METSÄ WOOD
SPRUCE PLYWOOD
PRODUCTS

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MAJOR ADVANTAGES

- Lightweight and dimensionally stable
- Strong and rigid
- Can act simultaneously as load-bearing construction and stiffening element
- Easy to machine and install using conventional woodworking tools and fasteners
- Panel is impact resistant and does not crumble
- Good base for fasteners
- Environmentally friendly
- Available with square edges and tongue-and-groove profiles
- Weather- and boil-proof bonding

BASE PLYWOOD

Metsä Wood Spruce plywood is made of cross-bonded 3 mm thick coniferous veneers and bonded with a weather- and boil-resistant phenol formaldehyde adhesive.

Metsä Wood Spruce is an uncoated softwood plywood manufactured from a long-grained, homogenous Nordic conifer with straight fibres. It is an excellent general-purpose construction panel, ideal for both interior and exterior construction work and any other uses where strength, stability, light weight and versatility are valued.

APPLICATIONS

Metsä Wood Spruce is a multi-purpose construction panel that is also suitable for various other applications.

- **Building applications:** floor, wall and roof structures, renovations, agricultural structures, pedestrian bridges, construction platforms etc.
- **Concrete formwork:** concrete moulds for arched casting and other loose-panel formwork
- **Transport industry:** walls of containers, coaches and trailers etc.
- **Other applications:** packing applications, furniture, fences, hoardings, canopies etc.
SURFACE PROPERTIES
Metsä Wood Spruce plywood panels can be unsanded or sanded on both sides. The surface can be treated with standard paints, lacquers, varnishes and protection treatments applicable to wood products. It is recommended to confirm the compatibility of the surface treatment with the supplier.

The surface grades are determined by the grade of the surface veneers as follows:

<table>
<thead>
<tr>
<th>Spruce plywood surfaces</th>
<th>Typical properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>II</td>
<td>sound surface, might be repaired with filler, unrepairs defects with Ø max. 5 mm are permitted</td>
</tr>
<tr>
<td>III+</td>
<td>open defects repaired with filler</td>
</tr>
<tr>
<td>III</td>
<td>standard quality, with open defects such as knotholes and veneer checks</td>
</tr>
</tbody>
</table>

Primary grade combinations are II/III and III/III.

Classification of Metsä Wood Spruce surface grade meets the requirements of EN 635.

PANEL SIZES
Metsä Wood Spruce is available in sizes:
- 2400 / 2440 / 2500 mm x 1200 / 1220 / 1250 mm
- 2400 / 2440 mm x 600 / 610 mm

The first measurement indicates the orientation of the surface veneer grain.

Other sizes are available on request.

SIZE TOLERANCES
Measured in accordance with standard EN 324, the plywood size and squareness tolerances meet the requirements of EN 315.

LENGTH / WIDTH TOLERANCE

<table>
<thead>
<tr>
<th>NOMINAL THICKNESS</th>
<th>NUMBER OF PANELS PER PALLET BY THICKNESS</th>
<th>PANEL SIZE</th>
<th>mm</th>
<th>NUMBER OF PANELS PER PALLET BY THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>3</td>
<td>2400/2440/2500 x 1200/1220/1250</td>
<td>9</td>
<td>110</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>1200/1220/1250</td>
<td>12</td>
<td>85</td>
</tr>
<tr>
<td>15</td>
<td>5</td>
<td>65</td>
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<td>18</td>
<td>6</td>
<td>55</td>
<td>18</td>
<td>45</td>
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<td>21</td>
<td>7</td>
<td>45</td>
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<td>24</td>
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<td>27</td>
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<tr>
<td>30</td>
<td>10</td>
<td>30</td>
<td>30</td>
<td>220</td>
</tr>
</tbody>
</table>

The thickness tolerances fulfil the requirements of standard EN 315 and are, in part, more stringent than the official requirements.

THICKNESS TOLERANCES

- Thickness tolerances must be agreed separately.

MACHINING
Metsä Wood Spruce plywood can be delivered with tongue-and-groove edge machining on either two sides or four sides. Tongue-and-groove panels are always sanded. Tongue-and-groove machining decreases net panel size by 10 mm. Tongue-and-groove machining is available for panel thicknesses ≥ 12 mm.

