



SUN VALLEY SKYLIGHTS, WINDOWS & DOORS DEFECTIVE GLASS STANDARDS

FLAT GLASS INSPECTION CRITERIA PER ASTM C1036-06

TERMINOLOGY:

CRUSH

LIGHTLY PITTED CONDITION WITH A DULL GRAY APPEARANCE.

DIG

DEEP, SHORT SCRATCH

DIRT

SMALL PARTICLE OF FOREIGN MATTER EMBEDDED IN THE SURFACE OF FLAT GLASS.

GASEOUS INCLUSION

ROUND OR ELONGATED BUBBLE IN THE GLASS.

LINEAR BLEMISH

SCRATCHES, RUBS, DIGS, AND OTHER SIMILAR IMPERFECTIONS.

POINT BLEMISH

CRUSH, KNOTS, DIRT, STONES, GASEOUS INCLUSIONS, AND OTHER SIMILAR IMPERFECTIONS.

RUB

ABRASION OF A GLASS SURFACE PRODUCING A FROSTED APPEARANCE.

SCRATCH

DAMAGE ON A GLASS SURFACE IN THE FORM OF A LINE CAUSED BY THE MOVEMENT OF AN OBJECT ACROSS AND IN CONTACT WITH THE GLASS SURFACE.

INSPECTION:

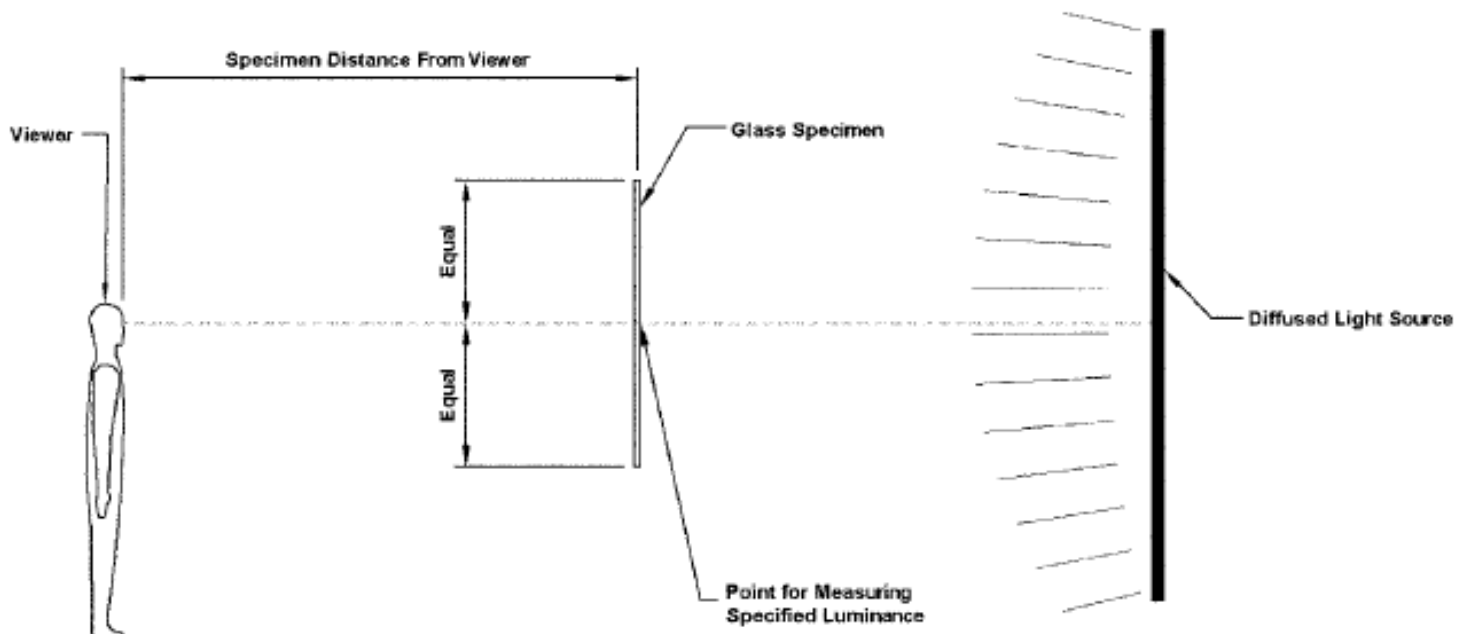
VIEW AT THE DISTANCE SPECIFIED BY DEFECT TYPE.

