



SPECIALTY ENGINEERING AND DESIGN, LLC.

DADE - BROWARD - PALM BEACH

Calculations reviewed by

D. Adam LeBlanc PE

State of Florida:

Registered Professional Engineer: #0077012

Certificate of Authorization: #009217

EXTERIOR BALCONY KNEEWALL REPAIR, RAFTER BLOCKING, AND ALUMINUM MULLIONS FOR IMPACT WINDOW RETROFIT

13505 SW 63 Ct

Pinecrest, FL 33156

Client: Prestige Windows and Doors

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VERTICAL 2X4X1/4" MULLION ANALYSIS

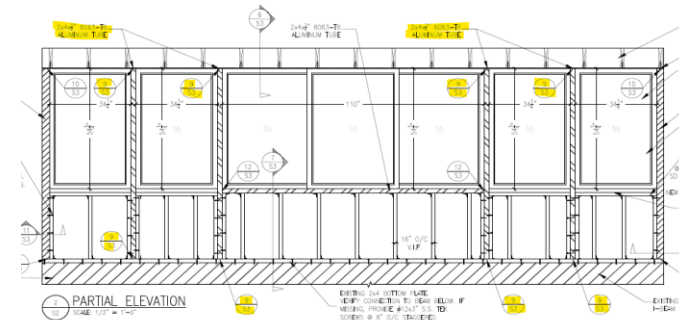
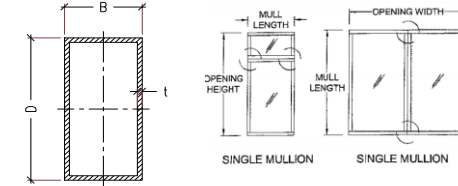
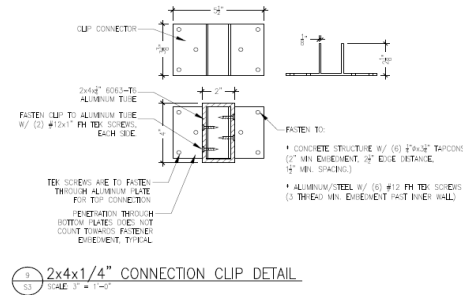
Model Ali Residence
Client Prestige Windows & Doors
Location Pinecrest, FL
Date 05/13/25
Calculated by S.N



Specialty Engineering and Design, LLC
 1599 SW 30 Avenue, Suite #1
 Boynton Beach, FL 334326

Section Properties of Tube

B	2.00 in		
D	4.00 in		
t_B	0.250 in		
t_D	0.250 in		
Area	2.8 in^2		
rho_al	0.0975 lb/in^3	density of aluminum	
w_al	3.22 plf	self weight	
Ixx_1	10.67 in^4	Sxx_1	5.33 in^4
Iyy_1	2.67 in^4	Syy_1	2.67 in^4
Ixx_2	5.36 in^4	Sxx_2	3.06 in^4
Iyy_2	0.98 in^4	Syy_2	1.31 in^4



Ixx	5.307 in^4	Sxx	2.654 in^3
Iyy	1.682 in^4	Syy	1.682 in^3

Al. Tube Calculation

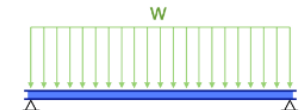
Aluminum 6063-T6

	Youngs Modulus	E 9910.0 ksi	
	Density of Aluminum	rho_al 0.0975 lb/in^3	
Total Span	86.75 in.	w_al 3.22 plf	self weight
		Ixx 5.307 in^4	Sxx 2.654 in^3
Max M	1814.8 ft-lbf	f_n (unwelded) 27600.0 psi	allowable tension, extreme net section
		Max Moment Allowable 6103.4 lb/ft	allowable yield strength > Max Sigma
σ Max	8206.8 psi		allowable tension > Max Moment

$$M = \sigma * S_{xx}$$

OK

OK



Deflection

Δ allowable 0.50 in Deflection = Span/175 FBC 2020 1709.8.2

$$\Delta = \frac{5wL^4}{384EI} = 0.3246 \text{ in}$$

allowable deflection > max deflection

OK

End Reactions

V=W*L/2	1004.17 lb		
#12 Tek Screws	308.00 lb	# used 6	Connection Strength 1848 lb
			Connection Strength > V

OK

Into Aluminum Plate Above and Steel Beam Below

Model Ali Residence
Client Prestige Windows & Doors
Location Pinecrest, FL
Date 05/13/25
Calculated by S.N



Specialty Engineering and Design, LLC
 1599 SW 30 Avenue, Suite #1

ASCE 7-22 Wind Loads

Mullion Zone **5** Is this Vertical? **Yes**
 W (if vertical) **-277.81 plf** W used **-277.81 plf**
 W (if horizontal) **-217.85 plf**

Loads specified are for Allowable Stress - $0.6 \cdot W(\text{ult})$ 2.4.1 #7 ($0.6D + 0.6W$)

For theta < 10 degrees the GCp values have been reduced by 10%

	width (in)	height (in)	Effective Area (ft^2)	Area used in calc.	GCp (positive, 4&5)	GCp (negative, 4)	GCp (negative, 5)	Zone 4 Unbreached		Zone 5 Unbreached	
								P positive	P negative	P positive	P negative
Openings Held											
# 34C	110.0	54.8	41.8	41.8	0.80	-0.89	-1.06	35.4	-38.7	35.4	-44.8
# 34B	34.3	54.8	13.0	13.0	0.88	-0.97	-1.22	38.3	-41.6	38.3	-50.7

ASCE 7-22, method 2, analytical procedure.

