

Interior Design
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Lecture - 12
Interior-Design-Finishes, Materials and Specifications

Namaste, hello everyone. Welcome again to my NPTEL course on interior design and we are at the lecture number 12 today. We will discuss finishes, materials, and specifications, which are very important for interior design projects. Within this, we will see diverse surface treatments and different kinds of finishes. Materials, specifications, and some application techniques. So, this is the contents like I was telling and of course some references for more details.

So, if we talk about finishing, we could actually treat it as a final layer and it protects and fixes the surface of building elements and it plays a very important role in both visual and psychological aspects of interior spaces. And, you know, there could be uncoated or sometimes plastered finishes that we come across. So, it could be different kind of finishes, also like custom made finishes using different kinds of materials and different alternate materials possible these days. If we talk about wall finishing, it's very, very important to, you know, have some kind of finish on the wall because it protects the space against different effects, whether it be moisture, heat, noise, you know, light, even fire. Like these are some of the sections here, both the sides of the walls are coated.

This is only the interior wall over here, which is coated and here exterior and here it is none. Now depending on the weather conditions and where the location is and what kind of project it is, these all ways of finishing it will have impact on the life of the project. Now you know we are now designing very contemporary looking buildings and our building sections are getting thinner and thinner. And therefore, there is a recommendation that, you know, finishing layers be added to these sections and they would like sort of protect the underneath substrata or the underneath surface. So that's why it has become sort of essential to coat the walls, floors, ceilings so that there is not just a suitable appearance, but also protection.

Now, wall finishing could be done, you know, through different building materials to achieve these finishes. It could be plaster, it could be paint, we could use wood for achieving these kinds of finishes on walls, gypsum panels, it could be some kind of a sandwich panel and it could be designed also for specific purposes. And ceramic could be used, of course, as well as natural stone, artificial stone, glass, and metal. So, these are different kinds of popular finishes that we see. So, when we talk about plaster, plastering is a very important process, you know, by which coarse surfaces of walls, ceilings or roofs, they can be turned into something very smooth and sophisticated and finessed.

Now these wall surfaces could be finished with bricks, blocks, aesthetically pleasing stones or any kind of you know customized sort of an appearance. Now, there may be surfaces with lots of irregularities and there may be another set of surfaces which are fairly regular. So, depending on that one has to think about how to do the plastering. So, there are surfaces with irregularities more than 3 centimeters and in this case an undercoat you know which is low cost coarse grain material that is used to render the surface some kind of uniformity and then it is followed by a finished coat that is like a thin layer of fine grain material.

So, one has to understand what is the surface which is being treated as, what kind of wall it is which needs to be finished and accordingly these design decisions and you know plastic related decisions are taken into account. So here again some sections to explain like one undercoat and two undercoats. So, one layer is this, and another one over here, and this is your wall, and here it is this one. So, walls constructed from irregular and different sized stones may require three coatings also, you know, sometimes. This is because the thick undercoat tends to sag due to the weight of the thick wet plaster.

That is why spreading thin layer and permitting to harden followed by employing second undercoat, it is the best practice. So, we have to think about these considerations before taking final decisions. Then, if we talk about plasters, there are also different kinds of plasters which are available or which could be created. So, lime plaster is again a very popular and beautiful-looking plaster. And it consists of sand and lime.

And the mixture is like 1-part cement to 3 parts lime by volume. And it could be used as an undercoat or sometimes as a finish coat, depending on your level of detailing. The issue is that lime plaster may shrink after drying and we have to avoid this cracking and shrinking and drying of that plaster and it is very very popularly known to have been used in ancient structures especially and it has a very good life and it looks very nice but yeah, These days we don't do much of lime plaster because it's also time consuming and it requires certain skills. Coming to cement plaster, which is quite common these days.

