

GENERAL NOTES:

1. THIS PRODUCT HAS BEEN TESTED, ANALYZED & APPROVED FOR DESIGN PRESSURES NOT TO EXCEED THOSE SHOWN IN THE "ALLOWABLE DESIGN PRESSURE TABLE(S)".
2. OPENINGS, BUCKING & BUCKING FASTENERS MUST BE PROPERLY DESIGNED & INSTALLED TO TRANSFER WIND LOADS TO THE STRUCTURE.
3. ALL HARDWARE & FASTENERS SHALL BE IN ACCORDANCE WITH THESE DRAWINGS & SHALL NOT VARY UNLESS SPECIFICALLY MENTIONED ON THE DRAWINGS. SPECIFIED ANCHOR EMBED TO BASE MATERIAL SHALL BE BEYOND WALL FINISH OR STUCCO.
4. THIS PRODUCT HAS BEEN DESIGNED IN ACCORDANCE WITH AND MEETS THE REQUIREMENTS OF THE FLORIDA BUILDING CODE (FBC) INCLUDING HIGH VELOCITY HURRICANE ZONES (HVHZ) & IS LARGE MISSILE IMPACT RATED.
5. IMPACT SHUTTERS ARE NOT REQUIRED WITH THIS PRODUCT.
6. ALL ANCHORS SECURING PRODUCT FRAMES TO PRESSURE TREATED BUCKS OR WOOD FRAMING SHALL BE CAPABLE OF RESISTING CORROSION CAUSED BY THE PRESSURE TREATING CHEMICALS IN THE WOOD.
7. DETERMINE THE POSITIVE & NEGATIVE DESIGN LOADS TO USE WHEN REFERENCING THESE DOCUMENTS IN ACCORDANCE WITH THE GOVERNING CODE AND GOVERNING WIND VELOCITY. FOR WIND LOAD CALCULATIONS IN ACCORDANCE WITH THE FLORIDA BUILDING CODE, A DIRECTIONALITY FACTOR OF $K_d = 0.85$ MAY BE APPLIED PER THE ASCE-7 STANDARD.
8. MATERIALS, INCLUDING BUT NOT LIMITED TO STEEL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF FLORIDA BUILDING CODE.
9. TO THE BEST OF OUR KNOWLEDGE, THE PRODUCT SHOWN HEREIN IS QUALITY ASSURED BY A FLORIDA STATE APPROVED CERTIFICATION/OA ENTRY & SHALL BE LABELED IN ACCORDANCE WITH THE FBC AND THE FLORIDA DEPARTMENT OF BUSINESS & PROFESSIONAL REGULATION SPECIFICATIONS. THESE DRAWINGS SHOW ALL APPLICABLE ELEVATION, COMBINATION, INSTALLATION & COMPARATIVE ANALYSIS CONDITIONS AS DETERMINED THROUGH TESTING & ENGINEERING RATIONAL ANALYSIS. PRODUCT ASSEMBLY SHALL BE IN ACCORDANCE WITH THESE DRAWINGS. THE MANUFACTURER'S QUALITY ASSURANCE SPECIFICATIONS & TESTING REPORTS.
10. CERTIFICATION OF THIS PRODUCT SHALL BE CONSIDERED VOID IF IT IS INSTALLED WITHOUT A BUILDING PERMIT FROM THE APPLICABLE LOCAL BUILDING DEPARTMENT OR IF IT IS INSTALLED BY ANYONE OTHER THAN A LICENSED CONTRACTOR EXPERIENCED WITH INSTALLATIONS OF THIS TYPE OF PRODUCT.

EVALUATION OF THIS PRODUCT IS BASED ON APPLICABLE STANDARDS AND/OR INFORMATION & RESULTS FROM APPLICABLE TEST REPORTS. THE FLORIDA BUILDING CODE VERSION CONSIDERED WITH THIS EVALUATION WAS THAT IN FORCE AT THE TIME OF THE EVALUATION. IN THE EVENT OF CODE VERSION CHANGES/UPDATES OR IN THE EVENT THAT NEW OR ADDITIONAL TESTING IS COMPLETED ON THIS PRODUCT, PRIOR TO STATING CODE COMPLIANCE WITH THE STATE, THE MANUFACTURER SHALL CONFIRM WITH THE EVALUATION ENGINEER OF RECORD THAT EVERYTHING SPECIFIED HERE-IN IS CURRENT WITH ALL CURRENT TESTING, CODES AND APPLICABLE STANDARDS.

INSTALLATION NOTE:

WHEN NECESSARY, INSTALLATION METHODS MAY BE MIXED WITH ANY ONE WINDOW SUCH THAT INDIVIDUAL SIDES OF THE WINDOW MAY USE ONE OR THE OTHER ANCHOR METHOD (EXAMPLE: SILL MAY USE FRAME SCREWS METHOD WHILE OTHER SIDES USE CLIP)

ANCHOR/SUBSTRATE EVALUATION NOTE:

ALL ANCHORS IN THEIR SPECIFIED SUBSTRATES HAVE BEEN ANALYZED IN ACCORDANCE WITH THEIR APPLICABLE STANDARD(S) AND ARE FOUND TO BE CAPABLE OF SUPPORTING ALL LOADS IMPOSED ON THEM UNDER THE GUIDELINES OF THIS DOCUMENT. ANY SUBSTRATES OR CONDITIONS OUTSIDE OF WHAT IS SHOWN HERE-IN SHALL BE SUBJECT TO JOB SPECIFIC ENGINEER'S REVIEW & CERTIFICATION.

