



2022

# Basketball Magazine

INSPIRATION ON HIGH PERFORMING SPORTS FLOOR:  
FROM ASSEMBLY TO CUSTOM DESIGN  
AND CREATIVE LINE MARKING

  
**JUNCKERS**  
Performing on Danish design

# Contents

<b>Message from the CEO</b>	1
<b>Junckers Official FIBA partner</b> Wood floor supplier 2021 - 2024	2
<b>EuroBasket '22</b> State-of-the-art courts for a sensational tournament	4
<b>Basketball World Cup '23</b> Which champion will earn the crown	6
<b>What makes the perfect floor for basketball?</b>	8
EN 14904 test programme	9
FIBA certification	10
Area and Point Elastic Floors	12
Repairability	13
<b>Creativity with line marking</b> Only imagination sets the limit	14
<b>Case study: Turkish airline EuroLeague</b>	16
<b>Case study: FC Bayern Basketball</b>	18
<b>Case study: RheinStars Cologne</b>	20
<b>From sports floor to new settings</b>	22

---

# Message from the CEO

After living with restrictions on our movements for such a long time, sport, activity, and recreation has become even more important in our lives. As Europe's leading provider of solid wood sports flooring systems, we are more focused than ever on providing safe, high-performing, and long-lasting floors to every kind of sporting venue, from school and village halls to large-scale, international-level arenas.



We are immensely proud to announce we have entered a long-term partnership with FIBA, the international governing body for basketball. Few team sports are as dynamic and high-powered as basketball, placing considerable demands on the floor. A safe and responsive floor makes all the difference to players, from elite level all the way to grass roots, as explained in this issue by Richard Aylen, Technical Manager, Junckers UK.

We also share some of our latest case studies from around the globe to offer inspiration and technical solutions. It is always fascinating to learn about a small detail devised by one of our technical teams which made all the difference to bringing a project in on time; or how a new floor has made has given rise to a whole host of new activities.

We hope you enjoy our basketball magazine!

Sincerely,  
Lars Gjødsbøl and the Junckers team

A handwritten signature in black ink, appearing to read 'Lars Gjødsbøl', is located below the typed name.



# Official Global Wood Floor FIBA Supplier 2021-2024

Junckers has signed a long-term agreement with FIBA, basketball's global governing body, to serve as Global Supplier of wood flooring until 2024.



The announcement by FIBA was made and signed on 07 September 2021, detailing the multi-event partnership which will encompass FIBA's elite international competitions in the next three years, including FIBA EuroBasket 2022, FIBA Basketball World Cup 2023 and 2024 Paris Olympic Games basketball tournaments.

Junckers will supply its latest generation professional portable sports flooring system Pro Complete 44 for all three competitions. The basketball courts for FIBA EuroBasket 2022 and FIBA Basketball World Cup 2023 will be custom-made with unique branding for each event.

Junckers Portable Sports Flooring made in solid hardwood offers a professional, flexible option for a wide variety of sporting events.

The flooring system fully conforms to EN 14904 standard with excellent shock absorption and ball bounce.

For international level games, a strong and durable floor is essential, and a portable, professional grade sports floor from Junckers offers a sustainable choice as it can be used again and again, ideal as many of the large arenas used for big sporting events are temporary structures.



Lars Gjødsbøl, CEO, Junckers Industrier A/S, commented:

*"We are extremely proud to once again collaborate with FIBA to provide our first-class sports flooring systems for multiple elite international competitions in the next few years. As a FIBA Global Supplier until 2024, our multi-event partnership further anchors the long-standing relationship between our two companies and cements Junckers' position as the leading sports flooring supplier on a worldwide scale."*

Andreas Zagkils, FIBA General Secretary added:

*"Having the FIBA EuroBasket 2017 played on their courts, we know first-hand that Junckers provides state-of-the-art basketball wooden floors. We look forward to working more closely with the company over the next three years as we provide the world's top players with the finest playing surfaces."*



As a one-stop service provider, Junckers offers technical solution from start to finish, including advice on selecting portable flooring, installation of the flooring system complete with branded court markings and dismantling the floor once the games have concluded.

With the new Global Supplier agreement, Junckers and FIBA continue their partnership following Junckers' role as Official Court Supplier for FIBA EuroBasket 2017, having also supplied its sports flooring systems for FIBA EuroBasket 2009 as well as for the basketball tournaments at the Athens 2004 Olympic Games.