It's a grey powder Portland cement which is mixed with water. The ratio of one cement to three or four clean wash sand by volume. And it can be used as an undercoat for hard background. And, you know, the mixture of sand and cement may require a plasticizer. So, a plasticizer or lime is added to the mixture, usually by a volume ratio of 1 part cement to 0.25 parts lime to 3 parts sand or 1 part cement to 4 parts sand with a plasticizer.

And plasticizer that we are talking about is basically a liquid which is added to the mixture to ease the plaster spreading over the surface uniformly and easily. There is also gypsum plaster, which is quite popular these days. It is used very widely. And there are various types of gypsum plasters which are available in the market. And they are produced by heating gypsum, you know, at specific degrees.

Gypsum plasters can be categorized as casting, undercoat, finish, one coat, and machine-applied plaster. These are different classifications within the gypsum plaster family. Paint, of course, is a very, very popular wall finish and there are different kinds of paints which are available in the market, different brands. And they do a lot of research and come up with very trendy, you know, styles and ways of painting. So, paints with a finish or a sheen, they reflect light, whereas paint without a finish or sheen, they absorb the light.

So again, depends where we are using it, what color paint it is, where is the like, what is the site orientation like? Do we get natural light there or not, etc.? And, you know, various factors such as durability, weather, moisture, traffic, cleanability of the surface, they all should be considered while we are choosing, you know, a certain wall finish and trying to put paint over that. Glossiness impacts the environment of the room. It brings out the cracks and imperfections.

Whereas the matte finish, you know, on the walls or the matte walls, they absorb light and they not only add aesthetic value, but also play a functional role. So, one has to see all these factors on the site and then see which kind of finish, you know, goes best. So, there is this matte finish. So, matte or flat paints, they lend a mute tone to the walls, you know, and they provide sort of a minimum to soft sheen and they are non-reflective paints. They possess the most amount of pigment leading to more coverage.

And they are also known as concealer of pains because they hide imperfections. So there are some advantages and disadvantages over there. Like, they are hard to clean while they provide good coverage. So, we have to pick and choose accordingly. Then there is textured finish.

It definitely adds characters to the walls and they could appear very distinct and rustic in appearance, in nature. And these textures can also remove the flatness, and they could add depth, you know, or certain character to the wall. And it gives a sort of a gritty or layered look when we put a textured finish. And it's also great for hiding uneven walls and imperfections. There is satin finish.

Now that reflects more light. And, you know, they are not all that shiny like glossy finishes, but they provide a luster to some extent. And it is ideal for places that do not receive a lot of natural light like kitchens, bathrooms and hallways. And here also, right, there are advantages and disadvantages of that. And we see high durability, easy to clean, but it reveals errors.

So again, we have to pick and choose. Then there is this eggshell finish. It is a type of wall paint which is not completely lusterless like the flat paints but it does add a slight low sheen and it can also hide imperfections like holes and cracks. It is easier to clean. It is more durable so it is used quite widely again.

It has a great finish reflecting a subtle sheen. It is one of the most popular choices actually are the eggshell finishes. And a mix between satin and flat paints, eggshell possesses the sheen as well as the concealing properties and therefore it is popular. There is also semi-gloss finish. So, depending on what kind of project and what is the taste of the clientele and where does it have to be used and whether its best fits in that particular space according to the site conditions and the amount of the detailing level.

All of that one could pick and choose all of these. So, these are characterized as shiny, reflective, easy to clean, but they are not as shiny as high gloss paints, which actually makes them quite popular choices. So keeping a sort of a subtle shine to them. Highly durable and also resists the growth of mold and algae. So therefore, you know, interesting and good choice.

Perfect for moisture exposed areas and high traffic areas. So that is why again a popular choice. Easier to clean. There is also high gloss finish that could be, you know, picked up and used in the space. So, high gloss finish is hard, you know, super shiny, light reflecting and it has sort of highest sheen possible amongst all these varieties that we are looking at.

