



LEED 2009 for Schools New Construction and Major Renovation

SS CREDIT 9: SITE MASTER PLAN

All fields and uploads are required unless otherwise noted.

ALL OPTIONS

This static sample form has been modified for offline access. All sections of the form are visible. Sample forms are for reference only.

- ☐ The master plan includes current construction activity plus future construction (within the building's lifespan) that affects the site. The master plan development footprint also includes parking, paving and utilities.

Describe the means by which a site master plan was developed in collaboration with school board or other decision-making body.

A site plan showing current and future phases of development of the master plan is required to document credit compliance.

Upload SSc9-1. Provide the site master plan for the project.

Select one of the following:

- ☐ The site plan above shows current and future phases of development.
- ☐ A different site plan is better suited to satisfy this requirement.

Upload SSc9-2. Provide a site plan showing the current and future phases of development.

Upload SSc9-3. Provide a copy of the resolution passed by the school board or other governing body indicating their approval of the site plan and future expansion of the facility and stating that this plan will be implemented.

Choose at least four of the following:

- ☐ SS Credit 1: Site Selection
- ☐ SS Credit 5.1: Site Development - Protect or Restore Habitat
- ☐ SS Credit 5.2: Site Development - Maximize Open Space
- ☐ SS Credit 6.1: Stormwater Design - Quantity Control
- ☐ SS Credit 6.2: Stormwater Design - Quality Control
- ☐ SS Credit 7.1: Heat Island Effect - Nonroof
- ☐ SS Credit 8: Light Pollution Reduction

SITE SELECTION

The master plan does not include buildings, hardscape, roads or parking areas on portions of sites that are:

- ☐ Prime farmland as defined by the U.S. Department of Agriculture in the United States Code of Federal Regulations, Title 7, Volume 6, Parts 400 to 699, Section 657.5 (citation 7CFR657.5).
- ☐ Previously undeveloped land with an elevation lower than 5 feet above the elevation of the 100-year flood as defined by the Federal Emergency Management Agency (FEMA).
- ☐ Specifically identified as habitat for any species on federal or state threatened or endangered lists.
- ☐ Within 100 feet of any wetlands as defined by U.S. Code of Federal Regulations 40 CFR, Parts 230-233 and Part 22, and isolated wetlands or areas of special concern identified by state or local rule, OR within setback distances from wetlands prescribed in state or local regulations, as defined by local or state rule or law, whichever is more stringent.
- ☐ Previously undeveloped land within 50 feet of a water body, defined as seas, lakes, rivers, streams and tributaries which support or could support fish, recreation or industrial use, consistent with the terminology of the Clean Water Act.
- ☐ Land which prior to acquisition for the project was public parkland, unless land of equal or greater value as parkland is accepted in trade by the public landowner (Park Authority projects are exempt).

SITE DEVELOPMENT - PROTECT OR RESTORE HABITAT

Project site condition:

CASE 1. GREENFIELD

For all greenfield site areas, all site disturbance has been limited to 40 feet beyond the building perimeter; 10 feet beyond surface walkways, patios, surface parking and utilities less than 12 inches in diameter; 15 feet beyond primary roadway curbs and main utility branch trenches; and 25 feet beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater detention facilities and playing fields) that require additional staging areas in order to limit compaction in the constructed area.

Signatory

Initial here:

A scaled site plan with construction disturbance lines shown for all greenfield site areas is required to document credit compliance. The site plan shown below is a linked submittal. (If no document is present, or if the document does not include the required information, upload a site plan which meets the above requirements.)

Select one of the following:

- ☐ The master plan above includes planned construction disturbance limits.
- ☐ A different site plan is better suited to satisfy this requirement.

Upload SS9-4. Provide a site plan or other construction document indicating disturbance limits.

CASE 2. PREVIOUSLY DEVELOPED

Table SS9-1. Restored or Protected Site Habitat

Total site area (including building footprint) (sf)	
Building footprint (sf)	
Site area, excluding building footprint (sf)	
Required site area restored or protected (sf)	
Site area restored or protected (sf)	

A scaled site plan, which shows the project site boundaries and all natural areas contributing to credit achievement, and which highlights areas of native/ adaptive vegetation, is required to document credit compliance. The site plan shown below is a linked submittal. (If no document is present, or if the document does not include the required information, upload a site plan which meets the above requirements.)

