



# Oriented Fiberboard (OSB)

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ABSTRACT

Oriented fiber covering materials are panels made of wood chips. Its abbreviation is derived from the initials of the English phrase "Oriented Strand Board", which means "oriented particle board" when translated. means bread.

**Keywords:**

Wood fiber, layer, coating, mold, advantages, conveyor

The difference between oriented strand board materials and panels familiar to domestic developers is the method of laying wood waste and the type of chips. If in DSP panels the main component is chaotically pressed, OSB panels are laid in one direction, that is, they contain oriented chips.



It is characterized by the fact that the collection of chips is carried out in a different direction in each layer. The number of layers in each plate is three or four. Usually, the direction of placement of chips is obtained in the following order:

- First layer - fibers are placed parallel to the panel structure

- The second layer always includes a chip direction perpendicular to the direction of the first layer.
- The third layer - laying again is carried out in the same way as the first layer
- The fourth layer is perpendicularly placed fibers



Some versions of the panels use a different method of pressing the chips, which involves the parallel arrangement of the fibers of the chips in the outer layers and their transverse arrangement in the two inner layers.

To create a sandwich panel from OSB, 15 cm long chips are used, which are pressed under high pressure. Their volume in the plate

structure reaches 90 percent. Bonding of chip fibers is done with waterproof resins of synthetic origin.

These materials are gaining their place in the building materials industry today as energy-saving materials.

Oriented fiber covering materials are produced in four different types, and they differ mainly in the number of layers, degree of strength and moisture resistance indicators:

1. OSB-1 panels are panels with very low strength and low level of moisture resistance. In construction, such panels can be used only in interior work. But most often they are widely used in the production of furniture structures, as well as in product packaging.

2. OSB-2 plates - although slightly higher than the panels of the first category, they have low strength. They can also be used in interior decoration, sometimes in the construction of light structural elements, ceilings and partitions. But due to its low resistance to moisture, it is not recommended to use it in basements and for interior work in bathrooms and kitchens.

3. OSB 3 is the most common model of OSB panels. It is perfect for interior and exterior work. It can be used in different parts of the building. Resistant to wet conditions

4. OSB-4 panel is the strongest brand of OSB plates used in all types of construction works. Due to its high strength, it can be successfully installed on the external parts of the building structure in the construction of roofs and attics. It has excellent moisture resistance, so it is used in the lower parts of the building and in rooms with high humidity.

All these features, which are characteristic of panels of each category, are achieved by using an adhesive base of different compositions. The moisture resistance of such panels depends on resin glue compounds, and its strength depends on the arrangement of wood chip fibers and the number of layers in the panel.

OSB boards can also be distinguished by their surface coating. The surface of the panels, which can be used as a press-mould, is produced in several layers. For decorative purposes, there are also panels varnished on both sides or on one side. In addition, panels with connecting

elements are produced according to the principle of laminated boards for equipping horizontal surfaces. On two or four sides of such panels, there are end special slots for connecting adjacent plates.

OSB panels have several advantages:

- The technology of laying wood chips and the length of the chips make OSB panels more rigid, which allows them to resist mechanical stress.
- Due to the method of conveyor production, the dimensions specified by the technological requirements are observed on the plates. For the same reason, uniformity of thickness is achieved in all parts of the plate. This quality contributes to the ease of installation of OSB plates.
- Panels are light, easily transportable and do not cause additional difficulties in loading and unloading operations. This reduces the complexity of the installation process and increases construction efficiency.
- High thermal insulation performance is another important advantage of this material. This feature is achieved due to the high concentration of wood components, which are known for their thermal insulation properties.
- Availability in processing - OSB can be easily sanded, drilled, cut. And the edges of the plate do not crumble when opening the nails.

As for the specific use of slabs in the construction of houses using frame technology, in their reviews, many builders and owners of ready-made residential buildings emphasize the speed of construction and ease of assembly work.

As for the operation, the undoubted advantages are also significant:

- Houses made of OSB panels do not provide precipitation due to the lightness of the material
- Energy resources are significantly saved in the winter season, which eases the budget burden
- Ability to implement additional planning of buildings without significant interference with the integrity of the building.

In conclusion, it can be said that the wood fibers used in oriented strand board (OSB) should have the following dimensions:

- panel length - from 7.5 to 15 cm,
- width - from 1 to 1.2 cm,
- thickness - from 0.5 to 0.8 mm.

The standard OSB-plate has the following dimensions: - 2440x1220, 2450x590, 2440x590, 2500x1250 mm, ordinary, with smooth edges - 2440x1220, 2500x1250 mm. Depending on the type of panels, the thickness can vary from 22 to 9 mm.

The use of paint materials on OSB panels does not require special conditions, any paint can be used for painting the panels.

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