

Forbo Flooring Systems  
Environmental Report 2010

# Forbo Flooring, creating better environments

Forbo Flooring is part of the Forbo Group, a global leader in flooring, bonding and movement systems, and offers a full range of flooring products for both commercial and residential markets. High quality linoleum, vinyl, textile, flocked and entrance flooring products combine functionality, colour and design, offering you total flooring solutions for any environment. Twelve manufacturing plants, and sales and marketing branches in thirty countries worldwide make up Forbo's flooring division.

To achieve environmental leadership Forbo Flooring is placing sustainability at the heart of its business. Forbo Flooring protects, invests, and cares for all environments that we touch upon and whether it is a work, indoor, or natural environment our goal is to simply optimize our performance now, and for the benefit of our collective futures. Creating better environments is an integral part of the way we do business and the way we promote our activities to our stakeholders.

Forbo Flooring is the first flooring manufacturer to use Life Cycle Assessment (LCA) to measure the environmental performance of all its products and the organization itself. We have outlined an environmental strategy with a challenging target to improve all environmental impacts with focus on reducing the CO<sub>2</sub> and other related emissions that contribute to irreversible climate change caused by global warming.

Linoleum is the oldest resilient flooring product and has been produced for over 150 years. Forbo Flooring's Marmoleum has the reputation as being one of the most environmentally friendly floor coverings as the result of the combination of natural renewable raw materials and those with a high recycled content. At the end of its life the product is fully bio-degradable.



[www.forbo-flooring.com](http://www.forbo-flooring.com)

# Introduction

It is estimated that the world population will grow by an average of more than 1% annually over the next 40 years. As a result, the planet will have to support more than 9 billion people by 2050. Our continuous desire for improved standards of living will result in disproportionately higher levels of consumption. In order to avoid an unsustainable burden on the environment we will need to continuously become more efficient in the use of our resources in order to allow sustainable development.

Sustainability has already become one of the major themes of our age. It will increase in importance as population growth and demand for higher living standards continues, particularly in the growth economies which house the majority of the world's population. Sustainability issues will determine the course of economic policy and the way in which companies compete.

Forbo Flooring has made sustainability into a cornerstone of strategy. Sustainability is as important to us as profit and growth. It is our aim to be recognised as the leading company in our industry in this field. To this end we have set ourselves the target of reducing our impact on the environment by 25% by 2015. We will measure our progress towards this target through Life Cycle Assessment (LCA). This is the most detailed model for environmental analysis of a product system. LCA provides a holistic approach that considers the potential impacts from all stages of manufacturer, product use

and end of life. It is also, I believe, the best way of enabling stakeholders to make a more informed decision.

The 25% improvement in LCA is an ambitious target. It can only be achieved if everybody in Forbo Flooring is involved. It will require all of us to challenge our processes and our habits in the workplace. As in society at large, real progress in the issue of sustainability will only be brought about by a change in individual behaviour. We should not rely on others to solve the problem by building a windmill or planting some trees.

We made sustainability the theme of this year's Forbo Way to Win programme in order to raise awareness to this issue and to secure involvement of all employees. The programme will introduce our sustainability policy and provide a platform for everyone to contribute ideas for improving our environmental performance. So far, over 1700 ideas have been generated, resulting in 600 possible projects. These will be implemented in due course. Flooring Management will closely monitor the progress of all projects to ensure their success.

We continue in our task of creating a better environment.



**Jens Schneider**

Executive Vice President, Forbo Flooring Systems

The **25%**  
**improvement**  
in LCA is an  
**ambitious** target



# Forbo Flooring Systems' Sustainability Policy

Forbo Flooring underwrites the broad and all inclusive definition for sustainable development as it has been accepted by the United Nations Commission on Environment and Development, General Assembly Resolution, 1987:

***“Developments that meet present needs without compromising the ability of future generations to meet their needs”***

The United Nation's definition of sustainability recognizes three individual dimensions that together make up a sustainable policy, they are:

- **The Economic dimension:** the way in which the company organizes its position in the market place to actively develop its sustainable profile by using its economic stability and profitability for continuous improvement
- **The Social dimension:** the way in which Corporate Social Responsibility and Corporate Governance are defined and followed within the company
- **The Environmental dimension:** the way in which measures specific to improving the environmental impact of the processes and products of the company are regulated and executed

Forbo Flooring supports these dimensions in a constructive and consistent manner through the following principles:

- “Compliance Plus” – a commitment to go above and beyond Government regulations and requirements
- Integrating Sustainability considerations into all our business decisions
- Regular monitoring of progress and review of sustainability performance
- Commitment to continuous improvement
- Promoting Sustainability throughout our value chain, and expecting our suppliers and customers to comply with this
- Ensure that all staff is fully aware of our Sustainability Policy and are committed to implementing and improving it

Forbo Flooring fully commits to being a sustainable partner to all our stakeholders.



