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Materials of Architecture and Civil Engineering Associated with Construction of Development

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Abstract:

Building materials often used in the world of architecture and civil society must be known by the public, especially related to the world of development. Building usually connoted with the house, building or any means, infrastructure or infrastructure in culture or human life in building civilization as well as bridges and construction as well as its design, roads, telecommunication facilities. Generally a civilization of a nation can be seen from the techniques of building techniques and facilities and infrastructure made or abandoned by humans in the course of history.

Building relates to the progress of human civilization, then in its journey, people need knowledge or techniques related to building or that support in making a building. The development of science can not be separated from it as well as architecture, civil engineering related to the building. The use of trigonometry in mathematics also relates to buildings suspected of being used during the time of ancient Egypt in building the Pyramids. Today, high-rise buildings are considered to be the hallmarks of the progress of human civilization.

Keywords: architect, building materials, building, infrastructure, civil

1. Preliminary

At first humans only take advantage of what is in nature as a means and infrastructure or infrastructure in life. Just like using the cave as a place to live. Then take advantage of what is in nature as materials to make infrastructure like stone, earth and wood. Once found in mining materials that can be used to make tools or objects that support a building such as metal goods and process natural materials such as processing limestone, sand and soil. In its development, human made building materials from industrial or man-made products whose raw materials are taken from nature.

1.1. Writing purpose

The purpose of writing this paper to know the building materials commonly used in building construction work.

2. Discussion

2.1. Building Foundation Components

It is a component of the foot in charge of supporting the establishment of the building on the location of the desired land. Materials needed:

2.1.1. Cement

Cement is a hydraulic adhesive material of fine powder that can harden when mixed with water. Cement comprises calcium oxide (CaO), clay containing silica oxide (SiO₂), aluminum oxide (Al₂O₃), iron oxide (Fe₂O₃) and casts that serve to control hardening. Cement has 4 main elements, namely:

1. Limestone (CaO) as the main source, sometimes contaminated by SiO₂, Al₂O₃, and Fe₂O₃.
2. Clays containing SiO₂, Al₂O₃, and Fe₂O₃ compounds.
3. If necessary add quartz sand / silica rock, this is added if on the clay contains a little SiO₂.
4. Iron sand / iron ore, this is added when the clay contains little Fe₂O₃

- The types of cement, and the use of its type
- Type I, is a cement used for public buildings without special conditions. Another name for this cement is the Ordinary Portland Cement (OPC)
- Type II, may be used when there is interference from moderate and moderate heat hydration.
- Type III, this cement has a fast hardening process. Usually used for the construction of the settlement quickly or in the time limit
- Type IV, low hydration hydride cement.
- Type V, this cement is used when construction is around the shoreline or the building has high sulfate interference.

- Commonly used types of cement are:

Portland Pozolan Cement (SPP)

This cement is the result of Portland cement added with pozolan, which is pozolan which added bekrisar 10-30%. Another name of this cement is Traz Portland Cement, this cement is often used in Germany. Tras used is Tras Andernach.

White Cement

This cement mixture has a low Fe₂O₃ content, because the gray color on portland cement is caused by iron filings. This cement is made of limestone and white clay (kaolin), Fe₂O₃ levels should not be more than 1.5%. Processing is the same as regular cement processing, but does not use iron-containing tools.

Mansory cement

This cement works for couples and plastering. The cement is made from Portland cement and mixed with limestone grinder. But type I cement is better than this.

Oil well cement

Serves to cement the oil drilling pipe, coat the water or gas leak. The cement is in use in the form of a pure liquid slurry with high pressure which reaches 1200 kg / cm² with an average temperature of more than 170o in the uncoated state.

Hydrophobic cement

Milled clinker with added oleic acid or streat acid.

Waterproofed cement

Cement used in England made of Portland cement added calcium, aluminum, or other metal sterate.

Cement alumina

The limestone mixture is mixed with bauxite with mixed content of 60-70% (limestone), and 30-40% (bauxite). The mixture was burned at 1600 ° C in an electric furnace until liquid, then the baker was added in a cast.

