Intertek | Architectural Testing

NFRC U-FACTOR, SHGC, VT, & CONDENSATION RESISTANCE COMPUTER SIMULATION REPORT

(Revised)

Rendered to:
NORTH EAST WINDOWS, USA, INC.

SERIES/MODEL:
DH990 Double Hung

Report Number: F4008.01-116-45
Original Report Date: 02/01/16
Revised Report Date: 06/22/16

130 Derry Court
York, PA 17406

www.archtest.com . www.intertek.com/building

p. 717.764.7700
f. 717.764.4129

NFRC U-FACTOR, SHGC, VT, & CONDENSATION RESISTANCE
COMPUTER SIMULATION REPORT

(Revised)

Rendered to:
NORTH EAST WINDOWS, USA, INC.
One Kees Place
Merrick, New York 11566

Report Number:	F4008.01-116-45
Simulation Date:	02/01/16
Original Report Date:	02/01/16
Revised Report Date:	06/22/16

Project Summary:

Architectural Testing, Inc., an Intertek Company (Intertek-ATI) was contracted to perform U-Factor, Solar Heat Gain Coefficient, Visible Transmittance, and Condensation Resistance* computer simulations in accordance with the National Fenestration Rating Council (NFRC). The products were evaluated in full compliance with NFRC requirements to the standards listed

**NFRC's Condensation Resistance rating is NOT equivalent to a Condensation Resistance Factor (CRF) determined in accordance with AAMA 1503.*

Standards:

ANSI/NFRC 100-2014:	*Procedure for Determining Fenestration Product U-Factors*
ANSI/NFRC 200-2014:	*Procedure for Determining Fenestration Product Solar Heat Gain Coefficient and Visible Transmittance at Normal Incidence*
NFRC 500-2014:	*Procedure for Determining Fenestration Product Condensation Resistance Values*

Software:

Frame and Edge Modeling:	THERM 6.3.46
Center-of-Glass Modeling:	WINDOW 6.3.74
Total Product Calculations:	WINDOW 6.3.74
Spectral Data Library:	IGDB 47.0

Simulations Specimen Description:

Series/Model:	DH990 Double Hung
Type:	Vertical Slider, Double Hung
Frame Material:	VY Vinyl
Sash Material:	VY Vinyl
Standard Size:	1200mm x 1500mm

Modeling Assumptions/Technical Interpretations:

1) To prevent air infiltration, tape was applied to all interior sash crack locations.
2) The j-channel and nailing flange for sill 3015 were not modeled because they are deemed removable by the manufacturer.
3) Sills 3012 and 3015 were grouped according to ANSI/NFRC 100-2014, Section 4.2.1.H.i.

Specialty Products Table:

The specialty products method allow the manufacturer to determine the overall product SHGC and VT for any glazing option. The center of glass SHGC and/or VT must be determined using WINDOW 7.4.8. The method gives overall product SHGC and VT indexed on center of glass properties. All values used in the calculations are truncated to six decimal place precision.

	No Dividers	Dividers < 1	Dividers > 1
SHGC0	0.003115	0.005760	0.008247
SHGC1	0.722331	0.643891	0.570132
VT0	0.000000	0.000000	0.000000
VT1	0.719216	0.638131	0.561885

$$SHGC = SHGC0 + SHGCc\ (SHGC1 - SHGC0)$$

$$VT = VT0 + VTc\ (VT1 - VT0)$$

Validation Matrix:

The following products are part of a validation matrix. Only one is required for validation testing.

Product Line	*Report Number*
None	-

Spacer Option Description

	Sealant		
Spacer Type	*Primary*	*Secondary*	*Code*
Quanex Duraseal Spacer	Butyl Rubber	-	A8-S
Quanex Duralite Spacer	Butyl Rubber	-	P1-S

Grid Option Description

Grid Size	*Grid Type*	*Grid Pattern*
None	-	-

Reinforcement Option Description

Location	*Material*
None	-

Gas Filling Technique Description

Fill Type	*Method*
90% Argon	Two-probe with concentration sensor
95% Argon	Two-probe with concentration sensor

Edge-of-Glass Construction

Interior Condition	Silicone between rigid PVC sash and glass
Exterior Condition	Rigid PVC glazing bead with flexible vinyl fin against glass

Weatherstripping

Type	*Quantity*	*Location*
Finpile	2 rows	Jamb Stiles
Finpile	1 row	Top, Lock and Keeper Rails; Sill Adapter
Flexible vinyl gasket	1 row	Bottom Rail

Frame/Sash Materials Finish

Interior	Vinyl
Exterior	Vinyl

NFRC 100/200/500 Summary Sheet
DH990 Double Hung

ID	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Low-e (Surface#)	Tint	Spacer	Grid Type
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids: (None / <1 / >=1)					Visible Transmittance (VT) Grids: (None / <1 / >=1)		Condensation Resistance	
1	NO FOAM: CLR/AIR/CLR (SS/SS) 7/8"											
	0.090	0.678	0.090					AIR		CL	A8-S	N
	U-Factor		0.46	SHGC (N)				0.58	VT (N)	0.59	CR	45
2	NO FOAM: CLR/AIR/CS36 (SS/SS) 7/8"											
	0.090	0.678	0.090					AIR	0.027(#3)	CL	A8-S	N
	U-Factor		0.33	SHGC (N)				0.34	VT (N)	0.48	CR	54
3	NO FOAM: CLR/AIR/CLR (DS/DS) 7/8"											
	0.117	0.639	0.117					AIR		CL	A8-S	N
	U-Factor		0.46	SHGC (N)				0.57	VT (N)	0.59	CR	45
4	NO FOAM: CLR/AIR/CS36 (DS/DS) 7/8"											
	0.117	0.639	0.128					AIR	0.027(#3)	CL	A8-S	N
	U-Factor		0.33	SHGC (N)				0.34	VT (N)	0.48	CR	56
5	NO FOAM: CLR/ARG90/CS36 (SS/SS) 7/8"											
	0.090	0.678	0.090					ARG90	0.027(#3)	CL	A8-S	N
	U-Factor		0.30	SHGC (N)				0.35	VT (N)	0.48	CR	57
6	NO FOAM: CLR/ARG90/CS36 (DS/DS) 7/8"											
	0.117	0.639	0.128					ARG90	0.027(#3)	CL	A8-S	N
	U-Factor		0.30	SHGC (N)				0.34	VT (N)	0.48	CR	57
7	NO FOAM: CS36/AIR/CLR (SS/SS) 7/8"											
	0.090	0.678	0.090					AIR	0.027(#2)	CL	A8-S	N
	U-Factor		0.33	SHGC (N)				0.26	VT (N)	0.48	CR	54
8	NO FOAM: CS36/AIR/CLR (DS/DS) 7/8"											
	0.128	0.639	0.117					AIR	0.027(#2)	CL	A8-S	N
	U-Factor		0.33	SHGC (N)				0.26	VT (N)	0.48	CR	56
9	NO FOAM: CS36/ARG90/CLR (SS/SS) 7/8"											
	0.090	0.678	0.090					ARG90	0.027(#2)	CL	A8-S	N
	U-Factor		0.30	SHGC (N)				0.26	VT (N)	0.48	CR	57
10	NO FOAM: CS36/ARG90/CLR (DS/DS) 7/8"											
	0.128	0.639	0.117					ARG90	0.027(#2)	CL	A8-S	N
	U-Factor		0.30	SHGC (N)				0.26	VT (N)	0.48	CR	57

