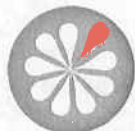


Over the course of the last eleven months, there has been considerable activity on the Dialogue – thank you for your participation! As a way to easily view the comments that provide significant clarification about a Prerequisite, we have compiled the following list. These will also be integrated into the next release of Living Building Challenge (v2.0).

SITE: HABITAT EXCHANGE		
Date	Topic	ILBI Response
10/09/08	Criteria for choosing a Habitat Program	<p>We recognize the Land Trust Alliance as the premier habitat exchange program. The Land Trust Alliance has also recently created the Land Trust Alliance Accreditation Commission, an independent organization responsible for accrediting land trusts. Habitat exchange programs that are accredited through the Land Trust Accreditation Commission OR have adopted the Land Trust Alliance Standards and Practices are eligible to be used to fulfill the requirements of this prerequisite. We welcome the proposal of alternate programs – however, these must be approved by Cascadia prior to use.</p> <p>To find programs that adhere to the Land Trust Alliance Standards and Practices, search their geographically-based membership list: http://www.ltanet.org/findlandtrust/index.tcl. Those names followed by an "S&P" icon are programs that have stated compliance with the LTA Standards and Practices.</p> <p>To find programs accredited through the Land Trust Accreditation Commission, visit: http://www.landtrustaccreditation.org/</p> <p>As noted in the version 1.3 of the standard, one acre is the minimum offset amount. For projects impacting greater than an acre, a 1:1 ratio (rounding up to the nearest acre) of habitat exchange is required. The intent of this prerequisite is to protect the habitat indefinitely. When it is not possible to protect habitat in perpetuity (for example, when using an 'Adopt an Acre' program), your donation must account for at least one hundred years of land protection.</p>

ENERGY: NET ZERO ENERGY		
Date	Topic	ILBI Response
09/08/08	Bio-fuels + combustion	<p>While we agree that this approach offers a good deep-green transitional strategy for the campus as a whole, the use of a bio-waste energy plant is problematic because the combustion process (of any material) still produces emissions and toxins out of alignment with the Living Building Challenge standards. In addition, there is no way to guarantee the fuel source that would be used over time, this introducing an uncontrollable variable. In order for the specific building pursuing the Living Building Challenge to comply, it must entirely rely on a renewable energy source, defined by the standard as the following: photovoltaics, wind turbines, water-powered microturbines, methane from composting only, direct geothermal or fuel cells powered by hydrogen generated from renewably powered electrolysis.</p>

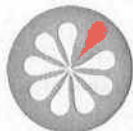


MATERIALS: RED LIST		
Date	Topic	ILBI Response
08/25/08	What if a major component of a product is a Red Listed material?	<p>First, it is important to determine whether the product specified is indeed critical, or if there is another possible design solution that alleviates its need.</p> <p>Second, it is now acceptable to jump one Zone to comply with either Prerequisite 5 or 7, if such materials or products are not procurable within apportioned Zones. Once a compliant product is available within the Zone as delineated in this standard, the exception will be removed.</p> <p>Third, as a last resort that acknowledges certain market realities, the product may be used. Each exception request must be submitted in writing for approval. In this instance, a written explanation that documents the reason for the requested exemption is required. In addition, your submittal must be accompanied by a copy of a letter sent to the manufacturer stipulating that the product purchase does not constitute an endorsement – and include a statement that requests that the company stops using the Red List material.</p>
09/23/08	FF+E (see also Appropriate Radius entry, Tracking Appliances, 06/24/09)	At this time FF&E (free-standing) is excluded from the Living Building Challenge. It would be sensible, however, to consider the Red List and other materials that may compromise health and indoor quality when specifying (or recommending the purchase of) products that will be placed inside the completed project.
01/08/09	Formaldehyde in composite wood products	For all composite wood products, a letter must be written to the manufacturer. Many manufacturers tend to only think of Urea Formaldehyde as a Red List item, due to the increased awareness of and focus on this subset of the chemical. However, the Living Building Challenge Materials Red List includes ANY added formaldehyde.
08/08/08		<p>Specific Clarification:</p> <p>Glulam beams: This exception only applies to glulams made using phenol formaldehyde; no glulam products made with urea formaldehyde are acceptable.</p>
04/06/09	Insulation + Halogenated Flame Retardants (see also Appropriate Radius)	<p>Halogenated flame retardants in foam insulation is a real problem – this is one of their major markets. As you've noted, though there are better insulation products from an ecological perspective, few rival the R-value attained by their foam counterpart. We do recognize that the use of this product may contribute to the ongoing energy performance of the building.</p> <p>At this time, we are not aware of foam insulation that is manufactured without HFRs, though there is much research and development dedicated to this work. Therefore, if the product is installed a letter must be written to the manufacturer stating that the purchase of the product does not constitute an endorsement of their practices and why.</p> <p>Products with water-based blowing agents are available and should be used in lieu of an HCFC solution.</p>



