

POLYTECHNIC OF TORINO  
FACULTY OF ARCHITECTURE 1  
Degree in Architecture  
**Honors theses**

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**Innovative concrete's applications: urban city equipments**

by Gianluca Alessio

Tutor: Claudio Germak

Industrial partnership: Cementubi s.p.a.

*"The action of creating cast stones, in any form above the natural ones, has something magical in it." P.L. Nervi.*

The purpose of the research is to offer an analysis about the cement's possible aesthetic appearances and to apply the results to the planning of some elements of urban equipment, generating new identities of products and giving new dignity to the concrete.

The analysis is structured into three phases:

In the **investigative phase** the objective is to gather and synthesize useful informations to binder's knowledge and for the derived composed products, such as mortar and concrete.

The analysis involved also the elements that properly mixed define lithoid compounds characterized by different aesthetic expressions such as the sand, the gravel and the additives.

Afterwards the workable surface treatments have been analyzed both on the fluid mixture and on hydrathated and hardened concrete.

Finally the attention turned on a few cement products that can be considered interesting applicative cases.

In the **experimental phase**, considering the know-how acquired in the previous step, some combinations of addictive materials have been tested with the aim of obtaining test pieces characterized by distinctive aesthetic surfaces.

The following materials have been added to a normal cement mixture: plastic grit, rubber chippings, rubber foam, polymeric resins and liquid pigments, metallic powder and metallic grit, fragments of glass and glass microspheres.

The glass inserction, made with the purpose of realizing a reflective concrete, obtained the most interesting results and focused the applicative attention to the field of road safety.

This stage is characterized by the actual and useful collaboration with the Cementubi s.p.a.

This industrial reality permitted to produce test pieces made according to the normal standardized processes using the suggested innovative mixtures.

On these prototypes it was possible to carry out objective testes about the amount of the constituents, about their phisical copatibility and on the effective aesthetic performances.



SURFACES' EXAMPLES: CEMENT+PLASTIC, CEMENT+RUBBER, CEMENT+RESINS AND PIGMENTS, CEMENT+METALS AND ALLOYS, CEMENT+GLASS, CEMENT+GLASS MICROSPHERES

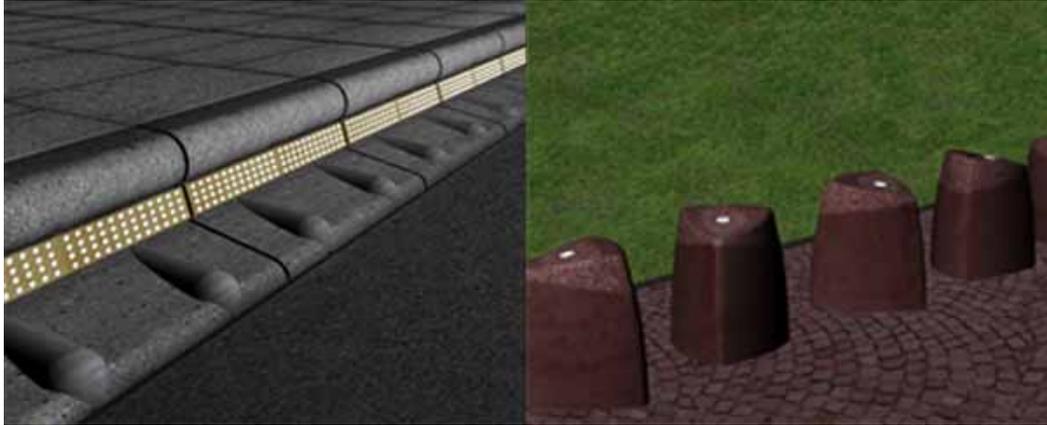


TEST PIECES OF REFLECTIVE CONCRETE WITH AND WITHOUT INCIDENT LIGHT

Finally in the **projectual phase** two urban equipment elements have been planned. They're characterized by the use of a particular compound of concrete and glass developed during the previous phase.

The kerb is an useful element that can be applied particularly to the roundcross and to the dangerous road stretch. The peculiar profile's geometry and the materic choices increase the safety characteristics acting on visual and tactile perception.

The dissuader, distinguished by an unusual form, tries to hold a dialogue, thanks to the possibility to be customized in colors and superficial textures, with any urban context, providing lighting indications both active and passive of his own encumbrance and of the boundary which has to be defined.



## THE KERB AND THE DISSUADER

For further information, e-mail:  
Gianluca Alessio: [gianlucaalesio@email.it](mailto:gianlucaalesio@email.it)