ASD ALUMINUM SCREEN DESIGN
Aluminum & Construction Engineering

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Date: 2023.07.24 11:16:08 -04'00'

***Plan Types:**

- [x] **Screen Room** [ ] **Sun Room** [ ] **Fill In**
- [ ] **Pool Screen/Cage** (Non-Removable Screen – Designed to withstand actual Wind Speed)
  - [ ] **Expansion View (Non Standard)**
- [ ] **Car Port** [ ] **Patio Cover**
- [ ] **Pergola**
- [ ] **Swimming Pool (Non Standard)**
- [ ] **Summer Kitchen (Non Standard)**
- [ ] **Other** _____

***** [x] **Standard** [ ] **Non Standard** [ ] **Revision** [ ] **Commercial** [ ] **$75.00 Rush Fee**

***Project Address:** 540 NW SAVANNAH CIRCLE

***City:** LAKE CITY **Date:** 7/20/23

***Contractor/Company Name:** MARTIN HOME BUILDERS INC
***Address:** PO BOX 1831
***City:** LAKE CITY
***Zip Code:** 32056
***Phone/Fax:** 386 397-4534
***Email:** MARTINEXT@COMCAST.NET

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Engineering prepared by:

ASD

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* **Ultimate Wind Speed (mph):** 120 **Exposed Category:** C **Risk Category:** 1

☑ **Screen Room** ☐ **Fill In** ☐ **Sun Room (Window Type** ☐ **Vinyl or** ☐ **Glass)**

Roof Type: ☑ **Insulated** 3 " ☐ **Pan Roof** ____"

Roof Connecting to: ☐ Gutter ☑ Fascia ☐ Block Wall ☐ Conventional Wall ☐ 4th Wall ☐ Riser

Front Wall: Uprights 3 X2 Top Plate 3 X2 Bottom Plate ____X____ Chair Rail 2 X2

Side Wall: Uprights 3 X2 Top Plate 3 X2 Bottom Plate ____X____ Chair Rail 2 X2

Roof Ridge Beam (gable style): Beams ____X____ **Kick Plate** ____

Pool Screen/Cage :

Roof Type: ☐ Dome ☐ Gable ☐ Mansard/Hip ☐ Flat/Slope

Roof Connecting to: ☐ Gutter ☐ Fascia ☐ Block Wall ☐ Conventional Wall ☐ Riser

Roof: Beams ____X____ **Front Wall:** Uprights ____X____ Purlin ____X____ Chair Rail ____X____

Side Wall: Uprights ____X____ Chair Rail ____X____

Expansion View: Beams ____X____ Post ____X____ **Kick Plate** ____

☐ **Car Port** ☐ **Patio Cover or** ☐ **Pergola (pergola material** ☐ **Aluminum** ☐ **Wood)**

Roof Type: ☐ **Insulated** ____" ☐ **Pan Roof** ____" ☐ **None (Pergola Only)**

Roof Connecting to: ☐ Gutter ☐ Fascia ☐ Block Wall ☐ Conventional Wall ☐ 4th Wall

Beams ____X____ **Post** ____X____ **Pergola Purlins** ____ X ____

Roof Ridge Beam (gable style): Beams ____X____

Swimming Pool ☐ **Gunite** ☐ **Fiberglass** **Overall Deck SQ FT** _____

☐ **Summer Kitchen**

Concrete:

☑ **Existing** ☐ **New 4" w/6" Thickened Edge** ☐ **Pier** _____X_____X_____

☐ **Ribbon Footer** ____X____ **With** _____#_____**Rebar**

☐ **Pavers with Footer** ____X____ **With** _____#_____**Rebar**

Other: _____

Note: In the event that there is a conflict with the design plans and general notes and design standard, the contractor shall utilize the more stringent dimensions and member sizes prior to ordering materials, fabrication and/or construction between the plans and the general notes and design standard.

Engineer: Michael Thompson, MSc, P.E. (PE#47509)
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General Notes & Design Standards

(Screen Patio Room Enclosure)

The following are general design standards. More stringent design standards may be noted on the plans. In the event of a conflict in plans and/or design standard dimensions and/or member sizes, the contractor must utilize the more stringent dimensions and/or member sizes prior to ordering materials, fabrication and/or construction.

