POLYTECHNIC OF TORINO
FACULTY OF ARCHITECTURE
Degree in Architecture
Honors theses

Plan of a Costructive System in Recycled Aluminium
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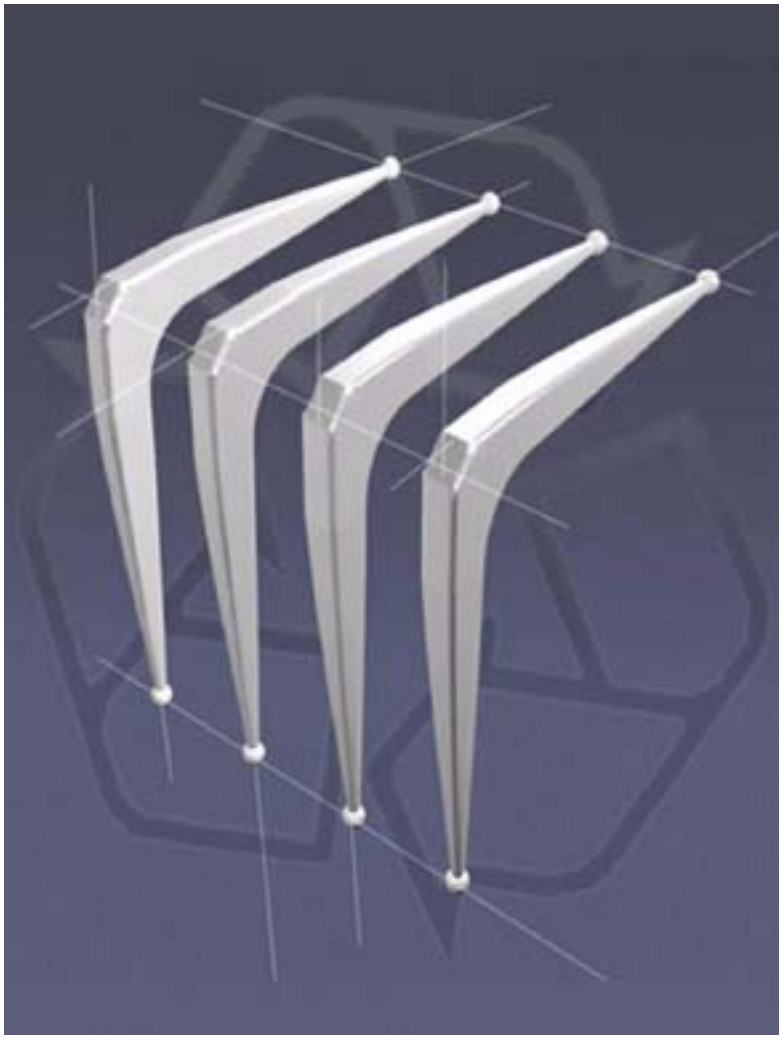
The idea and the choice of this thesis project springs from a personal interest in the technology of metal materials regarding architectonical design, with a particular attention to a "new" one such as aluminium for Architecture.
Target of this thesis is to link the fundamentals of Industrial Design to Architectural concepts, projecting a single structural element in recycled aluminium, to be produced on an international scale, that may lead to the construction of different structures.



Structural element

This new element generates a new constructive system which offers formerly, the advantages of a production on a great scale of one-piece object, and latterly a great creativity in composition and a great versatility.

