HOLCIM FOUNDATION AWARDS

Data Terms Definition Document

Healthy Planet

The **U-value** (thermal transmittance) of the **opaque envelope** of a building is a measure of the rate of heat transfer through the non-transparent parts of the building's exterior (such as walls, roofs, and floors) due to the difference in indoor and outdoor temperatures. It represents the amount of heat energy (in watts) that passes through a square metre of the opaque building element per degree of temperature difference (in Celsius or Kelvin) between the inside and outside environments. A lower U-value indicates better insulation properties and greater resistance to heat flow, which contributes to improved energy efficiency of the building.

The **U-value** (thermal transmittance) of the **transparent envelope** of a building refers to the rate of heat transfer through the transparent components, such as windows, glazed doors, and skylights. It measures the amount of heat energy (in watts) that passes through a square meter of these transparent elements for every degree of temperature difference (in Celsius or Kelvin) between the interior and exterior of the building. A lower U-value indicates better insulation, meaning less heat is lost in winter or gained in summer, thereby enhancing the building's overall energy efficiency.

The **Window-to-Wall Ratio (WWR)** is the proportion of the total exterior wall area of a building that is covered by windows or other transparent elements. It is expressed as a percentage and is calculated by dividing the total area of the windows by the total area of the exterior walls. The WWR affects both the amount of natural light entering the building and its thermal performance, influencing factors such as energy efficiency, heat gain or loss, and indoor comfort levels.

Visible Light Transmittance (VLT) is the percentage of visible light that passes through a window or other transparent material, indicating its ability to allow natural daylight into a building.

Solar Heat Gain Coefficient (SHGC) is the fraction of solar radiation that passes through a window or glass, including both directly transmitted and absorbed heat, that contributes to the building's interior heat gain. A lower SHGC value indicates better control of solar heat entering a building, enhancing energy efficiency and comfort.

Embodied Carbon: Buildings are currently responsible for 39% of global energy related carbon emissions: 28% from operational emissions, from energy needed to heat, cool and power them, and the remaining 11% from materials and construction. Including embodied carbon values for your project is strongly encouraged.

Embodied carbon represents the emissions associated with materials and construction processes and is evaluated throughout the lifecycle of a building or infrastructure. It includes CO_2 emissions generated by material extraction, transport, manufacturing, as well as emissions of transport of materials to site and relevant construction processes.

Embodied carbon calculation: Different tools can be used for calculation. The list provided hereafter is purely illustrative and is presented to aid applicants with embodied carbon assessment. It comprises free licensed tools or tools with free trials and does not endorse any specific software.

- eLCA
- OneClick LCA
- Athena Impact Estimator
- eTool
- EC3
- Tally

Other indicative examples of guides and tools can also be found under:

- LETI Embodied Carbon Primer
- AIA-CLF Embodied Carbon Toolkit for Architects

Any tool is accepted, including proprietary tools tailor made for the project.

Reused Material: Reusing materials and resources play an important role towards ensuring a more circular and sufficient built environment. These can range from salvaged materials to construction and demolition waste used for aggregates and new materials, to re-used excavated material.

Responsible or certified materials: There are a vast range of certification schemes available worldwide whose objective is to promote responsible sourcing, production and manufacturing (e.g. FSC for wood). Other types of material certifications ensure that material ingredients are transparent and traceable, resulting in material labels that safeguard human health (e.g. Declare, C2C, etc.).

Please indicate the quota of materials in your project that are certified or otherwise responsible and healthy materials.

Locally sourced materials: Using locally sourced materials has different benefits ranging from reduced embodied carbon to social and economic impacts to the local communities. It can also mean using materials and technologies that are place and climate specific, thus better performing.

Please list any locally sourced materials in your project and indicate the quota of utilisation in your project.

Local (for Locally Sourced Materials): In the context of building materials, **local** refers to materials that are sourced from within a specified geographic region or proximity to the project site, which is typically defined by a radius or distance threshold (e.g., within 100 miles or 160 kilometres). This definition varies based on regional standards, project requirements, and sustainability goals, aiming to reduce transportation impacts and support regional economies. Please state what you considered local for your project in terms of distance (in kms) from the project site.

Renewable energy sources: Renewable energy sources play an important role in the decarbonization of building operations. If applicable, we encourage to indicate the renewable energy percentage (%) component used for building operations, be it through on-site or off-site renewables.

Renewable energy sources are non-combustion based.

Sources include photovoltaics, solar thermal energy, passive solar, geothermal, wind turbines, energy generated by water turbines, hydrogen sources powered by renewables.

Please list which energy sources are applicable to your building's operations and indicate the relevant percentages.

