

Title 24 and LEED for Multi-Family: A Practical Approach to Compliance

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The landscape is changing quickly for Multifamily projects subject to the new California Energy Codes pursuing third party green building certification. Some have found the new landscape is loaded with surprises.

However, with best practices in construction and careful planning, developers are finding ways for projects to qualify for the US Green Building Council's Leadership in Energy and Environmental Design (LEED) without destroying their budget.

In this white paper, builders, owners and architects in California will learn to better recognize and assess feasible opportunities for projects pursuing LEED and find out why it is more important than ever to consider certification goals early in the process.

One way to view the general landscape is to consider the shift in what drives certification. The traditional drivers of LEED or GreenPoint Rated (GPR) rating systems are fundamentally changing. In the past, drivers were typically based upon City entitlements, funding requirements and market differentiation. Today, developers are exploring LEED because construction costs related to Cali-

fornia code and LEED requirements have become more aligned. If costs to obtain a green building certification are minimal, developers are considering certification to help better align with market differentiation.

Before a development team makes the decision to pursue LEED or other green building rating systems, two factors should immediately be considered – location and energy performance— because approximately half of the LEED points needed for certification are contained within those two categories.

Location Drives Accreditation

It is important to understand the role of location when determining the feasibility of certification, especially when stipulating to a specific rating during entitlement.

For example, a project located in a downtown development area using LEED-NC (New Construction) could earn up to 11 points based on location. This represents 1/5th of the total points when pursuing LEED Silver. In comparison, the same project using LEED Homes could earn up to 6 LEED points, which is significant. A number of factors should be con-

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sidered that relate to location but not to building energy use. For example, several points are allocated for a project's walkable access to services such as a market, library, dry cleaner, park, and others.

Also, the proximity to public transit (bus stops with minimum trips and light rail) are also factored in. However, if the same project were built in a suburban area, it would likely lose those points, which effectively means that LEED Silver or Gold is more difficult to achieve. Since the project location is one of the first areas of certainty, it can be assessed early and should provide the opportunity to determine the feasibility of certification goals early in the process.

New Energy Code Drives Accreditation

Assessment of energy efficiency is also playing an enhanced role. Many are aware that California's current Title 24 Energy Code went into effect July 1, 2014 with a 25% higher efficiency mandate than the 2008 code (30% higher for commercial projects).

Now that rating systems such as LEED require buildings to perform at 10% over current code in California, the result is a combined 35% performance increase from the 2008 code cycle. Similarly, GreenPoint Rated and NAHB's NGBS have similar energy performance standards as LEED.

Achieving such increases in efficiency depends upon a host of project specific factors, some of which may be readily achievable and some more challenging. Therefore, it is increasingly important to assess the new efficiency standards against your particular project to see what it takes to be 10% over the standard.

In terms of achieving a higher Green Certification, specific areas should be considered related to energy performance that may be more reachable as a result of the New Energy Code requirements, such as:

- Central boilers at 95% efficiency or higher or individual water heaters at 80% efficiency or more – this is where most cost increases occur. There might be a need for solar thermal pre-heat for some central boiler projects since it's prescriptively required by the Energy Code.
- Cool roof or radiant barrier.
- Better windows – often not much or any cost premium due to strict California requirements.
- R-3 foam panel at building exterior in hotter climate zones. May be offset by more efficient equipment.
- Evaluate size and efficiency of heating and cooling systems:
 - It is not uncommon in milder climate zones to see 800 square feet per ton of cooling.

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- Run load calculations (ACCA Manuals J and S or equivalent) at beginning of design and whenever design changes are made to the envelope.

- Consider ductless systems for studio or one bedroom units. The smallest ducted system is 1.5 tons. Ductless systems can achieve half that - 0.75 tons.

Opportunities arise from a detailed evaluation of the more efficient heating and cooling systems mandated by the energy code. Projects in milder climates could use lower tonnage equipment thus potentially reducing costs on the HVAC equipment side.

Also, California's new energy code requires better insulation and air sealing of units, which means there is a slower loss of conditioned air through unit walls if all windows are closed. Furthermore, apartment units that are north facing may receive less solar heat gain, thus downsizing equipment may be a viable alternative to improving energy performance.

Old rules of thumb negatively impact the energy score. The ACCA Manuals (or equivalent) required for HVAC sizing by the California Green Building Code were created, among other measures, to ensure occupant comfort. Taking into consideration better insulation, ACCA standards are administered in approved energy modeling software. As a result, proj-

ects that do not meet the prescribed heating/cooling size on equipment will be penalized on the overall energy score.

In the energy model, all systems are included, and a whole building energy performance score is produced relative to the California Code Title 24 baseline. By close collaboration with the design team, expect the detailed energy model to often justify efficiency over the 10% threshold in hopes of minimal hard cost increases. It is difficult to achieve the same results when the energy model is initiated after the design is complete, so the earlier the process is started the better the results.

Avoiding Title 24 Cost Impacts

Project hard costs for green buildings built under today's California Energy Code depend on the construction type, location (such as climate zone), or design type. For typical multifamily apartment projects of several hundred units, developers have experienced hard cost increases in the following areas:

- 1. Individual Boilers** – \$500,000 to \$1 million to replace 65% efficiency boilers with 85% efficient in 300 plus unit apartment projects.

- 2. Insulation installation** – LEED for Homes requires that insulation be installed to fully cover bays without compressions or gaps – a HERS measure known as Quality Insulation Installation

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(QII). This could add material and labor costs. On a 275 unit project this was roughly a \$45,000 cost increase.

3. MERV 8 Filters – LEED Homes require MERV 8 filters be installed. These are more expensive than typical mesh filters and cost about \$4 to \$7 per filter.

4. Fresh Air – The code now requires fresh air be sent into units either through a passive air opening or through a mechanical chase into the return side of the air system

5.R-4 rigid insulation at building exterior.

Minimizing budget impacts requires a high degree of creativity since state and accreditation standards have moved upward somewhat independently. Since each of the state requirements listed above improves efficiency, opportunity exists for obtaining credit within the energy model, as was discussed above.

However, as California increases its energy efficiency requirements, third party rating systems like LEED and GPR are raising their standards to set themselves apart from mandatory code requirements. Thus, creative opportunity lies in defining building efficiency within the energy model.

Another factor to consider is the effect on product prices that occurs after new regulations take effect. Often, new regulations bump up costs initially, but in time pricing becomes standardized as the market adopts to demand, as was the case with LED lights.

It's important to note that equipment efficiencies, in conjunction with effective envelope construction, in colder climates are contributing to better performance margins than cooling equipment efficiencies, in conjunction with effective envelope construction, in warmer climates. This means that projects in colder climate zones should find it easier to exceed Title 24 with minimal construction cost increases and to qualify for rebates.

We have found each project is unique and can benefit from early assessment of the challenges and opportunities.

For further information, please contact Moe Fakh at VCA Green. We would be happy to provide an assessment on how to achieve your compliance and accreditation goals.

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