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Leading the Way in Sustainability

An Interview with Wolfgang Hochmuth, SFN's New Expert

Wolfgang Hochmuth, Architect and Sustainability Consultant

The Squash Facilities Network (SFN) is proud to welcome Wolfgang Hochmuth, an accomplished architect and sustainability advocate, to its team. For 30 years Wolfgang has played key roles in leading architecture practices in Munich/ Germany and London/ UK, delivering office buildings, sport buildings, TV studios, mix-use and worked on listed buildings. Increasingly, the projects have been driven by issues of sustainability and energy efficiency. Consequently, he rounded off his skills by qualifying as a Sustainability Consultant in various certification systems (DGNB Auditor/ LEED AP/ BREEAM AP).

Wolfgang brings fresh perspectives on how squash facilities can embrace eco-friendly practices without compromising functionality or user experience. On the contrary, by enhancing both, the facility will show a positive statement of commitment to sustainability. In this interview, Wolfgang shares his vision for sustainable squash facilities and offers practical solutions to some of the most pressing challenges.

Squash Facilities and the Sustainability Imperative

The building sector is responsible for 40% of global CO2 emissions and 60% of waste. It also represents 40% of Europe's energy demand, 80% of it is generated by fossil fuels (Source: UN Environment Programme). Therefore, a transition to a low-carbon (reduction by ca. 50%) building economy by 2030, with the aim to Net Zero by 2050 is crucial.

When asked why sustainability is crucial for squash facilities, Wolfgang emphasizes the dual necessity of environmental responsibility and financial viability.

"Sustainability is no longer a luxury or choice; it's essential. Squash facilities face unique challenges, including high operational costs from ventilation and heating systems to energy use. Balancing these demands while reducing the environmental impact is critical—not just for the planet, but also for attracting today's eco-conscious users," Wolfgang explains.

Sustainability in squash facilities revolves around two key aspects. First, energy and water costs play a crucial role. The extent of these costs is largely determined during the architectural design of the facility. Poor planning in this regard can significantly jeopardize the economic success of the entire operation. Second, environmental compatibility and the evaluation of materials are of paramount importance. Ensuring the use of sustainable and eco-friendly materials contributes not only to environmental stewardship but also aligns with broader goals of long-term viability. Abstaining from single use items such as plastics and installing recycle-bins contributes further to reduce undesired waste.

The need for change is urgent. From skyrocketing energy costs to increasing water scarcity, sports facilities must adapt or risk falling behind.