PACKING
Metsä Wood Spruce panels are packed in moisture resistant plastic wrapping.

BONDING CLASSES
Metsä Wood plywood panels are bonded with a weather- and boil-resistant phenol formaldehyde adhesive (WBP, BFU, AW, exterior).

The gluing meets the requirements of the following international standards:
- EN 314-2 / Class 3 (exterior)
- DIN 68705-3 / BFU 100
- BS 6566 Part 8 / WBP
- JAS / Structural plywood / Class 2

FORMALDEHYDE EMISSIONS
Determined according to EN 717-1, the formaldehyde emitted by Metsä Wood Spruce falls far below the Class E1 requirement of ≤ 0.100 ppm and also fulfills the most stringent requirements in the world (≤ 0.030 ppm). The formaldehyde emission of Metsä Wood Spruce is approximately 0.018 ppm.

METSÄ WOOD
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Tel. +358 1046 05
www.metsawood.com/spruceplywood

* Customised tolerances are possible but must be agreed separately.
* Special structures and thicknesses are available on request.
* Average density of Metsä Wood Spruce plywood is 460 kg/m³ (at a relative humidity of 65%).

Further information:
- Metsä Wood Spruce Declaration of Performance (www.metsawood.com/dop)
- Metsä Wood Spruce Plywood Manual
- Metsä Wood Spruce Plywood for Construction brochure
- Metsä Wood Concrete Formwork brochure

This leaflet is provided for information purposes only and no liability or responsibility of any kind is accepted by Metsä Wood or their representatives, although Metsä Wood has used reasonable efforts to verify the accuracy of any advice, recommendation or information. Metsä Wood reserves the right to make alterations to its products, product information and product range without prior notice.
Metsä Wood Spruce WeatherGuard is a softwood plywood that has a hydrophobic surface. The surface rejects rainwater and therefore reduces the amount of water absorbed by the panel during construction work. At the same time, the surface allows the panel to breathe and water vapour to move freely.

**APPLICATIONS**

Metsä Wood Spruce WeatherGuard is a multi-purpose construction panel that is also suitable for various other applications.

- **Building applications:** floor, wall and roof structures, agricultural structures, pedestrian bridges, construction platforms etc.
- **Renovation:** repairing, improving and renovating buildings
- **Other applications:** packing applications, vehicle industry, fences, hoardings etc.

**MAJOR ADVANTAGES**

- Temporary protection against rain
- Shorter drying period of structures
- Better dimensional stability under changing conditions
- Treatment does not block water vapour movements
- Strong, rigid and lightweight
- Easy to machine and install using conventional woodworking tools and fasteners
  - panel is impact resistant and does not crumble
  - good base for fasteners
- Weather- and boil-proof bonding
- Environmentally friendly
- Available with square edges and tongue-and-groove profiles
BASE PLYWOOD
The base plywood of Metsä Wood Spruce WeatherGuard is Metsä Wood Spruce, which is made of cross-bonded 3 mm thick coniferous veneers and bonded with a weather- and boil-resistant phenol formaldehyde adhesive.

SURFACE PROPERTIES
Metsä Wood Spruce WeatherGuard panels can be unsanded or sanded on both sides. The WeatherGuard treatment is transparent and gives temporary protection against rain.

The surface can be further treated with standard paints, lacquers, varnishes and protection treatments applicable to wood products. Also, carpets, linoleum, tiles etc. can be glued to the surface. Compatibility of the glue or surface treatment must be confirmed from the supplier. Before treating or gluing large areas, it is recommended to test with small sample.

The surface grades are determined by the grade of the surface veneers as follows:

Spruce plywood surfaces
- Typical properties
  - sound surface, might be repaired with filler, unrepaired defects with Ø max. 5 mm are permitted.
  - standard quality, with open defects such as knotholes and veneer checks.

Primary grade combination is III/III.

Classification of Metsä Wood Spruce surface grade meets the requirements of EN 635.

PANEL SIZES
Metsä Wood Spruce WeatherGuard is available in sizes:
- 2400 / 2440 / 2500 mm x 1200 / 1220 / 1250 mm
- 2400 / 2440 mm x 600 / 610 mm

The first measurement indicates the orientation of the surface veneer grain.

