

ASPECTS REGARDING THE VERTICAL DECORATING MODALITIES BY USING A PERGOLA IN GREEN AREAS

ASPECTE PRIVIND MODALITĂȚILE DE REALIZARE A DECORĂRII PE VERTICALĂ PRIN FOLOSIREA DE PERGOLE ÎN SPAȚIILE VERZI

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Abstract. Pergolas are decorative constructions of different shapes: a pair of pillars or columns united in their upper ends with light liaison elements and they serve as support for climbing plant species in order to assemble the vertical decoration. The paper intends to present some pergola types, modalities for assembling them and the ornamental plant species that accommodate better for each pergola type. There are presented the modalities of pergola assembling, the material types from which they are manufactured and the best places to put a pergola, considering the place and their role in the composition. A very important step is choosing the plant species that can be used in vertical decorations; this paper is offering some variants of plant associations for each type of pergola, considering its location and purpose. Seven variants of pergolas are presented, realized from different or similar materials, of various sizes and shapes, which represent the support for the vertical decoration by using ornamental lianas in urban green areas.

Rezumat. Pergolele sunt construcții decorative sub formă de perechi de stâlpi sau coloane reunite în partea superioară prin elemente ușoare de legătură și servesc ca suport pentru plantele urcătoare în vederea realizării decorării pe verticală. Lucrarea își propune să prezinte câteva tipuri de pergole, modalitățile de realizarea a acestora și speciile ornamentale care se pretează cel mai bine pentru fiecare tip de pergolă în parte. Se prezintă modalitățile de montarea a unei pergole, tipurile de materiale din care se confecționează aceasta și locul în care este indicat a se dispune pergolele, în funcție de locul și rolul lor în compoziție. Deosebit de importantă este alegerea plantelor care pot decora pe verticală, lucrarea oferind variante de asociații vegetale pentru fiecare tip de pergolă, în funcție de locația pergolei și scopul amenajării acesteia. Sunt prezentate șapte variante de pergole realizate din materiale diferite sau asemănătoare, de dimensiuni și conformații diferite care constituie suportul pentru realizarea decorării pe verticală prin folosirea lianelor ornamentale în spațiile verzi urbane.

Key words: pergola, green spaces, liana, vertical decoration

Pergolas are ornamental and utilitarian elements used in green spaces, allowing the construction of the vegetation bower, because they are made of climbing plants, full of volume, which thus cover the alleys and the terraces

against sunrays. The pergolas bring color and refinement to the areas where they are placed. They are those specific decorative elements of an arrangement that add value to the places meant for recreation, such as terraces or balconies.

Pergolas are placed on high areas, where they can be visualized and open beautiful perspectives.

It is best to build pergolas in a warmer climate area, with low frequency rainfall. There are at least two explanations for this increased popularity of the pergolas, because today we meet numerous prefabricated sets for pergolas, and the success the terrace's phenomenon encountered stimulated the need to have a shaded place to assure a link between house and garden.

MATERIAL AND METHOD

The materials used for the pergola's construction are, generally:

- **natural wood**; if we choose untreated, natural wood, we should have a rugged surface, which will better absorb paint, this combination resisting approximately ten years, that means twice better than a smooth surface.

- **treated wood**; submitted through different protection procedures (superficial carbonization against microorganisms, lacquer or paint applications for protections against exterior climate factors, water proof substances impregnation, antiseptically substances, fire proof covers etc.), the wood will resist better through time..

- **wooden fiber**; this cover type is realized by wooden fiber "linked" at heat and under pressure, combined with resin or wax. This finishing resists better than wood at temperature variations and need less maintenance.

- **plastic material**; another material used for pergola's construction is plastic or, latter, PVC.. Because the PVC used for pergolas is protected against UV light, this aspect makes it immune to discoloration and so it does not need painting or other treatment. Because the colorant pigment is uniform distributed into the material, the scratches or the marks of some small mechanical shocks are almost invisible. The products are made of PVC 100% (unrecyclable) and thus they do not rot, deform, decompose, rust and they are not sensible to soil humidity, like wood, forged iron or masonry. Most of the PVC producers offer lifetime warranty for this material, and this means that, after installation, the only needing maintenance is to be washed with a water hose from time to time.

- **forged iron**; is a rarely used material, because it is not fit for any type of garden and needs repeated paintings. Usually, it is used for adosated pergolas, on block-building's terraces or balconies and rarely in gardens.

- **stone or bricks**; are used only for the construction of the vertical supports of the self-porting (traditional or oriental type) and are usually seen in the mountain houses' gardens.

The classic use of a pergola is the partial or entire masking of an alley, with a vertical structure covered in flowers and supports. The pergola can be placed against a wall or a green bush fence or it can be used as an element that limits an access area to a specific part of the garden. A modern use of pergolas is to create the frame of the terrace, which becomes nowadays a real outside chamber.

It is important to make sure that the construction material and the pattern are matching the house's and the garden's style – rustic pillars are decorative in a traditional environment, but they might look inappropriate in a more modern location. Furthermore, their structure must be resistant enough and well anchored in the ground

to cope with a big storm, especially because the pergola is covered with lianas and the weight of their stems, leaves, flowers and after that, fruits challenges a lot the resistance structure of the pergola.

RESULTS AND DISCUSSIONS

Considering their structure, meaning the structural content and auxiliary elements, the classification of the pergolas used in green spaces is the following: adosated pergolas; self-porting pergolas and modular self-porting pergolas.

Considering the construction type and their general aspect, pergolas can be: traditional; oriental; rustic and supported.

