Alberta Infrastructure

LEED[®] Project Delivery Process Manual

November 2016 Second Edition

Page

1.0	Intro	oduction	3
	1.1	LEED Project Delivery Process Manual	3
		.1 Purpose	3
		.2 What is it	3
	1.2	Alberta Government LEED Projects	3
	1.3	3 rd Party Certification	3
2.0	Gov	vernment of Alberta Green Building	4
	Req	uirements	
	2.1	Green Building Requirements	4
	2.2	Scope of Application	4
		2.2.1 Applicability Criteria	4
		2.2.2 LEED Silver Certification rating	4
	~ ~	achievement means	_
	2.3	Green Building Reporting Requirements	5
	2.4	Green Building Policy Support	5
		2.4.1 Funding	5
		2.4.2 Expertise	5
		2.4.3 Inter-agency Peer Support Group	5
3.0	lmp Imp	lementation: Process for Successfully lementing Government of Alberta LEED	6
	Req	uirements	
	3.1	Pre-Project (before design team is hired)	6
	3.2	Concept Design	6
	3.3	Design Development	7
	3.4	Construction Documents	7
	3.5	Procurement	7
	3.6	Construction	8
	3.7	Post-Construction	8
4.0	Арр	lication: LEED Project Management	9
	Stra	ntegies and Tactics	
	4.1	Project Set-Up Success Factors (before design team is hired)	9
	4.2	Concept Design	11
	4.3	Design Development	12
	4.4	Construction Documents	14
	4.5	Procurement	15
	4.6	Construction	15
	4.7	Post-Construction	17
5.0	Арр	oendices	18

1.1 LEED PROJECT DELIVERY PROCESS MANUAL

.1 Purpose:

.1 This manual is intended to be a "how-to" tool for use by project managers throughout the Alberta Public Sector, when implementing the Government of Alberta LEED Silver Requirements

.2 What is it:

- .1 This manual was customized for Alberta Government capital projects. Input for the content and organization of the manual was obtained through a collaborative process involving a wide range of public sector project managers.
- .2 The manual consists of an introduction, a Sustainability Requirements explanation section, a "what to do" section, a "how to do it" section, and an Appendix with supporting materials including a list of LEED credits that have been successful in Alberta.
- .3 The manual will be posted on the Alberta Infrastructure Technical Resources website and will be a live document revised as experience and new information dictate.

1.2 ALBERTA GOVERNMENT LEED PROJECTS

- .1 The Government of Alberta is a Canadian leader of green building. There are currently 108 LEED certified buildings that have been funded or supported by Alberta Infrastructure.
- .2 The portfolio of projects include schools, health care facilities, postsecondary buildings and unique building types such as correctional facilities and research centres. The first LEED certified greenhouse in Canada is an Infrastructure project, located in Brooks, Alberta.

1.3 3rd PARTY CERTIFICATION:

- .1 Certification prevents "Greenwashing" (claiming projects are greener than they are).
- .2 The process of working to certification adds discipline to individual decisions on projects.
- .3 Obtaining certification gives third party credibility to assertions made by government.
- .4 A third party standard provides consistency of measurement.

2.1 GREEN BUILDING REQUIREMENTS

- .1 The province made a commitment on May 11, 2006, that new capital projects funded and supported by the Government of Alberta will achieve a minimum LEED Silver Certification rating.
- .2 This commitment works in conjunction with the existing design guidelines, standards, mandatory LEED credits and requirements as posted on the Technical Resource Centre website, (<u>http://www.infrastructure.alberta.ca/500.htm</u>):
 - Technical Design Requirements for Alberta Infrastructure Facilities

