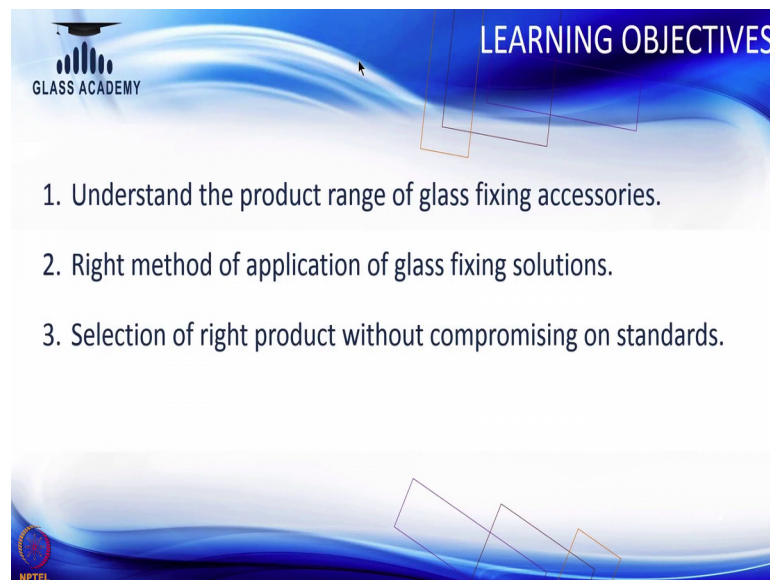


Glass in buildings: Design and Application
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Lecture – 36
Interior Glazing Program

Hi, I am Sanjeev Chaubey from Saint Gobain. Welcome to NPTEL online Interior Glazing Program. Today, we will discuss about glass fixing accessories in Interior Glazing Application.

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LEARNING OBJECTIVES

1. Understand the product range of glass fixing accessories.
2. Right method of application of glass fixing solutions.
3. Selection of right product without compromising on standards.

The objective of this program is to understand the product portfolio of glass fixing accessories; then the method of application, and then selecting the right products as per the standards of the industry.

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So, let us first understand the product portfolio of this category.

When, it comes to the glass fixing the first and most commonly products come in picture is silicone. So, there are 2 type of silicone. One is known as the colored silicone, which is available in black grey and white color. The, another category is a clear silicone. So, we will discuss in detail that what kind of silicone, what are the standards? Then, the second product comes in is known as double sided tape, which is commonly used for a fast fixing solution in industry for lacquer glass as well as mirror. Then the third product comes in this category is known as clear partition tape, which is commonly used for a glass partition. Because, nowadays most of the partition in office space is being done by the help of glass so, there we need some kind of solution which can be used for a glass partition. So, there we use this clear partition tape.

Then, product comes in is basically a masking tape. Masking tape is supporting element to use with this silicone as well as this Ferro mounting tape. We will discuss in detail that what kind of standards are there for these product. And, how the product needs to be employee needs to be applied to the glass, for a better result for a better aesthetics and without compromising on these standards.

So, first we will understand what happens, when we do not use a right product and a right method of application of glass fixing solution. So, we will see through a few defects which comes in this category.

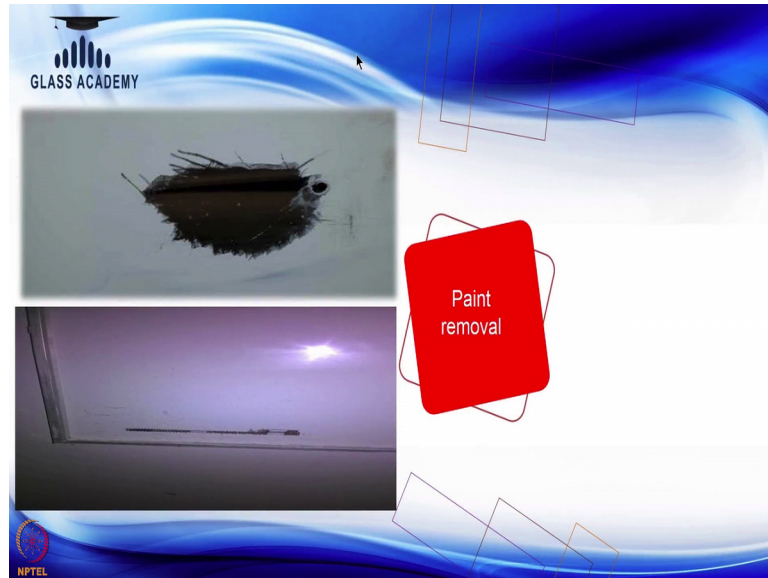
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The first defect which is known as mirror corrosion, now why this mirror corrosion is happening is again because of incompatible adhesive. When I say incompatible adhesive it means the adhesive, which is being used to fix that glass was not compatible to the back paint.

Because, any of the lacquer glass which comes under this category has some kind of coating at the back of that glass, if that adhesive is not compatible to the paint of course, it will react with that paint and it will take off the paint from that back painted glass surface. Result is in front of you can see the corrosion is happening in at the back of the mirror. So, this is a most common defect come in this category, which is happening because of an incompatible adhesive use at the back of the glass or while fixing the glass.

