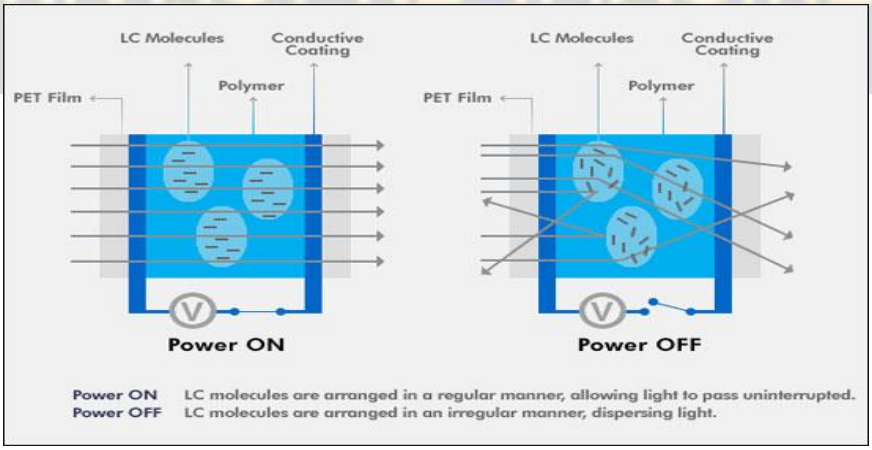
2514 Tarpley Rd #118 Carrollton, TX 75006
Electratint.com

How Clear Is ElectraTint?

Everyone loves the idea of being able to switch their windows or glass panels from having a view to complete privacy when needed. And the idea of being able to add that feature to existing glass without a major remodel or replacing the glass is even better. ElectraTint can provide this functionality and is no thicker than a Driver's License. But how does it look? Will my glass look the same with ElectraTint as without it? Some companies may tell you that your glass will look the same with their film applied but that just is not true. So, let's try to "clear" a few things up and set realistic expectations.

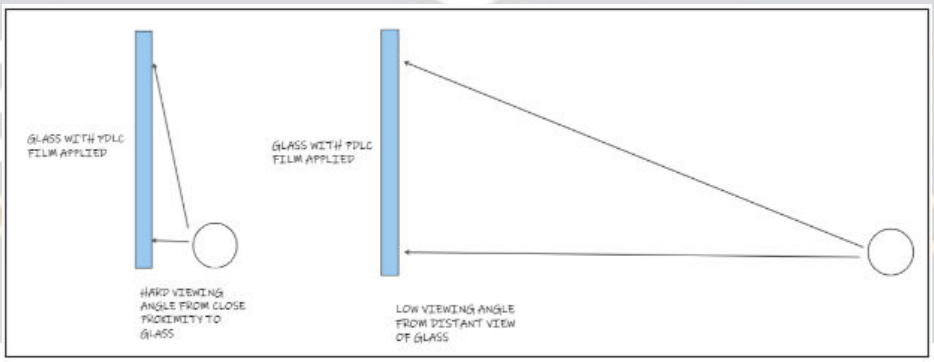
How clear will the film look once it is installed? This is one of the most frequently asked questions regarding ElectraTint that we receive and understandably so. Unfortunately, there is not really a simple answer, though some might want you to believe that there is. There are several factors that can and will affect how clear the film appears, meaning how it visually appears and is perceived to a person's eyes. The viewing angle of the film, lighting in the area where the film is installed, and reflective surfaces near where the film is installed all affect the clarity of the film.

It is important to first have a general understanding of what ElectraTint is and how it works. ElectraTint is a PDLC (Polymer Dispersed Liquid Crystal) film. The easiest way to describe what that means is this; the film is comprised of a plastic that can pass electrical current, liquid crystal, and another layer of plastic that can pass electrical current. These components are laminated (sandwiched) together and have attached electrical connection points (buss bars) that give a pathway for power to enter the film. Power is supplied from a transformer that steps the high voltage (120 volts AC) from your house or business down to low voltage (60 volts AC). The liquid crystal in the film is scattered and can not be seen through when the power is off but when power is turned on to the transformer the liquid crystal "lines up" allowing you to see through it. All PDLC film works this way.



With regards to PDLC film and the clarity to expect, there are two points to discuss. First, does the film distort your view when you look through it? Do objects on the other side of the film look blurry, distorted, and unclear? No, when powered on and in its transparent state, viewing through the film is not distorted or blurred but provides clear visibility when looking through it. You can expect to see clear sharp edges of anything that you are looking at through the film. Second, does the glass, window, or door look clear and the same as it did without PDLC film applied? This is a tougher question to answer because the appearance of the film will vary from application to application. The film can have a hazy appearance, and that will vary from one area to another. With some installations the film is almost impossible to notice but in other situations the haziness of the film will be more noticeable. The same glass with film applied to it will have a varying appearance and clarity depending on changing factors in the room and where it is being viewed from. This is true with all PDLC film. So why is this?

Viewing angle plays a huge role in how clear and how noticeable the film is. When the film is on (transparent) and you look through it at a hard angle it will have a hazy look to it. This is because you are looking through the side of the film and liquid crystal instead of straight through the film and liquid crystal. An example of this would be standing on the left side of a six-foot-wide window and two feet back from the glass. In this case looking straight forward, the film will appear almost completely clear but as you look to the right of the glass from the same position the film will be hazier the further right you look. You will be looking through the side of the film and have a hard or sharp viewing angle. If you stepped back twenty feet from the same window the haziness that you saw up close would be significantly reduced and barely noticeable. This is because your viewing angle of the film is reduced and near straight on. So, the size and shape of the room where PDLC film is installed has a direct effect on the film's clarity. Not that the physical characteristics of the film change but rather how and where you look through the film is restricted by the physical shape of the room. The viewing angle is limited by the shape of the room.