V (mph) **175** 1620 FBC for HVHZ, or Fig. 1609.3(1)
 I 1.0
 Risk Category II Table 1.5-1, page 5
 Exposure **C** Section 26.7
 Length of Building (ft) **57 ft**
 Width of Building (ft) **46 ft**
 Mean Roof height (ft) **20 ft**
 Kz **0.90** Table 26.10-1, page 277
 Kd **0.85** Table 26.6-1, page 274
 Kzt **1** Figure 26.8-1, page 276
 pitch of roof **0/12** 0.0 degrees

theta 0.0 degrees
 0.9 Reduction factor for slope of roof
 qh (psf) 70.77 Velocity Wind Pressure @ mean roof height (Ultimate)
 GCpi 0.18 -0.18 0.55 -0.55
 a1 4.60 10% of width 1
 a2 5.70 10% of width 2
 a3 8 0.4*mean roof height
 a **4.60** End Zone distance

$$P := q_h \cdot (GC_p - GC_{pi})$$



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HORIZONTAL 2X4X1/4" MULLION ANALYSIS

Model Ali Residence
Client Prestige Windows & Doors
Location Pinecrest, FL
Date 05/13/25
Calculated by S.N



Specialty Engineering and Design, LLC
 1599 SW 30 Avenue, Suite #1
 Boynton Beach, FL 334326

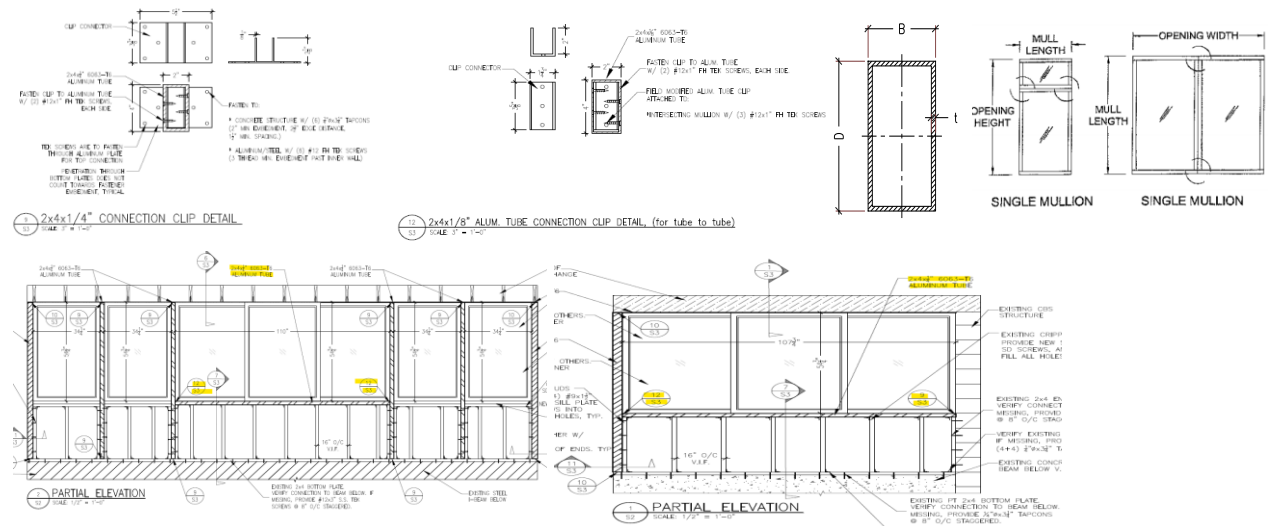
Section Properties of Tube

B	2.00 in			
D	4.00 in			
t _B	0.250 in			
t _D	0.250 in			
Area	2.8 in ²			
rho _{al}	0.0975 lb/in ³	density of aluminum		
w _{al}	3.22 plf	self weight		
I _{xx_1}	10.67 in ⁴	S _{xx_1}	5.33 in ⁴	
I _{yy_1}	2.67 in ⁴	S _{yy_1}	2.67 in ⁴	
I _{xx_2}	5.36 in ⁴	S _{xx_2}	3.06 in ⁴	
I _{yy_2}	0.98 in ⁴	S _{yy_2}	1.31 in ⁴	
I _{xx}	5.307 in ⁴	S _{xx}	2.654 in ⁴	
I _{yy}	1.682 in ⁴	S _{yy}	1.682 in ⁴	

Al. Tube Calculation

Aluminum 6063-T6

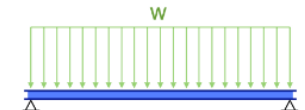
	Youngs Modulus	E	9910.0 ksi	
	Density of Aluminum	rho _{al}	0.0975 lb/in ³	
Total Span	110.00 in.	w _{al}	3.22 plf	self weight
		I _{xx}	5.307 in ⁴	S _{xx} 2.654 in ⁴
Max M	1721.2 ft-lbf	f _n (unwelded)	27600.0 psi	allowable tension, extreme net section
		Max Moment Allowable	6103.4 lb/ft	allowable yield strength > Max Sigma
σ Max	7783.6 psi			allowable tension > Max Moment



$$M = \sigma * S_{xx}$$

OK

OK



Deflection

Δ allowable 0.63 in Deflection = Span/175 FBC 2020 1709.8.2

$$\Delta = \frac{5wL^4}{384EI} = 0.4950 \text{ in}$$

allowable deflection > max deflection

OK

End Reactions

V=W*L/2	751.09 lb			
#12 Tek Screws	308.00 lb	# used	3	Connection Strength 924 lb
1/4" Tapcons	180.00 lb	# used	6	Connection Strength 1080 lb
				Connection Strength > V
				Connection Strength > V

OK

OK

Into 3x3 Aluminum Tubes

Into Aluminum Plate

Model Ali Residence
Client Prestige Windows & Doors
Location Pinecrest, FL
Date 05/13/25
Calculated by S.N



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 1599 SW 30 Avenue, Suite #1

ASCE 7-22 Wind Loads

Mullion Zone **5** Is this Vertical? **No**
 W (if vertical) **-424.03 plf** W used **-163.87 plf**
 W (if horizontal) **-163.87 plf**

Loads specified are for Allowable Stress - $0.6 \cdot W(\text{ult})$ 2.4.1 #7 ($0.6D + 0.6W$)

For theta < 10 degrees the GCp values have been reduced by 10%

	width (in)	height (in)	Effective Area (ft^2)	Area used in calc.	GCp (positive, 4&5)	GCp (negative, 4)	GCp (negative, 5)	Zone 4 Unbreached		Zone 5 Unbreached	
								P positive	P negative	P positive	P negative
Openings Held											
# 34C	110.0	54.8	41.8	41.8	0.80	-0.89	-1.06	35.4	-38.7	35.4	-44.8
Kneewall	110.0	31.0	23.7	23.7	0.84	-0.93	-1.14	36.8	-40.1	36.8	-47.7

ASCE 7-22, method 2, analytical procedure.

