



LEED Rating System
6th public comment draft

NEIGHBORHOOD DEVELOPMENT

Includes:
Neighborhood Development Plan
Neighborhood Development

Credits shown in gray do not have substantive changes and are not open for public comment.

SMART LOCATION & LINKAGE (SLL)	6
SLL Prerequisite: Smart Location	6
ND Plan, ND	6
SLL Prerequisite: Imperiled Species and Ecological Communities Conservation	8
ND Plan, ND	8
SLL Prerequisite: Wetland and Water Body Conservation	10
ND Plan, ND	10
SLL Prerequisite: Agricultural Land Conservation	12
ND Plan, ND	12
SLL Prerequisite: Floodplain Avoidance	14
ND Plan, ND	14
SLL Credit: Preferred Locations	15
ND Plan, ND	16
SLL Credit: Brownfield Remediation	18
ND Plan, ND (SLL)	18
LT Credit: Access to Quality Transit	19
ND Plan, ND	19
LT Credit: Bicycle Facilities	20
ND Plan, ND	20
SLL Credit: Housing and Jobs Proximity	22
ND Plan, ND	22
SLL Credit: Steep Slope Protection	23
ND Plan, ND	23
SLL Credit: Site Design for Habitat or Wetland and Water Body Conservation	24
ND Plan, ND (SLL)	24
SLL Credit: Restoration of Habitat or Wetlands and Water Bodies	26
ND Plan, ND (SLL)	26
SLL Credit: Long-Term Conservation Management of Habitat or Wetlands and Water Bodies	27
ND Plan, ND (SLL)	27
NEIGHBORHOOD PATTERN & DESIGN (NPD)	28
NPD Prerequisite: Walkable Streets	28
ND Plan, ND	28
NPD Prerequisite: Compact Development	30
ND Plan, ND	30
NPD Prerequisite: Connected and Open Community	31
ND Plan, ND	31

NPD Credit: Walkable Streets	32
ND Plan, ND.....	32
NPD Credit: Compact Development	35
ND Plan, ND.....	35
NPD Credit: Mixed-Use Neighborhoods	36
ND Plan, ND.....	36
NPD Credit: Housing Types and Affordability	38
ND Plan, ND.....	38
LT Credit: Reduced Parking Footprint	41
ND Plan, ND.....	41
NPD Credit: Connected and Open Community	42
ND Plan, ND.....	42
NPD Credit: Transit Facilities	43
ND Plan, ND.....	43
NPD Credit: Transportation Demand Management	44
ND Plan, ND.....	44
NPD Credit: Access to Civic and Public Space	46
ND Plan, ND.....	46
NPD Credit: Access to Recreation Facilities	47
ND Plan, ND.....	47
NPD Credit: Visitability and Universal Design	48
ND Plan, ND.....	48
NPD Credit: Community Outreach and Involvement	50
ND Plan, ND.....	50
NPD Credit: Local Food Production	52
ND Plan, ND.....	52
NPD Credit: Tree-Lined and Shaded Streetscapes	54
ND Plan, ND.....	54
NPD Credit: Neighborhood Schools	55
ND Plan, ND.....	55
GREEN INFRASTRUCTURE & BUILDINGS (GIB)	56
GIB Prerequisite: Certified Green Building	56
ND Plan, ND (GIB)	56
GIB Prerequisite: Minimum Building Energy Performance	57
ND Plan, ND.....	57
WE Prerequisite: Indoor Water Use Reduction	59

ND Plan, ND.....	59
SS Prerequisite: Construction Activity Pollution Prevention	61
ND Plan, ND (GIB)	61
GIB Credit: Certified Green Buildings	62
ND Plan, ND.....	62
GIB Credit: Optimize Building Energy Performance.....	63
ND Plan, ND.....	63
WE Credit: Indoor Water Use Reduction.....	65
ND Plan, ND (GIB)	65
WE Credit: Outdoor Water Use Reduction.....	67
ND Plan, ND (GIB)	67
GIB Credit: Building Reuse	68
ND Plan, ND (GIB)	68
GIB Credit: Historic Resource Preservation and Adaptive Use	69
ND Plan, ND (GIB)	69
GIB Credit: Minimized Site Disturbance.....	70
ND Plan, ND (GIB)	70
SS Credit: Rainwater Management	72
ND Plan, ND (GIB)	72
SS Credit: Heat Island Reduction	73
ND Plan, ND (GIB)	73
GIB Credit: Solar Orientation	75
ND Plan, ND.....	75
EA Credit: Renewable Energy Production.....	76
ND Plan, ND.....	76
GIB Credit: District Heating and Cooling	77
ND Plan, ND.....	77
GIB Credit: Infrastructure Energy Efficiency.....	78
ND Plan, ND.....	78
GIB Credit: Wastewater Management	79
ND Plan, ND (GIB)	79
GIB Credit: Recycled and Reused Infrastructure.....	80
ND Plan, ND (GIB)	80
GIB Credit: Solid Waste Management	81
ND Plan, ND (GIB)	81
SS Credit: Light Pollution Reduction	82
ND Plan, ND (GIB)	82

INNOVATION (IN)	86
IN Credit: Innovation	86
ND Plan, ND.....	86
IN Credit: LEED Accredited Professional	87
ND Plan, ND.....	87
REGIONAL PRIORITY (RP)	88
ND Plan, ND.....	88
APPENDICES	89
Appendix 1. Use Types and Categories	89
Appendix 2. Default Occupancy Counts	90
Appendix 3. Retail Process Load Baselines	92

SMART LOCATION & LINKAGE (SLL)

SLL PREREQUISITE: SMART LOCATION Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage development within and near *existing* communities and public transit infrastructure. To encourage improvement and redevelopment of existing cities, suburbs, and towns while limiting the expansion of the *development footprint* in the region. To reduce vehicle trips and vehicle distance traveled. To reduce the incidence of obesity, heart disease, and hypertension by encouraging daily physical activity associated with walking and bicycling.

Requirements

ND PLAN, ND

For All Projects

Either (1) locate the *project* on a site served by existing *water and wastewater infrastructure* or (2) locate the project within a legally adopted, publicly owned, planned water and wastewater service area, and provide new water and wastewater infrastructure for the project.

The site should also meet the requirements of one of the following four options.

Option 1. Infill Sites

Locate the project on an *infill site*.

OR

Option 2. Adjacent Sites with Connectivity

Locate the project on an *adjacent site* (i.e., a site that is adjacent to *previously developed* land) where the *connectivity* of the adjacent land is at least 90 intersections per square mile (35 intersections per square kilometer) as measured within a ½-mile (800-meter) distance of a continuous segment of the *project boundary* that constitutes at least 25% of the total project boundary and is adjacent to previous development.

Existing intersections may be counted if they were not constructed or funded by the project *developer* within the past 10 years.

Locate and/or design the project such that a through-connection (of the circulation network) intersects the adjacent portion of the project boundary at least every 600 feet (180 meters) on average and at least every 800 feet (245 meters), connecting it with an existing circulation network outside the project; nonmotorized through-connections of the circulation network may count for no more than 20% of the total. The exemptions listed in NPD Prerequisite Connected and Open Community do not apply to this option.

OR

Option 3. Transit Corridor

Locate the project on a site with existing or planned transit service such that at least 50% of *dwelling units* and nonresidential use entrances (inclusive of existing buildings) are within a ¼-mile (400-meter) *walking distance* of at least one bus, *streetcar*, or *rideshare* stop, or within a ½-mile (800-meter) walking distance of at least one *bus rapid transit* stop, light or heavy rail station, or commuter ferry terminal. The transit service at the stop(s) in aggregate must meet the minimums listed in Table 1.

Projects must meet the requirements for both weekday and weekend trips and provide service every day.

Table 1. Minimum daily transit service

	Weekday trips	Weekend trips
Projects with multiple transit types (bus, streetcar, rail, or ferry)	60	40
Projects with commuter rail or ferry service only	24	6

If transit service is planned but not yet operational, the project must demonstrate one of the following:

1. The relevant transit agency has a signed full-funding grant agreement with the Federal Transit Administration (or equivalent national agency for project outside the U.S.) that includes a revenue operations date for the start of transit service. The revenue operations date must be no later than the date by which 50% of the project's total building gross floor area will be occupied.
2. For bus, streetcar, bus rapid transit, or ferry service, the transit agency must certify that it has an approved budget that includes specifically allocated funds sufficient to provide the planned service at the levels listed above and that service at these levels will begin no later than the date by which 50% of the project's total building gross floor area will be occupied.
3. For rail service other than streetcars, the transit agency must certify that preliminary engineering for a rail line has begun. In addition, the service must meet either of these two requirements:
 - A state legislature or local subdivision of the state (or a local government for projects outside the U.S.) has authorized the transit agency to expend funds to establish rail transit service that will begin no later than the date by which 50% of the project's total building gross floor area will be occupied.

Or

- A local government has dedicated funding or reimbursement commitments from future tax revenue for the development of stations, platforms, or other rail transit infrastructure that will serve the project no later than the date by which 50% of the project's total building gross floor area will be occupied.

OR

Option 4. Sites with Nearby Neighborhood Assets

Include a residential component equaling at least 30% of the project's total building gross floor area (exclusive of portions of parking structures devoted exclusively to parking) and locate the project near existing *uses* (see Appendix 1) such that the project boundary is within a ¼-mile (400-meter) walking distance of at least five uses, or such that the project's geographic center is within a ½-mile (800-meter) walking distance of at least seven uses.

The following restrictions apply.

- A use counts as only one type (e.g., a retail store may be counted only once even if it sells products in several categories).
- No more than two uses in each use type may be counted (e.g., if five restaurants are within the required distance, only two may be counted).
- The uses accessible to the project must represent at least two categories.

SLL PREREQUISITE: IMPERILED SPECIES AND ECOLOGICAL COMMUNITIES CONSERVATION Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To conserve imperiled species and ecological communities.

Requirements

ND PLAN, ND

Consult with the state Natural Heritage Program and state fish and wildlife agencies (or local equivalent for projects outside the U.S.) to determine if any of the following have been or are likely to be found on the project site because of the presence of suitable habitat and nearby occurrences:

- species listed as threatened or endangered under the U.S. Endangered Species Act or the state's endangered species act, or
- species or ecological communities classified by NatureServe as GH (possibly extinct), G1 (critically imperiled), or G2 (imperiled), or
- species listed as threatened or endangered specified under local equivalent standards (in areas outside the U.S.) that are not covered by NatureServe data.

If the consultations are inconclusive and site conditions indicate that imperiled species or ecological communities could be present, perform biological surveys using accepted methodologies during appropriate seasons to determine whether such species or communities occur or are likely to occur on the site. Comply with the appropriate case or option below.

Case 1. Sites without Affected Species or Ecological Community

The prerequisite is satisfied if the consultation and any necessary biological surveys determine that no such imperiled species or ecological communities have been found or have a high likelihood of occurring.

OR

Case 2. Sites with Affected Species or Ecological Community

If the site has any affected species or ecological communities, meet either of the following two options.

Option 1. Habitat Conservation Plan

Comply with an approved habitat conservation plan under the U.S. Endangered Species Act (or local equivalent for projects outside the U.S.) for each identified species or ecological community.

OR

Option 2. Habitat Conservation Plan Equivalent

Work with a qualified biologist or ecologist, a conservation organization, or the appropriate national, state or local agency to create and implement a conservation plan that includes the following actions:

- Identify and map the extent of the habitat and the appropriate buffer, not less than 100 feet (30 meters), according to best available scientific information.

- If on-site protection can be accomplished, analyze threats from development and develop a monitoring and management plan that eliminates or significantly reduces the threats.
- Protect the identified habitat and buffer in perpetuity by donating or selling the land or a conservation easement on the land to an accredited land trust, conservation organization, or relevant government agency.
- If any portion of the identified habitat and buffer cannot be protected in perpetuity, quantify the effects by acres (hectares) or number of plants and/or animals affected, and protect from development in perpetuity habitat of similar or better quality, on-site or off-site, by donating or selling a conservation easement on it to an accredited land trust, conservation organization, or relevant government agency. The donation or easement must cover an amount of land equal to or larger than the area that cannot be protected.

SLL PREREQUISITE: WETLAND AND WATER BODY CONSERVATION Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To preserve water quality, natural hydrology, habitat, and biodiversity through conservation of *wetlands* and *water bodies*.

Requirements

ND PLAN, ND

Limit development effects on wetlands, water bodies, and surrounding buffer land according to the requirements below. In all cases, the project may not contain any land that has been reclaimed within 20 years of submission for LEED-ND certification.

Case 1. Sites without Sensitive Areas

Locate the *project* on a site that includes no *preproject* wetlands, water bodies, land within 50 feet (15 meters) of wetlands, and land within 100 feet (30 meters) of water bodies.

Case 2. Sites with Sensitive Areas

If the site has *preproject* wetlands, water bodies, land within 50 feet (15 meters) of wetlands, or land within 100 feet (30 meters) of water bodies, select one of the following two options:

Option 1. No Development on Wetlands and Water Bodies

Locate the project such that *preproject* wetlands, water bodies, land within 50 feet (15 meters) of wetlands, and land within 100 feet (30 meters) of water bodies are not affected by new development, unless the development is minor improvements or is on *previously developed* land.

OR

Option 2. Rainwater Management and Protected Buffers

Earn at least 1 point under GIB Credit Rainwater Management, and limit any development beyond minor improvements to less than the percentage of buffer land listed in Table 1.

Table 1. Maximum allowable area of development within buffer zone, by project density

<i>Residential density</i>		<i>Nonresidential density (FAR)*</i>	<i>Percentage of buffer land** where development beyond minor improvements is allowed</i>
<i>DU/acre*</i>	<i>DU/hectare*</i>		
> 25	> 62	> 1.75	≤ 20%
> 18 and ≤ 25	> 45 and ≤ 62	> 1.25 to ≤ 1.75	≤ 15%

> 10 and ≤ 18	> 25 and ≤ 45	> .75 to ≤ 1.25	≤ 10%
≤ 10	≤ 25	≤ .75	≤ 5%

DU = dwelling unit; FAR = floor-area ratio.

* For this option, a mixed-use project may use either its residential or its nonresidential *density* to determine the percentage of allowable development, regardless of which is higher.

** Buffer width may vary as long as the total buffer area is equal to the area within 50 feet (15 meters) of wetlands and/or within 100 feet (30 meters) of water bodies, minus excluded features (see list of minor improvements, below). In no case may the buffer width be less than 25 feet (7.5 meters) for wetlands and 50 feet (15 meters) for water bodies, measured from the edge. Inside this minimum buffer, only minor improvements and/or improvements that result in no ecological impairment of the wetland or water body, as determined by a qualified biologist, are allowed.

For All Projects

Comply with all local, state, and national regulations pertaining to wetland and water body conservation. The following features are not considered wetlands, water bodies, or buffer land that must be protected for the purposes of this prerequisite:

- previously developed land;
- man-made water bodies (such as industrial mining pits, concrete-lined canals, or stormwater retention ponds) that lack natural edges and floors or native ecological communities in the water and along the edge;
- man-made linear wetlands that result from the interruption of natural drainages by *existing* rights-of-way; and
- wetlands that were man-made incidentally and have been rated “poor” for all measured wetland functions, as assessed by a qualified biologist using a method that is accepted by state or regional permitting agencies (or a local equivalent for projects outside the U.S.).

Minor improvements within the buffer may be undertaken to enhance appreciation for the wetland or water body, provided such facilities are open to public access. Only the following improvements are permitted:

- bicycle and pedestrian pathways no more than 12 feet wide (3.5 meters), of which no more than 8 total feet (2.5 meters) may be impervious;
- activities to maintain or restore native natural communities and/or natural hydrology;
- one single-story structure not exceeding 500 square feet (45 square meters) per 300 linear feet (90 linear meters) of buffer, on average;
- grade changes necessary to ensure public access;
- clearings, limited to one per 300 linear feet (90 linear meters) of buffer, on average, not exceeding 500 square feet (45 square meters) each, for tables, benches, and access for nonmotorized recreational watercraft;
- removal of hazardous trees (up to 75% of dead trees), trees smaller than 6 inches (150 millimeters) in diameter at breast height, trees with a condition rating of less than 40%, and up to 20% of trees larger than 6 inches (150 millimeters) in diameter at breast height with a condition rating of 40% or higher, as based on an assessment by an arborist certified by the International Society of Arboriculture (ISA) using ISA standard measures or for projects outside the U.S. an equivalent certified professional utilizing equivalent methodology; and
- *brownfield* remediation activities.

Off-street parking is not considered a minor improvement.

Direct development of wetlands and water bodies is prohibited, except for minimal-impact structures, such as an elevated boardwalk, that allow access to the water for educational and recreational purposes. Structures that protrude into wetlands or water bodies may be replaced, provided the replacement structure has the same or smaller footprint and a similar height.

SLL PREREQUISITE: AGRICULTURAL LAND CONSERVATION Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To preserve irreplaceable agricultural resources by protecting *prime* and *unique farmland* from development.

Requirements

ND PLAN, ND

Locate the *project* on a site that is not within a state or locally designated agricultural preservation district (or local equivalent for projects outside the U.S.), unless any changes made to the site conform to the requirements for development within the district (as used in this requirement, “district” does not equate to land-use zoning).

Meet the requirements of one of the following five options.

Option 1. Infill Sites

Locate the project on an *infill site*.

OR

Option 2. Sites Served by Transit

Comply with SLL Prerequisite 1, Option 3, Transit Corridor.

OR

Option 3. Development Rights Receiving Area

Locate the project within a designated receiving area for development rights under a publicly administered farmland protection program that provides for the transfer of development rights from lands designated for conservation to lands designated for development.

OR

Option 4. Sites without Affected Soils

Locate the project’s *development footprint* such that it does not disturb prime farmland, unique farmland, or farmland of statewide or local importance as defined by the U.S. Code of Federal Regulations, Title 7, Volume 6, Parts 400 to 699, Section 657.5 and identified in a state Natural Resources Conservation Service soil survey (or local equivalent for projects outside the U.S.).

OR

Option 5. Sites with Affected Soils

If development footprint affects land with prime farmland, unique farmland, or farmland of statewide or local importance as defined by the U.S. Code of Federal Regulations, Title 7, Volume 6, Parts 400 to 699, Section 657.5 and identified in a state Natural Resources Conservation Service soil survey (or local equivalent for projects outside the U.S.), mitigate the loss through the purchase or donation of easements

providing permanent protection from development on land with comparable soils in accordance with the ratios based on densities per acre (per hectare) of *buildable land* listed in Tables 1 and 2.

Table 1. Mitigation ratios for projects in large metropolitan or micropolitan statistical areas (pop. 250,000 or more)

<i>Residential density</i>		<i>Nonresidential density (FAR of buildable land available for nonresidential use)</i>	<i>Mitigation ratio (area of easement : area of project on prime, unique, or significant farmland)</i>
<i>DU per acre of buildable land available for residential use</i>	<i>DU per hectare of buildable land available for residential use</i>		
> 7 and ≤ 8.5	> 17.5 and ≤ 21	> 0.50 and ≤ 0.67	2 to 1
> 8.5 and ≤ 10	> 21 and ≤ 25	> 0.67 and ≤ 0.75	1.5 to 1
> 10 and ≤ 11.5	> 25 and ≤ 28.5	> 0.75 and ≤ 0.87	1 to 1
> 11.5 and ≤ 13	> 28.5 and ≤ 32	> 0.87 and ≤ 1.0	.5 to 1
> 13	> 32	> 1.0	No mitigation

Table 2. Mitigation ratios for projects in small metropolitan or micropolitan statistical areas (pop. less than 250,000)

<i>Residential density</i>		<i>Nonresidential density (FAR of buildable land available for nonresidential use)</i>	<i>Mitigation ratio (area of easement : area of project on prime, unique, or significant farmland)</i>
<i>DU/acre of buildable land available for residential use</i>	<i>DU/hectare of buildable land available for residential use</i>		
> 7 and ≤ 8	> 17.5 and ≤ 20	> 0.50 and ≤ 0.58	2 to 1
> 8 and ≤ 9	> 20 and ≤ 22	> 0.58 and ≤ 0.67	1 to 1
> 9 and ≤ 10	> 22 and ≤ 25	> 0.67 and ≤ 0.75	0.5 to 1
> 10	> 25	> 0.75	No mitigation

DU = dwelling unit; FAR = floor-area ratio.

