



GENERAL BUILDING ENGINEERING

ROOFING MATERIALS



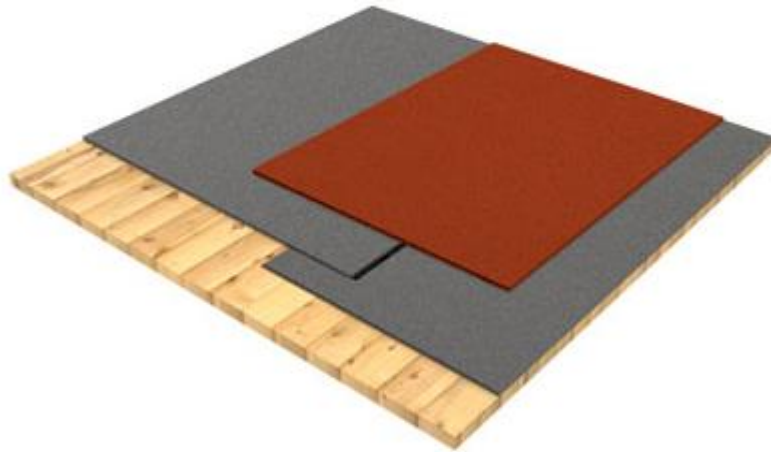
Erasmus+

TYPES OF ROOFING MATERIALS

- Roof coverings:
 - made of traditional roofing felt,
 - made of thermo-weldable roofing felt,
 - from shingles,
- Sheet metal covers:
 - from flat sheet,
 - made of profiled sheet,
- Coverings made of ceramic and cement tiles,
- Slate cover,
- Coverings with thatch.

ROOFING FELT

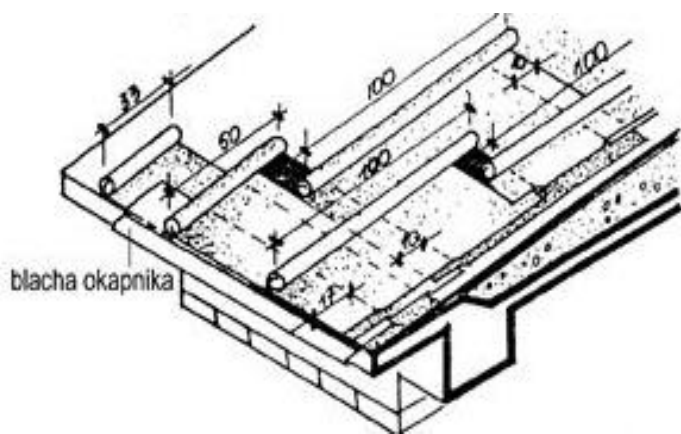
- Roofing felt is a saturated matrix impregnation. A warp, or a skeleton load-bearing roofing felt can be: wood cardboard, fabric, fiberglass veil or polyester, aluminum foil, copper or plastic foils.
- Felts without liners are also produced.
- The papa production technology consists of:
 - impregnation saturation of the matrix,
 - double-coated with a mineralized asphalt mass,
 - surface finish with mineral toppings or plasticizing or metal foil (aluminum, copper) coatings.



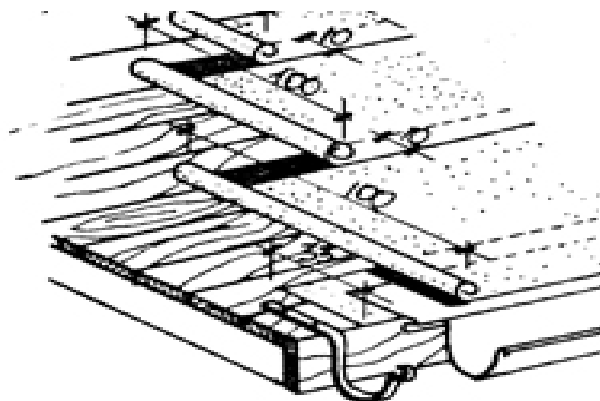
Laying the roofing felt on wooden substrates. [1]

ROOFING FELT

The type of foundation is related to the construction and inclination of the roof - roofing can be laid on both concrete and full formwork surfaces. The covers should be laid only in good weather, the minimum temperature is $+ 5^{\circ}$, and in the case of cold adhesive $+ 10^{\circ}$.



Laying roofing felt on wooden substrates. [2]



Laying roofing felt on concrete substrates. [2]