MATERIALS: RED LIST, continued		
Date	Topic	ILBI Response
01/26/09	Products containing lead	Door hardware: After much research and discussion with a variety of stakeholders in the lead issue as well as several manufacturers, we will allow an exception for lead found in door hardware.
01/26/09		Paint: Due to the natural occurrence of lead in some paint ingredients, compliant paint products for the Living Building Challenge will be manufactured with "no intentionally added lead". letter
02/17/09		<p>Plumbing fixtures: The US EPA defines "lead free" for plumbing fixtures as those that contain no more than 8% lead, and not more than 4% by dry weight for plumbing fittings and fixtures. This also includes performance-based leaching requirements for fixtures, as defined by ANSI/NSF Standard 61, Section 9.</p> <p>California passed an amendment in 2006 to refine the definition as follows: "The new law revises the meaning of "lead free" to refer not to the lead content by weight, but to a weighted average lead content of the wetted surface area of the pipes, pipe fittings, and plumbing fittings and fixtures of not more than 0.25% lead. The new law prohibits the sale of solder or flux that is not "lead free," unless accompanied by a prominent label stating that it is illegal to use the solder or flux in the installation or repair of any plumbing providing water for human consumption. To be considered "lead free," solder must not contain more than 0.2% lead, and flux not more than a weighted average of 0.25% when used for wetted surfaces of pipes; pipe fittings and fixtures; and plumbing fittings and fixtures."</p> <p>We'd expect that the products installed in the project at least meet this more stringent definition of "lead-free".</p>

MATERIALS: CONSTRUCTION CARBON FOOTPRINT		
Date	Topic	ILBI Response
10/10/08	Additional guidelines for carbon offsets	<p>Please refer to summary document posted on the Dialogue, excerpted below: Acceptable Projects CERs purchased to offset the construction carbon footprint must be tied to the creation of renewable energy projects (hydroelectric and nuclear power excluded) that meet the requirements outlined in this section.</p> <p>There are other credits available for sale that are connected to renewable energy projects called Renewable Energy Certificates (RECs)⁷. These green tags are typically distributed based on units of energy generated from renewable power systems already in place and are valued because they represent clean power that has displaced dependency on fossil fuels. At this time, RECs are not considered suitable for purchase as carbon offsets for the Living Building Challenge.</p> <p>Completed carbon calculation: A simple template calculation that takes into account the square footage of the project, construction type and a multiplier is available at www.buildcarbonneutral.org. A more detailed tool that accounts for materials' embodied CO₂, transportation, site energy use and waste management is available at www.environmentagency.gov.uk/business/sectors/37543.aspx.</p>



MATERIALS: RESPONSIBLE INDUSTRY		
Date	Topic	ILBI Response
01/26/09	Mixed Source	We will recognize FSC mixed source products as a compliance path for certain wood products. Dimensional lumber, wood veneers and other wood products that are immediately tangible to building occupants should be FSC pure and we are partial to this level of certification. We also would like to remind you that salvaged items are another good solution.
01/08/09	Paper products	The FSC certification for paper typically differs from FSC for other wood products. Paper that is FSC certified is usually labeled with the "FSC Recycled" tag. This means that the paper was made with 100% post-consumer recycled content, thus alleviating the demand for virgin materials. This does not necessarily mean that the fiber itself is sourced from FSC certified forests. Because it is not possible to know the origins of post-consumer recycled materials, we do not consider these to fall under the umbrella of FSC certified wood. So, paper products that are 100% post-consumer recycled content are acceptable.

