

Wolfgang Hochmuth · Feb 5

# Sustainability: A Necessity and an Opportunity for Facility Growth

Sustainability is no longer a luxury or choice; it's essential. Instead, it can be seen as an opportunity to improve the facility's performance and reputation. In a series of articles, the SFN wants to provide an overview on various possibilities of how to implement sustainability in squash and racket facilities and show possible savings strategies. Our sustainability expert Wolfgang explains what these are.



Last time we were talking about the increasing importance of sustainability within the world of Squash (and Racket) Sports and the challenges, squash facilities are facing. As we are all aware, the soaring energy costs will not go away in the foreseeable future and balancing high operational costs from ventilation and heating systems to energy and water use, while reducing the environmental impact, is critical for operators for not falling behind.

Further, expressing a commitment to sustainability not only helps reducing costs and the carbon footprint, but it is also attracting today's eco-conscious users.

## Sustainability through Upgrading existing Facilities

Although undoubtedly the greatest cost savings and impact can be achieved by early integration of sustainability in the design of a new to build facility, there are possibilities to upgrade an existing club:

A good way to start is to appoint a person (or several) from the facility or club management as an **'Energy and Sustainability Champion'** for investigating and making recommendations for adapting energy-efficiency measures.

**As a first step**, reviewing bills for energy-, heating-, and water-usage of the facilities energy consumption establishes an overview over the current situation.

**From there**, eventually with the help of an external advisor, options for improvements can be developed. Based on a Cost – Benefit Analysis, the impact of the refurbishment costs on the facility should be established before any financial decisions are made.

With that in mind the phasing of the actions of improvement should be considered: There are very effective simple options for a quick fix and more costly major measures which require long-term planning and financing.

## Building envelope improvements

**The most common problems** are heat loss from poor insulation of the roof and external walls, and drafts through poor air-tightness of windows and doors etc.

At the same time, **draught-proofing is one of the cheapest and most efficient ways to reduce energy consumption and save money** in all types of buildings. Older buildings often experience lose and/ or weak sealants. By refitting sealant in gaps around doors, windows, roof hatches, façade or roof penetrations through pipe work or electrical fittings, draughts will be stopped and warm air contained.

A **very effective**, yet more expensive way to **reduce energy consumption** is the improvement of the **thermal insulation of walls and roof**. Older buildings might have poor or very little insulation of the envelope. Through optimising the performance of the building's envelope, rather than

relying on added energy sources, the building does the work. **Savings between 20% - 25%** can be achieved this way. But this is a more complex undertaking and requires the involvement of experts and trades.

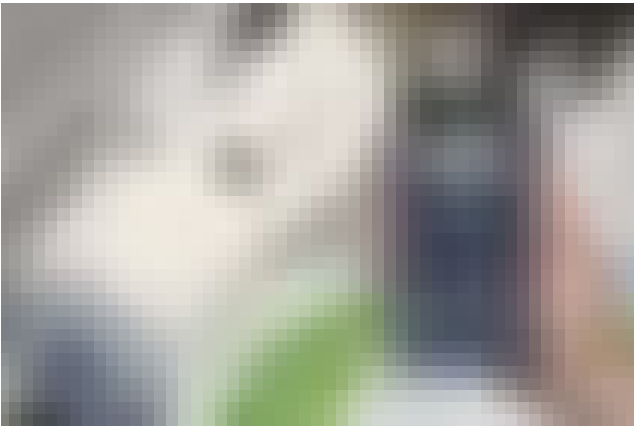


During the colder periods of the year, a substantial amount of heat can escape through the main entrance, when the external doors are frequently open through arriving and leaving players. Simply, a heavy curtain or a draught lobby with two sets of double doors, that open and close separately creates a buffer zone.

Improving of insulation and air-tightness not only helps to keep the cold out in winter or colder climate zones, it also prevents warm air from entering the building in summer or in hotter climate zones (in this regions high moister content of the air is more of a problem).