Perfect for areas where natural light is less and, you know, it is popular choice amongst designers because of its reflective finish. It is ideal for cabinetry, doors, kitchen work, accents, areas that are, you know, prone to moisture and dirt. But they also reveal imperfections and they require more coats to apply. So that is sort of a con and goes in the disadvantage of picking this finish. There is also super matte speciality paint which is available in the market.

And these paints are even more flat and subdued in comparison to the matte paints. With no sheen and light absorbing qualities, these are sort of muted paints. And, you know, they are sort of more tactile and they're ideal for statement walls and accents. And they are sort of made for certain walls. They may be sort of also customized.

They may not always be easy to clean. So then again, they offer aesthetic value, and one can pick and choose, seeing the advantages and disadvantages. There are also some considerations that one must focus on, you know, while choosing a paint finish, starting with the traffic. So, you know, whether that's a busy room or less occupied room. More footfall or more users using it throughout the day.

That is important to understand. So, like busy rooms—let's say kitchens and playrooms—they will benefit from more durable finishes, such as satin and semi-gloss. Whereas calmer rooms, like, you know, dining rooms, can get away with eggshell or even flat paints. So, this occupancy and traffic matter when we are selecting a paint finish. Then, the other consideration is paint sheen.

So, paint finishes are categorized in terms of the luster, you know, from no shine flat finishes to very shiny high gloss finishes like we just saw. And this shininess actually affects the amount of light and, you know, which are reflected into the room. So, then we have to sort of pick and choose. So, to try to help brighten a dim place, a slightly higher gloss finish will do better than a matte finish. So, then we have to see our site conditions and you know what is the space which is being treated.

Surface imperfections again one has to consider them before selecting the paint finish. So to paint a wall that has lots of nail holes or patches or undulations, you know, one may want to consider less glossy paint. It will help mask those blemishes and imperfections. Let's go to wood finishes now. And, you know, timber is quite relevant even today and we find its usage throughout history.

Although we do think about a lot of environmental concerns and we are trying to replace wood as a material with alternate sustainable materials. But yes, wood can also be repurposed and recycled and it is being selected now for different kinds of purposes, keeping this responsibility in mind. So, wood is still used for finishing, you know, ceilings, walls, floors, windows, arches, stairs, etc. And the walls are distinguished, you know, by their structure and good thermal insulation and there are properties like, you know, associated with walls. So, the panels which are made from valuable wood species, they are quite expensive and they may add life to the wall.

So, we could decide and see what we have at our disposal and what could be used for the finishes. When we talk about the wood finishes, these three are like the popular ones. There is veneer, laminate and polished wood. We are going to discuss them in detail where we talk about the timber as a material. So, here it is more like an overview, but there are more details in the module that focuses on timber.

So, veneer, you know, the finishes, the veneer finishes, they are popular among the people who are looking for polished wood finish, but at a lower cost. So, it's possible to have almost wood looking appearance with the help of this very thin layer, which is almost like it is the natural skin or the bark of the tree. And it gives you the finish as close as the wood. And they are more economical and durable as compared to solid woods.

Even when they are exposed to various levels of humidity and temperature settings, they are less prone to warping and cracking. So, their life is good. And average price of the veneer could range anywhere from 50 to 400, I would say even more, depending on which wood and what is the, you know, appearance, how sophisticated or how exotic it is. It could be used in furniture, wall panelling, decorative inlays, etc., Then there is laminate.

Laminate is factory-manufactured. It also resembles wood. It is not wood-like in the sense that a veneer would appear, but it is at least factory-manufactured and does render a wood-like effect. And this is a man-made interior finish. Laminate sheets, so it comes in the form of sheets.

They look identical to one another and they don't provide as much diversity or natural looking timber as compared to veneer. They're easy to maintain. They have relatively long lifespan and they're good choices, especially for, you know, children's bedrooms, kitchens, storage cabinets, etc., and they cost less than the veneer, and they are used very, very popularly in cabinet shutters. Then there is polished wood.

