Glass Processing Technology
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Lecture – 74
Glass Processing –Applications, Innovations and Futuristic Trends

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Based on all these technique or their application there are certain more innovations and trends happening in the market; let us discuss them.

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First we talk about the movable sun louvers, outside India they are very common. Based on the sun path a building is covered by external louvers which will change their location or angle based on the sun path; so that we obstruct the sunlight hitting our windows or entering into our buildings.

They are automatically controlled from a central unit, though presently they are expensive. Expensive in the sense, the whole electronics and the mechanical and a glass unit, but in times to come for a tropical country like India we have to go in a sooner or later. Double skin facade or star commonly entering into our Indian market, and when they will become popular these movable sun louvers will become a very effective solution to control the heat entering our building.

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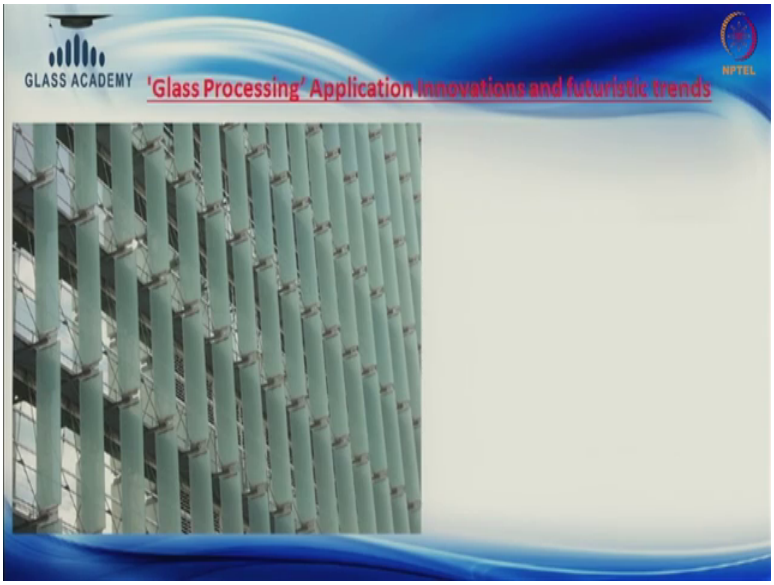

Another closer view of our louvers so, here the louvers are slightly frosted, or generally they are ceramic printed in a dotted screen, I will show you later.

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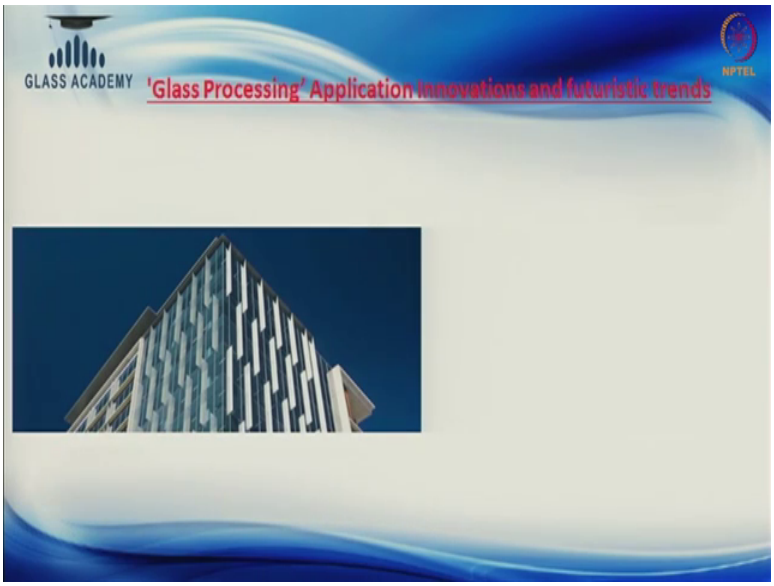

Another image of a sun control louver: a colorful sun control louver.

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So, here this is a image of a ceramic printed louver. This printing is done in such a fashion that by controlling these dots we can control amount of light entering the building. We can control, we can make it a 50 percent light entering, 25 percent light entering the building or a 75 percent. When we do 100 percent, it will become totally black out. So, this is ceramic printed sun louver. Next we talk about new material we call it a PCM or it is Phase Changing Material.