2.2 SCOPE OF APPLICATION

- .1 Applicability Criteria
 - .1 All capital projects implemented by Alberta Infrastructure that receive their funding from the Province of Alberta and meet the following criteria:
 - .1 All Tier 1 projects defined by Infrastructure's Technical Design Requirements for Alberta Infrastructure Facilities.
 - .2 Any other project shall follow the applicable requirements outlined in the Alberta Infrastructure's Technical Design Requirements for Tier 2, 3 and 4 categories. Refer to the Green Building Standards Deliverables Checklist for guidance on document review requirements for these other tiers.
- .2 LEED Silver Certification rating achievement means:
 - .1 Register project with the Canada Green Building Council (CaGBC)
 - .2 Meet all LEED prerequisites and mandatory credits defined by Alberta Infrastructure's Technical Design Requirements
 - .3 Achieve at least 50 of 110 possible LEED credits
 - .4 Complete necessary LEED documentation for prerequisites & credits
 - .5 Submit a complete application for certification to CaGBC
 - .6 Provide any supplementary documentation required by CaGBC to achieve LEED certification.

2.3 GREEN BUILDING REPORTING REQUIREMENTS

- .1 At completion of concept design, submit the LEED Scorecard for the project, including a description of how each point is gained, to the owner's Project Manager. Submit interim LEED scorecard with design review submittals for the design development report and construction documents at 75%.
- .2 At pre-tender stage submit a formal LEED scorecard.
- .3 After Mechanical shop drawings are approved and final energy simulations are run, submit a final scorecard.
- .4 When the submission to the CaGBC is completed, submit an electronic copy to Alberta Infrastructure.
- .5 When the final LEED Certification is received from the CaGBC, deliver a copy to Alberta Infrastructure.

2.4 GREEN BUILDING SUPPORT

- .1 Funding
 - .1 The base budgets for all capital projects funded by Government Departments are established assuming a design that achieves LEED Silver certification.
- .2 Expertise
 - .1 Each project must have a designated experienced LEED Accredited Professional as part of the design team.
 - .2 The contractor is to be required to provide a designated experienced LEED Accredited Professional or Green Associate individual who is responsible for the application of the contractual requirements of LEED.
- .3 Inter-agency Peer Support Group
 - .1 To allow project managers to learn from each other, Agencies are encouraged to have project managers meet in a forum which is supportive of open discussion of problems, failures and solutions in the application of the LEED rating system.

Condensed Process / Project Checklist – more detail in Section 4 "Application"

Project Phase / LEED Policy Element Do			Done
3.1		PRE-PROJECT (before design team is hired)	
	.1	Ensure staff performance measurement process supports green building process and objectives	
	.2	Appoint / Identify a Green Building Steward for the project	
	.3	Use an Integrated Design Process (IDP) to Identify the appropriate stakeholder groups to help define success	
	.4	Develop a project-specific vision for the project	
	.5	Select a suitable project delivery method	
	.6	Include critical green building considerations in consultant selection process	
	.7	Include key green building elements in Feasibility Study	
	.8	Include key green building elements in Program Development Study	
	.9	Ensure all Green Building Design Deliverables are complete	
3.2		CONCEPT DESIGN	
	.1	Use an Integrated Design Process (IDP) involving all the key stakeholders	
	.2	Identify benchmarks for project and building type	
	.3	Set specific green building goals and performance measures for the project.	
	.4	Target specific LEED credits and complete the LEED Checklist/Scorecard	
	.5	Engage a Commissioning Authority to ensure the LEED Commissioning prerequisite (and additional Best Practice Commissioning Credit, if pursued) is met:	
	.6	Include key LEED support roles on project team	
	.7	Review most up to date LEED requirements (including addenda, errata, etc)	
	.8	Review LEED Management reports.	
	.9	Ensure all Green Building Design Deliverables are complete	

3.0 - Implementation: Process for Successfully Implementing Government of Alberta LEED Requirements