So, when it comes to the luxury interior finishes, polished wood is actually a very popular choice, and it can be light, you know, like a pine wood, or it can also be dark stained or dark colored like a rosewood or teakwood. Now, wood finishes can last for generations, but they do require maintenance. So, that has to be kept in mind. And wood polish could also range anywhere, you know, INR 30 to 500 per square feet, depending on the type of the wood in the polish. And the common treatment that goes with the polished wood is that the wood oil once every six months has to be put as a treatment with this polished wood.

So, that's important. Then we have the gypsum board or panel. It is also known as plaster board or drywall. And it is a technical name given to a plaster-based wall finish that helps in creating light walls. And it's an umbrella term, you know, all its types use gypsum.

And, you know, there are different kinds of gypsum boards that one could use, pick and choose. And this is the extensive list over here. So, there is a drywall white board or gypsum board. There is a backing gypsum plaster board. There is a moisture

resistant gypsum plaster board which is a very specific kind of gypsum board or panel.

There is also modified moisture resistant gypsum plaster board, which is available. Then the blueboard gypsum board, which is also called as the plaster base board. There is a paperless gypsum plaster board available in the market, fire resistant one, soundproof one, also the exterior gypsum soffit board. So, this is a list of some of the popular varieties that we get, you know, in the gypsum panel universe. So, we are talking about the drywall whiteboard.

It is a standard variant. It is useful in creating false ceiling specially and it finds usage as a covering material. Then there is backing gypsum plasterboard. It is a combination of multiple layers of drywall. It is, you know, used for a variety of purposes, walls, ceilings, even partitions, etc.

Then there is moisture resistant gypsum plasterboard. It is also known as greenboard and it comes with a green covering and it is popular because of its moisture resistant properties. Then the modified moisture resistant version is also available. This is for even better moisture resistance, and it has better characteristics. And this can be used in areas where there is susceptibility to moisture.

Then there is blue board gypsum board. The blue board gypsum board or the plaster base board as it is called, you know, it comes with a surface layer that has superior absorption ability. So, it is used primarily for veneer plastering. Then there is this paperless gypsum plasterboard, which is again available in the market. And these are the improved variants of the regular gypsum plasterboard version, and they have more life, stability, and better finish.

The fire-resistant one, of course, as the name suggests, provides excellent protection against fire hazards. The soundproof one offers sound protection, you know, to a certain degree. And if we are looking for even more sound protection, then we can have, you know, the soundproof gypsum board, which has highly specific acoustic features. And then the exterior gypsum board, so unlike most of the other types, this board is designed for outdoor usage specifically.

So, as per the usage and specifications, that entire variety is available. There is also the sandwich panel, which is getting, you know, more and more popular. And it is a

system that protects buildings from external factors and, you know, provides the utmost convenient and economical solution for a powerful stand. And it's very contemporary solution, light, durable. And, you know, the sandwich panels are used to clad roofs and external walls, and they also help in achieving insulated internal walls and cold storage.

So, it's an interesting product that is available in the market. These panels are produced by, you know, filling a thick and low-density insulation material between two thin and high-density metal surfaces. And that's how we get the sandwich panel made. And it comes in certain dimensions, you know, and these are used for industrial as well as residential purposes. And sandwich panels cover width is 1000 mm and the length is produced in suitable sizes according to the need of the project.

So, these are the standard dimensions which are available and accordingly one can sort of plan their application. So, this is again like one sandwich panel that is seen on the screen. This inner sheet over here, the insulation core and the outer sheet and they are sort of put together as a sandwich. And these can be of, you know, different materials. So, if you look at the outer sheet, it could be aluminium, it could be like a membrane.

And then if we look at this insulation core, it could be mineral wool, it can be PU and so on. And when we talk about this inner sheet over here, it can again be aluminium or any other material. So, we just try to sandwich these layers and put them together. Ceramic finishes are also popular. We have discussed them, you know, under ceramic tiles in detail.

