DATE 02/02/2009

Columbia County Building Permit

This Permit Must Be Prominently Posted on Premises During Construction

PERMIT
000027611

APPLICANT CRAIG TIMBERLAKE PHONE 352.472.6850

ADDRESS 25370 NW 8TH PLACE NEWBERRY FL 32669

OWNER CLINT R.PITTMAN PHONE 386.623.0415

ADDRESS 4143 SW WATSON ROAD FT.WHITE FL 32038

CONTRACTOR CARL HELMS PHONE 352.860.2399

LOCATION OF PROPERTY 47-S TO COL. CITY TO WATSON RD,TR FOLLOW TO END @ DREW FEAGLE, DRIVEWAY TO R CURVE @ WATSON & DREW FEAGLE

TYPE DEVELOPMENT POOL ENCLOSURE ESTIMATED COST OF CONSTRUCTION 13420.00

HEATED FLOOR AREA _____ TOTAL AREA _____ HEIGHT ____ STORIES ____

FOUNDATION _____ WALLS _____ ROOF PITCH _____ FLOOR _____

LAND USE & ZONING A-3 MAX. HEIGHT _____

Minimum Set Back Requirments: STREET-FRONT 30.00 REAR 25.00 SIDE 25.00

NO. EX.D.U. 1 FLOOD ZONE _____ DEVELOPMENT PERMIT NO. _____

PARCEL ID 30-5S-16-03738-023 SUBDIVISION JR DICKS TRACT

LOT 23 BLOCK _____ PHASE _____ UNIT _____ TOTAL ACRES 10.15

		SCC056710	Craig Timberlake	
Culvert Permit No.	Culvert Waiver	Contractor's License Number	Applicant/Owner/Contractor	
EXISTING	X-09-027	CFS	WR	N
Driveway Connection	Septic Tank Number	LU & Zoning checked by	Approved for Issuance	New Resident

COMMENTS: NOC ON FILE.

Check # or Cash 1789

FOR BUILDING & ZONING DEPARTMENT ONLY

(footer/Slab)

Temporary Power _____ date/app. by

Foundation _____ date/app. by

Monolithic _____ date/app. by

Under slab rough-in plumbing _____ date/app. by

Slab _____ date/app. by

Sheathing/Nailing _____ date/app. by

Framing _____ date/app. by

Rough-in plumbing above slab and below wood floor _____ date/app. by

Electrical rough-in _____ date/app. by

Heat & Air Duct _____ date/app. by

Peri. beam (Lintel) _____ date/app. by

Permanent power _____ date/app. by

C.O. Final _____ date/app. by

Culvert _____ date/app. by

M/H tie downs, blocking, electricity and plumbing _____ date/app. by

Pool _____ date/app. by

Reconnection _____ date/app. by

Pump pole _____ date/app. by

Utility Pole _____ date/app. by

M/H Pole _____ date/app. by

Travel Trailer _____ date/app. by

Re-roof _____ date/app. by

BUILDING PERMIT FEE $ 70.00 CERTIFICATION FEE $ 0.00 SURCHARGE FEE $ 0.00

MISC. FEES $ 0.00 ZONING CERT. FEE $ 50.00 FIRE FEE $ 0.00 WASTE FEE $ _____

FLOOD DEVELOPMENT FEE $ _____ FLOOD ZONE FEE $ _____ CULVERT FEE $ _____ **TOTAL FEE** 120.00

INSPECTORS OFFICE _____ CLERKS OFFICE CH

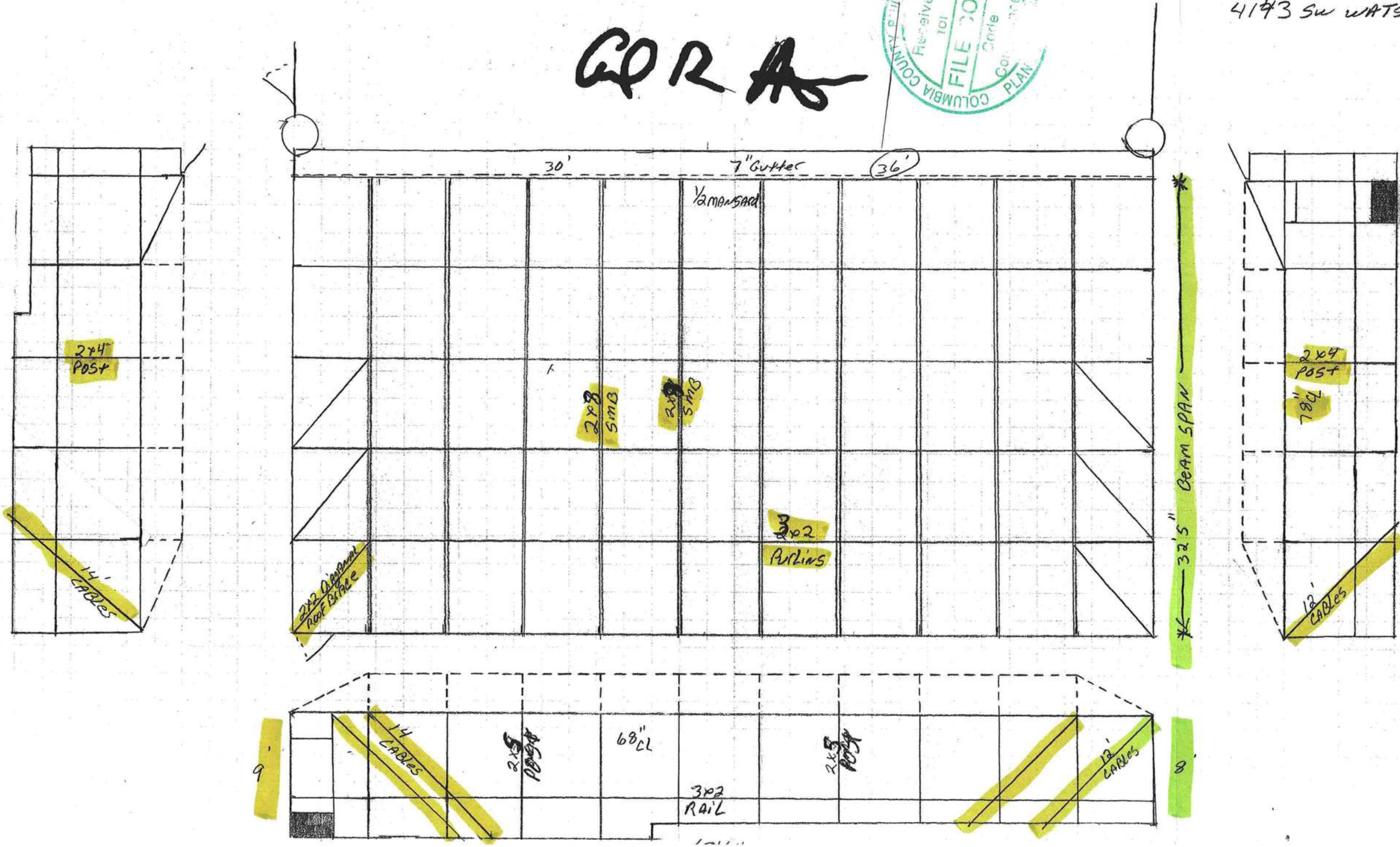
NOTICE: IN ADDITION TO THE REQUIREMENTS OF THIS PERMIT, THERE MAY BE ADDITIONAL RESTRICTIONS APPLICABLE TO THIS PROPERTY THAT MAY BE FOUND IN THE PUBLIC RECORDS OF THIS COUNTY. AND THERE MAY BE ADDITIONAL PERMITS REQUIRED FROM OTHER GOVERNMENTAL ENTITIES SUCH AS WATER MANAGEMENT DISTRICTS, STATE AGENCIES, OR FEDERAL AGENCIES.

"WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCEMENT MAY RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR AN ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT."

EVERY PERMIT ISSUED SHALL BECOME INVALID UNLESS THE WORK AUTHORIZED BY SUCH PERMIT IS COMMENCED WITHIN 180 DAYS AFTER ITS ISSUANCE, OR IF THE WORK AUTHORIZED BY SUCH PERMIT IS SUSPENDED OR ABANDONED FOR A PERIOD OF 180 DAYS AFTER THE TIME THE WORK IS COMMENCED. A VALID PERMIT RECIEVES AN APPROVED INSPECTION EVERY 180 DAYS. WORK SHALL BE CONSIDERED TO BE IN ACTIVE PROGESS WHEN THE PERMIT HAS RECIEVED AN APPROVED INSPECTION WITHIN 180 DAYS.

The Issuance of this Permit Does Not Waive Compliance by Permittee with Deed Restrictions.

Pittman / TAC
4143 SW Watson Rd



Columbia County Building Permit Application

For Office Use Only Application # 0902-01 Date Received 2/2 By JW Permit # 27611

Zoning Official cfs Date 2/2/09 Flood Zone N/A Land Use A-3 Zoning A-3

FEMA Map # _____ Elevation _____ MFE _____ River _____ Plans Examiner _____ Date 2-2-09

Comments _____

NOC EH Deed or PA Site Plan State Road Info Parent Parcel # _____

Dev Permit # _____ In Floodway Letter of Auth. from Contractor ON SITE F W Comp. letter

IMPACT FEES: EMS _____ Fire _____ Corr _____ Road/Code _____

School _____ = TOTAL _____

Septic Permit No. X-09-029 -IN File Fax 352 472-6855

Name Authorized Person Signing Permit Craig TimberLake Phone 352-472-6850

Address 25370 nw 8th Pl NewBerry FL 32669

Owners Name Clint PittMan Phone 386-623-0415

911 Address 4143 SW WATSON Rd Fort White FL 32038

Contractors Name CARL R Helms Phone 352-860-2399

Address 25370 nw 8th Pl NewBerry FL 32669

Fee Simple Owner Name & Address Clint PittMan 4143 SW WATSON Rd

Bonding Co. Name & Address N/A

Architect/Engineer Name & Address Bennett Engineering

Mortgage Lenders Name & Address N/A

Circle the correct power company – FL Power & Light – Clay Elec. – Suwannee Valley Elec. – Progress Energy

Property ID Number 30-5S-16-03738-023 HX Estimated Cost of Construction #13,420

Subdivision Name _____ Lot 23 Block ____ Unit ____ Phase ____

Driving Directions 47 South to WATSON Or T/R STAY LEFT AT Fork on Right #4143 (when Rd curves left Drive way on Right)

_____ Number of Existing Dwellings on Property 2 1

Construction of POOL ENCLOSURE Total Acreage 10.15 Lot Size _____

Do you need a - Culvert Permit or Culvert Waiver or Have an Existing Drive Total Building Height _____

Actual Distance of Structure from Property Lines - Front 150' Side 220' Side 260' Rear 340'

Number of Stories 1 Heated Floor Area _____ Total Floor Area 2187.5 Roof Pitch _____

Application is hereby made to obtain a permit to do work and installations as indicated. I certify that no work or installation has commenced prior to the issuance of a permit and that all work be performed to meet the standards of all laws regulating construction in this jurisdiction. - Clk 1789,

Page 1 of 2 (Both Pages must be submitted together.) Revised 1-10-08

- T... 2.2.09

Columbia County Building Permit Application

TIME LIMITATIONS OF APPLICATION : An application for a permit for any proposed work shall be deemed to have been abandoned 180 days after the date of filing, unless such application has been pursued in good faith or a permit has been issued; except that the building official is authorized to grant one or more extensions of time for additional periods not exceeding 90 days each. The extension shall be requested in writing and justifiable cause demonstrated.

FLORIDA'S CONSTRUCTION LIEN LAW: Protect Yourself and Your Investment

According to Florida Law. those who work on your property or provide materials, and are not paid-in-full, have a right to enforce their claim for payment against your property. This claim is known as a construction lien. If your contractor fails to pay subcontractors or material suppliers or neglects to make other legally required payments. the people who are owed money may look to your property for payment. even if you have paid your contractor in full. This means if a lien is filed against your property, it could be sold against your will to pay for labor, materials or other services which your contractor may have failed to pay.

NOTICE OF RESPONSIBILITY TO BUILDING PERMITEE:

YOU ARE HEREBY NOTIFIED as the recipient of a building permit from Columbia County, Florida, you will be held responsible to the County for any damage to sidewalks and/or road curbs and gutters, concrete features and structures, together with damage to drainage facilities, removal of sod, major changes to lot grades that result in ponding of water, or other damage to roadway and other public infrastructure facilities caused by you or your contractor, subcontractors, agents or representatives in the construction and/or improvement of the building and lot for which this permit is issued. No certificate of occupancy will be issued until all corrective work to these public infrastructures and facilities has been corrected.

WARNING TO OWNER: YOUR FAILURE TO RECORD A NOTICE OF COMMENCMENT MAY RESULT IN YOU PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY. A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT WITH YOUR LENDER OR ATTORNEY BEFORE RECORDING YOUR NOTICE OF COMMENCEMENT.