Type of cement	
No.SNI	Name
SNI 15-0129-2004	White portland cement
SNI 15-0302-2004	Cement portland pozolan / Portland Pozzolan Cement (PPC)
SNI 15-2049-2004	Portland cement / Ordinary Portland Cement (OPC)
SNI 15-3500-2004	Portland cement interferences
SNI 15-3758-2004	Masonry cement
SNI 15-7064-2004	Composite portland cement

Table 1

2.1.2. Chalk

Lime is an important building material. This material has been used since ancient times. In Indonesia, lime is known as a binder, in the making of walls, pillars and so on.

The properties of lime as a building material (ikat) are:

- Has good plastic properties (not brittle),
- As a mortar, a force member on the wall.
- Can harden quickly and easily
- Easy to work
- Has good bond with stone or brick.

- Lime can be used for the following purposes:

- As a binder on mortar,
- As a binder on concrete. When used together with Portland Cement, its properties become better and can reduce the need for Portland cement,
- As rocks if in the form of limestone
- As a whitener.

- Lime can be classified in several types, namely:

- Chalk tohor (CaO),
- Lime out (Ca (OH) 2),

- Lime air,
- Lime hydraulics

2.1.3. Sand

Sand is an example of granular material. Sand grains are generally sized between 0.0625 to 2 millimeters. The sand-forming material is silicon dioxide, but in some tropical and subtropical beaches it is generally formed from limestone.

Types of sand:

- Sand urug: used to increase floor level, as a foundation of work, or foundation of the foundation.
- Sand plug: used to install bricks and plaster.
- Bangka white sand: used for high strength concrete mix, also for plaster. His ruggedness makes use of more economical cement and faster settings.
- Concrete sand
- Sand stone / sirtu

2.1.4. Water

The water used should be clean, fresh and free of harmful materials such as oil, acids and organic elements.

2.1.5. Concrete

Concrete is a mixture comprising sand, gravel, crushed stone, or other aggregates which are mixed together with a paste made of cement and water forming a period of like-rock.

2.2. Column-Beam-Wall Component

Is a construction component that mutually reinforce the structure / building framework on the foundation.

- For Columns and Blocks:

2.2.1. Wood

Wood is part of stems or branches and twigs of hardened plant due to lignification (pengayuan). The cause of wood formation is due to the accumulation of cellulose and lignin on the cell wall of various tissues in the stem. One of the uses of wood is for building materials that are distinguished as structural (load bear) and non structural (non-load-bearing) structures. For both structural and non structural purposes, technical data support is required such as mechanical properties.

Mechanical properties there are several kinds that relate to the kinds of use, among others, as building materials, for example for pole data required persistence press parallel to the fiber, for the horses required static flexural firmness, persistence of press parallel fiber, steadfastness. Balai investigation Forestry Bogor has classified wood in Indonesia in 5 classes durability based on criteria:

- * The influence of moisture / wood is placed in a humid place.
- * Effect of climate and solar thermal but protected against water influence
- * Effect of climate, but protected against the sun's heat.
- * Protected and well maintained.
- * Influence of termites and other insects.

Wood Classification based on durability class and strength:

Class 1 and 2: For heavyduty buildings, which are always associated with moist soil, wind or solar heat. Wood including the type include: Teak, Merbau, bangkirai (Meranti Egg)

Class 3: For buildings and furnishings in roof shade that are not related to soil and moisture. Among others: Kamper, Keruing.

Class 4: For buildings and light furniture in roof shade. Eg: Meranti, Suren (Surian)

Class 5: For temporary / non permanent work, such as for formwork board, scaffold or crate.