3.3		DESIGN DEVELOPMENT	
	.1	Continue to use IDP process to further advance concepts	
	.2	Verify the project is registered with the Canada Green Building Council (CaGBC).	
	.3	Review the LEED Commissioning Requirements	
	.4	LEED Documentation Organization and Compilation	
		.1 Establish the format for collecting the LEED Documentation	
		.2 Inform the appropriate contributors of format and deadlines for input.	
		.3 Identify a LEED Coordinator to oversee documentation and certification	
		.4 Keep the documentation in chosen format	
	.5	Identify potential Credit Interpretation Requests (CIRs)	
	.6	5 Track progress and update the LEED Checklist monthly, and at all key project milestones	
	.7	Review each targeted LEED credit for inclusion in the Construction Documents	
	.8	Ensure all Green Building Design Deliverables are complete	
3.4		CONSTRUCTION DOCUMENTS	
	.1	Finalize the LEED Commissioning Requirements in contract documents	
	.2	Finalize the LEED Documentation Organization and Compilation in contract documents. Specify expected timelines for submittals in contract documents.	
	.3	Track progress and update the LEED Checklist monthly , and at all key project milestones	
	.4	Ensure each targeted LEED credit is included in the Construction Documents	
	.5	Ensure all Green Building Design Deliverables are complete	
3.5		PROCUREMENT	
	.1	Explain LEED goals & note contractor LEED documentation responsibility	

3.0 - Implementation: Process for Successfully Implementing Government of Alberta LEED Requirements

3.6	CONSTRUCTION	
.1	Ensure Contractor obtains approval of LEED Plans prior to construction start	
.2	Ensure LEED submittals requirements are submitted within time specified in contract documents	
.3	Ensure Shop Drawing approvals include all LEED requirements	
.4	Review LEED Management reports monthly	
.5	Ensure Construction Phase Commissioning monitored appropriately	
.6	Ensure Staff & Occupant Training provided	
3.7	POST-CONSTRUCTION	
.1	Complete & Submit LEED Documentation, once occupancy is granted within timelines specified in contract documents.	
.2	Respond to CaGBC requests or clarification or additional material	

4.1 PROJECT SET-UP SUCCESS FACTORS (before design team is hired)

The following steps identify key factors that will help set the stage for a successful project and should take place before the design team is engaged

- .1 Ensure staff and consultant performance measurement process supports green building process and objectives.
 - .1 What gets measured gets managed, therefore include the minimum LEED Silver certification as part of staff & consultant performance management plan.
 - .2 Ensure other elements of staff and consultant performance measurement schemes are not a barrier to achieving the Vision and Goals. If the "scope, schedule and budget" order doesn't include the green building vision and goals, they probably won't be delivered.
 - .3 One of the best ways to embed the green building vision and goals is to ensure that the directive from management to the internal project team explicitly notes the green building Vision and Goals.
 - .4 Engage the Technical Services Branch for consultation.
- .2 Identify a Green Building Steward (GBS) for the project
 - .1 The GBS should be a LEED Accredited Professional with Specialty (LAP) or LEED Green Associate (LGA), and ideally should have experience with comparable projects.
 - .2 The GBS may or may not be a staff position with Alberta Infrastructure. Ideally the GBS is an employee of the building owner, however, the role could be contracted for. Some possible people who can carry the GBS role are the LEED Coordinator, project manager or the independent LEED Commissioning Authority. It is important that the GBS reports directly to the owner.
 - .3 The GBS role is to act as the owner's representative to verify the project meets the minimum LEED Silver commitment.
- .3 Use an Integrated Design Process to engage and empower an appropriate stakeholder group to help define success for the project, particularly the green building aspects.
 - .1 It is important to think holistically and inclusively to ensure the appropriate people are involved early enough in the process to provide meaningful input on the project. It has been found that early involvement of a diverse stakeholder group facilitates the development of green buildings.
 - .2 At the pre-project stage, it is recommended to engage a broader and more diverse group which may include additional stakeholders such as: local residents, community organizations, businesses, and others (dependent on the project type) in order to better define or refine the project scope. Integrated Design Process can be used as a tool to build this engagement in the project.

