SUSTAINABILITY ACTION PLAN
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Sustainability Action Plan 2016

EXECUTIVE SUMMARY

At SERA, we believe that sustainability should span beyond our projects and into our daily operations. By “walking our talk” we continue to discover new ways to work, interact and create more sustainable environments. In fact, that’s our mission:

WE LISTEN. WE COLLABORATE. WE ENVISION. WE ITERATE. WE SHARE. WE DESIGN. SUSTAINABLE PLACEMAKING AT EVERY SCALE.

In 2002, SERA leadership went through an intensive training in The Natural Step Framework followed by an extensive office-wide backcasting process. That process reverses the standard forecasting approach by first establishing a future vision and then working backwards to develop the steps required to achieve that vision. The lessons learned during backcasting continue to permeate all aspects of SERA’s culture and operations. One of the most prominent results of this process was the creation of our Sustainable Action Committee.

We recognize that the challenges facing our industry today are big, but we believe that no action is too small to make a difference. We strive for all of our actions to contribute to SERA’s larger vision, and continue to be transparent about where we have succeeded, and where we need to improve. Acknowledging each step in our path is integral to our pursuit. This Sustainable Action Plan serves as a road map for delivering our vision of creating a legacy of places that enrich the human experience, evoke delight, and provide an enduring ecological community.

VALUES

- Our business is founded on integrity, transparency, respect and process.
- Our employees are our greatest asset. They energize this firm and are its lifeline.
- Our practice is founded on the integration of design and sustainability.
- Our commitment is supported in our personal beliefs: “Our work, our community, and our world.”
SERA STUDIOS

SERA is a interdisciplinary firm offering expertise in integrated architecture, urban design and planning, and interior design. A team in the truest sense of the word, staff shares expertise across studio boundaries. This cross-pollination helps advance our sustainable design approach in every project.

CIVIC

For more than 40 years, SERA has been committed to improving the public realm. Whether in the form of adaptive re-use on sensitive restorations, resiliency through innovative seismic retrofits, or climate responsive and resource efficient design, we partner with municipalities and institutions to champion great places and experiences. We combine a rigorous analytical process with a collaborative spirit to ensure this tradition continues.

EDUCATION

At SERA we practice a thoughtful and disciplined approach to integrated architecture, interiors, and planning that combines diligent research with a focus on performance, artistry, and long-term value. With each project our mission is to create enduring designs that will establish the framework for student success and social equity while achieving meaningful steps toward a sustainable built environment.

HOSPITALITY

Hospitality projects are complex, with stakeholders who have diverse needs. SERA balances and prioritizes these requirements using the filters of great design and sustainability. Because the experience of guests is a driver for this work, we give close attention to the quality of the interior environments, including use of materials that support health and well-being. We work with our clients to deliver elegant properties that provide enhanced returns on investment and create a built environment that is respectful of resources and beautiful in every way.

HOUSING

SERA’s 30-plus years of experience with urban infill housing ranges from subsidized permanent supportive housing, to affordable housing, to market rate apartments. Our Housing Studio thrives on the diversity of housing types, and this experience keeps us at the cutting edge of trends, codes, green building and current cost effective construction techniques. We are not only deeply committed to high-quality and durable building design, but we strive to bridge our projects and their residents to the larger context of their neighborhoods and connections to transit, nature and community.

WORKPLACE

Workplace Strategy is centered on worker performance, engagement and experience, creating added value for organizations in their real estate planning and implementation.

URBAN DESIGN & PLANNING (UDP)

SERA provides innovative yet practical design solutions to facilitate urban investment and downtown and neighborhood revitalization – placemaking for people. Spanning public and private projects, our designs bolster community vibrancy, enhance the built appearance of downtowns and neighborhood districts, retain historic character, improve the public realm and maximize development potential. We engage sustainable urban design solutions, including pedestrian and bike access, adaptable mixed-use neighborhoods, transit-oriented development, as well as habitat and native plant restoration.

SUSTAINABILITY RESOURCES GROUP (SURG)

We work closely with our clients to assure that we are strategic in our pursuit of a broad range of sustainability and performance categories, including climate-responsive design, highly efficient use of resources, and the creation of interior environments that support health and well-being. While we tune our approach to opportunities that are appropriate for each of our clients, we’ve found that aggressive goals such as net-zero energy and water neutrality can be achievable, and have developed a set of tools and procedures to provide analysis which supports decision-making and design. Our experience in pursuing tax incentives, grants, loans, and rebates for incorporating sustainable design into projects reaps lasting benefits for our clients. Our clients benefit from an integrated and holistic design process that yields long-term economic benefits, healthier people and stronger communities.

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Founded in 1968 (as The Design Collaborative) during Portland’s downtown renaissance, SERA was fundamental in planning and building a city that was revitalizing its downtown during a period of widespread flight from urban centers across the United States. SERA’s genesis came from within the context of heightened environmental sensibility of the 1970s and national legislation such as the creation of the Environmental Protection Agency under Richard Nixon and the Clean Air Act under Lyndon Johnson. This legislation allowed local leadership, including founding Principal Bing Sheldon (Chairman of the Planning Commission during this time), to focus on public transit, urban growth boundaries and walkability. During this era, SERA worked with Bill Naito to bring retail to downtown (The Galleria), restore historic structures (The New Market Building, Portland City Hall), and revitalize old manufacturing infrastructure for new uses (Montgomery Park).

SERA’s future rests on the foundation of its original values - urban infill, re-use, and redevelopment as important strategies in creating community. Today SERA is recognized as a national leader in sustainable design, with extensive experience in LEED and other green building rating systems such as the Living Building Challenge (LBC). Our history and partnerships have deepened our understanding of what sustainability can mean - from district resource systems, seismic resiliency and indoor environmental quality (IEQ) to biophilic design, healthy materials and ecology. This breadth of experience sets us up to tackle the dynamic and complex challenges that are currently facing the built environment today, and in years to come.

We understand sustainability to be a basic responsibility - with a holistic, integrated design process at its core. Through interdisciplinary approaches to planning, design, and project delivery, we aim to provide long-term value in every project via economic benefits, healthier and happier people, stronger communities and vibrant ecosystems.