V (mph) **175** 1620 FBC for HVHZ, or Fig. 1609.3(1)
 I 1.0
 Risk Category II Table 1.5-1, page 5
 Exposure **C** Section 26.7
 Length of Building (ft) **57 ft**
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 Kz **0.90** Table 26.10-1, page 277
 Kd **0.85** Table 26.6-1, page 274
 Kzt **1** Figure 26.8-1, page 276
 pitch of roof **0/12** 0.0 degrees

theta 0.0 degrees
 0.9 Reduction factor for slope of roof
 qh (psf) 70.77 Velocity Wind Pressure @ mean roof height (Ultimate)
 GCpi 0.18 -0.18 0.55 -0.55
 a1 4.60 10% of width 1
 a2 5.70 10% of width 2
 a3 8 0.4*mean roof height
 a **4.60** End Zone distance

$$P := q_h \cdot (GC_p - GC_{pi})$$



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VERTICAL 1X4X1/8" MULLION ANALYSIS

Section Properties of Tube

1x4x4 6061-T6 ALUMINUM TUBE

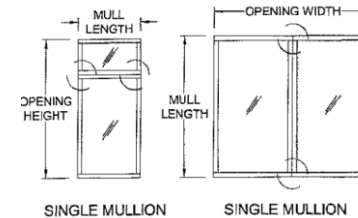
FASTEN CLIP TO TUBE
W/ (3) #10x4" FH TBL SCREWS.

FASTEN TO:

- * WOOD STRUCTURE W/ (3) #14x3" S.S. WOOD SCREWS
- (1/2" MIN. EMBEDMENT, 1" EDGE DISTANCE)
- * ALUMINUM W/ (3) #12x1" FH TBL SCREWS
- (3 THREAD MIN. EMBEDMENT PAST INNER WALL)

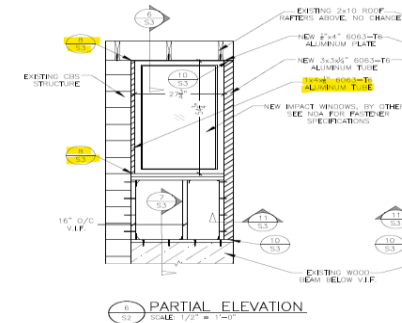
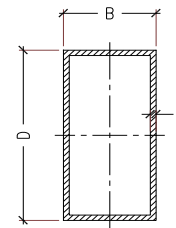
TBL SCREWS ARE TO FASTEN THROUGH ALUMINUM PLATE FOR TOP CONNECTION

CLIP CONNECT



rho_al	0.0975 lb/in^3	density of aluminum	
w_al	1.39 plf	self weight	
lxx_1	5.33 in^4	Sxx_1	2.67 in^4
lyy_1	0.33 in^4	Syy_1	0.67 in^4
lxx_2	3.30 in^4	Sxx_2	1.76 in^4
lyy_2	0.13 in^4	Syy_2	0.35 in^4

8 1x4x1/8" CONNECTION CLIP DETAIL SINGLE FLANGE
S3 SC-LE 3" = 1'-0"

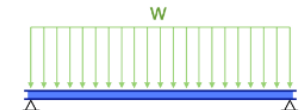


Aluminum 6063-T6

	Youngs Modulus	E	9910.0 ksi
	Density of Aluminum	ρ_{al}	0.0975 lb/in ³
Total Span	54.75 in.	w_{al}	1.39 plf
		I_{xx}	2.037 in ⁴
Max M	155.6 ft-lbf	f_n (unwelded)	27600.0 psi
		Max Moment Allowable	2343.1 lb/ft

self weight
 S_{xx} 1.019 in⁴
 allowable tension, extreme net section
 allowable yield strength > Max Sigma
 allowable tension > Max Moment

$$M = \sigma^* S_{xx}$$



Deflection

Δ allowable	0.31 in	Deflection = Span/175	FBC 2020 1709.8.2
--------------------	---------	-----------------------	-------------------

$$\Delta = \frac{5wL^4}{384EI} = 0.0289 \text{ in} \quad \text{allowable deflection} > \text{max deflection}$$

End Reactions

V=W*L/2		136.38 lb					
#12 Tek Screws	308.00 lb	# used	3	Connection Strength	924 lb	Connection Strength > V	OK
#14 Wood Screws	178.00 lb	# used	3	Connection Strength	534 lb	Connection Strength > V	OK

722 1X4MullCalc Ali 13505 SW 63 Ct, Pinecrest.xls

Model Ali Residence
Client Prestige Windows & Doors
Location Pinecrest, FL
Date 05/13/25
Calculated by S.N



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 1599 SW 30 Avenue, Suite #1

ASCE 7-22 Wind Loads

Mullion Zone **5**
 W (if vertical) **-59.78 plf**
 W (if horizontal) **-117.95 plf**

Is this Vertical? **Yes**
 W used **-59.78 plf**

Loads specified are for Allowable Stress - $0.6 \cdot W(\text{ult})$ 2.4.1 #7 ($0.6D + 0.6W$)

For theta < 10 degrees the GCp values have been reduced by 10%								Zone 4 Unbreached		Zone 5 Unbreached	
	width (in)	height (in)	Effective Area (ft^2)	Area used in calc.	GCp (positive, 4&5)	GCp (negative, 4)	GCp (negative, 5)	P positive	P negative	P positive	P negative
Openings Held											
# 40	27.8	54.8	10.6	10.6	0.90	-0.99	-1.25	38.8	-42.1	38.8	-51.7

ASCE 7-22, method 2, analytical procedure.

