Shifting Trends in U.S. Construction Delivery Systems: Sustainable and Modular Construction

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ABSTRACT

The maturing of green building and sustainable construction in the US is in contrast to the emerging interest in modular or industrial construction, with the former having become a mature strategy undergoing standardization and the latter an emerging concept with enormous potential benefits. Sustainable construction originated in the early 1990s as a nascent effort to connect the human need for built environment to many of the environmental ills that were just becoming critical due to the scale of their impacts. The advent of building assessment systems in the following two decades marked a growth in interest in the goals of sustainable construction and a partial mandate by governments to address the enormous impacts of buildings and infrastructure. The last decade has been marked a trend away from building assessment and a shift to standardization and codification of sustainable construction. As the formal sustainable construction movement becomes the norm, a second trend, modular or industrialized construction is emerging as a result of demographic and economic forces. An enormous shortage of skilled construction workers is worsening each year, especially with the retirement of the Baby Boomer generation. Additionally the cost of construction has been increasing and owners are demanding strategies to mitigate this effect. Modular construction helps resolve both the quandary of what to do about the shrinking labor force as well as the growing costs of building. Finally, modular construction has been demonstrated as being a strategy that can has many of the attributes of a truly green building with the potential for zero waste in the factory and on-site, improved energy performance due to the factory controlled conditions of fabrication, and a higher quality product overall.

ABOUT THE SPEAKER

Charles J. Kibert Ph.D., P.E. is Director of the Powell Center for Construction and Environment and a Professor in the M.E. Rinker Sr. School of Construction Management at the University of Florida. He is co-founder and President of the Cross Creek Initiative, a non-profit industry/university joint venture seeking to implement sustainability principles into construction. His research interests include net zero strategies, deconstruction, construction and demolition (C&D) debris recycling, manufactured construction, and construction ecology and metabolism. He is the author of Sustainable Construction: Green Building Design and Construction, 4th Edition (John Wiley & Sons, 2016), and co-author of Working toward Sustainability: Ethical Decision Making in a Technological World (John Wiley & Sons, 2012). He has served as a consultant on numerous green building projects, and directed the design and construction of the award winning Rinker Hall, the first LEED gold certified building in Florida. He is on the board of the Green Building Initiative and is a Green Globes Assessor with experience assessing over 50 buildings for Green Globes certification. He was the organizer of the Symposium on the State of the Art of Modular Construction (2017) and the iiSBE Symposium on the Net Zero Built Environment (2015). He holds a B.S. (General Engineering) from the U.S. Military Academy, a M.S. (Nuclear Engineering) from Carnegie-Mellon University, and a Ph.D. (Mechanical Engineering) from the University of South Florida. He is a registered professional engineer in Florida.