NFRC 100/200/500 Summary Sheet
DH990 Double Hung

ID	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Low-e (Surface#)	Tint	Spacer	Grid Type
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids: (None / <1 / >=1)					Visible Transmittance (VT) Grids: (None / <1 / >=1)		Condensation Resistance	
11	NO FOAM: SB70/ARG95/CS73 (SS/SS) 7/8"											
	0.089	0.678	0.087					ARG95	0.018(#2) / 0.148(#4)	CL	A8-S	N
	U-Factor		0.25	SHGC (N)				0.19	VT (N)	0.44	CR	46
12	NO FOAM: E366/ARG95/CS73 (SS/SS) 7/8"											
	0.087	0.678	0.087					ARG95	0.022(#2) / 0.148(#4)	CL	A8-S	N
	U-Factor		0.26	SHGC (N)				0.19	VT (N)	0.44	CR	46
13	NO FOAM: CS28/AIR/CS73 (DS/DS) 7/8"											
	0.125	0.639	0.123					AIR	0.021(#2) / 0.148(#4)	CL	A8-S	N
	U-Factor		0.28	SHGC (N)				0.20	VT (N)	0.41	CR	45
14	NO FOAM: CLR/AIR/CLR (SS/SS) 7/8"											
	0.090	0.678	0.090					AIR		CL	P1-S	N
	U-Factor		0.45	SHGC (N)				0.58	VT (N)	0.59	CR	46
15	NO FOAM: CLR/AIR/CS36 (SS/SS) 7/8"											
	0.090	0.678	0.090					AIR	0.027(#3)	CL	P1-S	N
	U-Factor		0.32	SHGC (N)				0.34	VT (N)	0.48	CR	57
16	NO FOAM: CLR/AIR/CLR (DS/DS) 7/8"											
	0.117	0.639	0.117					AIR		CL	P1-S	N
	U-Factor		0.45	SHGC (N)				0.57	VT (N)	0.59	CR	46
17	NO FOAM: CLR/AIR/CS36 (DS/DS) 7/8"											
	0.117	0.639	0.128					AIR	0.027(#3)	CL	P1-S	N
	U-Factor		0.32	SHGC (N)				0.34	VT (N)	0.48	CR	59
18	NO FOAM: CLR/ARG90/CS36 (SS/SS) 7/8"											
	0.090	0.678	0.090					ARG90	0.027(#3)	CL	P1-S	N
	U-Factor		0.28	SHGC (N)				0.35	VT (N)	0.48	CR	60
19	NO FOAM: CLR/ARG90/CS36 (DS/DS) 7/8"											
	0.117	0.639	0.128					ARG90	0.027(#3)	CL	P1-S	N
	U-Factor		0.28	SHGC (N)				0.34	VT (N)	0.48	CR	60
20	NO FOAM: CS36/AIR/CLR (SS/SS) 7/8"											
	0.090	0.678	0.090					AIR	0.027(#2)	CL	P1-S	N
	U-Factor		0.32	SHGC (N)				0.26	VT (N)	0.48	CR	56

NFRC 100/200/500 Summary Sheet
DH990 Double Hung

ID	Pane Thickness 1	Gap Width 1	Pane Thickness 2	Gap Width 2	Pane Thickness 3	Gap Width 3	Pane Thickness 4	Gap Fill	Low-e (Surface#)	Tint	Spacer	Grid Type
	U-Factor			Solar Heat Gain Coefficient (SHGC) Grids: (None / <1 / >=1)					Visible Transmittance (VT) Grids: (None / <1 / >=1)		Condensation Resistance	
21	NO FOAM: CS36/AIR/CLR (DS/DS) 7/8"											
	0.128	0.639	0.117					AIR	0.027(#2)	CL	P1-S	N
	U-Factor		0.32	SHGC (N)				0.26	VT (N)	0.48	CR	59
22	NO FOAM: CS36/ARG90/CLR (SS/SS) 7/8"											
	0.090	0.678	0.090					ARG90	0.027(#2)	CL	P1-S	N
	U-Factor		0.28	SHGC (N)				0.26	VT (N)	0.48	CR	60
23	NO FOAM: CS36/ARG90/CLR (DS/DS) 7/8"											
	0.128	0.639	0.117					ARG90	0.027(#2)	CL	P1-S	N
	U-Factor		0.28	SHGC (N)				0.26	VT (N)	0.48	CR	60
24	NO FOAM: SB70/ARG95/CS73 (SS/SS) 7/8"											
	0.089	0.678	0.087					ARG95	0.018(#2) / 0.148(#4)	CL	P1-S	N
	U-Factor		0.24	SHGC (N)				0.19	VT (N)	0.44	CR	49
25	NO FOAM: E366/ARG95/CS73 (SS/SS) 7/8"											
	0.087	0.678	0.087					ARG95	0.022(#2) / 0.148(#4)	CL	P1-S	N
	U-Factor		0.24	SHGC (N)				0.19	VT (N)	0.44	CR	49
26	NO FOAM: CS28/AIR/CS73 (DS/DS) 7/8"											
	0.125	0.639	0.123					AIR	0.021(#2) / 0.148(#4)	CL	P1-S	N
	U-Factor		0.27	SHGC (N)				0.20	VT (N)	0.41	CR	47
27	NO FOAM: CS28/ARG90/CS73 (SS/SS) 7/8"											
	0.087	0.678	0.087					ARG90	0.023(#2) / 0.148(#4)	CL	P1-S	N
	U-Factor		0.24	SHGC (N)				0.19	VT (N)	0.43	CR	49
28	FOAM: CS28/ARG95/CS73 (DS/DS) 7/8"											
	0.125	0.639	0.123					ARG95	0.021(#2) / 0.148(#4)	CL	P1-S	N
	U-Factor		0.22	SHGC (N)				0.19	VT (N)	0.41	CR	40

The Condensation Resistance results obtained from this procedure are for controlled laboratory conditions and do not include the effects of air movement through the specimen, solar radiation, and the thermal bridging that may occur due to the specific design and construction of the fenestration system opening.

Ratings values included in this report are for submittals to an NFRC-licensed IA and are not meant to be used directly for labeling purposes. Only those values identified on a valid Certification Authorization Report (CAR) by an NFRC accredited Inspection Agency (IA) are to be used for labeling purposes. The ratings values were rounded in accordance to NFRC 601, NFRC Unit and Measurement Policy.

Intertek-ATI is an NFRC accredited simulation laboratory and all simulations were conducted in full compliance with NFRC approved procedures and specifications. The values included in this report are not considered in compliance with ANSI/NFRC 100, ANSI/NFRC 200, and/or NFRC 500 unless the associated validation test requirements have been satisfied, as applicable.

Intertek-ATI will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Intertek-ATI for the entire test record retention period. The test record retention end date for this report is February 1, 2020.

Results obtained are simulated values and were secured by using the designated test methods. This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the product simulated. This report may not be reproduced, except in full, without the written approval of Intertek-ATI

For INTERTEK-ATI:

SIMULATED BY:

Megan M. Yingst
Digitally Signed by: Megan Yingst

Megan M. Yingst
Simulation Technician

REVIEWED BY:

Kristen L. Louder
Digitally Signed by: Kristen Louder

Kristen L. Louder
Senior Simulation Technician
Simulator-In-Responsible-Charge

MMY:mmy
F4008.01-116-45

Attachments (pages): This report is complete only when all attachments listed are included.
Appendix A: Drawings and Bills of Material (16)

Revision Log

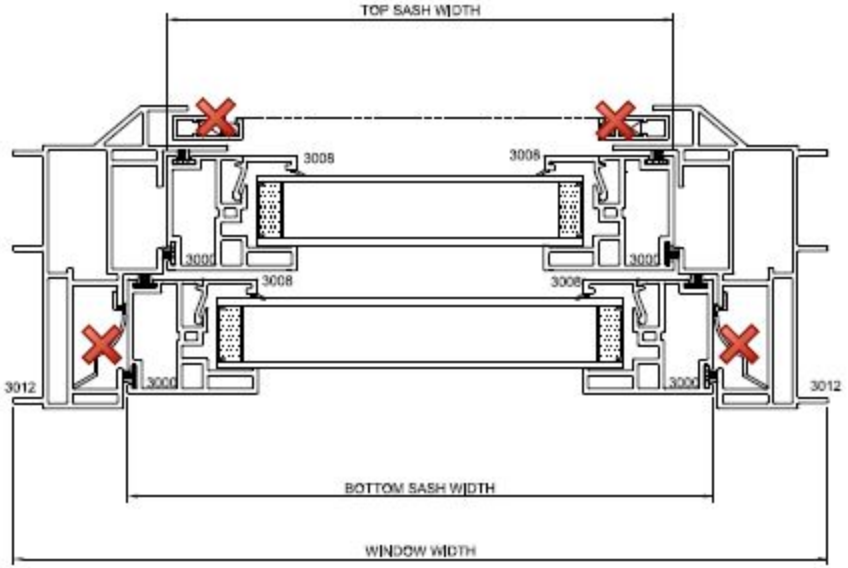
Rev. #	Date	Page(s)	Revision(s)
.01R0	02/01/16	All	Original report issued to North East Windows USA, Inc.
.01R1	06/22/16	All	Revised models (part 3012) to match part drawings; updated results.

