



# IMPROVE ANY SPACE BY STARTING WITH THE FLOOR

**Trends in the world of education,**  
and floor choices

# LEARNING IS FUN AGAIN

## CLEAN AND HEALTHY CLASSROOMS ARE CRUCIAL IN EDUCATION

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### FACT

21st-century skills are essential.

**The educational system follows social trends and is therefore constantly on the move. Developments and trends originating in society influence the design of education environments. Think in terms of vandalism proof designs or the 'new' quiet environments which are gaining ground in the world of education.** Of

course, there are other factors such as health, acoustics and the interior environment which have played a role in designing schools and choosing floors for some time now. Forbo Flooring's intention in this white paper is to provide you with insight into the developments and their consequences; qualities, properties and (life-cycle) costs of various types of flooring, as well as all other areas of attention which may be of importance to schools. Let us start with trends and developments. Classical lessons are becoming increasingly few and far between in primary and secondary education but also in secondary and higher vocational colleges and universities. Lectures have lost favour at the universities and are more and more often replaced by brief group instructions which are subsequently worked out individually or in groups. Learning centres, individual workplaces and

media libraries are becoming increasingly important components of the building at all primary and secondary levels of education. This requires a fundamentally different design of educational institutions, to meet the need of a relative form of tranquillity and privacy throughout the school.

Moreover, a recent government decree will result in much fewer children attending special education as from the 2015-2016 academic year, and instead attending regular primary schools. This group includes many young people who will have the need for a quiet environment. Last but not least, the ageing population is resulting in an increasing number of older teachers and lecturers with hearing problems. They too will benefit from low-noise environments.

Where acoustics was previously only an issue in classrooms, the library and main hall, it is therefore now significant throughout the building, including the corridors which nowadays often provide space for individual studying. Many sources of noise can be traced back to the floor. The noise of walking, for example, of furniture being moved and things falling on the floor. Carpet is therefore becoming increasingly popular, though primary schools in particular are somewhat unwilling to adopt this type of flooring because of allergies and hygiene problems. It is indeed a fact that carpet is more difficult to keep clean and has a shorter working life than hard floorings. It may well then be useful to consider combined flooring such as Flotex, which is somewhere between a hard and soft floor, which is easily cleaned, traps particulate pollution and has a long working life.



## VANDALISM-PROOF DESIGNS

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### FACT

A vandal seldom works alone.

A second trend is that of vandalism-proof designs. The challenge lies in designing educational institutions which not only look good upon opening but also after 5 to 10 years. If the design of the building includes sufficient openness with clear views through-out, this can help prevent pupils from vandalising it unnoticed.

The use of materials is also important in this sense, as the world of education requires special choices in terms of materials and colours. Materials need to be durable and vandalism proof, particularly in further and vocational education colleges, though less so in primary schools.

In terms of floors, Marmoleum really has made a name for itself. It is extremely long lasting and easily repaired. It is even suitable for use on walls, which can prevent all kinds of annoying soiling of paintwork and denting of walls. Another option is a super strong project vinyl which is just as easy to clean as Marmoleum, or alternatively a very durable needlefelt carpet.



## LINOLEUM

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**FACT** Marmoleum is bio based.

Let us start by taking a detailed look at all the possible floor solutions. Linoleum, also known as Marmoleum, is the most popular flooring in the educational world because of its attractive price/quality ratio, the amazing choice of designs and colours, and its extremely environment-friendly character.

Marmoleum is produced from natural raw materials such as linseed oil, resin, limestone, wood dust, jute and pigments. An LCA (life cycle analysis) by the University of Leiden has shown it to be the most sustainable floor in the world, together with wood. This product can easily last 20 years, and is available in more than 150 colours, and four basic patterns (marble, patterned, solid and linear) in tiles and sheets. The product is therefore perfectly in keeping with almost any style.

Moreover, the material can be produced and laid in the design of your choice.

In the last two years, Marmoleum has been even better protected against dirt and scratches thanks to the new Topshield2 finish, which has rendered Marmoleum even simpler and cheaper to maintain. Marmoleum Topshield2 is ready for use directly after fitting, and no longer needs to be coated with wax or polymer in the first years. A simple spray suffices. Should a Marmoleum floor become damaged, it can quite simply be repaired with a layer of wax.



## FREEDOM OF DESIGN IN PROJECT VINYL

**FACT** High light reflection values contribute to an airy and cool building.

Project vinyl is a good alternative for linoleum, being a synthetic floor which is finished with a top layer. It is the thickness of this top layer which determines the quality, and the 15-year working life of the project vinyl is considerably shorter than that of Marmoleum in schools and colleges, due to the top layer being non-repairable. The price/quality ratio of the floor is also less favourable.

