

THE NEW WOOD



Contemporary



“ The potential for this, the impact, is enormous, isn't it ...

CNN

Durable



“ One way out of this problem would be an environmentally friendly way of making softwood harder and more durable - something that a Norwegian company called Kebony has now achieved.

The Economist

Environmentally friendly



“ Commercial logging is a key driver behind the destruction of the rainforest. You need to think. Don't use tropical timbers, find alternatives because we need the tropical rainforest for our common future.

Lars Løvold, Director of Rainforest Foundation Norway

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Kebony KREOD Pavillions, London, Kebony SYP.

A revolution in wood products

Kebony is a Norwegian company behind a worldwide sensation. Many years of research and the will to think innovatively have yielded results.

General interest in form and colour is growing, as is our desire to add a personal touch to the structures we build. We don't want to spend all our time and resources on maintaining our house or cottage. Our awareness of environmental and climate issues is on the increase.

Kebony has developed a technology which gives architects, designers, construction clients and craftsmen a product that satisfies these needs:

- contemporary and innovative solutions
- durability and minimum maintenance
- environmentally friendly products

Kebony wood products can replace surface coated white wood that requires priming and painting. Kebony can replace impregnated timber and precious wood from tropical rain forests. This is why Kebony is the wood for the future!



Private Pool, France, Kebony Radiata

What is **kebonization**?

Kebonization is a patented process in which wood properties are enhanced. The wood becomes harder and more stable, with improved durability.

The liquid used in the process contains a bio-based substance which enhances the cell structure. The process involves the following four stages:

- 1/ Ingredients are mixed according to a patented recipe, using a liquid derived from a agricultural biowaste
- 2/ The liquid is impregnated into the wood under pressure
- 3/ The wood is heated to above 100°C and the chemical is polymerized permanently transforming the cell structure
- 4/ Excess liquid is recycled and re-used in the production process

Kebony's patented modification methods are the result of many years research and development in Norway, Sweden and Canada. They are also based on collaborations with universities and institutes in Germany, the Netherlands, USA and South Africa, including the Norwegian Institute of Wood Technology, the Norwegian Forest and Landscape Institute, the SP Technical Research Institute of Sweden, SHR Timber Research in the Netherlands, and the University of New Brunswick and Woodtech in Canada.





Above left: **The Nansen Park**, Oslo, Kebony Pine, above right: **Villa Malla**, Hurum, Kebony Maple
 Right page: **Helle school**, Kragerø, Kebony Pine

Many alternatives – hidden benefits

Several wood types are suitable for kebonization. Currently Kebony is produced from various pines and maple.

Kebony has the versatility to be used for internal and external applications. Choosing from Scots Pine, Southern Yellow Pine, Radiata Pine or Maple with a wide range of dimensions and profiles. Kebony offers the political, social, economic and environmental choice.





A solution for the future

The construction industry is in constant change. Public authorities and clients in the industry get new requirements and expectations. Architects envision new possibilities.

Kebony has created solutions that satisfy demand for innovation in terms of quality, aesthetics and environmental friendliness. This new variety of wood tolerates harsh climates and acquires an attractive patina on exposure to the sun and natural elements.

Its areas of application are numerous:

- Internal and external
- A wide variety of applications from large commercial or public buildings to terraces or jetties
- Many types of structures, from roofs, wall claddings to floors
- Furniture, kitchens, yacht decking etc.

Kebony wood is the choice for the future:

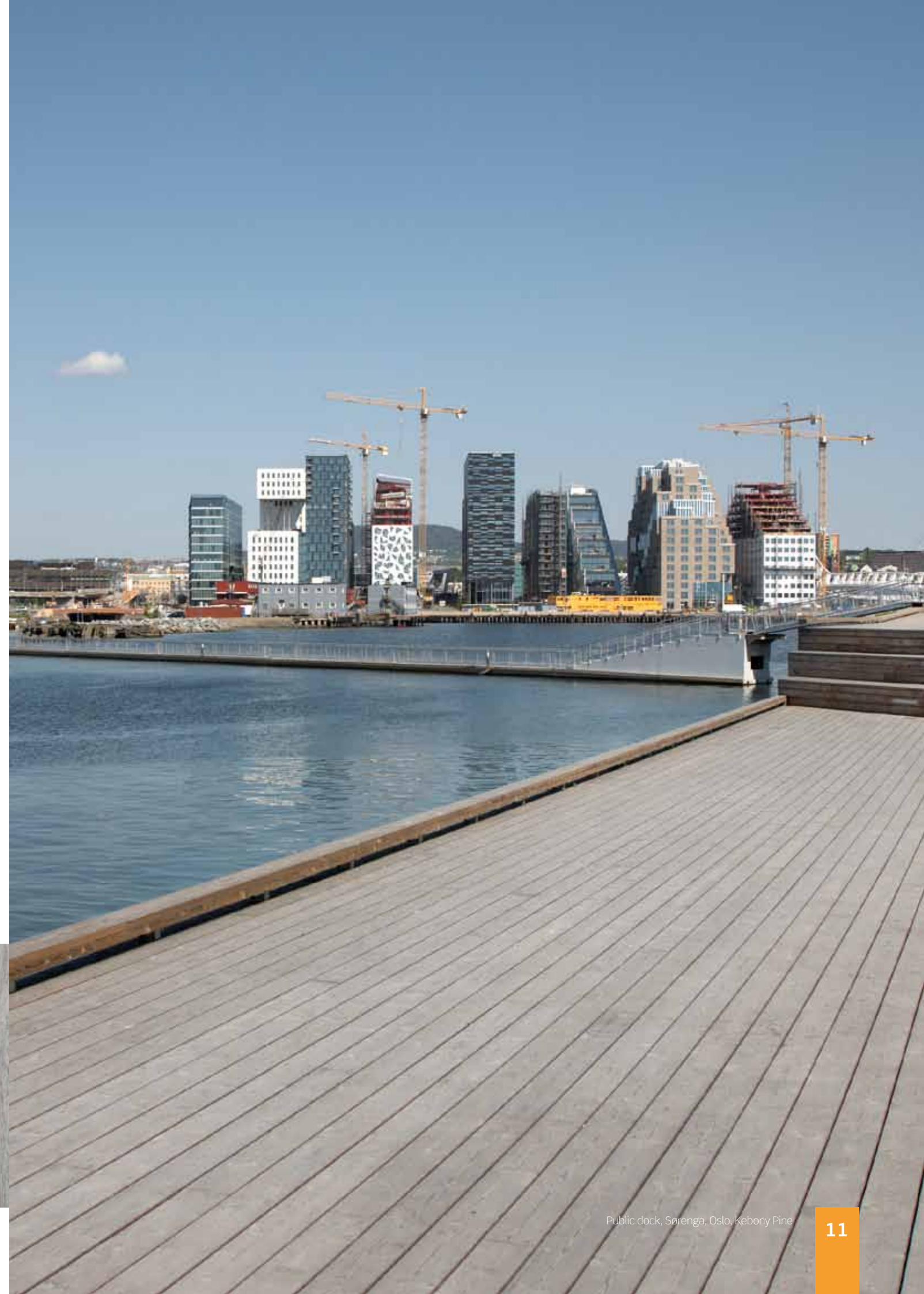
It provides a solution that is contemporary, durable and aesthetically pleasing for you and the next generation.



Untreated

Kebonized

Aged



Public dock, Sørenga, Oslo, Kebony Pine

Kebonization gives durability and strength

One notable benefit of kebonized wood is its resistance to weather and wear; an important property in situations where wood is exposed to the elements. Kebony is particularly suitable for use in outdoor applications such as decking, terrace surfaces and jetties.

Other notable benefits are its exceptionally good decay resistance and long life span. This durability is achieved without the drawbacks associated with traditional impregnation methods. That is why Kebony has been granted the Swan eco-label for its environmental credentials.

The main criteria for using the Swan label:

- No heavy metal added
- No biocides added
- Produced from sustainable forestry
- Durability
- Does not create problems in the disposal phase

Kebony wood

– an exciting new material

Kebony is far more stable than the parent wood. Over time, Kebony patinates when exposed to the elements. Kebony has the appearance of tropical hardwood and acquires a silver grey patina over time. Kebony wood has improved stability and durability making it the ideal choice in construction.