Energy Use Intensity (EUI): Operational energy reflects the energy used by the building during the occupancy phase of its lifecycle. It comprises energy used for space and water heating, cooling, lighting, and other and miscellaneous loads required for appliances, equipment, control systems and automation, etc. We recommend a proper estimate of operational loads during the planning phase, and implementation of reduction strategies.

Energy use intensity for operational energy shall be expressed in kWh/m2 (calculated for the whole year).

Energy use calculation

An indicative tool for operational energy calculation: http://zerotool.org/zerotool/ Any tool is accepted, including proprietary tools custom-made for the project.

Reduction of EUI against baseline: We encourage evaluating your operational energy against benchmarks available for your region and suited to the specific type of intervention.

The reduction against the reference baseline shall be provided in percentages (%).

Guideline Reference Used to Calculate Energy Use Intensity (EUI) typically refers to established standards or methodologies for measuring and calculating EUI, which is the amount of energy consumed per unit of building area (kWh/m²/year). Common references include:

- **ASHRAE Standard 105** - "Standard Methods of Measurement and Verification of Building Energy Performance" provides methods for calculating and reporting energy use.
- **EPA's ENERGY STAR Portfolio Manager** - A tool used for benchmarking and reporting energy use intensity.
- **ISO 50001** - "Energy management systems — Requirements with guidance for use" provides frameworks for energy management and performance evaluation.

These guidelines help ensure consistency and accuracy in calculating EUI across different buildings and projects. Please insert the URL of the website of guidelines that you considered to establish the baseline and calculate the reduction of EUI.

Lighting Power Density (LPD): The amount of electrical power used for lighting per unit of floor area, typically expressed in watts per square metre (W/m²)). LPD measures the efficiency of a lighting system by indicating the power consumption relative to the area it serves, helping to assess and optimise energy use in lighting design.

Lighting System: The design and implementation of the lighting setup in a building, including the types of light fixtures, their placement, and the overall energy efficiency. This system should minimise energy consumption while maximising illumination quality and effectiveness. Key factors include the use of energy-efficient lighting technologies (such as LED bulbs), lighting controls (like dimmers and occupancy sensors), and strategies to reduce light pollution and improve sustainability.

Mechanical Ventilation System: The system designed to control indoor air quality by actively supplying and removing air through mechanical means to heat or cool indoor spaces. It includes components such as fans, ducts, and air handling units. Key aspects to highlight include energy efficiency, use of heat recovery or energy recovery ventilators, and the integration of advanced controls to optimise air flow and reduce energy consumption while maintaining a healthy and comfortable indoor environment. Systems can be HVAC, ACMV or others

Efficiency of HVAC (Heating, Ventilation, and Air Conditioning) or ACMV (Air Conditioning and Mechanical Ventilation) Systems: The effectiveness with which HVAC or ACMV systems provide heating, cooling, ventilation, and air conditioning while minimising energy consumption. Key metrics of efficiency include:

- **Energy Efficiency Ratio (EER) / Seasonal Energy Efficiency Ratio (SEER):** Measures the cooling output divided by the electrical energy input, indicating how efficiently the system uses electricity for cooling.
- **Coefficient of Performance (COP):** Represents the ratio of useful heating or cooling provided to the energy consumed, used to evaluate the system's efficiency in different operating conditions.
- **Annual Fuel Utilisation Efficiency (AFUE):** Indicates the percentage of energy from fuel that is converted into heat, relevant for heating systems.
- **Energy Recovery Efficiency:** Assesses the system’s ability to recover and reuse energy from exhaust air to precondition incoming fresh air, improving overall energy performance.
- **Airflow Efficiency:** Evaluates how well the system distributes conditioned air throughout the building while minimizing energy losses and maintaining comfort.

High efficiency in these metrics leads to reduced operational costs and enhanced environmental performance.

Operational Set-Point for Mechanical Ventilation System (Low - Summer) (°C): The minimum temperature threshold at which a mechanical ventilation system activates during the summer months to maintain indoor comfort and air quality. This set-point ensures that the system provides adequate ventilation while avoiding excessive cooling, thereby optimising energy use and enhancing occupant comfort. Typically, this set-point is set to balance fresh air intake with energy efficiency, and its specific value can vary depending on the building's design and climate conditions.

Operational Set-Point for Mechanical Ventilation System (High - Summer) (°C): The maximum temperature threshold at which a mechanical ventilation system activates or adjusts during the summer months to maintain indoor comfort and air quality. This set-point ensures that the system provides adequate ventilation while managing indoor temperatures effectively, avoiding overheating and optimising energy efficiency. The specific value can vary based on factors such as building design, local climate, and occupancy requirements.

Operational Set-Point for Mechanical Ventilation System (Low - Winter) (°C): The minimum temperature threshold at which a mechanical ventilation system activates or adjusts during the winter months to ensure indoor comfort and air quality. This set-point helps to prevent excessively cold air from entering the building, thus maintaining a comfortable indoor temperature and minimising heating demands. The exact value depends on factors such as building insulation, local climate, and ventilation needs.