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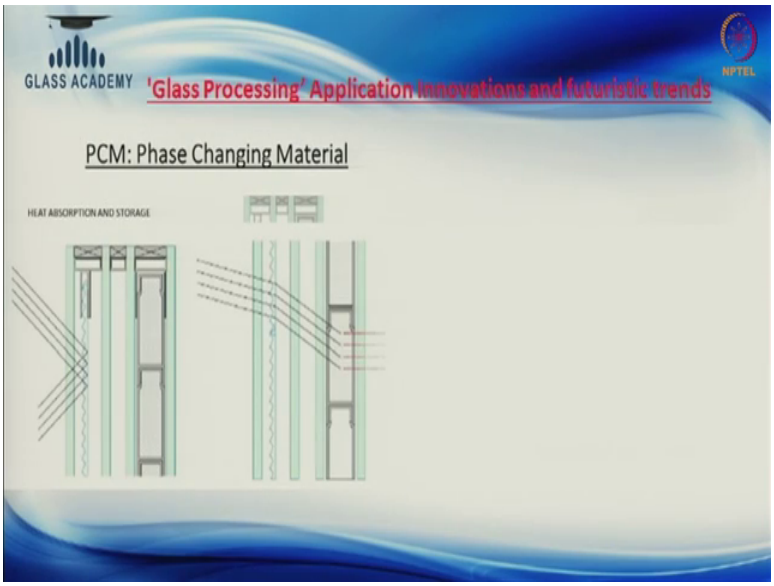

Phase changing material though it is a totally separate material, but it has become a part of glass, because during the day time; when we do not want sunlight entering our house, this material gives a translucent or not a clear image, its only pass light it does not give a heat inside.

But and it keeps on absorbing the heat throughout the day and in the evening when we want heat or a temperature, then its reradiate the heat inside the building. Based on angle of the sunlight, we can totally reflect it or we can partially permit, it is a new technology, lot of work is going on. But still some amount of PMC's are available in market which are one has to work it out of architects designer and a consultant all of us have to come together, and make a solution for a building. In time to come this will be a very effective tool or a product to reduce the, or cost of air conditioning. And it will also give lot of light. Next product is also a futuristic product, not readily available, but it is called micro blinds.

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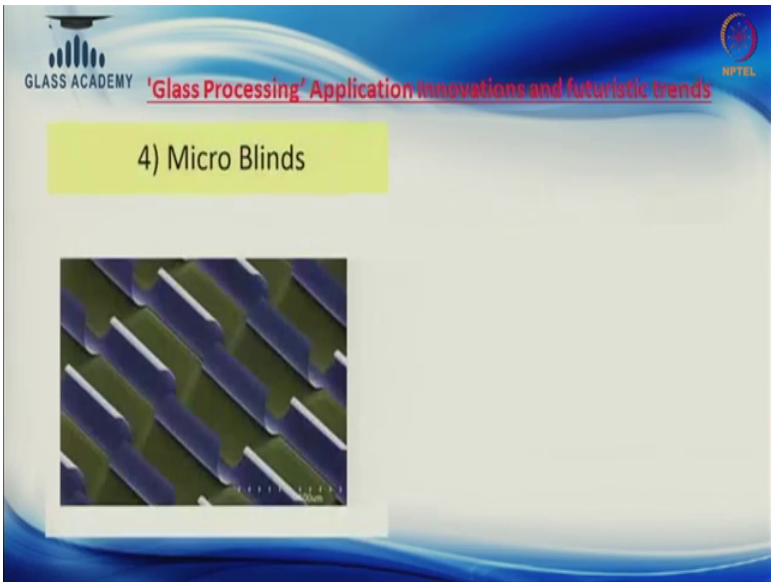

So, these micro blinds are very microscopic, and there generally based on photo chromatic property of glass. So, the closing and opening of these micro blinds are by lights or by electric, electricity. It is a similar fashion this product is also under research and development. So, it is a futuristic trend, I really do not know by what time this will be available effectively in the market.