## Competitions & Venues

### FIBA EuroBasket 2022

Tbilisi: 1.9-8.9

Cologne: 1.9-8.9

Milan: 2.9-8.9

Prague: 2.9-8.9

Berlin: 10.9-18.9

### FIBA World Cup 2023

Philippines, Japan and

Indonesia: 25.8 - 10.9

### Olympic Games 2024

Paris: 26.7 - 11.8

# Junckers delivered state-of-the-art courts for a sensational EuroBasket 2022

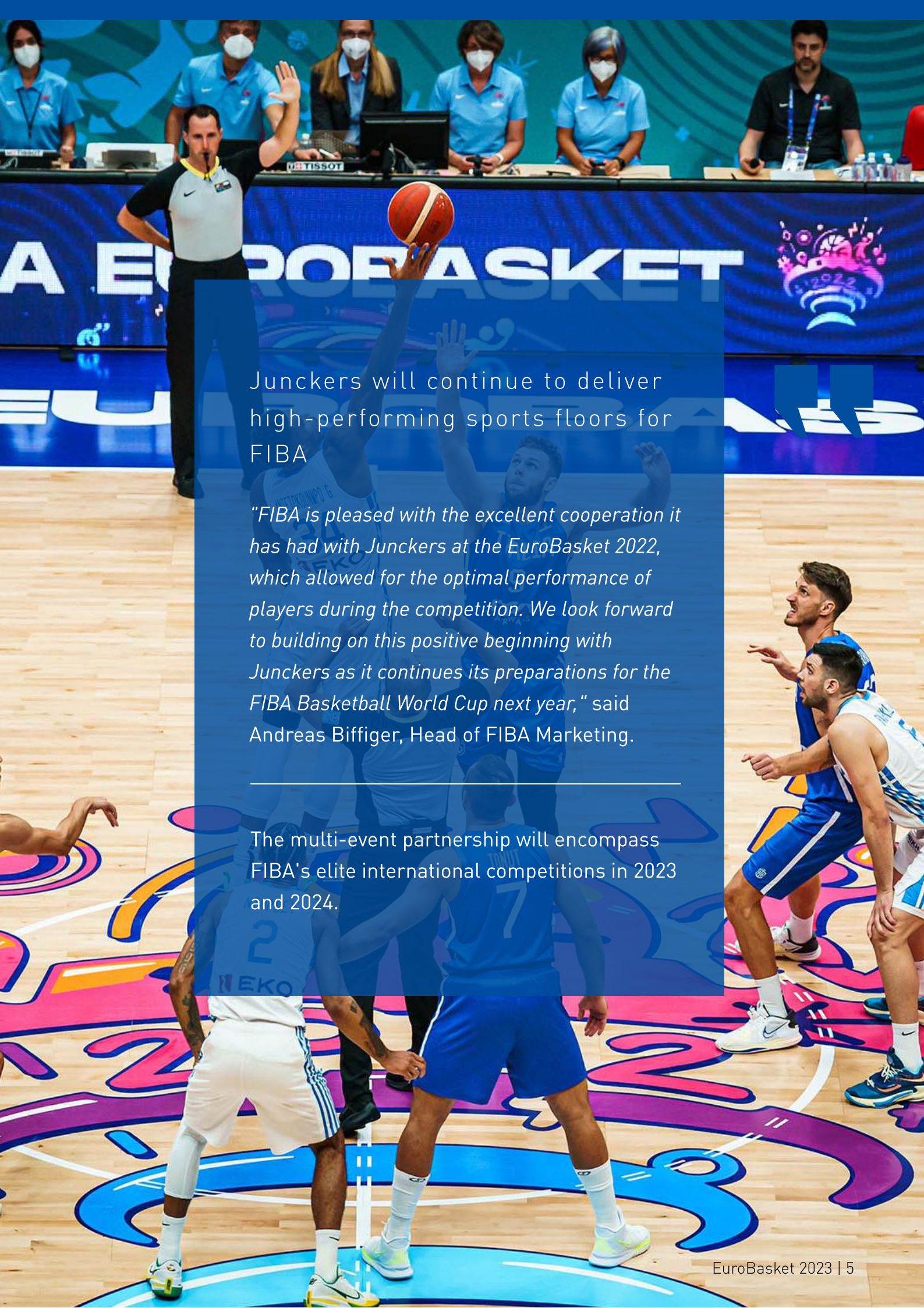
FIBA EuroBasket 2022 was a huge success and the fact that the world's top players had the perfect stage to put on a show helped immensely. Some of basketball's best international players performed their best on Junckers hardwood sports floors and delivered an international hoops spectacle.



