

## LEED for Neighborhood Development

### Activity #1

Before completing this Activity Read: Reference Guide for Neighborhood Development v4 – Pages 4-58

#### Fill-In, Multiple Choice, Matching

1. Green \_\_\_\_\_ are an integral part of the solution to the environmental challenges facing the planet.
2. This pattern of extraction, use, and disposal has hastened depletion of finite supplies of nonrenewable energy, water, and materials and is accelerating the pace of our greatest problem— \_\_\_\_\_.
3. More than half of the world’s population now lives in \_\_\_\_\_ rather than \_\_\_\_\_ areas, and the urban share is predicted by the United Nations to rise to 70% by 2050, with the emergence of megacities of 10 million to 20 million people.
4. At the neighborhood level, these “drawing boards” can catalyze LEED for Neighborhood Development (ND) strategies, such as affordable \_\_\_\_\_, \_\_\_\_\_ protection, and improved public \_\_\_\_\_.
5. Developed by the U.S. Green Building Council, \_\_\_\_\_ is a framework for identifying, implementing, and measuring green building and neighborhood design, construction, operations, and maintenance.
6. List the four main types of building categories the LEED rating systems address:
  - 1.
  - 2.
  - 3.
  - 4.
7. LEED emphasizes \_\_\_\_\_ design, integration of existing technology, and state-of-the-art strategies to advance expertise in green building and transform professional practice.
8. The LEED ND rating system was launched in May \_\_\_\_\_ after four years of development and pilot testing by a partnership of the USGBC, the Natural Resources Defense Council, and the Congress for the New Urbanism.
9. These ongoing improvements, developed by USGBC member-based volunteer committees, subcommittees, and working groups in conjunction with USGBC staff, have been reviewed by the LEED \_\_\_\_\_ and the USGBC Board of Directors before being submitted to USGBC \_\_\_\_\_ for a vote.
10. What must all building projects do to earn LEED certification?  
Satisfy all \_\_\_\_\_ and earn enough points for the certification \_\_\_\_\_ desired.
11. LEED ND applies to \_\_\_\_\_ land development projects or \_\_\_\_\_ projects containing residential uses, nonresidential uses, or a mix. Projects can be at any stage of the development process, from conceptual planning to construction; includes \_\_\_\_\_ and \_\_\_\_\_ Project.

12. The LEED rating systems aim to promote a transformation of the construction industry through strategies designed to achieve seven goals. List the seven goals:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

13. In the LEED ND rating system, the major prerequisites and credits are categorized as:

- \_\_\_\_\_ (SLL)
- \_\_\_\_\_ (NPD)
- \_\_\_\_\_ (GIB)

14. List the name and abbreviation of the bonus categories in the LEED ND rating system:

- 1.
- 2.

15. Each \_\_\_\_\_ in the rating system is allocated points based on the relative importance of its contribution to the goals.

16. Complete the table for the LEED levels of certification:

Level of Certification	Points

17. LEED-certified developments are designed to deliver the following benefits:

- Lower \_\_\_\_\_ costs and increased \_\_\_\_\_ value
- Reduced \_\_\_\_\_ sent to landfills
- \_\_\_\_\_ and \_\_\_\_\_ conservation
- More healthful and productive \_\_\_\_\_ for occupants
- Reductions in \_\_\_\_\_ emissions
- Qualification for tax \_\_\_\_\_, \_\_\_\_\_ allowances, and other incentives in many cities

18. List what distinguishes the benefits of the LEED ND rating system:

- 1.
- 2.
- 3.

19. The process begins when the owner selects the \_\_\_\_\_ system and \_\_\_\_\_ the project.

20. The project is then designed to meet the requirements for all \_\_\_\_\_ and for the \_\_\_\_\_ the team has chosen to pursue.

21. After documentation has been submitted for certification, a project goes through what two reviews?

- 1.
- 2.

22. The \_\_\_\_\_ review provides technical advice on credits that require additional work for achievement, and the \_\_\_\_\_ review contains the project’s final score and certification level.