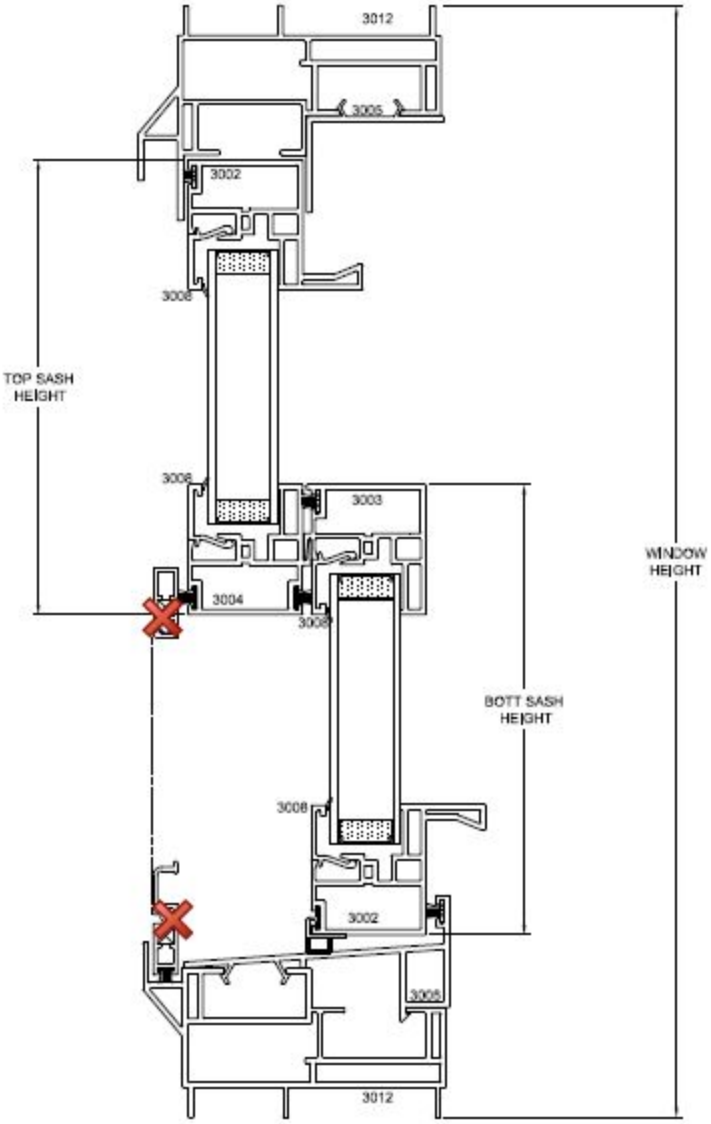
Intertek

Report #: F4008-116-45

Date: 01/26/16

Verified by:





DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT SPECIFICATION LENGTHS TO 3/8"

REMOVABLE BOW MAX. 1" PER 14' ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ± .010 .XXX ± .005

DRAWN FOR QUALITY LINEALS "OUR NAME SAYS IT ALL"

BY DDS DESIGNS

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS
4) BREAK ALL CORNERS .015
5) AREA SQ.IN.
6) WT/FT

TITLE SERIES 990 DOUBLE HUNG WELDED MAIN FRAME / WELDED SASH

DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	6	05/03/11		

COMPUTER NO

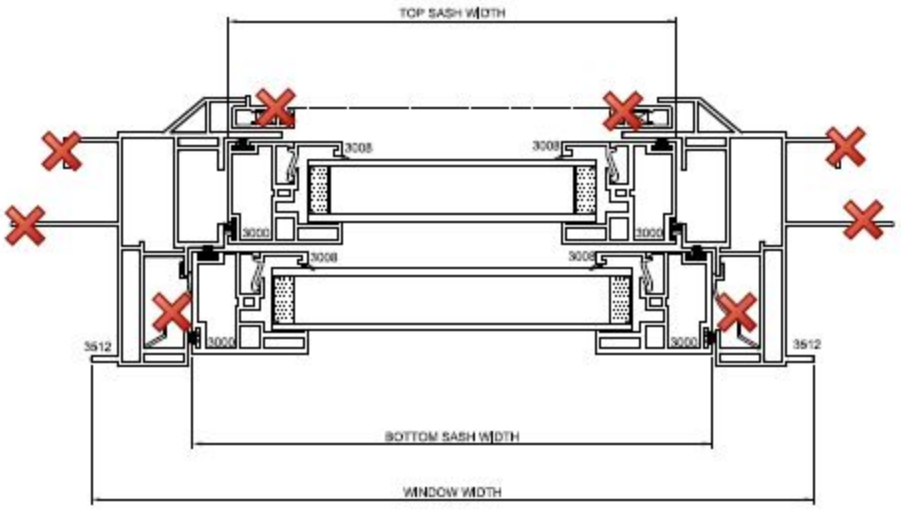
DWG NO C-990 DH [illegible] INSERT CROSS SECTION

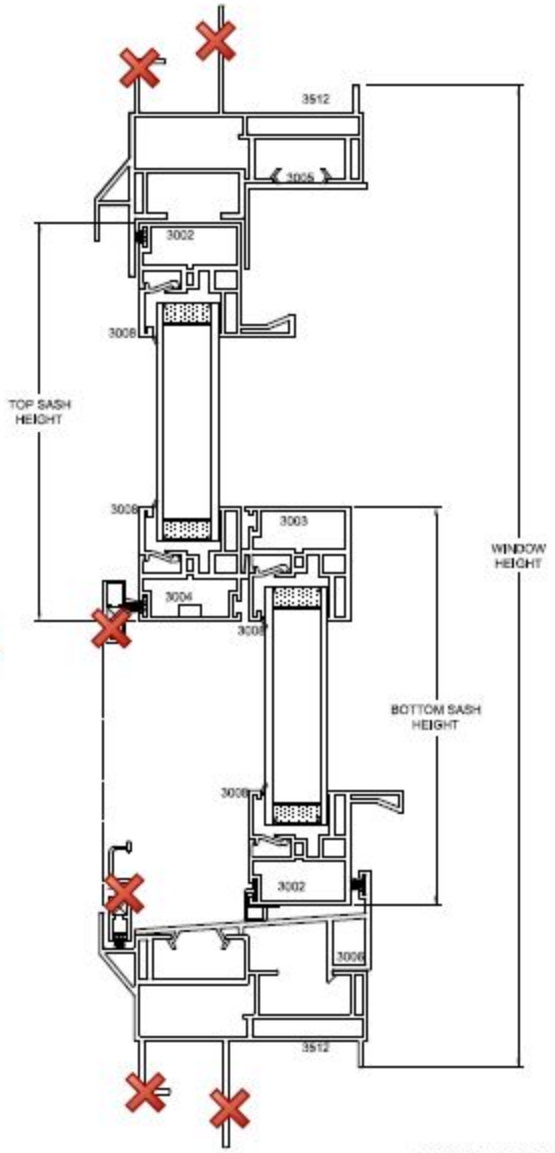
Intertek

Report #: F4008-116-45

Date: 01/26/16

Verified by: Megan M Yeager





DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT TEST
SPECIFICATION LENGTHS TO 3/8"

ALLOWABLE BOW MAX, 1" PER 14'
ANGULARITY TO BE ± 1/2°

TOLERANCES: .XX ±.010 .XXX ±.005

DRAWN FOR: QUALITY LINEALS "OUR NAME SAYS IT ALL" BY DDS DESIGNS

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS .075 R
4) BREAK ALL CORNERS .015 R
5) AREA SQ.IN.
6) WT/FT LBS/FT.

TITLE: SERIES 990 DOUBLE HUNG WELDED MAIN FRAME / WELDED SASH FIN & J with SNAP IN SILL

DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS		12/21/11		

COMPUTER NO.

