

Model Green Design Checklist - Resource Guide

This Resource Guide is intended to be used alongside the Green Design Checklist. It provides definitions to many of the concepts presented in the Checklist and photos to help identify each topic. Links to sources for these topics are provided on the last page of the guide.

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Adaptive Reuse is the repurposing of old or historic buildings for uses other than their original intended use.



Bio-swales are vegetated, mulched, or xeriscaped channels that provide treatment and retention as they move stormwater from one place to another. Vegetated swales slow, infiltrate, and filter stormwater flows. As linear features, vegetated swales are particularly suitable along streets and parking lots.



Community Supported Agriculture, or CSA, is a type of farm operation whereby a group of people pledge to support that farm operation in advance of the growing season. In return, they receive shares of the farm's bounty throughout the season.

Complete Streets is the concept that all roadways are designed, built, and maintained for all travelers. Streets do not exist only for single-occupancy motor vehicles. Other roadway users – pedestrians, bicyclists, and transit users of all ages and abilities – must be considered.



District Energy Systems produce steam, hot water, or chilled water at a central plant. Then they pipe the energy to buildings in the district for space heating, domestic water heating, and air conditioning. The scale of district energy systems enables higher efficiencies to be obtained through the centralized system. District energy systems often operate with combined heat and power (CHP) and waste heat recovery technologies.

Green Building is any building that uses “green technology” to reduce its impact on the land and may include the following:

- *Building orientation and design* to maximize natural light and shading for energy efficiency.
- *Water efficiency systems* to reduce water use and increase water reuse. This may include systems for indoor water efficiency as well as outdoor irrigation needs and wastewater collection and treatment.
- *Energy efficiency systems* to reduce energy use. These may include passive systems (such as building orientation) or active systems such as solar panels. ENERGY STAR is a U.S. Environmental Protection Agency voluntary program that helps businesses and individuals save money and protect our climate through superior energy efficiency.



LEED Certified refers to a building that has been certified under the US Green Building Council's Leadership in Energy and Environmental Design (LEED™) rating system.

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Green Infrastructure refers to the patchwork of natural areas that provides habitat, flood protection, cleaner air, and cleaner water. At the scale of a neighborhood or site, green infrastructure refers to stormwater management systems that mimic nature by soaking up and storing water using vegetation, soils, and natural processes.

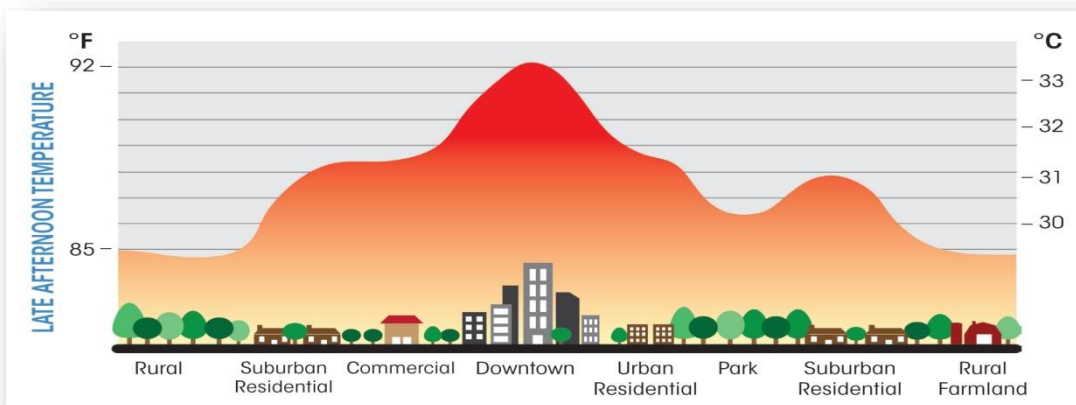


Green Roofs are covered with growing media and vegetation that enable rainfall infiltration and evapotranspiration of stored water. Green roofs are particularly cost effective in dense urban areas where land values are high and on large industrial or office buildings where stormwater management costs may be high.

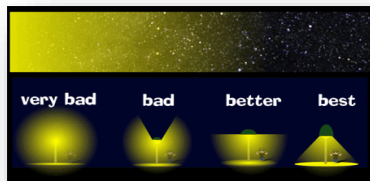


Green Walls / Living Walls are composed of pre-vegetated panels, modules, planted blankets or bags that are affixed to a structural wall or free-standing frame. These modules can be made of plastic, expanded polystyrene, synthetic fabric, clay, and concrete and support a greater diversity and density of plant species (e.g. a lush mixture of groundcovers, ferns, low shrubs, perennial flowers, and edible plants) than green façades. To date, many living wall installations can be found in both tropical and temperate locations. Living walls can perform well in full sun, shade and interior applications.