OWNERS CERTIFICATION: I hereby certify that all the foregoing information is accurate and all work will be done in compliance with all applicable laws and regulating construction and zoning. I further understand the above written responsibilities in Columbia County for obtaining this Building Permit.

x _____

Owners Signature

CONTRACTORS AFFIDAVIT: By my signature I understand and agree that I have informed and provided this written statement to the owner of all the above written responsibilities in Columbia County for obtaining this Building Permit.

_____

Contractor's Signature (Permitee)

Contractor's License Number SCC056710
Columbia County
Competency Card Number _____

Affirmed under penalty of perjury to by the Contractor and subscribed before me this 2 **day of** Feb **20**09.

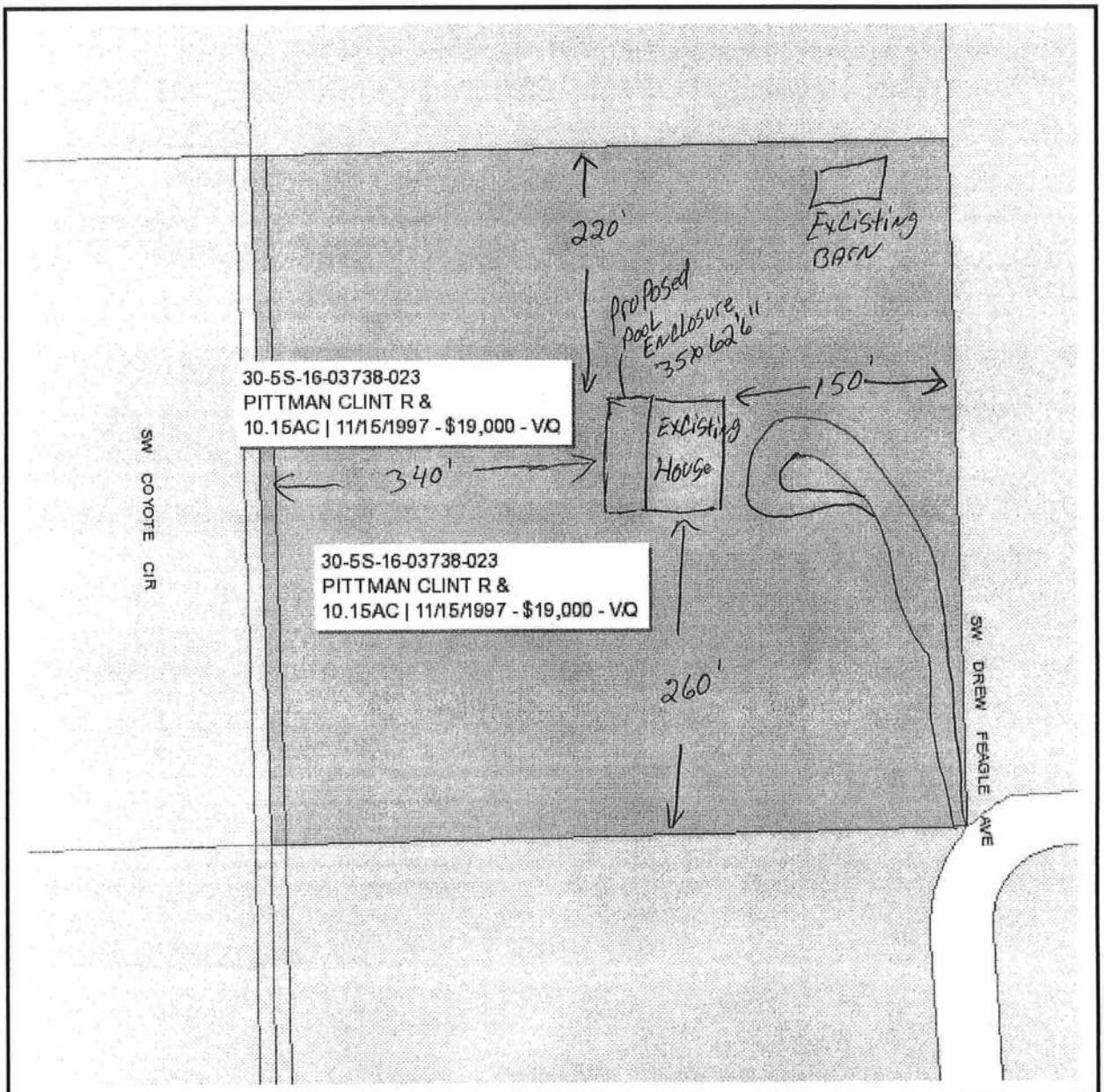
Personally known ✓ **or Produced Identification** _____

_____

State of Florida Notary Signature (For the Contractor)

SEAL:

Notary Public State of Florida
Craig Timberlake
My Commission DD730704
Expires: 04/21/2012



Columbia County Property Appraiser

J. Doyle Crews, CFA - Lake City, Florida - 386-758-1083

PARCEL: 30-5S-16-03738-023 HX - IMPROVED A (005000)

Name:	PITTMAN CLINT R &	LandVal	$13,605.00
Site:	WATSON	BldgVal	$204,323.00
	C ANN SMITHEY	ApprVal	$242,448.00
Mail:	4143 SW WATSON RD	JustVal	$299,292.00
	FT WHITE, FL 32038	Assd	$235,566.00
Sales	4/1/2008 $100.00 I / U	Exmpt	$50,000.00
Info	11/15/1997 $19,000.00V / Q	Taxable	$185,566.00

0 64 128 192 ft

N W E S

NOTICE OF COMMENCEMENT

Inst:200912001478 Date:2/2/2009 Time:8:33 AM
DC,P.DeWitt Cason,Columbia County Page 1 of 1 B:1166 P:950

Tax Parcel Identification Number 30-5S-16-03738-023 HX

THE UNDERSIGNED hereby gives notice that improvements will be made to certain real property, and in accordance with Section 713.13 of the Florida Statutes, the following information is provided in this **NOTICE OF COMMENCEMENT.**

1. Description of property *(legal description)*: AKA LOT 23 JR DICKS TRACT UNR: SE¼ of BE¼ on NE¼.
   a) Street *(job)* Address: 4143 SW WATSON Rd Fort White FL 32038
2. General description of improvements: Pool Enclosure / on Existing Pool Deck
3. Owner Information
   a) Name and address: Clint PITTMAN / 4143 SW WATSON Rd Fort White FL 32038
   b) Name and address of fee simple titleholder (if other than owner) _____
   c) Interest in property Fee simple
4. Contractor Information
   a) Name and address: CARL R Helms 25370 NW 8th PL NewBerry FL 32669
   b) Telephone No.: 352 472-6850 Fax No. (Opt.) 352-472-6855
5. Surety Information
   a) Name and address: N/A
   b) Amount of Bond: N/A
   c) Telephone No.: N/A Fax No. (Opt.) N/A
6. Lender
   a) Name and address: N/A
   b) Phone No. N/A
7. Identity of person within the State of Florida designated by owner upon whom notices or other documents may be served:
   a) Name and address: N/A
   b) Telephone No.: N/A Fax No. (Opt.) N/A
8. In addition to himself, owner designates the following person to receive a copy of the Lienor's Notice as provided in Section 713.13(1)(b) Florida Statutes:
   a) Name and address: N/A
   b) Telephone No.: N/A Fax No. (Opt.) N/A
9. Expiration date of Notice of Commencement **(the expiration date is one year from the date of recording unless a different date is specified)**: _____

STATE OF FLORIDA, COUNTY OF COLUMBIA
I HEREBY CERTIFY, that the above and foregoing is a true copy of the original filed in this office.
P. DeWITT CASON, CLERK OF COURTS
By Dawn Teagle Deputy Clerk
Date 2-2-2009

CLERK CIRCUIT COURT COLUMBIA COUNTY, FLORIDA

WARNING TO OWNER: ANY PAYMENTS MADE BY THE OWNER AFTER THE EXPIRATION OF THE NOTICE OF COMMENCEMENT ARE CONSIDERED IMPROPER PAYMENTS UNDER CHAPTER 713, PART I, SECTION 713.13, FLORIDA STATUTES, AND CAN RESULT IN YOUR PAYING TWICE FOR IMPROVEMENTS TO YOUR PROPERTY; A NOTICE OF COMMENCEMENT MUST BE RECORDED AND POSTED ON THE JOB SITE BEFORE THE FIRST INSPECTION. IF YOU INTEND TO OBTAIN FINANCING, CONSULT YOUR LENDER OR AN ATTORNEY BEFORE COMMENCING WORK OR RECORDING YOUR NOTICE OF COMMENCEMENT.

STATE OF FLORIDA
COUNTY OF COLUMBIA

10. X _____
Signature of Owner or Owner's Authorized Office/Director/Partner/Manager

Clint PITTMAN
Print Name

The foregoing instrument was acknowledged before me, a Florida Notary, this 2 day of Feb, 20 09, by:

Clint PITTMAN as _____ **(type of authority, e.g. officer, trustee, attorney fact) for** _____ **(name of party on behalf of whom instrument was executed).**

Personally Known ✓ OR Produced Identification ____ Type _____

Notary Signature _____ Notary Stamp or Seal:

NOTARY PUBLIC STATE OF FLORIDA
Notary Public State of Florida
Craig Timberlake C
My Commission DD780704
Expires 04/21/2012

—AND—

11. Verification pursuant to Section 92 525. Florida Statutes. Under penalties of perjury, I declare that I have read the foregoing and that the facts stated in it are true to the best of my knowledge and belief.

X _____
Signature of Natural Person Signing (in line #10 above.)

Town & Country
INDUSTRIES
Wholesale Aluminum and Building Products
A Division of ABC Supply Co., Inc.

This letter is to certify that the company/person listed below has authorization to use Town & Country Industries engineering supplied by Lawrence E Bennett, PE. FL #16644.

A certified original approval letter from Town & Country Industries must accompany all Town & Country Industries engineering packages along with either a certified approved master filed contractor list or raised seal engineering.

It is the exclusive responsibility of the contractor and or purchaser to ensure the proper alloy is used in the structure when permitting with Town & Country Industries engineering.

Company Name Timberlake Aluminum
Job name Pittman
Job address 4143 SW Watson Rd.
Fort White, FL 32038

Signed [signature] Date 1/27/09
Town & Country Representative/District Manager

COLUMBIA COUNTY BUILDING DEPARTMENT
Received for FILE COPY
Code Compliance
PLANS EXAMINER

16748 Scheer Boulevard, Hudson, Florida 34667
Phone: 727.862.5483 Fax: 727.862.6283 Toll Free: 800.283.7882

50th year ANNIVERSARY 1957-2007

Route

eiving Hours
63

klift:

TOWN & COUNTRY INDUSTRIES
a division of ABC Supply Co. Inc.
16748 Scheer Boulevard
Hudson, FL 34667
Phone (727) 862-5483 or 1-800-283-7882
Fax (727) 862-6283
WWW http://www.tc-alum.com/
Email tcinfo@tc-alum.com

Date 01/28/09
Time 13:03:19
of Printing
Exp.DT 01/28/09
ProcLevel 6768
Terms: N30
Future: N

Order: 1574341
Customers: 63253

Ship To:
TIMBERLAKE ALUMINUM
25370 NW 8TH PL
NEWBERRY FL 32669

TIMBERLAKE ALUMINUM
25370 NW 8TH PL
NEWBERRY FL 32669

Phone: 352-472-6850

Customer P.O. #PITTMAN

Entered by Operator: cbarron at 28-JAN-09
Changed by Operator: cbarron

Signature: Jeff Jacobsen
Date: 1/29/09
Received:

QTY	UOM	Part ID#	Description	Price	Per	Amount
20.00	EA	1066236	1X8 LAP BRZ 36.00'	2.320	LF	1670.45
4.00	EA	1364002	2X5 062 POST 30' BRZ	2.870	LF	344.40
3.00	EA	1364230	2X4X045 BRZ 30.00'	1.580	LF	142.20
10.00	EA	1366230	3X2X045 BRZ 30.00'	1.300	LF	390.00
10.00	EA	1358230	2X3X045 BRZ 30.00'	1.300	LF	390.00
12.00	EA	1016230	2X2 PATIO .040 MIN. BRZ 30.00'	0.970	LF	349.20
10.00	EA	1006230	1X2 PATIO .040 MIN. BRZ 30.00'	0.550	LF	165.00
3.00	EA	2693212	12'S.S-CABLE W/BRZ TRI-BRKT	8.260	EA	24.78
3.00	EA	2693214	14'S.S-CABLE W/BRZ TRI-BRKT	8.470	EA	25.41
2.00	EA	1827216	PHR FRAME FULL Z-16"KP BRZ W/Weather Strip	59.850	EA	119.70
2.00	EA	2049200	LATCH & CLOSER KIT BRZ S.S ROD	6.000	EA	12.00
2.00	EA	2066200	BUGSWEEP 36" BRZ	0.900	EA	1.80

ALL METAL IS 6005

Goods Amount: 3634.95
6.75% Sales Tax Tax Amount: 245.38
Total Amount: 3880.33

120

This engineering is valid for permit ONLY if accompanied by a sealed authorization letter from Town & Country Industries

Design Check List for Pool Enclosures

I. Design Statement:

These plans have been designed in accordance with the Aluminum Structures Design Manual by Lawrence E. Bennett and are in compliance with the 2004 Florida Building Code Edition with 2006 Supplements, Chapter 20, ASM35 and The 2005 Aluminum Design Manual Part I-A & II-A; Exposure 'B' ✓ or 'C'___ or 'D'___; Importance Factor 0.87 for 100 MPH and 0.77 for 110 MPH and higher; Negative I.P.C. 0.00; ___ MPH Wind Zone for 3 second wind gust; Basic Wind Pressure ____; Design pressures are ___ PSF for roofs & ___ PSF for walls. (see page 1 for wind loads and design pressures) A 300 PLF point load is also considered for screen roof members.