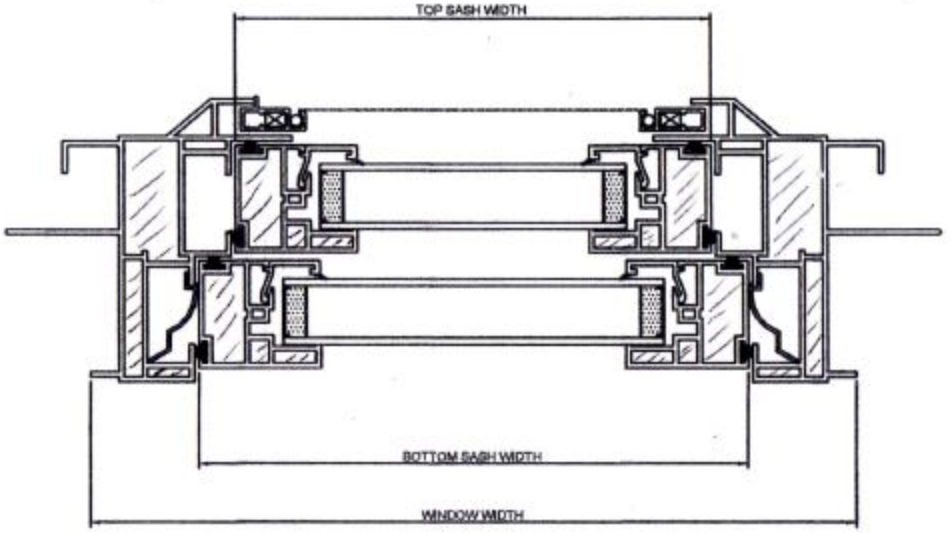
DWG NO. C- 990 DH CROSS SECTION

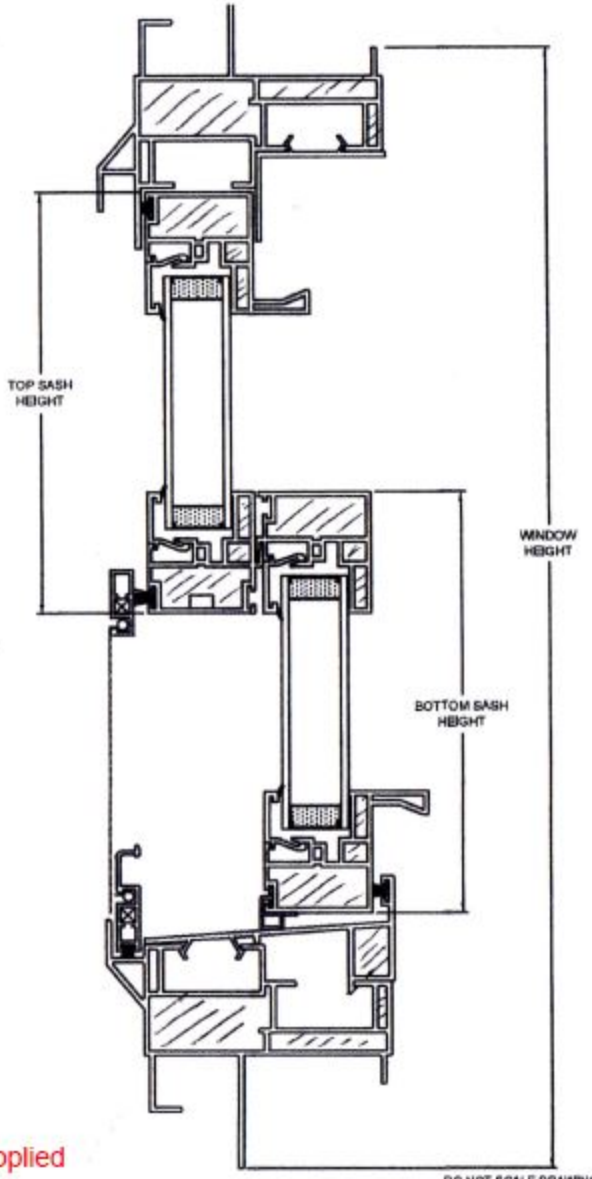
Intertek

Report #: F4008-116-45

Date: 01/26/16

Verified by:





FOAM =

Polyurethane Foam Spray-Applied

DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

SZ LOCATION FOR IMPACT SPECIFICATION-LENGTHS TO 3/8"

ALLOWABLE BOW MAX. 1" PER 14' ANGULARITY TO BE ± 1/2 °

TOLERANCES- .XX ± .010 .XXX ± .005

DRAWN FOR QUALITY LINEALS BY DCS DESIGNS "OUR NAME SAYS IT ALL"

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS
4) BREAK ALL CORNERS .015 R
5) AREA SQ IN.
6) WT./FT LBS/FT.

TITLE SERIES 990 DOUBLE HUNG WELDED MAIN FRAME / WELDED SASH FIN & J-with SNAP-IN SILL

DWN BY	SCALE	DATE	CHKD BY	APPD BY
DCS		1/21/11		

COMPUTER NO

DWG NO C- 990 DH CROSS SECTION

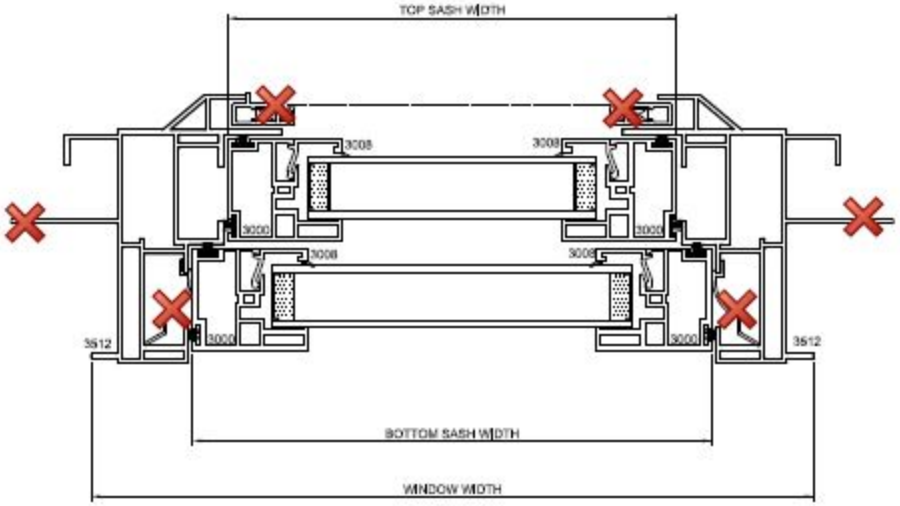
Intertek

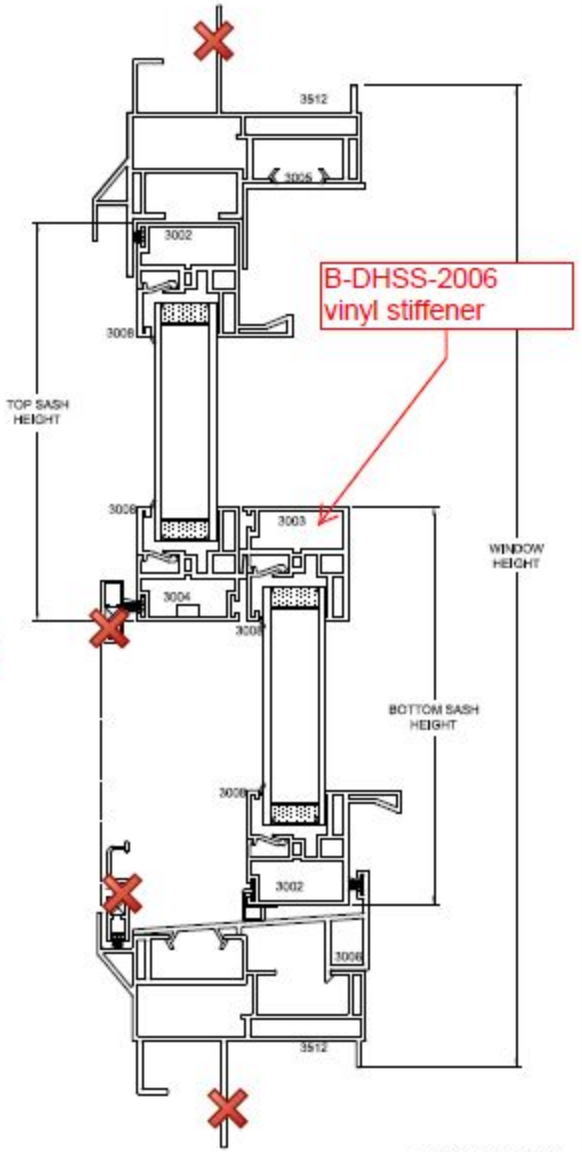
Report #: F4008-116-45

Date: 02/01/16

Verified by:

TEST OPTION ONLY





DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT SPECIFICATION-LENGTHS TO 3/8"

ALLOWABLE BOW MAX, 1" PER 14' ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ±.010 .XXX ±.005

DRAWN FOR: QUALITY LINEALS "OUR NAME SAYS IT ALL"

BY: ODS DESIGNS

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS
4) BREAK ALL CORNERS .015 R
5) AREA SQ.IN.
6) WT/FT LBS/FT

TITLE: SERIES 8XO-DOUBLE HUNG WELDED MAIN FRAME / WELDED SASH FIN & J with SNAP IN SILL

DWN BY	SCALE	DATE	CHKD BY	APPD BY
ODS		12/21/11		

COMPUTER NO.

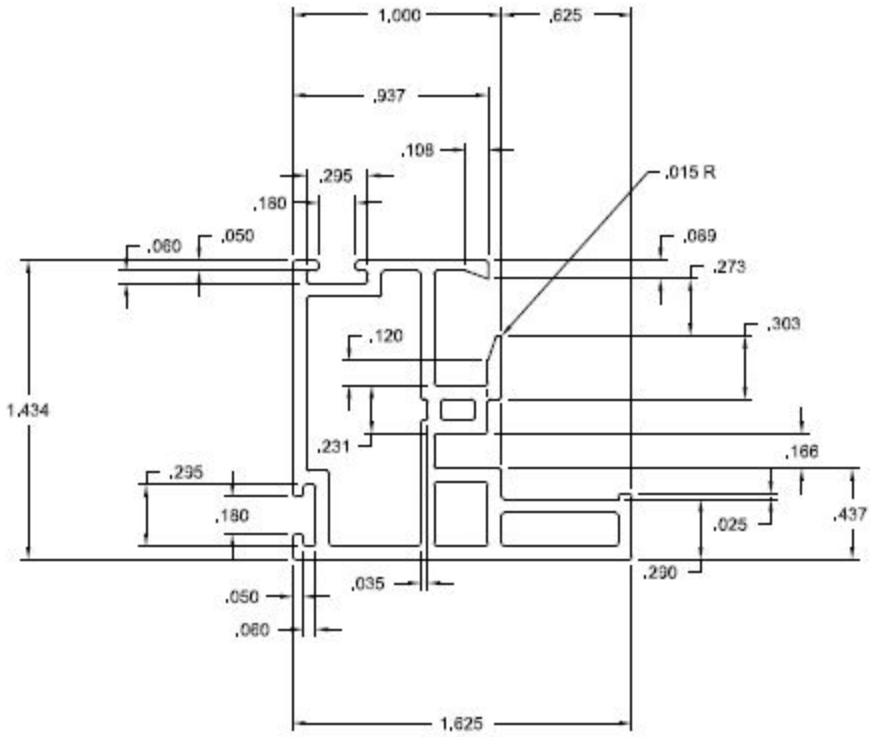
DWG NO C- 8XO DH CROSS SECTION

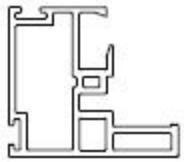
Intertek

Report #: F4008-116-45

Date: 01/26/16

Verified by: Megan M. Yeager





DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT TEST

SPECIFICATION LENGTHS TO 3/8"

ALLOWABLE BOW MAX, 1" PER 14'

ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ± .010

.XXX ± .005

DRAWN FOR QUALITY LINEALS

BY DDS DESIGNS

"OUR NAME SAYS IT ALL"

1) MATERIAL RIGID PVC

2) CAPSTOCK

3) UNSPECIFIED WALLS .065

4) BREAK ALL CORNERS .015

5) AREA .509 SQ.IN.