Select one of the following:

- ☐ The master plan above shows all natural areas contributing to credit achievement and highlights areas of native/adaptive vegetation or other ecologically appropriate features.
- ☐ A different site plan is better suited to satisfy this requirement.

Upload SS9-5. Provide a site plan or drawing which shows all natural areas contributing to credit achievement and highlights areas of native/ adaptive vegetation or other ecologically appropriate features.

- ☐ Vegetated roofs are included in the Restored or Protected Site Habitat table above. The plants used for the vegetated roof are native or adapted, provide habitat, and promote biodiversity. (Optional)
- ☐ SS Credit 2 is attempted, and a vegetated roof counts toward this credit.

A Licensed Professional Exemption (LPE) is available to Registered Landscape Architects in lieu of a list of native and adaptive plants.

Select one of the following:

- ☒ Streamlined Path: LPE (RLA).
- ☐ Full Documentation.



LICENSED PROFESSIONAL EXEMPTION

NOTE: For each Licensed Professional Exemption claimed, the relevant licensed professional must complete the corresponding Exemption Signature on the Licensed Professional Exemptions tab in order to be considered a valid submittal.

Licensed Professional Exemption claimed by:

If the native/adapted plant species are not labeled on the site plan, list the native/adapted plants and/or other ecologically appropriate features that contribute to meeting the requirements of this credit. (Optional)

SITE DEVELOPMENT - MAXIMIZE OPEN SPACE

Select one of the following:

- ☐ **CASE 1.** Project site has local zoning open space requirements.
- ☐ **CASE 2.** Project site has no local zoning requirements.
- ☐ **CASE 3.** Project site has zoning ordinances but no open space requirements.

LOCAL ZONING OPEN SPACE REQUIREMENTS

Local zoning open space requirement for project site:

 sf

NO ZONING REQUIREMENTS

Footprint of the project building including planned future development:

 sf

ZONING ORDINANCES BUT NO OPEN SPACE REQUIREMENTS

Total site area within the LEED project boundary:

 sf

Vegetated open space within the LEED project boundary:

 sf

- ☐ **Vegetated Roof:** SS Credit 2: Development Density and Community Connectivity is attempted and the project team is including vegetated roof surface in calculations for this credit. (Optional)

Note: For vegetated roof area to contribute to this credit, SS Credit 2 must be earned.

Vegetated roof area: (Optional)

 sf

- ☐ **Pedestrian Hardscape:** SS Credit 2: Development Density and Community Connectivity is attempted and the project team is including pedestrian-oriented hardscape in calculations for this credit. (Optional)

Note: For pedestrian-oriented hardscape area to contribute to this credit, SS Credit 2 must be earned

Pedestrian-oriented hardscape area:(Optional)

 sf

Percentage open space that is vegetated (including vegetated roof, if any)

 %

Open space must be at least 25% vegetated.

Total open space area:

 sf

Note: Must be equal to building footprint including planned future development.

Open space exceeds local zoning requirements by:

 %

Note: Must be at least 25%

Percentage of open space within the LEED project boundary that is vegetated open space:

 %

Note: Must be at least 20%.

Select one of the following:

- ☐ The open space areas include wetlands or naturally designed ponds.
- ☐ The open space areas do not include wetlands or naturally designed ponds.
- ☐ Wetlands or naturally designed ponds contributing to this credit are vegetated and have side slope gradients averaging 1:4 (vertical: horizontal) or less.

All open space that is counted toward this credit will be preserved for the life of the building.

SIGNATORY

Initial here:

A scaled site plan (and/or roof plan, if applicable), which shows the project site boundaries and highlights all open space and/or pedestrian-oriented hardscape areas contributing to credit achievement, is required to demonstrate credit compliance. The site plan shown below is a linked submittal. (If no document is present, or if the document does not include the required information, upload a site plan which meets the above requirements.)

Select one of the following:

- ☐ The master plan above includes all open space areas contributing to credit achievement.
- ☐ A different site plan is better suited to satisfy this requirement.

Upload SSc9-6. Provide a site plan showing all open space areas contributing to credit achievement.

STORMWATER DESIGN - QUANTITY CONTROL

Select one of the following:

- ☐ **Case 1.** Sites with existing imperviousness 50% or less.
- ☐ **Case 2.** Sites with existing imperviousness more than 50%.

