



LEED-NC

How Smart Slope contributes to LEED
LEED-NC Version 3.0 Registered Project Checklist
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	Sustainable Sites	26 Points	Comments	Approx. Add. Cost:	How Smart Slope contributes
SS Prereq 1	Construction Activity Pollution Prevention	Req	Include best practices erosion and sedimentation control plan in specifications and during construction.		
SS Credit 1	Site Selection	1	Do not build on farmland, floodplains, wetlands, protected habitat, or public parks.		
SS Credit 2	Development Density & Community Connectivity	5	Must be previously developed site. Is site density high enough (60,000 sf/acre) OR within 1/2 mi. of residential zone OR neighborhood with avg. density of 10 DUA AND within 1/2 mi. of 10 basic services to achieve this credit?		
SS Credit 3	Brownfield Redevelopment	1	VERIFY. Is site is a brownfield?		
SS Credit 4.1	Alternative Transportation , Public Transportation Access	6	Is site is within 1/2 mile walking distance of an existing or planned and funded, commuter rail, light rail, or subway station OR 1/4 mile walking distance of one or more stops for two or more public or campus bus routes?		
SS Credit 4.2	Alternative Transportation , Bicycle Storage & Changing Rooms	1	Must provide bicycle lockers/storage for 5% of staff, along with showering facilities for 0.5% of FTE's. For residential buildings, provide covered storage facilities for 15% or more of building occupants in lieu of showering facilities.		
SS Credit 4.3	Alternative Transportation , Low-Emitting and Fuel-Efficient Vehicles	3	Opt 1. Provide low-emitting and fuel efficient vehicles for 3% of FTE's AND preferred parking for these. Opt 2. Provide preferred parking for low-emitting and fuel efficient vehicles for 5% of the total vehicle parking capacity. Opt 3. Install alternative-fuel refueling stations for 3% of the total vehicle parking capacity of the site.		
SS Credit 4.4	Alternative Transportation , Parking Capacity	2	Opt 1 - Non-Residential. Cannot exceed minimum zoning parking requirements AND provide carpool/vanpool parking for 5% of total parking. OR Opt. 2 - Non-Residential. For projects with parking with < 5% of total building occupants: provide carpool/vanpool parking for 5% of total parking. OR Opt. 3. Residential. Cannot exceed minimum zoning parking requirements, AND provide for shared vehicle uses. OR Opt. 4- All. Provide no new parking. OR Opt. 5 See mixed use req's. Check minimum zoning requirements.		
SS Credit 5.1	Site Development , Protect or Restore Habitat	1	Opt 1. On greenfield sites limit site disturbance around building perimeter. Opt. 2. Requires restoration of 50% existing site area (excl. Bldg footprint) or 20% of total site area (incl. Bldg footprint) whichever is greater, using native plantings. note: Green roofs with native or adapted plants will meet this requirement.		SmartSlope modules enable steep grade changes in the landscape to support habitat and green-space at angles of inclination not possible with traditional solid structures.
SS Credit 5.2	Site Development , Maximize Open Space	1	Opt 1. Requires exceeding open space requirement by 25% compared to zoning allowance. OR Opt. 2. Areas with no local zoning req.mts. Provide vegetated open space equal to the building footprint. OR Opt 3. Where zoning req.mts. exist without open space req.mts., provide vegetated open space equal to 20% of project site area. Check local requirements. note: Woonerf and Mews provide additional open space.		SmartSlope modules allow vegetation to completely grow over the improved structural area thus minimizing the impact to the site while enhancing the openness of the landscape.
SS Credit 6.1	Stormwater Design , Quantity Control	1	Case I - Existing Imperviousness is ≤ 50% Implement stormwater management plan that limits discharge rate to less than pre-development conditions OR plan that protects receiving stream channels from excessive erosion. Case II - Where existing imperviousness is > 50% Requires decreases in rate and quantity of stormwater runoff by 25%		SmartSlope modules replace traditional solid retaining walls to create completely pervious structures that promote infiltration and reduce storm water runoff.