MATERIALS: APPROPRIATE MATERIALS/SERVICES RADIUS		
Date	Topic	ILBI Response
01/26/09	Expanded Compliance Path	<p>We are expanding our Zone definition to better respond to the intent of the prerequisite. The following applies to Zones 2 and 3 only: The Zone definitions for Zones 2 and 3 are now two-fold: first, the manufacturer must be within the set Zone from the site; and second, the raw materials must be sourced from within the same set Zone from the manufacturer location. This should allow for a broader ability to source products.</p> <p>To solve the issue surrounding vague and/or limited information, we are adjusting the tracking requirement to include 3/4 of the raw material within the zone. The rest of the materials should be sourced domestically. The manufacturing location must still be within the zoned radius for that product.</p> <p>We are also providing a second compliance path to deal with manufacturers who will not divulge information about their products. We will allow you to jump a zone in order to source a similar product from a manufacturer who is willing to share information. Paired with this, you must write a letter to the manufacturer making "proprietary" claims to let them know why they did not receive your business.</p> <p>In instances where the manufacturer can only divulge the State or Province from where the raw materials are sourced, these raw materials will be deemed compliant if the Zone radius overlaps with that State or Province's boundary.</p>
01/28/09	Radius for remote locations	<p>THIS SUPERSEDES FOOTNOTE 34 in VERSION 1.3:</p> <ul style="list-style-type: none"> Zone 1: 1,000 miles Zone 2/4: 3,000 miles Zone 3/5: 5,000 miles Zone 6: 9,000 miles Zone 7: 12,429.91 miles



MATERIALS: APPROPRIATE MATERIALS/SERVICES RADIUS, continued		
Date	Topic	ILBI Response
02/17/09	Extended Zone allowances for salvaged materials	<p>Living Building Challenge encourages the use of salvaged materials in projects to acknowledge the considerable value of a material's embodied energy. However, there was not an incentive in the program to convey the preference for salvaged materials... until now.</p> <p>When procuring salvaged materials, teams are allowed to expand the Zone radius by 500 miles. For Zones 2 & 3, this translates to jumping one Zone. Zone 1 Salvaged (was 250): 750 mi Zone 2 Salvaged (was 500): 1000 mi Zone 3 Salvaged (was 1000): 1500 mi</p>
04/06/09	Clarifying the Small Component Exception	<p>A small component must be discrete and contained in its form as introduced into the product's assembly, such as a gasket in a window assembly. At the end of its 'useful life', the window may be disassembled and the gasket would still be intact. When a material/chemical cannot be differentiated from other parts of the product after it is introduced into the assembly, it is not considered to be a small component – this would be akin to placing a spoonful of food coloring into a bucket of water. Once the coloring is added, it impacts all of the liquid in such a way that would be difficult, if not impossible, to separate.</p>
10/13/08	Clarifying assemblies that actively contribute to performance	<p>Air vapor barriers and rainscreen components typically fall under Zone 3: Light low density materials. You have convinced us that air/vapor barriers can be considered to be "substantial" performers. They do, indeed, contribute to a building's ongoing performance that far exceeds their mass. This allows the product to travel up to 3,000 miles – if you cannot source a similarly performing product within the originally delineated distance.</p> <p>5000 for Hawaii</p>
01/26/09	Globally-sourced products	<p>Paint: In light of the complex elements and chemicals in most paints, we will reallocate it to be classified as a product that is "globally sourced". However, this is not a blanket opportunity to ignore the many companies throughout the country who are reevaluating paint chemistry and devising new, non-toxic (not just no VOC) and regional recipes for paint products. Teams are encouraged to jump a Zone to support these manufacturers.</p> <p>Plastic products, and plastic parts of complex products, will also be viewed as "globally sourced". Fabrication of these products must be domestic and within Zone radius per density class.</p>
06/24/09	Tracking appliances	<p>Most small kitchen appliances are not tracked in Living Building Challenge. Refrigerators, stoves, clothes washers and dryers, and other 'permanent' equipment are included. These are viewed to be similar to other mech/elec equipment in that the Zone refers to location of assembly (These would fall under Zone 5).</p> <p>5000 miles for Hawaii</p>

