

SINTEF confirms that

Kebony Scots Pine

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document.



1. Holder of the approval

Kebony AS
Hoffsveien 48
0377 Oslo
www.kebony.com

2. Product description

Kebony Scots Pine is wood made from Nordic Scots Pine (*Pinus sylvestris*) treated with Kebony's chemical modification method of wood materials. The modification gives a 35% weight gain in the sapwood, and contributes to increased durability against biodegradation of the sapwood. The modification does not change the durability of the heartwood.

Kebony Scots Pine is available in several dimensions and profiles or in special dimensions to order.

The modification increases the density of the material by 10 – 30 % to 550 – 800 kg/m³. The modification results in a permanent blockage in the sapwood. This may result in dimensional deviations from the stated dimensions by up to ± 3%. Moisture content at delivery is approximately 12%.

3. Fields of application

Kebony Scots Pine is used outdoors for cladding, roofing and decking. Kebony Scots Pine can be used as exterior cladding on buildings in risk class 1-6 in fire class 1. The product can also be used on the exterior wall of buildings in fire classes 2 and 3, when either the outer wall is designed to prevent fire spread in the façade or the building is in risk classes 1, 2 and 4 and has up to four storeys, and there is little risk of fire spreading to and from neighbouring structures. For use in other risk classes in higher fire classes, fire safety must be documented by analytical fire engineering design. Kebony Scots Pine is used in constructions over terrain, not in contact with soil or seawater.

4. Properties

4.1 Load-bearing capacity

Kebony Scots Pine has strength properties similar to ordinary Scots Pine material except for cross-tensile strength and impact bending which are reduced. The dimensioning of decking is shown in section 6.

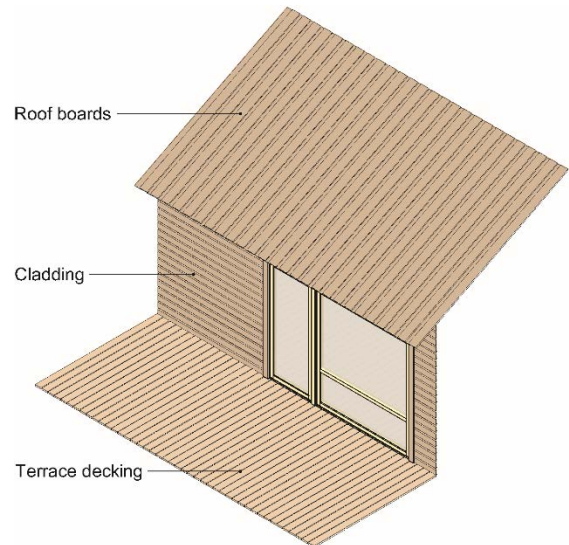


Fig. 1
Typical Uses for Kebony Scots Pine

4.2 Reaction to fire

Kebony Scots Pine cladding with a thickness of 21 mm and density of 585 kg/m³ ± 60 kg/m³ satisfies reaction to fire class D-s2,d0 according to EN 13501-1 when mounted on untreated spruce wooden battens with a 40 – 80 mm ventilated air gap outside an incombustible substrate with minimum reaction to fire class A2.

Kebony Scots Pine roof boards with a minimum thickness of 28 mm satisfy external fire performance class B_{ROOF} (t2) laid with an air gap of at least 30 mm over EPS substrates, mineral wool and wooden roof trusses with roof coverings.

Kebony Scots Pine decking laid as a roof terrace satisfies external fire performance class B_{ROOF} (t2) laid on beam layers and as slatted floors with a maximum distance of 6 mm, over bitumen-based membrane.

4.3 Durability

Heartwood made of Nordic Scots Pine (*Pinus sylvestris*) has a natural durability against fungi corresponding to class 3 - 4 according to EN 350-2. Kebony Scots Pine sapwood is tested according to -EN 350-1 and achieves durability class 1 - 2. The sapwood has a better durability than the heartwood. Durability is considered satisfactory for the applications specified in section 3.