- .4 Develop a project-specific Vision that articulates Government Green Building requirements in more detail for this project
 - .1 This is best done collaboratively with all the key stakeholders in order to build support for the project. Workshops, charrettes, facilitated meetings are all tools that you can use to generate this Vision. This can be the beginning of the IDP process. (see Appendix 3 for tools in developing green building visions HP Sustainability Matrix; LEED checklists).
 - .2 Once the project-specific Vision is defined, it becomes the destination and the compass for the entire project to refer to.
- .5 Select, if you have the choice, a suitable project delivery method. If you are constrained and don't have a choice, weave the key elements into your process. Decide on timeframe for LEED submittals to be completed by the project team, include these in consultant deliverable documents and contract documents. A suggested timeframe is 60 days from occupancy.
- .6 Ensure consultant selection process includes four pieces critical to green building design
 - .1 Look for the right attitude in both individuals and in team participation.
 - .2 Look for the right experience, with a demonstrated ability to work collaboratively.
 - .3 Get the right expertise on the team, in addition to the traditional design disciplines.
 - .4 Ensure the compensation to the team does not inadvertently raise barriers to green design.
- .7 If the project scope or organizational policy requires a Feasibility Study, ensure that the Study:
 - .1 Includes sufficient sustainable design strategies for the project.
 - .2 Proposes and evaluates alternatives and full life-cycle implications accordingly.
 - .3 Documents the discussion and decision process for the LEED Certification file
- .8 If project scope or organizational policy requires a Program Development Study, ensure that the Study:
 - .1 Establishes sustainable design goals and refines architectural, systems, and operational choices in light of these goals.
 - .2 Uses the LEED Checklist to identify specific sustainable design strategies to meet the project's goals.
 - .3 Proposes a construction budget that can accomplish sustainable design goals.
- .9 Ensure all Green Building Design Deliverables are complete.

4.2 CONCEPT DESIGN

The Green Building Steward's (GBS) role during Concept (Schematic Design) is to ensure the rest of the objectives, as follows, are met.

- .1 Use an Integrated Design Process (IDP) to harness the talents and energies of all interested parties to create and support the projects goals and the green building commitment. See Appendix 3 for guidance on IDP.
 - .1 Engage an IDP facilitator. This individual can be a member of the design team, or the owner, or could be contracted out.
 - .2 Plan IDP charrettes, including a Launch or Kick-off charrette
 - .3 Ensure key stakeholders are included in IDP (i.e. energy modeler, LEED Commissioning agent, LEED coordinator and costing consultant).
 - .4 Conduct Launch or Kick-off charrette
 - .5 Model baseline and proposed energy use and costs in order to capture synergies that ensure cost containment
 - .6 IDP Outputs and Outcomes should include (see Appendix 2 for more detail):
 - .1 Documented Owner's Requirements (Project Vision/Design Intent)
 - .2 Performance Targets, including targeted specific LEED Credits
 - .3 Reference Case Baselines and Benchmarks for both energy and costs
 - .4 Alternative Solutions
 - .5 Follow-through Work Plan of Action Items
- .2 Identify benchmarks for project and building type.
 - .1 It is important to identify benchmarks, both for the building type and for the scope of this project, so as to optimize the effort and investment that will make this a green building.
 - .2 Benchmarks are required for the LEED energy modeling and for identifying any extraordinary cost savings or differences. Set a range for Energy Use Intensity (EUI) goals in ekwh/m².
- .3 Set specific green building targets and performance measures for the project. These targets should be SMART (Specific; Measurable; Appropriate; Realistic; Time bounded). They should be expressed in language that is easily understood by both the owner and the design professionals. See Appendix 7 for more detail on goal-setting and performance measurement setting processes.
- .4 Target specific LEED credits and points
 - .1 Complete the LEED Checklist/Scorecard (and update it as and when required throughout the project).
 - .2 Use the LEED points for Alberta (Appendix 3) as a starting point for targeting specific LEED Credits.
 - .3 Verify Infrastructure's mandatory LEED credits are included. (Appendix 1)