Other sizes are available on request.

SIZE TOLERANCES
Measured in accordance with standard EN 324, the plywood size and squareness tolerances meet the requirements of EN 315.

<table>
<thead>
<tr>
<th>PANEL TOLERANCES</th>
</tr>
</thead>
<tbody>
<tr>
<td>LENGTH / WIDTH TOLERANCE</td>
</tr>
<tr>
<td>&lt; 1000 mm ±1 mm</td>
</tr>
<tr>
<td>1000-2000 mm ±2 mm</td>
</tr>
<tr>
<td>&gt; 2000 mm ±3 mm</td>
</tr>
<tr>
<td>Squareness ±0.1 % or ±1 mm/m</td>
</tr>
<tr>
<td>Edge straightness ±0.1 % or ±1 mm/m</td>
</tr>
</tbody>
</table>

THICKNESS, STRUCTURES AND THICKNESS TOLERANCES
The thickness tolerances fulfill the requirements of standard EN 315 and are, in part, more stringent than the official requirements.

| THICKNESSES, STRUCTURES AND THICKNESS TOLERANCES OF THE PANELS * |
|-----------------|-----------------|-----------------|-----------------|
| NOMINAL THICKNESS | NUMBER OF PLYs | THICKNESS TOLERANCE | WEIGHT |
| (mm) | (no.) | min. (mm) | max. (mm) | kg/m² |
| 9 | 3 | 8.8 | 9.5 | 4.1 |
| 12 | 4 | 11.5 | 12.5 | 5.5 |
| 15 | 5 | 14.3 | 15.3 | 6.9 |
| 18 | 6 | 17.1 | 18.1 | 8.3 |
| 21 | 7 | 20.0 | 20.9 | 9.7 |
| 24 | 8 | 22.9 | 23.7 | 11.0 |
| 27 | 9 | 25.2 | 26.8 | 12.4 |
| 30 | 10 | 28.1 | 29.9 | 13.8 |

* The moisture content of the product affects its dimensions
* Average density of Metsä Wood Spruce plywood is 460 kg/m³ (at a relative humidity of 65 %)
* Special structures and thicknesses are available on request
* Customised tolerances are possible but must be agreed separately

BONDING CLASSES
Metsä Wood plywood panels are bonded with a weather- and boil-resistant phenol formaldehyde adhesive (WBP, BFU, AW, exterior).

The gluing meets the requirements of the following international standards:
- EN 314-2 / Class 3 (exterior)
- DIN 68705-3 / BFU 100
- BS 6566 Part 8 / WBP

FORMALDEHYDE EMISSIONS
Determined according to EN 717-1, the formaldehyde emitted by Metsä Wood Spruce falls far below the Class E1 requirement of ≤ 0.100 ppm and also fulfills the most stringent requirements in the world (≤ 0.030 ppm).

The formaldehyde emission of Metsä Wood Spruce is approximately 0.018 ppm. WeatherGuard treatment does not contain any formaldehyde.

PANEL STRENGTH PROPERTIES
Metsä Wood Spruce WeatherGuard is a CE marked product and its strength and elasticity properties are identical to the properties of standard Metsä Wood Spruce plywood. The properties are specified according to standards EN 789 and EN 1058 and can be found in the Metsä Wood Spruce WeatherGuard Declaration of Performance (DoP). The DoP documents can be downloaded from www.metsawood.com/dop.

MACHINING
Metsä Wood Spruce WeatherGuard plywood can be delivered with tongue-and-groove edge machining on either two sides or four sides. Tongue-and-groove panels are always sanded. Tongue-and-groove machining decreases net panel size by 10 mm. Tongue-and-groove machining is available for panel thicknesses ≥ 12 mm.
PACKING
Metsä Wood Spruce WeatherGuard panels are packed in moisture resistant plastic wrapping.

