

**BUSINESS AND MONEY** CONSTRUCTION

# Embodied carbon in construction

A call to abandon old building methods and go for reuse and deconstruction

PETER VALENTINO

Architect and partner, Valentino Architects

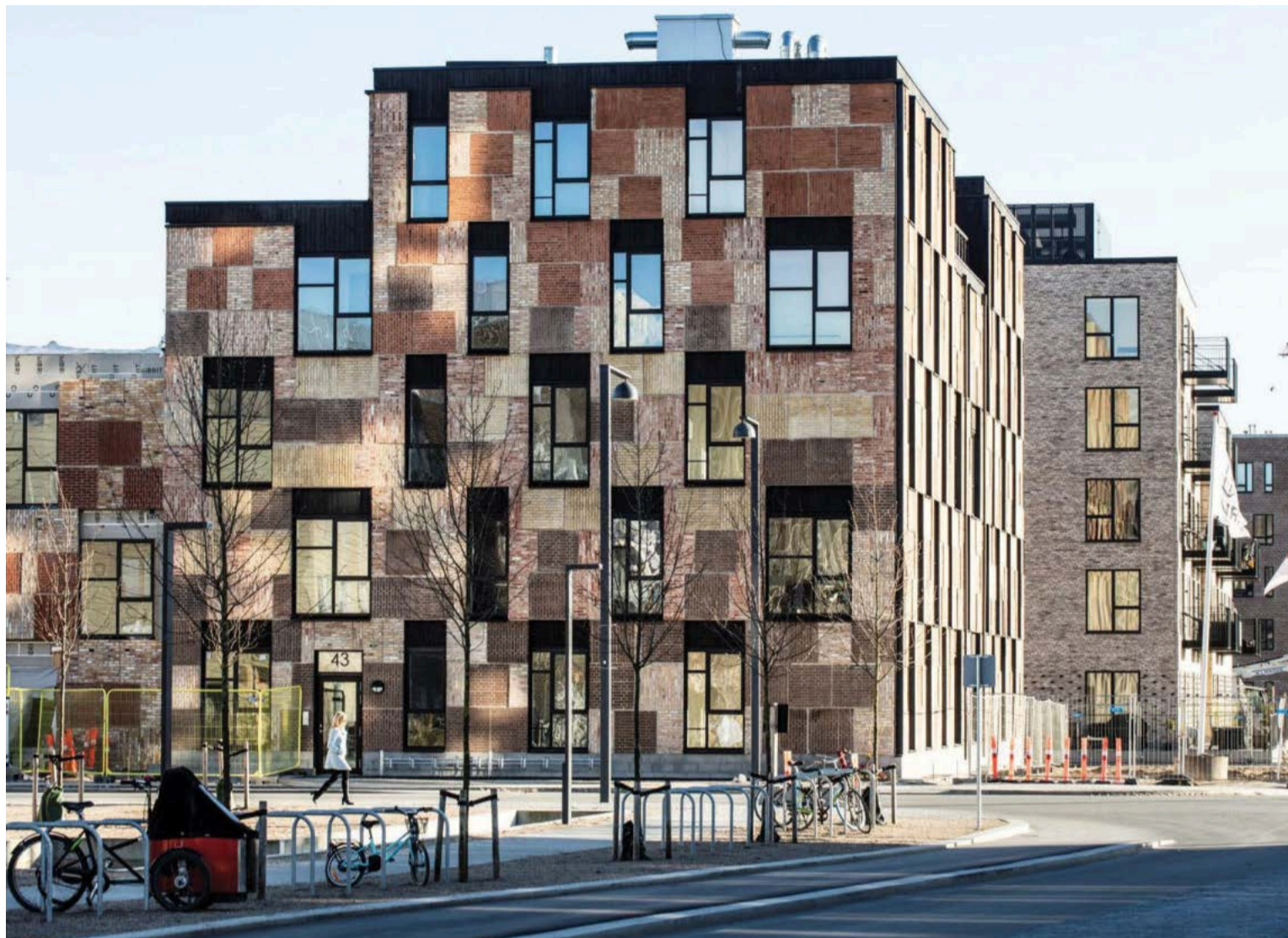


The global construction industry is a main player in generating mankind's negative carbon impact. In 2019, it was named responsible for 38 per cent of the world's CO<sub>2</sub> emissions by the UN Environment Programme (UNEP). Data on Malta's construction carbon impact is hard to track down, but with building pollution and urban development on the islands ever rising, it seems safe to say that our emission figures are driving the global percentage upwards.

