

LET'S TALK ABOUT CONCRETE

If concrete were a country, it would rank third for carbon emissions behind China & the United States.¹

CSU is a growing university, and growth means construction. Everything, from the bike paths to the dorm buildings, requires a lasting material like concrete. How can we mitigate our impact on the environment as the university expands to meet the needs of students?

WHAT ARE THE ALTERNATIVES?

PLC

PLC, or Portland Limestone Cement, is a swap for Ordinary Portland Cement (OPC) that can reduce CO2 emissions by roughly 10%. PLC is made with more limestone, which requires less energy to grind down, and it maintains the same strength & durability as OPC. PLC has been used in multiple successful projects, including the Colorado Department of Transportation's replacement of part of US Highway 287.

LC3

LC3 is a cement based on a limestone calcined clay blend that can reduce CO2 emissions up to 40%. It reduces the utilization of raw materials by using industrial waste, and clay is abundantly available worldwide. LC3 has the potential to cost 25% less than OPC production, and it has been used in homes, offices, roads, and more.

CARBONCURE

CarbonCure is a new technology that aims to inject CO2 into concrete and chemically convert it into a mineral. This would help strengthen the material & keep CO2 from being emitted into the atmosphere. It could reduce carbon emissions by 25 lbs of CO2 per cubic yard. CarbonCure also has specific applications towards points for LEED and STARS.

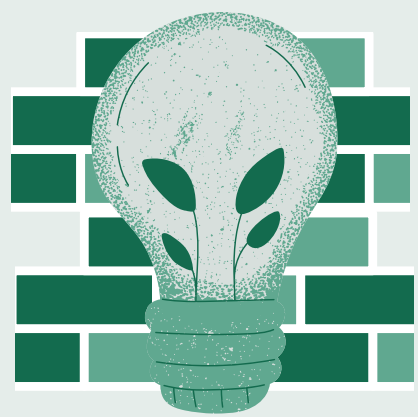


WHAT ARE THE BENEFITS OF PLC?

Using Portland Limestone Cement instead of Portland Cement could save over 400 tons of CO2 emissions on a 500,000 square foot building project (roughly the size of the CSU's upcoming Meridian Village). It is currently readily commercially available and can be swapped for OPC at a 1:1 ratio with little to no adjustment. Furthermore, it could help CSU gain more points toward LEED certifications and in the STARS report.

CARBON NEUTRALITY?

CSU has set a goal to be carbon neutral by 2050. This should include not only how we operate our buildings but also how we build them. The demanding nature of construction will generate plenty of CO2 to offset, and these cement alternatives and unique technologies offer an opportunity to reduce the overall emissions.



WHAT'S NEXT?

- Start a dialogue with CSU's Facilities Management Program about construction
- Raise awareness amongst students
- Is there an extra cost involved in using PLC?
- How can PLC and other alternatives actually be implemented on campus?

LEARN MORE

- [PLC: Greener Cement](#)
- [Limestone Calcined Clay Cement](#)
- [CarbonCure](#)
- [Karen Scrivener: A concrete idea to reduce carbon emissions](#)

1. Scrivener, K. (2020, October). A concrete idea to reduce carbon emissions [Video]. TED Conferences. https://www.ted.com/talks/karen_scrivener_a_concrete_idea_to_reduce_carbon_emissions?language=en