VISUAL INSPECTION SHOULD BE DONE WITH THE NAKED EYE.

THE INSPECTOR SHALL PLACE OR VIEW THE GLASS IN A VERTICAL POSITION

INSPECTOR SHALL VIEW THROUGH THE GLASS AT AN ANGLE OF 90°

LIGHTING SHOULD BE DAYLIGHT LEVEL (**WITHOUT DIRECT SUNLIGHT**) OR OTHER UNIFORM BACKLIGHT THAT SIMULATES DAYLIGHT.



QUALITY CRITERIA:

ALLOWABLE POINT BLEMISH (VIEWING DISTANCE 39")

BLEMISH SIZE <0.05" ALLOWED WITHOUT RESTRICTION.

BLEMISH SIZE >0.05" <0.10" ALLOWED WITH A MINIMUM SEPARATION OF 24".

BLEMISH SIZE >0.10" NONE ALLOWED.

TO DETERMINE POINT BLEMISH SIZE, MEASURE HEIGHT AND WIDTH OF BLEMISH AND AVERAGE. ONLY THE POINT BLEMISH IS TO BE MEASURED, AND NOT ANY DISTORTION THAT MAY BE PRESENT.

ALLOWABLE LINEAR BLEMISH - SCRATCHES (VIEWING DISTANCE STARTING AT 160")

FAINT OR LIGHT SCRATCH LESS THAN 3" ALLOWED.

MEDIUM SCRATCH OF 3" ALLOWED WITH A MINIMUM SEPARATION OF 24"

MEDIUM OR HEAVY SCRATCH GREATER THAN 3" ARE NOT ALLOWED

TO DETERMINE SCRATCH INTENSITY START AT 160" AND MOVE CLOSER UNTIL SCRATCH BECOMES VISIBLE, (REFER TO TABLE).

<u>DETECTION DISTANCE</u>	<u>BLEMISH INTENSITY</u>
OVER 132 INCHES	HEAVY
132 TO 40 INCHES	MEDIUM
39 TO 8 INCHES	LIGHT
LESS THAN 8 INCHES	FAINT

ALL LISTED CRITERIA ARE BASED ON ASTM C1036-06, QUALITY LEVEL 3.

HEAT TREATED GLASS INSPECTION CRITERIA PER ASTM C1048-04

TERMINOLOGY:

BOW/WARP

CURVATURE ACROSS THE ENTIRE DIMENSION(S) OF THE LITE

CRUSH

LIGHTLY PITTED CONDITION WITH A DULL GRAY APPEARANCE.

DIG

DEEP, SHORT SCRATCH

DIRT

SMALL PARTICLE OF FOREIGN MATTER EMBEDDED IN THE SURFACE OF FLAT GLASS.

DISTORTION

THERMALLY TEMPERED AND HEAT-STRENGTHENED GLASS IS MADE BY HEATING GLASS IN A FURNACE, THE ORIGINAL FLATNESS OF THE GLASS IS SLIGHTLY MODIFIED BY THE HEAT TREATMENT, CAUSING REFLECTED IMAGES TO BE DISTORTED.

GASEOUS INCLUSION

ROUND OR ELONGATED BUBBLE IN THE GLASS.

LINEAR BLEMISH

SCRATCHES, RUBS, DIGS, AND OTHER SIMILAR IMPERFECTIONS.