## Environmental Policy

*We believe investments in people, process, and product that further improve our environmental performance are an investment for our future, not a cost of doing business. We are committed to creating a sustainable future by constantly seeking ways to minimize the environmental impacts of our products over their whole Life Cycle from raw material extraction till the end of life. Evaluation of all LCA impact categories are carried out, but with a particular focus on reducing the CO<sub>2</sub> emissions and the related irreversible climate change caused by global warming.*

*We shall succeed by:*

- Maximizing the efficient use of raw materials by reduce, re-use and recycle
- Reducing the use of energy in all production and business processes, and with all efforts to switch over to renewable energy
- Applying green design principles to all our new product and innovation development programs
- Promoting environmental responsibility towards all our stakeholders
- Only supporting LCA-based environmental labelling and certifications developed in an open and transparent consensus process and validated through a 3rd party process.

# Environmental Footprint

## ISO 14001 certified

This report details the Flooring Division's environmental performance during 2010. We place great importance on all our facilities meeting internationally recognized management standards in terms of how we manage our quality and environmental responsibilities. We are delighted to announce that our site based at Kaluga, Russia, has been ISO14001 certified (Environmental Management System). We are the first flooring manufacturer to be awarded this in Russia. All of our 12 manufacturing sites, spread across 6 countries, are now complying with both 9001 and 14001 management standards.

## Our main goal

*To continuously minimize the environmental impact of Forbo Flooring Systems as measured by the weighted categories in our independently verified Life Cycle Assessment measurement system by 25% before the end of 2015 (cf 2009).*

## Creating better environments

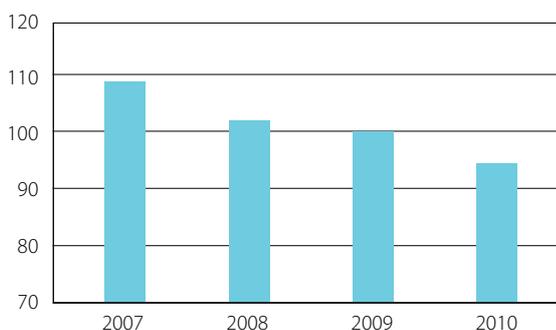
The LCA is calculated for 1m<sup>2</sup> installed floor covering from cradle to installation. Measuring the environmental impact of our division we based our LCA calculation on the mass weighed mix of all our products produced including also the energy consumption of all our offices and warehouses worldwide. We are taking into account the following environmental impact categories:

- Acidification Potential
- Eutrophication Potential
- Ozone Layer Depletion Potential
- Photo Oxidant Creation Potential
- Abiotic Depletion Potential
- Global Warming Potential

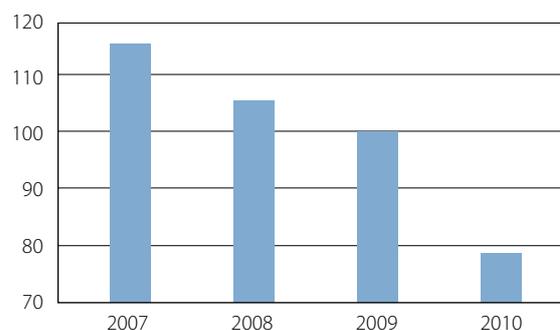
We strongly believe that creating better environments means reducing all environmental impacts and not only Global Warming. Therefore, we equally weight all 6 impact categories and express them in one index figure.

The LCA index – Environmental Footprint - shows that we have continued to improve our performance for the fourth straight year. This reduction is due to the work that has been undertaken in all our production facilities. We are yet to capture improvements made by the raw material supply chain and during the installation process. These are also expected to make a positive contribution to our goal. The carbon footprint – Global Warming Potential – has been reduced by over 30% since 2007. This is due to our policy of purchasing renewable forms of electricity and our internal waste reuse and recycling programs.