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Second effects comes in this category again is a bigger picture of that defect which is known as paint removal a larger surface of that paint is being removed. Again, what the reason behind this is the same thing the incompatible issue or the improper application of that adhesive. Because of that the paint get removed from that surface causing a bad aesthetics appeal which should not be there.

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Then, the third pictures you can see there are 4 different type of glass placed here: you can see every where there are some defects at the back of the glass surface. These all glass surface defects are happening, because of the incompatible adhesive used in this category.

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So, let us have a look on these common defects which are coming in this area because of incompatible adhesive used or improper way of application of glass fixing accessories. As, you can see the first is edge corrosion edge corrosion happening, because of the improper application of the adhesive.

The second you can see is mirror corrosion, that is again because of incompatible adhesive used in fixing mirror. The third you can see paint peeling off. Here the most common defect which is being happening in this area is because of incompatibility of adhesive used.

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So, these problems are basically alarming us not to compromise on standards. So, while going for this glass fixing accessories, we need to look into some standards.

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Which are set by this industry? So, let us have a look on the standards, what are those standards which need to be added by going for a glass fixing accessories.

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The first standard comes in picture is known as the VOC complaint 90 percent of the product which is being used in this glass fixing category are mostly voc emitting products. When, we say voc emitting product means they will be emitting volatile organic compounds, which is ultimately going to hamper the internal environmental. I mean, the air in which we are going to breathe in will be hampered because of this VOC components I will explain you in detail.

The second components comes is bond strength, while fixing a glass bond strength is very very critical category, very very critical element to look into it. Because, if the strength is not proper the glass will get down after a period of time, resulting glass crack or maybe the glass break is even. The third category, the third element which comes in the compatibility, which is again the most critical element of this glass fixing solutions; if that glass fixing adhesives or the tape which is being used is not compatible to the back paint again it will take off that paint, and it will result in a bad aesthetic appeal of that interior structure.

Next the things come in amount of adhesive which is being used. Because, if you are using less amount of adhesive again it is not going to fix the glass in a proper way, if you are going to use the higher amount of adhesive the undulation; the unbalancing thing will happen at the back of the glass again resulting in glass breakage or glass getting down from the placed area. So, we need to look into this area.

Then the adhesive application, the way we are applying adhesive that is also critical element of this glass fixing category. So, all these critical elements need to be taken care of when we are going to select a glass fixing accessories or any of the glass fixing products. So, let us start first with silicones.

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As I shared with you silicones there are 2 types of silicones available in market; one is the colored silicone, colored mean to say there is a variety of color which commonly comes in black, grey or white. Then the third another category is known as clear silicone. So, depending on the application of the product this different type of silicone can be selected can be opt. We will discuss what kind of silicone when to be used.

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So, when we are going to say silicone the first component as we discussed that VOC compliant.

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The silicones must be of neutral base. When I say neutral base actually in market there are different type of silicones available. Mostly silicones comes under the Acetoxo category, when I say acetoxo category means, while applying on the back painted glass on the painted glass, it will react with that paint and emit some VOC complaint with some acidic background, which will again hamper the interior environment the air equality of interior, which is not good for our health.

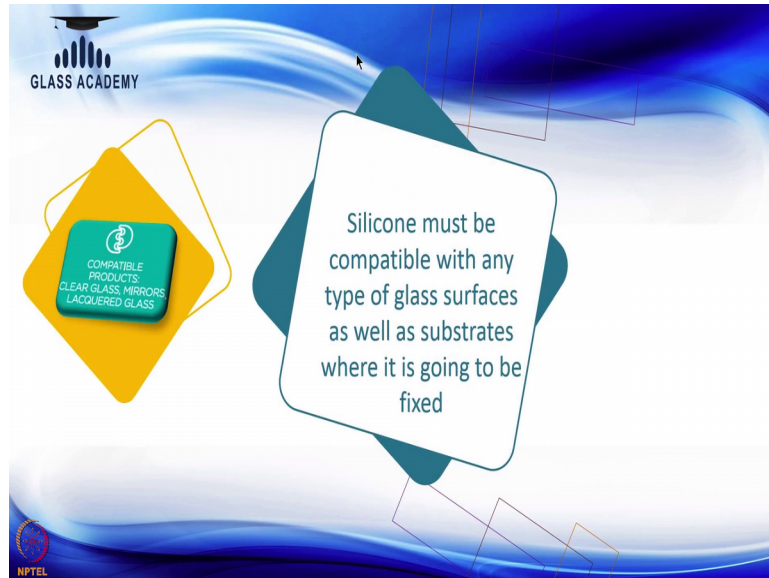
So, the recommendation here considering this VOC complaint is we must use silicone which is of neutral base or that category or that grade is known as Alkoxy. So, one is Acetoxy which is going to emit acids, the another is Alkoxy which is basically going to emit alcohol base smell, which is not that long lasting it will disappear in a period of time. And, there is no hazardous impact on our interiors I mean atmospheric air. So, the recommendation here is we should use alkoxy silicones.

