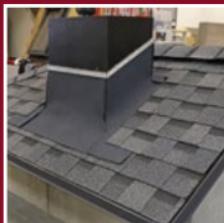




TECHNONICOL



Manual

for installation of roofing
shingles by TECHNOMICOL:
torching method

KNOWLEDGE. EXPERIENCE. CRAFTSMANSHIP.



We are proud of what we produce and create. We enjoy seeing how new high-quality materials are produced from plain raw components with our up-to-date equipment, our work and efforts. We are continuously improving ourselves and strive to do the same for the environment. We prefer to address the comprehensive energy efficiency of buildings and structures. Our innovative solutions enable us to create high technology and energy-efficient buildings, improve the quality of buildings under construction, cut down operation and construction costs. We are glad to know that our materials are used in the construction of houses, plants, bridges, social infrastructure facilities and other objects, which improve the level and quality of life of people.

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1.

Introduction

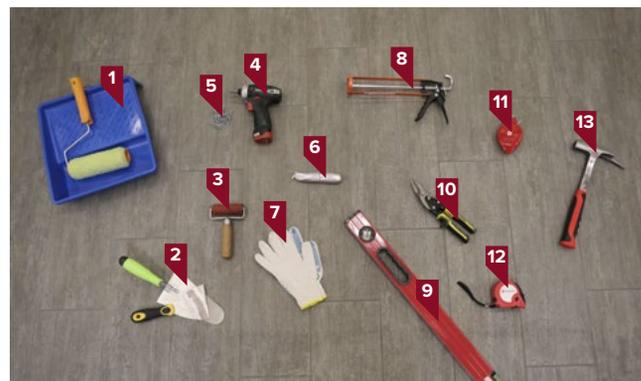
1. Introduction

1.1. General information

The torching method for installation of roofing shingles is based on the practice of torching of polymer-bitumen roll-fed materials. In this system, a special APP-modified bitumen membrane is used as an underlay for roofing shingles. It is important to note that roofing shingles in this method are not directly exposed to the flame, but reliably adhere to the melted surface of the underlay membrane.



1.2. Required equipment



- | | |
|---|---|
| 1. Fur roller with a tray; | 8. Sealant gun with the sealant; |
| 2. Spatulas; | 9. Level; |
| 3. Silicone roller; | 10. Tin snips; |
| 4. Drill with a cross bit; | 11. Chalk reel; |
| 5. Galvanized self-tapping screws; | 12. Measuring tape; |
| 6. Roofing knife; | 13. Hammer. |
| 7. Construction gloves; | |

1.3. Safety instructions for roofing works with torch-on materials

When carrying out roofing works with torch-on materials, one should use protective goggles and a specialized protective suit. When working with open flame use fire-resistant gloves. Shoes should have non-slip soles and closed reinforced toecaps. When working at heights, do not forget to use special safety equipment.

1.4. Equipment for torching



The following is used in the work: a big and a small torches, a metal holder for rolls' unrolling and an assembled gas cylinder. At the start, it is necessary to set up the equipment, check the integrity of hoses, examine the operability of LPG pressure regulator and the integrity of the junctions.



When igniting a propane gas torch, one should turn the valve from a quarter to half a turn, and after a short gas blowing, ignite the burning mixture and then adjust the length of the flame.



A torch is ignited with a match or a special lighter. It is forbidden to ignite a torch by means of random burning items. One should not walk with a burning torch beyond the borders of a working place, climb the ladders and scaffolds, or move abruptly.

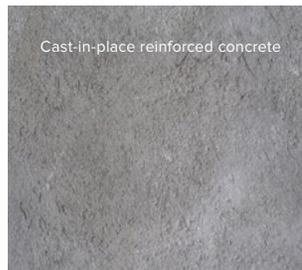
To put out a flame of the torch, close the gas supply valve, then the LPG pressure regulator, and push the trigger of a torch to get rid of the remaining gas in the hose.

2.

Installation process

2. Installation process

2.1. Preparation of the surface



Installation of the roofing system is to be performed on a continuous, dry and even decking from cast-in-place reinforced concrete, cement-bonded particleboards or fiber-cement boards. The relative humidity of the surface should not exceed **4%**.



At first, clean the base from debris, dirt and dust and, if necessary, level the surface.



In order to provide reliable adhesion of the underlay membrane to the surface, apply a thin layer of BITUMEN PRIME COATING by TECHNOCOL with a fur roller.



After priming the surface, leave it to dry. Drying time depends on weather conditions during the works and usually does not exceed **12 hours** at a temperature of **20 °C**.

To check the condition of the surface, attach a white cloth to the decking. If it does not stick and there are no black stains, then the surface is ready for further work.