- .3 Review the LEED Checklist Summary for this project
 - .1 Accountability is the key to cost effective & high performance. Verify that the LEED Checklist includes space to assign responsibility for each targeted credit to an individual on the design and construction team to ensure that the credit it implemented and to report on progress throughout the project.
- .5 Engage a Commissioning Authority to ensure the LEED Fundamental Commissioning and Verification prerequisite (and additional Enhanced Commissioning Credit, if pursued) is met:
 - .1 Prerequisite commissioning authority must not include individuals directly responsible for design or construction management
 - .2 Additional Credit commissioning authority must be independent of the design team. The Commissioning authority must be a 3rd party contracted directly with the owner.
- .6 Include key LEED support roles on project team, at least one of which must be a LEED Accredited Professional with Specialty:
 - .1 LEED coordinator design team
 - .2 Energy Modeler
 - .3 Cost modeler
 - .4 LEED Commissioning Authority
 - .5 LEED Champion contractor if possible at this stage of the project
- .7 Review the most up to date requirements for LEED V4 certification with the Canada Green Building Council, and Green Building Certification Institute, including addenda, errata, etc. and ensure that these requirements are referenced throughout the design process.
- .8 Review the LEED Management summary monthly.
- .9 Ensure all Green Building Design Deliverables are complete.

4.3 DESIGN DEVELOPMENT

The Green Building Steward (GBS) role during Design Development is to ensure that the objectives identified in Concept Design are met.

- .1 Continue IDP Process in order to further develop schematic concepts, capture synergies and contain costs
- .2 Register the project with the Canada Green Building Council (CaGBC) at initiation of design.
 - .1 Registration is an important step that establishes contact with the CaGBC and provides access to essential information such as Credit Interpretation Requests (CIRs), letter templates and other software tools and information that facilitates the formal LEED application process.
 - .2 LEED registration is done on-line at <u>www.cagbc.org</u>
 - .3 Alberta Infrastructure is a member of CaGBC and pays a reduced fee for project registration.

- .4 All LEED registration and certification fees shall be paid by the project
- .3 Review the fundamental LEED Commissioning requirements with the LEED Commissioning Authority to ensure the quality control issues needed to achieve the LEED prerequisite (and the additional requirements if the additional Enhanced Commissioning Credit is pursued) are in place
 - .1 It is critical to have engaged the commissioning authority at the concept/schematic stage to ensure key elements of the LEED prerequisite for "Fundamental Building Systems Commissioning" are met.
- .4 LEED Documentation Organization and Compilation
 - .1 Establish the format for collecting the LEED Documentation and inform the appropriate contributors as to the format and deadlines for their input. This should include all documentation and calculations that will eventually be needed to satisfy LEED submittal requirements. The earlier the documentation work begins, the easier and faster the entire LEED certification process will be.
 - .2 The GBS should ensure there is a LEED Coordinator identified to oversee and coordinate the documentation and certification process. The LEED Coordinator should be a LEED Accredited Professional (LAP).
 - .3 The LEED v4 Reference Guides describe in detail all Certification submittal requirements.. LEED Online also helps to make documentation easier.
 - .4 LEED Documentation should be catalogued for easy access.
- .5 Identify potential Credit Interpretation Requests (CIRs)
 - .1 There may be some LEED credits that the design team wishes to seek clarity on from the CaGBC. The CaGBC has established a review process for inquiries from registered project, called Credit Interpretation Requests (CIRs). This process is to ensure that rulings are consistent and available to other projects. CIRs are accessible on the CaGBC website www.cagbc.org
 - .2 If a question arises, project teams should:
 - .1 Consult the LEEDv4 Reference Guides for a detailed description of the credit intent, requirements, and calculations.
 - .2 Review the intent of the credit or prerequisite in question to selfevaluate whether the project meets the intent.
 - .3 Review the Credit Interpretation (CIR) web page for previously logged CIRs on relevant credits.
 - .4 If no previous CIR addresses the question, submit a credit interpretation request using the online form. The inquiry should be succinct and based on information found in the LEED Reference Guide, with emphasis on the intent of the prerequisite or credit.

