SITE, INFRASTRUCTURE, AND GREEN BUILDING RATING SYSTEMS

COMPARING SALMON-SAFE TO OTHER LEADING THIRD-PARTY CERTIFICATION INITIATIVES

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SALMON SAFE

Salmon-Safe Inc.
1001 SE Water Ave, Suite 450
Portland, Oregon 97214
info@salmonsafe.org

www.salmonsafe.org

INTRODUCTION

As sustainable design and green building becomes mainstream in the construction market, the benefits of environmentally innovative design, construction and operations practices are more readily understood. It is also evident that our built environment goes beyond buildings; it includes sites, landscapes and infrastructure.

Green building rating systems have begun to shift focus; to address projects where site and infrastructure are the primary scope. In this changing rating system landscape, it is useful to review how the building industry's leading systems address site and infrastructure and to understand how Salmon-Safe standards align, overlay or differ in approach and requirements.

Salmon-Safe certification is based on the premise that development can contribute positively to ecosystem health and provide habitat for many wildlife species. Using development techniques like green infrastructure can improve water quality, facilitate water conservation, and consequently provide healthier water resources for aquatic species. Urban landscapes and rooftops can be planted with species that provide habitat for urban wildlife, creating corridors and refuges for birds, small mammals, pollinators and other species vital to global health. These areas can also improve the treatment of stormwater through the filtering and biological uptake of pollutants. Even when opportunities for meaningful enhancement of ecological function are limited, urban sites can help protect resources, clean up pollution, restore soil health and reduce the urban heat island effect, having a cumulative positive impact downstream.

For developers, the benefits of certification include improved environmental performance, third-party verification, financial savings, and marketing opportunities. Regional rating systems can add further benefit by tailoring strategies to local ecosystem priorities.

The following systems are addressed in this report:

- Salmon-Safe™ Urban Standards
- Institute for Sustainable Infrastructure Envision™ Rating System Version 2 (Envision)
- USGBC LEED™ Rating System v4
  - *LEED for Building Design & Construction (LEED-BD+C)*
  - *LEED for Existing Buildings Operation & Maintenance (LEED-EBOM)*
  - *LEED for Neighborhood Development (LEED-ND)*
  - *LEED for Homes (LEED-H)*
- International Living Future Institute Living Certifications
  - *Living Building Challenge SM 3.1 (LBC)*
  - *Living Community Challenge SM 1.2 (LCC)*
- ISO 14000/ISO 14001 Environmental Management (ISO)
- Built Green Rating System—5 Star (BG5S) and Emerald Star (BGES)
- Sustainable Sites Initiative—SITES™ Rating System v2 (SITES)

COMPARISON CHART

DISTINGUISHING FEATURES	Salmon-Safe	LBC	LLC	LEED-BD&C, -ND, -Homes	LEED-EBOM	SITES	Envision	Built Green 5-Star
[a] Certifies existing developments	● 3*	● 10	● 10	○	● 8	● 16	● 6	○
[b] Certifies new developments	● 3	● 10	● 10	● 7,9	○	● 16	● 6	● 12
[c] Prohibits development in ecologically sensitive areas	● 4	● 10	● 11	● 9	○	● 16	● 6	● 12
[d] Requires new development occur on previously developed site	● 10	● 10	● 11	○	○	○	○	○
[e] Singular focus on environmental science to guide certification requirements	● 3	○	○	○	○	○	○	○
[f] Evaluates site performance based on impacts on watershed health	● 3,16	◗ 10	◗ 10	○	○	◗ 16	◗ 6	○
[g] Provides on-site expert review of projects and on-call technical support	● 3	◗ 10	○	◗ 9	○	○	○	○
[h] Requires on-site treatment of stormwater to the maximum extent possible	● 3	● 10	● 11	○	○	○	○	○
[i] Prioritizes use of green stormwater infrastructure over other treatment options	● 3	◗ 10	◗ 11	○	○	○	○	○
[j] Encourages enhancement of urban ecological function	● 4	◗ 10	◗ 11	◗ 9	○	◗ 16	◗ 6	◗ 12
[k] Emphasizes habitat restoration to the greatest extent feasible	● 10	◗ 10	◗ 11	◗ 9	○	◗ 16	◗ 6	◗ 12
[l] Focus on building materials related to water quality protection	● 3	◗ 10	◗ 11	○	○	○	○	○
[m] Certification requirements are specific to the project site's unique characteristics (rather than credits chosen by the site team	● 3,8	◗ 10	◗ 10	○	○	○	○	○
[n] Site assessment conducted using an independent science team	● 3,8	○	○	○	○	○	○	○
[o] Mandates water conservation in irrigation to the greatest extent feasible	● 4	● 10	● 11	◗ 9	◗ 8	◗ 16	◗ 6	◗ 12
[p] Requires use of IPM practices for landscape maintenance	● 4,16	◗ 10	◗ 11	○	○	◗ 16	◗ 6	◗ 12
[q] Specifies zero sediment runoff during construction	● 3,16	◗ 10	◗ 11	◗ 8	○	◗ 16	◗ 6	◗ 12
[r] Evaluates long-term operations and restoration practices	● 4,16	○	○	○	● 7	○	○	○
[s] Provides annual verification of project performance with site management	● 4,16	○	○	○	○	○	○	○