CASE 1. EXISTING IMPERVIOUSNESS 50% OR LESS

Table SSc9-2. Site Runoff: One-Year, 24-Hour Design Storm

	Rate (cfs)	Quantity (cf/storm)
Predevelopment		
Postdevelopment		

Table SSc9-3. Site Runoff: Two-Year, 24-Hour Design Storm

	Rate (cfs)	Quantity (cf/storm)
Predevelopment		
Postdevelopment		

- ☐ **Option 1.** The postdevelopment site runoff rate and quantity reported above does not exceed the predevelopment site runoff rate and quantity for the one- and two-year 24-hour design storms.
- ☐ **Option 2.** The postdevelopment site runoff rate or quantity reported above exceeds the predevelopment site runoff rate or quantity. A stormwater management plan will be implemented to protect receiving stream channels from excessive erosion.

OPTION 1. NO INCREASE IN RUNOFF

CASE 2. EXISTING IMPERVIOUSNESS MORE THAN 50%

Table SSc9-4. Site Runoff: Two-Year, 24-Hour Design Storm

	Quantity (cf/storm)
Predevelopment	
Postdevelopment	
Percent reduction (Must be at least 25%)	

Upload SSc9-7. Provide a summary of the stormwater management plan to be implemented at the site, including:

1. Description of the stormwater management strategies.
2. Calculations supporting the runoff values reported above.

OPTION 2. STREAM CHANNEL PROTECTION

Upload SSc9-8. Provide a summary of the stormwater management plan to be implemented at the site, including:

1. Description of the quantity control strategies to be implemented.
(e.g., enhanced infiltration or evapotranspiration, rainwater reuse, etc.).
2. Description of the stream channel protection strategies to be implemented.
3. Critical capacity values for receiving streams.
(to demonstrate that waterways can accommodate the runoff values listed above)

STORMWATER DESIGN - QUALITY CONTROL

Table SSc9-5. TSS Removal Efficiency

List the TSS removal efficiencies for the Best Management Practices (BMP's) implemented at the project. The table will calculate the weighted TSS removal efficiency for each BMP based on the percentage of the site that the BMP treats. The table will also calculate BMP's that operate in a simple series. For more complex situations (such as two BMP's into one), either simplify the interactions to fit the table, or provide additional calculations in the Special Circumstances section of the form.

BMP Type/Label	BMP Description and/or Location	In Series with BMP Above?	Percent Site Treated by BMP	TSS Removal Efficiency (%)	Source of TSS Removal Efficiency data	Weighted Average TSS Removal Efficiency (%)
Total weighted average TSS removal efficiency (must be at least 80%)						

The percent site treated cannot be greater than 100

- ☐ The BMP's listed in the table are designed to treat stormwater runoff from 90% of the average annual rainfall.

HEAT ISLAND EFFECT - NON-ROOF

Select one of the following:

- ☐ **Option 1. Site Hardscape.** A combination of shading, high reflectance, and/or open-grid paving is provided for at least 50% of the site hardscape.
- ☐ **Option 2. Parking Under Cover.** At least 50% of parking is placed under cover.

OPTION 1. SITE HARDSCAPE

Select one of the following:

- ☐ **Reflective Materials.** The nonroof heat absorption reduction strategies at the project include materials with an SRI of at least 29.
- ☐ **No Reflective Materials.** The nonroof heat absorption reduction strategies at the project do NOT include materials with an SRI of at least 29.

Table SSc9-6. Reflective Materials

Complete the table below for all hardscape surfaces or architectural shading devices where materials with high reflectance are used to reduce heat absorption. SRI values can be entered manually (if known), or calculated based on material reflectance and emissivity. For projects using existing weathered gray concrete hardscapes, provide documentation in the "Additional Details" section of the form to demonstrate that the weathered surfaces have been sufficiently cleaned and lightened to qualify for the default SRI values.

Material Description	Area of Coverage (sf)	Reflectance (0-1)	Emittance (0-1)	SRI value (actual or calculated)
Total qualifying area (sf)				

Table SSc9-7. Heat Absorption Reduction Strategies

Complete the table below for all nonroof heat absorption reduction strategies employed at the project site.