All off-site mitigation must be located within 100 miles (160 kilometers) of the project. Up to 15% of the affected farmland area may be subtracted from the mitigation area required of the project in Tables 1 and 2 if it is permanently dedicated for community gardens. Portions of parking structures devoted exclusively to parking must be excluded from the numerator when calculating the *floor-area ratio* (FAR).

The mitigation ratio for a mixed-use project is calculated as follows:

1. Determine the total floor area of all residential and nonresidential uses.
2. Calculate the percentage residential and percentage nonresidential of the total floor area.
3. Determine the density of the residential and nonresidential components as measured in *dwelling units* per acre and FAR, respectively.
4. Referring to Tables 1 and 2, find the appropriate mitigation ratios for the residential and nonresidential components.
5. If the mitigation ratios are different, multiply the mitigation ratio of the residential component by its percentage of the total floor area, and multiply the mitigation ratio of the nonresidential component by its percentage.
6. Add the two numbers produced by step 5. The result is the mitigation ratio.

SLL PREREQUISITE: FLOODPLAIN AVOIDANCE Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To protect life and property, promote open space and habitat conservation, and enhance water quality and natural hydrologic systems.

Requirement

ND PLAN, ND

Case 1. Sites without Flood Hazard Areas

Locate on a site that is entirely outside any flood hazard area shown on a legally adopted flood hazard map or otherwise legally designated by the local jurisdiction or the state. For projects in places without legally adopted flood hazard maps or legal designations, locate on a site that is entirely outside any floodplain subject to a 1% or greater chance of flooding in any given year.

Case 2. Infill or Previously Developed Sites with Flood Hazard Areas

Locate the *project* on an *infill site* or a *previously developed site* and select one of the following two options.

Option 1. American Society of Civil Engineers Standard

For any portion of the site within the flood hazard area, design buildings in accordance with American Society of Civil Engineers Standard 24-05 (ASCE 24).

If the project includes construction of a critical facility that is intended to remain operational in the event of a flood, or whose function is critical for postflood recovery, design the facility to be protected and operable at the floodwater levels specified in ASCE 24, or at the water levels represented by a 0.2% annual chance (500-year) flood, whichever is higher. For the purpose of this requirement, critical facilities include, but are not limited to, hospitals, emergency operations centers, building or portions of buildings designated as emergency shelters, water and sewage treatment facilities, and fire and police stations.

OR

Option 2. National Flood Insurance Program

For any portion of the site within the flood hazard area, design buildings in accordance with National Flood Insurance Program (NFIP) requirements. Project outside the U.S. may use a local equivalent to NFIP if the program is equal to or more stringent than NFIP and is administered at the national level.

If the project involves a critical facility that is intended to remain operational in the event of a flood, or whose function is critical for postflood recovery, design the facility to be protected and operable at the water levels represented by a 0.2% annual chance (500-year) flood. For the purpose of this requirement, critical facilities include, but are not limited to, hospitals, emergency operations centers,

building or portions of buildings designated as emergency shelters, water and sewage treatment facilities, and fire and police stations.

Case 3. All Other Sites with Flood Hazard Areas

Meet the requirements of one of the following two options.

Option 1. American Society of Civil Engineers Standard

Previously developed portions of the site

On portions of the site that are previously developed and in the flood hazard area, design buildings in accordance with American Society of Civil Engineers Standard 24-05 (ASCE 24).

Nonpreviously developed portions of the site

On portions of the site that are not previously developed and in the flood hazard area, do not develop on land that is within either a regulatory floodway or a coastal high hazard area (Zone V), as shown on the flood hazard map.

On all other portions of the site that are not previously developed and in the flood hazard area, design buildings in accordance with ASCE 24.

Critical facilities in the flood hazard area

If the project involves a critical facility that is intended to remain operational in the event of a flood, or whose function is critical for postflood recovery, design the facility to be protected and operable at the floodwater levels specified in ASCE 24 or at the water levels represented by a 0.2% annual chance (500-year) flood, whichever is higher. For the purpose of this requirement, critical facilities include, but are not limited to, hospitals, emergency operations centers, building or portions of buildings designated as emergency shelters, water and sewage treatment facilities, and fire and police stations.

OR

Option 2. National Flood Insurance Program

Previously developed portions of the site

On portions of the site that are previously developed and in the flood hazard area, design buildings in accordance with National Flood Insurance Program (NFIP) requirements. Project outside of the U.S. may use a local equivalent to NFIP if the program is equal to or more stringent than NFIP and is administered at the national level..

Nonpreviously developed portions of the site

On portions of the site that are not previously developed and in the flood hazard area, do not develop on land that is within either a regulatory floodway or a coastal high hazard area (Zone V), as shown on the flood hazard map.

On all other portions of the site that are not previously developed and in the flood hazard area, design buildings in accordance with NFIP.

Critical facilities in the flood hazard area

If the project involves a critical facility that is intended to remain operational in the event of a flood, or whose function is critical for postflood recovery, design the facility to be protected and operable at the water levels represented by a 0.2% annual chance (500-year) flood. For the purpose of this requirement, critical facilities include, but are not limited to, hospitals, emergency operations centers, building or portions of buildings designated as emergency shelters, water and sewage treatment facilities, and fire and police stations.

SLL CREDIT: PREFERRED LOCATIONS

ND

1–10 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage development within *existing* cities, suburbs, and towns to reduce the environmental and public health consequences of sprawl. To reduce development pressure beyond the limits of existing development. To conserve the natural and financial resources required for infrastructure.

Requirements

ND PLAN, ND

Achieve any combination of requirements in the following three options, for a total of up to 10 points.

Option 1. Location Type (1–5 points)

Locate the *project* in one of the following locations:

- a *previously developed site* that is not an *adjacent site* or *infill site* (1 point);
- an *adjacent site* that is also a previously developed site (2 points);
- an infill site that is not a previously developed site (3 points); or
- an infill site that is also a previously developed site (5 points).

AND/OR

Option 2. Connectivity (5 points)

Locate the project in an area that has existing *connectivity*, as listed in Table 1. Measure connectivity one of two ways:

- within 1/2 mile (800 meters) of the project boundary; or
- within the project and within 1/2 mile (800 meters) of the project boundary.

Intersections within the site cannot be counted if they were constructed or funded by the *developer* within the past 10 years.

Table 1. Points for connectivity

Intersections per square mile	Intersections per square kilometer	Points
200–250	320–400	1
251–300	401–480	2
301–350	481–560	3
351–400	561–640	4
> 400	> 640	5

AND/OR

Option 3. Designated High-Priority Locations (3 points)

Earn at least 2 points under NPD Credit Housing Types and Affordable Housing, Option 2, Affordable Housing.

AND

Locate the project in one of the following high-priority redevelopment areas:

- a site listed by the EPA National Priorities List;
- a Federal Empowerment Zone site;
- a Federal Enterprise Community site;
- a Federal Renewal Community site;
- a Department of the Treasury Community Development Financial Institutions Fund Qualified Low-Income Community (a subset of the New Markets Tax Credit Program);
- a site in a U.S. Department of Housing and Urban Development's Qualified Census Tract (QCT) or Difficult Development Area (DDA); or
- a local equivalent program administered at a national level for projects outside the U.S.

SLL CREDIT: BROWNFIELD REMEDIATION

ND

1–2 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage the cleanup of contaminated lands and developing sites that have been identified as contaminated.

Requirements

ND PLAN, ND (SLL)

Option 1. Brownfield Site (1 point)

At a project site identified as a brownfield or where soil or groundwater contamination has been identified, and the local, state, or national authority (whichever has jurisdiction) requires its remediation, perform remediation to the satisfaction of that authority.

OR

Option 2. High-Priority Redevelopment Area (2 points)

Achieve the requirements in Option 1.

AND

Locate the project in one of the following high-priority redevelopment areas:

- EPA National Priorities List
- Federal Empowerment Zone
- Federal Enterprise Community
- Federal Renewal Community
- Department of the Treasury Community Development Financial Institutions Fund Qualified Low-Income Community (a subset of the New Markets Tax Credit Program)
- U.S. Department of Housing and Urban Development's Qualified Census Tract (QCT) or Difficult Development Area (DDA)
- Or a local equivalent program administered at the national level for projects outside the U.S.

LT CREDIT: ACCESS TO QUALITY TRANSIT

ND

1–7 points

This credit applies to

- Neighborhood Development Plan (1–7 points)
- Neighborhood Development (1–7 points)

Intent

To encourage development in locations shown to have multimodal transportation choices or otherwise reduced motor vehicle use, thereby reducing greenhouse gas emissions, air pollution, and other environmental and public health harms associated with motor vehicle use.

Requirements

ND PLAN, ND

Locate the project on a site with existing or planned transit service such that at least 50% of *dwelling units* and nonresidential use entrances (inclusive of existing buildings) are within a ¼-mile (400-meter) *walking distance* of at least one bus or *streetcar* stop, or within a ½-mile (800-meter) walking distance of at least one *bus rapid transit* stop, light or heavy rail station, commuter rail station, or commuter ferry terminal. The transit service at the stop(s) in aggregate must meet the minimums listed in Tables 1 and 2.

Projects must meet the requirements for both weekday and weekend trips and provide service every day.

Table 1. Minimum daily transit service for projects with multiple transit types (bus, *streetcar*, rail, or ferry).

Weekday trips	Weekend trips	Points
60	40	1
76	50	2
100	65	3
132	85	4
180	130	5
246	150	6
320	200	7

Table 2. Minimum daily transit service for projects with commuter rail or ferry service only

Weekday trips	Weekend trips	Points
24	6	1
40	8	2
60	12	3

Projects served by two or more transit routes such that no one route provides more than 60% of the prescribed levels may earn an additional point, up to the maximum number of points.

If existing transit service is temporarily rerouted outside the required distances for less than two years, the project may meet the requirements, provided the local transit agency has committed to restoring the routes with service at or above the prior level.

LT CREDIT: BICYCLE FACILITIES

ND

1–2 points

This credit applies to

- Neighborhood Development Plan (1-2 points)
- Neighborhood Development (1-2 points)

Intent

To promote bicycling and transportation efficiency and reduce vehicle distance traveled. To improve public health by encouraging utilitarian and recreational physical activity.

Requirements

ND PLAN, ND

Meet the following requirements in 90% of all new buildings. The buildings that do not have bicycle storage may not exceed 10% of the total project building floor area.

Non-Residential (excluding Retail) Buildings

Provide short-term bicycle storage for at least 2.5% of peak visitors, but no fewer than four storage spaces per building.

Provide long-term bicycle storage for at least 5% of all regular building occupants, but no fewer than four storage spaces per building in addition to the short-term bicycle storage spaces. Provide at least one on-site shower with changing facility for the first 100 regular building occupants and one additional shower for every 150 regular building occupants thereafter.

Multi-unit Residential Buildings

Provide short-term bicycle storage for at least 2.5% of all peak visitors, but no fewer than four storage spaces per building.

Provide long-term bicycle storage for at least 30% of all regular building occupants, but no less than one storage space per residential unit.

Retail Buildings

Provide at least two short-term bicycle storage spaces for every 5,000 square feet (465 square meters), but no fewer than two storage spaces per building.

Provide long-term bicycle storage for at least 5% of regular building occupants, but no fewer than two storage spaces per building in addition to the short-term bicycle storage.

Provide at least one on-site shower with changing facility for the first 100 regular building occupants and one additional shower for every 150 regular building occupants thereafter.

Mixed-Use Buildings

Meet the above requirements for the project's non-residential, multi-unit residential, and retail spaces.

For all projects:

Short-term bicycle storage must be within 100 feet (30 meters) walking distance of any main entrance. *Long-term bicycle storage* must be within 100 feet (30 meters) walking distance of any *functional entry*. It must be easily accessible to all building users.

Shower and changing facility requirements may be met by providing the equivalent of free access to on-site health club shower facilities, if the health club can be accessed without going outside.

Additionally, meet the requirements of one of the following two options.

Option 1. Bikable Location (1 point)

Locate the *project* such that the project boundary is within ¼ mile (400 meters) bicycling distance of an existing bicycle network that connects to at least one of the following.

- at least 10 diverse uses (see Appendix 1);
- a school or *employment center*, if the project total floor area is 50% or more residential; or
- a *bus rapid transit* stop, light or heavy rail station, commuter rail station, or ferry terminal.

All destinations must be within a 3-mile (4800-meter) bicycling distance of the project boundary.

AND/OR

Option 2. Bicycle Network (1 point)

Design the *project* such that at least 50% of *dwelling units* and nonresidential use entrances are located on an existing or planned *bicycle network* extending at least 3 continuous miles (4.8 contiguous kilometers). Within those 3 miles (4.8 kilometers), the network must connect to one of the following:

- a school;
- an employment center; or
- at least 10 diverse uses (see Appendix 1).

SLL CREDIT: HOUSING AND JOBS PROXIMITY

ND

3 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage balanced communities with a proximate housing and employment opportunities.

Requirements

ND PLAN, ND

Option 1. Project with Affordable Residential Component (3 points)

Include a residential component equaling at least 30% of the *project's* total building floor area (exclusive of parking structures), and locate or design the project such that its geographic center (or boundary if the project exceeds 500 acres [200 hectares]) is within a ½-mile (800-meter) *walking distance* of *existing* full-time equivalent jobs whose number equals or exceeds the number of *dwelling units* in the project. Satisfy the requirements necessary to earn at least 1 point under NPD Credit Housing Types and Affordability, Option 2, Affordable Housing.

Option 2. Project with Residential Component (2 points)

Include a residential component equaling at least 30% of the project's total building floor area (exclusive of parking structures) and locate or design the project such that its geographic center (or boundary if the project exceeds 500 acres [200 hectares]) is within a ½-mile (800-meter) walking distance of existing full-time equivalent jobs whose number equals or exceeds the number of dwelling units in the project.

Option 3. Infill Project with Nonresidential Component (1 point)

Include a nonresidential component equaling at least 30% of the project's total building floor area (exclusive of parking structures) and locate on an *infill site* whose geographic center (or boundary if the project exceeds 500 acres [200 hectares]) is within a ½-mile (800-meter) walking distance of an existing rail transit, ferry, or tram stop and within a ½-mile (800-meter) walking distance of existing dwelling units whose number equals or exceeds 50% of the number of new full-time equivalent jobs located in the project.

SLL CREDIT: STEEP SLOPE PROTECTION

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To minimize erosion, protect habitat, and reduce stress on natural water systems by preserving steep slopes in a natural, vegetated state.

Requirements

ND PLAN, ND

The following requirements apply to projects sites that have slopes greater than 15%.

Ensure that the share of the development footprint on existing slopes less than 15% is greater than the share of the project site with existing slopes greater than 15%.

On any existing, previously developed slopes steeper than 15%, restore the slope area with *native plants* or noninvasive *adapted plants*, according to Table 1. In addition, on any existing, undeveloped slopes steeper than 15%, limit the development area according to Table 1.

Table 1. Required restoration and protection areas of slope

Slope	Previously developed slopes: % of area to be restored	Undeveloped slopes: % of area permitted for development
> 40%	100%	No development permitted
26% to 40%	60%	40%
>15% to 25%	40%	60%

For undeveloped slopes steeper than 40%, do not disturb portions of the project site within 50 feet (15 meters) horizontally of the top of the slope and 75 feet (23 meters) horizontally from the toe of the slope.

Develop *covenants, conditions, and restrictions* (CC&Rs), development agreements, or other binding documents that will protect all steep slopes in perpetuity.

SLL CREDIT: SITE DESIGN FOR HABITAT OR WETLAND AND WATER BODY CONSERVATION

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To conserve native plants, wildlife habitat, wetlands, and water bodies.

Requirements

ND PLAN, ND (SLL)

Case 1. Sites without Significant Habitat or Wetlands and Water Bodies (1 point)

Locate the project on a site that does not have significant habitat, as defined in Case 2 of this credit, and is not within 100 feet (30 meters) of such habitat. Fulfill the requirements of Option 1 or 2(a) under SLL Prerequisite Wetland and Water Body Conservation.

Case 2. Sites with Habitat or Wetlands or Water Bodies (1 point)

Meet the requirements of Option 1 or Option 2.

Option 1. Sites with Significant Habitat

Work with both the state's Natural Heritage Program and the state fish and wildlife agency (or local equivalent agency for projects outside the U.S.) to delineate identified significant habitat on the site. Do not disturb significant habitat or portions of the site within an appropriate buffer around the habitat. The geographic extent of the habitat and buffer must be identified by a qualified biologist, a nongovernmental conservation organization, or the appropriate state, regional, or local agency. Protect significant habitat and its identified buffers from development by donating or selling the land, or a conservation easement on the land, to an accredited land trust, conservation organization, or relevant government agency (a deed covenant is not sufficient to meet this requirement) for the purpose of long-term conservation.

Identify and commit to ongoing management activities, along with parties responsible for management and funding available, such that habitat is maintained in preproject condition or better for a minimum of three years after the project is built out. The requirement for identifying ongoing management activities may also be met by earning SLL Credit Long-Term Conservation Management of Wetlands and Water Bodies.

Significant habitat for this credit is as follows:

- *Endangered species acts.* Habitat for species that are listed or are candidates for listing under state or national endangered species acts, habitat for species of special concern in the state, and habitat for species or ecological communities classified as GH, G1, G2, G3, S1, or S2 by NatureServe (local equivalent standards for threatened and endangered species may be used in countries outside the United States that do not have access to NatureServe data);
- *Locally or regionally significant habitat.* Locally or regionally significant habitat of any size, or patches of predominantly native vegetation at least 150 acres (60 hectares) (even if part of the area lies outside the project boundary); and
- *Habitat flagged for conservation.* Habitat flagged for conservation under a regional or state conservation or green infrastructure plan.

OR

Option 2. Sites with Wetlands and Water Bodies (1 point)

Design the project to conserve 100% of all water bodies, wetlands, land within 100 feet (30 meters) of water bodies, and land within 50 feet (15 meters) of wetlands on the site. Using a qualified biologist, conduct an assessment, or compile existing assessments, showing the extent to which those water bodies or wetlands provide (1) water quality maintenance; (2) wildlife habitat; and (3) hydrologic function maintenance, including flood protection. Assign appropriate buffers, measuring not less than 100 feet (30 meters) for water bodies and 50 feet (15 meters) for wetlands, based on the functions provided, contiguous soils and slopes, and contiguous land uses. Do not disturb wetlands, water bodies, or their buffers, and protect them from development by donating or selling the land, or a conservation easement on the land, to an accredited land trust, conservation organization, or relevant government agency (a deed covenant is not sufficient to meet this requirement) for the purpose of long-term conservation.

Identify and commit to ongoing management activities, along with parties responsible for management and funding available, such that habitat is maintained in preproject condition or better for a minimum of three years after the project is built out. The requirement for identifying ongoing management activities may also be met by earning SLL Credit Long-Term Conservation Management of Wetlands and Water Bodies. The project does not meet the requirements if it degrades habitat for species identified in endangered species acts or habitat flagged for conservation in Option 1.

