

LEED GREEN ASSOCIATE STUDY CARDS

408+ Questions and Answers
Study Cards!



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What is ASHRAE 62.1 related to?



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ASHRAE 62.1 is related to ventilation, controlling air contaminant levels, humidity, and temperature within a space.



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What is ASHRAE 55 related to?



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ASHRAE 55 is related to the comfort criteria of specific design conditions that take into account temperature, humidity, air speed, outdoor temperature, outdoor humidity, seasonal clothing, and expected activity.

These all relates to occupant thermal comfort.



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What is ASHRAE 90.1 related to?



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ASHRAE 90.1 relates to HVAC systems. HVAC systems are defined as: equipment, distribution systems, and terminals that provide the processes of heating, ventilating, or air- conditioning.



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What does ASHRAE stand for?



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American Society of Heating,
Refrigerating and Air-Conditioning
Engineers



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What ASHRAE standards would be used for the Energy and Atmosphere category?



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ASHRAE 90.1



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What ASHRAE standards would be used for the Indoor Environmental Quality category?



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ASHRAE 62.1 is related to ventilation and ASHRAE 55 is related to the thermal comfort criteria of occupants



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What standard addresses the thermal comfort of building occupants?



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ASHRAE 55



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What LEED category would SMACNA standards be used for?



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Indoor Environmental Quality (IEQ)



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What LEED category would the Green-e standard be used for?



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Energy and Atmosphere (EA)



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What LEED categories contain standards related to VOC emissions?



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Materials & Resources (MR) and Indoor Environmental Quality (IEQ)



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What is a MERV rating?



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Minimum Efficiency Reporting Value (MERV). MERV ratings are used to rate the ability of an air conditioning filter to remove dust from the air as it passes through the filter. MERV ratings range from 1 (least efficient) - 16 (most efficient)



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What is the EPC Act of 1992?



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The Energy Policy Act of 1992 (EPA 1992) covers many products and services related to energy. It also sets standards for toilets and other water fixtures in both commercial and residential models.



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What is ISO 14021?



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The ISO 14021 series standards, Environmental Labels and Declaration, are communication tools that convey information on environmental aspects of a product or service to the market. This standard is used for recycled materials to label their pre and/or post-consumer content.



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What is IESNA?



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Illuminating Engineering Society of North America. Publisher of lighting design and illumination standards.



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What is Green-e?



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Green-e is a program established to promote green electricity products and provide consumers with a nationally recognized method to identify those products.



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What does an ENERGY STAR rating refer to?



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The ENERGY STAR rating is a measure of a building's energy performance compared with that of similar buildings, as determined by ENERGY STAR Portfolio Manager. A score of 50 represents average building performance.



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What does Certification by FOREST STEWARDSHIP COUNCIL mean?



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Certification means forest managers have adopted environmentally and socially responsible forest management practices. And certification allows companies to manufacture and sell products made from sustainable wood.



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What is Chain-of-Custody (CoC) Certification?



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Chain of Custody refers to chronological documentation or paper trail. CoC is important in LEED when dealing with certified wood. Companies that process, manufacture, and/or sell products made of certified wood can earn CoC certification by having an audit done of their documentation. This certification shows the FSC that the name and logo are being used correctly.



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What are CREDIT INTERPRETATION RULINGS (CIR)?



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They are designed for technical and administrative guidance for MPR, Prerequisites, and Credits.

They may be submitted any time after the project is registered and must be completed using LEED Online. Do not write as a letter.

Include only the inquiry and essential information. CIRs can contain maximum 600 words. The CIR may NOT include attachments, cut-sheets, plans or drawings.



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CIRs can be used for what purpose(s)?



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CIRs are use to ask one clear and concise question for technical and administrative guidance on MPRs, Prerequisites, or Credits.



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For multiple building
developments who determines
the LEED PROJECT BOUNDARY?



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The project team.



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What is LEED Online?



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LEED online is the primary resource
for managing the LEED
documentation process.



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What are some of the features of LEED Online?



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Through LEED Online, project teams can manage project details, complete documentation requirements for LEED credits and prerequisites, upload supporting files, submit applications for review, receive reviewer feedback, and ultimately earn LEED certification



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What is the purpose of a LEED SCORECARD?



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The LEED Scorecard is to assist in determining the Total Project Score and achievable Credits at the inception of a LEED Project.



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**Where can the LEED Score Card
be found?**



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USGBC's website



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**What are the LEED Reference
Guides used for?**



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**Strategies, case studies, and
documentation requirements for
each credit and prerequisite in a
rating system.**



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**What do the LEED Reference
Guides contain?**



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**A user's manual that guides a LEED
project from registration to
certification of the design and
construction of a project.**



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Who can access LEED Online?



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**Anyone assigned to a project by the
project administrator**



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What organization is responsible for LEED project registration?



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GBCI



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What is a LEED intent?



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Identifies the main sustainability goal or benefit of the prerequisite or credit. (USGBC)



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**What does a PREREQUISITE
represent?**



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**A prerequisite represents the key
criteria that define green building
performance. They must be
completed for a project to earn
certification.**



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**Why do projects need to meet
prerequisites?**



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**Prerequisites represent the key
criteria that define green building
performance.**



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Why do projects need to meet prerequisites?



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Prerequisites represent the key criteria that define green building performance.



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What are the different certification levels LEED projects can earn?



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- Certified
- Silver
- Gold
- Platinum



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How are CIRs submitted?



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Credit interpretation requests must be submitted through LEED Online.



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What factors influence the number of points a credit can earn (credit weighting)?



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How well the credit address environmental and health concerns.



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What is environmental sustainability?



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**Long-term maintenance of ecosystem components and functions for future generations.
(EPA)**



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What is considered a construction HARD COST?



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Construction hard cost are considered to be CSI MasterFormat 2004 Edition Divisions 03-10, 31 (Section 31.60.00 Foundations) and 32 (Sections 32.10.00 Paving, 32.30.00 Site Improvements, and 32.90.00 Planting)



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What is a construction hard cost?



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By far the largest portion of the expenses in a construction budget, the hard costs are mostly comprised of the actual construction costs incurred to build the project. Examples of hard costs include masonry, wood, steel, carpet, tile, mechanical systems, roofing.



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What are some examples of construction hard costs?



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Cement, steel, drywall, wood, land



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What are CONSTRUCTION SOFT COSTS?



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Soft costs are expense items that are not considered direct construction costs, such as legal fees and building permits.



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What is meant by LIFE-CYCLE ASSESSMENT?



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A life-cycle assessment is an analysis of the environmental aspects and potential impacts associated with a product, process, or service.



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What are some examples of construction SOFT COSTS?



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Examples include architectural, engineering, financing, and legal fees.



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What factors dictate how much a project's certification fee will cost?



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The rating system under which the project is registered, the size of the project in square feet, and the date on which the project was registered



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LEED promotes what type of approach to sustainability?



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A whole building approach



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What has the USGBC adapted to establish metrics and rating systems to measure building performance?



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triple bottom line



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When can a LEED project be eligible to display the LEED plaque and other marketing material?



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LEED projects are eligible following the acceptance of the final certification review.



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What does each category in the LEED rating system consist of?