Area shaded by current and future tree canopy, within 5 years of installation (sf)	
Area shaded by structures covered with energy-producing solar panels (sf)	
Area covered by qualifying reflective materials (sf)	
Area covered by open-grid pavement system (at least 50% pervious) (sf)	
Total area of qualifying nonroof hardscape surfaces (sf)	
Total area of all nonroof hardscape surfaces on project site (sf)	
Qualifying non-roof surfaces as a percentage of total non-roof surfaces (must be at least 50%)	

OPTION 2. PARKING UNDER COVER

Select one of the following:

- ☐ **Reflective Materials.** The project includes parking that is shaded or covered by materials with an SRI of at least 29.
- ☐ **No Reflective Materials.** The project does NOT include parking that is shaded or covered by materials with an SRI of at least 29.

Table SSc9-8. Reflective Materials: Parking

Complete the table below for all reflective surfaces covering or providing shade for parking at the project site. SRI values can be entered manually (if known), or calculated based on material reflectance and emissivity.

Material Description	Parking Spaces	Reflectance (0-1)	Emittance (0-1)	SRI value (actual or calculated)
Qualifying parking spaces				

Table SSc9-9. Parking Spaces Under Cover

Complete the table below for all parking at the project site.

Number of spaces covered by roofing materials with an SRI of at least 29	
Number of spaces covered by vegetated roof	
Number of spaces covered by roof covered by solar panels	
Number of spaces underground or under a building	
Number of all other spaces under cover, including spaces under a deck	
Total number of qualifying parking spaces	
Total number of parking spaces provided for building users (may include reserved off-site parking)	
Percentage of compliant parking spaces (must be at least 50%)	

A scaled site or landscape plan identifying all hardscape and parking areas at the project site is required to document compliance with SS Credit 7.1. The site plan below is a linked submittal. (If no document is present, or if the document does not include the required information, upload a site plan which meets the above requirements.)

Select one of the following:

- ☐ The master plan above identifies all planned hardscape and parking areas at the project site.
- ☐ A different document is better suited to satisfy this requirement.

Upload SSc9-9. Provide a site or landscape plan identifying all hardscape and/or parking areas.

LIGHT POLLUTION REDUCTION

INTERIOR LIGHTING

Select one of the following:

- ☐ **Option 1. Reduced Input Power.** For all nonemergency interior luminaires with a direct line of sight to any openings in the building envelope, input power is reduced by at least 50% between 11pm and 5am via automatic device(s).
- ☐ **Option 2. Shielding.** All openings in the building envelope with direct line of sight to any nonemergency interior luminaires are shielded between 11pm and 5am, for a resultant transmittance of less than 10%.
- ☐ No non-emergency interior lighting has a direct line of sight to openings in the building envelope.

A Licensed Professional Exemption (LPE) is available for Licensed Engineers in lieu of the following:

- 1) Drawings illustrating the location of automatic controls
- 2) Sequence of operation for interior lighting

Select one of the following:

- ☒ Streamlined Path: LPE (PE)
- ☐ Full Documentation.



LICENSED PROFESSIONAL EXEMPTION

NOTE: For each Licensed Professional Exemption claimed, the relevant licensed professional must complete the corresponding Exemption Signature on the Licensed Professional Exemptions tab in order to be considered a valid submittal. Elements highlighted in gray below are exempt.

Licensed Professional Exemption claimed by:

Upload SSc9-10. Provide documentation (such as plans or drawings) showing the location of automatic controls.

Upload SSc9-11. Provide documentation detailing the sequence of operation for interior lighting at the project building.

A Licensed Professional Exemption (LPE) is available for Licensed Engineers in lieu of the following:

- 1) Drawings illustrating the location of automatic shading devices
- 2) Sequence of operation for automatic shading devices
- 3) Specifications confirming that resultant transmittance is less than 10%

Select one of the following:

- ☒ Streamlined Path: LPE (PE).
- ☐ Full Documentation.



LICENSED PROFESSIONAL EXEMPTION

NOTE: For each Licensed Professional Exemption claimed, the relevant licensed professional must complete the corresponding Exemption Signature on the Licensed Professional Exemptions tab in order to be considered a valid submittal. Elements highlighted in gray below are exempt.

Licensed Professional Exemption claimed by:

Upload SSc9-12. Provide drawings illustrating the location of automatic shading devices.