23. The decision can be \_\_\_\_\_ if a team believes additional consideration is warranted.

24. The LEED for Neighborhood Development rating system comprises two adaptations:

LEED ND: \_\_\_\_\_

LEED ND: \_\_\_\_\_, which have certification options unique to this rating system.

25. Match the explanation below to the type of review it describes:

Review	Explanation
Smart Location & Linkage (SLL) and Neighborhood Pattern & Design (NPD) prerequisite review.	
Letter of Support optional review.	

Explanation

1	This full review of all prerequisites and credits is available to projects registered under LEED ND: Plan that have not earned all land-use entitlements. Applicants seeking an early design-phase award from USGBC to assist with local approvals may elect to undergo this review and will receive a letter of support if successful.
2	If the project team has any doubts about the project’s ability to achieve the SLL or NPD prerequisites, this optional review can be a useful official determination before investing further in submission preparation. It is available to both LEED ND: Plan and LEED ND: Built Project registered projects.

26. Match the explanation to the credit structure:

Credit Structure	No.
Intent & Requirements	
Behind the Intent	
Step-By-Step Guidance	
Further Explanation	
Required Documentation	
Related Credit Tips	
Changes from LEED 2009	
Referenced Standards	
Exemplary Performance	
Definitions	

Explanation

1	is a quick reference of changes from the previous version of LEED.
2	gives the meaning of terms used in the credit.
3	outlines the rating system requirements for achieving the prerequisite or credit. They were approved through the rating system development process and can also be found on the USGBC website.
4	lists the technical standards related to the credit and offers weblinks to find them.
5	provides guidance for lengthy calculations or for special project situations, such as tips for nonstandard project types or different credit approaches. It includes a Campus section and, sometimes, an International Tips section.
6	connects credit achievement with larger sustainability issues and provides information on how the credit requirements meet the intent stated in the rating system.
7	suggests the implementation and documentation steps that can be used by most projects, as well as generally applicable tips and examples.
8	identifies other credits that may affect a project team's decisions and strategies for the credit in question; the relationships between credits may imply synergies or trade-offs.
9	identifies the threshold that must be met to earn an exemplary performance point, if available.
10	lists the items that must be submitted for certification review.

27. List the credit categories and bonus categories and their abbreviations found in the rating system ND.

- 1.
- 2.
- 3.
- 4.
- 5.

28. An important starting point for project certification is the formulation of overarching goals to guide the project team's work toward successful certification. To set valid goals, start by expressing objectives that are derived from or responsive to the following:

The developer's \_\_\_\_\_.

The project's \_\_\_\_\_ setting.

The project's \_\_\_\_\_ context.

29. For the purposes of LEED ND, the project team has three major components: the \_\_\_\_\_ acting as team leader, a multidisciplinary group of \_\_\_\_\_ professionals, and \_\_\_\_\_ supporting partners.
30. What entity decides to certify a project under LEED for Neighborhood Development (LEED ND)?
- LEED AP
  - Owner
  - Applicant
  - Contractor
31. Because the rating system integrates smart \_\_\_\_\_, new \_\_\_\_\_, social \_\_\_\_\_, and green building practices, a successful LEED ND submission draws on the diverse skills of a comprehensive team of professionals.
32. At least one member of the project team \_\_\_\_\_ be a LEED ND Accredited Professional experienced in certifying the kind of project being proposed.
33. List the steps for devising a LEED ND Work Plan:
- Step 1.
  - Step 2.
  - Step 3.
  - Step 4.
  - Step 5.
  - Step 6.
  - Step 7.
  - Step 8.
  - Step 9.
  - Step 10.
34. LEED ND: Plan. A project must use the LEED ND Plan rating system if it is in a planning stage or has constructed less than \_\_\_\_\_ of its total building floor area.
35. LEED ND: Built Project. If a project is at \_\_\_\_\_ build-out, it must use the LEED ND rating system.
36. The project \_\_\_\_\_ defines the land and water area that is reviewed for certification (see Minimum Program Requirements).
37. List the types of sites that may apply to a LEED ND project:
- 1.
  - 2.
  - 3.