OUR APPROACH TO SUSTAINABILITY

“If you don’t know where you’re from, you will have a hard time saying where you’re going.” - Wendell Berry
At SERA Architects, we have found that some ideas can be viewed as ‘radical,’ when they really aren’t, such as tracking how our buildings (and their occupants) are performing, requiring vendors disclose the contents of their products, or measuring our in-office waste production. Instead, we believe that knowing the actual impact of our projects and business operations is central to broadening our sustainability approach.

Without an understanding of actual, measured performance, organizations miss a valuable opportunity to learn going forward. We strive to go beyond ‘predicted performance’ to a process that also tracks ‘actual performance’ whenever possible. We also work to create standards, processes and tools that bring transparency to the mainstream and help educate our employees and our partners.

“I find that when you open the door toward openness and transparency, a lot of people will follow you through.”
- Kirsten Gillibrand

TRANSPARENCY MATTERS

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- Kirsten Gillibrand
ADVOCATING FOR POSITIVE CHANGE

SERA has a long history of advocating for policies that improve the health, safety and resilience of our cities and their residents. From our founder Bing Sheldon’s role in the creation of the Portland Downtown Plan in the 1970s; to co-founder Don Eggleston’s leadership on the development of Portland’s seismic retrofit policies in the 1980s; to involvement by many of our staff today in efforts ranging from citywide energy performance, to county green building policies, to state water laws and beyond, we continue to push for positive change in our work and in our industry.

Here are some ways we are staying involved:

oregon

RENEW OREGON
- SERA was an early signer of the effort.
- SERA was a financial contributor to the organization.
- Provided written testimony in support.

CITY OF PORTLAND COMMERCIAL BUILDING ENERGY PERFORMANCE REPORTING POLICY (EFFECTIVE APRIL 2016)
- SERA participated in work sessions to help develop Portland’s new energy benchmarking policy.
- SERA provided testimony to encourage adoption of the new policy by City Council.

OREGON ENERGY CODES
- SERA has collaborated with Climate Solutions, Earth Advantage, and the New Buildings Institute on policies to improve Oregon’s energy codes to reduce the climate impacts of buildings in the state.

URBAN TIMBER PRODUCTION
- Advocated (in writing and in person) for OR HB 2984 which requires Clackamas County to develop a pilot program for forestry products grown on nonforest land in county to be commercially produced and marketed through forestry product cooperative.

california

SUSTAINABLE SILICON VALLEY
- Serving on water reuse Advisory Board.

ILFI SILICON VALLEY COLLABORATIVE
- Advising Collaborative’s activities around promoting non-potable water reuse.

ILFI - CA CONGRESS
- Developing multiple, coordinated policy efforts in CA to address water issues in general, the drought in particular, with an emphasis on “using non-potable water for non-potable uses,” with a growing focus on water quality equity.

SPUR - WATER AND CLIMATE POLICY BOARD
- San Francisco Bay Area Planning and Urban Research Association - Education, research, and advocacy organization that tackles regional issues around sustainability, and promotes good planning and good government in the Bay area.

AIA NATIONAL, CA CONSORTIUM + URBAN FABRICK
- Developing a national handbook for architects (and engineers) regarding promoting and working with jurisdictions on water re-use issues.

national

US DEPARTMENT OF ENERGY
- Participated in Symposium with NASEO (National Association of State Energy Officials).
- Attended multiple New Building Institute ‘Getting to Zero’ summits.
- Participating in a national task force working to develop pathways to ‘outcome based codes’ for the US DOE.

AIA NATIONAL ADVOCACY BOARD
- Participating in the AIA’s National Advocacy Board on matters related to Sustainable Design.
- Participating in the development of ‘Active Design’ Guidelines for a national standard.

AIA MATERIAL KNOWLEDGE WORKING GROUP
- Participating in the working group tasked with creating educational content, tools and resources to assist AIA members with Material Transparency and Advocacy.

MINDFUL MATERIALS COLLABORATIVE
- Tasked with expanding the adoption and use of the mindful MATERIALS Program across the industry.
- Creating a bridge between industry associations (AIA, CSI, IIDA, ASID, etc) around Material Transparency.

THE STUDIO
- Joined the affordable housing collaborative hosted by the Network for Energy, Water, and Health in Affordable Buildings (NEWHAB). The group aims to move to a scaled, imminent future in which all housing is healthy, high performing, sustainable, and affordable.
SERA strives to envision and create sustainable physical environments. To ensure momentum in our efforts, we routinely use a backcasting process to envision meaningful and aspirational goals, and then develop the action plan for the steps necessary to achieve the goals. The AIA 2030 Commitment developing from Ed Mazria’s transformational 2030 Challenge efforts is a great example of a key action step towards the aspirational (and necessary) goal of eliminating the role of fossil fuels in the built environment.

With regards to energy, SERA has demonstrated our commitment by tracking and reporting the Predicted Energy Use Intensity (PEUI) for our projects annually since 2011. The chart to the right shows SERA’s actual progress on predicted energy use of our work, compared to the aggressive (and important) targets set by the 2030 Challenge. We are humbled and motivated by these results, which show how much more we, and the whole building industry, needs to do to make the shift away from fossil fuels. SERA’s sustainability goals are not limited to energy savings; they also address water, indoor environmental quality, and the district scale systems.

One of the largest efforts that SERA has undergone in recent years is the creation of a culture of constant improvement and change. We avoid getting stymied by tensions that often surround change. However, with a global issue such as sustainability, we realize that our internal cultural change has to be externalized in order to make progress.

This is why SERA is constantly pushing the envelope outside of our office by helping set standards, removing regulatory barriers, creating tools, and spreading awareness. Our hope is that these external efforts will have an equal - or greater - effect towards our goals.

**FIRM GOALS**
- Participate in sustainable building publications and research
- Incorporate leading-edge technology into design at all scales
- Expand policy influence beyond Oregon and California
- Deepen local community participation in all of our projects; and
- Demonstrate the importance of occupant engagement.

"To be pleased with one's limits is a wretched state."  
- Goethe

**RAISING THE BAR, MOVING THE PACK**
Erb Memorial Union, University of Oregon | The transparency of the ‘student street’ affords occupants more daylight. Operable windows on the north elevation of the new wing gives these programs natural ventilation and user control.