Notes: Wind velocity zones and exposure category is determined by local code. Design pressures and conversion multipliers are on page 1.

II. Host Structure Adequacy Statement:

I have inspected and verify that the host structure is in good repair and attachments made to the structure will be solid.

Craig Timberlake Phone: 352-472-6850
Contractor / Authorized Rep* Name (please print)

Date: 1-28-09
Contractor / Authorized Rep* Signature

PITTMAN / 4143 SW WATSON Rd Hwhite FL
Job Name & Address

Note: If the total of beam span & upright height exceeds 50' or upright height exceeds 16', site specific engineering is required.

III. Building Permit Application Package contains the following:

	Yes	No
A. Project name & address on plans	✓	
B. Site plan or survey with enclosure location	✓	
C. Contractor's / Designer's name, address, phone number, & signature on plans	✓	
D. Site exposure form completed	✓	
E. Enclosure layout drawing @ 1/8" or 1/10" scale with the following:	✓	
1. Plan view with host structure, enclosure length, projection from host structure, and all dimensions	✓	
2. Front and side elevation views with all dimensions & heights	✓	
Note: All mansard wall drawings shall include mansard panel at the top of the wall.		
3. Beam location (show in plan & elevation view) & size (Table 1.1 & 1.6)	✓	

Roof frame member allowable span conversions from 120 MPH wind zone, "B" Exposure to _____ MPH wind zone and / or __"C" or __"D" Exposure for load width of ____:

Note: Conversion factors do not apply to members subject to point load (P).

Look up span in appropriate 120 MPH span table and apply the following formula:

Span @ 120 MPH → _____ (b or d) x ____ (b or d) x ____ (b or d) = _____ ← Required Converted Span / Height

Wind Zone Multiplier (see page 1) ← ____ ; Exposure Multiplier (see this page 1) ← ____

4. Upright location (show in plan & elevation view) & size (Table 1.3 & 1.6)	✓	
5. Chair rail & girt size, length, & spacing (Table 1.4)	✓	
6. Eave rail size, length, spacing and stitching of (Table 1.2)	✓	

*** Must have attended Engineer's Continuing Education Class within the past two years.**

Wall frame member allowable span conversions from 120 MPH wind zone, "B" Exposure to ✓ MPH wind zone and / or __"C" or __"D" Exposure for load width of _____:

Look up span in appropriate 120 MPH span table and apply the following formula:

Span / Height @ 120 MPH or ___ MPH → _____ (b or d) x ____ (b or d) x ____ (b or d) = _____ ← Required Converted Span / Height

Wind Zone Multiplier ** ← ____ ; Exposure Multiplier (see page 1) ← ____

	Yes	No
7. Enclosure roof diagonal bracing in plan view	✓	
8. Knee braces length, location, & size (Table 1.7)	✓	
9. Wall cables or K-bracing sizes shown in wall views	✓	

IV. Highlight details from the Aluminum Structures Design Manual:

A. Beam & purlin tables with size, thickness, spacing, & spans / lengths (Tables 1.1 & 1.2 or 1.9.1 & 1.9.2)	✓	
B. Upright & girt tables with size, thickness, spacing, & spans / lengths (Tables 1.3 & 1.4)	✓	
C. Table 1.6 with beam & upright combination	✓	

COLUMBIA COUNTY BUILDING DEPARTMENT Received for FILE COPY Code Compliance PLANS EXAMINER

D. Connection details to be use such as:	Yes	No
1. Beam to upright	✓	
2. Beam to wall	✓	
3. Beam to beam	✓	
4. Chair rail, purlins, & knee braces	✓	
5. Extruded gutter connections	✓	
6. Angle to deck and / or sole plate	✓	
7. Anchors go through pavers into concrete		✓
8. Minimum footing and / or knee wall details		
9. Cable or K- brace details Section 1	✓	

Wall area calculations for cables:
W = wall width, H = wall height, R = rise
W1 = width @ top of mansard, W2 = width @ top of wall

E. Select footing from examples in manual.

Example 1: Flat Roof

Front wall @ eave: ____ft. (W) x ____ft. (H) = ____ft.² (a) @ 100% = _____ ft.²

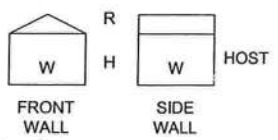
Largest side wall: ____ft. (W) x ____ft. (H) = ____ft.² (b) @ 50% = _____ ft.²

TOTAL = _____ ft.²

Total area / (233 ft.² / cable for 3/32") = _____cable pairs
or
Total area / (445 ft.² / cable for 1/8") = _____cable pairs

Side wall cable calculation: ____ft.² (b) @ 100% = _____ ft.²

Side wall area / (233 ft.² / cable for 3/32") = _____cable(s)
or
Side wall area / (445 ft.² / cable for 1/8") = _____cable(s)



Example 2: Gable Roof

Front wall @ eave: ____ft. (W) x ____ft. (H) = ____ft.² (a) @ 100% = _____ ft.²

Front gable rise: ____ft. (R) x 1/2(____ft. (W)) = ____ft.² (b) @ 100% = _____ ft.²

Largest side wall: ____ft. (W) x ____ (H) = ____ft.² (c) @ 50% = _____ ft.²

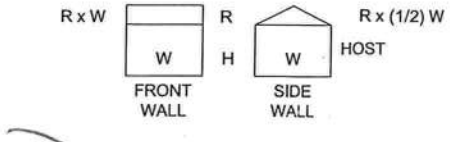
Largest side gable rise: ____ft. (R) x ____ft. (W) = ____ft.² (d) @ 50% = _____ ft.²

TOTAL = _____ ft.²

Total area / (233 ft.² / cable for 3/32") = _____cable pairs
or
Total area / (445 ft.² / cable for 1/8") = _____cable pairs

Side wall cable calculation: ____ft.² (c) + ____ft.² (d) = ____ft.² @ 100% = _____ ft.²

Side wall area / (233 ft.² / cable for 3/32") = _____cable(s)
or
Side wall area / (445 ft.² / cable for 1/8") = _____cable(s)



Example 3: Transverse Gable Roof

Front wall @ eave: ____ft. (W) x ____ft. (H) = ____ft.² (a) @ 100% = _____ ft.²

Front gable rise: ____ft. (R) x ____ft. (W) = ____ft.² (b) @ 100% = _____ ft.²

Largest side wall: ____ft. (W) x ____ = ____ft.² (c) @ 50% = _____ ft.²

Largest side gable rise: ____ft. (R) x 1/2 (____ft. (W)) = ____ft.² (d) @ 50% = _____ ft.²

TOTAL = _____ ft.²

Total area / (233 ft.² / cable for 3/32") = _____cable pairs
or
Total area / (445 ft.² / cable for 1/8") = _____cable pairs

Side wall cable calculation: ____ft.² (c) + ____ft.² (d) = ____ft.² @ 100% = _____ ft.²

Side wall area / (233 ft.² / cable for 3/32") = _____cable(s)
or
Side wall area / (445 ft.² / cable for 1/8") = _____cable(s)

Example 4: Mansard Roof

Front wall @ eave: 12'6" (W) x 9 ft. (H) = 112.5 (a) ft.² @ 100% = 562.5 ft.²

Front mansard rise: 3 ft. (R) x 1/2(12'6" (W1) + 5'6" (W2)) = 171 (b) ft.² @ 100% = 171 ft.²

Largest side wall: 35 ft. (W) x 9 (H) = 315 (c) ft.² @ 50% = 157.5 ft.²

Largest side mansard rise: 3 ft. (R) x 1/2(35 ft. (W1) + 22 ft. (W2)) = 85.5 (d) ft.² @ 50% = 42.75 ft.²

TOTAL = 933.75 ft.²

Total area / (233 ft.² / cable for 3/32") = _____cable pairs
or
Total area / (445 ft.² / cable for 1/8") = 2 cable pairs

Side wall cable calculation: 315 ft.² (c) + 855 ft.² (d) = 460.5 ft.² @ 100% = 460.5 ft.²

Side wall area / (233 ft.² / cable for 3/32") = _____cable(s)
or
Side wall area / (445 ft.² / cable for 1/8") = 1 cable(s)

Example 5: Dome Roof

Front dome wall @ eave: ____ft. (W) x ____ft. (H) = ____ft. (a) @ 100% = _____ ft.²

Front dome rise: ____ft. (R) x 1/2(____ft. (W)) = ____ft.² (b) @ 100% = _____ ft.²

Largest side wall: ____ft. (W) x ____ (H) = ____ft.² (c) @ 50% = _____ ft.²

Largest side dome rise: ____ft. (R) x ____ft. (W) = ____ft.² (d) @ 50% = _____ ft.²

TOTAL = _____ ft.²

Total area / (233 ft.² / cable for 3/32") = _____cable pairs
or
Total area / (445 ft.² / cable for 1/8") = _____cable pairs

Side wall cable calculation: ____ft.² (c) + ____ft.² (d) = ____ft.² @ 100% = _____ ft.²

Side wall area / (233 ft.² / cable for 3/32") = _____cable(s)
or
Side wall area / (445 ft.² / cable for 1/8") = _____cable(s)

Inspection Guide For Pool Enclosures

	Yes	No
1. Check the building permit for the following:		
a. Permit card & address	___	___
b. Approved drawings and addendums as required	___	___
c. Plot plan or survey	___	___
d. Notice of commencement	___	___
2. Check the approved site specific drawings or shop drawings against the "AS BUILT" structure for:	Yes	No
a. Structures length, projection, plan & height as shown on the plans	___	___
b. Beam size, span, spacing & stitching screws	___	___
c. Purlin size, span & spacing	___	___
d. Upright size, height, spacing & stitching screws	___	___
e. Chair rail size, length & spacing	___	___
f. Eve rail size, length, spacing & stitching of 1" x 2" to 2" x 2"	___	___
g. Enclosure roof diagonal bracing is installed snug	___	___
h. Wall cables or 'K' bracing are installed snug	___	___
i. Knee braces are properly installed	___	___
3. Check load bearing uprights for the following:	Yes	No
a. Angle bracket size & thickness	___	___
b. Correct number, size & spacing of fasteners to upright	___	___
c. Correct number, size & spacing of fasteners of angle to deck and sole plate	___	___
d. Upright is anchored to deck through brick pavers then anchors shall go through pavers into concrete	___	___
4. Check the load bearing beam to upright for:		
a. Upright to beam connection and / or splices have correct number & spacing of screws	Yes	No
b. Overlap beam to upright or gusset plate	___	___
c. If angle brackets are used in framing check for correct thickness and size & number of fasteners	___	___
5. Check load bearing beam to host structure and / or gutter for:	Yes	No
a. Receiver bracket, angle or receiving channel size & thickness	___	___
b. Size, number & spacing of anchors of beam to receiver	___	___
c. Size, number & spacing of anchors of receiver to host structure of gutter	___	___
d. Correct anchoring of gutters to host structure	___	___
6. Check the wall cables:	Yes	No
a. Location & number	___	___
b. Top bracket size and fasteners	___	___
c. Eye bolts are welded	___	___
d. Bottom strap to concrete connection	___	___
7. Check wall 'K' bracing (if required):	Yes	No
a. Location & size	___	___
b. Angle, gusset or clip size & number	___	___
c. Number & size of fasteners	___	___
8. Check electrical ground:	Yes	No
a. Properly completed	___	___
b. Angle, gusset or clip size & number	___	___
c. Number & size of fasteners	___	___
9. Check the doors on pool enclosures:	Yes	No
a. Door handle @ 54" from the deck	___	___

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COLUMBIA COUNTY BUILDING DEPARTMENT Received for FILE COPY Code Compliance PLANS EXAMINER

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ALUMINUM STRUCTURES DESIGN MANUAL
SCREEN ENCLOSURES
INSPECTION GUIDE / DESIGN CHECK LIST
2004 FBC W/ 2006 SUPPLEMENTS
2006 EDITION