POINT BLEMISH

CRUSH, KNOTS, DIRT, STONES, GASEOUS INCLUSIONS, AND OTHER SIMILAR IMPERFECTIONS.

RUB

ABRASION OF A GLASS SURFACE PRODUCING A FROSTED APPEARANCE.

SCRATCH

DAMAGE ON A GLASS SURFACE IN THE FORM OF A LINE CAUSED BY THE MOVEMENT OF AN OBJECT ACROSS AND IN CONTACT WITH THE GLASS SURFACE.

STRAIN PATTERN

IN HEAT-STRENGTHENED AND FULLY TEMPERED GLASS, A STRAIN PATTERN, WHICH IS NOT NORMALLY VISIBLE, MAY BECOME VISIBLE UNDER CERTAIN LIGHT CONDITIONS.

INSPECTION:

LINEAR AND POINT BLEMISHES IN GLASS SHOULD BE EVALUATED PER ASTM C1036-06.

COATING RELATED DEFECTS SHOULD BE EVALUATED PER ASTM C 1376 - 03.

BOW AND WARP, SEE BELOW.

STRAIN PATTERN, THIS IS CONSIDERED A NORMAL PART OF THE HEAT TREATING PROCESS AND IS NOT CONSIDERED A DEFECT.

DISTORTION: AT THIS TIME NO INDUSTRY QUALITY STANDARDS EXIST TO EVALUATE DISTORTION.

QUALITY CRITERIA:

MAXIMUM ALLOWED BOW AND WARP

VERTICAL METHOD:

PLACE GLASS IN A VERTICAL POSITION WITH GLASS RESTING ON BLOCKS.

PLACE A STRAIGHT EDGE ACROSS THE CONCAVE SURFACE.

MEASURE WIDEST GAP WITH A FINE SCALE RULER.

REFER TO TABLE FOR TO DETERMINE MAXIMUM ALLOWABLE BOW\WARP.

TABLE: MAXIMUM ALLOWED BOW AND WARP

Glass Thickness, mm (in.)	Edge Dimension, cm (in.)											
	0-50 (0-20)	>50-90 (>20-35)	>90-120 (>35-47)	>120-150 (>47-59)	>150-180 (>59-71)	>180-210 (>71-83)	>210-240 (>83-94)	>240-270 (>94-106)	>270-300 (>106-118)	>300-330 (>118-130)	>330-370 (>130-146)	>370-400 (>146-158)
3 (1/8)	3.0 (0.12)	4.0 (0.16)	5.0 (0.20)	7.0 (0.28)	9.0 (0.35)	12.0 (0.47)	14.0 (0.55)	17.0 (0.67)	19.0 (0.75)	...	...	...
3 (1/8) Alternate Method ^a	2.0 (0.08)	2.0 (0.08)	2.0 (0.08)	3.0 (0.12)	5.0 (0.20)	6.0 (0.24)	7.0 (0.28)	8.0 (0.31)	10.0 (0.39)	...	...	...
4 (5/32)	3.0 (0.12)	4.0 (0.16)	5.0 (0.20)	7.0 (0.28)	9.0 (0.35)	12.0 (0.47)	14.0 (0.55)	17.0 (0.67)	19.0 (0.75)	...	...	...
5 (3/16)	3.0 (0.12)	4.0 (0.16)	5.0 (0.20)	7.0 (0.28)	9.0 (0.35)	12.0 (0.47)	14.0 (0.55)	17.0 (0.67)	19.0 (0.75)	...	...	...
6 (1/4)	2.0 (0.08)	3.0 (0.12)	4.0 (0.16)	5.0 (0.20)	7.0 (0.28)	9.0 (0.35)	12.0 (0.47)	14.0 (0.55)	17.0 (0.67)	19.0 (0.75)	21.0 (0.83)	24.0 (0.94)
8 (5/16)	2.0 (0.08)	2.0(0.08)	3.0 (0.12)	4.0 (0.16)	5.0 (0.20)	6.0 (0.24)	8.0 (0.31)	10.0 (0.39)	13.0 (0.51)	15.0 (0.59)	18.0 (0.71)	20.0 (0.79)
10 (3/8)	2.0 (0.08)	2.0 (0.08)	2.0 (0.08)	4.0 (0.16)	5.0 (0.20)	6.0 (0.24)	7.0 (0.28)	9.0 (0.35)	12.0 (0.47)	14.0 (0.55)	17.0 (0.67)	19.0 (0.75)
12-22 (1/2 -7/8)	1.0 (0.04)	2.0 (0.08)	2.0 (0.08)	2.0 (0.08)	4.0 (0.16)	5.0 (0.20)	5.0 (0.20)	7.0 (0.28)	10.0 (0.39)	12.0 (0.47)	14.0 (0.55)	17.0 (0.67)

