



Tata Steel Europe translated famous Dutch designer Rem Koolhaas's vision into reality by innovating a new kind of steel wall to display the art works at an exhibition at the Stedelijk Museum in Amsterdam.

## THE CONTEXT



The prestigious Stedelijk Museum in Amsterdam sought to present art works in an exhibition in its 'stedelijk' exposition area in a unique manner. It approached famous Dutch designer Rem Koolhaas, who visualised mounting the art works on thin steel walls stretching 20 metres long and two-to-four metres high.

## THE INNOVATION



Tata Steel Europe innovated by creating one-of-a-kind free-standing steel walls that were both stable and had a perfect surface texture. The team realised these challenging demands by producing a specially treated steel substrate. The construction was modular so that the sheets could be handled in a restricted area. The specific vibrations in the steel walls were also controlled to avoid any possible damage to the paint layers in the high-value art works on display.

## KEY CHALLENGES



### TO BUILD STEEL WALLS OF EXTREME STIFFNESS AND AN EIGEN FREQUENCY THAT WOULD NOT DAMAGE THE MULTI-MILLION-EURO ART WORKS HUNG ON THEM

The team achieved both these conditions by using finite element calculations and applying them iteratively to optimise the construction step by step. Mock-ups were made to check the wall's vibration response on impact. A chalk test was also conducted to ensure that the paint layers were not damaged by applied vibrations. These demands were a far cry from the usual demands of the steel world that the company was used to.

### TO CREATE A SURFACE THAT IS HIGHLY UNIFORM AND HAS A SOFT TOUCH

Mr Koolhaas wanted a matte surface that felt like silk, which was extremely challenging to achieve on a 15mm-thick hot-rolled coil with oxide layers. The team managed to produce this by using a special shot-blast operation in combination with a lacquer layer, which also prevented the steel from corroding.



## THE IMPACT



The company proved that it could live up to the expectations of one of the foremost Dutch designers of our times and translate his concept into reality. Mr Koolhaas commended the work saying that the thin walls seemed more like screens. Invitees and the national press attending the exhibition's opening in December 2017 were also highly impressed by the unusual use of steel. Moreover, Tata Steel screened a film highlighting the company's innovation at the entrance of the exhibition, exposing more than 700,000 visitors who frequent the Stedelijk museum each year to this unique steel application.