● FULLY MEETS > ◗ > ○ NOT ADDRESSED

* discussion of this feature appears on this page | click numbers to navigate to page

SALMON-SAFE URBAN

Scope:
Site/Civil Infrastructure
Developed and administered by:
Salmon-Safe Inc.

www.salmonsafe.org

Since 1997, Salmon-Safe has successfully defined and promoted ecologically sustainable development and land management that protects water quality and habitat at sites across the West Coast. Founded by the river and native fish conservation organization Pacific Rivers, Salmon-Safe is an independent 501(c)3 nonprofit based in Portland, Oregon.

Salmon-Safe's urban development certification program is intended to inspire site design and development that protects downstream water quality and restores urban ecological function. While Salmon-Safe certification focuses on salmonid species (i.e., salmon and trout) and their habitat requirements salmonid species are key indicator species in the Pacific Northwest and their conservation is entwined with the health of entire ecosystems that include a variety of aquatic and upland wildlife species. Salmon-Safe is designed as a stand-alone program; however, it complements other leading certification standards (e.g., LEED, SITES, Envision) by certifying project activities that specifically address fish and wildlife habitat quality.

Project types Salmon-Safe certifies include:

- Urban Development (including zero lot line)
- Campuses (corporate and university)
- Farms and Vineyards
- Infrastructure
- Golf Courses
- Parks and Natural Areas & Systems
- Municipal Operations

Professional accreditations include:

- Construction Management Firms
- Large-Scale Developers
- Design Firms

As a site-specific certification, Salmon-Safe helps fill a gap of addressing ecological function[j] and site performance that provides ecosystem services versus building performance. Salmon-Safe certifies existing[a] and new[b] developments.

Based on nearly two decades of work at more than 900 urban and agricultural sites across the West Coast, Salmon-Safe brings a project-specific, collaborative, peer-reviewed, and scientist-generated approach to urban certification[e] that is unique among certification programs. The Salmon-Safe certification program focuses on salmonid species (i.e., salmon and trout) and their habitat requirements. Therefore, this evaluation focuses on watershed impacts[f] and, in particular, the following biological components of the ecosystem that most affect salmonids and the ways these components can be protected: (1) water quality, (2) water quantity, (3) instream habitat, (4) riparian habitat and (5) fish passage.

Salmon-Safe Urban Projects

An interdisciplinary Evaluation Team of qualified experts is assigned[n] to the project certification candidate to work with the development team during each stage of the design development process. The evaluation and certification process is a collaborative effort between Salmon-Safe and the development team. All certification standards and assessment requirements are site-specific[m] and performance-based, not prescriptive, to give the development team (and their assigned Evaluation Team) the freedom to generate designs that work best for the developer, the development site, and overall project budget. In urban settings, the Evaluation Team focuses heavily on construction phase pollution prevention practices—requiring zero sediment runoff[q]—and stormwater management, encouraging on-site treatment of stormwater to the maximum extent feasible[h], prioritizing green stormwater infrastructure (GSI)[i] and rainwater harvesting over other design options. During a site assessment[g], the Evaluation Team reviews these topics as well as downstream

