# **EUROPEAN STANDARD UNI EN 14904 - Indoor surfaces for**

multi-sports use. Only reference standard for sports floors.

In this section we want o talk about sports floors and EN 14904 standard to better explain Uni En 14904 technical European provisions (recognized in Italy as well): "Surfaces fro sports areas – Indoor surfaces for multisports use", issued by the Italian unification authority in July 2006.

Although the standard is neither really renowned nor used, it is essential in order to make playing surfaces for basketball and other sports such as handball, volleyball, five-a-side football etc.; the importance of this standard is even bigger if You think that CE marking for a.m. sports surfaces has become compulsory since 2008.

Before exploring these provisions, please remember that each sport requires the floor to have specific technical, functional, comfort and aesthetic features to get the best performance. In order to fulfill all different sports needing, wood is the ideal material, suitable for physical exercise (as proved by the centuriesold tradition on theaters, gyms and indoor sports facilities).



#### STANDAR REQUIREMENTS FOR SPORTS SURFACES

Any kind of sports floor needs to be designed in all its structural and finishing elements, and namely specific care must be taken of:

- the sports floor has to be sized depending on all activities;
- You need to choose and redesign the structure depending on the required flexibility and expected load;

• all constructive details need to be settled, most of all equipments supports and fixings;

#### FOR DESIGN ENGINEER :

• the tender better describe all technical features of the material and the proper execution of the work, including every single step of preparation, installation and finishing of the sports surface.

# The former DIN 18032 Standard, dated 1982, can be considered as new EN 14904 Standard's mother.

Below You have the essential provisions, which clearly go back to the previous German DIN 18032 Standard http://www.seicom-italy.com/normativa.asp

# Friction EN 13036-4

When tested by the method described in EN 13036-4 using CEN rubber under dry conditions at a temperature of  $(23 \pm 2)$  °C, the mean of the Pendulum Test Value shall be between 80 and 110 and no individual test result shall differ from the mean by more than four units.

### Shock absorption EN 14808

When tested by the method described in EN 14808, carrying out a minimum of four tests plus one test for every 500 m2 of area, the mean force reduction shall be between 25% and 75% and no individual result shall differ from the mean by more than ±5 units.





# **CE MARKING**



Please remember that CE marking has been compulsory since 2008 (see website www.aedilitia.itc.cnr.it/defaul t.asp) and so these products must comply with the requirements set by En 14904:2006 European Standard; this must be clearly and permanently marked by the manufacturer on a sticker or on the packaging at least with the following info:

a) Number and year of European Standard (namely En 14904:2006);

b) Manufacturer or supplier's identification;

c) Name of the product and lot number (possibly encoded).

When the requirements set by point ZA.1 - ZA.2 - ZA3.3 of Uni En 14904:2006 give the same info of the present point.

UNI EN 14904 Standard http://www.seicom-italy.com

#### Vertical deformation EN 14809

When tested by the method described in EN 14809, the vertical deformation shall not exceed 5,0 mm.

Note 1 - These values are laboratory values. Measurements on site may be carried out at different temperatures and humidity depending on the ambient conditions of the sports hall, in which case the surface temperature and relative humidity should be recorded in the test report.

Note 2 - Information on typical shock absorption and vertical deformation values for elastic floors is given in Annex B.



#### Vertical ball behavior EN 12235

When tested by the method described in EN 12235 using a basketball, carrying out a minimum of four tests plus one test for every 500 m2 of area, the mean relative rebound height shall be  $\pm$ 90% of the rebound height on concrete and no individual result shall differ from the mean by more than  $\pm$ 3 units.



#### **Resistance to a rolling load EN 1569**

Note - This property is important to ensure that the surface will not be damaged by equipment or seating that might be moved around on it.

When tested by the method described in EN 1569, the minimum resistance shall be 1 500 N, the maximum indentation shall be 0,5 mm under a 300 mm straight edge and no perceivable damage shall be observed after the test.



#### **Resistance to wear EN ISO 5470-1**

Note This property is important to ensure a reasonable expected lifetime in use, particularly for high usage areas (e.g. areas in front of goal on ball pitches) which are prone to loss of material by abrasion.

For synthetic surfaces, when tested by the method described in EN ISO 5470-1, using H18 wheels with a 1 kg load, the maximum loss in mass per 1 000 cycles shall be 1 000 mg.

