

MOSO® Bamboo X-treme® Outdoor Decking

installation instructions

before installation

- Make sure that the installation of the decking complies with local building regulations and guidelines.
- Waterlogging under the decking must be avoided by preparing a water permeable ground structure. This can be achieved by sand layers and gravel dispersion above.
- Use cement/stone tiles 40-50 mm thick or pedestals, to support the sub frame (see drawing).
- Place a root barrier under the tiles and pedestals to prevent weeds growing under the decking.
- We recommend installing the decking boards with a slope of 1-2% to enable water to run off the surface. Alternatively, the decking can be installed without a slope, but due to the fact that water stays on the surface longer, it is possible more superficial cracks will develop. If the installation is done without a slope, more cleaning will be required.
- The decking with the curved surface BO-DTHT191G-C-01 can be installed without a slope. Thanks to the curved surface, fast drainage from the boards is guaranteed.
- Ensure good ventilation of the decking by keeping at least 20 mm gap from walls and objects and avoid closing the decking at the sides. The gap between the boards must be open to ensure unrestricted ventilation.
- When the surface / soil underneath the decking is not fast drying, there should be at least 100 mm distance between the decking and the surface underneath.
- Use sub frame joists with the minimum size of 40x60 mm. MOSO® recommends the use of MOSO® Bamboo X-treme® Sub frame joists, which are specifically produced for use in combination with our decking products. Alternatively, suitable joists are those with the same durability class as the decking; aluminum sub frame joists, stable hardwood joists or pine joists. When using hardwood or pine as joists,

- make sure the moisture content of these joists is below 12%. Avoid direct contact with the soil.
- MOSO® sub frame joists can be installed without gaps, connecting the joists with screws and glue suited for outdoor use. Other sub frame joists should be installed according to the instructions of the supplier.
 - In order to create a stable deck frame, the outsides of the frame have to be connected at regular intervals to the ground / structure below. Alternatively cross bracing can be applied.
 - Install the boards on sub frame joists with 462.5 mm space between the joists (centre-to-centre) so each board is supported by 5 joists. Always install the ends of the boards exactly on the joist. Distance between sub frame joist depends on category of use. For non-residential use, please contact MOSO®. Other span possibilities see 'Span recommendation' table below.
 - If a random installation pattern is preferred, make sure that the sub frame joists (centre-to-centre) are no more than 300 mm apart.
 - Always install cut boards on at least 3 sub frame joists.