➤ Types of Wood:

- Teak: Characteristics are stable, strong and durable. Includes timber with First, Second and Strong Class I, II. Teak has proven resistant to mold, termites, and other insects because of the oil content in the wood itself.
- Merbau wood: When compared with teak wood, its characteristics are quite hard and stable. Includes timber with First, Second, and Strong Class I, II. Merbau wood has been proven resistant to insects.
- Mahogany: Has a fairly smooth texture, beautiful and pinkish to dark red. Widely used as an element of room decoration. Including timber with Class Awet III and Class Strong II, III.
- Bangkirai Wood: The characteristics are quite durable and strong. Includes timber with grade I, II, III and strong class I, II. The nature of hardness is also accompanied by a high level of brittleness that easily appears cracked surface hair. Due to its strength, this wood is often used for heavy construction materials such as wooden roofs.
- Camphor wood: It has the characteristics of not teak wood and as strong as bangkirai, kamper has wooden sert which is smooth and beautiful
- Meranti, Meranti Wood: Includes the type of hardwood, dark pink to pale pink, but not as pale as white meranti. In addition to not fine textured, meranti wood is also not so resistant to weather, so it is not recommended for use outdoors. Including wood with Class Awet III, IV.

- Sonokeling Wood: Has very beautiful wood fibers, purple, black-streaked, or purplish black with reddish brown. In addition to beautiful wood is also strong and durable. Includes timber with First Class and Strong Class II.
- Sungkai Wood: The texture is quite smooth, the fiber is beautiful and is pale yellow. Sungkai wood is often used as a decorative element material. Including timber with Class Awet III and Class Strong II, III.
- Coconut Wood: It is one of the new alternative sources of timber originating from an abandoned coconut plant (aged 60 years and over) and must be felled for replacement with new tree seedlings. All parts of the coconut tree are fibers / fibers that are short-shaped lines.

2.2.2. Iron / other metals (steel plate, steel strip, aluminum)

2.2.3. Fasternes

- Screws or screws,

The bolt or screw is a rod or tube with a helical groove on its surface. Its main use is as simple to convert torque into linear force. Bolts can also be defined as inclined plane wrapped around a bar.

- piercing devices,
- nails (ordinary nails, concrete nails)

Nails are hard pointed metal, generally made of steel, used to attach two materials by penetrating both. Nails are generally blown on materials using a hammer or nail gun that is driven by compressed air or a small explosive impulse. Attachment by spikes occurs in the presence of friction forces in the vertical direction and force of force in the lateral direction. The tip of the nail is sometimes bent to prevent the spikes coming out. save 75% stucco and 50% wall load. And of course the implementation of his work is faster. Batako is made from a mixture of tras, lime, sand and cement. The strength is certainly lower than the brick. Low quality bricks will break easily because of the small amount of cement. The common size on the market is 40 x 20 x 10 or less.

2.2.4. Wire

2.2.5. Reinforced Concrete (Iron Concrete)

Is a combination of concrete and steel in which steel reinforcement serves to provide a tensile strength not possessed of concrete. Steel reinforcement can also withstand compressive forces so they are used in columns and in other conditions.

– For Walls:

A. Brick Walls

This material is the most widely used in Indonesia. Almost everywhere, even villages, there are brick makers. Easy-to-obtain clay raw materials and simple manufacturing processes make the price relatively cheap. The usual size on the market is 25 x 12 x 5 cm or less. The walls of the brick pairs are generally made with ½ stone thickness and at least every 3-m distance are given practical columns as binder and load dealer. Brick walls are usually used as non-structural construction which is not load-bearing.

B. Bataco Wall

To save the cost of building a house, alternative use of brickwork is widely used in many places. In addition to the cheaper price per meters, larger dimensions and perforations can be save 75% stucco and 50% wall load. And of course the implementation of his work became faster. Bataco is made from a mixture of tras, lime, sand and cement. The strength is certainly lower than the brick. Low quality bricks will break easily because of the small amount of cement. The common size on the market is 40 x 20 x 10 or less.

