Engineering Evaluation Report

Prepared by:
A. Lynn Miller, P.E.
1070 Technology Dr.
N. Venice, FL 34275
(941) 480-1600
Registration Number: #29296

Manufacturer:
PGT Industries, LLC
3400 Precision Drive
North Venice, FL 34275

Product Description:
PW5520 Series Impact-Resistant, Vinyl, Picture Window with Diamond Glass, (LM), FL-29700

Compliance:
The above-mentioned product has been evaluated for compliance with the requirements of the Florida Department of Business and Professional Regulation for Statewide Acceptance per Rule 61 G20-3.005 method 1(d). The product listed herein complies with requirements of the current Florida Building Code.

This product has been evaluated and is in compliance with the current Florida Building Code, including the “High Velocity Hurricane Zone” (HVHZ).

Supporting Technical Documentation:
1. Approval Document: Drawing number PW5520-DG, signed and sealed by A. Lynn Miller, P.E.

2. Test Reports:
FTL-7892-7894, 7896, 7910 & 8096, Fenestration Testing Laboratories, Medley, FL
ASTM E1886-05/1995-12

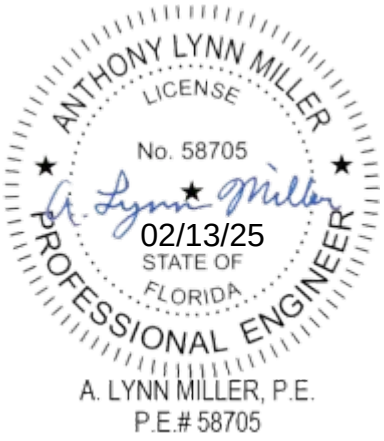
FTL-7892-7894, 7896, 7910 & 8166, Fenestration Testing Laboratories, Medley, FL
AAMA/WDMA/CSA 101/IS2/A440-11

QAI NOK 0112-0117 signed and sealed by Idalmis Ortega P.E.; QAI Laboratories, Nokomis, FL

TAS 201-94 Large Missile Impact Test
TAS 202-94 Uniform Static Air Pressure Test
TAS 203-94 Cyclic Pressure Loading Test

3. Miami-Dade RER Product Control Section NOA’s; PVB and/or SG Interlayer by Kuraray America, Inc.

Limitations and Conditions of use:
• Units must be glazed per ASTM E1300-09, refer to approval document for glazing details.
• This product is rated to be used in the HVHZ.
• This product is impact resistant and does not require impact protection in wind borne debris regions.
• Frame material to be extruded Vinyl.
• Units must be installed in accordance with approval document.



SERIES PW6520 IMPACT RESISTANT, VINYL FIXED WINDOW WITH DIMOND GLASS

FLORIDA PRODUCT APPROVAL #XXXXX

IMPACT RATING: LARGE & SMALL MISSILE IMPACT RESISTANT	DESIGN PRESSURE RATING: VARIES PER GLASS TYPE SEE TABLES 4-6

1) THIS PRODUCT HAS BEEN DESIGNED AND TESTED TO COMPLY WITH THE REQUIREMENTS OF THE FLORIDA BUILDING CODE INCLUDING THE HIGH VELOCITY HURRICANE ZONE (HVHZ)

2) SHUTTERS ARE NOT REQUIRED WHEN USED IN WINDBORNE DEBRIS REGIONS. FOR INSULATED GLASS INSTALLATIONS ABOVE 30' IN THE HVHZ, THE OUTBOARD LITE (CAP) MUST TEMPERED.

3) TRY OR 2BY WOOD BUCKS & BUCK FASTENERS BY OTHERS, MUST BE DESIGNED AND INSTALLED ADEQUATELY TO TRANSFER APPLIED PRODUCT LOADS TO THE BUILDING STRUCTURE

4) ANCHORS SHALL BE CORROSION RESISTANT, SPACED AS SHOWN ON DETAILS AND INSTALLED PER MANUFACTURER'S INSTRUCTIONS. SPECIFIED EMBEDMENT TO BASE MATERIAL SHALL BE BEYOND WALL DRESSING OR STUCCO

5) A LOAD DURATION INCREASE IS USED IN DESIGN OF ANCHORS INTO WOOD ONLY

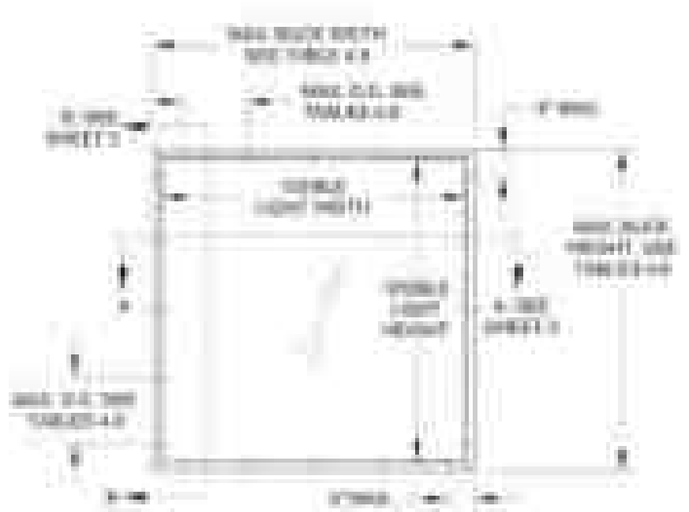
6) ALL SHIMS TO BE HIGH IMPACT, NON-METALLIC AND NON-COMPRESSIBLE

7) MATERIALS INCLUDING BUT NOT LIMITED TO STEEL/METAL SCREWS, THAT COME INTO CONTACT WITH OTHER DISSIMILAR MATERIALS SHALL MEET THE REQUIREMENTS OF THE FLORIDA BUILDING CODE & ADOPTED STANDARDS.