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Prerequisites and credits



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What are the names of the
LEED rating systems?



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Building Design and Construction (BD+C)
Interior Design and Construction (ID+C)
Operations and Maintenance (O&M)
Neighbourhood Development (ND)
-Homes



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What is LEED?



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An internationally recognised green building certification system provides third-party verification that a building or community was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO2 emissions reduction, indoor environmental quality, stewardship of resources, and sensitivity to their impacts. (USGBC)



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What does LEED stand for?



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**The Leadership in Energy and
Environmental Design (LEED) Green
Building Rating System**



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**What parts of the LEED rating
system are optional?**



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**Credits are optional; prerequisites
are required.**



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How is LEED developed?



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LEED Rating Systems are developed through an open, consensus-based process led by LEED volunteer committees.



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What is the total number of points a LEED project can earn?



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110 possible points.



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What are the different points
and certification levels for LEED
certification?



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Certified, 40-49 points
Silver, 50-59 points
Gold, 60-79 points
Platinum, 80+ points



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What is SMACNA used for?



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Sheet Metal and Air Conditioning
Contractors National Association
(SMACNA) guidelines play a key role in
construction activity pollution prevention.
The standard provides an overview of air
pollutants associated with construction,
control measures, construction process
management, and quality control, among
other things.



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What is Green Seal used for?



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Green Seal is an independent nonprofit organisation that identifies and promotes products that are environmentally preferable. Several of its standards measure VOC limits in products.



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What types of products are related to the Green Seal standard?



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Paints and primers



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What LEED credit category has credits that reference the Green Seal standard?



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Indoor Environmental Quality (IEQ)



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What are LEED credit templates?



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The documentation forms used to prove the requirements of a prerequisite or credit have been met
These will be filled out in LEED Online.



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What is a preliminary rating?



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The target score the project team will attempt to achieve. The final score, based on the number of points awarded, may be more or less than the preliminary rating.



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Can a project earn **MULTIPLE** certifications?



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Yes. Projects can earn more than one LEED certification, depending on the rating system.



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What are some ways the **TRIPLE
BOTTOM LINE** is
referred to?



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Ecology, environment, and
economics
People, profit, and planet
Economics, ecology, and social
equity



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What is the triple bottom line?



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A change from being primarily
financially driven to considering
economics, environment, and social
responsibility



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What is a LEED credit?



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Part of the LEED Rating System.
Projects earn points by meeting the
requirements for credits in order to
achieve building certification.



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What CREDIT CATEGORIES are
shared among most LEED
rating systems?



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Location and transportation,
sustainable sites, water efficiency,
energy and atmosphere, materials
and resources, indoor
environmental quality,
Innovation



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What is a GREEN SCORE?



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A "green score" measures the "greenness" of an automobile.



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What is the highest LEED
CERTIFICATION LEVEL?



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Platinum



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What is a LEED category?



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A subset of the LEED Rating System
Each rating system has several
green building categories.



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What is a CIR?



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A credit interpretation ruling (CIR)
is a process for project applicants
seeking technical and
administrative guidance on how
LEED credits apply to their projects
and vice versa.



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What is the USGBC?



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**A non-profit trade organisation
that promotes sustainability in how
buildings are designed, built, and
operated**



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**What does sustainability
mean?**



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**Sustainability means meeting the
needs of the present without
compromising the ability of future
generations to meet their own
needs.**



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Who develops LEED?



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Volunteer committees



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What types of projects would
LEED BD+C be used for?



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New construction and major
renovations



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**What types of projects would
LEED ID+C be used for?**



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Interior fit-outs.



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**What types of projects would
LEED BD+C: Core and Shell be
used for?**



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**For designers, builders, developers,
and new building owners who want to
address sustainable design for new
core and shell construction. Covers
base building elements such as
structure, envelope, and the HVAC
system.**



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What types of projects would
LEED for Homes be used for?



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High-performance green homes



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What types of projects would
LEED O+M be used for?



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Existing buildings that are
undergoing improvement work or
little to no construction



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What types of projects would
LEED for Neighbourhood
Development be used for?



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New land development projects or
redevelopment projects containing
residential uses, nonresidential
uses, or a mix



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What types of projects would
LEED BD+C schools be used for?



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The design and construction of K–12
schools Based on the LEED for New
Construction rating system, it
addresses issues such as classroom
acoustics, master planning, mould
prevention, and environmental site
assessment.



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What types of projects would
LEED BD+C: Retail be used for?



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the different types of spaces that
retailers need for their distinctive
product lines.



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What types of projects would
LEED BD+C: Healthcare be used
for?



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Sustainable planning, design, and
construction for high-performance
healthcare facilities



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True or false: Can a product
earn LEED certification?



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FALSE



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What LEED category can earn
points for low-emitting
materials?



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Indoor Environmental Quality (IEQ)



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What is life cycle costing?



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**evaluates a product's economic
performance**



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What is life cycle assessment?



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**The investigation and valuation of
the environmental impacts of a
given product or service caused or
necessitated by its existence**



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**When should life cycle
assessment be used?**



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**When considering the product's
long term environmental impact
over its lifetime.**



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**Why should you use life cycle
costing?**



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**When there exist project
alternatives that fulfil the same
performance requirements but
differ with respect to initial costs
and operating costs. The
comparison can help maximise net
savings.**



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True or False: LEED projects are more expensive than traditional projects.



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FALSE Generally, this is false, but sometimes they cost more or less depending on the situation. This point is often argued among the building community.



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True or False: Using an integrative process takes longer than traditional projects.



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FALSE



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What is value engineering?



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Analysis of the requirements of a project for the purpose of achieving the essential functions at the lowest total costs



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What is pervious pavement used for?



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Pervious pavement is used to reduce runoff by allowing runoff to filter through the pervious material.



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What is solar reflectance?



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It is a measure of the ability of a surface material to reflect sunlight in the forms of visible, infrared, and ultraviolet wavelengths, which is measured on a scale of 0 to 1. Black paint has an albedo of 0, and white paint has an albedo of 1.



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What is the Heat Island effect?



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The heat island effect is a situation where the absorption of heat by hardscapes, buildings, and dark materials then radiates to surrounding areas. The term describes the event where radiant air and surface temperatures in urban areas are higher than those in rural or suburban areas nearby.



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What can cause the heat island effect?



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dark surfaces that absorb heat
(black roofs, asphalt)
- vehicle exhaust
- air-conditioners
reduced air flow from tall buildings
and narrow streets



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What is the Solar Reflectance Index (SRI)?



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A measure of the constructed surface's ability to stay cool in the sun by reflecting solar radiation and emitting thermal radiation. It is defined such that a standard black surface (initial solar reflectance 0.05 and initial thermal emittance 0.90) has an initial SRI of 0, and a standard white surface (initial solar reflectance 0.80 and initial thermal emittance 0.90) has an initial SRI of 100.



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What are the benefits of reducing heat islands?



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Reducing heat islands reduces air temperatures, which would reduce the need to cool that air in buildings. Thus, energy consumption is lowered.



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What are some types of diverse uses?



