

THE BROAD DIMENSION

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LEED 5 is Coming

LEED (Leadership in Energy and Environmental Design) started setting the standard for healthy and sustainable buildings from its introduction in August 1998, and it has been updated a number of times since then. The last major update, LEED 4, was in 2014. LEED 4.1, which was introduced in beta form in February this year, never got voted on and is now being sidestepped by LEED 5. With the growing effects of climate change becoming more visible, reflected in the development of new technologies and the increasing difficulty of getting insurance for buildings, LEED was no longer showing itself in a leadership role. However,



LEED 5 is aiming to reset the bar and restore LEED as a real driver for change as we face the unpredictability of climate conditions and address some cultural changes.

LEED 5 has now gone through its public comment period and is expected to be released in final form by early 2025. It focuses on reducing carbon emissions from a variety of sources and reducing emissions to near-zero by 2050, and that goal accounts for 50% of the available points. Improving the wellbeing of occupants, including addressing equity and inclusivity issues, accounts for a further 25% of the points, and protecting the ecosystem covers the remaining 25%. It is seen as being a bigger change than the move from LEED 3 to 4 as the rating system plays catchup and sets new goals to address the climate crisis as we start moving from not harming the environment to trying to help it. The system is designed to be both practical and efficient, while simplifying the calculations needed to achieve certification.

LEED 5 starts out with three prerequisites, Assessment for Climate Resilience (looking at current and future potential hazards for the building and site), Social Impact Assessment (related to community well-being, inclusivity, and diversity), and Operational Carbon Projection (comparing the project's goals with a provided baseline or a baseline from information obtained from the local utility). Those prerequisites set the tone for what the document is trying to achieve.



Generally speaking, the credits and prerequisites have been reorganized and expanded from what was in LEED 4.1. The 'Location and Transportation' section and the 'Sustainable Sites' section are two of the divisions that show no major changes, although the previous 'Light Pollution Reduction' credit has been expanded to become a 'Light-Pollution and Bird-Collision-Reduction' credit. The 'Water Efficiency' section has a new credit related specifically to 'Water Reuse'.

The 'Energy and Atmosphere' section is where we start to see some serious changes. There's a new prereq titled 'Operational Carbon Projection and Decarbonization Plan', and credits for 'Electrification' and for 'Reduced Peak Thermal Loads'. The 'Grid Harmonization' credit of version 4.1 has grown along with technology changes so that it is now a credit titled 'Grid-Interactive'. In June, the Department of Energy released its new definition for what constitutes a zero-emissions building. That definition says that the building must be highly energy efficient, free of on-site emissions from energy use, in other words it must be all-electric, and that electric power must come from clean energy sources. The USGBC said that it will align the final version of LEED 5 with that definition, although it is basically aligned already.

In 'Materials and Resources', what was previously a prereq for 'Storage and Collection of Recyclables' has now become 'Planning for Zero Waste Operations'. LEED 4 introduced the EPD (Environmental Product Declaration) which was basically a life cycle assessment for a particular material showing that it's better than average, and now there's a prereq for 'Assess Embodied Carbon'.

With the Indoor Environmental Quality section, what had been a prereq for 'Environmental Tobacco Smoke Control'



is now 'No Smoking or Vehicle Idling', and there are new credits for 'Occupant Experience' (which expands on the old 'Exterior Views' credit), 'Enhanced Building Accessibility' (incorporating pilot credits such as inclusive design, all-gender restrooms, and safety first), 'Resilient Spaces' (that addresses changing climate conditions, etc.), and a 'Connecting with Nature'/Biophilia credit (that aims at bringing direct and indirect experience of nature into the building).

The old 'Innovation' and 'Regional Priorities' sections have been combined as 'Project Priorities and Innovation', and the previous 'Regional Priority' and 'Innovation' credits have been combined as a 'Project Priorities' credit.