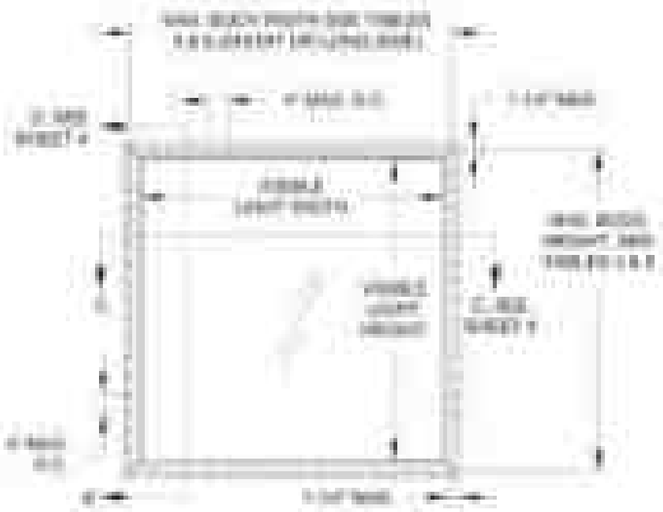
8) THIS PRODUCT APPROVAL IS GENERIC AND DOES NOT PROVIDE INFORMATION FOR THE SITE-SPECIFIC PROJECTS INCLUDING CONSIDERATIONS FOR LIFE SAFETY, STRUCTURAL ADEQUACY FOR ACCOMMODATING THIS PRODUCT AND THE EFFECTIVENESS OF SEALANT AROUND THE OPENINGS TO RESIST WATER INFILTRATION.

9) CONDITIONS NOT SHOWN IN THIS DRAWING ARE TO BE ANALYZED SEPARATELY, AND TO BE REVIEWED BY BUILDING OFFICIAL

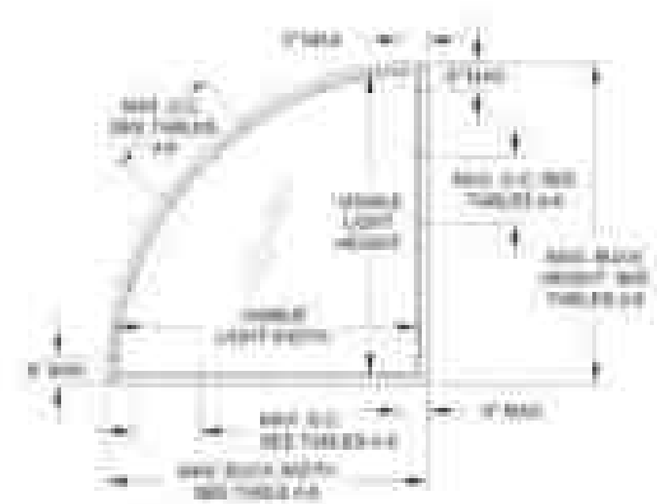
10) FRAME FLANGES OR INTEGRAL FINS MAY BE TRIMMED IN FIELD TO CREATE AN EQUAL LEG FRAME



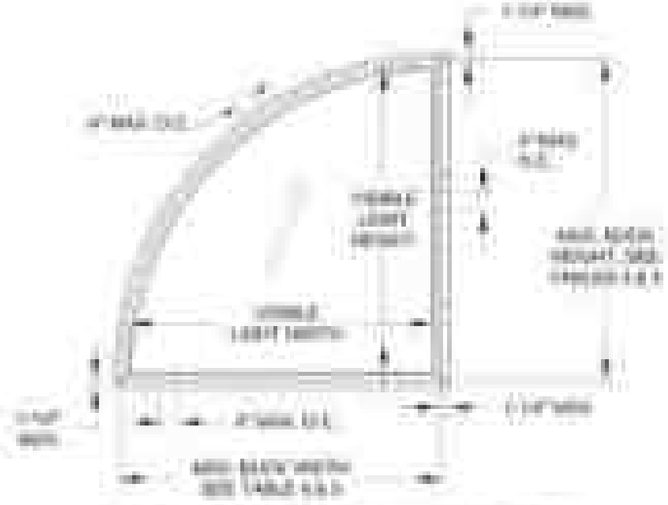
TYP. EQUAL LEG(BOX) & FLANGE FRAME (90° CORNERS)



TYP. INTERNAL FIN & J-CHANNEL FRAME (90° CORNERS) (ANCHORED THROUGH NAIL FIN)



TYP. EQUAL LEG(BOX) & FLANGE FRAME (CURVED OR ANGLED CORNERS)



TYP. INTEGRAL FIN & J-CHANNEL FRAME (CURVED OR ANGLED CORNERS) (ANCHORED THROUGH NAIL FIN)

GENERAL NOTES & ELEVATIONS	1
RACKER & FRAME OPTIONS	2
INSTALLATION, FLANGE & EQUAL LEG	3
INSTALLATION, INTEGRAL FIN & J-CHANNEL	4
GLAZING DETAILS	5
DESIGN PRESSURE TABLES	6-8
ROW & SYSTEM ROWS	9

THIS SYSTEM HAS BEEN TESTED TO MEET THE WIND FLUX AND/OR ENERGY IMPACT LOADING REQUIREMENTS OF ASTM E1886 USING GLASS TYPES 1 & 2

