FIELD-APPLIED COATINGS AND FILMS ON GLASS

VIRACON TECH TALK

The appearance and performance of an existing glass façade can be altered by applying a film or coating to the glass. There are risks associated with the use of such films and coatings, including glass breakage or incompatibility. This document provides items that should be considered prior to applying a coating or film to glass.

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SOLAR CONTROL FILMS AND COATINGS

For a variety of reasons, building occupants and owners may apply a reflective or heat-absorbing film or coating to glass after it is installed. The most common is polyester film applied to the room-side glass surface. Reflective or heat-absorbing films or coatings can be very effective in improving thermal comfort and reducing glare by altering thermal characteristics.

Solar control films and coatings function, in part, by absorbing solar radiation. The increased absorption caused by the film increases the thermal stresses within the glass, especially under sunlit conditions. Since the glass characteristics have been altered, the adequacy of the glass must be reevaluated based on its modified properties. If annealed glass is installed in a curtainwall application and heat-reflecting or absorbing film is applied to the inboard surface, increased thermal stresses can cause glass breakage. For this reason, we do not recommend applying film to annealed glass.

SECURITY / BLAST-RESISTANT FILMS

It is common to enhance the security of a building, including its resistance to threats from an intruder or a blast. When looking at glass, penetration resistance and anti-shatter characteristics are critical. Broken glass can often cause the most damage and injury in a blast or impact attack.

In new construction, buildings that require this type of security typically utilize laminated glass. In existing buildings where replacing glass isn't feasible but additional security is needed, a security/blast-resistant film can be applied to the room-side glass surface. Film can be effective in improving penetration resistance, as well as reducing the probability of flying glass.

Like solar control films, applied security films can alter the thermal characteristics, making it necessary to reevaluate the adequacy of the glass. Installers of security films need to carefully evaluate the performance specifications of the applied film. In some cases where highly explosive devices are a threat, film may not provide the desired protection or results. Whether applied to the daylight opening or anchored to the framing system, film will influence the security performance characteristics.

GRAPHIC FILMS

Another type of film sometimes applied to an existing building is a graphic film. Examples of this include corporate branding for a building tenant, patterns added to mitigate bird-collisions or temporary signage, such as team logos for a large sporting event.

Graphic films may be applied to the full building façade, a portion of the façade, full glass units or portions of glass units. Regardless of the placement, graphic films also alter thermal characteristics and require careful evaluation prior to application.

APPLICATION GUIDELINES

Because of risks associated with field-applied coatings and films, Viracon discourages their use without careful evaluation. The supplier and applicator of the film or coating is responsible for evaluating the applied material and its possible adverse effects on the glass.

The following items should be evaluated:

1. All glass plies within the unit should be heat treated in order to resist potential increased thermal stresses placed on the glass with the addition of an applied coating or film.
2. The film should be applied to an uncoated glass surface and the film's adhesive must be compatible with the glass surface. Specifically, alkaline adhesives must be avoided.
3. The film should allow the glass to deflect normally under wind loads and temperature changes.

WARRANTY IMPLICATIONS

Field-applied coatings or films on uncoated glass do not void Viracon's standard limited warranties.

Viracon does not assume responsibility for problems created by, or associated with, applied coatings or films, including breakage or incompatibility between the glass unit and the coating or film.

In circumstances where a coating or film has been applied to a Viracon glass unit that subsequently warrants replacement under Viracon's standard limited warranty terms, the cost of the coating or film, and its application, are not included in Viracon's standard limited warranty.

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