

Lo scenario energetico e la valutazione della sostenibilità

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Lo scenario energetico

160 milioni di edifici nella UE comportano più del 40% del consumo totale di energia e circa il 40% delle emissioni di CO₂.

Quali rischi corriamo ?

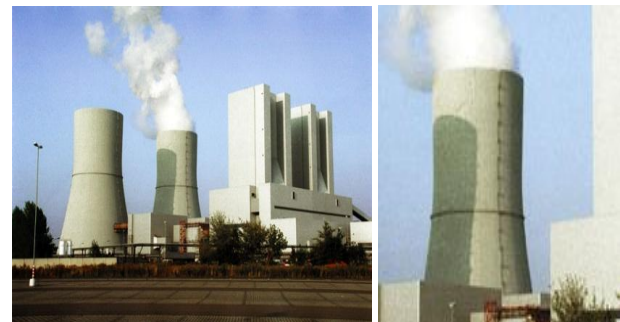
- Cambiamenti climatici (effetto serra):
 - aumento della temperatura
 - desertificazione
 - scioglimento dei ghiacci perenni
 - innalzamento del livello del mare
 - disastri naturali
- Inquinamento atmosferico con effetti sulla salute delle persone
- Dipendenza energetica (petrolio e gas): rischio black out
- Elevati costi della bolletta energetica



Lo scenario energetico

LE SOLUZIONI PER LA RIDUZIONE DELLE EMISSIONI DI CO2

- Energia nucleare (tra 20 anni)
- Energie rinnovabili
 - Idroelettrica
 - Solare
 - Eolica
 - Geotermica
 - Biomasse
- Risparmio energetico



Lo scenario energetico

RISPARMIO ENERGETICO ED ECONOMIA

Risparmiare energia prodotta con combustibili fossili significa:

- Riduzione dell'inquinamento atmosferico e dei costi per la sanità
- Riduzione della bolletta energetica (per il paese, le aziende, i singoli)

Riassumendo:

Le 3 E = Energy - Environment - Economy (Energia - Ecologia - Economia)

QuickTime™ e un
decompressore TIFF (Non compresso)
sono necessari per visualizzare quest'immagine.

Lo scenario energetico



IL PROTOCOLLO DI KYOTO

- Trattato internazionale contro le emissioni di gas che provocano il riscaldamento globale del pianeta, sottoscritto nel 1996 da 160 paesi
- Entrato in vigore nel 2005, in quanto sottoscritto da almeno 55 paesi firmatari che rappresentavano almeno il 55% delle emissioni
- Fino alla fine del 2008 non avevano aderito USA (36%), Cina e India (in quanto paesi in via di sviluppo)
- **La svolta di Barack Obama: adesione degli USA dal 2009**
- Obiettivo: riduzione gas serra del 5% rispetto ai livelli del 1990 nel periodo 2008-2012
- Paesi UE: riduzione 8%, Italia 6,5%
- Gas serra: CO₂, metano, protossido di azoto, idrofluorocarburi (HFC)
- I paesi che non rispettano i limiti vengono multati

Lo scenario energetico

LA DIRETTIVA COMUNITARIA 2002/91 EPBD (Energy Performance of Buildings Directive)

La regola del 20

Entro il 2020:

- Riduzione del consumo di energia del 20%
- Riduzione delle emissioni del 20%
- Quota prodotta da fonti rinnovabili > 20%



Lo scenario energetico



E IL NOSTRO PAESE ?

- **DLgs n.192/2005 - DLgs n.311/2006**
 - Requisiti energetici del sistema edificio/impianti
 - Obbligo della Certificazione Energetica
 - Produzione acqua calda sanitaria mediante fonti rinnovabili
- **Finanziaria 2007: detrazione 55 % delle spese di riqualificazione energetica**
- **Il Conto Energia per gli impianti fotovoltaici**

La sostenibilità del sistema edificio-impianti

Rapporto Bruntland 1987 (Commissione ONU per l'Ambiente e lo Sviluppo)

“Sviluppo sostenibile: sviluppo in grado di soddisfare gli attuali bisogni senza compromettere la capacità delle generazioni future di soddisfare i propri.”