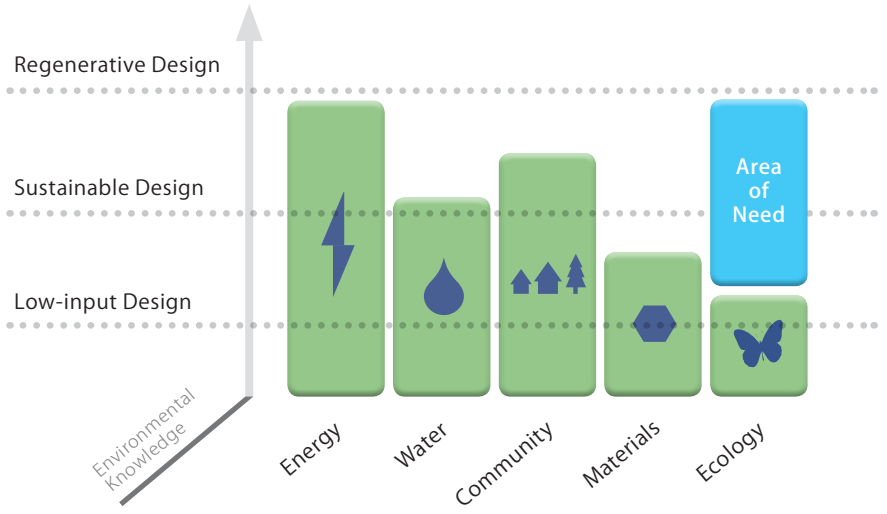
impacts from building materials[l], integrated pest management (IPM) practices for landscape management[p], habitat restoration plans or progress, potable water usage for irrigation[o], and facility performance, among other program elements. The Evaluation Team is available for the life of the certification (five years) to work with the client to comply with long-term maintenance and operations practices[r]. Even after a project is certified, Salmon-Safe promotes the long-term environmental performance of certified sites through an annual verification process[s].

Salmon-Safe Urban Standards

Salmon-Safe's urban development certification program is intended to promote ecologically sustainable land management[c] that protects water quality and aquatic biodiversity. Beginning with the 2004 certification of the 10,000-acre Portland Parks system, Salmon-Safe has successfully completed urban projects including certification of the Nike World Headquarters campus, Seattle's new Expedia campus, Google and Facebook Headquarters; Portland State University, Oregon Museum of Science & Industry (OMSI), Oregon Convention Center, Washington State Department of Ecology's headquarters campus, the University of Washington's Seattle and Bothell campuses, and other corporate and university sites in Oregon and Washington. Salmon-Safe's Urban Standards describe the performance requirements or desired outcomes for seven Salmon-Safe management categories along with an overview description of the evaluation process that will be used to assess and certify candidate urban development projects. The Salmon-Safe Urban standards constitute a set of best management practices (BMPs) that can be applied across a variety of urban development landscapes, ranging from high-density urban infill to corporate campuses.

While the Urban Standards are designed as a standalone program, they can also complement existing certification standards (e.g., LEED, SITES, and Envision), by certifying project activities that specifically address fish and wildlife habitat quality.

Salmon-Safe Core Urban Standards
Stormwater Management
Water Conservation
Erosion Prevention and Sediment Control
Water Quality Protection Pesticide and Chemical Reduction
Enhancement of Urban Ecological Function
Context-Dependent Standards
Instream Habitat Protection and Restoration
Riparian/Wetland/Locally Significant Vegetation Protection and Restoration



Adapted by Salmon-Safe from ***Building an Arc: Architecture, Biodiversity and the City.*** Muller, Cerra and McGinley, 2015.

SALMON-SAFE'S TEN PRINCIPLES

01
Connect
to watershed context

02
Integrate
habitats

03
Start
with site ecology

04
Protect
water quality and habitat
during construction

05
Manage
water at the source

06
Design
for the land

07
Prioritize
water conservation

08
Care
for land over time

09
Clean water
for salmon

10
Design learning landscapes
that provide educational
opportunities

ENVISION

Scope:
Civil Infrastructure

Developed by:
Zofnass Program for Sustainable Infrastructure at the Harvard University Graduate School of Design and the Institute for Sustainable Infrastructure (ISI)

Administered by:
Independent, third-party verifiers trained by ISI

www.sustainableinfrastructure.org

Many civil infrastructure projects have no occupied building space, yet represent a large component of our built environment. The Envision rating system provides a platform for encouraging and measuring sustainability of civil infrastructure that is focused on the scope of work related to this construction type. The rating system's scope covers new[b] and existing[a] roads, bridges, pipelines, railways, airports, dams, levees, landfills, water treatment systems, and other civil infrastructure. It does not include buildings or facilities, and prohibits development in areas designated as ecologically sensitive[c]. The current system addresses design and planning phases with subsequent phase ratings intended to follow.

ISI-trained assessors complete project application reviews; certifications began in September 2012.

Envision Credit Categories
Quality of Life
Leadership
Resource Allocation
Natural World
Climate and Resilience
Innovation Points

The Envision framework of criteria and performance achievement strategies are menu-based, with a set of prerequisites, similar to the structure of LEED and SITES. Overall strategies are geared toward helping project teams identify ways in which sustainable approaches can be used to plan, design, construct and operate infrastructure projects. The system documents state that they are not intended to replace regional rating programs but provide a complement that allows comparison at the national level.