Heating and ventilation

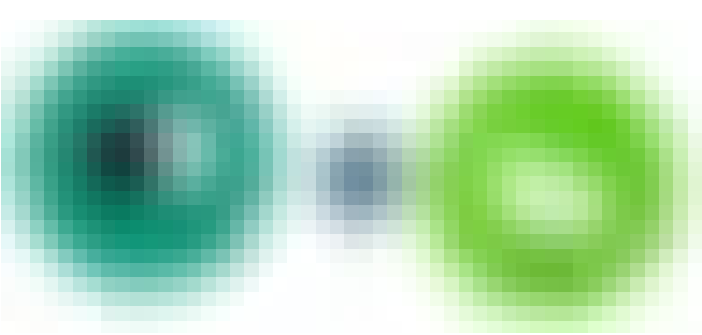
One of the most energy-intensive aspects of operating squash courts is providing the right climate in the differently used zones. Maintaining conditioned air quality and managing moisture can be quite challenging, combined with the complexity of temperature control. The minimum temperature within a court must be 15°C to ensure player performance and safety, whereas the maximum temperature of 25°C should not be exceeded. Areas outside the courts, particularly spectator areas, hospitality areas and other social meeting zones, require a minimum of 20°C for user comfort. Therefore, controlling and adjust temperature where and when needed helps cutting down utility costs.



Making a small change to the temperature setting make a significant difference on the bills. The reduction of the room temperature by only 1°C can safe around 6% - 8 % of energy for that room.

Depending on the way the building is constructed, the type of heating system is used and the management of the room temperature, up to 25% of savings can be achieved.

Replacing older HAVC (Heating/ Ventilation/ Air-Conditioning) equipment with high-efficient, new equipment usually proofs as rewarding. Smart appliances can be monitored and controlled through sensors, so the fans only operate when the rooms/ zones are occupied. Fans can be linked to a humidity sensor in squash courts and shower areas, to only work when humidity is registered.



Always keep the building’s warm water and heating system checked and properly maintained. If its old and/ or fossil fuel based, depending on the area you are in, there might be better solutions available, like replacing it with an air to water heat pump, in combination with solar panels.

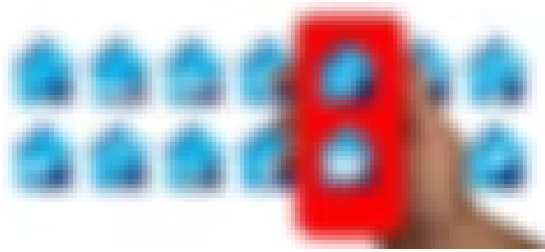
Lighting and appliances/ smart meters

Installing smart meter to monitor energy usage and real-time costs helps identifying high energy use items, where a reduction might generate most savings. The advantage being improved automated energy monitoring and controlling. This helps to ensure the effectivity of any measures, and control that they are understood by the users.



All light-fittings should be substituted with smart, **high-efficient LED lighting systems**, as the potential **savings can be as high as 90%!** Sensors switch lights on and off or dim down significantly as people enter and leave rooms, without impairing safety and security. In general, replacing old appliances with energy efficient new ones helps a lot reducing utility bills.

*Explainer: ‘A Smart Meter is an electronic device that records the energy consumption and gives greater clarity of consumption behaviour and communicates the information to the user in real-time and can be extended to a mobile phone app or web site. It helps for tracking, monitoring, automated reporting and controlling of equipment from a remote location’.*



There are also reasonably priced plug-in or clip-on devices available that measure the energy use of appliances or systems and for gaining potential reduction of costs:

- Smart thermostats (While air-conditioners and heaters will activate if programmed, they can't learn and anticipate your temperature preferences. A smart thermostat can learn your temperature preferences throughout the day and then automatically adjust as the day progresses)
- Motion sensors (turns light off and on according to people leaving or entering a room)
- Smart plugs (provides real-time and historical energy consumption data, helping you identify and reduce energy-wasting devices)
- Energy-efficient LED smart lights (the bulbs have a chip inside them so that they can communicate with other devices wirelessly. Every light can connect to an app, smart home assistant, or other smart accessory, so you can automate your lights, change their colour, or control them remotely)
- Wi-Fi control systems

Again, checking the electrical equipment for energy efficiency and, where advisable, replacing old, non-efficient appliances might be a simple way of reducing utility bills. **For example**, a **modern high-speed hand-dryer** can be **up to 80%** more efficient.

## External lighting

Floodlights are very high in energy use and should only be on when absolutely necessary. A replacement with long-lasting LED fittings should be considered and its use controlled by motion sensors and timers, to guarantee sufficient security and safety.

