QUALITY PLAN

GLASSTECH INDUSTRIES B.S.C. (C)
ARCHITECTURAL GLASS SPECIALIST

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GLASSTECH INHOUSE LABORATORY TESTING						
Sl. No.	**Product Name**	**Standard**	**Clause No.**	**Test Name**	**Internal/External**	**External Lab Name**
1	Tempered Glass	BS EN 12150-1:2015	8	Fragmentation Test	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing The fragmentation test determines whether the glass breaks in the manner prescribed for a thermally toughened soda lime silicate safety glass. Test sample size 1100 mm x 360 mm shall be impacted, using a pointed steel tool, at a position 13 mm in from the longest edge of the test specimen at the mid-point of that edge, until breakage occurs The particle count and measuring of the dimensions of the largest particle shall be made between 3 min to 5 min after fracture. 50 mm x 50 mm square gauge is used to count the fragments 4~12 mm Glass minimum 40 particles and 15~19 mm minmum 30 paticles				
2	Tempered Glass	BS EN 12600/ ANSI Z97.1-2015	5.1	Impact Test	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing ANSI Z97.1-2015 standard establishes the specifications and methods of test for the safety properties of safety glazing materials (glazing materials designed to promote safety and reduce the likelihood of cutting and piercing injuries when the glazing materials are broken by human contact) as used for all building and architectural purposes. This impact testing is performed to check the strength of the glass for the safety of human if there is Human Impact For A Class Testing (According to SGCC requiqrements) 45.2 Kg Shot Bag released from 1219 mm 48" Height to make an impact of sample size 1930 mm x 864 mm)				
3	Tempered Glass	ASTM C1279-13	15.1	Measuring Surface Stress (GASP)	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing Measurement of surface stresses requires an optical apparatus GASP that permits the injection of polarized light rays propagating in a thin layer adjacent to the surface. A prism is usually used for this purpose. The rays emerge at critical angle ic. The photoelastic retardation due to the surface stresses is measured using a wedge-compensator. Surface compression of tempered glass is measured with GASP in accordance with ASTM C1279 Tempered Glass >69 Mpa or 10000 psi Heat Strengthed Glass >25 Mpa (3500 psi) <52 Mpa (7500 psi)				
4	Laminated Glass	EN ISO 12543-4:2011	4	High Temperature Test (Bake Test)	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing The pupose of this test is to determine whether the laminated glass will withstand exposure to high temperature over an extended period of time without its properties becomes sustantially altered The change in the properties judged by occurence of bubbles, delamination and cloudiness (not discoloration) Disregard all faults within 15 mm for and original edge and 25 mm from a cut edge.				
5	Laminated Glass	EN ISO 12543-4:2011	5	Humidity test (Boil Test)	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing The pupose of this test is to determine whether the laminated glass will withstand the effect of humidity in the atomoshere over an extended period of time without its properties becomes sustantially altered. The effect of humidity to be judged by occurence of bubbles, delamination and cloudiness (not discoloration) Disregard all faults within 15 mm for and original edge and 25 mm from a cut edge.				
6	Laminated Glass	ASTM M3007-19	9	Ball Drop Impact Resistance Test of Laminated Architectural Flat Glass	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing This test method is intended for use as an in-plant quality control test to evaluate the impact performance of laminated flat glass when a 2.3 kg, 83 mm diameter smooth solid steel ball is dropped from 3.66 mtr Height.				
7	Insulating Glass Unit (IGU)	ASTM C1249-18/BS EN 1279	11.3	Butterfly Test	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing Mixing Test, Multi-Component Sealant–A multicomponent sealant requires an initial start-up procedure, at least daily, every time a production line is started. When beginning work, the various sealant component lines (usually base and curing agent) should be opened. Material is purged through the lines until the sealant emerging from the dispensing gun ceases to be white or off-white or streaky, or both, in color and becomes uniform in color. A uniform color indicates adequate mixing of the sealant components. A mixing test, commonly referred to as a" Butterfly test"is recommended to confirm adequate mixing of the sealant components. The results of the tests, conducted for each lot number is retained and recorded in a QC document To check the homogenieous mixture of silicone sealant mixing of Base and Catalyst				
8	Insulating Glass Unit (IGU)	ASTM C1249-18/BS EN 1279	11.5	Snap Time (Pot Life)	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing Snap-Time Test, Multi-Component Sealant–A snaptime test is performed on multi-component sealants once full mixing, for a description of the test method. This test verifies the sealant working life and deep section cure times, as well as the mix ratio of the components. Any unacceptable variation in the snap-time (too long or too short), from the sealant manufacturer's recommendation for the sealant, may indicate that the sealant component mix ratio is incorrect or that one or more components may be out of shelf-life. The snap-time test results is recorded in the QC document for the corresponding sealant lot number. After mixing to check the start of curing of Silicone sealant				