FRAME ANCHOR REQUIREMENTS TABLE

OPENING TYPE (SUBSTRATE)	FRAME/CLIP TO OPENING FASTENER TYPE	MINIMUM EMBED	MINIMUM EDGE DIST.
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FRAME SCREWS

MIN. 2x4 WOOD FRAME OR BUCK (MIN. GR. 3 & G=0.55)	NO. 14 SMS OR WOOD SCREW	1 1/4"	3/4"
MIN. 1/6 GA. 50 KSI METAL STUD	1/4-20 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK A36 STEEL	1/4-20 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK 6063-T5 ALUM.	1/4-20 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. C-90 CMU	(1) 1/4" CONCRETE SCREW	1 1/4"	2"
MIN. 2500 PSI CONCRETE	(1) 1/4" CONCRETE SCREW	1 1/2"	2"

INSTALLATION CLIP SCREWS

(2) MIN. 2x6 WOOD FRAME OR BUCK (MIN. GR. 3 & G=0.55)	NO. 14 SMS SCREW	1 3/8"	3/4"
MIN. 1/6 GA. 50 KSI METAL STUD	NO. 14 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK A36 STEEL	1/4-20 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. 1/8" THK 6063-T5 ALUM.	1/4-20 GR. 5 SELF TAP/DRILL SCREW	FULL	1/2"
MIN. C-90 CMU	(1) 1/4" CONCRETE SCREW	1 1/4"	2"
MIN. 2500 PSI CONCRETE	(1) 1/4" CONCRETE SCREW	1 1/2"	2"

- (1) CONCRETE SCREWS SHALL BE ELCO ULTRACONS (C.S.), ELCO CRETE-FLEX (S.S.), ITW RAMSET/RED HEAD TAPCONS (C.S. OR S.S.) OR HILTI KWIK-CON II (C.S. OR S.S.).
- (2) 2x6 BUCKS MAY BE RIPPED DOWN TO AS LITTLE AS 4" PROVIDING THE REQUIRED SCREW EDGE DISTANCE IS HELD & THE BUCK EXTENDS TO WITHIN 3/16" OF THE EXTERIOR EDGE OF THE WINDOW FRAME.

ALLOWABLE PRESSURE TABLE
(SINGLE WINDOWS)

MAXIMUM FRAME LONG DIMENSION (IN.)	MAXIMUM FRAME SHORT DIMENSION (IN.)	ALLOWABLE PRESSURE (+/-PSF)
WITH EQUAL LEG FRAME		
132	60	70
144	55	70
WITH LONG LEG FRAME		
133 1/2	61 1/2	70
145 1/2	56 1/2	70

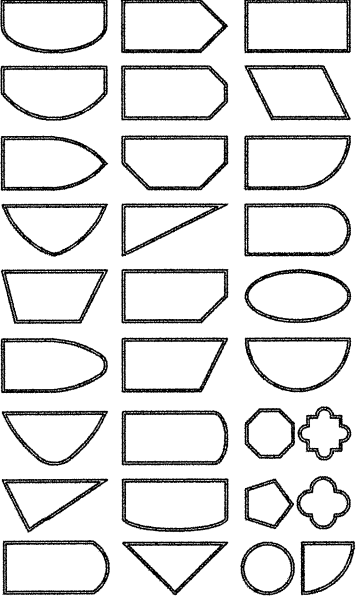
1. WINDOW SIZES SHOWN ARE MAXIMUM SIZES. SMALLER SIZES SHALL APPLY TO LOADS EQUAL TO THE NEAREST LARGER SIZE SHOWN IN TABLE.

2. LONG DIMENSION MAY BE HORIZONTAL OR VERTICAL

CORNER CONSTRUCTION:

FRAME: MITER CUT, BUTTED AND FULLY WELDED

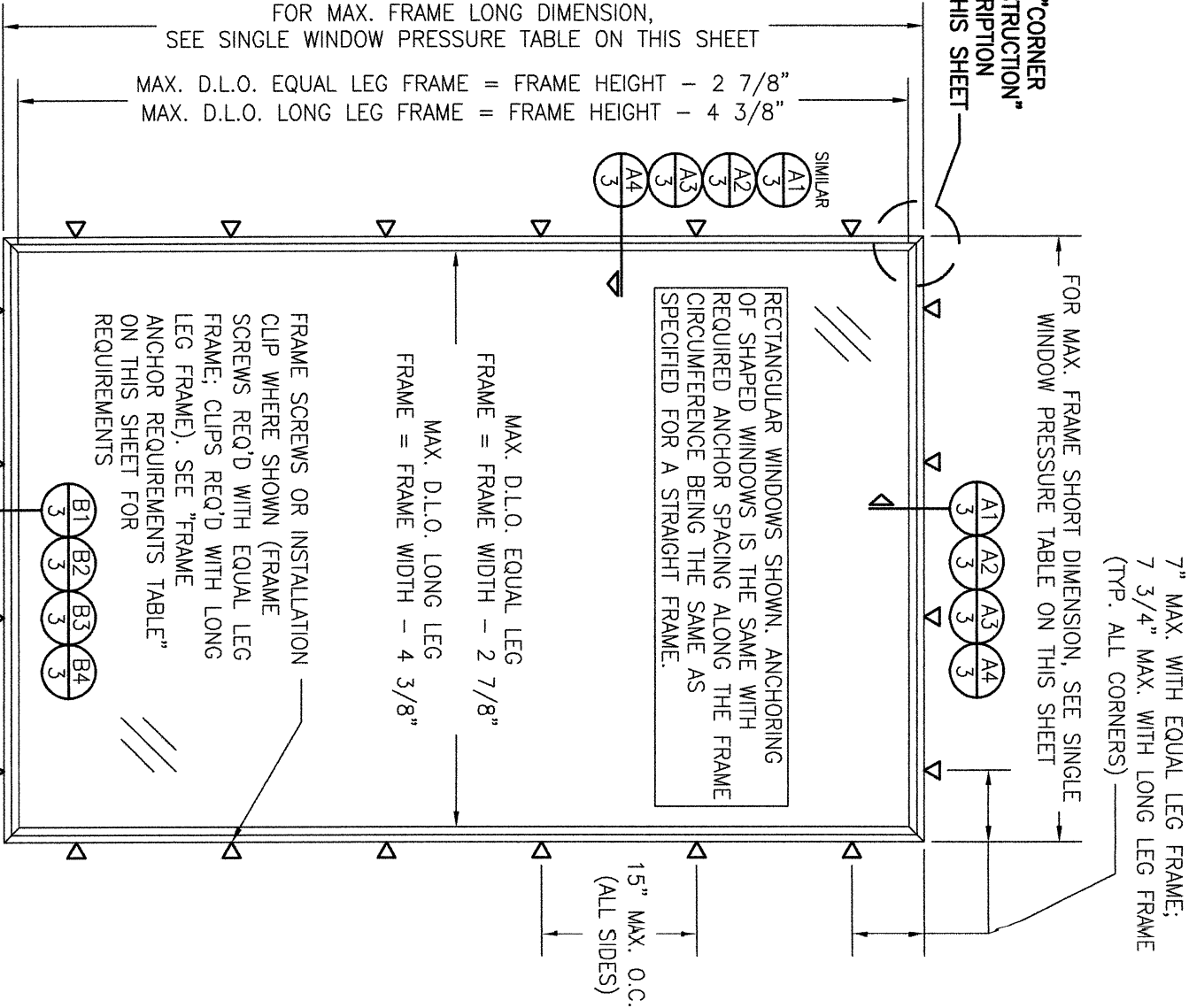
APPROVED SHAPES



NOTES:

1. OTHER SHAPES MAY APPLY PROVIDING THEY ARE SIMILAR TO THOSE SHOWN & HAVE CORNER CONSTRUCTION AS DESCRIBED IN THIS DRAWING.
2. ALL SHAPED UNITS MUST FIT INSCRIBED INTO THE ALLOWABLE RECTANGULAR UNITS & BE GOVERNED BY THE ALLOWABLE PRESSURE OF THE RESPECTIVE RECTANGULAR UNIT.