Envision / Salmon-Safe Concurrency

In comparison to Salmon-Safe's singular focus on watershed impact, Envision emphasizes the design process, agency integration, and additional impacts, such as energy, with approaches that are very specific to large infrastructure projects[f]. Salmon-Safe can be applied to infrastructure projects, such as the City of Portland's Water Bureau and Bureau of Transportation, and would provide a complementary program that guides teams in tailoring strategies to regional and salmon-habitat priorities[k]. Pairing Envision (national) with Salmon-Safe (local) is specifically recommended within the Envision system[j] since Salmon-Safe provides tailored, bio-regional guidance. Both Envision and Salmon-Safe offer accreditation programs.

The Envision Natural World category is the primary area of potential concurrency[o]. The stormwater, soils, biodiversity[p] and pollutant contro[l][q] credits in this category include strategies that overlap with the intentions and requirements of Salmon-Safe, but are not as specific in individual credit requirements or level of detail. Salmon-Safe is also compatible with the Climate and Risk Category as well, given an emphasis on bioengineering as a key component of resiliency.

LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED) V4

Scope:

LEED-BD+C
New buildings and associated project sites

LEED-EBOM
Existing buildings and associated project sites

LEED-ND
Master plan/development and at least one building

LEED-H
New residential single or multi-family building(s) and sites

Developed by:
U.S. Green Building Council (USGBC)
Administered by:
Green Building Certification Institute (GBCI)

www.usgbc.org
www.gbci.org

The U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design Rating System (LEED) is a set of rating systems for building projects, including new and existing buildings, across a range of building types from office to schools, retail to data centers. LEED is voluntary except where adopted by an agency or entity for its own buildings or in some cases for buildings in their jurisdiction. With its watershed impact focus, Salmon-Safe primarily contributes to two key aspects of LEED: Sustainable Sites and Water-Efficiency, and currently Salmon-Safe certified projects quality for LEED innovation credit.

LEED-BD+C

LEED-BD+C addresses new[b] building construction. As a "building" rating system, the scope of LEED-BD+C addresses buildings and their associated sites, as defined by the project and/or owner team. Projects eligible for a LEED rating must contain occupied space; site-only projects do not qualify for LEED certification. LEED is based on a set of prerequisites and credits, organized into nine categories. Projects must meet all of the prerequisites in addition to a selection of optional credits based on applicability to the project, owner goals, project performance targets, etc. For new buildings, achievement of LEED certification is based on design performance information, (i.e. modeled estimates); LEED-EBOM uses documented performance data[r]. Subject to review and certification acceptance, buildings that achieve LEED-BD+C certification can apply for roll over LEED-EBOM certification after one year of operation.

Projects submit an application, which is reviewed by the GBCI, providing third-party document verification of a project's LEED status. Audits are performed by the GBCI on a random set of projects annually, requesting additional information to support an applicant's credit achievement.

LEED v4 Environmental Categories
Integrative Process
Location & Transportation
Materials & Resources
Water Efficiency
Energy & Atmosphere
Sustainable Sites
Indoor Environmental Quality
Separate LEED-ND Environmental Categories
Smart Location & Linkage
Neighborhood Pattern & Design
Green Infrastructure & Buildings
Common Categories All LEED Systems
Innovation

LEED- BD+C / Salmon-Safe Concurrency

Nearly a decade ago, USGBC reviewed Salmon-Safe standards and ruled that Salmon-Safe requirements exceed the LEED rating system with respect to watershed impacts. Salmon-Safe represents a focused and comprehensive approach to site design and management that goes

beyond individual LEED credit achievement or overall LEED rating when considering habitat and water quality impacts. The weighting of LEED includes a high emphasis on energy-efficiency and carbon reduction, which is reasonable given its building scope. However, for the site itself and site-only projects, Salmon-Safe drills down to a level of specificity not addressed by the LEED systems overall. LEED-ND does provide additional breadth of strategies for site design; see LEED-ND narrative in the next section for details.

Projects that earn Salmon-Safe certification will achieve or partially achieve specific LEED credits creating synergy for projects pursuing both certifications. Whether full or partial credit achievement, or exemplary performance beyond the LEED thresholds, is highly dependent on individual project sites and habitats. Since Salmon-Safe requirements are dynamic and tailored to the specific habitat impacts of an individual site[m] by the assessment team of scientists[n], the requirements are not explicit, so exact determination with respect to LEED must be done on a project-by-project basis.

Typical Salmon-Safe approaches align and overlap with the stormwater, habitat protection and restoration, land management and water-efficiency credits in LEED's Sustainable Sites and Water-Efficiency categories. Furthermore, Salmon-Safe Certification is an established Innovation in Design credit.