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SS Credit 6.2	Stormwater Design, Quality Control	1	Implement stormwater management plan that reduces impervious cover, promotes infiltration, and captures and treats the stormwater runoff from 90% of the avg. annual rainfall. Clarifier will handle TSS, phosphorous can be difficult.		SmartSlope living retaining wall systems can support a wide range of plant material known to absorb pollutants and improve water quality. Fully vegetated SmartSlope retaining walls become runoff water management tools much the same as rain gardens and bio-swailes.
SS Credit 7.1	Heat Island Effect, Non-Roof	1	Opt. 1. Shade, pave with light colored materials, use open grid pavement systems, use PVs to shade, or use arch'l features with SRI of 29 for 50% of site hardscape. OR Opt 2. 50% of parking is shaded in parking structure or arch'l element with SRI of 29.		SmartSlope living walls are intended to be fully grown over with specified plant material. The top growth of the plant material will completely obscure the structural elements beneath which moderates temperatures and has been shown to reduce heat Island contribution.
SS Credit 7.2	Heat Island Effect, Roof	1	Opt 1. Roofing materials with high Solar Reflectance Index for 75% of roof. Opt 2. Install vegetated roof for min 50% of roof area. Opt 3. Combo of Opt 1 + Opt. 2.		
SS Credit 8	Light Pollution Reduction	1	Exterior lighting design must provide minimal site lighting. Must be balanced with security concerns. AND Interior lighting must not exit through the windows. OR non-emergency lighting controlled to turn off during non-business hours.		
Water Efficiency		10 Points		Approx. Add. Cost:	How Smart Slope contributes
WE Prereq 1	Water Use Reduction, 20% Reduction	Req	Reduce total potable water use (not including irrigation) by 20%. Specify waterless urinals, dual-flush toilets, low-flow showers, and/or recycled water.		
WE Credit 1.1	Water Efficient Landscaping, Reduce by 50%	2	Specify native planting, drip irrigation system, and/or recycled water system reducing irrigation requirements by 50%.		SmartSlope modules have large verifiable soil holding capacity, providing an excellent culture for the long-term growth of a wide range of native perennials and regionally adapted plants which do not require irrigation. When required, drip irrigation is installed into the system and is very efficient due to gravity and capillary action within the wall column.
WE Credit 1.2	Water Efficient Landscaping, No Potable Use or No Irrigation	2	Requires no potable water use for landscape irrigation or no permanent landscape irrigation system.		
WE Credit 2	Innovative Wastewater Technologies	2	Opt 1. Requires recycled water system or water conserving fixtures to reduce potable water used for sewage conveyance by 50%. OR Opt. 2. Treat 50% of wastewater on-site to tertiary standards.		
WE Credit 3	Water Use Reduction	2-4	Reduce total potable water use (not including irrigation) by 30%, 35%, 40%. Specify waterless urinals, dual-flush toilets, low-flow showers, and/or recycled water.		
	Energy & Atmosphere	35 Points	Comments	Approx. Add. Cost:	How Smart Slope contributes



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EA Prereq 1	Fundamental Commissioning of the Building Energy Systems	Req	Retain a commissioning agent.		
EA Prereq 2	Minimum Energy Performance , 10% New Bldgs or 5% Ex. Bldg Renovations	Req	Demonstrate a 10% improvement (5% for renovations) in energy use over a baseline using energy modeling OR (for bldgs. under 20,000SF) comply with prescriptive measures of ASHRAE Advanced Energy Design Guide, OR (for bldgs. Under 100,000SF) comply with prescriptive measures of the Advanced Buildings Core Performance Guide.		
EA Prereq 3	Fundamental Refrigerant Management	Req	Specified equipment will not contain CFC refrigerants.		
EA Credit 1	Optimize Energy Performance	1 to 19	Opt. 1 Retain a consultant to perform energy simulation/calculation. (1 to 19 points). Mechanical Engineer can provide as additional service. LEED credits will be dependant on energy review, energy efficiency measures, and energy calculation results. OR Opt. 2. Prescriptive Compliance Path - (1 point), buildings under 20,000 sf., comply with the Advanced Energy Design Guide. OR Opt. 3 Prescriptive Compliance Path - (1-3 points) Comply with the Advanced Buildings Core Performance Guide.		
EA Credit 2	On-Site Renewable Energy	1 to 7	Use on-site renewable energy systems to offset building energy cost. 1% Renewable Energy = 1 point - 13% = 7 points. Large on-site photovoltaic system may provide this credit.		
EA Credit 3	Enhanced Commissioning	2	Retain an independent commissioning authority for additional commissioning services. First commissioning design review must take place at end of DD.		
EA Credit 4	Enhanced Refrigerant Management	2	Opt. 1. Do not use refrigerants. Opt. 2. HVAC&R systems minimize or eliminate the emission of compounds that contribute to ozone depletion and global warming. AND fire suppression systems cannot contain ozone-depleting substances.		
EA Credit 5	Measurement & Verification	3	Develop and implement a M&V Plan. Plan shall cover a period of no less than one year of post-construction occupancy. Requires significant additional monitoring sensors and equipment. Provide a process for corrective actions if energy savings are not being achieved.		
EA Credit 6	Green Power	2	Provide at least 35% of the building's electricity from renewable sources. Requires two-year contract with "Green-E" certified power provider. Confirm that green power contract meets Green-E requirements.		
	Materials & Resources	14 Points	Comments	Approx. Add. Cost:	How Smart Slope contributes
MR Prereq 1	Storage & Collection of Recyclables	Req	Requires that space is provided for collection and storage of recyclable waste.		
MR Credit 1.1	Building Reuse , Maintain 55% of Existing Walls, Floors & Roof	1	Reuse existing buildings on-site.		
MR Credit 1.2	Building Reuse , Maintain 75% of Existing Walls, Floors & Roof	1	See above.		