For All Projects

The following features are not considered wetlands, water bodies, or buffer land that must be protected:

- a. previously developed land;
- b. man-made water bodies (such as industrial mining pits, concrete-lined canals, or rainwater retention ponds) that lack natural edges and floors or native ecological communities in the water and along the edge;
- c. man-made linear wetlands that result from the interruption of natural drainages by existing rights-of-way; and
- d. wetlands that were created incidentally by human activity and have been rated “poor” for all measured wetland functions, as assessed by a qualified biologist using a method that is accepted by state or regional permitting agencies (or a local equivalent method for projects outside the United States).

SLL CREDIT: RESTORATION OF HABITAT OR WETLANDS AND WATER BODIES

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To restore native plants, wildlife habitat, wetlands, and water bodies harmed by previous human activities.

Requirements

ND PLAN, ND (SLL)

Using only native plants, restore *predevelopment* native ecological communities, *water bodies*, or *wetlands* on the *project* site in an area equal to or greater than 10% of the *development footprint*.

Work with a qualified biologist to ensure that restored areas will have the native species assemblages, hydrology, and other habitat characteristics that likely occurred in predevelopment conditions. Protect such areas from development by donating or selling the land, or a conservation easement on the land, to an accredited land trust, conservation organization or relevant government agency (a deed covenant is not sufficient to meet this requirement) for the purpose of long-term conservation.

Identify and commit to ongoing management activities, along with parties responsible for management and funding available, so that restored areas are maintained for a minimum of three years after the project is built out or the restoration is completed, whichever is later. The requirement for identifying ongoing management activities may also be met by earning SLL Credit Long-Term Conservation Management of Wetlands and Water Bodies.

The project does not meet the requirements if it has negative effects on habitat for species identified in endangered species acts or habitat flagged for conservation in Option 1 of SLL Credit Site Design for Habitat or Wetland and Water Body Conservation.

SLL CREDIT: LONG-TERM CONSERVATION MANAGEMENT OF HABITAT OR WETLANDS AND WATER BODIES

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To conserve native plants, wildlife habitat, wetlands, and water bodies.

Requirements

ND PLAN, ND (SLL)

Create and commit to implementing a long-term (at least 10-year) management plan for existing or recently restored on-site native habitats, water bodies, or wetlands and their buffers, and create a guaranteed funding source for management.

Involve a qualified biologist or a professional from a natural resources agency or natural resources consulting firm in writing the management plan and conducting or evaluating the ongoing management.

The plan must include biological objectives consistent with habitat or water resource conservation, and it must identify the following:

- procedures and personnel for maintaining the conservation areas;
- estimated implementation costs and funding sources; and
- any threats that the project poses for habitat or water resources within conservation areas (e.g., introduction of exotic species, intrusion of residents in habitat areas) and measures to substantially reduce those threats.

The project does not meet the requirements if it has negative effects on habitat for species identified in endangered species acts or habitat flagged for conservation in Option 1 of SLL Credit Site Design for Habitat or Wetland and Water Body Conservation.

NEIGHBORHOOD PATTERN & DESIGN (NPD)

NPD PREREQUISITE: WALKABLE STREETS Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To promote transportation efficiency and reduce vehicle distance traveled. To improve public health by providing safe, appealing, and comfortable street environments that encourage daily physical activity and avoid pedestrian injuries.

Requirements

ND PLAN, ND

Design and build the *project* to achieve all of the following:

- a. 90% of new buildings have a *functional entry* onto the circulation network or other public space, such as a *park* or *plaza*, but not a parking lot. Whether opening to the circulation network or other public space, the functional entry must be connected to a sidewalk or equivalent provision for walking. If the public space is a square, park, or plaza, it must be at least 50 feet (15 meters) deep, measured at a point perpendicular to each entry.
- b. At least 15% of the *block length* of the *existing* and new circulation networks within and bordering the project has a minimum building-height-to-street-centerline ratio of 1:1.5 (i.e., a minimum of 1 foot [300 millimeters] of building height for every 1.5 feet [450 millimeters] of width from street centerline to building façade). Alleys may be omitted from the calculations.
 - Projects that border a part of the circulation network must meet only their proportional share of the height-to-width ratio (i.e., only on the project side of the circulation network).
 - Building height is measured to eaves or, for a flat-roof structure, to the rooftop. For buildings with multiple heights or widths, use average heights or widths weighted by each portion's share of the total height or width.
- c. Continuous sidewalks or equivalent *all-weather routes* for walking are provided along both sides of 90% of the circulation network block length within the project, including the project side of circulation network bordering the project. Bicycle- and pedestrian-only paths meet this requirement. New sidewalks must be at least 8 feet (2.5 meters) wide on retail or mixed-use blocks and at least 4 feet (1.2 meters) wide on all other blocks.
- d. No more than 20% of the block length of the circulation network within the project is faced directly by garage and service bay openings. Alleys may be omitted from the calculations.

Portions of projects containing *historic buildings* or contributing buildings in a designated *historic district* subject to review by a local historic preservation entity are exempt from (b), (c), and (d) if approval for compliance is not granted.

Portions of projects containing historic buildings or contributing buildings in historic districts listed in or eligible for listing in a state provincial, or regional register, or the National Register of Historic Places that are subject to review by a state historic preservation office or the National Park Service (or local equivalent for projects outside the U.S.) are exempt from (b), (c), and (d) if approval for compliance is not granted.

NPD PREREQUISITE: COMPACT DEVELOPMENT Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To conserve land. To promote livability, walkability, and transportation efficiency and reduce vehicle distance traveled. To leverage and support transit investments. To improve public health by encouraging daily physical activity.

Requirements

ND PLAN, ND

Design and build the project to meet the densities specified below. Minimum densities must be met for both (1) the entire project at full build-out and (2) the portion of the project that will be built within five years of the date that the first new building of any type is occupied.

Case 1. Projects with Access to Quality Transit

For *projects* with *existing* or planned transit service (i.e., service with the funding commitments as specified in SLL Prerequisite Smart Location) that meets or exceeds the 2-point threshold in SLL Credit Locations with Reduced Automobile Dependence, Option 1, build at the following densities, based on the *walking distances* to the transit service specified in that SLL credit:

- for residential components located within the walking distances: 12 or more *dwelling units* per acre (30 DU per hectare) of buildable land available for residential uses;
- for residential components falling outside the walking distances: 7 or more dwelling units per acre (17.5 DU per hectare) of buildable land available for residential uses;
- for nonresidential components located within the walking distances: 0.80 or higher *floor-area ratio* (FAR) for the buildable land available for nonresidential uses; and
- for nonresidential components falling outside the walking distances: 0.50 or higher FAR for the buildable land available for nonresidential uses.

If the project location is served by a transit agency whose guidelines for minimum service densities are greater than the densities required by this prerequisite, the project must achieve those service densities instead.

Case 2. All Other Projects

Build any residential components of the project at a *density* of 7 or more dwelling units per acre (17.5 DU per hectare) of *buildable land* available for residential uses.

Build any nonresidential components of the project at a density of 0.50 or higher FAR for the buildable land available for nonresidential uses.

For All Projects Density calculations include all planned and existing buildings within the *project boundary*, excluding those portions of parking structures devoted exclusively to parking.

If the residential component of the project meets the minimum density requirement but the nonresidential component does not, or vice versa, include only the qualifying density. Use that component's dwelling units or nonresidential floor area in the numerator and the total buildable land area in the denominator. If the resulting density meets the minimum requirement, the prerequisite is achieved.

NPD PREREQUISITE: CONNECTED AND OPEN COMMUNITY Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To promote *projects* that have high levels of internal connectivity and are well connected to the community. To encourage development within *existing* communities that promote transportation efficiency through multimodal transportation. To improve public health by encouraging daily physical activity.

Requirements

ND PLAN, ND

Meet the requirements of Case 1 if the project has no circulation network intersections within the project boundary and is five acres or less in size. All other projects must meet Case 2.

Case 1. Surrounding Connectivity

Locate the project such that the connectivity within $\frac{1}{4}$ mile (400 meters) of the project boundary is at least 90 intersections per square mile (35 intersections per square kilometer). Any part of the circulation network that is counted toward the connectivity requirement must be available for general public use and not gated. Gated areas are not considered available for public use, with the exception of education and health care campuses and military bases where gates are used for security purposes.

Additionally, any circulation network within the project must be available for general public use and not gated.

Case 2. Internal Connectivity

Design and build the project such that its internal *connectivity* is at least 140 intersections per square mile (54 intersections per square kilometer).

Any part of the circulation network counted toward the connectivity requirement must be available for general public use at all times and not gated. Additionally, no more than 10% of the project area may be accessed via circulation network that is gated. Education campuses, health care campuses, and military bases where gates are used for security purposes are exempt from the 10% limit, and intersections within those projects may be counted toward the connectivity requirement.

Design and build the project with at least one through-connection (of the circulation network) intersecting or terminating at the *project boundary* at least every 800 feet (245 meters), or at existing abutting intervals and intersections of the circulation network, whichever is the shorter distance. Nonmotorized through-connections of the circulation network may count for no more than 50% of the total. These requirements do not apply to portions of the boundary where connections cannot be made because of physical obstacles, such as prior platting of property, construction of existing buildings or other barriers, slopes steeper than 15%, *wetlands* and *water bodies*, railroad and utility rights-of-way, existing limited-access motor vehicle rights-of-way, and parks and dedicated open space.

NPD CREDIT: WALKABLE STREETS

ND

1–9 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To promote transportation efficiency and reduce *vehicle distance traveled*. To improve public health by providing safe, appealing, and comfortable *street* environments that encourage daily physical activity and avoid pedestrian injuries.

Requirements

ND PLAN, ND

A *project* may earn a maximum of 9 points, awarded according to Table 1.

Table 1. Points for walkable street features

<i>Items achieved</i>	<i>Points</i>
2–3	1
4–5	2
6–7	3
8–9	4
10–11	5
12	6
13	7
14	8
15–16	9

Façades and Entries

- At least 80% of the total linear distance of building façades facing the circulation network in the project is no more than 25 feet (7.5 meters) from the property line.
- At least 50% of the total linear distance of building façades facing the circulation network in the project is no more than 18 feet (5.5 meters) from the property line.
- At least 50% of the total linear distance of mixed-use and nonresidential building façades facing the circulation network in the project is within 1 foot (300 millimeters) of a sidewalk or equivalent walking route.
- Functional entries* to the building occur at an average of 75 feet (23 meters) or less along nonresidential or mixed-use buildings or *blocks*.
- Functional entries to the building occur at an average of 30 feet (9 meters) or less along nonresidential or mixed-use buildings or blocks

Items (d) and (e) are cumulative.

Ground-Level Use and Parking

- f. All ground-level retail, service, and trade uses that face a public space have clear glass on at least 60% of their façades between 3 and 8 feet (900 and 2500 millimeters) above grade.
- g. If a façade extends along a sidewalk, no more than 40% of its length or 50 feet (15 meters), whichever is less, is blank (without doors or windows).
- h. Any ground-level retail, service, or trade windows facing the circulation network must be kept visible (unshuttered) at night; this must be stipulated in *covenants, conditions, and restrictions* (CC&Rs) or other binding documents .
- i. On-street parking is provided on at least 70% of both sides of the block length of all new and *existing* motorized portions of the circulation network, including the project side of bordering circulation network. The percentage of on-street parking is calculated by dividing the length of street designated for parking by the total length of the curb along each street, including curb cuts, driveways, and intersection radii. Space within the parking lane that is occupied by corner bulb-outs (within 24 feet [7 meters] of an intersection), transit stops, and motorcycle or bicycle parking may be counted as designated for parking in this calculation. Alleys may be exempted.
- j. Continuous sidewalks or equivalent provisions for walking are available along both sides of the entire circulation network within the project, including the project side of the circulation network bordering the project. Bicycle- and pedestrian-only paths meet this requirement. New sidewalks must be at least 10 feet (3 meters) wide on retail or mixed-use blocks and at least 5 feet (1.5 meters) wide on all other blocks. Note that these requirements specify wider sidewalks than required by NPD Prerequisite Walkable Streets. Alleys may be exempted.
- k. If the project has ground-floor *dwelling units*, the principal level of at least 50% of those units has an elevated finished floor at least 24 inches (60 centimeters) above the sidewalk grade. Below-grade basement spaces and/or *accessory dwelling units* are exempt from this requirement.
- l. In nonresidential or mixed-use projects, 50% or more of the total number of office buildings includes ground-floor retail along 60% of the length of the street-level façade; 100% of mixed-use buildings include ground-floor retail, live-work spaces, or ground-floor dwelling units along at least 60% of the street-level façade; and all businesses or community services on the ground floor are accessible directly from sidewalks along the circulation network or other public space, such as a square, park, or plaza, but not a parking lot.
- m. At least 40% of the block length of the circulation network within the project has a minimum building-height-to-street-centerline ratio of 1:1.5 (i.e., at least 1 foot (30 centimeters) of building height for every 1.5 feet (45 centimeters) of width from *circulation network* centerline to building façade). Alleys may be exempted.

Projects that border a part of the circulation network must meet only their proportional share of the height-to-centerline ratio (i.e., only on the project side of the circulation network).

Building height is measured to eaves or, for a flat-roof structure, to the rooftop, and width is measured façade to centerline. For buildings with multiple heights or widths, use average heights or widths weighted by each portion's share of the total height or width.

Design Speeds for Safe Pedestrian and Bicycle Travel

- n. 75% of the length of new residential-only motorized parts of the circulation network within the project is designed for a target speed of no more than 20 mph (30 km/h).
- o. 70% of the length of new nonresidential or mixed-use motorized parts of the circulation network within the project is designed for a target speed of no more than 25 mph (40km/h). A multiway

boulevard, with travel lanes separated from access lanes by medians, may apply this requirement to its outer access lanes only (through-lanes are exempt), provided pedestrian crosswalks are installed across the boulevard at intervals no greater than 800 feet (245 meters).

Sidewalk Intrusions

- p. At-grade crossings with driveways account for no more than 10% of the length of sidewalks within the project.

NPD CREDIT: COMPACT DEVELOPMENT

ND

1–6 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To conserve land and protect farmland and wildlife habitat by encouraging development in areas with existing infrastructure. To promote livability, walkability, and transportation efficiency, and reduce vehicle distance traveled. To improve public health by encouraging daily physical activity.

Requirements

ND PLAN, ND

Design and build the *project* such that residential and nonresidential components achieve the *densities* per acre (per hectare) of *buildable land* listed in Table 1 at build-out or within five years of the date that the first new building of any type is occupied (excluding those portions of parking structures devoted to parking), whichever is lower.

Table 1. Points for density per acre (hectare) of buildable land

Residential density		Nonresidential density (FAR)	Points
DU/acre	DU/hectare		
> 10 and ≤ 13	> 25 and ≤ 32	> 0.75 and ≤ 1.0	1
> 13 and ≤ 18	> 32 and ≤ 45	> 1.0 and ≤ 1.25	2
> 18 and ≤ 25	> 45 and ≤ 62	> 1.25 and ≤ 1.75	3
> 25 and ≤ 38	> 62 and ≤ 94	> 1.75 and ≤ 2.25	4
> 38 and ≤ 63	> 94 and ≤ 156	> 2.25 and ≤ 3.0	5
> 63	> 156	> 3.0	6

DU = dwelling unit; FAR = floor-area ratio.

The scoring of a mixed-use project is calculated with a weighted average, according to the following steps.

1. Determine the total floor area of all residential and nonresidential uses.
2. Calculate the percentage residential and percentage nonresidential of the total floor area.
3. Determine the density of each component as measured in *dwelling units* per acre or hectare and *floor-area ratio*, respectively.
4. Referring to Table 1, find the appropriate points for the densities of the residential and nonresidential components.
5. If the points are different, multiply the point value of the residential component by its percentage of the total floor area and multiply the point value of the nonresidential component by its percentage.
6. Add the two scores.

NPD CREDIT: MIXED-USE NEIGHBORHOODS

ND

1–4 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To reduce vehicle ~~miles-distance~~ traveled and automobile dependence, encourage daily walking, biking, and transit use, and support car-free living by providing access to diverse land uses.

Requirements

ND PLAN, ND

Locate or design the *project* such that 50% of its *dwelling units* are within a 1/4-mile (400-meter) *walking distance* of the number of uses (see Appendix) listed in Table 1. For projects with no dwelling units, 50% of dwelling units within a 1/4-mile (400-meter) walking distance of the *project boundary* must be within a 1/4-mile (400-meter) walking distance of the number of uses within the project specified in Table 1.

The specified number of uses must be in place by the time of 50% occupancy of total building floor area ~~according to the percentages indicated in Table 1~~ (exclusive of portions of parking structures devoted to parking).

Table 1. Points for uses within 1/4-mile (400-meter) walking distance, by percentage of occupancy

<i>Diverse uses</i>	<i>Percentage occupancy of total building floor area</i>	<i>Points</i>
4–7	20%	1
8–11	30%	2
12–19	40%	3
≥ 20	50%	4

The following restrictions apply.

- A use may be counted as only one use type (e.g., a retail store may be counted only once even if it sells products in several categories).
 - No more than two uses in each use type may be counted (e.g., if five restaurants are within the required distance, only two may be counted).
 - The uses accessible to each counted dwelling unit must represent at least two categories.
- ~~• Uses may be inside or outside the project; planned uses must be under construction by the time the first certificate of occupancy is issued for the project.~~

For projects with regional-serving retail of 150,000 or more square feet (13 935 square meters) only

Additionally, a project that has at least one large retail *use* (defined as a use totaling 75,000 or more square feet [7 000 or more square meters]), must also meet at least the 2-point threshold for transit service under SLL Credit Access to Quality Transit. In this case, planned transit service can be counted. Each large retail use must be served by at least one transit stop providing trips that qualify under that SLL Credit.

If transit service is planned but not yet operational, the project must demonstrate one of the following:

1. The relevant transit agency has a signed full-funding grant agreement with the Federal Transit Administration (or equivalent national agency for projects outside the U.S.) that includes a revenue operations date for the start of transit service. The revenue operations date must be no later than the day by which 50% of the project's total building floor area will be occupied.
2. For bus, *streetcar*, *bus rapid transit*, or ferry service, the transit agency must certify that it has an approved budget that includes specifically allocated funds sufficient to provide the planned service at the levels listed above and that service at these levels will begin no later than the day by which 50% of the project's total building floor area will be occupied.
3. For rail service other than *streetcars*, the transit agency must certify that preliminary engineering for a rail line has begun. In addition, the service must meet either of these two requirements:

- A state legislature or local subdivision of the state [\(or local government for projects outside the U.S.\)](#) has authorized the transit agency to expend funds to establish rail transit service that will begin no later than the date by which 50% of the project's total building floor area will be occupied.

OR

- A local government has dedicated funding or reimbursement commitments from future tax revenue for the development of stations, platforms, or other rail transit infrastructure that will serve the project no later than the date by which 50% of the project's total building floor area will be occupied.

NPD CREDIT: HOUSING TYPES AND AFFORDABILITY

ND

1–7 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To promote socially equitable and engaging neighborhoods by enabling residents from a wide range of economic levels, household sizes, and age groups to live in a community.

Requirements

ND PLAN, ND

Meet the requirements of one or more of the following options.

Option 1. Diversity of Housing Types (1–3 points)

Include a sufficient variety of housing sizes and types in the *project* such that the total variety of planned and *existing* housing within the project achieves a Simpson Diversity Index score greater than 0.5, using the housing categories below. Projects of less than 125 acres (50.5 hectares) may calculate the Simpson Diversity Index for the area within ¼ mile (400 meters) of the project's geographic center. The Simpson Diversity Index calculates the probability that any two randomly selected *dwelling units* in a project will be of a different type.

$$\text{Score} = 1 - \sum (n/N)^2$$

Where

n = the total number of dwelling units in a single category, and

N = the total number of dwelling units in all categories.