V (mph) **175** 1620 FBC for HVHZ, or Fig. 1609.3(1)
 I 1.0
 Risk Category II Table 1.5-1, page 5
 Exposure **C** Section 26.7
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 Kz **0.90** Table 26.10-1, page 277
 Kd **0.85** Table 26.6-1, page 274
 Kzt **1** Figure 26.8-1, page 276
 pitch of roof **0/12** 0.0 degrees

theta 0.0 degrees
 0.9 Reduction factor for slope of roof
 qh (psf) 70.77 Velocity Wind Pressure @ mean roof height (Ultimate)
 GCpi 0.18 -0.18 0.55 -0.55
 a1 4.60 10% of width 1
 a2 5.70 10% of width 2
 a3 8 0.4*mean roof height
 a **4.60** End Zone distance

$$P := q_h \cdot (GCp - GCp_i)$$



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DADE - BROWARD - PALM BEACH

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VERTICAL 3X3X1/4" MULLION ANALYSIS

Model Ali Residence
 Client Prestige Windows & Doors
 Location Pinecrest, FL
 Date 05/13/25
 Calculated by S.N

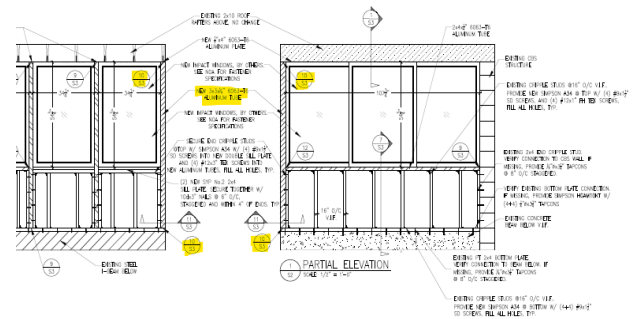
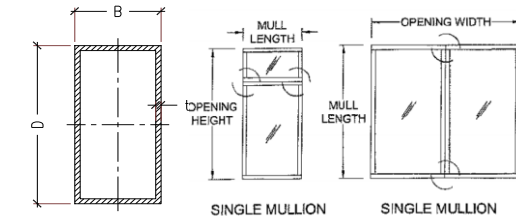
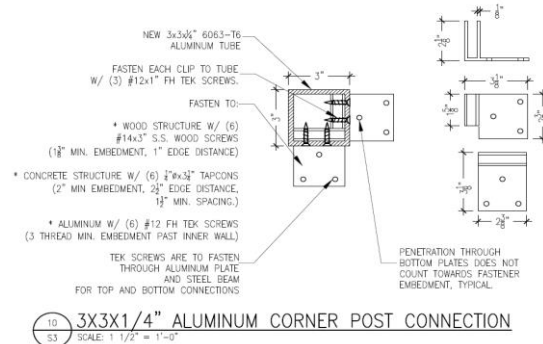


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 1599 SW 30 Avenue, Suite #1
 Boynton Beach, FL 334326

Section Properties of Tube

B	3.00 in
D	3.00 in
t_B	0.250 in
t_D	0.250 in
Area	2.8 in^2

rho_al	0.0975 lb/in^3	density of aluminum	
w_al	3.22 plf	self weight	
lxx_1	6.75 in^4	Sxx_1	4.50 in^4
lyy_1	6.75 in^4	Syy_1	4.50 in^4
lxx_2	3.26 in^4	Sxx_2	2.60 in^4
lyy_2	3.26 in^4	Syy_2	2.60 in^4



lxx	3.495 in^4	Sxx	2.330 in^3
lyy	3.495 in^4	Syy	2.330 in^3

Al. Tube Calculation

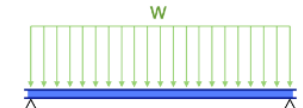
Aluminum

6063-T6

	Youngs Modulus	E	9910.0 ksi
	Density of Aluminum	rho_al	0.0975 lb/in^3
Total Span	86.75 in.	w_al	3.22 plf
		I _{xx}	3.495 in^4
Max M	1790.4 ft-lbf	f _n (unwelded)	27600.0 psi
		S _{xx}	2.330 in^3
		allowable tension, extreme net section	
	Max Moment Allowable	5358.7 lb/ft	allowable yield strength > Max Sigma
σ Max	9221.4 psi	allowable tension > Max Moment	

$$M = \sigma * S_{xx}$$

OK
 OK



Deflection

Δ allowable 0.50 in Deflection = Span/175 FBC 2020 1709.8.2

$$\Delta = \frac{5wL^4}{384EI} = 0.4863 \text{ in}$$

allowable deflection > max deflection

OK

End Reactions

V=W*L/2	990.64 lb		
#12 Tek Screws	308.00 lb	# used	6
#14 Wood Screws	178.00 lb	# used	6
1/4" Tapcons	180.00 lb	# used	6
		Connection Strength	1848 lb
		Connection Strength	1068 lb
		Connection Strength	1080 lb

Connection Strength > V	OK	Into Aluminum Plate Above
Connection Strength > V	OK	Into Wood Beam Below
Connection Strength > V	OK	Into Concrete Beam Below

Specialty Engineering Consultants, Inc.
 1599 SW 30th AVE, #20
 Boynton Beach, FL 33426
 D. Adam LeBlanc, PE # 77012
 FL CA#0009217

Model Ali Residence
Client Prestige Windows & Doors
Location Pinecrest, FL
Date 05/13/25
Calculated by S.N



Specialty Engineering and Design, LLC
 1599 SW 30 Avenue, Suite #1

ASCE 7-22 Wind Loads

Mullion Zone **5**
 W (if vertical) **-274.07 plf**
 W (if horizontal) **-218.08 plf**

Is this Vertical? **Yes**
 W used **-274.07 plf**

Loads specified are for Allowable Stress - $0.6 \cdot W(\text{ult})$ 2.4.1 #7 ($0.6D + 0.6W$)

For theta < 10 degrees the GCp values have been reduced by 10%								Zone 4 Unbreached		Zone 5 Unbreached	
	width (in)	height (in)	Effective Area (ft^2)	Area used in calc.	GCp (positive, 4&5)	GCp (negative, 4)	GCp (negative, 5)	P positive	P negative	P positive	P negative
Openings Held											
# 33	107.8	54.8	41.0	41.0	0.80	-0.89	-1.07	35.5	-38.7	35.5	-44.9
# 34A	34.3	54.8	13.0	13.0	0.88	-0.97	-1.22	38.3	-41.6	38.3	-50.7

ASCE 7-22, method 2, analytical procedure.