Oslo Boathouse

Students from Norway's top architectural universities used Kebony Pine for this innovative take on a traditional Norwegian boathouse in the Oslo Harbour.

This unique and eye-catching landmark on Oslo's beautiful and bustling waterfront is not only a stunning example of sustainable architecture but also an engaging space that will be used as a venue for musical and theatrical performances.



Kebony Guitar

Scandinavia's leading distributor of musical instruments 4Sound have produced Kebony's first sustainable guitar. An alternative to using unsustainable tropical hardwood like others, 4Sound chose Kebony Maple for its aesthetic and acoustic merit.



Stokke Austad bench

Leading Norwegian designers Stokke Austad chose Kebony for their Cantileverd Bench. Kebony's durability is complemented by a beautiful aesthetic that contrasts with the lacquered steel and concrete of the bench.



Raadvad cutlery

The Raadvad knife series by Fiskars is available in six variations. Made of Kebony Maple and high-quality German steel. The series is inspired by traditional Scandinavian cuisine and culture.



Oslo Boathouse, Norway, Kebony Pine

Let the Nature Decide

Kebony is a modified wood that is unique in its offering. It is a sustainable modified wood alternative to endangered tropical hardwoods which are diminishing.

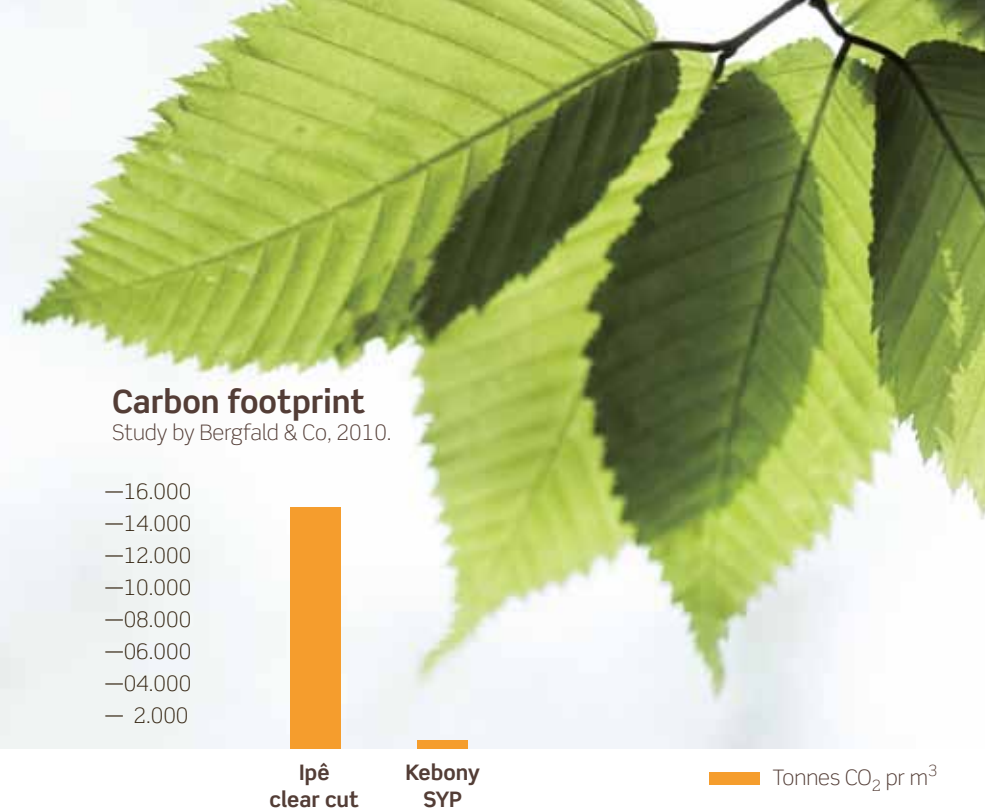


Bio Waste

Furfuryl alcohol is derived from the agricultural waste in the production of sugar, corn or other bio food sources.

Kebony has been used by a number of leading international architects, builders and designers. Tried and tested, its benefits as an alternative high performance wood are resulting in increasing demand.

A global environmental awakening is one of the key drivers for contractors and architects choosing modified wood.



