Green roof installation technology.

IS IT:

- [ ] *Product*
- [X] *Technology*
- [ ] *Equipment*

APPLICABLE FOR:

- [X] *Restoration*
- [X] *Rehabilitation*
- [X] *New Construction*

APPLICABLE ON:

- [ ] *1. Foundations and underground structures*
- [ ] *2. Vertical structures*
- [ ] *3. Horizontal structures and vertical connections*
- [X] *4. Roof and terraces*
- [ ] *5. Façade and building envelope*
- [ ] *6. Finishes and completion elements*
- [ ] *7. Integrated services*
- [ ] *8. General strategies for building recovery*

Related companies: *Green roof.*

DESCRIPTION

A green roof is often a key component of an autonomous building - a building designed to be operated independently from infrastructural support services such as the electric power grid, gas grid, municipal water systems, sewage treatment systems.

WHY TO USE

- Reduce cooling (by evaporative cooling) loads on a building during the summer.
- Natural Habitat Creation.
- Filter pollutants and carbon dioxide out of the air which helps lower disease rates such as asthma.
- Filter pollutants and heavy metals out of rainwater.
- Help to insulate a building for sound; (the soil helps to block lower frequencies and the plants block higher frequencies).
- If correctly installed many living roofs can contribute to LEED points.
- Increase agricultural space.
- With green roofs, water is stored by the substrate and then taken up by the plants from where it is returned to the atmosphere through transpiration and evaporation.
- Green roofs not only retain rainwater, but also moderate the temperature of the water and act as natural filters for any of the water that happens to run off.

HOW TO USE AND APPLY

The STANDING seam technique allows the jointing of previously profiled sheets and strips, obtained by layering and folding the edges. The fastening to the substructure is made with the aid of fixed and sliding clips anchored by screws or nails. The double standing seam technique is the most versatile solution that best suits the more complex shapes that may be encountered in a roof. The minimum height of the finished seam is 23 mm, resulting from lateral bending of the sheets which, through various operations, are joined to form a double seam. Employing profiling machines and seamers for bending, each section loses about 70 mm of material; the play that is formed, equal to 3-5 mm, absorbs the transverse expansion of the sheets due to heating. The minimum roof inclination required is 5% (3 °).

TECHNICAL CHARACTERISTICS

APPEARANCE: Solid in grains, granulated, emulsified.

COLOR: Colorless, transparent.

ODOR: Acrylate.

SOLUBILITY: Soluble in toluene, acetone, trichloroethylene.

STORAGE: The product dissolved in the solvent yes retains indefinitely if kept tightly closed.

RESISTANCE: It is widely resistant to conditions harsher climatic conditions. Good resistance to main acids, alkalis, lubricants, detergents.

RECOMMENDATIONS AND OTHER INFORMATION

The main disadvantage of green roofs is:

1. the higher initial cost of the building structure,
2. waterproofing systems and
3. root barriers.

The additional mass of the soil substrate and retained water can require additional structural support.

Some types of green roofs do have more demanding structural standards especially in seismic regions of the world.

Some existing buildings cannot be retrofitted with certain kinds of green roof because of the weight load of the substrate and vegetation exceeds permitted static loading.

Depending on what kind of green roof it is, the maintenance costs could be higher, but some types of green roof have little or no ongoing cost.

EXAMPLES

It is widely believed that a planted roof is unreliable - plant roots can penetrate the waterproofing layer and the roof will start to leak water, such roofs are considered to require a lot of maintenance and a very thick layer of earth to install.

Green roofs are installed for practical and aesthetic reasons. A green roof extends the boundaries of building use. The building becomes more visually interesting, more attractive, its value rises. Properly installed roof greenery is estimated to almost double the service life of the roof covering: the substrate and plants protect against ultraviolet rays, temperature fluctuations, serve as a noise barrier, reduce the risk of fire spreading. Plants above the roof and the substrate absorb part of the rainfall, thus reducing the load on the rainwater drainage networks, absorbing part of the air and precipitation pollutants, i. i.e., improves the ecological situation.

Plants and the soil layer mitigate temperature differences. On a hot summer day, the plants and soil accumulate the heat of the sun, and the process of evaporating moisture takes place, thus cooling the roof covering. In winter, more snow is retained on the green roof grass between the plants, which serves as an additional insulating layer. Well, if it is optimal, it does not burden the roof structures, does not break the plants.