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Bank, Place of Worship,
Convenience Grocery, Day Care
Centre, Cleaners, Fire Station,
Beauty Salon, Hardware, Laundry,
Library, Medical or Dental Office,
Senior Care Facility, Park, Pharmacy,
Post Office, Restaurant, School,
Supermarket, Theatre, Community



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What are some ways to reduce automobile parking?



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Select a site near mass transit. Promote carpooling. Install less parking. Install bicycle racks.



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What are ways to reduce the number of single passenger vehicles travelling to a project site?



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Locate the site near mass transit, promote carpooling, reduce parking spaces, and install bicycle racks.



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What is a BROWNFIELD?



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real property whose use may be complicated by the presence or possible presence of a hazardous substance, pollutant, or contaminant.



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What do reflective materials help with?



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reducing the heat island effect.



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What term defines paving systems that are open and allow moisture to soak into the ground below?



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Pervious. There are many types of pervious paving systems.



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What minimum Green Score is required by LEED for a vehicle to qualify as a green vehicle?



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A minimum Green Score of 45 is required on the American Council for an Energy Efficient Economy (ACEEE) annual vehicle rating guide.



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What do IMPERVIOUS surfaces promote?



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It promotes water runoff instead of infiltration into the subsurface. This term is mostly used when discussing hardscape surfaces.



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By what amount can HEAT ISLANDS elevate temperatures in urban areas?



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10 degrees F or more



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Heat islands impact what LEED category(s)?



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Sustainable Sites (SS) and Energy and Atmosphere (EA). Heat islands increase temperatures, resulting in the need for more air conditioning (and more energy to cool the air).



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What strategies are employed to reduce the heat islands?



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Strategies include using materials with higher solar reflectance properties in the site design, providing shaded areas, reducing hardscape surfaces, and installing vegetated roofs.



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What generally defines OPEN
SPACE area?



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Local zoning requirements



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What does the BUILDING
FOOTPRINT consists of?



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The area on a project site used by
the building structure and defined
by the perimeter of the building
plan



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What is light pollution?



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Waste light from building sites that produces glare is directed upward to the sky or is directed off the site.

Waste light does not increase nighttime safety, utility, or security and needlessly consumes energy.



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What is the benefit of locating a project near mass transit?



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Reduced automobile use, which reduces automobile emissions.



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What is a Greenfield site?



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a site not previously developed or graded that could support open space, habitat, or agriculture.



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What are examples of impervious surfaces?



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Parking lots, roads, sidewalks, and plazas



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How is development density
calculated?



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By drawing a radius from the
project building,



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What is the purpose of locating
a project in an area with
diverse uses?



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Locating near diverse uses promotes
walking, which helps limit urban
sprawl and reduces automobile use.



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What is a DIVERSE USE?



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A distinct, officially recognised business, nonprofit, civic, religious, or governmental organisation; or dwelling units (residential use) or offices (commercial office use). It has a stationary postal address and is publicly available. It does not include automated facilities such as ATMs, vending machines, and touchscreens.



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How are diverse uses identified
for a project?



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by walking distance from the project
site.



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What helps reduce the heat island effect?



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light-coloured paving materials
Green roofs
Cool roofs Shading
Underground parking



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What is PEDESTRIAN ACCESS?



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Pedestrian access allows
pedestrians to walk between areas
without interference from walls,
highways, or other barriers.



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What is a PREVIOUSLY
DEVELOPED site?



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A site that was previously built on
has been graded, or it has
contained a parking lot, roadway,
or other structure.



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What is the development
footprint?



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The development footprint includes
all areas of a site affected by the
development or project site activity.
Include hardscapes, parking lots,
access roads, non-building
facilities, and the building itself.



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What is an ALTERNATIVE fuel vehicle?



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An alternative fueled vehicle uses low-polluting, non-gasoline fuels such as electricity, hydrogen, propane, compressed natural gas, liquid natural gas, methanol, and ethanol.



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What are some examples of mass transit?



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Buses Ferries Rail lines shuttles



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What is Open Space?



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Open space is undeveloped land, but it differs from greenfield sites since open space could have been developed in the past and restored to an undeveloped state.



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What is a FULL-TIME EQUIVALENT (FTE)?



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Is a regular building occupant who spends 40 hours per week in the project building. Part-time or overtime employees have FTE values based on their hours per week divided by 40. Multiple shifts are included or excluded depending on the intent and requirements of the credit.



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How can potable water use be reduced for irrigation?



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Use graywater or rainwater for watering.
Use drip irrigation.
Install native and adaptive plants.



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What two measurements are used to calculate a percent reduction in water use?



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A baseline design case and an installed design case



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What are transient occupants?



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Building visitors and other part-time or occasional occupants, such as students, volunteers, visitors, etc.



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What variables are used in determining FTE calculations?



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The type of building occupant (full-time, part-time, or transient) and the hours worked per week



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What does runoff contribute?



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Soil erosion and sedimentation of
local waterways



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HARVESTED RAINWATER
can be substituted for what
types of potable water?



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landscape irrigation, fire
suppression, toilet and urinal
flushing, and custodial uses.



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What does a VEGETATED roof consist of?



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Vegetation, a growing medium, filter fabric, drainage, and a waterproof membrane.



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What does GPF stand for?



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Gallons per flush The unit of measurement for flush fixtures (urinals, water closets)



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What is a bioswale?



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Landscape elements are designed to remove silt and pollution from surface runoff water. They consist of a swale drainage course with gently sloped sides and are filled with vegetation, compost, and/or riprap.



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What does "GPM" stand for?



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Gallons per minute The unit of measurement for flow fixtures (faucets, showers)



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What is sedimentation?



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When runoff deposits sediment into waterways, it leads to a decline in water quality by blocking sunlight.



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What is graywater?



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Domestic wastewater is composed of washwater from kitchen, bathroom, and laundry sinks, tubs, and washers. (EPA)



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What codes define graywater?



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Local and state authorities, along with the Uniform Plumbing Code (UPC) in its Appendix G, Grey Water Systems for Single-Family Dwellings, and the International Plumbing Code (IPC) in its Appendix C, Grey Water Recycling Systems,



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Irrigation impacts what LEED categories?



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Water Efficiency (WE) and Energy and Atmosphere (EA)



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What is blackwater?



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Blackwater is wastewater from toilets and urinals. Wastewater from kitchen sinks (perhaps differentiated by the use of a garbage disposal), showers, or bathtubs is considered blackwater under some state or local codes.



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What is Xeroscaping?



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Xeroscaping is a landscaping method that makes routine irrigation unnecessary. It uses drought-adaptive and low-water plants as well as soil amendments such as compost and mulches to reduce evaporation.



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Water saving fixtures can
reduce water use in a project by
what amount?



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30% (USGBC)



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What is drip irrigation?



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Drip irrigation delivers water at low pressure through buried mains and submains. Water is distributed to the soil through a network of perforated tubes or emitters. Drip irrigation is much more efficient than traditional sprinkler systems.



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What are noxious weeds?



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They are an invasive species of plant that inhibits the cultivation and growth of local native or adaptive plants.



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What are NATIVE or INDIGENOUS plants?



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They are adapted to a given area during a defined time period and are not invasive. In North America, the term often refers to plants growing in a region prior to the time of settlement by people of European descent.