V (mph) **175** 1620 FBC for HVHZ, or Fig. 1609.3(1)
 I 1.0
 Risk Category II Table 1.5-1, page 5
 Exposure **C** Section 26.7
 Length of Building (ft) **57 ft**
 Width of Building (ft) **46 ft**
 Mean Roof height (ft) **20 ft**
 Kz **0.90** Table 26.10-1, page 277
 Kd **0.85** Table 26.6-1, page 274
 Kzt **1** Figure 26.8-1, page 276
 pitch of roof **0/12** 0.0 degrees

theta 0.0 degrees
 0.9 Reduction factor for slope of roof
 qh (psf) 70.77 Velocity Wind Pressure @ mean roof height (Ultimate)
 GCpi 0.18 -0.18 0.55 -0.55
 a1 4.60 10% of width 1
 a2 5.70 10% of width 2
 a3 8 0.4*mean roof height
 a **4.60** End Zone distance

$$P := q_h \cdot (GC_p - GC_{pi})$$



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DADE - BROWARD - PALM BEACH

Calculations reviewed by

D. Adam LeBlanc PE

State of Florida:

Registered Professional Engineer: #0077012

Certificate of Authorization: #009217

DOUBLE 2X4 SILL PLATE ANALYSIS

MODEL: Ali-13505 SW 63 CT, Precrest
 CLIENT: Prestige
 LOCATION: Precrest, FL
 DATE: 5/13/25
 CALCULATED BY: S.N.

SPECIALTY ENGINEERING AND DESIGN, LLC
 1599 SW 30th AVE., SUITE #1
 BOYNTON BEACH, FL 33426

561 - 752 - 5440 OFFICE
 561 - 752 - 5542 FAX



Check (2) 2x4 sill plate : Span = 34.75" = 2.9 ft
 Opening: 34.75" * 54.75"
 Kneewall: 34.75" * 31"
 $W_p = 50.7 \text{ pcf}$

$$W = \left(50.7 \text{ pcf} * \frac{54.75"}{2 * 12"} \right) + \left(50.7 \text{ pcf} * \frac{31"}{2 * 12"} \right) = 181.15 \text{ pcf}$$

Design Values : $F_b = 1050 \text{ psi}$
 For 2x4 Syp No 2. $E = 1.4 \times 10^6 \text{ psi}$

$$I_x = \frac{bd^3}{12} = 10.72 \text{ in}^4$$

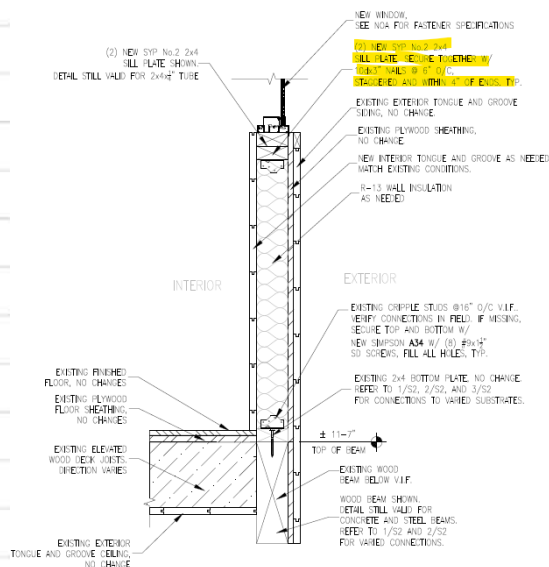
$$S_x = \frac{bd^2}{6} = 6.13 \text{ in}^3$$

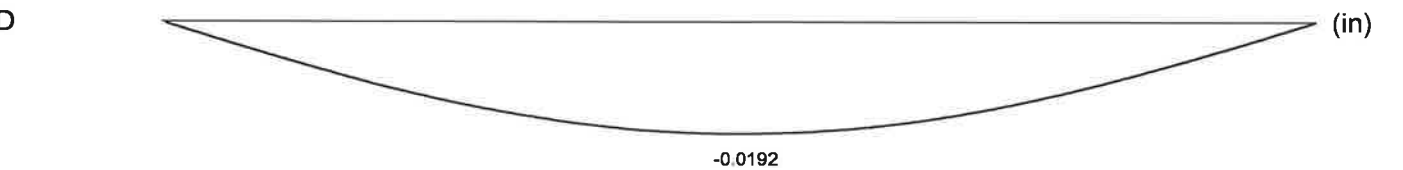
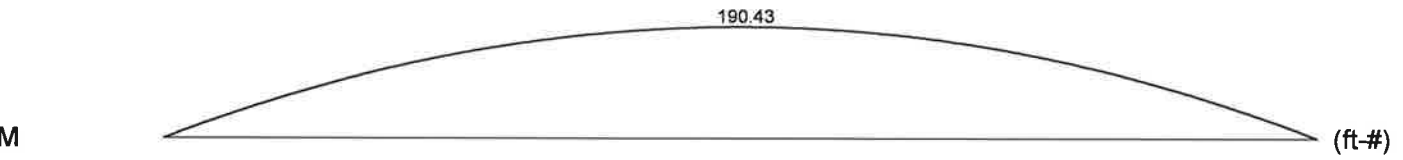
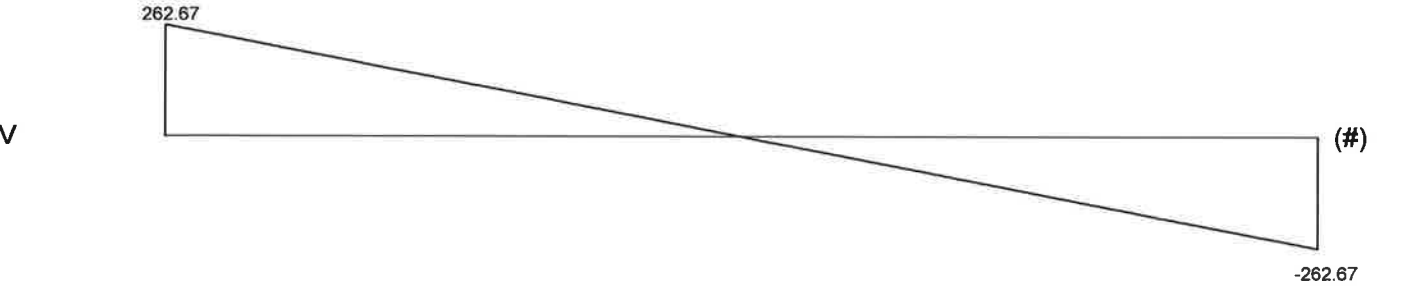
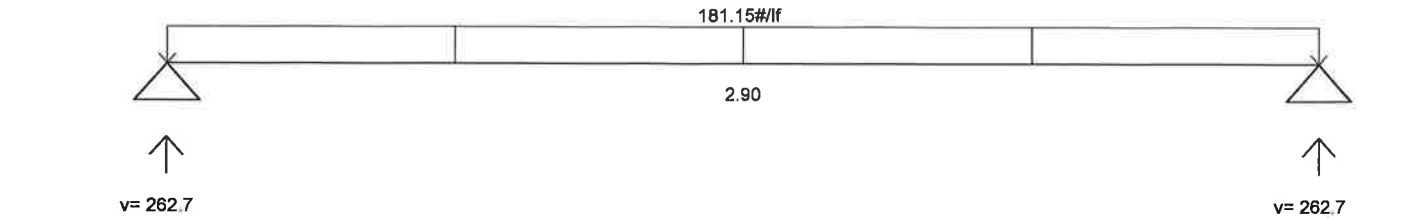
$$M_n = \frac{F_b S_x}{12 \text{ in}} = \frac{(1050 \text{ psi})(6.13 \text{ in}^3)}{12 \text{ in}} = 535.9 \text{ ft-lbs}$$

