

POLYTECHNIC OF TORINO
FACULTY OF ARCHITECTURE 2
Degree in Architecture
Honors theses

**The bio ecological planning applied to the architecture for the infancy:
materials and techniques for the control of the indoor air pollution**

by Silvia Giordano

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Every building is an organism with a complicated inner life: temperature, damp of the air, surfaces, harmonic colours, and all factors that create a comfortable inhabited atmosphere. The well-being sense is connected with the construction materials used and with their combinations, the furniture, the treatment of the surfaces, the lights and colours and with the constructive methods. Inside any building should be possible a healthy life, in a pleasant atmosphere, but this isn't always easy feasible in the chemistry and the plastic era. If this type of attentions should be turned to atmospheres in which the adult is usual to stay, it's evident as to guarantee a healthy atmosphere and stimulating environment is priority in the case in which the customer is the child. As a result of these reflections I have intentional analysed, according to the principles of the bio ecological planning, the techniques and the materials adopted to satisfy the requirement of quality of the inner air in the architectures of infancy. A planner must satisfy the requirements and the needs of the user through the synergy of different competences like the educators, psychologists, etc. Such analysis has been necessary to understand the connection between the building wrap and its spaces that create comfort. Then I have specified what I intended for architectures for infancy, defining the evolution of the necessities and the appropriation and use of the spaces for age bands, from the nursery school until to the elementary one.


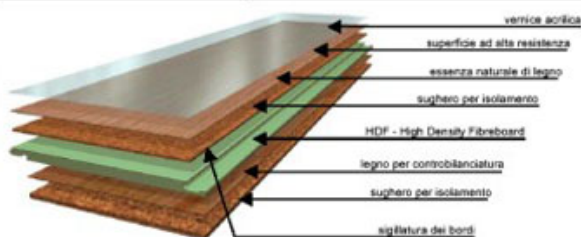


Kindergarten Trinitatis in Riesa, Germany. Sight of the atrium with floor in wood treated with base varnish of soap shellac, non-toxic and easily washable

In the second part of the thesis, I have intentionally demonstrated that a correspondence between psychological and physiological requirements exists. I have carried out a crossed analysis: on one side I have defined the possible pollution sources and the polluting property that can notch the inside of the places, setting the accent on the effects that these can have on the organism of the children; from the other one I have underlined, in critical and objective way, the normative limits and the possible planning strategies to check the entry of such substances. The third part of the job is an actualisation of the precedent analysis. After a market survey, carried out in the panorama of the companies manufacturers of materials for the building, I have written up a hundred of "product cards", previous analysis of the possible strategies of control that can be adopted in the planning phase to eliminate the emission of polluting substances indoors. The materials analysed are used for the finish of the environments: painting and finishes wall, colouring, impregnating pigments and pastes, enamels and varnishes, stickers and adhesive for floorings and coverings, materials to dress floors and walls, external vertical locking, furniture, devices for the protection from the gas radon and for the airing.

Finishes	
Floors and coverings	6.2.5
FLOOR IN ROLLED WOOD	6.2.5.1

Firm: CORKVOGUE Address: Via Mameli 56/B Albignasego (PD) tel. 049-8625751 fax 049-8625863 corkvoque@corkvoque.it Product's name: WOOD-O-FLOOR	
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Identification	Dimensions	900 x 185 mm
	Thickness	12.0 ± 0.15 mm
	Composition	As from illustration
	Classification	U.P.E.,C ₁
	Available essences	Not specified
	System of laying	Patented system CORKLOK, to joint, without glue.
Types of test	Field of application	Domestic heavy, commercial middle, industrial.
	Class of abrasion	The superficial layer has an extraordinary resistance to the abrasion: 15000 to 30000.
	Resistance to the bump	Not specified
	Resistance wheelchair	Not specified
	Reaction to the fire	
Image in the detail	Echo Test	Not specified
		

Product card relative to a covering for floors in rolled wood produced by the firm Corkvogue

In the search of the information I have intentional set the accent on requirement that a material should possess for being select inside of architectures of infancy. In the case of scholastic building the weight of the budgets that the Administrations have to sustain and that they often condition the quality of the building. The relationship quality - price has been one of main requirement that I have intentional underlined to maintain alive and clear the contact with the reality, so that the thesis did not fall back in the utopia of using ecologically excellent materials, but economically and practically unlikely.

Whitening and paintings	
Protective coverings for inside surfaces	
VARNISHES	6.2.2.

<p>Firm: BALDINI VERNICI S.P.A</p> <p>Address: Via IV Novembre 55016 Lucca tel. 0583-2901 ra fax 0583-211060 www.baldinivernici.it</p> <p>Product's name: HolzLack Flatting</p>	
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Characteristics of the product	Aspect	Shiny colourless varnish		
	Component	Component acrylic in watery dispersion.		
	Desiccation	To the touch max 1 hour		
	Output	18-20 m ² /l		
	Employment	Varnish for layer of finish for wood in inside.		
	Method of application			
Cleaning equips	Dip the utensils in a least quantity of water.			
Certifications	Instructions	Storage	Packaging	
VOC<180 g/l 	The support has to be dry, deprived of dust and of every other polluting substance. It must be applies between +10 °C and +35 °C.	36 months, in the well closed jars, away from sources of heat, from the cold and from the direct solar rays.	0,750, 2,5 litres	

Card product relative to a water varnish produced by the firm Baldini Vernici s.p.a.

This type of approach has pushed me to consider the hypothesis of putting in work materials considered not ecological. An example is constituted by the PVC, chosen because this material by now is widely used in the nursery, in the kindergartens and in the schools. From the contact with the suppliers I have been able to state that there is the possibility to produce "safe" PVC and I have decided to introduce also this possibility. A healthy building is a building that doesn't make to get sick who lives in and this is possible even if natural materials to 100% aren't used, but produced, however, with particular criteria. I have verified, where possible, the presence of ecological certifications and marks of quality released by the preceded corporate body as guarantee of goodness and safety.

I believe that the “product cards” compiled can be a precious tool of information in the hand of the consumer, of the Public Administration or of the same planner, helping these actors to deepen the knowledge of the commercialised products, producing ideas, contacts and commercial exchanges that can improve the production of healthy architectures, functional and also beautiful.

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