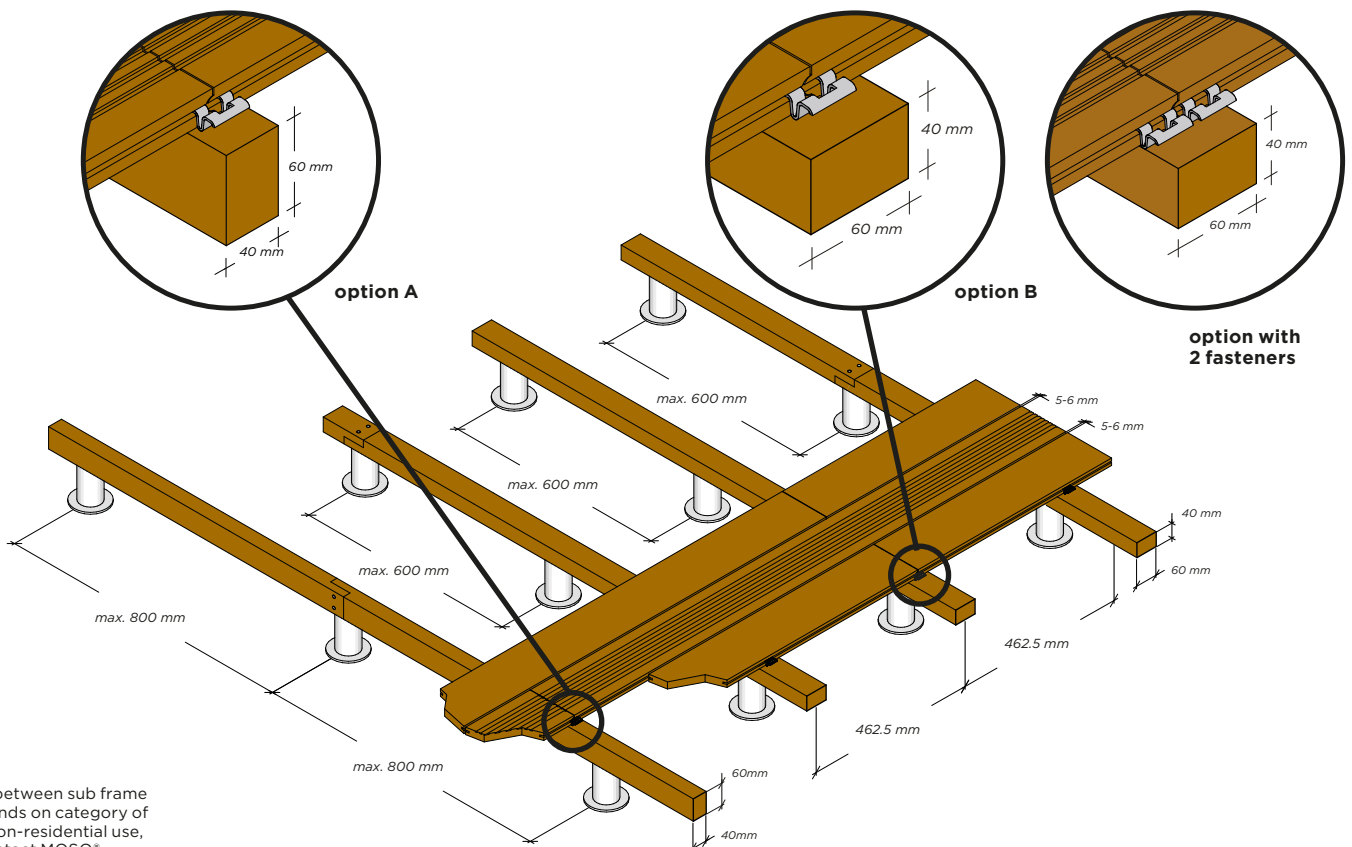
please note

- The MOSO® Bamboo X-treme® Outdoor Decking Board is a natural product, some variation in colour, grain and appearance is normal. Colour can change fast from dark brown to brown or grey, depending on the climatic conditions and maintenance schedule. Occasionally, some bleeding can appear.
- Small cracks and splinters on the surface and on the end of the boards can arise from the different drying characteristics of the surface and cross cut ends. The surface will also get rougher over time. This phenomenon is normal for most wood species and is minimised for this product by its unique 'Thermo-Density®' production method. Cracks on the board ends can be further minimised by applying sealer to the ends of the boards (see 'the installation').
- Splinters and roughness can be removed by cleaning the surface of the decking with the silicon carbide broom or machine disk which MOSO® supplies. The surface will become smoother and splinters are removed.
- Dimensional changes or cupping of the boards can occur after installation. This phenomenon is normal for most wood species and is minimized for this product by its unique Thermo-Density® production process.
- When using the flat side of the boards as top surface please note that deformation under influence of climate may be more visible. Some deformation and/or cupping of the material can occur. This phenomenon is normal for outdoor exposed wood and cannot be grounds for a claim.

Span recommendation

MOSO® Bamboo X-treme® Decking, with a thickness of 20 mm, can be installed with different span.

| Center-to-center span sub frame joists | End-match joint lies | Deflection between joists |
|--|---|---------------------------|
| 462.5 mm | On top of joist | Hardly noticeable |
| 462.5 mm | Between joists, max. 15 cm from one joist | Noticeable |
| 300 mm | Between joists | Hardly noticeable |



Distance between sub frame joist depends on category of use. For non-residential use, please contact MOSO®.

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installation instructions

the installation

- Keep at least 5-6 mm gap between the boards (in width direction). With MOSO® Fastener installation this is automatically the case.
- Due to the stability of the boards and the end-match system, no expansion gap is needed on the ends of the boards.
- Every cut end has to be treated with board end sealer, to prevent water penetration. A sealer is available from MOSO®.
- We advise to oil the decking shortly after installation but no later than after the first winter. The best time is 3-4 months after installation when the surface is more open than immediately after installation.