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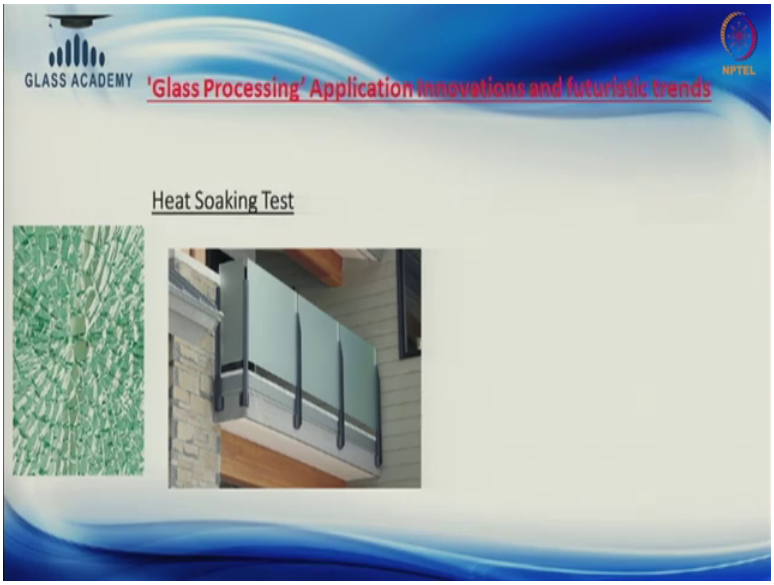

So, what earlier used to happen; I am sure all of you heard a spontaneous breakage of the glass, or suicide by the glass in a common way people call it suicide by glass or glass

automatically breaks without any cause. So, this is because of a nickel sulphide inclusion, nobody knows what is the cause it is a why it enters the glass how we can remove from the glass. But toughened glass has a nickel sulphide, and whenever do the nickel sulphide in the glass, the glass can spontaneously break without any cause, without any triggering device.

So, only option to control this problem is heat soak test. In this test we put a glass a toughened glass in a furnace for about 2 to 3 hours, temperature is around 180 degree or plus minus 20 degree. So, all those glasses which have a nickel sulphide or which have a tendency to spontaneously break will get damaged inside the furnace. So, the risk of those blasting of the glass at site will be reduced. Generally, normal toughened glass has a 3 percent chance of having an nickel sulphide inclusions, but after we do heat soak test, the chances becomes 3 percent mean, it is a 3 glass in a 100 unit, and then it becomes 10 3 glass in 10,000 units.

So, this is not a futuristic trend it is very much there in India. People are using in high rise buildings, where installing cost is much more the cost of the glass. So, this I request all architects to do whenever they are doing a large size or a high rise building, they must use this glass because changing cost of a changing glass is very high in high rising. One has to lower the gondola, one has to create a scaffolding, and then we reach to a site where we can we have to read change the glass.

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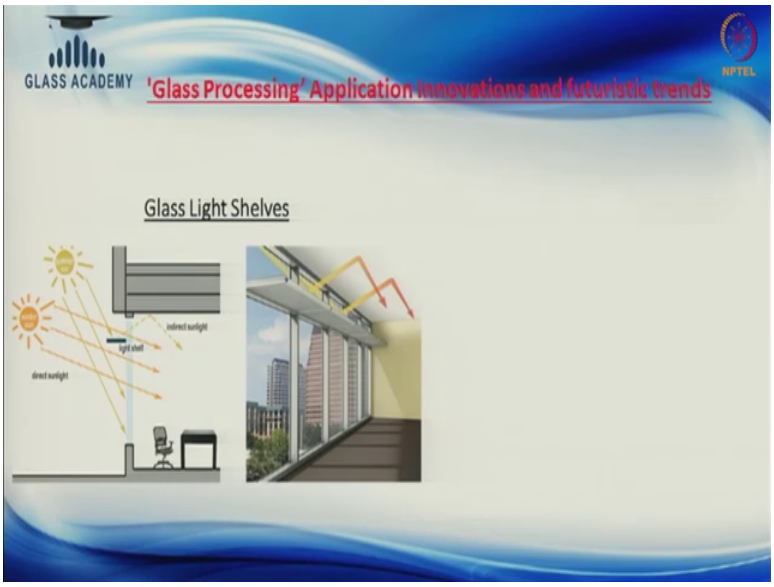