ALL LISTED CRITERIA ARE BASED ON ASTM C1048-04

LAMINATED GLASS INSPECTION CRITERIA PER ASTM C1172-03 (ABRIDGED)

TERMINOLOGY:

BLOW-IN

A SEPARATION OF GLASS AND INTERLAYER AT OR CLOSE TO THE LAMINATE EDGE CAUSED BY PENETRATION OF THE AUTOCLAVING MEDIUM INTO THE EDGE DURING MANUFACTURING.

BOIL (BUBBLE)

A GAS POCKET IN THE INTERLAYER MATERIAL OR BETWEEN THE GLASS AND INTERLAYER.

COVERED EDGE

THE PERIMETRIC AREA OF THE LAMINATE COVERED BY THE CHANNEL OR SASH WHEN INSTALLED.

DELAMINATION

A CONDITION IN WHICH ONE OR TWO OF THE LITES OF GLASS LOSES THE BOND BETWEEN THE GLASS LITE AND THE INTERLAYER.

DISCOLORATION

A VISIBLY NOTICEABLE COLOR CHANGE (FROM ORIGINAL) IN THE APPEARANCE OF A MATERIAL.

EDGE BOIL

SEE *BOIL (BUBBLE)*.

EXPOSED EDGE

THE PERIMETRIC AREA OF THE LAMINATE EXPOSED TO THE ENVIRONMENT AFTER INSTALLATION.

FUSE

A GLASS PARTICLE OR CRYSTALLINE MATERIAL THAT IS PERMANENTLY BONDED TO A SURFACE OF A LITE.

HAIR

☐ A SLENDER, PIGMENTED FILAMENT FROM HUMAN OR ANIMAL EPIDERMIS OR OTHER THREAD-LIKE FILAMENT

INSIDE DIRT

FOREIGN MATERIAL TRAPPED INSIDE THE LAMINATE.

LINT

SHORT FIBERS OF YARN OR FABRIC TRAPPED WITHIN THE LAMINATE.

SCUFF

SEE *STREAK*.

SEPARATION

AN AREA OF THE LAMINATE THAT HAS BECOME DELAMINATED (SEE *DELAMINATION*).

SHORT INTERLAYER

A CONDITION OF THE LAMINATE IN WHICH THE INTERLAYER DOES NOT EXTEND TO THE EDGE.

STREAK

A NOTICEABLY VISIBLE DEVIATION ON OR IN THE LAMINATING UNIT.

INSPECTION:

FOR INSPECTION OF INDIVIDUAL GLASS LITES REFER TO ASTM C1036-06

COATING RELATED DEFECTS SHOULD BE EVALUATED PER ASTM C1376-03.

VISUAL INSPECTION SHOULD BE DONE WITH THE NAKED EYE.

THE INSPECTOR SHALL PLACE THE GLASS IN A VERTICAL POSITION

INSPECTOR SHALL VIEW THROUGH THE GLASS AT AN ANGLE OF 90°

LIGHTING SHOULD BE DAYLIGHT LEVEL (**WITHOUT DIRECT SUNLIGHT**) OR OTHER UNIFORM BACKLIGHT THAT SIMULATES DAYLIGHT.