C. Lightweight Brick Wall

Lightweight brick is one type of lightweight concrete aeration that became known in Indonesia in 1995. The advantages are the weight is much lighter than brick or brick. Usually used for multi-storey buildings to reduce loading so that foundation costs become smaller. A large dimension of 60 x 20 x 10 / 7,7 cm makes fast wall work done. Its precise size also requires only a very thin speci. Another advantage is its ability to withstand heat and sound. In terms of price to date still more expensive than brick. However, fast installation jobs can save workers' wages.

D. Wooden Wall

Because of the rare and expensive wood of today, it may be rare for homes to wear this type of wall. Except for the houses in the countryside or houses that are deliberately designed country style. Wooden board wall can also be used in wood frame construction. The advantages of this wall is to create a warm and natural atmosphere. The atmosphere inside the house will be cooler. But the treatment is difficult. Wood more easily weathered if exposed to heat and rain. Not to mention the termite attack for the tropics like our country.

E. Glass Wall

Along with the increasing production and technology of glass materials, the use of glass as home construction materials also increased from year to year. We used to wear glass at home for windows or doors. Namu now glass is part of the exterior design and interior of the house. Glass walls can make the house look more spacious than the original. The green and beautiful green yard can be seen from

the house which causes the atmosphere to be more natural and cool. But to consider also if the glass wall directly exposed to sunlight that will make the air in the house to heat.

F. Sheet Wall (Cladding)

If you want wall-making quickly, you can replace a conventional wall with partition walls. There are also many types, for example, metal cladding, GRC or Fiber Cement (Kalsiboard) for outer walls, and gypsum or multiplex for inner walls. The frame is made of hollow iron or mild steel. Because of its lighter weight the wall system is suitable for use on buildings that stand on the ground with low bearing capacity. Another advantage is earthquake resistant and the price is cheaper than conventional walls.

G. Brick

Bricks are one of the material materials as a wall-making material. Bricks made of clay are burned until reddish color. Along with the development of technology, the use of bricks decreased. The emergence of new materials such as gypsum, bamboo that has been processed, tend to be preferred because it has a cheaper price and architecturally more beautiful. The types of bricks, ie brick hollow, brick press, concrete / bataco (bataco specifications, conblock, beta block, kansteen), perforated brick / bataco perforated (rooster) and crack.

H. Partition {Partition Frame, Partition Cover (Plywood, Formica, Wall Paper, Curtain Etc.)}

I. Complementary Partition

doors, windows, Glass, is a transparent (translucent) material usually produced from a mixture of silicon or silicon dioxide (SiO₂), which is chemically similar to quartz (English: kwarts). Usually made from sand. Its melting temperature is 2000 degrees Celsius, naco glass, lock, hanging device

2.3. Building Floor Components

Is a component where the foot stands that become the base of every room that occurs both inside and outside the building. Floor is one of the constituent elements of the house and determines the identity of a house. The types are very diverse with different prices also in accordance with the design and needs. In general, floor coverings on the market can be divided into 2 categories namely the type of natural and artificial floor. Rocks cut like marble, granite and limestone are natural floors. While cement, ceramics, and vinyl are categorized as artificial floors. Floor Cover Materials (PC Tiles / Tiles, terrazzo, ceramics, vinyl, marble, granite, carpet, raised floor).

➤ Wooden floor

Since the first timber is a common building material and widely available so that it can be used for all building elements such as flooring, walls, building construction and roof. Wooden floor until now still a popular material for home stay because of the natural aesthetic impression and its ability to provide warmth in the room. Flexible wood can provide an elegant, classic, modern and contemporary atmosphere. The technology of wood flooring has grown rapidly in line with the increasing demand of the community. The most common type of parquet floor is the generation of wooden floor that replaces the floor boards for the stage house.

The types are as follows:

- Parquet made of solid wood or known as Solid Parquet
- Original wooden parapet with layer technology to achieve a perfect level of stability known as engineer parquet - wooden material made of wood powder (MDF) and given a wood-textured coating on its surface.

