

Modern Materials for Furniture Design

Karimova Dilnoza Erkinovna

Teacher of “Interior and landscape design” department of Samarkand State Architectural and Civil Engineering Institute

Shamatov Jalol Ishpulat ugli

Student of “Interior and landscape design” department of Samarkand State Architectural and Civil Engineering Institute

Abstract: *Concepts such as convenience, conciseness, and beauty have become commonly used terms in our lives today. We are accustomed to sleeping in a comfortable bed, storing our clothes on compact shelves, and enriching our living interiors with furniture. Today, special raw materials are used to make furniture that combines these qualities. Each type of raw material has its own characteristics. In this article, we will focus on the main raw materials used in the manufacture of furniture, their brief description.*

Keywords: *Furniture, raw materials, wood, wood waste, MDF, DSP, DVP, plywood.*

Introduction

One of the most important elements for the interiors of residential and public buildings is the furniture. It creates a living and working environment, enriches the aesthetic and artistic appearance of the environment.

The main requirements for furniture are determined by its quality characteristics. Quality is a set of features of a product that meet certain needs in accordance with the purpose. Quality assessment is based on a comprehensive analysis of the consumer properties of the product, their design, materials used, production technology, the relationship of the product with humans and the environment. As a result of this analysis, the requirements for the products are determined, which serves as a basis for their further improvement.

If we look at the history of the creation of the first furniture, they were made only from raw wood. But as a result of the development of times, today in the furniture industry not only wood material but also various metal alloys, plastic, glass, recycled wood waste (MDF, DSP, DVP, plywood), rattan, natural and artificial leather, furniture is also produced using textile products.

In this article, we will briefly review the raw materials used in the furniture industry, listed above.

The main part

Metal alloys. Sturdy, modern, elegantly crafted furniture made of metal material can be found everywhere. They are often used to decorate the interiors of offices, hospitals, banks, restaurants, apartments. With the development of time, manufacturers have learned to make very compact, lightweight items from metal. In the past, furniture made from such raw materials was not in demand due to their large size.

Elegant metal furniture has a number of undeniable advantages. They are:

- Resistant to various damages. It is necessary to move well to break the metal, not to damage it. For this reason, furniture made from such raw materials is more commonly used in crowded places, such as cafes and restaurants;

- Metal furniture is capable of serving for decades, many of which will serve several generations of its owner;
- Such raw material does not corrode. Modern metal alloys are more resistant to moisture.

The main disadvantage of modern, compact furniture made of metal is its high cost.

Glass. Glass furniture is gaining popularity among interior designers and buyers.

Until recently, glass was used as a separate element of furniture in the furniture manufacturing industry. It is made of details such as windows, doors and windows. Today, the use of glass has expanded, and glass tables, cabinets, cabinets occupy a worthy place in the interiors of homes, offices and businesses.

Furniture manufacturers usually combine glass with different materials, that is, they produce a single piece of furniture that fits together.

Glass raw materials have many positive features:

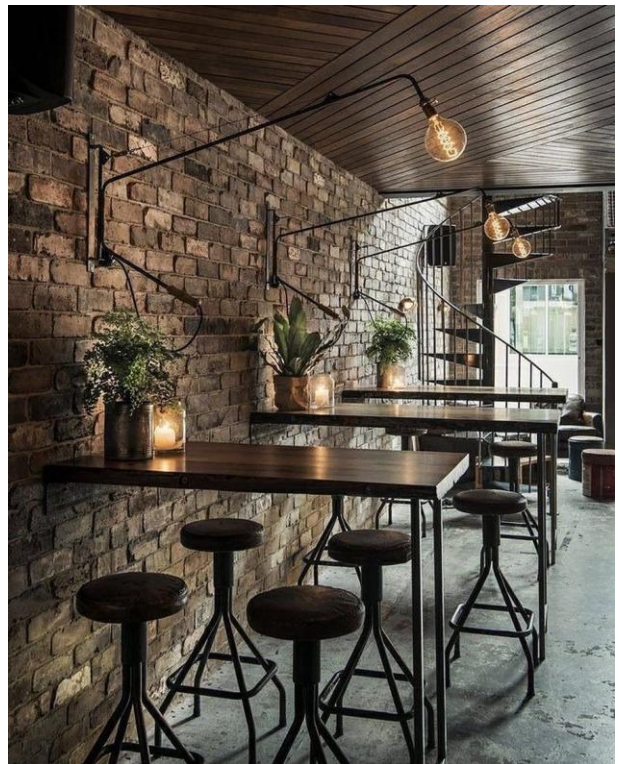
- Visually enlarges a small environment;
- Gives lightness to the environment due to its light weight compared to other raw materials;
- Strong enough;
- Absolutely harmless to health.

A convenient object of modern interior design is glass furniture. Of course, just as there are pros and cons to everything. The main problem of glass furniture is its resistance to mechanical damage. Excessive weight, sharp shocks, and falls from heights can cause elegant furniture to deteriorate.

Stone. One of the brightest, original raw materials in the furniture manufacturing industry is stone. It is used to make benches for the landscape, magnificent tables, stands for the bar and window sills. Various artificial stones are used for this purpose.

The stone has several advantages:

- Because stone is a natural material, it does not emit any harmful substances into the air. This is why furniture is an important quality to consider when shopping;
- The surface of stone furniture does not absorb various impurities and oils, so it is advisable to use them for kitchen furniture desks;
- Extremely resistant to mechanical damage.



Stone, like other raw materials, has several shortcomings. Its biggest drawback is that it is worth its price.