Glass light shelves as energy is becoming expensive, we want daylight to enter our house. Generally whatever happening right now, near the doors and window you have a sufficient light. But if your room has a big depth, then every corner of room is not well lit. So, glass light shelves are the answer to this problem. If you see this sunlight is reflected by a glass shelves and projected on to the roof from where it against gets scattered or diffused and illuminate the whole room. It does two things: one it carries the sunlight which earlier was available only near windows to the other end of the rooms. And secondly, it reduces the intensity of the light or a glare of the light.

So, this concept is outside India is very prominent or it is available, but in India one has to work on it. Though everything is available, but none of us has started working on this. So, if you start designing you have to give us a time. So, we design aluminum to hold the glass, and then we create a solution through which we illuminate the entire room with the diffused and a smooth light and we save lot of money on lighting purpose.

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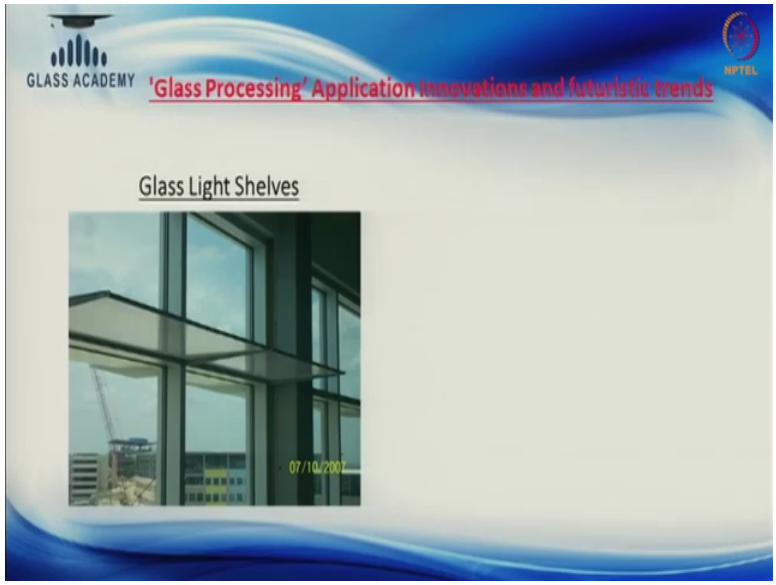

Another example of light shelves, another picture.

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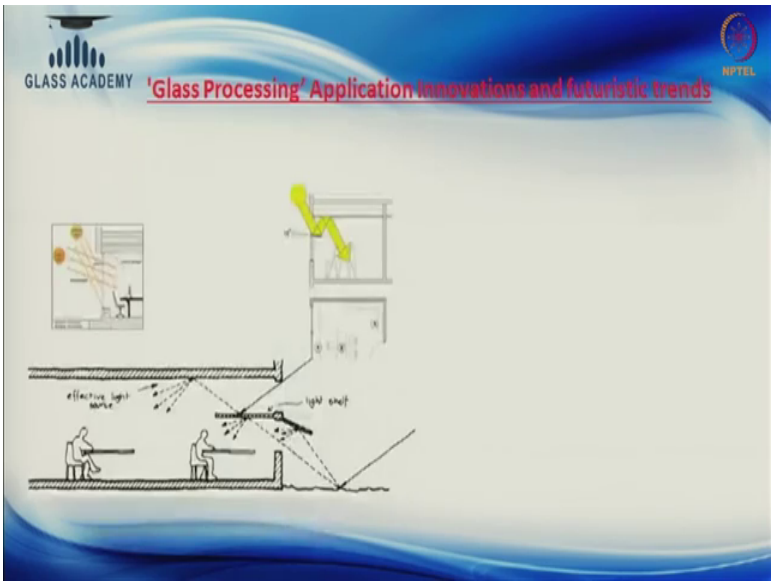

So, in this graphically it is reproduced, how light is diffused and how it is extended to the inner corners of the room.

