



## ALLOCC AND ENVIRONMENTAL STEWARDSHIP

Alloc is committed in being a responsible member of the community in which operations and attentiveness to high manufacturing standards positively effect the environment, which continues to be the corporate focus. These standards include focusing on the long-term life cycle and environmental stewardship from cradle to grave. Particular consideration and notation are as follows:

- **Manufacturing**

1. Alloc Inc. considers environmental investments in strategic and budgetary planning.
2. Alloc AS- Alloc commercial laminate flooring production plant is ISO14001 certified.
3. Alloc Inc. meets legal environmental requirements on federal, state, and local levels.
4. There are no harmful emissions or environmental impacts on water, energy, climate change, ozone depletion, waste reclamation, or habitat preservation issues, caused by the production process.
5. Largely, rail use to transport raw materials is preferred and utilized.
6. Alloc laminate flooring has a recycled content of approximately 80% postindustrial materials.
7. Alloc laminate flooring does not use fiberboard containing tropical wood species or high-grade timber.
8. In instances of necessity of virgin materials, Alloc products are produced with materials from forests that are well managed and in accordance with the FSC [Forest Stewardship Council] recommendations
9. An advanced waste and reclamation service corporation collects the sawdust produced during the manufacturing and profiling method and processed for further use.
10. Alloc laminate floorings incorporate high-resolution design papers that are unbleached or contain only small quantities of organic chlorine.
11. Water based inks are used in the printing of Alloc high-resolution designs and images, which are then filtered and purified.
12. Utilization of an elaborate soundproofing system in the production facility for workplace quality enhancement exists.





- Installation

1. Alloc's aluminum locking designed glue-less system offers a tight joint installation needing no chemical bonding agents such as, latex or PVA.
2. Several installations of Alloc commercial are encouraged during its lifecycle due to the metal locking system and board integrity.
3. Most preexisting floors meet the acceptable common subfloor requirements creating less demolition and possible waste for landfill.

- Life Cycle

In life cycle costing, values of product construction, performance, and maintenance become the valued considerations. Alloc offers extended life cycle performance due to the follows:

1. The aluminum locking system and vacuum impregnation of wax on the finished edges guarantees a tight water repellant and long lasting affixed board.
2. Alloc commercial laminate consists of an hpl [high-pressure laminate] this wear layer rating of AC5 on Alloc Original® and AC6 on Alloc Commercial®, which in industry standards meets and exceeds ratings for high commercial use against abrasion, wear, stain, and fading. The High-density fiber core incorporated with Aqua loc®, [a moisture block patented by Alloc Inc.] prevents wicking of moisture. In addition another hpl layer is affixed as a stabilizer along with an attached hdpe [high-density polyethylene] silent system® delivering low impact noise quality. All of the fore mentioned deliver a sound and long lasting product for less of an opportunity for premature wear and replacement.
3. The absolute necessity for cleaning and maintenance of Alloc commercial flooring is sweeping and damp mopping with Free&Clean®. No surfactants or excess ringer mopping is encouraged. In fact, it is highly discouraged. In need of additional agents to clean stubborn traffic residue, the use of acetate and then damp mop. No buffing, waxing, screening, or refinishing is applicable. Thus, labor and cleaning costs largely appreciate significant savings.





## The Four R's of Alloc's Environmental Stewardship

### REDUCE:

Alloc's international, national and local representation as well as over thirty [30] distributors in the US assure the responsibility of proper specification and use of the Alloc commercial products. Such that a commitment to reducing the need of premature replacement and reduction of unusable materials.

### REUSE:

Alloc's commercial laminate board construction and patented metal locking system allows multiple reuse and relocation, minimizing waste.

### RECYCLE:

Alloc commercial laminate products consist of three recyclable parts;

- The aluminum in the aluminum locking system disconnects and is recycled with like metals.
- Alloc's Silent System® high-density polyethylene [HDPE] detaches for recycling into such products as plastic lumber, outdoor products, marine pilings, buckets, and crates.
- The board material is a wood byproduct, which may be ground into pulp.

### RECLAIM:

After the life of the product is upon completion and all previous options are exhausted Alloc laminate planks can be incinerated for use in power generation. The HDPE incineration produces very low emissions, however, recycling of this and the aluminum before incinerating the plank is strongly encouraged.