PACKING QUANTITIES

<table>
<thead>
<tr>
<th>PANEL SIZE</th>
<th>NUMBER OF PANELS PER PALLET BY THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2400/2440/2500 x 1200/1220/1250</td>
<td>110 85 65 55 45 40 35 30</td>
</tr>
</tbody>
</table>

FURTHER INFORMATION
- Metsä Wood Spruce WeatherGuard Declaration of Performance (www.metsawood.com/dop)
- Metsä Wood Spruce Plywood Manual
- Metsä Wood Spruce Plywood for Construction brochure
- Metsä Wood Concrete Formwork brochure
Spruce Ply
MouldGuard

Metsä Wood Spruce MouldGuard is a surface impregnated softwood plywood that significantly reduces the risk of mould growth compared to unprotected softwood plywood. The product provides a ready-to-use surface in humid conditions, with a natural visual quality.

APPLICATIONS
Metsä Wood Spruce MouldGuard is a multi-purpose construction panel for conditions where the relative humidity may exceed 75%. It can be used in the same way as standard Metsä Wood Spruce plywood, but it should be protected from direct rain and UV radiation. Direct contact with foodstuffs, animal feed or similar must be avoided.

- Building applications: roof, floor and wall structures, agricultural buildings, attics, roof overhangs etc.
- Renovation: repairing, improving and renovating buildings
- In general: applications with a risk of increased humidity, such as unheated buildings and structures, e.g. garages, roof panels

MAJOR ADVANTAGES
- Improved resistance to mould and blue stain in humid conditions
- Ready-to-use surface saves time at the construction site
- Strong, rigid and lightweight
- Easy to machine and install using conventional woodworking tools and fasteners
  - panel is impact resistant and does not crumble
  - good base for fasteners
- Weather- and boil-proof bonding
- Available with square edge and tongue-and-groove profiles
BASE PLYWOOD
The base plywood of Metsä Wood Spruce MouldGuard is Metsä Wood Spruce, which is made of cross-bonded 3 mm thick coniferous veneers and bonded with a weather- and boil-resistant phenol formaldehyde adhesive.

SURFACE PROPERTIES
Metsä Wood Spruce MouldGuard panels have a light brown colour. The surface can be unsanded or sanded on both sides. The surface can be further treated with standard paints, lacquers and varnishes applicable to wood products. It is recommended to confirm the compatibility of the surface treatment with the supplier.

The surface grades are determined by the grade of the surface veneers as follows:

Spruce plywood surfaces Typical properties
II sound surface, might be repaired with filler, unrepaired defects with Ø max. 5 mm are permitted.
III standard quality, with open defects such as knotholes and veneer checks.

Primary grade combination is III/III.

Classification of Metsä Wood Spruce surface grade meets the requirements of EN 635.

PANEL SIZES
Metsä Wood Spruce MouldGuard is available in sizes:
- 2400 / 2440 / 2500 mm x 1200 / 1220 / 1250 mm
- 2400 / 2440 mm x 600 / 610 mm
The first measurement indicates the orientation of the surface veneer grain.

Other sizes are available on request.

SIZE TOLERANCES
Measured in accordance with standard EN 324, the plywood size and squareness tolerances meet the requirements of EN 315.

PANEL TOLERANCES

<table>
<thead>
<tr>
<th>LENGTH / WIDTH</th>
<th>TOLERANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1000 mm</td>
<td>±1 mm</td>
</tr>
<tr>
<td>1000-2000 mm</td>
<td>±2 mm</td>
</tr>
<tr>
<td>&gt; 2000 mm</td>
<td>±3 mm</td>
</tr>
</tbody>
</table>

Squareness ±0.1 % or ±1 mm/m

Edge straightness ±0.1 % or ±1 mm/m

THICKNESS, STRUCTURES AND THICKNESS TOLERANCES

The thickness tolerances fulfil the requirements of standard EN 315 and are, in part, more stringent than the official requirements.

<table>
<thead>
<tr>
<th>NOMINAL THICKNESS (mm)</th>
<th>NUMBER OF PLIES</th>
<th>THICKNESS TOLERANCE</th>
<th>WEIGHT kg/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>3</td>
<td>8.8</td>
<td>4.1</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>11.5</td>
<td>5.5</td>
</tr>
<tr>
<td>15</td>
<td>5</td>
<td>14.3</td>
<td>6.9</td>
</tr>
<tr>
<td>18</td>
<td>6</td>
<td>17.1</td>
<td>8.3</td>
</tr>
<tr>
<td>21</td>
<td>7</td>
<td>20.0</td>
<td>9.7</td>
</tr>
<tr>
<td>24</td>
<td>8</td>
<td>22.9</td>
<td>11.0</td>
</tr>
<tr>
<td>27</td>
<td>9</td>
<td>25.2</td>
<td>12.4</td>
</tr>
<tr>
<td>30</td>
<td>10</td>
<td>28.1</td>
<td>13.8</td>
</tr>
</tbody>
</table>