6) WT/FT

TITLE WELDED DOUBLE HUNG REGULAR SASH

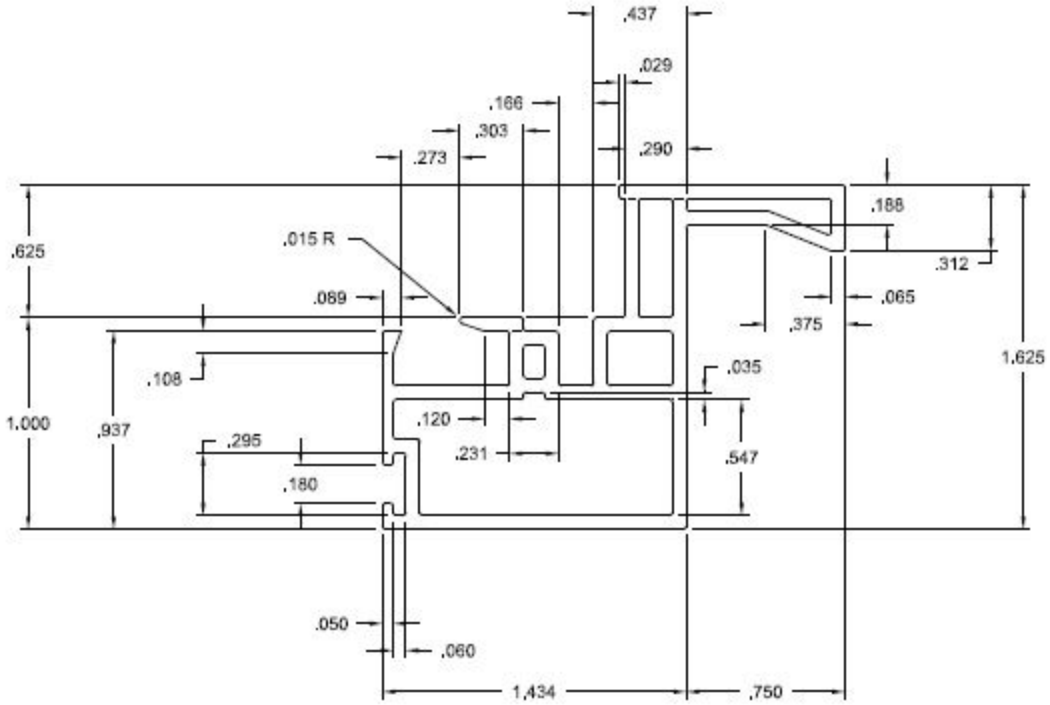
DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	2:1	11/13/02		

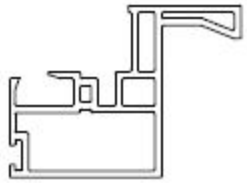
COMPUTER NO

DWG NO LASSIC 3000

Intertek

Report #: F4008-116-45
Date: 01/26/16
Verified by:





DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT TEST
SPECIFICATION-LENGTHS TO 3/8"

WARPAGE BOW MAX. 1" PER 14'
ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ± .010
.XXX ± .005

DRAWN FOR QUALITY LINEALS BY DDS DESIGNS
"OUR NAME SAYS IT ALL"

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS .065
4) BREAK ALL CORNERS .015
5) AREA .607 SQ.IN.
6) WT/FT

TITLE WELDED DOUBLE HUNG HANDLE SASH

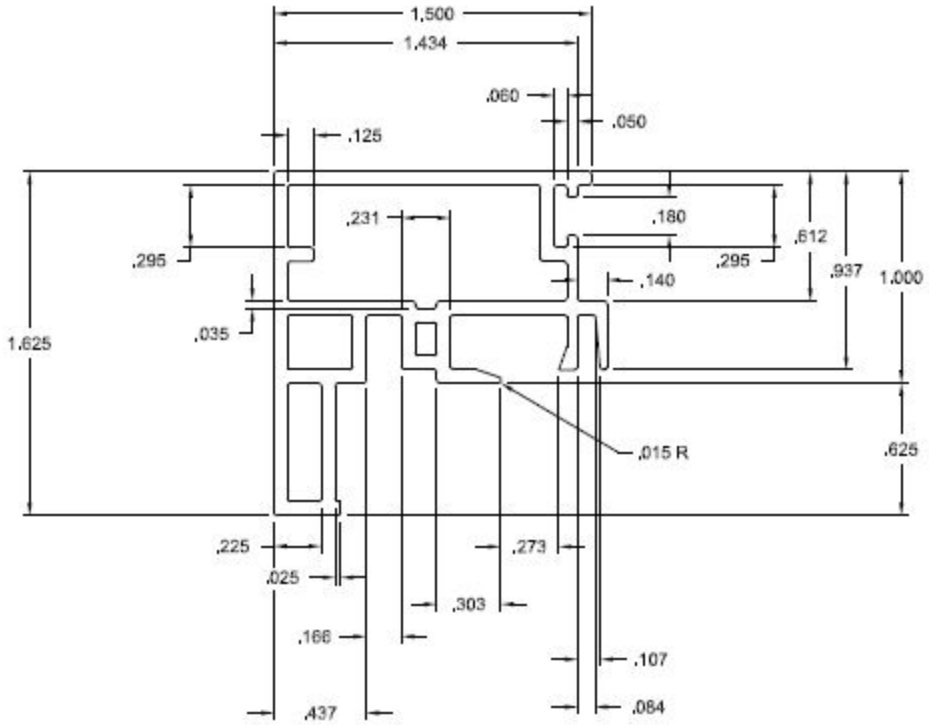
DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	2:1	11/13/02		

COMPUTER NO

DWG NO B-WDHS-3002

Intertek

Report #: F4008-116-45
Date: 01/26/16
Verified by:



DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE
A	ADDED .125 LEG	DDS	11/28/11

LOCATION FOR IMPACT TEST
SPECIFICATION-LENGTHS TO 3/8"

TESTWABLE BOW MAX. 1" PER 14'
ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ± .010
.XXX ± .005

DRAWN FOR QUALITY LINEALS "OUR NAME SAYS IT ALL"

BY DDS DESIGNS

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS .065
4) BREAK ALL CORNERS .015
5) AREA .529 SQ.IN.
6) WT/FT

TITLE WELDED DOUBLE HUNG FEMALE

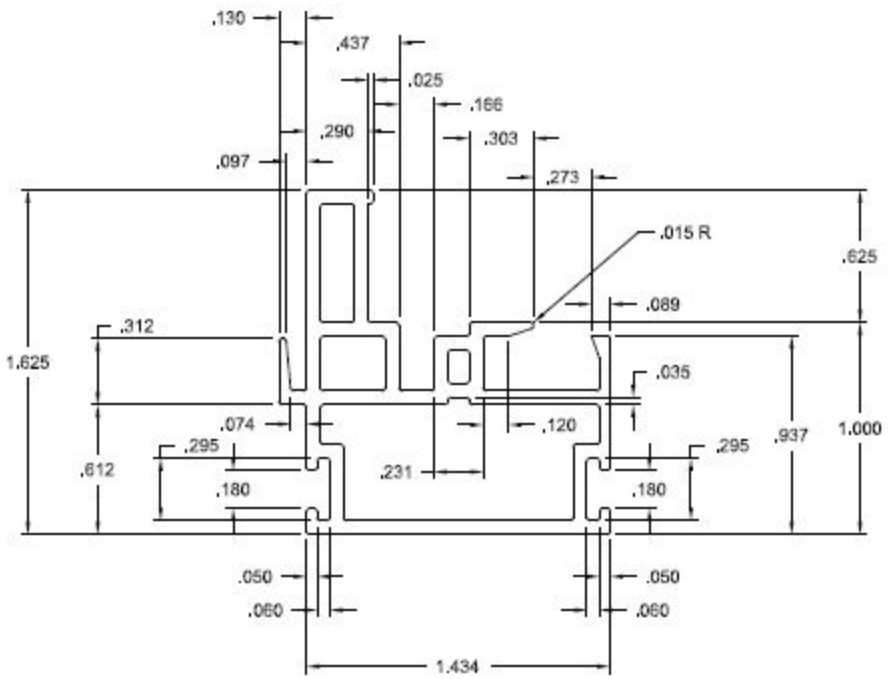
DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	2:1	11/13/02		