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MR Credit 1.3	Building Reuse , Maintain 95% of Existing Walls, Floors & Roof	1	See above.		
MR Credit 1.4	Building Reuse , Maintain 50% of Interior Non-Structural Elements	1	See above.		
MR Credit 2.1	Construction Waste Management , Divert 50% from Disposal	1	GC and demolition sub-contractor to divert 50% (by weight) of construction waste to recycling or salvaging facilities.		
MR Credit 2.2	Construction Waste Management , Divert 75% from Disposal	1	See above.		
MR Credit 3.1	Resource Reuse , 5%	1	Requires 5% (by cost) of building materials be from salvaged sources.		
MR Credit 3.2	Resource Reuse , 10%	1	See above.		
MR Credit 4.1	Recycled Content , 10% (post-consumer + ½ pre-consumer)	1	The sum of post-consumer and 1/2 of the pre-consumer content equals 10% of total value of materials. Specify high recycled content for concrete, steel, gypsum, glazing, plaster, carpet.		
MR Credit 4.2	Recycled Content , 20% (post-consumer + ½ pre-consumer)	1	The sum of post-consumer and 1/2 of the pre-consumer content equals 10% of total value of materials beyond that achieved in MR Credit 4.1 for a total of 20%. Specify high recycled content for concrete, steel, gypsum, glazing, plaster, carpet		<u>SmartSlope</u> modules themselves can vary in post-consumer content between 5% and 80% by weight, depending on the location of manufacture and the specified needs of the project. The blended growth media installed in the pocket of each module at construction can vary in post-consumer content between 20% and 100% by weight. When desired, SmartSlope can be specified and manufactured to achieve the maximum percentages.
MR Credit 5.1	Regional Materials , 10% Extracted, Processed & Manufactured Regionally	1	Requires the use of building materials or products that have been extracted, harvested or recovered as well as manufactured within 500 miles of the project site for a min. of 10% (based on cost) to total materials value. Steel fabrication and concrete supplier likely to qualify.		<u>SmartSlope</u> modules are always manufactured within a short distance of the project due to their innovative and portable forming system. The lightweight polymer SmartSlope forms are economically shipped to existing concrete producers in any region of the world. Locally produced concrete is then poured into molds using local labor. This also reduces the use of fossil fuels and costs in the transportation from manufacturer to job site.
MR Credit 5.2	Regional Materials , 20% Extracted, Processed & Manufactured Regionally	1	Requires the use of building materials or products that have been extracted, harvested or recovered as well as manufactured within 500 miles of the project site for a min. of 10% (based on cost) to total materials value beyond that achieved in MR Credit 5.1 for a total of 20%.		
MR Credit 6	Rapidly Renewable Materials , 2.5%	1	Use rapidly renewable building materials and products for 2.5% of the total value of all building materials (based on cost).		



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MR Credit 7	Certified Wood	1	Requires 50% (by cost) of wood materials (include materials permanently installed on the project) in building be certified by the Forest Stewardship Council.		
	Indoor Environmental Quality	15 Points	Comments	Approx. Add. Cost:	How Smart Slope contributes
EQ Prereq 1	Minimum IAQ Performance	Req	Building HVAC system will be designed to meet this requirement.		
EQ Prereq 2	Environmental Tobacco Smoke (ETS) Control	Req	Opt. 1. Locate designated smoking areas 25 feet from entries, outdoor air intakes, and operable windows. OR Opt. 2. Prohibit smoking in the building except in designated smoking areas. Locate designated smoking areas 25 feet from entries, outdoor air intakes, and operable windows. Designated smoking areas located to contain, capture and remove ETS from the building. Performance test smoking room air pressure differentials. OR Opt 3. (for residential buildings only) Prohibit smoking in all common areas. Locate designated smoking areas 25 feet from entries, outdoor air intakes, and operable windows. Minimize uncontrolled pathways for ETS transfer between individual units. All doors in residential units leading to common hallways are weather-stripped. Test pressurization between common hallways and units.		
EQ Credit 1	Outdoor Air Delivery Monitoring	1	Requires a permanent monitoring system for control of building ventilation rates. For mechanically ventilated spaces monitor CO2, and for non-densely occupied spaces provide a direct outdoor airflow measurement device. For naturally ventilated spaces monitor CO2 concentrations.		
EQ Credit 2	Increase Ventilation	1	Requires high ventilation effectiveness for HVAC systems. For mechanically ventilated spaces increase outdoor air ventilation rates for all occupied spaces by as least 30% above min. rates required by ASHRAE Std. 62.1-2007. For naturally ventilated spaces design systems for occupied spaces to meet the Carbon Trust "Good Practice Guide 237"		
EQ Credit 3.1	Construction IAQ Management Plan, During Construction	1	GC to implement and document construction IAQ plan, protecting ductwork and absorptive materials during construction.		
EQ Credit 3.2	Construction IAQ Management Plan, Before Occupancy	1	Opt. 1 Flush-out, Perform building flush-out OR use increased ventilation rates for the specified time. OR IAQ testing prior to occupancy. All finishes must be installed prior to flush-out.		
EQ Credit 4.1	Low-Emitting Materials, Adhesives & Sealants	1	Architect to specify adhesives and sealants that meet SCAQMD limits for VOCs.		
EQ Credit 4.2	Low-Emitting Materials, Paints & Coatings	1	Architect to specify low-VOC paints and wood finishes per Green Seal Std. GS-11, GC-03 and SCAQMD Rule 1113 requirements.		



