

POLYTECHNIC OF TORINO
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Honors theses

Building with plants. Vegetable coverings

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In the new generation of projects, one of the most frequently followed tendency, is denounced by the presence of some natural elements, that can satisfy modern man's need of integrating himself with nature.

The idea of considering all kind of plants (trees, lawns, shrubs, climbing plants) as building material is not so new, but it born from the observation that, in the organisation of parts of buildings or of cities, were realised as articulated systems of built and nature.

The thesis wants to study a use of plants which has always been underestimated in our areas: the one of horizontal (pergola) and vertical (green curtains) vegetable coverings. People use to think that this kind of utilisation of plants is not so important, because is linked just to esthetical reasons. But this is not so true. There are many utilities and profits given by green curtains and this is what we want to prove here thanks to examples in the history, indications about the use of botanical species, analysis of greening techniques and the maintenance required, but also with design suggestions.

Plants are not a static element but they are in a continue transformation, thanks to seasons, climate and their own grown. In this way they transmit vitality to the hole place around, helping in guaranteeing man's biologic and psychological equilibrium. Urban greenings can help reaching man's comfort, thanks to the interception of polluting dusts, the improvement of microclimate, the inner climatisation.

I studied some examples about common uses, as the ones we can see looking around ourselves in Turin, and other about some more important projects and realisations, suggested by famous architects, like Emilio Ambasz, Alessandro Chiusoli, Benedetto Camerana.

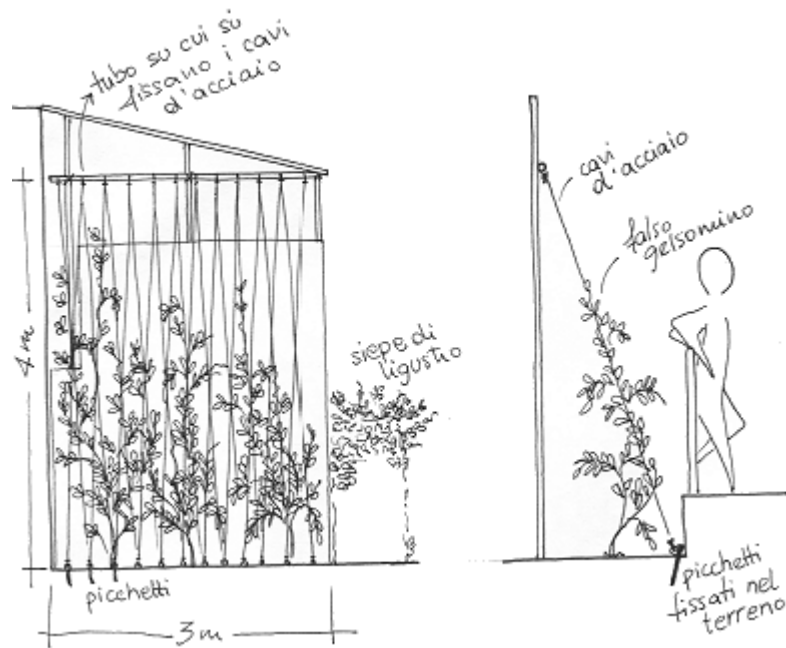
There are almost five kinds of green curtains:

1. Surface greening, using climbing plants, that can cling themselves directly to the wall. In this case it is necessary an appropriate choose of the materials use for the curtains, because not all of them are suitable for vegetable coverings
2. Greening between windows, always using climbing plants directly or indirectly caught at the wall. As supports you can use tight strings or trellis
3. Cascade greening, with plants that come down from sticking vases
4. Greening of balcony, with climbing thriving plants, made growing on vertical supports
5. Basis greening, with little climbing plants directly or indirectly caught at the wall

In order to develop some design suggestions I had to study first the botanical species, their needs and their peculiarities, the kinds of supports and the maintenance. This knowledge is very important in order to think about a vegetable covering, which is functional and long lasting.

The design suggestions are almost about real situations in Turin, where I found some esthetical and climatic faults, where a vegetable covering could take some improvements. All the cases has been analysed with the faults, the design, the total and square meter costs and the way to realise it.

One of the analysed case, situated at the Faculty of Architecture in Turin, has been realised by me in order to prove how the use of vegetable coverings can be easily inserted in many situations and it's not so expensive. The stoke yard that belongs to the Technology Laboratory has been realised with recovered materials. Aesthetically it was a problem also because situated in a passage way. So we thought to insert a vegetable covering, realised with tight steel ropes, as supports, and plants of *rincospermum jasminoides*, as vegetable material. The plants now have the task to cover the hole wall; growing they will realise a nice green curtain.



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