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What are considered invading plants?



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They are nonnative to the ecosystem and likely to cause harm once introduced. These species are characteristically adaptable and aggressive, have a high reproductive capacity, and tend to overrun the ecosystems they enter. Collectively, they are among the greatest threats to biodiversity and ecosystem stability.



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What is the definition of POTABLE WATER?



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Potable water meets or exceeds the EPA's drinking water quality standards and is approved for human consumption by the state or local authorities having jurisdiction; it may be supplied from wells or municipal water systems.



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What are some uses of nonpotable water?



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Landscape irrigation, toilet and urinal flushing, custodial purposes, and building systems



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What are some of the benefits of VEGETATED ROOFS?



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They reduce the heat island effect, retain runoff, have insulating benefits, are aesthetically pleasing, have a longer life, and require less maintenance than conventional roofs.



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What would you use the EPACT
of 1992 for?



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Measuring the baseline case water
use for the water efficiency credits.



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What are some examples of
graywater?



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Water from bathtubs, showers,
bathroom wash basins, clothes
washers, and laundry tubs Some
cases allow for kitchen sinks,
depending on the state and local
authorities.



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Reductions in potable water consumption from water efficient landscaping are attributed to what techniques?



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Choosing the correct plant species, density and microclimate factors, irrigation efficiency, use of captured rainwater, use of recycled wastewater, and use of water treated and conveyed by a public agency specifically for nonpotable uses or absolutely no potable water use



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What are some ways to capture rainwater to prevent runoff?



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Rain gardens Green roofs Retention pond Bioretention pond



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What factors are used to establish a baseline water demand when calculating water efficiency in commercial or residential applications?



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Calculations are based on estimated occupancy usage and must include only the following fixtures and fixture fittings (as applicable to the project scope): water closets, urinals, lavatory faucets, showers, kitchen sink faucets, and pre-rinse spray valves.



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In LEED Water Efficiency, what environmental concerns for building use and disposal are addressed?



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Monitoring water consumption performance, reducing indoor potable water consumption, reducing water consumption to save energy and improve environmental well-being, and practising water-efficient landscaping



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Process water is used for what purpose?



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Process water is used for industrial processes such as cooling towers, boilers, and chillers. The term can also refer to water used in operational processes, such as dishwashing, clothes washing, and ice making.



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What is an aquifer?



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An aquifer is an underground water-bearing rock formation or group of formations that supply groundwater, wells, or springs.



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Low-flow fixtures use less water
than what standard?



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EPA Act 1992



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What are some examples of
applications that use
automatic fixture sensors?



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Lavatories, sinks, water closets, and
urinals



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Wastewater from toilets is
what type of water?



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Blackwater



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Wastewater from kitchen sinks
is what type of water?



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Blackwater



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Wastewater from faucets is
what type of water?



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Graywater



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What is WaterSense?



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WaterSense is a partnership
programme sponsored by the EPA
that helps consumers identify
water-efficient products and
programmes.



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What type of water is
DRINKING WATER?



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Potable water



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What are native plants?



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Plants that are adapted to local conditions are easier to grow and maintain. This low-maintenance approach means savings in both time and money. Once established, native plants can better withstand variations in the local climate, such as droughts and freezes.



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What are adaptive plants?



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Non-native plants that use less fertiliser, pesticides, and water in a given landscape. These plants have adapted to the local climate and are not considered invasive plants or weeds.



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What is irrigation efficiency?



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The percentage of water delivered by irrigation equipment that is actually used for irrigation and does not evaporate, blow away, or fall on hardscape. (USGBC). Drip irrigation has an efficiency of 90%, while conventional overhead sprinklers have an efficiency of 65%.



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**What is the baseline flow rate
of a faucet?**



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2.2 gpm (gallons per minute)



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**What is the baseline flush rate
of a urinal?**



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1.0 gpf (gallons per flush)



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**What is the baseline flush rate
of a water closet?**



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1.6 gpf (gallons per flush)



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**How much water does a
waterless urinal consume?**



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ZERO



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What type of water is municipally supplied reclaimed or recycled water?



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Nonpotable water



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The water use of a faucet is measured using what units?



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Gallons per minute (gpm)



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The water use of a water closet
is measured in what units?



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Gallons per flush (gpf)



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What are the benefits of native
plants?



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Native plants require less water, less
maintenance, less fertiliser, and are
more pest resistant.



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What is RECLAIMED WATER?



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Reclaimed water is water that has been treated for reuse.



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What types of plants does LEED recommend using in landscape design?



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Native and/or adaptive plants



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What is HARVESTED RAINWATER?



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Harvested rainwater is rainwater that has been collected for uses such as landscaping irrigation, toilet flushing, or other non-potable water uses.



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What are some types of flow fixtures?



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Showerhead Spray valve Lavatory faucet



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What are some types of
flushing fixtures?



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Urinal
Water closet (toilet)



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What is the baseline water
demand of a building?



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The estimated occupant usage of a
project's fixtures and fittings using
the flush and flow rates from the
EPACT 1992 standard



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What standard is used to
determine the baseline water
demand of a building?



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EPAct 1992



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What standard defines green
power?



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Green-e



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What are CFCs?



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CFC stands for chlorofluorocarbon. This is a type of hydrocarbon that is used in most types of refrigerants for building applications such as centrifugal chillers, refrigerators, and humidifiers. Most applications were installed prior to ozone concerns.



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What types of systems use CFCs?



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- Centrifugal chillers
- Refrigerators
- Humidifiers



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What are alternatives to using
refrigeration with CFCs?



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Natural ventilation
Refrigerants with lower ODP and
GWP
Natural refrigerants



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What does GWP stand for?



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Global Warming Potential



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What is lighting power density?



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**Installed lighting power per unit
area**



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**What category does lighting
power density have the
greatest impact on?**



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**Energy and Atmosphere (EA)
Reducing the lighting power density
reduces energy use.**



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What does ODP stand for?



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Ozone Depletion Potential



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What is a BASELINE BUILDING
PERFORMANCE?



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ASHRAE 90.1 defines minimum standards of design. A building's baseline building performance would be the annual energy cost for a building designed to those minimum standards.



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What is natural ventilation?



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Natural ventilation uses the natural forces of wind and buoyancy to deliver fresh air into buildings.



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What is daylighting?



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The practise of placing windows, or other transparent media, and reflective surfaces so that, during the day, natural light provides effective internal illumination.



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What standard applies to
natural ventilation?



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ASHRAE 62.1



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What type of impact do HFCs
have on the ozone layer?



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HFCs have a low impact on the
ozone layer but many HFCs have a
high Global Warming Potential
(GWP)



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What is free energy?



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Energy with low/no-cost that comes as a result of building design. Examples include daylighting, natural ventilation, or onsite solar power/wind energy.



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What is the global warming potential as it relates to refrigerants?



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A measurement of how much effect the given refrigerant will have on global warming in relation to carbon dioxide, where CO₂ has a GWP of 1. This is usually measured over a 100-year period. In this case the lower the value of GWP the better the refrigerator



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What is Ozone Depletion Potential as it relates to refrigerants?



