ABSTRACT:

Materials, as an instrument for author’s report of his ideas and puts them into the space and time, is a recurring theme of architecture, from the time of Vitruvius triad (firmitas). In minimalism, materials shape space and express its essence, which is the irreducible minimum. The approach in this paper is methodologically defined by architecture domain that is art within it, therefore what the visual means are materials, with the aspiration to discover meaning in what we see. The principles of visual perception are primarily active in the field of law perceptions reached by the psychology of perception, specifically the theory called Gestalt. As the material contained in the tangible components, and sentient, such a relationship is required for duality of materialization, which is achieved by the use of their material expression of immateriality. This expression gives the truth of immateriality (natural materials), tactile value (structure and texture) and the "movement" of the material (the ability to transform). Author’s access to the material as an instrument of expression immaterial, provided the concept of minimalist architecture at a higher artistic level (Peter Cumtor) and causing severe emotional reaction when meeting also created architectural works (Tadao Ando). Transformations of materials are achieved through the exploration of new treatments and techniques (Kengo Kuma), and the development of technology to unimaginable limits changes the way of understanding reality (Herzog & de Meuron). Researching of materials, in the way of its application, can be achieved understanding of minimalism in the architecture as an idea.

Keywords: minimalism, architecture, materials, perception, gestalt psychology, texture, truthfulness (natural materials), the "movement" of the material.

INTRODUCTION

"I'm not sure which material to choose. Ideas come to me immaterial, the lines on the white list, and when I want to fix them, the second thoughts, getting out of me, waiting at a distance” (Siza, 2006: 168).

The materials are a constant topic of architecture, from the time of Vitruvius triad (firmitas) through Diran¹ (Diran, 2005:29) and Lodoli² (Carlo Lodoli, 1690 - 1761) (Kaufman, 1964: 159-175), Frank Lloyd Wright and John Belcher (1912)², up to the present day.

Today, as a central theme of contemporary art and architecture, materials have become "air, gas, fire, sound, smell, magnetic forces, electricity and electronics" (Hill, 2006: 76), i.e. materials that do not have emphasized mass and weight. New sensibilities in architecture

¹ Diran emphasized in his functionalism the importance of the material (in addition to layout and design). In his lectures he cited three types of materials: solid (long and difficult to handle and very expensive), soft (easy to handle and less expensive) and those that serve for binding other materials.

² Lodoli was Italian theorist of architecture who advocated the concepts of functionalism and truthfulness of material in terms of architectural forms and proportions are derived from the ability of the used material. He insisted on the existence of architectural expression that occurs in materials applied under the laws of geometry.

show that the architecture turns highlighting immateriality, which seeks through technological advances. As if reply to Bernard Tschumi question: "Is it necessary material materialization of architecture?" (Tschumi, 2004: 57). Or is it the confirmation of aspirations Wright, Mies, Corbusier and the architecture, "defined by its own emptiness, intangible assets: air, light and landscape" (Čarapić, 2008: 23-32). Dematerialization pursued in minimalism, as a way to irreducible minimum, that is the essence.

Materials submitted own properties that make up the space forming a language through which the builder communicate its ideas. In some way it represent the identity of his personality, his signature. Thus, some authors have become known for the materials that are used: Alvar Alto was in love with a wood, Luigi Nervi in reinforced concrete. Scarpa, united history and the present by the materials and the time. So, his materials that engage each other - at the same time include us. Louis Kahn’s monument architecture has progressed in his decisions of materials implementation: concrete, travertine and wood have to absorb the long-term effects of time, the dynamics of natural light that flows through their land, and the use of brick and concrete described as a celebration of the moment two materials meet. When we talk about the material Khan’s position was close to Wright. Wright’s natural materials are uniting exterior and inner world, confirming the author's organic principles and his attempt to remove the boundary between the natural and architectural. To represent his structural agenda Ludwig Mies van der Rohe spoke by exclusively sharp tongue of steel. "Every member of this modern Pantheon is used and depended on - material to support a philosophical approach" (Pasnik, 2005: 9-10), as a causa efficiens (Heidegger, 1999: 11). In minimalism, the material is the identity of the author’s personality. By researching of copyright access to materials and light as the instruments for expression immateriality, understanding of the minimalism in architecture as an idea can be achieved.

PSYCHOLOGICAL EXPERIENCE OF MATERIAL

The approach to theme in this paper has been methodologically defined by domain of architecture that is art in it, so at the visual means of materials and light aiming to discover meaning in what we see. The entire vision of man is in the field of psychology so it is understandable that the process of creating and experiencing art is directly related to psychology. As the creative process the art itself is a deep psychological process. One of the primary goals in architecture is to define the types of observations using the psychology achievements of perception, according to which it is possible to form some judgments of the architectural work and a space defined by architecture.

The interactive relationship between psychology and architecture may be explored through the meaning of two basic psychological stages: perception and cognition. Perception of the environment refers in its narrowest sense to the process by which one becomes aware of space on the basis of information acquisition sensations of sight, sound, smell, touch and taste, or how it define Vujaklija, "Perception (lat. perceptio ) Psych. perception, perception, all those mental processes that are directly caused by sensory sensations" (Vujaklija, 2002: 697). Zevi writes, "Perception is a complex physical process that can briefly be defined as direct knowledge about objects and events based on information gathered by the senses and

4. Where are followed goals and used benefits, where is the master of instrumentality, there is the government of causality, causality. For centuries philosophy has taught us there are four causes: 1. causa materialis, material, structure silver glass is made by, for example: 2. causa formalis, form, received materials shape; 3. causa finalis, aim, such as sacrificing defines the exact shape required for a glass it will be made by; 4. efficiens causa, cause that produces the effect, ended, real glass: jeweler
other cognitive processes" (Zevi, 2007: 112). Knowledge (cognition) is the mental processing of the sensory information. It can involve actively thinking about information, or evaluation of their memory. "Cognition (lat.cognitio) the power of cognition, knowledge" (Vujaklija, 2002: 431).