Green Loop | Confidential Client | Development of a world-class walking/biking corridor loop provides safe alternative modes of transportation options and opportunities for thousands of employees to gather in, engage with and disconnect in a restored natural environment.
WELL BEING

DESIGN ENVIRONMENTS THAT PROMOTE MENTAL, PHYSICAL AND SOCIAL HEALTH TO ENHANCE HUMAN WELL BEING

A built environment that supports healthy minds, bodies and social culture is a foundation for human achievement. This is why our aim is to create environments that integrate both the human experience and the human condition. Environments should be fun and inspiring, increase motivation, encourage physical activity, minimize stress and inspire positive moods.

Today in the United States, where people spend about 90% of their time indoors, SERA recognizes the impact potential of creating healthy indoor environments for both building owners and occupants alike. Along with our partners, we look for opportunities to define strategies that are integral to achieving the best Indoor Environmental Quality (IEQ).

We also realize that enhanced outcomes arrive with education, the appropriate tools and feedback from the occupants, so we are creating frameworks and support tools for assessing, incorporating, prioritizing and measuring various IEQ metrics. With the intention of highlighting both the synergies and conflicts between IEQ and resource efficiency - energy, water, materials - we can provide an informed context for decision-making that helps to balance and optimize building and human performance.

OUR CURRENT IEQ EXPLORATIONS INCLUDE:

- THERMAL COMFORT Recent research shows that health and well being are best supported by a range of daily and seasonal temperature variations rather than complete consistency. Thermal variation also allows user control and supports highly energy-efficient mechanical systems.

- LIGHTING, DAYLIGHTING AND VIEWS Access to daylight and views are essential to occupant health and well being. We employ a spectrum of daylighting strategies, such as building massing and orientation, strategic use of exterior glazing, and the incorporation of exterior and interior elements that help redirect and manage daylight. Paired with high quality lighting and control systems, these strategies can help minimize energy use.

- BIOPHILIC DESIGN Creating environments that strengthen the connections between humans and the natural world can benefit human health and well being, as well as ecological resilience. We take an integrated approach to celebrating natural elements and systems with the desired outcome of minimizing environmental stressors and creating sustainable human experiences.

- ACOUSTICS & INDOOR AIR QUALITY By coupling in-house and partner expertise, we can account for clients’ specific acoustic needs for separation, sound attenuation, and natural sound enhancement in our projects. Healthy interior air quality can be achieved through informed material choices, well-designed mechanical ventilation, and in many cases by integration of natural ventilation.

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GOALS

- Discuss Human Health & Well being goals and occupant benefits with the client
- Provide access to daylight to 50% of regularly occupied spaces
- Design from the perspective of occupant experience and creating places for people
- Create places that encourage use of alternate modes of transportation
- Explore a systems-based Biophilic Design approach

edith green - wendell wyatt

Post-occupancy evaluations (POE) offer the opportunity to validate and fine-tune building performance, and also provide valuable feedback for future projects. For the Edith Green - Wendell Wyatt Federal Building, SERA used post-occupancy methods to track resource use and generation - specifically for energy and water. At 34 KBTu/sf/year, the building meets the aggressive energy goal established during the design phase. SERA also used an occupant survey to gather information on tenant satisfaction with the indoor environmental quality (IEQ). The online survey tool was developed by the Center for the Built Environment (CBE) at UC Berkeley and includes questions regarding acoustics, air quality, cleanliness, lighting and daylighting, office layout and furnishings and thermal comfort. We included questions regarding solar control and daylighting to gauge the effectiveness of the building enclosure. While the overall results were good, by filtering the data by solar orientation and floor level, we were able to identify issues on the north and east elevations for the commissioning agent and building manager to address. The most significant success of the post-occupancy work is the ongoing feedback cycle that helps to optimize the building’s performance and occupant satisfaction.
ENERGY

CREATE EFFICIENT BUILDINGS AND DISTRICTS WITH MINIMAL DEMANDS THAT CAN BE OFFSET BY RENEWABLE SOURCES AT THE APPROPRIATE SCALE

SERA is committed to reducing energy use and its associated carbon emissions. As early adopters of the AIA’s 2030 Commitment, we are steadily paving the path towards energy positive buildings by 2030.

Our projects begin with an evaluation of energy reduction strategies, such as efficient building enclosures, advanced daylighting design, and improved HVAC systems, as these are the critical first steps in reducing overall demand. Throughout the project, we continue exploring ways to educate and engage clients and occupants about energy consumption, understanding that real-time feedback encourages behavior that saves energy. Once energy loads are minimized to the extent possible, we evaluate the renewables required to achieve energy-neutral or energy-positive buildings.

As part of our efforts to push the industry towards positive change, SERA has been active in shaping the direction of energy policy. In 2008, SERA was part of The Oregon Governor’s Energy Efficiency Legislative Work Group which convened to develop recommendations relating to energy efficiency in the built environment. This led to the creation of Senate Bill 79, a directive to the Oregon Building Codes Division to develop and administer a “Reach Code” in which SERA was also actively involved. The goal of the REACH code is to help lead the next generation of energy codes - as energy codes ramp up quickly to meet goals of energy use reduction - and help the industry get prepared for ever increasing standards.

More recently, SERA advocated for the Energy Performance Reporting Policy for Commercial Buildings, adopted by the City of Portland in 2015. Beginning in spring of 2016, large scale commercial buildings are required to track and report energy use on an annual basis to the City. This type of data collection facilitates our collective ability to identify opportunities for improving efficiencies and reducing emissions.

GOALS

- Establish an aggressive but achievable EUI target by design development kickoff
- Explore strategies with the potential to achieve the energy reduction target, and identify available incentives
- Share typical energy use breakdown for project type with client and team
- Track the projected energy use of projects against the 2030 Challenge (net positive) targets, and when possible, meet or exceed the targets
- Evaluate methods to track post-occupancy energy use
WATER

UTILIZE AND HONOR WATER AS A PRECIOUS AND FINITE RESOURCE

With water, it is important to understand that our influence goes far beyond the selection of interior fixtures. Often unseen are the larger water systems that our projects participate in like municipal sewer and storm systems, water needed for generating energy and a projects local and regional watershed. Each of these has a larger role to play in a project’s overall water footprint, often with a far greater opportunity for reducing water use and positively influencing our ecosystem. At SERA, we explore these larger system scales to better hone our design approaches to align with the water story most relevant to the project.

Projects like the Collaborative Life Sciences Building and Skourtes Tower, and the Edith Green-Wendell Wyatt Federal Building, begin to demonstrate the capacity projects have in reducing the demand on potable water by capturing rainwater for toilet flushing and irrigation. While this reduces demand at the building scale, it pales in comparison to the water reduction achieved at the utility scale through energy usage reduction.