Plastic. Plastic is an artificial material used in the manufacture of various household items. This material is used to make furniture that is light in weight and inexpensive. These types of furniture are mainly used in bathrooms. This is due to the fact that in such rooms there is a lot of moisture, water, and it is the plastic equipment that does not lose its original appearance. It is possible to make a shape of any construction from plastic. The production process does not require large investments, is technologically simple. All this is its positive side.



The disadvantages are brittleness, unsightly appearance and short service life. The reason for the development of machinery and technology today is the production of perfect types of plastic. They are devoid of the above drawbacks and are naturally more expensive in terms of price.

Recycled wood waste. We all know that the best raw material for furniture is wood. Due to the fact that wood is a natural material, the demand for furniture made from it is high, despite the high cost.

Today, forest area is declining significantly, which is why the furniture industry has developed the use of wood waste. Materials of different quality (wooden boards) are made from sawdust and other wood chips. Here are some advantages and disadvantages of such wooden boards. Advantages:

- conservation of natural resources;
- affordability;
- ease of production process;
- Positive appearance of furniture made of this material.

Disadvantages:

- inability to form unusual shapes, not to bend;
- poor grip of reinforcing elements;
- some types cannot be repaired.

Now let's talk about the types of wood panels.

MDF (Medium Density Fibreboard) is a medium-thickness fiberboard that is practically a good raw material for furniture production. It is made from the finest sawdust and shavings. The lignin in the wood itself binds the wood chips and shavings. Due to the fact that the raw material does not contain harmful substances, it is absolutely harmless to human health. In addition, MDF has a number of other advantages. It is possible to form a variety of shapes from this raw material, which shows that the furniture



industry has more unlimited possibilities in making the design of furniture beautiful, modern. Due to its water resistance, it can be used in rooms with high humidity, which is one of its advantages.

The main disadvantages of MDF are the high cost, the risk of fire, the inability to repair a certain part of the damaged.

DSP (particle board) is a wooden board made by pressing and gluing small pieces of wood. This raw material is used in the furniture industry to produce more affordable cabinet furniture. The emergence of such a material in the furniture industry has increased the number of buyers, because any furniture made of DSP is affordable and, of course, their design is beautiful. Another advantage of the wooden board is the presence of a wide range of models. This allows you to decorate any interior in a variety of styles at a low cost. Furniture made of DSP boards can last a long time if properly cared for.

Industry experts say the disadvantage of DSP boards is in their toxicity. This happens during their heating process, so it is a mistake to place them in front of all types of heating systems. This is because the raw material heats up and releases substances such as formaldehyde and phenol. This can be costly for human health. Another disadvantage is that they do not have features such as bending, bending, which means that they cannot be used to make details of unusual shapes for furniture.



DVP (fiberboard) is a wood-fiber board, which, like DSP, is made by pressing and gluing wood waste. Some people call it pressed cardboard because the appearance of this raw material is reminiscent of cardboard. DVP panels cannot be called a complete raw material, so they are suitable for use as a wall on the back of furniture, on the bottom of chairs, chairs, drawers in the closet.

Plywood is a raw material that is made by gluing multilayer wooden sheets together. Plywood is not the main raw material in the furniture industry, so this raw material is also used in the manufacture of the back surface of cabinets, the sides of drawers, and so on. It is not expensive.

Rattan. Rattan is a natural raw material obtained from the processing of rattan palm growing in tropical forests in southwestern Asian countries (Malaysia and Asia). Rattan is a material with high durability and plasticity, which allows you to create furniture of different shapes from its long branches. Countries such as China, Indonesia and Malaysia are the main producers of furniture from rotang raw materials.

The advantages of furniture made of rattan raw materials are that they are environmentally friendly, harmless, comfortable, safe and long-lasting. Typically, furniture made from this raw material will last for at least 15-20 years.



The natural colors of rattan come in four colors: olive, light brown, dark brown, and gold. Since all of the listed colors are pleasing colors, it is not necessary to paint this raw material in another color. But in some furniture stores we can see furniture made of rattan and painted in a dark color, which is done to hide some flaws in the raw material!

Natural and artificial leather. Natural leather for furniture is the most prestigious type of material used in this industry today. Throughout its centuries of use, it has not lost its popularity at all. Furniture made of natural leather expresses dignity and luxury, so in the interiors of rich homes, furniture made of this product is an integral element of them. The price of natural leather furniture is also expensive, and not everyone can afford it. That is why today, modern manufacturers are producing artificial leather products to replace it.

Typically, hotel sofas and armchairs, chairs for office rooms are made of leather. Furniture made of this material makes the interior elegant, luxurious and expensive. That is why the owner of the interior of such furniture is a high-ranking person.

Textile products (textiles). In the furniture manufacturing process, textile products are used for upholstery. Fabrics for furniture can be natural, synthetic or mixed. Today, there are tens of thousands of types of fabrics for furniture, all of which differ in composition, color, texture, hypoallergenicity, waterproofing and other additional properties.

Conclusion

Thus, today the furniture industry has a wide range of materials to choose from, so that people can decorate their interiors to their liking with modern, comfortable, compact, beautiful and affordable furniture. These raw materials are divided into many different materials in terms of purpose and function.

In the general list of all materials used in the furniture industry, one of the first places is occupied by raw materials made of wood and its waste (MDF, DSP, DVP, Plywood). The main raw material for their production is wood.

Depending on the function of the rooms, furniture made from the right raw materials must be properly cared for depending on the area of application in order to serve for many years.

References

1. Daminova U., Komiljonov M. "Ergonomics and design furniture", (Part II) Textbook, Tashkent, 2020.
2. National Encyclopedia of Uzbekistan.
3. Karimov, E. B., and D. E. Karimova. "Distinctive Features of Modern Styles in Interior Design." *International Journal on Integrated Education* 4.11 (2021): 21-24.