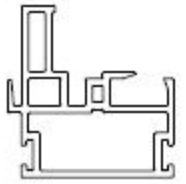
COMPUTER NO

DWG NO B-WDH-3003

Intertek

Report #: F4008-116-45
Date: 01/26/16
Verified by:





DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT TEST
SPECIFICATION-LENGTHS TO 3/8"

ALLOWABLE BOW MAX. 1" PER 14'
ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ± .010
.XXX ± .005

DRAWN FOR QUALITY LINEALS "OUR NAME SAYS IT ALL"
BY DDS DESIGNS

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS .065
4) BREAK ALL CORNERS .015
5) AREA .528 SQ.IN.
6) WT/FT

TITLE WELDED DOUBLE HUNG MALE

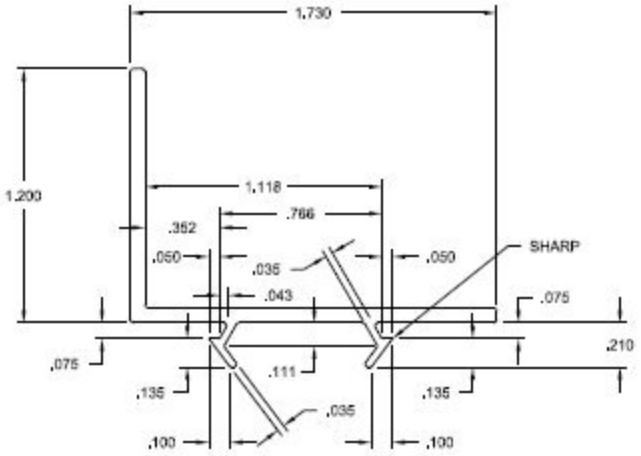
DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	2:1	11/14/02		

COMPUTER NO

DWG NO B-WDHM3004

Intertek

Report #: F4008-116-45
Date: 01/26/16
Verified by: Ryan M. Knight



DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT TEST
SPECIFICATION-LENGTHS TO 3/8"

TESTWABLE BOW MAX. 1" PER 14'
ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ± .010
.XXX ± .005

DRAWN FOR QUALITY LINEALS "OUR NAME SAYS IT ALL"

BY DDS DESIGNS

1) MATERIAL	RIGID PVC
2) CAPSTOCK	
3) UNSPECIFIED WALLS	.065
4) BREAK ALL CORNERS	.015
5) AREA	.219 SQ.IN.
6) WT/FT	[redacted]

TITLE WELDED DOUBLE HUNG HEAD ADAPTER

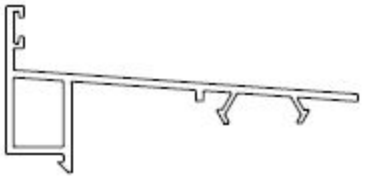
DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	FULL	11/16/02		

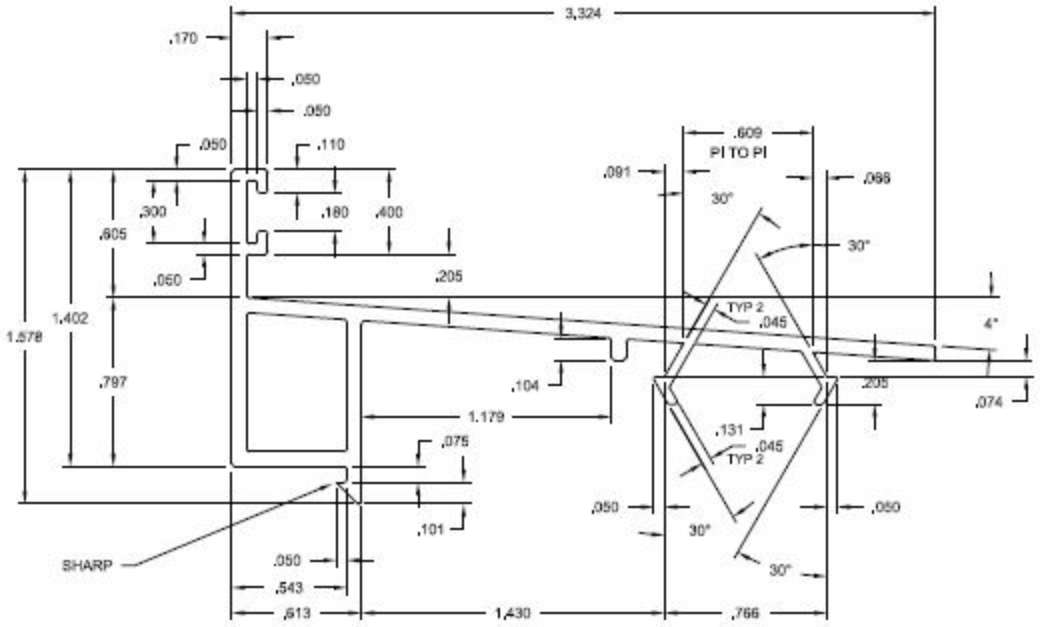
COMPUTER NO

DWG NO B-WDHA-3005

Intertek

Report #: F4008-116-45
Date: 01/26/16
Verified by:





DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT TEST
SPECIFICATION-LENGTHS TO 3/8"

WARPABLE BOW MAX. 1" PER 14'
ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ± .010
.XXX ± .005

DRAWN FOR QUALITY LINEALS BY DDS DESIGNS
"OUR NAME SAYS IT ALL"

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS .070
4) BREAK ALL CORNERS .015
5) AREA .474 SQ.IN.
6) WT/FT

TITLE WELDED DOUBLE HUNG SILL ADAPTER

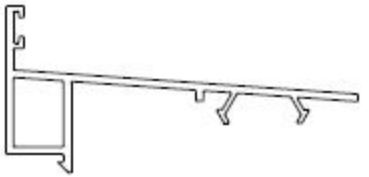
DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	2:1	11/16/02		

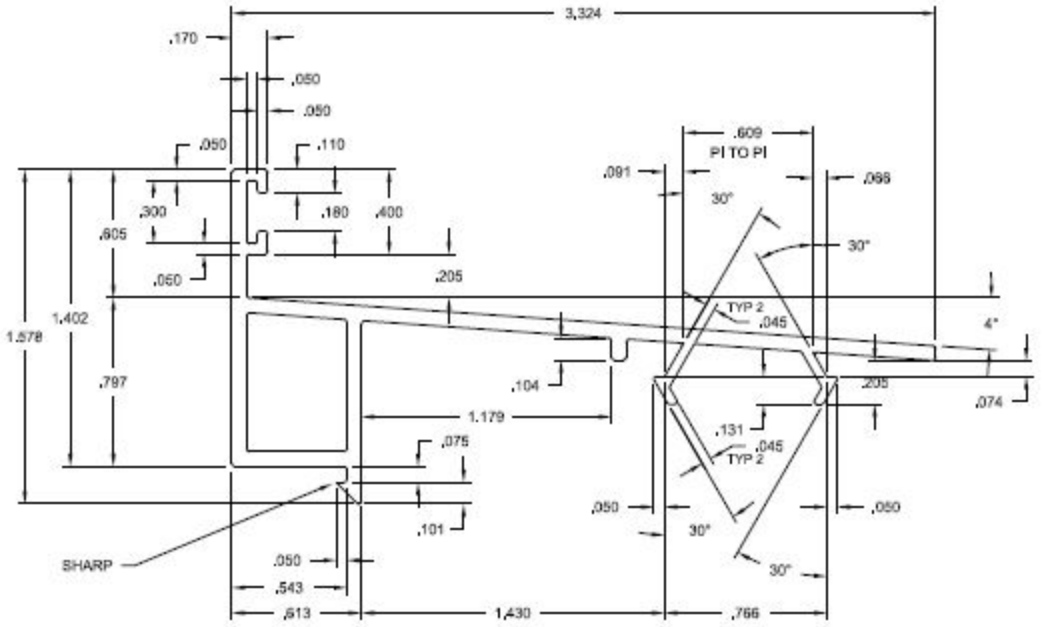
COMPUTER NO

DWG NO B-WDH3006

Intertek

Report #: F4008-116-45
Date: 01/26/16
Verified by:





DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT TEST
SPECIFICATION-LENGTHS TO 3/8"

WARPABLE BOW MAX. 1" PER 14'
ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ± .010
.XXX ± .005

DRAWN FOR QUALITY LINEALS BY DDS DESIGNS
"OUR NAME SAYS IT ALL"

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS .070
4) BREAK ALL CORNERS .015
5) AREA .474 SQ.IN.
6) WT/FT