installation with MOSO® Asymmetric Fasteners

- Determine the surface side of the boards (grooved or flat surface).
- Press fastener with hooked side in the edge groove of one board.
- Pre-drill the joist screw holes 30 mm deep. On bamboo joists: use a 3.5 mm wide drill bit 110 mm long.
- Fully tighten the screw.
Always screw vertically to the joist. Apply low torque with slow screwing speed on the screwing machine. Perform some tests for correct torque and speed adjustment before full installation.
- Install every following board by sliding it under the waved side of the fasteners.
- Use approx. 20/17/14/13 fasteners per m², this depends on the board width. When the tongue and groove are connected on the joist, use 1 fastener (preferably 2 fasteners) to tighten both boards (see drawing page 9 option A / B).
- For bamboo or wood joists only use the included stainless steel decking screws (4.5 x 30 mm).
- Please watch the installation video www.moso-bamboo.com/youtube/x-treme

screw down installation

- Determine the surface side of the boards (grooved or flat surface).
- Pre-drill the screw holes 20 mm from the side of the board. Be sure to pre drill with a large enough drill (80% of screw diameter) to avoid cracking of the decking.
- Always screw both sides (left and right in the width direction) of the board.
- Use at least A2 grade stainless steel screws: approx. 5 x 50 mm for 20 mm thickness decking board. Approx. 5 x 70 mm for 30 mm thickness decking board.

chevron installation

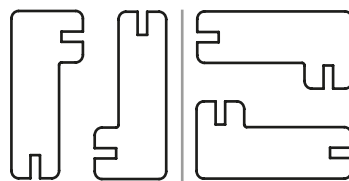
It is also possible to install the decking boards in a chevron pattern. Please follow the installation instructions at:

www.moso-bamboo.com/decking-chevron

edge profile installation

- When finishing the edge of a deck with the MOSO® Bamboo X-treme® Edge profile, it is important to place the hooked side of the MOSO® Fastener in the edge profile grooves (see drawing below).
- The edge profile can also be used for stairs. Standard Bamboo X-treme® stair dimensions are available in the table below. For other dimensions, boards have to be cut to size and either installed screwed down through the board or with fasteners in new edge grooves made on site.
- In case of stair application: Install decking and edge profiles on the decking steps substructure in the following sequence (the numbers refer to the drawing below):
 1. Attach the edge profile(s) in the inner corner of the steps to the sub structure with MOSO® Asymmetric Fasteners. Place fasteners with a maximum centre-to-centre distance of 462,5 millimeters. Ensure the hooked side of the MOSO® Fastener (see drawing below) is placed in the edge grooves of the edge profile. Fully tighten the screws.
 2. Slide the horizontal decking board(s) in place. Do not fix the other side yet (so no fastener placed).
 3. Slide the vertical decking board(s) in place and attach the top side to the substructure with fasteners. Ensure the waved side of the fastener is placed in the edge groove of the board. Do not fully tighten the screws yet.
 4. Slide the outer corner edge profile(s) in place. Slide MOSO® Asymmetric Fasteners between the decking board(s) (nr. 2 & 3 in the drawing below) and the edge profile(s), ensuring correct orientation of the fasteners. Attach to the sub structure. Fully tighten the screws.
 5. Fully tighten the screws left unsecured in step 3.

run/rise dimensions

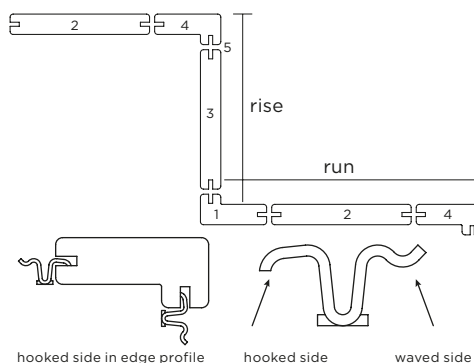


vertical orientation
run (board 2)
 137 mm = 189 mm
 155 mm = 207 mm
 178 mm = 230 mm

rise (board 3)
 137 mm = 259 mm
 155 mm = 277 mm
 178 mm = 300 mm

horizontal orientation
run (board 2)
 137 mm = 259 mm
 155 mm = 277 mm
 178 mm = 300 mm