➤ Marble and Granite Floor

This type of floor is a direct mining material taken from nature. Marble and granite are rock types that form within hundreds of years and can not be renewed. Processing only requires the process of cutting and smoothing only. Its availability in a limited nature causes the price to be very expensive in the market. The marble floor is very strong and not brittle enough to withstand heavy loads. Marble is cold so it can cool the temperature in the room. It looks very luxurious with a variety of motifs and patterns. But the treatment is more difficult than other types of flooring. Granite flooring in principle is almost the same as marble, only in plain darker color. The availability of this type of rock in nature is more rare to cause the price is also more expensive than marble.

➤ Ceramic floor

Ceramics is the most popular type of floor covering used in Indonesia. This is because the price is very varied, from the cheap about Rp. 25.000 / m² until the price is above Rp. 100.000 / m². The motif of color and size of ceramics is very diverse from marble, plain, wood fiber and many more. Usage is not only for the floor, the wall looked more beautiful if coated with ceramics. But must be considered because the power of ceramic walls must be smaller than the ceramic floor that hold the load.

➤ Vinyl Floor

This floor is very practical to change the look of the room. At the bottom there is a glue that is easily glued on a layer of plaster or ceramic floor. If as an alternative Material is very strong, fire resistant and water so much is also used in public buildings. Widely used parquet floor because the price is cheaper and termite resistant. Vinyl flooring is available in vinyl tile (box or square) and vinyl sheet (roll form / roll).

➤ Carpet Flooring

Carpet floors can be divided into 2 types. The first is a carpet unit commonly used as a sweetener accent room. Motifs and colors are very diverse with a variety of raw materials as well. Size is also a kind of box, square or circle. The second type is the carpet permanently affixed to the floor of the entire room. This type of floor is only suitable for use in subtropical areas or rooms that use AC / air conditioner. Its kelebahan is warm and easy to install. Suitable also for children's playground because the surface is not hard. Carpet floors are more difficult to clean when exposed to stains and liquids than other types of floors. Treatment is also more expensive to use a vacuum cleaner or taken to dry cleaning.

2.4. Ceiling / Ceiling Components

Material for making ceiling can be made from braid (woven bamboo or booth), wooden board, cement asbestos, plywood, hardboard, selotex, acustek tile, particle board, jabar wood and nowadays widely used gypsum board and others. Ceiling cover material, various materials, among others;

- a). Triplex with thick e 4 mm.
- b). Asbestos 3 mm.
- c). Acoustic tile or soft board 15 mm.
- d). Gypsum board.
- e). Aluminum.
- f). Board / wood.
- g). Hard board.
- h). GRC Materials.,
- I). plywood, flat harflex, flat sheet, and others

2.5. Roofing Component

Is a building component that protects buildings from disturbances or climate threats such as solar heat, rain, wind, etc. Roof serves to protect the existing buildings underneath from the influence of weather and disturbing objects. Material diversity gives you consideration for choosing materials for roof construction. Common types are as follows:

2.5.1. Wood Frame

Since ancient wooden roof truss is widely used in residential buildings. But the large number of timber and timber needs with good quality causes the natural supply of wood to be more difficult in the market. Price is so relatively expensive especially to get the best quality. The advantage of wooden frames is if you are going to expose the roof truss. The authenticity of wood profiles can add to the beauty of your home. But the disadvantage is the vulnerability of wood to termites that can be a big problem. Then the correct anti termite treatment is needed before you install the wooden frame.

2.5.2. Lightweight Steel Roof Truss

Many ways are used to reduce dependence on the use of wood as a roof truss. The most popular today is the use of lightweight steel roofs. Mild steel is made of steel with a mixture of aluminum and zinc. The advantage of this material is lighter, not expired, rustproof, not easily weathered, anti-termite and strong for tens of years. Frame lightweight steel roof is also more efficient in terms of both cost and time. One study concluded that wooden roof trusses cost more than 116% compared to lightweight steel roof truss. The timing of the completion of the wooden frame is slower 75% compared to the lightweight steel frame. But the lightweight steel roof truss is not for the exposed frame. This frame is more suitable covered by roof coverings and ceiling. You can choose according to delera and budget.

