



DEPARTMENT OF GENERAL SERVICES
Real Estate Services Division

**Supplemental Report
Of the 2007 Budget Act
Item 1760-001-0666 1(c)
Green Buildings**

Overview

Pursuant to the 2007 Supplemental Report Language, Item 1760-001-0666 1(c), the Department of General Services (DGS) will provide a report to the Legislature by January 10, 2008, outlining the department's plan to develop staff expertise related to the United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) green building rating system. This effort is designed to develop in-house LEED certification expertise and transition away from DGS reliance on private green building consultants by 2010-11. The report shall (i) detail how private consultants will interact with departmental staff to transfer green building expertise; (ii) describe the timetable for departmental staff development; and (iii) indicate how the use of private consultant services will be ramped down as the departmental staff gains expertise. Additionally, the report shall outline a LEED certification-training schedule for DGS and other appropriate State agency staff, including architectural, design, operations and maintenance, engineering, project management, and building management staff. The report shall also indicate the expected number and type of State personnel to be trained by 2010-11.

Partnering with Consultants

Private consultants interact with the DGS on a regular basis. These discussions cover a broad basis of technical and professional criteria.

The DGS engaged an in-house team, other State participants, and the services of private sector consultants on the development of the DGS "In House Commissioning Program" for small and large projects. A "Toolkit for In-House Commissioning of Small Buildings" was developed and implemented this past year.

Private consultants are an integral part of the capital project delivery process. The implementation of the LEED-New Construction (LEED-NC) Program began with private consultants participating with the DGS' staff in design charettes for the determination of LEED criteria on a project by project basis. The DGS utilizes private consultants in the training of staff on an informal and formal basis. Professional trade organizations and design/engineering firms have presented several LEED training sessions to the DGS' staff this past year.

In the current fiscal year, the DGS Real Estate Services Division received \$2.971 million in expenditure authority to secure private consultants to pursue LEED-

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Existing Building (LEED-EB) goals for 11 DGS-owned State office buildings. In addition to assisting the DGS in securing LEED-EB certification of its buildings, the consultant will be responsible for developing and implementing a comprehensive LEED-EB training program for the DGS' staff (building operators, engineers, and building managers). This training program will be designed to inform and to develop in-house staff expertise to enable these resources to work independently towards the LEED certification of DGS buildings.

Training and Development of State Resources

The DGS Green Team has developed and provided an in-depth LEED-NC training course to 100 DGS real estate professionals in the Fall 2007. These professionals represented all aspects of management and professional expertise including architects, project directors, engineers (mechanical, electrical, structural, civil), landscape architects, inspectors, space planners, designers, Division of the State Architect professionals in four offices, and Office of Public School Construction staff. This 19-hour course included in-depth instruction, study of reference materials, team exercises, LEED building tours, and a full-length mock exam, preparatory to taking the LEED AP exam that is administered separately by the USGBC.

A second LEED-NC training session will be offered January 8 through March 21, 2008, to additional DGS professionals, and via telecast to professionals from other State agencies including the Department of Motor Vehicles, Department of Transportation, Department of Parks and Recreation, and the California Department of Corrections and Rehabilitation. This training is being offered at no cost to applicable State agencies, but will require video conferencing capability. This training will likely be offered again in 2008, as needed, to reach all affected building professionals. As future updates in LEED-NC occur, supplemental trainings will be developed to update professionals.

A syllabus of the January 2008 training class is attached.

The consultant retained for the implementation of the DGS' LEED-EB certification program will also be responsible for providing consulting and analytical services to develop, train, implement, coordinate, and manage a LEED-EB Documentation/Review/Certification/ Recertification/Training Program. As part of that program, the consultant will develop LEED-EB Certification Processes working in conjunction with DGS LEED staff to coordinate site surveys, performance period activities and on-site training sessions with the DGS' building operators, engineers and building and regional managers for each of the DGS' buildings.

Knowledge Transfer

The DGS has taken a strong leadership role in the State's effort to develop staff expertise related to the USGBC's LEED green building rating system. The DGS Green Team has professional staff that coordinates closely with the USGBC during the development of policy and technical requirements for the implementation of LEED criteria. The DGS is currently working with the USGBC on a model for volume registration of its entire portfolio, as well as implementing its recently developed Best Practices Manual as a precursor to the LEED-EB certification process. In addition, this staff conducts training and development programs for DGS staff and other State agencies.

By developing and deploying LEED training and certification programs, managing the Statewide benchmarking and retro-commissioning programs, instituting green and sustainable policies in its leasing program, and implementing solar and other on-site generation projects, the DGS Green Building Program has expanded into a comprehensive, multi-faceted plan designed to ensure the State achieves its greenhouse gas and energy reduction goal.

