



The importance of low embodied carbon materials post completion

David Papworth - General Manager - Junckers Ltd

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Study Day

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Reducing the carbon footprint
of education sports facilities



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Reducing Environmental Impact

Deyes High School was one of the first fifty schools in the UK to secure investment from the Department for Education School Rebuilding Programme.

Designed by Pozzoni architects and built by Kier Construction, the 10,000m² building is net zero carbon in operation with a green roof, solar panels, treble glazed windows, and air source heat pumps to avoid dependency on fossil fuels.

Often specified for net zero carbon buildings, a solid hardwood floor from Junckers will reduce the building's embodied carbon footprint, both in comparison to other flooring options and other building materials.





Passivhaus

Mulberry Academy London Dock is a new secondary school and sixth form built by Kier Construction for the London Borough of Tower Hamlets. Designed by Passivhaus specialist architects Architype

Energy efficient and low environmental impact

Through the application of Passivhaus principles, the school was built with an unbroken thermal envelope to provide an airtight construction with ultra-low energy consumption. As a result, there will be substantial savings in running costs for the school.

Health and wellbeing

As well as low carbon and energy consumption, Passivhaus principles delivers excellent indoor quality to benefit the health and wellbeing of students and staff, known to have a significant effect on learning as well as happiness. The pre-finished floors and the range of cleaning and woodcare products used to maintain the floor carry the Danish Indoor Climate having undergone extensive degassing and odour testing.



Reducing Carbon Footprint

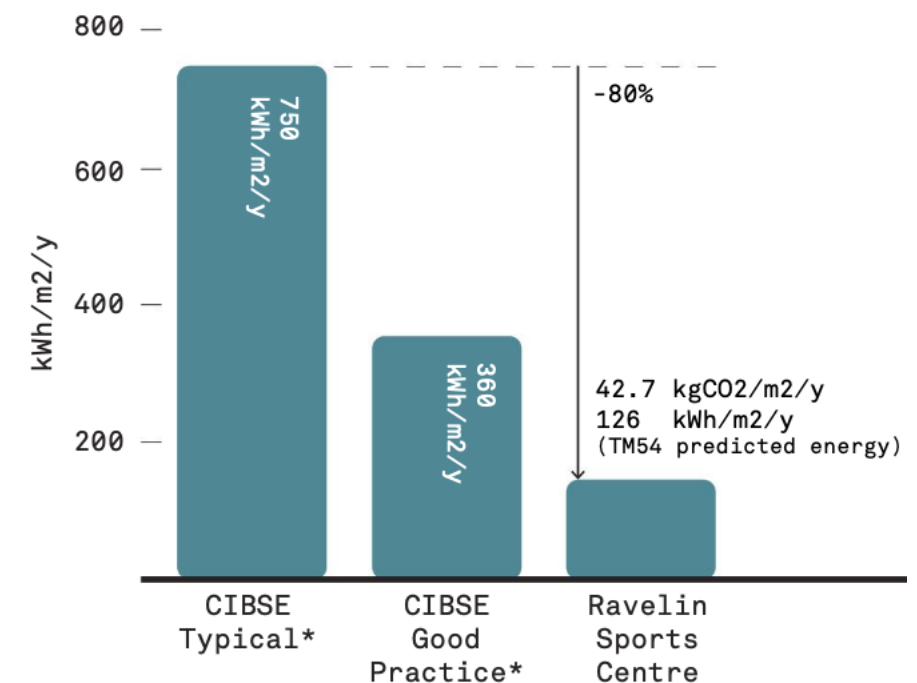
Sport and leisure facilities are associated with high operational costs. The recent energy crisis will mean many operators are faced with difficult decisions.

Though operational energy is still a major challenge, recent projects like Ravelin Sports Centre are successfully using Passivhaus design to minimise primary energy demand.

Form factor, performance of the building envelope, natural light and ventilation all provide a significant opportunity for demand reduction.

Figure 1 highlights the difference between typical, best practice, and current generation facilities.

Figure 1



*Data interpreted from CIBSE Energy Benchmarking Tool for Sports and Recreation Centres: Combined



Longevity

With a brief to replace the main single-storey building and a recent extension, Innes Associates has designed dynamic new facilities for Elmgrove Primary School and Nursery in north London.