2.5.3. Roofing Material

1. Small components:

Pressure tile machine, Metal / steel tile, Concrete tile / cement, asbest, tegola, glass, shingle, bamboo, alang-alang, palm fiber,

2. Large components:

zinc roof, asbest, bitumen fiber (guttanit), aluminum, steel plate, fiber, glass (rooflight), plastic.

2.6. Interior Supplies Components

Is a building component to change the space in, fill and equip the building. Among other things: beds, dining cabinets, wardrobes, bookcases, desks and chairs, dining tables and chairs, tables and chairs, buffet cabinets, sofas, kitchens, washers, and wall frames.

• Wood commonly used in Indonesia for furniture is teak, nyatoh wood, and sungkai wood and some other wood species such as mahogany, pine, ramin and cedar.

a. Teak wood is the most demanded wood because of its quality, resistance to weather conditions, termite resistant, and attractive fibers. This wood is a first class wood that many processed into classy furniture. This type of furniture is very in demand by foreign residents so that demand for exports is always increasing from year to year. The color of the finished wood is light brown, grayish brown to dark reddish brown. Though hard and strong this wood is easily cut and shaped. In order for the beauty of fiber and veins look natural, finishing it can use politur, melamik or PU (polyurethane).

b. Sungkai wood is now increasingly popular its use as a substitute for expensive teak wood. The fiber is softer and the color is brighter than teak. Sungkai wood is suitable for indoor furniture. Although the price is cheaper than teak wood but still more expensive than the wood nyatoh.

c. Wood nyatoh commonly called young teak wood is widely available in Riau province. The wood fiber is light brown with a distinctive stroke. The wood is also resistant to termite and long-lasting attacks.

d. Plywood

Plywood is a processed wood that we used to know as plywood or mutiplex. Plywood is formed from several sheets of wood that are glued together with high pressure. The ketabalanya varies from 3 mm, 4 mm, 9 mm and 18 mm and the area is 244 x 122 cm. The thickness of the plywood determines its strength and stability. This type of wood is most widely used as a material maker kitchen set, cabinets, tables, and beds. Since plywood has a plain surface and does not have a typical fiber, it is sometimes necessary to have additional coatings such as PVC or melaminto venner. The price of plywood is cheaper than solid wood but more expensive than other processed wood.

e. Blockboard

The blockboard is a small piece of wood (about 2.5 - 5 cm) squeezed into a machine and venner coated on both sides to become a board-like sheet. Its thickness can be 12 mm, 15 mm and 18 mm and its area is equal to multiplex. Blockboard is usually made of softwood so it is not as strong as plywood. The price is slightly below the plywood. The type of block board that is widely available is teakblok (wear teak venner layer). Good enough to make a shelf, cabinet or kitchen set.

f. Wood MDF (Medium Density Fibreboard)

MDF is made from fine wood powder and resin chemicals that are glued and compacted with high temperature and pressure. Used wood is usually taken from wood residue plantation or bamboo. This makes the MDF more environmentally friendly. The shape of a board or sheet yan ready to cut in accordance with needs. The denser and more powerful version is known as HDF (High Density Fibreboard). MDF is so flexible that it is easy to set up. The size and strength are consistent. Due to the use of resin chemicals, MDF is heavier than Plywood and particle board. In the market the MDF has a very finishing type of finishing from wood paint, venner, PVC, HPL or paper laminate. Color and motive can be made very diverse. Furniture that use MDF materials used for practical furniture that mass produced by factory. Knock down system is used in almost all furniture industry by using dowel (wooden or small plastic) or connecting bolt which makes the product can be easily dismantled.

g. Particel Board

Particle board is made of particles of wood work waste such as sawdust, small wooden pieces, wood chips and resin chemicals glued to high pressure and then dried. The process is more or less the same as MDF only the MDF material is more smooth and uniform while the board particles are more rough and irregular. The cheapest price of particle board among other processed wood. The greatest enemy is water and thus has limitations in its use in the household. If this material is wet then its strength will be lost. In addition, the particle board can also be curved if it holds heavy loads. In the process of finishingnya particle can not be painted or in coating because of its rough texture. So to cover the surface is used layer veneer, laminate or fancy paper laminate glued. Be careful also because the particle board can not be combined using a common nail or screw. Usually the factory uses semacan adhesive or special screws to install furniture made from particle board.