SEE "CORNER
CONSTRUCTION"
DESCRIPTION
ON THIS SHEET



EXTERIOR ELEVATION:
SINGLE FIXED WINDOW

SCALE: 3/4" = 1'-0"

Digitally signed

by Warren W

Schaefer

Date:

2024.09.05

08:04:09 -04'00'



THESE DRAWINGS ARE APPLICABLE ONLY TO THE PRODUCT SPECIFIED. THEY MAY NOT BE USED FOR THE ASSEMBLY AND/OR INSTALLATION OF ANY OTHER PRODUCT NOR MAY THEY BE USED FOR RATIONAL AND/OR LOCAL APPROVAL OF ANY PRODUCT NOT PRODUCED BY THE MANUFACTURER STATED ON THESE DRAWINGS.

DRAWN BY: W.W.S.		CHECKED BY: W.W.S.	
PLT:	1=16	DATE:	06/20/10
NO.	REVISION DESCRIPTION	BY	DATE
A1	UPDATE TO CURRENT STANDARDS	W.R.M.	08/17/11
B1	ADD INST. CLIP DIMENSIONS	W.R.M.	09/25/13
C1	UPDATE TO CURRENT STANDARDS	W.W.S.	12/10/14
D1	INCREASE SHIM SPACE	W.W.S.	09/04/24

DRAWING TITLE	
EMPIRE BRONZE SERIES DIRECT GLAZED IMPACT WINDOWS	
CONSULTANTS	MANUFACTURER
W. W. SCHAEFER ENGINEERING & CONSULTING, P.A.	HOPE'S WINDOWS, INC. 84 HOPKINS AVENUE JAMESTOWN, NY 14702 (716) 665-5124
25601 AYSEN DRIVE PUNTA GORDA, FL 33983 PHONE: 561-744-3424	

CERTIFICATION

WARREN W. SCHAEFER, P.E.
P.E. NO. 44135

DRAWING NO.

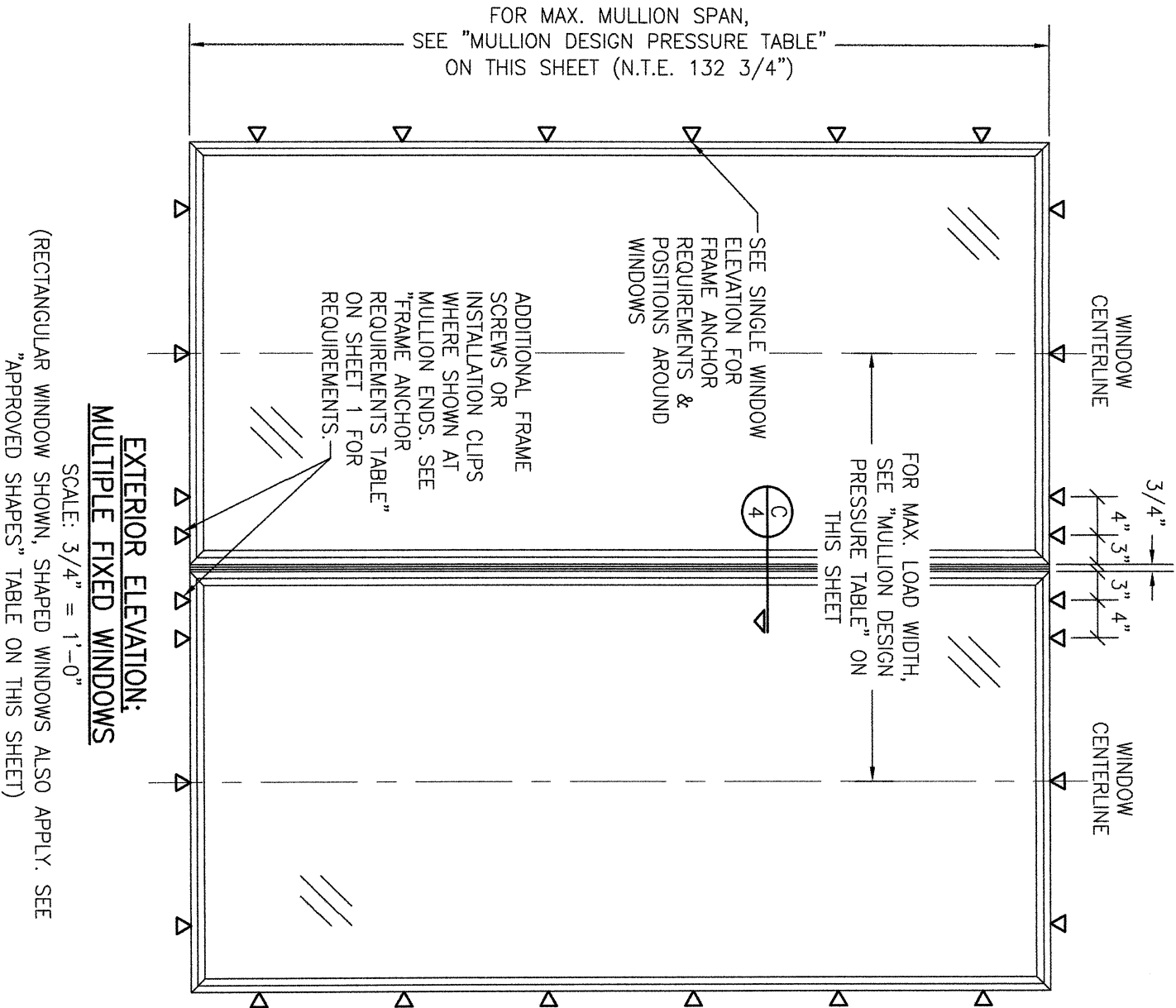
1708

REV. D

SHEET NO.