rise (board 3)
 137 mm = 189 mm
 155 mm = 207 mm
 178 mm = 230 mm



cleaning and maintenance

Sikkens Cetol finished version

- The MOSO® Bamboo X-treme® Decking is finished with Sikkens Cetol WF 771 finish (waterbased - lpe color) on both sides.
- It is advisable to keep the deck clear of dust and dirt as much as possible (sweep regularly).
- For annual maintenance: use of Woca exterior cleaner is recommended. If the deck is not grey, but just lightly weathered, it is sufficient to just clean with cleaner and brush. After drying, again apply Sikkens Cetol WF 771 finish according MOSO® maintenance instructions. Follow the instructions at: www.moso-bamboo.com/youtube/x-treme
- Apply one layer new Sikkens Cetol WF 771 finish. This maintenance should be undertaken 1-2 times a year to prevent the bamboo becoming grey and losing its characteristic bamboo grain. Follow instructions at: www.moso-bamboo.com/youtube/x-treme
- After application of the Sikkens Cetol WF 771 finish allow the deck to dry sufficiently before using it again.

unfinished version

- You can leave the decking without any maintenance, but take into consideration that without maintenance and oiling the deck will develop a rougher, fissured surface that will lighten quicker and become grey (similar to most timber).
- Application of a waterbased penetrating finish (pigmented) immediately after installation is recommended. The finish Sikkens Cetol WF 771 (lpe colour) is recommended.
- Clean the decking with clean water, cleaner and a stiff brush. Once dry, apply the Sikkens Cetol WF 771 finish according to MOSO® maintenance instructions. Regular cleaning with a stiff brush is recommended.
- For annual maintenance: Use of Woca Exterior Cleaner is recommended. If the deck is not grey, but just lightly weathered, it is sufficient to just clean with soap and brush. After drying, again apply Sikkens Cetol WF 771 finish according MOSO® maintenance instructions.

storing

Store in a cool and dry place away from direct sunlight, and protected from weather influences, dirt and dust.

additional note

Whilst all due care is taken to ensure the accuracy of the installation instructions, individual circumstances (location, sub floor and installation procedures) may vary and are beyond the manufacturer's control. In case of doubt, therefore, consult the distributor. Always follow the local building code.

These instructions are subject to change. For the latest version visit: www.moso-bamboo.com/x-treme/decking

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MOSO® Bamboo X-treme® Outdoor Decking

maintenance & cleaning

maintenance Sikkens Cetol WF 771

The maintenance and cleaning of the MOSO® Bamboo X-treme® Decking is similar to other tropical wood, with the difference that water-based finish oils provide greater protection than traditional oils. Sikkens Cetol WF 771 water-based finish is recommended for optimal protection.

maintenance of flat surface

Please be aware of the fact that on the flat surface, irregularities in the surface (e.g. cracks, splinters) may be more visible than on the grooved surface. With regular maintenance, using a waterbased decking finish, this will be reduced.



cleaning

- Soak MOSO® Bamboo X-treme® with plenty of water and leave it for 10 min. If possible use a garden hose. Do not use high-pressure cleaners.
- Mix Woca Exterior Wood Cleaner with water in the ratio 1:2 and apply it. If the decking is extremely dirty, exterior cleaner may be used undiluted. Clean the decking with a silicon carbide broom or machine disk (see accessories). Scrub the soaked material lengthwise following the bamboo grain until the material appears clean. If the decking has been installed flat side up, first scrub at an angle of 45 degrees before scrubbing in the length direction. When using a machine disk this is not necessary. Repeat the cleaning if necessary. Clean the surface carefully with water.
- Leave MOSO® Bamboo X-treme® to dry for approx. 24 hours. The material must be completely dry before oil treatment can be done.



application of finish

- Always make sure the decking is clean, dry, free of dust or dirt, and without any coating. Never work on a deck in direct sun.
- In areas where Sikkens Cetol finish remains after cleaning, we recommend sanding (100 grit). If the area to be sanded is too large, use a polishing machine with a silicon carbide disk or a 100 grit sanding paper disk.
- Stir the Sikkens Cetol before and during the application to avoid colour variation.
- Apply a thin layer of finish with a pad, a brush, or with an air gun (35 to 65 bar) on the working surface (decking with non slip grit only with a brush).
- Important: remove any excess product before it dries, to avoid any dripping or glossy areas. The finish must penetrate the material and not remain on the surface, so that it dries leaving a matt look.
- Pay attention to the ends of the joists and cut ends of the boards, which tend to absorb more water, and finish well to minimise water ingress. A sealer is available from MOSO.

theoretical consumption

- Mix Woca Exterior Wood Cleaner with water in the ratio 1:2 and apply it. If the decking is extremely dirty, exterior cleaner may be used undiluted.
- Sikkens Cetol WF 771 Ipe - for the first treatment: 10 - 12 m² / litre (for 1 coat of finish).
- Sikkens Cetol WF 771 - for periodic maintenance: 14 - 15 m² / litre (for 1 coat of finish).