Ventilation: A Double-Edged Sword

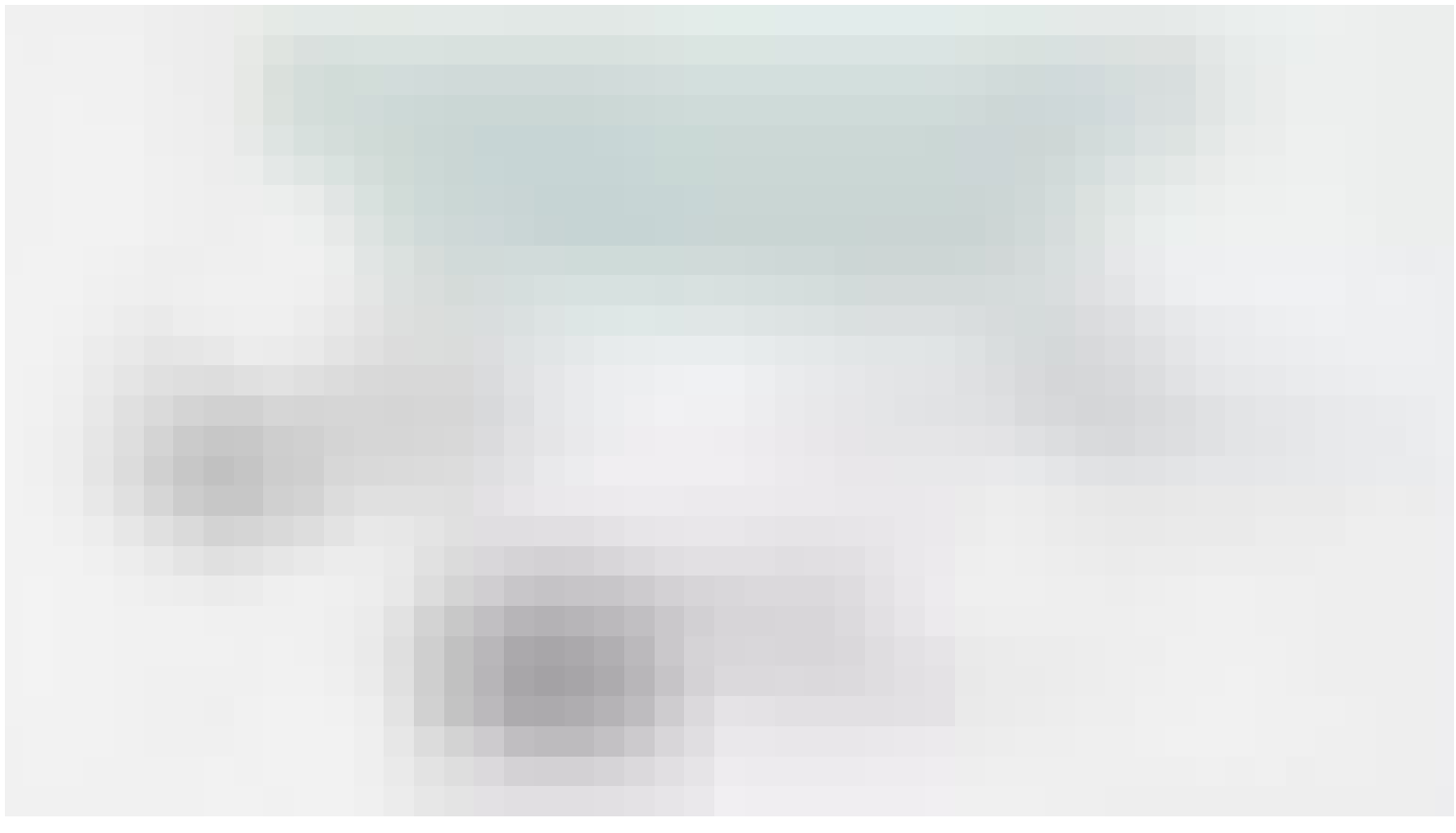
One of the most energy-intensive aspects of operating squash courts is providing the right climate in the differently used zones. Maintaining conditioned air quality and managing moisture requires up to four air exchanges per hour per court—a costly undertaking.

"Natural ventilation, is underutilized but offers significant potential, which must be investigated," Wolfgang notes. "Mechanical systems should be seen as an inevitable supplement for heating and cooling. They must be optimized for efficiency. Coupled with strategic use of daylight, we can significantly lower energy consumption while enhancing the playing experience."

Temperature control adds another layer of complexity. "Squash courts demand a precise temperature range to ensure comfort and safety for players," Wolfgang explains. "The minimum temperature within a court must be 14°C to ensure player performance and safety. Areas outside the courts, particularly spectator areas, hospitality areas and other social meeting zones, require a minimum of 20°C for user comfort. Achieving these distinct temperature requirements efficiently is a challenge that necessitates careful planning."

Wolfgang emphasizes that a green or sustainable building optimizes and reduces the use of natural resources like land, energy, water, and materials through efficiency, contributing to climate change mitigation. "A squash facility's energy efficiency hinges on an optimized natural ventilation system, combined with a highly efficient, well-integrated mechanical heating and cooling system. This should be supported by a well-insulated building envelope and the strategic use of daylight wherever possible. Ultra-low-energy appliances, equipment, and LED lighting with smart daylight sensors are also critical in reducing energy demands."

The typical layout of squash facilities, with substantial roof areas, offers an excellent opportunity for installing photovoltaic panels to harvest free solar energy to run the HVAC-units (Heating/ Ventilation/ Air-Conditioning). "When paired with heat pumps, or where applicable, a biomass plant or local block heating, the facilities' total energy needs can to a substantial part be generated onsite. Leveraging renewable energy sources, can significantly reduce a building's operational costs," Wolfgang adds.