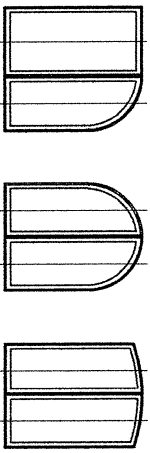
1 OF 5

MULLION DESIGN PRESSURE TABLE		
MAXIMUM MULLION SPAN (IN.)	MAXIMUM LOAD WIDTH (IN.)	ALLOWABLE PRESSURE (+/-PSF)
132 3/4	62	30.6
	56	33.4
	50	36.9
	44	41.5
	38	47.6
	36	50.0
	32	55.3
	26	66.3
	24	70.0
	62	36.8
	56	39.4
	50	42.8
	44	47.2
	38	53.0
	32	61.2
121 1/2	27	70.0
	62	42.4
	56	45.3
	50	48.9
	44	53.6
109 1/2	38	60.1
	32	69.0
	31	70.0
	62	50.1
	56	53.1
97 1/2	50	57.0
	44	62.2
	38	69.2
	32	70.0
	62	55.1
91 1/2	56	58.1
	50	62.1
	44	67.5
	38	70.0
	62	61.1
85 1/2	56	64.1
	50	68.3
	44	70.0
	62	68.7
	56	70.0
79 1/2	62	70.0
78	62	70.0



- MULTIPLE FIXED UNIT NOTES:**
- FOR ALL DETAIL NOT SHOWN, SEE SINGLE WINDOW ELEVATIONS.
 - MULLION MAY BE HORIZONTAL OR VERTICAL PROVIDING UNIT SIZES ARE RESTRICTED AS SHOWN IN THIS ELEVATION.
 - THERE IS NO LIMIT ON THE NUMBER OF WINDOWS THAT MAY BE COMBINED IN ONE DIRECTION INTO ONE OPENING PROVIDING THE OPENING IS DESIGNED TO SUPPORT ALL LOADS TRANSFERRED FROM THE WINDOWS & THEIR MULLIONS.
 - INDIVIDUAL WINDOW SIZES SHALL BE RESTRICTED AS SPECIFIED IN THE SINGLE WINDOW ELEVATION.
 - THESE WINDOWS ARE NOT DESIGNED, NOR SHOULD BE INSTALLED AS, A CURTAIN WALL SYSTEM.

EXAMPLES OF SIDE-BY-SIDE SHAPED MULLED CONDITIONS



- NOTES:**
- WINDOW SHAPES OTHER THAN THOSE SHOWN MAY APPLY PROVIDING THEY ARE APPLICABLE TO THOSE SHOWN ON SHEET 1.
 - SHAPED FIXED WINDOWS MAY ALSO BE MULLED TO RECTANGULAR WINDOWS AS TRANSOMS UNDER THE SAME RESTRICTIONS AS THE SIDE BY SIDE CONDITION SHOWN ON THIS SHEET.

EMPIRE BRONZE SERIES DIRECT GLAZED IMPACT WINDOWS

CONSULTANTS
W. W. SCHAEFER ENGINEERING & CONSULTING, P.A.
25601 AYSEN DRIVE
PUNTA GORDA, FL 33983
PHONE: 561-744-3424

MANUFACTURER
HOPE'S WINDOWS, INC.
84 HOPKINS AVENUE
JAMESTOWN, NY 14702
(716) 665-5124

CERTIFICATION

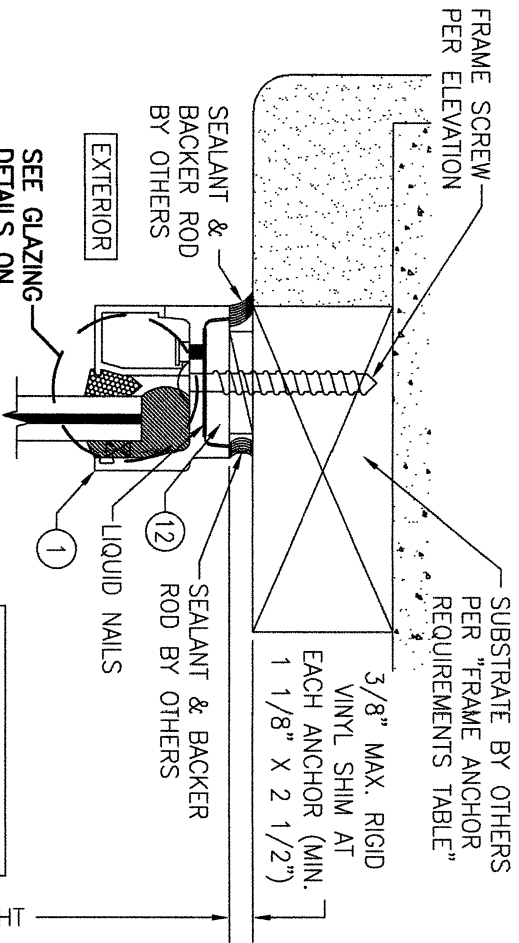
WARREN W. SCHAEFER, P.E.
P.E. NO. 44135

DRAWING NO. **1708** REV. **D**

SHEET NO. **2** OF **5**

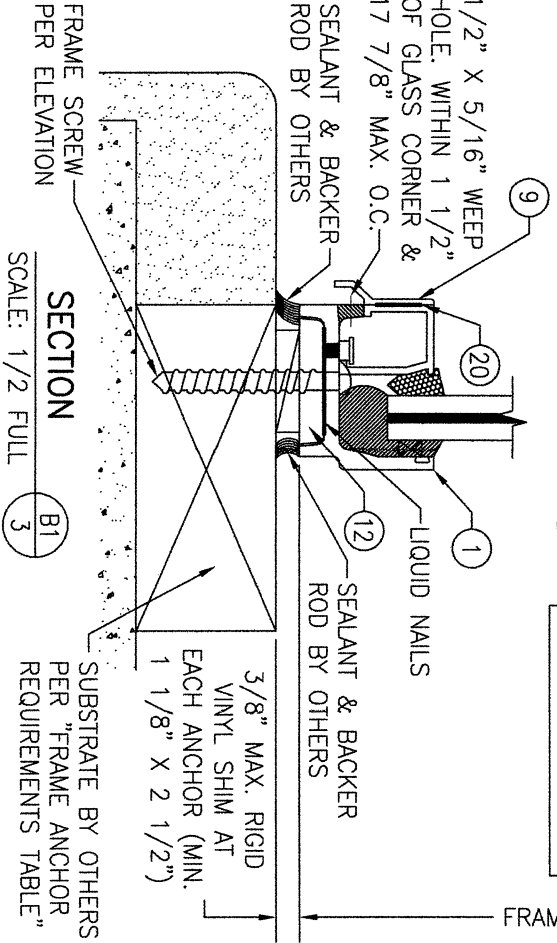
DRAWN BY: W.M.S. CHECKED BY: W.M.S.
PLOT: 1=16 DATE: 06/30/10