"Immediately sense knowledge is base of sensual perceptive process only the cognitive process made adequate superstructure that makes full information“ (Alihodžić, 2007). There are two levels of perception, "The first, which means just seeing bodies and forms and the second level that this perceived form is transferred into the mind and reveals knowledge" (Mako, 2003:7). Or, as Heidegger said, "In its essence, representaentacio is based in reflexio. Therefore, the essence of the subject matter as such becomes clear only where the essence of knowledge and opinions explicitly meets as 'something I think’, that is - as a reflection“ (Heidegger, 1999: 65).

Each observation is thinking at the same time, all reasoning is also intuition, all observation is also invention. "What is that really what's in the stuff? What has thing itself? Do things on their own are not getting just because our opinions reach matter as a matter“ (Heidegger, 1999: 133). The mind immanent perception builds architectural features and brings us closer to the higher cognitive levels. At the end, the cognitive process become summarized by the perception of a comprehensive architectural works in the context of the environment, where they performed a complex synthetic review of earlier experiences and knowledge.

Principles of psychological approaches from the perspective of perceiving the theme derived from Gestalt theory - psychological discipline from the beginning of the last century applied on the group of scientific principles derived largely from experiments on sensory perception. Gestalt theory of visual perception is systematically comprehend this process in all its facets and layers. Perception can be described as a process that involves not only the object of perception but also and the context or environment object perception. A classic example of the principles of figure and ground is shown in Fig. 1. From the very beginning Gestalt psychology has been associated with the arts (in German language Gestalt means form, shape). The author of essay ("The quality of form", "Uber Gestaltqualitaten", 1890.) to whom the theory was called is Christian von Ehrenfels who pointed out that if each of the twelve subjects listened one of the twelve tones of a melody, the sum of their experience will not match that one who would listened to the whole song. For Gestalt theorists everything is much more than the sum of its parts that is a different entity than the sum of its parts, for the principle of the brain work is holistic, parallel and analog, with self-organized tendencies. The classic Gestalt example is a soap-bubble whose spherical shape is defined by a mathematical formula but spontaneously springs from the parallel action of surface tension which acts simultaneously on all points of the surface.

Gestalt, as a psychological discipline, had a significant impact in the field of architectural creation: "Psychologists Gestalt movement clearly showed that the emergent relationships between the parts (the building) as a function of the whole, or that the perception varies depending on the context" (Norberg-Schulz, 1965: 45).

"To see something means to determine its place in a given entirety: place in space, the label on the meter size or brightness or distance" (Arhajm, 1998: 17). As "a mass of water is Gestalt because what happens in one place affects the entire" (Arhajm, 1998: 63), so is the entire mind: "It has become obvious that the properties that give dignity to thinker and artist has all the action of the mind. The same principles apply for the right mental abilities because
the mind always functions as a whole ... ”(Arhajm, 1998: 10). It is understandable, therefore, that if we want to get access to the work of art, we have to look at it as a whole. Pallasma writes, "The architectural work is not seen as a sum of isolated visual images, but it is full materiality of space and the spiritual presence" (Pallasmaa, 2007: 44).

Fig. 1 – Gestalt psychology: freedom of interpretation - the double meaning / Fig. 2 – Victor Horta: Maison du Peuple, Brussels, 1897-1900, demolished 1965.

It is quite certain that the processes of perception and cognition in the context of architectural creation are very complex elements, a set of particular conditional variable factors that determine the meaning aspects of an architectural structure. Tendency, towards an understanding of these processes and their proper direction, are trying to rationalize and valorize the perceptual content of the material as an assembly of each element in the function of the whole. This complex process, initiated perceptual - cognitive transaction, is required in order to truly understand and purposeful individual architectural structures.

MATERIALS AS A SENSORY EXPERIENCE

It is usually emphasizes distinctiveness importance that the architecture (implemented by materials) is an extremely accessible by the senses of touch and sight, which is considered the most important as perceiving space and confirmation of our existence within it. Even Plato in his work Timaeus, considered a observation as a process trough description of the physical process of seeing. He argued "that noble fire that warms the human body flows through the eyes of a smooth, thick stream of light. Thus was established a tangible bridge between the observer and the observed fact over the bridge and pulses of light emanating from the object traveling to the eye and thus to the soul" (Arnheim, 1998: 43). Many thinkers recognize eyesight as precedence among the senses. Well known are St. Thomas Aquinas (1225-1274) and Leonardo de Vinci (1452-1519), whose guiding thought was "Saper vedere" (wise men can see ie. It ought to know how to see). Georg Wilhelm Friedrich Hegel of all senses insisted on touching because he believed it was the only sense which gives us the experience of deep space. As Pallasmaa wrote, because the touch "feel the weight, strength and three-dimensional space (Gestalt) of the body of material and it seems that we know what from us providing in all directions "(Pallasmaa, 2007).