Table 1. Points for housing diversity

<i>Simpson Diversity Index score</i>	<i>Points</i>
> 0.5 to < 0.6	1
≥ 0.6 to < 0.7	2
≥ 0.7	3

Housing categories are defined by the dwelling unit's net floor area, exclusive of any garage, as listed in Table 2.

Table 2. Housing categories

Type	Square feet	Square meters
Detached residential, large	> 1,250	> 116
Detached residential, small	≤ 1,250	≤ 116
Duplex or townhouse, large	> 1,250	> 116
Duplex or townhouse, small	≤ 1,250	≤ 116
Dwelling unit in multiunit building with no elevator, large	> 1,250	> 116
Dwelling unit in multiunit building with no elevator, medium	> 750 to ≤ 1,250	> 70 to ≤ 116
Dwelling unit in multiunit building with no elevator, small	≤ 750	≤ 70
Dwelling unit in multiunit building with elevator, 4 stories or	> 1,250	> 116

fewer, large		
Dwelling unit in multiunit building with elevator, 4 stories or fewer, medium	> 750 to ≤ 1,250	> 70 to ≤ 116
Dwelling unit in multiunit building with elevator, 4 stories or fewer, small	≤ 750	≤ 70
Dwelling unit in multiunit building with elevator, 5 to 8 stories, large	> 1,250	> 116
Dwelling unit in multiunit building with elevator, 5 to 8 stories, medium	> 750 to ≤ 1,250	> 70 to ≤ 116
Dwelling unit in multiunit building with elevator, 5 to 8 stories, small	≤ 750	≤ 70
Dwelling unit in multiunit building with elevator, 9 stories or more, large	> 1,250	> 116
Dwelling unit in multiunit building with elevator, 9 stories or more, medium	> 750 to ≤ 1,250	> 70 to ≤ 116
Dwelling unit in multiunit building with elevator, 9 stories or more, small	≤ 750	≤ 70
Live-work space, large	> 1,250	> 116
Live-work space, small	≤ 1,250	≤ 116
Accessory dwelling unit, large	> 1,250	> 116
Accessory dwelling unit, small	≤ 1,250	≤ 116

For the purposes of this credit, townhouse and live-work units may have individual ground-level entrances or be within a multiunit or mixed-use building. Double counting is prohibited; each dwelling may be classified in only one category. The number of stories in a building is inclusive of the ground floor regardless of its use.

AND/OR

Option 2. Affordable Housing (1–3 points)

Include a proportion of new rental and/or for-sale dwelling units priced for households earning less than the *area median income* (AMI). Rental units must be maintained at affordable levels for a minimum of 15 years. Existing dwelling units are exempt from requirement calculations. Meet any combination of thresholds in Table 3, up to a maximum of 3 points.

Table 3. Points for affordable housing

<i>Rental dwelling units</i>				<i>For-sale dwelling units</i>			
<i>Priced up to 60% AMI</i>		<i>Priced up to 80% AMI</i>		<i>Priced up to 100% AMI</i>		<i>Priced up to 120% AMI</i>	
<i>Percentage of total rental units</i>	<i>Points</i>	<i>Percentage of total rental units</i>	<i>Points</i>	<i>Percentage of total for-sale units</i>	<i>Points</i>	<i>Percentage of total for-sale units</i>	<i>Points</i>
5	1	10	1	5	1	8	1
10	2	15	2	10	2	12	2
15	3	25	3	15	3	—	—

AMI = area median income.

AND/OR

Option 3. Housing Types and Affordable Housing (1 point)

A project may earn an additional point by earning at least 2 points in Option 1 and at least 2 points in Option 2 (at least one of which must be for providing housing at or below 100% AMI).

LT CREDIT: REDUCED PARKING FOOTPRINT

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To minimize the environmental harms associated with parking facilities, including automobile dependence, land consumption, and rainwater runoff.

Requirements

ND PLAN, ND

For new nonresidential buildings and *multiunit residential* buildings, either do not build new off-street parking lots, or locate all new off-street surface parking lots at the side or rear, leaving building frontages facing the circulation network free of surface parking lots (alleys may be exempted).

Use no more than 20% of the total *development footprint* area for all new off-street surface parking facilities, with no individual surface parking lot larger than 2 acres (0.8 hectare). For the purposes of this credit, surface parking facilities include ground-level garages unless they are under *habitable building* space. Underground or multistory parking facilities can be used to provide additional spaces. On-street parking spaces are exempt from this limitation.

Provide carpool or shared-use vehicle parking spaces equivalent to at least 10% of the total off-street parking spaces for each nonresidential and mixed-use building on the site. Such parking spaces must be marked and within 200 feet (60 meters) walking distance of entrances to the building served.

NPD CREDIT: CONNECTED AND OPEN COMMUNITY

ND

1–2 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To conserve land and promote multimodal transportation by encouraging development within existing communities that have high levels of internal connectivity and are well connected to the larger community. To improve public health by encouraging daily physical activity and reducing motor vehicle emissions.

Requirements

ND PLAN, ND

Locate or design the project such that its internal *connectivity* falls within one of the ranges listed in Table 1. If the project has no internal circulation network, the connectivity within a ¼-mile (400-meter) distance of the project boundary must be used.

Table 1. Points for connectivity

Intersections per square mile	Intersections per square kilometer	Points
300–400	116–154	1
> 400	> 154	2

All parts of the circulation network that are counted toward the connectivity requirement must be available for general public use at all times and not gated. No more than 10% of the project area may be accessed via circulation network that is gated. Education campuses, health care campuses, and military bases where gates are used for security purposes are exempt from the 10% limit, and intersections within those projects may be counted toward the connectivity requirement.

AND

Design or locate the project such that a through-connection (of the circulation network) intersects or terminates at the *project boundary* at least every 400 feet (122 meters) or at existing abutting intervals and intersections of the circulation network, whichever is the shorter distance. Include a pedestrian or bicycle through-connection in at least 90% of any new *culs-de-sac*. These requirements do not apply to portions of the boundary where connections cannot be made because of physical obstacles, such as prior platting of property, construction of existing buildings or other barriers, slopes steeper than 15%, *wetlands* and *water bodies*, railroad and utility rights-of-way, existing limited-access motor vehicle rights-of-way, and parks and dedicated open space.

NPD CREDIT: TRANSIT FACILITIES

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage transit use and reduce vehicle distance traveled by providing safe, convenient, and comfortable transit waiting areas.

Requirements

ND PLAN, ND

Work with the transit agency or agencies serving the *project* to inventory existing transit stops and new transit stops within the project boundary that will be warranted within two years of project completion (because of either increased ridership on existing service or planned transit).

At those locations,

1. Confirm that transit facilities will be funded by either the transit agency or the project developer.
2. Install transit agency-approved shelters and any other required improvements at existing stops. Reserve space for transit facilities or install transit facilities at new stops.

Shelters must be covered, be at least partially enclosed to buffer wind and rain, have seating and illumination, and have signage that display transit schedules and route information.

NPD CREDIT: TRANSPORTATION DEMAND MANAGEMENT

ND

2 points

This credit applies to

- Neighborhood Development Plan (1-2 points)
- Neighborhood Development (1-2 points)

Intent

To reduce energy consumption, pollution, and harm to human health from motor vehicles by encouraging multimodal travel.

Requirements

ND PLAN, ND

Achieve at least two of the following options.

Earn 1 point for every two options, for a maximum of 2 points. For the purposes of this credit, *existing* buildings and their occupants are exempt from the requirements.

Option 1. Transit Passes

Provide transit passes valid for at least one year, subsidized to 100% of regular price, to each resident and employee locating within the project during the first three years of project occupancy (or longer). Publicize the availability of subsidized transit passes to project occupants.

AND/OR

Option 2. Developer-Sponsored Transit

Provide year-round, *developer*-sponsored transit service (vans, shuttles, buses) from at least one central point in the project to other major transit facilities or to other destinations, such as a retail or *employment center*, with service no less frequent than 45 daily weekday trips and 30 daily weekend trips. The service must begin by the time the project's total floor area is 20% occupied and must be guaranteed for at least three years beyond project build-out. The occupancy requirement is met when residents are living in 20% of the *dwelling units* and/or employees are working in 20% of the total nonresidential floor area.

Provide transit stop shelters and bicycle racks adequate to meet projected demand but no less than one shelter and one bicycle rack at each transit stop. Shelters must be covered, be at least partially enclosed to buffer wind and rain, and have seating and illumination. Bicycle racks must have a two-point support system for locking the frame and wheels and must be securely affixed to the ground or a building.

AND/OR

Option 3. Vehicle Sharing

Locate the project such that 50% of the dwelling units and nonresidential use entrances are within a ¼-mile (400-meter) *walking distance* of at least one vehicle in a vehicle-sharing program, as specified below, depending on project size.

- If the project has fewer than 100 dwelling units and/or employees, provide one vehicle.
- If the project has more than 100 dwelling units and/or employees and has a minimum transit service of 60 daily weekday trips and 40 daily weekend trips, provide at least one additional vehicle and parking space for every 100 dwelling units and/or employees.

- If the project has more than 100 dwelling units and/or employees but does not have transit service at the frequencies specified above, provide at least one additional vehicle and parking space for every 200 dwelling units and/or employees.

For each vehicle, dedicate one parking space accessible to vehicle-sharing members. Publicize to project occupants the availability and benefits of the vehicle-sharing program. Commit to providing vehicles to the locations for at least two years. If a new vehicle-sharing location is planned, the vehicle-sharing program must begin by the time the project's total floor area is 20% occupied. The occupancy requirement is met when residents are living in 20% of the dwelling units and/or employees are working in 20% of the total nonresidential floor area.

AND/OR

Option 4. Unbundling of Parking and Parking Fees

For 90% of multiunit residential units and/or nonresidential floor area, the associated parking spaces must be sold or rented separately from the dwelling units or nonresidential floor area.

Set parking fees within the project boundary for all off-street parking equal to or greater than the cost of monthly usage for public transit. Off-street parking in this instance does not include parking devoted to individual, detached residential units.

AND/OR

Option 5. Guaranteed Ride Home Program

Major employers within the project must commit to providing a guaranteed ride home program for employees. A major employer accounts for more than 25% of the workers on the project site. The program must provide free rides to employees who have carpooled, taken transit, walked, or cycled to work but must leave because of an unexpected personal emergency. Rides may be on taxis, company cars, or rental cars.

AND/OR

Option 6. Flexible Work Arrangements

Major employers within the project must commit to promoting and supporting flexible work arrangements with the goal of reducing vehicle trips during peak commuting hours. A major employer accounts for more than 25% of the workers on the project site. The employer must develop internal policies that outline the terms under which employees can engage in telework, flextime, compressed work weeks, staggered shifts, or other arrangements. These policies must also describe how the program will be promoted to employees.

NPD CREDIT: ACCESS TO CIVIC AND PUBLIC SPACE

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To provide open space close to work and home that enhances community participation and improves public health.

Requirements

ND PLAN, ND

Locate 90% of planned and *existing dwelling units* and nonresidential use entrances within a ¼ mile (400 meters) walk of at least one civic and passive use space. The spaces must be at least 1/6 acre (0.067 hectares) in area. Spaces less than 1 acre (0.4 hectares) must have a proportion no narrower than 1 unit of width to 4 units of length.

Projects larger than 10 acres (4 hectares) must have a median space size of at least 1 acre (.4 hectares). Spaces over ½ acre (0.2 hectare) that are used to meet the 90% threshold are included in the median calculation.

NPD CREDIT: ACCESS TO RECREATION FACILITIES

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To enhance community participation and improve public health by providing recreational facilities close to work and home that facilitate physical activity and social networking.

Requirements

ND PLAN, ND

Locate or design the *project* so that a publicly accessible outdoor recreation facility at least 1 acre (0.4 hectares) in area, or a publicly accessible indoor recreational facility of at least 25,000 square feet (2325 square meters), lies within a ½-mile (800-meter) *walking distance* of 90% of new and *existing dwelling units* and nonresidential use entrances. Outdoor recreation facilities must consist of physical improvements and may include “tot lots,” swimming pools, and sports fields, such as baseball diamonds.

NPD CREDIT: VISITABILITY AND UNIVERSAL DESIGN

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To increase the proportion of areas usable by a wide spectrum of people, regardless of age or ability.

Requirements

ND PLAN, ND

Case 1. Projects with New Dwelling Units (1 point)

Design a minimum of 20% of the new dwelling units (but not less than one dwelling unit per type) in accordance with ICC A117.1, Type C, VISIBLE Unit, for each of the following residential building types:

- detached single-dwelling-unit buildings;
- attached single-dwelling-unit buildings; and
- buildings with two or three dwelling units.

Each unit must also have a kitchen, living area, bedroom, and full bath on an accessible level.

For multiunit buildings with four or more dwelling units, design a minimum of 20% of the units (but not less than one) to meet the requirements of one of the following options. This category includes mixed-use buildings with dwelling units.

Option 1. Universal Design Features Throughout the Home (1 point)

Throughout the home, include at least five of the following universal design features:

- easy-to-grip lever door handles;
- easy-to-grip cabinet and drawer loop handles;
- easy-to-grip locking mechanisms on doors and windows;
- easy-to-grip single-lever faucet handles;
- easy-touch rocker or hands-free switches;
- motion-detector lighting at entrance, in hallways and stairwells, and in closets, and motion-detector light switches in garages, utility spaces, and basements;
- large, high-contrast print for controls, signals, and the house or unit numbers;
- a built-in shelf, bench, or table with knee space below, located outside the entry door with weather protection overhead, such as porch or stoop with roof, awning, or other overhead covering;
- a minimum 32-inch (80-centimeter) clear door opening width for all doorways;
- tread at the entrance, on stairs, and other areas where slipping is common, with color contrast difference between stair treads and risers; and
- interior floor surfaces (e.g., low-pile carpets, hard-surface flooring) that provide easy passage for a wheelchair or walker, with color contrast between floor surfaces and trim; no carpet is permitted in a kitchen, bathroom, or other wet areas of the dwelling unit.

OR

Option 2. Kitchen Features (1 point)

On the main floor of the home (or on another floor, if an elevator or stair lift is provided), provide a kitchen with hard-surface flooring, plumbing with single-lever controls, a 5-foot (1.5-meter) turning radius, and at least four of the following universal design features:

- variable-height (28- to 42-inch [70- to 110-centimeter]) or adjustable work surfaces, such as countertops, sinks, and cooktops;
- clear knee space under sink and cooktops (this requirement can be met by installing removable base cabinets or fold-back or self-storing doors), cooktops and ranges with front or side-mounted controls, and wall-mounted ovens at a height to accommodate a seated adult;
- a toe kick area at the base of lower cabinets with a minimum height of 9 inches (23 centimeters), and full-extension drawers and shelves in at least half (by volume) of the cabinets;
- contrasting color treatment between countertops, front edges, and floor;
- adjustable-height shelves in wall cabinets; and
- glare-free task lighting.

OR

Option 3. Bedroom and Bathroom Features (1 point)

On the main floor of the building (or on another floor, if an elevator or stair lift is provided), include all of the following:

In at least one accessible bedroom,

- Size the room to accommodate a twin bed with a 5-foot (1.5-meter) turning radius around the bed.
- Install a clothes closet with a 32-inch (80-centimeter) clear opening with adjustable-height closet rods and shelves.

In at least one full bathroom on the same floor as the bedroom,

- Provide adequate maneuvering space with a 30-by-48-inch (75-by-120 centimeter) clear floor space at each fixture.
- Center the toilet 18 inches (45 centimeters) from any side wall, cabinet, or tub, and allow a 3-foot (90-centimeter) clear space in front.
- Install broad blocking in walls around toilet, tub, and/or shower for future placement and relocation of grab bars.
- Provide knee space under the lavatory (this requirement may be met by installing removable base cabinets or fold-back or self-storing doors).
- Install a long mirror whose bottom is no more than 36 inches (90 centimeters) above the finished floor and whose top is at least 72 inches (180 centimeters) high.

In addition, all bathrooms must have hard-surface flooring, all plumbing fixtures must have single-lever controls, and tubs or showers must have hand-held showerheads.

Case 2. Projects With Noncompliant Routes and No New Dwelling Units (1 point)

This case applies to projects that have no new residential units and are either (1) retrofitting existing public rights-of-way or publicly accessible travel routes that are not in compliance with the Americans with Disabilities Act (ADA, for private sector and local and state government facilities) or the Architectural Barriers Act (ABA, for federally funded facilities), or (2) building new publicly accessible travel routes that are not legally required to meet ADA-ABA accessibility guidelines.

Design, construct, or retrofit 90% of the rights-of-way and travel routes in accordance with the ADA-ABA accessibility guidelines, as applicable. Project outside the U.S. may use a local equivalent if they are equal to or more stringent than the ADA-ABA standard.

NPD CREDIT: COMMUNITY OUTREACH AND INVOLVEMENT

ND

1–2 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage responsiveness to community needs by involving the people who live or work in the community in *project* design and planning and in decisions about how the project should be improved or changed over time.

Requirements

ND PLAN, ND

Option 1. Community Outreach (1 point)

Engage the community in the following ways. Each activity must be led by the development team and be directly related to the LEED-ND project.

Predesign

Meet with adjacent property owners, residents, business owners, and workers; local planning and community development officials; and any current residents or workers at the project site to solicit and document their input on the proposed project before beginning design.

Preliminary design

Advertise and host at least one open community meeting other than an official public hearing or recurring citizen advisory meeting, to generate comments on the preliminary project design concept. Work directly with community associations and/or the local government to advertise the meeting(s). Collect and summarize comments generated at the meeting(s).

Modify the project's preliminary design as a direct result of community input, or if modifications are not made, explain why community input did not generate design modifications.

Ongoing communication

Establish ongoing means for communication between the *developer* and the community throughout the design and construction phases and, in cases where the developer maintains any control, after construction.

OR

Option 2. Charrette (2 points)

Comply with Option 1 and conduct a design charrette or interactive workshop of at least two days that is open to the public and includes, at a minimum, participation by a representative group of nearby property owners, residents, business owners, and workers in the preparation of conceptual project plans and drawings.

OR

Option 3. Endorsement Program (2 points)

Comply with Option 1 and obtain an endorsement from an ongoing local or regional nongovernmental program that systematically reviews and endorses smart growth development projects under a rating or jury system.

NPD CREDIT: LOCAL FOOD PRODUCTION

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To promote the environmental and economic benefits of community-based food production and improve nutrition through better access to fresh produce.

Requirements

ND PLAN, ND

Establish *covenants, conditions, and restrictions* (CC&R) or other forms of deed restrictions stating that the growing of produce is not prohibited in *project* areas, including greenhouses, any portion of residential front, rear, or side yards; or balconies, patios, or rooftops. Greenhouses but not gardens may be prohibited in front yards that face the *circulation network*

Meet the requirements of one of the following three options.

Option 1. Neighborhood Gardens (1 point)

Dedicate permanent and viable growing space or related facilities (such as greenhouses) within the project as specified in Table 1 (exclusive of *existing* dwellings). Ensure solar access and provide fencing, watering systems, garden bed enhancements (such as raised beds), secure storage space for tools, and pedestrian access for these spaces. Ensure that the spaces are owned and managed by an entity that includes occupants of the project in its decision making, such as a community group, homeowners association, or public body.

Table 1. Minimum garden space, by project density

<i>Imperial units</i>		<i>Metric units</i>	
<i>Project density (DU/acre)</i>	<i>Growing space (sf/DU)</i>	<i>Project density (DU/hectare)</i>	<i>Growing space (sq. meters/DU)</i>
> 7 and ≤ 14	200	> 17.5 and ≤ 35	18.5
> 14 and ≤ 22	100	> 35 and ≤ 55	9
> 22 and ≤ 28	80	> 55 and ≤ 69	7.5
> 28 and ≤ 35	70	> 69 and ≤ 87	6.5
> 35	60	> 87	5.5

DU = dwelling unit; sf = square feet; sq. meters = square meters.

