

### The meanings of the materials in the architecture of the XXth century

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#### Summary

*The finishing materials in architecture have the role to beautify, to transmit ideas, feelings, to create certain moods. The creative and adapted to context use of finishing materials brings an esthetical and semantic variety in architecture.*

*Natural materials symbolize tradition and rootedness, they have warmness and vitality, preciousity and nobleness. Wood is the symbol of universal substance, it generates the feeling of warmness and protection. The stone symbolizes power, perennality and prestige, it beautifies and ennobles many architectural works.*

*Artificial materials symbolize the human control, the control of reason on the environment. The concrete means lastingness and hardness; it is a malleable artificial stone which can generate a large variety of forms and spatial and constructive solutions. The metal – signifies flexibility and concentration. Certain metal types – titanium, copper – used as finishing materials, have peculiar plastic qualities, they make the buildings attractive or confer them an air of preciousity. The glass by transparency, translucidity and the capacity to absorb, reflect or to let light enter, offers varied and changing sensations.*

Keywords: creative and adapted to context use of materials; symbols of materials; various visual, tactile and olfactory sensations; esthetical and semantic variety in architecture

#### 1. INTRODUCTION

The finishing materials in architecture have the role to beautify, to transmit ideas, feelings, to create certain conditions. They communicate visual sensations – depending on color, texture and the way they absorb or reflect light – tactile sensations – of warmness or coldness, thinness or hardness – and olfactory sensations.

“Material can be made to glitter and vibrate”, states Peter Zumthor, by adopting their using in the context of architectural creation: “we have to constantly ask ourselves what means the using of a certain material in a certain architectural



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context. A correct answer to this question could bring a new light on the way a material and its intrinsic qualities are used”<sup>1</sup>.



*Termal Baths, Vals, architect Peter Zumthor<sup>2</sup>*

## 2. CONTENTS:

Natural materials – stone, brick, wood –, symbolize tradition and rootedness, they have warmth and vitality, preciousness and nobleness<sup>3</sup>. The raw, unpolished materials used by Frank Lloyd create an organic relation between the house and the surrounding nature. The materials treated and processed of Alvar Aalto works are a symbol of a harmonious relation between man, technology and nature.

<sup>1</sup> Peter Zumthor – *Thinking architecture*, Birkhauser – Publishers for architecture, 2006, Basel, Switzerland, p.8

<sup>2</sup> <http://www.arcspace.com/books/zumthor/index.html>, Photo © Architekturburo Zumthor, Haldenstei

<sup>3</sup> Vlad Gaivoronschi, *Arhitect Design – stone*, no. 4(123)/may 2003, p.45



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*The Sun Trap living room of the Frank Lloyd Wright's daughter*



*<sup>4</sup>Sport hall for the Helsinki University of Technology in Otaniemi, Espoo,  
architect Alvar Aalto*

<sup>4</sup> Alvar Aalto 1949–1952: Sport hall for the Helsinki university of Technology in Otaniemi, Espoo. Photo Heikki Havas / Alvar Aalto Museum.

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**Wood** – contains a superhuman wisdom and science, it is above all matter, symbol of universal substance<sup>5</sup>. In Catholic religion, the wood is synonymous with the cross. The wood generates the feeling of warmth and protection, it emphasizes the role of shelter of architecture. Easy to process in various ways and gentle to touch, the wood is a modern and traditional material. However, its use in modern constructions should be adapted to the contemporary requirements and technologies. Walter Gropius makes a complete eulogize of the wood modernity: “the wood has a wonderful material plasticity ... the wood, the first material used by man for constructions, is desirable for many structural elements of the building: the walls, floors, ceilings, roofs, pilasters and girders. It allows to be scratched, cut, drilled, straightened, hammered, polished, mixed with other materials, lacquered, painted... But the new time needs a new form ... We should “live” the wood in a new way, rediscovering it, remodeling it in its essence, without imitating new forms not responding to our needs. The wood is the building material of our times...”<sup>6</sup>.



*Akademie Mont-Cenis, Herne, architects Francois Helene Jourda & Gilles Perraudin*

<sup>5</sup> Jean Chevalier, *Dictionary of cultural symbols and archetypes*, Amarcord, Timișoara, 2001, p. 209 -210

<sup>6</sup> Walter Gropius quoted by Maria Argenti in *Arhitext Design - Wood*, 1(120) February 2003, p.22



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*The stone* symbolizes power, perenniality and prestige, beautifully aging as the ruins<sup>7</sup>. The stone beautifies and ennobles many architectural works: at the Barcelona Pavilion, the mixture of marble and onyx plates reflecting in water creates a unique ambience. The brick plating of Kahn's works contributes to the solemn appearance of his compositions, and the stone, in various colors, combined in ingenious details in the works of Carlo Scarpa determines a poetic and refined atmosphere.



*Palmach Museum, Tel Aviv, architects Zvi Hecker & Rafi Segal*

The Vals Quartzite of Vals Spa, designed by Peter Zumthor, sets the organic relation between building and surrounding environment, while the red tufa of Caucasus used by Le Corbusier, in the 30s, for plating the Centrosoyous Building of Moscow is a symbol of local identity. The Palmacha Museum of Tel Aviv, created by Zvi Hecker and Rafi Segal displays the nobleness of the stone extracted out from the construction site in sort of “architecture – landscape”.

<sup>7</sup> Vlad Gaivoronschi, *Arhitect Design – stone*, no. 4(123)/may 2003, p.45

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*Barcelona Pavilion, architect Mies van der Rohe*

**Artificial materials** - concrete, metal, glass, plastics – „put into work, they oppose the natural, the aleatory and symbolize the human control, the control of reason on the environment ... these materials do not know – are not allowed to age in the way the stone, wood, crude or fired earth do” (Ioan Augustin)<sup>8</sup>.