Together with other organizations, SERA is actively identifying regulatory roadblocks and lobbying for legislation that have significantly expanded the opportunities for water re-use in Oregon.

GOALS

• Explore as a team how water reduction can strengthen the client’s goals and objectives
• Achieve the Studio targets for water use reduction.
• Evaluate alternative water sources in context with local, regional and national water issues
• Celebrate Water. Ask how it enhances the human experience

achieving water independence in buildings

SERA has been involved in both research and policy advocacy to remove outdated regulatory barriers to water reuse. In a study sponsored by Central City Concern, a non-profit owner of affordable housing, SERA and the CCC team clarified the water systems and regulatory steps required to achieve a water-independent building in Oregon. Our study “Achieving Water Independence In Buildings” illustrated the barriers to, and opportunities for, water harvesting and reuse in commercial buildings, highlighting what is possible today and how any interested party might navigate regulatory challenges.

The team’s work contributed to a transformation of the regulatory environment in Oregon. As a result of efforts made in collaboration with a coalition of interested groups and regulatory officials, Oregon residential and commercial buildings are now allowed to use rainwater for irrigation, toilet flushing and clothes washing; and use treated greywater (from sinks, bathtubs, showers, and washing machines) to flush toilets and urinals.

Edith Green - Wendell Wyatt Federal Building | A 25,000 SF rooftop canopy collects rainwater used to flush toilets, for irrigation and as cooling tower makeup water. The rainwater is stored in an old rifle range, which has been transformed into a 165,000 gallon tank. Water conserving fixtures and fittings combined with collection of rainwater for reuse results in a water savings of 65%.
MATERIALS

SELECT MATERIALS THAT DO NOT DIMINISH THE HEALTH OF OCCUPANTS NOR THE HEALTH OF OUR ECOLOGICAL SYSTEMS

Building materials are highly complex combinations of synthetic and natural ingredients. One is quickly overwhelmed when investigating potential hazards in many of these complex systems. Couple this with the general lack of available research or data on the hazards of many of the chemicals used today and you quickly see the challenge our industry faces in selecting materials that have minimal impact on the environment and health of people. At SERA, we firmly believe that increased chemical and hazard transparency will create a more competitive environment for safer products and will spur the removal of ‘suspect’ ingredients by using market forces.

To this end, we are actively engaged in local, regional and national efforts to foster increased awareness around the importance of material ingredient transparency and their associated hazards. We continue to explore means of fully integrating transparency across all project types and studios and have developed master specification language to support a variety of advanced material requirements like the Red List from the Living Building Challenge.

SERA alone can’t make better products, but our hope is that by supporting manufacturers who develop products that share our value for improved human health, we can better facilitate this market transformation.

GOALS

- Select a minimum of 10 products that have disclosed content (HPD, C2C, MHC, EPD, Declare)
- Baseline project specifications shall meet or exceed LEED v4 VOC limitations
- Less is more. Explore how design can minimize material use
- Select at least one salvaged product

SERA has been involved in efforts around material ingredient disclosure for more than a decade. From our initial work in building the Pharos product library to our founding endorsement of the Health Product Declaration, we have always strived to transform the materials marketplace and our profession.

We continue to engage in this market transformation through active participation in the HPD Collaborative and the AIA Materials Knowledge Working Group, helping to provide educational content and resources to architects on this important issue. SERA is also engaged in the ongoing development of the national Mindful Materials program which leverages the network effect of the building industry to increase accessibility of disclosure and environmental documentation. We also co-founded the Portland Material Transparency Collaborative in an effort to share best practices with our local colleagues.
EcoLOGy

GUIDE THE UNDERSTANDING OF PLACE-BASED ECOLOGY TO ALLOW ECOSYSTEMS TO FLOURISH AND REGENERATE

Every place has a story. At SERA, we believe those stories began long ago, and continue many generations into the future. Each project should live and breathe the ecology of place - both biological and cultural - and embrace the beauty and complexity of ecological systems at all scales. We aim to understand, be inspired by, and positively influence the local environment and culture on both sides of the parcel line.

Ecological design comes in many forms. From preserving key ecological functions, providing habitat for local species, or using public space to educate on important natural systems, the ecological story of each place is important to our designs. We believe that buildings and cities should reconnect to the cycles of the natural world. Our goal is to not only design places that can adapt and change to the ecosystem around it, but also enhance it. This is sustainability at the largest scale.

GOALS

- All design team members will visit the site during schematic design or earlier
- Projects should maximize the diverse selection of native or adaptive plantings
- Initial site analysis to include ecological history, climate, and existing natural systems and ecosystem services of the parcel and its surroundings
- Teams will develop a story of the site focused on placemaking, intended use, relationship of landscape to buildings, and human experience. Team to create principals based on site analysis that help drive design decisions
- Find opportunities for the project to educate the community and raise awareness about its environment

quigley farm

Quigley Farm is a 1,500+ acre neighborhood Master Plan in Hailey, Idaho, based on regenerative design principles. The project strives to deliver a diverse housing model centered around organic food production and an agricultural center. The project will include orchards/living forest, production agriculture, food processing, pilot farm plots, greenhouses and community gardens.

Quigley Farm will protect native vegetation and open spaces while striving to reconnect migration corridors and enhance habitat for regional wildlife. Using on-site natural springs, the project will restore riparian ecosystems that have been impacted by traditional farming techniques.

The property will create enhanced recreation opportunities and maximize the quality outdoor experiences for the community, including cyclists, skiers, hikers, joggers, wildlife watchers and more.

Sherwood West Masterplan

The community-centered planning process discovered a shared appreciation of the quality of life in Sherwood, and influenced long-term growth scenarios defined by walkable neighborhoods nestled in a beautiful landscape of hills, valleys, and creeks.