An established community garden outside the *project boundary* but within a ½-mile (800-meter) *walking distance* of the project's geographic center can satisfy this option if the garden otherwise meets all the requirements.

OR

Option 2. Community-Supported Agriculture (1 point)

Purchase shares in a *community-supported agriculture* program located within 150 miles (240 kilometers) of the project site for at least 80% of *dwelling units* within the project (exclusive of existing dwelling units). Each counted dwelling unit must receive CSA service for at least two years, beginning when it is occupied. Shares must be delivered to a point within 1/2 mile (800 meters) of the project's geographic center on a regular schedule not less than twice per month at least four months of the year.

OR

Option 3. Proximity to Farmers Market (1 point)

Locate the project's geographic center within a 1/2-mile (800-meter) walking distance of an existing or planned farmers market that is open or will operate at least once weekly for at least five months annually. Farmers market vendors may sell only items grown within 150 miles (240 kilometers) of the project site. A planned farmers market must have firm commitments from farmers and vendors that the market will meet all the above requirements and be in full operation by the time 50% of the project's total floor area is occupied.

NPD CREDIT: TREE-LINED AND SHADED STREETSAPES

ND

1–2 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage walking and bicycling and discourage speeding. To reduce urban heat island effects, improve air quality, increase evapotranspiration, and reduce cooling loads in buildings.

Requirements

ND PLAN, ND

Option 1. Tree-Lined Blocks (1 point)

Provide trees at intervals of no more than 50 feet (12 meters) (exempting driveways) along at least 60% of the total existing and planned block length within the project, and on the project side of blocks bordering the project, between the vehicle travel way (if there is one) and walkway. Alleys may be exempted from the block length calculations.

AND/OR

Option 2. Shaded Sidewalks (1 point)

Provide shade from trees or permanent structures over at least 40% of the total length of existing and planned sidewalks within or bordering the project (alleys may be exempted). Trees must provide shade within 10 years of landscape installation. Use the estimated crown diameter to calculate the length of sidewalk shaded.

AND

For All Projects with Street Tree Plantings

From a registered landscape architect (or local equivalent professional for projects outside the U.S.), obtain a determination that planting details are appropriate to growing healthy trees, taking into account tree species, root medium, and width and soil volume of planter strips or wells, and that the selected tree species are not considered *invasive* in the project context according to USDA or the state agricultural extension service (or local equivalent for projects outside the U.S.).

NPD CREDIT: NEIGHBORHOOD SCHOOLS

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To promote community interaction and engagement by integrating *schools* into the neighborhood. To improve students' health by encouraging walking and bicycling to school.

Requirements

ND PLAN, ND

Include in the *project* a residential component that constitutes at least 30% of the project's total building floor area, and locate or design the project such that at least 50% of the *dwelling units* are within a ½-mile (800-meter) *walking distance* of the functional building entry of an *existing* or new elementary or middle school or within a 1-mile (1600-meter) walking distance of the functional building entry of an existing or new high school. If the school combines an elementary or middle school with a high school, 50% of the dwelling units must be a ½ mile (800 meter) walking distance of the functional building entry.

For any new school, the school authority must commit that the school will be open by the time 50% of the project dwelling units are occupied. A legally binding warrant committing to open the school by this time must be provided at the time of first building occupancy.

Portions of the circulation network within or bordering the *project boundary* that lead from dwelling units to the school site must have (1) a complete network of sidewalks on both sides and (2) either continuous bicycle lanes or a combination of traffic control and calming measures (alleys may be exempted). If the school is planned as part of the project, it must be designed such that pedestrians and cyclists can easily reach building entrances without crossing bus zones, parking entrances, and student drop-off areas.

New school campuses within the project boundary must not exceed the following limits:

- high school (students 15-18 years old), 15 acres (6 hectares);
- middle school (students 11-14 years old), 10 acres (4 hectares); and
- elementary school (students 6-10 years old), 5 acres (2 hectares).

Schools combining grade levels from more than one category may use the grade level with the higher allowable limits.

Facilities on the school site (e.g., athletic fields, playgrounds, multipurpose interior spaces) for which there is a formal joint-use agreement with another entity may be deducted from the total site area of the school.

GREEN INFRASTRUCTURE & BUILDINGS (GIB)

GIB PREREQUISITE: CERTIFIED GREEN BUILDING Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage the design, construction, and retrofit of buildings using green building practices.

Requirements

ND PLAN, ND (GIB)

Design, construct, or retrofit one whole building within the project to be certified through a LEED rating system (if LEED for Commercial Interiors, 75% of the total building floor area must be certified), or through a green building rating system requiring review by independent, impartial, third-party certifying bodies that have been accredited by an IAF-accredited body to ISO/IEC Guide 65 or, when available, ISO/IEC 17065.

GIB PREREQUISITE: MINIMUM BUILDING ENERGY PERFORMANCE Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage the design and construction of energy-efficient buildings that reduce air, water, and land pollution and environmental damage from energy production and consumption.

Requirements

ND PLAN, ND

The requirements apply to 90% of the total building floor area (rounded up to the next whole building) of all nonresidential buildings, mixed-use buildings, and multiunit residential buildings four stories or more constructed as part of the project or undergoing major renovations as part of the project. Each counted building must comply with one of the following options.

Option 1. Whole-Building Energy Simulation

Demonstrate an average improvement of 5% for new buildings, 3% for major building renovations, or 2% for core and shell buildings over ANSI/ASHRAE/IESNA Standard 90.1–2010, with errata (or a USGBC-approved equivalent standard for projects outside the U.S.) across all buildings pursuing Option 1. Multiple buildings may be grouped into a single energy model, provided (1) the building type (new construction, major renovation, or core and shell) is consistent for all buildings included in the energy model, or (2) an average 5% improvement is demonstrated for the entire energy model. Calculate the baseline building performance according to ANSI/ASHRAE/IESNA Standard 90.1–2010, Appendix G, with errata, using a simulation model.

Buildings must meet the minimum percentage savings before taking credit for renewable energy systems.

Each building's proposed design must meet the following criteria:

- compliance with the mandatory provisions of ANSI/ASHRAE/IESNA Standard 90.1–2010, with errata (or a USGBC-approved equivalent standard for projects outside the U.S.);
- inclusion of all energy consumption and costs within and associated with the building project; and
- comparison against a baseline building that complies with Standard 90.1–2010, Appendix G, with errata (or a USGBC-approved equivalent standard for projects outside the U.S.).

Document the energy modeling input assumptions for unregulated loads. Unregulated loads should be modeled accurately to reflect the actual expected energy consumption of the building.

If unregulated loads are not identical for both the baseline and the proposed building performance rating, and the simulation program cannot accurately model the savings, follow the exceptional calculation method (ANSI/ASHRAE/IESNA Standard 90.1–2010, G2.5). Alternatively, use the COMNET modeling guidelines and procedures to document measures that reduce unregulated loads.

OR

Option 2. Prescriptive Compliance: ASHRAE 50% Advanced Energy Design Guide

Comply with the mandatory and prescriptive provisions of ANSI/ASHRAE/IESNA Standard 90.1–2010, with errata (or a USGBC-approved equivalent standard for projects outside the United States).

Comply with HVAC and service water heating requirements applicable to the each building, including equipment efficiency, economizers, ventilation, and ducts and dampers, for the appropriate ASHRAE 50% Advanced Energy Design Guide and climate zone:

- ASHRAE 50% Advanced Energy Design Guide for Small to Medium Office Buildings, for office buildings smaller than 100,000 square feet (9 290 square meters);
- ASHRAE 50% Advanced Energy Design Guide for Medium to Large Box Retail Buildings, for retail buildings with 20,000 to 100,000 square feet (1 860 to 9 290 square meters);
- ASHRAE 50% Advanced Energy Design Guide for K–12 School Buildings; or
- ASHRAE 50% Advanced Energy Design Guide for Large Hospitals.
 - Over 100,000 square feet (9 290 square meters)

For projects outside the United States, consult ASHRAE/ASHRAE/IESNA Standard 90.1–2010, Appendixes B and D, to determine the appropriate climate zone.

Option 3. Prescriptive Compliance: Advanced Buildings Core Performance Guide

Comply with the mandatory and prescriptive provisions of ANSI/ASHRAE/IESNA Standard 90.1–2010, with errata (or USGBC approved equivalent standard for projects outside the United States).

Comply with Section 1: Design Process Strategies, Section 2: Core Performance Requirements, and the following three strategies from Section 3: Enhanced Performance Strategies, as applicable. Where standards conflict, follow the more stringent of the two. For projects outside the United States, consult ASHRAE/ASHRAE/IESNA Standard 90.1-2010, Appendixes B and D, to determine the appropriate climate zone.

3.5 Supply Air Temperature Reset (VAV)

3.9 Premium Economizer Performance

3.10 Variable Speed Control

To be eligible for Option 3, the project must be less than 100,000 square feet (9 290 square meters).

Note: Healthcare, Warehouse or Laboratory projects are ineligible for Option 3.

AND

For new *single-family residential* buildings and new multiunit residential buildings three stories or fewer, 90% of the buildings must meet the requirements of LEED for Homes v4 EA Prerequisite: Minimum Energy Performance.

WE PREREQUISITE: INDOOR WATER USE REDUCTION Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To reduce indoor water consumption.

Requirements

ND PLAN, ND

Nonresidential Buildings, Mixed-Use Buildings, and Multifamily Residential Buildings Four Stories or More

For new buildings and buildings undergoing major renovations as part of the *project*, reduce indoor water usage by an average of 20% from a baseline. All newly installed toilets, urinals, private lavatory faucets, and showerheads that are eligible for labeling must be WaterSense labeled (or a local equivalent for projects outside the United States).

For the fixtures and fittings listed in Table 1, as applicable to the project scope, reduce water consumption by 20% from the baseline. Base calculations on the volumes and flow rates shown in Table 1.

The design case is calculated as a weighted average of water usage for the buildings constructed as part of the project based on their floor area.

Table 1. Baseline water consumption of fixtures and fittings

<i>Fixture or fitting</i>	<i>Baseline (imperial units)</i>	<i>Baseline (metric units)</i>
Toilet (water closet)*	1.6 gpf	6 lpf
Urinal*	1.0 gpf	3.8 lpf
Public lavatory (restroom) faucet	0.5 gpm at 60 psi** all others except private applications	1.9 lpm at 415 kPa, all others except private applications
Private lavatory faucet*	2.2 gpm at 60 psi	8.3 lpm at 415 kPa
Kitchen faucet (excluding faucets used exclusively for filling operations)	2.2 gpm at 60 psi	8.3 lpm at 415 kPa
Showerhead*	2.5 gpm at 80 psi per shower stall	9.5 lpm at 550 kPa per shower stall

* WaterSense label available for this
product type
gpf = gallons per flush
gpm = gallons per minute
psi = pounds per square inch

lpf = liters per flush
lpm = liters per minute
kPa = kilopascals

New Single-Family Residential Buildings and New Multiunit Residential Buildings Three Stories or Fewer

90% of residential buildings must use a combination of fixtures and fittings that would earn 2 points under LEED for Homes v4 WE Credit Indoor Water Use.

SS PREREQUISITE: CONSTRUCTION ACTIVITY POLLUTION PREVENTION Required

ND

This prerequisite applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To reduce pollution from construction activities by controlling soil erosion, waterway sedimentation, and airborne dust.

Requirements

ND PLAN, ND (GIB)

Create and implement an erosion and sedimentation control plan for all new construction activities associated with the project. The plan must incorporate best management practices (BMPs) to control erosion and sedimentation in runoff from the entire project site during construction. The BMPs must be selected from EPA's BMPs for construction and post-construction site runoff control.

The erosion and sedimentation control plan must list the BMPs employed and describe how the project team will do the following:

- preserve vegetation and mark clearing limits;
- establish and delineate construction access;
- control flow rates;
- install sediment controls;
- stabilize soils;
- prevent soil loss during construction;
- stockpile topsoil for reuse;
- protect slopes;
- protect drain inlets, all rainwater conveyance systems, and receiving water bodies;
- stabilize channels and outlets;
- control pollutants including dust and particulate matter;
- control dewatering;
- maintain the BMPs; and
- manage the erosion and sedimentation control plan.

GIB CREDIT: CERTIFIED GREEN BUILDINGS

ND

1–5 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage the design, construction, and retrofit of buildings using green building practices.

Requirements

ND PLAN, ND

Option 1. Projects with 10 or Fewer Habitable Buildings (1–5 points)

Design, construct, or retrofit one building as part of the project, beyond the prerequisite requirement, to be certified under a LEED green building rating systems (for LEED for Commercial Interiors, 75% of the total building floor area must be certified), or through a green building rating system requiring review by independent, impartial, third-party certifying bodies that have been accredited by an IAF-accredited body to ISO/IEC Guide 65 or, when available, ISO/IEC 17065. Up to five points may be earned for each additional certified building that is part of the project.

OR

Option 2. Projects of All Sizes (1–5 points)

Design, construct, or retrofit a percentage of the total project building floor area, beyond the prerequisite requirement, to be certified under a LEED green building rating systems or through a green building rating system requiring review by independent, impartial, third-party certifying bodies that have been accredited by an IAF-accredited body to ISO/IEC Guide 65 or, when available, ISO/IEC 17065.

Table 1. Points for green building certification

Percentage of total floor area certified	Points
≥ 10% and < 20%	1
≥ 20% and < 30%	2
≥ 30% and < 40%	3
≥ 40% and < 50%	4
≥ 50%	5

For All Projects Detached accessory dwelling units must be counted as separate buildings. Accessory dwellings attached to a main building are not counted separately.

GIB CREDIT: OPTIMIZE BUILDING ENERGY PERFORMANCE

ND

1–2 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage the design and construction of energy-efficient buildings that reduce air, water, and land pollution and adverse environmental effects from energy production and consumption.

Requirements

ND PLAN, ND

The requirements apply to 90% of the total building floor area (rounded up to the next whole building) of all nonresidential buildings, mixed-use buildings, and *multiunit residential* buildings four stories or more constructed as part of the *project* or undergoing major renovations as part of the project. Each counted building must comply with one of the following efficiency options.

Option 1. Whole-Building Energy Simulation (1–2 points)

New buildings must demonstrate an average percentage improvement of 12% (1 point) or 20% (2 points) over ANSI/ASHRAE/IESNA Standard 90.1–2010, with errata. Buildings undergoing major renovations as part of the project must demonstrate an average percentage improvement of 10% (1 point) or 18% (2 points). Core and shell buildings must demonstrate an average percentage improvement of 11% (1 point) or 15% (2 points). To determine percentage improvement, follow the method outlined in GIB Prerequisite Minimum Building Energy Performance.

OR

Option 2. Prescriptive Compliance: ASHRAE 50% Advanced Energy Design Guide (2 points)

To be eligible for Option 2, project must comply with all of requirements of Option 2 in GIB Prerequisite Minimum Building Energy Performance .

AND

Comply with the applicable recommendations and standards in Chapter 4, Design Strategies and Recommendations by Climate Zone, for the appropriate ASHRAE 50% Advanced Energy Design Guide and climate zone. For projects outside the United States, consult ASHRAE/ASHRAE/IESNA Standard 90.1–2010, Appendixes B and D, to determine the appropriate climate zone.

ASHRAE 50% Advanced Energy Design Guide for Small to Medium Office Buildings

- *Building envelope, opaque:* roofs, walls, floors, slabs, doors, and continuous air barriers
- *Building envelope, glazing:* vertical fenestration
- *Interior lighting,* including daylighting and interior finishes
- *Exterior lighting*
- *Plug loads,* including equipment and controls

ASHRAE 50% Advanced Energy Design Guide for Medium to Large Box Retail Buildings

- *Building envelope, opaque:* roofs, walls, floors, slabs, doors, and vestibules

- *Building envelope, glazing:* fenestration - all orientations
- *Interior lighting,* excluding lighting power density for sales floor
- *Additional interior lighting* for sales floor
- *Exterior lighting*
- *Plug loads,* including equipment choices and controls

ASHRAE 50% Advanced Energy Design Guide for K–12 School Buildings

- *Building envelope, opaque:* roofs, walls, floors, slabs, and doors
- *Building envelope, glazing:* vertical fenestration
- *Interior lighting,* including daylighting and interior finishes
- *Exterior lighting*
- *Plug loads,* including equipment choices, controls, and kitchen equipment

ASHRAE 50% Advanced Design Guide for Large Hospitals

- *Building envelope, opaque:* roofs, walls, floors, slabs, doors, vestibules, and continuous air barriers
- *Building envelope, glazing:* vertical fenestration
- *Interior lighting,* including daylighting (form or nonform driven) and interior finishes
- *Exterior lighting*
- *Plug loads,* including equipment choices, controls, and kitchen equipment

For new *single-family residential* buildings and new multiunit residential buildings three stories or fewer, 90% of the buildings must reduce absolute estimated annual energy usage by 20% compared with the LEED index target for each building. Follow the method outlined in LEED v4 for Homes, EA Credit Annual Energy Use.

WE CREDIT: INDOOR WATER USE REDUCTION

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To reduce indoor water consumption.

Requirements

ND PLAN, ND (GIB)

Nonresidential Buildings, Mixed-Use Buildings, and Multifamily Residential Buildings Four Stories or More

For new buildings and buildings undergoing major renovations as part of the *project*, reduce indoor water usage by an average of 40% from a baseline

All newly installed toilets, urinals, private lavatory faucets, and showerheads that are eligible for labeling must be WaterSense labeled (or local equivalent for projects outside the United States).

For fixtures and fittings listed in Table 1, as applicable to the project scope, calculate the baseline water consumption using estimated occupant usage.

The design case is calculated as a weighted average of water usage for the buildings constructed as part of the project, based on their floor area.

Table 1. Baseline water consumption of fixtures and fittings

<i>Fixture or fitting</i>	<i>Baseline (imperial units)</i>	<i>Baseline (metric units)</i>
Toilet (water closet)*	1.6 gpf	6 lpf
Urinal*	1.0 gpf	3.8 lpf
Public lavatory (restroom) faucet	0.5 gpm at 60 psi** all others except private applications	1.9 lpm at 415 kPa, all others except private applications
Private lavatory faucet*	2.2 gpm at 60 psi	8.3 lpm at 415 kPa
Kitchen faucet (excluding faucets used exclusively for filling operations)	2.2 gpm at 60 psi	8.3 lpm at 415 kPa
Showerhead*	2.5 gpm at 80 psi per shower stall	9.5 lpm at 550 kPa per shower stall

* WaterSense label available for this product type

gpf = gallons per flush

gpm = gallons per minute

psi = pounds per square inch

lpf = liters per flush

lpm = liters per minute
kPa = kilopascals

New Single-Family Residential Buildings and New Multiunit Residential Buildings Three Stories or Fewer

90% of buildings must use a combination of fixtures and fittings that would earn 4 points under LEED for Homes v4 WE Credit Indoor Water Use.

WE CREDIT: OUTDOOR WATER USE REDUCTION

ND (GIB)

1–2 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To reduce outdoor water consumption.

Requirements

ND PLAN, ND (GIB)

Reduce outdoor water use through one of the following options. Nonvegetated surfaces, such as permeable or impermeable pavement, should be excluded from landscape area calculations. Athletic fields and playgrounds (if vegetated) and food gardens may be included or excluded at the project team's discretion.

Option 1. No Irrigation Required (2 points)

Show that the landscape does not require a permanent irrigation system beyond a maximum two-year establishment period.

OR

Option 2. Reduced Irrigation (1–2 points)

Reduce the project's landscape water requirement (LWR) by at least 30% from the calculated baseline for the site's peak watering month. Reductions must first be achieved through plant species selection and irrigation system efficiency as calculated in the Environmental Protection Agency (EPA) WaterSense Water Budget Tool.