2.2. Reinforcement of eave and fronton overhangs



Eave and fronton overhangs are reinforced with metal planks. Fix the planks every **12-15 cm** in staggered order. The planks should overlap on each other by **3-5 cm**. Depending on the base type, the planks are fixed with galvanized self-tapping screws or dowel-nails.



Form the outer and inner corners by joining the planks together.



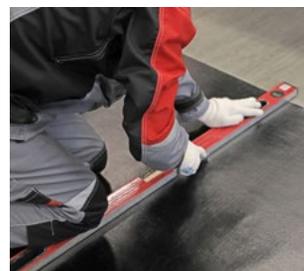
Fix the fronton planks with an overlap on the eave planks. Note: if the roof slope is from **5°** to **12°**, the fronton planks are installed before torching the underlay membrane to the decking.



If the roof slope exceeds **12°**, the fronton planks are installed after the torching of the underlay membrane.

2.3. Installation of the underlay membrane in a valley

If there is a valley on the roof, start the installation from this zone.



Before starting the work, measure the roof base and cut the underlay membrane to the required length. This will ease the installation.



Unroll and align the underlay membrane along the valley center. The width of the roll is **1 meter**, which gives **50 cm** on each slope. Cut the membrane along the eave line leaving **2-3 cm** from the bend of the eave plank.

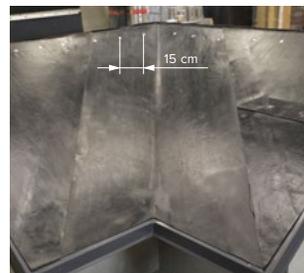


Before torching, roll one half of the membrane to the valley center and then torch it with gradual unrolling of the material along the slope. The torch should be oriented directly to the place where the membrane touches the base. Press the material with the silicone roller at the center of the valley.



Install the other half of the membrane similarly.

NOTE: The bottom surface of the membrane is covered with a special protective film, which easily melts during the torching and does not interfere with the melting of the bitumen compound. The pattern on the membrane will indicate when the compound becomes active.



Additionally fix the material in the ridge zone with galvanized self-tapping screws with washers after the torching. The fastening span is **15 cm**.

2.4. Installation of the underlay membrane on roof slopes

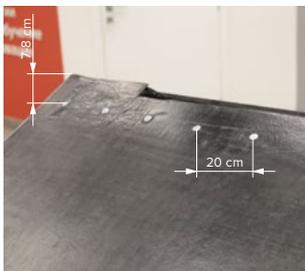


Torch the underlay membrane on the roof slopes from the bottom upwards. At first, torch the material in the eave zone.

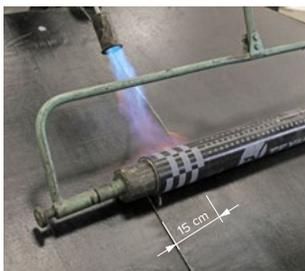


Then torch the remaining part of the membrane. Direct the flame to the place where the membrane touches the base, uniformly heating the material across the entire width.

NOTE: It is necessary to control the intensity of the bitumen leaking: it should not exceed 2-3 mm.



After torching, fix the membrane at the ridge zone with galvanized self-tapping screws with washers. The fastening span is **20 cm** with a **7-8 cm** shift from the edge.



The following rows are torched with vertical overlaps of at least **15 cm**.

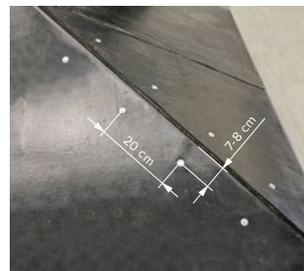


Horizontal overlaps with a width of **10 cm** are also additionally fixed with a span of **15 cm**.



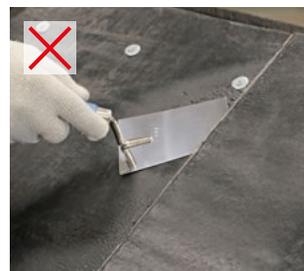
Press the places of overlaps with a roller.

NOTE: Walking on hot material during the works is prohibited to avoid damage to the top layer.



Additionally fix the torched membranes in the hip area with self-tapping screws with washers at a distance of **7-8 cm** from the axis of the hip with a span of **20 cm**.

After the complete cooling of the material, it is necessary to check the quality of all overlaps with a spatula to make sure that they are sealed over the entire seam area. Areas with disturbed integrity should be repaired.



2.5. Installation of roofing shingles in the valley

For valley arrangement, use a “close valley” method, which does not require the installation of a valley roll material.



At first, mark a line with the chalk reel on a steeper slope at the distance of **20 cm** from the valley center. For convenience, cut the shingles along this line before installation. Shingles corners coming on the fronton plank are clipped by **2-3 cm** to keep water flowing downhill.