2.7. Exterior Equipment Components

Is a building component to change the outer side of the building.

• landscaping • interblock-paving stone-grass block • pipe type (iron, steel, aluminum, paralon (pvc), asbest, concrete, earth (hong), ceramic, copper, brass, rubber / plastic (slang), • Paralon / PVC pipe class • Ashpalt.

2.8. Components of Supporting Materials

Is a building component of other planning areas that support the operational of the building.

• Installation of Electrical and Communication, • Mechanical Installation (Lift, escalator, AC, etc.), • Plumbing Installation (Clean water, hot water, sanitary, fire brigade etc.)

2.9. Components of Termination / Finishing.

Is the last refinement work to refine / embellish the completion of the components that have been installed.

Painting:

• Base paint

1. Wood paint / iron paint (meni wood / iron meni)

Cat meni serves to provide protection against the stain produced by the sap of wood. Before closing the surfaces with paint makabenda to be painted first with a paint meni, can also save the paint, without the use of paint meni paint used can be very wasteful.

2. Paint wall / wood paint (plamur wall and wood plamor)

The base paint for the wall is divided into two:

□ Bottom paint in the form of water base varnish is paint without pigment with 100% acrylic emulsion base. This base paint is usually called Wall Sealer Water Base. Mowilex produces two types of standard Wall Sealer and Water Proofing Wall Sealer for existing wall surface moisture problems. Wall Sealer is very good for new walls that crack a lot of hair to fill its gaps and to strengthen the old paint coating that begins to whitewash.

□ Paint a base of white paint on the basis of 100% acrylic emulsion and has high alkali resistance, adhesion and good usage and high levels of anti-fungal ingredients. This base paint is called Alkali Resisting Primer or Undercoat wall.

Plamur paint serves as a filler of pores on the surface of the wall, closing the cracked hair on the wall and smooth the surface of the gypsum partition and ceiling connection.

- Ordinary Cat
- Special Cat

1. Politur Paint (specially for wood)

Usually in the form of flakes or bars liquefied with alcohol. But there is also a ready-made with the right alcohol composition. Politur diaplikasikan by using a cloth that in poles periodically on the wood surface. The application of the politur may be repeated periodically if the color has faded.

2. Fernis Cat

3. Paint Duco / spray

Is a method of spray paint duco on the surface of furniture. The colors vary as well as the colors and colors. Suitable for modern nuances, minimalist furniture and also child furniture. The price is relatively expensive and if it is painted, the original fiber can not be returned anymore. Application using spray or brush. With the advancement of technology and design today, various motifs can be made from this paint, such as motifs of stone, marble, broken motifs and silver motifs of silver, copper and gold.

4. Spray paint "Pilox"

- Protective Paint (glazing - glass kote-ter-flinkote)

2.10. Components of Special Materials

Is a building component used to improve quality and quality, protect or become a catalyst against building materials.

- Mixing chemicals
- Aquaproof

Aquaproof is waterproofing coating made of Acrylic and water-based. Aquaproof is suitable for wall sidewalls to be more beautiful and protected from leaks that will disturb the aesthetics of the room next to it. Aquaproof is more elastic, more water-resistant, more resistant to melts and more durable.

- Aquaseal
- Cemecryl
- Sisalation

3. Conclusions and Suggestions

3.1. Conclusion

The conclusions that can be drawn on the discussion of this paper, namely:

- a. Each development concept has different material specifications, according to their needs.
- b. The location of material use affects the type of material itself.

3.2. Suggestion

To get the quality and price you want, it helps you to know the type of building materials and their advantages and disadvantages overall before deciding to choose or use them in the construction process.

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