The DGS' LEED programs are designed to be a model and knowledge-base for use by all State agencies when certifying their buildings and developing in-house LEED certification expertise. The DGS has outlined a 10-step process to implement many of the management policies that will earn LEED-EB points and achieve LEED-EB certification.

DGS will continue to sponsor LEED training for its professional staff and other State agencies with the goal of certifying all appropriate staff as LEED Accredited Professionals.

LEED CERTIFICATION & ACCREDITATION TRAINING

Instructor: **Dan Burgoyne**, Sustainability Manager, CA Department Of General Services
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COURSE INTRODUCTION AND OBJECTIVES

This course will define and layout the certification process of buildings utilizing the Leadership in Energy and Environmental Design (LEED) Green Building Rating Systems. These green building rating systems, developed by the U.S. Green Building Council (USGBC), are the building industry's leading environmental standard. The course will primarily focus on exploring the LEED-NC (for New Construction) rating system, including the process of registering, documenting, and certifying LEED projects using LEED-Online. Other LEED rating systems will also be introduced and briefly discussed including LEED-EB (for Existing Buildings), LEED-H (for Homes), LEED-CI (for Commercial Interiors), LEED for Schools, and other LEED standards, application guides, and resources. Examples from local as well as State projects will be used to illustrate the attainment of LEED criteria, and case studies will be reviewed and discussed. Tours and discussions of local or regional LEED certified buildings will be included during one class session to help visualize building and site elements that contribute to LEED certification.

Class participants who apply themselves should gain an in-depth understanding of the LEED-NC rating system, and the process to document and obtain LEED certification for buildings. This will help prepare them to participate in and/or lead the documentation and certification of LEED projects and/or to take the LEED-NC Professional Accreditation exam. This is not a USGBC sponsored class; however, the USGBC is very supportive of educational programs that promote green building, and offer quantity discounts for multiple copies of the LEED-NC version 2.2 Reference Guide. Contact your training coordinator about ordering any copies needed of Reference Guide for personal study.

Regular study of the LEED-NC version 2.2 Reference Guide concurrently with this class is highly recommended. Additionally, class teams will be formed and be required to work together to develop an approach for LEED certification of an assigned (actual or hypothetical) building project during the course. These class team exercises are designed to align with and support current DGS LEED project team efforts, and a team presentation will be due at the end of the course. To the extent possible, active DGS projects will be used for team exercises, so that team efforts will contribute toward project LEED certification. A full length mock accreditation exam will also be given at the end of the training to assess individual understanding of the LEED certification process, and help them prepare for the actual LEED-AP exam.

COURSE DESCRIPTION AND SCHEDULE

The following general topics will be introduced and presented. They will be conveyed by the instructor and reinforced through the course work exercises and assigned reference materials:

- The U.S. Green Building Council (USGBC);
- LEED-NC version 2.2 Green Building Rating System for new construction and major renovations, including detailed steps and requirements to certify a building including all prerequisites and credits in the following categories:
 - Sustainable Sites
 - Energy & Atmosphere
 - Materials
 - Water Efficiency
 - Indoor Environmental Quality
 - Innovation;
- Process to register, document, submit, and certify a building project for LEED certification;
- Establishing LEED-Online project teams and assigning roles;
- Tour(s) of LEED certified building(s);
- LEED letter templates;
- LEED credit narratives;
- LEED Credit Interpretation Rulings (CIR's) and credit appeals; and
- Introductory overview of additional LEED™ green building rating systems including:
 - LEED-EB for Existing Building Operation & Maintenance
 - LEED-CI for Commercial Interiors
 - LEED-CS for Core and Shell projects
 - LEED-H for Homes
 - LEED-ND for Neighborhood Development
 - LEED for Schools
 - LEED-NC Multiple Building Application Guide.

Several teaching approaches will be used during the course including Power Point slides, lectures, on-line web-based tool demonstrations, class discussions, LEED-NC Reference Guide studies, class team exercises, and other reference materials. Links to on-line forums, resources and exam preparation information will be provided. Completion of this course and receipt of a Certificate of Completion will require study and some assignments outside of class to complete course criteria. More importantly, completion of the course, including study and reading materials, should adequately prepare most participants to take and pass the LEED Accreditation exam. This will vary depending on the amount of personal study and retention of individuals.

This course includes approximately 16 hours of instruction, including a tour and presentation of one or more of several local and/or regional LEED certified buildings. Individual study time or work on class team exercises will be required outside of class, and a final 2-hour mock exam will be given on the final class session, followed by in-class exam grading and final discussion. Portions of this training are modified from and use material developed by the instructor for a UC Davis Extension 20-hour class taught in Summer 2007.

8 weekly 2-hour classes plus a mock exam & review during the ninth session (19 hours total)

Two tracks will run simultaneously beginning the week of January 8-11, 2008, extending through the week of March 4-7, 2008, (except for the week of February 26-29, 2008). The mock exam & final session will be Friday March 21, 2008. Each class will hold approximately 30 students.