La sostenibilità del sistema edificio-impianti

Green Guide ASHRAE (Versione italiana disponibile col titolo “Impianti per gli edifici sostenibili”)

Un edificio sostenibile è in grado di assicurare elevate prestazioni nell'intero ciclo di vita per quanto riguarda:

- minimo consumo di energia, mediante la riduzione del fabbisogno e l'impiego più efficiente delle risorse naturali sia rinnovabili che non rinnovabili;
- minime emissioni nocive in atmosfera (effetto serra, inquinamento, buco d'ozono);
- minimo scarico di effluenti liquidi nocivi e di rifiuti solidi;
- minimi effetti nocivi sugli ecosistemi locali;
- massima qualità dell'ambiente dell'interno.



La sostenibilità del sistema edificio-impianti

EDIFICI SOSTENIBILI ...MA NON SOLO

Green Buildings

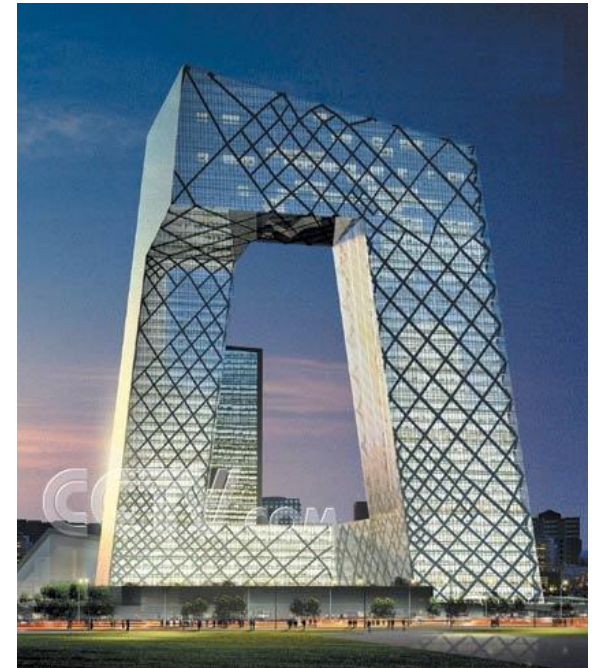
Passivi (Passiv Haus)

Ad impatto zero (Zero Energy Buildings ZEB)

Carbon free o Carbon neutral

Certificati da Casa Clima

Certificati in Classe A+



La sostenibilità del sistema edificio-impianti

EDIFICI SOSTENIBILI ?

ROTATING TOWER, DUBAI

80 piani, 79 turbine eoliche

PEARL RIVER TOWER, GUANGZHOU

71 piani, 4 turbine eoliche

QuickTime™ e un
decompressore TIFF (Non compresso)
sono necessari per visualizzare quest'immagine.



La sostenibilità del sistema edificio-impianti

GREEN BUILDINGS ?



La sostenibilità del sistema edificio-impianti

SISTEMI DI VALUTAZIONE DELLA SOSTENIBILITA' DEGLI EDIFICI

- Sistemi di certificazione volontaria
- Certificazione ad opera di terze parti (organizzazioni no-profit)
 - Sistemi di Green Rating (valutazione a punteggio)
- Standard LEED (Stati Uniti)
- Sistema BREEAM (Gran Bretagna)
- Protocollo ITACA - Istituto per l'Innovazione e la Trasparenza degli Appalti e Compatibilità Ambientale (Italia)

La sostenibilità del sistema edificio-impianti

IL CERTIFICATO LEED

LEED = Leadership in Energy and Environmental Design

Sviluppato dall'U.S. Green Building Council (organizzazione no profit)

Rappresentato in Italia da Green Building Council Italia

Sistemi differenziati per tipologie di progetti:

- Nuove costruzioni (LEED NC, New Construction)
- Scuole, ospedali e negozi (LEED for Schools, Healthcare, Retail),
- Edifici esistenti (LEED EB, Existing Buildings),
- Piccole abitazioni (LEED Homes)
- Edifici senza destinazione d'uso (LEED CS, Core & Shells)
- Centri urbani (LEED NB, Neighborhood Development)

La sostenibilità del sistema edificio-impianti

IL CERTIFICATO LEED NC (Nuove Costruzioni)