Operational Set-Point for Mechanical Ventilation System (High - Winter) (°C): The maximum temperature threshold at which a mechanical ventilation system activates or adjusts during the winter months to maintain indoor comfort and air quality. This set-point ensures that the system does not allow excessively warm indoor air to be vented out, which helps in managing heating efficiency and maintaining a stable indoor temperature. The specific set-point may vary based on factors such as building insulation, external weather conditions, and energy efficiency goals.

Reduction of Water Use Against Baseline: The percentage decrease in water consumption compared to a predefined baseline measurement. This baseline typically represents the historical or standard water usage for a similar building or facility. The reduction indicates improvements in water efficiency achieved through various measures such as water-saving fixtures, conservation practices, or efficient irrigation systems, contributing to sustainability goals and resource conservation.

Guideline Reference Used to Calculate Water Consumption Reduction: The standard or methodology utilised to measure and quantify reductions in water use compared to a baseline. Common references include:

- **LEED (Leadership in Energy and Environmental Design) Water Efficiency Credit:** Provides guidelines for calculating water savings through efficient fixtures and systems.
- **EPA WaterSense Program:** Offers criteria and tools for evaluating water-saving technologies and practices.
- **ASHRAE Standard 189.1:** "Standard for the Design of High-Performance Green Buildings" includes provisions for calculating and improving water efficiency.
- **ISO 14046:** "Environmental Management — Water Footprint — Principles, Requirements, and Guidelines" provides a framework for assessing water use and savings.

These guidelines help ensure consistent and accurate measurement of water use reduction in buildings and facilities. Please insert the URL of the website of guidelines that you considered to establish the baseline and calculate the reduction of water consumption.

Proportion of recycled/reclaimed/reused water: Planning buildings and infrastructure to minimise the use of potable water for building processes and reuse water whenever possible is key to an optimal building water balance, ecosystem resiliency and preservation of precious water resources.

Please indicate the percentage (%) of water that is recirculated in the building, through strategies such as:

- on-site stormwater collection systems
- on-site or off-site wastewater treatment.

Permeable surfaces: Surfaces allowing infiltration is a fundamental strategy in view of preservation of water resources. Permeable surfaces allow stormwater to drain naturally into the soil and planted surfaces, for the benefit of local ecosystems.

Please indicate how your project design has impacted the natural water management of the site, by reporting the percentage (%) of permeability before and after.

Elevated areas such as roof gardens can be included in the total percentage. Other categories of permeable surfaces can include permeable parking lots, rain gardens, etc.

Proportion of native/ local plants: Native plants are species that have naturally occurred in a particular region, ecosystem, or habitat for a long time, typically before human intervention or colonisation. These plants have evolved over millennia to adapt to the specific climate, soil, and other environmental conditions of the region. The term "native" usually refers to a broader geographical area. For example, a plant might be native to an entire continent, a specific country, or a large ecological zone like a forest or prairie.

Examples: The purple coneflower (Echinacea purpurea) is native to North America, while the English oak (Quercus robur) is native to Europe.

Local plants are those that are native to a very specific and often smaller geographical area, such as a particular county, valley, or mountain range. These are often referred to as "endemic" plants if they are found only in that specific area. "Local" implies a more restricted, often micro-region where the plant has naturally occurred and adapted to the very specific conditions of that area. Example: The California poppy (Eschscholzia californica) is native to California and neighboring regions but can be considered local to particular regions within the state. A plant might be local to a specific island, like the silversword (Argyroxiphium sandwicense) in Hawaii.

The proportion of native plants in your project should be calculated based on the actual number of newly planted native plants in comparative relation to the overall number of newly- planted plants. Rough estimates based on proportion of green areas occupied by native plants in comparative relation to overall green areas is also possible.

Proportion of Bearer Plants: The percentage of a total area or number of plant species that are classified as bearer plants, which are typically used for producing fruit, nuts, or other harvest able products. This proportion indicates the extent to which a planting or landscape design focuses on productive plants as opposed to ornamental or non-harvest able plants. The measure can be used to assess the productivity and sustainability of a green space or agricultural system.

This proportion should be calculated based on the actual number of newly planted bearer plants in comparative relation to the overall number of newly planted plants. Rough estimates based on proportion of green areas occupied by bearer plants in comparative relation to overall green areas is also possible.

Number of native plants removed during the intervention and not replanted: The total count of native plant species that were removed from a site during a specific intervention (such as construction or landscaping work) and were not replanted or replaced afterward. This measure helps to evaluate the impact of the intervention on local biodiversity and the effectiveness of any mitigation or restoration efforts. Unit in a whole number.