Lawrence E. Bennett, P.E. FL # 16644
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SHEET 1 OF 2

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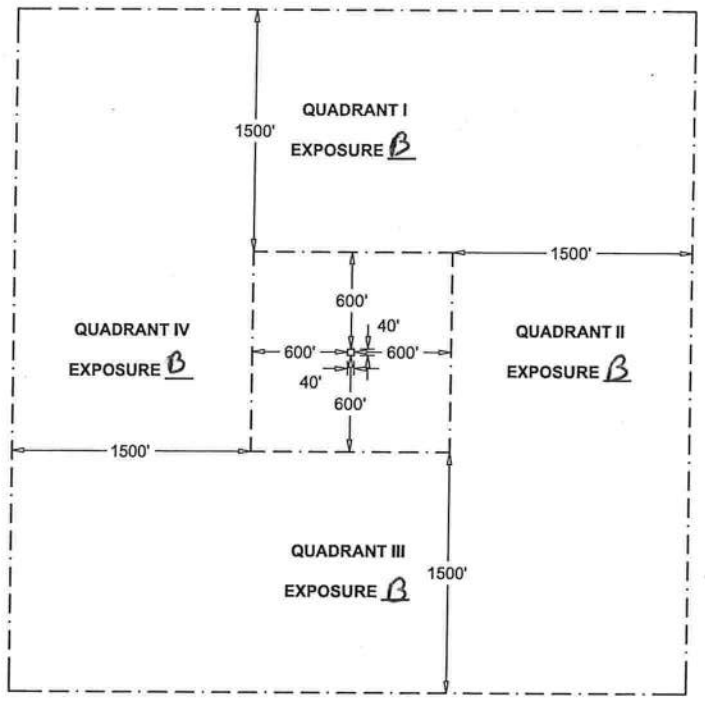
SITE EXPOSURE EVALUATION FORM



NOTE: ZONES ARE MEASURED FROM STRUCTURE OUTWARD

SITE
SCALE: 1" = 1200'

USING THE FOLLOWING CRITERIA, EVALUATE EACH QUADRANT AND MARK IT AS 'B', 'C', OR 'D' EXPOSURE. 'C' OR 'D' EXPOSURE IN ANY QUADRANT MAKE THE SITE THAT EXPOSURE.

EXPOSURE C:
1. OPEN TERRAIN FOR MORE THAN 1,500 FEET IN ANY QUADRANT.
2. ANY 'C' EXPOSURE FOR GREATER THAN 600 FEET IN ANY QUADRANT.
3. NO SHORT TERM CHANGES IN 'B', 2 YEARS BEFORE SITE EVALUATION AND BUILD OUT WITHIN 3 YEARS, SITE WILL BE 'B'.
4. FLAT, OPEN COUNTRY, GRASSLANDS, PONDS AND OCEAN OR SHORELINES IN ANY QUADRANT FOR GREATER THAN 1,500 FEET.

EXPOSURE D: FLAT, UNOBSTRUCTED AREAS THAT ARE 1,500 FT INLAND FROM THE SHORE LINE AND ARE EXPOSED TO WIND FLOWING OVER WATER FOR A DISTANCE OF AT LEAST 1 MILE.

SITE IS EXPOSURE: B EVALUATED BY: Craig Imbalzano DATE: 1-28-09

SIGNATURE: Craig Imbalzano LICENSE #: SCC056710

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SHEET 2 OF 2

10-24-2008

General Notes and Specifications:

1. The following structures are designed to be married to site built block or wood frame DCA approved modular structures of adequate structural capacity. The contractor / home owner shall verify that the host structure is in good condition and of sufficient strength to hold the proposed addition.
2. If the owner or contractor has a question about the host structure, the owner (at his own expense) shall hire an architect, engineer, or a certified home inspection company to verify host structure capacity.
3. The structures designed using this section shall be limited to a maximum combined span and upright height of 50' and a maximum upright height of 16'. Structures larger than these limits shall have site specific engineering.
4. Spans are for enclosures with mean roof heights less than 30'. For greater heights, consult engineer.
5. Connections to fascia shall be limited to overhangs shown in table 1.11 or less unless site specific engineering is provided.
6. The proper structural name for a chair rail or top rail of an enclosure is a girt. Thus the terminology shall be interchangeable.
7. Screws that penetrate the water channel of the super gutter shall have ends clipped off for safety of cleaning gutter and the heads of screws through the gutter into the fascia shall be caulked.
8. Section 7 contains span tables and attachment details for pans and composite panels.
9. When using TEK screws in lieu of S.M.S., longer screws must be used to compensate for drill head.
10. An additional super gutter strap or ferrule is required to be located near the midpoint of the beam spacing. Straps shall be attached to each truss / rafter tail when a 2" sub-fascia does not exist. Straps at the beam are not required when straps are placed @ each truss / rafter tail and spacing of straps does not exceed 2'-0".
11. Super or extruded gutter details are applicable to all widths of super or extruded gutters, and gutters may be substituted. Gutter straps and/or ferrules shall be the width of the inside and outside of the super or extruded gutter respectively. The center of the knee braces shall not be more than 6" above the top of the super or extruded gutter.
12. If the sub-fascia is 3/4", and the sub-fascia is in good repair, a 3/4" P.T.P. strip the width of the fascia may be added to the existing sub-fascia by attaching the plywood with (2) 16d x 3" common nails or (2) #8 x 3" screws. This gives the equivalent of a 2" fascia.
13. Spans may be interpolated between values but not extrapolated outside values.
14. All 2" X 4" and larger purlins shall have an internal or external angle clip or screw boss to fasten the bottom of the purlin to the beam.
15. Load width and / or panel spacing used in determining spans / heights is measured from center to center of the members.
    EXAMPLE:
    Screen panel A is 6' center to center. Screen panel B is 7' center to center. The load width of the frame member between panel A and B is (6'/2 + 7'/2) = 6.5' or 6'-6".
    The distance, spacing or load width is not measured between frame members as that would add 2" to the load width if figured that way.
16. For Design Check List and Inspection Guides for Screened Enclosures, see Appendix (Section 10).
17. All aluminum extrusions shall meet the strength requirements of ASTM B221 after powder coating.
18. Other shapes than those shown in Section 8 with State Product Approvals may be used with the details of this section so long as the shapes are compatible with the details.
19. All aluminum shall be ordered as to the alloy and hardness after heat treatment and paint is applied. Example: 6063-T6 after heat treatment and paint process.

Section 1 Design Statement:

The structures designed for Section 1 are framing systems with screen roofs & walls and loads have been determined by wind tunnel test that include any negative internal pressure coefficient. Since these structures are open, the negative internal pressure coefficient is considered to be 0.00. The design loads used are from Chapter 20 of the 2004 Florida Building Code w/ 2006 Supplements. The loads assume a mean roof height of less than 30'; roof slope of 0° to 20°; I = 0.87 for 100 MPH and 0.77 for 110 or higher. All loads are based on 20 / 20 screen or larger. Multiply wall heights by 1.10 for members controlled by bending(b) and 1.07 for members controlled by deflection(d) when using 18 / 14 screen. All pressures shown in the below table are in PSF (#/SF). All framing components are considered to be 6005 T-5 alloy.

General Notes and Specifications for Section 1 Tables:

SECTION 1 Uniform Loads for Structures with Screen Roof & Walls

Wind Velocity (MPH)	Basic Wind Pressure (PSF)	Exposure 'B' Roofs (PSF)	Exposure 'B' Windward Walls (PSF)	Exposure 'B' Leeward Walls (PSF)	Exposure 'C' Roofs (PSF)	Exposure 'C' Windward Walls (PSF)	Exposure 'C' Leeward Walls (PSF)
100	13	3	12	10	5	17	13
110	14	4	13	9	5	18	14
120	17	4	15	13	6	21	17
123	18	4.3	15.9	13.3	6.3	22.2	17.6
130	20	5	18	14	7	25	19
1401 & 2	23	6	21	15	8	29	23
150	26	7	24	18	9	33	27

Loads per table 2002.4

Multipliers only apply to members when spans / heights are controlled by wind pressure, not by point load.

Conversion Table 1A
Wind Zone Conversion Factors for Screen Roof or Wall Frame Members
From 120 MPH Wind Zone to Others; Exposure 'B'

Wind Zone (MPH)	Roofs Applied Load (PSF)	Roofs Conversion Factor	Walls Applied Load (PSF)	Walls Conversion Factor
100	3	1.15	12	1.12
110	4	1.00	13	1.07
120	4	1.00	15	1.00
123	4.3	0.96	15.9	0.97
130	5	0.89	18	0.91
1401 & 2	6	0.82	21	0.85
150	7	0.76	24	0.79

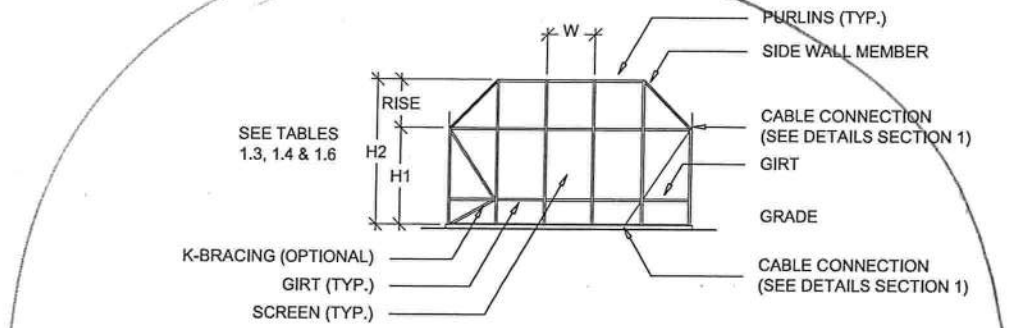
Notes:
Multipliers are for wall loads only.
Multipliers only apply to members when spans / heights are controlled by wind pressure, not by point load.

Conversion Table 1B
Load Conversion Factors Based on Mean Roof Height from Exposure "B" to "C" & "D"

Mean Roof Height*	Exposure "B" to "C" Load Conversion Factor	Exposure "B" to "C" Span Multiplier Bending	Exposure "B" to "C" Span Multiplier Deflection	Exposure "B" to "D" Load Conversion Factor	Exposure "B" to "D" Span Multiplier Bending	Exposure "B" to "D" Span Multiplier Deflection
0 - 15'	1.21	0.91	0.94	1.47	0.83	0.88
15' - 20'	1.29	0.88	0.92	1.54	0.81	0.87
20' - 25'	1.34	0.86	0.91	1.60	0.79	0.86
25' - 30'	1.40	0.85	0.89	1.66	0.78	0.85
30' - 40'	1.37	0.85	0.90	1.61	0.79	0.85

* Use larger mean roof height of host structure or enclosure
Values are from ASCE 7-02
Multipliers only apply to members when spans / heights are controlled by wind pressure, not by point load.

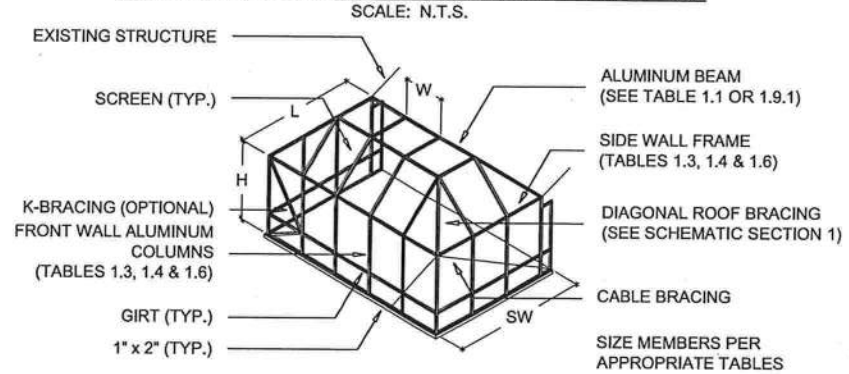
Conversion Example (Convert span for Exposure "B" to "C"):
If max span found from span tables for Exposure "B" = 31'-11" = 31.92'
and the mean roof height of the structure is 0-15' then multiply span by 0.91
the span for Exposure "C" is 31.92' * 0.91 = 29.05' = 29'-1"



NOTE: USE H2 FOR CABLE AREA CALCULATION

TYPICAL MANSARD ROOF - FRONT WALL ELEVATION

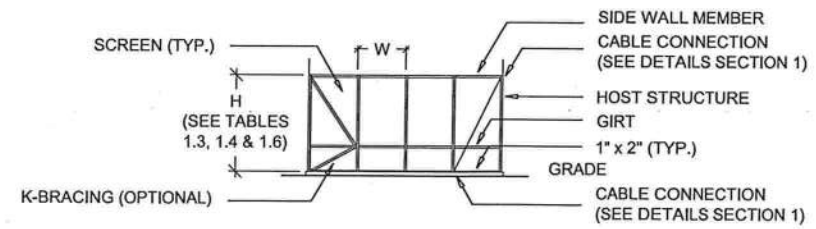
SCALE: N.T.S.



