

Matt Ballain

CHAIRMAN'S MESSAGE



Designed to last

Breadth of design is a tremendous advantage of precast, prestressed concrete over other construction materials. Whether you need an ornate building with a parking structure that can withstand an earthquake and hurricane at the same time or a normal office building, we can provide the engineering and an aesthetic design solution.

Design breadth, faster, better, safer, resilient. We do a great job of promoting all those qualities. What are we missing here? Carbon friendly.

Buildings account for 39% to 40% of all global energy-related carbon emissions. About 27% to 28% of this is from operations, and 11% to 13% is from construction. In the next 40 years, the global building floor area is expected to increase by 2.4 trillion ft². That is approximately double today's square footage. The energy consumption of construction and operations will be critical, and the opportunities for our industry are astronomical.

At the same time, carbon is becoming a common topic of discussion and is being integrated into future building codes. In addition to the previously stated advantages of precast, prestressed concrete, the carbon consumption advantage of our products needs to be examined, understood, and promoted. The embodied energy of precast, prestressed concrete is relatively low: 2.0 compared with 2.5 for brick, 12.7 for glass, and 25 for steel.

With normal maintenance, precast concrete structures will last 100 years, which makes the carbon consumption of these structures divided by their lifespan very desirable. If the need for building replacement were to be reduced by half, we could eliminate a significant portion of carbon emissions worldwide.

Carbon consumption from heating and cooling buildings is a large portion of the operations usage. The *R*-value of precast concrete with 3 or 4 in. encapsulated polyisocyanurate insulation is 20 and 27, respectively. Using the thermal mass effect of the interior concrete wythe yields an even higher effective *R*-value of the system. Compare the energy perspective of a glass curtain wall having a best-case *R*-value of 5, and the choice is obvious. [1](#)



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2023 PCI Board Chair

Vice President and General Manager

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