State of Washington- General Administration
LEED Project Implementation Guide for State Project Managers

This is a guide for State Project Managers responsible for delivery of a LEED™ certified building. LEED™ is the most widely recognized Green Building Rating System in the nation and is supported by the US Green Building Council through technical and educational support. Green Building can save on operational expenditures, provide healthy and productive work/learning spaces, and minimize environmental impacts locally and globally. This Guide provides tips on how to best implement a Green Building project in the State design and construction process.

1. **Learn more about Green Building.** Seek out Green Building experts, training, and web sites to learn more, and to help educate other decision-makers. This may include passing the test for LEED™ Accredited Professionals. To learn more about this process and locations for taking the test check the US Green Building Council’s website: [www.usgbc.org](http://www.usgbc.org)

2. Even before Pre-Design it would be wise to sit down with the Owner/Dept. Representatives to discuss Green Building goals. Use a LEED™ checklist to frame the discussion and document potential goals.

3. Make sure the **Pre-Design budget** allows for an Eco-Charrette** with the Architect, Mechanical Engineer, Lighting Designer, and a LEED™ consultant.

**Pre-Design**
The following activities should be included for a successful Green Building project:

4. As part of the **RFP/Q for the Architect**, include a requirement for Green Building and LEED™ experience. Indicate that it will be a strong element of the selection criteria. This must also be reflected on the Architect selection score sheet. The advertisement could read “The project shall meet, at a minimum, the US Green Building Council’s LEED™ Silver rating. The intent is to create a long life building that is energy, water and resource efficient, which may use daylighting techniques and natural ventilation strategies, and which provides good indoor air quality. Architects responding to this advertisement must have Green Building and LEED™ experience on their Design Team.” In negotiating fees, make sure to include an Eco-Charrette.

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*LEED™ – Leadership in Energy and Environmental Design. A consensus based document developed by the US Green Building Council, an international organization with over 11,000 member organizations. For more information see: [www.usgbc.org](http://www.usgbc.org).

**Eco-Charrette –** Green Building workshop usually 4 to 7 hours used to establish the Green Building goals for the project. Attendees should include the design team, future occupant
representative(s), maintenance staff, decision makers, and the Project Manager. The architect or LEED consultant will be responsible for preparing an Eco-Charrette summary report which will include a LEED Checklist.
5. Have an **Eco-Charrette** during Pre-Design to establish Green Building goals for the project. Participants should include the future occupants, maintenance and custodial staff, agency decision makers, the State PM, the architect, cost consultant, mechanical engineer, lighting designer, electrical engineer, structural engineer, civil engineer, LEED Consultant, and, if possible, the general contractor or a representative contractor. Many of these professionals may not be available at Pre-Design, but broad involvement is important. Use major LEED™ categories as a guide for the Eco-Charrette and use the LEED™ Checklist to document the goals. It is recommended to repeat or reconfirm this exercise at Schematic Design once the whole design team is available.

6. The Eco-Charrette and other programming phase accumulated data will drive scope development, which will in-turn drive the budget request. This should include: Eco-Charrette, Building Commissioning, and special **Green Building features that may cost more** (i.e. photovoltaic (PV) panels, wind turbines, green roof, gray water reuse system, rain water capture, daylighting, etc.). The value of the building as a teaching tool should not be overlooked. Some of the Green Building features may have program implications especially in the educational facilities.

Many Green Building systems that have a higher first cost may also have a payback that comes from operational savings. Additional funding may be available through utility grants for energy and water efficiency elements. It is not, however, a forgone conclusion that Green Building will cost more per square foot. Part of a Green Building strategy is to minimize materials and to employ features like natural cooling where appropriate. This can save on first cost and can provide on going operational savings. If there are cost savings in one area, these savings could be used for other Green attributes, such as PV panels.

7. Check with local utilities (energy and water) to determine if they have an incentive program that could offer additional funding for energy and water efficiency measures, and for renewable energy systems, such as PV panels. Some utilities will also provide technical assistance and/or funding for building commissioning and LEED™ certification.

8. **State LEED Quality Assurance Pre-Design submittal** for in state tracking? If established, submit the Pre-Design submittal.

**Schematic Design**

9. **Select an Architect with Green Building and LEED™ experience.** (See item 4 above).

10. **Conduct an Eco-Charrette to confirm or establish Green Building goals.** Use major LEED™ categories as a guide and use the LEED™ Scorecard to document the goals. Participants should include the future occupants, maintenance and custodial staff, agency decision makers, State PM, the architect, cost consultant, mechanical engineer, lighting designer, electrical engineer, structural engineer, civil engineer, Cx agent, LEED™ Consultant, and, if possible, the general contractor. If an Eco-Charrette was conducted
during pre-design re-confirm these goals. If a new architect and design team was selected, then a full Eco-Charrette is warranted. One of the outcomes from the Eco-Charrette must be the development of an Owner’s Project Requirements (OPR). From the OPR the architect will develop the Basis of Design (BOD). These are important documents that will help to drive the design process and are used by the Building Commissioning Agent to develop their scope of work.

