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Notes on building-in sustainable design features

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The importance of "building commissioning" – the systematic process of ensuring that a structure meets the owner's project requirements and the engineering and architectural firms' design – has traditionally been under-recognized in the real estate industry. However, the "green" building movement, which requires structures to undergo commissioning to earn the United States Green Building Council's LEED (Leadership in Energy and Environmental Design) certification, has heightened awareness of this crucial process.

The purpose of commissioning, green or not, is for owners and designers to verify that all equipment and integrated systems within the building provide peak performance. The purpose of this is to confirm, through various phases, that the building can be operated safely and according to the owners' needs.

New construction commissioning ideally begins with participation from architects, engineers and commissioning providers during the design phase and lasts through construction completion. The process includes the warranty coordination of equipment, operator training, maintenance practices and additional owner specified tasks, which may include emergency action plans or initial equipment start-up coordination.

Existing buildings can also benefit from this process through a retro-commissioning effort, which ensures that all systems, primarily the HVAC (heating, ventilation and air conditioning) equipment, are optimized for present occupants and for the building's current usage.

As mentioned, sustainable design has been a huge factor in the rising popularity of commissioning. The LEED rating systems for new construction and commercial interiors requires that each eligible green project undergo fundamental building commissioning, which demands that heating, ventilation, air-conditioning, lighting, and domestic hot water and renewable energy systems are tested along with their associated controls.

Commissioning service providers play a vital role in ensuring the energy performance of these and other designed systems. Through detailed construction inspections and functional performance testing, the Commissioning Authority, a team of senior specialists that directs and manages the process, provides the field design oversight necessary for sustained HVAC performance. The result of the process creates improved comfort for occupants, well-tuned systems for building operators and greater control over operating and maintenance costs.

High-tech systems incorporated into today's sustainable designs are a factor

in the commissioning requisite for green projects. Complex control strategies employed by Building Automation Systems (BAS) require verification of sequencing to ensure proper operation and successful seasonal operation for building engineers. All too often the training of operating staff is less detailed than what is necessary and they are not intimately familiar with the sophisticated technology. Commissioning helps operators meet this challenge.

Building design teams pursuing LEED credits have the option to earn the enhanced commissioning credit, which ensures that the highest level of certification is obtained on a green project. This credit emphasizes a better transition of the building to the operations staff through the development of a building systems manual and tracking the completion of specified training. In addition, a review is held within ten months of substantial completion, which includes a check on tenant operating conditions and a re-inspection assessment of open issues found by the commissioning team.

Another incentive to undergo the commissioning process is the Green Building Tax Credit, which provides owners and tenants of eligible environmentally-friendly buildings with tax credits. The specific green credit component standards must be documented, and they include

increased energy efficiency, improved indoor air quality, and reduced environmental impacts of large commercial and residential buildings in New York State. Commissioning services are mandated to be performed on the mechanical plant of the base building where owners and developers seek the tax advantage.

Many states now also support clean energy programs, which encourage both base commissioning and retro-commissioning as ways to meet energy goals in the commercial/industrial and multi-family building sectors. There

is no doubt that the green building trend is responsible for highlighting commissioning services. In fact, several firms have even adopted green commissioning as a service niche.

Although LEED-certified buildings require commissioning, it is important to realize that the process is a crucial part of any new construction or major renovation project. Builders can take advantage of benefits offered by fundamental or enhanced commissioning services even if LEED certification is not being sought.

Real estate professionals are embracing the commissioning process as they become more familiar with its advantages. Building managers can certainly benefit from well-performing operating systems, in addition to saving energy expenses. It is hopeful that builders and designers will soon see commissioning as a prerequisite for all projects – and not simply to gather LEED points.

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