38. **previously developed site** a site that, prior to the project, consisted of at least \_\_\_\_\_ previously developed land
39. For any lots larger than \_\_\_\_\_ acre, the team must separate the land into \_\_\_\_\_ developed and \_\_\_\_\_ portions.
40. **infill site** a site that meets any of the following four conditions:
- At least \_\_\_\_\_ of its boundary borders parcels that individually are at least \_\_\_\_\_ previously developed, and that in aggregate are at least \_\_\_\_\_ previously developed.
  - The site, in combination with bordering parcels, forms an aggregate parcel whose boundary is \_\_\_\_\_ bounded by parcels that individually are at least \_\_\_\_\_ previously developed, and that in aggregate are at least \_\_\_\_\_ previously developed.
  - At least \_\_\_\_\_ of the land area, exclusive of rights-of-way, within \_\_\_\_\_ mile of the project boundary is previously developed.
  - The lands within \_\_\_\_\_ mile of the project boundary have a preproject connectivity of at least \_\_\_\_\_ intersections per square mile.
41. For conditions (a) and (b) above, any fraction of the perimeter that borders a \_\_\_\_\_ body is \_\_\_\_\_ from the calculation.
42. **adjacent site** a site having at least a continuous \_\_\_\_\_ of its boundary bordering parcels that are previously developed sites. Only consider bordering parcels, not intervening rights-of-way. Any fraction of the boundary that borders a \_\_\_\_\_ body is \_\_\_\_\_ from the calculation.
43. **buildable land** the portion of the site where construction can occur, including land \_\_\_\_\_ set aside and \_\_\_\_\_ constructed on. When used in density calculations, buildable land \_\_\_\_\_ public rights-of-way and land excluded from development by codified law or LEED for Neighborhood Development prerequisites.
44. Buildable land is an important element of a project because it is the \_\_\_\_\_ in the calculation of land-use densities.
45. To be considered nonbuildable, the land must be protected from construction by \_\_\_\_\_, deed \_\_\_\_\_, or other \_\_\_\_\_ legal instrument.
46. The \_\_\_\_\_ is a tabular presentation typically prepared by a developer detailing land uses and the demolition, construction, renovation, or retention of buildings within the project boundary.
47. Several provisions of the rating system are tied to \_\_\_\_\_ dates on a project's development timeline, beginning with property \_\_\_\_\_ and extending through \_\_\_\_\_ and occupancy.
48. Some rating system provisions must be applied in \_\_\_\_\_.

49. \_\_\_\_\_ is the date that the project developer purchased or took equivalent control of a majority of the land area inside the project boundary.
- \_\_\_\_\_ are those present on the date the developer acquired rights to a majority of its buildable land through purchase or option to purchase.
- \_\_\_\_\_ are those present on the date of certification submission. However, a built feature is not considered existing if it was constructed by the project developer as part of the LEED ND project (this will come into play only for projects under construction).
- \_\_\_\_\_ is the time at which all habitable buildings on the project are complete and ready for occupancy.
50. Because of the numerous geographic provisions and calculations in the rating system, \_\_\_\_\_ is an important part of documenting project characteristics and verifying credit achievement.
51. List the types of maps project teams should use:
- 1.
  - 2.
  - 3.
52. Each map should have a \_\_\_\_\_ with the applicable credit name, \_\_\_\_\_, \_\_\_\_\_, and the relevant features clearly labeled and dimensioned in sufficient detail to enable verification of credit compliance.
53. The second most common set of metrics in the rating system is the distances traveled by \_\_\_\_\_ and \_\_\_\_\_ from origins, such as dwellings, to destinations, such as schools.
54. **walk distance** the distance that a \_\_\_\_\_ must travel between origins and destinations without obstruction, in a \_\_\_\_\_ and comfortable environment on a continuous network of \_\_\_\_\_, all weather-surface footpaths, crosswalks, or equivalent pedestrian facilities. The walking distance must be drawn from an entrance that is accessible to \_\_\_\_\_ building users.
55. **bicycle network** a continuous network consisting of any combination of the following:
- (1) off-street bicycle paths or trails at least \_\_\_\_\_ feet wide for a two-way path and at least \_\_\_\_\_ feet wide for a one-way path
  - (2) physically designated on-street bicycle lanes at least \_\_\_\_\_ feet wide
  - (3) streets designed for a target speed of \_\_\_\_\_ mph.
56. Sometimes known as \_\_\_\_\_ path analysis, the measurement is the distance a pedestrian or bicyclist would travel from an origin point to the closest destination of a given type, such as the closest bus stop.
57. The term \_\_\_\_\_ denotes an area created from a compilation of walk distances from an origin, such as a polygon encompassing all possible pathways within \_\_\_\_\_-mile walking distance.