ALWAYS VERIFY ROUGH OPENING IN FIELD BY THE CONTRACTOR

VISIBLE LIGHT FORMULAS

WIDTH: ROUGH WIDTH - 4 3/4"
HEIGHT: ROUGH HEIGHT - 4 3/4"

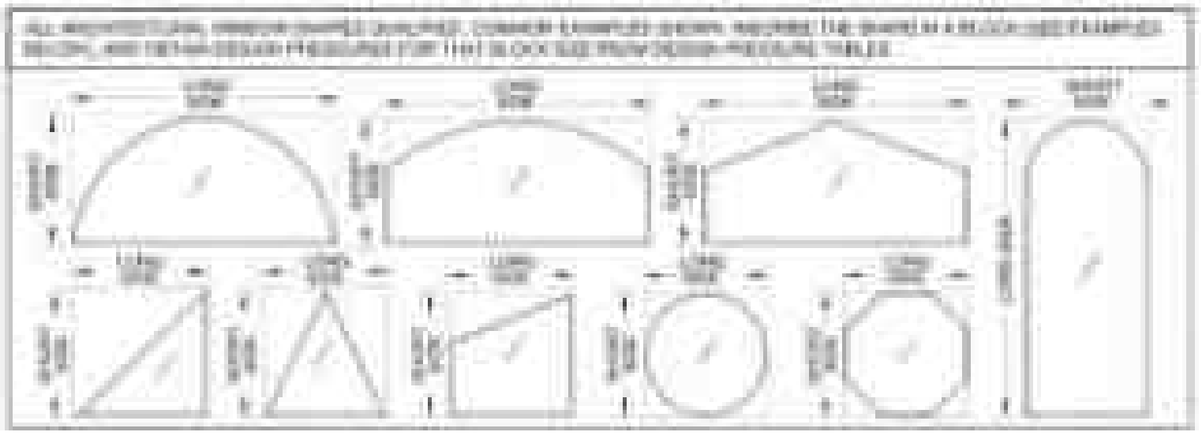
REVISIONS		
DESCRIPTION	DATE	BY
ADDED PRODUCT APPROVAL NUMBER	10/15/24	MW
REVISIONS PER FBC 8TH EDITION	10/15/24	MW

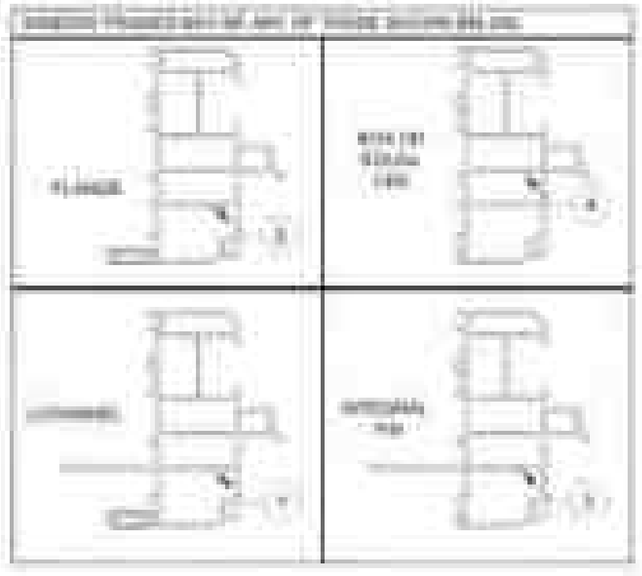
ACT

PRODUCT APPROVAL

Design	Anchor	Substrate	Min. Edge Distance	Min. Embedment
1	#11 (6x12 wood, ¾ in S.S. or #10 S.S.)	Engineered Pine (SG=0.55)	1-1/2"	1"
		Wood (SG=0.50)	1"	1-3/4"
		Steel (Stud, ASTM A653 Gr. 33)	1"	1-1/4" (18 Ga.)
		Aluminum (6063-T6)	1"	1-3/4"
	2-1/2" wood Ultra-Lok	Engineered Pine (SG=0.55)	1-1/2"	1-3/8"
		Concrete (f'c= 3 ksi)	1"	1-1/2"
		Lightweight CMU, ungrouted (f'm=1.5 ksi, per ASTM C140)	1"	1-1/2"
2	#12 SWS (6x12 wood, ¾ in S.S. or #10 S.S.)	Engineered Pine (SG=0.55)	1-1/2"	1"
		Steel (18 Ga.)	1"	1"
		Steel (Stud, ASTM A653 Gr. 33)	1"	1-1/4" (18 Ga.)
		Aluminum (6063-T6)	1"	1-3/4"
	5/8" steel Ultra-Lok	Southern Pine (SG=0.55)	1-1/2"	1-3/8"
	1/2" Wide Crossfire	Southern Pine (SG=0.55)	1"	1-1/8"
	1/2" steel Aggre-Gator	Southern Pine (SG=0.55)	2"	1-1/2"
3	5/8" steel Ultra-Lok	Concrete (f'c= 3 ksi)	1-1/2"	1-1/2"
		Lightweight CMU, ungrouted (f'm=1.5 ksi, per ASTM C140)	1"	1-1/4"
	1/2" Wide Crossfire	Concrete (f'c= 3 ksi)	2-1/2"	1-1/8"
		Lightweight CMU, ungrouted (f'm=1.5 ksi, per ASTM C140)	2-1/2"	1-1/8"
	1/2" steel Aggre-Gator	Concrete (f'c= 3 ksi)	1-1/2"	1-1/2"
		Grouted CMU (f'm=1.5 ksi, per ASTM C140)	2"	2"