For coatings and lacquers intended to be applied as part of scheduled maintenance, when tested by the method described in EN ISO 5470-1, using CS10 wheels with a 500 g load, the maximum loss in mass per 1 000 cycles shall be 80 mg.



# Resistance to a rolling load EN 1569 with higher load

It's possible to make a test with a load higher than 1500 Newton (prescribed value). The laboratory certifies the recorded values.



In the picture a test made with a maximum load of 3.000 Newton . The red colored weights show the noticeable additional load.

A higher load test can be useful in case of telescopic tribunes to be used in the facility, putting load higher than 1.500 N (value set by the Standard) on the floor. The Standard is based on regular rolling load through portable backstop units or gymnastics equipment.

• **Reaction to fire classification**. If a claim for reaction to fire performance is made, the sports floor covering shall be tested and classified according to the requirements of EN 13501-1 and the resulting class and subclass shall be declared. If it is decided to make no claim for reaction to fire performance, i.e. it is decided to place a product or family of products on the market as Class Ffl, no testing is required for this product or family of products.

• **Formaldehyde emission.** When formaldehyde-containing materials have been added to the product as a part of the production process (example: wooden based panels), the product shall be tested and classified into one of two classes: E1 or E2, as specified in Table 2 and Table 3.

Note Products of Class E1 can be used without causing an indoor air concentration greater than 0,1 <' 10-6 mg/kg (0,1 ppm) of formaldehyde. The test requirement does not apply to sports floor coverings to which no formaldehyde-containing materials were added during production or post-production processing. These need not be classified, but may, without any testing, be declared as Class E1.

• **Content of pentachlorophenol.** Sports floor coverings shall not contain pentachlorophenol or a derivative thereof as a component in the production process of the product or of its raw materials. In cases where verification is required, if the content is less than 0,1 % by mass by the method described in Annex C, this requirement shall be considered to be met. In synthesis, Annex C, besides stating that pentachlorophenol (PCP) must be extracted by means of a solution of potassium carbonate and quantitatively analyzed according to En 12673, also sets how the laboratory shall carry out the test.

• **Specular reflectance.** Where required, the specular reflectance shall be measured using the method described in EN 13745, using an angle of 85°, and the mean value obtained shall be reported.

• **Specular gloss.** When tested by the method described in EN ISO 2813 using an angle of incidence of 85°, the specular gloss shall be <30% for matt surfaces and <45% for lacquered surfaces.

#### • Resistance to indentation.

When tested by the method described in EN 1516, the mean residual indentation measured 5 min after removal of the load shall be reported and the mean residual indentation measured 24 h after removal of the load shall be <0,5 mm. For area-elastic sports floors, test only the upper layer supported on a rigid structure.

#### • Resistance to impact.

After conditioning for 14 day at a temperature of  $(50 \pm 1)$  °C and then testing by the method described in EN 1517 at a test temperature of  $(10 \pm 1)$  °C using an indenter with a mass of 800 g, there shall be no perceivable cracking, splitting, delamination or permanent indentation of the test piece, except that for wooden sports floors the indentation shall not exceed 0,5 mm.

#### Degree of evenness.

Note - This requirement can only be measured on site, as it is a measure of the overall construction rather than a specific property of the surfacing element alone.

When tested by the method described in EN 13036-7 over the playing area, including safety zones and outruns, the greatest distance between the straightedge and the sports surface shall not exceed 2 mm over a measuring distance of 0,3 m and shall not exceed 6 mm over a measuring distance of 3 m.

# History of CE Marking within building and building materials

**CE marking** was introduced by Board Decision 93/465/CEE dated 22<sup>nd</sup> July 1993 in order to speed up the creation of the European Market set by CE Treaty, namely by Art. 28, 29 and 30. CE mark shows that the product complies with all community provisions requiring its use: design, manufacture, marketing, supply of the service to end disposal. CE mark rules the whole life of the product right from the entry on the market.

The Members cannot restrict the entry on the market of product marked as "CE", unless non-compliance of the product is proved in court. The marking has to be put before the product enters the European market. CE marking is has to be put on certain types of product by the manufacturer, who certifies and declares the compliance with the essential requirements for the marketing and use within Europe, set by the new Instructions. The mark affixing is required by the law in order to commercialize the product in the Countries member of the European Economic Area (SEE). Some provisions might avoid CE mark on some products. Some products can freely circulate on European market if they have for example a declaration or a compliance certificate. Examples of provisions requiring CE mark are the Directive for building products, the Directive low voltage, the Directive machines, the Directive electromagnetic compatibility, the Directive for pressure systems, the Directive for medical devices. The complete list is available at http://www.newapproach.org/Directives/DirectiveList.asp.