* The moisture content of the product affects its dimensions
* Average density of Metsä Wood Spruce plywood is 460 kg/m³ (at a relative humidity of 65 %)
* Special structures and thicknesses are available on request
* Customised tolerances are possible but must be agreed separately

PERFORMANCE AGAINST MOULD GROWTH
Metsä Wood Spruce MouldGuard is surface impregnated with a wood preservative. Spruce MouldGuard has been tested by VTT Technical Research Centre of Finland. According to the test results, the mould and blue stain resistance is significantly better (4-5 times) than standard Metsä Wood Spruce plywood.

The preservative is classified for hazard class 3 (EN 599-1). The efficiency of the chemical has been verified according to the EN 113 (decay) and EN 152-1 (blue stain) tests.

Production of Spruce MouldGuard is controlled by VTT.

Biocidal Products Regulation (EU) No 528/2012
Spruce MouldGuard is treated with biocide:
- preservative surface treatment reduces the risk of mould growth and blue stain
- active substances: propiconazole, 3-iodo-2-propynyl butylcarbamate
- direct contact to foodstuffs or animal feed should be avoided.

BONDING CLASSES
Metsä Wood plywood panels are bonded with a weather- and boil-resistant phenol formaldehyde adhesive (WBP, BFU, AW, exterior).

The gluing meets the requirements of the following international standards:
- EN 314-2 / Class 3 (exterior)
- DIN 68705-3 / BFU 100
- BS 6566 Part 8 / WBP

FORMALDEHYDE EMISSIONS
Determined according to EN 717-1, the formaldehyde emitted by Metsä Wood Spruce falls far below the Class E1 requirement of ≤ 0.100 ppm and also fulfils the most stringent requirements (≤ 0.030 ppm). The formaldehyde emission of Metsä Wood Spruce is approximately 0.018 ppm. The MouldGuard treatment does not contain any formaldehyde.
**PANEL STRENGTH PROPERTIES**
Metsä Wood Spruce MouldGuard is a CE marked product and its strength and elasticity properties are identical to the properties of standard Metsä Wood Spruce plywood. The properties are specified according to standards EN 789 and EN 1058 and can be found in the Metsä Wood Spruce MouldGuard Declaration of Performance (DoP). The DoP documents can be downloaded from www.metsawood.com/dop.

**MACHINING**
Metsä Wood Spruce MouldGuard panels can be delivered with tongue-and-groove edge machining on either two sides or four sides. Tongue-and-groove panels are always sanded. Tongue-and-groove machining decreases net panel size by 10 mm. Tongue-and-groove machining is available for panel thicknesses ≥ 12 mm.

**PACKING**
Metsä Wood Spruce MouldGuard panels are packed in moisture resistant plastic wrapping.

**PACKING QUANTITIES**

<table>
<thead>
<tr>
<th>PANEL SIZE mm</th>
<th>9</th>
<th>12</th>
<th>15</th>
<th>18</th>
<th>21</th>
<th>24</th>
<th>27</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>2400/2440/2500 x 1220/1250</td>
<td>110</td>
<td>85</td>
<td>65</td>
<td>55</td>
<td>45</td>
<td>40</td>
<td>35</td>
<td>30</td>
</tr>
</tbody>
</table>

**WASTE HANDLING**
Metsä Wood Spruce MouldGuard can be considered a biofuel (EN 14961-1) and it can be safely burnt when the combustion temperature is at least 850 °C and the correct combustion conditions are maintained. Due to the preservative treatment, the correct combustion conditions and suitable waste-burning plants should be checked locally.