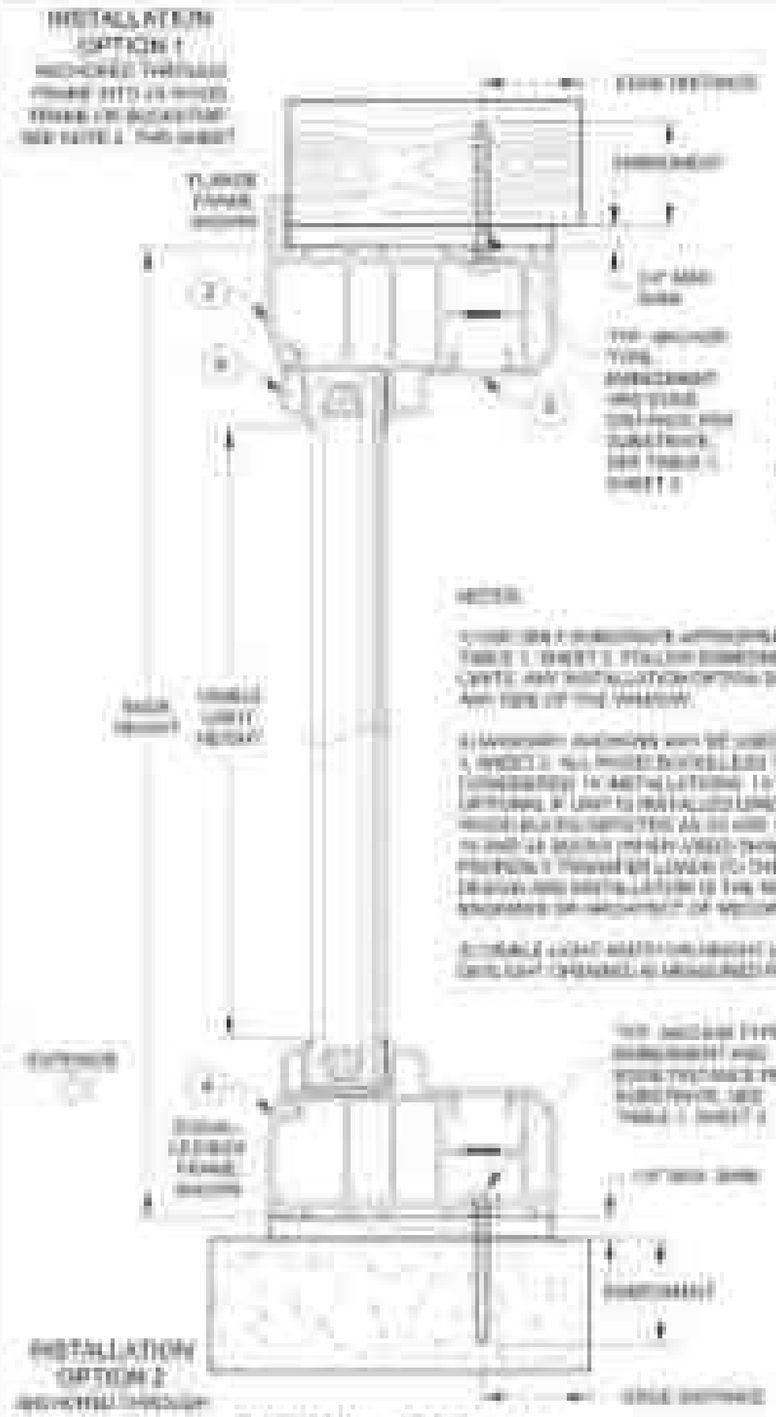
Design	Anchor	Substrate	Min. Edge Distance	Min. Embedment
E	2-1/2" x .131" Common Nail	Southern Pine (SG=0.55)	3/8"	2-1/2"
	2-1/2" Ring-shank Roofing Nail	Southern Pine (SG=0.55)	3/8"	2-1/2"
	#10 Truss-Head SMS (Steel, 18-8 S.S. or #10 S.S.)	Southern Pine (SG=0.55)	1-1/2"	1-3/8"
		Aluminum, 6063-T6	3/4"	0.100"
		Steel (Stud, Gr. 33)	3/4"	0.0451" (18 Ga.)
		Steel, A36	3/4"	0.250"
	#12 SWS (Steel, 18-8 S.S. or #10 S.S. Carbon) or Painted	Southern Pine (SG=0.55)	9/16"	1-3/8"
		Aluminum, 6063-T6	3/4"	0.100"
		Steel (Stud, Gr. 33)	3/4"	0.0451" (18 Ga.)
		Steel, A36	3/4"	0.250"