11. **Designate a LEED™ Project Team Administrator.** This person should be involved very early and remain on the team until the project and the LEED™ process is complete. It is best if this person can also be a champion for LEED™ and Green Building in general. This person will be responsible for working with the Architect and owner to emphasize LEED™ Submittal preparation to all the Design Team members and the contractor. This person could be a separate consultant hired by the architect, a part of the architectural firm, or could be an owner’s representative.

12. **Register the project** with the US Green Building Council at LEED-Online (https://leedonline.usgbc.org/Login.aspx).

13. **Include an Energy Life Cycle Cost Analysis (ELCCA)** process to select the lowest life cycle cost energy systems. This would include evaluation of 2 to 3 different mechanical systems. The analysis includes first cost, energy costs, maintenance costs and equipment replacement costs over a 30 year period. The analysis is usually prepared by the mechanical engineer. An ELCCA work plan should be developed to determine which systems will be analyzed. The Project Manager, architect, mechanical engineer, and owners representative should be involved with the development of the ELCCA work plan. Forms, spreadsheets and instructions for the development of an ELCCA can be found at: www.ga.wa.gov/eas/elcca

14. **Identify the Design Team Members that are responsible** for the different LEED™ criteria. This should be done by the LEED™ Administrator. The LEED™ credits that are the Green Building goals for the project should be assigned to the appropriate Design Team members. These Design Team members should become familiar with their assigned LEED™ credits, appropriate LEED™ On-Line Templates (available on line with the US Green Building Council), and any associated documentation identified on LEED-Online. In this way the responsibility to collect the proper data and meet the specific LEED™ criteria is allocated across the Design Team. This reduces any one Design Team member’s level of effort regarding LEED™ documentation. This should greatly reduce much of the additional cost associated with providing the documentation for a LEED™ Silver (or better) building. The new LEED™ On-Line process greatly streamlines the LEED™ administration and submittal process. Have the LEED™ Administrator assign the state project manager with the title of Project Team Manager in LEED™ On-Line. This will provide access to all the LEED™ credits to review progress by the designated Design Team members throughout the design and construction process.

15. Hire a Building Commissioning Agent. **Early involvement by the Building Commissioning (Cx) Agent**, as opposed to late involvement, may not carry a significant
cost premium. It will reduce project design problems and will introduce Cx expectations early. Fewer disputes, attention to design intent, better bids, fewer change orders, reduced building start up problems, and properly trained building operating staff are just some of the expected results. These benefits lead to project cost savings that can often off-set the added cost of Cx. In addition, there will likely be operational savings based on a building that operates properly from initial occupancy.

16. **Local utility incentives** should be pursued. Include utility staff early in the design process to utilize their free technical assistance and initiate the financial incentive process. Often utilities (energy and water) will provide funding for analysis and building commissioning in addition to the funding of efficiency measures. Some utilities even offer an incentive for LEED™ certification.

17. **State LEED Quality Assurance SD submittal** for in state tracking? If established, submit the SD submittal.

**Design Development**

18. **Confirm that Green Building goals** are still being met in the design. Use a LEED™ scorecard as a way to track LEED™ compliance. Strategies to meet the LEED™ goals should be developed during this phase of design. Discuss Green Building goals as part of design meetings.

19. The **Energy Life Cycle Cost Analysis report** should be completed for review by the project manager and owner’s representative. A design meeting should be scheduled to discuss the results and to make decisions for selection of energy systems.

20. **Use Value Engineering (VE) to help attain LEED goals.** Require LEED™ experience as part of the advertisement and selection criteria for the VE team. In addition to the traditional VE focus, have the VE team make suggestions that will enhance the LEED™ effort. Consider a VE process that extends over more of the design process in smaller increments than that of a typical VE effort. The VE effort may be nearly the same, so may not impact the VE budget.

21. Make sure the **Cx Agent is involved** at each phase of design and attends selected design meetings.

22. Design **energy and water monitoring** into the project. Work with the Cx Agent, the mechanical and electrical engineers and the owner to develop an energy and water monitoring system that will work for the project. It is best to incorporate monitoring into the Energy Management Control System for ease of reporting and on-going building operations evaluation by the maintenance staff.

23. **Include the utility representative** in selected design meetings as appropriate.

24. Have the **project engineer develop a list of energy efficient measures** that will be eligible for the utility incentives. Provide the list to the utility representative for
approval. Also discuss approved analysis methods needed to obtain the incentive. The project engineer should take part in those discussions. There may be an addition cost for doing the utility incentive analysis. Make sure to negotiate this with the project engineer and architect.

25. **State LEED Quality Assurance DD submittal** for in state tracking? If established, submit the DD submittal.