Additional reductions beyond 30% may be achieved using any combination of efficiency, alternative water sources, and smart scheduling technologies.

Table 1. Points for reducing irrigation water

<i>Percentage reduction from baseline</i>	<i>Points</i>
30%	1
50%	2

GIB CREDIT: BUILDING REUSE

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To extend the life cycle of buildings and conserve resources, reduce waste, and reduce environmental harm from materials manufacturing and transport for new buildings.

Requirements

ND PLAN, ND (GIB)

Case 1. Five Buildings or Fewer

For projects with five or fewer buildings undergoing major renovations, reuse 50% of one such building, based on surface area. Calculations must include structural elements (e.g., floors, roof decking) and enclosure materials (e.g., skin, framing). Exclude from the calculations window assemblies, nonstructural roofing material, and any hazardous materials that are remediated as part of the project.

Case 2. More Than Five Buildings

For projects with more than five buildings undergoing major renovations, reuse 20% of the total surface area of such buildings (including structure and enclosure materials, as defined in Case 1).

For All Projects Do not demolish any *historic buildings* or contributing buildings in a *historic district*, or portions thereof, or alter any *cultural landscapes* as part of the project.

An exception is granted only with approval from an appropriate review body. For buildings or landscapes listed locally, approval must be granted by the local historic preservation review board, or equivalent. For buildings or landscapes listed in a state register or in the National Register of Historic Places (or equivalent for projects outside the United States), approval must appear in a programmatic agreement with the state historic preservation office or National Park Service (or local equivalent for projects outside the United States).

GIB CREDIT: HISTORIC RESOURCE PRESERVATION AND ADAPTIVE USE

ND

2 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To respect local and national landmarks and conserve material and cultural resources by encouraging the preservation and adaptive use of historic buildings and cultural landscapes.

Requirements

ND PLAN, ND (GIB)

This credit is available to projects with at least one historic building, contributing building in a historic district, or cultural landscape on the *project* site.

Do not demolish any historic buildings or contributing buildings in a historic district, or portions thereof, or alter any cultural landscapes as part of the project.

An exception is granted only with approval from an appropriate review body. For buildings or landscapes listed locally, approval must be granted by the local historic preservation review board, or equivalent. For buildings or landscapes listed in a state register or in the National Register of Historic Places (or equivalent for projects outside the U.S.), approval must appear in a programmatic agreement with the state historic preservation office or National Park Service (or local equivalent for projects outside the U.S.).

If any historic building or a contributing building in a historic district in the project site is to be altered (rehabilitated, preserved, or restored), use one of the following approaches for each building, as applicable.

- *Building subject to local review.* Obtain approval, in the form of a certificate of appropriateness, from a local historic preservation commission or architectural review board for any exterior alterations or additions.
- *Building subject to state or federal review.* If the building is subject to review by a state historic preservation office or the National Park Service (or equivalent body for projects outside the U.S.), the alteration must meet the Secretary of the Interior's Standards for the Treatment of Historic Properties (or equivalent for projects outside the U.S.).
- *Listed or eligible building not subject to review.* If a building is listed or determined eligible but alteration is not subject to local, state, or federal review, include on the project team a preservation professional who meets the U.S. federal qualifications for historic architects or architectural historians (or a local equivalent for projects outside the U.S.). The preservation professional must confirm adherence to the Secretary of the Interior's Standards for the Treatment of Historic Properties, or a local equivalent for projects outside the U.S.

If a cultural landscape is to be rehabilitated, restored, or preserved, do so in accordance with the Guidelines for the Treatment of Cultural Landscapes or local equivalent for projects outside the U.S. whichever is more stringent.

GIB CREDIT: MINIMIZED SITE DISTURBANCE

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To preserve existing noninvasive trees, native plants, and pervious surfaces.

Requirements

ND PLAN, ND (GIB)

Option 1. Development Footprint on Previously Developed Land (1 point)

Locate 100% of the development footprint and the construction impact zone on previously developed land.

OR

Option 2. Undeveloped Portion of Project Left Undisturbed (1 point)

Depending on the density of the project, do not develop or disturb a portion of the site that has not been previously developed, exclusive of (1) any land preserved by codified law, (2) a prerequisite of LEED for Neighborhood Development or (3) exempt areas designated as nonbuildable in comprehensive land-use plans. Stipulate in covenants, conditions, and restrictions (CC&R) or other binding documents that the undisturbed area will be protected from development by a private or governmental agency for the purpose of long-term conservation. When determining the minimum area to be left undeveloped, mixed-use projects must use the lowest applicable density from Table 1 or use the weighted average methodology in NPD Credit Compact Development. Densities and minimum percentages are as follows:

Table 1. Minimum undeveloped area, by project density

Residential density (DU/acre)	Residential density (DU/hectare)	Nonresidential density (FAR)	Minimum area left undisturbed
< 13	<32	< 0.5	20%
> 13 and ≤ 18	> 32 and ≤ 45	≥ 0.5 and ≤1	15%
> 18	> 45	> 1	10%

DU = dwelling unit; FAR = floor-area ratio.

For portions of the site that are not previously developed, identify construction impact zones that limit disturbance to the following:

- 40 feet (12 meters) beyond the building perimeter;
- 10 feet (3 meters) beyond surface walkways, patios, surface parking, and utilities less than 12 inches (30 centimeters) in diameter;
- 15 feet (4.5 meters) beyond street curbs and main utility branch trenches; and
- 25 feet (7.5 meters) beyond constructed areas with permeable surfaces (such as pervious paving areas, stormwater retention facilities, and playing fields) that require additional staging areas to limit compaction in the constructed zone.

For All Projects

Survey the site to identify the following:

- trees in good or excellent condition, as determined by an arborist certified by the International Society of Arboriculture (ISA) or local equivalent professional for projects outside the U.S.;
- any heritage or champion trees of special importance to the community because of their age, size, type, historical association, or horticultural value, as defined by a government forester;
- all trees larger than 6 inches (15 centimeters) in diameter at breast height (dbh, 4 feet 6 inches [1.4 meters] above ground); and
- any invasive plant species that affect trees present on the site, and whether those plants threaten the health of other trees to be preserved on the site, as determined by an ISA-certified arborist or local equivalent professional.

Preserve the following trees that are also identified as in good or excellent condition:

- all heritage or champion trees and trees whose dbh exceeds 50% of the state champion dbh for the species;
- a minimum of 75% of all noninvasive trees (including the above) larger than 18 inches (45 centimeters) dbh; and
- a minimum of 25% of all noninvasive trees (including the above) larger than 12 inches (30 centimeters) dbh if deciduous and 6 inches (15 centimeters) dbh if coniferous.

Tree condition ratings must be determined by an ISA-certified arborist using ISA-approved assessment measures or by a local equivalent professional utilizing an equivalent methodology.

Develop a plan, in consultation with and approved by an ISA-certified arborist or equivalent, for the health of the trees, including fertilization and pruning, and for their protection during construction.

If an ISA-certified arborist or local equivalent professional has determined that any trees to be preserved are threatened by invasive vegetation, develop a plan to reduce the invasive vegetation. Stipulate in codes, covenants, and restrictions or other binding documents that the undisturbed area of the preserved trees will be protected from development by a private or governmental agency for the purpose of long-term conservation.

SS CREDIT: RAINWATER MANAGEMENT

ND

1–4 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To reduce runoff volume and improve water quality by replicating the natural hydrology and water balance of the site, based on historical conditions and undeveloped ecosystems in the region.

Requirements

ND PLAN, ND (GIB)

In a manner best replicating *natural site hydrology* processes, *manage on site* the runoff from the developed site for the percentile of regional or local rainfall events listed in Table 1, using *low-impact development (LID)* and *green infrastructure*.

Use daily rainfall data and the methodology in the U.S. Environmental Protection Agency (EPA) Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act to determine the percentile amounts listed in Table 1. The percentile rainfall event indicates the total volume to be retained on site.

Table 1. Points for retaining rainwater on site

Percentile rainfall event	Points
80th	1
85th	2
90th	3
95th	4

Projects that earn at least 2 points under this credit may earn an additional point if the site meets one of the following criteria.

- The project is located on a previously developed site.
- The project achieves 1 point in SLL Credit Brownfield Remediation.
- The project is designed to be transit ready by achieving at least 2 points each under NPD Credit Walkable Streets, NPD Credit Compact Development, and NPD Credit Mixed-Use Neighborhoods.

SS CREDIT: HEAT ISLAND REDUCTION

ND

1 point

This credit applies to

- Neighborhood Development Plan (1 point)
- Neighborhood Development (1 point)

Intent

To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.

Requirements

ND PLAN, ND (GIB)

Option 1. Nonroof (1 point)

Use any combination of the following strategies for 50% of the nonroof site paving (including roads, sidewalks, courtyards, parking lots, parking structures, and driveways).

- Use the existing plant material or install plants that provide shade over the paving areas on the site within 10 years of plant material installation.
- Install and plant planters, either at grade or raised. Plant material cannot include artificial turf.
- Provide shade with structures covered by energy generation systems, such as solar thermal collectors, photovoltaics, and wind turbines, that produce energy used to offset some nonrenewable resource use.
- Provide shade with architectural devices or structures that have a three-year aged *solar reflectance (SR)* value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation.
- Provide shade with vegetated structures.
- Use paving materials with a three-year aged *solar reflectance (SR)* value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation.
- Use an *open-grid pavement system* (at least 50% unbound).

OR

Option 2. High-Reflectance and Vegetated Roofs (1 point)

Use roofing materials that have an SRI equal to or greater than the values in Table 1. Meet the three-year aged SRI value (if three-year aged value information is not available, use materials that meet the initial SRI value) for a minimum of 75% of the roof area of all new buildings within the project, or install a vegetated ("green") roof for at least 50% of the roof area of all new buildings within the project. Combinations of SRI-compliant and vegetated roofs can be used, provided they satisfy the equation in Option 3.

Table 1. Minimum solar reflectance index value, by roof slope

	Initial SRI	3-year aged SRI
Low ($\leq 2:12$)	82	64
Steep ($> 2:12$)	39	32

OR

Option 3. Mixed Nonroof and Roof Measures (1 point)

Use any of the strategies listed under Options 1 and 2 that in combination meet the following criterion:

$$\frac{\text{Area of Nonroof Measures}}{0.5} + \frac{\text{Area of High-Reflectance Roof}}{0.75} + \frac{\text{Area of Vegetated Roof}}{0.75} \geq \frac{\text{Total Site Paving Area}}{\text{Total Roof Area}}$$

Alternatively, an SRI and SR weighted average approach may be used to calculate compliance:

GIB CREDIT: SOLAR ORIENTATION

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage energy efficiency by creating optimum conditions for the use of passive and active solar strategies.

Requirements

ND PLAN, ND

Option 1. Block Orientation (1 point)

This option is for projects that earn at least 2 points under NPD Credit Compact Development.

Design and orient the project or locate the project on existing blocks such that one axis of 75% or more of the blocks is within ± 15 degrees of geographical east-west, and the east-west lengths of those blocks are at least as long as the north-south lengths.

OR

Option 2. Building Orientation (1 point)

Design and orient 75% or more of the project's total building floor area (excluding existing buildings) such that one axis of each qualifying building is at least 1.5 times longer than the other, and the longer axis is within 15 degrees of geographical east-west. The length-to-width ratio applies only to walls enclosing conditioned spaces; walls enclosing unconditioned spaces, such as garages, arcades, or porches, cannot contribute to credit achievement. The surface area of equator-facing vertical surfaces and slopes of roofs of buildings counting toward credit achievement must not be more than 25% shaded at the time of initial occupancy, measured at noon on the winter solstice.

EA CREDIT: RENEWABLE ENERGY PRODUCTION

ND (GIB)

1–3 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To reduce the environmental and economic harms associated with fossil fuel energy by increasing self-supply of renewable energy.

Requirements

ND PLAN, ND

Incorporate on-site nonpolluting renewable energy generation, such as solar, wind, geothermal, small-scale or micro-hydroelectric, or biomass, with production capacity of at least 5% of the project's annual electrical and thermal energy cost (exclusive of *existing* buildings).

Points are awarded according to Table 1.

Table 1. Points for renewable energy production

<i>Percentage of annual electrical and thermal energy cost</i>	<i>Points</i>
5%	1
12.5%	2
20%	3

GIB CREDIT: DISTRICT HEATING AND COOLING

ND

2 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage the development of energy-efficient neighborhoods by employing district heating and cooling strategies that reduce energy use and energy-related environmental harms.

Requirements

ND PLAN, ND

Incorporate a district heating and/or cooling system for space conditioning and/or water heating of new buildings (at least two buildings total) such that at least 80% of the *project's* annual heating and/or cooling consumption is provided by the district plant. *Single-family residential* buildings and *existing* buildings of any type may be excluded from the calculation.

Each system component that is addressed by ANSI/ASHRAE/IESNA Standard 90.1–2010 must have an overall efficiency performance at least 10% better than that specified by the standard's prescriptive requirements. Additionally, annual district pumping energy consumption that exceeds 2.5% of the annual thermal energy output of the heating and cooling plant must be offset by increases in the component's efficiency beyond the 10% improvement. If a combined heat and power (CHP) system is used to comply with the credit requirements, show equivalence by demonstrating that energy consumption savings from the CHP plant at least equal the energy savings that would result from using a conventional district energy system with components that are 10% better than ANSI/ASHRAE/IESNA Standard 90.1–2010. When determining equivalency, take into account the pumping energy as described above.

GIB CREDIT: INFRASTRUCTURE ENERGY EFFICIENCY

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To reduce the environmental harms from energy used for operating public infrastructure.

Requirements

ND PLAN, ND

Design, purchase, or work with the municipality to install all new infrastructure (e.g., traffic lights, *street* lights, water and wastewater pumps) to achieve a 15% annual energy reduction below an estimated baseline energy use for this infrastructure. When determining the baseline, assume the use of lowest first-cost infrastructure items.

GIB CREDIT: WASTEWATER MANAGEMENT

ND

1–2 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To reduce pollution from wastewater and encourage water reuse. .

Requirements

ND PLAN, ND (GIB)

Design and construct the project to retain on-site at least 25% of the average annual wastewater generated by the project (excluding any existing buildings), and reuse that wastewater to replace potable water. Provide on-site treatment to a quality required by state and local regulations for the proposed reuse, whichever is more stringent. Calculate the percentage of wastewater diverted and reused by determining the total wastewater flow, using the design case from GIB Prerequisite Indoor Water Use Reduction and adding wastewater flow from residential buildings, then determining how much of that volume is reused on site.

Table 1. Points for reusing wastewater

<i>Percentage of wastewater reused</i>	<i>Points</i>
25%	1
50%	2

GIB CREDIT: RECYCLED AND REUSED INFRASTRUCTURE

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To avoid the environmental consequences of extracting and processing virgin materials by using recycled and reclaimed materials.

Requirements

ND PLAN, ND (GIB)

Use materials for new infrastructure such that the sum of the *postconsumer* recycled content, on-site reused materials, and one-half of the *preconsumer* recycled content constitutes at least 50% of the total mass of infrastructure materials.

Count materials in all of the following infrastructure items, as applicable:

- roadways, parking lots, sidewalks, unit paving, and curbs;
- water retention tanks and vaults;
- base and sub-base materials for the above; and
- rainwater, sanitary sewer, steam energy distribution, and water piping.

Recycled content is defined in accordance with ISO/IEC 14021, Environmental Labels and Declaration, Self-Declared Environmental Claims (Type II environmental labeling).

GIB CREDIT: SOLID WASTE MANAGEMENT

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To reduce the volume of waste deposited in landfills and promote the proper disposal of hazardous waste.

Requirements

ND PLAN, ND (GIB)

Meet at least four of the following five requirements and publicize their availability and benefits.

- a. Include as part of the *project* at least one recycling or reuse station, available to all project occupants, dedicated to the separation, collection, and storage of materials for recycling; or locate the project in a local government jurisdiction that provides recycling services. The recycling must cover at least paper, corrugated cardboard, glass, plastics, and metals.
- b. Include as part of the project at least one drop-off point, available to all project occupants, for potentially hazardous office or household wastes and establish a plan for postcollection disposal or use; or locate the project in a local government jurisdiction that provides collection services. Examples of potentially hazardous wastes include paints, solvents, oil, mercury-containing lamps, electronic waste, and batteries.
- c. Include as part of the project at least one compost station or location, available to all project occupants, dedicated to the collection and composting of food and yard wastes, and establish a plan for postcollection use; or locate the project in a local government jurisdiction that provides composting services. .
- d. On every mixed-use or nonresidential *block* or at least every 800 feet (245 meters), whichever is shorter, include recycling containers either adjacent to or integrated into the design of other receptacles.
- e. Recycle, reuse, or salvage at least 50% of nonhazardous construction, demolition, and renovation debris. Calculations can be done by weight or volume but must be consistent throughout. Develop and implement a construction waste management plan that identifies the materials to be diverted from disposal and specifies whether the materials will be stored on site or commingled. Reused or recycled asphalt, brick, and concrete (ABC) can account for no more than 75% of the diverted waste total. Excavated soil, land-clearing debris, alternative daily cover (ADC), and materials contributing toward GIB Credit Existing Building Reuse do not qualify for this credit.

SS CREDIT: LIGHT POLLUTION REDUCTION

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To increase night sky access, improve nighttime visibility, and reduce the consequences of development for wildlife and people.

Requirements

ND PLAN, ND (GIB)

Meet the Light Pollution Reduction requirements for the following:

1. One option in Exterior Lighting for Residential Areas
2. Exterior Lighting for Circulation Network
3. Uplight and light trespass requirements in Exterior Lighting for All Other Areas
4. Covenants, Conditions, and Restrictions.

Divide the project into model lighting ordinance (MLO) lighting zones LZ0 to LZ4 based on site-specific characteristics using the definitions of lighting zones provided in the Illuminating Engineering Society and International Dark Sky Association (IES/IDA) MLO User Guide.

Meet the requirements below for each lighting zone within the project.

Exterior Lighting for Residential Areas

Meet either Option 1 or Option 2 for all exterior lighting in new residential construction and residential buildings undergoing major renovations. Existing residential construction is exempt.

Option 1. BUG Rating Method

Each fixture must have a backlight-uplight-glare (BUG) rating (as defined in IES TM-15-11, Addendum A) of no more than B2-U2-G2.

OR

Option 2. Calculation Method

Meet the requirements of Option 2 in Exterior Lighting for All Other Areas, below.

Exterior Lighting for Circulation Network

For any portions of the circulation network not governed by national, state, or other superseding regulations, do not install street lighting unless conditions warrant the need for street lighting.

New and existing street lighting luminaires must not emit any light above 90 degrees (horizontal), based on the photometric characteristics of each luminaire when mounted in the same orientation and tilt as specified in the project design or as currently installed.

Exception for ornamental luminaires: Using the lowest MLO lighting zone for immediately adjacent properties, meet the requirements of the IES/IDA MLO, Table H.

AND

Exterior Lighting for All Other Areas

Use either the BUG method (Option 1) or the calculation method (Option 2) to meet uplight and light trespass requirements. Projects may use different options for uplight and light trespass.

Uplight

Option 1. BUG Rating Method

Do not exceed the following luminaire uplight ratings, based on the specific light source installed in the luminaire as defined in IES TM-15-11, Addendum A.

Table 1. Maximum uplight ratings for luminaires, by lighting zone

MLO lighting zone	Luminaire uplight rating
LZ0	U0
LZ1	U1
LZ2	U2
LZ3	U3
LZ4	U4

Option 2. Calculation Method

Do not exceed the following maximum percentages of total lumens emitted above horizontal.