Argyle Winery

The design aimed to create a dynamic and multi-sensory experience of an integrated landscape and built environment that represents the story of Argyle, fosters ecosystem stability, protects soil health, encourages stewardship, and promotes sustainable farming practices.
DISTRICT SCALE SYSTEMS

LEVERAGE DISTRICT SCALE SYSTEMS TO OPTIMIZE RESOURCE USES AT APPROPRIATE SCALES, IN WAYS APPROPRIATE TO THE PLACE

A district-scaled system is a geographically defined campus or neighborhood in which the community members, buildings and the common infrastructure are fully integrated and support a synergistic network of social, ecological, and economic systems. SERA has contributed theoretical, analytical and leadership work to district-scaled systems, which can be broken down in two categories:

- **Hardware**: The buildings, streets, parks, and infrastructure of a place
- **Software**: The cultural, informational, governance, economic and resource ‘flows’ of a place

Hardware and software systems operate at a variety of scales - from the regional, to the city, to the neighborhood, to the block, down to the building. When designing at a district level, it is necessary to consider and allow for each system to optimize at its appropriate scale while looking for hidden synergies between systems. Within the district, flows of energy, nutrients, resources, information, financial capital, seismic resiliency and cultural resources are systematically analyzed. To the greatest extent feasible, they are localized, integrated, and synergized to reduce environmental impacts and to build community support.

GOALS

- Plan for resource flows that are scaled appropriately for their place, and integrated to the greatest degree possible.
- Seek opportunities to localize, and in some cases decentralize, energy, water and waste resource flows
- Design systems for Climate and Disaster resilience
- Support and enhance regional economies, including cultural resources and food production
- Support communities and planning ideas that enhance strong, local, place-based identity

University of Washington Integrated District Systems Analysis | Consideration of a District Systems approach to rethinking the way we treat solid waste, water and energy as a pilot program at a district scale to catalyze changes at a city scale.
Sustainability Action Plan 2016

DESIGN PROCESS

INTEGRATED EXPERTISE

SERA is a firm on the forefront of design, fusing social, cultural, economic and ecological insight to create places of lasting significance. Partnering with visionary clients, we create sustainable environments that strive to balance impacts on natural resources and resiliency while delivering appropriate design solutions for our clients.

Since the firm’s founding in 1968, SERA has been instrumental in the development of Portland’s national reputation for livability. Our involvement in urban revitalization, including adaptive re-use and historic preservation projects, formed the early foundations of SERA’s sustainable design expertise. The introduction of The Natural Step’s Four System Conditions and backcasting process further solidified our commitment to sustainability - in both our projects and in our operations.

Sustainable design at SERA is based on an integrated practice model of architecture, urban design and planning, and interior design services, which utilizes a dynamic team approach that matches staff talent to the project opportunities and goals. The Sustainability Resources Group (SuRG) provides in-house sustainable design expertise, research and development, sustainability consulting services, and policy engagement. SuRG is dedicated to an array of sustainable design services including in-house LEED consulting, early energy analysis and programming, daylighting design and modeling, water efficiency and re-use analysis and calculations, building enclosure analysis, and existing building energy reviews.

LEARNING FORWARD

At SERA, we have a healthy disdain for the impossible and are known for asking “Why not?” We believe in optimizing value and efficiency for our client partners to optimize their investment. We believe in fast failure. We are willing to experiment and take risks if they serve the needs of our clients, but we are also able to quickly assess if the idea is producing results or not. If the answer is no, we move on to the next innovation - capturing lessons along the way - in a process we call “learning forward.” If our knowledge base is always advancing in the interest of our client, we are moving forward and we can then leverage that knowledge within our entire practice.

ADVANCE UNDERSTANDING RAPIDLY FOR TOMORROW

The need to address sustainability and to innovate is time-critical for our planet and cannot happen fast enough. SERA has been helping to lead this charge nationally for the last 20 years and has achieved a national reputation for advanced sustainability initiatives.

We have a passion for Research and Development that is beyond the norm in our industry. We frequently use our R&D knowledge to create new tools that advance the capabilities of our practice and abilities to deliver highly integrated sustainable projects.

We are collaborators, team players, interdisciplinary thinkers and committed partners with our clients. At SERA we firmly believe that highly sustainable, climate responsive design cannot be achieved without a truly integrated design process and collaborative design at all levels. Collaborative design has been one of the core principles of our firm since its inception and is the very essence of our practice. From concept, through development and into project completion, SERA is committed to a design approach that demands the full creative involvement of the architect, the design team, and the client.

This process is one of listening, asking, analyzing and engaging the client as a partner in the design process. The collaboration explores possible physical solutions suggested from a thorough understanding of the project’s needs and unique parameters of the site. The shared goal is to reveal the project’s singular nature and to discover through design an identity that is individual and memorable. Underlying the ability to collaborate is the sense that one can learn.

The most important test of our work - whether it’s a neighborhood plan, site improvement project, or a building - is the daily experience of its users. From the big picture systems, like regional transportation and connectivity networks, to the small details of site furniture placement and design, all of these elements contribute to the daily experience of a space. From early visioning and goal setting to plan and design refinement, we collaborate with project and community stakeholders to co-create solutions.

LISTEN, LEARN & LEAD

LISTEN, LEARN & LEAD
DATA DRIVEN DESIGN

BUILDING INFORMATION MODELING
SERA has adopted a highly integrated design approach with our adoption of Building Information Modeling (BIM) in 2004. BIM supports SERA’s design approach by enabling us to efficiently integrate the efforts of all project team members. Not only is BIM a powerful tool for creating a coordinated team, but it also features: sustainability analyses, integration of specifications into model elements, ‘clash detection’ to avoid conflicts in the field, and it provides a building information model of the completed building to the owner for ongoing operations and management.

ENERGY MODELING
Energy modeling is a simulation method that provides valuable information for our design teams and helps us to understand the key energy performance aspects of the building. These models are especially beneficial in the early design process. We perform early energy analysis either in-house or in collaboration with consultants to understand the impact of our design decisions on energy and costs. The energy analysis results often provide the highest return on investment of any project activity because they lead to significant improvements in the building’s long-term energy performance.

LIFE CYCLE COST ANALYSIS
SERA and its mechanical consultants have developed detailed Life Cycle Cost Analyses (LCCAs) for mechanical systems on major projects. LCCAs allow an owner to make well-informed decisions between alternate mechanical systems, considering not only the initial capital cost, but also the lifetime impacts of energy use, operation, maintenance and eventual replacement.

