
DIRECTIVE 1B-7**Issue date: October 2017****Energy, Sustainability, LEED and Executive Orders**

As of December 28, 2012, Executive Order No. 88 (E.O. 88) replaced E.O. 111 (“Green and Clean” State Buildings and Vehicles Guidelines”). The State University Construction Fund is required to comply with the requirements set forth in E.O.88, as detailed in the following items. The SUNY Energy and Sustainability Policy (issued November 2007) requires new and major rehab building projects to be designed to a LEED Silver rating.

The basic fee covers the design and construction administration services related to providing sustainable components of the project and compliance with the New York State Energy Conservation Construction Code. Unless included in the lump sum fee or the Schedule B of the Consultant’s Agreement, the services and fees related to demonstrating and documenting compliance with USGBC requirements, registering and certifying the project with USGBC, providing the Owner Project Requirements for commissioning and providing the energy modeling as described in this Directive may be provided through extra compensation when approved by the Fund.

1. Definitions

- a. USGBC – US Green Building Council
- b. LEED– Leadership in Energy and Environmental Design
- c. IAQ – Indoor Air Quality
- d. NYSECCC – New York State Energy Conservation Construction Code. Incorporates publications entitled 2015 International Energy Conservation Code (IECC), ANSI/ASHRAE/IES Standard 90.1 and 2016 Supplement to the New York State Energy Conservation Construction Code.
- e. ASHRAE 90.1 - ANSI/ASHRAE/IES Standard 90.1 Energy Standard for Buildings except Low-rise Residential Buildings. Referenced version from NYSECCC.
- f. New Construction (NC) – A new building or space within an existing building, for which a licensed professional or architect or engineer has prepared and certified plans. For existing buildings these requirements apply to Major Rehab projects.
- g. Major Rehab – Building area that is unoccupiable due to the nature of the construction

2. Requirements

- a. All projects
 - 1) In accordance with Executive Order No.4 and in support of the SUNY Sustainability Coalition goals all construction projects should reuse,

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- recycle and/or salvage nonhazardous construction and demolition (C&D) materials from multiple waste streams by weight equal to a minimum of 50% of the total project C&D waste.
- 2) The consultant should inquire with the campus if a higher goal percentage is desired.
- b. New Construction and Major Rehab projects 20,000 gross square foot or larger
- 1) Energy Performance: E.O. 88 requires NC projects to be designed per current NYSECCC or ASHRAE 90.1 standard.
 - 2) LEED
 - a) Design and construct the project to comply with the criteria for a Silver rating per the USGBC LEED for Building Design and Construction (BD+C) rating system. At the request of the SUCF a higher rating of Gold or Platinum may be required.
 - b) Register the project with USGBC, and allow the SUCF and the Campus access.
 - c) Certification of the project by USGBC may be required and will be decided by the SUCF based on the request of the Campus.
 - d) LEED Version 4 (V4) "Energy and Atmosphere" (EA) Prerequisite 2 "Minimum Energy performance" will use Option 1 "Whole Building Simulation" and will require computer modeling to demonstrate compliance. See Appendix A of this Directive.
 - 1) Commissioning: All New construction projects are required to be commissioned. See Directive 15H-9 "Commissioning" for more details.
 - 2) Project shall implement an IAQ Management Plan during construction. See Appendix B.
- c. New Construction and Major Rehab projects less than 20,000 gross square feet and all other construction projects
- 1) Designed per current NYSECCC or ASHRAE 90.1 standard.
 - 2) Incorporate the significant attributes of LEED green design principles into the project.
 - 3) Project shall implement an IAQ Management Plan during construction unless otherwise directed by the SUCF. See Appendix B.

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3. Documentation (for New Construction and Major Rehab) projects 20,000 gross square foot or larger): Provide the following documentation to demonstrate compliance with the requirements of this Directive. In order to minimize the amount of paper used and in the spirit of LEED only select items are required to be provided in hardcopy form.
 - a. New Construction
 - 1) Digital copy
 - a) USGBC registration including access to completed online credit templates.
 - b) USGBC certification where required by the SUCF.
 - c) Provide a single page narrative describing the building and the significant sustainable features of the project in Word format. Provide a minimum of two photos or renderings in JPEG format.
 - 2) Hardcopy
 - a) LEED computer energy model results per Appendix A.
 - b) LEED project checklist.
 - c) LEED related specifications included in phase submissions.
 4. Design and Construction Phase Requirements
 - a. Program Verification Phase
 - 1) Review E.O.88 applicability to project.
 - 2) Identify consultants who will perform the services required (i.e., commissioning, and LEED consultant or Sustainable Design consultant).
 - b. Concept Phase
 - 1) Register project with USGBC, where required.
 - 2) Describe Green Building design approach.
 - 3) Provide a preliminary LEED checklist of potential credits.
 - 4) Provide RFP for computer energy modeling.
 - c. Schematic Phase
 - 1) Provide a list of energy conservation measures along with a detailed payback analysis of each measure determined from a computer analysis utilizing annualized weather data.
 - 2) Provide an updated LEED checklist of potential credits.
 - 3) Commissioning authority shall review for design intent.
 - d. Design Manual Phase
 - 1) Provide updated LEED checklist of applicable credits.
 - 2) Provide the Owner Project Requirements (OPR) document as required per LEED EA Prerequisite 1, written by the designer of the system(s) to be commissioned.
 - e. Pre-Bid Phase
 - 1) Provide final LEED checklist of applicable credits.