**The reinforced concrete** is an artificial stone inspiring lastingness and hardness. “Easy to cast in amorphous and fluid forms” (Zaha Hadid), the concrete has generated, during the modern and contemporary times, new forms and spatial and constructive solutions.

Although apparently an impersonal material and without esthetical qualities, the concrete can communicate a wide variety of visual impressions, depending on the way of processing and the way of putting it in works. It can be used as accurate, even material, well plastered or, like in brutalist esthetics, left “rough”, coarse, bearing the marks of shuttering, “not only visible, but also deliberately outlined, in supra-dimensioned elements, affirmed, even violently jointed”. Creatively and ingeniously treated and used, it can prove new plastic valences and a specific expressiveness: “Under heavy and brutal concretes, we can discover that our sensitivity is distinguished, delicate” states Le Corbusier in the industrial age.

Tadao Ando exploited in its works “the power”, but also “the sensitivity” of concrete. Realizing that its aspect and quality depend on the formwork, the way of consolidation and depending on the casting in forms, he transformed it in a mild and sensitive material, approaching in texture and beauty to wood and paper.

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<sup>8</sup> <http://atelier.liternet.ro>



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Herzog and de Meuron, who found out innovative solutions in using many constructions materials, discovered new qualities of the printed, serigraphed, chemically treated concrete, conferring it vibrations and reflections similar to transparent glass.

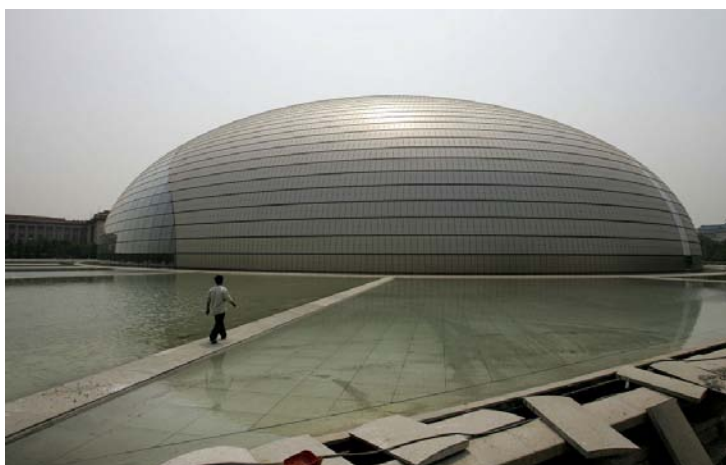


*Technical School Library di Eberswalde, arhitecți Herzog & de Meuron*

**The metal** – signifies flexibility and concentration. The steel buildings of modern period represented a symbol of technological progress, the metallic structure allowing the evolution of architectural programs at a higher scale. The metal has brightness, coldness and hardness; mixed with warm natural materials, it can create particular semantic and plastic contrasts.

Certain metal types – titanium, copper – used as finishing materials, have peculiar plastic qualities, they make the buildings attractive or confer them an air of preciousity. The titanium foils covering the building-sculpture of Guggenheim Museum of Bilbao created by Frank Gehry and the spherical volume of the National Grand Theater of Paul Andreu, changes its color depending on weather conditions and light intensity, they become golden in the rain, bright and almost hallucinating in the sun's light.

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*Marele Teatru Național din Beijing, arhitect Paul Andreu*



*Muzeul Guggenheim, Bilbao, arhitect Frank Gehry*

The copper bands used by Berger + Parkinen architects at the Embassies of Nordic Countries of Berlin as continuous elements covering and unifying in a whole the buildings of the complex, are a symbol of the ocean connecting the Nordic countries with Europe.





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*The Nordic Embassies, Berlin, arhitecți Berger + Parkinen*

**The glass** by transparency, translucidity and the capacity to absorb, reflect or to let light enter, offers varied and changing sensations. The glass facilitates the communication between indoor and outdoor, the relation with the ambient environment or with light.



*Hôtel Industriel, Paris, arhitect Dominique Perrault*



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Dominique Perrault uses glass for its changing character: “a glass building has a variable density that increases and decreases, becomes liquid or solid in certain moments of the day”<sup>9</sup>. By applying the color or the serigraphy, the glass gain new and interesting effects in the buildings signed by Herzog & de Meuron.

The excess using of curtain wall in “international style” creates a tough, cold and impenetrable aspect; the glass-curtain becomes mysterious and rejects more than an opaque wall.

### 3. CONCLUSIONS:

The esthetical qualities of natural and artificial materials can be turned to account very diverse in architecture, so that they gain multiple meanings and poetic qualities. As Alejandro Zaera-Polo remarks, “We can not be interested in getting preconceived effects, but, rather, in exploring materials – and, in this respect, the material should be understood in the most appropriate way – as a source of ideas and effects”<sup>10</sup>. The creative and adapted to context use of finishing materials brings an esthetical and semantic variety in architecture.

### References:

1. Arhitext Design, no. 12 (131) December 2003, 4(123) May 2003, 1(120) February 2003
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  3. Jean Chevalier - *Dictionary of cultural symbols and archetypes*, Editura Amarcord, Timișoara, 2001, p. 209 -210
  4. Peter Zhumtor – *Thinking architecture*, Birkhauser – Publishers for architecture, 2006, Basel
- The movie *Les mots de l'architecte - Dominique Perrault* - directed by Richard Copans, producer Films D'ici/Paris Premiere, 1998

<sup>9</sup> From the movie *Les mots de l'architecte - Dominique Perrault* - directed by Richard Copans, producer Films D'ici/Paris Premiere, 1998

<sup>10</sup> Alejandro Zaera-Polo quote from *Arhitext Design*, no. 12 (131) December 2003, p.33