TYPICAL MANSARD ROOF - ISOMETRIC

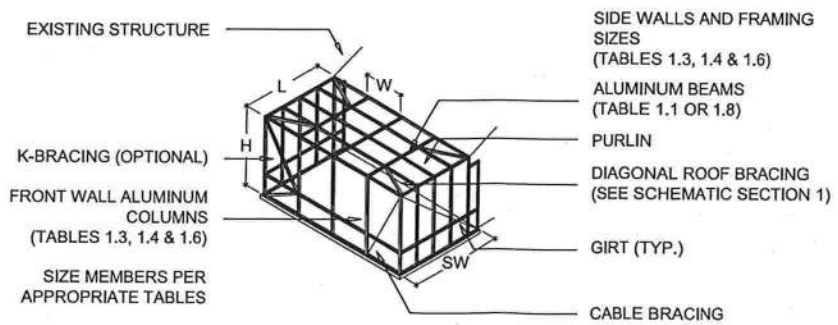
SCALE: N.T.S.

CONNECTION DETAILS AND NOTES ARE FOUND IN THE SUBSEQUENT PAGES.



TYPICAL FLAT ROOF - FRONT WALL ELEVATION

SCALE: N.T.S.



TYPICAL FLAT ROOF - ISOMETRIC

SCALE: N.T.S.

TYPICAL NOMENCLATURE FOR SCREENED ENCLOSURES:

H - MAXIMUM UPRIGHT HEIGHTS
L - MAXIMUM BEAM SPAN WITHOUT KNEE BRACE.
(ADD HORIZONTAL LENGTH OF KNEE BRACE TO SPAN FROM TABLES)
SW - SIDE WALLS CAN BE FRAMED WITHOUT TOP BEAM AND CAN BE SMALLEST EXTRUSIONS ALLOWED BY SPAN TABLES
W - SCREEN PANEL SPACING

CONNECTION DETAILS AND NOTES ARE FOUND IN SUBSEQUENT PAGES.

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SCREEN ENCLOSURES
SECTION 1 DETAILS
2004 FBC W/ 2006 SUPPLEMENTS
2006 EDITION

PURSUANT TO PROVISIONS OF THE FLORIDA DEPARTMENT OF HIGHWAY SAFETY & MOTOR VEHICLES DIVISION OF MOTOR VEHICLES RULE 15C-2, THE SPAN TABLES, CONNECTION DETAILS, ANCHORING AND OTHER SPECIFICATIONS ARE DESIGNED TO BE MARRIED TO CONVENTIONALLY CONSTRUCTED HOMES AND / OR MANUFACTURED HOMES AND MOBILE HOMES CONSTRUCTED AFTER 1984.
5-21-2007

THE DESIGNS AND SPANS SHOWN ON THESE DRAWINGS ARE BASED ON THE LOAD REQUIREMENTS FOR THE FLORIDA BUILDING CODE 2004 EDITION W/ 2006 SUPPLEMENTS.

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ADDRESS: _____

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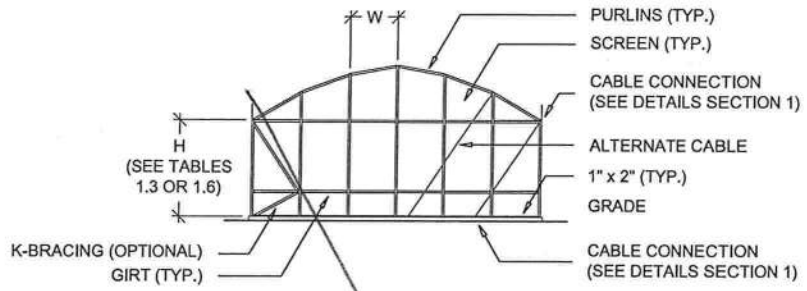
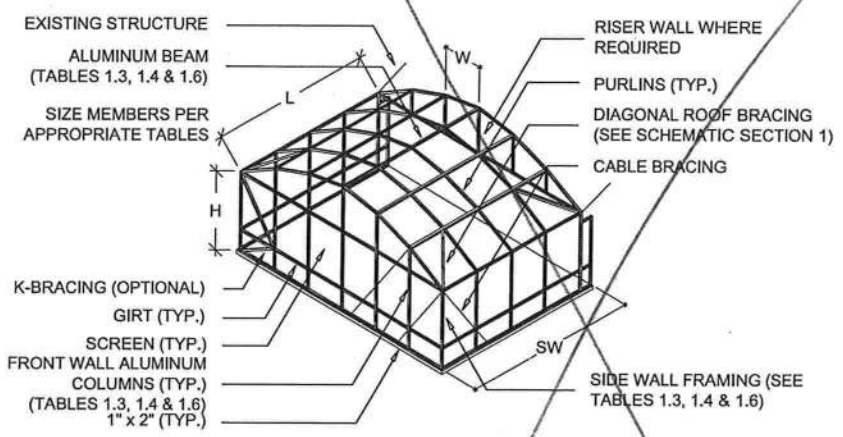


TYPICAL DOME ROOF - FRONT WALL ELEVATION

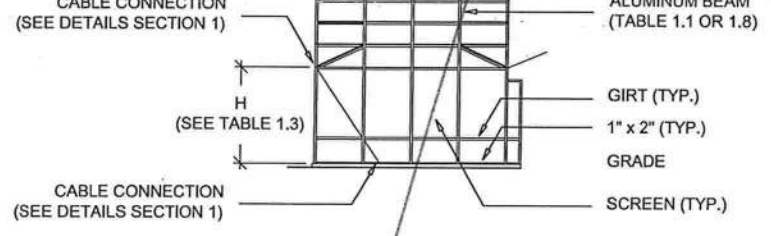
SCALE: N.T.S.



TYPICAL DOME ROOF - ISOMETRIC

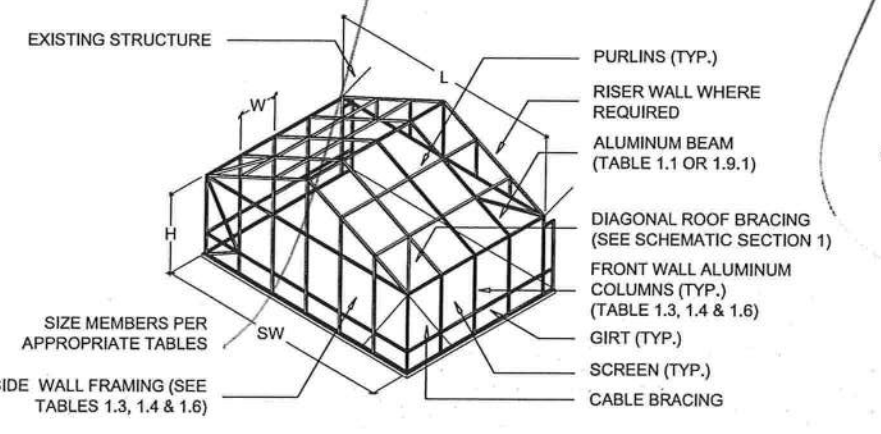
SCALE: N.T.S.

CONNECTION DETAILS AND NOTES ARE FOUND IN THE SUBSEQUENT PAGES.



TYPICAL GABLE ROOF - FRONT WALL ELEVATION

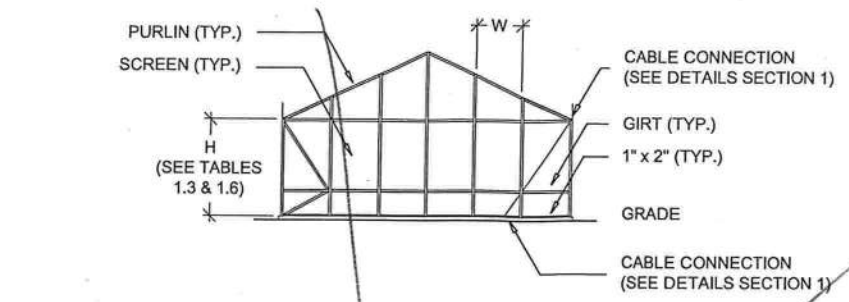
SCALE: N.T.S.



TYPICAL GABLE ROOF - ISOMETRIC

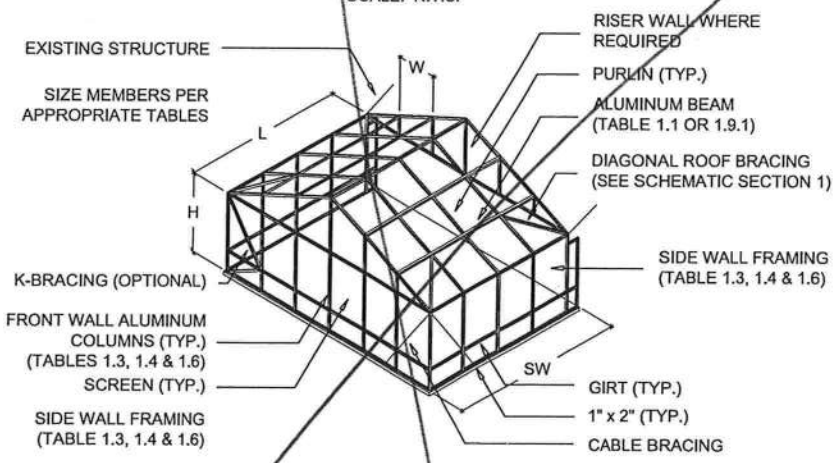
SCALE: N.T.S.

CONNECTION DETAILS AND NOTES ARE FOUND IN THE SUBSEQUENT PAGES



TYPICAL TRANSVERSE GABLE ROOF - FRONT WALL ELEVATION

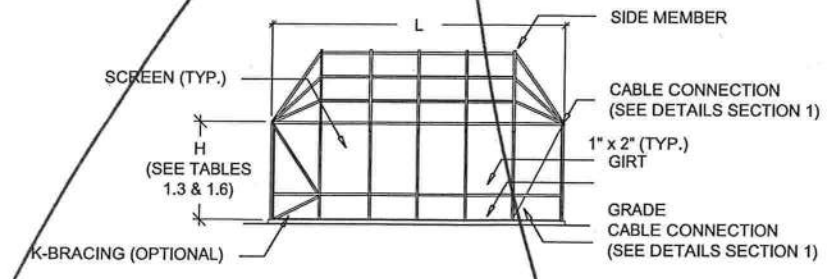
SCALE: N.T.S.



TYPICAL TRANSVERSE STACKED GABLE ROOF - ISOMETRIC

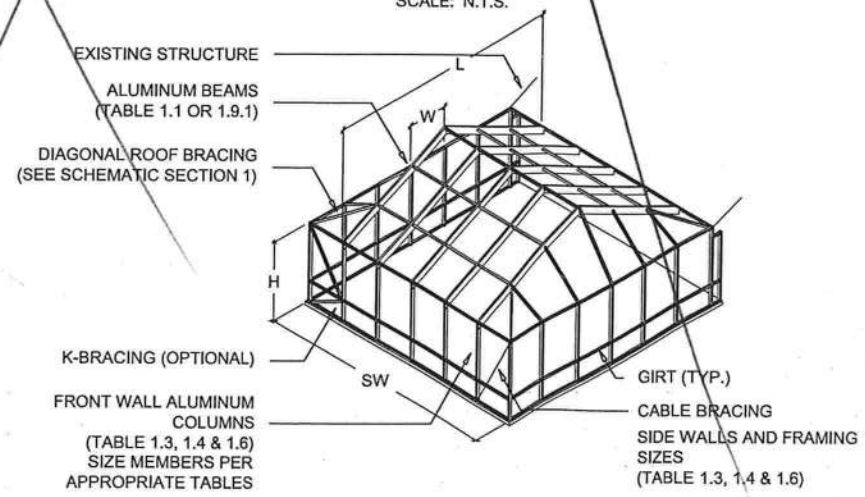
SCALE: N.T.S.

CONNECTION DETAILS AND NOTES ARE FOUND IN THE SUBSEQUENT PAGES



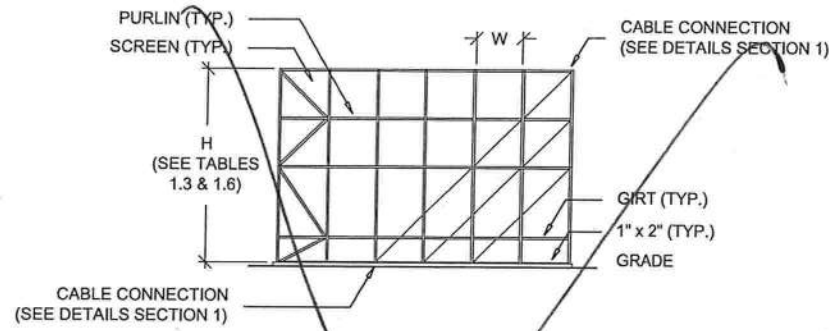
TYPICAL MODIFIED HIP ROOF - FRONT WALL ELEVATION

SCALE: N.T.S.