LEED-EBOM

LEED-EBOM applies to existing[a] buildings that are undergoing performance optimization, but little to no construction. Property owners may apply for LEED-EBOM certification after a minimum of one year of occupancy; projects may apply for re-certification annually, or minimally every five years to maintain EBOM certification.

LEED-EBOM / Salmon-Safe Concurrency

Concurrency is similar to LEED-BD+C regarding specific credit requirements. The Site Management Policy prerequisite and Site Management credit in the EBOM program overlap with erosion and sedimentation, pollutant control and water management[o] aspects of the LEED-BD+C program. EBOM offers additional requirements regarding snow clearing, cleaning of building exterior and hardscape elements, organic waste management and use of low-emitting maintenance equipment. Since all of the Salmon-Safe standards address both initial design as well as operations, Salmon-Safe overlaps with LEED systems for both BD+C and EBOM.

LEED-ND

The USGBC, the Congress for the New Urbanism (CNU) and the Natural Resources Defense Council (NRDC) partnered to develop a rating system for neighborhood planning and development based on the combined principles of smart growth, New Urbanism and green infrastructure. The goal of this partnership was to establish a national standard for assessing and rewarding environmentally superior green neighborhood development practices within the framework of the LEED system. Unlike other LEED rating systems, which focus primarily on green building practices and offer only a few credits for site selection and design, ND emphasizes the site selection, design and construction elements[q] that bring buildings and infrastructure together into a neighborhood and relate the neighborhood to its landscape as well as its local and regional context.

LEED-ND applies to new[b] land development projects or redevelopment projects containing residential uses, nonresidential uses, or a mix. Projects can be at any stage of the development process, from conceptual planning to construction. LEED-ND project certification requires at least one building, at least one of which must be certified using LEED or ISO/IEC Standard 17021.

Certification is designed for neighborhood-scale projects that are in design, or that were completed within the last three years. The certification process includes a preliminary review of prerequisites and then up to three stages: Conditionally Approved Plan; Pre-Certified Plan; and Certified Neighborhood Development.

LEED-ND / Salmon-Safe Concurrency

The LEED-ND system provides a more comprehensive set of site-based sustainability strategies than LEED-NC or EBOM. This includes water[o], habitat restoration, landscape design and maintenance. The structure of LEED-ND, however, is applicable to a master plan and infrastructure and therefore differs from the building focus of the other LEED products. This aligns very well with Salmon-Safe and projects that achieve Salmon-Safe likely would achieve many of the prerequisites and credits within LEED-ND.

Overall, Salmon-Safe certification likely would deliver LEED-ND prerequisites related to sensitive species habitat conservation, wetland and farmland protection, floodplain avoidance[c], and compact development. Additionally, site and building water conservation, habitat conservation and restoration[k], and rainwater management credits would be achieved or partially achieved by Salmon-Safe projects.

LEED-H

LEED for Homes applies to new[b] and existing buildings[a] single-family homes, low-rise multi-family (one to three stories), or mid-rise multi-family (four to six stories). The structure of this program is similar to LEED-BD+C, but specific credit requirements differ to accommodate different scope and user profiles of residential projects compared to commercial and institutional ones.

Unlike LEED-BD+C and LEED-ND, LEED-H project teams must work with a designated LEED for Homes Provider who is selected by USGBC through a RFQ process to market LEED to builders and support them through the process of LEED certification. These projects teams must also work with a LEED for Homes Green Rater (as accredited by the GBCI) who will perform at least two on-site inspections during construction[g], one pre-drywall and one closer to substantial completion. The Provider should be involved as early in the process as possible.

LEED-H / Salmon-Safe Concurrency

Concurrency is similar to LEED-BD+C. Some key differences compared to LEED-BD+C in the prerequisites and credits structure include a requirement to avoid building within the 100-year floodplain[c] that aligns with Salmon-Safe practices; a prerequisite that requires comparable setbacks and excludes use of invasive plants[j] as well as providing standards for compact development. All three of these items align more closely with Salmon-Safe standards.

LIVING CERTIFICATION

Scope:
Living Building Challenge 3.1
Building and associated project site

Living Community Challenge
Street, block, corridor, neighborhood, or campus

Developed and administered by:
International Living Future Institute

www.living-future.org

The Living Building Challenge (LBC) aims to dramatically raise the bar from a paradigm of doing less harm to one of true sustainability, or creating a "Living Future". The LBC defines the most advanced measure of sustainability in the built environment available today and acts to rapidly diminish the gap between current limits and the end-game positive solutions as outlined by the Living Future Institute (Institute).