The symbol CE means "European compliance", and shows that the product complies with essential requirements set by the Directives on safety, public health, consumer protection, etc. therefore it is neither a quality mark nor an origin mark, but it means the product has the presumption of conformity.

The declaration of conformity CE is a statement by the manufacturer, the authorized representative or the importer certifies the compliance of a product with the essential requirements. It means CE marking on the sticker of a product premises that a product comes with a compliance declaration (or a certificate according to the forms) which is the real binding document for the manufacturer (or the representative or the importer). Note that the Responsible for factory production control (same as the quality manager or the internal auditor for VE marking of the product) are not ipso facto representative. Anyway, given the representative definition and the concept of importer, the Community Lawmaker implicitly provided the chance to have the Responsible for factory production control on responsible for the obligations relevant to CE marking (task to be written) on behalf of CEO.

The compliance declaration can be a document, a sticker or something similar and has to show at least the following information:

- Name and address of the manufacturer or the representative issuing the declaration (and identification number of the notified organization in case the form requires the participation of a third institution);

- Identification of the product (name, type or model number and other optional info such as lot number, series, source and item numbers);

- all fulfilled requirements;
- standards or other documents adopted (i.e. national technical specifications) clearly and in detail mentioned;
- all possible necessary further info (i.e. class or grade when required by technical specifications);
- date of issue of the declaration;
- signature and title or representative stamp;

- declaration stating that compliance declaration is issued under the manufacturer's (or the representative's) total responsibility.

#### BESIDES WHAT'S WRITTEN ABOUT CE MARKING it's better to know that:

The project manager or the final user (sport association) who wants to install a sports parquet floor has to remember that Italian Laws require a product identifier data for all materials .

The technical identifier product data sheet has to comply with law requirements dated 10<sup>th</sup> April 1991 no.126 "consumer information laws" and with the decree dated 8<sup>th</sup> February 1997 no. 101 "execution regulation" and with Legislative Decree dated 6<sup>th</sup> October 2005 no. 206 "CONSUMER CODE".

As from 10<sup>th</sup> February 2005 all furniture, furnishing and any other object made of wood, must have a data sheet, prepared by the manufacturer or the importer, supplied to the distributor and, shown and made available by the distributor to the buyer. Apart from the way the product is being offered to the consumer, the product must have its own data sheet. In the data sheet, which will be delivered to the customer "when the sale contract is finalized, which means when the goods are delivered", all types of materials used for the structure and covering, referring to the single product category have to be described, even if materials similar to wood are used, besides ordinary upkeep and cleaning instructions if necessary.

ALL SPORTS FLOORINGS MANUFACTURED BY SEICOM ARE SUPPLIED WITH PRODUCT IDENTIFIER DATA; our Customers can also choose within a wide range of cleaning and ordinary upkeep products of our production: http://www.seicom-italy.com/pulizia-e-manutenzione.asp

List of useful links: <u>http://www.seicom-italy.com/normativa.asp</u> <u>http://www.seicom-italy.com/pulizia-e-manutenzione.asp</u> <u>http://it.wikipedia.org/wiki/Marcatura\_CE</u> <u>http://ec.europa.eu/enterprise/newapproach/nando/</u>



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**Aldo Cammarata** was born in 1972, and has been Seicom's Sales & Technical Manager since 2004. Seicom S.r.l. has headquarters in Sondrio and works only with sports parquet floors. Mr. Cammarata graduated from school in 1992, with the diploma as Technical Expert in Wood Industry.

He previously worked for a renowned Danish company, manufacturer of sports and residential parquet. He's been in residential floorings since 1994 and turned into only sports parquet field in 2004. In these years he has gained a wide experience in all steps of sports parquet manufacture and installation, developing a remarkable knowledge of the relevant regulations. He has personally supervised on behalf of Seicom several important installations in Italy and abroad.

The text of UNI EN 14904 Standard above mentioned has been regularly purchased by SEICOM srl and all references are about the Regulation text.