Instructions for Transport, Handling, Storage, Installation, Use and Cleaning of Glass Products from Pilkington IGP Sp. z o.o.

With care for the maintenance of the high quality of our products during many years of operation, we hereby provide you with basic guidance for their transport, handling, storage, installation, use, and cleaning. This guidance mainly apply to the standard applications of glass in building façade systems, which means glass units installed vertically, exposed to natural light, air flow, flow of rain water on the glass surface, and without direct exposure to the effects of volatile or liquid aggressive chemicals, high temperature, dust or fumes which would degrade the glass surface or leave permanent tarnish. Pilkington IGP Sp. z o.o. will not be liable for accelerated wear or damage of glass units caused by operation in non-standard conditions, unless the specific operating conditions were reported and agreed to during the negotiation of the terms and conditions of sale of the concerned products.

Contact our sales representatives and consultants to clarify all questions and doubts. Please also read and understand the information materials concerning Pilkington products and their use, and the extensive professional reference literature concerning our products. You can find both on www.pilkington.com.

1. Storage of glass units

Single glass panes and IGUs should be kept in sheltered, dry, and airy rooms, away from direct sunlight, rain, and snow.

It is best to keep the glass on metal racks with the safe working load sufficient for the weight of the objects stored on them. The design of the glass storage racks should provide uniform support and resting points along the rack cross-members for the glass units. The glass should not directly touch any metal parts or other hard materials. The bottom support cross-members of the rack must be in perpendicular to the cross-members on the rack uprights. The glass storage rack should be designed so that the glass panes rest on it at 5-7° from the vertical. All parts of the rack which touch the glass must be lined with cushioning, like rubber, wood, etc., to eliminate all risk of damage to the glass.

When loading glass panes and IGUs on glass storage racks, place the glass with the longer edge down. Load the rack with the tallest glass unit first at the rack back support and with each smaller glass unit outward.

When on a rack, each glass pane or IGU must be separated from one another with cushioning spacers to provide a enough gap between the glass planes so that they never touch one another. The cushioning spacers must be made of materials resistant to water.

While in storage, the glass products must be protected against exposure to aggressive chemicals, impact with objects, and mechanical effects which could cause the glass to fail and break or lose its performance and/or service life.

Each IGU should be placed on the rack with both glass panes of the unit fully supported. For stepped glass units, place blocks of e.g. wood to support the narrow pane and offset the difference in the support of the glass.

When in storage or handled in a warehouse, the glass units must be lashed to the rack with bands or rails which will prevent the glass from falling from the rack, even if the loaded rack is at an angle from the vertical. Do not use steel bands to secure the glass on any rack. Use plastic bands with a sufficient strength and place plastic or cardboard spacers for cushioning between the bands and the glass edges.

During storage, the pressure of the lashing against the glass should not be remarkably high as to allow the IGUs to compensate the changes in their thickness caused by variation in temperature and pressure.

2. Handling and transport of glass

The glass should be handled and transported in dedicated packaging units, which usually are steel transport racks, wooden crates, or suitably constructed wooden racks. The packaging method must comply with the requirements for safety in transport and protection of the glass from damage. The transport vehicles shall be trucks with air suspension systems and closed load bodies.

The racks of glass should be loaded in parallel with the vehicle's centreline and a secure spacing must be kept between the racks and the glass. The lashing of the glass to the racks and of the racks to the load body of the truck should eliminate any risk of shifting in transit, even if the truck will brake hard. The truck load body must protect the load against direct sunlight, weather, and ingress of fine hard debris, like sand grit, which can damage the glass surface.

The glass should be loaded on the rack for transport like for storage. The lashing pressure during transport should be increased to prevent shifting of the glass.

3. Basic procedure for handling and installation of glass units:

a) The glass units must be installed with hand or power glass handling tools the design of which is correct for the size and weight of the glass units while ensuring safety of personnel and the surroundings during handling.

b) The handling procedure of the glass should follow the operating manuals for the glass handling tools.

c) To prevent persistent marks and fouling on the glass surfaces, immediately remove all labels and stickers from them during the installation process.

d) Ensure that the glass surfaces during the installation process will have no direct contact with any metal objects and eliminate every risk of damage to the glass.

e) For fire-resistant glass with the edges wrapped in safety tape, protect the safety tape from all damage during handling and installation. The safety tape must remain attached permanently to the glass edges even with the glass unit installed in the light of a window.