Beam Pro Results (see provided)

$$M = 190.43 \text{ ft-lbs (OK)}$$

$$V = 262.7 \text{ lbs} \rightarrow \text{Simpson A34 yields } 640 \text{ lbs (OK)}$$





INPUT FILE NAME	====>	Y:\Prestige Windows\Ali_13505 SW 63 Ct, Pinecrest\DOUBLE SILL PLATE.cb
DATE	====>	5/13/2025 5:00:18 PM
COMMENTS	====>	Double 2x4 Sill plate
	====>	
	====>	
	====>	



SPECIALTY ENGINEERING AND DESIGN, LLC.

DADE - BROWARD - PALM BEACH

Calculations reviewed by

D. Adam LeBlanc PE

State of Florida:

Registered Professional Engineer: #0077012

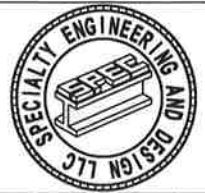
Certificate of Authorization: #009217

2X4 CRIPLLE STUD ANALYSIS

MODEL AI-13505 SW 63LT, Pmecrest
 CLIENT Prestige
 LOCATION Pmecrest, FL
 DATE 5/13/25
 CALCULATED BY S.N.

SPECIALTY ENGINEERING AND DESIGN, LLC
 1599 SW 30th AVE., SUITE #1
 BOYNTON BEACH, FL 33426

561 - 752 - 5440 OFFICE
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Check Cripple Studs (2x4) @ 16" OC Span = 2.5 ft

$$W_p = 50.7 \text{ psf} \quad F_B = 1050 \text{ psi} \quad E = 1.9 \times 10^6 \text{ psi}$$

$$W = (50.7 \text{ psf}) \times \frac{16 \text{ in}}{12 \text{ in}} = 67.6 \text{ plf}$$

$$I_x = 10.72 \text{ in}^4$$

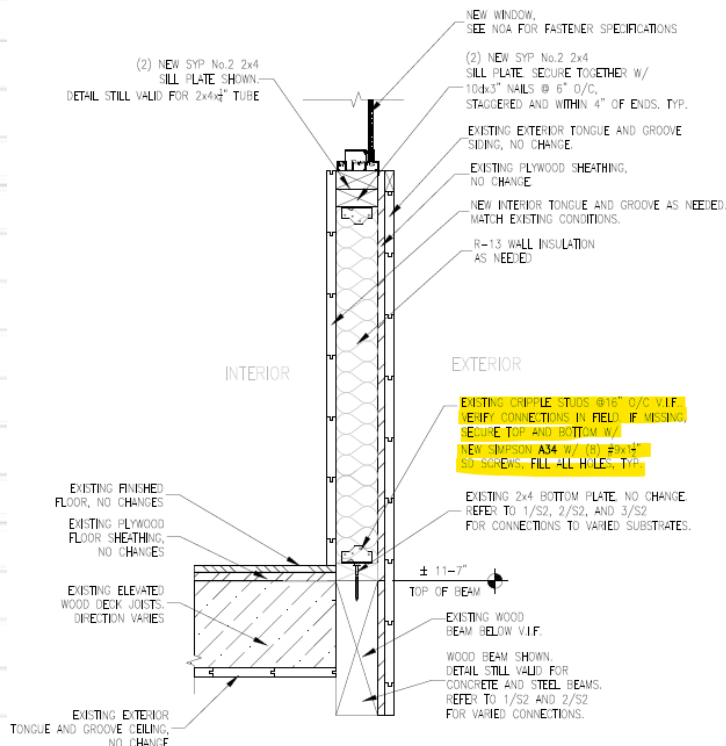
$$S_x = 6.13 \text{ in}^3$$

$$M_A = F_B S_x = \frac{(1050 \text{ psi})(6.13 \text{ in}^3)}{12 \text{ in}} = 535.4 \text{ ft-lbs}$$