6 categorie

- | | |
|----------------------------------|----------------------|
| • Siti sostenibili | 8 crediti - 14 punti |
| • Gestione efficiente dell'acqua | 3 crediti - 5 punti |
| • Energia e atmosfera | 6 crediti - 17 punti |
| • Materiali e risorse | 7 crediti - 13 punti |
| • Qualità ambiente interno | 8 crediti - 15 punti |
| • Innovazione e progettazione | 2 crediti - 5 punti |

Punteggio massimo: 69 punti


4 livelli di certificazione:

- | | |
|------------|------------------|
| • Base: | da 26 a 32 punti |
| • Argento: | da 33 a 38 punti |
| • Oro: | da 39 a 51 punti |
| • Platino: | da 52 a 69 punti |

La sostenibilità del sistema edificio-impianti

IL CERTIFICATO LEED



|  LEED-CS | | Seven World Trade Center, LEED-CS® Pilot Project LEED-CS Certification Level: GOLD 7 March 2006 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 36 Points Achieved | | Possible Points: 65 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Certified 24 to 29 points Silver 30 to 35 points Gold 36 to 47 points Platinum 48 or more points | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 Sustainable Sites Possible Points: 15 | | 5 Materials & Resources Possible Points: 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="0"> <tr><td>Y</td><td>Prereq 1</td><td>Erosion & Sedimentation Control</td><td></td></tr> <tr><td>1</td><td>Credit 1.1</td><td>Site Selection</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.2</td><td>Development Density</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.3</td><td>Brownfield Redevelopment</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.4.1</td><td>Alternative Transportation, Public Transportation Access</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.4.2</td><td>Alternative Transportation, Bicycle Storage & Changing Rooms</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.4.3</td><td>Alternative Transportation, Alternative Fuel Vehicles</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.4.4</td><td>Alternative Transportation, Parking Capacity</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.5.1</td><td>Reduced Site Disturbance, Protect or Restore Open Space</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.5.2</td><td>Reduced Site Disturbance, Development Footprint</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.6.1</td><td>Stormwater Management, Rate and Quantity</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.6.2</td><td>Stormwater Management, Treatment</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.7.1</td><td>Heat Island Effect, Non-Roof</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.7.2</td><td>Heat Island Effect, Roof</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.8</td><td>Light Pollution Reduction</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.9</td><td>Tenant Design and Construction Guidelines</td><td>1</td></tr> </table> | | Y | Prereq 1 | Erosion & Sedimentation Control | | 1 | Credit 1.1 | Site Selection | 1 | 1 | Credit 1.2 | Development Density | 1 | 1 | Credit 1.3 | Brownfield Redevelopment | 1 | 1 | Credit 1.4.1 | Alternative Transportation, Public Transportation Access | 1 | 1 | Credit 1.4.2 | Alternative Transportation, Bicycle Storage & Changing Rooms | 1 | 1 | Credit 1.4.3 | Alternative Transportation, Alternative Fuel Vehicles | 1 | 1 | Credit 1.4.4 | Alternative Transportation, Parking Capacity | 1 | 1 | Credit 1.5.1 | Reduced Site Disturbance, Protect or Restore Open Space | 1 | 1 | Credit 1.5.2 | Reduced Site Disturbance, Development Footprint | 1 | 1 | Credit 1.6.1 | Stormwater Management, Rate and Quantity | 1 | 1 | Credit 1.6.2 | Stormwater Management, Treatment | 1 | 1 | Credit 1.7.1 | Heat Island Effect, Non-Roof | 1 | 1 | Credit 1.7.2 | Heat Island Effect, Roof | 1 | 1 | Credit 1.8 | Light Pollution Reduction | 1 | 1 | Credit 1.9 | Tenant Design and Construction Guidelines | 1 | <table border="0"> <tr><td>Y</td><td>Prereq 1</td><td>Storage & Collection of Recyclables</td><td></td></tr> <tr><td>1</td><td>Credit 1.1</td><td>Building Reuse, Maintain 75% of Existing Shell</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.2</td><td>Building Reuse, Maintain 95% of Existing Shell</td><td>1</td></tr> <tr><td>1</td><td>Credit 2.1</td><td>Construction Waste Management, Divert 75%</td><td>1</td></tr> <tr><td>1</td><td>Credit 2.2</td><td>Construction Waste Management, Divert 50%</td><td>1</td></tr> <tr><td>1</td><td>Credit 3.1</td><td>Resource Reuse, Specify 5%</td><td>1</td></tr> <tr><td>1</td><td>Credit 4.1</td><td>Recycled Content, 5% (Post-consumer + 1/2 