New Concepts in LEED v4

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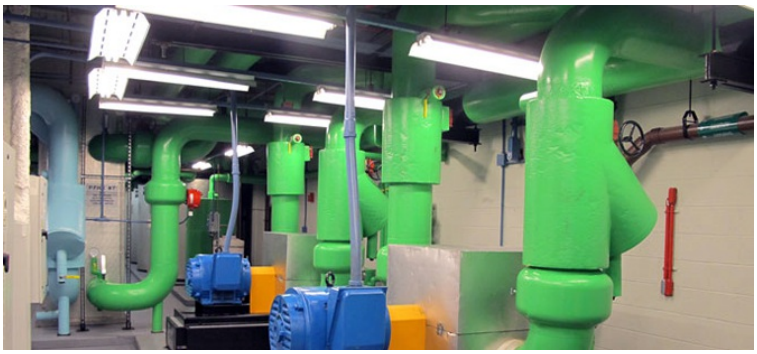

Cook+Fox-designed Bank of America Tower in New York City

By Nadav Malin, Paula Melton, and Tristan Roberts

This article appears in full on BuildingGreen.com

Energy modeling, commissioning, the Forest Stewardship Council (FSC)—since the first building projects became LEED-certified in 2000, concepts like these have gone from being niche interests to being used on tens of thousands of building projects worldwide. While larger trends are also responsible, widespread adoption of the LEED rating systems from the U.S. Green Building Council (USGBC) has arguably been the biggest driver.

But why stand still? After a primarily structural upgrade to LEED in 2009, USGBC is trying to convince the building industry that it's time to push ahead with more innovative concepts in greening our buildings, even as it continues to fine-tune the bedrock LEED requirements. It has been a tough sell: after four public comment drafts, USGBC scrapped plans for launching LEED 2012, pushing a planned member ballot on the system back to 2013 and renaming it LEED v4.

LEED v4 is introducing a number of programs, terms, and concepts that are likely to be unfamiliar even to the most LEED-savvy professionals: BUG ratings, LID infrastructure, BECx, and spatial daylight autonomy are a few of the more esoteric terms. We combed through LEED v4 for concepts that we felt we should know more about, and in this article we elucidate the key LEED v4 concepts most likely to shape the industry for years to come. In analyzing the impact on credit requirements, our focus is on LEED Building Design & Construction (BD&C) rating systems, but most of these concepts crop up across all of LEED.

[ed: For this post, we've excerpted just the following section. Visit BuildingGreen.com for more tidbits]

Demand Response

Demand-response programs are nothing new for manufacturing facilities with large loads; they've long had the opportunity, at least in some service territories, to reduce their energy cost by giving the utility the right to cut back on the power they can use during peak demand times. New technology and policies are now bringing that opportunity to commercial office buildings as well. These programs help avoid the need to build new power plants or to fire up less-efficient plants that are used only during peak demand times.

Traditionally, demand-reduction programs were manually controlled. The manager of a factory would get a call from the utility asking the factory to cut back on its power draw, and the manager would respond by turning equipment off or slowing it down. Newer, automated programs put the control of chillers and lighting in a building directly in the hands of the utility. Up to an agreed-upon limit, they can dim the lights or cut back the chiller remotely.

LEED has a long history of paying attention to how buildings fit into their surrounding infrastructure when it comes to location, transportation, and wastewater, says Brendan Owens, P.E., vice president for LEED technical development at USGBC. But in terms of energy, LEED has until now treated buildings as isolated entities. The Demand Response credit changes that by encouraging two-way communication between buildings and electric utilities, supporting sophisticated load management on both sides of the meter. These capabilities are especially important as more renewable energy sources come online, with their potentially inconsistent output.

Demand-response programs come in various flavors. Some utilities pay the customer a retainer just for the right to cut back on their power, regardless of whether that right is exercised. Others pay by the demand-reduction event. The LEED credit provides two points for projects that enroll in a program allowing the utility to curtail at least 10% of their peak demand. If the project is in a service

territory that doesn't offer a demand-response program, it can still garner one point by installing the technology and having the procedures in place to participate if and when it does become available. In both cases, the demand-response technology has to be included in the building's commissioning scope of work.

"LEED buildings are typically first adopters of new technologies," says Rebecca Schlanert, principal consultant at the energy consulting firm Skipping Stone, "and approximately one-third of the power grid load in the U.S. is attributed to commercial buildings." That's why the electric power industry is interested in getting LEED to help promote these opportunities.

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