TITLE WELDED DOUBLE HUNG SILL ADAPTER

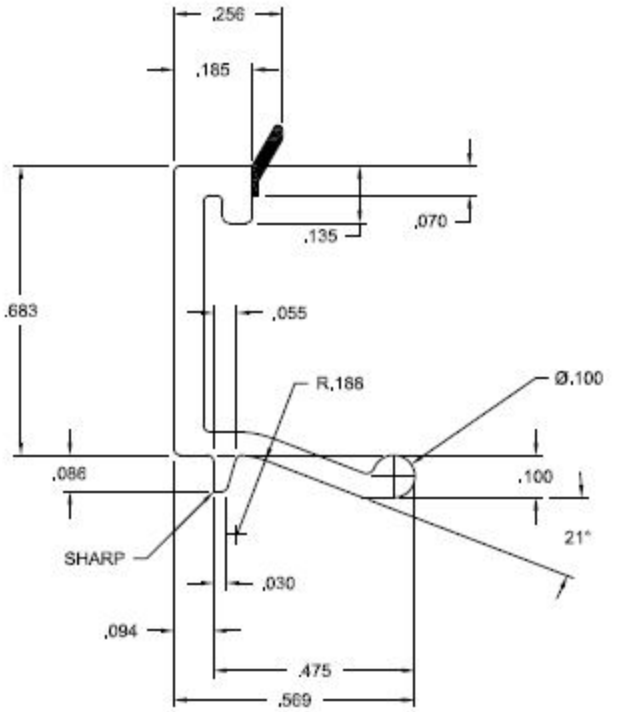
DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	2:1	11/16/02		

COMPUTER NO

DWG NO B-WDH3006

Intertek

Report #: F4008-116-45
Date: 01/26/16
Verified by: Megan M Yeager



AREA OF RIGID PVC = .096
AREA OF SOFT PVC = .004

WT/FT OF RIGID PVC =
WT/FT OF SOFT PVC =

DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT TESTABLE BOW MAX. 1" PER 14'
SPECIFICATION-LENGTHS TO 3/8" ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ± .010
.XXX ± .005

DRAWN FOR QUALITY LINEALS "OUR NAME SAYS IT ALL"

BY DDS DESIGNS

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS .070
4) BREAK ALL CORNERS .015
5) AREA .100 SQ.IN.
6) WT/FT

TITLE WELDED DOUBLE HUNG GLAZING BEAD

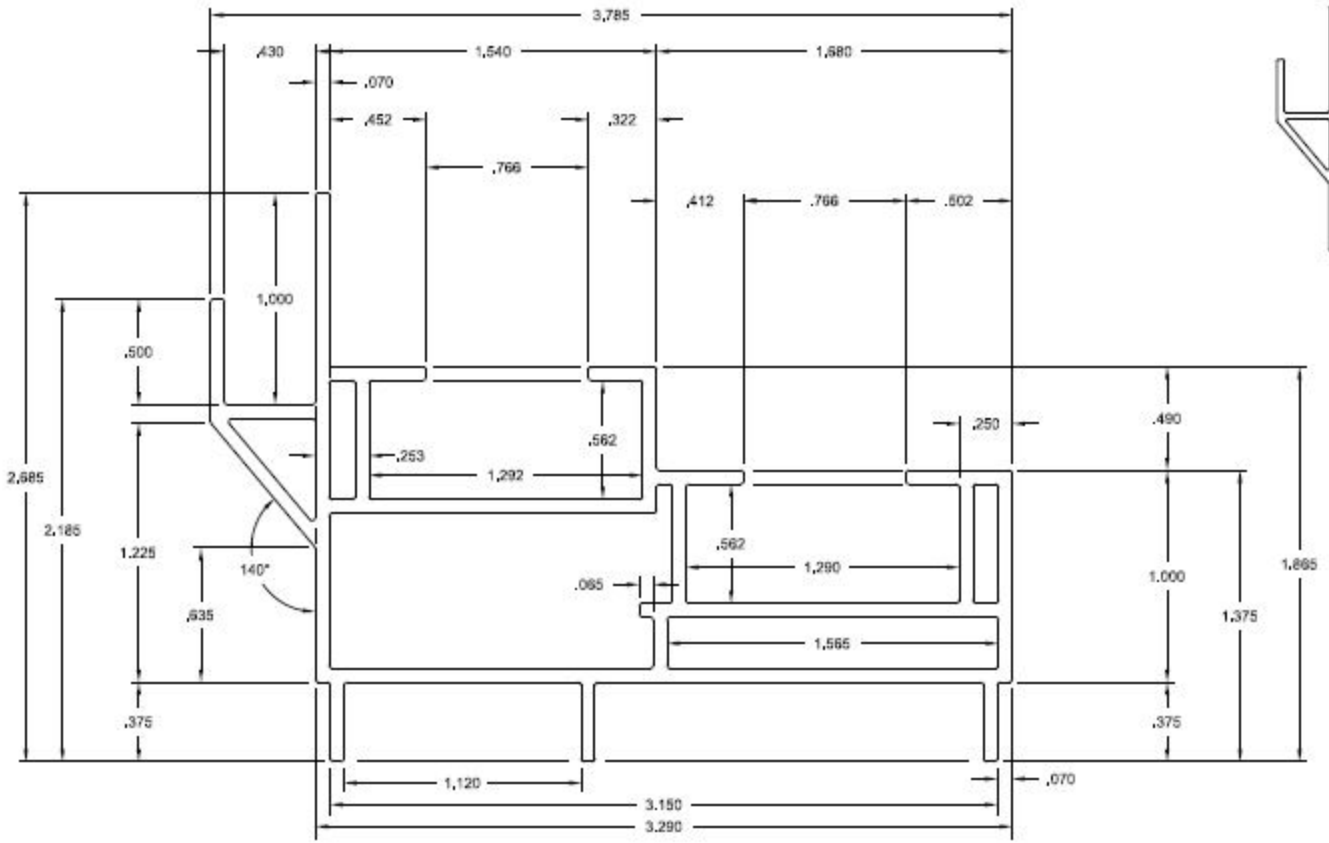
DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	4:1	11/20/02		

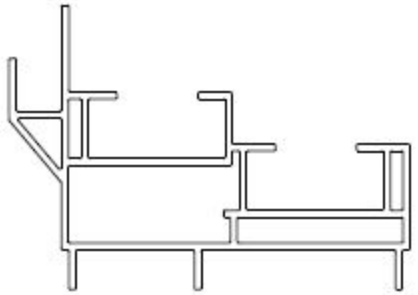
COMPUTER NO

DWG NO B-WDH3008

Intertek

Report #: F4008-116-45
Date: 01/26/16
Verified by: [signature]





DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT TEST
SPECIFICATION-LENGTHS TO 3/8"

ALLOWABLE BOW MAX. 1" PER 14'
ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ± .010
.XXX ± .005

DRAWN FOR QUALITY LINEALS BY DDS DESIGNS
"OUR NAME SAYS IT ALL"

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS .065
4) BREAK ALL CORNERS .015
5) AREA 1.089 SQ.IN.
6) WT/FT [redacted]

TITLE WELDED DOUBLE HUNG
JAMB NO FIN NO J

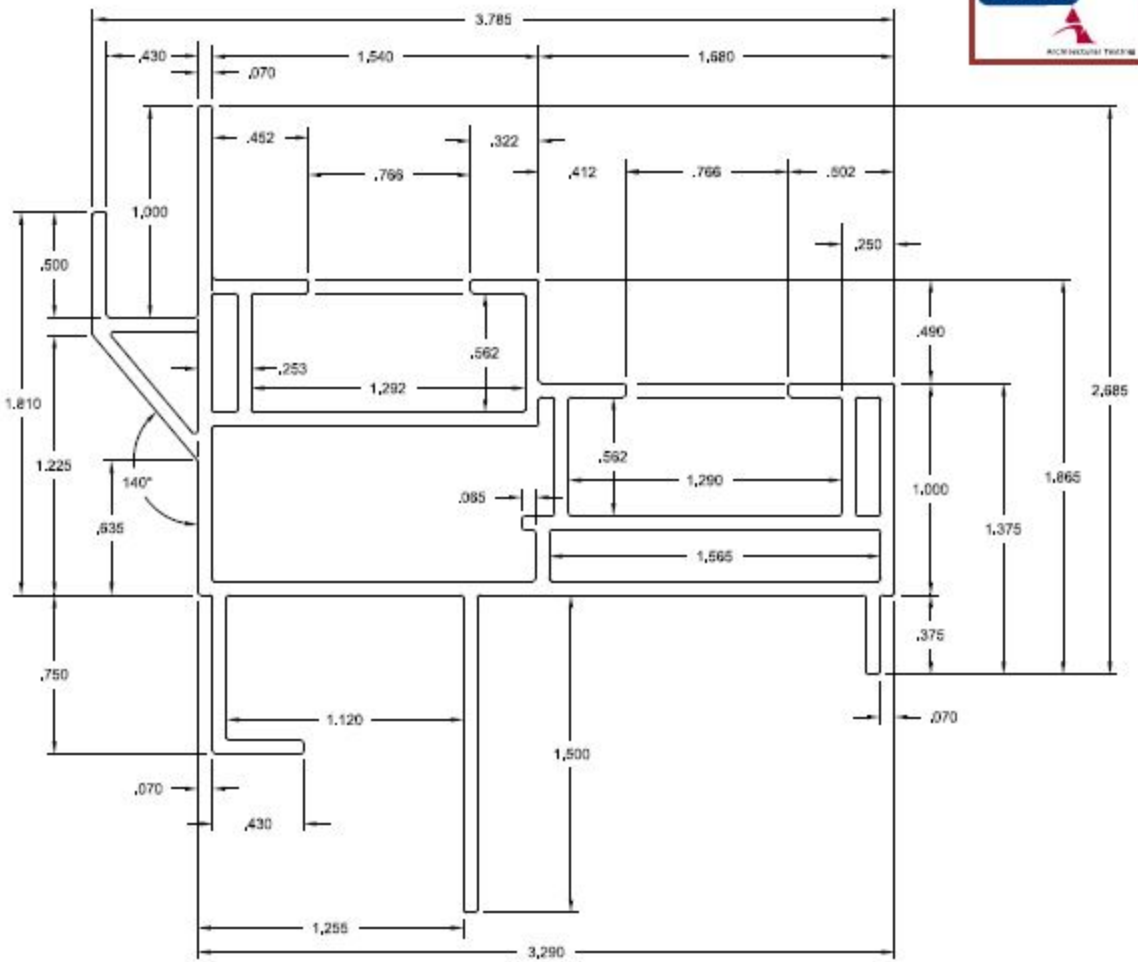
DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	2:1	11/13/02		