Five portable courts of 3700 m<sup>2</sup> wooden sports floors and 500 liters of paint and lacquer

Made of solid beech, pre-assembled as lightweight panels, and completed with pre-fixed battens, the floors provided excellent shock absorption, ball bounce and optimal player safety.

The five court's customized sponsor branding was carried out by Junckers.



Junckers will continue to deliver high-performing sports floors for FIBA

*"FIBA is pleased with the excellent cooperation it has had with Junckers at the EuroBasket 2022, which allowed for the optimal performance of players during the competition. We look forward to building on this positive beginning with Junckers as it continues its preparations for the FIBA Basketball World Cup next year,"* said Andreas Biffiger, Head of FIBA Marketing.

---

The multi-event partnership will encompass FIBA's elite international competitions in 2023 and 2024.

*Next international FIBA tournament*

# FIBA BASKETBALL WORLD CUP 2023

IN SEPTEMBER, A CHAMPION WILL EARN THE CROWN

  
FIBA  
BASKETBALL  
**WORLD CUP**  
PHILIPPINES · JAPAN · INDONESIA





ANY 2022

FIBA EUROBASKET

RICHARD AYLEN

TECHNICAL MANAGER, JUNKERS  
XXXXXXXX



# What makes the perfect floor for basketball?



RICHARD AYLEN  
TECHNICAL MANAGER, JUNCKERS UK



*When you consider the various surfaces found in a sports hall the one the athlete interacts with most is the floor. People who participate in sport, especially at elite level, often have high expectations of the way the floor behaves as this can affect their own performance. Having the right type of floor can also reduce the risk of injuries. It is therefore essential for a sports floor manufacturer like Junckers to know how to translate the athlete's needs into the optimum sports floor.*

---

You may hear general terms such as “sprung” and “semi-sprung” being used to describe different sports floor types, and as general descriptions they are fine. However there is no specific technical definition for these terms, and for this we need to go to the recognised EN 14904:2006 standard. Manufacturers can have their sports floor systems independently tested and certified by accredited laboratories. If successful, the system will be given a classification based upon its level of performance and its type. Junckers has activity and sports floor systems that are fully tested and certified to EN 14904.



# EN 14904 test programme

A typical test programme under EN 14904 will usually include the following

## Force Reduction

(shock absorption)

This relates to the floor's ability to absorb impact and therefore tells us about how comfortable the floor will be to use. Shock absorption also helps to reduce fatigue so the athlete can play sport for longer. It is also an indicator of how safe the floor is. Compared with a hard, unyielding surface, a shock absorbing floor will reduce injuries such as shin splints and impact injuries resulting from falls.

---

## Force Reduction

(shock absorption)

Vertical deformation testing measures the distance in millimetres by which the floor deflects under load. This is different from shock absorption which is based upon force measurements. Vertical deformation characteristics are important for sports such as basketball. If one player is bouncing the ball on the floor and another player runs past, a floor vertical deformation that is too high will cause a "false bounce" which can disrupt the game.

---

## Ball Rebound

Testing is carried out with a basketball, dropped onto the floor from a standard height. The height of the rebound is compared with dropping the ball from the same height on concrete. A good test result will be as close as possible to the result for concrete. Basketball and five-a-side players for example prefer a fast ball response.

## Slip Resistance

The right level of slip resistance is a key safety factor. Too little slip resistance and there is a risk of slips and falls, but too much and there is a risk of tendon strains by the hard "braking" effect that high friction can provide. There is also a performance benefit because in sports where athletes make frequent high speed turns, stops and starts a certain amount of predictable "slip" from the floor's surface gives them a feeling of control.

---

## Specular gloss

EN 14904 defines an upper limit for the gloss level of the floor so the athletes will not be distracted by glare during play.

The remaining test criteria relate to the durability of the floor and so are usually less of a concern for the athlete. Tests will be carried out to assess the floor's rolling load resistance i.e. its ability to resist damage from metal wheels rolling across it. Finally, the floor's abrasion resistance is assessed.

---





## FIBA certification

EN 14904:2006 is intended for multi-purpose use rather than any one sport. It is fair to say that the standard meets the needs of most indoor sports very well. However, some sports bodies will tailor the standard to more closely match their specific needs. They may devise their own test programme under which floor manufacturers can have their systems tested and accredited by the sport's governing body. One example of this is FIBA, the International Basketball Federation.