“ The tropical rain forest is on the verge of destruction

Rain Forest Foundation

- Kebony wood has a longer lifecycle than other woods, acting like a carbon 'sink' by locking in CO₂ seven times longer than untreated wood.
- Kebony has received several awards in recognition of its green credentials. Most recently it was named as one of the world's most promising clean technology companies in the Global Cleantech 100. Kebony was also cited as one of the top 50 companies that could change our world in 2010 and one of the top 25 creative European Companies.
- Kebony is FSC®-/PEFC™-certified and embraced by leading preservation organisations such as The Rain Forest Coalition and the WWF. Kebony has received the Nordic region's eco-label, the Swan, the Glass Bear for sustainable consumption and production and the Norwegian Blue Ocean Award.

- Kebony was presented at the CC8 Climate Conference and invited to display their innovative products at the UN-Climate Conference in Copenhagen.

Recent environmental studies by Norwegian environmental consulting firm Bergfald & Co also demonstrate that Kebony has a substantially lower carbon footprint than unsustainably logged Burmese teak and Brazilian ipê.

Kebony is an environmentally friendly real wood alternative to tropical hardwoods. Only sustainably harvested raw materials are used in the production of Kebony wood.



Product certification may vary depending on species and current supply.



Hurst Avenue, London, Kebony SYP

Contemporary

Aesthetic and innovative.
Now and for the future.





Boathouse Aure, Norway, Kebony Pine



Durable

Strong and maintenance free.
Suitable for extreme climate
conditions in applications where
durability is required.





The Nansen Park, Oslo, Norway, Kebony Pine

Environmentally friendly

Kebony is an environmentally sustainable alternative to tropical hardwoods and other building materials such as metals, plastics and concrete.





Bexhill Pavillions, UK, Kebony Pine and Kebony SYP

It all began with a few architects...

It all began when a few architects realised the possibilities Kebony wood had to offer. Architects advise construction clients on long term solutions. These recommendations are based on stringent aesthetic, qualitative and financial considerations.

Kebony offers new design possibilities and is well suited for internal and external applications such as flooring, facades, roofs and terraces.

Kebony wood offers a very competitive solution to surface treated woods during its long life cycle. With no priming and painting required, Kebony offers a maintenance free solution throughout its long life span.