Before torching, coat the area of shingles overlap on the fronton plank with mastic TECHNOMICOL FIXER to the width of **10 cm**. The thickness of the layer should not exceed **1 mm**. Do not torch the coated area as the mastic itself will provide the required adhesion with the roofing shingles.

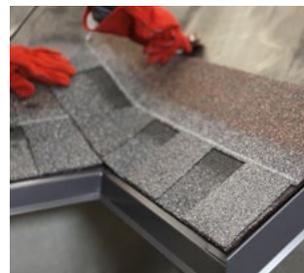


Then align the first shingle to the membrane leaving **1-2 cm** to the edge of the fronton plank. Press one side of the shingle and torch the other side.

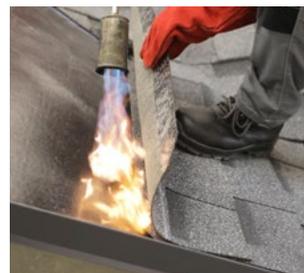
NOTE: During the torching of the shingles, the flame of the torch should be directed only to the underlay membrane, and not to the inner side of the shingles. The torching occurs due to the melting of the surface of the bitumen membrane. Thus, the shingle is embedded into the membrane.



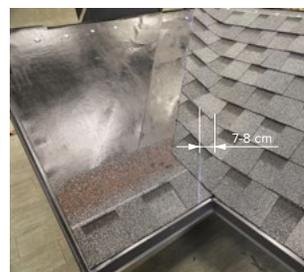
After torching, press the shingle with the roller. Do not cut the part of the shingle, which comes to the opposite slope.



The starting shingle at the opposite slope is installed in a similar way. Install shingles on this slope sequentially, from the bottom upwards along the entire length of the valley.



In the place of shingles overlap, torch only the upper part, where the shingle contacts the underlay membrane. Press the lower part of the shingle, turn up the upper part with the spatula and torch. Then, press it with the roller.



Similarly, install the shingles on the steeper slope while cutting it at a distance of **7-8 cm** from the center of the valley. For convenience, mark the cutting line with the chalk reel in advance.



Coat the shingles overlap area with mastic TECHNOMICOL FIXER to the width of **10 cm** before torching. The thickness of the layer should not exceed **1 mm**. Do not torch the coated area of shingles overlap.

2.6. Installation of roofing shingles on roof slopes

One can start the installation of roofing shingles both from the valley and from the edge of the slope.



Torching of the following rows of shingles is performed end-to-end to the previously installed ones. Press the lower part of the shingle, turn up the upper part with the spatula and torch. Then, press it with the roller.



When getting to the ridge, do not torch the last row, but cut it in place and fasten with a span of **15 cm** using self-tapping screws with washers.

2.7. Arrangement of hips



Cut the shingles adjacent to the hip at a distance of **12 cm** to each side of the hip axis and perform the regular torch-on installation.

Prepare a **24 cm**-wide cutout from the underlay membrane for the entire length of the hip so that it fits the gap tightly. Torch the element and press it with the roller.



Then torch hip & ridge shingles to that strip from the bottom upwards, observing the cascading. Remember to direct the flame of the torch to the underlay membrane only. The next shingle should overlap the previous one for **3-5 cm**.



2.8. Arrangement of ridges

It is necessary to install the ridge vents on the roofs with a slope of more than **12°**.



Fix the ridge vents to the base with galvanized self-tapping screws of **60 mm** length.



Cut hip & ridge shingles to the width of the ridge vent and fix them through the vent directly to the base with galvanized self-tapping screws with washers using **4 pieces** per element.

If the roof slope is less than **12°**, the ridge vent is not installed. In this case, torch an additional strip of underlay membrane on the ridge, followed by torching of hip & ridge shingles on the same principles as on the hips.

2.9. Arrangement of joints with chimneys and walls



To seal the chimneys and vent pipes, prepare the cutout of the valley roll material by TECHNOMICOL, coat it with mastic FIXER and attach, observing the cascading.



Torch the cutouts of the valley roll material overlapping the underlay membrane.



Coat all overlaps of valley roll material with mastic TECHNOMICOL FIXER. Do the same for joints between the valley roll material and the roofing shingles.



The junctions of the valley roll material with the chimney should be covered with metal flashings and then sealed.

2.10. Installation of ventilation components



For installation of penetration elements on the roof, it is necessary to provide through holes in advance during the construction of the decking.

After roofing shingles application, install the pass-through component by TECHNOMICOL, which serves as the base for the final roofing outlet selected depending on the functionality. It is recommended to use the pipe type vent for ventilation of the sub-roof space when the roof slope is less than **12°**.

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