Their test programme is closely based upon EN 14904 but FIBA's "Level 1" standard, for example, has slightly different performance criteria for shock absorption and ball rebound. Junckers has a number of flooring systems tested and accredited to FIBA standards.

It is not uncommon to see sports floor system manufacturers who have "official partnership" agreements with sport's governing bodies, but not all partnerships are the same. At first glance these agreements may appear to be based upon technical standards, but, unlike the FIBA partnership scheme, some of these are simply sponsorship deals where the manufacturer has paid the sports body for an endorsement. It is important therefore that the client or designer checks into what the partnership or endorsement is based upon.

# Area and Point Elastic floors

There are several types of sports floors defined by EN 14904.

## AREA ELASTIC

**Area Elastic floors** such as a solid hardwood floor, where the floor deflects under load over a relatively large area.

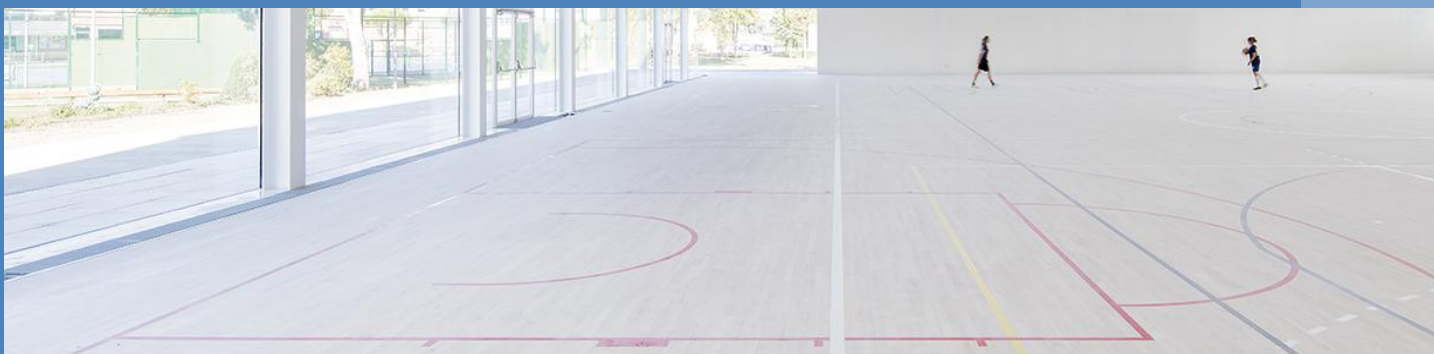


## POINT, COMBI & MIXED ELASTIC

**Combi Elastic** and **Mixed Elastic**, which are essentially hybrids of area and point elastic systems.

Point elastic floors are used more often than combi or mixed systems.

**Point Elastic** floors are usually made from synthetic materials such as foam-backed vinyl or polyurethane. They have a soft, spongy surface so the floor compresses only where the athlete's foot makes contact.



Comparing area and point elastic floor types, point elastic floors are often the cheapest option because they can be laid direct to a screed base and do not use rubber pads or battens. However, area elastic floors are often preferred because they are less likely to cause tendon strains or drain the energy of the player.

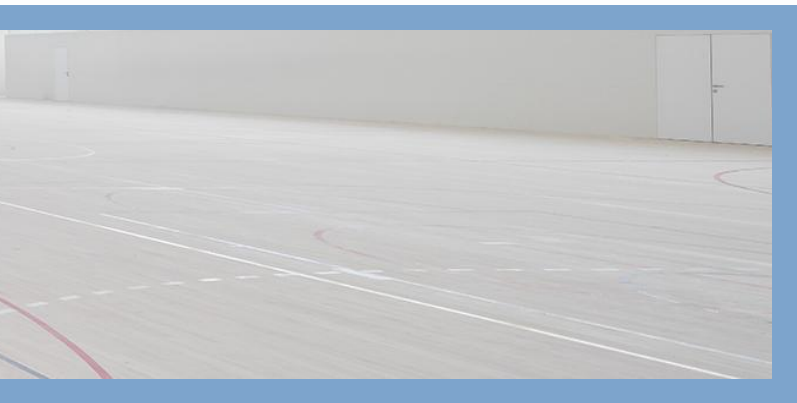
The soft surface can “trap” the foot and increase the risk of tendon and ligament strains. This is thrown into sharp focus by wheelchair athletes who have a strong preference for area elastic floors, which offer lower rolling resistance compared with point elastic floors. For all athletes, including wheelchair athletes, a point elastic floor can cause earlier fatigue. In the UK there are anecdotal reports of wheelchair athletes who train for long periods sustaining arm and wrist injuries as a result of an unsuitable floor surface.