**FURTHER INFORMATION**
- Metsä Wood Spruce MouldGuard Declaration of Performance (www.metsawood.com/dop)
- Metsä Wood Spruce Plywood Manual
- Metsä Wood Spruce Plywood for Construction brochure
Metsä Wood Spruce FireResist is a construction panel to be used in applications that require enhanced fire performance and reaction to fire class B products. Suitable uses are interior applications in dry conditions and fully protected from the weather (service class 1, EN 1995-1-1). The product is suitable for interior applications, and it must be protected from weather exposure at all times.

### APPLICATIONS
Metsä Wood Spruce FireResist is a construction panel to be used in applications that require enhanced fire performance and reaction to fire class B products. Suitable uses are interior applications in dry conditions and fully protected from the weather (service class 1, EN 1995-1-1).

- **Building applications:** wall, ceiling and flooring structures with fire performance requirements. Load-bearing and stiffening structures.
- **In general:** applications that require enhanced reaction to fire classification or improved fire performance.

### MAJOR ADVANTAGES
- Enhanced fire performance
- Reaction to fire classification B-s1, d0; B(Fl)-s1
  - very limited contribution to fire
  - decreased need for structural protection with gypsum board
  - enables load-bearing panel structures
- Can be painted with most common solvent-based paints
- Strong, rigid and lightweight
- Easy to machine and install using conventional woodworking tools and fasteners
  - panel is impact resistant and does not crumble
  - good base for fasteners
- Available with square edges and tongue-and-groove profiles
BASE PLYWOOD

The base plywood of Metsä Wood Spruce FireResist is Metsä Wood Spruce, which is made of cross-bonded 3 mm thick coniferous veneers and bonded with a weather- and boil-resistant phenol formaldehyde adhesive.

SURFACE PROPERTIES

Metsä Wood Spruce FireResist panels have a light yellow colour. The surface is always sanded on both sides, and the visual properties are similar to normal Spruce Plywood. Additional coatings are not recommended for Metsä Wood Spruce FireResist as coatings might affect the fire performance of the plywood. The compatibility of the surface treatment should be confirmed from the paint or varnish supplier.

The surface grades are determined by the grade of the surface veneers as follows:

- Spruce plywood surfaces
  - II: Typical properties
    - sound surface, might be repaired with filler, unrepaired defects with Ø max. 5 mm are permitted
  - III: standard quality, with open defects such as knotholes and veneer checks

Metsä Wood Spruce FireResist grade combination is II/III.

Classification of Metsä Wood Spruce FireResist surface grade meets the requirements of EN 635.

PANEL SIZES

Metsä Wood Spruce FireResist is available in sizes:

- 2400 / 2440 / 2500 mm x 1200 / 1220 / 1250 mm

The first measurement indicates the orientation of the surface veneer grain.

Other sizes are available on request.

SIZE TOLERANCES

Measured in accordance with standard EN 324, the plywood size and squareness tolerances meet the requirements of EN 315.

PANEL TOLERANCES

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<tr>
<th>LENGTH / WIDTH</th>
<th>TOLERANCE</th>
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</tr>
<tr>
<td>&gt; 2000 mm</td>
<td>±3 mm</td>
</tr>
<tr>
<td>Squareness</td>
<td>±0.1 % or ±1 mm/m</td>
</tr>
<tr>
<td>Edge straightness</td>
<td>±0.1 % or ±1 mm/m</td>
</tr>
</tbody>
</table>

THICKNESS, STRUCTURES AND THICKNESS TOLERANCES

The thickness tolerances fulfil the requirements of standard EN 315 and are, in part, more stringent than the official requirements.

**THICKNESSES, STRUCTURES AND THICKNESS TOLERANCES OF THE PANELS**

<table>
<thead>
<tr>
<th>NOMINAL THICKNESS (mm)</th>
<th>NUMBER OF PLYES (no.)</th>
<th>THICKNESS TOLERANCE (min.  mm)</th>
<th>THICKNESS TOLERANCE (max. mm)</th>
<th>WEIGHT (kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>5</td>
<td>14.3</td>
<td>15.3</td>
<td>6.9</td>
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<tr>
<td>18</td>
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<td>10</td>
<td>28.1</td>
<td>29.9</td>
<td>13.8</td>
</tr>
</tbody>
</table>

The moisture content of the product affects its dimensions.