NO.	REVISION	DESCRIPTION	BY	DATE



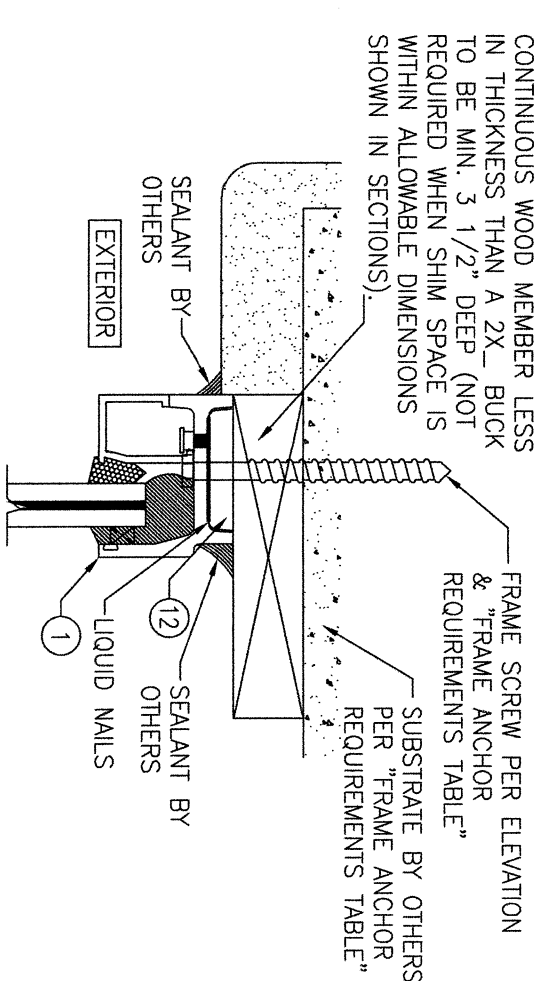
SECTION A1
SCALE: 1/2 FULL
3

EQUAL LEG FRAME;
EXTERIOR GLAZED
CONDITION



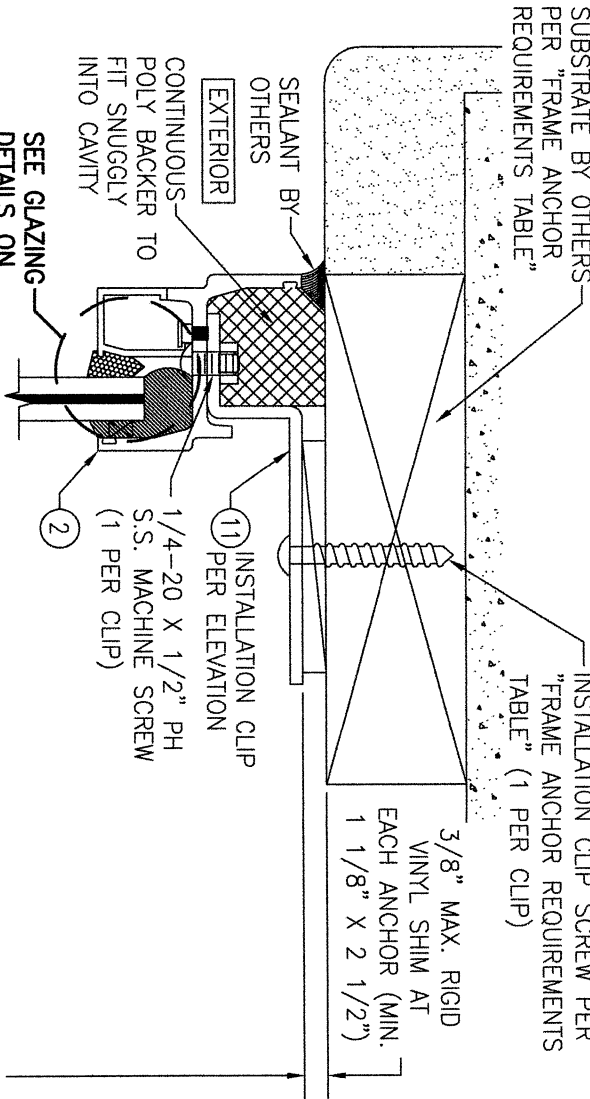
SECTION B1
SCALE: 1/2 FULL
3

SUBSTRATE BY OTHERS
PER "FRAME ANCHOR
REQUIREMENTS TABLE"



