. Phase II will include a boardwalk through a wetlands area, waysides for 1945 through 2005, a playground, an outdoor classroom, additional picnic shelters, another parking lot, two more bridges, and permanent restrooms.

2010 JSR Award

DENVER, Colorado – The Jane Silverstein Ries Foundation, is pleased to announce that the Denver Botanic Gardens has been selected as the recipient of the 2010 JSR Award.

Each year the JSR Foundation honors one individual, group or organization who demonstrates a pioneering sense of awareness and stewardship of the land in the Rocky Mountain region. The Jane Silverstein Ries Foundation is the charitable arm of the American Society of Landscape Architects – Colorado Chapter. The foundation honors pioneer landscape architect Jane Silverstein Ries, FASLA by promoting the quality of the built environment and the conservation and stewardship of our natural environment.

The Denver Botanic Gardens (DBG) has been a leader in landscape architectural and horticultural design, public education and research for over 50 years. The mission of the DBG is to “connect people with plants, especially plants from the Rocky Mountain region and similar regions around the world, providing delight and enlightenment to everyone.” The Denver Botanic Gardens are a unique urban resource that provide both inspiration and education to the community and the profession of landscape architecture.

Rob Layton Elected an ASLA Fellow

LAFAYETTE, Colorado – Design Concepts, CLA, Inc. is pleased to announce that Robby D. Layton, ASLA, RLA, CPRP, a founder and principal of the firm, has been elected a Fellow of the American Society of Landscape Architects (ASLA). Fellows are elected on the basis of their
professional excellence and outstanding accomplishments. Layton was nominated in the Leadership/Management category by the ASLA Colorado Chapter. The 2010 Class of Fellows will be inducted on Sunday September 12 at the ASLA 2010 Annual Meeting in Washington, D.C.

Layton in 1981 co-founded Design Concepts, an award-winning community and landscape architecture firm in Lafayette, Colorado. He was its president until 2010, guiding the firm to success through more than 1,500 projects and recognition through more than 30 design awards.

A recognized leader in sustainability, he is well known for his water-wise, drought-tolerant landscape design, including many award-winning parks in the Rocky Mountain Region, such as Fossil Creek Community Park in Fort Collins, Westlands Park in Greenwood Village, and Foothills Community Park in Boulder.

Layton partnered to develop new public infrastructure planning tools called the Geo-Referenced Amenities Standards Process (GRASP®). The GRASP® methodology, which uses geographic information systems and other programs, has been employed for more than 60 municipal, county, and federal park system master plans across the country. GRASP® also is being used by community health researchers to develop strategies for healthier communities in the U.S. and abroad.

He is noted for his writing, speaking, community service, teaching, and mentoring, which have advanced the visibility of the profession. Since 1989, he has been an adjunct faculty member at the University of Colorado-Denver College of Architecture and Planning. At Design Concepts, he has helped to create a culture of lifelong learning, and devised a mentoring program to teach elementary students the value of landscape architecture.

Layton’s involvement in the Learning Landscapes program with the Denver Public Schools and the University of Colorado-Denver helped elevate the community development program to the national stage. Learning Landscapes is a collaborative program in which staff, students, parents, and community members, led by landscape architects and graduate students, redesign inner-city schoolyards and construct new educational landscapes with outdoor classrooms, gathering places, playing fields, and gardens. Design Concepts received a Merit Award from the ASLA Colorado Chapter for its work on 17 completed Learning Landscape projects. A leader in the preservation of historic landscapes, Layton received a Land Stewardship Award from the ASLA Colorado Chapter for his master plan for the Norlin Quadrangle Historic District, a part of the University of Colorado-Boulder’s campus that is listed on the National Register of Historic Places.

Layton earned his Bachelor of Landscape Architecture from Texas Tech University and his Masters of Landscape Architecture from the University of Colorado-Denver. He is a registered landscape architect in Colorado, California, New Mexico, and Texas, and holds national certification through the Council of Landscape Architectural Registration Boards. He is also a Certified Park and Recreation Professional with the National Recreation and Park Association.

Exciting New Book Celebrates Sustainable Transportation

PORTLAND, Oregon – Two thirds of America's energy needs are tied up in transportation. How we get around shapes our communities, our health, and our future. Americans dream big, but those dreams have gotten out of hand. The results: expanding waistlines, sprawling communities, vehicles so large and thirsty that wars are fought to keep them running, oil disasters, and an energy plan that heats everything up to maintain a way of life. Beyond the blame, America needs real solutions: lean, clean, game-changing answers that put people on the road to health and energy independence.

America needs to go for a bike ride. With Joyride: Pedaling Toward a Healthier Planet, author and transportation expert Mia Birk helps them out the door.

Joyride: Pedaling Toward a Healthier Planet follows pioneering transportation leader Birk’s 20-year crusade to integrate bicycling into daily life. With just a table scrap of funding, Birk led a revolution that grew Portland, Oregon into a city where bicycling is a significant part of their transportation system. Birk then hit the road, helping make communities across the nation more healthy, safe and livable. While many books bemoan the pain of the world’s problems, Joyride offers hope and a blueprint for changing our world for the better.

Joyride: Pedaling Toward a Healthier Planet is an engaging combination of real-life stories and technical information—the perfect curriculum for professionals in fields like planning, design, urban studies, and community development. Bite-size chapters revolve around such issues as the challenges of retrofitting streets with bike lanes, building off-street paths, adopting and enforcing bicycle parking codes, encouraging people to incorporate bicycling into their daily lives, gaining community support, battling negative media stories, overcoming business opposition, evolving national standards, and much more.

“For a long time, Mia Birk has been a leader in the transformation of cities into better places for people traveling on foot and by bicycle. Her work strikes at the heart of what it means to make cities healthy and rewarding places to live, create, and thrive. Students and professionals will find both practical knowledge and inspiration in this important new book,” Ethan Seltzer, Director, Toulan School of Urban Studies and Planning, Portland State University, Portland, Oregon

Book sales will support non-profit organizations working to creating a healthier, more sustainable world.