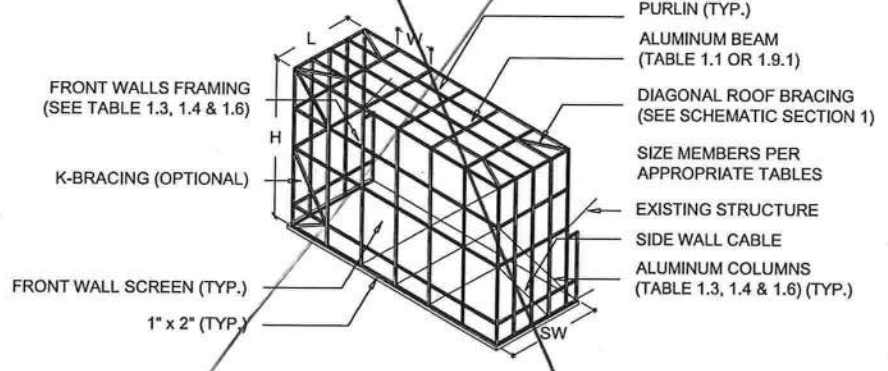
TYPICAL MODIFIED HIP ROOF - ISOMETRIC

SCALE: N.T.S.



TYPICAL TWO STORY POOL ENCLOSURE - FRONT WALL ELEVATION (ALL ROOF TYPES)

SCALE: N.T.S.



TYPICAL TWO STORY POOL ENCLOSURE - ISOMETRIC (ALL ROOF TYPES)

SCALE: N.T.S.

CONNECTION DETAILS AND NOTES ARE FOUND IN THE SUBSEQUENT PAGES

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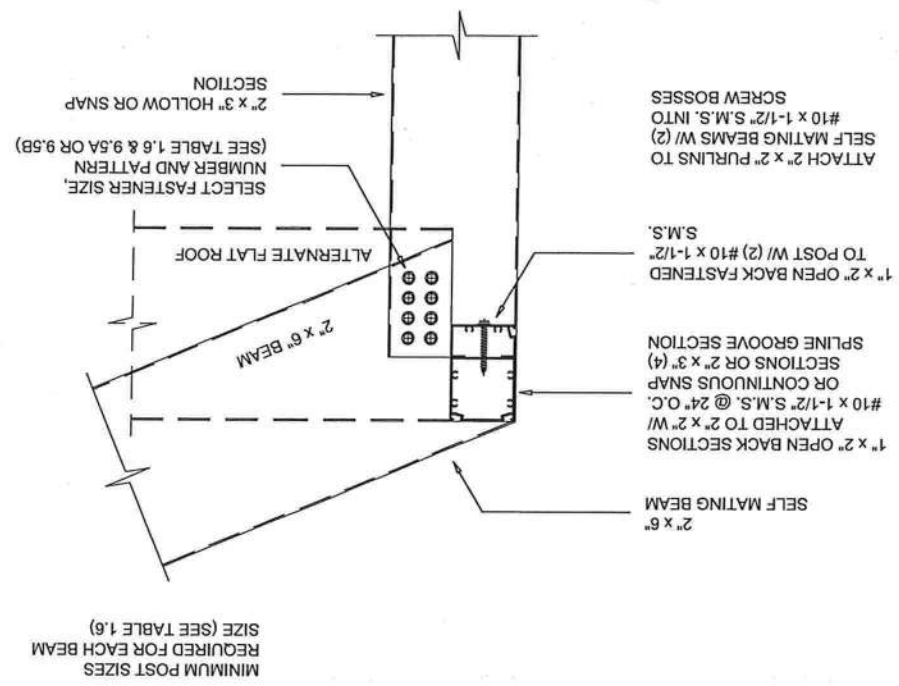
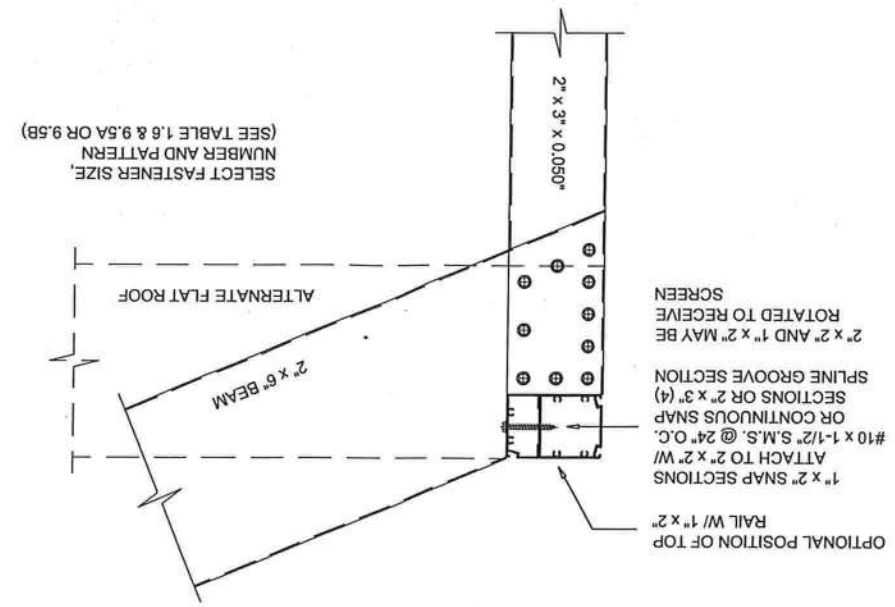
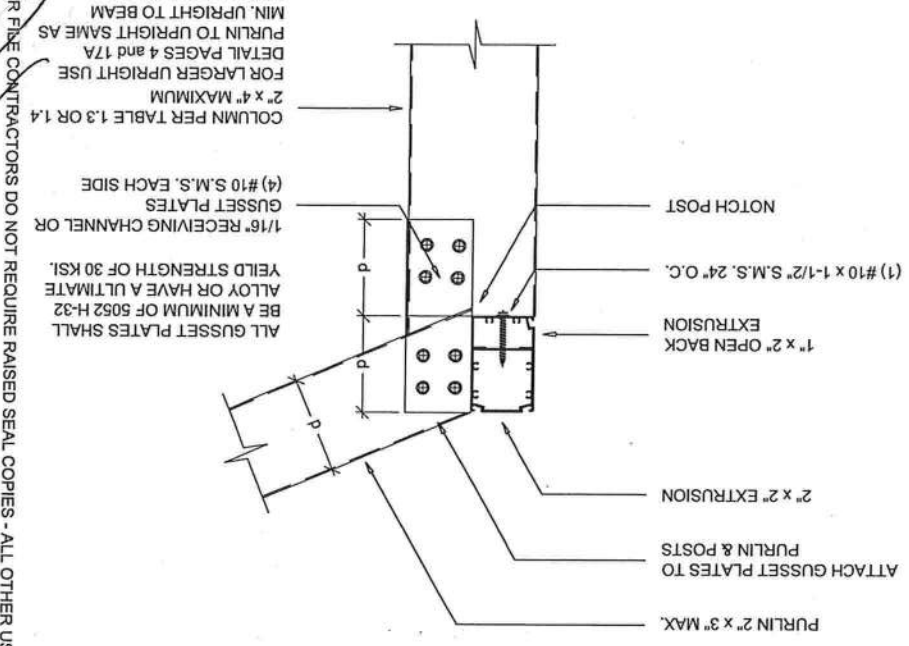
SLOPING BEAM TO UPRIGHT CONNECTION DETAIL (PARTIAL LAP)
SCALE: 2" = 1'-0"



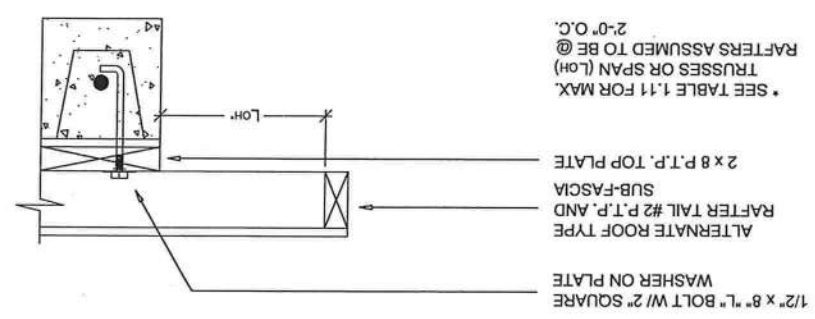
2" x 6" BEAM TO 2" x 3" UPRIGHT CONNECTION DETAIL (FULL LAP)
SCALE: 2" = 1'-0"



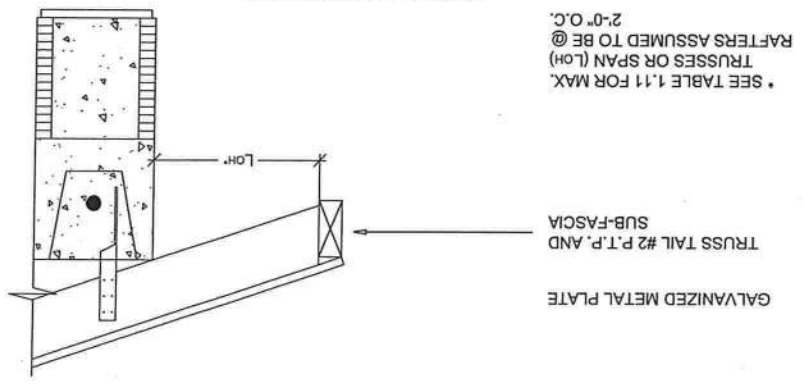
SIDE WALL TO PURLIN DETAIL
SCALE: 2" = 1'-0"



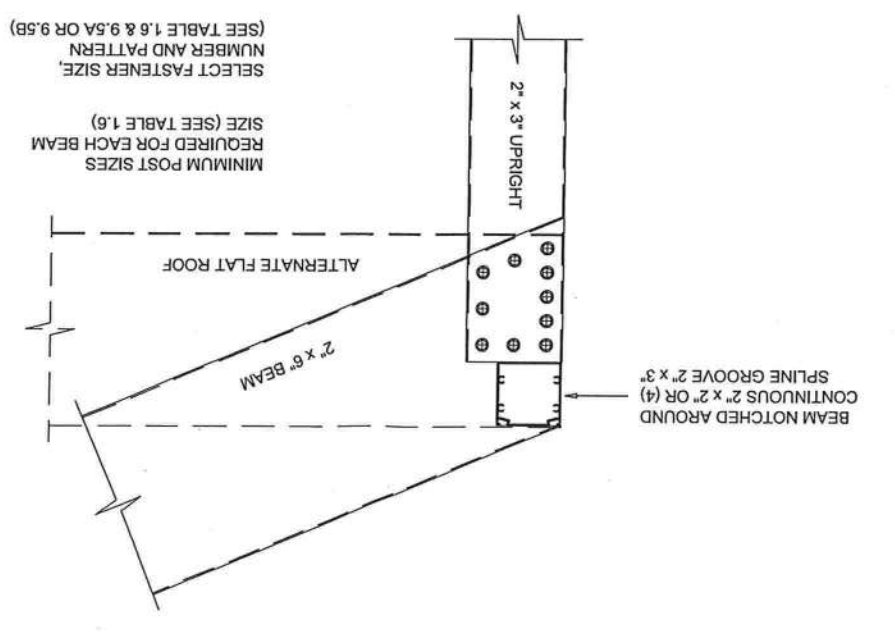
ALTERNATE TOP PLATE TRUSS / RAFTER TAIL ASSEMBLY
SCALE: 1" = 1'-0"