QUALITY CRITERIA:

1. DETERMINE THE APPROXIMATE LITE SURFACE AREA (FT²).
2. DETERMINE DEFECT LOCATION IS IN THE CENTRAL OR OUTER VIEWING AREA. (THE CENTRAL AREA IS CONSIDERED TO FORM A SQUARE OR RECTANGLE DEFINED BY THE CENTER 80 % OF THE LENGTH AND 80 % OF THE WIDTH DIMENSIONS CENTERED ON A LITE OF GLASS. THE REMAINING AREA IS CONSIDERED THE OUTER AREA.
3. EVALUATE THE DEFECT ACCORDING TO THE FOLLOWING TABLE.
CE = COVERED EDGE OF GLASS EDGE BITE AND EE = EXPOSED EDGE. (IF CE OR EE IS UNKNOWN USE CE TOLERANCE.)

Blemish	Up to 25 ft ² (2.5 m ²)		25 to 75 ft ² (2.5 to 7.0 m ²)		Over 75 ft ² (7.0 m ²)	
	Central ^A	Outer ^A	Central ^A	Outer ^A	Central ^A	Outer ^A
Boil (Bubbles)	1/16 (1.6)	3/32 (2.4)	1/8 (3.2)	3/16 (4.8)	1/4 (6.4)	1/4 (6.4)
Blow-in; edge boil	^B	CE 1/4 (6.4) EE 1/32 (0.8) ^C	^B	CE 1/4 (6.4) EE 1/16 (1.6) ^C	^B	CE 5/16 (8.0) EE 3/32 (2.3) ^C
Fuse	1/32 (0.8)	1/16 (1.6)	1/16 (1.6)	3/32 (2.4)	3/32 (2.4)	5/32 (4.0)
Hair, lint (single strand)	light intensity ^D	medium intensity ^E	light intensity ^D	medium intensity ^E	medium intensity ^E	medium intensity ^E
Inside dirt (dirt spot)	1/16 (1.6)	3/32 (2.4)	3/32 (2.4)	1/8 (3.2)	1/8 (3.2)	3/16 (4.8)
Lint-areas of concentrated lint	light intensity ^D	light intensity ^D	light intensity ^D	light intensity ^D	light intensity ^D	light intensity ^D
Separation, discoloration	none	none	none	none	none	none
Short interlayer; unlaminated area chip	^B	CE 1/4 (6.4) EE 1/16 (1.6) ^C	^B	CE 1/4 (6.4) EE 3/32 (2.4) ^C	^B	CE 1/4 (6.4) EE 1/8 (3.2) ^C
Scuff; streak	light intensity ^D	light intensity ^D	light intensity ^D	light intensity ^D	light intensity ^D	light intensity ^D

TO ESTABLISH LIGHT AND MEDIUM INTENSITY FOR A SPECIFIC DEFECT, VIEW STARTING AT 11 FT. MOVING FORWARD DOWN TO 36” .

LIGHT INTENSITY – BARELY NOTICEABLE AT 36”

MEDIUM INTENSITY – NOTICEABLE AT 36” BUT NOT 11 FT.

ALL LISTED CRITERIA ARE BASED ON ASTM C1172-03

COATED VISION GLASS INSPECTION CRITERIA PER ASTM CI376-03

TERMINOLOGY:

COATING RUB

A SURFACE ABRASION OF APPRECIABLE WIDTH THAT HAS PARTIAL, OR COMPLETE, REMOVAL OF THE COATING PRODUCING A HAZY APPEARANCE.

COATING SCRATCH

PARTIAL, OR COMPLETE, REMOVAL OF THE COATING ALONG A THIN STRAIGHT OR CURVED LINE.