The formaldehyde emitted by Metsä Wood Spruce falls far below the Class E1 requirement of ≤ 0.100 ppm and also fulfils the most stringent requirements in the world (≤ 0.030 ppm). The formaldehyde emission of Metsä Wood Spruce is approximately 0.018 ppm. The FireResist treatment does not contain any formaldehyde.
**Spruce Ply**

**FireResist**

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**PANEL STRENGTH PROPERTIES**

Metsä Wood Spruce FireResist is a CE marked product and its strength and elasticity properties are identical to the properties of standard Metsä Wood Spruce plywood. The properties are specified according to standards EN 789 and EN 1058 and can be found in the Metsä Wood Spruce FireResist Declaration of Performance (DoP). The DoP documents can be downloaded from www.metsawood.com/dop.

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**MACHINING**

Metsä Wood Spruce FireResist plywood can be delivered with tongue-and-groove edge machining on either two sides or four sides. Spruce FireResist panels are always sanded. Tongue-and-groove machining decreases net panel size by 10 mm.

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**PACKING**

Metsä Wood Spruce FireResist panels are packed in moisture resistant plastic wrapping.

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**PACKING QUANTITIES**

<table>
<thead>
<tr>
<th>PANEL SIZE</th>
<th>mm</th>
<th>15</th>
<th>18</th>
<th>21</th>
<th>24</th>
<th>27</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>2400/2440/2500 x 1200/1220/1250</td>
<td></td>
<td>65</td>
<td>55</td>
<td>45</td>
<td>40</td>
<td>35</td>
<td>30</td>
</tr>
</tbody>
</table>

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**WASTE HANDLING**

Metsä Wood Spruce FireResist can be considered a biofuel (EN 14961-1) and it can be safely burnt when the combustion temperature is at least 850 °C and the correct combustion conditions are maintained. Due to the fire retardant character of the product, it is recommended to chip the panels and mix them with easily combustible material to ensure favourable combustion. Spruce FireResist does not contain heavy metals, boron or halogenated compounds, or anything else classified as hazardous waste.

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**FURTHER INFORMATION**

- Metsä Wood Spruce FireResist Declaration of Performance (www.metsawood.com/dop)
- Metsä Wood Spruce Plywood Manual
- Metsä Wood Spruce Plywood for Construction brochure
- Metsä Wood Spruce Plywood Fire Solutions brochure

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Metsä Wood Spruce Flex is a softwood plywood overlaid with a coloured thermoplastic overlay. The panel is suitable for interior applications, such as wall and ceiling panels for agricultural constructions and warehouses.

APPLICATIONS
Metsä Wood Spruce Flex is a multi-purpose construction panel that can be used, for example, in ceilings, interior walls, packaging and other applications where a ready-finished surface solution is needed. Easy to clean, it is well suited for use as, for example, interior cladding for cattle housing.

MAJOR ADVANTAGES
- Ready-finished surface
- Excellent impact and crack resistance
- Lightweight, strong and dimensionally stable
- Easy to fix and cut
- Good wear resistance
- Easy to clean
- Good resistance against most chemicals
- Environmentally friendly
- Weather- and boil-proof bonding

BASE PLYWOOD
The base plywood of Metsä Wood Spruce Flex is Metsä Wood Spruce, which is made of cross-bonded 3 mm thick coniferous veneers and bonded with a weather- and boil-resistant phenol formaldehyde adhesive.

OVERLAY
Metsä Wood Spruce Flex has a thermoplastic overlay on both sides, which provides a ready-finished surface. The overlay is bonded to the plywood with a water-resistant glue. The overlay colour is white on one side and grey on the other.
SURFACE PROPERTIES
The surface of the overlay is slightly structured to improve wear and scratch resistance. The overlay is elastic, tough and does not crack easily. The overlay is safe to use and free of chlorine, halogens, plasticizers, formaldehyde and heavy metals.

Metsä Wood Spruce Flex has a ready-finished surface that is susceptible to scratches due to its softer appearance. Due to the structure of the coniferous veneers, some structures may be visible on the overlaid surface. Extra caution has to be taken in handling and storing the panels to prevent damage. Extreme moisture penetration may cause visible changes to the appearance of the product.