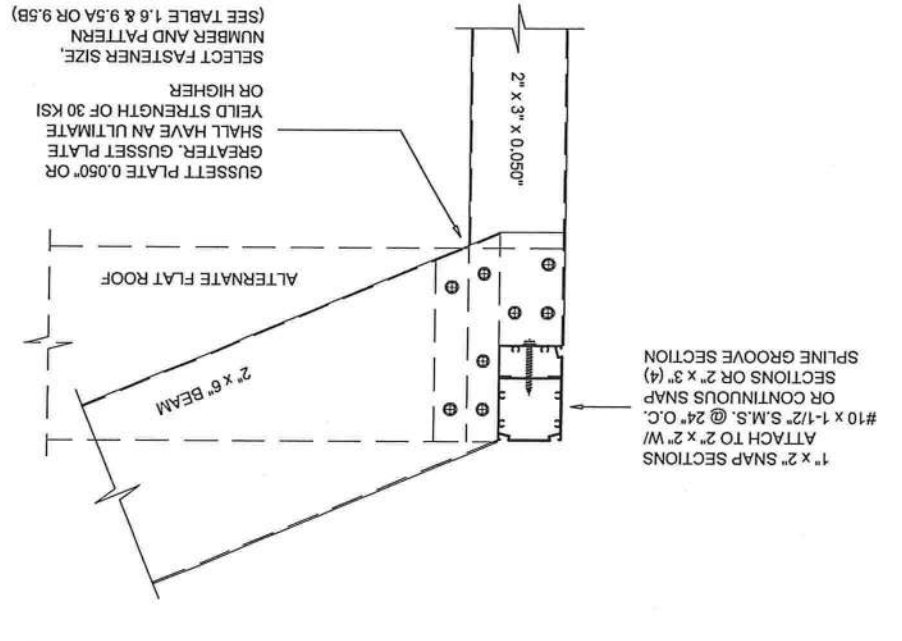
TRUSS / RAFTER TAIL
SCALE: 1" = 1'-0"

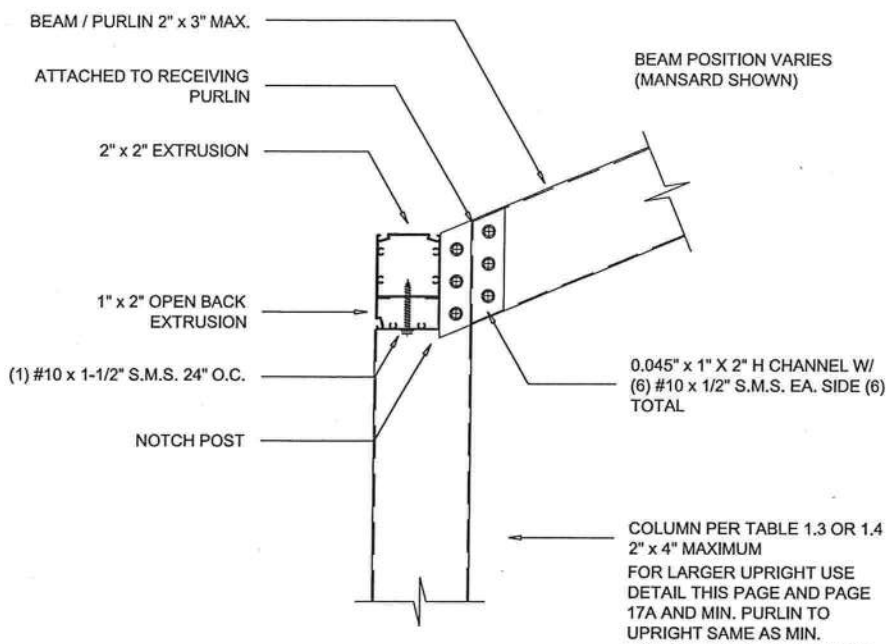


2" x 6" BEAM TO 2" x 3" UPRIGHT CONNECTION DETAIL (FULL LAP)
SCALE: 2" = 1'-0"



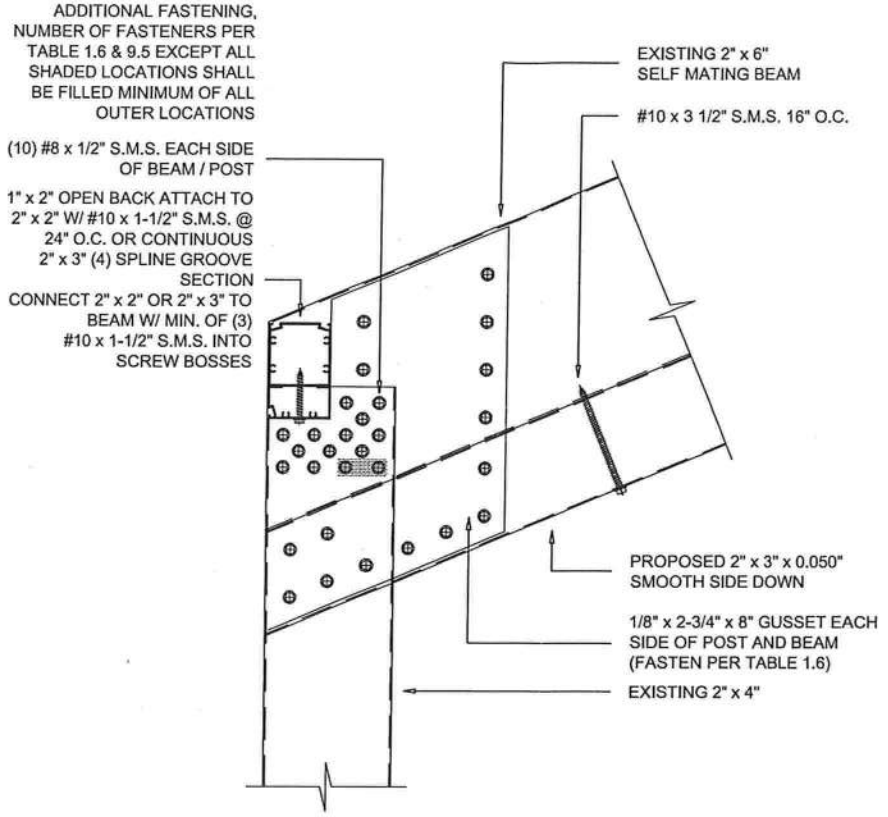
2" x 6" BEAM TO 2" x 3" UPRIGHT CONNECTION WITH GUSSET PLATE DETAIL (FULL LAP)
SCALE: 2" = 1'-0"





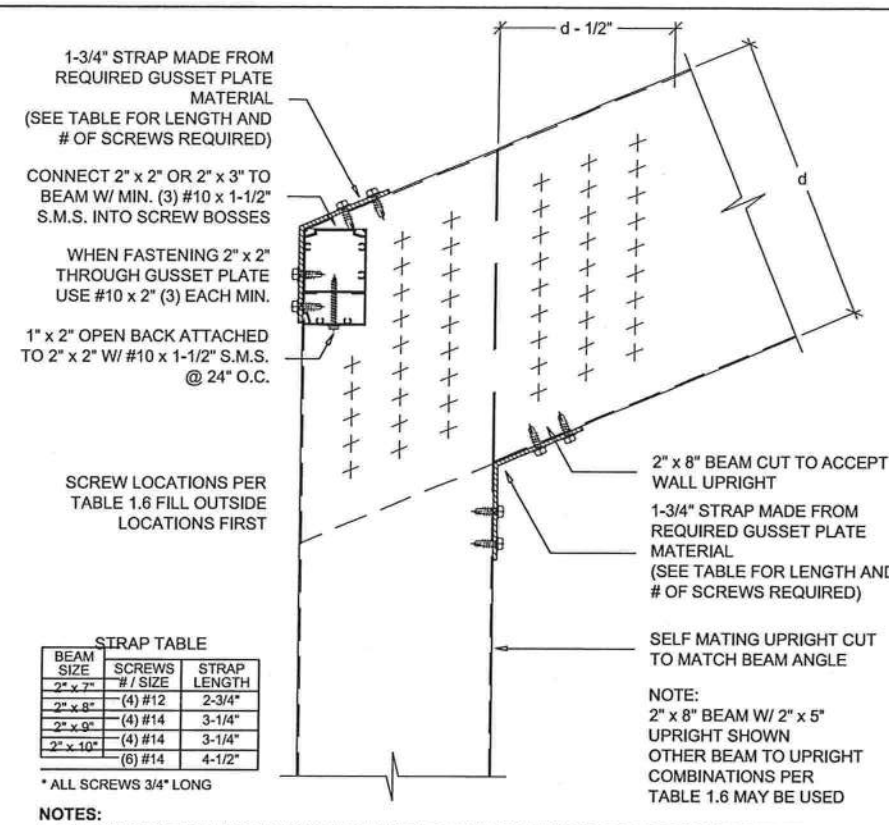
2" x 3" to 2" x 3" CONNECTION

SCALE: 2" = 1'-0"



ADDITION OF 2" x 3" TO EXISTING 2" x 6" S.M.B.

SCALE: 2" = 1'-0"



STRAP TABLE

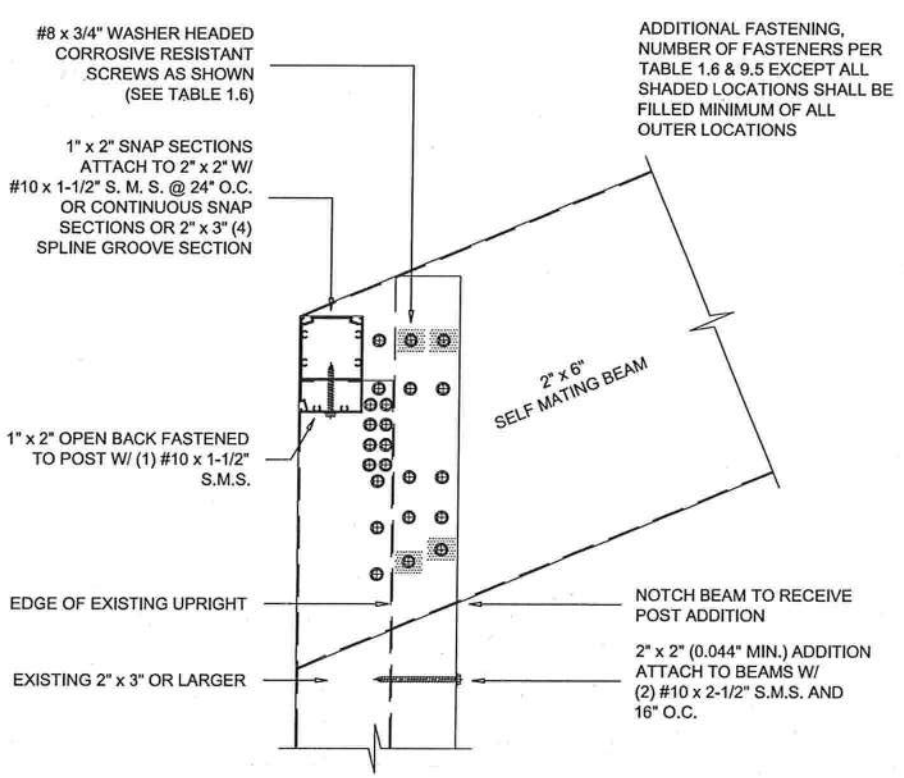
BEAM SIZE	SCREWS # / SIZE	STRAP LENGTH
2" x 7"	(4) #12	2-3/4"
2" x 8"	(4) #14	3-1/4"
2" x 9"	(4) #14	3-1/4"
2" x 10"	(6) #14	4-1/2"

* ALL SCREWS 3/4" LONG

NOTES:
1. FILL OUTER SCREW POSITIONS FIRST UNTIL REQUIRED NUMBER OF SCREWS IS ACHIEVED.
2. SEE TABLE 1.6 FOR SCREW SIZES AND NUMBER.
3. SCREW PATTERN LAYOUT W/ SPACING BETWEEN SCREWS GREATER THAN MINIMUM IS ALLOWED SO THAT EQUAL SPACING IS ACHIEVED.