post-industrial)</td><td>1</td></tr> <tr><td>1</td><td>Credit 4.2</td><td>Recycled Content, 10% (Post-consumer + 1/2 post-industrial)</td><td>1</td></tr> <tr><td>1</td><td>Credit 5.1</td><td>Local/Regional Materials, 20% Manufactured Locally</td><td>1</td></tr> <tr><td>1</td><td>Credit 5.2</td><td>Local/Regional Materials, of 20% Above, 50% Harvested Locally</td><td>1</td></tr> <tr><td>1</td><td>Credit 6</td><td>Rapidly Renewable Materials</td><td>1</td></tr> <tr><td>1</td><td>Credit 7</td><td>Certified Wood</td><td>1</td></tr> </table> | | Y | Prereq 1 | Storage & Collection of Recyclables | | 1 | Credit 1.1 | Building Reuse, Maintain 75% of Existing Shell | 1 | 1 | Credit 1.2 | Building Reuse, Maintain 95% of Existing Shell | 1 | 1 | Credit 2.1 | Construction Waste Management, Divert 75% | 1 | 1 | Credit 2.2 | Construction Waste Management, Divert 50% | 1 | 1 | Credit 3.1 | Resource Reuse, Specify 5% | 1 | 1 | Credit 4.1 | Recycled Content, 5% (Post-consumer + 1/2 post-industrial) | 1 | 1 | Credit 4.2 | Recycled Content, 10% (Post-consumer + 1/2 post-industrial) | 1 | 1 | Credit 5.1 | Local/Regional Materials, 20% Manufactured Locally | 1 | 1 | Credit 5.2 | Local/Regional Materials, of 20% Above, 50% Harvested Locally | 1 | 1 | Credit 6 | Rapidly Renewable Materials | 1 | 1 | Credit 7 | Certified Wood | 1 |
| Y | Prereq 1 | Erosion & Sedimentation Control | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.1 | Site Selection | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.2 | Development Density | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.3 | Brownfield Redevelopment | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.4.1 | Alternative Transportation, Public Transportation Access | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.4.2 | Alternative Transportation, Bicycle Storage & Changing Rooms | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.4.3 | Alternative Transportation, Alternative Fuel Vehicles | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.4.4 | Alternative Transportation, Parking Capacity | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.5.1 | Reduced Site Disturbance, Protect or Restore Open Space | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.5.2 | Reduced Site Disturbance, Development Footprint | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.6.1 | Stormwater Management, Rate and Quantity | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.6.2 | Stormwater Management, Treatment | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.7.1 | Heat Island Effect, Non-Roof | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.7.2 | Heat Island Effect, Roof | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.8 | Light Pollution Reduction | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.9 | Tenant Design and Construction Guidelines | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | Prereq 1 | Storage & Collection of Recyclables | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.1 | Building Reuse, Maintain 75% of Existing Shell | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.2 | Building Reuse, Maintain 95% of Existing Shell | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 2.1 | Construction Waste Management, Divert 75% | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 2.2 | Construction Waste Management, Divert 50% | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 3.1 | Resource Reuse, Specify 5% | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 4.1 | Recycled Content, 5% (Post-consumer + 1/2 post-industrial) | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 4.2 | Recycled Content, 10% (Post-consumer + 1/2 post-industrial) | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 5.1 | Local/Regional Materials, 20% Manufactured Locally | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 5.2 | Local/Regional Materials, of 20% Above, 50% Harvested Locally | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 6 | Rapidly Renewable Materials | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 7 | Certified Wood | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 Water Efficiency Possible Points: 5 | | 9 Indoor Environmental Quality Possible Points: 13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="0"> <tr><td>Y</td><td>Credit 1.1</td><td>Water Efficient Landscaping, Reduce by 50%</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.2</td><td>Water Efficient Landscaping, No Potable Use or No Irrigation</td><td>1</td></tr> <tr><td>1</td><td>Credit 2</td><td>Innovative Wastewater