These figures intend to give rough estimates of the carbon footprint of each manufactured element. They can vary according to countries’ conditions, to the specific use of each product, to the type of kiln used to produce the clinker etc.

Lafarge welcomes the national and supranational efforts encouraging energy and environmental efficiency in buildings. We participate in think-and-do tanks on construction trends, labels and regulations to co-define sustainable construction for all. We work in partnership with other players in organizations such as the UNEP’s Sustainable Building and Climate Initiative and the WBCSD.

In 2011, Lafarge designed and documented a first set of 30 EFFICIENT BUILDING™ Systems that have been challenged by a panel of independent architects and engineers. These are solutions for building designers to achieve the highest levels of performance of the buildings. Further to technical design, each documentation also includes energy efficiency, cost efficiency, compatibility with existing construction modes and life-cycle analysis of their environmental impact.

The design is an essential lever to buildings’ performance. Therefore, from the design phase of buildings, our Construction and Building Systems Specialists cooperate with the designers to share their expertise and counseling and present them building systems and solutions which enable to improve one or several energy, environmental, structural or economic performances of a building, as well as the occupiers’ quality of life.

The average carbon footprint of concrete is low: 180 kg CO₂/m³ of concrete* (80 kg CO₂/ton of concrete*). And concrete’s thermal mass contributes to a low CO₂ footprint of the building over its life time. Furthermore, Lafarge develops a range of innovative concrete types which contribute to reducing the footprint of structures and buildings over their entire life cycle:

• Less carbon-intensive concrete mix
• High performance concretes requiring less volumes (eg: Ductal®, UltraSeries™ High Strength)
• Insulating concretes helping to reduce heat losses in buildings (eg:Thermedia®0.6)
• Draining concretes that minimize the urban impact on the natural water cycle (eg: Hydromedia®, UltraSeries™ Pervious).

The average carbon footprint of cements produced by Lafarge is 593 kg CO₂/ton*. The CO₂ emissions associated with cement depend upon its clinker content. To reduce the carbon intensity of cement, we are substituting a variable proportion of clinker with:

• industrial by-products such as fly ash and slag;
• naturally occurring local products such as the volcanic rock pozzolan.

Today, 60% of cement products sold by Lafarge are blended cements.

The main challenge in reducing the environmental footprint of the building sector is to improve the energy efficiency of the existing building stock and new buildings. Lafarge has three priorities:

• reduce CO₂ emissions,
• save energy,
• optimize the costs of construction.

The Group develops solutions to improve buildings’ carbon, energy and cost performance over their life-cycle, and dedicates 60% of its research budget to sustainable construction issues.

Lafarge has developed value added solutions to optimize the use of natural aggregate resources and to develop recycling:

• Manufactured sands: crushed rocks produced to save natural alluvial sand
• Dreamclay: An admixture solution neutralizing the impact of clay in aggregates
• Aggeneo: a high standard recycled aggregates range
• Concrete waste re-processing for high value second life
• Environmentally friendly transportation.

The average carbon footprint of clinker produced by Lafarge, a component of cement, is 812 kg CO₂/ton*. 60% of this CO₂ is released from limestone and 40% from fossil fuels used in the combustion process. To reduce them, Lafarge is:

• increasing the energy efficiency of its plants
• using locally available alternatives to fossil fuels such as biomass, used tires, coffee husks and industrial waste.

Source: Lafarge Data 2011