Track A: Tuesday mornings beginning January 8, 2008, 10:00–12:00 AM at the Division of the State Architect or other State Agency (videocast).

Track B: Friday mornings beginning January 11, 2008, 10:00–12:00 AM at the Ziggurat 1-320 Training Room.

Mock Exam (all Tracks): Friday, March 21, 2008, 9:00 AM – 12:00 PM, at the Ziggurat auditorium and select DSA regional office locations.

Class 1: Course Overview, Class Teams, Executive Order, USGBC and LEED

- Class introductions, training overview, objectives, methods and approaches;
- LEED assessment discussion and warm-up exercise, form class teams;
- Green Building Executive Order & Green Building Action Plan – Overview;
- Introduction to the U.S. Green Building Council and LEED Rating Systems; and
- LEED-NC Rating System (for new construction and major renovations).

Class 2: LEED Certification Process and Sustainable Sites (SS)

- LEED certification process, registration, initiating LEED-Online and team access;
- Letter templates, narratives, Credit Interpretation Rulings (CIR's), Appeals;
- Construction pollution prevention, site selection, development density and brownfield redevelopment;
- Alternative transportation and parking capacity; and
- Site development, stormwater design, heat island effect, light pollution.

Class 3: Water Efficiency (WE) and Innovation and Design (ID)

- Water efficient landscaping;
- Waste water technologies;
- Water use reduction;
- Innovation in Design; and
- LEED Accredited Professional.

Class 4: LEED Certified Building Site Visit Tours and Presentations

- LEED certified building tours and presentations will be held in all regions;
- Sacramento (four sites: Department of Education, CalPers, OB 10, and DPR Construction);
- Los Angeles (CalTrans District 7 Headquarters – Silver);
- San Diego (DMV San Ysidro Field Office); and
- Oakland (Alameda County Waste Management Authority).

Class 5: Energy and Atmosphere (EA)

- Fundamental and enhanced building commissioning;
- Energy performance;
- Refrigerant management, measurement and verification; and
- On-site renewable energy and green power.

Class 6: Materials and Resources (MR)

- Storage and collection of recyclables, building reuse;
- Construction waste management, materials reuse;
- Recycled content, regional materials; and
- Rapidly renewable materials and certified wood.

Class 7: Indoor Environmental Quality (EQ)

- Minimum IAQ, tobacco smoke control, outdoor air delivery monitoring.
- Increased ventilation, construction IAQ management plans.
- Low emitting materials, indoor chemical and pollutant source control; and
- Controllability of systems, thermal comfort, daylight and views, innovation credits.

Class 8: Class Team Presentations, Course Review and Exam Preparation Tips

- Class Team presentations (10-15 minutes each maximum); and
- Exam preparation review and suggestions for study.

Class 9: Friday, March 21, 2008 - Mock LEED-AP Exam

- 9:00-9:10 am Instructions for exam;
- 9:10-11:10 am Mock LEED-AP Exam; and
- 11:10 am-12:00 pm Grading of exams in-class, discussion, and course evaluation.

Assessment, Evaluation and Certificate of Completion

Participants will be evaluated based on class attendance, participation, class team exercises, and a final exam. The intent of the class is for students to gain a working understanding of the LEED-NC Rating System, including the steps required to register, document, and certify a building project. The class team exercises will require class members to work together as LEED certification teams, in conjunction with or simulating actual project teams. Several teams of five or six people will be created and “class projects” will be assigned. When possible, actual Real Estate Services Division projects will be used, so that documentation efforts associated with class team exercises may contribute toward required LEED documentation and eventual certification. In the event that actual projects are not available, descriptions of hypothetical projects will be given to teams. The teams will be given minimal time during several classes to meet together and evaluate their team approach to certifying the assigned project. These teams will need additional coordination outside of class. Each team will present its approach to credits seeking certification, as well as lessons learned, toward the end of the course in a 10 to 12 minute presentation. Outside of class study of the LEED-NC version 2.2 Reference Guide will be important for class members to comprehend class presentations, participate in team exercises, and prepare for the final mock exam. The mock accreditation exam will test the class participants’ knowledge gained from the course, and their studies of the LEED Reference Guide. The final class will include a mock accreditation exam, intended to include similar material and questions likely on the LEED Accredited Professional Exam. Specific directions and evaluation criteria will be provided at the first class for participants to receive a Certificate of Completion for the training. Evaluations of participants for a Certificate of Completion for the training will include the following areas:

- Attendance – required - contact instructor in advance to make up or attend alternate track;
- Class Team Exercises - Evaluation by instructor as well as team members; and
- Mock Accreditation Exam (last day of class).