Defining the quality of a certain architectural structure strongly depends on the senses, that is, sensory characteristics of the material. In the words Arhajm: "We definitely see the materials on the basis of what our senses tell us about them. The term is separated from the perception, and thought moves among abstractions” (Arnheim, 1998: 9). He stresses the importance of all the senses in a complex perceptual process of architectural work: "One building is, therefore, in all its aspects, the fact of the human spirit. It is an experience of the senses of sight and hearing, senses of perception, heat and cold, muscle behavior and thoughts and aspirations resulting therefrom (Arnheim, 1990: 11). Certainly, architecture as an art, is characterized by the fact that it, unlike the other arts, communicates through all the senses to the user or viewer. Although the dominant characteristics of the environment has more knowledge on the basis of sight (even 83%) (Djordjevic, 1981: 11), which is the visual experience of his architectural works "most prominent effect" (Arnheim, 1990: 257), should not be omitted synthesis of all sensory process, which is in the context of true architectural work experience indispensable. If we reduced the complexity of perception only to the boundaries of the
visual, it would lose the integrity of the personal areas of architectural works, as says Juhani Pallasmaa: "Problems arise when isolate some of its natural connection with other senses, and when you cut and suppress the other senses, and this sharply reducing and limiting experience within a vision of the world" (Palasmaa, 2007: 39). This Finnish architect in his book "The Eyes of the Skin" examines the concept of "multi-sensory experience" and said that the eyes are in collaboration with the body and the other senses (Pallasmaa, 2007).

The perception is conditioned by the existence of certain material properties that enhance the sensory experience, ie. aimed at providing additional information immediately become part of the mental images of space and space we "experience" in the way as the author - architect experienced it. As architecture is an opportunity to shed light on the complexity of the space in which we live and work, and that creates an experience that appeals to all senses, minimalist projects offer pragmatic solutions that come with a radically new way materials used. Jacques Herzog says that "the reality of architecture not only includes what is built, but also includes an event that is a product of the materials." He locates the "reality of architecture" in the material because "they are most intensely manifest when they are removed from their natural context" (Ursprung, 2002.).

**MATERIAL PROPERTIES WE PERCEIVE**

"From a stationary stone creates a drama of passion" (Le Corbusier, 1977: XLV)

Searching for the essence of space (which is contained in the irreducible minimum), through the expression of something intangible and sublime, seems over matter. Materiality creates an aesthetic experience that should confirm "the presence of something that not can be named, that elusive feeling, but it can manifest itself differently than through the feelings" (Perniola, 2005: 105).

Perception is not just a collection of various sensory impressions, but perceive means something "to take a true" in the sense of: what is offered by the senses, it can be seen taken as something. "What-what it really is - acting, it made: what pro - running in attendance and what the pro - done. "The reality," conceived broadly enough, then the mean in-attendance-produced front-lie-us-in self-completed attendance what products themselves. "(Heidegger, 1999: 36). Starting from thinking that as an aesthetic criterion generally places dogmatic concept of sensory perception, in the research of materials through their artistic part, emphasizes the sensuality of materials, especially the truth, tactility and movement.

**The truth of natural materials (nature of materials)**

One of the greatest scholars of the nineteenth century, Gottfried Semper, (1803-1879), had kept the law and the natural properties of the material to such an extent that he even expressed it as the symbolic value of architecture. The formula \( y = f(x, y, z, \text{etc.}) \) is a mathematical expression that is the core of the architecture values (Y is a work of art that depends on constant and variable factors \( F x, y, z \)). "Constants are represented by "types", and these are defined as "original forms prescribed by requirements". Zemper’s grading system and causal relationships from four materials: clay, wood, stone and textiles grow four techniques: ceramics, carpentry, masonry and weaving which correspond to the four basic elements of architecture: the hearth, the roof, fences and foundations. Variables in the formula are defined as materials, various natural and social conditions and the effects of personality and education of artists, but also the customer. ... His aesthetic conception is not
materialistic one already has a built-in idea of the materials and the creative forces that shape the material" (Mako, 1999: 22). Zemper’s words are: "Architecture, as well as its great teacher, nature, need to choose and apply own materials caused by the laws of nature ... If the most suitable material selected for its embodiment, an ideal expression of the building will certainly get the sense of beauty and appearance of materials as natural symbols "(Semper, 1989: 102).

"Honesty for material means that the material should be selected to on the basis of its properties" (Kaufmann, 1955). And the characteristics of the material which affect the pattern of how and what it is used (Nesbitt, 1996). Therefore, the material should not be used as a substitute for other materials, the material because it undermines the "truth" of its properties which "cheat" the observer (Whiteley, 1993). Theorist Richard Weston proposes that there is a clear distinction between ontology materials and what materials are able to realize: "The concept of materiality is adopted as the code for the view that tends to show the material, which relates more to the subjective effect of the observer, than on its conventional use. The term "material nature" emphasizes what can materials "(Weston, 2003: 193). "Let material speaks for itself, and let it makes a further step undisguised in shape and proportions best suited for the experience and science" (Semper, 1989: 48).

The truth of architecture involves the use of materials according to their qualities, so that the construction methods are easily comprehensible, and not hidden. The first building built on the principle by theorist of architecture Le Duc (Eugène Emmanuel Viollet-le-Duc, 1814-1879), known for his commitment to the "truth of architecture," was Victor Horta’ (1861-1947) building for the Belgian Socialist Workers' Party (Maison du People, 1897-1900), Brussels, Belgium (Fig. 2). It is an open architecture design (ie its visible steel structure), where the expression realized linear architectural elements: brick paneling was designed to accept a stone, a cornerstone to accept steel and glass.

At the end of the nineteenth and early twentieth century when the movement "Arts and Crafts" became popular in the UK (1880 - 1910) and in the USA (1900 - 1905), people had valued attitude on the truth of materials, its respect of deep and an innate material characteristics. They have formed a humble attitude toward the material, listening and trying to learn the identity of the importance of each material. Because, the materials have their own language. Stone tells something of its ancient geological origin, and indispensable symbol of permanence in patience as the brick that shows the traditional way of construction of facilities; bronze materials evoke memories of the manufacturing operation; wood as having two separate existence: first as a plant that is grown and the other as a human artifact. In any case, natural materials have the possibility to make their own history, as well as to allow our mind to penetrate beneath their surface. Romantic notion of crafts may be somewhat absent in our world today, but its effects, its character and its emotions remain visible in analog vitality of materials.