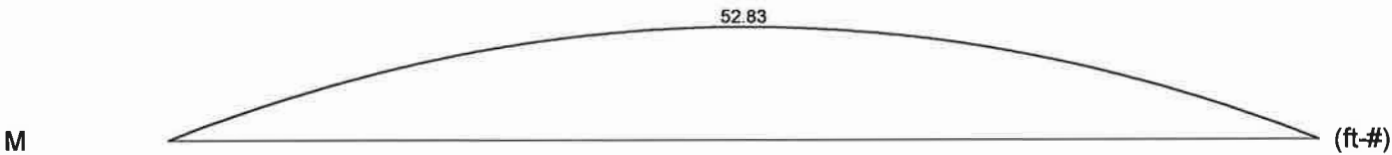
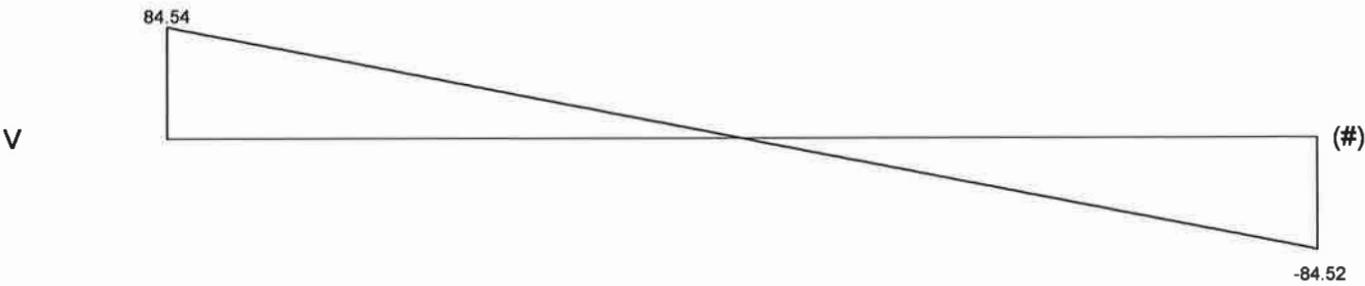
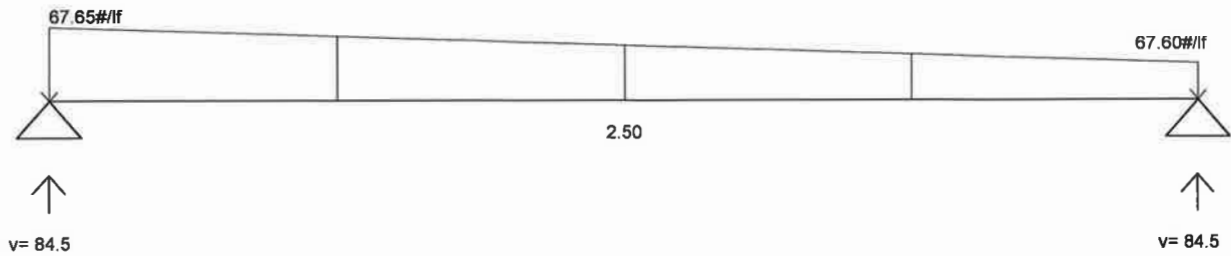
Beam Tr 7 results (see provided)

$$M = 52.83 \text{ ft-lbs} \quad (OK)$$

$$V = 84.54 \text{ lbs} \rightarrow \text{Simpson A34 yields } 640 \text{ lbs} \quad (OK)$$



7 SECTION
 S3 SCALE: 1-1/2" = 1'-0"



INPUT FILE NAME	====>	C:\Users\User\AppData\Roaming\BeamPro\User_untyped.cb
DATE	====>	5/13/2025 5:07:03 PM
COMMENTS	====>	2x4 Cripple Studs @16" O/C
	====>	
	====>	
	====>	



SPECIALTY ENGINEERING AND DESIGN, LLC.

DADE - BROWARD - PALM BEACH

Calculations reviewed by

D. Adam LeBlanc PE

State of Florida:

Registered Professional Engineer: #0077012

Certificate of Authorization: #009217

ALUMINUM PLATE BUILDOUT ANALYSIS

Home Owner Ali Residence
 Address 13505 SW 63 Ct
 Pinecrest, FL 33156

Date 5/13/2025



Specialty Engineering and Design, LLC.

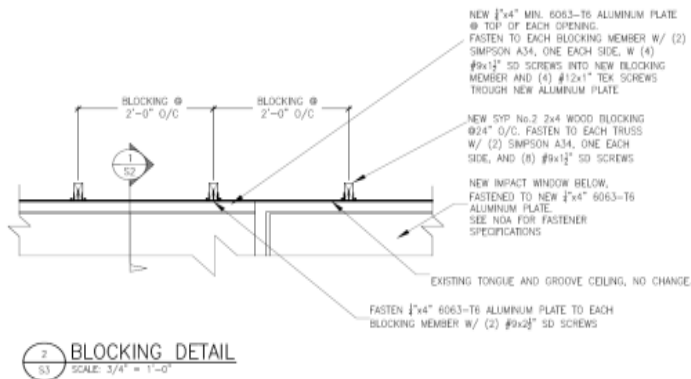
MARK	Window/Door SGD, mull	WIDTH (in)	HEIGHT (in)	Req'd Wind Pressure, see calc's		Comments
				(+) psf	(-) psf	
34C	HS	110.	54.75	35.4	-44.8	Balcony
NOTES						

Jamb load per foot = (Panel width/2) x (1 ft/12 in) x (maximum design pressure)

Header load per foot = (Panel height/2) x (1 ft/12 in) x (maximum design pressure)

Header load (PLF)	OK	Allowable load transfered to structure through plate connection= 130 LBS (See calculation sheet)
-102.29		

NOTES Calculations in accordance with Florida Building Code 2023 and ASCE 7-22
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Specialty Engineering and Design, LLC.
 1599 SW 30 Ave. #1
 Boynton Beach, FL 33426
 D. Adam LeBlanc, PE #77012

Component and Cladding Pressures, Wall and/or Window components in accordance with ASCE 7-22 w/ mean roof height < 60 ft

Home Owner Ali Residence
 Address 13505 SW 63 Ct
 Pinecrest, FL 33156
 Date 5/13/2025

NOTES
 Calculations in accordance with
 Florida Building Code 2023 and ASCE 7-22



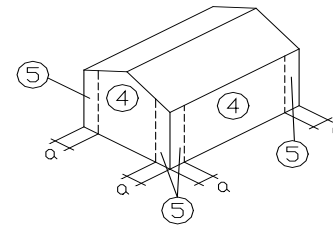
Specialty Engineering and Design, LLC.