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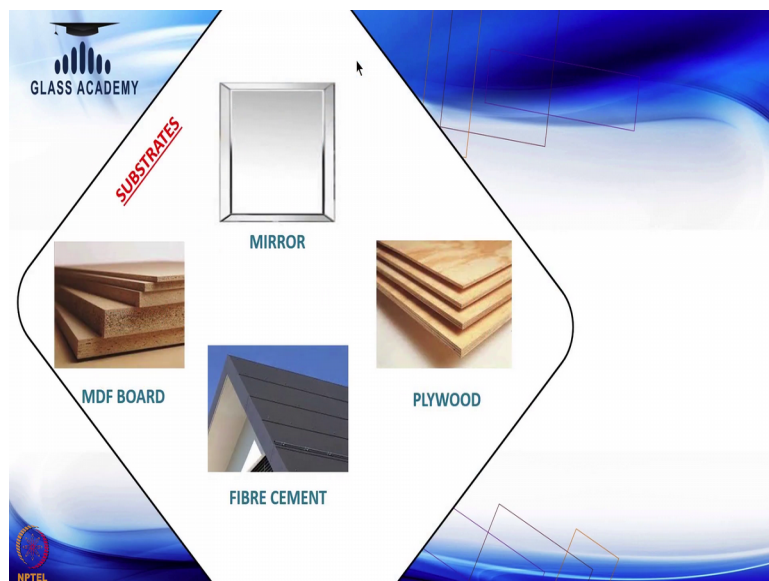
Then the second point comes in bond strength, as we discussed higher the bond strength higher the life of the glass stability. So, the recommendation here is the glass bond strength of this fixing adhesive must be of 450 kpa, because if the higher the strength it will hold the glass properly and it can hold the higher thickness of glass as well. Mostly glass in this category is used for 6 or may be 8 mm of thickness; so 450 kpa bond strength is more than enough to hold that much glass thickness.

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The next point comes in is basically the compatibility. The compatibility part covers 2 aspects; one the silicone which is going to be used must be compatible with all kind of glasses. When I say all kind of glasses means mirrors which does not which have a different kind of back coating, then the back painted glass which has a different kind of back painted. So, the silicone which is going to be used in this category must be compatible with mirror as well as back painted glass. Apart from the material where it is going to be used there is a substrate compatibility.

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When I say substrate means the surface where we are going to fix the glass, you can see here the first as I discussed mirror which is a object which is an object where glass fixing

solution need to be applied. Second, plywood which is basically a substrate so, when you are selecting a silicone, it must be compatible with plywood as well as fibre cement as well as MDF board. Because, the substrate varies from customer to customer, project to project, few people will use plywood few people will use MDF board few people will use (Refer Time: 23:07) wall I mean the fibre cement thing.

So, whatever the fixing accessories coming in picture must be compatible with all kind of substrate.

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Next to the substrate the things come in silicone is the colors available in this market. So, basically there are 3 type of colors available in silicone category; number one is black, then grey and then white. So, it depends on the application that where we are going to use the silicone that color will be chosen as for that. Let us say if we are going to use silicone in exterior category mostly we will be using black silicone, where the color is going to match the glass or we need not to see the partition.

The second category like grey and white mostly being used in back painted glass when we are going to fix the mirror or a back painted glass we can use this white and grey category. Clear silicone is mostly used when the clear glass is being fixed. So, that clear silicone will match to the clear glass and will maintain better aesthetics.

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Then apart from this most important thing is coming the curing time. Whenever we are going to select silicone curing time is the most critical time. Curing times means, how much time it will take to hold the glass with the substrate hold the glass means fix the glass.

Initially when you are going to fix the glass, we will fix that of with the help of silicone then we will place masking tape. So, that it will hold the glass for sometime after that it will be cured. So, the time which is being taken to cure that silicone to fix that glass to hold that glass to the substrate should be very very less. In market we can see that there are silicones available from 8 to 24 hours. Whereas, the recommended time is 8 to 9 hour the silicone, which is considering 8 to 9 hours curing time is considered as a good silicone. Whereas, the holding time support time should be around 2 to 3 hours. So, that glass can be placed and that can be supported with the help of masking tape.

That I will show in videos I mean the installation video, where we will understand in detail that how this fixing time and this curing time is going to happen in this application?

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Then, another part of this silicone usage is related to the weather. As, we discussed in this category paint does not hold and the silicone inhold some adhesive mounting tape also inhold some adhesive. So, all these adhesive must be weather compatible. It means there should not be any impact of inside or outside weather conditions. Like in rainy season if some moisture is coming it should not get peeled off, it should not get detached from the substrate or from the mirror part.

So, the silicone which is being used in this category must be of weatherproof silicone. That is again one considerable element of this silicone specification.

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Summary:

By the end of this video, you have learnt about the:

- Product portfolio of glass fixing accessories
 - Coloured silicon
 - Clear silicon
- Consequences of not choosing the right product or standard
- Standards for glass fixing accessories
- Standards for each accessory