## LEED Basics and Points

Leadership in Energy and Environmental Design (LEED) was developed by the *United States Green Building Council* (USGBC) in 2000 and has been continually expanded and revised ever since. It is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. USGBC's members representing every sector of the building industry developed and continue to refine LEED.

LEED was created to:

- Define "green building" by establishing a common standard of measurement.
- Promote integrated, whole-building design practices.
- Recognize environmental leadership in the building industry.
- Stimulate green competition.
- Raise consumer awareness of green building benefits.
- Transform the building market.

The current LEED standards include:

**LEED – NC: New Construction and Major Renovations.** Version 2.2 October 2005  
Buildings in the LEED-NC category can achieve points that will earn them Platinum (52-69 points), Gold (39-51 points), Silver (33-38 points) or LEED Certified (26-32 points) status.

**LEED – EB: Existing Building Upgrades, Operations and Maintenance.** Version 2.0 July 2005

Buildings in the LEED-EB category can achieve points that will earn them Platinum (64-85 points), Gold (48-63 points), Silver (40-47 points) or LEED Certified (32-39 points) status.

**LEED – CI: Commercial Interiors.** Version 2.0 December 5, 2005

Buildings in the LEED-CI category can achieve points that will earn them Platinum (42-57 points), Gold (32-41 points), Silver (27-31 points) or LEED Certified (21-26 points) status.

**LEED – for Homes** Version 1.72 September 8, 2005 (only pilot testing at this time)

LEED for Homes is a voluntary initiative currently under development, to actively promote the transformation of the mainstream home building industry towards more sustainable practices. LEED for homes is targeting the top 25% of homes with best practice environmental features and it is a collaborative initiative that actively works with all sectors of the home building industry. The objective of pilot testing LEED for Homes is to ensure the LEED for Homes rating system is practical for application and will become an effective tool for introducing green building practices to a significant portion of the new home building marketplace. The initial projects were selected in August 2005 and the pilot is set to conclude in early 2007.

Buildings in the LEED for Homes category can achieve points that will earn them Platinum (90- 108 points), Gold (70-108 points), Silver (50-108 points) or LEED Certified (30-108 points) status.

**LEED - NC-Application Guide for Retail** (only pilot testing at this time)

Version 2.2 June 2005

The AGR has been developed to specifically address the unique challenges and opportunities of implementing green building strategies into retail projects by providing tailored credit language and alternative compliance paths as needed. The pilot test is intended to gather market feedback on the applicability of these draft modifications to the existing LEED-NC version 2.2.

Buildings can achieve points that will earn them Platinum (52-69 points), Gold (39-51 points), Silver (33-38 points) or LEED Certified (26-32 points) status.

**LEED – CS: Core and Shell projects** (not applicable to flooring)

**LEED - ND: Neighborhood Development** (not applicable to flooring)

All of the various LEED rating systems previously mentioned are based on achieving a certain number of points which are allocated for design choices that are defined within the standard. There are six Sections of LEED that represent specific design criteria:

1. Site Selection
2. Efficient Use of Water
3. Energy and Atmosphere
4. Materials and Resources
5. Indoor Environmental Quality
6. Innovative Design.

With this information in mind it is important to note that *products cannot* be LEED certified – only buildings can be certified. The architect or interior designer can make product choices that will help a *building* qualify for LEED points.

Of the previously mentioned six Sections of LEED, flooring products only apply to the following three categories: **MATERIAL AND RESOURCES**, **INDOOR ENVIRONMENTAL QUALITY** and **INNOVATIVE DESIGN**.

Please note the following key information as each of these categories pertain to Alloc products.

**MATERIALS AND RESOURCES**: The intent of this Section is to reduce the waste that is generated in the construction process, extend the use of existing building materials and conserve resources. The architect or interior designer can achieve points by reusing floors, diverting construction waste from a landfill, emphasizing the use of locally manufactured materials with recycled content, renewable raw materials and certified wood.

**LEED-NC New Construction**: Applicable Alloc products will qualify for a credit point in MR 1.3, MR 4.1 and 4.2 Recycled Content and MR 7 Forest Stewardship Council (FSC) Certified Wood.