Gradual greying of MOSO® Bamboo X-treme® over time:

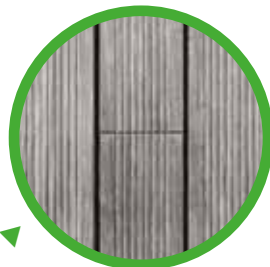
new, non-weathered decking



after 3 months of weathering

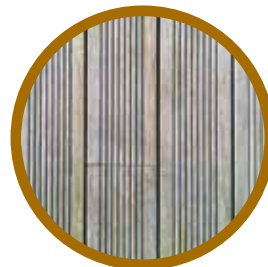


after 18 months of weathering



Surface of MOSO® Bamboo X-treme® with different maintenance and cleaning scenarios:

weathered, dirty decking



re-oiled decking



weathered, cleaned decking



Check out the maintenance and cleaning movie at:
www.moso-bamboo.com/youtube/x-treme

MOSO®

Bamboo X-treme®

user information

appearance and colour

MOSO® Bamboo X-treme® is a natural product, which can vary in colour, grain and appearance. Colour will change over time depending on the maintenance schedule. The boards have a brown to dark brown colour when installed, which turns into a lighter caramel colour several weeks after installation. Without further maintenance the colour gets greyish relatively fast (similar to most other wood species).

If a brown colour is preferred, maintenance should be done with Sikkens Cetol WF 771 finish (Ipé colour) or a comparable waterbased finish with Ipé colour pigments.

Directly after installation, 1 coat of Sikkens Cetol WF771 is recommended for the unfinished version. For further details see the installation instructions. MOSO® Bamboo X-treme® shows similarity to other hardwoods in grain and structure. The characteristic bamboo nodes however can still be recognised and provide the product with a special and lively look.

swimming pool

If MOSO® Bamboo X-treme® outdoor decking is to be used around swimming pool areas, the following has to be taken into account: MOSO® Bamboo X-treme® is a natural (wood like) product. As with any wooden product used outdoors, there is always a risk of formation of splinters, however splinters from MOSO® Bamboo X-treme® are normally smaller than (tropical) hard wood splinters. A regular application of a finish (more frequently necessary around swimming pools) is required to reduce the formation of splinters. Furthermore, regular maintenance with the silicon carbide broom or disk is required to effectively remove splinters and smooth the surface. The boards must be installed in such a way that the surface water cannot flow directly into the pool. Also bear in mind that treated swimming pool water contains salt and chlorine which can cause the boards around the pool to "weather" and become bleached faster than the boards in areas not exposed to the swimming pool water.

normal phenomena

Cracks on the surface and on the ends of the boards can occur due to the different drying characteristics of the surface and board ends. This does not affect the stability or durability of the board.

The surface side of the boards will become rougher over time and can form (small) splinters as a result of continuous water absorption and desorption due to dry and wet weather periods. Dimensional change or cupping of the boards can occur after installation. These phenomena are normal for most hardwood species and MOSO® Bamboo X-treme®.

After installation, there might be some bleeding or leaching of colour from the bamboo material when it gets wet, e.g. when it rains. This possible bleeding is typical for wood and will disappear over time. The brownish liquid can easily be cleaned from the Bamboo X-treme® material, however controlled water drainage and prevention of splash water is required to prevent any discoloration of surrounding or underlying building components.

wet condition



dry condition



Private Residence Solana Beach low clearance decking installed near a cliff edge by the sea - (325 m²) California, USA



Fraser Decks & Patio Covers
Reily Imagery

Endless possibilities with
MOSO® Bamboo X-treme®



Studio GA Gollwitzer Architekten GmbH
Qin International GmbH
Andy Andresen - Qin International GmbH

Altmühltherme Wellness decking with FSC® certification installed on a steel structure - (1000 m²) Treuchtlingen, Germany