Technologies</td><td>1</td></tr> <tr><td>1</td><td>Credit 3.1</td><td>Water Use Reduction, 20% Reduction</td><td>1</td></tr> <tr><td>1</td><td>Credit 3.2</td><td>Water Use Reduction, 30% Reduction</td><td>1</td></tr> </table> | | Y | Credit 1.1 | Water Efficient Landscaping, Reduce by 50% | 1 | 1 | Credit 1.2 | Water Efficient Landscaping, No Potable Use or No Irrigation | 1 | 1 | Credit 2 | Innovative Wastewater Technologies | 1 | 1 | Credit 3.1 | Water Use Reduction, 20% Reduction | 1 | 1 | Credit 3.2 | Water Use Reduction, 30% Reduction | 1 | <table border="0"> <tr><td>Y</td><td>Prereq 1</td><td>Minimum IAQ Performance</td><td></td></tr> <tr><td>Y</td><td>Prereq 2</td><td>Environmental Tobacco Smoke (ETS) Control</td><td></td></tr> <tr><td>1</td><td>Credit 1</td><td>Carbon Dioxide (CO₂) Monitoring</td><td>1</td></tr> <tr><td>1</td><td>Credit 2</td><td>Increase Ventilation Effectiveness</td><td>1</td></tr> <tr><td>1</td><td>Credit 3</td><td>Construction IAQ Management Plan, During Construction</td><td>1</td></tr> <tr><td>1</td><td>Credit 4.1</td><td>Low-Emitting Materials, Adhesives & Sealants</td><td>1 point for 2</td></tr> <tr><td>1</td><td>Credit 4.2</td><td>Low-Emitting Materials, Paints</td><td>2 points for 3</td></tr> <tr><td>1</td><td>Credit 4.3</td><td>Low-Emitting Materials, Carpet</td><td>3 points for 4</td></tr> <tr><td>1</td><td>Credit 4.4</td><td>Low-Emitting Materials, Composite Wood</td><td>1</td></tr> <tr><td>1</td><td>Credit 5</td><td>Indoor Chemical & Pollutant Source Control</td><td>1</td></tr> <tr><td>1</td><td>Credit 6.1</td><td>Controllability of Systems, Perimeter</td><td>1</td></tr> <tr><td>1</td><td>Credit 6.2</td><td>Controllability of Systems, Non-Perimeter</td><td>1</td></tr> <tr><td>1</td><td>Credit 7.1</td><td>Thermal Comfort, Comply with ASHRAE 55-1992</td><td>1</td></tr> <tr><td>1</td><td>Credit 7.2</td><td>Thermal Comfort, Permanent Monitoring System</td><td>1</td></tr> <tr><td>1</td><td>Credit 8.1</td><td>Daylight & Views, Daylight 75% of Spaces</td><td>1</td></tr> <tr><td>1</td><td>Credit 8.2</td><td>Daylight & Views, Views for 90% of Spaces</td><td>1</td></tr> </table> | | Y | Prereq 1 | Minimum IAQ Performance | | Y | Prereq 2 | Environmental Tobacco Smoke (ETS) Control | | 1 | Credit 1 | Carbon Dioxide (CO ₂) Monitoring | 1 | 1 | Credit 2 | Increase Ventilation Effectiveness | 1 | 1 | Credit 3 | Construction IAQ Management Plan, During Construction | 1 | 1 | Credit 4.1 | Low-Emitting Materials, Adhesives & Sealants | 1 point for 2 | 1 | Credit 4.2 | Low-Emitting Materials, Paints | 2 points for 3 | 1 | Credit 4.3 | Low-Emitting Materials, Carpet | 3 points for 4 | 1 | Credit 4.4 | Low-Emitting Materials, Composite Wood | 1 | 1 | Credit 5 | Indoor Chemical & Pollutant Source Control | 1 | 1 | Credit 6.1 | Controllability of Systems, Perimeter | 1 | 1 | Credit 6.2 | Controllability of Systems, Non-Perimeter | 1 | 1 | Credit 7.1 | Thermal Comfort, Comply with ASHRAE 55-1992 | 1 | 1 | Credit 7.2 | Thermal Comfort, Permanent Monitoring System | 1 | 1 | Credit 8.1 | Daylight & Views, Daylight 75% of Spaces | 1 | 1 | Credit 8.2 | Daylight & Views, Views for 90% of Spaces | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | Credit 1.1 | Water Efficient Landscaping, Reduce by 50% | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.2 | Water Efficient Landscaping, No Potable Use or No Irrigation | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 2 | Innovative Wastewater Technologies | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 3.1 | Water Use Reduction, 20% Reduction | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 3.2 | Water Use Reduction, 30% Reduction | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | Prereq 1 | Minimum IAQ Performance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | Prereq 2 | Environmental Tobacco Smoke (ETS) Control | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1 | Carbon Dioxide (CO ₂) Monitoring | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 2 | Increase Ventilation Effectiveness | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 3 | Construction IAQ Management Plan, During Construction | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 4.1 | Low-Emitting Materials, Adhesives & Sealants | 1 point for 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 4.2 | Low-Emitting Materials, Paints | 2 points for 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 4.3 | Low-Emitting Materials, Carpet | 3 points for 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 4.4 | Low-Emitting Materials, Composite