ROOFING FELT

ADVANTAGES

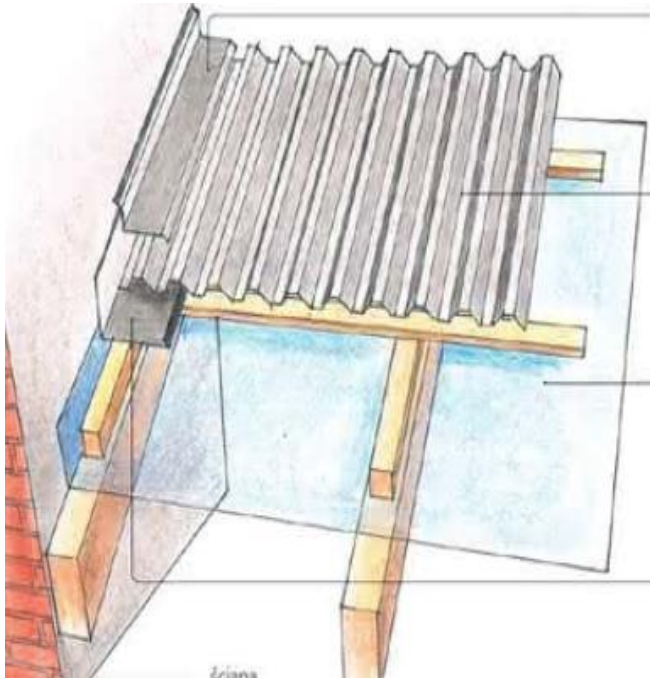
- layered can tightly secure the roof with an angle of inclination from 3 degrees,
- low price.

DISADVANTAGES

- it is very hot under the influence of temperature, on sloping roofs it can run down,
- low aesthetics.

ROOFING MADE OF SHEET METAL

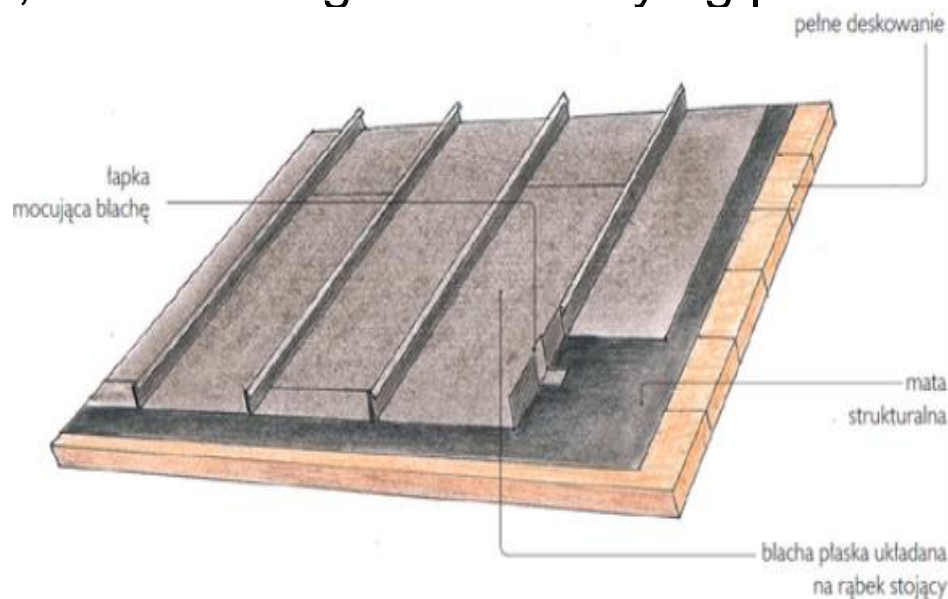
Profiling corrugated, trapezoidal or imitating tiles - hence the common name of roofing tiles. The advantage of the sheet is low weight, and the disadvantage of poor thermal insulation.



Roofing made of sheet metal [2]

ROOFING MADE OF SHEET METAL

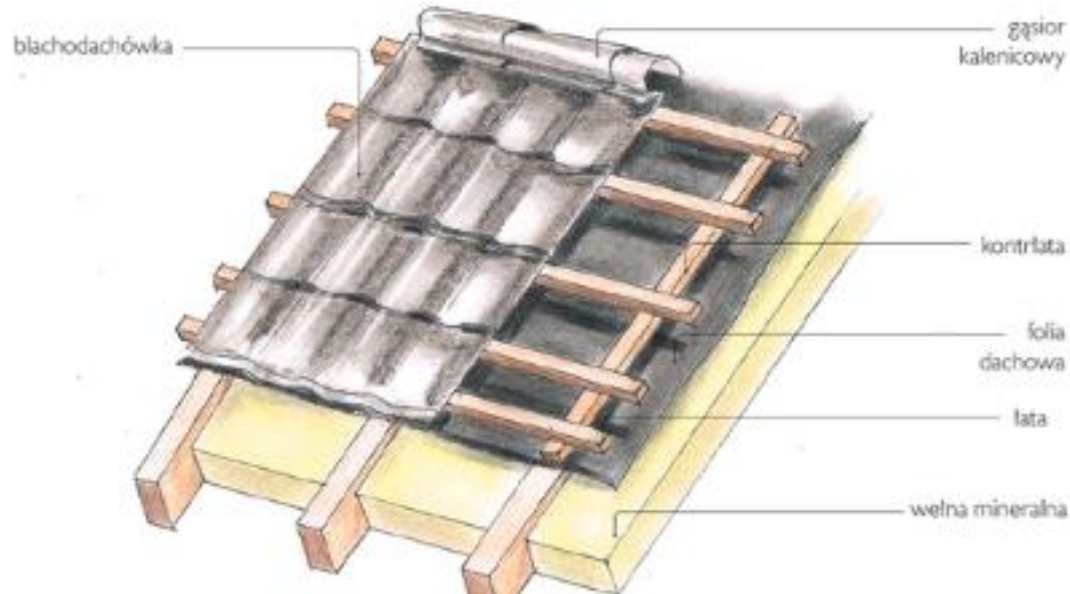
All types of covers are mounted on a patch base, in a spacing of $30 \div 40$ cm for roof tiles and $50 \div 200$ cm for trapezoidal sheets. Coated sheets should not be cut with an angle grinder - heat generated during cutting damages anti-corrosion coatings. The sheets can be cut using an electric punch, hand ball or metal shears. Sheet metal roofs can be made of steel, aluminum, copper or zinc-titanium sheet. The technique of its laying on the so-called Standing seam is based on joining belts or sheets by bending its individual edges. We connect the sheets of sheet metal perpendicularly - that is, the standing seam - or lying parallel to the seam.



