

# CSA SPE-112:21, *CarbonStar®: Technical specification for concrete carbon intensity quantification and verification*

Cement and concrete manufacturing contribute significantly to the world's carbon dioxide emissions. While methods to reduce these emissions exist, until now, there has been no consistent methodology to differentiate and document the carbon intensity of different cement and concrete mixes. The new methodology outlined in CSA SPE112:21, *CarbonStar®: Technical specification for concrete carbon intensity quantification and verification*, addresses this challenge<sup>1</sup>.

CSA SPE-112:21 can help architects, developers, and specifiers make informed decisions and select lower carbon-intensity cement or concrete to reduce environmental impacts of their projects. This Technical Specification provides minimum requirements and recommendations for quantifying and verifying the carbon intensity in a unit of concrete, including any carbon that is permanently sequestered during the production of the concrete and its input materials.

CSA SPE-112:21 outlines the methodology for calculating:

- emitted carbon, including emissions during the raw materials to production stages of the product's life cycle
- net sequestered carbon, taking into account direct emissions involved during capturing and converting greenhouse gases, transporting the converted or purified carbon dioxide, and creating and transporting the converted material

CSA SPE-112:21 also outlines the requirements for reporting the results and conclusions of the calculations and for data verification. The informative Annex provides examples of how to conduct the calculations.

<sup>1</sup> Technical specifications are standards-based solutions developed without using the full national standard of Canada accreditation requirements.

## At-A-Glance



Cement and concrete manufacturing contribute significantly to the world's carbon dioxide emissions.



CSA SPE-112:21 provides requirements and recommendations for quantifying and verifying carbon intensity in a unit of concrete.



CSA SPE-112:21 can help architects, developers, and specifiers select lower carbon intensity cement or concrete to reduce environmental impacts of their projects.

## Get your copy of the Standards

CSA SPE-112:21 is available for no-fee view access on the [CSA Store](#).

## Technical Specification Highlights

The first edition of CSA SPE-112 provides:

- details on fundamental concepts relevant to understanding how the methodological calculations of this Technical Specification apply to a CarbonStar® rating;
- methodology for calculating emitted carbon and net sequestered carbon
- requirements and recommendations for documentation, data retention, and reporting
- guidance for verification and validation of system boundaries, conformance with the CarbonStar® methodology, data, and supporting information
- requirements and recommendations for monitoring of methodology and instrumentation used to determine emission factors
- examples of how to conduct CarbonStar® calculations

## Related Standards

- [CSA A23.1:19/CSA A23.2:19, Concrete materials and methods of concrete construction/Test methods and standard practices for concrete](#)
- [CSA A23.3:19, Design of concrete structures](#)
- [CSA A23.4-16 \(R2021\), Precast concrete – Materials and construction](#)
- [CSA S6:19, Canadian Highway Bridge Design Code](#)
- [CSA S413:21, Parking structures](#)



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