Sustainable Design And Life Cycle Assessment Of Steel Fibre Reinforced Concrete (sfrc) Structures

Vas Haitas[1]
[1] BOSFA Pty Ltd (NV BEKAERT SA)

With the focus on climate change and the push to reduce carbon emissions globally, manufacturers of new and innovative technologies are developing construction solutions and processes that measure the carbon footprint of buildings and infrastructure. The use of Steel Fibre Reinforced Concrete (SFRC) is leading the way in the reduction of emissions of concrete materials at the production, construction and decommissioning stages of an asset's life cycle.

Comparing traditional reinforced concrete solutions with SFRC alone or combined, whether precast or in-situ structural elements, the impact of the Global Warming Potential (GWP) to the environment can be calculated and the design altered to reduce carbon dioxide (CO_2) and other Greenhouse gas emissions. The development of Environmental Product Declarations (EPD's) by reinforcing and concrete suppliers are necessary and requested by developers/asset owners and designers to enable the assessment of the GWP of a project. The adoption of steel fibre's in structural reinforced concrete elements of a project, has realised significant material and emission. By using the latest public domain software, projects can attain additional credits for GREENSTAR®, LEED, BREEAM and other certification systems adopted globally.

The benefits from a technical, economical and a sustainability perspective shall be explored and presented from local and global experiences.