Wood | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 5 | Indoor Chemical & Pollutant Source Control | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 6.1 | Controllability of Systems, Perimeter | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 6.2 | Controllability of Systems, Non-Perimeter | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 7.1 | Thermal Comfort, Comply with ASHRAE 55-1992 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 7.2 | Thermal Comfort, Permanent Monitoring System | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 8.1 | Daylight & Views, Daylight 75% of Spaces | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 8.2 | Daylight & Views, Views for 90% of Spaces | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 Energy & Atmosphere Possible Points: 16 | | 5 Innovation & Design Process Possible Points: 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="0"> <tr><td>Y</td><td>Prereq 1</td><td>Fundamental Building Systems Commissioning</td><td></td></tr> <tr><td>Y</td><td>Prereq 2</td><td>Minimum Energy Performance</td><td></td></tr> <tr><td>Y</td><td>Prereq 3</td><td>CFC Reduction in HVAC&R Equipment</td><td></td></tr> <tr><td>1</td><td>Credit 1</td><td>Optimize Energy Performance</td><td>10</td></tr> <tr><td>1</td><td>Credit 2.1</td><td>Renewable Energy, 1%</td><td>1</td></tr> <tr><td>1</td><td>Credit 2.2</td><td>Renewable Energy, 5%</td><td>1</td></tr> <tr><td>1</td><td>Credit 3</td><td>Additional Commissioning</td><td>1</td></tr> <tr><td>1</td><td>Credit 4</td><td>Ozone Depletion</td><td>1</td></tr> <tr><td>1</td><td>Credit 5</td><td>Measurement & Verification</td><td>1</td></tr> <tr><td>1</td><td>Credit 6</td><td>Green Power</td><td>1</td></tr> </table> | | Y | Prereq 1 | Fundamental Building Systems Commissioning | | Y | Prereq 2 | Minimum Energy Performance | | Y | Prereq 3 | CFC Reduction in HVAC&R Equipment | | 1 | Credit 1 | Optimize Energy Performance | 10 | 1 | Credit 2.1 | Renewable Energy, 1% | 1 | 1 | Credit 2.2 | Renewable Energy, 5% | 1 | 1 | Credit 3 | Additional Commissioning | 1 | 1 | Credit 4 | Ozone Depletion | 1 | 1 | Credit 5 | Measurement & Verification | 1 | 1 | Credit 6 | Green Power | 1 | <table border="0"> <tr><td>Y</td><td>Prereq 1</td><td>Innovation in Design, 100% Green Power</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.2</td><td>Innovation in Design, Steam Condensate Cooling</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.3</td><td>Innovation in Design, Part A.C.S. Automatic Climbing Formwork</td><td>1</td></tr> <tr><td>1</td><td>Credit 1.4</td><td>Innovation in Design, Reduced Emissions Construction Equip.</td><td>1</td></tr> <tr><td>1</td><td>Credit 2</td><td>LEED® Accredited Professional</td><td>1</td></tr> </table> | | Y | Prereq 1 | Innovation in Design, 100% Green Power | 1 | 1 | Credit 1.2 | Innovation in Design, Steam Condensate Cooling | 1 | 1 | Credit 1.3 | Innovation in Design, Part A.C.S. Automatic Climbing Formwork | 1 | 1 | Credit 1.4 | Innovation in Design, Reduced Emissions Construction Equip. | 1 | 1 | Credit 2 | LEED® Accredited Professional | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | Prereq 1 | Fundamental Building Systems Commissioning | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | Prereq 2 | Minimum Energy Performance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | Prereq 3 | CFC Reduction in HVAC&R Equipment | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1 | Optimize Energy Performance | 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 2.1 | Renewable Energy, 1% | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 2.2 | Renewable Energy, 5% | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 3 | Additional Commissioning | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 4 | Ozone Depletion | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 5 | Measurement & Verification | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 6 | Green Power | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Y | Prereq 1 | Innovation in Design, 100% Green Power | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.2 | Innovation in Design, Steam Condensate Cooling | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.3 | Innovation in Design, Part A.C.S. Automatic Climbing Formwork | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 1.4 | Innovation in Design, Reduced Emissions Construction Equip. | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | Credit 2 | LEED® Accredited Professional | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