**LEED- EB Existing Buildings:** Applicable Alloc products will qualify for a credit point in MR 2.1 - 2.5 FSC Certified Wood, MR 4.1-4.3 Suitable Cleaning Products and Materials and MR 3.1 & 3.2 Optimize Use of Indoor Air Quality Compliant Products

**LEED-CI Commercial Interiors:** Applicable Alloc products will qualify for a credit point in MR 1.2 and 1.3, MR4.1 and 4.2 Recycled Content and MR 7 FSC Certified Wood.

**LEED for Homes:** Currently, Alloc products will qualify for a credit point in MR#5 Environmentally Preferable Products.

**LEED for Retail:** Currently, applicable Alloc products will qualify for a credit point in MR 1.1 and 1.2, MR 4.1 and MR 4.2 Recycled Content and MR 7 Forest Stewardship Council (FSC) Certified Wood.

**INDOOR ENVIRONMENTAL QUALITY:** This section establishes a buildings indoor air quality performance. Categories 4.3 and 4.4 apply to flooring.

**LEED-NC New Construction:** Alloc products will qualify for a credit point in EQ 4.4 Low-Emitting Materials: Composite Wood & Agrifiber Products.

**LEED-EB Existing Buildings:** not applicable to flooring.

**LEED-CI Commercial Interiors:** Alloc products will qualify for a credit point in EQ 4.4 Low-Emitting Materials, Composite Wood and Laminate Adhesives

**LEED for Homes:** the required standards are not applicable to flooring.

**LEED for Retail:** Currently, applicable Alloc products will qualify for a credit point in EQ 4.4 Low-Emitting Materials – Composite Wood and Laminate Adhesives.

**INNOVATION AND DESIGN PROCESS:** The intent of this section is to provide design teams and projects the opportunity to be awarded points for exceptional designs or systems that lead to innovative building performance beyond the established LEED standards.

**LEED-NC New Construction:** Alloc commercially rated floor products *may* assist in earning a credit point(s) in ID 1.0-1.4 due to their excellent life cycle analysis and maintenance procedures; specifically pertaining to the non-use of chemical sealants and/or floor polish for the preservation and maintenance of our various floor products. The lack of such chemicals/polish will assist in the operation of the building by reducing the amount of potentially harmful “gray” water and/or

chemicals that are flushed into a drain and which eventually may come into contact with ground water and/or streams.

**LEED-EB Existing Buildings:** Alloc commercially rated floor products *may* assist in earning a credit point(s) in IUOM #1 due to its excellent life cycle analysis and maintenance procedures; specifically pertaining to the non-use of chemical sealants and/or floor polish for the preservation and maintenance of the various floor products. The lack of such chemicals/polish will assist in the operation of the building by reducing the amount of potentially harmful “gray” water and/or

chemicals that are flushed into a drain and which eventually may come into contact with ground water and/or streams.

**LEED-CI Commercial Interiors:** Alloc commercially rated floor products *may* assist in earning a credit point(s) in ID 1.1 – 1.4 due to its excellent life cycle analysis and maintenance procedures; specifically pertaining to the non-use of chemical sealants and/or floor polish for the preservation and maintenance of the various floor products. The lack of such chemicals/polish will assist in the operation of the building by reducing the amount of potentially harmful “gray” water and/or chemicals that are flushed into a drain and which eventually may come into contact with ground water and/or streams.

**LEED for Homes:** Alloc floor products *may* assist in earning a credit point(s) in ID #1 due to its excellent life cycle analysis and maintenance procedures; specifically pertaining to the non-use of chemical sealants and/or floor polish for the preservation and maintenance of the various floor products. The lack of such chemicals/polish will assist in the operation of the home by reducing the amount of potentially harmful “gray” water and/or chemicals that are flushed into a drain and which eventually may come into contact with ground water and/or streams.

**LEED for Retail:** Alloc commercially rated floor products *may* assist in earning a credit point(s) in ID 1.1 – 1.4 due to its excellent life cycle analysis and maintenance procedures; specifically pertaining to the non-use of chemical sealants and/or floor polish for the preservation and maintenance of the various floor products. The lack of such chemicals/polish will assist in the operation of the building, by reducing the amount of potentially harmful “gray” water and/or chemicals that are flushed into a drain and which eventually may come into contact with ground water and/or streams.