CORROSION

CHANGE IN THE COLOR OR LEVEL OF REFLECTED OR TRANSMITTED LIGHT OVER ALL OR PART OF THE GLASS SURFACE \ AS A RESULT OF DEGRADATION OF THE COATING FROM EXTERNAL SOURCES.

CRAZING

A RANDOM CONGLOMERATION OF FINE LINES OR CRACKS IN THE COATING.

MARK/CONTAMINANT

A DEPOSIT OF FOREIGN MATERIAL ON THE GLASS SURFACE.

PINHOLE

SMALL AREA IN WHICH THE COATING IS ENTIRELY OR PARTIALLY ABSENT.

INSPECTION:

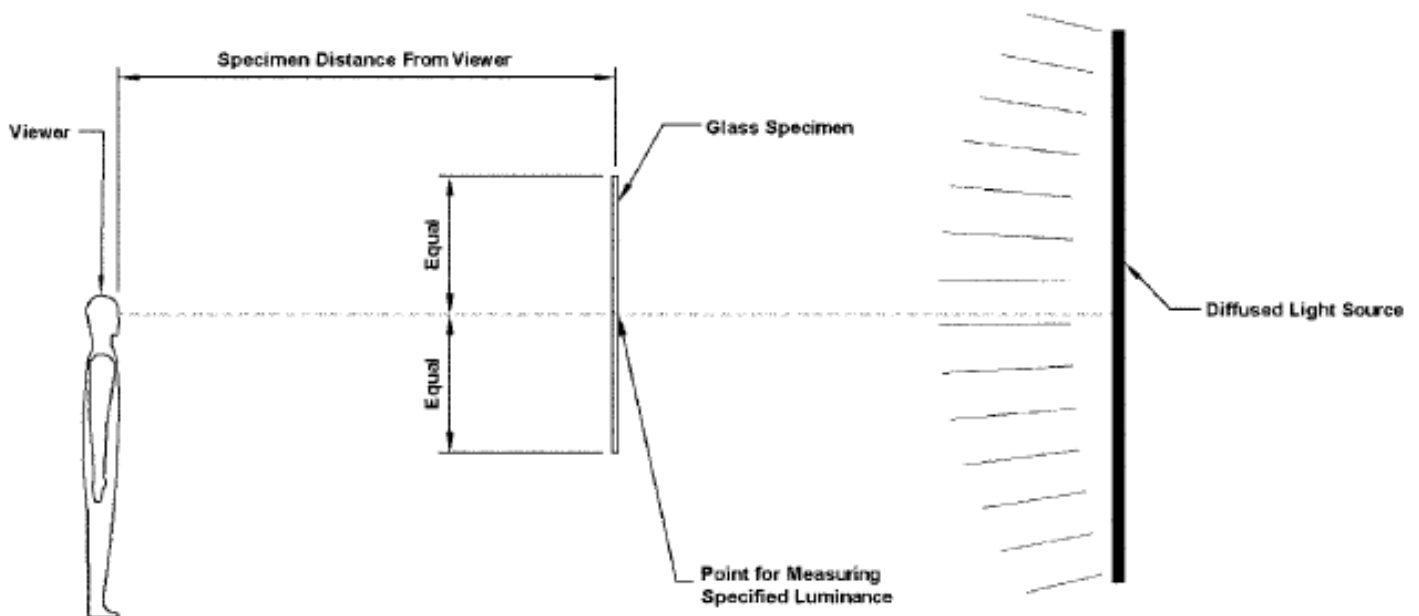
VISUAL INSPECTION SHOULD BE DONE WITH THE NAKED EYE.

THE INSPECTOR SHALL PLACE THE GLASS IN A VERTICAL POSITION WITH LIGHT IN TRANSMISSION.