Design Codes:
Florida Building Code 2020 (7th Edition)
Aluminum Design Manual 2020
ASCE 7-16

Design Loads:
Pursuant to FBC Chapters 16 & 20
Ultimate Wind: -**120 MPH** (FBC Table 2002.4) (30 psf)
Risk Category:-See attach site specific plan sheet (FBC Table 1604.5)
Exposure Category: -See attach site specific plan sheet (FBC 1609.4.3)

Additional Load requirements:
Structural members supporting screened enclosures are designed for wind in both of two orthogonal directions using the pressures given in Table 2002.4. Each primary member is also designed for a 300 pound load applied vertically downward along any 1 foot of any member, not occurring simultaneously with wind load. In addition to wind pressures, purlins is also be designed for a 200 pound load applied vertically downward along any 1 foot of any member, not occurring simultaneously with wind load.

Design Basis:
Allowable Stress Design (ASD) =Allowable Strength Design (ASD) divide by safety factor

General Requirements:
Reproductions of contract drawings by contractor in lieu of preparation of shop drawings signifies acceptance of information shown as correct and obligates himself to any expense, real or implied, arising from their use.

A change to the structural drawings due to the acceptance of alternates and/or substitutes is the responsibility of the contractor and must be submitted to the engineer for approval.

The general contractor and each subcontractor shall review the approve construction plans in its entirety and verify all existing conditions prior to the start of any work. All inconsistencies shall be reported to the designer and/or structural engineer, if needed. Should contractor construct the premises in a fashion not consistent with the plans prepared by the designer and/or structural engineer, or in any fashion, change the plans and drawing without the review and approval from the designer and/or structural engineer. Then designer and/or structural engineer shall bear no responsibility or liability for the construction of premises and accuracy of the drawings.

Foundation and Earthwork:
Applicable only when unsuitable soils are encountered.
When unsuitable soils are encountered as specified bearing strata, notify owner's representative/engineer.
Soil bearing capacity – 2,000 psf Minimum

Provide neat excavation for footing and place concrete immediately after excavation and inspection.

Pump water from footing excavation if greater than one inch.
Compact all fill to 95% ASTM D698 density.

Unit soil weight = 105 pcf
Internal angle of friction = 30 degrees

Coeff. Of friction between footing and soil = 0.5

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Structural Aluminum:
Conform to latest edition of Florida Building Code and Aluminum Design Manual standard practice for aluminum design.

All aluminum shall be 6005-T5 (E= 10,000 ksi; Fy = 35 ksi) with a minimum wall thickness of 0.046”

Splicing prohibited without prior approval as to location and type.

Burning of holes in aluminum members is prohibited. Any member with burned holes must be replaced.

Aluminum Protection:
Shall be pursuant FBC 2003.8.4. Aluminum surfaces in contact with dissimilar materials, lime-mortar, concrete, or other masonry materials, shall be protected with powder coated or ESP paint or alkali-resistant coatings, such as heavy-bodied bituminous paint or water-white methacrylate lacquer.

Screws:
Aluminum self-tapping screws shall conform to ASME B18.6.4 specification.
Self –tapping screws shall meet the requirements of ADM J.5
Maximum fastener spacing shall not exceed (3+20t) where “t” is the member thickness in inches.
For roofing and siding connection, use minimum #12 screws for end and side laps spaced at 12” max for side lap and end lap fasteners shall be no more than 2” from the end of overlapping sheets.
For bottom plate and column base, secure with ¼” tapcons a minimum embedment of 1 1/8” and 2 ¼” respectively into concrete footer.

Bolts:
Bolts and other fasteners shall be aluminum, stainless steel, hot-dip or electro-galvanized steel. Double cadmium plated steel bolts may also be used. Bolt holes diameter shall not exceed 1/16” larger than the bolt diameter and shall be spaced at a minimum of 2.5 times the bolt diameter with minimum edge distance of 1.5 times the bolt diameter.
Bolts shall meet the requirements of ADM J.3

Chair Rails, Purlins & Wind Brace:
Chair rails, purlins and wind brace shall conform with the below maximum span length. If the event contractor’s specific site plan conflict with the below recommended length, the contractor shall utilize the more stringent dimensions and member sizes prior to ordering materials, fabrication and/or construction.