#### **LEED Credit Areas Impacted by Alloc Products**

Attached are two documents that provide information regarding the previously mentioned LEED Areas Impacted by Flooring and the number of possible points Alloc products can bring to the project.



## Environmentally friendly

IT IS THE AIM OF ALLOC AS to live up to requirements being posed of s enterprises. This is part of the basis for our business concept and encompasses the life cycle of our products – from the use of raw materials and energy, through production and use of the products and to the recycling or destruction of them in a manner posing no danger to human health or the environment. We are an enterprise when it comes to the use of renewable, non-polluting energy and are actively working on energy economisation. Laminate flooring from Alloc AS is made primarily from paper and wood. We manufacture all our products with respect to ISO 14001 environmental certification. Our business is based on products that can be produced, used, recycled and disposed of without damage to human health or the environment. All laminate flooring from Alloc AS are CE labelled with respect to European requirements for the labelling of flooring products, and we comply with annual requirements for registration and reporting with respect to the provisions of the environmental authorities. Laminate flooring products from Alloc AS are recommended by the Norwegian Asthma and Allergy Association.



PATENTER US 5,860,267 US 6,094,882 US 6,205,639 EP 0 5,706,621 US 6,023,907 US 6,182,410 EPO 698 162 EP 0

ALLOC HAS BEEN PRODUCING HIGH-QUALITY FLOORS SINCE 1992. In 1996 we revolutionised the floor industry with our locking system that made it possible to install floors without using glue. With our patented locking system, the floorboards are joined together fast and easily. The installation result is perfect. The precision work is done at the factory. Alloc floors are produced in accordance with the strictest possible design and quality requirements. They tolerate children playing, dogs' claws, stiletto shoes and office furniture. In brief, virtually everything. With the combination of the unique locking system, the durable surface and the design, Alloc floors stay just as beautiful year after year.

*Floors for living*

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DEALER: \_\_\_\_\_

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## Technical Position Paper

### **Laminate flooring**

#### **– Floor coverings with a good ecological profile**

Laminate floor coverings are high quality floor covering materials which can be used for the decorative design of interiors. They are easy to install, long-lasting, durable, easy to care for and offer good value for money. Laminate floor coverings are produced on an industrial basis. There are a range of application classes to cover different planned uses. These floor coverings consist mainly of the natural material wood and have numerous advantageous characteristics.

In addition to their positive functional characteristics, laminate floor coverings have an ecological profile which makes them products that are both non-harmful to health and environmentally friendly. The following information is intended to provide further details about these characteristics in a brief and easy to understand form. It is based on the author's many years of scientific and expert consultancy experience with these flooring materials at the Fraunhofer-Institut für Holzforschung (Germany).

#### **Composition: An environmentally friendly product made of wood**

The core board of a laminate flooring is made of high-density wood fiber boards (HDF). HDF boards consist of about 90% wood fiber and some 10% environmentally friendly glue resin. The top side covering on the HDF boards is generally made up of several layers of high-quality paper impregnated with transparent melamine resin. The underside is covered with backing paper. Laminate floor coverings are therefore made mainly of the fibers from the renewable raw material wood, along with a relatively minor amount of synthetic resin. They are manufactured in modern production plants which fully meet today's requirements in respect of emissions and environmental protection measures. Many of the plants also have their own energy and heat production systems. The positive life-cycle environmental performance data of wood-based materials therefore apply in principle to laminate floor coverings.



The melamine resin used for the impregnation of the surface layer paper is water-based, which means that it contains no organic solvents and once cured, it provides a surface which is extremely resistant to chemicals, water, organic solvents, light and temperature. The top side covering also contains the decorative paper, without which the great diversity of attractive design ideas would not be possible. The decors are printed using modern technology with inks and pigments which are not harmful to health. The top surface layer of the floorcovering panel contains a natural mineral-based substance (»Corundum«) which provides extra protection against wear. The back side of the panel could be provided with drumsound reducing underlayment, if required. All the components of laminate floor coverings are produced without any additions of pesticides, organo-chlorinated compounds and harmful heavy metals. Moreover, the surface layers do not contain any plasticizing agents either.