## Use of on-site renewable energy

Instead of purchasing all the energy that the facility requires from suppliers, it is possible to install renewable technology to generate energy. **Most commonly used are photovoltaic panels** for energy **and solar thermal panels** for warm water heater. However, before considering this approach it is important to ensure that the facility is as energy efficient as reasonable possible. This way, the self-generated energy will have maximum impact.



As the building orientation is a given, retro-fitting PV-panels on to the existing roof works best on a south facing roof, although east-west orientation produces still produces a fair amount of energy. The panels can be expensive to install but should pay for themselves over approximately 10+ years, depending on the size of the system and the climate zone, the facility is in.

## Water conservation and management

Water conservation is another key pillar of sustainability and its management a cost driving factor. With wellness areas often consuming vast amounts of water, innovative approaches are needed.



The water demand can be minimized by installing efficient, **low-flow tap** or a flow restrictor valve **at the sinks**, which **cut down the water use by 50%** by mixing water with air. Retrofitting a variable flush or dual flush where possible is cheap and simple and can also reduce the volume of water for the toilets.

**Showers** are likely to be responsible for the main use of hot water in the facility and there are several ways to reduce water consumption without compromising on performance and comfort:

- Again, replacing old showerheads with efficient new aerating ones, which mixes air and water under pressure, reduces the use of water whilst increasing the apparent flow and can **reduce the use of warm water by up to 60%**

- Lowering the temperature as it is still comfortable
- A push button with time restrictor limits the shower after a certain set time

For irrigation of the outdoor areas, the roof can be utilized for harvesting rainwater. For relatively small costs the drainage pipes of the roof can be connected to a cistern to collect the rainwater. Green areas can be planted with local, climate-adapted plants that require minimal irrigation and enhance biodiversity.

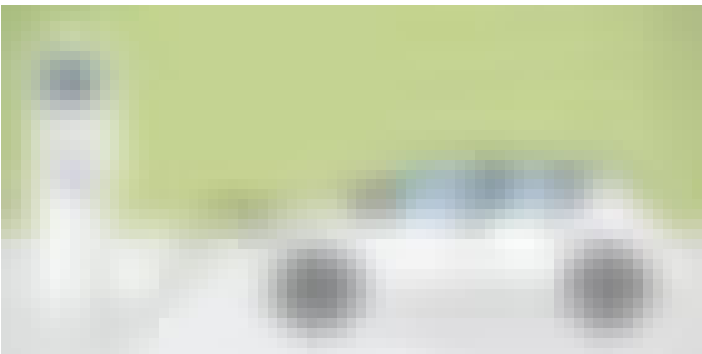
### Changing people’s attitude

As increasing operating costs can’t be passed on to the membership fees endlessly, it is important to inform and encourage the members about energy saving issues.

The way people think about the heating and cooling of buildings can have a significant effect on the energy use, costs, comfort and environmental impact of the facility. Regardless of the level of energy saving technology has been incorporated, the members can help to improve performance and reduce costs by simply keeping doors between heated and unheated rooms closed, or when entering or leaving the building. Or, if there is no automatic light control installed, turn the lights off when leaving a room.



Abstaining from single use items such as plastics and installing recycle-bins contributes to reduce undesired waste, which is also a contribution for cutting down operational costs.



For many people sustainability is part of their lifestyle. Hence, options like car sharing, public transport, walking and cycling should be encouraged. Information about public transport should be the facility’s website and notice board. If available, a charging point for electric cars and cycles could be provided.

### Conclusion

Although the options for retro-fitting an existing sports or squash facility with sustainability measures are limited, there is quite a range of actions through which the operational costs can be reduced and a commitment to set ambitious emission reduction targets can be expressed. Obviously, all facilities and buildings are unique in the way of what climate zone, region or country they are located in, whether they are in an urban, semi-urban or rural environment, the way they are built, designed and managed, and what preferences its users and members have. This might determine what measures of improvement are appropriate and make sense.

When in doubt about what could be done for your facility, we are happy to give as much advice as possible. Feel free to contact us through the [SFN contact page](#) or [mail@wolfganghochmuth.com](mailto:mail@wolfganghochmuth.com)

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