Table 3. Maximum percentage of lumens above horizontal

MLO lighting zone	Maximum allowed percentage of total luminaire lumens emitted above horizontal
LZ0	0%
LZ1	0%
LZ2	1.5%
LZ3	3%
LZ4	6%

Light Trespass

Option 1. BUG Rating Method

Do not exceed the following luminaire backlight and glare ratings (based on the specific light source installed in the luminaire) as defined in IES TM-15-11, Addendum A, based on the mounting location and distance from the *lighting boundary*.

Table 2. Maximum backlight and glare ratings, by lighting zone

	MLO lighting zone				
Luminaire mounting	LZ0	LZ1	LZ2	LZ3	LZ4
	Allowed backlight ratings				
> 2 mounting heights from lighting boundary	B1	B3	B4	B5	B5

1 to 2 mounting heights from lighting boundary and properly oriented	B1	B2	B3	B4	B4
0.5 to 1 mounting height to lighting boundary and properly oriented	B0	B1	B2	B3	B3
< 0.5 mounting height to lighting boundary and properly oriented	B0	B0	B0	B1	B2
	Allowed glare ratings				
Building-mounted > 2 mounting heights from any lighting boundary	G0	G1	G2	G3	G4
Building-mounted 1–2 mounting heights from any lighting boundary	G0	G0	G1	G1	G2
Building-mounted 0.5 to 1 mounting heights from any lighting boundary	G0	G0	G0	G1	G1
Building-mounted < 0.5 mounting heights from any lighting boundary	G0	G0	G0	G0	G1
All other luminaires	G0	G1	G2	G3	G4

A lighting boundary (or boundaries) is defined as the perimeter of each lighting zone within the project boundary. A lighting boundary can be modified under the following conditions:

- When the property line is adjacent to a public area that is a walkway, bikeway, plaza, or parking lot, the lighting boundary may be moved to 5 feet (1.5 meters) beyond the property line;
- When the property line is adjacent to a public street, alley, or transit corridor, the lighting boundary may be moved to the center line of that street, alley, or corridor;
- When there are additional properties owned by the same entity that are contiguous to the property, or properties, that the LEED project is within and have the same or higher MLO lighting zone designation as the LEED project, the lighting boundary may be expanded to include those properties.

Orient all luminaires less than two mounting heights from the lighting boundary such that the backlight points toward the nearest lighting boundary line. Building-mounted luminaires with the backlight oriented toward the building are exempt from the backlight rating requirement

Option 2. Calculation Method

Do not exceed the following vertical illuminances at the lighting boundary of each lighting zone in the project (use the definition of lighting boundary in Option 1). Calculation points may be no more than 5 feet (1.5 meters) apart. Vertical illuminances must be calculated on vertical planes running parallel to the lighting boundary, with the normal to each plane oriented toward the property and perpendicular to the lighting boundary, extending from grade level to 33 feet (10 meters) above the height of the highest luminaire.

Table 4. Maximum vertical illuminance at lighting boundary, by lighting zone

MLO lighting zone	Vertical illuminance
LZ0	0.05 fc (0.5 lux)
LZ1	0.05 fc (0.5 lux)
LZ2	0.10 fc (1 lux)

LZ3	0.20 fc (2 lux)
LZ4	0.60 fc (6 lux)

FC = footcandle.

Exemptions from Uplight and Light Trespass Requirements

The following exterior lighting is exempt from the requirements, provided it is controlled separately from the nonexempt lighting:

- specialized signal, directional, and marker lighting for transportation;
- internally illuminated signage;
- lighting that is used solely for façade and landscape lighting in MLO lighting zones 3 and 4 and is automatically turned off from midnight until 6 a.m.;
- lighting that is integral to other equipment or instrumentation that has been installed by the equipment or instrumentation manufacturer;
- lighting for theatrical purposes for stage, film, and video performances;
- street lighting;
- hospital emergency departments, including associated helipads; and
- lighting for the national flag in MLO lighting zones 2, 3, or 4.

Covenants, Conditions, and Restrictions

Establish *covenants, conditions, and restrictions* (CC&R) or other binding documents that require continued adherence to the above requirements.

INNOVATION (IN)

IN CREDIT: INNOVATION

ND

1–5 points

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage projects to achieve exceptional or innovative performance

Requirements

ND PLAN, ND

Project teams can use any combination of innovation, pilot, and exemplary performance strategies.

Option 1. Innovation (1 point)

Achieve significant, measurable environmental performance using a strategy not addressed in the LEED green building rating system.

Identify the following:

- the intent of the proposed innovation credit;
- proposed requirements for compliance;
- proposed submittals to demonstrate compliance; and
- the design approach or strategies used to meet the requirements.

AND/OR

Option 2. Pilot (1 point)

Achieve one pilot credit from USGBC's LEED Pilot Credit Library

AND/OR

Option 3. Additional Strategies

- **Innovation (1-3 points)**
Defined in Option 1 above.
- **Pilot (1-3 points)**
Meet the requirements of Option 2.
- **Exemplary Performance (1–2 points)**
Achieve exemplary performance in an existing LEED v4 prerequisite or credit that allows exemplary performance, as specified in the LEED Reference Guide, v4 edition. An exemplary performance point is typically earned for achieving double the credit requirements or the next incremental percentage threshold.

IN CREDIT: LEED ACCREDITED PROFESSIONAL

ND

1 point

This credit applies to

- Neighborhood Development Plan
- Neighborhood Development

Intent

To encourage the team integration required by a LEED project and to streamline the application and certification process.

Requirements

ND PLAN, ND

At least one principal participant of the project team must be a LEED Accredited Professional (AP) with a specialty appropriate for the project.

REGIONAL PRIORITY (RP)

RP CREDIT: REGIONAL PRIORITY

ND

4 points

This credit applies to

- Neighborhood Development Plan (1-4 points)
- Neighborhood Development (1-4 points)

Intent

To provide an incentive for the achievement of credits that address geographically specific environmental, social equity, and public health priorities.

Requirements

ND PLAN, ND

Earn up to four of the six Regional Priority credits. These credits have been identified by the USGBC regional councils and chapters as having additional regional importance for the project's region. A database of Regional Priority credits and their geographic applicability is available on the USGBC website, <http://www.usgbc.org>.

One point is awarded for each Regional Priority credit achieved, up to a maximum of four.

APPENDICES

APPENDIX 1. USE TYPES AND CATEGORIES

The following table is used for all related Building Design & Construction, Interior Design & Construction, and Neighborhood Development prerequisites and credits. Use types are classified in categories.

Category	Use type
Food retail	Supermarket
	Other food store with produce section
Community-serving retail	Convenience store
	Farmers market
	Hardware store
	Pharmacy
	Other retail
Services	Bank
	Family entertainment venue (e.g., theater, sports)
	Gym, health club, exercise studio
	Hair care
	Laundry, dry cleaner
	Restaurant, café, diner (excluding those with only drive-thru service)
Civic and community facilities	Adult or senior care (licensed)
	Child care (licensed)
	Community or recreation center
	Cultural arts facility (museum, performing arts)
	Education facility (e.g., K—12 school, university, adult education center, vocational school, community college)
	Government office that serves public on-site
	Medical clinic or office that treats patients
	Place of worship
	Police or fire station
	Post office
	Public library
	Public park
	Social services center
Community anchor uses (BD&C and ID&C only)	Commercial office (100 or more full-time equivalent jobs)
	Housing (100 or more dwelling units)

Adapted from Criterion Planners, INDEX neighborhood completeness indicator, 2005.

APPENDIX 2. DEFAULT OCCUPANCY COUNTS

Because of the speculative nature of core and shell construction, a project team may not know the final occupant count during the LEED certification process.

Core & Shell projects that do not have final occupancy counts must use the default occupancy counts provided here.

Projects that know the tenant occupancy must use the actual numbers, as long as the gross floor area per employee does not exceed the default occupancy numbers; a lower figure for gross floor area per occupant is acceptable.

Default occupancy counts are provided for typical core and shell project types. For circumstances not covered below, provide documentation for comparable buildings' average gross floor area per occupant.

Table 1. Default Occupancy Numbers

	Gross square feet per occupant		Gross square meters per occupant	
	Employees	Transients	Employees	Transients
General office	250	0	23	0
Retail, general	550	130	51	12
Retail or service (e.g., financial, auto)	600	130	56	12
Restaurant	435	95	40	9
Grocery store	550	115	51	11
Medical office	225	330	21	31
R&D or laboratory	400	0	37	0
Warehouse, distribution	2,500	0	232	0
Warehouse, storage	20,000	0	1860	0
Hotel	1,500	700	139	65
Educational, daycare	630	105	59	10
Educational, K–12	1,300	140	121	13
Educational, postsecondary	2,100	150	195	14

Sources:

ANSI/ASHRAE/IESNA Standard 90.1–2004 (Atlanta, GA, 2004).
 2001 Uniform Plumbing Code (Los Angeles, CA)
 California Public Utilities Commission, 2004–2005 Database for Energy Efficiency Resources (DEER) Update Study (2008).
 California State University, Capital Planning, Design and Construction Section VI, Standards for Campus Development Programs (Long Beach, CA, 2002).
 City of Boulder Planning Department, Projecting Future Employment—How Much Space per Person (Boulder, 2002).
 Metro, 1999 Employment Density Study (Portland, OR 1999).
 American Hotel and Lodging Association, Lodging Industry Profile Washington, DC, 2008.
 LEED for Core & Shell Core Committee, personal communication (2003 - 2006).
 LEED for Retail Core Committee, personal communication (2007)
 OWP/P, Medical Office Building Project Averages (Chicago, 2008).
 OWP/P, University Master Plan Projects (Chicago, 2008).
 U.S. General Services Administration, Childcare Center Design Guide (Washington, DC,2003).

The figures above may be used to determine occupancy for the following credits:

- LT Credit: Bicycle Network, Storage, and Shower Rooms
- LT Credit: Reduced Parking Footprint
- WE Prerequisite: Minimum Fixture and Fitting Water-Use Reduction
- WE Credit: Sustainable Wastewater Management
- WE Credit: Additional Fixture and Fitting Water-Use Reduction
- EA Prerequisite: Minimum Energy Performance
- EA Credit: Optimized Energy Performance
- EQ Prerequisite: Minimum Indoor Air Quality Performance
- EQ Credit: Outdoor Air Delivery Monitoring
- EQ Credit: Increased Ventilation
- EQ Credit: Thermal Comfort
- EQ Credit: Daylight
- EQ Credit: Quality Views
- EQ Credit: Interior Lighting

The defaults provided above are based on gross floor area per occupant, not net or leasable floor area per occupant. Gross floor area is defined as the sum of all areas on all floors of a building included within the outside faces of the exterior wall, including common areas, mechanical spaces, circulation areas, and all floor penetrations that connect one floor to another. To determine gross floor area, multiply the building footprint (in square feet or square meters) by the number of floors in the building. Projects with underground or structured parking may exclude that area from the calculation.

APPENDIX 3. RETAIL PROCESS LOAD BASELINES

Table 1a. Commercial kitchen appliance prescriptive measures and baseline for energy cost budget (imperial units)

Appliance type	Baseline energy usage for energy modeling path				Levels for prescriptive path	
	Fuel	Function	Baseline efficiency	Baseline idle rate	Prescriptive efficiency	Prescriptive idle rate
Broiler, underfired	Gas	Cooking	30%	20,000 Btu/h/ft ² peak input	35%	12500 Btu/h/ft ² peak input
Combination oven < 15 pans	Electric	Cooking	65% convection mode and 40% steam mode	3 kW convection and 10 kW steam	70% convection mode and 50% steam mode	2 kW convection and 5 kW steam
Combination oven < 15 pans	Gas	Cooking	35% convection mode and 20% steam mode	15,000 Btu/h convection and 45,000 Btu/h steam	44% convection mode and 38% steam mode	9,000 Btu/h convection and 15,000 Btu/h steam
Combination oven > 28 pans	Electric	Cooking	65% convection mode and 40% steam mode	5.25 kW convection and 18 kW steam	70% convection mode and 50% steam mode	3.5 kW convection and 9 kW steam
Combination oven > 28 pans	Gas	Cooking	35% convection mode and 20% steam mode	30,000 Btu/h convection and 80,000 Btu/h steam	44% convection mode and 38% steam mode	17,000 Btu/h convection and 28,000 Btu/h steam
Combination oven 15– 28 pans	Electric	Cooking	65% convection mode and 40% steam mode	3.75 kW convection and 12.5 kW steam	70% convection mode and 50% steam mode	2.5 kW convection and 6 kW steam
Combination ovens 15–28 pans	Gas	Cooking	35% convection mode and 20% steam mode	20,000 Btu/h convection and 60,000 Btu/h steam	44% convection mode and 38% steam mode	11,000 Btu/h convection and 18000 Btu/h steam
Convection oven, full-size	Electric	Cooking	65%	2.0 kW	70%	1.6 kW
Convection oven, full-size	Gas	Cooking	30%	18000 Btu/h	44%	13000 Btu/h
Convection oven, half-size	Electric	Cooking	65%	1.5 kW	70%	1.0 kW
Conveyor oven > 25-inch belt	Gas	Cooking	20%	70,000 Btu/h	42%	57,000 Btu/h
Conveyor oven < 25-inch belt	Gas	Cooking	20%	45,000 Btu/h	42%	29,000 Btu/h

Fryer	Ele c	Cooking	75%	1050 W	80%	1000 W
Fryer	Gas	Cooking	35%	14000 Btu/h	50%	9000 Btu/h
Griddle (based on 3' model)	Ele c	Cooking	60%	400 W/ft ²	70%	355 W/ft ²
Griddle (based on 3' model)	Gas	Cooking	30%	3500 Btu/h/ft ²	38%	2650 Btu/h/ft ²
Hot food- holding cabinet (excluding drawer warmers and heated display)	Ele c	Cooking	—	100w/ft ³	—	20 w/ft ³
Large vat fryer	Ele c	Cooking	75%	1350 W	80%	1100 W
Large vat fryer	Gas	Cooking	35%	20000 Btu/h	50%	12000 Btu/h
Rack oven, double	Gas	Cooking	30%	65000 Btu/h	50%	35000 Btu/h
Rack oven, single	Gas	Cooking	30%	43000 Btu/h	50%	29000 Btu/h
Range	Ele c	Cooking	70%		80%	
Range	Gas	Cooking	35%	—	40% and no standing pilots	—
Steam cooker, batch cooking	Ele c	Cooking	26%	200 W/pan	50%	135 W/pan
Steam cooker, batch cooking	Gas	Cooking	15%	1800 Btuh/pan	38%	2100 Btu/h/pan
Steam cooker, high production or cook to order	Ele c	Cooking	26%	330 W/pan	50%	275 W/pan
Steam cooker, high production or cook to order	Gas	Cooking	15%	3000 Btuh/pan	38%	4300 Btu/h/pan
Toaster	Ele c	Cooking	—	1.8 kW average operating energy rate	—	1.2 kW average operating energy rate
Ice machine, ice-making head, $H \geq$ 450 lb/day	Ele c	Ice	6.89 - 0.0011H kWh/100 lb ice	—	6.20 - 0.0010H kWh/100 lb ice	—
Ice machine, ice-making head, $H \leq$ 450 lb/day	Ele c	Ice	10.26 – 0.0086H kWh/100 lb ice	—	9.23 - 0.0077H kWh/100 lb ice	—

Ice machine RCU (w/o remote compressor), H < 1,000 lb/day	Ele c	Ice	8.85 - .0038H kWh/100lb ice	—	8.05 - 0.0035H kWh/100lb ice	—
Ice machine RCU (w/o remote compressor), H ≥ 1000 lb/day	Ele c	Ice	5.10 kWh/100lb ice	—	4.64 kWh/100lb ice	—
Ice machine RCU (w/ remote compressor), H < 934 lb/day	Ele c	Ice	8.85 - 0.0038H kWh/100 lb ice	—	8.05 - 0.0035H kWh/100 lb ice	—
Ice machine RCU (w/remote compressor), H ≥ 934 lb/day	Ele c	Ice	5.30 kWh/100 lb ice	—	4.82 kWh/100 lb ice	—
Ice machine self-contained unit, H < 175 lb/day	Ele c	Ice	18.0 - 0.0469H kWh/100lb ice	—	16.7 - 0.0436H kWh/100lb ice	—
Ice machine self-contained unit, H ≥ 175 lb/day	Ele c	Ice	9.80 kWh/100lb ice	—	9.11 kWh/100lb ice	—
Ice machine, water-cooled ice-making head, H ≥ 1436 lb/day (must be on chilled loop)	Ele c	Ice	4.0 kWh/100lb ice	—	3.7 kWh/100lb ice	—
Ice machine, water-cooled ice-making head, 500 lb/day < H < 1436 (must be on chilled loop)	Ele c	Ice	5.58 – 0.0011H kWh/100lb ice	—	5.13 - 0.001H kWh/100lb ice	—
Ice machine, water-cooled ice-making head, H < 500 lb/day (must be on chilled loop)	Ele c	Ice	7.80 – 0.0055H kWh/100 lb ice	—	7.02 - 0.005H kWh/100 lb ice	—
Ice machine	Ele	Ice	Banned	Banned	Banned	Banned

water-cooled once-through (open loop)	c					
Ice machine, water-cooled self-contained unit, $H < 200$ lb/day (must be on chilled loop)	Ele c	Ice	$11.4 - 0.0190H$ kWh/100lb ice	—	$10.6 - 0.177H$ kWh/100lb ice	—
Ice machine, water-cooled self-contained unit, $H \geq 200$ lb/day (must be on chilled loop)	Ele c	Ice	7.6 kWh/100lb ice	—	7.07 kWh/100lb ice	—
Chest freezer, solid or glass door	Ele c	Refrig	$0.45V + 0.943$ kWh/day	—	$\leq 0.270 V + 0.130$ kWh/day	—
Chest refrigerator, solid or glass door	Ele c	Refrig	$.1V + 2.04$ kWh/day	—	$\leq 0.125 V + 0.475$ kWh/day	—
Glass-door reach-in freezer $0 \leq V < 15$ ft ³	Ele c	Refrig	$.75V + 4.10$ kWh/day	—	$\leq 0.607 V + 0.893$ kWh/day	—
Glass-door reach-in freezer $15 \leq V < 30$ ft ³	Ele c	Refrig	$.75V + 4.10$ kWh/day	—	$\leq 0.733 V - 1.00$ kWh/day	—
Glass-door reach-in freezer, $30 \leq V < 50$ ft ³	Ele c	Refrig	$.75V + 4.10$ kWh/day	—	$\leq 0.250 V + 13.50$ kWh/day	—
Glass-door reach-in freezer, $50 \leq V$ ft ³	Ele c	Refrig	$.75V + 4.10$ kWh/day	—	$\leq 0.450 V + 3.50$ kWh/day	—
Glass-door reach-in refrigerator, $0 \leq V < 15$ ft ³	Ele c	Refrig	$.12V + 3.34$ kWh/day	—	$\leq 0.118 V + 1.382$ kWh/day	—
Glass-door reach-in refrigerator, $15 \leq V < 30$ ft ³	Ele c	Refrig	$.12V + 3.34$ kWh/day	—	$\leq 0.140 V + 1.050$ kWh/day	—
Glass-door reach-in refrigerator, $30 \leq V < 50$ ft ³	Ele c	Refrig	$.12V + 3.34$ kWh/day	—	$\leq 0.088 V + 2.625$ kWh/day	—