La sostenibilità del sistema edificio-impianti

IL CERTIFICATO LEED



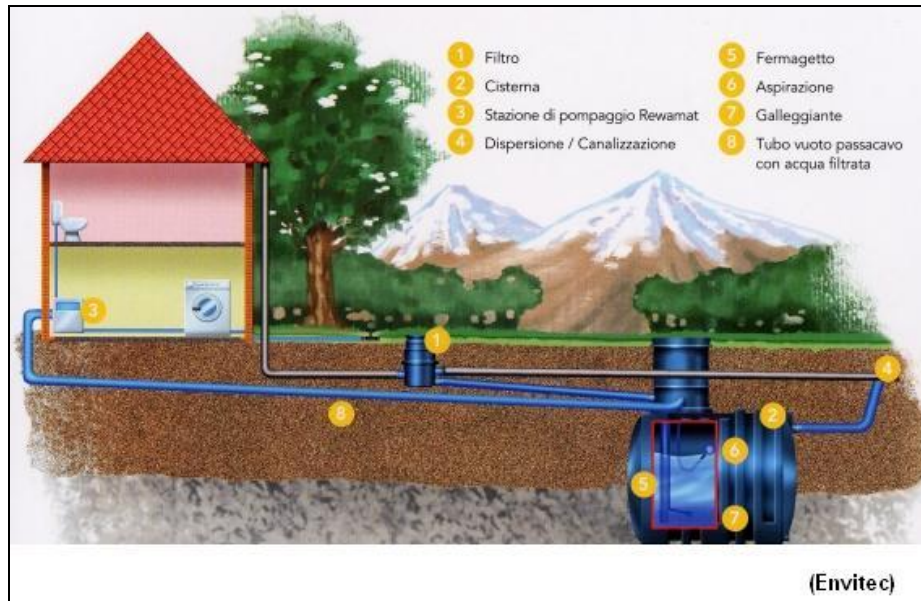
| 41 Points Achieved | | Possible Points: 69 | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--|
| Certified: 26 to 32 points | | Silver: 33 to 38 points | |
| Gold: 39 to 51 points | | Platinum: 52 or more points | |
| 8 Sustainable Sites Possible Points: 14 | | 5 Materials & Resources Possible Points: 13 | |
| Y Prereq 1 Erosion & Sedimentation Control 1 Credit 1.1 Site Selection 1 Credit 2 Urban Redevelopment 1 Credit 3 Brownfield Redevelopment 1 Credit 4.1 Alternative Transportation, Public Transportation Access 1 Credit 4.2 Alternative Transportation, Bicycle Storage & Changing Rooms 1 Credit 4.3 Alternative Transportation, Alternative Fuel Refueling Stations 1 Credit 4.4 Alternative Transportation, Parking Capacity 1 Credit 5.1 Reduced Site Disturbance, Protect or Restore Open Space 1 Credit 5.2 Reduced Site Disturbance, Development Footprint 1 Credit 6.1 Stormwater Management, Rate and Quantity 1 Credit 6.2 Stormwater Management, Treatment 1 Credit 7.1 Landscape & Exterior Design to Reduce Heat Islands, Non-Roof 1 Credit 7.2 Landscape & Exterior Design to Reduce Heat Islands, Roof 1 Credit 8 Light Pollution Reduction | 1 Credit 1.1 Building Reuse, Maintain 75% of Existing Shell 1 Credit 1.2 Building Reuse, Maintain 100% of Existing Shell 1 Credit 1.3 Building Reuse, Maintain 100% Shell & 90% Non-Shell 1 Credit 2.1 Construction Waste Management, Divert 50% 1 Credit 2.2 Construction Waste Management, Divert 75% 1 Credit 3.1 Resource Reuse, Specify 5% 1 Credit 3.2 Resource Reuse, Specify 10% 1 Credit 4.1 Recycled Content 1 Credit 4.2 Recycled Content 1 Credit 5.1 Local/Regional Materials, 20% Manufactured Locally 1 Credit 5.2 Local/Regional Materials, of 20% Above, 50% Harvested Locally 1 Credit 6 Rapidly Renewable Materials 1 Credit 7 Certified Wood | | |
| 4 Water Efficiency Possible Points: 5 | | 13 Indoor Environmental Quality Possible Points: 15 | |
| 1 Credit 1.1 Water Efficient Landscaping, Reduce by 50% 1 Credit 1.2 Water Efficient Landscaping, No Potable Use or No Irrigation 1 Credit 2 Innovative Wastewater Technologies 1 Credit 3.1 Water Use Reduction, 20% Reduction 1 Credit 3.2 Water Use Reduction, 30% Reduction | 1 Credit 1 Minimum IAQ Performance 1 Credit 1 Environmental Tobacco Smoke (ETS) Control 1 Credit 1 Carbon Dioxide (CO₂) Monitoring 1 Credit 2 Increase Ventilation