Water Management: Turning Challenges into Opportunities

Water conservation is another key pillar of sustainability. With wellness areas often consuming vast amounts of water, innovative approaches are needed. On water management, Wolfgang highlights minimizing water demand with efficient, low-flow and low-flush plumbing fittings, shower regulators, and flow controls. "The roof can also be utilized for harvesting rainwater, which can be used as greywater for toilets and irrigation, reducing the facility's operating bill while conserving local water resources. Outdoor areas can be designed with local, climate-adapted plants that require minimal irrigation and enhance biodiversity."

He concludes, "Carefully analyzing the interplay between ventilation, energy efficiency, and water management is critical. For instance, should courts be enclosed to maintain different climate zones, or can an open layout suffice? Such decisions can have a profound impact on sustainability and operating costs while ensuring player and visitor comfort."

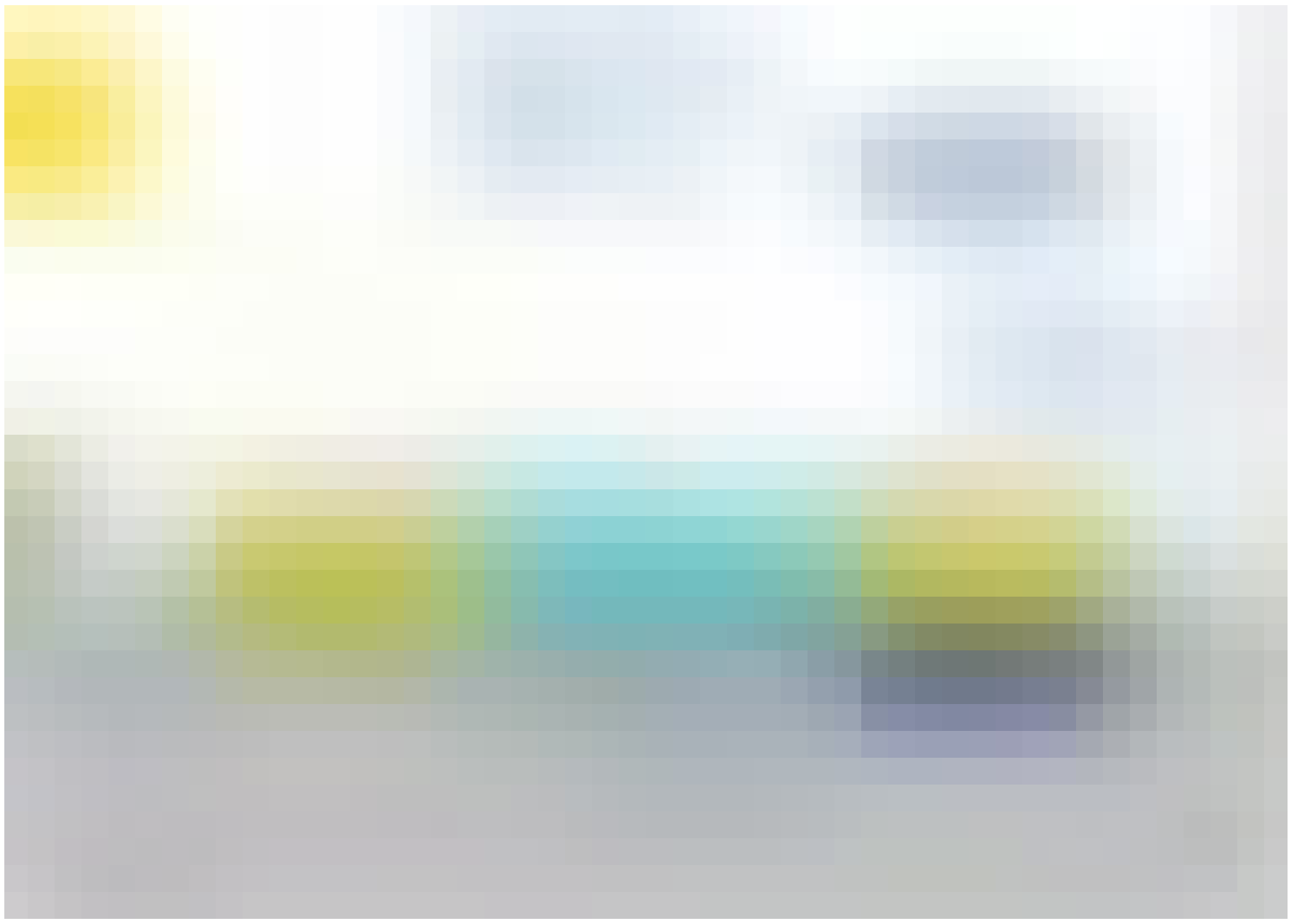
The Importance of Sustainable Materials in squash courts

