

Leadership in Energy and Environmental Design

LEED[®] NC
Sample Exam
New Construction
Second Edition

Meghan Peot, MEd and
Brennan Schumacher, LEED AP

Sample Exam

1. A 55,000 sq ft, five-story office building is planned for the site of a large existing parking lot. The design includes bioswales to help treat stormwater and reduce runoff. Which of the following standards applies to SS Prerequisite 1, Construction Activity Pollution Prevention?
 - (A) USDA in the U.S. Code of Federal Regulations, Title 7, Volume 6
 - (B) U.S. EPA Document 832/R-92-005
 - (C) ASTM E1903-97 Phase II Environmental Site Assessment
 - (D) 2003 EPA Construction General Permit

2. A 30,000 sq ft office building in an eco-industrial park is being built to comply with SS Credit 8, Light Pollution Reduction. Which of the following pieces of information will be needed to provide a suitable exterior lighting design? (Choose four.)
 - (A) lamp lumens for exterior luminaires
 - (B) exterior pavement surfaces
 - (C) watts per square foot of exterior illumination
 - (D) location of property line
 - (E) interior lighting calculations indicating that the maximum candela value shall intersect opaque building interior surfaces
 - (F) watts per square foot of interior illumination

3. A firm is designing a Midwestern law office building with 15,000 sq ft of perimeter private offices, 30,000 sq ft of non-perimeter open offices, and 10,000 sq ft of non-regularly occupied spaces. Occupant comfort is a primary goal of the design criteria. To meet this goal, the design must meet criteria relating to ASHRAE 55, which refers to thermal comfort. Complying with ASHRAE 55 standards, however, may interfere with one of the following LEED-NC credits. Which one?
 - (A) EQ Credit 6.1, Controllability of Systems: Lighting
 - (B) EQ Credit 4.1, Low-Emitting Materials: Adhesives and Sealants

Solutions

1. The answer is (D) 2003 EPA Construction General Permit

2003 EPA Construction General Permit (CGP) "...outlines a set of provisions construction operators must follow to comply with the requirements of the National Pollution Discharge Elimination System (NPDES) stormwater regulations. The CGP covers any site one acre and above, including smaller sites that are part of a larger common plan of development or sale, and replaces and updates previous EPA permits." (www.epa.gov) A link to this document can be found at www.ppi2pass.com/LEEDresources. The CGP is the referenced standard in SS Prerequisite 1, Construction Activity Pollution Prevention, in the LEED-NC Rating System. While the CGP applies to sites based on size, all projects seeking LEED Certification must comply with the requirements of the CGP, or a more stringent local standard. Potential technologies for this prerequisite include both structural and stabilization control methods to minimize the negative impacts that erosion can have on water and air quality.

2. The answer is (A) lamp lumens for exterior luminaires

- (C) watts per square foot of exterior illumination
- (D) location of property line
- (E) interior lighting calculations indicating that the maximum candela value shall intersect opaque building interior surfaces

The lighting designer will analyze the site conditions and the performance of the interior and exterior lighting systems to comply with the requirements of SS Credit 8. While all of the possible answers are important, not all are required data for demonstrating compliance with SS Credit 8. Answers (A), (D), and (E) all directly contribute to light pollution and (E) is the measurement of exterior lighting power densities. Exterior pavement surfaces have the potential to reflect light, however SS Credit 8 does not address reflected light off of pavement surfaces. The watts per square foot of interior illumination are important data for lighting power densities, however the watts per square foot of interior lighting systems do not directly impact light pollution. ASHRAE/IESNA 90.1-2004, Exterior Lighting