This situation reminiscent of the text of the Italian modernist architect Luigi Moretti (1907-1973). He wrote about the most significant effect of art, the quality of "condensed reality". Art is "a performance that must publish a superior energy density in real life" (Moretti, 1974: 116). Reality of material is related to its nature, is complemented by the similar characteristics of its density of art. The physical characteristics are only half of the effect. As a result of energy which they carry on, architectural works offer extra - physical voice that is the signature of the architect. Le Corbusier described the further presence of this: "One used stone, wood, cement, and turns them in the house or palace, it is civil engineering. It calls for
skill. But suddenly touches my heart, it makes me feel good. I'm happy. I say, that's nice. It is an architecture. It's an art. "(Le Corbusier, 1977: XLV).

The same guideline have been chosen by those architects in minimalism during a search for the essence, of re-discovering through simplicity the value of quality ancient and ordinary materials, and expansion projects show possibilities with materials and a greater ability to breathe life of materials in the building idea.

John Powson is an author who points out "the depth of natural materials". In this work, the so important question is not which material is used, but the way the material is used. He likes big pieces, because he believes that monolithic material (eg. solid marble) has intellectual simplicity (Fig. 3). And if he uses wood, planks are “as wide as the tree trunk from which they were cut and run the entire length of the house. Used like that you are able to enjoy the seamlessness of the material; there are no cuts in the boards. Seamlessness, to me, brings a sense of wholeness, it means not having your visual concentration broken. There is nothing jarring, you can sit anywhere in the room and always feel entirely comfortable visually” (Powson, 1996:14). Precisely thanks to "visual comfort", he usually uses natural materials due to their very depths, as he says: “because they are living materials, which I suppose is what distinguishes a natural material for me from an artificial one. When I used black vinyl on a floor, I was immediately unhappy with it. The eye stopped instantly, never giving a feeling that the material continued beneath the surface… to me, the quality of the each materials from which architecture was created is of much more significance than an exhibitionistic or virtuoso approach leading to the introduction of one unexpected material to another in a design” (Powson, 1996:14).

Claudio Silvestrin is known for discovering the "soul of modest materials" (Fig. 4). By choosing a simple palette of natural materials, his attention was attracted by "the flow and thickness" of space and light - which he intensely felt and experienced. Soul of "modest" used materials is the meeting point between the horizontal and vertical - heaven and earth, and the balance between geometry and instinct, heaviness and lightness, sensuality of curves and rigor of straight line, between the stone and the space it inhabits, between the building as the apartment and as a shrine (Alberoni, 2002).

Fig. 3 – John Powson: Monastery of Aur Lady of Novy Dvur, Czech Republic, 2004. / Fig. 4 – Claudio Silvestrin: Neuendorf House, Majorca, 1989. / Fig. 5 – H&deM: Dominus Winery, Yortville, California, 1998. / Fig. 6 – Alberto Campo Baeza: House De Blas, Madrid, Spain, 2000.

**Tactile value - the texture of the material**

Henry Focillon (1880 - 1943) says that the material has a very important feature, special expressive power, since they carry a certain predisposition or as he says "some formal vocation" (Focillon, 1964). It is a tactile of material. Tactile (l. tactilis): relating to the senses touching, tangible, touchable (Vujaklija, 2002:892). By its tactility, materials related to man and other people - either roughly or intimate, spontaneous or cold, repellent or human. Visual and tactile quality of the surface is defined through the notion of texture. Texture (Latin textura), weaving fabric, assembly, composition, compound (Vujaklija, 2002: 900), as one of the elements that we perceive by the senses when observing or contact of a material within
the architectural structure, aims perception of more information, as a consequence of the tactile senses, instantly become part of the mental image of a particular space.

The texture is a characteristic of all natural things, organic or inorganic, and is seen as a manifestation of the internal structure of the surface. In texture, it is important to properly understand and differentiate the two concepts: the concept of the term structure and texture. The structure is the material of some thing, and the texture is the relief that comes from natural structures or technical processing (Butina, 2000: 80). How is the texture of the material distinctive compositional features of the physical structure of materials, especially with regard to the size, shape, and arrangement of components, it allows architects to design the space according to their emotions. The importance of texture, i.e. tactile and visual experience in creating architectural space, explained Pallasmaa (Pallasmaa, 2007), through the creation of a conceptual framework in which it is sought to make a connection between the dominant sense of sight and sense of touch. The texture characteristics of the materials has been used by some authors as a leitmotif of theirs oeuvre (Tadao Ando, Kengo Kuma, Herzog & de Meuron).

“Movement" of material - material's ability for transformation

Projects of minimalist objects fully accept the ability of the material for transformation when shaped by light, which allows them to "move" so that they affect our senses. The light is directly related to the materials, making them visible, and wrap in a variety of ways allows seeing the color and surface. The relationship of materials and light has become extremely important because it builds the expressive character of the material. The proper modulation of light allows its subtle relationship with the material, causing a transformation in terms of its "movements", and it is clear why the old, ancient materials are not used as a solid mass, large-volume, as large pieces that do not change their expression. Elongated rectangular Dominus Winery in California (Fig. 5), which was designed by Herzog and de Meuron, known for its use of natural stone in just this way. Concrete walls have been covered with wire baskets filled with local basalt stones, arranged in layers of different thicknesses, so that miss the Light: natural daylight reaching the interior, and artificial radiates out. Thus obtained coating, like the skin, has different degree of transparency.