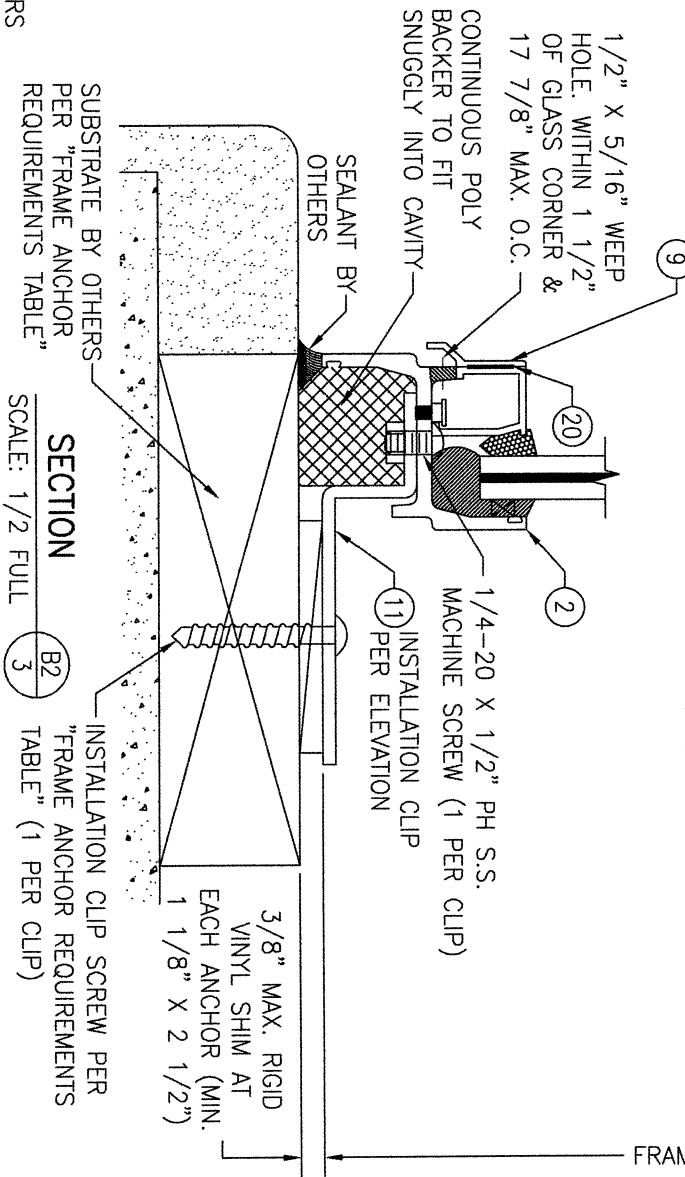
OPTIONAL DIRECT MOUNT DETAIL
TO SUBSTRATE WITH SPACER

(HEAD SECTION SHOWN; SILL & SIDES ARE INSTALLED THE SAME)
(FOR DETAIL NOT SHOWN, SEE OTHER SECTIONS)



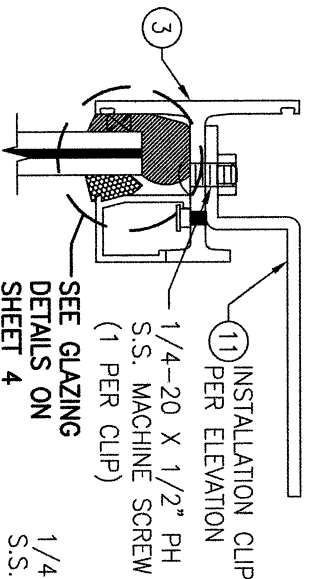
SECTION A2
SCALE: 1/2 FULL
3

LONG LEG FRAME;
EXTERIOR GLAZED
CONDITION



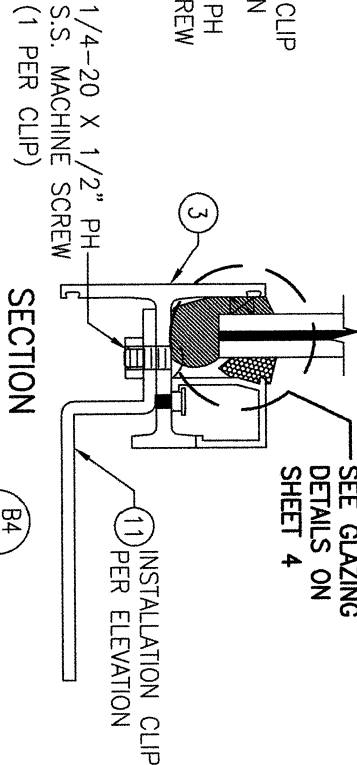
SECTION B2
SCALE: 1/2 FULL
3

"FRAME ANCHOR REQUIREMENTS
TABLE" (1 PER CLIP)



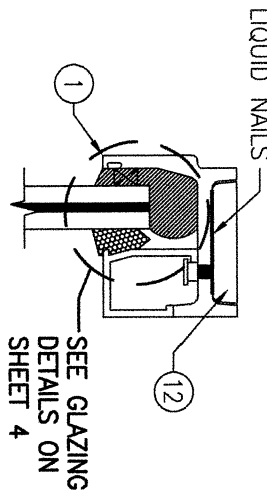
SECTION A4
SCALE: 1/2 FULL
3

(FOR INSTALLATION, SEE SECTION A2/3)
LONG LEG FRAME; INTERIOR
GLAZED CONDITION



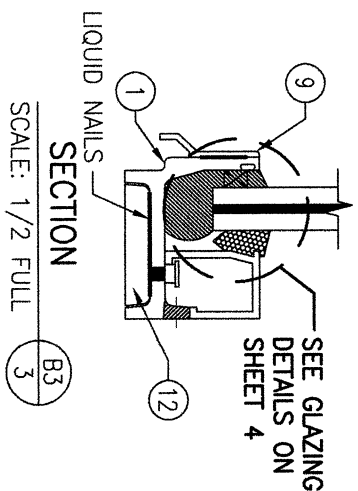
SECTION B4
SCALE: 1/2 FULL
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(FOR INSTALLATION, SEE SECTION B2/3)
LONG LEG FRAME; INTERIOR
GLAZED CONDITION



SECTION A3
SCALE: 1/2 FULL
3

(FOR INSTALLATION, SEE SECTION A1/3)
EQUAL LEG FRAME; INTERIOR
GLAZED CONDITION



SECTION B3
SCALE: 1/2 FULL
3

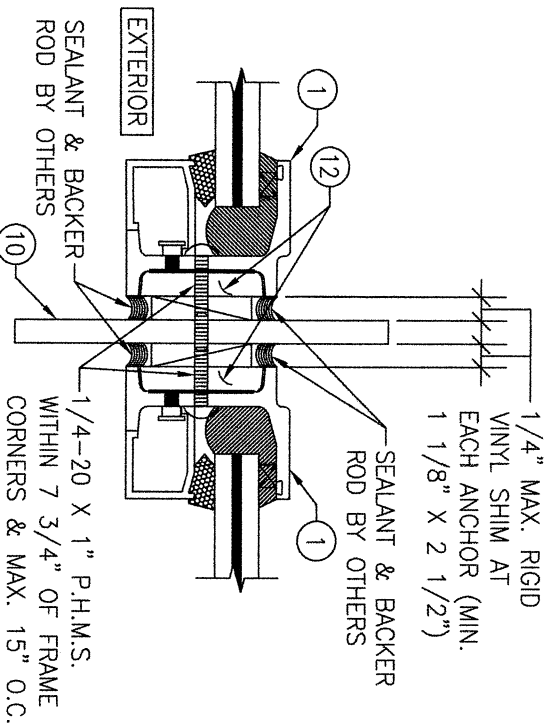
(FOR INSTALLATION, SEE SECTION B1/3)
EQUAL LEG FRAME; INTERIOR
GLAZED CONDITION

INSTALLATION SEALANT NOTE
FRAME TO OPENING & MULLION SEALANTS ARE NOT PART OF THIS CERTIFICATION & ARE THE RESPONSIBILITY OF THE WINDOW INSTALLER.