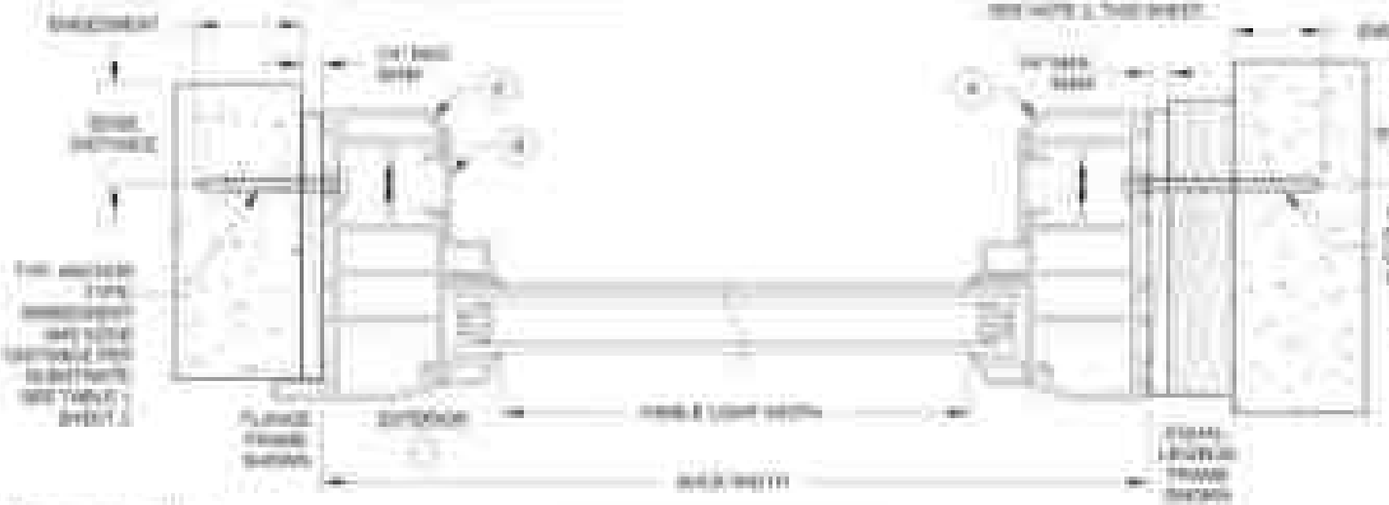


ACT

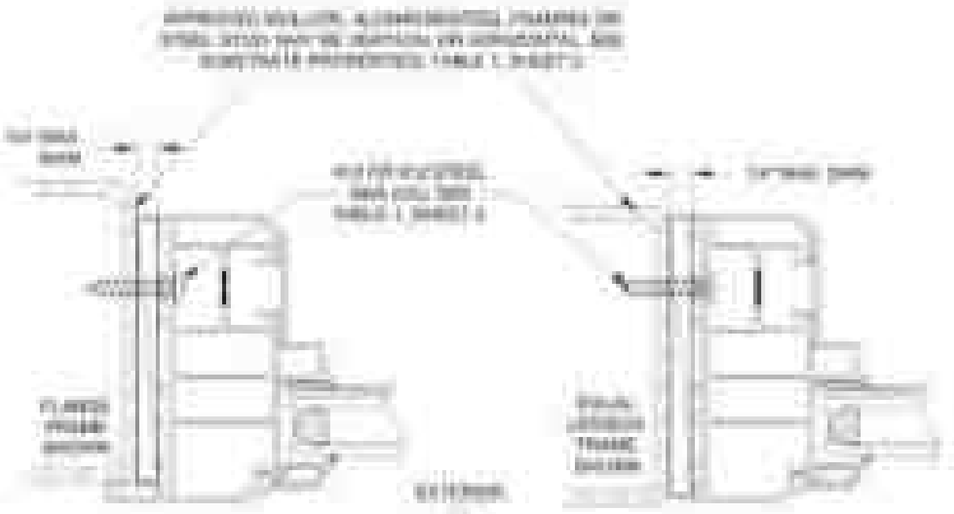
INSTALLATION DETAILS FOR FLANGE & EQUAL-LEG/BOX FRAMES



VERTICAL SECTION B-B



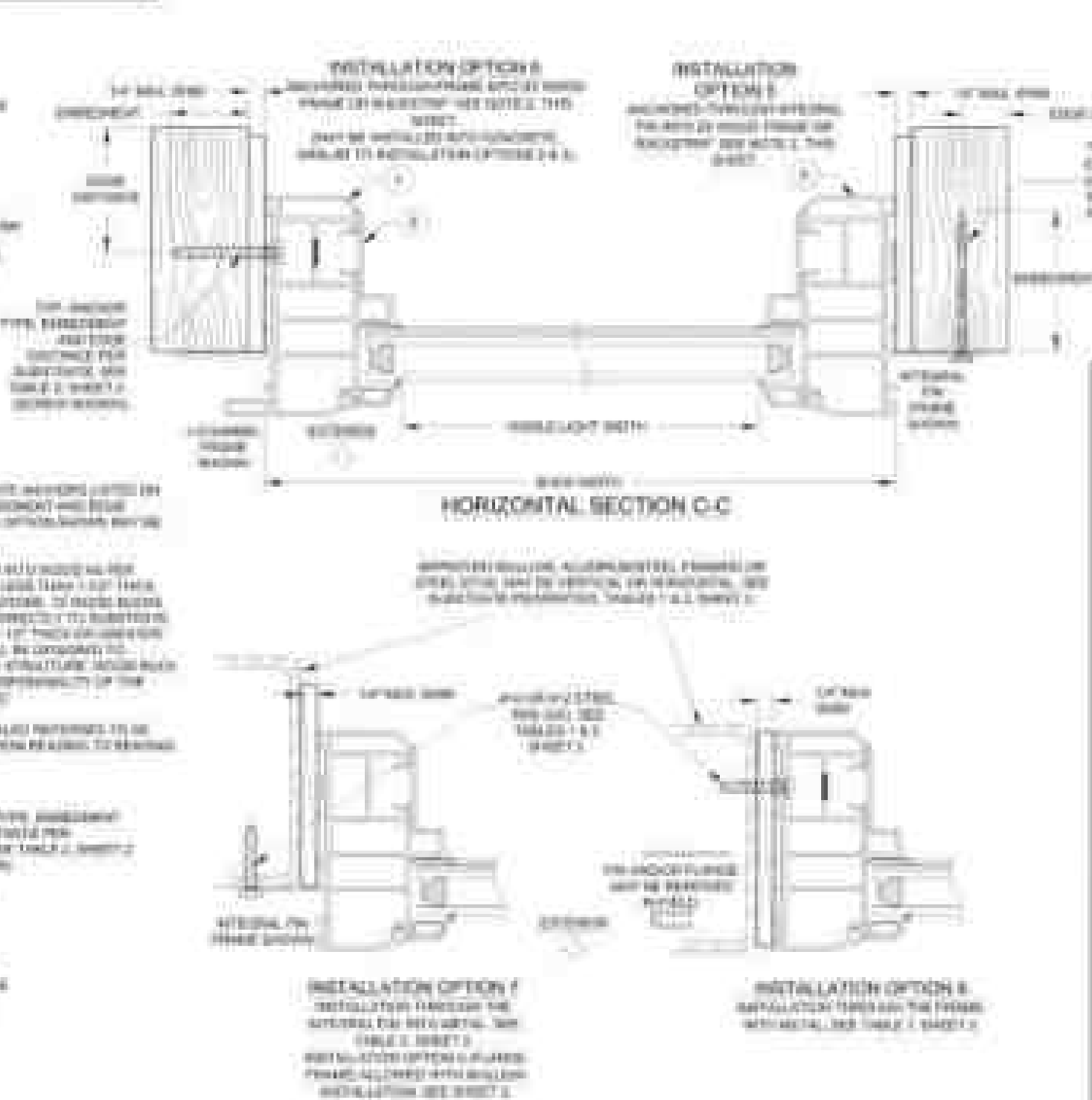
HORIZONTAL SECTION A-A



INSTALLATION DETAILS FOR INTEGRAL FIN & J-CHANNEL FRAMES



VERTICAL SECTION D-D



HORIZONTAL SECTION C-C

INSTALLATION OPTION 7

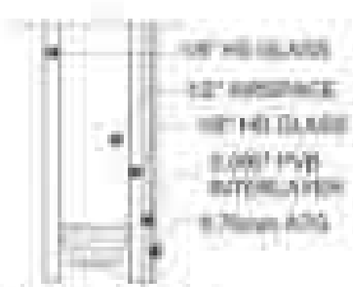
INSTALLATION OPTION 8



GLASS TYPE 1
1/8" NOM. GLASS STACK



GLASS TYPE 2
1/8" NOM. GLASS STACK



GLASS TYPE 3
1/8" NOM. GLASS STACK



GLASS TYPE 4
1/8" NOM. GLASS STACK



GLASS TYPE 5
1/8" NOM. GLASS STACK



GLASS TYPE 6
1" NOM. GLASS STACK



GLASS TYPE 7
1" NOM. GLASS STACK



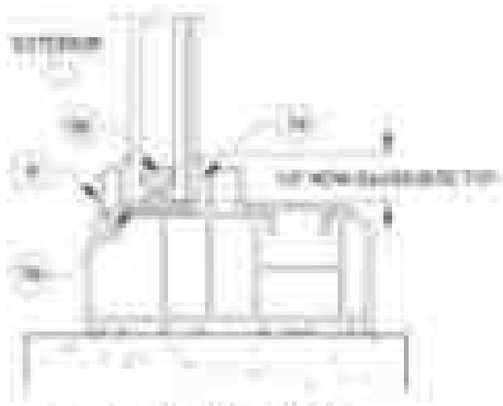
GLASS TYPE 8
1" NOM. GLASS STACK



GLASS TYPE 9
1" NOM. GLASS STACK

Glass Type	Description (Listed from Exterior to Interior)
1	1/8" Lami IG, 1/8" Ark Clr - 1/2" Airspace - 1/8" Ark - 0.060" PVB Interlayer - 6.76mm ATG