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The potential for a single molecule of the refrigerant to destroy the Ozone Layer. The less the value of the ODP the better the refrigerant is for the ozone layer and therefore the environment.



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Is it better for a refrigerant to have a higher or lower ODP and GWP?



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Lower



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**What is fundamental
refrigerant management?**



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**A minimum threshold for refrigerant
selection. LEED requires zero use of
CFC- based refrigerants in new
based building HVAC&R systems.**



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**What is the intent of
fundamental refrigeration
management?**



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**To reduce stratospheric ozone de
Pletion**



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What variables measure a refrigerants impact on the environment?



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**Global Warming Potential (GWP)
and Ozone Depletion Potential (ODP)**



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What does air pollution cause?



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**Harm or discomfort to humans or
other living organisms, or damages
the natural environment into the
atmosphere.**



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What is a LIFE-CYCLE COST Analysis?



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Life-cycle cost analysis calculates expected future operating, maintenance, and replacement costs of designs and features used to assist owners in developing a realistic design and budget estimate.



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What is NET METERING?



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It promotes water runoff instead of infiltration into the subsurface. This term is mostly used when discussing hardscape surfaces.



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What types of power have the
greatest negative
environmental impact?



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Coal Gas
Hydropower Other fossil fuels



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What do GREENHOUSE
GASES(GHG) do to the
environment?



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Absorb and emit radiation at specific
wavelengths within the spectrum of
thermal infrared radiation emitted by
Earth's surface, clouds, and the
atmosphere itself. Increased
concentrations of greenhouse gases
are a root cause of global climate
change.



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An energy simulation model or energy model is generated for what reasons?



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Energy simulation model or energy models are used to provide the anticipated energy consumption of a building and permits a comparison of energy performance, given proposed energy efficiency measures, with the baseline.



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What is the main ASHRAE standard in which HVAC systems must adhere?



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ASHRAE 90.1



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What is an REC?



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Also known as Green tags, Renewable Energy Credits, or Tradable Renewable Certificates (TRCs), are tradable environmental commodities in the United States which represent proof that 1 megawatt-hour (MWh) of electricity was generated from an eligible renewable energy resource.



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What is radon?



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A cancer-causing radioactive gas. Radon in the ground, groundwater, or building materials enters working and living spaces and disintegrates into its decay products.



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Where can RECs be purchased?



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RECs can be purchased anywhere and are not bound by geography. They differ from actual electricity which must be purchased from a local provider.



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What is the purpose of an REC?



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A Renewable Energy Certificate is a tradable commodity that allows organizations without access to off-site green power to purchase the benefits of green power.



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Green power must be certified
by which organization for LEED
credit?



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Green-e



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When would natural ventilation
be a good design choice?



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In cooler climates where
temperatures are lower.



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What are the environmental
benefits of an REC?



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Avoid the carbon dioxide (CO₂)
emissions associated with
conventional electricity use
Reduce some types of air pollution



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What do CFCs do to the
environment?



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CFCs destroy the ozone layer.



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What is ENERGY EFFICIENCY?



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Energy efficiency is the use of technology that requires less energy to perform the same function as a conventional item. A compact fluorescent light bulb that uses less energy than an incandescent bulb to produce the same amount of light is an example of energy efficiency. The decision to replace an incandescent light bulb with a compact fluorescent is an example of energy conservation.



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What is GLOBAL WARMING?



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Global Warming refers to climate change that causes an increase in the average temperature of the lower atmosphere of the Earth.



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What are GREENHOUSE GASES?



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A gas, such as carbon dioxide or methane, which contributes to potential climate change.



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What is the most effective way to optimize energy efficiency?



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The most effective way to optimize energy efficiency is by utilizing an integrative, whole-building approach.



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What is embodied energy?



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The available energy that was used in the work of making a product. Embodied energy is an accounting methodology which aims to find the sum total of the energy necessary for an entire product lifecycle. This lifecycle includes raw material extraction, transport, manufacture, assembly, installation, disassembly, deconstruction and/or decomposition.



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What is POST CONSUMER RECYCLED content?



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It is the percentage of material in a product that was consumer waste. The recycled material was generated by household, commercial, industrial, or institutional end-users and can no longer be used for its intended purpose.

Postconsumer is just that, material recycled after being used by the consumer.



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Reusing an existing building
can help earn credit in what
category?



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Materials & Resources



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What is PRE-CONSUMER
recycled content?



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Pre-consumer recycled content is
formerly known as postindustrial
content, is a percentage of material
in a product that is recycled from
manufacturing waste. Since the
material is never sold to the
consumer, it is pre-consumer
material.



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What is RECYCLED content?



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Recycled content is the proportion, by mass, of pre- consumer or postconsumer recycled material in a product (ISO 14021).



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What is COMMINGLED RECYCLING?



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Commingled recycling accepts a wide range of recyclable materials. This allows materials to be collected in one bin, or location, prior to being sent to a recycling facility for separation. This type of recycling takes up less space and has better participation from occupants.



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What is waste diversion?



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Reducing the amount of recyclable material being thrown away and ultimately wasted by disposal in the landfill. Many materials have uses or resources that can be recaptured through recycling.



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What are examples of PRE-CONSUMER recycled content?



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Planer shavings, sawdust, bagasse, walnut shells, culls, trimmed materials, over issue publications, and obsolete inventories.



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What are examples of content
that is excluded from PRE-
CONSUMER
recycled content



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Rework, regrind, or scrap materials
capable of being reclaimed within
the same process that generated
them.



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What are examples of post-
consumer recycled content?



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Construction and demolition debris,
materials collected through
recycling programmes, discarded
products (e.g., furniture, cabinetry,
decking), and landscaping waste
(e.g., leaves, grass clippings, tree
trimmings)



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Recycled content is defined in accordance with what document?



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ISO 14021 is an International Organisation of Standards document.



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What type of recycled content is a material that contains recycled newspaper?



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Post-consumer recycled content



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What is the FSC?



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The Forest Stewardship Council (FSC), established in 1933 in response to those concerns over global deforestation, It is an international, non-profit, multi-stakeholder organisation that promotes responsible management of the world's forests.



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What is the environmental benefit of using SALVAGED MATERIALS?



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It reduces the demand for virgin materials.



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What is a VOC?



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Volatile organic compounds can have negative health effects when inhaled. Many VOCs are man-made chemicals that are used and produced in the manufacture of paints, pharmaceuticals, and refrigerants.



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What is construction and demolition debris?



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Construction and demolition debris are waste building materials, dredging materials, tree stumps, and rubble resulting from the construction, remodelling, repair, and demolition of homes, commercial buildings, and other structures and pavements.



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What materials are not allowed to be included in the calculations for construction waste management?



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excavated materials such as dirt and trees
Hazardous materials, such as asbestos and lead, cover debris.



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What is a CONSTRUCTION WASTE MANAGEMENT PLAN?



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A construction waste management plan outlines the administrative and procedural requirements for salvaging, recycling, and disposing of non-hazardous demolition and construction waste.



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What are low VOC products?



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Materials that have less off-gassing, resulting in improved indoor air quality.



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What is REUSE?



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a strategy to use existing materials in a similar or different capacity that allows for the preservation of natural resources.