SUSTAINABILITY ANALYSIS TOOLS
To better analyze high-performance building systems, The Sustainability Resources Group (SuRG) has created its own software methods to analyze the following:
- Annual shading from surrounding context such as buildings and trees
- Photovoltaic solar array potential
- A project’s water usage and the potential on-site water collection and reuse

DAYLIGHT ANALYSIS
SERA also uses daylight analysis software to inform decision-making throughout the design process, from building orientation and massing to window placement and glass type. These analyses can account for the annual weather and offer insight into energy savings and occupant comfort.
SUSTAINABLE PLACEMAKING

The United Nations estimates that by 2025, over three-fifths of the world’s population will reside in urban areas. Will they be victims of rampant urbanization or residents of sustainable neighborhoods, cities and regions? Addressing that question is the focus of our firm-wide placemaking practice.

MULTIMODAL, VIBRANT COMMUNITIES

A truly sustainable city is one that affords movement opportunities for everyone. Providing affordable, accessible transportation options is a key strategy that supports block, neighborhood, district and city resilience. Moreover, the density created along transit lines and at multimodal mixed activity places can be a strategy to preserve, or even free up, other parts of the city for greenways, parks, urban agriculture, natural habitat corridors and other open spaces.

SERA’s transit-oriented development work weaves bicycles, pedestrians, bus and rail systems into seamless networks and provides strategies to de-emphasize the single occupancy vehicle in dense urban settings. These networks provide frameworks for civic spaces and the mixed use buildings that animate them, adding to the vitality and richness of urban and suburban communities.

INTEGRATING NATURAL SYSTEMS

Restoring and regenerating habitat systems is not only good for flora and fauna, it has a significant impact on the health and well being of humans as well. We look for connections to natural systems at all scales of our work – from regional open space networks to strategic habitat area restoration, or even restoring native and adapted vegetation at a small site to increase urban biodiversity.

Our process begins by researching the natural and cultural history of a place, and identifies opportunities to reinvigorate a site - be it a neighborhood or a city - with the natural and cultural elements that make that place unique.

Making whole and beautiful places that enrich the human prospect requires a concern for not just physical development but the ecological, socio-cultural and economic context of a place, its cultural practices and the underlying resource flows that animate it. Designing at this level requires a highly collaborative, multidisciplinary way of working.

CIVIC ECOLOGY

We have created a sustainable communities framework called Civic Ecology which empowers communities to take a whole-systems approach to achieving resilience and enduring prosperity by facilitating citizen-led partnerships and helping civic entrepreneurs envision, implement and manage integrated patterns of energy, water, food, materials, waste, economic, information and cultural resource flows for the shared good of the community. This has led SERA to practice a deeper form of placemaking where a concern for community vitality through a sensitivity to cultural practices and the intentional design of resource flows informs the physical development of the built environment. The outcome of this approach is a citizen-crafted framework for resiliency, a more informed and engaged citizenry, a thriving culture and sense of place, measurable increases in economic, ecological and social wealth, and a more effective democracy.

RESOURCE FLOW MAPPING

The Civic Ecology whole systems approach to community design requires a new way of thinking about resource use. To that end, SERA created Community Resource Flow Mapping, a stakeholder engagement tool that enables all segments of the community to envision their desired shared future and create the resource flow systems necessary to achieve it. The process helps participants identify specific projects to catalyze deep systemic change, create the implementation plans necessary to achieve these systems and then measure progress toward the vision and make adjustments as required.
Sustainability Action Plan 2016

Building Strong Communities

Social Sustainability is at the core of SERA’s values. The Natural Step’s 4th system condition addresses people’s ability to meet their critical needs and helps guide SERA’s commitment to social equity in our work and in our community.

p:ear

p:ear is a nonprofit whose mission is to build positive relationships with homeless and transitional youth through education, art, and recreation. SERA worked with p:ear to design their new home in our Portland neighborhood as part of a national initiative called the 1% Solution, which challenges architecture firms to donate 1% of their staff hours to pro-bono work. SERA and our partners focused on design decisions to create a healthy indoor environment and targeted interventions to maximize energy savings. The interior renovation of an existing building for p:ear was SERA’s first completed project under this program, and won the 2008 IIDA Portland Chapter Sui Generis Award for Social Responsibility.

Blanchet House is located just one block from our Portland office and feeds some of our community’s neediest members. In a long-standing tradition, SERA employees periodically volunteer to provide lunch service at the facility. In 2012, SERA’s design for a new home for Blanchet House was completed at an adjacent lot. The new four-story building provides more space for the Blanchet House’s needs, including a larger soup kitchen and three floors of residential rooms with a central shared bathroom, laundry and community room on each floor. SERA’s services starting with the eco-charrette and climate analysis. By listening to the client’s goals and designing the building with climate requirements in mind, we were able to secure $300,000 in incentives and LEED NC Platinum certification for the project.

PICA Portland Institute for Contemporary Art

PICA had been part of the Portland art community for more than 17 years and required a new space to strengthen its identity and reach larger audiences. SERA employee and PICA board member Eric Phelp suggested the challenge to SERA, and our firm helped lead the organization’s search for a new home. SERA was involved from the visioning of what type of space was desired, to construction documentation, to helping put the paint on the walls to, to coordination of donated time, money, materials and labor from more than 15 companies.

The design team from SERA Architects provided pro bono design and construction administration services to the Multnomah Arts Center Association to renovate their existing art gallery. This pro-bono contribution is part of SERA’s commitment to the 1% Solution. The design team worked collaboratively with artists, the Multnomah Arts Center Association Board and staff members to develop a design solution that addressed all the pre-existing constraints and provided staff the flexibility to transform the gallery to fit any configuration they might need. The new gallery features more open space, moveable display boxes that serve both as storage units and display walls, natural light, upgrades to the existing wall surfaces with natural and sustainable materials, energy efficient lighting and improved fire safety measures.

"The process of building PICA’s new home has been inspiring. Only here in Portland would the entire construction and design community come together in the spirit of generosity and collaboration to make a space like this take shape." - PICA Executive Victoria Frey

Multnomah Arts Center

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The Portland Playhouse is a nonprofit that produces culturally-diverse, socially-relevant productions intended to engage the local community both on stage and through school classrooms. Housed in a repurposed historic church, the organization’s current spatial configuration creates programmatic challenges for the users and the space. As a not-for-profit project, SERA is helping to identify the programmatic requirements, functional needs, aesthetic preferences, and growth strategies for the organization. These factors will inform the design of the project, which includes the renovation of the existing church and potential outbuildings on site. The overall goal of the project is to create a “neighborhood gem” that will benefit the King neighborhood and larger theater community.