Wind Speed = 120 MPH
2 x 2 Chair Rail = 7’-0” 2 x 2 Purlins = 7’-0” 2 x 2 Wind Brace = 4’-3” 2 x 3 (0.125) Wind Brace = 9’-0”
2 x 3 Chair Rail = 8’-6” 2 x 3 Purlins = 8’-6” 2 x 3 Wind Brace = 6’-9” 2 x 4 Wind Brace = 9’-0”

Concrete:
Conform to ACI 318, latest edition and ACI 301
Compressive Ultimate Strength (Minimum at 28 days) shall be 3000 psi
Exposed chamfer edges shall be ¾”

Reinforcing Steel:
Conform to ACI 318 and 315, Latest edition
All reinforcement steel shall be ASTM A615 Grade 60.
Smooth dowels & ties shall be ASTM A185
Welded Wire Fabric shall be ASTM A185 or A82 (Flat sheet).
Deformed bar anchors shall be ASTM A496, Grade 70
Cover: Footing 3”

Washer:
Washers shall be used under bolt heads and under nuts.

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Hole Alignment:
Poor matching holes must be rejected. Contractor shall prevent holes from drifting and distort the metal. All chips and foreign matter between contacting surfaces shall be removed before assembly.

Beams & Uprights:
In the event of a conflict with the values in this table and the site specific plan, the contractor must utilize the more stringent dimensions and/or member sizes between the site specific plan and the below applicable span limitations prior to ordering materials, fabrication and/or construction.

120 MPH

PRIMARY BEAMS & COLUMNS-SCREEN & PATIO ROOM ENCLOSURES				ROOF PANELS	
Beam-Size	Max Beam Span & Max Column Spacing	Column-Size	Max Column-Height	Pan Roof Span	Insulated Roof Span
2 X 3	6'-0"	2 X 3	9'-0"	3" Spans 14'-7"	3" Spans 16'-2" 6" Spans 21'-7"
2 X 4	9'-0"	2 X 4	9'-0"		
2 X 5	10'-0"	2 X 5	10'-0"		

Knee Bracing:
Contractor shall provide knee bracing on 45 degree angle pursuant the attach detail sheet that specified size and length requirements. Knee bracing on upright above super gutter intersection shall be connected to upright no more than 6” above the super gutter. Knee brace size shall be a minimum of 2 x 2 for beam span of 15’ max; 2 x 3 for 30’ max; 2 x 4 for beam span greater than 30’.

Purlin:
Contractor is required to install purlins spaced to align with column spacing; however, spacing between purlins shall not exceed 7’-2”.

Intermediate/Header Beam:
Contractor is required to install a minimum 2 x 7 intermediate header beam supported with 3 x 3 column spaced at 10 feet (max) when insulated roof span exceeds 15 feet.

Patio Cover:
Contractor is required to install insulated roof covering pursuant to the Florida product approval specification. Overhang shall be a maximum of 1'-0" along the side, 3'-0" along the front and 1/2" along the front interface between the super gutter and the attached pool cage knee riser wall. Maximum deflection shall be limited to L/80.

Edge Distance:
Contractor is required to install uprights to provide a 2” minimum clearance from edge of slab and/or footer.

Vinyl, tempered glass, and acrylic panels:
Vinyl, tempered glass, and acrylic panels shall be removable. Removable panels shall be identified as removable by a decal. The identification decal shall essentially state “Removable panel SHALL be removed when wind speeds exceed 75 mph (34 m/s).” visible when the panel is installed.