58.

59. Dwellings or businesses accessed through common building entries are counted according to the number of dwelling units or business establishments reached through such entrances. For example, a multifamily building entrance used to access 20 dwelling units counts as 20 \_\_\_\_\_ points. A nonresidential building entrance leading to 10 office tenants and two retail tenants counts as \_\_\_\_\_ origin points.
60. The rating system measures land-use density in two categories, residential and nonresidential. Density is calculated according to the following definitions:  
**density** the amount of building structures constructed on the project site, measured for residential buildings as \_\_\_\_\_ per acre of buildable land available for residential uses, and for nonresidential buildings as the \_\_\_\_\_ ratio of buildable land area available for nonresidential uses. In both cases, structured \_\_\_\_\_ is excluded.  
**floor-area ratio (FAR)** the density of nonresidential land use, exclusive of structured parking, measured as the total \_\_\_\_\_ building floor area divided by the total \_\_\_\_\_ land area available for nonresidential buildings.
61. To be considered a dwelling unit (for the purpose of inclusion in a residential density calculation), the space should be intended for long-term occupancy and provide facilities for \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. \_\_\_\_\_, for example, are not dwelling units.
62. A project's development footprint is essentially all of its \_\_\_\_\_ surfaces.
63. **development footprint** the total land area of a project site covered by \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ areas, and other typically \_\_\_\_\_ surfaces constructed as part of the project.
64. Surfaces paved with \_\_\_\_\_ pavement (at least \_\_\_\_\_ permeable) are excluded from the development footprint.
65. Another common cross-cutting metric is transit service, expressed in \_\_\_\_\_ trips at \_\_\_\_\_.
66. Bus, streetcar, or rideshare stops qualify if they are within \_\_\_\_\_ mile of at least one project building entrance. Bus rapid transit, light or heavy rail, commuter rail, or ferry stops qualify if they are within \_\_\_\_\_ mile of at least one project building entrance.
67. Each point at which a transit vehicle stops to receive or discharge passengers is considered a \_\_\_\_\_ transit stop; this includes stops \_\_\_\_\_ each other on \_\_\_\_\_ sides of a street.
68. Another rating system metric is connectivity, expressed as \_\_\_\_\_ per square mile.
69. Several credits require measuring the distance from a project's \_\_\_\_\_ center to certain features, such as farmers markets. In CAD or GIS terms, the project's geographic center is the " \_\_\_\_\_ " of the polygon created by the project boundary.
70. \_\_\_\_\_ all motorized, nonmotorized, and mixed-mode travel ways permanently accessible to the public, not including driveways, parking lots, highway access ramps, and rights-of-way exclusively dedicated to rail. It is measured in linear feet.



71. \_\_\_\_\_ the distance along a block face; specifically, the distance from an intersecting right-of-way edge along a block face, when that face is adjacent to a qualifying circulation network segment, to the next ROW edge intersecting that block face, except for intersecting alley ROWs.

72. List the two categories of users that most credits group users into:

- 1.
- 2.

73. In the space provided write the two equations that can be used to determine a project's total number of FTE:

74. List the types of regular building occupants used to determine occupancy:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

75. List examples of what is considered a visitor (transient) for determining building occupancy:

- 1.
- 2.
- 3.
- 4.
- 5.