SERA started participating in the Loaves & Fishes Meals on Wheels program in 2005 and has provided meal service for homebound seniors every Friday since then. Some current participants were original volunteers, but the group has grown over the years. Because SERA’s route is within a few blocks of the Loaves & Fishes kitchen, and is walked rather than driven, it is known as “Meals on Heels.”

“Act as if what you do makes a difference. It does.” – William James
“If you want to build a ship, don’t drum up people to collect wood and don’t assign them tasks, but rather teach them to long for the endless immensity of the sea.” - Antoine De Saint-Exupéry

STAFF ENGAGEMENT AND EDUCATION

KNOWLEDGE THROUGH INTER(ACTION)

The Sustainable Action Committee (SAC) leads the effort to engage staff in our commitment to sustainability at SERA. This effort encompasses a wide range of initiatives, from the greening of internal operations and company practices to external presentations and outreach initiatives that promote sustainability through education. SAC facilitates cross-pollination by providing a venue that enables the intersection of our office culture with the work of the Sustainability Resources Group (SuRG) and the sustainability innovations within our projects. The end goal is a fully sustainable and regenerative workplace that aligns with our firm vision, mission and values, while harnessing the knowledge and passions of our employees.

Everyone on staff is encouraged to join the Sustainable Action Committee - the only requirement is that each member contributes in a meaningful way. Action is key.

SUSTAINABLE ACTION CELEBRATION

Since 2005, SAC has hosted the annual Sustainable Action Celebration wherein we highlight the sustainability measures at SERA during the previous year - from office operations to green initiatives in our projects to policy-changing legislation. One byproduct of our celebration is a set of boards and graphics that we display year-round at our offices, and share digitally with our clients. In addition to illustrating our achievements, these materials remind our staff, clients and partners of our goals for the years ahead.

EDUCATIONAL SUPPORT

All staff are encouraged to take part in a number of educational opportunities:

- In-House Lunch & Learn Sessions, where all staff is invited to engage in a range of topics including building enclosure performance, materials and building systems, and sustainable design analysis tools. The sessions are led by internal staff members and external experts
- Recycling Primers at all-staff meetings that are designed to highlight the variety of complex recycling/waste streams that SERA utilizes
- The “Being SERA” training session that gives historical context for SERA’s development as a leader in the green building industry

Sustainability Action Celebration 2014 at the SERA Portland office
SUSTAINABLE OPERATIONS

"If you want things to be different, perhaps the answer is to be different yourself." - Norman Vincent Peale

LOOKING INTERNALLY

At SERA, we learned early that a sustainable workplace is key to practicing sustainability in our projects. By "walking our talk" we continue to discover new ways to work, interact and create more sustainable environments.

ENERGY

At our request, the electricity in SERA’s leased Portland office is separately metered, and we read and record the meter weekly. This allows us to accurately track the effectiveness of our energy reduction measures. Our in-office energy reduction strategies include daylighting, occupancy sensors, daylight sensors, EnergyStar-compliant equipment and appliances, solar powered faucets, fluorescent lamps, and a policy requiring employees to turn off computers each night. For electricity, we purchase 100% wind power. Though unusual in a leased space, SERA owns its own mechanical systems, giving us full control of the systems’ efficiency.

WATER

At SERA, we use our office as testing ground for low-flow fixtures to help us better understand water use reductions and qualitative effects of fixtures. This opportunity to test drive the various water fixture technologies benefits our staff and also our projects by showcasing efficient and high-performing fixtures while meeting our water reduction goals. We have aerators in all the faucets, low-flow dual or power flush toilets in the bathrooms, and a rotating set of low-flow showerheads for bike-commuters to test out and offer feedback.

PAPER

We use a paperless central file system (except when paper documents are legally required), and produce electronic documents for our drawings, markups, transmittals and submittals. All default print settings are double-sided and black & white, and our standard copy paper has 30% post-consumer recycled content. All marketing material is printed on 100% post-consumer recycled content paper (as is our plotter paper) that’s manufactured using wind power in the U.S. and is completely recyclable. One-sided scrap paper is collected and bound into note pads for office use. We also issue annual Requests for Proposals to local printing companies, challenging them to use greener products; specifically, to replace foam core with more ecologically sound corrugated cardboard.

WASTE

SERA workstations don’t have individual trash bins - only recycling boxes - making all waste sorting a conscious act. We utilize centrally-located sorting bins for various recyclables and have only one main bin for landfill waste on each floor of our office. We recycle a number of non-curbside items, including “clam shell” food containers, plastic bags, Styrofoam, batteries and fluorescent light bulbs. In 2007, SERA became the first non-food service participant in the City of Portland’s commercial composting program due to our tracking of compostable waste. As a result, we compost all food scraps in the office. Additionally, SERA participates in Terracycle, a program that turns hard-to-recycle items (such as chip bags, energy bar wrappers, and writing instruments) into affordable green products. We conduct an annual waste audit to monitor the effectiveness of our system, and to expose possibilities for further waste reduction or diversion to employees.
PROCUREMENT POLICY

SERA’s Office Supply Procurement Policy stipulates that the products we use be made with the highest percentage recycled content available, and be manufactured not to harm the ecosystem, with preference given to products produced locally by socially responsible organizations. 95% of the firm’s supplies come from a local distributor and a local manufacturer of sustainable office goods. In selecting office furniture, SERA considers third party certifications, recycled content, recyclability, location made, product stewardship, comparison to Living Building Red List, and durability.

COMMUTING

SERA’s Portland office was selected for its central location along the downtown transit mall, within a 1/4 mile of five light rail lines and 36 bus lines. We have a commute policy that rewards those who do not use single occupancy vehicles for commuting, and consequently we don’t provide parking at our downtown office. We provide public transit passes to those who commute via public transit, and provide an equivalent cash bonus to those who commute by walking, bicycling, or carpooling. We track employee commute practices with a daily sign-in system to understand the carbon impacts of commuting.

SERA supports a strong bicycling culture with secure indoor bike storage, two office bikes, changing rooms, and a showering facility. The office also has hybrid office cars for daytime travel such as to job site visits.

TRAVEL

Our Travel Policy includes key sustainability features. We contract with a local rental car company and have a baseline requirement for hybrid vehicles, unless there are extenuating circumstances. We are currently developing a strategy to have our offsets reimbursed as a client-paid expense for projects with significant travel. When possible, we rely web conferencing to minimize our travel.