As of 2018, the Institute has created four Living Challenges related to the built environment, including new and existing projects[a] [b]—the LBC, Zero Energy, Zero Carbon, and the Living Community Challenge (LCC). The LBC and LCC systems both have 7 Petals (categories) and 20 Imperatives. Unlike most other rating systems, each Imperative is in effect a prerequisite[m], although a project may apply to certify to separate petals. For both the LBC and the LCC, Petal Certification requires the achievement of at least three of the seven Petals, one of which must be the Water, Energy, or Materials Petal. Imperative 01, Limits to Growth and Imperative 20, Inspiration and Education are also required for any LBC Petal Certification.

LBC 3.1

The LBC can be applied to buildings and infrastructure projects regardless of the size or location of the project. LBC 3.1 also requires urban agriculture[j], habitat exchange via a land trust, and human-powered transportation strategies. The Water Petal requires net-zero water systems[o], including 100% stormwater, greywater and blackwater treatment on-site[h]. All water needs must be met by captured rainwater or other closed loop, site-based system[i]. The Materials Petal requires avoidance of any materials on the designated Red List[l], items which could have a negative impact to the indoor or outdoor environmental quality[f].

LBC / Salmon-Safe Concurrency

Salmon-Safe provides full concurrency with the Place Petal, which includes a broader set of requirements. The Place Petal's Limits to Growth Imperative regarding sensitive habitat protection[c] are in keeping with Salmon-Safe Urban standards, but also requires that projects only be built on previously developed sites[d]. Based on the requirements of LBC 3.1, Salmon-Safe would contribute to a LBC site design that integrates construction-phase pollution prevention measures[q], applicable stormwater management, water efficiency and harvesting, and organic landscape and agricultural vegetation maintenance practices[p]. These strategies span many of the LBC 3.1 Petals.

The LBC is also different than other systems, in that it requires a desired outcome but leaves determining how that outcome is achieved to the project team[f]. In order to outline a specific pathway to achieving certain outcomes, Salmon-Safe could be used in concurrency. For example, for the Habitat Imperative[k], Salmon-Safe could provide a specific "how" path to protecting habitat for NW project with salmonid habitat needs as the guide[k]. Salmon-Safe would also provide specifics to achieving the waterway access and water quality and quantity protection requirements in the Equity Petal's Imperative for Universal Access to Nature and Place. This makes Salmon-Safe highly complementary to the LBC in the Northwest. Additionally, Salmon-Safe overall emphasizes operations as well as design, while the LBC focuses on operational performance for a minimum of one year with operational data provided post-occupancy. It also requires on-site air quality testing after substantial completion[g] but is not thereafter directly involved in ongoing operations. Salmon-Safe would therefore offer a bridge to ongoing sustainable

land care practices for a five-year period after certification is formalized.

LCC 1.2

The Institute created the Living Community Challenge to address the unique scales and conditions of community-scaled projects. Compliance review occurs at the master planning stage or certification for fully built community projects. The LCC can be used at the street, block, corridor, small or large neighborhood, and campus levels on previously developed sites[d], outside of ecologically sensitive areas[c]. To achieve full Living Community Certification, all buildings owned or constructed by the community or with community ownership must meet the Living Building Challenge, meaning that all of the same stormwater[h][i], habitat[j][k], materials[l], water[o] and site[p][q] imperatives would apply. This will make the LCC the most stringent sustainable development standard available for buildings.

LCC / Salmon-Safe Concurrency

Salmon-Safe could provide a specific landscape design, maintenance and operations path to address habitat, water body protection, access, stormwater and other aspects within the 20 Imperatives of the LCC. This is similar to Salmon-Safe's alignment with the LBC, but applies to the more site-oriented scale of master planning.

The LCC promotes the transition of suburban zones, to either grow into new urban areas with greater density, or be dismantled and transformed into new rural zones for food production or habitat and ecosystem services. The suite of Salmon-Safe standards, including Urban, Infrastructure, Campus and Farms, provide regional, salmonid habitat focused overlays complimentary to creating Living Communities across multiple community development types. Similar to the LBC, the Salmon-Safe standards would also bridge to ongoing operations, after an LCC certification is achieved.

BUILT GREEN 5-STAR / EMERALD STAR

Scope:
Building and associated project site

Developed and administered by:
Local home builders associations, such as Master Builders Association, with King County, Snohomish County, and other agencies in Washington State

www.builtgreen.net

The Built Green program started in the Northwest to help home buyers find affordable high-quality homes that could protect their health and the health of the environment. Built Green encourages environmentally responsible building and construction through certification of new[b] single-family homes, multi-family housing, and home remodels that meet a specific set of criteria. Built Green projects cannot be located in ecologically sensitive areas[c].

