



WHY SHOULD A
SPORTS HALL
BE
SUSTAINABLE?

WHITEPAPER

01

Introduction

The importance of sport for society as a whole is great.

02

European Green Deal:

the status quo in the European Union.

03

Why sports facilities should be **sustainable**.

04

Criteria

for sustainable sports halls

05

Sports floors

Building with removal in mind.

06

The REGUPOL Products

The most important points at a glance

THE IMPORTANCE OF SPORT FOR **SOCIETY AS A WHOLE** IS GREAT!

There is something magical about sports halls. When handball players launch a fast counterattack, or an indoor hockey player takes the stick in her hand or a boxer steps into the ring - everything else is forgotten.

Sport helps us to strike a balance. It also creates a sense of identification¹, makes an important contribution to integration² and keeps us all healthy³. Besides the well-known preventive effects, for example against diabetes or cardiovascular diseases, regular sport can also prevent a COVID19 infection from taking a serious course⁴. In short: the importance of sport is high - for society as a whole.

Consequently, the responsibility of municipal authorities is equally high. As a rule, they are the owners and operators of sports facilities - in 85 per cent of cases, when it comes to sports halls. So you could even say that they make a contribution to the fitness levels of the people in their areas. Reason enough to take a closer look at the sports halls themselves - after all, they are among the key resources for club, competitive, grass roots and school sports. And this also underlines the challenges and stresses sports halls are exposed.

Besides the already significant pressure to renovate and modernise these facilities, there are now new requirements for ecological and energy-efficient construction methods. So one could ask: how does a sports hall actually become sustainable? Sustainability is not just a trend - sustainable thinking (and building) is also necessary for sports halls from an ecological, an economical and also a sociological point of view. This white paper not only wants to pose this question, but also to provide an answer to it, using an example from one particular area⁵.



THE
EUROPEAN
GREEN DEAL

GREEN SPORT

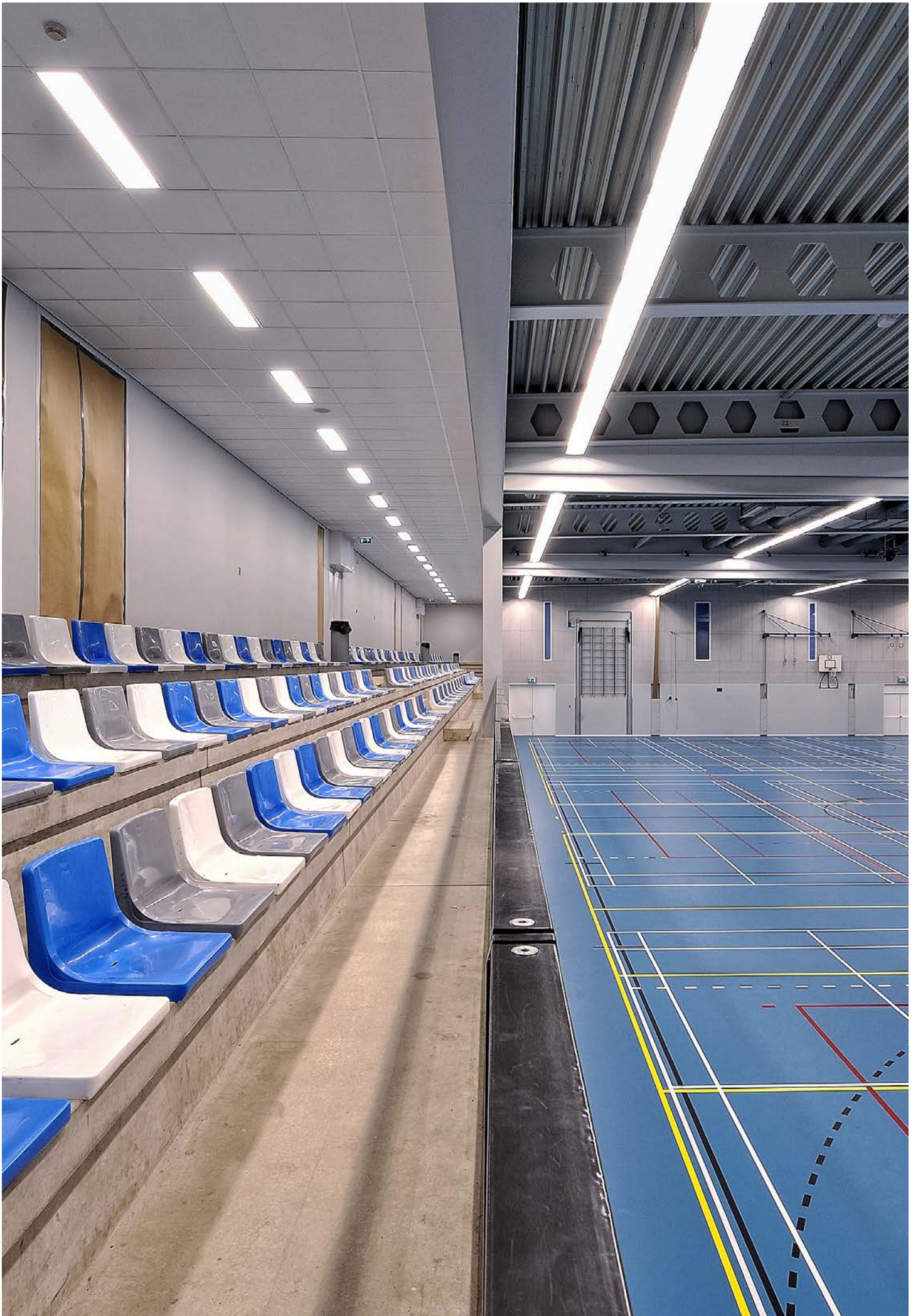
THE STATUS QUO IN THE EUROPEAN UNION.

