Beyond LEED – The Living Building Challenge (LBC)

UUANI
UNITARIAN UNIVERSALIST
ADVOCACY NETWORK
OF ILLINOIS

An alternative to LEED (Leadership in Energy and Environmental Design) which started in 2000, is LBC (Living Building Challenge). Each LBC has 7 “petals”: Place, Water, Energy, Health and Happiness, Materials, Equity and Beauty. There are 20 imperatives for a LBC, several under each petal. All are listed in *Drawdown,* edited by Paul Hawken, on page 189, and most are listed below in paragraphs about Arch | Nexus SAC.

These LBC buildings MAXIMIZE the positive things! They must generate their own power – solar, wind, hydro and/or geothermal, collect their own drinking water, and/or treat their own waste, among many other things.

An Example of a LBC Building

Arch | Nexus SAC was opened with LBC certification in 2016. It is in Sacramento, California, was formerly an old warehouse, and now has 40 occupants. Below are some of the reasons it was certified:

Place Limits to Growth – This was one of the building’s weaker area, but they satisfied it by planting native plants for migratory animal and insect species.

Urban Agriculture – They included a vertical (green) wall screen, where kiwi, blueberry, and strawberry plants were grown.
Human Powered Living (no cars) – was easily satisfied. With many artists and lofts nearby filled with people who like to walk and bike, the center provides indoor and outdoor bicycle storage, showers, and a transit subsidy to public transit.

Water Net Positive Water – Located at the confluence of the Sacramento and American Rivers, the natural state of the site is an alluvial (always containing water) floodplain.

Energy Net Positive Energy – They offset over 105% of their energy use with an onsite (91kW) photovoltaic system, providing battery back-up for at least 10% of lighting load and refrigeration for up to one week via on-site saltwater batteries (64kW), and eliminating combustion on the project. To cut their energy use, they used LED lights, passive windows and skylights. They often open the windows for many days. A small, USB-driven, energy efficient personal fan is deployed at each workstation.

Health and Happiness Civilized Environment – It gave a view of its public area by side lighting and top lighting. Tilt-and-turn windows can be opened. The building and the people inside work together to create a livable habitat that quietly adapts over each day, each month, and each year.

Healthy Interior Environment – In order to improve occupant health by reducing or eliminating indoor pollutants, the Arch | Nexus SAC project not only adhered to LBC requirements but went above and beyond in order to create synergies with other LBC Petals and Imperatives. The main one was to not buy any new furniture which out-gasses toxic fumes, creating indoor air pollution.

Biophilic Environment – The innate connection between humans and nature include indoor and outdoor gathering spaces, indoor and outdoor gardens, operable windows, abundant daylight, quality views, cultural connections and references, and robust community outreach.

Materials Red List – Planned materials to avoid including plumbing, mechanical and electric products with VOCs.

Reduction of Carbon Footprint – This was achieved by using sealed concrete instead of carpets, plus open ceilings. Each of the entrance gates to the job site was adorned with informational signage about the LBC in order to provide a daily reminder, and the culminating statement on that sign to avoid the use of gasoline-powered equipment altogether.

Responsible industry – The Project Team willingly and enthusiastically advocated “for the creation and adoption of third-party certified standards for sustainable resource extraction and fair labor practices”. Where the Forestry Stewardship Council (FSC) has set the standard for other industries regarding sourcing and chain-of-custody practices, Arch Nexus focused their advocacy efforts on stone, rock, and metal industry influencers. The vast majority of wood in the building was left in place or was salvaged and reused.
Net Positive Waste – This meant saving: a large wood conference table, plywood shelving, old workstations, old lockers, old plumbing, the exterior bike rack, interior signage, regionally salvaged railroad ties, and the Sacramento Municipal Utility District donated salvaged pole steps from demolished power poles, which Arch Nexus designed as horizontal structural supports for the exterior metal mesh green screen.

Equity Human Scale and Human Places – They included places of bench, shade, protection, bike racks, entry places, along with the urban agriculture that surrounds them, which are for the entire community to enjoy and use at any time, for their satisfaction. They get used in this manner regularly. Even more, the building and the site have fed persons experiencing homelessness with food grown on the site.

Universal Access – An asphalt parking lot was upgraded to a pedestrian parklet. A guide-wire from a utility pole that was a major constraint was integrated into the new composition. A public-art bike rack with integrated public seating was added to the parklet. Also, at the generous glazing system between the interior and exterior of the building, an outdoor bench invites passersby to watch architects in their native habitat – the meeting.

Equitable Investment – at the outset of the project, Arch Nexus developed a robust philanthropy program.
JUST Organization – They have adopted a transparency platform for organizations to disclose their operations, including how they treat their employees and where they make financial and community investments.

Beauty Beauty and Spirit – The intensive integration of interdependent systems and strategies that are required to make a living building which is beautiful in terms of both art and function.

Inspiration and Education – American landscape is replete with process architecture that serves function alone. So this building was designed to inspire; the white and silver metal simply glows in the century-old brick and concrete neighborhood that is the R Street Corridor. Also the unobstructed view of the green wall from the street has literally coaxed people on the street to come into the building to learn more.

For a much more complete description of the Arch | Nexus SAC building, with color photos, go online to: https://living-future.org/lbc/case-studies/arch-nexus-sac/

As I'm sure you can imagine, it takes a lot of forward planning and investment to build a LBC, so there were very few at first. The International Living Future Institute lists 21 full LBCs on their website besides Arch Nexus | SAC at: https://living-future.org/lbc/casestudies/ a few outside the US, and they also list many at net energy, a petal, and net zero, I'm sure with full LBC certification as their goal. LBCs had a steep learning curve. However, today more banks, architects, engineers and investors are interested. Per *Drawdown* in 2017 there were over 400 buildings in a dozen countries working toward LBC certification in various stages of development.

Sources: Drawdown edited by Paul Hawken pages 188-89,
and living-future.org/lbc/case-studies/