POLYTECHNIC OF TORINO
FACULTY OF ARCHITECTURE
Degree in Architecture
Honors theses

Safety design in builder's yards. Legislature study and practibility check
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This degree thesis's target is showing how only a design lay-out is able to guarantee a real safe builder's yard.

Builder's yard workmen are continuosly exposed to danger of accident and, often, of deadly one.

To solve industrial accident problem, the italian legislature established (L. n° 50/51) a first preventive model with the main object of isolating builder's yard's components (=hazard agents) and giving them lots of safety rules just like "directions for use".

A second preventive model (D.Lgs. n° 626/94), configure a **safety Plan** as the ricomposition instrument to assemble the components isolated by the previous legislative model.

The plan proceeds from a smart hazard evaluation of the manufacturing process.

But in builder's yard, the manufacture is influenced by space-time parameters too variable by comparison with other industrial realities.

Every corrective intervention, characterized by precautionary purposes, to apply on an already working yard, implies a new planning and installation of the whole yard.

Of course, this way of proceeding is difficult to accept!

The study of *Malpensa 2000 General Safety Plan* shows the activity of Presidio, a subject entrasted by the employer with coordinating task among every building firm involved (every firm drew up his own safety plan after the yard is going on!).

Every Presidio's intervention is only a protective ones, and it's limited to solve danger situations already existing: every intervention is always late.

Presidio is able to perform the coordinating action with smart monitoring tests of the whole working process, and with the constitution of "safety team" to re-establish a minimal satisfactory safety coefficient.

The latest preventive model, recently introduced in Italy by D.Lgs. n° 494/96, takes note of previous legislative models' limitations, and brings forward the safety plan drawing up time contemporaneously the executive plan drawing up time, in order to lead the two designers to influence themselves.

The new builder's yard directive safety plan practibiliy has been checked on a residential complex in Trofarello, next to Turin: in this degree thesis we studied safety project manager's way of thinking, simulating his whole work.

Hazards' evalution is plan's center: it means a cross reading in to every manufactoring's step, with investigations deeper and depper. It studies every yard's components, then it matches and articulates them.

A real serious and plausible hazards' evaluation is able to focus safety plan's targets and it characterizes its interventions.

Plan's target can only be centered by design choices: the management of a rules' or laws' archive, to look for answers to complex and articulated hazards' evaluation, is absolutely as unsatisfactory and inadeguate as resorting to any type of textbooks.

The first project anwer is working plan's resolving, designing a chart showing a dangers' index based on workmen number and on contemporaneous activities.

The construction process's study, with the assistence of the working plan's chart, is smarter and smarter.

Foundations' construction, for example, looks very dangerous: examining the chart and every other lement in the whole process of construction (crane's manoeuvres, materials' stacking, etc.), we can expect hazards' coefficients that can be minimized by a careful planning of foundations' jet's sequence.

In the same way, framework's construction presents hazards' coeffiscients increased by the contemporaneous tubolar scaffolding's raising: the solution is a design solution again: the safety plan presents the framework's construction sequence, symmetrically to tubolar scaffolding's raising's sequence, with location's directions for materials and equipments.

A safety plan=design influenced by a serious and plausible hazards' evaluation inceases safety construction manager's potentiality: the construction process step by step monitoring manages rational yard, already arranged to support every setting (This is not Malpensa 2000).

The safety project manager is able to expect crisis's situations unresolveble in every aspects and so, he is able to train safety construction manager's attention and revisions.

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