Building projects receive Built Green certification by achieving the minimum requirements and a specified number of points for different levels of performance, depending on the local program. Each local Built Green program sets its own criteria for certification. The 5-star level is the top level of certification, whether the project is a new single-family home, new multi-family residential construction, residential remodel, or the development of a neighborhood or community.

Built Green Residential Credit Categories
Built Green Team
Site and Water
Energy Efficiency
Health and Indoor Air Quality
Materials Efficiency
Operation, Maintenance and Homeowner Education
Built Green Brand Promotion
Built Green Communities Credit Categories
Site Selection
Site Design and Transportation
Construction Operations
Education and Community Stewardship

The local Built Green program in association with King and Snohomish Counties also offers Emerald-star certification, which has the most stringent requirements. For example, a single-family residence is required to provide 100% stormwater infiltration on site.

Built Green 5-star and Emerald Star certification require third-party verification. Most of the Built Green checklists correspond to building design and construction, but the preservation of natural process[j][k] through responsible site[q] and water management[o] is also an important part of certification. For example, 5-star certification for a new single-family home has more Site and Water prerequisites required than all other categories combined.

Built Green / Salmon-Safe Concurrency

Salmon-Safe and the Built Green program were both developed with sustainable, regenerative design in mind. In general, Salmon-Safe is more rigorous with respect to water quality protection and habitat conservation requirements while Built Green offers a broader green building approach that applies to other aspects of sustainability. Salmon-Safe certification can be applied to a variety of sites with or without buildings; Built Green is tailored to sites with buildings, specifically residential homes.

Both programs were designed to cater to regional priorities in the Northwest. Salmon-Safe puts an emphasis on management strategies that prevent the use of products or procedures that contribute to water quality contamination, including use of best management practices during construction to prevent erosion[q]. Built Green emphasizes environmentally friendly building and construction practices, which addresses that element of Salmon-Safe certification. Meeting Salmon-Safe certification standards is required to achieve 5-star Built Green community certification.

Built Green certifies the residential home or community but does not accredit the contractor or construction practices used. Built Green's mission as a membership organization goes beyond building certification by providing an education platform for residential contractors.

Salmon-Safe offers third-party certification of a site and has an accreditation program for construction practices. Much like other checklist-based rating systems, Built Green does not require monitoring of performance after construction. Salmon-Safe certification accreditation requires annual monitoring and renewal after three years. Therefore complimenting the offerings of Built Green.

International Organization for Standardization

ISO 14000 / ISO 14001 ENVIRONMENTAL MANAGEMENT

Scope:
Organization, facilities, sites, products, etc.

Developed by:
International Organization for Standardization (ISO)

Administered by:
Individual organizations and companies, with optional third-party audits

www.iso.org

ISO 14000 Environmental Management is a set of standards that can help any organization looking to identify and control their environmental impact, and improve their environmental performance. Within the ISO 14000 series, ISO 14001:2004 Environmental Management Systems (EMS) provides guidance for organizations to create their own plan for reducing environmental impacts. The ISO 14000 series provides a process based on a clear set of steps: Plan, Do, Check, Act. An organization reviews its environmental impact areas, plans targets for performance enhancement, implements its plan and reviews progress, and makes adjustments where needed. An organization can self-declare adoption of ISO 14001 EMS or obtain third-party verification via ISO auditors. ISO 14001 certifies a process rather than a specific building, site or product.

ISO 1400 itself does not establish performance targets or establish specific environmental goals or requirements. Instead, ISO 14001 requires an organization to review its significant environmental impacts and identify opportunity areas and objectives for improving performance while factoring in cost savings and revenues.

Each environmental objective must have at least one measurable target. Organizations must consider what specific measurement systems and indicators the facility or site could use to measure progress towards their objectives and targets. For example, if water conservation is one of an organization's environmental objectives, they should consider setting measurable targets for reducing water consumption on the basis of major facility activities, such as domestic water, irrigation, process water, etc.

ISO 14001 / Salmon-Safe Concurrency

If an organization determined that stormwater pollution or salmon habitat impacts were an environmental impact, they could identify "implement Salmon-friendly site design" as an objective, with Salmon-Safe Certification as a measurable target. Related targets might include achieving net zero water operations, treating all stormwater on site, and so on. While ISO 14001 is more conceptual in nature, Salmon-Safe is site-specific and tailored to a unique site, providing performance requirements that are relevant to the project's characteristics.

For organizations with primarily site-based environmental impacts, self-declared ISO 14001 combined with the third-party verification of Salmon-Safe certification could be a cost-effective approach that offers the benefit of outside verification of an organization's environmental performance. For projects with site, building, and/or product-oriented environmental impacts, Salmon-Safe could be a component in a broader EMS.