2	1/8" Lami IG, 1/8" TP Clr - 1/2" Airspace - 1/8" Ark - 0.060" PVB Interlayer - 6.76mm ATG
3	1/8" Lami IG, 1/8" HS Clr - 1/2" Airspace - 1/8" HS - 0.060" PVB Interlayer - 6.76mm ATG
4	1/8" Lami IG, 1/8" TP Clr - 1/2" Airspace - 1/8" HS - 0.060" PVB Interlayer - 6.76mm ATG
5	1/8" Lami IG, 1/8" TP Clr - 1/2" Airspace - 1/8" TP - 0.060" TG Interlayer - 6.76mm ATG
6	1" Lami IG, 3/16" Ark Clr - 1/2" Airspace - 3/16" Ark - 0.060" PVB Interlayer - 6.76mm ATG
7	1" Lami IG, 3/16" TP Clr - 1/2" Airspace - 3/16" Ark - 0.060" PVB Interlayer - 6.76mm ATG
8	1" Lami IG, 3/16" HS Clr - 1/2" Airspace - 3/16" HS - 0.060" PVB Interlayer - 6.76mm ATG
9	1" Lami IG, 3/16" TP Clr - 1/2" Airspace - 3/16" HS - 0.060" PVB Interlayer - 6.76mm ATG

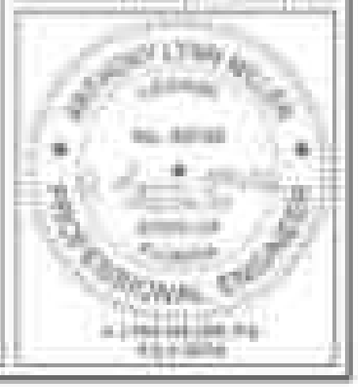
GLASS USED ADJACENT TO FACE OF THE PAINT MUST HAVE A SUPPRESSED CAP



TYP. GLAZING DETAIL

ARK = AMERILITE
HS = HEAT STRENGTHENED
TP = TEMPERED
PVB = CLEAR TROSIFOL PVB BY KURARAY AMERICA INC.
TG = CLEAR SENTRYGLAS INTERLAYER BY KURARAY AMERICA INC.