Quality Spa & Resort, Kragerø, Norway, Kebony Pine

Quality Spa & Resort Kragerø

with 28,000 sq. m. of Kebony wood

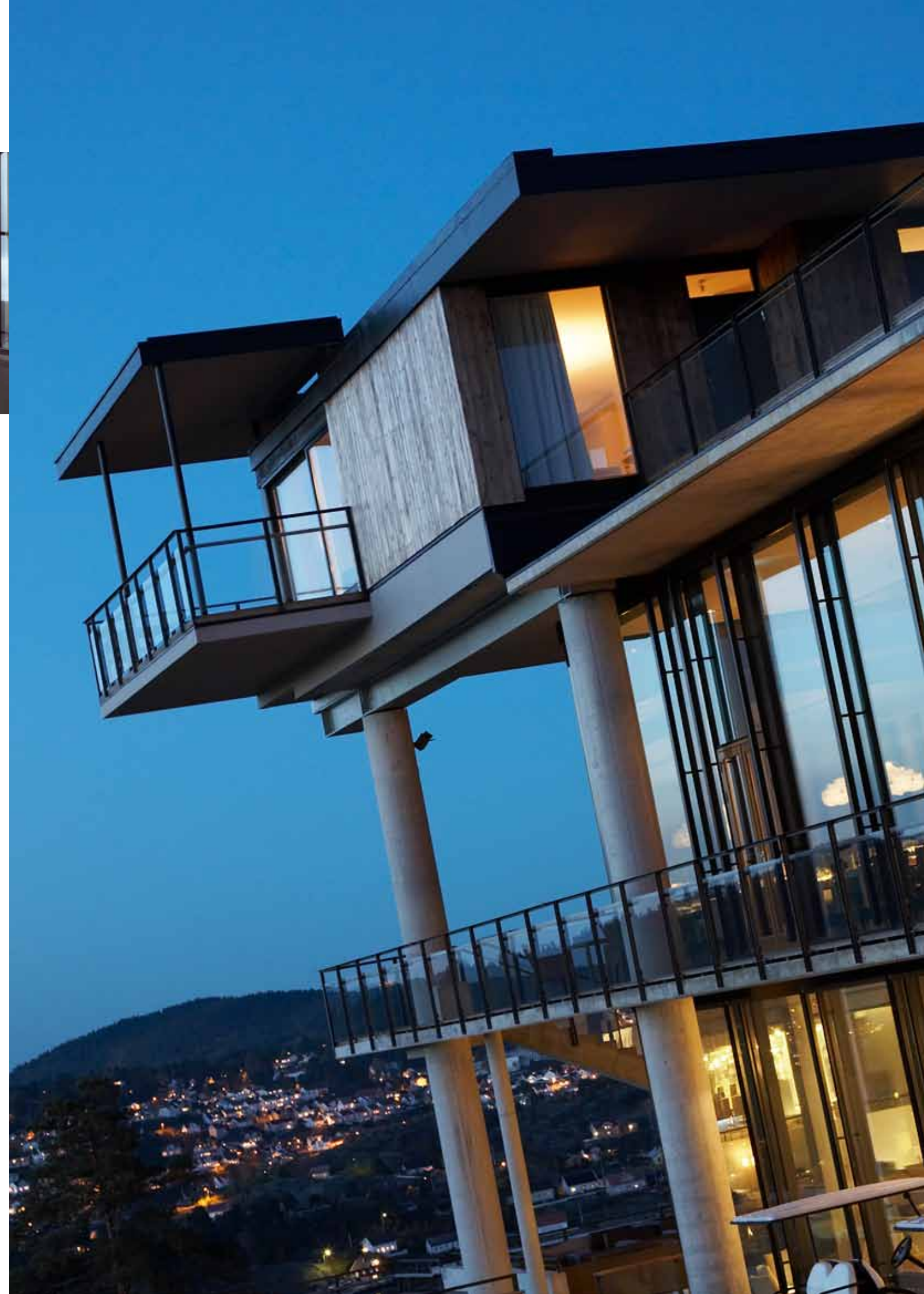
“Lund Hagem Architects often utilize wood in our projects, and prefer to do so. We believe that wood is a material with many good properties,” says Einar Hagem.

“Whenever possible, we opt for solutions that allow the wood to retain its natural appearance – without paint or other types of treatment. Wood also works extremely well in natural environments and in conjunction with other building materials such as concrete, slate, steel and glass.

We had previously tried out Kebony wood in some of our smaller projects. We had also kept material samples to observe how the wood reacts to sun, wind and rain over time. So when we won the contract to design Quality Spa & Resort Kragerø, we recommended Kebony Pine as one of the materials to be used.

We placed particular emphasis on the colour tones and patina that will develop over the years to come. We try to avoid painting or staining of façades, both for reasons of maintenance and also to bring out the material's appearance of roughness. The fact that the impregnation method has a documented ecological profile is very positive.”

Lund Hagem Arkitekter AS seeks to form a modern, timeless architectural style which is clearly rooted in Nordic traditions. This has won the firm of architects considerable acclaim for its projects, as well as a number of awards. The article shows pictures of Quality Spa & Resort Kragerø, designed by Lund Hagem Arkitekter and opened in 2007.





Chelsea Flower Show, London, Kebony SYP and Kebony Pine

Landscape and garden designer Darren Saines **on Kebony wood**

“We Englishmen have roughly the same attitude to our gardens as Norwegians do to their forests and fields.