Glass-door reach-in refrigerator, $50 \leq V \text{ ft}^3$	Ele c	Refrig	.12V + 3.34 kWh/day	—	$\leq 0.110 \text{ V} + 1.500$ kWh/day	—
Solid-door reach-in freezer, $0 \leq V < 15 \text{ ft}^3$	Ele c	Refrig	0.4V + 1.38 kWh/day	—	$\leq 0.250 \text{ V} + 1.25$ kWh/day	—
Solid-door reach-in freezer, $15 \leq V < 30 \text{ ft}^3$	Ele c	Refrig	0.4V + 1.38 kWh/day	—	$\leq 0.400 \text{ V} - 1.000$ kWh/day	—
Solid-door reach-in freezer, $30 \leq V < 50 \text{ ft}^3$	Ele c	Refrig	0.4V + 1.38 kWh/day	—	$\leq 0.163 \text{ V} + 6.125$ kWh/day	—
Solid-door reach-in freezer, $50 \leq V \text{ ft}^3$	Ele c	Refrig	0.4V + 1.38 kWh/day	—	$\leq 0.158 \text{ V} + 6.333$ kWh/day	—
Solid-door reach-in refrigerator, $0 \leq V < 15 \text{ ft}^3$	Ele c	Refrig	.1V + 2.04 kWh/day	—	$\leq 0.089 \text{ V} + 1.411$ kWh/day	—
Solid-door reach-in refrigerator, $15 \leq V < 30 \text{ ft}^3$	Ele c	Refrig	.1V + 2.04 kWh/day	—	$\leq 0.037 \text{ V} + 2.200$ kWh/day	—
Solid-door reach-in refrigerator, $30 \leq V < 50 \text{ ft}^3$	Ele c	Refrig	.1V + 2.04 kWh/day	—	$\leq 0.056 \text{ V} + 1.635$ kWh/day	—
Solid-door reach-in refrigerator, $50 \leq V \text{ ft}^3$	Ele c	Refrig	.1V + 2.04 kWh/day	—	$\leq 0.060 \text{ V} + 1.416$ kWh/day	—
Clothes washer	Gas	Sanitati on	1.72 MEF		2.00 MEF	
Door-type dish machine, high temp	Ele c	Sanitati on	—	1.0 kW	—	.70 kW
Door-type dish machine, low temp	Ele c	Sanitati on	—	0.6 kW	—	0.6 kW
Multitank rack conveyor dish machine, high temp	Ele c	Sanitati on	—	2.6 kW	—	2.0 kW
Multitank rack conveyor dish machine, low temp	Ele c	Sanitati on	—	2.0 kW	—	2.0 kW
Single-tank	Ele	Sanitati	—	2.0 kW	—	1.5 kW

rack conveyor dish machine, high temp	c	on				
Single-tank rack conveyor dish machine, low temp	Ele c	Sanitati on	—	1.6 kW	—	1.5 kW
Undercounter dish machine, high temp	Ele c	Sanitati on	—	0.9 kW	—	0.5 kW
Undercounter dish machine, low temp	Ele c	Sanitati on	—	0.5 kW	—	0.5 kW

The energy efficiency, idle energy rates, and water use requirements, where applicable, are based on the following test methods:

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ASTM F1496 Standard Test Method for Performance of Convection Ovens

ASTM F1521 Standard Test Methods for Performance of Range Tops

ASTM F1605 Standard Test Method for Performance of Double-Sided Griddles

ASTM F1639 Standard Test Method for Performance of Combination Ovens

ASTM F1695 Standard Test Method for Performance of Underfired Broilers

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ASTM F1704 Standard Test Method for Capture and Containment Performance of Commercial Kitchen Exhaust Ventilation Systems

ASTM F1817 Standard Test Method for Performance of Conveyor Ovens

ASTM F1920 Standard Test Method for Energy Performance of Rack Conveyor, Hot Water Sanitizing, Commercial Dishwashing Machines

ASTM F2093 Standard Test Method for Performance of Rack Ovens

ASTM F2140 Standard Test Method for Performance of Hot Food Holding Cabinets

ASTM F2144 Standard Test Method for Performance of Large Open Vat Fryers

ASTM F2324 Standard Test Method for Prerinse Spray Valves

ASTM F2380 Standard Test Method for Performance of Conveyor Toasters

ARI 810-2007: Performance Rating of Automatic Commercial Ice Makers

ANSI/ASHRAE Standard 72–2005: Method of Testing Commercial Refrigerators and Freezers with temperature setpoints at 38°F for medium-temp refrigerators, 0°F for low-temp freezers, and -15°F for ice cream freezers

Table 1b. Commercial Kitchen Appliance Prescriptive Measures and Baseline for Energy Cost Budget (metric units)

Baseline energy usage for energy modeling path	Levels for prescriptive path
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Appliance type	Fuel	Function	Baseline efficiency	Baseline idle rate	Prescriptive efficiency	Prescriptive idle rate
Broiler, underfired	Gas	Cooking	30%	63 kW/m ²	35%	39.4 kW/m ²
Combination oven < 15 pans	Elec	Cooking	65% convection mode and 40% steam mode	3 kW convection and 10 kW steam	70% convection mode and 50% steam mode	2 kW convection and 5 kW steam
Combination oven < 15 pans	Gas	Cooking	35% convection mode and 20% steam mode	4.4 kW convection and 13.2 kW steam	44% convection mode and 38% steam mode	2.6 kW convection and 4.4 kW steam
Combination oven > 28 pans	Elec	Cooking	65% convection mode and 40% steam mode	5.25 kW convection and 18 kW steam	70% convection mode and 50% steam mode	3.5 kW convection and 9 kW steam
Combination oven > 28 pans	Gas	Cooking	35% convection mode and 20% steam mode	8.8 kW convection and 23.4 kW steam	44% convection mode and 38% steam mode	5 kW convection and 8.2 kW steam
Combination ovens 15–28 pans	Elec	Cooking	65% convection mode and 40% steam mode	3.75 kW convection and 12.5 kW steam	70% convection mode and 50% steam mode	2.5 kW convection and 6 kW steam
Combination oven 15–28 pans	Gas	Cooking	35% convection mode and 20% steam mode	5.9 kW convection and 17.5 kW steam	44% convection mode and 38% steam mode	3.2 kW convection and 5.3 kW steam
Convection oven, full-size	Elec	Cooking	65%	2.0 kW	70%	1.6 kW
Convection oven, full-size	Gas	Cooking	30%	5.3 kW	44%	3.8 kW
Convection oven, half-size	Elec	Cooking	65%	1.5 kW	70%	1.0 kW
Conveyor oven, > 25-inch belt	Gas	Cooking	20%	20.5 kW	42%	16.7 kW
Conveyor oven, < 25-inch belt	Gas	Cooking	20%	13.2 kW	42%	8.5 kW
Fryer	Elec	Cooking	75%	1050 W	80%	1000 W
Fryer	Gas	Cooking	35%	4.1 kW	50%	2.6 kW
Griddle (based on 90-cm model)	Elec	Cooking	60%	4 300 W/m ²	70%	3 820 W/m ²

Griddle (based on 90-cm model)	Gas	Cooking	30%	11 kW/m ²	38%	8.3 kW/m ²
Hot food holding cabinets (excluding drawer warmers and heated display)	Elec	Cooking	—	3 530 W/m ³	—	705 W/m ³
Large vat fryer	Elec	Cooking	75%	1350 W	80%	1100 W
Large vat fryer	Gas	Cooking	35%	5.9 kW	50%	3.5 kW
Rack oven, double	Gas	Cooking	30%	19 kW	50%	10 kW
Rack oven, single	Gas	Cooking	30%	13 kW	50%	8.5 kW
Range	Elec	Cooking	70%		80%	
Range	Gas	Cooking	35%	—	40% and no standing pilots	—
Steam cooker, batch cooking	Elec	Cooking	26%	200 W/pan	50%	135 W/pan
Steam cooker, batch cooking	Gas	Cooking	15%	530 W/pan	38%	615 W/pan
Steam cooker, high production or cook to order	Elec	Cooking	26%	330 W/pan	50%	275 W/pan
Steam cooker, high production or cook to order	Gas	Cooking	15%	880 W/pan	38%	1260 W/pan
Toaster	Elec	Cooking	—	1.8 kW average operating energy rate	—	1.2 kW average operating energy rate
Ice machine, ice-making head, H ≥ 204kg/day	Elec	Ice	6.89 - 0.0011H kWh/45kg ice	—	6.20 - 0.0010H kWh/45kg ice	—
Ice machine, ice-making head, H ≤ 204kg/day	Elec	Ice	10.26 – 0.0086H kWh/45kg ice	—	9.23 - 0.0077H kWh/45kg ice	—
Ice machine RCU (w/o remote compressor), H < 454kg/day	Elec	Ice	8.85 - .0038H kWh/45kg ice	—	8.05 - 0.0035H kWh/45kg ice	—
Ice machine	Elec	Ice	5.10	—	4.64	—

RCU (w/o remote compressor), $H \geq 454\text{kg/day}$			kWh/45kg ice		kWh/45kg ice	
Ice machine RCU (w/ remote compressor), $H < 424\text{kg/day}$	Elec	Ice	8.85 - 0.0038H kWh/45kg ice	—	8.05 - 0.0035H kWh/45kg ice	—
Ice machine RCU (w/remote compressor), $H \geq 424\text{kg/day}$	Elec	Ice	5.30 kWh/45kg ice	—	4.82 kWh/45kg ice	—
Ice machine, self-contained unit, $H < 80\text{kg/day}$	Elec	Ice	18.0 - 0.0469H kWh/45kg ice	—	16.7 - 0.0436H kWh/45kg ice	—
Ice machine, self-contained unit, $H \geq 80\text{kg/day}$	Elec	Ice	9.80 kWh/45kg ice	—	9.11 kWh/45kg ice	—
Ice machine, water-cooled ice-making head, $H \geq 651\text{kg/day}$ (must be on chilled loop)	Elec	Ice	4.0 kWh/45kg ice	—	3.7 kWh/45kg ice	—
Ice machine, water-cooled ice-making head, $227\text{kg/day} < H < 1436$ (must be on chilled loop)	Elec	Ice	5.58 – 0.0011H kWh/45kg ice	—	5.13 - 0.001H kWh/45kg ice	—
Ice machine, water-cooled ice-making head, $H < 227\text{kg/day}$ (must be on chilled loop)	Elec	Ice	7.80 – 0.0055H kWh/45kg ice	—	7.02 - 0.005H kWh/45kg ice	—
Ice machine, water-cooled once-through (open loop)	Elec	Ice	Banned	Banned	Banned	Banned
Ice machine water-cooled	Elec	Ice	11.4 – 0.0190H	—	10.6 - 0.177H	—

self-contained unit, $H < 90\text{kg/day}$ (must be on chilled loop)			kWh/45kg ice		kWh/45kg ice	
Ice machine, water-cooled self-contained unit, $H \geq 90\text{kg/day}$ (must be on a chilled loop)	Elec	Ice	7.6 kWh/45kg ice	—	7.07 kWh/45kg ice	—
Chest freezer, solid or glass door	Elec	Refrig	$0.45V + 0.943$ kWh/day	—	$\leq 0.270 V + 0.130$ kWh/day	—
Chest refrigerator, solid or glass door	Elec	Refrig	$.1V + 2.04$ kWh/day	—	$\leq 0.125 V + 0.475$ kWh/day	—
Glass-door reach-in freezer, $0 \leq V < 0.42\text{m}^3$	Elec	Refrig	$.75V + 4.10$ kWh/day	—	$\leq 0.607 V + 0.893$ kWh/day	—
Glass-door reach-in freezer, $0.42\text{m}^3 \leq V < 0.85 \text{m}^3$	Elec	Refrig	$.75V + 4.10$ kWh/day	—	$\leq 0.733 V - 1.00$ kWh/day	—
Glass-door reach-in freezer, $0.85 \text{m}^3 \leq V < 1.42 \text{m}^3$	Elec	Refrig	$.75V + 4.10$ kWh/day	—	$\leq 0.250 V + 13.50$ kWh/day	—
Glass-door reach-in freezer, $1.42 \text{m}^3 \leq V$	Elec	Refrig	$.75V + 4.10$ kWh/day	—	$\leq 0.450 V + 3.50$ kWh/day	—
Glass-door reach-in refrigerator, $0 \leq V < 0.42\text{m}^3$	Elec	Refrig	$.12V + 3.34$ kWh/day	—	$\leq 0.118 V + 1.382$ kWh/day	—
Glass-door reach-in refrigerator, $0.42\text{m}^3 \leq V < 0.85 \text{m}^3$	Elec	Refrig	$.12V + 3.34$ kWh/day	—	$\leq 0.140 V + 1.050$ kWh/day	—
Glass-door reach-in refrigerator, $0.85 \text{m}^3 \leq V < 1.42 \text{m}^3$	Elec	Refrig	$.12V + 3.34$ kWh/day	—	$\leq 0.088 V + 2.625$ kWh/day	—
Glass-door reach-in	Elec	Refrig	$.12V + 3.34$ kWh/day	—	$\leq 0.110 V + 1.500$	—

refrigerator, $1.42 \text{ m}^3 \leq V$ m^3					kWh/day	
Solid-door reach-in freezer, $0 \leq V$ $< 0.42 \text{ m}^3$	Elec	Refrig	$0.4V + 1.38$ kWh/day	—	$\leq 0.250 V +$ 1.25 kWh/day	—
Solid-door reach-in freezer, $0.42 \text{ m}^3 \leq V <$ 0.85 m^3	Elec	Refrig	$0.4V + 1.38$ kWh/day	—	$\leq 0.400 V -$ 1.000 kWh/day	—
Solid-door reach-in freezer, 0.85 $\text{m}^3 \leq V < 1.42$ m^3	Elec	Refrig	$0.4V + 1.38$ kWh/day	—	$\leq 0.163 V +$ 6.125 kWh/day	—
Solid-door reach-in freezer, 1.42 $\text{m}^3 \leq V \text{ m}^3$	Elec	Refrig	$0.4V + 1.38$ kWh/day	—	$\leq 0.158 V +$ 6.333 kWh/day	—
Solid-door reach-in refrigerator, 0 $\leq V < 0.42 \text{ m}^3$	Elec	Refrig	$.1V + 2.04$ kWh/day	—	$\leq 0.089 V +$ 1.411 kWh/day	—
Solid-door reach-in refrigerator, $0.42 \text{ m}^3 \leq V <$ 0.85 m^3	Elec	Refrig	$.1V + 2.04$ kWh/day	—	$\leq 0.037 V +$ 2.200 kWh/day	—
Solid-door reach-in refrigerator, $0.85 \text{ m}^3 \leq V <$ 1.42 m^3	Elec	Refrig	$.1V + 2.04$ kWh/day	—	$\leq 0.056 V +$ 1.635 kWh/day	—
Solid-door reach-in refrigerator, $1.42 \text{ m}^3 \leq V$ m^3	El C	Refrig	$.1V + 2.04$ kWh/day	—	$\leq 0.060 V +$ 1.416 kWh/day	—
Clothes washer	Gas	Sanitati on	1.72 MEF		2.00 MEF	
Door-type dish machine, high temp	Elec	Sanitati on	Na	1.0 kW	—	.70 kW
Door-type dish machine, low temp	Elec	Sanitati on	—	0.6 kW	—	0.6 kW
Multitank rack conveyor dish machine,	Elec	Sanitati on	—	2.6 kW	—	2.0 kW

high temp						
Multitank rack conveyor dish machine, low temp	Elec	Sanitation	—	2.0 kW	—	2.0 kW
Single-tank rack conveyor dish machine, high temp	Elec	Sanitation	—	2.0 kW	—	1.5 kW
Single-tank rack conveyor dish machine, low temp	Elec	Sanitation	—	1.6 kW	—	1.5 kW
Undercounter dish machine, high temp	Elec	Sanitation	—	0.9 kW	—	0.5 kW
Undercounter dish machine, low temp	Elec	Sanitation	—	0.5 kW	—	0.5 kW

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ASTM F2093 Standard Test Method for Performance of Rack Ovens

ASTM F2140 Standard Test Method for Performance of Hot Food Holding Cabinets

ASTM F2144 Standard Test Method for Performance of Large Open Vat Fryers

ASTM F2324 Standard Test Method for Preinse Spray Valves

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ARI 810-2007: Performance Rating of Automatic Commercial Ice Makers

ANSI/ASHRAE Standard 72–2005: Method of Testing Commercial Refrigerators and Freezers with temperature setpoints at 38°F (3°C) for medium-temp refrigerators, 0°F (-18°C) for low-temp freezers, and -15°F (-26°C) for ice cream freezers.

Table 2. Supermarket refrigeration prescriptive measures and baseline for energy cost budget

Item	Attribute	Prescriptive measure	Baseline
Evaporator	Evaporator fan speed control	Variable-speed evaporator fan	Constant volume, constant operation
	Evaporator design approach temperature	10°F (-12°C)	10°F (-12°C)
Condenser	Air-cooled condenser fan speed control	Variable-speed condenser fan (electronically commutated motors if single phase and less than 1 hp)	Cycling one-speed fan
	Air-cooled condenser design approach	Floating head pressure, min of 70°F (21°C), 5°F (-15°C) drybulb offset	10°F to 15°F (-12°C to -9°C) depending on suction temperature
	Air-cooled condenser fan power	80 Btu/Watt-hr (84.4 kJ/W-hr) at 10°F (-12°C) approach temperature	53 Btu/Watt-hr (55.9 kJ/W-hr) at 10°F (-12°C) approach temperature
	Evaporative condenser fan speed control	Variable-speed condenser fan (electronically commutated motors if single phase and less than 1 hp)	Cycling one speed fan
	Evaporative condenser design approach temperature	Floating head pressure, min of 70°F (21°C), 9°F (-13°C) wetbulb offset	18°F (-13°C) to 25°F (-4°C) based on design wetbulb temperature
	Evaporative condenser fan and pump power	400 Btu/Watt-hr (422.1 kJ/W-hr) at 100°F (38°C) saturated condensing temperature and 70°F (21°C) wetbulb temperature	330 Btu/Watt-hr (348.3 kJ/W-hr) at 100°F (38°C) saturated condensing temperature and 70°F (21°C) wetbulb temperature
Refrigeration system	Suction pressure control	Not addressed	Not addressed
	Condensing temperature control	85°F (30°C), minimum condensing temperature, fixed setpoint	85°F (30°C) minimum condensing temperature, fixed setpoint
	Defrost control	No electrical defrost, hot gas defrost only	Not addressed
Compressor	Compressor capacity modulation	Variable-speed drive trim compressor	Slide valves on screw compressors, multiple compressor racks on reciprocating compressor plants

Table 3. Walk-in coolers and freezers prescriptive measures and baseline for energy cost budget

Item	Attribute	Prescriptive measure	Baseline
Envelope	Freezer insulation	R-46	R-36

	Cooler insulation	R-36	R-20
	Automatic closer doors	Yes	No
	High-efficiency low- or no-heat reach-in doors	40W/ft (130W/m) of door frame (low temperature), 17W/ft (55W/m) of door frame (medium temperature)	40W/ft (130W/m) of door frame (low temperature), 17W/ft (55W/m) of door frame (medium temperature)
Evaporator	Evaporator fan motor and control	Shaded pole and split phase motors prohibited; use PSC or EMC motors	Constant-speed fan
	Hot gas defrost	No electric defrosting.	Electric defrosting
Condenser	Air-cooled condenser fan motor and control	Shaded pole and split phase motors prohibited; use PSC or EMC motors; add condenser fan controllers	Cycling one-speed fan
	Air Cooled condenser design approach	Floating head pressure controls or ambient subcooling	10°F (-12°C) to 15°F (-9°C) dependent on suction temperature
Lighting	Lighting power density (W/sq.ft.)	0.6 W/sq.ft. (6.5 W/sq. meter)	0.6 W/sq.ft. (6.5 W/sq. meter)

Table 4. Commercial kitchen ventilation prescriptive measures and baseline for energy cost budget

Strategies	Prescriptive measure	Baseline
Make-up air strategies	Dedicated make-up air system	Transfer air through dining area
Exhaust rate control	Demand control package	Constant volume