So here, I am just giving an overview. They are quite durable. They are also used for decorative purposes. They have material properties which make them quite useful such as water absorption, porosity and glazing. And, you know, there can be different kinds of water absorption rates that we see here, from non-vitreous to semi-vitreous to vitreous and impervious.

These are covered in detail in the lecture that focuses on tiles. And the type of the clay used, mineral composition or the method of manufacturing gives us these varieties, ceramic, quarry, porcelain and terracotta within this universe of tiles. Stone is of course a very very popular material to achieve finishes and we find natural stones to

composite stones to sort of you know completely artificial stones being used but of course natural stone has its own timelessness and they are still popular. So, we often see limestone, slate, granite, marble as first choices of stone when we are trying to achieve certain finishes. And they have natural patterns, they have natural color pigments and they add to the overall finish and texture.

And the benefits are very beautiful and aesthetic appearance, strength, durability, creativity, easy maintenance. This is also discussed in quite details in our lecture on stone. Glass finishes are also interesting and they are used quite widely. So, Glass can be costly though, you know, but technology allows for the use of glass as semi-structural element.

It could look very stunning and it could provide, you know, the perfect foil to other materials specified within a scheme. So, it depends how it is designed and put together along with the other materials to create a certain finish. Metal finishes are also quite in vogue and they are supremely practical in some situations. They can be very very decorative. They have visual qualities and of course they also have you know strength and they could bring a sort of a masculine edge within your entire space.

Some surface finishes are not as durable as you know they appear to be. So careful selection is needed when we talk about metal finishes. Fabrication of some items can also prove costly and time consuming. So, one again has to pick and choose. Then talking about floor finishes, this is also somewhere discussed during the space making elements and where we have focused on floor.

Also, to some extent in the lecture that talks about tiling and the laying methods. But to put finishes together in place in a cohesive manner, I have given an overview here also. So, floor is a horizontal structural element, very important, anchors the entire space. And, you know, there are lots of finishes that could go into creating nice floors. It could be like a screed.

We could have terazzo flooring or, you know, mosaic flooring, ceramic, glass, cork flooring, timber flooring, etc. Even polymers and metals. So, all of these finishes are quite possible and some of these have been discussed in other lectures. Then there is hardwood flooring when we talk about floor finishes and you know the hardwood

floors they come in different types and some of the common woods which are used for achieving the hardwood flooring are oak, maple, birch wood as well as there are some exotic woods such as acacia, mahogany, you know cherry, walnut which could be used for creating hardwood flooring. There are many finishes also from PU which is polyurethane to you know oiled with matte semi-gloss and high gloss tropical coat.

So these are some of the finishes that are possible to be achieved. Then hardwood floors basically are durable and easy to clean and therefore it becomes like a common choice when we talk about flooring. And here also we have put together the advantages and disadvantages and one can take an informed decision. So for example, this one can cause an echo in the house. So, one has to see where the application is.

There is also laminate flooring. We just understood what a laminate is. It's a cost-effective alternative to hardwood. And, you know, one may also choose laminate floors that replicate natural stone. So, we can create many appearances.

And these are durable. They resist scratches and stains. And again, some benefits and disadvantages. Of course, a shorter lifespan compared to the natural wood. Also, vinyl flooring is used quite a lot and it's a sort of a practical and stylish flooring option which is available today.

And these come in, you know, sheets, tiles, also some plank formats. So, vinyl planking is a floating floor, which means that it does not adhere to the substrate. So that's an interesting case over here. And again, advantages and disadvantages. Even high-end vinyl floors replicate hardwood while also being significantly less expensive and therefore it is sort of a popular choice.

Ceramic tile flooring, of course, you know, made from fine clay fired at high temperature, comes in varied colors, durability, water resistance. So, all the advantages and disadvantages. It requires regular cleaning and, you know, it may appear cold to your feet. Then there is porcelain tile flooring and these tiles are manufactured similar to that of ceramic and they also have advantages and disadvantages but they are very water resistant, durable and they last quite long so they can be used for flooring. There is concrete flooring again, which is still used in lots of cases.

