Like most industries today, the construction industry is concerned about atmospheric carbon dioxide (CO₂). Responding to the need for more-sustainable building materials, cement manufacturers in the United States produce several formulations of lower-carbon, blended cements called portland-limestone cements (PLCs). Because these materials may be less familiar to some segments of the construction industry, the Portland Cement Association has created a campaign to raise awareness of PLCs and the benefits they offer.

The centerpiece of the campaign is a new website: www.greenercement.com. It provides architects, specifiers, and others with practical information on how to easily implement PLCs to create durable, resilient concrete.

PLCs are engineered with a higher limestone content (5% to 15%) than portland cement (maximum 5% limestone) to reduce the carbon footprint of concrete by about 10%. Cement producers optimize PLCs to make them easy to use, and test them to ensure they meet the requirements of ASTM C595.1 PLCs perform just like ordinary portland cement and can be substituted for it in a concrete mixture at a 1:1 replacement level, using the same specifications, the same mixture proportions, and the same delivery and installation chain.

Because so much concrete is placed each year, even small changes to its formulation can have dramatic effects on the construction industry’s annual carbon footprint. Modifying a concrete mixture to replace materials that have a higher carbon footprint with lower carbon footprint ingredients is an effective strategy. PLCs offer an easy way to accomplish this, much like fly ash and slag cement have been used for decades. And concrete mixtures designed with PLCs are compatible with all supplementary cementitious materials, so substituting PLC for ordinary portland cement does not preclude the use of any other blended cements give designers an easy way to lower the carbon footprint of concrete by about 10%, providing sustainable and resilient construction while helping to address global climate challenges.

References

Jamie Farny is the director, building marketing, for the Portland Cement Association in Skokie, Ill.