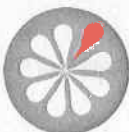


MATERIALS: APPROPRIATE MATERIALS/SERVICES RADIUS, continued

Date	Topic	ILBI Response
03/04/09	Defining low-flow fixtures	<p>Yes, low flow fixtures can be sourced from Zone 5. <i>5000 miles for Hawaii</i></p> <p>Currently, in order to be considered "low flow", fixtures must not exceed the following flow rates:</p> <p>Showerhead: 1.6 gpm* Bathroom/General sink faucet: 0.5 gpm Kitchen sink faucet: 1.5 gpm</p> <p>These flow rates will likely be updated in conjunction with future releases of the Living Building Challenge standard.</p> <p>* Note that WaterSense, a program created in 1996 and sponsored by the US EPA, "anticipates establishing a single maximum flow rate somewhere between 1.5 gallons per minute (gpm) and 2.0 gpm (measured at 80 pounds per square inch (psi) of pressure)". This will quickly lead to new levels of innovation in water efficiency for showerheads.</p>
04/06/09		<p>We encourage the use of composting toilets and composting toilets with a micro-flush, as well as waterless urinals that do not use cartridges. That said, low flow fixtures are defined as the following:</p> <p>Toilets: dual-flush 0.8/1.6 gallons per flush* Urinals: 1 pint/flush</p> <p>*Note: there is already one company that manufactures a 0.8/1.2 gpf dual-flush toilet. As companies continue to improve the performance metrics of toilets, this definition will be modified parallel to the release of updated versions of the Standard.</p>

WATER: NET ZERO WATER

Date	Topic	ILBI Response
10/09/08	What constitutes a closed loop water system?	<p>This prerequisite requires water systems to be closed-loop, recirculating water back to its source for eventual re-draw (for precipitation/stormwater runoff, evapotranspiration/recharging the aquifer 'closes' the loop).</p>
04/06/09		<p>Teams can use an onsite well to source potable water if when the water used is 'eventually returned to the aquifer', it is reintroduced in such a way that does not compromise the site (e.g. appropriately treated and reintroduced at an undamaging temperature, etc.)</p>



WATER: NET ZERO WATER, continued		
Date	Topic	ILBI Response
08/12/08	Acceptable purification systems	<p>Ozone is not an acceptable strategy for water purification – Ultraviolet (UV) is the preferred method. In addition to the energy-intensity of ozone-based systems, there are several side effects that negatively impact health and pollution. Ozone is bad for the lungs and contributes to the formation of smog. It is also highly reactive, highly corrosive and may contribute to rapid replacement of parts and accessories. When used in systems, ozone must be carefully monitored due to actual use (versus designed use) and dangers if the system malfunctions. Problems are compounded, too, because leak detection is difficult.</p> <p>We acknowledge that UV systems have their own limitations – the bulbs must be replaced regularly (sometimes as often as annually) and contain mercury, a Red List item. For a UV purification system to be used, a written explanation that documents the reason for the requested exemption is required. In addition, your submittal must be accompanied by a copy of a letter sent to the manufacturer stipulating that the product purchase does not constitute an endorsement – and include a statement that requests that the company stops using the Red List material. UVLED systems are currently in the R&D stages for several companies – we encourage you to look into the possibility of using this technology. In doing so, your request for information and compliant products acts as a catalyst to accelerate the pace of progress.</p>