This is why Junckers only offers area elastic systems. It is significant to note that in the UK the Department for Education does not permit the use of point elastic floors, allowing only area elastic activity and sports floors in new-build and refurbished schools activity spaces.

Environmental issues and sustainability also make it increasingly difficult to justify using synthetic floors because they are derived from crude oil, have a significantly shorter lifespan than solid hardwood, cannot be recycled and are therefore become a burden on landfill sites.

Comparing solid hardwood and synthetic area elastic sports floor systems will reveal a stark difference. A typical synthetic area elastic floor comprises a “sprung” batten system with a timber deck fixed on top. The synthetic surface e.g. 2mm vinyl or liquid polyurethane is applied onto the deck. Area elastic solid hardwood floors usually include a similar batten system, but the prefinished hardwood floorboards are fixed directly to the battens. This is a simpler and quicker process and it is the main reason why solid hardwood area elastic floors tend to cost less than synthetic ones.

When we look at lifetime costs the differences between the two floor types is still more evident. This is largely due to longevity, where a 22mm solid hardwood floorboard can be sanded between eight and ten times during its life and will have a lifespan of at least 60 years. The fact that the floor can be refurbished is the key to its long life, and this is something synthetic floors do not offer. Given proper maintenance you would normally sand a hardwood floor after 12 years or so, which is around the same time you would expect to replace a synthetic floor. This means that a Junckers solid beech floor will last approximately four times longer than a synthetic one. The annual cost of hardwood is less for the client, even when you factor in the cost of periodic maintenance coats of lacquer.



# Repairability

Sports and activity floors can receive some rough treatment and at some time or another will need repair.

With a solid hardwood floor most of the minor surface damage will disappear when the floor receives its periodic coat of lacquer. Any deeper scratches can be locally sanded out and the area resealed. Minor surface damage to synthetic finishes will usually be there for the life of the floor. Any more serious damage such as cuts and gouges can be repaired by patch repair where the damaged area is cut out and the surface material replaced. The nature of synthetic floors means the repair will always be visible, both as a result of colour fade and manufacturing batch colour differences.

Ease and cost of repair differs significantly between hardwood and synthetic floors if structural damage to boards or deck material occurs.

Solid hardwood floorboards can be replaced relatively easily and at relatively low cost. The floorboards are not glued together so the damaged board can be removed without damaging the surrounding area. The ply or chipboard deck panels within a synthetic system will be fully bonded together and are often glued to the battens, making discrete removal of individual panels impossible. The contractor has to break out a relatively large area and re-form the panel edge-joints on site. It can be difficult to do this in a way that retains full strength of the floor and any additional support battens may alter the area elastic performance of the floor.

Clients and designers who are selecting sports and activity floors may choose to look into the finer details of individual system's laboratory test data, but it is rather uncommon for clients to dig that deep; and that's fine. The reason we have a European standard, laboratory test and certification programmes is to make the task of selecting a floor system simple and reliable.





# Only imagination sets a limit



A sports floor does not come alive until it has been given the colour and excitement of the sports that are played on it. Painted sports lines help to achieve this, the clubs own logo adds unique personal style to the floor, and adds to the audiences' experience.

For this purpose, Junckers manufactures its own range of line marking paints. Junckers HP SportsLine is tested and approved according to the European sport standard EN 14904. It is very hard-wearing and available in white, red, green, blue, yellow and black.

The colours can be mixed to create other colour shades, and for big events, such as the upcoming Eurobasket 2022, Junckers has developed several custom colours to match exactly the colour palette for the competition.

# Turkish Airlines EuroLeague Final Four Basketball Tournament

The Final Four games represent the culmination of the EuroLeague where Europe's top 18 basketball teams compete to become champions.

As a one-stop service provider, Junckers has provided the technical solution as well as all services connected with the project including advice on selection of portable flooring, installation of the system complete with FIBA court markings and a demarcated surround, as well as dismantling the floor when the games have concluded.

Junckers Portable Sports Floor made in solid beech offers a professional, flexible option for a wide variety of sporting events. The flooring system fully conforms to EN 14904 standard with excellent shock absorption and ball bounce and is the ideal solution when a low construction height is required. For international level games, a strong and durable floor is essential. Having previously been used at numerous Olympic Games, World, European and Panamerican Championships, Junckers' portable sports flooring system has proved a trustworthy solution many times over.