Third-party ISO audits would not obviate the relevance of Salmon-Safe review and certification. An ISO auditor would verify that major impacts have been addressed by the plan and that the plan is being implemented; the ISO auditor would not need to duplicate verification performed by a Salmon-Safe assessment team.

ANSI ACCREDITATION FOR ISO 14001 ENVIRONMENTAL MANAGEMENT SYSTEMS

Scope:
Products, services, processes, systems and personnel

Developed and administered by:
American National Standards Institute (ANSI)

www.ansi.org

The ANSI is a private non-profit organization that manages the development of voluntary consensus standards. ANSI does not develop standards but oversees the development and use of standards by accrediting the procedures of organizations that develop standards. One such organization is ISO. ANSI Accreditation for ISO 14001 certifies the procedures within a project rather than the site, building or products.

ISO 14001:2004 Environmental Management Systems (EMS) provides guidance for organizations to create their own plan for reducing environmental impacts. Benefits of implementing ISO 14001 EMS include potential reduction in by-products and wastes from various processes; potential increased energy efficiency and energy conservation in design, production and post-production; and the creation of a systematic structure for complying with environmental regulations.

ANSI accreditation certifies that the environmental impact areas of the EMP are reviewed, targets for performance enhancement are planned to be implemented, and progress is reviewed. Rather than establish performance targets or specific environmental goals, ISO 14001 requires ANSI to review the plan's significant environmental impacts and identify opportunity areas and objectives for improving performance while factoring in cost savings and revenues. This may include setting measurable targets for various environmental impacts.

ANSI / Salmon-Safe Concurrency

Salmon-Safe Construction Management accreditation ensures that targets for construction-phase pollution prevention are planned and implemented, and progress is monitored on multiple projects over the accreditation cycle. Like ANSI accreditation, there's a focus on identifying areas for improvement to ensure there are no or minimized environmental impacts from the development activity.

Sustainable SITES Initiative™

SUSTAINABLE SITES INITIATIVE V2

Scope:
Site/Civil Infrastructure

Developed and administered by:
American Society of Landscape Architects, the Lady Bird Johnson Wildflower Center, and the United States Botanic Garden

www.sustainablesites.org

Sustainable landscapes create ecologically resilient sites[c] that benefit the environment, property owners, and local and regional communities and economies. SITES was founded on the understanding that land is a crucial component of the built environment and holds the potential for avoiding, mitigating and even reversing the detrimental impacts of development by creating a healthy ecosystem. In contrast to buildings, built landscapes and green infrastructure are capable of protecting and even regenerating natural systems, thus increasing the ecosystem services they provide.

The SITES v2 program offers a rating system and comprehensive set of guidelines designed to define new[a] and existing[a] sustainable sites, transform land management practices, and ultimately elevate the value of landscapes. SITES was developed as a complement to the LEED rating system and the program rewards green building practices related to project sites, not buildings; such as parks, streetscapes, plazas, educational and commercial campuses, or projects with extensive landscape design—including those with large restoration components.

Projects receive SITES certification by achieving the minimum requirements and a specified number of points for different levels of performance, similar to the structure of LEED and Envision. By providing performance measures rather than prescribing practices, SITES intends to encourage project teams to be creative and flexible as they design functional and regenerative sites proper for their environmental context[j] and proposed use.

SITES / Salmon-Safe Concurrency

Salmon-Safe and SITES have a similar focus on site-based environmental impacts and benefits[f]. Both systems value sustainable and regenerative design; and both programs can be applied to civil infrastructure projects and sites with or without buildings. SITES is designed for comparison at the national level while Salmon-Safe offers strategies suited to regional priorities. The Salmon-Safe program has been designed specifically to protect water quality for salmon[f] and therefore emphasizes (and has more rigorous management strategies to prevent) the use of products or methods that contribute to water quality contamination.

As an example, the integrated pest management practices required by Salmon-Safe[p] are optional for SITES certification. In addition, SITES requires management of invasive species, but leaves habitat restoration as optional[k] and requires some reduction in irrigation usage, but not minimization to the greatest extent feasible[o].

The certification process for both Salmon-Safe and SITES focuses on performance throughout site planning, design and construction, however Salmon-Safe places more emphasis on post-construction accountability and monitoring[r]. Salmon-Safe certification requires annual monitoring[s] and renewal after five years. A monitoring plan is optional with SITES certification; renewal is not required.

Rating comparison technical consultants | Site Story & Julia Ensign

Independent peer review of this report
was provided by green building specialist,
Katrina Morgan, Director of Sustainable Design
at Sazan Environmental.

For questions about this review
or other projects, please contact:
info@salmonsafe.org

Report design & production | Jay Tracy Studios

www.salmonsafe.org