The traditional pergola is often an imposing structure, with brick or stone pillars that support strong wooden or iron girders, covered with climbing plants. For the gardens near houses, the best construction material is wood, even if metal built pergolas can be interesting in ultramodern scenery. The most recommended ornamental plants for this type of pergolas are lianas from the ornamental grape-wine plants' group (*Partenocissus tricuspidata*, *Ampelopsis aconitifolia* s.o.) as well as flower decorative species (*Campsis radicans*, *Clematis vitalba*, *Polygonum baldschuanicum* s.o.)

The oriental pergola is slightly different from the traditional one, in the binding mode of the horizontal and vertical elements. For the pergola to have an authentic oriental aspect, the transversal horizontal elements' ends must be up-curved, and the climbing plants recommended to be used for decorating it are species of oriental lianas: *Wisteria sinensis*, *Lonicera japonica*, *Parthenocissus tricuspidata* s.o.) (fig. 1 and 4).



Fig. 1. Oriental pergola



Fig. 2. Rustic pergola with roof

Rustic type pergola was long time used in the old gardens, especially for spontaneous climbing roses' species (*Rosa wichuraiana*, *R. multiflora* s.o.) but also for noble climbing roses' species from *Thea-Hibrida*, *Polyantha* and *Floribunda* groups (*Climbing Queen Elisabeth*, *Climbing Super Star*, *Royal Gold* breeds s.o.). (fig. 2). This structure is less resistant than other types, therefore it must be used a special waterproof glue and covered nails for the elements' binding. Also, it's good to add reinforcement props between the vertical pillars, to enhance the stability of the pergola.

The supported pergola can be used as kiosk, but lately it became preferred to enclose a terrace or only a part of it. It is a solid structure, leaned upon the wall with some girder's nails or by attaching the transversal elements on a horizontal wooden plaque, placed on the wall into the brick structure. (fig. 3.) Vertical decoration is recommended to be made with rustic lianas that assure the density of the vegetal material through their abundant leaves. (*Hederea helix*, *Parthenocissus quinquefolia*) and as well through flowers and fruits (*Lonicera periclymenum*, *Clematis x jackmannii*).



Fig. 3. Pergola with angular support



Fig. 4. Oriental pergola with roof

The adosated pergola is composed by three main elements:

- vertical elements (support) – are those frame elements, usually from wood or other materials as metal, stone, bricks or plastic materials. There are two elements for each sustaining pillar and for that, they are united with insurance screws. Keeping an equal distance between them is realized with wooden distance equalizer blocks that also connect these elements. In their lower part, the screws pass also through a metallic profile that facilitates the fixation into the soil or into the terrace's pavement.

- horizontal elements perpendicular to the vertical supports – are similar to the previous ones, and sometimes are made even from the same material. The fixation is made also with the insurance screws. At the opposite end, the elements are fixed in the same way to the vertical elements.

- transversal horizontal elements of the bowers and pergolas – are those structures that bind between them all the other elements. With their help it is realized a transversal rigid structure, becoming also more stable, even when it is “covered” with climbing plants. The fixation and the binding with the other components is identical, and the materials of these elements are the same as the one used for the perpendicular horizontal elements and sometimes, with the one used for the vertical supports. (fig. 5)

The adosated pergola can be decorated using ornamental leaves species (*Hedera helix* var. *discolor*, *Parthenocissus tricuspidata* var. *Lowii*), ornamental flower species (*Clematis x jackmannii* “*President*” – with big violet-blue flowers, *C. x jackmannii* “*Ville de Lyon*” – with big carmine red flowers, also the climbing roses species from *Polyantha* group(*Coral Dawn*, *Cordon Rouge*, *Golden Showers* s.o.).

The modular self-porting pergola is identical with the self-porting one, with the difference that between the vertical elements, along the alleys or terraces where they are placed, there are wooden cross-bared panels, metallic nets or plastic materials nets, and in the lower part, benches or resting chairs can be included. (fig. 6).



Fig. 5. Adosated simple pergola



Fig. 6. Simple modular pergola

CONCLUSIONS

1. Pergolas are decorative elements, but not only that, which create an area of gradual and personalized passing, from the exterior to inside, underline the recreational outside places, offering an intimate frame or underlining the main house entrance, personalizing a terrace or a balcony etc.

2. The materials used for pergolas are: natural wood, treated wood, wooden fiber, PVC (plastic material), stone, bricks, forged iron, s.o.

3. A pergola can be placed near a wall or a green bush fence or it can be used as an element that limits an access area towards a specific part of the garden; a modern use of pergolas is to create the frame for a terrace.

4. Considering the construction mode and the general aspect of the pergolas there are: traditional pergola, oriental pergola, rustic pergola, supported pergola, adosated pergola, self-porting pergola, modular self-porting pergola, s.o.

5. The ornamental species recommended for decorating the pergolas are chosen considering the modality of fulfilling the decorative function, through leaves, flowers or fruits, but also considering the decorative period, trying to phase it for a long period. We recommend the liana species from the ornamental grape-wine group (*Partenocissus tricuspidata*, *Ampelopsis aconitifolia* s.o.), flower and fruit decorative species (*Campsis radicans*, *Clematis vitalba*, *Polygonum baldschuanicum*, *Wisteria sinensis*, *Lonicera japonica*, *Lonicera periclymenum*, *Clematis x jackmannii* s.o.), climbing roses, spontaneous species (*Rosa wichuraiana*, *R. multiflora* s.o.) or noble climbing roses from *Thea-Hibrida*, *Polyantha* and *Floribunda* groups, s.o.

6. Most of the decorative liana species have known lately a great diversification, through enhancing the decorative features and creating numerous breeds, varieties and hybrids that can assure all the requirements and pretences in the vertical decorations' field.

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