And they could be, you know, polished, stained, stamped. And they could have different kinds of textures and patterns on them. And they require very, very low maintenance. So, they can be still used. But the only problem is that they are prone to cracks.

There is also cork flooring which is available for getting your floor finish and the cork is made from the bark of the you know cork oak tree and the harvesting process does not harm the trees therefore it is an eco-friendly option that's a very interesting aspect about using the cork flooring. It also comes in colors patterns and finishes and a huge variety could be achieved. Natural stone flooring for very luxurious appearance, for, you know, something very, very natural and elegant. Now, talking about the ceiling finishes, that's also a very important aspect within the interior architecture projects. And, you know, one has to be really careful whether there is any service or equipment installed, you know, within the ceiling, whether it's a suspended ceiling or what kind of ceiling it is.

Does it have a sprinkler system, etc.? And then accordingly, one has to think about the finishing. So wooden ceiling finish of course can be achieved and commonly used for you know false ceilings and in the form of plywoods, blocks or panels and this also has its own sets of advantages and disadvantages and it is used in residential as well as commercial buildings. It does give a lot of interesting natural look and rustic vibe to the ceiling. There is POP, which is your plaster of Paris.

And this is applied quite often on the ceilings. And it is made by applying plaster of Paris paste on the wooden or metal boards. And it is used for highly decorative interiors. There is also glass, you know, so it could be like a transparent or translucent false ceiling material. And it's used quite often in, you know, jewelry shops and restaurants.

There is, of course, also fabric, which is a very, very interesting material to have finishes. So, it's used in false ceilings and for very aesthetic purposes. And it could be also lightweight and cheap and it's used a lot in exhibition halls and you know for decorative purposes. Gypsum, we saw different kinds of gypsum panels and boards and they can be applied on ceilings as well. And they are used in homes, offices, even industries.

Then, of course, the metal ceiling is also possible and they are widely used for false ceilings. And, you know, especially in boutiques, shops to give a very sleek and modern look. There is a certain performance criterion which is required for finishing. And as designers, one has to like we have to really give attention to those. So the most important criteria for finishing material is to have appropriate visual appearance.

Of course, it has to serve the functional aspects, but it also has to create, you know, a proper texture, color, finish and a visual appeal. And the finishing materials are usually affected by the mechanical factors because of the direct contact with the user. So even that, you know, the traffic, occupancy, contact with the user and then the impact it has on the finishing material and the overall finish, that's also something which has to be taken care of. So, floors and walls, they can be damaged, you know, also by furniture and objects, by regular wear and tear and movement, etc., Finishing materials must be resistant to mechanical effects and all these things that we are talking about.

And the selection has to be done according to the material strength and properties. That's very important. To protect surface properties and user safety, finishing materials must have sufficient compressive strength, impact resistance and walking safety. These are very, very important. Also, you know, it has to be non-flammable and shouldn't emit toxic gases during fire, etc.

We have to also take care that it has less VOC, the volatile organic compounds, so that the space and the environment is healthier and less hazardous to the health. So, all those factors have to be kept in mind. These are some tips for selecting the materials and finishes. Of course, one has to begin by understanding what is the purpose for which the finishes are being created or implemented and what's the functionality aspect. What is the environment, you know?

where these are to be installed and also considering maintenance issues so we have to consider those requirements of course the cost factor whether they are durable or not the aesthetic aspect color texture light reflectivity sound absorption of course i talked about the environmental impact and health and safety just a while ago so all of that some surface treatments that we can you know just try to understand briefly so it's basically a mechanical process when we talk about surface treatment in which the surface material is smoothened you know with a sort of an additional coating that

makes it smooth water repellent and sometimes other kinds of attributes that can be achieved in some cases the moisture resistant substance is also used to make the surface free from dampness So we can consider all of these and then accordingly, you know, have surface treatment designed and implemented. Some of the reasons why surface treatment is very essential, of course, for the look purpose and to give a, you know, aesthetic appeal. And then extra smooth surface after plaster that can be provided through surface treatment, protection against dampness and it prohibits the growth of moulds, algae etc.