From 2050, the EU is to be climate-neutral. That's the ambitious goal of the European Green Deal presented by EU Commission President Ursula von der Leyen in late 2019. On the way to achieving this, one part of the solution is energy and resource-efficient building and renovation. A second part is the circular economy. Consequently a circular economy action plan is a central component of the European Green Deal, because after all, half of all greenhouse gas emissions result from raw material extraction and processing.

The construction industry has an important role to play in these plans. The aim of the Commission is to promote the principles of the circular economy throughout the entire life cycle of buildings. This of course also applies to sports facilities – in Germany alone there are some 231,000, including around 35,000 sports halls. The level of investment required here is estimated at around 31 billion euros - which is why, for example, the German Association of Towns and Cities (Deutsche Städtetag), the German Association of Towns and Municipalities (Deutsche Städte- und Gemeindebund) and the German Olympic Sports Confederation have jointly published a brief expert report calling for a multi-year refurbishment offensive. The paper states that this need for refurbishment, which will cost millions of euros, is a major bottleneck factor in sports development and impairs local quality of life as well as school sports.

In this context, the demands for more sustainability in sport are becoming louder and louder - not only in Germany. At the end of May, the online conference "Calling the shots: Sports and the European Green Evolution" brought together political decision-makers, officials and athletes to debate the current state of sustainability in sport and discuss ways to move forward. In fact, France and the Czech Republic intend to declare the topic of "green sport" one of their top sports priorities in their coming council presidencies. Accordingly, the construction of sustainable sports facilities will also be pushed further into the foreground. An example from our neighbours in the Netherlands shows that more than 50 percent of sports halls are in municipal hands.

All in all, there are around 28,000 sports facilities. If the country wants to bring the entire sports sector in to line with the European Green Deal, investments of 3.1 billion euros will be needed. However, falling energy needs in sustainably built or refurbished sports facilities alone could achieve annual savings of 350 million euros⁶.



WHY SPORTS FACILITIES SHOULD BE **SUSTAINABLE**

If we look at the renovation backlog on the one hand and the example from the Netherlands on the other, it becomes very clear that sports facilities should be sustainable - and in some European countries, sustainable criteria are either already mandatory or at least recommended.

A decisive finding here is that sustainability leads to better quality in the construction of sports facilities. As stated in the Federal Institute for Sport Science guidelines on sustainable sports facility construction 7: "Sustainability principles and the consideration of oncologic, social and economic factors actually open up new opportunities for the further development of sports infrastructure in Germany. They call for the very necessary 'life cycle assessment' of a sports venue and open up new perspectives for sports facilities which are environmentally friendly, demand-oriented, sports-functional, healthy and economically efficient."

One significant change for the municipalities is that it will no longer be the construction costs alone (and thus the current or coming budget year) that they will have to keep an eye on. A most decisive factor in the construction of sustainable sports facilities is their life cycle. Taking the example from the Netherlands once again: with savings of €350 million per year from reduced energy consumption, the €3.1 billion investments would be paid off after nine years.

CRITERIA FOR SUSTAINABLE SPORTS FACILITIES

In the construction of sustainable sports facilities, equal priority must also be given to a range of different factors:

ecological factors

environmental impact, life cycle assessment and life cycle analysis or materials

economic factors

economic efficiency, life cycle costs or third-party use

social factors

comfort, health, barrier-free accessibility, regional and cultural criteria.

In sports facility construction, characteristics, process quality, the location of the building and functional quality play a major role.

technical characteristics

fire protection, durability, ease of cleaning, resistance to weather and environmental influences

Process quality

Planning process, tendering, construction site procedures, commissioning.