540 N.W. Savannah circle
Lake city Florica

In the event of a conflict in member sizes shown on the plans and the general notes, the contractor must utilize the more stringent member size requirements.
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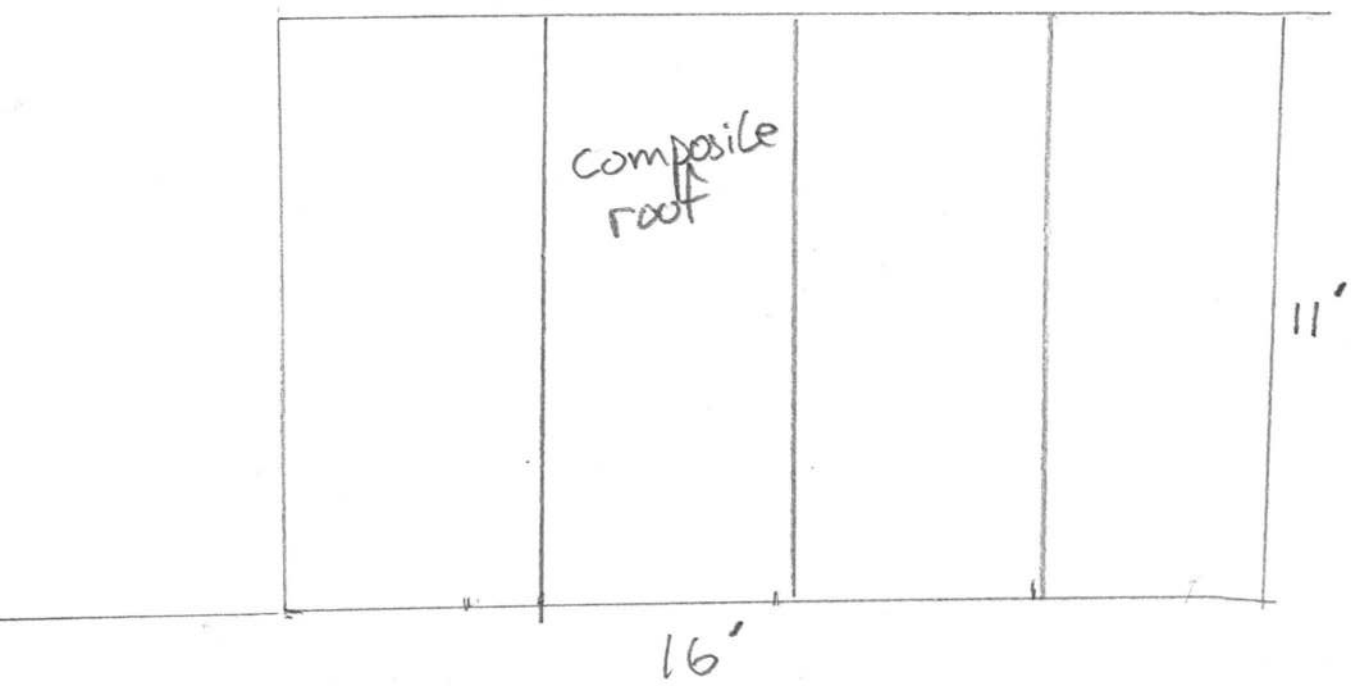