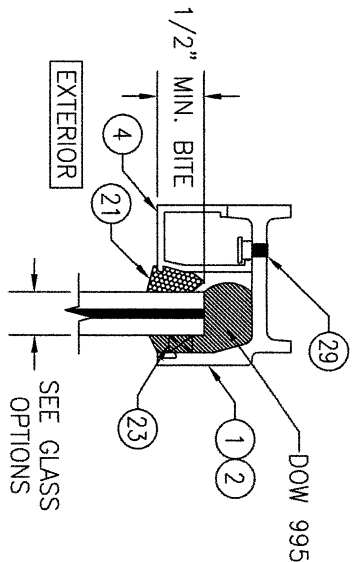
NO.	REVISION	DESCRIPTION	BY	DATE

DRAWING TITLE		DRAWING NO.	
EMPIRE BRONZE SERIES DIRECT GLAZED IMPACT WINDOWS		1708	
CONSULTANTS		SHEET NO.	
W. W. SCHAEFER ENGINEERING & CONSULTING, P.A.		3 OF 5	
MANUFACTURER		REV.	
HOPE'S WINDOWS, INC. 84 HOPKINS AVENUE JAMESTOWN, NY 14702 (716) 665-5124		D	
25601 AYSER DRIVE PUNTA GORDA, FL 33983 PHONE: 561-744-3424			

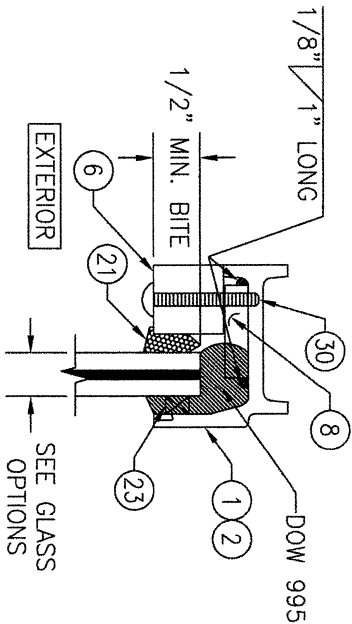
CERTIFICATION		DRAWING NO.	
WARREN W. SCHAEFER, P.E. P.E. NO. 44135		1708	
DRAWING TITLE		SHEET NO.	
EMPIRE BRONZE SERIES DIRECT GLAZED IMPACT WINDOWS		3 OF 5	
CONSULTANTS		REV.	
W. W. SCHAEFER ENGINEERING & CONSULTING, P.A.		D	
MANUFACTURER			
HOPE'S WINDOWS, INC. 84 HOPKINS AVENUE JAMESTOWN, NY 14702 (716) 665-5124			
25601 AYSER DRIVE PUNTA GORDA, FL 33983 PHONE: 561-744-3424			



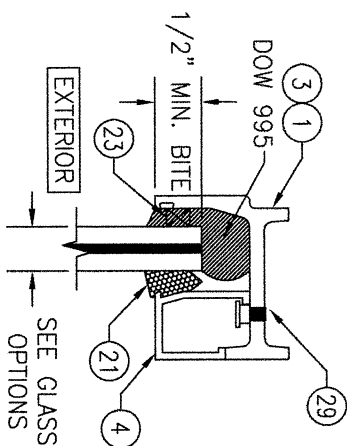
SECTION
SCALE: 1/2 FULL
C
(FOR DETAIL NOT SHOWN, SEE OTHER SECTIONS)
(EXTERIOR GLAZED SHOWN. INTERIOR GLAZED IS MULLED THE SAME)



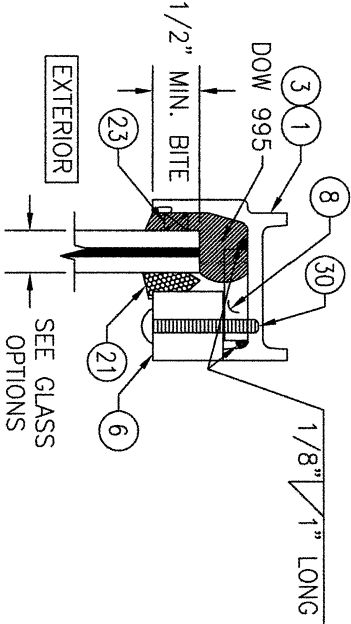
GLAZING DETAIL 1
(RECTANGULAR WINDOW,
EXTERIOR GLAZED WITH
NON-I.G. GLASS)



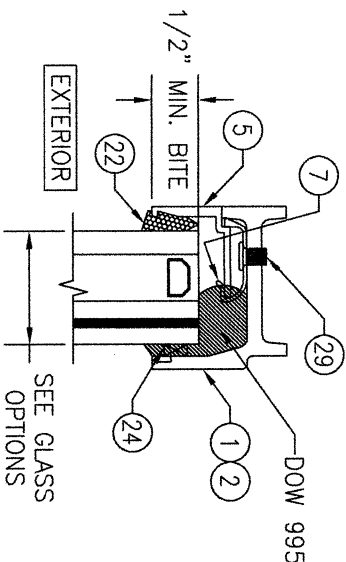
GLAZING DETAIL 2
(RADIUS WINDOW, EXTERIOR
GLAZED WITH NON-I.G. GLASS)



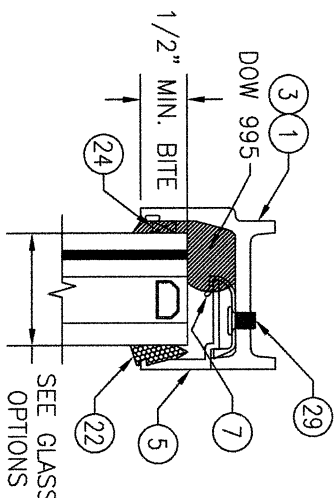
GLAZING DETAIL 3
(RECTANGULAR WINDOW,
INTERIOR GLAZED WITH
NON-I.G. GLASS)