Laminate floor coverings are long-lasting and wear resistant products. These floor coverings can easily be replaced or repaired thanks to the glueless click connections nowadays commonly used. These floor coverings can be disposed of as bulk waste without any problems as they are suitable for material or thermal recycling. Therefore, uplifted laminate flooring is not “special waste“ which is expensive to dispose of.

### **Emission: Odorless and very low emission of harmful substances**

Laminate floor coverings are odorless and very low on emissions. This is a consequence of both their composition and the manufacturing process involved. Recent investigations by the Fraunhofer-Institut have demonstrated that the level of emissions of organic substances from these floor coverings is negligible. This result is hardly surprising because the production process does not involve any organic solvents. Occasional traces of volatile constituents contained in the wood can sometimes be detected, but even these disappear after a short time. The underlay materials installed under the laminate floor coverings are also low on emissions and, if properly installed, have no impact at all on the indoor air.

Another well-known air pollutant is formaldehyde. Although this substance is contained in melamine resin, it is irreversibly fixed in the resin structure upon curing. Emissions of formaldehyde from finished laminate floor coverings are therefore well below the legal requirements. Numerous measurements on modern laminate floor coverings are revealing emission values comparable to the formaldehyde emissions of natural wood. Laminate floor coverings therefore have no or only a negligible impact in terms of polluting indoor air with odors and harmful substances. The floor coverings themselves do not absorb any of these substances.

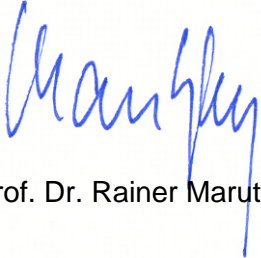
### **Hygiene: Easy to clean and suitable for allergy sufferers**

Laminate floor coverings are produced – as described above – without pesticides, organo-chlorinated compounds and harmful heavy metals. There is therefore no chance that users even come into contact with these harmful substances. These hardwearing floor coverings are very easy to keep clean. Dirt and dust can be quickly and completely removed from the smooth surface of laminate flooring by brushing, vacuum cleaning or damp cleaning, keeping the floor in an absolutely clean and perfect hygienic condition. In addition, the non-porous surface layer is a hostile environment for the induction and development of dust mites and other allergy-inducing microorganisms. In combination with their good care and cleaning characteristics, therefore, this makes these floor coverings particularly ideal for allergy sufferers.

### **Summary: Laminate flooring are very environmentally products**

In summary, it can be concluded that laminate floor coverings are also high quality products in ecological terms as well. They are produced on an industrial scale using modern production technology and are mainly containing fibers from natural wood. The additional constituents are also of an environmentally friendly nature. Laminate floor coverings are very advantageous in all functional aspects of their application,

and they largely met the actual requirements in relation to the protection of health and environment. These favorable characteristics are highlighted in the table below.



Prof. Dr. Rainer Marutzky

Braunschweig, September 2007

**Table:** Summary of ecologically relevant characteristics of laminate floor coverings

<b>Characteristic</b>	<b>Summarized assessment</b>
Composition	<ul style="list-style-type: none"> <li>- Contains up to 90% wood fiber</li> <li>- Water-based resins</li> <li>- No biocides and organo-chlorinated containing additives</li> <li>- No harmful heavy metals</li> <li>- Surface layers do not contain any flexibilisation agents</li> </ul>
Product profile	<ul style="list-style-type: none"> <li>- Environmentally friendly production</li> <li>- Full recycling materials in production cycle</li> <li>- Favorable life-cycle environmental performance data</li> </ul>
Emissions	<ul style="list-style-type: none"> <li>- Very low formaldehyde emissions</li> <li>- Negligible VOC emissions</li> </ul>
Hygiene	<ul style="list-style-type: none"> <li>- Easy to clean and maintain</li> <li>- Advantageous in terms of allergy sensitivity</li> </ul>
Disposal	<ul style="list-style-type: none"> <li>- Long-lasting and wear resistant</li> <li>- Suitable for material or thermal recycling</li> </ul>