- .6 Update the LEED Checklist and track progress on a monthly basis throughout all phases of design.
 - .1 The LEED Coordinator is responsible for coordinating input and updating the LEED Checklist as new project design evolves so that if a project is not achieving the level of LEED Silver appropriate corrective action can be taken.
- .7 Review each targeted LEED credit for inclusion in the Construction Documents (Drawings and Specifications).
 - .1 The person responsible for signing off each LEED credit should be involved in developing strategies that will ensure their LEED credit is achieved.
- .8 Ensure all Green Building Design Deliverables are complete.
- .9 The Split Review process is encouraged, whereby the design related credits are submitted to the CaGBC after design is finalized. If the split review is used, complete & submit all required LEED Documentation for submission of design credits to the LEED authority (CaGBC) and submit an electronic copy to ALBERTA INFRASTRUCTURE.

4.4 CONSTRUCTION DOCUMENTS

The Green Building Steward (GBS) role during Construction Documentation is to ensure that the specific design solutions identified in Design Development are incorporated in the Construction Documents.

- .1 Review the LEED Commissioning requirements with the independent LEED Commissioning Authority (if the additional Enhanced Commissioning Credit is pursued) to ensure the quality control issues needed to achieve the LEED prerequisite and credit are in place
 - .1 It is critical to have engaged the commissioning authority at the concept/schematic stage to ensure key elements of the LEED prerequisite for "Fundamental Commissioning and Verification" are met.
- .2 LEED Documentation, Organization and Compilation
 - .1 Finalize the format for collecting the LEED Documentation and ensure documents clearly specify who the appropriate contributors are and the format and deadlines for their input. This should include all documentation and calculations that will eventually be needed to satisfy LEED submittal requirements.
 - .2 Each person responsible for completing a LEED Letter Template should be required to sign off that their issues have been adequately covered in the contract documents.
- .3 Update the LEED Checklist and track progress on a monthly basis throughout all phases of design.
 - .1 The LEED Coordinator is responsible for coordinating input and updating the LEED Checklist as new project design evolves so that if a project is not achieving the level of LEED Silver appropriate corrective action can be taken.

- .4 LEED Documentation of targeted points
 - .1 Ensure that each LEED credit targeted by design is included in the Construction Documents (Drawings and Specifications).
 - .2 The GBS should ensure that the LEED Coordinator identified in Design Documents continues to oversee and coordinate the documentation so that all the relevant documentation that can be completed by the end of construction documents has been completed.
- .5 Ensure all Green Building Design Deliverables are complete.

4.5 PROCUREMENT

- .1 Post-tender Meeting:
 - .1 Explain & clarify LEED intentions & process noting which LEED credits the successful contractor is responsible for documenting. Clarify timelines and expectations for submittals.
 - .2 The contractor is responsible for collecting and documenting a number of the credit points, as well participation in ways of achieving other design-based credit points.
 - .3 It is critical at these meetings to ensure the various contractors understand both the overview of LEED and the specifics of their contractual obligations.
 - .4 The applicable clauses in the specification should be brought to their attention and clarified if there are any questions or concerns.

4.6 CONSTRUCTION

- .1 LEED Plans Approval:
 - .1 Ensure Contractor obtains approval, prior to start of construction, from LEED Coordinator of the following LEED Plans (e.g. Erosion & Sedimentation Control; Construction Waste Management; Construction Indoor Air Management) that are the primary responsibility of the contractor.
 - .2 These plans may have been developed and included in the contract documents for the contractor to execute and document. Alternately, the plans may need to be developed by the contractor. Either approach is acceptable to meet the LEED intent. Whichever way is chosen these plans should be reviewed by the contractor and approved by the LEED Coordinator prior to start of construction.
- .2 LEED Material Information Submittals:
 - .1 Material Information Submittals. Ensure that the contractor submits these within the timelines noted in contract documents.
 - .2 The Materials Information Submittals are the key control strategy for ensuring that the applicable LEED points will be achieved for Building Product Disclosure and Optimization credits(i.e. environmental product declarations, sourcing of raw materials, material ingredients and low emitting materials (i.e. adhesives, paints, carpets and composite wood). Prompt submittal and review is the way to keep on top of these credits.