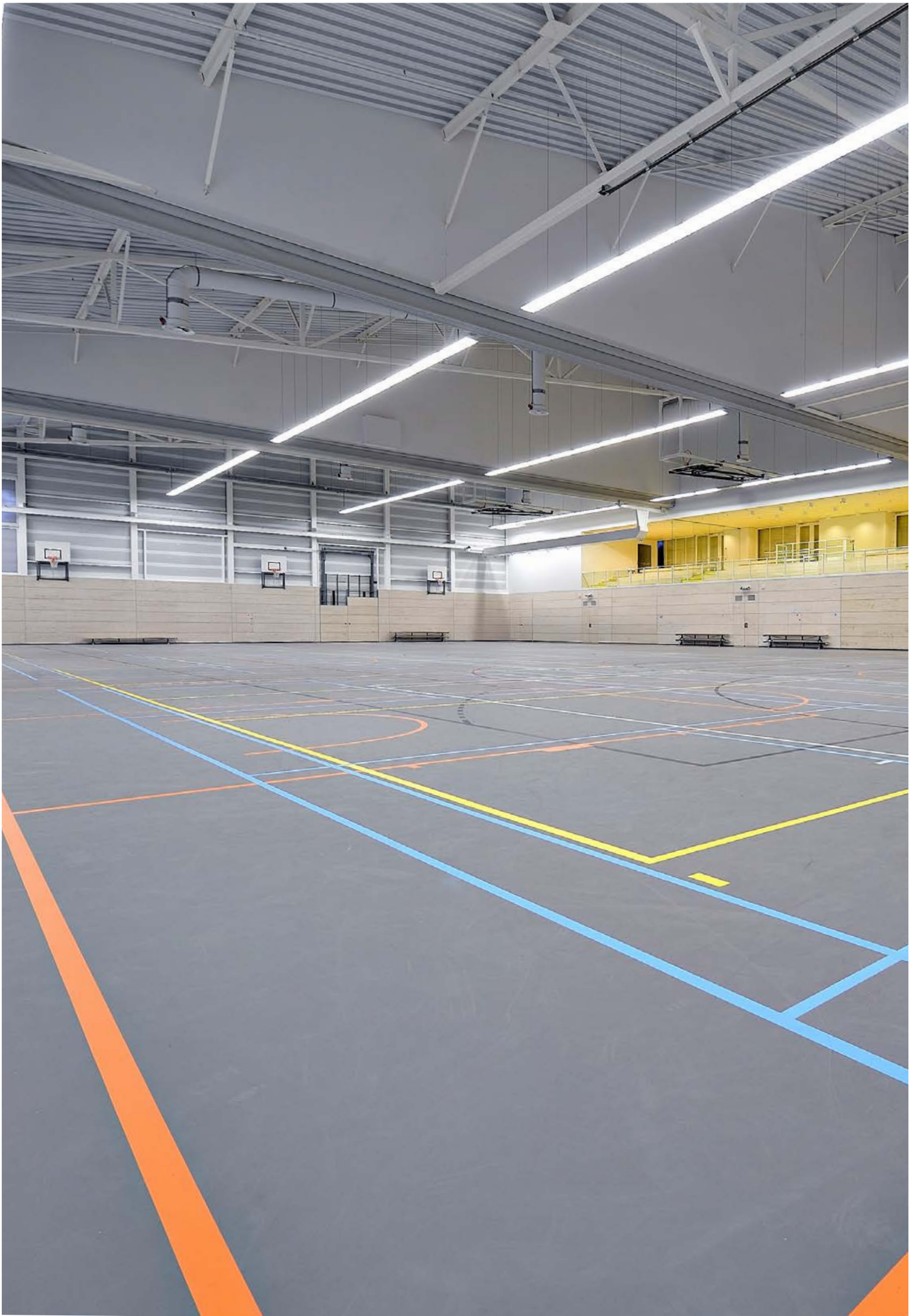
Location of the building:

Micro-location, transport links, neighbourhood

Sports functional quality:

Competition and training areas, multi-purpose facilities.

The already mentioned life cycle of sports facilities, plays a role that should not be underestimated - from sports facility development planning, through design, construction, operation (incl. renewal and maintenance), right up to removal/demolition (end-of-life).⁸





BUILDING WITH REMOVAL IN MIND

EXAMPLE: SPORTS FLOORS

The German company REGUPOL BSW from Bad Berleburg and SIKA from Utrecht and Deventer in the Netherlands have jointly developed a process that allows sports floors to be recycled one hundred per cent: the principle of PULASTIC TO PULASTIC (P2P). The surface of the original Pulastic floor is made up of so-called “buffings”. These are rubber fibres made of SBR rubber, which are created during the retreading of tyres from construction machines, truck and aircraft by “peeling” the worn tread surfaces off the tyres. This is not only a successful example of the principle behind the circular economy; the elongated shape of these fibres is also particularly well suited for manufacturing technically sophisticated products.