Each prereq and credit is tagged with one or more of the rating system's goals or 'impact area alignments' that LEED 5 targets. Those goals are 'decarbonization', 'quality of life', and 'ecological conservation and restoration'. Design teams will be provided with means for assessing methodologies for achieving the carbon emission, climate resilience, and social equity goals. There will also be a LEED Impact Report for tracking and improving performance over time.

Another major change to the rating system is that involved with achieving Platinum-level certification. Instead of

simply achieving the target number of points, there are now also specific decarbonization credits that must be met. These include the building being all-electric and using renewable energy, along with meeting the embodied carbon reduction goals.

As usual, the rating system will have versions for Building Design and Construction, Interior Design and Construction, Operations and Maintenance, Neighborhood Development, and Homes. In addition, the US Green Building Council also plans to issue updates every 5 years for the foreseeable future.

Office-Residential Conversions

The increase in work-from-home and hybrid-work, as a result of the pandemic, has led to a lot of vacant office space. Then the housing crisis, especially the need for affordable housing, has resulted in an increase in the homeless population. So, how about converting the empty office space to housing? While such office to residential conversions are taking place, there are numerous hurdles to get over.





Firstly, there is the question of zoning restrictions that might not permit housing developments in that location, but local authorities are addressing these issues. They have the incentive of revitalizing the area in order to bring in more taxes, and having the area populated 24-7 rather than just during working hours can be better for local businesses.

Then we get to the issue of the building itself. Office floor plates have been growing larger, with mostly open-plan and a few individual rooms. One of those rooms may be some form of kitchen, but most of the plumbing and all of the restrooms will normally be found near the central core(s) where the elevators and stairs are. Apartments and condos will be more divided up into rooms, with each unit needing its own bathrooms and kitchen, and ideally it will not require a hike down long corridors to get to an elevator or stair. The additional partitions mean that access to daylight from the existing façade will get cut off, so revisions to the floor plate and exterior of the building are likely to be needed to bring additional light in. In connection with that, modern office buildings are unlikely to have operable windows, which are a requirement for apartments. Unexpectedly, the special requirements for housing often mean that it is the older office buildings, with smaller and narrower floor plates and possibly operable windows, that are the best candidates for conversion. Then we need to consider that such major conversion work could easily trigger code upgrades, including items such as seismic retrofits.

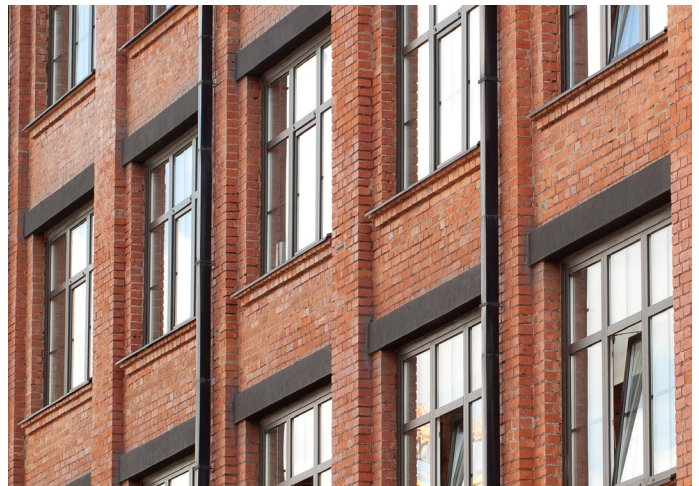
Regarding other MEP issues, the electrical loads for offices and apartments are likely to be similar, although

where the power is needed will change. A fully occupied apartment building will normally have fewer people per unit area than fully occupied office space, so the existing HVAC equipment will probably be more than ample, but there will be the need for individual control and metering for the units.

Of course, it is a common situation that parts of an office building are empty while tenants are still occupying other spaces, making a full conversion of the building problematic. Can the building owner find other office locations that work for the tenant, or maybe a partial conversion of the building would be a possibility. Then you have the problem of separate access and egress for residents and office workers.