**LCA INDEX**  
ENVIRONMENTAL FOOTPRINT



**GLOBAL WARMING POTENTIAL INDEX**  
CARBON FOOTPRINT



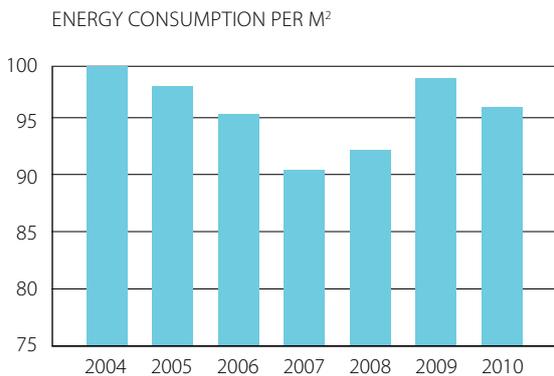
# Reduce Renewable Reuse Recycle

## Reduce

Is often considered the most important R, as it is the one in which we can all play a role – it challenges us to reduce energy consumption, raw material use, reduce waste and that waste we do generate we find better solutions for its disposal.

## Energy

We are pleased to report the upward trend in 2008 and 2009 reversed in 2010. Our energy consumption per m<sup>2</sup> of product produced fell by 2.1% in 2010 compared to 2009. Our 2010 target stated that we would reduce our energy consumption per m<sup>2</sup> by 2% - in fact we did. Although we are not back to the levels of 2007 we are confident that further improvement will be gained in 2011 – this will be positively impacted by the improvement projects that were raised through the Forbo Way to Win program and volume growth through our plants.



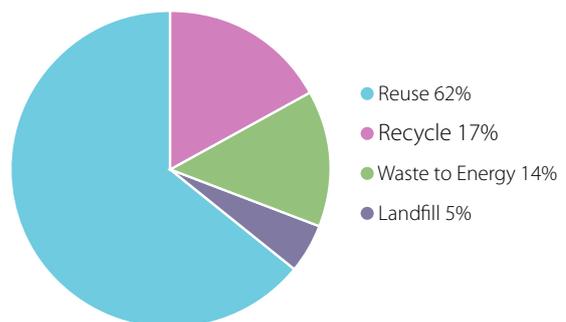
## Waste

Reducing waste remains one of our main priorities. It impacts both financially (material usage, energy, disposal costs) and environmentally. At the same time, it is recognized, that we also have a responsibility to dispose of those wastes we do generate with minimum impact on the environment preferable through reuse and recycling options.

Our waste performance index measured as mass production waste as a percentage of input remains very static. Although 2010 showed a slight increase in comparison to 2009 this is well within the levels we have seen during the last 4 years.



PRODUCT WASTE BREAKDOWN



# Reduce Renewable Reuse Recycle

## Renewable

### Energy

Our use of renewable electricity continues to grow and now accounts for over 86% of the total electricity our manufacturing facilities consume. This has helped us reduce our carbon footprint still further – the total amount of CO<sub>2</sub> that we have taken out of the environment is now over 125,000 tonnes of CO<sub>2</sub> since 2007. We believe that this is the most responsible course of action, preferring this method to those who simply try to offset. Offset has its place but of course it is much better not to cause a problem rather than trying to cure one.

The growth, in 2010, of the use of renewable electricity has altered our overall primary energy mix. In 2010 this figure approaches 46 %, which compares positively with most other flooring companies.

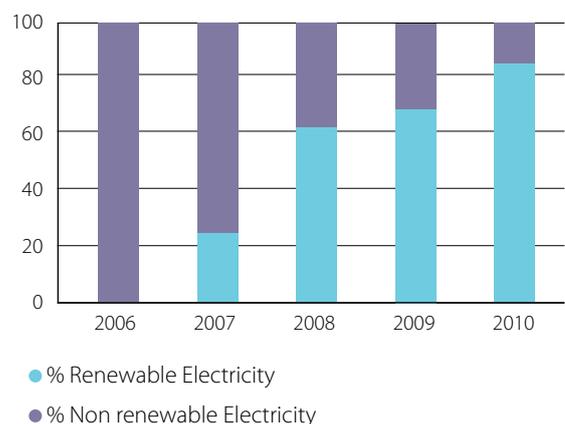
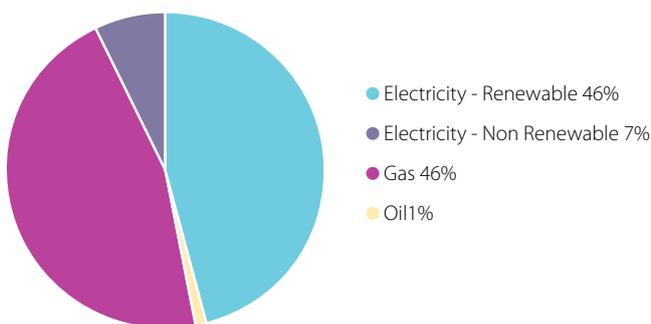
### Materials