SINTEF is the Norwegian member of European Organisation for Technical Assessment, EOTA, and European Union of Agrément, UEAtc

4.4 Moisture and thermal properties

Shrinkage and swelling are considerably less than for untreated wood. For the sapwood, the reduction is about 50%.

4.5 Processing

Kebony Scots Pine is processed with ordinary tools intended for wood. Processing the material will weaken the protection of the wood. All cut surfaces and machined surfaces should be stained with a wood preservative. If desired, exposed sectional surfaces can be treated with a pigmented stain to achieve a uniform colour.

4.6 Surface properties

Water running off Kebony surfaces is more acidic than water from untreated wood, with a pH of 4.5 – 6, depending on time and exposure after installation. See also the conditions regarding installation in section 6.

5. Environmental aspects

5.1 Chemicals hazardous to health and the environment

Kebony Scots Pine contains no priority pollutants or other relevant substances in an amount considered hazardous to health and the environment. Priority hazardous substances include CMR, PBT and vPvB substances.

5.2 Impact on soil and groundwater

The leaching properties of Kebony Scots Pine are evaluated to have no negative effects on soil or water.

5.3 Waste management/reuse possibilities

Kebony Scots Pine will be sorted as wood at the construction site and at disposal. Kebony Scots Pine is delivered to an approved waste facility where it can be energy recovered.

5.4 Environmental declaration

Environmental product declarations (EPDs) have been prepared in accordance with ISO 14025, ISO 21930 and EN 15804 for Kebony Scots Pine:

- NEPD-3513-2106 - Cladding
- NEPD-3514-2106 - Decking
- NEPD-3515 - 2106 - Roofing

See www.epd-norge.no.

6. Special conditions for use and installation

6.1 Joist span for decking boards

The following maximum distances between beams/joists shall be used in ordinary terraces of residential buildings when using Kebony Scots Pine:

- Decking 28 mm x 120 mm, c/c 600 mm
- Pier decking 34 mm x 145 mm, c/c 900 mm

6.2 Installation

Kebony Scots Pine contains acid residues, which give a more acidic product than untreated wood. Kebony Scots Pine combined with untreated or patinated zinc will cause discolouration and signs of corrosion. Runoff to copper fittings can also cause discoloration. Stainless or acid-resistant compounds must be used for Kebony products. Other types of fasteners will cause a black discoloration of the wooden surfaces in connection with screws and nails and must therefore be avoided.

Kebony should be pre-drilled when attaching to or near the ends of planks/boards.

The boards will usually swell somewhat after installation outdoors. Decking should be mounted with pith-side down.

6.3 Safety in case of fire

The cladding must be mechanically attached to the substrate, and mounted so that there are no gaps between the cladding boards.

6.4 Maintenance/cleaning

Kebony Scots Pine can be washed with a high-pressure washer with a suitable brush, but it should not be pressure washed directly onto the wood.

Kebony Scots Pine has a brown colour that will eventually fade and turn into a grey patina. It is not necessary to coat Kebony Scots Pine to ensure extended material life. Any surface treatment should be done according to the manufacturer's recommendations.

6.5 Transportation and storage

Kebony Scots Pine should be stored airy and dry. The materials should be covered before use to avoid colour variations.

7. Factory production control

Kebony Scots Pine is produced by Kebony Norway AS, Havneveien 35, 3739 Skien.

The holder of the approval is responsible for production control to ensure that the product is manufactured according to the conditions on which the approval is based.

The factory manufacture of the product is subject to supervised product and production control in accordance with the contract for SINTEF Technical Approval.

8. Basis for the approval

Kebony Scots Pine is evaluated based on reports that are the property of the holder.

Execution and detailed technical solutions are assessed based on recommendations given in the Norwegian Building Research Institute's design guides.

9. Marking

Finished goods are packaged and labelled, including the date of manufacture, date of finished dried material, product number and product description. It can also be marked with the seal of approval for SINTEF Technical Approval; TG 2493.

10. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims resulting from the use of the product cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

for SINTEF

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