Modern atomic physics has destroyed the concept of "absolute" specificity matter. Artists started to think about the "magic items" and "hidden soul" of the stuff. Italian painter Carlo Carra (1881-1966) wrote: "Just ordinary things show simplicity of form through which we can understand what more important state of being in which rests the magnificence of art." Paul Klee (1879-1940) said: "The subject is expanding beyond the borders of their appearance with the help of our understanding that the matter more than what shows us her outside." Jean René Bazaine (1904-2001) wrote: "Object wakes our love just because it looks like it has the powers that are bigger than himself "(Jung, 1996: 320).

In minimalism, the light is the one that leads to the "hidden soul" or irreducible minimum. The interaction of light with materials is the integration of nature and architecture as an artifact. Kahn (Louis Kahn) is defined as material "spent light" and Baeza (Alberto Campo Baeza) pointed out that there is no architecture without light (Vasilski, 2010: 1-20). He built the house in accordance with his theory of gravity and light, as a symbolic connection stereotonic (what belongs to the earth) and tectonic (what belongs to heaven). It is his position that displays essential antagonism in architecture - one side for attachment to the
ground (horizontal position), and the other to spiritual aspiration (vertical line). "The focus of building space, light construction time and provides a reason for time. There is a central issue of architecture: control and focus and dialogue with light. The future depends on the new architecture, ability to comprehend these two phenomena "(Baeza, 1999: 12). De Blas House (Fig. 6) - visual static of simple forms of boxing highlights the material (stone) which is connected to ground, while the lighter transparent material (glass) in the upper part indicates the pursuit of non-material, spiritual orientation to the vertical. "The object is trying to be an correct translation of the structural box mounted on the stereotonic: stereotonic piece set in the box. Dilution of what is essential in architecture. Once again, "more with less". (A.Campo Baeza in Bertoni, 2002: 196). In this project, it is clear pursuit of materials expressed by their materialization through the release of a solid attachment to the ground architecture.

In minimalism, light represent the matter as well the material. Or we should say, that it is immaterial element of materialization. Current light changes (ambient conditions, different part of day or the season) creates a shadow which transforms and disappears. Shadow, which symbolic overtones of practical life described Jean Giono in a single part of his novel "That my joy could remain" ("Que Ma Joie Demeure"): "The impression is that people basically do not know exactly what they are doing. They are building by stone, but do not see that every move they make by placing a stone in mortar shadow follows the movement that sets the stones in the shadow of a shadow render. And this building is the essence of the shadows" (Arhajm, 1990: 183). Everything is changing and a new way of experiencing the moment, and therefore affects the movement of the viewer's perception of reality. The combination of different materials provides a contrast between transparency and opacity. These are all immaterial elements that affect the materialization of the transience and fragility of expression that is perceived, representing the charm of minimalist object and show its essence.

**MATERIALS IN MINIMALISM AS AUTHOR'S POSITION**

The minimalism is already investigating the possibility that a simple form of material (cubic form, box), depending on the function and environment, give completely different effects. Juxtaposition of old and new material applies, in order to discover the unexpected significance of both. When he writes about the compatibility of materials, Zumthor writes about their presence - present ("presence" of the materials): "The materials react with each other in such a way they meet brilliance, so that their composition provides something unique. The material is endless "(Zumthor, 2006).

Emphasized materiality, searching for the essence of space (which is contained in the irreducible minimum), through the expression of something intangible and sublime, it is precisely through matter (material). Materiality creates an aesthetic experience that should confirm it "the presence of something that not can be named, that elusive feeling, but it can manifest itself differently than the feelings" (Perniola, 2005:105). Materials are used in minimalism in a way to represent the voice of reported speech and silence, show something intangible. They are the ones who create aesthetic experience, which is to cause an emotion which does not allow a statement (feeling in which we say that we do not find the right word). Their meaning is completely changed when they reach a specific effect of each project individually, or as described Zumthor: "The sense that I try to introduce the material is beyond all rules of composition, and their tangibility, smell, and acoustic qualities are merely linguistic elements that are required to use. Feeling arises when I succeeded in presenting
specific meanings of certain materials in their buildings, meanings that can only be seen in just this way in this one building" (Zumthor, 2006).

Reinterpretation of the ancient values of natural materials: Peter Zumthor

In all bustling search of sensational, our civilization is concerned with new discoveries, forgetting the thousands of years layers of experience. Zumthor effort is oriented towards reinterpretating ancient values of collected experience, and that is the vanguard of his work. Searching for a message that materials may have, defined by the use of primal, he tends to emphasize the core of the material, which is above all the common cultural meanings. Natural materials like stone, brick and wood, allow penetration beneath their surface and thus emphasize their credibility as matter, talking about their background and track use. During the research of Zumthor’s work irresistibly imposed connection with paragraphs of Adolf Loos, who, through his work aspired epochal discovery while celebrating the material, but also the influence of Le Corbusier, who was under constant opposition to common values, still finding his way by giving his interpretation, based on his own experience.

Zumthor sees interiors like large instruments, which collected the sound, amplify and spread it. This is related with the peculiarities of each room, surface materials and the way that they are placed. As a result of the use of materials and design space appear energy, which he constantly emphasizes importance of "the unique density and the mood, a sense of being, harmony, beauty ... under which you feel something in a way that otherwise would not have an equivalent." (Zumthor, 2004: 13)

Zumthor when speaking about materials, expressing strong emotional approach. "I believe that the material can take the poetic quality in the context of architecture, but only if the architect is able to use them the right way, because they are not material. If we succeed in this, the materials in architecture began to glow and flicker "(Zumthor, 1999: 10). He meets a natural material, so that through them gained a deep understanding of the layers of the past, the meaning of the very sensitivity of the building. As a guiding principle in relation to materials Zumtor often cited works by Joseph Beuys (Fig. 7) and artists from the Arte Povera group, noting accuracy and sensuality in the way their implementation of materials.