Stay updated  
projects, even  
more with Ju  
Newsletter

[Sign up here](#)



with sports  
 nts and much  
 nckers Sports

2021-05-27 08:26:32  
 In **LD** LD EVENTOS

**Timelapse Euroleague Turkish Airlines Final Four 202...**

[Copy link](#)

Watch on YouTube

# Back on court

FC Bayern Basketball club is celebrating being back on court with a brand new professional basketball floor. After a long break and several cancelled games owing to the pandemic, the players were welcomed back onto a newly fitted, state-of-the-art sports floor from Junckers.

The Audi Dome arena in Munich was originally built to host the basketball games at the 1972 Olympic Games and has been the regular home venue to FCBB since 2011. *“The floor is exposed to a lot of stress”*, explains Konstantin Wetterauer, management Event Operations, FCBB. *“As well as Euroleague, German league BBL and games of the second professional team, there are several training sessions every day”*, he continues. After many years of such intensive use, the floor urgently needed to be replaced. With a long-standing track record of providing professional sports flooring for international, high-profile events, FCBB partnered with Junckers to supply its Pro Complete 44 solid hardwood flooring system, a FIBA- approved basketball floor.



**JUNCKERS**  
Performing on Danish design  
Official Sports Flooring

## DETAILS

Wood species: [Beech](#)

Sports system: Portable, [Pro Complete 44](#)

Location: Munich

Year: 2021



## FIBA APPROVED

The PC 44 system consists of 22mm solid beech flooring, pre-assembled as light-weight panels which can be carried by hand. Each floor panel has several pre-fixed battens made in birch wood, mounted together with a soft polyurethane foam to provide excellent shock absorption, ball bounce and optimal player safety. The flooring system is area elastic and fully conforms to EN 14904 class A4 standard. As a leading manufacturer of solid hardwood sport floors, Junckers holds a long-term agreement as a FIBA Global Supplier. The company will provide flooring for the 2024 Paris Olympic Games, FIBA Basketball World Cup 2023 as well as FIBA Eurobasket.

## MINIMAL DOWNTIME

Working closely with the club's operations management, Junckers' team was able to install the new floor at the Audi Dome with minimum disruption and down-time for the club through careful planning and preparation. Junckers ProComplete 44 portable sports floor can be installed in as little as two hours once preparations are completed, and dismantled within the same time frame. As a one-stop service provider, Junckers provides the technical solution from start to finish, including advice on choosing the right portable floor system, installation complete with branded court markings as well as dismantling the floor.

*"We are very proud to collaborate with Junckers to provide our team with a first-class sports flooring system. The floor perfectly matches the extreme stress caused by both games and practice sessions. As well as outstanding playing performance, Pro Complete 44 was extremely easy to handle, which saved our arena staff a lot of time during the installation process."* adds Wetterauer.

## A SUSTAINABLE SOLUTION

Solid hardwood is one of the most durable flooring surfaces available. Known for their exceptional longevity, Junckers sports floors can be sanded and refinished up to ten times without losing performance. A long-term flooring solution also offers the club a sustainable choice. As well as financial benefits, a long life cycle is also beneficial to the environment. The longer a wooden floor is in use, the longer it will store embodied carbon within the wood. It will not contribute to landfill, and it will save carbon-generating energy which would have been necessary to manufacture and transport replacement flooring. The life cycle costs of a Junckers floor are virtually unbeatable.

# New five-court project for RheinStars Cologne

In September 2020 Wiesbaden-based company Holz & Mehr planned and built a 4000m<sup>2</sup> competition arena for RheinStars basketball club in record time.

The result is a high-performing area elastic sports floor in solid hardwood by Junckers. A high-quality sports floor and subfloor system from Junckers is ideal for many individual and team sports, dance as well as multi-purpose halls on all performance levels.

Junckers installed four courts with its UnoBAT 45 permanent sports flooring system and one court with the new portable sports floor system Pro Complete 44. The latter will be disassembled and reused for competitions and tournaments when needed.

The all-inclusive solution selected by the club includes Junckers solid beech sports floor, sub-construction, installation and line marking paint.

RheinStars Cologne is the largest basketball club in the North Rhine-Westphalia region. It holds more than 45 competitions every year and requires the very best flooring solution for both training and competitions.

By installing Junckers' sports flooring systems, Holz & Mehr's proprietor Michael Bode has provided RheinStars Cologne with the ideal conditions so the players can prepare for every competition.

Junckers' sports floors perform with unique area elastic characteristics providing ultimate freedom of movement, protection against injury as well as enabling the athlete to perform to the best of their abilities.