HOUSEKEEPING

Our cleaning service is a locally-owned business that uses only non-toxic, biodegradable cleaning products and stocks our restrooms with paper products made from 100% recycled content. We also work with them to ensure that all waste gets into the proper streams when disposal goes beyond curbside and composting.

CATERING

SERA’s catering policy is constantly revised and refined to better reduce waste, encourage sustainably-sourced food options, and support local sustainable businesses. The basics of this policy state:

- No box lunches or individual packages - family style service only
- Only washable, reusable or recyclable containers
- No disposable plates cups or napkins as SERA has dishware, cutlery and cloth napkins in-house
- No plastic dome lids and wraps on foods (aluminum foil acceptable)
- Food should be organically grown, natural, and locally produced
- No bottled water
- Request 30% vegetarian meal options be provided
In 2004, SERA renovated and moved into the ground floor of its current office which achieved LEED-CI Gold through the USGBC’s pilot program. When we expanded into the 2nd floor in 2006, our new space was certified LEED-CI Platinum.

The building industry is responding to the economic recovery and SERA is growing. In 2015 we added new staff and expanded geographically into the Silicon Valley. Our new office in San Mateo embodies our commitment to sustainability and includes extensive daylight, healthy materials, and embraces biophilic principles to enhance our employee’s health and well-being. Working with local crafts people and utilizing local reclaimed materials enhances our connection to this new place.

As we continue to grow and to expand our Portland office, we are working within a framework of biophilic design and striving to create a healthy work environment for all of our employees.

**OFFICE IMPROVEMENTS**

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**bike more challenge**

SERA’s Portland office enthusiastically participates in the annual Bike More Challenge organized by the Bicycle Transportation Alliance. Competing against similar-sized businesses, SERA has won for highest percentage of bike-to-work commuters in 2011, 2012, and 2015. On non-winning years, SERA is a top finisher.

The Bike Commute Challenge is an opportunity to test out various strategies of occupant engagement in our office, trying different methods of creating a competitive spirit in the office - all towards the shared goals of greening our transportation options, being active and improving well-being.
SUSTAINABILITY AS BUSINESS STRATEGY

SERA’s vision is to work towards becoming a fully sustainable company. To that end SERA has created an operational infrastructure that encourages and expects continual improvement in how we run our business.

100% EMPLOYEE OWNERSHIP

In 1995, SERA’s founders chose to address the thorny issue of ownership transition by reorganizing the firm as an Employee Stock Ownership Plan (ESOP). The ESOP provides long term viability and sustainability for the firm and is a unique solution to the difficulties of succession planning. SERA became 100% employee-owned in 2002, and today we are one of only 26% of ESOPs that are 100% employee-owned.

BACKCASTING

Early on, leadership at SERA recognized that the future is in greener buildings and communities, but realized that to truly understand sustainable design, we needed to put our own house in order. In 2002, SERA leadership instigated an extensive office-wide backcasting process. When the backcasting committee started the process, they knew that it would be critical to be able to walk our talk, but they might not have understood at the time how profound and far reaching the results. SERA has gained significant credibility as green building experts; we are always improving the sustainability of our in-house operations; and most importantly we are making better places that are truly responsive to their environment.

EMBRACING DIVERSIFICATION AS A PILLAR OF STRENGTH

SERA’s expertise in multiple market sectors and disciplines has enabled us to survive the recession with success. As an outcome of the backcasting process, SERA began to broaden its vision and its sphere of influence to include the development of our internal sustainability resources within The Sustainability Resources Group (SuRG), involvement in policymaking, research projects, development of an expertise in Indoor Environmental Quality (IEQ), Biophilic Design, and Healthy Materials, and the vision to begin a studio focused exclusively on the needs of existing buildings’ owners. Our recent expansion to Silicon Valley provides geographic expansion, as well as further market diversity.

INVENTREPRENEURIALISM

SERA is very focused on solving the problem at hand, not on traditional methods, structures, or roles. There is a strong emphasis on the intrepreneurial spirit, which leads many of our employees to less-structured career paths, and staff involvement in critical areas of the firm.

Intrepreneur: an individual who shares the values and vision of an enterprise, and chooses to invest their energy in the enterprise and accept responsibility for their job, helping minimize risks and optimize rewards.

“Re-examine standard procedures, rules of thumb, and corporate policies.” - Jason McLennan

As a result, SERA has a culture of creating and fostering non-traditional roles and business units within the firm. This has become such a significant aspect of SERA’s culture that it is a key part of the interview process for potential hires. Individuals who are uncomfortable operating outside the bounds of structure may not enjoy this aspect of SERA.

CULTURE OF CONTINUOUS IMPROVEMENT

Rather than waiting until an idea is perfect, SERA understands the power in putting out important ideas when the moment is right, accepting that there will be ongoing iterations over time. SuRG lives in the world of continuous improvement, knowing the development of their measurement tools and expertise is never complete and that there will always be a better, more exciting solution to a problem. Creating a culture of continuous improvement requires daring leadership and bold clients willing to take risks. SERA is fortunate to have both.
RESOURCES AND AWARDS

COLLABORATIVE LIFE SCIENCES BUILDING
2015 AIA COTE Top Ten Award
http://www.aiatopten.org/node/446

EDITH GREEN - WENDELL WYATT (EGWW) FEDERAL BUILDING
2014 COTE Top Ten Award, 2016 AIA COTE Top Ten Plus Award
http://www.aiatopten.org/node/494

PERFORMANCE VALIDATION CASE STUDY: FEDERAL BUILDING WITH AN INTEGRATED FACADE (EGWW)
Journal of Building Physics, May 2016
http://jbp.sagepub.com/content/39/6/542
NBS BEST4 Conference Proceedings
https://www.brikbase.org/content/performance-validation-case-study-federal-office-building-integrated-facade

CIVIC ECOLOGY: A LIVING COMMUNITY FRAMEWORK FOR SUSTAINABILITY
http://serapdx.com/vision/innovations/civic-ecology/

ACHIEVING WATER INDEPENDENCE IN BUILDINGS
http://living-future.org/water-independence-buildings

LIVING BUILDING FINANCIAL STUDY EXECUTIVE SUMMARY

CODE AND REGULATORY BARRIERS TO THE LIVING BUILDING CHALLENGE FOR SUSTAINABLE, AFFORDABLE RESIDENTIAL DEVELOPMENT