76. What are the two ways that occupant types are counted for LEED calculations?
- 1.
  - 2.
77. If occupancy cannot be accurately predicted a project may use what resources to estimate occupancy?
- 1.
  - 2.
  - 3.
  - 4.
78. The \_\_\_\_\_ (MPRs) are the minimum characteristics that make a project appropriate to pursue LEED certification.
79. List the three MPRs:
- 1.
  - 2.
  - 3.
80. All LEED projects must be constructed and operated on a \_\_\_\_\_ location on \_\_\_\_\_ land. No project that is designed to \_\_\_\_\_ at any point in its lifetime may pursue LEED certification.
81. The LEED \_\_\_\_\_ must include all contiguous land that is associated with the project and supports its typical operations.
82. The gross floor area of the LEED project should be no less than \_\_\_\_\_ of the gross land area within the LEED project boundary.
83. LEED BD+C and LEED O+M Rating Systems  
The LEED project must include a minimum of \_\_\_\_\_ square feet gross floor area.
84. LEED ID+C Rating Systems  
The LEED project must include a minimum of \_\_\_\_\_ square feet gross floor area.
85. LEED for Neighborhood Development Rating Systems  
The LEED project should contain at least \_\_\_\_\_ habitable buildings and be no larger than \_\_\_\_\_ acres.
86. LEED for Homes Rating Systems  
The LEED project must be defined as a “\_\_\_\_\_” by all applicable codes.
87. LEED for Building Design and Construction  
Buildings that are new construction or major renovation. In addition, at least \_\_\_\_\_ of the project’s gross floor area must be complete by the time of certification (except for LEED BD+C: \_\_\_\_\_).
88. LEED for Interior Design and Construction.  
Interior spaces that are a complete interior fit-out. In addition, at least \_\_\_\_\_ of the project’s gross floor area must be complete by the time of certification.

89. LEED for Building Operations and Maintenance.

Existing buildings that are undergoing \_\_\_\_\_ work or little to no construction.

90. LEED for Neighborhood Development

New land development projects or redevelopment projects containing residential uses, nonresidential uses, or a mix. Projects may be at any stage of the development process, from conceptual planning through construction. It is recommended that at least \_\_\_\_\_ of total building floor area be new construction or major renovation. Buildings within the project and features in the public realm are evaluated.

91. Using the **Rating System Descriptions** below, place the number that best describes the type of building the rating system is appropriate for next to the rating system name:

\_\_\_\_\_ LEED BD+C: New Construction and Major Renovation

\_\_\_\_\_ LEED BD+C: Core and Shell Development

\_\_\_\_\_ LEED BD+C: Schools

\_\_\_\_\_ LEED BD+C: Retail

\_\_\_\_\_ LEED BD+C: Data Centers

\_\_\_\_\_ LEED BD+C: Warehouses and Distribution Centers

\_\_\_\_\_ LEED BD+C: Hospitality

\_\_\_\_\_ LEED BD+C: Healthcare

\_\_\_\_\_ LEED BD+C: Homes and Multifamily Lowrise

\_\_\_\_\_ LEED BD+C: Multifamily Midrise

\_\_\_\_\_ LEED ID+C: Commercial Interiors

\_\_\_\_\_ LEED ID+C: Retail

\_\_\_\_\_ LEED ID+C: Hospitality

\_\_\_\_\_ LEED O+M: Existing Buildings

\_\_\_\_\_ LEED O+M: Retail

\_\_\_\_\_ LEED O+M: Schools

\_\_\_\_\_ LEED O+M: Hospitality

\_\_\_\_\_ LEED O+M: Data Centers

\_\_\_\_\_ LEED O+M: Warehouses and Distribution Centers

\_\_\_\_\_ LEED ND: Plan

\_\_\_\_\_ LEED ND: Built Project

**Rating System Descriptions**

1. Buildings used to store goods, manufactured products, merchandise, raw materials, or personal belongings, such as self-storage.
2. Interior spaces dedicated to hotels, motels, inns, or other businesses within the service industry that provide transitional or short-term lodging with or without food.
3. Buildings dedicated to hotels, motels, inns, or other businesses within the service industry that provide transitional or short-term lodging with or without food.