However, an important argument when opting for project vinyl is the fantastic choice of wood and stone look patterns. Project

vinyl is nowadays available in very attractive wood and natural stone looks with a 'natural' wood grain and knotty pattern without repetitions. This can give a main hall, teachers' room or corridor a totally different image without it becoming too expensive. Digital printing techniques also allow the relatively simple design of your own floor in order to give your school building its own 'face'. Project vinyl is also extremely water resistant and is offered in various, safe non-slip varieties.

# QUIET AND SOFT FLOORING

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## FACT

Poor acoustics equals 24 absenteeism days per year.

Maybe you are looking for something totally different. As mentioned above, you might want to create a quiet atmosphere in a study room or media library, or to make life easier for a teacher with hearing problems. Or do you require a quiet environment for children otherwise quickly distracted? Soft floor coverings such as Flotex, carpet or needlefelt can be the solution. These types of flooring reduce walking noise but also that of furniture being moved, for example.

Flotex combines the benefits of carpet with those of a hard floor, and has many satisfied users, also in the world of education. Teachers and pupils appreciate its acoustic properties and facility managers benefit from maintenance savings.

The short Flotex pile is 100% nylon, which does not trap any dirt, so that virtually all stains can be simply removed using water. Even dried red wine, coffee or lemonade stains can be easily removed using a scrubbing machine, thanks to the waterproof Flotex backing. Nylon is also extremely hard wearing, resulting in little to no flattening or other signs of use in corridors and classrooms. Flotex has a working life of 15 to 20

years. The main benefit of carpet is the great variety of types, colours, patterns and prices, while its most common disadvantage is sensitivity to staining. This is generally not a problem if stains are removed directly upon occurring; once dry however, they are more difficult to remove. Over the course of time, the pile can wear and be flattened underfoot along walkways. The lifespan is 10 years. Needlefelt is an ideal budget option and is extremely durable, lasting 20 years. It is however extremely difficult to clean, as dirt becomes lodged between the fibres and is difficult to vacuum out. You should always take into account that daily vacuuming and maintenance of most soft flooring will always be more time-consuming than daily cleaning of hard floors such as Marmoleum and project vinyl.

When looking for minimum noise transfer to neighbouring or downstairs rooms, soft flooring will always give the best results. Flotex gives a contact noise reduction of 20 dB, for example, the average carpet tile 23 dB and the new special soft back tiles no less than 28 dB. If you prefer hard flooring, there are acoustic versions of Marmoleum and project vinyl, which can reduce noise transfer by a maximum of 17 dB. Felt pads are advisable under the furniture on these types of floor, and can considerably reduce noise from moving furniture.

# CLEANING, MAINTENANCE AND COSTS

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## FACT

86% of the life cycle costs of a floor lies in its maintenance.

Many schools only have a limited budget available for cleaning and maintenance, despite the enormous pile of sand and dirt brought in – 540 kg per year in a 1000-pupil school. Yet they still want a building which looks clean and representative. The right colour floor can prove very useful.

Lighter-coloured, plain shades such as pale yellow and beige are popular in many schools but also show the dirt easily and require an intensive cleaning programme. Colourful mixed patterns which both contribute to an attractive look and at the same time conceal daily soiling, may well be a better choice.



The less sand and dirt brought into the school, the less expensive the cleaning bill. We therefore always advise the use of sufficiently long, good-quality doormats.

A scraper mat or scraper grill can be added outside the entrance in order to keep the sand outdoors. Indoors, doormats with relatively dense and hard (scraping) fibres are a very good idea. Soft entrance mats are intended to absorb moisture (for example rain and snow) but do not have enough scraping strength to remove sand and other dirt from shoes. Quality mats such as Coral feature a combination of moisture absorbent pile and scraping fibres, and are therefore the ideal choice. We recommend installing a considerable sized doormat at all entrances. A 4-metre long mat will absorb 80% of all the dirt brought in. Also ensure that the mat is vacuumed daily, as this will keep it in good shape to do its work. The working life of doormats is approximately 5 years.



### **Caps protect the floor**

By far the most wear and tear to hard floors can be found under tables and chairs, due to a combination of sand, plenty of movement and worn chair leg caps. The result is a neglected and shabby look. Here are a few tips. Keep sand and dirt out of classrooms by cleaning floors as often as possible. For hard floors, choose soft chair leg caps, and hard ones on soft floors.



# A LOOK AT LIFE CYCLE COSTS

## FACT

Life cycle analysis, also known as cradle-to-grave analysis, first became popular in the 1980s.