Technical properties of the surface
- Taber value is approx. 2000 R
- Colour stability 6-7 according to DIN 54404
- Colour change ΔE < 1 according to ISO 4892-2 (600 h)
- Crack resistance EN13696 no cracks
- Impact resistance Class IC3 according to EN438-2

EDGE SEALING
Panel edges are sealed against moisture absorption with transparent edge sealing paint. Even though edge sealing hinders the absorption of moisture into the panel, it does not eliminate it completely.

PANEL SIZES
Metsä Wood Spruce Flex is available in sizes:
- 2400 / 2440 mm x 1200 / 1220 mm
- 2400 / 2440 mm x 600 / 610 mm

The first measurement indicates the orientation of the surface veneer grain.

SIZE TOLERANCES
Measured in accordance with standard EN 324, the plywood size and squareness tolerances meet the requirements of EN 315.

<table>
<thead>
<tr>
<th>LENGTH / WIDTH</th>
<th>TOLERANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1000 mm</td>
<td>±1 mm</td>
</tr>
<tr>
<td>1000-2000 mm</td>
<td>±2 mm</td>
</tr>
<tr>
<td>&gt; 2000 mm</td>
<td>±3 mm</td>
</tr>
<tr>
<td>Squareness</td>
<td>±0.1 % or ±1 mm/m</td>
</tr>
<tr>
<td>Edge straightness</td>
<td>±0.1 % or ±1 mm/m</td>
</tr>
</tbody>
</table>

THICKNESS, STRUCTURES AND THICKNESS TOLERANCES

<table>
<thead>
<tr>
<th>NOMINAL THICKNESS</th>
<th>NUMBER OF PLYS</th>
<th>THICKNESS TOLERANCE</th>
<th>WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>(mm)</td>
<td>(no.)</td>
<td>min. (mm)</td>
<td>max. (mm)</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>15</td>
<td>5</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>18</td>
<td>6</td>
<td>16</td>
<td>18</td>
</tr>
<tr>
<td>21</td>
<td>7</td>
<td>19</td>
<td>21</td>
</tr>
</tbody>
</table>

* The moisture content of the product affects its dimensions
* Average density of Metsä Wood Spruce plywood is 460 kg/m³ (at a relative humidity of 65%)
* Special structures and thicknesses are available on request
* Customised tolerances are possible but must be agreed separately

BONDING CLASSES
Metsä Wood plywood panels are bonded with a weather- and boil-resistant phenol formaldehyde adhesive (WBP, BFU, AW, exterior).

The gluing meets the requirements of the following international standards:
- EN 314-2 / Class 3 (exterior)
- DIN 68705-3 / BFU 100
- BS 6566 Part 8 / WBP

The overlay is bonded to plywood with a weather-resistant adhesive (EN 204 class D4)

FORMALDEHYDE EMISSIONS
Determined according to EN 717-1, the formaldehyde emitted by Metsä Wood Spruce falls far below the Class E1 requirement of ≤ 0.100 ppm and also fulfils the most stringent requirements in the world (≤ 0.030 ppm).

The formaldehyde emission of Metsä Wood Spruce is approximately 0.018 ppm. The thermoplastic overlay does not contain any formaldehyde.

PANEL STRENGTH PROPERTIES
Metsä Wood Spruce Flex is a CE marked product and its strength and elasticity properties are identical to the properties of standard Metsä Wood Spruce plywood. The properties are specified according to standards EN 789 and EN 1058 and can be found in the Metsä Wood Spruce Flex Declaration of Performance (DoP). The DoP documents can be downloaded from www.metsawood.com/dop.

MACHINING
Edge profiling is available on special request.

PACKING
Metsä Wood Spruce Flex panels are packed either in moisture resistant plastic wrapping or covered pallets.

PACKING QUANTITIES

<table>
<thead>
<tr>
<th>PANEL SIZE (mm)</th>
<th>NUMBER OF PANELS PER PALLET BY THICKNESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1200/1220 x 2400/2440</td>
<td>100 / 12 / 15 / 18 / 21</td>
</tr>
</tbody>
</table>

FURTHER INFORMATION
- Metsä Wood Spruce Flex Declaration of Performance (www.metsawood.com/dop)
- Metsä Wood Spruce Plywood Manual
- Metsä Wood Spruce Plywood for Construction brochure