4. Existing buildings used to store goods, manufactured products, merchandise, raw materials, or personal belongings (such as self-storage).
5. New construction or major renovation of buildings that do not primarily serve K-12 educational, retail, data centers, warehouses and distribution centers, hospitality, or healthcare uses. New construction also includes high-rise residential buildings 9 stories or more.
6. Buildings made up of core and ancillary learning spaces on K-12 school grounds. LEED BD+C: Schools may optionally be used for higher education and non-academic buildings on school campuses.
7. Existing buildings made up of core and ancillary learning spaces on K-12 school grounds. May also be used for higher education and non-academic buildings on school campuses.
8. Projects in conceptual planning or master planning phases, or under construction.
9. Buildings that are new construction or major renovation for the exterior shell and core mechanical, electrical, and plumbing units, but not a complete interior fit-out. LEED BD+C: Core and Shell is the appropriate rating system to use if more than 40% of the gross floor area is incomplete at the time of certification.
10. Buildings used to conduct the retail sale of consumer product goods. Includes both direct customer service areas (showroom) and preparation or storage areas that support customer service.
11. Interior spaces dedicated to functions other than retail or hospitality.
12. Existing buildings that do not primarily serve K-12 educational, retail, data centers, warehouses and distribution centers, or hospitality uses.
13. Single-family homes and multi-family residential buildings of 1 to 3 stories. Projects 3 to 5 stories may choose the Homes rating system that corresponds to the ENERGYSTAR program in which they are participating.
14. Existing buildings specifically designed and equipped to meet the needs of high density computing equipment such as server racks, used for data storage and processing. LEED O+M: Data Centers only addresses whole building data centers.
15. Hospitals that operate twenty-four hours a day, seven days a week and provide inpatient medical treatment, including acute and long-term care.
16. Existing buildings dedicated to hotels, motels, inns, or other businesses within the service industry that provide transitional or short-term lodging with or without food.
17. Buildings specifically designed and equipped to meet the needs of high density computing equipment such as server racks, used for data storage and processing. LEED BD+C: Data Centers only addresses whole building data centers (greater than 60%).
18. Completed development projects.
19. Interior spaces used to conduct the retail sale of consumer product goods. Includes both direct customer service areas (showroom) and preparation or storage areas that support customer service.

20. Multi-family residential buildings of 4 to 8 occupiable stories above grade. The building must have 50% or more residential space. Buildings near 8 stories can inquire with USGBC about using Midrise or New Construction, if appropriate.
21. Existing buildings used to conduct the retail sale of consumer product goods. Includes both direct customer service areas (showroom) and preparation or storage areas that support customer service.
92. The \_\_\_\_\_ rule provides guidance for making a decision of what rating system to use when several rating systems appear to be appropriate for a project.
93. If a rating system is appropriate for less than \_\_\_\_\_ of the gross floor area of a LEED project building or space, then that rating system should not be used.
94. If a rating system is appropriate for more than \_\_\_\_\_ of the gross floor area of a LEED project building or space, then that rating system should be used.
95. If an appropriate rating system falls between \_\_\_\_\_ and \_\_\_\_\_ of the gross floor area, project teams must independently assess their situation and decide which rating system is most applicable.
96. The entire \_\_\_\_\_ of a LEED project must be certified under a single rating system and is subject to all \_\_\_\_\_ and attempted \_\_\_\_\_ in that rating system, regardless of mixed construction or space usage type.
97. Which of these must be satisfied in order to LEED certify a project? [Choose three]
- A. MPRs
  - B. Project Checklist
  - C. All prerequisites and credits for the rating system being used
  - D. All prerequisites for the rating system being used
  - E. Enough credits for the rating system being used to achieve the desired level of certification