Lighting and reflective surfaces near the film also play a major roll in the appearance and clarity of the film. PDLC film will catch light, and this can add a hazy look to the film. The same thing can happen if there is a brightly lit wall that is opposite to the glass that has PDLC film applied to it. We have all seen how light can react with just glass like this in our homes when it is dark out and light inside the house, it is difficult to see outside because of the light reflecting on the glass. PDLC film can have different realms of clarity with different lighting situations, even though looking through the same glass and film. A bright light in the ceiling right next to a glass panel with film applied to it will give the film a hazy appearance in that area. A bright white wall that is heavily lighted will add some haze to the film if it was right next to it. Lighting on or off, colors of walls, locations of walls, exterior light entering a room, even different

natural lighting coming through exterior windows are all examples of situations that will have an impact on how PDLC film looks.

Could there be a difference in clarity with different manufacturers of PDLC film? Yes, there could be some but usually this is very minimal and generally difficult to tell, especially with the naked eye. A haze will always be present with any PDLC film, and all the same factors will affect the film the same way. What will be more noticeable with film that might look a little "clearer" is higher visibility through the film when it is off and supposed to be frosted, not ideal when you want privacy. This is because a "clearer" film uses less liquid crystal and that allows more lighting and images to be seen through the film when frosted.

Will adding ElectraTint or any other PDLC film change the appearance of your glass? Yes, and if someone states anything other than that it would be a false statement. Adding any type of film for that matter, even a clear architectural film, will change the way glass appears. It is hard to predict exactly how PDLC film will look in each situation. A deep and narrow entry way with PDLC film on a front door may look clearer than a conference room with PDLC film on a twenty-foot-wide wall of glass that is only ten feet deep. This is because of different viewing angles. That same entry way may look hazier than the same conference room if the entry way has direct sunlight hitting the glass. The conference room wall of glass will look less hazy when it is darker inside the room. The outer edges of the PDLC film will be hazier than looking straight ahead. If you are looking through opposing glass panels with PDLC film applied to both, it will look different than looking through one panel of glass with film. The installed clarity of the film is dependent on many variables and conditions of the location it is installed.

What is important to remember is there is always some give and take, compromises that sometimes must be made to gain other benefits. Will your glass look exactly how it looks without PDLC film? No. But adding ElectraTint to your existing windows will give you privacy in an instant when needed and then a view in an instant when privacy is not needed. The times for outdated and bulky blinds and roller shades are becoming a thing of the past. ElectraTint provides a clean and modern look; a technological wow factor, making a lasting statement to clients and guests. ElectraTint truly is Privacy Re-Imagined!

*The following pages contain example photos showing how different environments will affect PDLC film. *

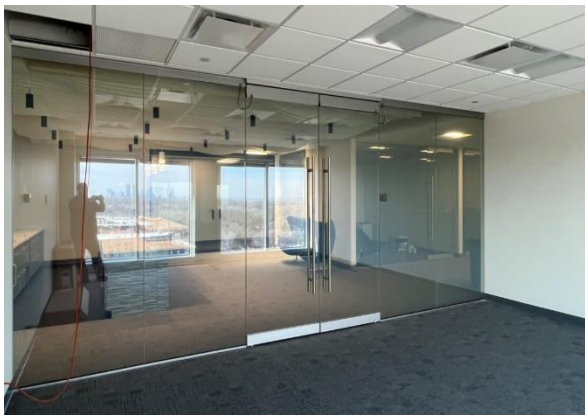
The above pictures show how PDLC film will “catch” light from a light source that is in close proximity.

Here there is more haze as you look from right to left.

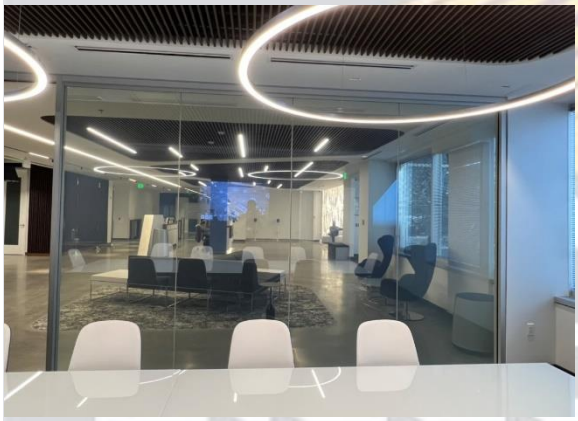
Note the difference in appearance from inside to outside. (No film has been applied to the upper glass)

The natural light entering the room causes the PDLC film to have an increased haziness here when looking in from outside of the room. If it was dark outside the exterior windows the haziness would look different. Viewing from different angles also changes the appearance.

When viewing the doors from directly in front, the PDLC film is hard to notice compared to viewing from the side.



Here is a great example of how PDLC film can look different from inside a room looking out and outside the same room looking into it.



In these 4 pictures of the same conference room, it is easy to see the difference in appearance that PDLC film can have from inside and outside. This is due to different lighting and reflective surfaces. There is also a noticeable difference when looking straight on compared to viewing the glass wall at an angle.