Upload SSc9-13. Provide documentation detailing the sequence of operation for automatic shading devices.

Upload SSc9-14. Provide documentation (such as manufacturer product specifications) confirming that the resultant transmittance of shading devices is less than 10%.

EXTERIOR LIGHTING

Select one of the following:

- ☐ There are no exterior lighting devices within the LEED project boundary.
- ☐ Exterior lighting devices are present within the LEED project boundary.

Table SSc9-10. Lighting Power Density For Building Exteriors: Tradable Surfaces

For each tradable lighting surface, list the actual lighting power density (LPD) and the ASHRAE/IESNA Standard 90.1-2007 allowable LPD. Total actual exterior site lighting must not exceed the total ASHRAE allowable site lighting.

Location ID	Area or Length	Units	Actual LPD	ASHRAE Allowable LPD
Exterior site lighting actual power (Watts)				
Exterior site lighting ASHRAE allowable power (Watts) ¹				

¹Adds 5% unrestricted allowance per ASHRAE 90.1-2007

Table SSc9-11. Lighting Power Density For Building Exterior: Nontradable Surfaces

For each lighting surface, list the actual lighting power density (LPD) and the ASHRAE/IESNA Standard 90.1-2007 allowable LPD. For each surface listed, the actual LPD must not exceed the ASHRAE allowable LPD.

Location ID	Area or Length	Units	Actual LPD	ASHRAE Allowable LPD
Actual LPD for each nontradable surface less than or equal to the ASHRAE allowable?				

Classify the project under one of the following zones:

- ☐ **LZ1: Dark.** Developed areas within national parks, state parks, forest land and rural areas.
- ☐ **LZ2: Low.** Areas predominantly consisting of residential zoning, neighborhood business districts, light industrial with limited nighttime use, and residential mixed use areas.
- ☐ **LZ3: Medium.** All other areas not included in LZ1, LZ2 or LZ4 such as Commercial/Industrial, High-Density Residential.
- ☐ **LZ4: High.** High activity commercial districts in major metropolitan areas.
Note: To be LZ4, the area must be so designated by the local jurisdiction such as the local zoning authority.

Table SSc9-12. Site Lumen Calculation

Complete the table below for each fixture type. The percentage of site fixture lumens above 90 degrees from nadir should not exceed: 0 for LZ1, 2% for LZ2, 5% for LZ3, and 10% for LZ4.

Fixture Type	Quantity of Installed Luminaires	Initial Fixture Lumens per Luminaire	Initial Fixture Lumens Above 90 Degrees from Nadir	Total Fixture Lumens	Total Fixture Lumens Above 90 Degrees from Nadir
Total site fixture lumens					
Total site fixture lumens above 90 degrees from nadir					
Percentage of site fixture lumens above 90 degrees from nadir					

Upload SSc9-15. Provide an exterior photometric site plan showing the LEED project boundary and point-by-point foot candle levels 10 feet beyond the boundary for LZ2 and 15 feet beyond the boundary for LZ3 and LZ4.

- ☐ Light trespass requirements are met relative to the curb line instead of the site boundary, as the site boundary abuts a public right-of-way. (Optional)
- ☐ For the illuminance generated from a single luminaire placed at the intersection of a vehicular driveway and public roadway accessing the site, the centerline of the public roadway is used as the site boundary for no more than a length of 2 times the driveway width centered at the centerline of the driveway. (Optional)

ADDITIONAL DETAILS

- ☐ Special circumstances preclude documentation of credit compliance with the submittal requirements outlined in this form.

SPECIAL CIRCUMSTANCES

Describe the circumstances limiting the project team's ability to provide the submittals required in this form. Be sure to reference what additional documentation has been provided, if any. Non-standard documentation will be considered upon its merits.

Upload SSc9-SC. Provide any additional documentation that supports the claim to special circumstances. (Optional)

- ☐ The project team is using an alternative compliance approach in lieu of standard submittal paths.

ALTERNATIVE COMPLIANCE PATH

Describe the alternative compliance path used by the project team. Include justification that this path meets the credit intent and requirements. Be sure to reference what additional documentation has been provided, if any. Non-standard documentation will be considered upon its merits.

Upload SSc9-ACP. Provide any additional documents that supports the alternative compliance. (Optional)

SUMMARY

SS Credit 9: Site Master Plan Points Documented: