



# Forbo Flooring Systems Environmental Report 2011

creating better environments

**forbo**  
FLOORING SYSTEMS

# Forbo Flooring, creating better environments with sustainable products

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 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. We are committed to

improve the sustainability of our products by constantly seeking ways to minimize the environmental impacts.

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 with the lowest environmental impact and has been produced for over 150 years. Forbo Flooring's Marmoleum is 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

In 2010 we made sustainability a key element of the Forbo Flooring Systems divisional strategy. The goal is to become the environmentally leading manufacturer in our industry. We have an excellent starting point.

Our most important product, Marmoleum, is the most sustainable product in the industry, having the highest content by far of renewable raw materials. It is our obligation to build on this position by significantly reducing the environmental impact of all our products and activities, be it in emissions or use of raw materials.

Our strategy is based on reducing our environmental impact as measured by the LCA method, an industry wide standard. We have targeted a 25% reduction in our LCA impact vs. the 2009 baseline. This is an ambitious target. As a consequence we have involved the whole organisation in the strategy and made sustainability the theme of last years Forbo Way to Win project. The combined efforts resulted in the launch of a total of 300 projects in 2011 which are expected to bring very significant improvements in the coming years. The impact in 2011 was modest and our improvement now stands at just over

five percent vs. the base line. While we have built good momentum, it is clear that there is some way to go. We will redouble our efforts in order to achieve our targets.

In addition to LCA we are working to develop EPDs (Environmental Product Declarations) as a tool to translate environmental performance into value and benefits for our customers and help them to make the right choice for the most sustainable product. A building designed in a sustainable way maximizes both economic and environmental performance

In 2012 we will continue to focus on our environmental target and launch our social accountability program to sustain the well being and safety of our employees and all other stakeholders in our supply chain deploying all three P's of sustainable business: Planet, Profit, People. Sustainability is our business.

**Jens Schneider**

Executive Vice President, Forbo Flooring Systems



The **Forbo Way**  
to be sustainable



# How sustainable are Forbo Flooring's products

## **Marmoleum**

Marmoleum is the most sustainable floor covering worldwide. Forbo Marmoleum is the only flooring product listed as 100% Bio-based in the USDA BioPreferred Program. Marmoleum production has reached a material efficiency of approximately 98% making our Marmoleum almost a 'closed-loop' product and it is containing 40% of recycled post industrial waste.

During the use phase on the floor, Topshield2 finish allows a minimum of cleaning and maintenance resulting in very low environmental impacts and a long-life performance.

[www.biopreferred.gov](http://www.biopreferred.gov)

## **Flotex**

The most sustainable alternative for carpet is having up to 58% of recycle and reuse content and the durability because of its cleanable properties is extending the technical life time on the floor resulting in a great environmental performance cradle to grave

## **Vinyl**

Year by year the recycling content in our vinyl product range is increasing. Forbo not only recycles or reuses production waste but also take back installation waste. Product is available with up to 45% recycle content in the backing. In 2012 we will launch our first Vinyl floor covering with bio-based plasticizer. This plasticizer is made from harvestable renewable materials.

Marmoleum the most **sustainable floor covering** worldwide





# How sustainable are Forbo Flooring's products

## Tessera and Westbond Carpet Tiles

Green design, reducing energy and material, together with recycling are the key words for the sustainable performance of Forbo carpet tiles. Westbond now has a recycled PVC backing and Tessera is about to launch its first range made with a 100% post consumer recycled yarn.

## Entrance systems

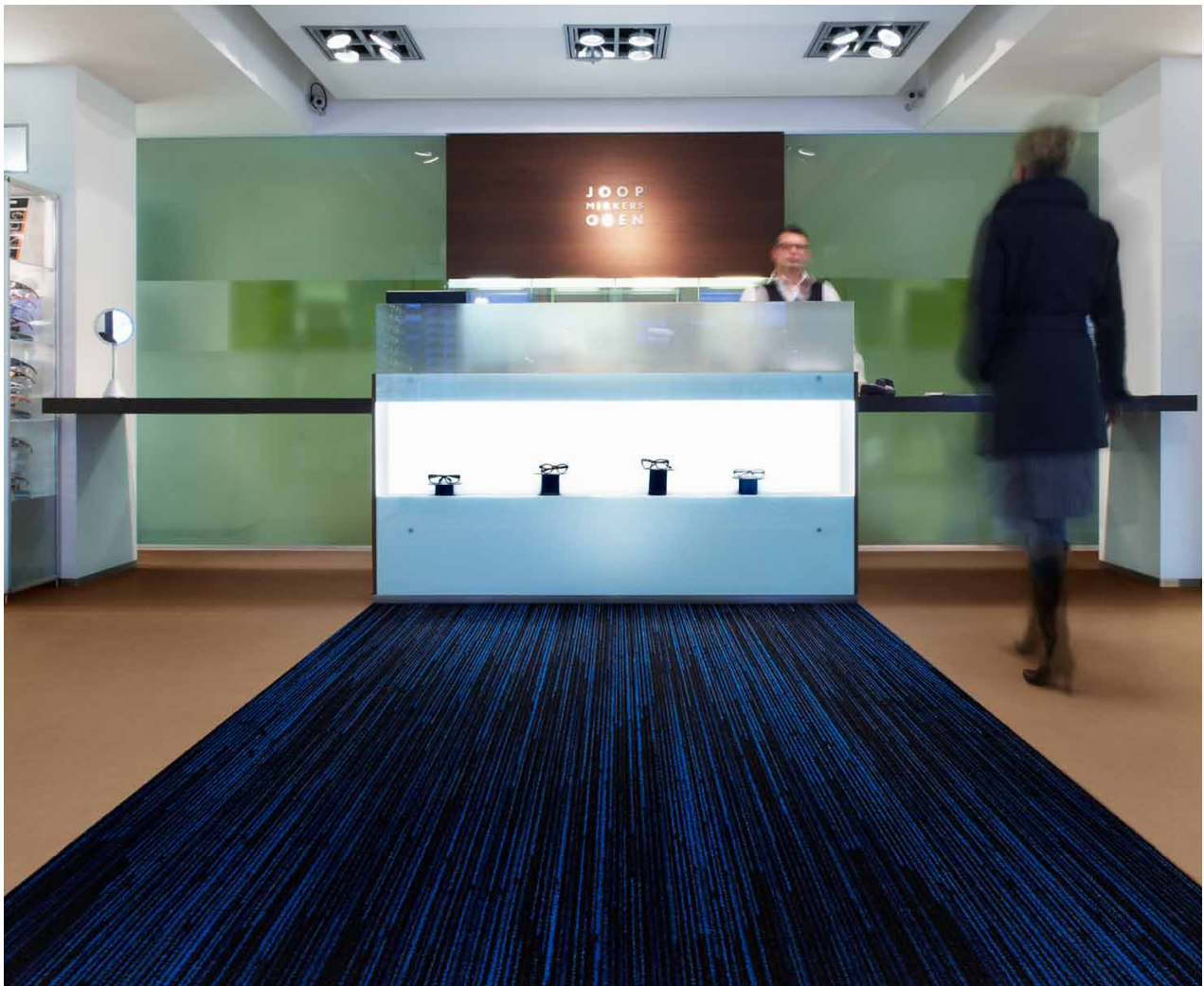
Nuway is produced using 100% recycled aluminium and Coral Welcome is now available with 100% post consumer recycled yarn. On top of this Forbo Entrance Systems are reducing the environmental footprint of all other installed floor coverings in a building because of reducing the cleaning and maintenance frequency by stopping dirt and moisture getting into the building.

## The best in sustainable floor covering

And remember our claims are calculated using internationally recognized Life Cycle Assessment (LCA) defined by International Standards Organisation (ISO 14040 and ISO 14044). LCA has been used by Forbo Flooring since the 1990's.

**Sustainability**  
is our business

Coral Welcome made from recycled yarns



# Sustainable Buildings

Green Building is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from siting to design, construction, operation, maintenance, renovation and demolition. This requires close cooperation of the design team, the architects, the engineers, and the client at all project stages. The Green Building practice expands and complements the classical building design concerns of economy, utility, durability, and comfort. Green building is also known as a sustainable or high performance building. Although new technologies are constantly being developed to complement current practices in creating greener structures, the common objective is that green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by:

- Efficiently using energy and water
- Protecting occupant health and improving employee productivity
- Reducing waste, pollution and depletion of resources

Forbo Flooring is a member of Green Building Councils in different countries in Europe and in the USA. We actively support the built industry in their efforts to design sustainable buildings with lower environmental footprint and moreover we offer products that contribute to the overall reduction of the built environmental footprint helping to create sustainable buildings.



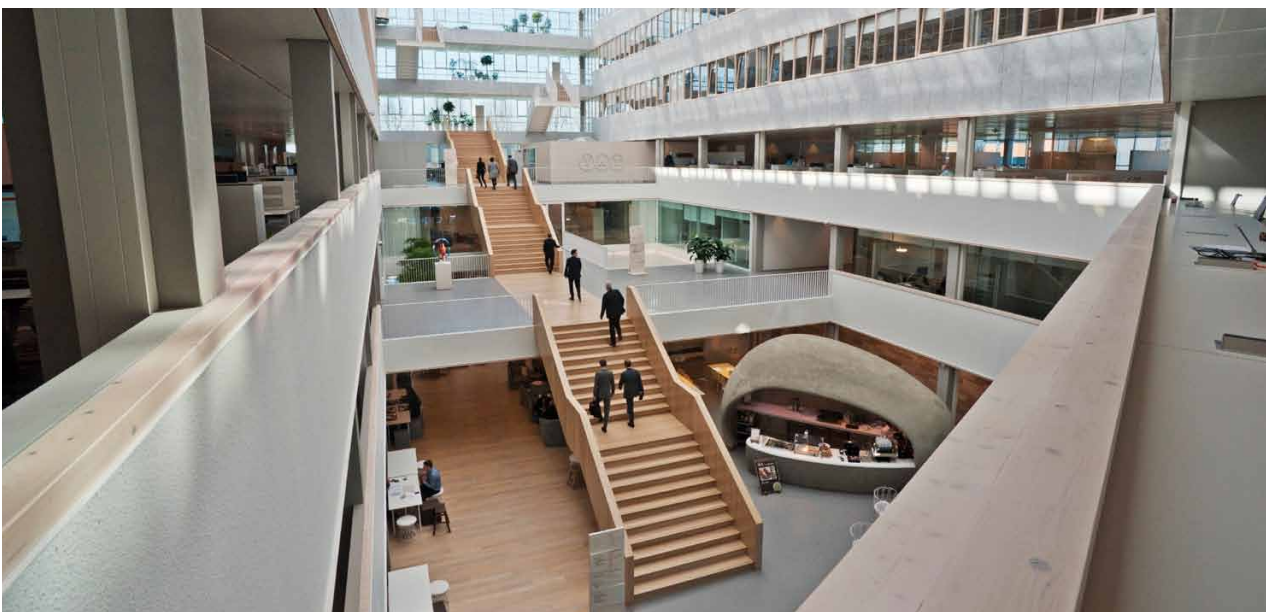
*More and more often we are seeing a greater accountability for our products contribution to sustainable (green) building design. Sure we know that every one of our products has the prerequisite requirement of having good design, colour, and necessary technical performance. However, it is the product's sustainable attributes that are the tipping point in today's specifier decision making process. Attributes such as rapidly renewable material content, low emissions, and recycled content are just a few of the new requirements that our sales people are asked for on a regular basis. This demand for sustainable attributes is being largely fueled by green building rating systems like, LEED, BREEAM, and Green Star just to name a few. However, it is the goal of Forbo Flooring Systems to look beyond developing products with sustainable attributes and produce products that are truly sustainable. By utilizing LCA our Design and Innovation team is preparing our products to meet the future demands of green building design and reclamation programs to create a closed loop system. In addition they develop products that can contribute to a "Living Building" through integrated design. Forbo's commitment toward sustainability must be the tipping point that separates our products from all the rest.*

## **Tim Cole**

Director of Environmental Initiatives and Product Development

TNT Centre, Hoofddorp, The Netherlands

Leed Platinum Certified Building



Forbo Flooring: Marmoleum Dutch Design M0712 Jurgen Bey

# Forbo Flooring Systems' Sustainability Policy

As a global leader in flooring systems we have a responsibility, to all our stakeholders, to create a better environment. The way we serve and drive the market sets the pace and standard for world class flooring solutions. Sustainable development and 'creating better environments' is an integral part of all of Forbo Flooring Systems' activities. Founded in 1928, Forbo's first product was Linoleum – made from renewable natural raw materials, fully biodegradable and environmentally friendly, we have been at the forefront of sustainable awareness fulfilment for over 80 years. This global sustainability awareness has grown in the last decades becoming clear that natural resource depletion and global warming are two practices that can not continue as they have in the past if we are to fulfil our obligations to future generations. It is these obligations, to future generations, that we will comply to and in doing so act as a sustainable enterprise.

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



# Forbo Flooring Systems' environmental report

## About this report

This report aims to provide a transparent overview of the environmental performance of the Flooring Division during 2011. This is the first year after the full closure of our Forshaga plant in Sweden and the report covers our 12 manufacturing sites based in the United Kingdom, The Netherlands, Russia, France and Switzerland. We invite you to provide us feedback and let us know your thoughts about our 2011 Environmental Report. Please contact us at [contact@forbo.com](mailto:contact@forbo.com)

## 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 (vs. 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.

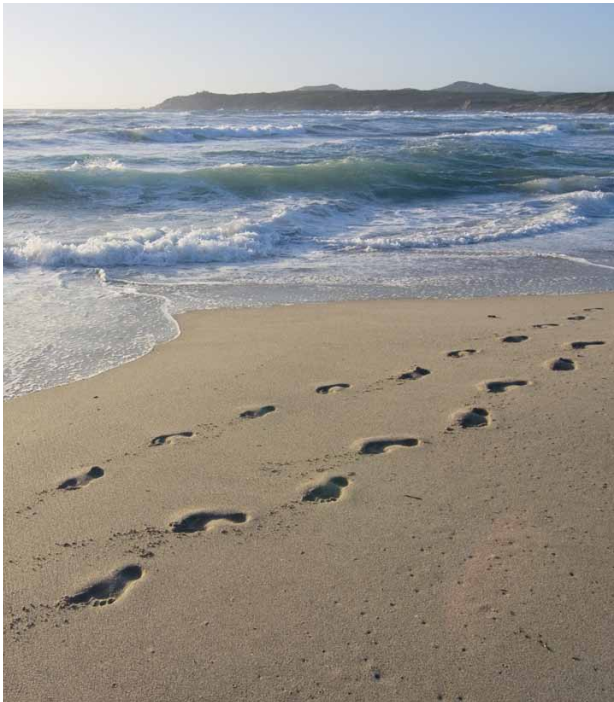
## Environmental Policy

*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.*



# Forbo Flooring Systems' environmental report



- Applying green design principles to all our new product and innovation development programs
- Promoting environmental responsibility towards all our stakeholders

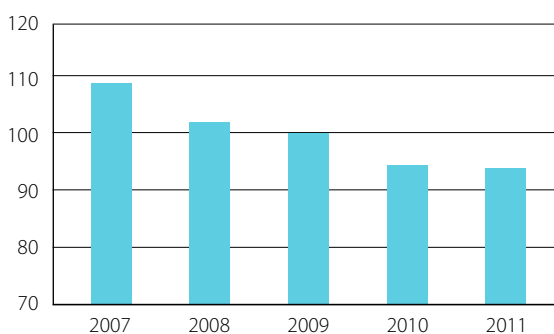
In 2011 we sold more floor covering into the commercial sector. These products consume more materials and energy because they are constructed to perform in highly trafficked pedestrian use areas. The environmental footprint per square meter of these products is higher and therefore makes it more difficult to achieve our target. Our environmental footprint index shows a very small improvement. The change in product mix reduced the level of improvement despite strong focus on reducing, renewing, reusing and recycling. We are yet to capture improvements made by the raw material supply chain and during the installation process. These will without doubt make a positive contribution to our goal.

In 2010 we started our strategic environmental project involving Operations, R&D, Supply Chain and Sales & Marketing. Our efforts in 2011 focussed on:

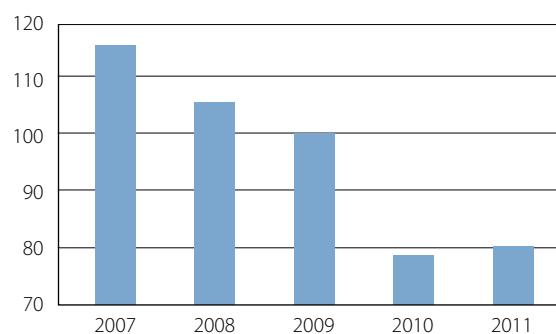
- Maximizing the efficient use of raw materials by reduce, re-use and recycle
- Reducing the use of energy in all production and business processes, and with all efforts to switch over to renewable energy

The carbon footprint of Forbo Flooring – Global Warming Potential – increased slightly when compared to 2010 as a result of the different product mix but is still 30% better compared to 2007. This reduction in our Carbon Footprint is as a result of our increased use of renewable energy, greater take up of renewable materials and growth of reuse and recycled content in our products

**LCA INDEX**  
ENVIRONMENTAL FOOTPRINT



**GLOBAL WARMING POTENTIAL INDEX**  
CARBON FOOTPRINT



# Reduce Renewable Reuse Recycle

## Reduce Renewable Reuse Recycle

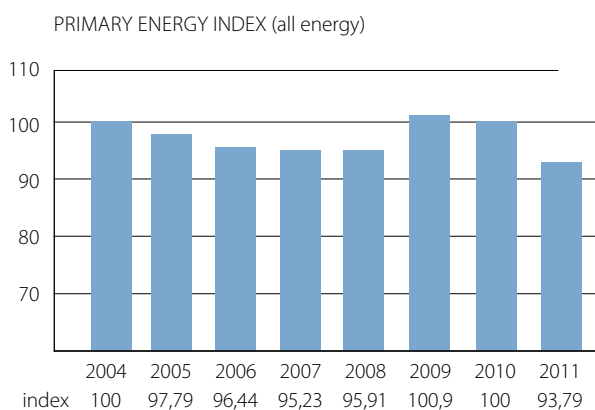
The 4 R's are at the heart of our efforts to reduce our impact on the environment and are important indicators in our quest to become a more sustainable company. With a publicly stated objective of reducing our LCA by 25% by 2015 vs. 2009 it is important to view how we are progressing in each aspect as each will impact on our overall performance target.

### Reduce

We consider this the most important R – reducing our consumption of materials, energy and waste has the biggest impact both environmentally and financially. Reducing consumption and waste will have a large impact in reducing the environmental footprint.

### Energy

We continued the good work of 2010 and accelerated progress in 2011. Analysis showed that there may be



# Reduce Renewable Reuse Recycle

two significant contributory factors to this; firstly we have seen a modest growth in our output and this has been supported by a number of energy reducing programs that were implemented as a result of our Way To Win Program. It is perhaps no coincidence that when we compare back to when we began collating data we can see that 2011 was our best performing year in terms of energy consumption per m<sup>2</sup> of flooring.

## Renewable

### Energy

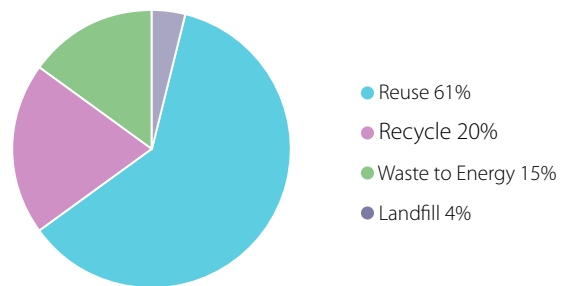
Our policy of sourcing as much of our electrical energy from renewable sources continued and now accounts for over 96% of the total electricity our manufacturing facilities consume. In turn this has partly reduced our carbon footprint – to date we have now removed over 150,000 tonnes of CO<sub>2</sub> from the environment. We continue to believe that removing the environmental impact at source is far better than offsetting.

This continued growth in the take up of renewable electricity has positively impacted our primary energy mix ratio. For the first time renewable energy accounted for over 50% of our primary energy mix – a very good achievement.

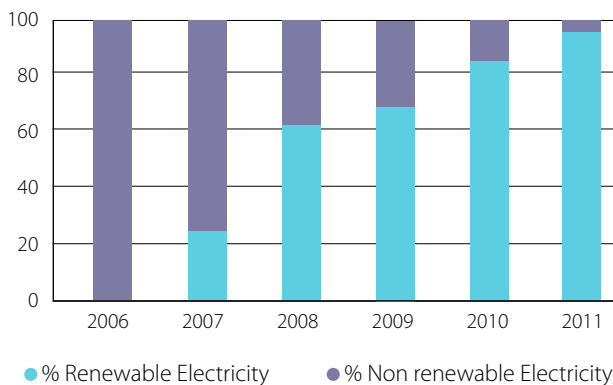
### Materials

Linseed Oil, Rosin, Tall Oil, Cork, Wood flour, Wool, Jute, Wood, Cardboard, Paper – renewable materials form a significant part of what we purchase in order to deliver products our customers demand. In 2011 on average over 34% of purchased materials, including packaging could be described as being renewable.

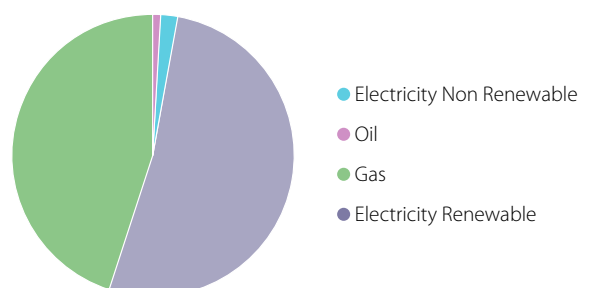
PRODUCT WASTE BREAKDOWN



ELECTRICITY MIX



PRIMARY ENERGY MIX 2011



# Reduce Renewable Reuse Recycle

## Reuse & Recycle

### Waste

Our performance in 2011 is showing a slight increase in the amount of waste generated as a percentage of input raw materials. This indicator has been almost flat for 5 years in a row.

Our metric of what we do with our product waste shows that we have reduced our landfill by 20% over 2010. In 2010, 5% of our product waste was land filled and this



dropped to 4% in 2011. An excellent result that makes a positive contribution to our environmental target. To improve on this result even more we are targeting zero landfill by the end of 2012 for all our UK manufacturing facilities.

Total material that was recycled and reused increased slightly to 81%.

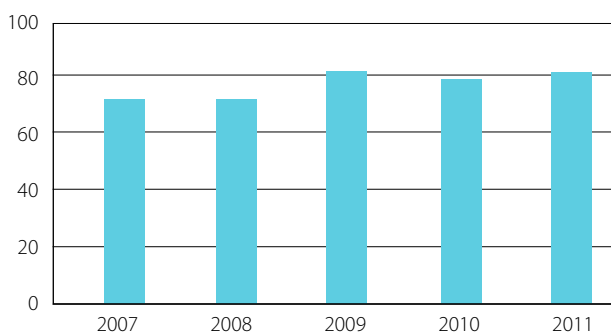
### Post consumer waste recycling

In 2011 we really got into business with our take back programs for installation waste. We returned 42 ton of Vinyl and 38 ton of Marmoleum to our operations facilities. 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.

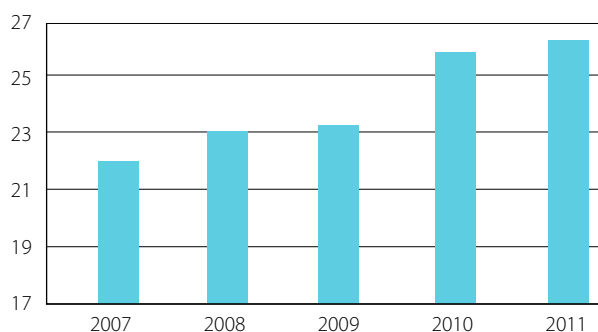
EPFLOOR membership is composed of all the major Western European Vinyl flooring manufacturers representing over 90% of the production. Since 2001, the EPFLOOR members have provided increasing funds for supporting the recycling of post-consumer waste. Whilst the first years were mainly concentrated on R&D, since 2004 increase of collection has been a priority resulting in 2000 ton recycled waste in 2011.

[www.epfloor.eu/](http://www.epfloor.eu/)

% REUSED & RECYCLED PRODUCT WASTE



% RECYCLED & REUSED MATERIAL CONTENT





# Forbo Way to Win

2011 was the second and last year we were running our internal awareness program - Forbo Way to Win "Sustainability". We used this program to communicate our sustainability policy and to strengthen our employee's engagement in green design, reducing energy consumption and increasing recycling.

We are proud that sustainability and the environment has become part of our business processes. The environmental goal to improve our footprint by 25 % in 2015 has landed with everyone and is now part of the daily work. A number of ideas to reduce the 4R's harvested during the program in 2010 were implemented in 2011. A few of these successes:



Electrical company car Forbo Sarlino, Reims, France

## **Minimize the washing water for Flotex at Forbo Château Renault:**

*Less water and less energy needed. Reduction from 45 l/m<sup>2</sup> to 19.9 l/m<sup>2</sup>*

## **Dutch award winning energy saving by optimizing fume incineration process at Forbo Coevorden**

*Less energy needed to produce Vinyl. Gas savings: >12% per square meter*

## **First electrical company car used at Forbo Reims.**

*Less CO<sub>2</sub> emissions of our company cars*

## **Thermal insulation of warehouse and steam pipes at Forbo Krommenie**

*Less energy needed to produce Coral*

## **Better segregation of product waste and increasing reuse at Forbo Kaluga**

*98% vs. 75% in 2010 is reused resulting in less waste and less use of virgin raw material*

David Glancy, Operations Director  
Forbo Coevorden, with energy award



*"Winning the "energy saving" award, presented by the Dutch Plastic and Rubber Association was a fantastic recognition of the efforts made by the Team in Coevorden in reducing energy consumption. It provides us with the confidence and reassurance that our approach to sustainability, with the focus on improving our environmental footprint, really does make a difference. Many ideas generated during the Forbo Way to Win Sustainability Programme are still being worked on and implemented. This will lead to additional improvements in energy consumption and*

*an increase in recycle content in our Commercial Compact Vinyl Floor coverings. All investment project plans are now, evaluated, not only on the basis of financial sustainability but also on environmental sustainability, measured by LCA (Life Cycle Analysis). This approach challenges us to run our businesses in a more sustainable manner!"*

# What's next in 2012?

This is an important year as it marks the half way point, in terms of time, of our aim to reduce LCA by 25% by the end of 2015.

We will continue to benefit from the Forbo Way To Win program by implementing further improvement projects from the ideas generated during the program

In 2012 we will start to broaden our scope of our sustainability program to Social Responsibility. This program will focus on our employees well being, health and safety and training and education. The program will start on our sites in France and will include our purchasing worldwide.

We will benchmark the SA 8000 standard and eventually certify our management system accordingly.

Sustainability education and communication will continue by means of an e-learning course for every Forbo Flooring employee. Senior management will receive more in-depth training.

## **Sustainability Reporting**

This is the third and final environmental report that we will deliver. We can confirm that our first Sustainability report will be published in 2013, where it is our intention to produce a report that meets Level C of the GRI reporting standards.



## Our aim to **reduce LCA by 25%**