INDOOR QUALITY: CIVILIZED ENVIRONMENT		
Date	Topic	ILBI Response
08/05/08	What constitutes an "occupiable space"?	<p>It may be more straightforward to answer your question by listing areas that would not be envisioned to be "occupiable". The following areas may be considered exempt from providing operable windows:</p> <ul style="list-style-type: none"> • Circulation • Coat room • Electrical rooms • Elevator Machine room • Exit Stairs • Janitors closet • Locker rooms • Mail Room (depending on use pattern) • Mechanical rooms • Print/copy room • Restroom • Server Room • Storage <p>However, project teams are encouraged to exercise best judgment and also consider the benefits of daylighting spaces to balance energy use and support wayfinding (e.g. exit stairs and circulation areas).</p>



** PLEASE ALWAYS REFER TO THE DIALOGUE ONLINE FOR THE MOST UP-TO-DATE INFORMATION **

INDOOR QUALITY: CIVILIZED ENVIRONMENT, continued		
Date	Topic	ILBI Response
12/08/08	Minimum requirements for window sizes and placement.	<p>We have created a rule-of-thumb for window sizes as follows:</p> <ol style="list-style-type: none"> 1. There shall be at least one window-wall in each occupied space. 2. Window-walls are defined as exterior walls that contain at least 10% glazing area. 3. A minimum of 5% of this glazing must be direct view windows, placed such that the sill(s) is no higher than 5 feet above the finished floor. 4. There is no set maximum glass area, since the project will be limited by the demands of the Energy Petal. Please note that a component of the audit process will include daylight measurements. We encourage project teams to take into account the acceptable range for daylight factors based on the function of the space.

INDOOR QUALITY: HEALTHY AIR – SOURCE CONTROL		
Date	Topic	ILBI Response
12/08/08	Dirt track-in systems	<p>Dirt track-in systems should be installed at all entries. Note that no system is required where doors are provided for exit only. It is easier to prevent track-in of pollutants than it is to remove, and track-in systems that allow for at least two steps with each foot have been found to be very effective in capturing and removing particles from the underside of shoes. According to the American Lung Association (ALA), pollutants commonly brought indoors by foot traffic can cause "allergies, asthma attacks, learning disabilities, and even cancer... (and) include lead, bacteria, viruses, allergens, pesticides, and other toxic chemicals." The USGBC has provided good parameters for acceptable track-in systems to be "grates, grilles or slotted systems that allow for cleaning underneath.... Entry way systems should be designed to capture and remove particles from shoes without allowing build-up of contaminants." (LEED version 2.2, pages 353-354) This solution is acceptable for both exterior and interior applications. Other acceptable interior applications include permanently installed walk-off mats; these must be maintained at least weekly (twice/weekly is preferable, per the ALA, in heavily trafficked areas).</p> <p>Where it is not feasible to have a dedicated entry vestibule, interior track-in systems must be installed at a reasonable distance from other programmed space (For example, for single family residences and other small projects less than 5,000 square feet programmed space must be more than 8 feet from the interior dirt track-in system.)</p> <p>For existing buildings where it is not feasible to alter the interior floor area, temporary walk-off mats are permissible, provided that they are cleaned at least weekly. In this instance, a permanent exterior track-in system still must be installed.</p>
01/26/09		<p>Permanent entryway systems should be installed at both the interior and exterior locations. Only in existing buildings are you allowed to use temporary interior mats. Please note that we require enough length for two steps with each foot to be taken. In this instance, this definition is more deliberate than allocating a specific numerical distance. With respect to distance, if space allowances are tight you are allowed to divide the distance required to take two steps with each foot between the interior and exterior systems if the interior track-in system is contained within an enclosed vestibule.</p>