Roofing made of sheet metal. [2]

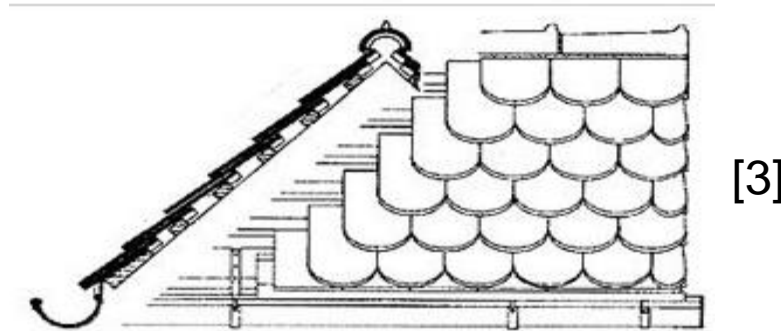
ROOF TILE

Roofing tiles are laid on a grate with counter battens and carrying battens. It starts with the eaves. For fixing them, self-drilling screws are used, so-called Farmers with a rubber pad, always placing them in the bottom, and along the eaves and ridge - in every hollow of the wave. After laying the sheets, the ridge ridges are fixed on the whole roof. In the ridge leave the ventilation gap between the falling sheets of the cover.



CERAMIC TILE

The material for the production of ceramic tiles is clay with a low content of marl. After machining the pig iron and adding refining components from the mass, elements are formed. The oldest method of production was the pressing of individual tiles in special forms. The second method is the formation of roof tiles from webs pulled on band presses (carpin tiles, dutch buns). The formed tiles are dried in dryers and fired in ovens at a temperature of about 1000°C. During production, tiles can be colored. They are used to cover sloping roofs with an angle of inclination above 15°



CERAMIC TILE

ADVANTAGES

- efficient drainage of rainwater,
- resistance to changing weather conditions,
- good thermal and acoustic insulation,
- different patterns, colors and finishing variants (matt, semi-gloss, glossy),
- a large selection of shapes,
- durability up to 100 years,

DISADVANTAGES

- high price.

CERAMIC TILE

Cement roofing tiles are made of Portland cement, quartz sand and water, in special aluminum molds. They are dyed in bulk, most often compounds based on iron oxides, red, brown, gray, and even blue and green. Types of tiles are similar to ceramic tiles, they may differ in weight and dimensions. It is a cover for pitched roofs with an inclination angle of more than 15 °



Plain cement tile. [6]

CERAMIC TILE

ADVANTAGES

- efficient drainage of rainwater,
- resistance to changing weather conditions,
- good thermal and acoustic insulation,
- different patterns, colors and finishing variants (matt, semi-gloss, glossy),
- a large selection of shapes,
- lighter than ceramic ones.

DISADVANTAGES

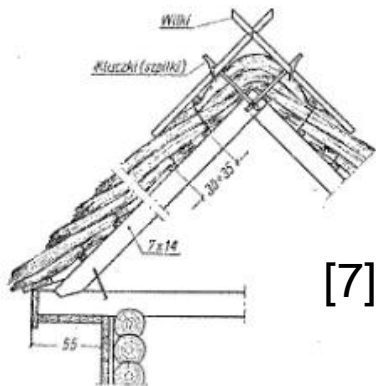
- a smaller range of cement tile than ceramic tile patterns,
- quite expensive, though cheaper than ceramics,
- less aesthetic than ceramic.

THATCHED ROOFS

Formerly, the sheaves in the roof ridge were fastened by pressing them with horizontal poles fastened to the patches with wire, or wolves were used, i.e. crossed poles fixed with pins called spikes for patches

ADVANTAGES

- very good thermal properties - in winter it protects against frost, and in the summer protects against overheating;
- durability up to 100 years.



DISADVANTAGES

- quite heavy, requires a very sturdy truss structure,
- high costs,
- additional legal restrictions regarding, among others distance of thatched buildings from the boundaries of the plot and other buildings.

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Church of St. Barbara in Kolanowice



Shingle cover [9]

Gąsawa - church of Saint. Nicholas



Slate coating [10]

*Water tower in Kozuchów from the beginning
of the 20th century*



Plain roof tile [11]

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