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Next is glass flooring, though lot of people are using glass not on a floor, but specially on a skylight or on a roof where people can walk on it. Outside India you see lot of glass bridges on which people can walk.

So, here the glass flooring purpose of glass flooring is to carry the light to those part of the building, which does not receive light through windows. So, it gives a open feeling, it gives an eerie feeling to floor, and it adds a light to the building.

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Next product is between the glass blinds, or I can say it is a insulated glass, and inside this are blinds or louvers. Louvers what happens in India because, of the lot of dust, when we try to clean the louvers they get damaged. And specially in kitchen if you are using louvers, it becomes very greasy and difficult to clean.

So, solution is in incapacitate the blind inside this 2 panes of glass, and this can be controlled by a remote, or with magnetic mechanical device

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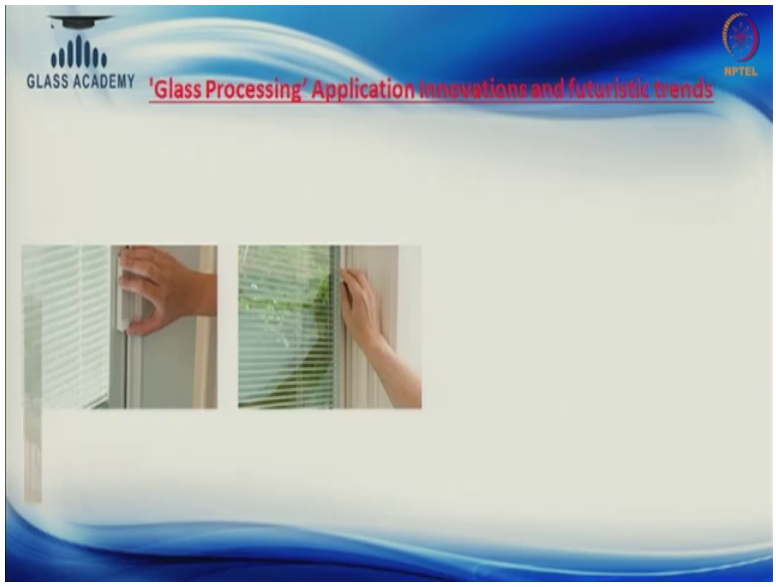

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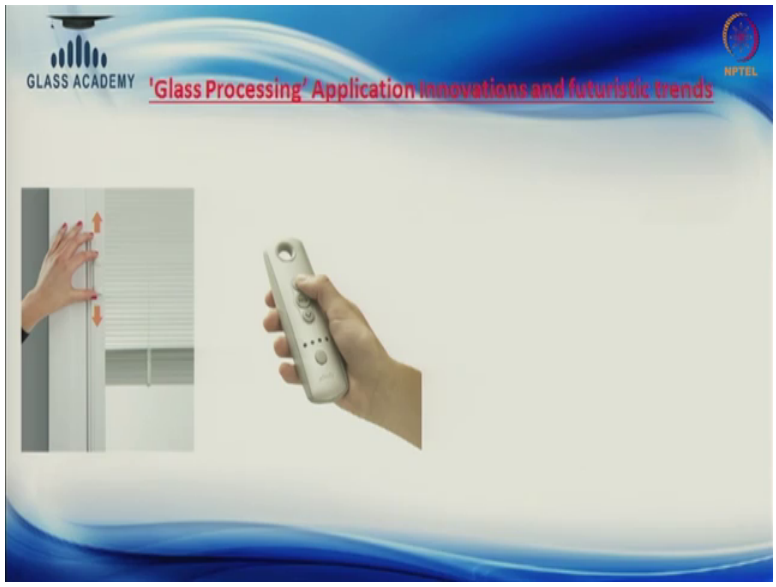

So, in left image, we can lift up and down a magnet which will close and open the blind, and the other side which I show you the previous slide. Other side if I rotate this magnet, it you can change the angle of those blinds. And, another option is by a remote unit, it has a everything inside that glass.

So, we can lift up and down and we can change the angle, we can control the lights. So, ladies and gentlemen thank you very much. So, if you haves any question on whatever we have discussed today, you can send me mail or you can write to glass academy. We all will be happy to help. Thank you very much for your patient listening.

Thank you.