Life cycle costs provide insight into the total costs of a certain type of floor. It is the mathematical sum of the purchase value (invest-

ment), the working life and the costs of cleaning and maintenance. The costs of cleaning and maintenance represent 80% of the life-cycle costs. If your decision is to be based on the lowest life-cycle costs, the following table can be used as a guideline.

### Life cycle costs for Marmoleum

€14.60/ m<sup>2</sup> per year

Investment in Marmoleum (fitted):

€28.50/m<sup>2</sup> Working life: 20 years

Cleaning programme:

- Daily wiping and stain removal
- Weekly mopping
- Machine spraying 3 x per year
- Polymer coating once every 3 years

### Life cycle costs for Project vinyl

€16.55/ m<sup>2</sup> per year

Investment in Project vinyl (fitted):

€ 35/m<sup>2</sup> Working life: 15 years

Cleaning programme:

- Daily wiping and stain removal
- Weekly mopping
- Machine scrub vacuuming 2 x per year

### Life cycle costs for Flotex

€12.65/ m<sup>2</sup> per year

Investment in Flotex (fitted):

€42.50/m<sup>2</sup> Working life: 15 years

Cleaning programme:

- Daily local vacuuming and stain removal
- Weekly full vacuuming
- Annual spray extraction

### Life cycle costs for carpet

€ 11.89/ m<sup>2</sup> per year

Guideline price Basic carpet tile (fitted)

€ 35/m<sup>2</sup> Working life: 10 years

Cleaning programme:

- Daily local vacuuming and stain removal
- Weekly full vacuuming
- Annual spray extraction



## EMISSION-FREE OR LOW-EMISSION PRODUCTS

### FACT

Environmental product declarations, also known as EPDs, provide 100% transparency.

Many people love the nice 'scent' of a brand-new car. That smell is actually caused by a chemical emission or evaporation of the materials used. After a while, such smells disappear as the product becomes older.

The strong smell of a new project vinyl floor is the result of evaporation of softening agents, required in order to keep the material flexible enough to be processed. In time, the smell gradually lessens and even disappears completely. There are a large number of

softening agents, and the EU has therefore formulated a list of the approved ones. The only softening agents used by Forbo in its project vinyl and other products are those which meet the strictest requirements of the EU. Forbo will therefore never use phthalate, for example.

Marmoleum is made only of natural raw materials; no softening agents or emissions are involved.



## **FRESH BATHROOMS**

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### **FACT**

On average, we use the toilet six times a day.

Some schools struggle with bad odours in their sanitary facilities, caused by urine becoming trapped in the floor seams. This can become a serious problem when it deters children from going to the toilet because of the smell.

There is a special range of sanitary vinyl to solve this problem. The unique top layer of sanitary vinyl has been designed to withstand the constant influence of moisture, urine and cleaning detergents. The fully sealed surface makes bad odours a problem of the past. What's more, the material can be simply 'worked through' to the wall for an all-in-one floor and skirting board solution. Any seams will be welded to render them waterproof. The working life of Forbo sanitary vinyl is approximately 15 years.

# GAMES, GYM AND SPORTS

## FACT

At least 30 minutes' exercise per day helps keep children healthy.

Many primary schools have a games room for their younger pupils. These are often multi-functional rooms where gatherings and performances are also organised. This means that floors must not be too smooth, to prevent children falling and hurting themselves during games. On the other hand, the floor must be tough enough for gym equipment and furniture to be moved around. If such rooms are only used for playing purposes, cork linoleum is an option: a linoleum floor with a high cork volume. This makes the floor warm to the touch, which is nice when it's used barefooted. For more multifunctional games rooms, Marmoleum or project vinyl is a more sensible choice.

For proper sports, a more resilient floor is required, in order to prevent injuries. We offer a special type of Marmoleum for this purpose, called Marmoleum Sport. It can easily be fitted to a sports subfloor system.



## HARD WEARING

## FACT

Views of greenery promote relaxed learning.

Many schools have a sustainability policy and preferably choose products with the lowest possible environmental footprint. Determining the environmental burden of floors is a complex business, as it requires you to look at the complete life cycle, from extraction of the raw materials through transport and the waste product phase. The environmental impact of a product is given in an EPD (Environmental Product Declaration), which the various manufacturers feature in their websites. EPDs are reliable and are monitored by a third independent party.

**Forbo Flooring B.V.**

P.O. Box 13  
1560 AA Krommenie  
The Netherlands  
Tel.: +31 75 647 74 77  
Fax: +31 75 647 77 01  
E-mail: [contact@forbo.com](mailto:contact@forbo.com)

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