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At a minimum, what materials
must a commercial LEED
project include in a recycling
programme?



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Paper, corrugated cardboard
Glass, Plastic, and Metal



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What are SALVAGED
MATERIALS?



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Construction materials are
recovered from building sites and
reused on different building sites in
the same or a different capacity.
Examples can include flooring,
brick, beams, and doors.



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What are the benefits of regional materials?



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**Reduced transportation costs
Support of local resources**



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What is source reduction?



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**The practise of designing,
manufacturing, purchasing, or using
materials (such as products and
packaging) in ways that reduce the
amount or toxicity of trash created**



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What CREDIT CATEGORY
addresses RECYCLED
CONTENT?



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Materials and Resources



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How many points can be
earned in the innovation
category?



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6 points



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How many Regional Priority credits can a LEED project earn?



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4 points



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How many LEED APs are required to participate in a project to earn one innovation point?



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At least 1 principal participant on the project team must be a LEED AP with a specialty appropriate for the project to earn an innovation credit.



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Who is the project administrator?



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The individual who initially registers the project will be identified by GBCI as the Project Administrator.



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How can innovation credit be earned?



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Doubling the credit requirements, using a new strategy that is quantifiable, or achieving Pilot Credits



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How does the integrative,
whole building approach apply
to LEED projects?



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The integrative, whole-building
approach is the most effective way
to optimise energy efficiency. This
method requires collaboration
among all team members,
beginning at the start of a project.



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What is a DESIGN CHARETTE?



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The design charrette is an intense,
collaborative design activity that allows
project teams (i.e. project owner,
architect, and design team) to develop
and plan project strategies, evaluate and
identify both financial and environmental
impacts, and reveal any opportunistic
synergies for the entire project.



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What does the holistic approach pertain to?



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The holistic approach evaluates energy consumption early in the design process to allow project teams to target methods to improve the building's energy consumption and performance.



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What LEED credit category awards points for exemplary performance?



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Innovation



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How do you earn innovation credit for exemplary performance?



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To earn innovation credit for exemplary performance, teams must meet the performance level defined by the next step in the threshold progression for credits that allow exemplary performance. For example, if one point can be earned on a credit by reducing waste,



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What are the requirements for submitting an innovation credit for an innovative strategy?



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Identify the following in writing: The intent of the proposed innovation credit The proposed requirement for compliance The proposed submittals are to demonstrate compliance. The design approach (strategies) used to meet the requirements



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How are innovation points for innovative performance measured?



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The submitted credit must be quantifiable.



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What is the maximum number of points a project can earn under the Regional Credit category?



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Under the regional priority credit system, 4 points are the maximum any project may earn.



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During the site selection process, what members should a project team include?



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Landscape architects, ecologists, environmental engineers, and civil engineers, as well as local professionals who can provide site specific expertise



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What are CREDIT SYNERGIES?



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Credit synergies happen when credits work together and have an increased benefit, often at a lower combined cost.



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Who fills out the LEED
Scorecard?



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The project team does this during
the LEED charrette.



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Who can become a LEED AP
with a specialty?



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The project team does this during
the LEED charrette.



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What do LEED APs with specialties do on a project?



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Help streamline the certification process.



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What is EXEMPLARY PERFORMANCE?



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Performance above and beyond the LEED requirements is rated "exemplary." An example of exemplary performance is meeting the next step in a series of requirements.



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What do you call a
collaborative, facilitated
approach to project design and
execution?



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an integrative process.



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What is a LEED CHARRETTE?



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a collaborative session in which
building stakeholders and building
experts address design and project
issues early in the building process.



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True or false: Can a product
earn innovation credit?



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FALSE



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Who uses LEED?



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Architects, real estate professionals,
facility managers, engineers,
interior designers, landscape
architects, construction managers,
lenders, and government officials
all use LEED to help transform the
built environment towards
sustainability.



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What should a project vision include?



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A statement that embraces sustainable principles and an integrative process. A vision statement should support and enforce the sustainability goals throughout the project.



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What is the pre-design phase of an environmentally responsive design?



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An added step to the design process is the integrative process, which includes defining environmental design guidelines and assembling an integrative project team.



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What steps occur in the pre-design phase?



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- develop a green vision
- Establish project goals and Green Design Criteria
 - Set Priorities
- Develop a building programme
 - Establish Budget
 - Assemble Green Team
- Develop partnering strategies
- Develop a project schedule
- Review Laws and Standards
- Conduct Research



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What can increasing the ventilation in a building have a negative impact on?



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Increasing ventilation in a building increases energy use (EA).



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Can prerequisites earn
exemplary performance?



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No. Only credits can be earned for
exemplary performance.



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At what stage is it critical to
incorporate green building
practises into the project?



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Pre-design



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Local zoning requirements are defined as:



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Local government regulations are imposed to promote orderly development of private lands and prevent land-use conflicts.



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Which has precedent in a project—LEED requirements or local codes?



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Local codes must be followed first.



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What codes must LEED projects follow?



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Projects should review relevant and applicable laws, codes, local ordinances, statutes, and industry-related standards.



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What must be checked to determine what type of building can be built on a piece of land?



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Local zoning requirements



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What are local ordinances?



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A law is usually found in a
municipal code.



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What are local codes?



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State and local jurisdictions may
develop their own regulations or
adopt building codes based on
national model codes. State and
local codes are typically based on
national model codes published by
the International Code Council
(ICC).



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What additional green
building projects and building
construction budgets are
there?



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Life cycle cost analysis
Green building experts
-Contingency plans for additional
research



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What is systems thinking?



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An understanding of the built
environment as a series of
relationships in which all parts
influence many other parts



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**What is the integrative process
used for?**



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**To support high-performance, cost-
effective project outcomes through
an early analysis of the
interrelationships among systems.**



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**What are the benefits of using
an integrative process?**



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**Higher performing buildings,
healthier buildings, and cost
savings over the long term**



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What is REACH used for?



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REACH is the Regulation on the Registration, Evaluation, Authorization, and Restriction of Chemicals. REACH requires all companies manufacturing or importing chemical substances into the European Union in quantities of one tonne or more per year to register these substances.



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What are examples of high-priority designation areas?



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- Historic districts
- Priority designation sites (Federal Empowerment Zones, EPA National Priorities List, etc.)
- Brownfield



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What are the types of sensitive habitat?



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- Prime farmland
- Floodplains
- Endangered habitat
- Water bodies
- Wetlands



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What is WaterSense used for in LEED?



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To identify fixtures in a LEED building that are both water efficient and high performing,



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What are the diverse use categories?



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- Food retail
- Community-serving retail
- Services

Civic and community facilities
Community anchors use



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What is the waste reduction hierarchy?



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- Source reduction
- Reuse
- Recycling
- Waste-to-energy



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What is WASTE-TO-ENERGY?

The process of generating energy in the form of electricity and/or heat from the incineration of waste.



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What is USGBC's mission?

To transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy, and prosperous environment that improves the quality of life.



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What is USGBC's vision?



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Buildings and communities will
regenerate and sustain the health
and vitality of all life within a
generation.



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What are the roles of GBCI?