and prevents the building damage due to excessive rainfall. So weathering conditions to provide protection against all of these a surface treatment could be very very useful and essential. Now we can achieve this kind of a surface treatment by decorative paintings, which is a simple wall treatment. And, you know, from painting florals and foliage on a kitchen wall or doing fun murals in a child's bedroom or, you know, doing decorative painting in other spaces, it can also add personality and character to a space. There could be, you know, wallpapers, which are quite popular wall treatments, which are used very, very widely.

They could come in different themes, motifs, patterns, colors. We could also use wood for surface treatments and it could give a very contemporary luxury interior. They could come in many shapes, sizes, textures in the form of panels. Of course, plaster is used for surface treatment. It's easy to shape and paint.

It can provide different kinds of looks. It can break the monotony in a room and of course it does provide a lot of protection to the surface underneath like we try to understand during the process of plastering. Tiles can be used for surface treatment. They are very popular choices, easy to clean and maintain and there is an ease of using them and executing them. Exposed brick and stone, that could be another surface treatment where we are especially looking at rustic finishes.

They do provide a timeless appeal and character to your projects. Now, interior finishing materials and installation techniques, that is also to be understood because application techniques, they come with experience and on-site experience, technical details, learning through them. So, yeah, cement is the most used binding material and cement-based finishing materials. They are composed of mortar by mixing cement aggregates and water. They can be continuous or in the form of tiles.

The another one is Terrazzo floor. And, you know, when we see the lecture on flooring, it's discussed there. So cement tile is basically a layer tile. It is produced from cement, sand, and oxidized paint. The upper layer is paint.

The second layer below paint has a high cement factor. And the last one is like a regular cement mortar. And this layer is actually what gives it strength and proper finish. There are also earth-based materials and you know within that they could be porous, semi-porous and non-porous and it depends on the degrees of temperature to which they are subjected.

So, their compression strength actually varies from low in the case of porous to quite high in the case of non-porous. So again, depending on which area they are used for and, you know, where they have to be applied, one can pick and choose. Terracotta tile is another earth-based material, you know, it is used for several purposes and it has become a very versatile space-making element now compared to its traditional use. And due to its high baking temperature, it has low porosity and impermeability and it is used to increase the, you know, adhesion surface and for that the grooves are opened under these tiles. There is also glass and it's not just used for a visual connection like it was used very popularly in earlier days.

But with the emerging technologies, you know, it has started to be used in larger sizes and it is formed by melting the ingredients together at high temperatures, shaping and annealing of the materials. So, glass is again used quite popularly. Metal is preferred due to its structural strength and aesthetic appearance. It is used as wall and floor coating material either in the form of panels or tiles and it could also be used for a very very customized and exquisite look. It can be used at ceilings as suspended ceiling material also.

Another finish could be like polymers and plastics. And, you know, of course, it's not entirely natural, but it's used in different formats. Natural stone, again, we have been talking a lot about it. So, Textiles, these can also be used you know like the carpets and rugs for furniture, for curtains like upholstery material, all of these could be used.

So wool, cotton, linen, polymers such as nylon and perlon, these are used quite extensively in interior architecture projects. Then there are woods and wood composites that are used for these kinds of interior finishes. Wood can be used in

structure as solid or composite. And the composites could be like your fiberboard, particleboard, lumberboard, plywood. All of these are like byproducts of the timber industry, which are getting more and more used in interior architecture projects.

So, these were some of the popular finishes. There is a lot to talk about finishes, materials and specifications when it comes to interior design industry. Yeah, and even this entire course is not enough to cover it. But we are trying to take, you know, consider some of the important aspects.

So next lecture also focuses on finishes, materials and specifications, but specifically talking about crafts. So, we will see that when we meet next time. Some references over here.

Thank you.