Sustainability in squash court construction depends heavily on material selection. Commonly used plywood and composites, while cost-effective, often involve environmental trade-offs and can emit harmful chemicals. Opting for certified materials like PEFC™ or FSC® wood supports responsible sourcing, but care must also be taken to ensure high indoor air quality and player safety.

To create a healthy indoor environment and prevent environmental pollution, facilities must use low-emitting, toxin-free materials. Special attention should be given to avoiding substances like formaldehyde and volatile organic compounds (VOCs), which can be found in glues, paints, and finishes, including squash floor treatments. These substances are not only harmful to health but can also disqualify buildings from earning sustainability certifications. Working with architects and engineers to select appropriate materials is essential for creating a safe, high-quality facility that meets modern sustainability standards. Choosing the right materials is a subject, which we want to look in to more closely in one of the next newsletters.

The Benefits of Building to Sustainability Standards

Designing and operating a squash facility to meet sustainability standards offers a range of significant benefits. Primarily, it helps reduce global CO_2 emissions, minimizing the building's contribution to climate change. Depending on the region, implementing water conservation strategies and ensuring efficient cooling in summer and heating in winter are not only essential but can also will enhance operational efficiency. A sustainable building goes beyond environmental impact—it delivers a healthier and more comfortable indoor environment for players while projecting a strong commitment to environmental responsibility.



Although initial construction costs might be higher, sustainable designs typically lead to improved building performance, resulting in lower long-term operating and maintenance costs. In an era of rising energy prices, this financial resilience can determine the viability of a sports facility. Additionally, integrating sustainability targets early in the planning phase raises stakeholder awareness and acts as a key tool for ensuring quality and cost efficiency during construction. Together, these benefits enhance the facility's appeal, improve user experience, and secure its position as a forward-thinking, environmentally conscious venue.

A Glimpse into the Future

Wolfgang envisions a future where modular construction becomes standard for squash facilities. "Modular systems allow components to be reused or repurposed, reducing waste and simplifying renovations. This approach aligns perfectly with the principles of a circular economy and positions facilities for long-term sustainability," he highlights. "The great advantage of a modular system is its flexibility. In Europe construction costs and the costs of land have never been higher and there is no sign of relaxation anytime soon. That puts building new facilities in question,

as it can be a high-risk financial undertaking. One alternative is the use of existing buildings with adaption to fit a squash facility. The reuse of buildings has not only financial benefits, it can also be the ultimate way of reducing the CO2 footprint," he emphasises.

The future of squash facilities, according to Wolfgang, lies in a harmonious integration of renewable energy, water management, sustainable materials, and a high-quality, attractive design of the spaces for a comfortable social engagement.

"Sustainability isn't just an environmental issue; through increasing primary energy costs and escalating costs to cover substantial environmental damages, it is a business imperative. Also, for many people sustainability is part of their lifestyle. Operators who ignore this risk alienating users and incurring higher long-term costs. Increasing operating costs surely can't be passed on to the membership fees endlessly. In particular when working together with the public sector," he cautions.

Advice for Facility Operators

Wolfgang's advice for operators embarking on their sustainability journey is simple but powerful: start early. "When intending to build a new squash facility, talk to experts at the outset of your project. The earlier sustainability is integrated into the design, the greater the cost savings and impact. Delays lead to expensive retrofits and missed opportunities," he warns. "The possibilities to upgrade an existing facility to a sustainable building are limited, but it is never too late for several relatively simple measures by which the operational costs can be reduced, without getting involved in major building works. But that is something to talk about in more detail in a later article," he adds.