## DETAILS

Wood species: Beech

Sports system: Unobat 45 and Portable, Pro Complete 44

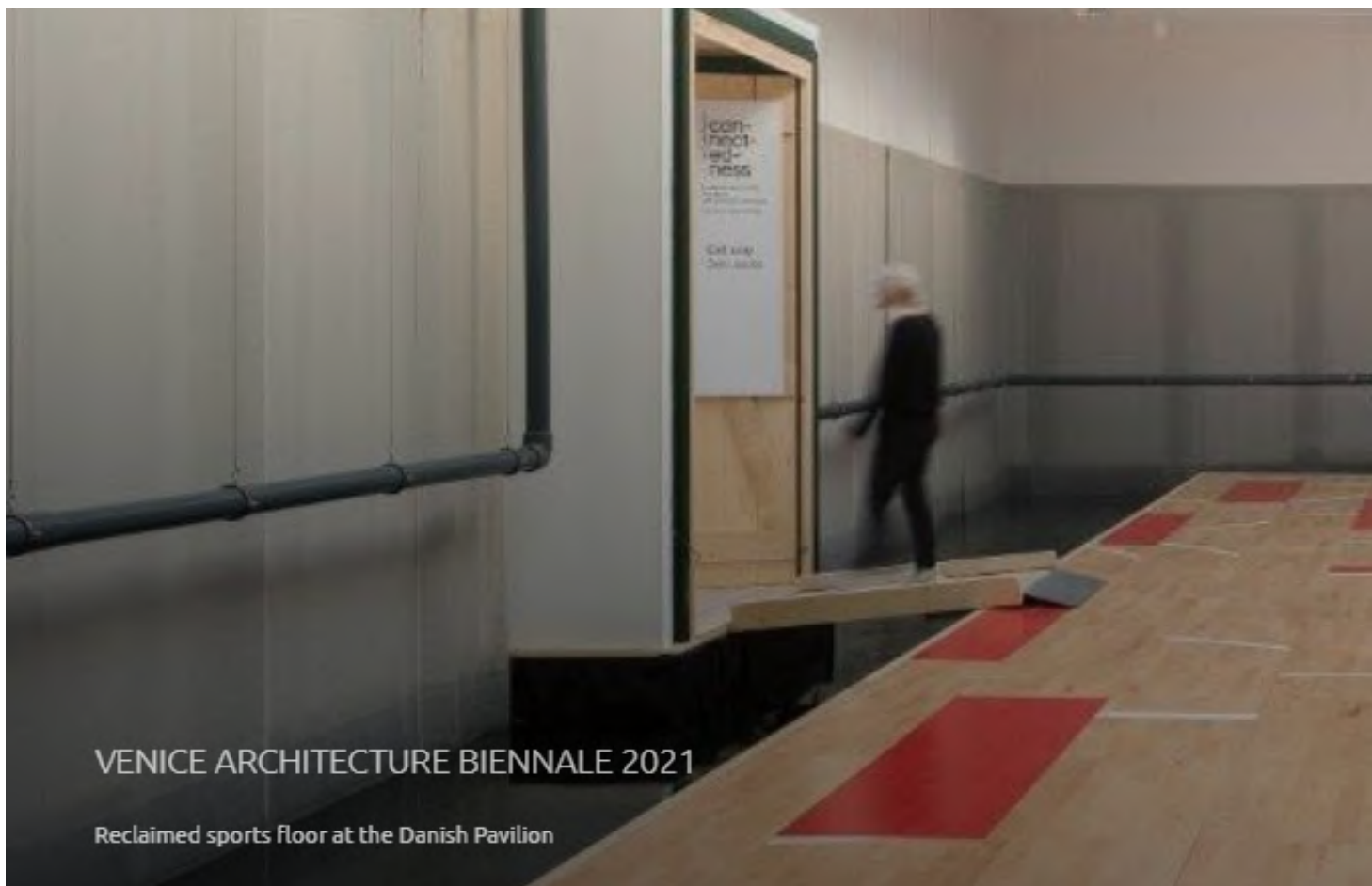
Location: Munich

Year: 2021

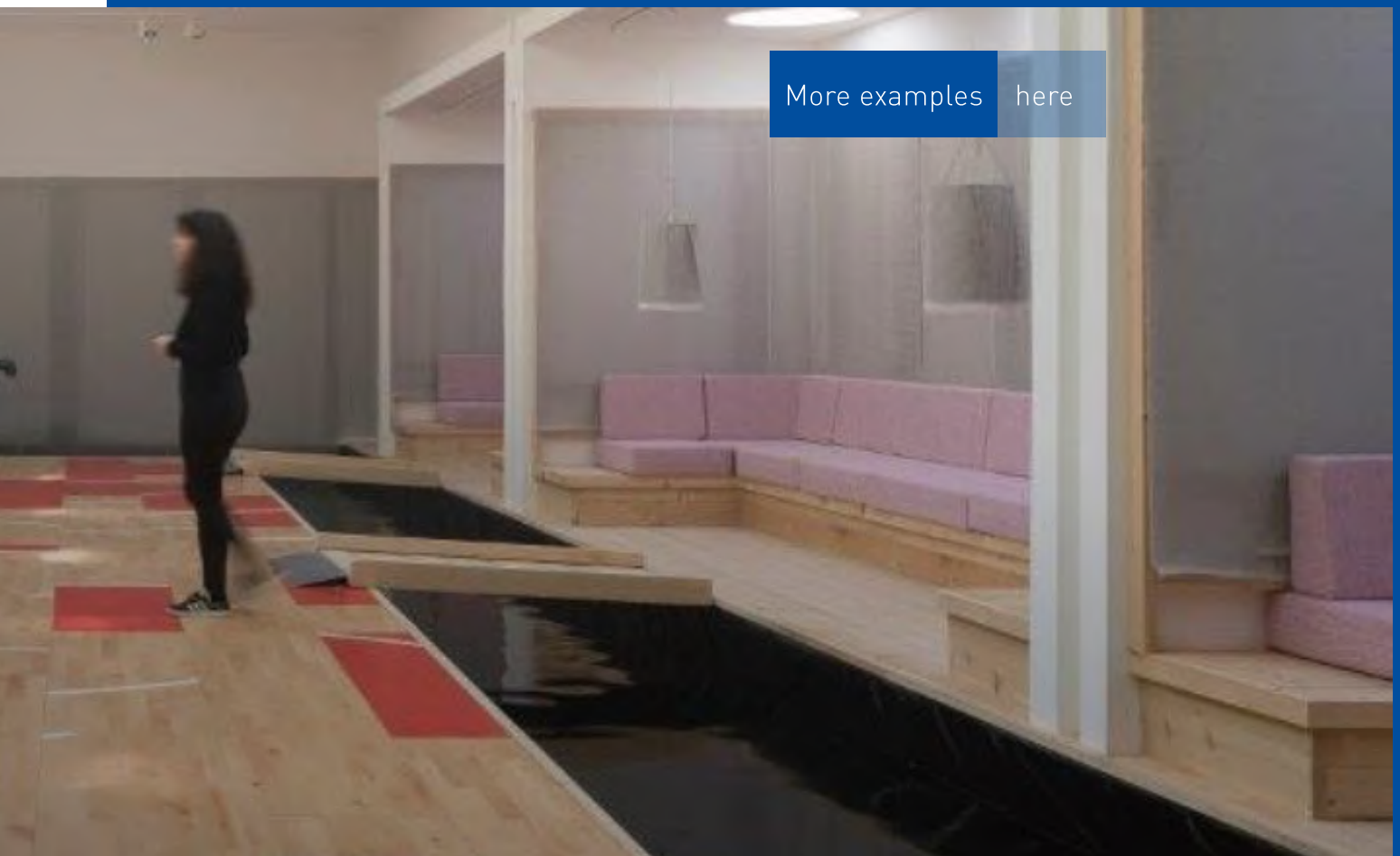
# Long life, many uses

We often talk about the exceptionally long life of our solid hardwood flooring in a financial context, where a 60+ year lifespan offers very low life cycle costs. But there are many more benefits to a durable, long-lasting floor. Because a Junckers floor lasts for such a long time, there is less waste to manage, lower energy consumption and ultimately, lower demands on natural resources than if a floor is replaced.

As a long-lasting material, solid wood can be reused and recycled, either as flooring or as a building material. Many a Junckers sports floor has been lifted at the end of its long life and found new use as reclaimed flooring – a sand and a seal will bring it back to good-as-new condition. Junckers promote the reuse of our floors by donating reclaimed floors as well as by-products from our wood flooring manufacturing process to charitable and worthy causes.







[More examples here](#)



# JUNCKERS

Performing on Danish design



JUNCKERS A/S

Tlf. +45 70 80 30 00 | [junckers.com](http://junckers.com) | [info@junckers.com](mailto:info@junckers.com)