Sl. No.	Product Name	Standard	Clause No.	Test Name	Internal/External	External Lab Name
9	Insulating Glass Unit (IGU)	BS EN 1279-2	B3	DELTA T Dessicant Test (Initial and final moisture content)	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing The desiccant must be stored and handled properly and then used in the proper amount when installed into the spacer. The desiccant must be dry at the time of installation into the spacer. Desiccant suppliers furnish test kits that can be used to ensure that the desiccant has not been preloaded with moisture vapor before it is installed in the spacer. To check the performance of Dessicant Temperature rise of dessicant >32 Deg Celcius				
10	Insulating Glass Unit (IGU)	ASTM C1249-18 Dowsil Guidelines	11.3	Mixing Ratio Test	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing The silicone sealant ratio should be 10:1 volume wise but density of base silicone is different supplier wise, so in order to check the Mixing ratio of silicone sealant weight wise 03 different weight are taken of base and catalyst and then calculate the aveerage weight. In order to get the desired weight ratio as recommended by silicone supplier and as per supplier TDS (Technical Data Specification) it can be adjusted with the volume ratio of machine.				
11	Laminated Glass	EN ISO 12543-4:2011 PBV Supplier Guidelines	0.0	Pummel Test	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing To check the Adhesion and bonding of Interlayer (PVB/SGP) with both the Glass The pummel test is the most widely used method in industry. In this method, a laminated specimen is pummelled repeatedly with a hammer at -18ΩC (0ΩF) until approximately one half of the test specimen has been pulverized. Test result by Rating the %age of adhesion of pulverized glass with the interlayer (Pummel value rating from1 to 10)				
12	Insulating Glass Unit (IGU)	ASTM C724	5.1 5.2	Acid Resistance of Ceramic Decorations on Architectural Glass	Internal	Glasstech Inhouse Laboratory
		Purpose of Testing This test method evaluates the quality and serviceability of a ceramic decoration on architectural type glass. The degree of attack is determined using an acidic solution both quantitatively and qualitatively.				

External 3rd party Laboratory Testing (ISO 17025 ACCREDITATED LAB)						
Sl. No.	Product Name	Standard	Clause No.	Test Name	Internal/External	External Lab Name ISO 17025 ACCREDITATED
1	Tempered Glass	ANSI Z97.1-2015	5.1	Impact Test	External	Intertek Lab USA (SGCC)
2	Tempered Glass	ANSI Z97.1-2015	5.2	Center punch Fragmentation	External	Intertek Lab USA (SGCC)
3	Laminated Glass	ANSI Z97.1-2015	5.3	Boil Test	External	Intertek Lab USA (SGCC)
4	Laminated Glass	ANSI Z97.1-2015	5.3	Bake Test	External	Intertek Lab USA (SGCC)
5	Laminated Glass	ANSI Z97.1-2015/BS EN 12600	5.1	Impact Test	External	Intertek Lab USA (SGCC)
6	Laminated Glass	EN ISO 12543-4:2011	4	High Temperature Test (Bake Test)	External	MOTABAQAH
7	Laminated Glass	EN ISO 12543-4:2011	5	Humidity test (Boil Test)	External	MOTABAQAH
8	Laminated Glass	EN ISO 12543-4:2011	6, 7.3.1	Radiation Test	External	IKATES, s.r.o Czech Republic
9	Laminated Glass	ASTM M3007-19	9	Ball Drop Impact Resistance Test of Laminated Architectural Flat Glass	External	Intertek Lab USA (SGCC)
10	Laminated Glass	BS EN 14449:2005E	Annex C	Ball Drop Test	External	MOTABAQAH
11	Insulating Glass Unit (IGU)	ASTM E2190-10	6	Insulating Glass Performance and evaluation	External	Intertek Lab USA (IGCC)