- .3 These submittals should be reviewed by the LEED Coordinator and the appropriate consultants following the same process as for other submittals.
- .4 The LEED Coordinator should be responsible for reporting back to the Project Manager if any of the LEED credits targeted are at risk.
- .3 Shop Drawing approvals;
 - .1 Shop drawing approvals are an essential control strategy of the LEED process.
 - .2 All building elements which are required to obtain shop drawing approval should be routed via the LEED Coordinator and LEED Commissioning authority in addition to the appropriate consultant, all of whom should ensure the intent of LEED is being met.
- .4 LEED Management monthly reporting and review:
 - .1 Monthly reporting on the progress status of each LEED credit is a key control strategy.
 - .2 This monthly reporting is intended to provide the Project Manager with a high level view of the LEED process.
 - .3 The monthly report is developed by the LEED Coordinator, who obtains an assurance of achievement of the LEED requirements/submittals for each credit from the appropriate consultant or contractor whose responsibility it is to manage the details and keep the back up documentation for each of the credits they for which they are accountable.
- .5 Construction Phase Commissioning:

Construction Phase Commissioning is the traditional "start-up" commissioning that is generally included in the construction documents and handled by a commissioning agent who works for the contractor. Verify coordination with the specifications.

- 1. This work includes (by not limited to):
 - a. installation verification
 - b. start up and test, adjust and balance equipment and systems
 - c. Complete and submit all reports including:
 - i. Contractor's system and equipment start-up reports.
 - ii. Testing, adjusting and balancing reports.
 - iii. Manufacturer's equipment start-up reports.
- 2. This work should be closely monitored by the appropriate consultants and by the LEED Commissioning Authority who works directly for the owner.
- .6 Staff & Occupant Training:
 - .1 It is critical that the operations and maintenance personnel have the knowledge and skills required to operate the facility to meet the owner's Design Intent.

- .2 The occupants also need to understand their impact on the use of the facility and its ability to meet the owner's design intent.
- .3 Training materials should include or utilize the following items:
 - .1 Copy of the Training Plan including schedule, syllabus, and agenda.
 - .2 Systems Manual.
 - .3 Manufacturers' training manuals.
 - .4 Electronic media or videotapes of manufacturers' or vendors' training and service materials.
- 3. An operations and maintenance manual will be provided by the contractor, which will be closely integrated with the training.

4.7 POST-CONSTRUCTION

- .1 Complete & Submit all required LEED Documentation to the LEED Coordinator and/or LEED Online as required for official submission to the LEED authority (CaGBC) and submit an electronic copy to ALBERTA INFRASTRUCTURE
 - .1 Once occupancy has been granted the LEED documentation can be completed, submission to be completed within time specified in the contract documents. A suggested timeframe is within 60 calendar days of occupancy.
 - .2 LEED Documentation submission must include the corresponding certification fee payable to the Canada Green Building Council.
 - .3 The Alberta government is a member of CaGBC, and pays a reduced fee for certification. For applicable rates, see the CaGBC website www.cagbc.org
- .2 Respond to CaGBC
 - .1 Once the LEED certification has been submitted to the CaGBC it will be reviewed by an independent team of reviewers who will review each credit submission to determine whether sufficient information has been submitted to warrant achievement of the credit.
 - .2 If the reviewers decide insufficient information has been provided they will ask for the required information.
 - .3 The identity of the reviewers is kept confidential by all communication passing through the CaGBC.
- .3 When project certification is received from the Canada Green Building Council/GBCI, provide a copy to Alberta Infrastructure.

- Other Alberta Requirements and Green Building Standards
- Appendix 1: Appendix 2: Appendix 3: Integrated Design Process Tools LEED Points Achieved on Alberta Projects