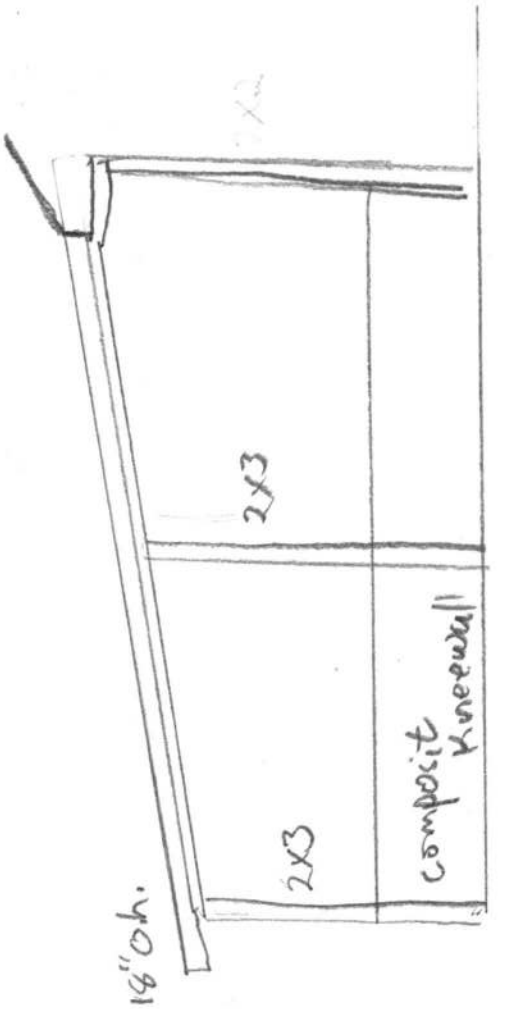

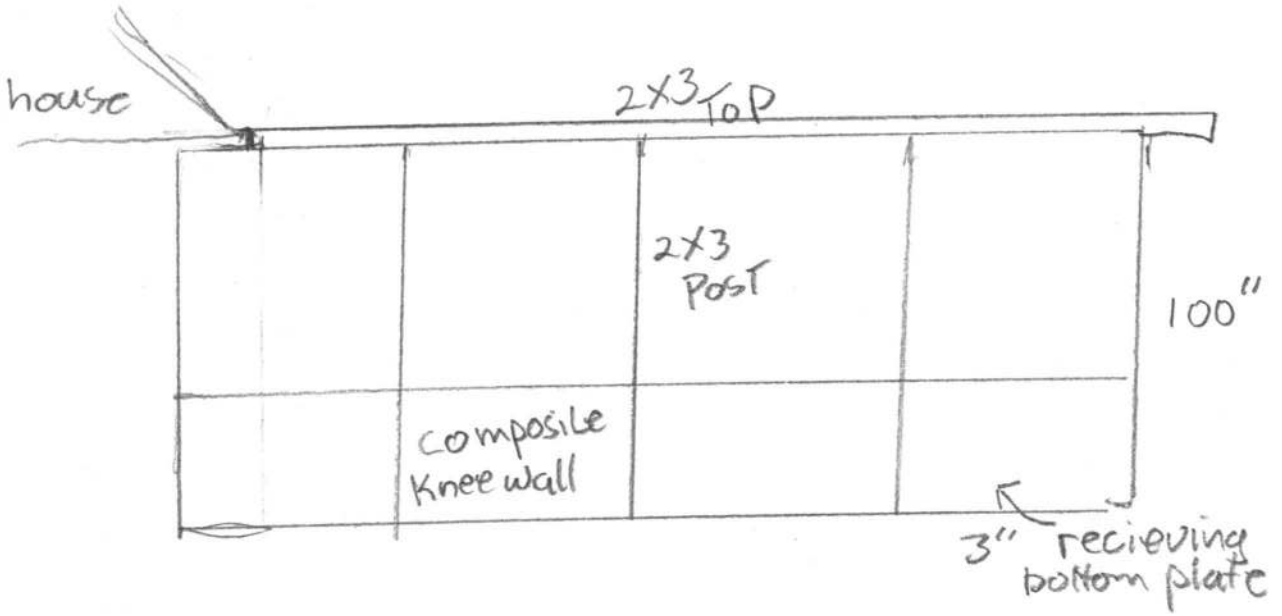

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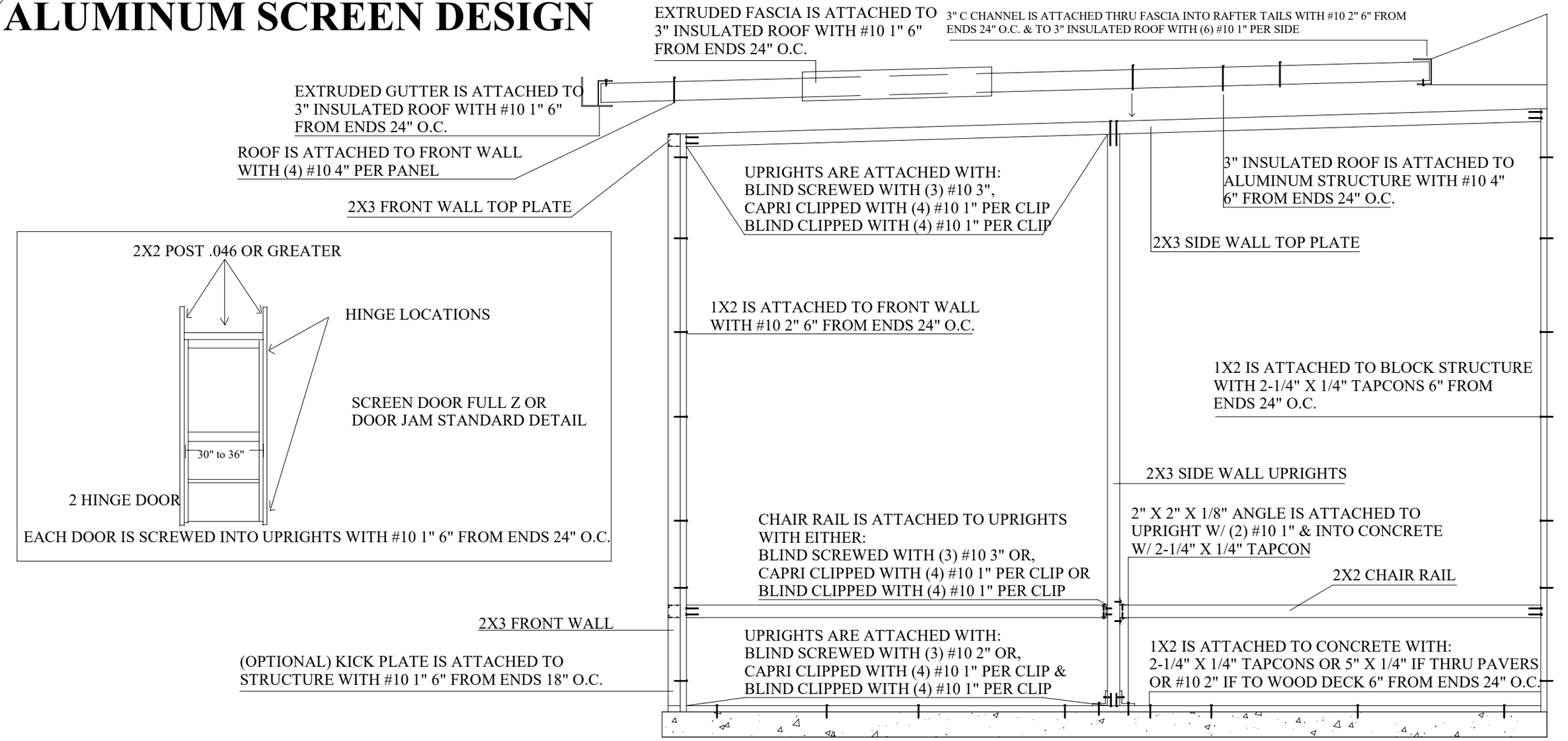

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DESIGN STATEMENT

METAL IS .046 THICKNESS OR GREATER, ALLOY IS 6005-T5
ALL TAPCONS SHALL PROVIDE MINIMUM OF 1 1/8" CONCRETE EMBEDMENT DEPTH

Michael A. Thompson LICENSE No. 47509 STATE OF FLORIDA PROFESSIONAL ENGINEER

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THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE TO MEET THE REQUIREMENTS OF THE 2020 (7TH EDITION) FLORIDA BUILDING CODE FOR OPEN AND SEMI-OPEN STRUCTURES AND SHALL WITH STAND ULTIMATE WIND SPEEDS OF 120 MPH (FOR 3 SECOND GUSTS) NOMINAL SPEED 93.6 MPH UP TO A 15FT ROOF HEIGHT, FACTOR OF 1.0, AND EXPOSURE C, RISK CATEGORY 1.
CONTRACTOR SHALL FIELD VERIFY ALL PLANS DIMENSIONS PRIOR TO MATERIAL PURCHASE, FABRICATION AND CONSTRUCTION
CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SHOULD SITE CONDITIONS DIFFER FROM CONSTRUCTION PLANS

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