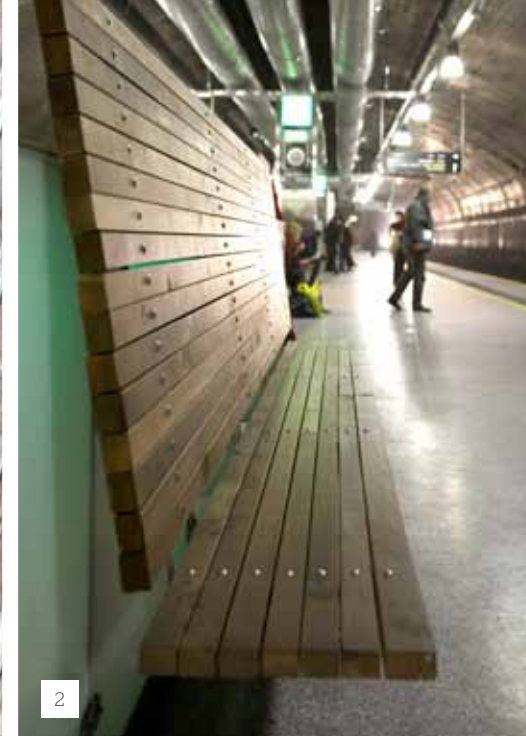


There is a growing interest in new and more unconventional gardening solutions. And what could be more natural in Norway than bringing wood into the garden?

Wood that is used in gardens has to withstand the harsh Norwegian climate. A lot can be said in favour of copper impregnation, but it isn't

exactly attractive. The alternative is having to spend the few sunny summer days we do get on painting, oiling or staining. With Kebony wood this could all be a thing of the past. Durable and beautiful all in one go!

Darren Saines is one of Norway's leading landscape and garden designers. He has undertaken numerous exciting projects and often recommends Kebony wood as an integral part of the garden design.



Public sector clients are thinking innovatively

Public authorities are concerned with environmental issues combined with functionality, aesthetics and measures that can reduce the requirements for continual maintenance.

Kebony has been well received by municipalities who have chosen Kebony wood when building many of their schools and day care institutions. By using Kebony they are making an environmental statement with the benefit of reduced maintenance costs.

The Norwegian Ministry of the Environment's action plan for 2007-2010 states: "The Government will be instrumental in ensuring that the public sector sets an example as a conscientious consumer and demands environmentally friendly goods and services that are produced according to high ethical standards." "Products and services are chosen on the basis of life cycle costs, quality and environmental properties." "In the case of goods for which environmental labelling criteria have been developed under the Swan or EU Flower eco-labelling schemes, decisions shall be made on the basis of these criteria as far as possible."

Norwegian public projects

- 1/ Vestsiden oppvekstsenter, Porsgrunn
- 2/ Subway seatings, Oslo
- 3/ Retirement Homes, Trondheim
- 4/ Høvik School, Oslo
- 5/ Colindale School, London
- 6/ Sound barrier RV 47, Haugesund

Kebony Maple Picture 2
Kebony Pine All the rest



Commercial buildings send out signals

Nowadays, it's no longer a case of simply putting up an office building. The media and local communities take note on aesthetics, environmental and energy efficient solutions.

Businesses are becoming increasingly aware of their reputation, they cannot claim to be concerned with the environment if their conduct indicates otherwise. Kebony is therefore a wise choice for a corporate profile.

Commercial projects

- 1/ **Barrat Homes**, London, UK, Kebony SYP
- 2/ **Barrat Homes**, London, UK, Kebony SYP
- 3/ **Onda Restaurant**, Oslo, Norway, Kebony SYP
- 4/ **Farris Bad**, Larvik, Norway, Kebony Pine
- 5/ **Farris Bad**, Larvik, Norway, Kebony Pine
- 6/ **Farris Bad**, Larvik, Norway, Kebony Pine
- 7/ **Farris Bad**, Larvik, Norway, Kebony Pine
- 8/ **Comfort Hotel**, Stavanger, Norway, Kebony Pine



House or cottage in Kebony wood

– because it's attractive and environmentally friendly

Few alternatives accommodate as many individual requirements and specifications as Kebony wood. Choosing Kebony for external walls, roofs, window frames and doors or on the terrace, demonstrates your appreciation of quality.

Buying Kebony wood is the environmental choice that combines durability, strength and aesthetics of tropical hardwoods.

Kebony drastically reduces the need for maintenance giving time for you to enjoy leisure activities.



Left page: **Villa Malla**, Norway, below: **Cottage Larvik**, Norway, right **Princesse Square**, London



1



2



Marine projects

Jetties are continually exposed to the elements and require exceptionally hard wearing wood. Choosing fully penetrated Kebony wood will provide you with a durable solution – and one that releases no environmentally harmful emissions into the sea.

Kebony Maple is an eco alternative to teak in yacht decking. Kebony SYP is used in marine decking and pontoons.

