Sustainable option

Green building practices will demand basic changes in design and construction process, says Casius Pealer

Building design and construction methods are constantly changing, including new technologies, equipment, financing and delivery models. That said, the basics tend to remain the same: keep the walls up and the wind and rain out. Green building measures tend to fit into this same pattern. There are surely new technologies and construction techniques, but these innovations are in service to core building principles that remain the same. The point is that acquiring green building expertise in a design and construction firm should not be seen as a whole new endeavour, but simply part of an ongoing process of staying current and competitive in a thriving industry.

Beyond energy and water efficiency

Although energy and water efficiency are often the most visible outcomes of building efficiency, they are neither the beginning nor the end of a green building project. The green building process is a holistic effort that builds on the interconnections among various disciplines and building systems, as well as of design, construction and operations. This often means a more integrated process that involves the general contractor earlier in the design of the building.

Although green building is a holistic process, many of its rating systems still seek to define it through a menu of individual options. The LEED Rating System, developed by the U.S. Green Building Council (USGBC) and administered by the Green Buildings Certification Institute (GBCI), provides perhaps the most common and detailed definition of “green building” globally.

LEED requires projects to address measures in six different credit categories. These general areas go beyond just energy and water to include location, materials, and indoor environmental quality (a sixth category for innovation can cut across all categories). By this key building-related measure, “sustainability” means more than just reducing energy and water use. Although LEED was started in the United States, over half of the total square footage of LEED registered space is located outside the U.S. in 135 countries. Currently there are 14 properties in Oman registered with the LEED Rating System, but none yet that have been certified as complete. Like LEED, the Estidama Pearl Building Rating System in Abu Dhabi also requires projects to address siting, indoor air quality, and materials in addition to “Precious Water” and “Resourceful Energy.” Additionally, however, the Pearl Rating System includes an express focus on an “Integrated Development Process.” This integrated development process includes life cycle costing, project commissioning and construction management issues, as well as training and education.

These additional factors in Estidama emphasize the human and collaborative side of a green building process. Life cycle costing addresses the fact that what might be cost-effective in the short run might waste money in the long run. Commissioning ensures that projects are actually built and initially perform to the design specifications. Similarly, construction management and education/training emphasize that projects must be built and operated effectively to achieve efficiencies and maintain occupant comfort.

Trends in green building

1) Innovative materials

It is important to reiterate that a high quality, efficient building does not necessarily require new technologies or innovative materials. Cheap energy and technology have historically compensated for sloppy design and construction, so the first step is to simply go back to basics. That means using passive design strategies (solar and wind orientation, shading, etc), reducing air leakage (while ensuring adequate ventilation), right-sizing mechanical equipment, and then implementing proper maintenance over time. Once you improve on existing processes

Leed yardsticks for measuring projects

- Energy
- Water
- Location
- Materials
- Indoor environmental quality
- Innovation
Over half of the total square footage of LEED registered space is located outside the US in 135 countries. Currently there are 14 properties in Oman registered with the LEED Rating System.

Distribution by Property Type

The Greenprint Performance Report includes all major property types with an emphasis towards office, followed by multifamily, retail, and industrial.

The Greenprint portfolio is becoming more diversified over the time.
of the kind of benchmark that the Greenprint report aims to generate, the median office energy use intensity for properties in the EMEA region was 344 kWh/m², compared to 251 kWh/m² in the Asia Pacific region, and 212 kWh/m² in the Americas.

iii) Local codes
Another broad trend internationally is that as voluntary standards such as LEED, BREEAM and Estidama have had success and created a market for green buildings, mandatory codes are now incorporating energy efficiency and green building requirements. Regional examples of this trend include the Energy Conservation Building Code that was adopted in India in 2007, and the Abu Dhabi International Building Code, which will become mandatory for developers in early 2014. The Abu Dhabi code incorporates the International Energy Conservation Code (IECC), which was first introduced in 1998 and most recently updated in 2012.

Locally, the Oman Green Buildings Centre (OGBC) was officially launched in February 2012 and is affiliated with the Oman Society of Engineers. Among other efforts, the OGBC is working to facilitate green building standards in Oman and to improve building standards and codes. As respect for the environment is a hallmark of Omani culture, it only makes sense that this care for the natural environment would find expression in the built environment.

Additionally, a more comprehensive International Green Conservation Code (IgCC) was published in March 2012 and covers sustainability measures from design through construction. The IgCC has only been adopted by a very few localities worldwide, but it represents a global trend toward higher baseline green building requirements, not just optional incentives—another reason for general contractors and building professionals to become familiar with green building principles.

Green building is not a fad
Green buildings are increasingly in demand globally, regionally, and in Oman. This overall trend is not a fad or a wave that will simply pass by, but will instead increasingly demand fundamental changes to the design and construction process, as well as new technical knowledge. And it’s not just for architects or engineers. Expect to see more public sector as well as private sector clients demand green building experience for general contractors and subcontractors, as proper construction and installation is as important as green design. This means reduced opportunities for those firms that choose to avoid green building projects or training opportunities, but expanded opportunities for those that invest early and build expertise.

Becoming familiar with various technologies to automatically track energy use, such as SmartMeters, may provide business opportunities for contractors as well.

Casius Pealer, LEED AP, PQP, is Senior Sustainable Building Advisor to the Affordable Housing Institute (AHI), based in Boston, Massachusetts. AHI is a global nonprofit consultancy that helps housing finance and development entities expand their business activity, including in Egypt, Oman, Turkey, Saudi Arabia and the UAE.