f) Protect the glass from exposure to chemicals aggressive to glass and mechanical / abrasive action, like scratching or impact, which could break the glass or change the performance of the materials which the IGUs are made from. The glass must be immediately cleaned if, during the installation or operation, the glass is exposed to substances capable of chemical damage of the glass surface (like chemicals released from concrete, gypsum, masonry mortars, etc. alkaline or silicate substances, and products which contain fluoride or fluoride-based acids). This applies to all products used for cleaning and care of the glass.

g) The materials used during installation of the glass in window frames and which might directly touch the edges of IGUs must be chemically compatible with all IGU materials. This specifically applies to all sealing and filling compounds, gaskets, sealing cords, washers, and all materials used for installation of IGUs. The materials might include non-descript solvents, filling chemicals or plasticisers which might react aggressively with the outer seal of the IGUs and degrade it.

h) The fastening of the IGUs must ensure a permanent masking of the whole edge strip around the IGU circumference to protect the IGU sealing caulk from exposure to direct sunlight. This does not apply when the purchase order specifies IGUs manufactured with sealing materials permanently resistant to UV light (like silicone caulk).

The fastening method of the IGUs must conform to EN 12488 and ensure efficient air ventilation and drainage of water from around the glass edges to prevent prolonged contact of water or condensed steam with the glass sealing materials or the plastic film in laminated glass panes.

The weight of the glass units must be transferred to the window frame structure by two rigid bottom supports which must span across all glass panes of the IGU. The fastening, support and hold-down components must be placed at least 50 mm from each corner of the glass.

4. Operation of glass units

Unless specified otherwise in the terms and conditions of purchase, it is assumed that all transparent glazing products (single glass panes and IGUs) are operated installed upright and in conditions which ensure unobstructed and natural transmission of sunlight and heat through the glass. The temperature difference which occurs in these conditions between the sunlit and shaded parts of the glass will not result in a risk of fracture.

Note that objects located in contact or directly next to the external or internal surface of the glass permanently change the transmission of heat. The objects cause localized accumulation of heat from the sun within their envelope, which may cause thermal fracture of the glass (which is not a factor in thermally toughened or heat strengthened glass). The objects which might cause these problems include plastic film, posters glued to the glass, heat sources placed near the glass (like electric lights, display monitors, heaters, water kettles, heating fans, etc.), furniture, display cases, shutters, roller blinds, and suspended ceiling.

5. Cleaning of glass

a) Clean the glass with water and commercially available glass cleaning products.

b) Rinse the glass with plenty of water before, during and after cleaning. Avoid rubbing the glass surface on which fine debris from sand, dust, rendering mortar, etc. dirt is. First, remove all debris with a strong jet of water and wipe the glass dry. Do not clean the glass with any metallic or ceramic scrapers or scourers to remove dirt. Do not use any pastes or solutions which contain any abrasive grit which might scratch the glass surface.

c) The dirt which cannot be removed with the methods specified in item (b) can be cleaned with soft-bristled brushes, rubber squeegees or fine steel wool without any abrasive grit. Perform a test to make sure if the tools will not damage the glass.

d) Stains from paint, tar, etc. can be removed with ethanol, isopropyl alcohol, acetone, or gasoline. If any of these chemicals is used, wash the glass thoroughly with water and wipe it dry. Note that these chemicals must not be in contact with other window parts, including the coating of the window profiles.

e) Do not clean the glass with solutions of acids or alkalis, especially liquid acids or cleaners based on fluoride or chloride – these chemicals can irreversibly damage the glass surface.

f) Clean the glass regularly with a frequency which depends on how heavy the dirt is. Note that if not removed, all types of dirt, stains, and tarnish will become increasingly harder to remove over time, increasing the risk of damage to the glass during cleaning.

g) Note that the glass must be cleaned so that the people cleaning the glass and their tools do not exert great pressure on the glass or strike it; otherwise the glass might break or be permanently scratched. All tools, especially suction cups used for cleaning of the glass, must be made from plastic materials which do not leave persistent marks on the glass.

h) If the glass is cleaned with liquid formulas, pastes, mixtures of chemicals etc. substances other than clean water, always perform a test with the substance on a small area of the glass to make sure that the glass surface, gaskets, seals and coatings will not be damaged by the substance.

29 June 2020

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