Loads specified are for Allowable Stress - 0.6*W(ult) 2.4.1 #7 (0.6D+0.6W)			
Zone 4 Unbreached		Zone 5 Unbreached	
P positive	P negative	P positive	P negative
		35.4	-44.8

For theta < 10 degrees the GCp values have been reduced by 10%

Mark	width (in)	height (in)	Effective Area of component (ft^2)	Area Used	GCp (positive, 4&5)	GCp (negative, 4)	GCp (negative, 5)
34C	110.0	54.8	41.8	41.8	0.80	-0.89	-1.06

V (mph) **175** 1620 FBC for HVHZ, or Fig. 1609.3(1)
 1.0
 Risk Category II Table 1.5-1, page 5
 Exposure **C** Section 26.7
 Length of Building (ft) **57**
 Width of Building (ft) **46**
 Mean Roof height (ft) **20**
 Kz **0.90** Table 26.10-1, page 277
 Kd **0.85** Table 26.6-1, page 274
 Kzt **1** Figure 26.8-1, page 276
 pitch of roof **0/12** 0.0 degrees
 theta 0.0 degrees
 0.9 Reduction factor for slope of roof
 qh (psf) 70.77 Velocity Wind Pressure @ mean roof height
 GCpi 0.18 -0.18 0.55
 a1 4.60 10% of width 1
 a2 5.70 10% of width 2
 a3 8 0.4*mean roof height
 a **4.60** End Zone distance



$$P := q_h \cdot (GCp - GCp_i)$$

-0.55 See Table 26.13-1, page 280

Specialty Engineering and Design, LLC.
 1599 SW 30 Ave. #1
 Boynton Beach, FL 33426
 D. Adam LeBlanc, PE #77012

MODEL *Alt 13505 SW b3 ct*
 CLIENT *Prestige*
 LOCATION *Pinecrest*
 DATE *5/13/25*
 CALCULATED BY *S.N.*

SPECIALTY ENGINEERING AND DESIGN, LLC
 1599 SW 30th AVE., SUITE #1
 BOYNTON BEACH, FL 33426

561 - 752 - 5440 OFFICE
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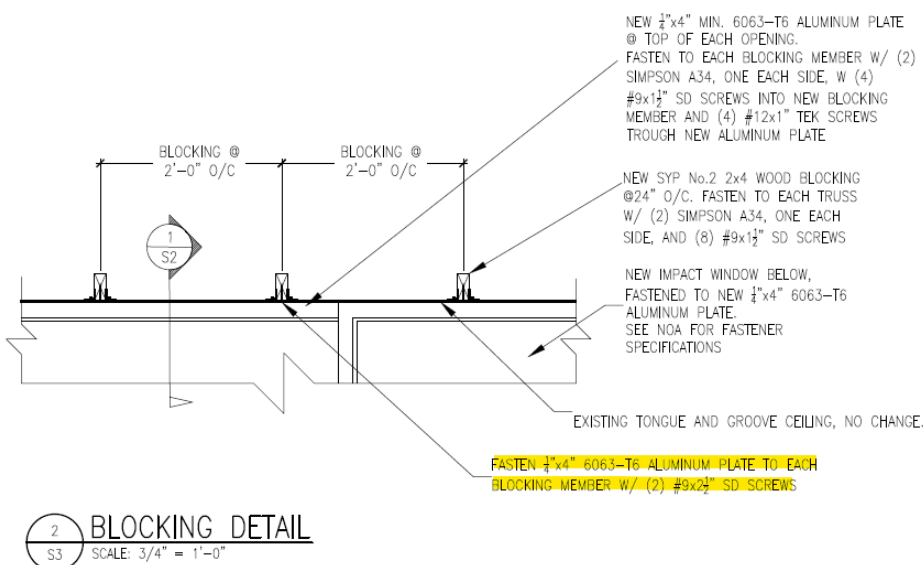
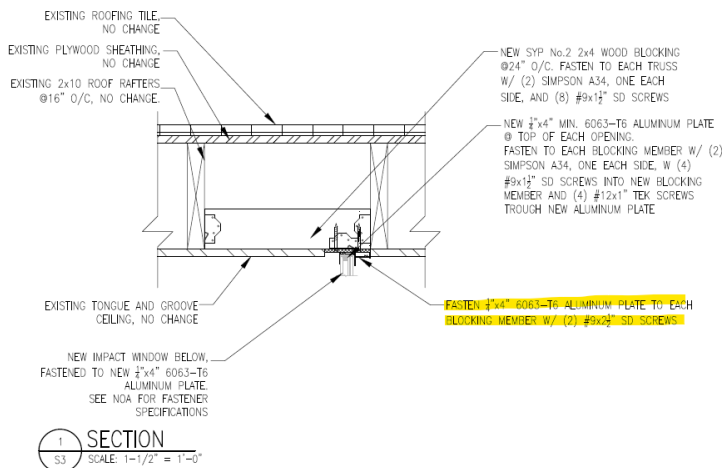


Check 1/4" Aluminum Plate connection to 2x4 Blocking @ 24" O/C

*Allowable Load Transfer to Structure through plate
 #9x2 1/2" SD Screws → V = 130 lbs*

$$\frac{(2) \text{ SD Screws} \times 130 \text{ lbs}}{2 \text{ ft Screw}} = 130 \text{ plf}$$

Header Load = 102.3 plf < 130 plf (OK)





SPECIALTY ENGINEERING AND DESIGN, LLC.

DADE - BROWARD - PALM BEACH

Calculations reviewed by

D. Adam LeBlanc PE

State of Florida:

Registered Professional Engineer: #0077012

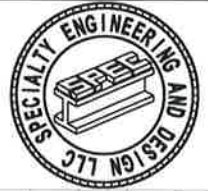
Certificate of Authorization: #009217

2X4 BLOCKING ANALYSIS

MODEL Ali-13505 SW 63 Ct
 CLIENT Prestige
 LOCATION Precrest
 DATE 5/13/25
 CALCULATED BY S.N

SPECIALTY ENGINEERING AND DESIGN, LLC
 1599 SW 30th AVE., SUITE #1
 BOYNTON BEACH, FL 33426

561 - 752 - 5440 OFFICE
 561 - 752 - 5542 FAX



Check 2x4 Blocking Members @ 2ft o/c

$W_p = 44.8 \text{ psf}$

$\text{Span} = 16' = 1.33 \text{ ft}$

$$V = \frac{PA}{2} = 44.8 \text{ psf} * 1.33 \text{ ft} * 2 \text{ ft} = 119.5 \text{ lbs}$$

(2) Simpson A34 yields $640 \text{ lbs} * 2 = 1280 \text{ lbs}$ F' direction
OK

(2) Simpson A34 yields $495 \text{ lbs} * 2 = 990 \text{ lbs}$ F2 direction
SW