Heat Island Effect describes developed areas that are hotter than nearby rural areas due to heat trapped on impervious surfaces such as blacktop and rooftops. The annual mean air temperature of a city with 1 million people or more can be 1.8–5.4°F (1–3°C) warmer than its surroundings. In the evening, the difference can be as high as 22°F (12°C). Heat islands can affect communities by increasing summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and water quality.



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Integrated Pest Management (IPM) is an environmentally-sensitive approach to pest management that relies on understanding the life cycles of pests and their interaction with the environment in combination with available pest control methods. This approach offers the most economical means with the least possible hazard to people, property, and the environment. The IPM approach can be applied to both agricultural and non-agricultural settings, such as the home, garden, and workplace.

Light Pollution is an excessive or obtrusive light and an unwanted consequence of outdoor lighting and includes such effects as skyglow,



Permeable Pavement is a paved surface that infiltrates, treats, and/or stores rainwater where it falls. Permeable pavements may be constructed from pervious concrete, porous asphalt, permeable interlocking pavers, and several other materials. These pavements are particularly cost effective where land values are high and where flooding or icing is a problem



Rain Gardens (also known as bioretention or bioinfiltration cells) are shallow, vegetated basins that collect and absorb runoff from rooftops, sidewalks, and streets. Rain gardens mimic natural hydrology by infiltrating and evapotranspiring runoff. Rain gardens are versatile features that can be installed in almost any unpaved space.

Regenerative Design and restorative buildings are integrated into their surrounding environment in order to restore a site's natural hydrology or provide for lost wildlife and plant habitat. They not only produce all of their own energy, capture and treat all water, but they are also designed and operated to have a net-positive impact on the environment, including repairing surrounding ecosystems. As such, the design process requires an integrated design team that offers a comprehensive design that includes green technologies.

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Sources:

Adaptive Reuse	http://architecture.about.com/od/preservation/g/reuse.htm
Bioswales	http://water.epa.gov/infrastructure/greeninfrastructure/gi_what.cfm#bioswales
CSA	http://jerseyfresh.nj.gov/find/communitysupportedag.html
Complete Streets	http://www.sustainablejersey.com/actions-certification/actions/#open/action/42
District Energy	http://energy.gov/eere/slsc/district-energy-technologies
Green Building	http://www.usgbc.org/leed http://greenmanual.rutgers.edu/newcommercial/strategies/buildingorientation.pdf http://www.epa.gov/greeningepa/water/requirements.htm ; https://www.energystar.gov/
Green Infrastructure	http://water.epa.gov/infrastructure/greeninfrastructure/gi_what.cfm
Green Roofs	http://water.epa.gov/infrastructure/greeninfrastructure/gi_what.cfm#greenroofs
Green Walls / Living Walls	http://www.greenroofs.org/index.php/about/aboutgreenwalls
Heat Island Effect	http://www.epa.gov/heatisland/ http://www.southwesturbanhydrology.com/urbanization-concerns/urban-heat-island-effect/
Integrated Pest Management	http://www.epa.gov/opp00001/factsheets/ipm.htm http://www.sustainablejersey.com/actions-certification/actions/#open/action/80
Light Pollution Control	http://greenmanual.rutgers.edu/newcommercial/strategies/downlighting.php
Permeable Pavement	http://water.epa.gov/infrastructure/greeninfrastructure/gi_what.cfm#permeablepavements
Rain Garden	http://water.epa.gov/infrastructure/greeninfrastructure/gi_what.cfm#raingardens
Regenerative / Restorative Design	http://www.wbdg.org/resources/livingbuildings.php

Photo Credits:

Adaptive Reuse – www.urbanghostsmedia.com

Bio-swale – www.water.epa.gov

CSA – www.jerseyfresh.nj.gov

Complete Street – www.inhabitat.com

LEED logo – www.usgbc.org/leed

Green Infrastructure - www.hpigreen.com

Green Roof – www.science.howstuffworks.com

Living Wall – www.greenovergrey.com

Heat Island – www.c3headlines.com

Light Pollution – www.penny4nasa.org

Permeable Pavement – www.water.epa.gov

Rain garden – www.water.epa.gov