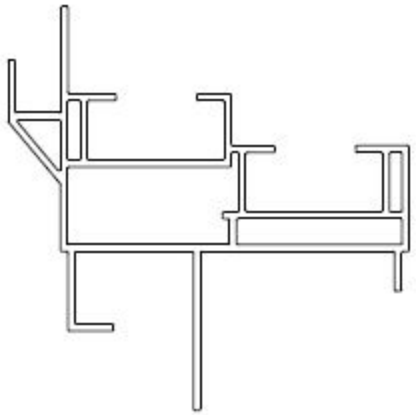
COMPUTER NO

DWG NO B-WDBHFJ-3012

Intertek

Report #: F4008-116-45
Date: 01/26/16
Verified by:





DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

☑ LOCATION FOR IMPACT TEST SPECIFICATION-LENGTHS TO 3/8"

ALLOWABLE BOW MAX. 1" PER 14'
ANGULARITY TO BE ± 1/2°

TOLERANCES- .XX ± .010
.XXX ± .005

DRAWN FOR QUALITY LINEALS "OUR NAME SAYS IT ALL"

BY DDS DESIGNS

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS .065
4) BREAK ALL CORNERS .015
5) AREA 1.211 SQ.IN.
6) WT/FT [redacted]

TITLE WELDED DOUBLE HUNG JAMB WITH FIN & J

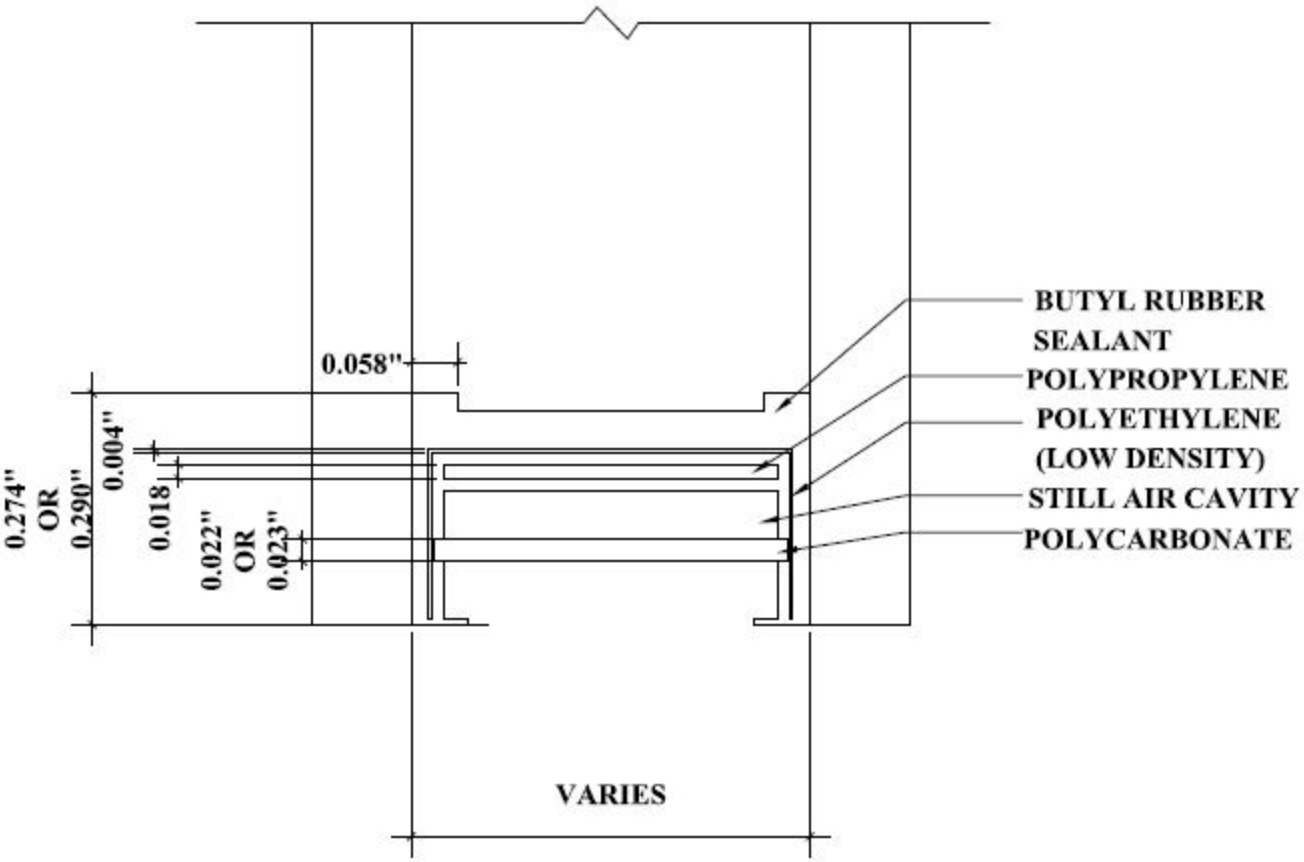
DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	2:1	11/14/02		

COMPUTER NO

DWG NO B-WDHFJF-3512

Intertek

Report #: F4008-116-45
Date: 01/26/16
Verified by:

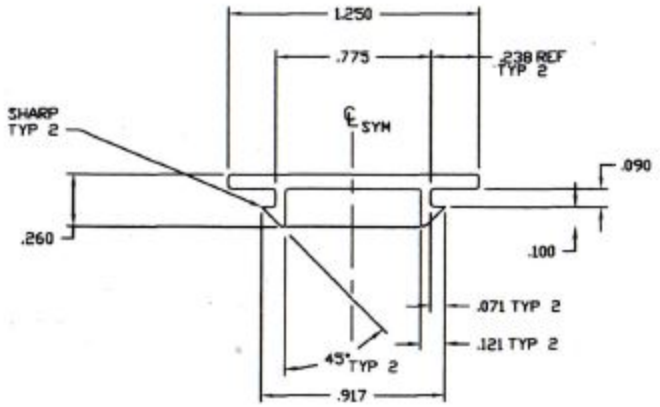


DETAIL FOR THERMAL MODELING OF
QUANEX DURALITE SPACER (P1-S)

Intertek

Report #: F4008-116-45
Date: 02/01/16
Verified by:

TEST OPTION ONLY



DO NOT SCALE DRAWING

NO.	REVISION	BY	DATE

LOCATION FOR IMPACT TEST
SPECIFICATION LENGTHS TO ± 3/8"

ALLOWABLE BOW MAX. 1" PER 14'
ANGULARITY TO BE ± 1/2 °

TOLERANCES - .XX = ± .010
.XXX = ± .005

DRAWN FOR QUALITY LINEALS "OUR NAME SAYS IT ALL" BY DDS DESIGNS

1) MATERIAL RIGID PVC
2) CAPSTOCK
3) UNSPECIFIED WALLS .070
4) BREAK ALL CORNERS .015 R
5) AREA .111 SQ. IN.
6) WT/FT [redacted] LBS/FT.

TITLE MECHANICAL DOUBLE HUNG SASH STOP

DWN BY	SCALE	DATE	CHKD BY	APPD BY
DDS	2:1	11/16/02		

COMPUTER NO

DWG NO B-DHSS-2006