Linseed Oil, Rosin, Tall Oil, Cork, Wood flour, Wool, Jute, Wood, Cardboard and Paper – renewable materials form a significant part of what we purchase in order to deliver products our customers demand. In 2010 on average over 36% of our products are made up of renewable materials. Of course the vast majority of these materials are used in the production of Marmoleum, which is our most sustain-

able product, but as non renewables begin to run out, their prominence along with other sustainable materials will become more important in our future product developments.



PRIMARY ENERGY MIX



# Reduce Renewable Reuse Recycle

## Reuse and Recycling

Firstly we must explain by what we mean by reuse and recycling. Forbo define reuse as being “waste generated that after processing can be fed back as a raw material into the same sites manufacturing processes”. Our definition of recycling is “material diverted from the waste stream during a manufacturing process that is sent to a third party (other Forbo sites or external recyclers) for them to use as a raw material”.

We can report that 2010 saw an increase in the amount of product wastes that we were able to both reuse and recycle to almost 80%. If we include the waste used to produce energy – waste to energy - then the figure is approaching 95%. Only 5% of the product waste we generate is landfilled. This is contributing to less raw material depletion and reducing further the CO<sub>2</sub> emissions involved in producing virgin materials. We have developed a culture that encourages each of our sites to seek mutual co-operation. An example of this involved taking waste from Coevorden in Holland and rather than this being sent to a third party for recycling we are now able to send this to our site in Ripley, England, for use there.

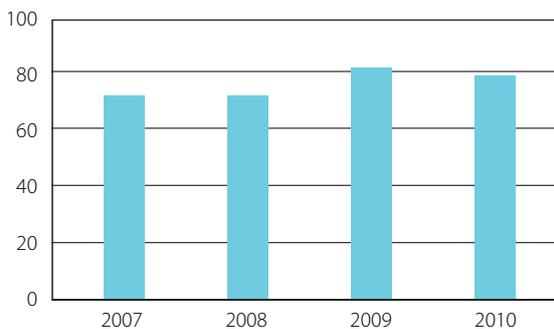
The increased amount of internal reuse and recycling allied to purchased raw materials that are either wholly recycled

or have some recycled content also increased in 2010. Across the division, over 25% of our product is made from recycled & re-used materials. Increasing the recycle and reuse content will continue to be one of our major deliverables in the years to come.

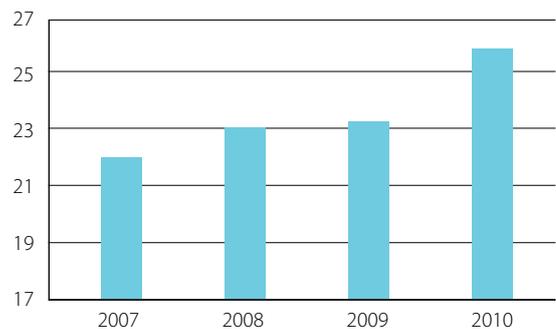
### Post consumer waste recycling

Although comparatively small in volume, we started in 2010 to take back Vinyl and Marmoleum installation wastes and recycle them into our products. We are also actively seeking ways in which we can contribute further in the field of post consumer waste, for example, we have facilitated the take back of carpet in the UK which has enabled material to be reused that would have ordinarily ended up as landfill. Forbo Flooring is taking part in various recycling initiatives all over Europe such as CRUK in the United Kingdom, GBR in Sweden and SFEC in France and is a founding member of EPFLOOR. EPFLOOR membership is composed of all the major Western European Vinyl flooring manufacturers representing over 90% of the production. Since 2001, the EPFLOOR members have provided increasing funds for supporting the recycling of post-consumer waste. Whilst the first years were mainly concentrated on R&D, since 2004 increase of collection has been a priority resulting in 2200 ton recycled waste in 2010. <http://www.epfloor.eu/>

% REUSED & RECYCLED PRODUCT WASTE



% RECYCLED & REUSED MATERIAL CONTENT



# Forbo Way to Win

Last year we stated we intended to roll out an internal awareness program - Forbo Way to Win. We used this to introduce our sustainability policy and to strengthen our employee's engagement by providing a platform for them to contribute to our efforts in reducing energy consumption, the use materials, waste and increasing recycling. We generated over 1700 ideas resulting in 600 possible projects. Some examples of already successfully implemented projects are:

**Replacing wooden pallets by recycled cardboard pallets in the USA**

*Less transport weight, less virgin raw material, easy to recycle again*

**Using different sizes pre-cut lengths of paper for the automatic packing machine at Forbo Sarlino**

*Savings: 2% of annual paper consumption.*

**Rewinding yarn ends and reuse in producing Tessera carpet tiles**

*Less waste and less use of virgin raw material*

**Reducing the amount of water to produce steam at Forbo Ripley**

*Less energy needed to produce Flotex*

**Using warm exhaust air from air compressor installations for space heating at Forbo Coevorden**

*Less energy needed to heat production areas during winter time*



*Recycled cardboard pallets at Forbo Flooring Systems North America - Hazleton, PA.*

We generated **over 1700 ideas** resulting in **600 possible** projects

# The way forward in 2011

## Energy

Once again local energy reduction programs will play a pivotal role in achieving our overall energy reduction target of 2%. These programs will have added impetus in 2011 as we will continue to implement our improvement projects that have been identified by the Forbo Way to Win program. We also expect that the use of renewable electricity will increase. In 2011, 10 of our 12 production facilities will have some or all of their electricity supplied from renewable sources taking us to more than 95% of electricity used from renewable source over all our sites.

## Reuse and Recycling

Our R&D, Engineering and Innovation teams will play an important role as we analyse the way we engineer our products and processes. In terms of waste we generate, we will build upon our sound reuse and recycling opportunities to minimize environmental impact and maximize economic opportunity.

## Water

We recognize that although most of our production processes do not use water, we shall in 2011 gather data in respect of our water usage. Water is becoming an increasingly important resource and we shall determine a baseline from which we will encourage relevant facilities to improve upon. We will be publishing improvement targets in 2012.

## Green Design and Innovation

We have clearly stated that LCA is the main method by which we shall measure our environmental performance. We believe that design, in environmental terms, is a very important link in the chain and if we are to improve our LCA result then design has a central role to play. What many have done, still do and possibly will continue to do is to use LCA in a reactive way – we look back, set a baseline and then trust that improvements we make will have a positive impact. Forbo Flooring has a different view and is placing great emphasis on Green



## Jason Holmes, Head of Textile Design, outlines what we have achieved to date and what the immediate future holds

*"The last 12 months have seen the establishment of a green design committee and through it we have developed the Forbo Flooring Principles of Green Design. This has in turn encouraged our International design teams to have a greater awareness of the role of design in reducing our LCA. We are beginning to view the function of design as a key stakeholder in this mission and as such have already begun to call into question established thinking and methodology around product design and lifecycle. The forthcoming year will see a greater understanding within our organisation of how following a Green Design ethic will influence the way we approach our total product line strategy. That could have a lasting benefit to the environment"*

# The way forward in 2011

Design and Innovation. It is recognized that if we are to achieve our divisional goals of becoming sustainable and environmental leader then we have to do things differently.

## Suppliers

During 2010 we have been exploring how we can work together with our main raw material suppliers to create a better environment through the reduction of our LCA by 25%. We have learned that many of our suppliers have set their own targets to improve their environmental footprint. We will start using an environmental scorecard to evaluate the environmental performance and the selection of our suppliers.

## Forbo Way to Win

All Sales offices, Logistic departments and Operation sites have been selecting projects to be implemented. These projects are part of the total environmental improvement program we are executing in 2011.

## Environmental Reporting

This is the second environmental report that we have delivered. We are aware that this is limited in terms of its scope and it is our intention to develop this communication to take the form of a Sustainability Report. We are currently evaluating which of the reporting standards that exist in the public domain we wish to comply with. At the same time we are analyzing how we will collect the data to populate such a report, given our global spread. It is anticipated that we will be in a position to deliver our first Sustainability report in 2013.