Fig. 7 - Joseph Beuys: Fat Chair, 1964-1985. / Fig. 8 – Peter Zumthor: Swiss pavilion, Hanover, 2000. / Fig. 9 - Peter Zumthor: Enclosure for a Roman archaeological site, Chur, Switzerland, 1986. / Fig. 10 – Peter Zumthor: Thermal Bath, Vals, Canton of Graubunden, 1990-96 / Fig. 11 – Peter Zumthor: Kunsthau, Bregenz, 1990-97.

These effects achieved in Zumthor’s architecture can be seen in comparing the Pavilion in Hanover (Fig. 8) and The railing for Roman archaeological site in Kur in Switzerland (Fig. 9). Although the facility is used in both horizontal wooden planks, Zumtor achieve different effects. Swiss pavilion at the author's intention was to get through the application of traditional materials like wood, emphasize the continuity of the relationship of the past and present. The walls of the wooden horizontal beams become completely transparent, the smell of wood fills the entire space of the pavilion is always the same one, so for anyone who is inside the building, the connection with nature fully achieved. Power of materials is in their durability. Unlike the pavilion, in the example in shelters Kur that impression emphasized horizontality is achieved planks that do not leak light, but only partially air and sound, according to the author's intention that the noise of the modern city, while the appearance
associated with Roman interiors. Wooden structure of the building, which grows out of solid reinforced concrete base, forming a transparent wooden panels that allow light and air to circulate into the building.

Noble woven stone façade in Thermal bath in Vals (Fig. 10) and the outer uniform coating glass panels, simply plugged in thin metal structure, in the House of Art in Bregenz (Fig. 11), are the two most famous Zumthor’s works, whose ascetic modulated surfaces are extremely sensitive to light intensity. In Vals, the use of rough rocks in the extreme simplicity of the space, provides a water-filled environment, the kind of archaic and primordial sense of the term. Monumental interior (monolithic mass of rocks) is full with silence and ancient sense of calmness and peace, without any modern connotations of acceleration and tension. „It has been many years since a building has expressed such an external sense of peace with so much harmony“ (Francois Chaslin, in Bertoni, 2002: 156).

House of Art in Bregenz has surprising effect of dematerialization of the object, which are made of reinforced concrete and steel, obtained by adding remarkable simplicity: the outer glazing of the building was done by simply glass panels. „Reduced to static essentials…the construction, material and visual form of the building constitute a unified whole. The building is exactly what we see and touch, exactly what we feel beneath our feel: a cast concrete, stony body“ (Bertoni, 2002: 148). "Really, architecture is that specifically what has become a form, weight and space, her body. There is no idea other than in things“ (Zumthor, 2003:32). In this sense, owing to his capacity to allow things to be perceived for what they really are, Zumthor should be regarded as one of the most radically minimalist architects. And he achieves this exactly through materials: "Wood-like flooring light membrane, heavy rock mass, soft fabrics, polished marble, crude steel, polished mahogany, crystal glass, soft leather, soft asphalt heated sun - materials of architects, our materials. We all know them. And yet do not know. To project, to produce architecture must learn to consciously treat them. This is a research work, it is work of memory ”(Zumthor, 2003: 60). And from that memory arises feeling which Cumtor introduced into the material.

"Material structure": Kengo Kuma

Materials play an increasingly prominent role in Kuma’s architecture. His relationship to the materials he presented by idea: “I do not know whether an architecture in which the form and silhouette disappear, leaving only materiality, is possible, but it is something I want to pursue. From the point of view of […] conventional (logic), this is a contradiction. Until now in architecture, form and material have been connected, but I want to separate them” (Kuma and Suzuki, 2000: 5).

Kuma’s approach to materials is, in many respects, is original. The authors which haves been experimenting with materials as diverse as he has, are very rare; more importantly, he has applied them in many different ways. Among the natural (old and time-proven materials), wood is a favorite of his, although he also often applies other materials: stone, bamboo, paper, ivy and other plants.

When relies on local materials which are available around or near the site where he is building, his architecture appears to grow from the place itself. This materials contribute to the creation of those places by endowing them with special character and a particular intimacy. An example of this locally grown architecture is his Adobe Museum for Wooden Buddha in Yamaguchi Prefecture, where the soil dug out from the site was made into hanchiku (unfired bricks) and used in the construction. Z58 building (Fig. 13), by the original
use of materials, light and foils has become an example of minimalist architecture especially devoid of identification marks, he shrouded the façade in locally grown ivy, in doing so, he was envisioned a new kind of green architecture that is not only eco-friendly but also unusually attractive (Bognar, 2009: 39).

Kuma uses also artificial materials like glass-fiber/reinforced plastic, and in his palette are used also alloys metals, ceramics, teflon-coated fabric, thick vinyl sheets, and others. Earth, water and light, natural and artificial, are equally important "materials" for him, because he feels a strong commitment to them (Bognar, 2009: 34). Kuma’s tend to be light and fragile, what seems to dissolve in their environment, means the poetic metaphor in architecture (Kuma, 1997: 6).

There is a growing interest in materials, all around the world, particularly shown through research potential of new and old material. Kuma often juxtaposes old and new materials as a means to conjure unexpected meanings for both. Unlike of earlier periods, mere materials as bare elements or structures, as forms towards innovative architecture. This point is well illustrated by his remarkable Great Bamboo Wall (Fig. 14), a mall guesthouse north of Beijing, where he used bamboo extensively to define the boundaries of the building and the interior of a tea pavilion.

