USING LOW CARBON MATERIALS

Keepmoat Homes case study

Building materials make up a considerable portion of Keepmoat's indirect carbon footprint and we are working closely with our supply chain to make sure the availability of suitable low carbon options increases.

We signed up for the Race to Zero in the summer of 2021 committing to reaching net zero by 2050 at the latest, a commitment which includes emissions from materials. We also joined the Supply Chain Sustainability School as a partner in 2021 to aid our supply chain engagement and are participating in the School's Carbon Group.

We have found that new materials choices need to be carefully considered – an example being a low embodied carbon block we recently considered but discounted due to the poor insulation properties compared to our existing blocks. This demonstrates the potential for unintended impacts of switching to a product that while marketed as low carbon would have increased the energy consumption of a building in use.

Low carbon materials and products

Edenhall low carbon bricks

During FY21, we used 4.3 million low carbon Edenhall bricks. Production of these bricks produces 50% less carbon emissions, as they are not fired like a traditional clay brick and are manufactured instead using a low cement content. Switching to these enabled us to reduce the embodied carbon in the homes we built in the year by 1,272 tonnes.

Low temperature asphalt

During November 2021 we trialled lower temperature asphalt that can be mixed at 20°C-40°C lower temperature than a traditional asphalt mix.

Producing warm mix asphalt uses less energy and emits 10% less carbon than hot mix asphalt and can be laid at lower temperatures, allowing us to open the roads more quickly, reducing traffic disruption, without compromising performance. We are now looking to roll this out across our other sites.

Timber frame

Timber frame and modular construction accounted for 12% of the homes we sold in FY21. Timber frame has low carbon advantages as use of sustainably sourced timber sequesters carbon from the atmosphere and locks it into the building. It does not require the energy inputs of heat or carbon producing chemical processes that other materials such as steel or concrete do.

Recycling soils and aggregates through MMPs

Materials Management Plans (MMPs) avoid soils and ground being categorised as waste and legally requiring disposal, and instead ensure it is eligible to be re-used in construction.

Through the use of an MMP at our Timeless development in Leeds, we have avoided 125,000 tonnes of soils and made ground generated as part of construction from being discarded as waste. This avoids carbon emissions created through waste disposal.

It has also avoided over 6,000 lorry movements from the site, minimising off-site disposal costs and eliminating the need to import replacement fill materials and the embodied carbon within that replacement fill.

Next steps for 2022 - Engaging major suppliers

We are working collaboratively with two major cement producers to investigate lower carbon cement-based product options. During 2022 we will develop technical specifications to ensure site and build conditions permit the use of these products.

We have also engaged with our main builders' merchant supplier to better understand our materials embodied carbon footprint using an element of quantity rather than spend-based carbon calculations. This is a more accurate methodology to use since it reflects the actual products we are buying rather than industry averages. This will form the basis to identify key material sources of carbon in our supply chain and help us to reduce our carbon footprint through our buying choices.