3



Marine projects

- 1/ Bethany Beach Boardwalk, USA
- 2/ Yarmouth Harbour, UK
- 3/ Windy Boats, Norway
- 4/ Greenwich Project, UK
- 5/ Contessa Boats, UK

Kebony SYP Picture 1, 2 and 4
Kebony Maple Picture 3 and 5

4



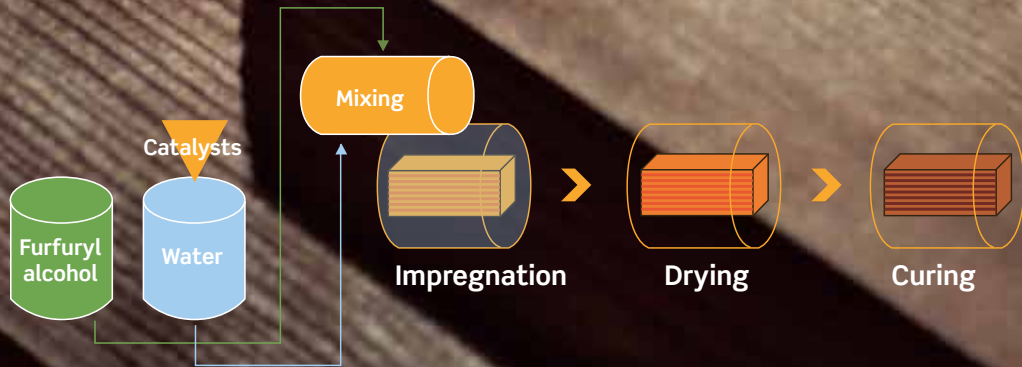
5



Compare for yourself

Wood species	Maximum movement (%)	Hardness (brinell)	Durability <small>*) treated sapwood</small>
Kebony Maple	6	Very hard	Very durable
Maple	9	Hard	Not durable
Massaranduba	6 - 11	Very hard	Very durable
Ipe	6	Very hard	Very durable
Teak	4 - 6	Hard	Very durable
Bangkirai	11	Very hard	Durable
Merbau	5	Hard	Durable
Iroko	6	Hard	Durable
Garapa	4 - 8	Hard	Durable
Oak	4 - 6	Hard	Durable
Kebony SYP	5	Hard	Very durable
Kebony Radiata	5	Hard	Very durable
Red Cedar	8	Soft	Durable
Untreated SYP	8	Soft	Slightly durable
Kebony Pine	6	Hard	Very durable* / durable
Siberian Larch	7	Soft	Durable / moderately durable
Scots Pine	8	Soft	Moderately to slightly durable

Kebonization – the modification process



The products have no harmful effects on the environment. Production of Kebony is based on a liquid extracted from biowaste. In the waste disposal phase, Kebony can be treated as regular untreated wood.

ENVIRONMENTALLY FRIENDLY



The products have a golden brown colour which naturally turns grey on outdoor exposure. The products acquire a natural silver-grey patina and exposure to sun and rain creates an interesting effect of depth.

AESTHETIC



The process results in the wood cells being permanently swelled which, compared with untreated wood, reduces shrinkage and swelling by approximately 50%.

DIMENSIONALLY STABLE



Kebony products require no form of maintenance beyond normal cleaning.

EASY TO MAINTAIN



The process increases the density of the materials and makes them stiffer and significantly harder than untreated wood.

GOOD COMPRESSIVE STRENGTH



The raw materials for Kebony are taken from sustainably managed forests with large timber harvests. All our suppliers hold certificates guaranteeing the origin of their timber.

SUSTAINABLE



Good durability and long life spans in harsh climates. No need for paint products etc to retain product properties. Required maintenance is limited to normal cleaning.

COST-EFFECTIVE



Protects against decay, fungi, insects and other wood destroying microorganisms.

RESISTANT



Kebony contains no chemicals that can be released into the environment. The polymer is permanently grafted to the cell structure in the wood by an irreversible process.

NON-TOXIC



Modified wood is a durable alternative to preservative treated, surface-coated and tropical timber.

GOOD DURABILITY



Contemporary, durable and
environmentally friendly



Kebony – an informed choice



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