Let's assume that the conversion is viable. We then come to the issue of whether the accommodation will be attractive to potential buyers. Are they going to have a view of a half-empty office building or a parking structure from their living room window? Would they be required to park their car on the top story of that parking structure? How far away is the nearest regular grocery store or school or open green space where a young family can enjoy a sunny day?

All these things add to the difficulty and cost of such a conversion, so it is unlikely that affordable housing will be the end result. However, cities are starting to offer tax breaks and other incentives to make these conversions financially viable. But they are more a solution to the question of how to utilize the unneeded office space than to the issue of the housing crisis. Modular housing construction will almost certainly relieve the housing problem to a greater extent than office space conversions will, but it all helps, and reusing a building is also kinder to the climate.



Soft Landings



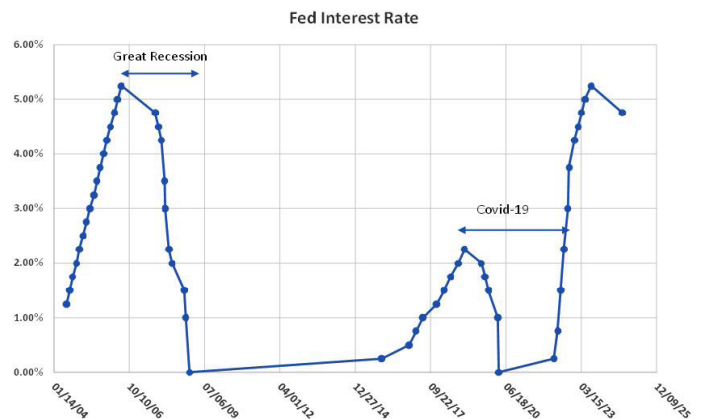
Construction work involves fairly substantial investments by the building owners, so they need to have a good feeling that the economy is going to be stable and support their revenue stream. However, the way the stock market has been bouncing around, it shows that some people are questioning the stability of the market. On the other hand, there are many voices that suggest that we are headed for a 'soft landing'. So, let's look at what a soft landing is, and what we need to look out for.

There is no official definition for what a soft landing implies, but it is usually taken to mean that the economy will recover from a period of high inflation without going into a recession. That doesn't mean that there won't be a slowdown in business activity, but it wouldn't be severe enough to count as a recession. A slowdown is exactly what the Fed's interest rate hikes were intended to achieve in order to tame inflation, but the economy remained stubbornly strong, even as inflation started to drop back towards the Fed's target. The Federal Reserve has now started lowering interest rates, but questions about the market still remain.

The consumers' purchases form a substantial portion of the US GDP, and consumer activity has been holding up very well. However, there are concerns that the level of consumer debt is rising, with credit card defaults increasing and indications that consumers are switching their purchases to lower cost items. On the other hand, while unemployment levels have been inching up, they are still at historically low levels, and wages have been increasing to match inflation.

Recently, the stock market has been driven substantially by hype about AI, and it seems that a more realistic evaluation of AI's potential has largely been a cause of the slump in the Nasdaq, with spillovers into the rest of the market, but business activity has remained strong. With the stock market mainly being driven by either greed or fear, it is not really a good barometer for how business is really performing.

It is said that we need to watch three main items to gauge how we are doing as we approach a landing. The first is the labor market which is currently giving mixed signals. The August jobs reports showed a pickup in the labor market following a poor showing the previous month, although August's gain wasn't as high as anticipated. The second point to watch is the consumer spending, and that has been holding up better than many commentators expected, but it is showing signs of coming under pressure. The third point is what the Fed is doing, and they have now started lowering interest rates and they still have plenty of room for moving them rapidly downwards if the economy shows too much sign of weakness.



As your flight is arriving at its destination, the cabin crew will instruct you to fasten your seatbelts, even though smooth landings are very much the norm these days with the airlines. The controls that the Fed have available to them have been optimistically referred to as 'blunt instruments' in comparison with an aircraft's controls, so as the economy heads for a landing you might want to buckle up tight.

Geoff Canham, Editor, TBD San Francisco