REFERENCES / SOURCES AND LITERATURE

http://www.greenrooftechnology.com/project-portfolio

https://www.nps.gov/tps/sustainability/new-technology/green-roofs/define.htm

http://www.inogate.org/documents/Lecture%20Building%20EE%204%20ENG.pdf

https://www.permagard.co.uk/advice/green-roof-construction

http://www.statybajums.lt/temos/ekostatyba-alternatyvi-energetika/ekologiski-ir-ekonomiski-zalieji-stogai

WEBSITE OF THE COMPANY

http://www.greenrooftechnology.com

https://www.permagard.co.uk/

IMAGES AND CAPTIONS

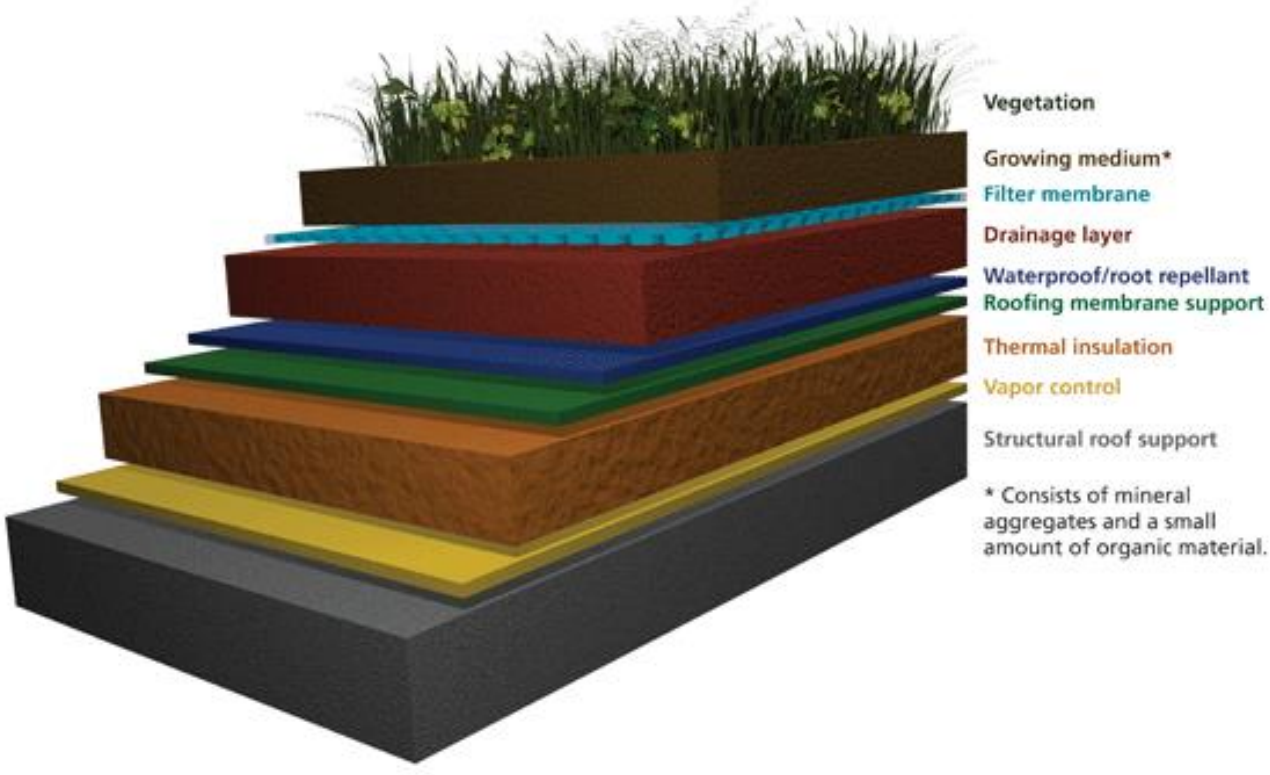

Fig.1: Cross section of green roofing layers. Each of these layers has a specific function and is necessary for the success of the green roof. © *https://www.nps.gov/tps/sustainability/new-technology/green-roofs/define.htm*

Fig.2: Aerial view of a new building with integrated green roofs. © *http://www.greenrooftechnology.com/project-portfolio*

Fig.3: Example of a simpler green roof on a traditional house. © *http://www.greenrooftechnology.com/project-portfolio*

Fig.4: Before and after of a green roof addition on an existing building. © *http://www.greenrooftechnology.com/project-portfolio*