

THERMAL CRACKS OF GLASS

PREVENTIVE MEASURES TO AVOID THERMAL CRACKS

- Ensure that there is no great temperature difference occurring between the central area of the glass and its edge.
- When cutting and installing the glass, care should be taken to ensure that there is no weak spot along the edges.

TYPES OF GLASS

• HEAT ABSORBING GLASS

Because of its immense solar radiation absorption capabilities, heat absorbing glass becomes very hot in the centre and can incur large heat stresses. Therefore, the glass must be thermally insulated from the metal sash.

• WIRED GLASS

The allowable stress of the wired glass edges is about half that of float glass because it is difficult to achieve a clean cut for wired glass. Also there is a significant difference between the coefficient of thermal expansion of the wire mesh and that of the glass. Lastly, should rainwater or dew seep into the sash, rust will develop easily and this leads to further weakening, thus watertight and anti rust measures should be adopted in the sash. If heat absorbing wired glass is used, the severest conditions in thermal cracks will occur, thus every caution must be exercised during application.

FIXING AND STRUCTURE OF SASH AND CURTAIN WALLS

- Allow over 4 mm of clearance between glass and sash.
- Concrete possesses a high heat capacity and even when exposed to the sun there is very little temperature change. If the sash is in direct contact with the concrete, the temperature of the sash remains relatively low. This rising temperature at the Centre of the glass will lead to thermal cracks.

SEALANT

- Use an elastic silicone sealant because putty is poor at channeling heat and poor at resisting moisture.

PRECAUTIONS ON USE

- Avoid placing thick curtains or blinds very near the windows, as these obstruct heat dissipation absorbed by the glass.
- Prevent cool air of air-condition or strong light of lamp from directly striking the glass surface as this will lead to a drastic temperature difference between the center and the glass edges.
Avoid sticking decorative paper or painting the glass surface as it will drastically increase the absorption rate and raise the temperature of that specific area of the glass.
- Avoid installing a reflective film on the inside glass surface as the film will reflect the transmitted rays back into the glass and will raise the glass temperature.

NOTES ON APPLICATION

- **GLASS EDGES** Install glass with clean-cut edges and no scratches or chips on the perimeter.
POSITIONING THE GLASS During installation, avoid hitting the glass edges against the sash, as they are easily scratched or chipped, Ensure a sufficient clearance between the glass and the sash.