In the race to be carbon-neutral by 2050, it is clear that the energy consumed by construction remains one of our biggest challenges. Construction projects – buildings, roads, infrastructure – are all long-term investments, and everything that is built today will still be around in 2050. It follows that we cannot delay building to carbon-neutral standards – being carbon-neutral by 2050 means building carbon-neutral today. The COVID-19 pandemic has showed us that there is no running away from global problems. Malta cannot exclude itself from the global effort to tackle the climate crisis – for which there is no vaccine.

The sustainability discussion typically revolves around proposed energy efficiency of buildings once they are occupied, but very little attention is being given to the carbon emitted in getting them built – a term known as 'embodied carbon'. Embodied carbon refers to all processes tied to the construction of a building – from processing and extracting natural resources to manufacturing, transport, delivery, and assembly, together with the eventual toxic by-products of demolition leaking out through landfill.

The role of embodied carbon shouldn't be downplayed: it is estimated that it can account for up to three-quarters of a building's total emissions over its lifespan. It is important that emphasis is made here, where, in most cases, more energy will go into the construction of a building than the energy used operating that same building



Lendager Group, a Copenhagen based architecture studio, re-use the materials from nearby deconstructed sites for this new housing complex named 'The Resource Rows'. This project was nominated for 'The EU Prize for Contemporary Architecture – the Mies van der Rohe Award', that celebrates excellence in architectural works built across Europe.

throughout its entire lifespan. National statistics in the last *Census of Population and Housing* (albeit in 2011) show that 18.4 per cent of Malta's dwellings are completely vacant, while an additional 13.3 per cent are noted as only for secondary use. These are astoundingly high figures, especially in a country that is desperate for space.

Malta is lagging miles behind the rest of the world in the most basic areas of sustainability, but it is clear that there is an opportunity here. It is quite straightforward to see that huge carbon reductions can be made if a shift in policy is introduced to encourage the reuse of existing building stock over new builds. Achieving internationally recognised green targets simply cannot happen without this shift.

Recent incentive schemes for restoration and the refurbishment of vacant property are positive, but ultimately, they are only band-aid solutions to a deep-rooted problem. Policymakers simply need to make a

culture of reuse more attractive than new build, by introducing tangible incentives to make developers want to act. Malta cannot just rely on the agency of architects and a handful of well-meaning developers. A retrofit transformation must lead with meaningful policy reform.

**“A shift in construction practice could trickle down into our social and cultural behaviours”**

Nevertheless, it is understandable that not all buildings are fit for reuse, and a certain degree of demolition is inevitable. But what if planning policy were to opt to abolish the term 'demolition' from all permits, in exchange for 'deconstruction'? Deconstruction will

allow existing buildings to be considered as material banks – stores of valuable building materials, ready to use and be sold to the next construction project.

One could argue that deconstruction may be a labour-intensive, and thus expensive, process. But it also presents us with an opportunity for new industry, new jobs, and a new sector of construction that environmentalists can get behind – what a breath of fresh air! Moreover, with building materials increasingly becoming more and more expensive, and local dumping costs for demolition waste rising exponentially, the deconstruction approach could be a win-win situation both on the environmental and financial front.

Malta's typical block-on-block construction type is relatively simple to assemble, and likewise, disassemble. It is clear that we are presented with another opportunity here – deconstruction methods can be implemented with relative ease, giving us a jump-start on our European counterparts who

may have more intricate building methods.

The benefits of reuse and deconstruction go beyond sustainability. This year, architecture's most prestigious international recognition, the Pritzker Prize, was awarded to French architects Lacaton and Vassal – a practice that has been built on principles of restorative architecture and cultivating social good.

A shift in construction practice could trickle down into our social and cultural behaviours, fostering renewed respect for our heritage buildings and buildings of architectural value. It could re-energise and add dimension to our cultural identity, promoting an attitude of protection over waste. It could alleviate the uptake of land for new building, ensuring our islands remain as open and green as possible.

To enact this response, we need lawmakers to usher in a new approach, empowering architects, engineers and developers to steer real change in our urban development.