Effectiveness 1 Credit 3.1 Construction IAQ Management Plan, During Construction 1 Credit 3.2 Construction IAQ Management Plan, Before Occupancy 1 Credit 4.1 Low-Emitting Materials, Adhesives & Sealants 1 Credit 4.2 Low-Emitting Materials, Paints 1 Credit 4.3 Low-Emitting Materials, Carpet 1 Credit 4.4 Low-Emitting Materials, Composite Wood 1 Credit 5 Indoor Chemical & Pollutant Source Control 1 Credit 5.1 Controllability of Systems, Pre-water 1 Credit 5.2 Controllability of Systems, Non-Pre-water 2 Credit 7.1 Thermal Comfort, Comply with ASHRAE 55-1992 2 Credit 7.2 Thermal Comfort, Permanent Monitoring System 2 Credit 8.1 Daylight & Views, Daylight 70% of Spaces 2 Credit 8.2 Daylight & Views, Views for 90% of Spaces | | |
| 6 Energy & Atmosphere Possible Points: 17 | | 5 Innovation & Design Process Possible Points: 5 | |
| Y Prereq 1 Fundamental Building Systems Commissioning Y Prereq 2 Minimum Energy Performance Y Prereq 3 CFC Reduction in HVAC/R Equipment 2 Credit 1.1 Optimize Energy Performance, 20% New / 10% Existing 1 Credit 1.2 Optimize Energy Performance, 30% New / 20% Existing 1 Credit 1.3 Optimize Energy Performance, 40% New / 30% Existing 1 Credit 1.4 Optimize Energy Performance, 50% New / 40% Existing 1 Credit 1.5 Optimize Energy Performance, 60% New / 50% Existing 1 Credit 2.1 Renewable Energy, 5% 1 Credit 2.2 Renewable Energy, 10% 1 Credit 2.3 Renewable Energy, 20% 1 Credit 3 Additional Commissioning 1 Credit 4 Ozone Depletion 1 Credit 5 Measurement & Verification 1 Credit 6 Green Power | 1 Credit 1.1 Innovation in Design 1 Credit 1.2 Innovation in Design 1 Credit 1.3 Innovation in Design 1 Credit 1.4 Innovation in Design 1 Credit 2 LEED® Accredited Professional | | |

La sostenibilità del sistema edificio-impianti

RICICLO ACQUE USATE

Credito LEED per la gestione efficiente dell'acqua

- Raccolta e riciclo acque grigie per irrigazione e flussaggio WC
- Accumulo e trattamento (disinfezione/fitodepurazione)



La sostenibilità del sistema edificio-impianti

AD OGNUNO IL PROPRIO RUOLO

- **Il committente:** investire nell'efficienza energetica e formare un team di progettazione integrata
- **L'industria:** sviluppare nuove soluzioni tecniche
- **Il progettista:** sviluppare e difendere il progetto e le specifiche di capitolato
- **Il quadro normativo e legislativo**
- **Il mercato:**
 - la certificazione energetica
 - gli incentivi fiscali
 - la bolletta energetica
 - immagine "green"

