# B. ARCHITECTURE

# INTERIOR DESIGN (AR6005)

# COMPONENTS OF THE INTERIOR SPACE – INTERIOR TREATMENT & FINISHES

# Lecture - 3

## Introduction to Interior Materials & Elements:

To introduce "Organizing the selection of materials demands knowledge of what is available and an awareness of what is best suited to specific needs and uses and in a data file of catalogs, literature and samples is a vital part of preparation for interior design work" - John F. Pile

Introduction to Interior materials & Elements:

- Elements of interior:

The separate parts or components that make up a space are often called elements. The term comes from the long used phrase elements of architecture referring to the basic building components such as walls, floors, ceilings, columns, doors, windows and similar items. The types of elements are two types which are structural elements and Non-structural elements.

- Materials:

All elements of architecture are made up of materials such as wood, stone, plastic, paint and paper. An important part of interior design work is the selection of suitable materials for various elements that make up a particular interior space.

## Types of Materials:

Classification based on processing that is three different categories

- Natural materials:

These items exist in nature, except when they need to be superficially modified for use, natural materials remain unchanged. For example quarried stone, natural wood.

- Processed Materials:

The result of converting natural materials into specific forms for practical usage is processed materials. For example brick, clay tile, veneer, plywood.

- Synthetic Materials:

These items do not exist in nature but have been brought into being or manufactured through artificial processes. For example glass, plastic, artificial marble, Acrylic solid surfaces etc.

- Wood:

Let us start with the wood which is one of the major elements in interiors and to define wood as a structural element timer is the most available, simplest and most familiar form of structural materials in interiors. Anything you see in interiors most of the items have to be wood, the one or the other way. You can use wood as an aesthetic member or you can use wood as a structural member, at the same time you can use wood as the surface treatment.

Types in interior applications:

- Soft Wood:

It refers to the woods of evergreen trees that are generally soft. For example Pine, spruce, fir etc.

- Hardwood:

The wood from deciduous trees including fruit and nut trees as well as others those lose their leaves annually. For example Mahogany, oak, walnut etc.

- Plywood:

It is a widely used material and plywood is made of many thin layers of wood which is processed in factory and taken to site. The different types of plywood are veneer core plywood, solid-core plywood, commercial use it is

called as BWR and BWP. Plywood can be seen in detail because most of the things which we see today are made up of plywood for example the tables which we use are made up of plywood, the panels in this room are made up of plywood etc.

The log of wood is taken to factory and it is made into thin sheets and it is chemically processed and then heat pressed. So it is made into a sheet of material which can be easily molded, cut or use for any of the interior applications and just by treating the wood in factories its lifetime increases. At the same time the efficiency of the material the wastage decreases and overall smoothness of the material and the molding capacity of the material increases just because it is made in to a sheet of ply. So that how plywood is made.

- Veneer:

Wood can be cut into very thin slices, making sheets that are somewhat flexible. Successive layers sliced from one log or slab form a flitch usually used in finished surface on top of plywood that commercially named as OST (one side timber).

- Particle Board:

A sheet material made by pressing together wood chips and sawdust with an adhesive to make a board or panel, particle board has most of the qualities of wood but is grain less. Commercial types are MDF, HDF and Hard boards. So basically this material is made out of particles when you are sawing woods or making them into sheets this waste which is gathered in a base so those are waste of wood which are chemically treated and this particles are made into sheets and boards which is called a particle board. Particle boards are cheaper than plywood at the particle board is not as much durable as your plywood.

- Molded Plywood:

If layers of veneer are pressed between molds while being glued together to form plywood the finished product will retain the form of the mold. Molded plywood can take the shape of the mold and they are widely used for the factory made furniture, factory made goods etc.

- Masonry:

Masonry is the general term for a family of materials that played a major role in historic building and that continues in modern use. The term refers to construction with stone and manufactured materials such as brick, tile, concrete blocks and gypsum block. The image here shows the concrete masonry which is acting as the material for interior as well the space looks more rustic because it's all natural materials which are unprocessed and used in nature. There are different types in masonry.

Types of Masonry:

- Stone:

This may be used in the rough form as rubble or neatly cut as ashlar. When used as bearing such as wall construction the stone is bonded. When used as a surface treatment larger units of thin stone may be joined in other patterns. The types of stone in wide use includes,

(i) Granite

(ii) Limestone

(iii) Sandstone

(iv) Slate

(v) Marble

(vi) Semi-precious stones

- Brick:

Brick is a modular material made by firing special clays into units usually in a nominal size of 3 by 4.5 by 9 inches. Mortar is used to hold by brick together to make up the walls or surface treatments for walls of other materials.

