

CHANGE IS COMING

Renewable Energy

poses enduring challenges to construction professionals

By William S. Thomas

In May 2021, the Biden Administration unveiled an aggressive agenda to curb carbon emissions created by the construction sector. The plan includes development of building performance standards for federal buildings, which would establish metrics, targets, and tracking methods to reach federal carbon emission goals, which the president has committed to being “net-zero” by the year 2050. This spring, the New York Senate passed legislation which would alter the state’s building codes, a move towards more energy efficiency. The California Energy Commission also just adopted an updated “2022 Building Energy Efficiency Standards Code” for newly constructed and renovated buildings to lower their carbon footprint. Similar codes, regulations, and pronouncements have been made all across the country, on statewide and local levels, and likely many more will be adopted soon that require buildings to be more resilient, adaptable, and efficient. As a result, the construction industry must take notice and adapt to the changes for building and renovation.

ENERGY EFFICIENCY REGULATIONS

In a study reported at the Environmental Protection Agency’s 17th International Emission Inventory Conference in 2008, it was noted that globally, buildings use 30-40% of “primary energy,” typically generated from biomass in low-income countries, and burning fossil fuels in middle- and high-income nations. In the

United States alone, it was reported the building sector accounts for approximately 48% of annual greenhouse gas emissions, not including the production and transportation of materials used in building construction. Further, the long-term operational generation of greenhouse gas emissions from these completed structures, assuming a lengthy lifespan, is significant.

The announcement from the White House did not set a timeline for developing these building performance standards and did not include any specific benchmarks. New York state passed through its Senate the “Advanced Building Codes, Appliance and Equipment Efficiency Standards Act of 2021,” now before its Assembly, which will promote consumption of clean energy and implementation of an aggressive climate agenda including energy efficiency standards for buildings, requiring greenhouse gas emission reduction in design criteria, increased efficiency, reduced environmental impact of buildings, and a resultant lower energy use and operation costs.

Proposed changes to the California code will not go into effect until 2023. If adopted in December of this year, they will apply to all newly constructed and renovated commercial buildings and high-rise multifamily structures, including hotel, office, medical, retail, restaurant, school, and civic

construction. The revisions to the 2022 California Energy Code focus on four key areas: encouraging electric heat pump technology for space and water heating, which consumes less energy and produces fewer emissions than gas-powered units; establishing electric-ready requirements for single-family homes so owners will use cleaner electric heating, cooking, and have electric vehicle charging options; expanding solar photovoltaic systems and establishing on site battery storage standards; and strengthening ventilation standards to improve indoor air quality.

Other similar regulations attempt to force developers, owners, designers, and contractors to adopt a significantly more aggressive renewable and sustainable energy posture, which invariably will add to short-term increases in construction costs and project budgets.

PIVOT TO SUSTAINABILITY

Sustainability requirements should come as no surprise. Since 1997, the American Institute of Architects’ (AIA) Committee on the Environment has focused on achieving climate action and justice through design, and annually recognizes the construction industry’s most innovative projects, integrating design excellence with environmental performance.

In its 2020 Code of Ethics, the AIA’s very first Canon requires its members to “consider the social and environmental impact of their professional activities.” The American Society of Civil Engineers, in its brand-new





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Code of Ethics implores its members to “enhance the quality of life for humanity,” to “adhere to the principles of sustainable development,” and to consider and mitigate against adverse environmental impacts in their work. For design professionals, the old way of doing things may no longer be an option.

IMPACT OF SUSTAINABILITY

Changes to statutes, codes, and regulations mandating adoption of climate change initiatives will have significant impacts to ongoing and future construction projects. As an initial matter, owners and developers will need to factor into their budgets the expense of sustainability compliance, which may require a detailed assessment of the long-term operational impacts to truly appreciate the overall cost-benefit. These initiatives, once the easy target of value engineering efforts, will no longer be on the chopping block; however, other improvements may need to be. The data must support this long-view approach, encouraging building owners to see benefit where once there was only non-essential expense. Therefore, long-term data collection, cost monitoring, and performance goals will all need to be maintained and recorded.

Contracts will need to be reviewed with care, as most obligate design professionals to comply with “all” rules, regulations, codes, and statutes. Often, there is no clarity provided as to when the compliance is required, meaning codes or standards adopted after the plans are completed may still need to be complied with, even though not part of the design. Either way, compliance with these sustainability requirements needs to be an owner expense item, and not something the design professional pays for out of its insurance policy.

CLOSING THOUGHT

Many contracts obligate designers and contractors to design and build to a budget. An early pre-design meeting of the team could aid in creating a working budget which allows the owner to make informed decisions about the design before getting too committed to one direction over another. These costs will soon become a part of every project. ■

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