

« Steel, a strategic lever for low-carbon »



[Paperjam](#) 10x6 – Industry (Re)Invented has taken place on 3 March 2026 at Kinopolis Kirchberg. Olivier Vassart, Chief Executive Officer of [Steligence](#) at ArcelorMittal, analyses the changes taking place in the industrial sector in Europe and Luxembourg.

How can steel become a key player in low-carbon construction?

Olivier Vassart. – "Steel is a key player in low-carbon construction for several reasons. The first is the total circularity of steel as a material, which can very easily be recovered and recycled to make more steel.

The second, and no less important, is that you cannot compare 1kg of steel with 1kg of concrete or 1kg of wood. You have to compare the building as a whole. Steel is extremely strong, so very little is needed, which means that buildings can be constructed using a minimum amount of materials. Finally, in Luxembourg, we produce steel that is 100% recycled using decarbonized energy, which means that our steel has a minimal carbon footprint (8 times less than the global average).

To achieve low-carbon construction, it is therefore necessary to combine architectural efficiency, minimisation of the quantities of materials used and the way in which these materials are produced. Several studies have already shown that low-carbon construction achieved, and optimised in a mixed steel-concrete structure achieved the same CO2 impact as a bio-based solution.

How can we reconcile material innovation with cost constraints in construction?

"In many areas, cost constraints are an important parameter in the innovation process. Construction is particularly sensitive to this because most buildings are constructed on the basis of regulatory specifications and building regulations. At [ArcelorMittal](#), when we develop new products or solutions, we always keep these parameters in mind.

The key is to understand the total cost "in use", not just the price per tonne of materials. Our S460 [Histar®](#) steels, produced in Differdange, are of course more expensive per tonne compared to basic S235 steels. However, in certain buildings, they can reduce steel consumption by around 40%. They are much easier to weld than conventional steels, so overall construction costs are significantly reduced.

It is exactly the same concept as low-carbon construction: we must not focus solely on the price of the material but look holistically at the price or CO2 emissions of the finished building.

Is digital technology also changing the way materials are designed, not just produced?

"Digital technology has completely transformed the approach of our research centers that develop new steels.

A few years ago, steel was designed almost exclusively through laboratory tests on pilot lines that made it possible to "physically" produce this new material, put it through the various stages of industrial production and measure its final properties.

Today, thanks to digitalisation and artificial intelligence, we are able to predict the mechanical properties of new materials before carrying out these tests.

This allows us to very quickly cover a much wider spectrum of possibilities before undertaking physical tests. We can also use reverse engineering, starting with the properties we are looking for and defining the composition and production parameters."