**Construction Documents**

26. Have the appropriate **Design Team members report on the Green Building design elements and LEED™ criteria compliance.**

27. Make sure that proper **LEED™ documentation** is being prepared by the Design Team members responsible for their LEED™ credits.

28. Make sure that the **Construction Documents clearly state that this project is a LEED™ Silver** (or higher) project. Include reference to LEED™ goals in Division 1 of the bid specifications. References to LEED™ credits and the associated requirements should also be sprinkled throughout all Divisions, as appropriate. This will ensure that all the subcontractors are aware of their responsibilities regarding LEED™. The General Contractor and the Subcontractors are very important partners in the success of a Green Building project. Specifications must reflect the specific LEED™ goals for recycled content, energy efficiency, low VOCs, etc.

29. Make sure there is a **final Cx Agent review and comment** of the Construction Documents and that those comments are incorporated as appropriate.

30. The project engineer should submit the utility incentive analysis to the utility representative for approval. The utility representative will establish the level of the incentive.

31. Once the design is complete, submit it to the US Green Building Council for **LEED™ Design Review**. Make sure that all the LEED™ design credits are checked by the LEED™ Project Team Administrator. This will provide feedback from the USGBC and may indicate successful completion of the LEED™ credits or indicate where deficiencies exist. This added step is highly recommended and doesn’t cost anything more to the US Green Building Council. It provides an opportunity to correct deficiencies prior to the final submittal at the end of construction.

32. **State LEED Quality Assurance CD submittal** for in state tracking? If established, submit the CD submittal.

**Construction Phase**

Green Building does not end at the end of design. There are many LEED™ Green Building elements that are addressed in construction.
33. Include a **Pre-Bid presentation to discuss the Green Building goals** and the LEED™ requirements that are pertinent to the contractors. This would include site related issues; construction waste management plan requirement and the tracking of recycling efforts; documenting recycled content and low VOC materials, and the process for applying for substitutions; Construction IAQ Plan requirements; Cx effort requirements; and any other Green Building goals that contractors can impact.

34. **Meet with successful bidder and subcontractors** to review Green Building expectations and submittal requirements. Emphasize the importance of specific LEED™ requirements. Make the LEED™ related requirements a part of the Schedule of Values to ensure diligence in completing required reporting. Require that the General Contractor (GC) have LEED™ experience or attend a Build-It LEED™ training (or similar) designed to cover the LEED™ credits and prerequisites that the GC is responsible to complete. The training should also cover tools that could be used to help the GC track critical LEED™ information. This would include information tracking, development of job site binders, and LEED™ related policies with sign off sheets for subcontractors.

35. The General Contractor will be responsible for implementation of the **Erosion and Sedimentation Control Plan** that was developed by the civil engineer to protect the local environment.

36. **Development of a Construction Waste Management Plan** should be one of the early activities completed by the General Contractor (GC). This could include salvage and reuse of items that may have value in their current form, and could also include recycling of materials for use in a lower form (i.e. crushed concrete). CWM Plan implementation must include regular meetings between the GC superintendent or foreman, and the subcontractors where construction waste issues can be discussed. Safety meetings may provide an established regularly scheduled meeting where this could be included. A construction waste management guide including electronic planning and reporting tools is available at: [www.ga.wa.gov/eas/cwm](http://www.ga.wa.gov/eas/cwm)

37. Make sure that **Site related Green Building goals are achieved**. This includes Erosion and Sedimentation Control, Construction Waste Management implementation, creation and implementation of a **Construction IAQ Management Plan**, and may also include Reduced Site Disturbance. Request monthly LEED™ status report meetings, at a minimum. This should include review of the site LEED™ binders, LEED™ practices, the photo log, and sign off sheets showing the subcontractors have reviewed LEED™ policies.

38. **Building Commissioning activities** occur all through construction to make sure systems are installed properly. Testing of the systems to ensure proper operation, receipt of O & M manuals, and training are critical components of Building Commissioning. There will also be a final Cx report indicating that the Basis of Design was met.
39. **Confirm that Green Building goals** are not compromised during construction. Obtain proper documentation from the contractor based on the selected LEED™ credits. Make sure that any substitutions are consistent with LEED™ credits and that the overall LEED™ goal of at least LEED™ Silver is not compromised.

40. At **Substantial Completion** complete a State LEED™ Quality Assurance Submittal for Post Construction and submit it along with other information as indicated in the State LEED™ Quality Assurance Guidelines and the Post Construction submittal form.

41. Provide for **utility representative inspection** to finalize the incentive. Once they have confirmed installation of the energy efficiency measures, a utility incentive check will be presented to the owner.

42. Submit the **LEED™ Construction Review Submittal** to the US Green Building Council. This is done at the completion of the project and may include re-submittal of LEED™ Design Review credits that were corrected or changed since the LEED™ Design Review submittal.

43. Complete any **follow-up requirements with the US Green Building Council’s LEED™ Review** process.

44. Celebrate….the LEED™ project is complete.