Unhealthy or severely damaged plants for which removal is necessary should not be included in the calculation.

Land Use: The management and modification of natural environments or landscapes for specific purposes by humans. This term encompasses various activities and functions such as residential, commercial, industrial, agricultural, recreational, and conservation purposes. Land use planning involves determining the best allocation and utilisation of land resources to meet societal needs while considering environmental impact, sustainability, and economic factors.

Agricultural Land: Land designated and utilised for the cultivation of crops, raising livestock, or other farming activities. This type of land is specifically managed to support agricultural production and includes areas used for growing vegetables, grains, fruits, and nuts, as well as pastures and rangelands for animal husbandry. The primary goal of agricultural land is to produce food, fibre, and other resources essential for human consumption and economic activity.

Built-Up Land: Land that has been developed or modified for human use, typically characterised by the presence of buildings, infrastructure, and other constructed features. This includes areas with residential, commercial, industrial, and institutional developments, as well as roads, parking lots, and other urban or suburban infrastructure. Built-up land contrasts with undeveloped or natural land, and its use is often associated with increased human activity and density.

Brownfield Land: Previously developed land that is underutilised, abandoned, or vacant due to contamination or perceived contamination from prior industrial or commercial activities. These sites often require remediation or redevelopment before they can be safely used for new purposes. Brownfield land presents opportunities for revitalization and redevelopment, potentially reducing the need to develop undeveloped or greenfield sites.

Natural Area: A region or tract of land that remains largely undisturbed by human activity, preserving its natural ecological processes and native biodiversity. Natural areas typically include forests, wetlands, grasslands, and other ecosystems that provide habitat for wildlife, support ecological functions, and offer opportunities for conservation, recreation, and research. These areas are valued for their environmental significance and contributions to overall ecological health.

Thriving Communities

Participatory Design: A design approach that actively involves stakeholders, such as end-users, community members, or other affected parties, in the design process. This collaborative method seeks to incorporate their perspectives, needs, and feedback to create solutions that are more relevant, effective, and acceptable. Participatory design aims to ensure that the outcome reflects the preferences and requirements of those who will interact with or be impacted by the design, fostering greater engagement, ownership, and satisfaction.

Number of People Positively Impacted by the Intervention (Direct): The count of individuals who experience immediate and tangible benefits from a specific intervention or project. This includes people who directly receive services, improvements, or support resulting from the intervention, such as enhanced facilities, new programs, or improved conditions. The measure reflects the direct, personal effect of the intervention on the individuals involved.

Number of People Positively Impacted by the Intervention (Indirect): The count of individuals who experience secondary or less immediate benefits because of a specific intervention or project. These people are not directly involved with or targeted by the intervention but benefit from its broader effects, such as improved community resources, economic growth, environmental enhancement, or increased social cohesion. This measure reflects the wider, ripple effect of the intervention on the surrounding community or population.

Viable Economics

Proportion of Work Carried Out by Local Companies (%): The percentage of the total project work or services that is completed by businesses or contractors based within the local area or region. This metric assesses the extent to which a project supports the local economy by utilising local resources, labour, and expertise, thereby fostering community development and reducing transportation-related environmental impacts.

Your Consideration of Local: A description or explanation of how you define "local" in the context of your project or initiative. This could involve specifying a geographic radius (e.g., within 50 miles), administrative boundaries (such as a city, county, or state), or economic regions. It reflects the scope within which you prioritise local resources, companies, labour, and materials to support community development, minimise environmental impacts, and enhance project sustainability.

Expected Number of Jobs Created by the Project Intervention (During and After): The estimated total number of employment opportunities generated as a result of a project, both in the short term (during the project's execution or construction phase) and in the long term (after completion, for ongoing operations, maintenance, or related activities). This measure includes both direct jobs created by the project's activities and indirect jobs resulting from increased economic activity in the surrounding community.

Contribution from Sustainable/Green Funds (USD): The amount of financial support, expressed in U.S. dollars, received from funds specifically allocated for sustainable or environmentally friendly projects. These funds may come from government grants, private investments, green bonds, or dedicated sustainability programs aimed at promoting renewable energy, energy efficiency, green infrastructure, or other sustainable initiatives. This contribution helps finance the project’s development and encourages environmentally responsible practices.

Return on Investment (ROI) from Integrated Building Technologies and/or Renewable Energy Sources (Number of Years): The period required for the savings or profits generated by implementing integrated building technologies (such as smart systems, energy-efficient appliances) and/or renewable energy sources (such as solar panels or wind turbines) to cover the initial investment costs. It is typically calculated by dividing the total cost of the investment by the annual savings or revenue generated, indicating how quickly the investment pays back itself in financial terms. A shorter ROI period reflects a more cost-effective investment.