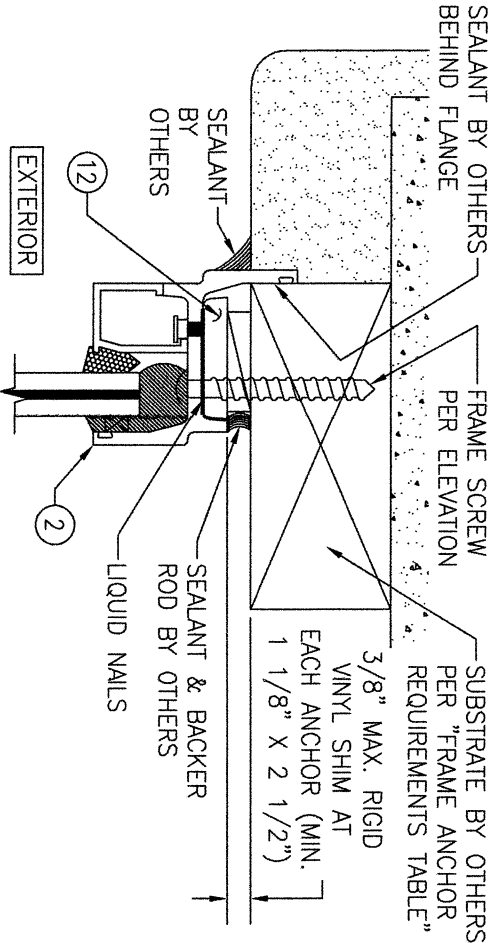
GLAZING DETAIL 4
(RADIUS WINDOW, INTERIOR
GLAZED WITH NON-I.G. GLASS)



GLAZING DETAIL 5
(RECTANGULAR WINDOW,
EXTERIOR GLAZED I.G. GLASS)



GLAZING DETAIL 6
(RECTANGULAR WINDOW,
INTERIOR GLAZED I.G. GLASS)



OPTIONAL FLANGE MOUNT DETAIL
(HEAD SECTION SHOWN; SILL & SIDES ARE INSTALLED THE SAME)
(FOR DETAIL NOT SHOWN, SEE OTHER SECTIONS)

GLASS OPTIONS

- OPTION 1 (NON-I.G. GLASS INTERIOR OR EXTERIOR GLAZED):
7/16" LAMINATED GLASS (3/16" H.S./0.09" KURARAY SG/3/16" H.S.)
OPTION 2 (I.G. GLASS EXTERIOR GLAZED):
1 1/4" I.G. LAMINATED GLASS (1/4" TEMP. EXTERIOR, 1/2" ALUMINUM SPACER & 3/16" H.S./0.09" KURARAY SG/3/16" H.S. INTERIOR)
OPTION 3 (I.G. GLASS INTERIOR GLAZED):
1 1/4" I.G. LAMINATED GLASS (3/16" H.S./0.09" KURARAY SG/3/16" H.S. EXTERIOR, 1/2" ALUMINUM SPACER & 1/4" TEMP. INTERIOR)
NOTE: I.G. GLASS DOES NOT APPLY TO RADIUS UNITS.

GLAZING NOTE: AT BASE OF GLASS, 4" LONG SILICONE SETTING BLOCKS SHALL BE PLACED AT MAX. 24" O.C. (QTY. OF 2 MIN.). WIDTH & THICKNESS OF BLOCKS SHALL BE AS REQUIRED TO MATCH THE GLASS SECTION THICKNESS AND DEPTH OF SPACE AT GLASS EDGE.

DRAWN BY:		CHECKED BY:		
W.W.S.		W.W.S.		
PLOT:		DATE:		
1-2		06/30/10		
NO.	REVISION	DESCRIPTION	BY	DATE

DRAWING TITLE	
EMPIRE BRONZE SERIES DIRECT GLAZED IMPACT WINDOWS	
CONSULTANTS	MANUFACTURER
W. W. SCHAEFER ENGINEERING & CONSULTING, P.A. 25601 AYSEN DRIVE PUNTA GORDA, FL 33983 PHONE: 561-744-3424	HOPE'S WINDOWS, INC. 84 HOPKINS AVENUE JAMESTOWN, NY 14702 (716) 665-5124

CERTIFICATION	
WARREN W. SCHAEFER, P.E. P.E. NO. 44135	
DRAWING NO.	REV.
1708	D
SHEET NO.	
4 OF 5	

ITEM #	ITEM DESCRIPTION	MANUFACTURER/NOTES
PARTS		
1	EQUAL LEG FRAME	385 BRONZE
2	LONG LEG FRAME (EXTERIOR GLAZE)	385 BRONZE
3	LONG LEG FRAME (INTERIOR GLAZE)	385 BRONZE
4	NON-IG GLAZING BEAD (STRAIGHT FRAME)	385 BRONZE
5	IG GLAZING BEAD (STRAIGHT FRAME)	304 S.S., 6063-T5 ALUM OR 385 BRONZE
6	NON-IG GLAZING BEAD (RADIUS FRAME)	385 BRONZE
7	GLAZING BEAD RETAINER (STRAIGHT FRAME)	304 S.S., 6063-T5 ALUM OR 280 BRONZE
8	GLAZING BEAD SHIM (RADIUS FRAME)	385 BRONZE
9	WEEP COVER	6063-T5 ALUMINUM OR 280 BRONZE
10	MULLION BAR	A36 STEEL
11	INSTALLATION CLIP	GALV. A36 STEEL
12	FIXING HOLE FILLER SHIM	RIGID VINYL
SEALS & SEALANTS		
20	DOUBLE SIDED TAPE	3M VBH 4941 FOAM/ACRYLIC
21	GLAZING WEDGE (USED WITH NON-I.G. & RADIUS CONDITIONS)	TREMCO 496E EPDM
22	GLAZING WEDGE (USED WITH I.G. CONDITIONS)	TREMCO PS1125E EPDM
23	NON-I.G. GLAZING SHIM	TREMCO TR2178W EPDM
24	I.G. GLAZING SHIM	TREMCO TR1488W EPDM
FASTENERS		
29	6-32 X 1/4" S.S. HIGH COLLAR CAP SCREW	2 1/2" FROM D.L.O. EDGE & 12" MAX. O.C.
30	10-24 X 1 1/8" S.S. MACHINE SCREW	2 1/2" FROM D.L.O. EDGE & 16" MAX. O.C.
31	1/4-20 SELF CLINCHING NUT INSERT	1 PER CLIP