If the floor needs to be replaced after a service life of at least 25 years, it is removed and the broken pieces are shredded at REGUPOL in Bad Berleburg and then processed into a new floor – in simple terms: the old floor becomes the new floor. With the same sports-functional properties and quality.

So, processes like these not only improve energy and material efficiency. P2P also reduces the use of valuable resources. In Germany, the Recycling Management Act stipulates that preference must be given to such production processes.

Sport is one of the most important elements in our society. It unites millions of people and is important for both their physical and mental health. Fundamentally, sport is a good buffer against feelings like anger and loneliness – something which became increasingly important during the Covid 19 pandemic. In this context, sport and sustainable development are closely linked and increasingly need to be considered together!

**THE WORLD
IS WAKING UP
AND CHANGE
IS COMING.**

GRETA THUNBERG



THE MOST IMPORTANT POINTS AT A GLANCE



Besides the already significant pressure to renovate and modernise these facilities, new requirements for ecological and energy-efficient building methods now belong to the challenges of sports hall construction.



In Germany there are some 231,000, including around 35,000 sports halls. The required investment level here is estimated at around 31 billion euros



Sustainability leads to better quality in the construction of sports facilities.



A most decisive factor in the construction of sustainable sports facilities is their life cycle. An example from the Netherlands: with savings of €350 million per year from reduced energy consumption, the €3.1 billion investments would be paid off after nine years.



The German company REGUPOL BSW from Bad Berleburg and SIKA from Utrecht and Deventer in the Netherlands have jointly developed a process that allows sports floors to be recycled: – the principle is called PULASTIC TO PULASTIC (P2P).



The P2P process not only improves energy and material efficiency. It also reduces the use of valuable resources.

KEYWORDS

#GREENDEAL
#GRUENERDEAL
#KLIMASCHUTZ
#KREISLAUFWIRTSCHAFT
#CIRCULARECONOMY
#KREISLAUFWIRTSCHAFTSGESETZ
#UMWELTKRITERIEN
#RECYCLING
#NACHHALTIGBAUEN
#NACHHALTIGESPORTSTÄTTEN
#NACHHALTIGESPORTHALLEN
#RESSOURCENSCHONEN
#P2P
#PULASTICTOPULASTIC
#REGUPOL
#SIKA

¹ e.g. Mutz, Michael & Gerke, Markus (2017). Effects of high-performance sport on the collective identification of citizens. BISP-Jahrbuch Forschungsförderung 2017/18, 113-118. <https://bit.ly/3tBOZsp>

² e.g. Becker, Simone & Häring, Armando (2012). Social integration through sport? Sportwiss 42, 261-270. <https://doi.org/10.1007/s12662-012-0243-y>

³ e.g. Gebel K, Ding D & Chey T, et al. Effect of Moderate to Vigorous Physical Activity on All-Cause Mortality in Middle-aged and Older Australians. JAMA Intern Med 2015; 175: 970-7.

⁴ Sallis R, Young DR, Tartof SY, et al. Physical inactivity is associated with a higher risk for severe COVID-19 outcomes: A study in 48 440 adult patients British Journal of Sports Medicine. Published Online First: 13 April 2021. doi: 10.1136/bjsports-2021-104080.

⁵ The three pillars of sustainability - see white paper „Circular economy and sustainable construction - an introduction“.

⁶ Hoekman, R.H.A., Ruijck, D., Davids, A., Brus, J., Van Eldert, P. Prins, R.G., ... Wezenberg - Hoenderkamp, K. (2019). Jaarrapport duurzame sportinfrastructuur 2019. Utrecht: Mulier Instituut.

⁷ Natalie Eßig, Sara Lindner, Simone Magdolen (2017). Guide to sustainable sports facility construction - Criteria for the new construction of sustainable sports halls. Online publication of the Federal Institute for Sport Science.

⁸ Ebert, T., Essig, N. & Hauser, G. (2010). Certification systems for buildings: sustainable assessment, inter-national. System comparison, certification and economics. Munich: Detail.



REGUPOL Germany GmbH & Co. KG

Am Hilgenacker 24
57319 Bad Berleburg
phone +49 2751 803 0
info@regupol.de

REGUPOL America LLC

REGUPOL Australia Pty. Ltd.

REGUPOL Acoustics Middle East FZE

REGUPOL Schweiz AG

REGUPOL Zebra Athletics LLC

BSW Shanghai CO. LTD.

www.regupol.com