In general, he is determined to avoid treating materials as solid masses, material regardless, he makes every effort to break it down to small elements. A particularly creative use of stone appears in the LVMH Shinsaibashi building in Osaka (Fig. 15), where the façade is composed of panels of 0.16-inch thick (four –milimeter) translucent onyx sheets from Pakistan, sandwiched between glass plates, alternating with panels of stone-patterned film applied between layers of glass. This was a continuation of his Stone Plaza, where 1.56-inch-thin (four-centimeter) and 5-feet-long (1.5-meter) stone bars provide a system of horizontal louvers (Bognar, 2009: 34).

Kuma’s designs are characterized by stringent requirements, greater self-restraint, it is economically and environmentally favorable solutions, where materials occupy a prominent place. “The conclusion I have reached after having thought about materials in various forms is simple. Material is not a finish. Period… What is important is that we distance ourselves from the twofold division of structures…and materials…The term “material structure”, which I coined … treads together material and structure into one” (Kuma, 2004: 9). Kengo Kuma’s architecture is indeed minimalist, calm, while rich in texture, color and complicated modulated light. He unfailingly concentrates on the totality of human experience, which involves not only vision but all faculties of perception, especially tactility and movement. Underlying these efforts is his recognition that architecture by definition is a structure, a material entity that needs to withstand a variety of environmental forces and impacts, and this material condition has to be reckoned with when trying to render it a phenomenon, or mirage.

The smooth texture of concrete: Tadao Ando

Tadao Ando is one of the first architects in the world to introduce minimalism in the field of architecture, in the eighties of the last century, when the minimalism is not even discussed. "I'm trying to use modern material, concrete and special concrete walls in a simple form... It
seems to me that the concrete is the most suitable material for realization of the space created by sunbeams today. But concrete I use does not have the exact weight plastic. Instead, it must be homogeneous and bright and needs to create a surface. When they agree with my aesthetic image, the walls become abstract, reversed and reach the maximum limit of space. Their existence was lost and only they close the space provides a sense of real existence. Under these conditions, the volume and projected light wandering alone in highlighting the spatial composition. “(Dal Co, 1995: 7.8).

Ando has developed a completely unique design aesthetic of the original space, which results from interaction of materials (concrete, wood) with nature (water and light) in a way that has never before been witnessed in architecture. Through the materials he uses his magic: transforming the inevitable accidental. “In my opinion, three elements are required to meet architecture. One of them is the material itself. Original, genuine material such as bare concrete or natural wood. The second element is a pure geometry, the base structure that ends in the present work. The third element is the nature, not nature, in pristine condition, but the nature of man which is imprinted order.” (Ando, 1990).

Fig. 16 – Tadao Ando: Casa Koshino, Ashiya, Hyogo, 1980. / Fig. 17 – Tadao Ando: 4x4 House, Hyogo, 2003. / Fig. 18 – Tadao Ando: Vitra Conference Pavilion, Weil am Rhein, Germany, 1993. / Fig. 19 - Langen Foundation, Neuss, Germany, 2004.

Ando in his works (Fig. 16-19) uses a limited number of materials and express their bare textures sensitive to touch. He is a master of cast concrete, but relies on natural materials for places of which a human being can touch: natural wood inevitably used for floors, doors and furniture. Great attention was given to materials what gives his work a distinctive austerity and tension and subtlety of light brings life and soul to touch the viewer. What he tries to express through the concrete is not Le Corbusier’s endurance 5 but something more subtle. Criterion for Ando’s expression through concrete lies in the rhythms of daily life based on unique Japanese aesthetic. His calm architecture relies on a line of traditional Japanese architecture and principles of oriental culture, its distinctive concrete like silk panels are made of concrete in the form of Japanese tatami mats. "Using the recombination of these principles in the work of creating Ando’s gestalt ..." (Moraes, 2007:6). Ando’s unadorned walls, imbued with an elegant Japanese purity, are powerful, heavy, almost in silence seemed filled with sadness. Express inner strength which we discover Ando’s beliefs: unadorned wall rises imagination, requires observers to live, stimulate awareness of his own personality, just as it is unadorned. Polished concrete surfaces accept our empathy and functioned almost as a mirror of our heart gradually absorbing our consciousness, suggesting that the substances detected his spirit. The ancient alchemic notion of "spirit matter", which was believed to dwell in inanimate things (metal, glass), read from a psychological point of view is the unconscious mind, which is seen "when conscious or rational knowledge and reach their limits when it begins a secret, because man it strives to meet the inexplicable and mysterious contents of his unconscious "(Jung, 1996: 320). The spirit of matter that takes the archetype of space discovery: "At first glance, my architecture involves exposure, as I wanted to create a kind of abstract space that occurs after the removal of all human, functional and practical elements. In fact, I do not aspire of abstract space, but the archetype of space "(Furujama, 2006).

5 "Architecture: the creation of an exciting harmony with the raw material," considered Corbusier (Le Corbusier, 1977: XLV).
Architectural textures: Herzog&deMeuron

"A building is a building. It cannot be read like a book; it doesn't have any credits, subtitles or labels like pictures in a gallery. In that sense, we are absolutely anti-representational. The strength of our buildings is the immediate, visceral impact they have on a visitor". Herzog&deMeuron

Henri Lefebvre (1901-1991), a French sociologist dealt with the problem of space, wrote about the facades that disappear in the abstract space (From Absolute Space to Abstract Space), in a place where "everything can be seen from every point of view" (Lefebvre, 1994). Herzog and de Meuron treated facades as an interface between the facades of individual buildings and urban spaces, so they condense into a kind of abstract space substance, using pictures and carefully selected materials. Since the eighties, they show how the outer shells of buildings can be, regardless of the structures that support them, to function as a picture, or, to quote Herzog (Jacques Herzog), saturated images as positive. Our civilization tends to cut the dimension of the image space area in another sense, in two dimensions as a result of the development of technical drawings, which replaces the imaginary picture. For them, the essence of the strategy is the development of a new image, a strategy that will bring down the daily observations and ask questions than to meet the needs of redundant. Evident is their specific impact on minimalism in architecture (Vasiliski, 2008: 99). Although classified as "meta-minimalists" (Ruby, Sachs, Ursprung, 2003: 22), their manipulation of images, materials and typologies have in some sense antagonistic approach towards their counterparts in minimalism and therefore may be involved in this category only the deliberate restriction.