ACT



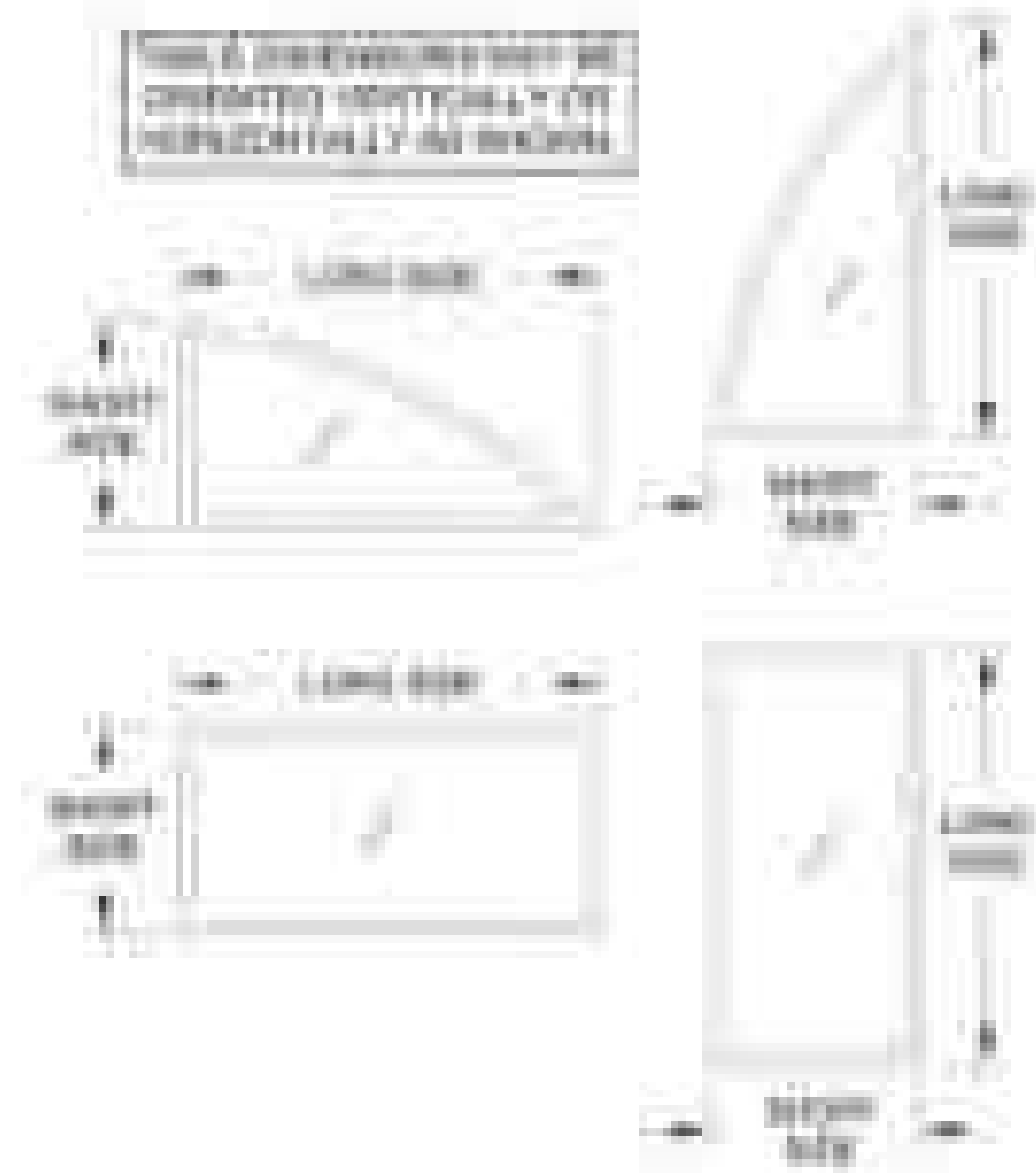
Design Pressure (+/-, psf)

[illegible]

Design Pressure (+/-, psf)

[illegible]

[redacted]



NOTES:

[illegible]

PGT

DESIGN PRESSURE TABLES

PROFESSIONAL ENGINEER

Table 6

Design Pressure (+/-, psf)

Roof Zones & C&C Zones	Effective Wind Area (sq. ft.)	Long Side (ft)														
		10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
Short Side	10															
	15															
	20															
	25															
	30															
	35															
	40															
	45															
	50															
	55															
	60															
	65															
	70															
	75															
	80															

Note 1: [illegible]

Note 2: [illegible]



Table 7

Design Pressure (+/-, psf)

Roof Zones & C&C Zones	Effective Wind Area (sq. ft.)	Long Side (ft)														
		10	15	20	25	30	35	40	45	50	55	60	65	70	75	80
Short Side	10															
	15															
	20															
	25															
	30															
	35															
	40															
	45															
	50															
	55															
	60															
	65															
	70															
	75															
	80															

Note 1: [illegible]

Note 2: [illegible]

NOTES:

1. [illegible]
2. [illegible]
3. [illegible]