INSPECTOR SHALL VIEW THROUGH THE GLASS AT AN ANGLE OF 90° FROM A DISTANCE OF **10 FT.**

LIGHTING SHOULD BE DAYLIGHT LEVEL (**WITHOUT DIRECT SUNLIGHT**) OR OTHER UNIFORM BACKLIGHT THAT SIMULATES DAYLIGHT.

VIEWED FROM A DISTANCE OF 10'-0"



IF A DEFECT IS READILY APPARENT UNDER THESE CONDITIONS APPLY THE FOLLOWING CRITERIA.

Blemish ^{B,C}	Central Area, in. (mm) ^D	Outer Area, in. (mm) ^D
Pinhole	1/16(1.6) max	3/32(2.4) max
Spot	1/16(1.6) max	3/32(2.4) max
Coating scratch	2 (50) max length	3 (75) max length
Mark/contaminant	2 (50) max length	3 (75) max length
Coating rub	none allowed	length plus width not to exceed 3/4 (19)
Crazing	none allowed	none allowed
Corrosion	none allowed	none allowed

THE CENTRAL AREA IS CONSIDERED TO FORM A SQUARE OR RECTANGLE DEFINED BY THE CENTER 80% OF THE LENGTH AND 80% OF THE WIDTH DIMENSIONS CENTERED ON A LITE OF GLASS. THE REMAINING AREA IS CONSIDERED THE OUTER AREA.

ALL LISTED CRITERIA ARE BASED ON ASTM C1376-03, SPECIFICATIONS FOR CUT SIZE VISION GLASS.

APPLICATION OF STANDARDS AND DISPUTE RESOLUTION POLICY

SUN VALLEY SKYLIGHTS, WINDOWS & DOORS PRODUCTS AND COMPLETED INSTALLATIONS SHALL CONFORM TO THE ABOVE STANDARDS. EVERY EFFORT WILL BE MADE TO FULLY INSPECT ALL GLASS TO INSURE IT'S QUALITY PRIOR TO THE DELIVERY OR INSTALLATION OF THE PRODUCT. GLASS WHICH IS REJECTED BY SVSWD PER THE ABOVE STANDARDS SHALL BE PROMPTLY REPAIRED OR REPLACED AT THE OPTION OF SVSWD.

UPON DISCOVERY OF A DEFECTIVE PRODUCT THE CUSTOMER SHALL MAKE EVERY EFFORT TO DETERMINE CAUSE WITH A DOCUMENTED TIMELINE WHERE POSSIBLE. AFTER EVALUATING ALL POSSIBILITIES WHICH COULD HAVE CAUSED THE DEFECT OR DAMAGE THE CUSTOMER WILL INFORM SVSWD IF IT IS BELIEVED TO BE THE RESPONSIBILITY OF SVSWD.

ANY DISPUTES IN THE APPLICATION OF THE ABOVE STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF SVSWD FOR RE-EVALUATION PRIOR TO ANY REPAIR OR REPLACEMENT. UNAUTHORIZED REPAIRS OR REPLACEMENTS EXECUTED BY THE CUSTOMER WILL NOT BE REIMBURSED UNDER ANY CIRCUMSTANCE. DISPUTED INTERPRETATION OF THE ABOVE STANDARDS CAN BE EVALUATED BY AN INDEPENDANT PROFESSIONAL OR THE GLASS SUPPLIER'S REPRESENTATIVE WITH THE MUTUAL AGREEMENT OF SVSWD AND THE CUSTOMER.

THE MAXIMUM AMOUNT OF MONIES THAT MAY BE WITHHELD FROM SVSWD UNTIL THE DISPUTED ITEMS ARE RESOLVED IS 150% OF THE DISPUTED VALUE. VALUE TO BE BASED ON THE ORIGINAL PURCHASE PRICE.

CUSTOMER SIGNATURE ON THIS DOCUMENT ACKNOWLEDGES THEIR UNDERSTANDING & AGREEMENT OF THIS POLICY

PROJECT ADDRESS: _____

 CUSTOMER SIGNATURE

 DATE