Herzog’s words: "The reality of architecture does not refer simply to what is constructed, but rather is manifested in the materials" (Ursprung, 2002) show the "real architecture" in materials. "Because they are best expressed when they are removed from their usual context" (Fernandez, 2007) and nature. In recent years their preferred material is plastic (Jeska, 2007), although they initially use more natural materials, mainly stone.

Fig. 20 and 21 – Production and Storage Building Mulhouse-Brunstatt, France, 1993. / Fig. 22 - Andy Warhol: Five Death Seventeen Times in Black and White, 262x209 cm / Fig. 24 - Herzog & De Meuron: Eberswalde Technical School Library, Eberswalde, Germany 1999.

The photographic images are what attracted attention of Herzog and de Meron since they choose a photo of a plant leaf, which was painted by Karl Blossfeldt (1865 - 1932) in twenties, as a motive for the transparent walls and roof on the factory and warehouse of company Ricola (Fig. 20). Design leaf done on plastic panels is the author's part of "searching for architecture" ("recherche architecturale"), in terms of highlighting the architectural form of a building (Fig. 21). In this project, Herzog and de Meuron returned to typical modernist materials: glass, concrete and steel, while their glass facades are not completely transparent, but partly. Internal structures are only hinted at, the degree of transparency of the facade varies depending on time of the day and the amount of light. The front and back of the factory and its protruding roof consists of partially translucent polycarbonate plates that have embossed floral designs. The narrow building sites have been made of black concrete which remains a trace of rain, resulting in a subtle effect: "When is wet this wall looks more transparency than glazed one, that is the effect that we really like, not only for its beauty but also because it leads to the fullness and transparency "(Ursprung, 2002).
The material approach and application in the work of Herzog&deMeuron present effects of German conceptual artist Joseph Beuys, one of the greatest figures of conceptual art in the world, and Donald Judd, American artist of minimalism. There is also an obvious influence of theorist Gottfried Semper.

Parallels between creativity of Beuys and Herzog&deMeuron are quite understandable. Beuys used the materials in the way not to impose meaning, but merely suggest it: copper as a conductor of electricity, felt and canvas that keep heat, gelatin as a matter of damming, and his works are full of symbols and allegories. Herzog&deMeuron use plywood, copper plating and coating in its structure, using Beuys’s motives, what allowed them to release of the inheritance formalism from late modernist architecture.

Judd creation they have met at an exhibition in the Museum of Art in Basel in 1975. It was a sculpture "Six Cold Rolled Steel Boxes", which were impressed them by beauty looks: finish, choice of special techniques and materials, as well as fascinating Judd processing skills. In the same museum room was represented Andy Warhols (1928-1987) serigraph "Five deaths seventeen times in black and white" (Fig. 22).

Twenty years later, the same themes emerged at project for the library Eberswalde Technical School (Eberswalde) (Fig. 23), where the principle of stacking layers in horizontal bands have been added by images that float, printed into the glass panels and concrete slabs. Optical quality of images is achieved by combination of concrete and glass. For each line that embraces the façade is one image that is repeated. Viewed vertically, proper concrete slabs interspersed with wider glass panels so that the same image was displayed only on the lowest and highest levels. What connects the glass and concrete surfaces into a solid unit properties are contrasting images which are covered by. As the day and night, at certain moments in the façade images take on the properties of mirrors, while others emit light as a liquid crystal display screens. The observer, when changing the angle and focus, soon realized the basic difference between the surfaces of various materials: pictures on concrete blocks was carved into the material, while those on the glass are printed. This is probably the most advanced operation that Herzog & de Meuron performed on materials, because their optical quality images derive from the material on which it is (Raymund, 2000). This material is characterized by the use of experimentation with various prints, connecting them with ideas of Gottfried Semper, one of the greatest scholars of the nineteenth century. Their interesting in the image, in the context of the façade, less refers to the images as such and more on prints as prints covering a range of photography that begins and ends by the fossil remainders.

CONCLUSION

There is a dictum in philosophy of East: "No people, only ideas." Today, minimalism in architecture as a global idea of the world and as a archetype of reality marked by electronic communications, high-technology development and the man, who still in the depths of his soul yearns for the arts, because it "has, among its necessary elements, the determination to set up a system of tangible things that have the property that question, and you never need to quench caused. The problem of art consists in the fact that so desirable and preferred to stay constant. Creativity seeks to create an object that itself triggers craving. That's what I call aesthetic infinity and it clearly differs from work of art of the other human creation "(Valeri, 2003: 30).
Because "the nature of man is to define clearly what he sees and understand why he sees what he sees" (Arhajm, 1998: 15), the materials in minimalism are the instruments of its understanding: "Gradually, entire wealth of art has been revealed and come into its own, and as we well perceive it, it begins by its message to include all the power of our minds" (Arhajm, 1998: 15). When Herzog asks what we are interested in the project of a building, where he gives the answer "modeling tool for creating perception reality and our interaction with it" (Ursprung, 2002), he stresses the importance of materials in architecture, as a means of interaction user and object. The material is treated in the architecture of minimalism as an instrument for emphasis the object reality and perception, ie. immaterial minimum like its essence. It is always true that we have something to think about what we see, to at least see something.