Innes Associated set the target BREEAM 'Excellent' for the new school building, determined in part by the use of sustainable materials which included Junckers flooring.

Ways in which a Junckers solid hardwood floor helps contribute to a low carbon build include:

- Reducing or eliminating building materials with high embodied carbon
- Better quality construction for longevity
- Use durable materials that are easy to maintain
- Reuse building materials at deconstruction/design for disassembly



Aligning lifespan of building components

- 40% of embodied carbon is emitted post completion when finishes need to be replaced, building services replaced or the layout modified to accommodate evolving sports and leisure needs.
- Specifying products with long lifespans – Reduces waste as well as demands upon energy and resources.



Solid hardwood: 60-year design life

22mm solid hardwood floor: Can be refurbished between eight and ten times. Estimated 10 to 12 years between each refurbishment. 60-year life span easily achieved.

Engineered wood floors: Typically two refurbishments. Approximately a 15-year life span.

Synthetic floors: Vinyl and PU have approximately a 15-year life span.

Linoleum floors: Have approximately a 15-year life span.

Solid hardwood can provide “one floor for life”, whereas engineered, synthetic and linoleum sports activity floors will require replacement several times during a buildings 60-year design life.





Build to Re-use

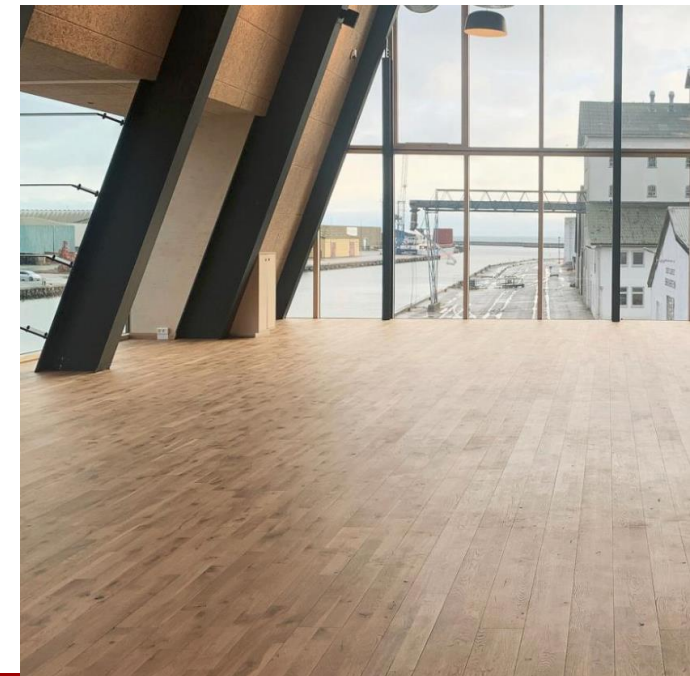
National Theatre of Scotland

When Hoskins Architects were commissioned to design new headquarters for the National Theatre of Scotland in Glasgow, an ingenious bit of re-using, re-purposing and recycling took place. The new office space and social areas were fitted with a previously used Junckers sports floor, complete with the old line-marking paint.



The Braunstein Taphouse

The Braunstein Taphouse, home to award-winning Danish malt whisky, is not just a beautiful building. It has been designed and built to have ability to be disassembled. Its waterfront location is deemed under threat from rising water levels in the future, which lead Adept Architecture to create a building that can be taken apart and rebuilt or easily reused/recycled.



Case study

University of Birmingham's Indoor Sports Centre

Designed by Lifschultz Davidson Sandilands, the centre features an Olympic standard swimming pool, fitness suites, multi-purpose hall, a dance and exercise studios and six squash courts, all fitted with Junckers solid hardwood sports flooring.

Following the 2022 Commonwealth Games the 2,200 m2 multi-purpose hall was reconfigured, with its sports floor layout modified to accommodate evolving sports and leisure needs.

With the original flooring in as new condition, it has been lifted and supplied to the Scottish basketball club Caledonia Gladiators new home at Playsport in East Kilbride. The Gladiators compete in the British Basketball League, the top tier of British basketball.



Club owners Steve and Alison Timoney with Caledonia Gladiators. Pic: Big Partnership

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