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Administration of the LEED exams
-Overseeing LEED Credential
Maintenance
-Third-party technical reviews of
registered LEED projects



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**What does PREFERRED
PARKING refer to?**



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Preferred parking refers to the parking spots that are closest to the main entrance of the project (exclusive of spaces designated for handicapped persons) or parking passes provided at a discounted price.



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What are I-codes?



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The International Codes, or I-Codes, published by the ICC provide minimum safeguards for people at home, at school, and in the workplace. The I-Codes are a complete set of comprehensive, coordinated building safety and fire prevention codes. Building codes benefit public safety and support the industry's need for one set of codes without regional limitations.



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What is the IgCC?



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The IgCC provides the building industry with language that both broadens and strengthens building codes in a way that will accelerate the construction of high performance green buildings.



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What are LEED interpretations?



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LEED Interpretations, just like Project Credit Interpretation Rulings (Project CIRs), are official answers to technical inquiries about implementing LEED on a project. They help people understand how their projects can meet LEED requirements. They also define or expand upon existing content to provide clarity.



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What are LEED addenda?



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The USGBC publishes clarifications (also called addenda) to address errors in the LEED rating systems and reference guides.



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What is a HERs Index?



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The Home Energy Rating System (HERS) Index is a standard by which a home's energy efficiency is measured.



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What is a BUG rating?



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The backlight-uplight glare method is used in LEED v4 for light pollution reduction. By selecting exterior lighting with specific BUG ratings the project team can easily reduce light pollution.



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How is water performance measurement accomplished?



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Metering and submetering.



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What is DENSITY?



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A measure of the total building floor area or dwelling units on a parcel of land relative to the buildable land of that parcel. Units for measuring density may differ according to credit requirements.
Does not include structured parking.



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What is BUILDABLE LAND?



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The portion of the site where construction can occur, including land voluntarily set aside and not constructed on.

When used in density calculations, buildable land excludes public rights-of-way and land excluded from development by codified law.



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What is a FLOOR-AREA-RATIO (FAR)?



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The density of nonresidential land use, exclusive of parking, measured as the total nonresidential building floor area divided by the total buildable land area available for nonresidential structures.



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What is an OCCUPIED SPACE?



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Enclosed areas intended for human activities.



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What are examples of UNOCCUPIED SPACES?



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**Mechanical rooms, stairwells,
closets**



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What is an **REGULARLY
OCCUPIED SPACE?**



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Conference rooms, guest rooms,
kitchens, hotel lobby



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What is **COMMISSIONING?**



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The process of verifying and
documenting that a building and all
of its systems and assemblies are
planned, designed, installed,
tested, operated, and maintained to
meet the owner's project
requirements.



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What is RETRO-COMMISSIONING?



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A commissioning process that can be performed on existing buildings to identify and recognize system improvements that make the building more suitable for current use.



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What is DEMAND RESPONSE?



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A change in electricity use by demand-side resources from their normal consumption patterns in response to changes in the price of electricity or to incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardized



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What is a DEMAND RESPONSE EVENT?



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A specific period of time when the utility or independent service operator calls for a change in the pattern or level of use in grid-based electricity from its program participants. Also known as a curtailment event.



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What is a CARBON OFFSET?



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A unit of carbon dioxide equivalent that is reduced, avoided, or sequestered to compensate for emissions occurring elsewhere



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What standard qualifies
carbon offsets?



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Green-e Climate certified (or
equivalent)



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What environmental benefit
does purchasing off-site
renewable energy (Green
Power) have?



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Emissions reductions



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How is a building's energy efficiency benchmarked?



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EPA's ENERGY STAR Portfolio Manager



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What does a building automation system do?



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Collect data about a building's systems and track it over time



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What does designing for flexibility mean?



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Designing for flexibility is a concept that considers the future use of the building and how it may be modified while at the same time reducing waste and reducing the need for new materials.



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What are environmental externalities?



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Transactions in which one or more parties to the transaction are not compensated and may have little choice in the transaction. Air pollution, for example, is a visible externality of manufacturing, the cost of which is generally paid by others.



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What is product transparency?



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Each building disclosure and optimization credit in the Materials and Resources section has two options for compliance. The first option is for material transparency - what's in the material or how was it obtained. There are third party certifications use



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What is an ENVIRONMENTAL
PRODUCT DECLARATION
(EPD)?



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The Environmental Product Declaration (EPD) is a standardized way of quantifying the environmental impact of a product or system. It is a statement that the item meets the environmental requirements of ISO 14021, ISO 1999, ISO 14025, ISO 2006 and EN 15804, or



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What are three examples of building product disclosure?



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Raw materials sourcing
-Material ingredients
-Environmental product disclosure



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What are USGBC's seven guiding principles?



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Promote the triple bottom line
-Establish leadership
-Reconcile humanity with nature
-Foster social equity
-Maintain integrity
-Be inclusive
-Exhibit transparency



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What does the LEED Volume Program help with?



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Cost-effective LEED certification on a volume scale



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When would the Campus Program be used?



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The Campus Program is used when there are less than twenty-five projects and they are non-uniform in size. The projects do not have to be adjacent.



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How many LEED adaptations
are there?



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21



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What LEED rating system has
recertification?



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LEED O+M. Recertification is for O+M
projects with an initial O+M
certification.
Projects must recertify within five years
of the previous O+M certification and
are eligible to recertify as often as
every 12 months.



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How often must LEED O+M projects recertify?



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Every 5 years.



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What are the LEED impact categories?



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- Reverse Contribution to Global Climate Change
- Enhance Individual Human Health and Well-Being
- Protect and Restore Water Resources
 - Protect, Enhance and Restore Biodiversity and Ecosystem Services
- Promote Sustainable and Regenerative Material Resources



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What are three important factors of the LEED Green Building Rating System?



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**-Voluntary
-Consensus-based
-Market-driven**



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What are the point values of a LEED credit based on?



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The ability to mitigate the environmental harms of a building and to promote beneficial effects.



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What are the three types of
LEED improvements made on a
regular basis?



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- Errata and addenda
- Adaptations
- Next version of LEED



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In what 3 ways are LEED
Interpretations different than
Project CIRs?



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- Precedent-setting
- Published online
- Subject to consensus- based
review



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What are 3 benefits of LEED Interpretations?



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- Can be applied to multiple projects
- Part of the LEED conversation
- Reviewed by USGBC committees



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What LEED developments address specific space types and international requirements?



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LEED Rating System adaptations



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What is the LEED Pilot Credit Library?



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Allows credits to be refined through LEED project evaluations before they complete the balloting process for introduction into LEED



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What type of project requires a master site for registration?



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Campus



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What is an LPE?



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Licensed Professional Exemption (LPE) is an optional credit documentation path in which professionals can submit license information and a declaration of compliance in lieu of a number of otherwise required submittals.



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What is a closed system?



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A closed system is a system with a closed loop, and is thought of as more sustainable.

For example, plants growing in a field, grow, produce oxygen, take in water, then die and decay which helps plants grow.

Closed systems can be linked so one system uses



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What is an open system?



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An open system is a system that constantly takes in items from outside the system, uses them and then releases them as waste. This system has no feedback loop. Think of a normal home where groceries, products, or water come into the home, are used and then released as waste water or garbage.