(i) Bricks are mostly in shades of red or brown

(ii) Glazed bricks can be in a wide range of colors

(iii) Mortar joints may be white, gray or toned to other colors.

- Concrete Block:

Concrete block is a manufactured masonry popular for its strength and low cost. Concrete block are usually made hallow to save material and reduce weight. The image here shows that the interior is completely made out of raw concrete, the walls are concrete, the ceiling is concrete except for the floor all other are made of the concrete.

- Metals:

Metals are usually good in tensile strength and are available in a wide range. Metals in general interior use includes steel, Iron, aluminium, brass and bronze and copper.

- Steel:

Many small elements such as door frames, doors, window sashes, handrails and items of hardware are made of steel. Most steel requires protective finish such as a paint or plating with a non-rusting material such as chromium. Stainless steel resists rusting but because of its high strength is difficult to cut and work.

- Iron:

Wrought iron is sometimes used for decorative railings and grill work.

- Aluminium:

The light weight and resistance to rusting characteristic of aluminium have made it popular material for many architectural details such as store fronts, window frames and exterior wall claddings. It can be made into extrusions. Details elements such as handrails and hardware are often made of aluminium which will develop a gray oxide surface unless finished by anodizing. Anodizing can produce a color tone while preserving the surface glitter of aluminium.

- Brass and Bronze:

Non-ferrous alloys (brass and bronze) are mush used in decorative detail in historic design. Brass has a yellow gleam that makes it popular material for hardware and trim. Bronze has a deeper brown metallic color.

- Copper:

The special orangey metallic color of copper is well known for its decorative possibilities. Copper must be protected with a lacquer coating if it is not to turn a green oxide color.

- Glass:

The use of glass in interior design offers an intriguing set of possibilities for introduction barriers to movement and sound transmission while permitting passage of light along with or without vision. Glass can also offer decorative possibilities through color and pattern.

When used in larger areas, particularly in combination with metals, glass suggests modernity and openness. Modern architecture has tended to make extensive use of glass in ways that contribute to its openness and ease of relationship with its surroundings.

The inherent fragility of glass must always be kept in mind. Common window glass and plate glass are subject to easy breakage and they transmit heat and cold easily. Special types of glass have been developed to limit such problems and to produce some other pleasing effects.

Special types of glass:

- Laminated or safety glass:

Plastic sheets sandwiched between sheets of ordinary glass that resists the tendency of plain glass to shatter into sharp-edged shards.

- Tempered glass:

Glass is treated by heat processing to gain extra strength.

- Wire glass:

This is made with embedded mesh of wire that holds a sheet of glass to gather when breakage occurs specially due to heat.

- Thermal glass:

Glass with special insulating properties for example the double glazed, mirrored glass.

- Suspended particle device (SPD) glass:

Glass made with a layer of suspended particle device film to produce variable transparency. When varied electrical voltage is applied the film can be varied from clear to fully opaque.

- Mirror:

Glass silvered on one side creates a reflective surface or mirror.

- Decorative glass:

Glass comes in a wide range of textures and colors.

- Plastics:

Plastics are synthetic materials made by chemical combination of various basic ingredients most derived from petroleum. Acrylic is a generic name. Plastics offer a wide range of possible uses to the interior designers but also have acquired a reputation as cheap substitutes for superior, traditional materials.

Types:

There are two main families of plastics. There are thermoplastics and thermosetting plastics and they differ in their basic qualities.

- Thermoplastics:

Soft and moldable when heated, thermoplastics becomes stiff and solid when cooled. Thermoplastics objects are made by molding, rolling or extruding the heated material. Familiar group include Acrylics (transparent and clear colored or opaque). Polystyrenes (mush used for household items) and Vinyl (common as floor tiles and as alternatives to leather).

- Thermosetting Plastics:

Some plastics are made from a liquid resin and a second liquid called a catalyst that when combined and subjected to heat harden and become solid. Once formed objects of thermosetting plastic cannot be softened or melted.

(i) Melamines

(ii) Glass fibers/ Fiberglas

(iii) Plastic laminates.

## Material Selection:

The different ways in which evaluate material for interior use

Evaluating Materials:

- Functional Criteria:

Primary – Suitability to basic utilitarian purpose.

Secondary – Durability, Ease of maintenance, Resistance to damage, safety.

- Aesthetic Criteria:

Availability of color, textures, possible patterns and visual suitability.

- Economic Criteria:

(i) Installation cost

(ii) Lifetime cost for maintenance, cleaning, repair and future replacement.