

A Quick Win for Lightweight Aggregate

Sustainability is staying at the top of the construction agenda despite the economic downturn – Government legislation is no less stringent and recognition is growing that increasing materials resource efficiency can offer a crucial opportunity to save costs. Andy Doel, MD at Lytag Ltd, looks at the environmental and performance benefits that can be secured through using secondary aggregates.

Government legislation, client demands, and growing awareness of the cost savings on offer are all driving environmental considerations to the top of construction's agenda. One easy way to make a project 'greener' is by looking at the materials used and identifying the more sustainable options that are available. As one of the most widely used construction materials, secondary aggregate provides a viable alternative to quarried aggregate, reducing demand on primary materials and diverting waste from landfill. Crucially, its use also provides similar, or often improved, performance credentials. But how can it be applied?

Performance, usability and adaptability are all key considerations in choosing materials for the construction of sports and leisure buildings, and secondary materials must perform against these

as well as sustainability requirements.

Secondary aggregate can be used in a variety of construction applications for the leisure industry, including in precast concrete, structural concrete, and as a drainage medium for sports pitches, and there are some important performance benefits on offer for architects and contractors that choose to employ it. For example one kind of aggregate, a secondary material manufactured from the by-product of coal-fired power stations, allows greater flexibility of design as well as cost and time savings in terms of labour and logistics. This is largely due to the fact it is around half the weight of traditional materials.

Wimbledon Centre Court is one well-known leisure venue that has used this lightweight aggregate. To add a further six rows of seating to the spectator stands, concrete made using the material was chosen for the precast units, making them around 25 per cent lighter than if traditional aggregate had been used, but with the same structural integrity. As a result, the overall weight and loading pressure of the extension was significantly reduced meaning that support work to the surrounding structure was not required.

Another high profile leisure venue, the

Millennium Stadium in Cardiff, used secondary aggregate as a drainage medium. The pitch needs to be maintained to the highest standards for the international teams that play there and the lightweight aggregate was used below the turf to maintain grass quality as it allows water to drain efficiently, naturally retains water before releasing it back into the soil over time, and also has thermal characteristics that aid the pitch defrosting process. However, maintenance of the pitch was not the only challenge the team faced. As the Millennium Stadium is also a concert venue, the pitch must be removed for each event, therefore the turf was laid in 7,000 1.3m² pallets, and as the lightweight aggregate is 50 per cent lighter than traditional aggregate, the pallets can be moved more quickly and efficiently.

Using materials like secondary aggregate in constructing sports and leisure facilities is a simple and proven way to make the project more sustainable, helping architects and contractors meet both legislative and client requirements without compromising on quality and performance. As sustainability remains a high priority for industry despite the economic downturn, quick wins such as this are opportunities that the industry can ill afford to ignore.

166