ICC

TABLE 1

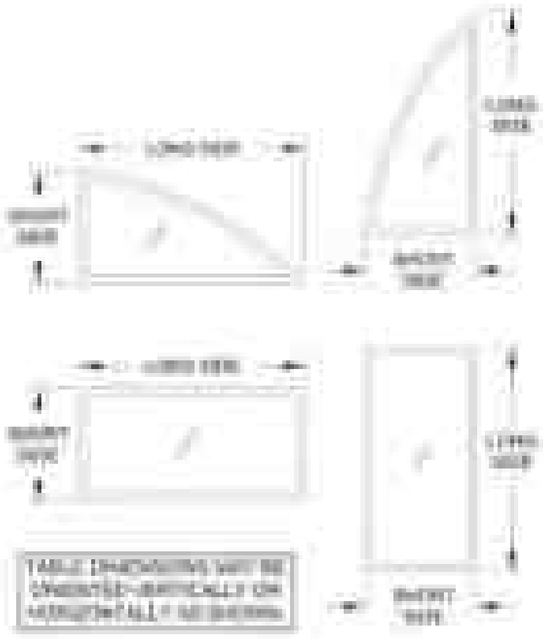
Design Pressure (+Vp, psf)																	
Mean Roof Height (ft)	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	Zone 12	Zone 13	Zone 14	Zone 15	Zone 16	Zone 17
30																	
25																	
20																	
15																	
10																	
5																	
0																	

Zone 1 and 2 for Gable Roof with Slope ≤ 7° and Hip Roof with Slope ≤ 27°

Zone 1 and 2 for Monoslope Roof with Slope ≤ 3° and Gable Roof with Slope ≤ 7°

3°

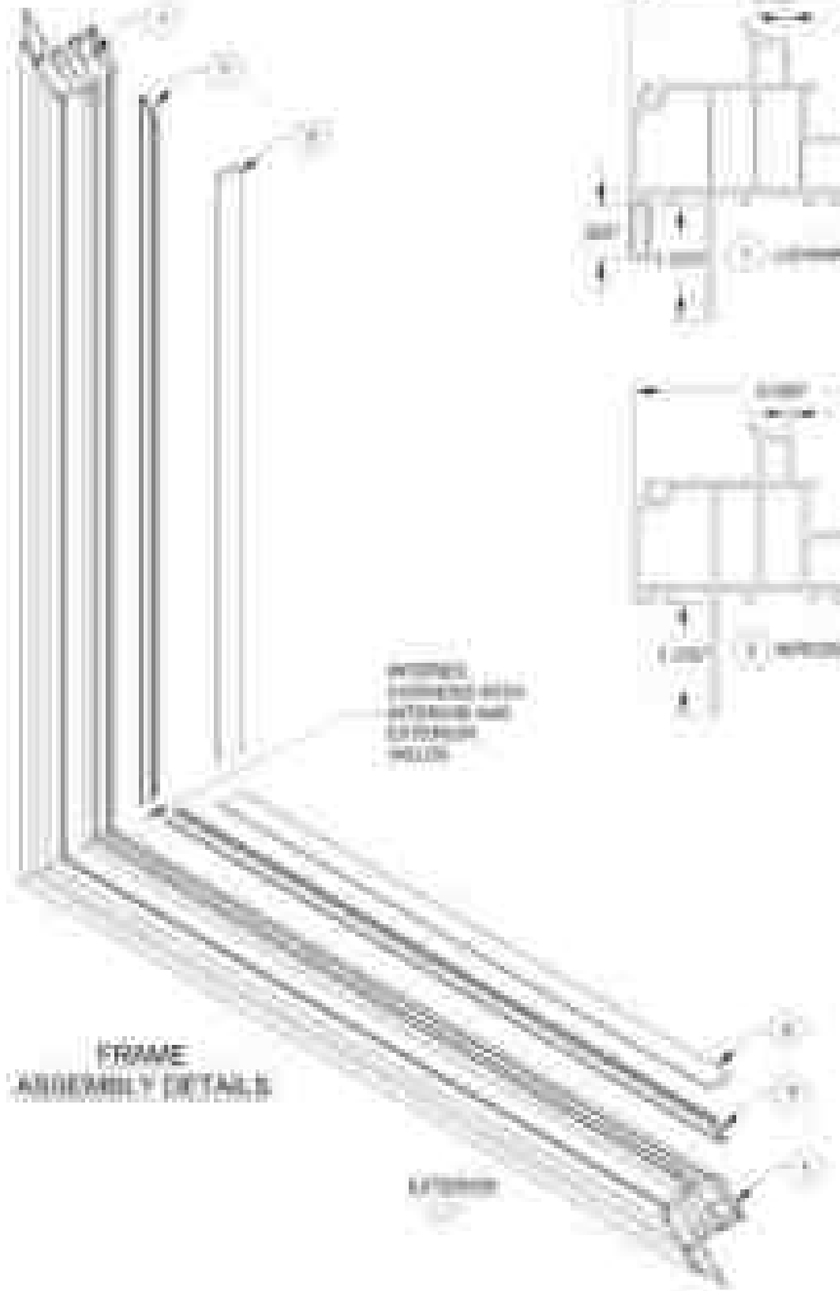
N/A



NOTES:

1. SEE DETAIL ON SHEET A-1.

2. FOR ARCHITECTURAL WINDOWS SEE SHEET A-1.



FRAME
ASSEMBLY DETAILS









#	Part #	Description	Material
1	[illegible]	[illegible]	PVC
2	[illegible]	[illegible]	PVC
3	[illegible]	[illegible]	PVC
4	[illegible]	[illegible]	PVC
5	[illegible]	[illegible]	PVC
6	[illegible]	[illegible]	PVC
7A		[illegible]	Glazing
7B	[illegible]	[illegible]	PP/TPE
8C	[illegible]	[illegible]	[illegible]

NOTES:
1. [illegible]
2. [illegible]

ACT