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EQ Credit 4.3	Low-Emitting Materials , Flooring Systems	1	Architect to specify low-VOC carpet and carpet cushion per "Green Label Plus Program" and "Green Label" program respectively. Carpet adhesive to meet the requirements of EQ Credit 4.1. Hard surface flooring must be certified as compliant with the FloorScore standard. (Wood floor finishes must meet SCAQMD Rule 1113). (Grout and adhesives must meet SCAQMD #1168).		
EQ Credit 4.4	Low-Emitting Materials , Composite Wood & Agrifiber Products	1	Architect to specify composite wood and particle board with no added urea-formaldehyde.		
EQ Credit 5	Indoor Chemical & Pollutant Source Control	1	Provide permanent entry-way systems (10' long in direction of travel) and dedicated exhaust for kitchen, copy rooms, and janitorial closets. In mechanically ventilated buildings, provide filtration media prior to occupancy .		
EQ Credit 6.1	Controllability of Systems , Lighting	1	Requires individual lighting controls for 90% (min) of the building occupants. AND provide lighting system controllability for all shared multi-occupant spaces.		
EQ Credit 6.2	Controllability of Systems , Thermal Comfort	1	Requires individual comfort controls for 50% (min) of the building occupants to enable individual adjustments. Operable windows can be substituted for comfort controls. AND provide comfort system controls for all shared multi-occupant spaces.		
EQ Credit 7.1	Thermal Comfort , Design	1	Building HVAC system will comply with referenced standard.		
EQ Credit 7.2	Thermal Comfort , Verification	1	Can earn only if achieving EQ 7.1. Implement a thermal comfort survey within a period of 6 to 18 months after occupancy. Not achievable for residential projects.		
EQ Credit 8.1	Daylight & Views , Daylight 75% of Spaces	1	Opt. 1. Achieve a min. glazing factor of 2% in a min. of 75% of all regularly occupied areas. OR Opt. 2. Demonstrate required footcandle levels through computer simulation. OR Opt. 3. Demonstrate required daylight illumination through measurements.		
EQ Credit 8.2	Daylight & Views , Views for 90% of Spaces	1	Provide line-of-sight exterior views to 90% of all regularly occupied areas.		
Innovation & Design Process		6 Points	Comments	Approx. Add. Cost:	How Smart Slope contributes
ID Credit 1.1	Innovation in Design:	1	No more than 3 Exemplary Performance credits can be earned in Innovation.		SmartSlope modules allow the creation of a living structure which can be engineered to perform several innovative tasks on a green building project. Some projects have need for large retaining walls which creates opportunities for storm water management and retention/detention innovations such as intentional introduction of stored runoff water to be processed through plant transpiration.
ID Credit 1.2	Innovation in Design:	1			
ID Credit 1.3	Innovation in Design:	1			



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ID Credit 1.4	Innovation in Design:	1			
ID Credit 1.5	Innovation in Design:	1			
ID Credit 2	LEED [®] Accredited Professional	1	A LEED Accredited Professional will be involved on design team.		
Regional Priority Credits		4 Points	Comments	Approx. Add. Cost:	How Smart Slope contributes
RP Credit 1.1	Regional Priority Credit: Region Defined	1	US projects only: Regional Priority Credits can be found here: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1984 . These are credits identified as having additional regional environmental performance.		
RP Credit 1.2	Regional Priority Credit: Region Defined	1			
RP Credit 1.3	Regional Priority Credit: Region Defined	1			
RP Credit 1.4	Regional Priority Credit: Region Defined	1			
Project Totals (pre-certification estimates)		110 Points		Approx. Add. Cost:	

Certified 40-49 points Silver 50-59 points Gold 60-79 points Platinum 80+ points