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What is a negative feedback loop?



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A negative feedback loop is a system where the output may signal the system to stop changing.



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What are the phases of the
LEED integrative process?



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Discovery
-Design and Construction
(Implementation)
-Occupancy, Operations, and
Performance Feedback



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How does integrative design
differ from the conventional
building process?



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The integrative process is iterative.



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**What is at the core of the
integrative process?**



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Collaborative team members



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**What does the ISO 14000
standard do?**



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**Assess environmental performance
of products and services and
provide guidance on improving their
environmental performance**



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What does the ISO 14000 standard do?



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ENERGY STAR is specific to energy performance and can be used to compare building performance.



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What is infill development?



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Infill development occurs within established urban areas where the site or area either is a vacant place between other developments or has previously been used for another urban purpose.



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What document assists with
determining recommended
parking?



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ITE Transportation Planning
Handbook



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What is a SITE ASSESSMENT?



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An evaluation of an area's above ground
and subsurface characteristics, including
its structures, geology, and hydrology. Site
assessments typically help determine
whether contamination has occurred and
the extent and concentration of any release
of pollutants.

Remediation decisions rely on information
generated during site assessments.



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Construction activity pollution prevention should address what environmental protection measures?



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**-Soil erosion
-Waterway sedimentation
-Airborne dust**



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What team member creates an erosion and sedimentation control (ESC) plan for construction activity pollution prevention?



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Civil engineer



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What does protecting and restoring habitat help with?



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Promoting biodiversity



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How should projects reduce runoff?



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Replicating the natural hydrology and water balance of the site



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What are ways to manage runoff?



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Low-impact development (LID) and green infrastructure



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What products can have a WaterSense label?



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**-Toilets
-Private lavatory faucets
-Showerheads**



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**What is energy use intensity
measured in?**



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**Energy consumed per unit of floor
space**



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**What is the Owner's Project
Requirements (OPR)
document?**



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**A written document that details the
ideas, concepts, and criteria
determined by the owner to be
important to the success of the
project.**



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What is BUS RAPID TRANSIT?



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BRT is an enhanced bus system that operates on exclusive bus lanes or other transit rights-of-way. The system is designed to combine the flexibility of buses with the efficiency of rail.



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What does tracking building-level energy use help with?



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Identifying additional energy savings over time.



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What is ADAPTIVE REUSE?



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The practice of redesigning and using a structure for a use that is significantly different from the building's original use.



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What do the credits in the Materials and Resources (MR) category focus on?



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Minimizing the embodied impacts associated with the entire life-cycle of building materials



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What is the purpose of a life-cycle assessment?



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To understand the trade-offs of material selection and energy performance



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What is **EXTENDED PRODUCER RESPONSIBILITY**?



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Measures undertaken by the maker of a product to accept its own and sometimes other manufacturers' products as postconsumer waste at the end of the products' useful life. Producers recover and recycle the materials for use in new products of the same type



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What is a FLUSH-OUT?



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A flush-out runs the mechanical systems with 100% outside air to remove contaminants. Flush-outs are usually done after construction is complete and prior occupants moving in.



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What is IPM?



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Integrated Pest Management - a method of pest management that protects human health and the surrounding environment and improves economic returns through the most effective, least-risk option.



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What is a common issue with
daylighting?



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Glare



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What does daylighting help
reduce?



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The need for artificial lighting.



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What are the benefits of good acoustics?



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- Increased learning in schools
- Increased privacy in healthcare
- Increased employee productivity/satisfaction



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What are ways to provide occupants thermal comfort?



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- Operable windows
- Individual thermal comfort controls
- Controls for shared spaces



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What is a negative environmental externality of locating a project in an area does not have diverse uses and is not densely developed?



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Increased air pollution



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What are the benefits of LEED-certified buildings?



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- Lower operating costs and increased asset value
- Reduced waste sent to landfills
- Energy and water conservation
- More healthful and productive environments for occupants
- Reductions in greenhouse gas emissions
- Qualification for tax rebates, zoning allow



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What are ALTERNATIVE COMPLIANCE PATHS (ACPs)?



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Alternative Compliance Paths, or ACPs, allow international projects to identify equivalent means of demonstrating compliance to the credit requirements. For example, where an equivalent country's reference standard exists, an ACP can allow for the use of



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What are examples of STRUCTURAL INCENTIVES for green building?



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- Expedited review / permitting process
- Density and height bonuses



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What are examples of
FINANCIAL INCENTIVES for
green building?



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- Tax credits
- Fee reductions / waivers
- Grants
- Revolving loan funds (low- interest loans)



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What are examples of **NON-
FINANCIAL INCENTIVES** for
green building?



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- Technical assistance
- Marketing assistance



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What is a **REGULAR BUILDING
OCCUPANT?**



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Habitual users of a building.



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Name the different types of
regular building occupants



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- Employees
- Staff
- Volunteers
- Residents
- Primary and secondary school
students
- Hotel guests
- Inpatients



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What is a VISITOR?



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Visitors (also called 'transients')
intermittently use a LEED building.



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Name the different type of
building visitors.



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- Retail customers
- Outpatients
- Volunteers
- Higher-education students



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What is the most important phase of the integrative process?



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Discovery



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What is a COMMISSIONING AUTHORITY (CxA)



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The individual designated to organize, lead, and review the completion of commissioning process activities. The CxA facilitates communication among the owner, designer, and contractor to ensure that complex systems are installed and function in accordance with the owner's project requirements.



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What is LOW IMPACT DEVELOPMENT (LID)?



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An approach to managing rainwater runoff that emphasizes on-site natural features to protect water quality, by replicating the natural land cover hydrologic regime of watersheds, and addressing runoff close to its source.



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What are examples of OCCUPANT CONTROLS?



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An occupant controls is a system or switch that a person in the space can directly access and use. Examples include a task light, an open switch, and blinds. A temperature sensor, photo sensor, or centrally controlled system is not occupant controlled.



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What is a RIDE SHARE?



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A transit service in which individuals travel together in a passenger car or small van that seats at least four people. It can include human-powered conveyances, which must accommodate at least two people. It must include an enclosed passenger seating area, fixed route service, fixed fare structure, regular operation, and the ability to pick up multiple riders.



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What is a REGULATED LOAD?



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Any building end use that has either a mandatory or a prescriptive requirement in ASHRAE Standard 90.1



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What is PROCESS ENERGY?



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Power resources consumed in support of a manufacturing, industrial, or commercial process other than conditioning spaces and maintaining comfort and amenities for building occupants of a building. It may include refrigeration equipment, cooking and food



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What is VISION GLAZING?



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The glass portion of an exterior window that permits views to the exterior or interior. Vision glazing must allow a clear image of the exterior and must not be obstructed by frits, fibers, patterned glazing, or added tints that distort color balance.



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What standards can be used to
identify green cleaning
products?



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Environmental Choice and Green
Seal



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What does increasing
ventilation in a building help
with?



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Reduced absenteeism



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Where should smoking be prohibited around a building?



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Near entrances, operable windows, and air intakes.



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What does the type of entryway system selected for a building impact?



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Indoor air quality.



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