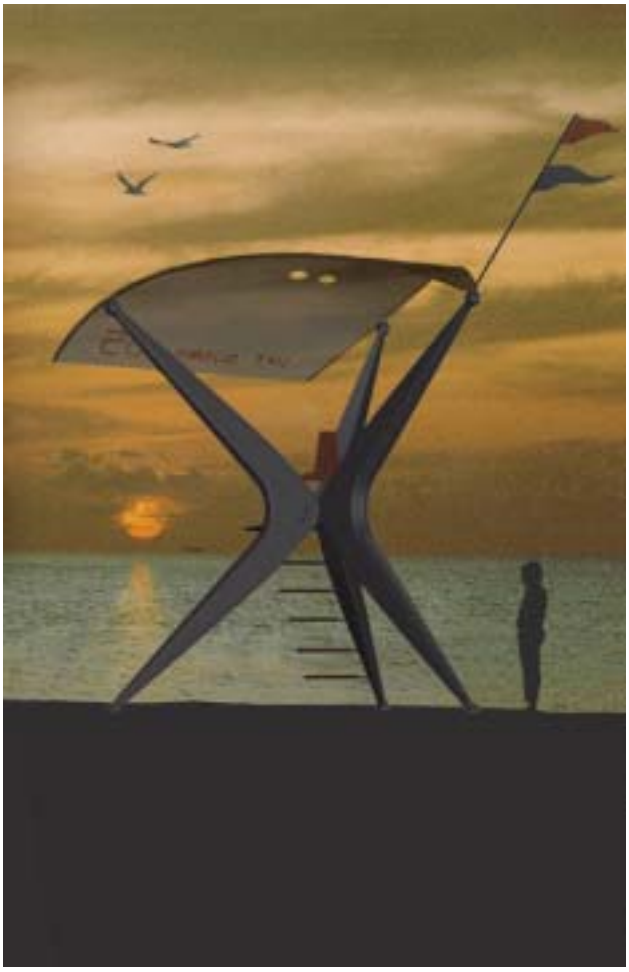
For the mentioned reasons this thesis is therefore aimed to the analysis of the material, to the real possibilities of producing it and to the analysis of the element and the compositive system.

The choice of the aluminium derives from many factors.

First of all its weight : the need to find a light-weight metal able to resist under strong pressures. Second, the use of an inoxidable metal seems to fit outdoor exposures, Last but not least, aluminium is the easiest material to be recycled at low cost.

The first part of the thesis analysed therefore the features of the material and techniques of producing and recycling it and, obviously, focuses also on the junctures between elements in order to get the best flexibility with few additions.

Three kinds of junctures have been studies to link the elements: the vertex-knot, the vertex-vertex and the knot-knot. Every junction is made with the addiction of only one piece which allows a wide range of possibilities in the composition.

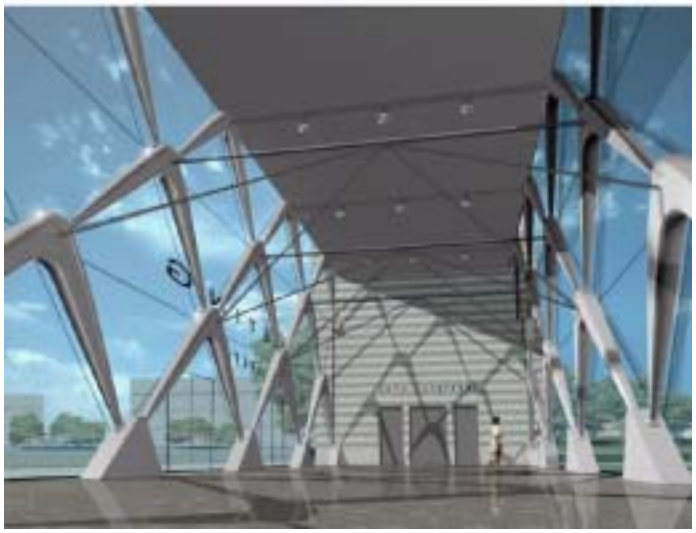


Baywatch turret project

The thesis also analysed how to link the "accessories" that complete the structures to the main frame.

Most has been done to the "project feasibility", particular with the cooperation with Tekis Divisione Alluminio S.p.A. of Carmagnola where it has been pointed out how this hollow-sectioned element may be produced in a single pouring, avoiding any kind of joint that would weaken the object.

The aluminium itself and the particular shape of the industrialized element needed to be tested with a particular attention to the strength, for a right comprehension of its compositive limit and to understand in which fields it might be resistance of the aluminium (mid-light weight structures).



Train-shelter project
Glass-hall project

The last part of the thesis was aimed to the realization of some projects with the new constructive system such as a greenhouse, a bay watch turret, a glass-hall, a petrol distributor, a highway barrier, a ski-lift and a train-shelter.
In order to support the written part and the drawings numerous explicative Models have also been done.

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