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- 2) Provide the draft computer modeling report. Include all of the required documentation per Appendix A of this Directive.
 - 3) Provide the narrative and photos described in section 3-a-(1)-iii
- f. Bid Phase: Provide the final computer modeling report Include all of the required documentation per Appendix A of this Directive.
- g. Construction Phase: Organize and lead construction phase meetings to coordinate responsibilities among all involved parties (contractors, consultants, campus personnel) to demonstrate compliance with the requirements of LEED. Significant items to be addressed are:
- 1) Review of all equivalents (similar, equal to, or equal) per Section 2.20 of "The Construction Agreement", to ensure LEED compliance.
 - 2) Construction phase LEED credit(s) documentation.

APPENDIX A: COMPUTER MODELING of BUILDING ENERGY PERFORMANCE

A computer model will be required to show compliance with LEED Version 4 (V4) "Energy and Atmosphere" (EA) Prerequisite 2 "Minimum Energy Performance" Option 1 and EA Credit 2 "Optimize Energy Performance" if pursued. Computer modeling for LEED compliance is based on ASHRAE 90.1 2010. A second model could be required if a code path requiring modeling is chosen from NYSECCC.

1. **Modeler Qualifications:** The Modeler must have a minimum of five (5) years of energy related HVAC, architecture, lighting design experience, including a minimum of two (2) years of building energy modeling experience and be able to demonstrate to SUCF completion of similar projects in building type and size. An acceptable alternate method of demonstrating Modeler qualifications would be the ASHRAE Building Energy Modeling Professional Certification.
2. **Modeling Programs**
 - a. Acceptable modeling programs to demonstrate compliance include US Department of Energy DOE-2.1E and DOE-2 based products including eQUEST, EnergyPlus, Blast, and PowerDOE.
 - b. Alternate programs may be submitted for SUCF approval if they meet the minimum requirements of ASHRAE 90.1 Appendix G Performance Rating Method (PRM).
3. **Modeling Method:** Utilize the ASHRAE 90.1 PRM method to model and calculate the Proposed and Baseline Building Performance.
4. **Report Criteria**
 - a. Provide a narrative description of building and the energy related building components. Provide building isometric drawings and floor plans including the HVAC zoning.
 - b. Include the completed LEED submittal templates to demonstrate the requirements of LEED EA Prerequisite 2 and EA Credit 2.
5. **Energy Conversion factors:** Utilize the Energy Star Portfolio Thermal Energy Conversion Tables

APPENDIX B: IAQ MANAGEMENT PLAN DURING CONSTRUCTION

1. An Indoor Air Quality (IAQ) Management Plan During Construction shall be implemented
2. An Indoor Air Quality Management process during construction which includes the following items is to be implemented:
 - a. Coordination:
 - 1) During the pre-construction meeting, the Consultant must put in place a process for communication and notification between the Owner, Consultant, General Contractor plus other parties to prevent and effectively resolve problems related to construction-related air pollutant control.
 - 2) The Fund's representative shall supervise and enforce the IAQ Management Process During Construction.
 - b. Indoor Air Quality (IAQ) Management Plan During Construction: The Division 1 General Conditions of the Project Specifications must require a written IAQ Management Plan which includes procedures meeting or exceeding the minimum requirements of the "IAQ Guidelines for Occupied Buildings Under Construction", published by the Sheet Metal and Air Conditioning Contractors National Association, Inc.
3. The IAQ Management Plan During Construction must include measures to protect the ventilation system components and air pathways against contamination during construction. The plan must include:
 - a. Cleaning procedures – in the event ventilation system components and air pathways are not adequately protected.
 - b. Control measures – as defined in IAQ Guidelines for Occupied Buildings under Construction published by SMACNA. In addition to the control measures highlighted by SMACNA all IAQ management plans shall include the following:
 - 1) IAQ Management Plan shall require any air handling units or systems that will be operated for any purpose (i.e. temporary heating, testing, commissioning) while building is under construction to have the specified pre and final filters installed. Filters within air handling systems utilized during construction (including any building flush-out) shall be replaced with new specified filters immediately prior to occupancy.
4. The following requirements must be addressed in the IAQ Management Plan during construction at each phase of construction.
 - a. Permitting adequate airing-out of new materials.
 - b. Sequencing the installation of finish materials.
 - c. Proper curing of concrete before covering.
 - d. Construction activities in occupied buildings.

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- e. Avoidance of building occupancy while construction related pollutants are present.
5. The Plan must specify the location, type, amount, sequence and timing of the various control measures, including emergency procedures and the labor, materials and time to implement them.
 6. The project construction documents must address the following:
 - a. Overview of tasks.
 - b. List of reference documents, including specification references, drawing list and submittal drawing.
 - c. List of primary participants and their responsibilities.
 - d. Plan for management, communication and documentation.
 - e. Outline of the scope of the IAQ Management process during construction - including submittal review, inspection and enforcement.
 - f. Expected written work products, including checklists and worksheets.
 - g. Activity schedule.
 7. A construction IAQ Management report must be prepared by Contractor documenting the effective implementation of the Construction IAQ Management Plan and shall be reviewed by the Consultant.
 8. The IAQ Management Report must include the following documentation:
 - a. All meeting minutes, checklists, worksheets, notifications and deficiency or resolution logs related to the project IAQ issues.
 - b. Listing of all temporary usage of building mechanical systems, cut sheet of filtration media used during construction and installed immediately prior to occupancy and schedule of filter replacement and change outs.
 - c. Progress photos of job site sufficient to document implementation of IAQ management measures during each phase of construction.
 - d. Documentation of duct testing and cleaning.

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