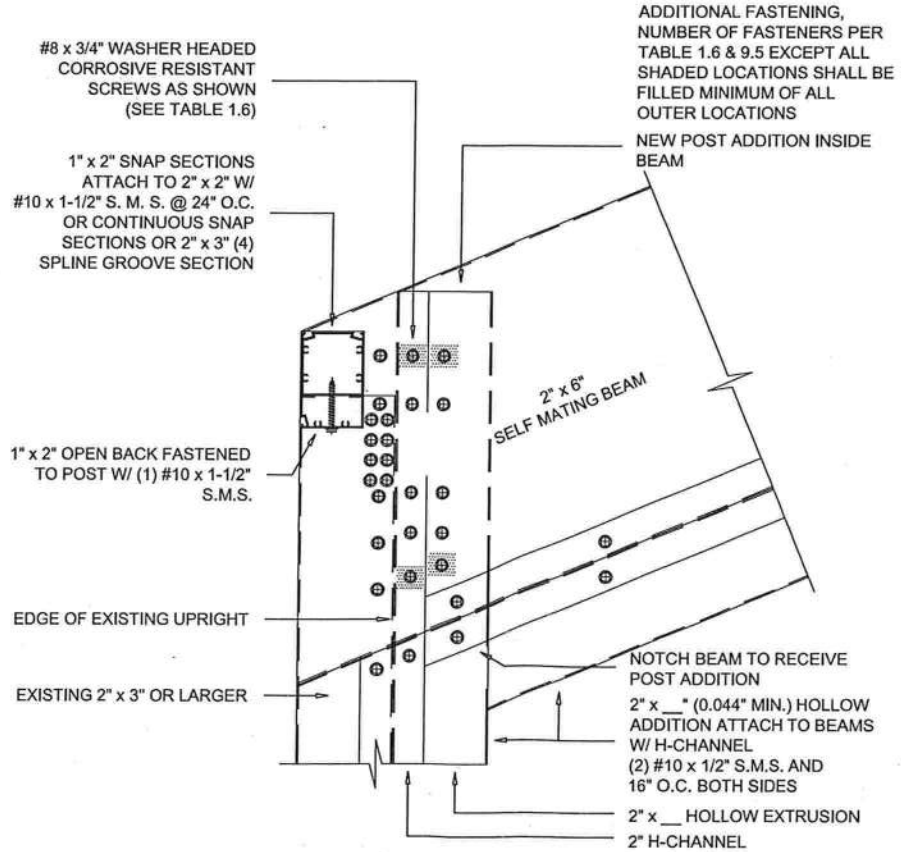
ALTERNATE BEAM TO EXTERNAL GUSSET PLATE CONNECTION (FULL LAP)

SCALE: 2" = 1'-0"



ADDITION OF 2" x 2" TO EXISTING 2" x 3"

SCALE: 2" = 1'-0"



ALTERNATE POST / BEAM ADDITION OF 2" x __" TO EXISTING 2" x __"

SCALE: 2" = 1'-0"

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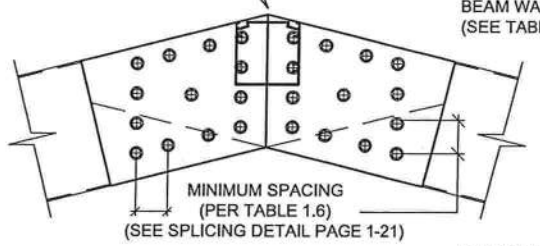
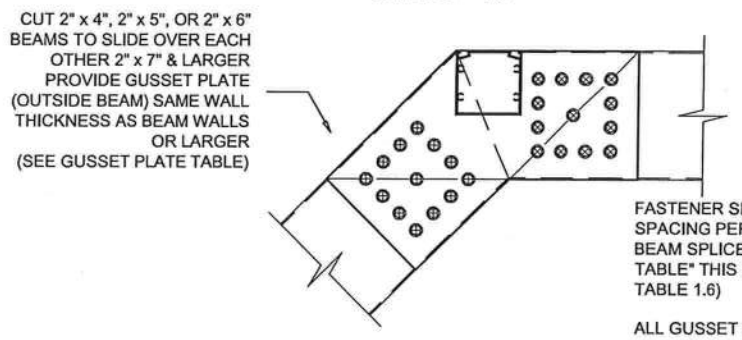


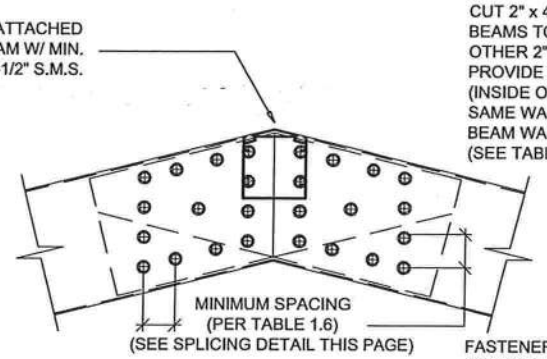
TYPICAL SIDE PLATE CONNECTION DETAIL

SCALE: 2" = 1'-0"



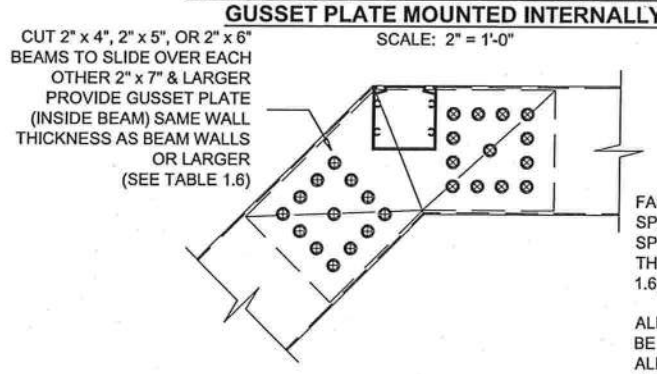
TYPICAL SIDE PLATE CONNECTION DETAIL - MANSARD ROOF

SCALE: 2" = 1'-0"



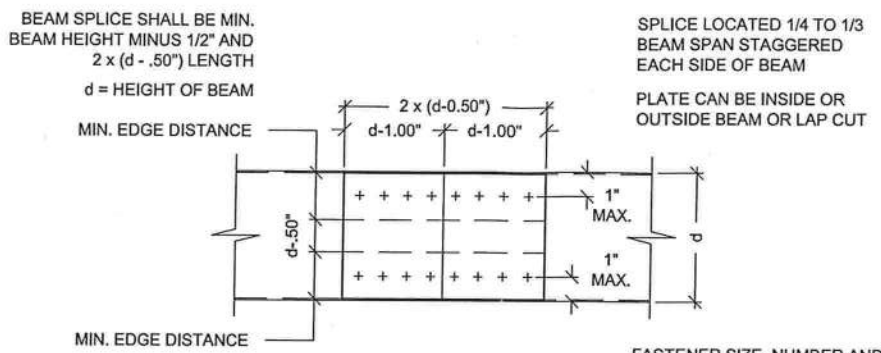
ALTERNATE SIDE PLATE CONNECTION DETAIL
GUSSET PLATE MOUNTED INTERNALLY

SCALE: 2" = 1'-0"



ALTERNATE SIDE PLATE CONNECTION DETAIL - MANSARD ROOF
GUSSET PLATE MOUNTED INTERNALLY

SCALE: 2" = 1'-0"

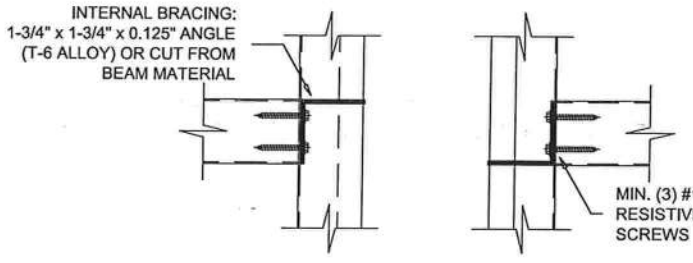


Screw Size	ds (in.)	Minimum Distance and Spacing of Screws*		Gusset Plate	
		Edge to Center 2ds (In.)	Center to Center 2-1/2ds (In.)	Beam Size	Thickness (in.)
#8	0.16	3/8	7/16	2" x 7" x 0.055" x 0.120"**	1/16 = 0.063
#10	0.19	3/8	1/2	2" x 8" x 0.072" x 0.224"	1/8 = 0.125
#12	0.21	7/16	9/16	2" x 9" x 0.072" x 0.224"	1/8 = 0.125
#14 or 1/4"	0.25	1/2	5/8	2" x 9" x 0.082" x 0.306"	1/8 = 0.125
5/16"	0.31	5/8	3/4	2" x 10" x 0.092" x 0.369"	1/4 = 0.25

* refers to each side of splice
** use for 2" x 4" and 2" x 6" also
Note:
1. All gusset plates shall be minimum 5052 H-32 Alloy or have a minimum yield of 30 ksi.

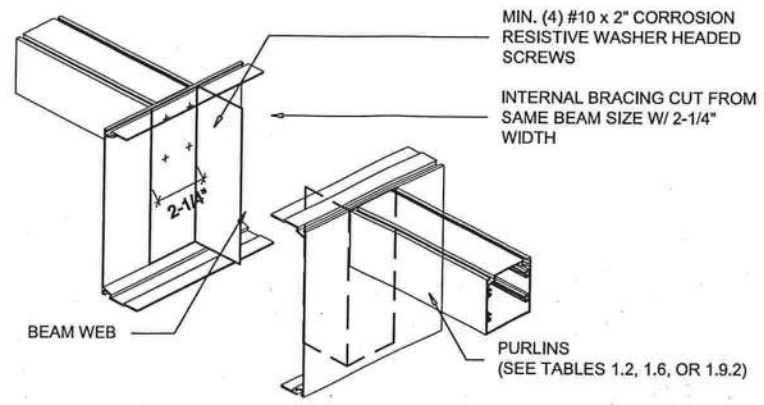
TYPICAL BEAM SPLICE DETAIL

SCALE: 2" = 1'-0"



PLAN VIEW

SCALE: 2" = 1'-0"

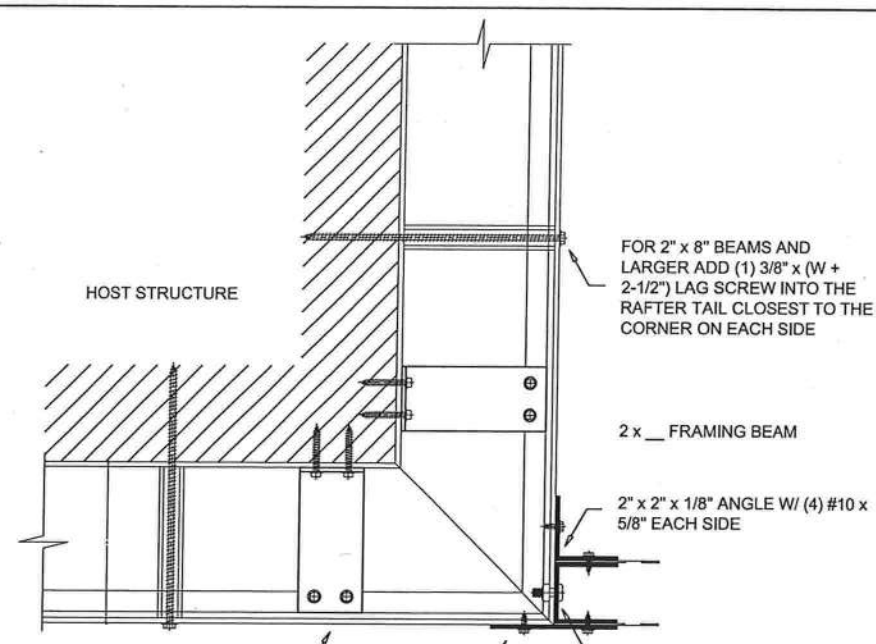


ISOMETRIC VIEW

SCALE: N.T.S.

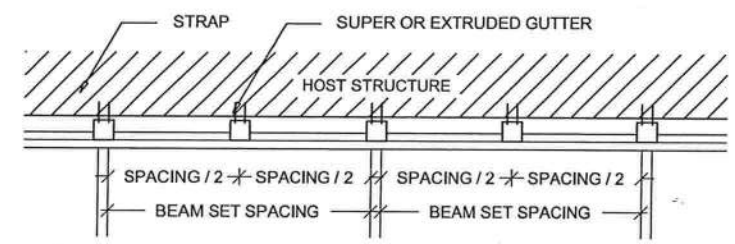
LATERAL BEAM BRACING DETAILS (FOR SPANS GREATER THAN 40'-0")

NOTES:
1. REQUIRED FOR SPANS GREATER THAN 40' AND ALL DOME OR TRANSVERSE GABLE ENCLOSURES.
2. ALL 2x4 AND LARGER PURLINS SHALL HAVE AN INTERNAL OR EXTERNAL ANGLE CLIP OR SCREW BOSS TO FASTEN THE BOTTOM OF THE PURLIN TO THE BEAM OR SCREW BOSS.



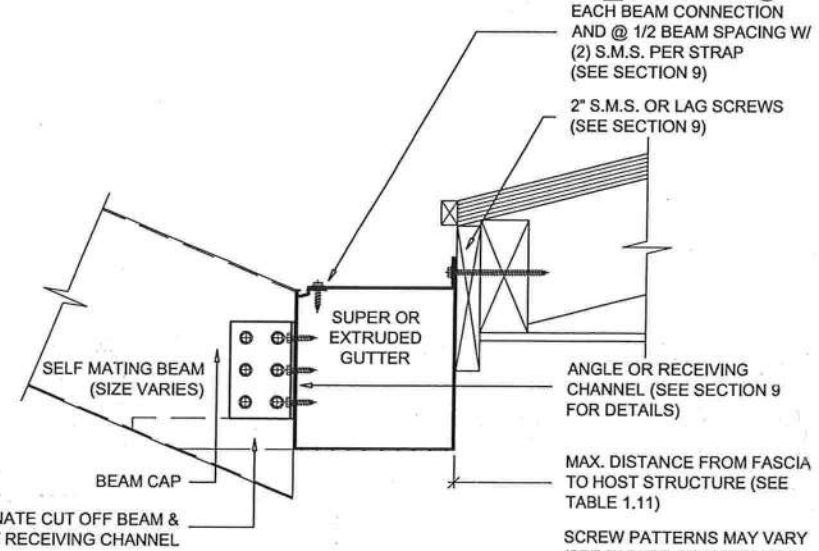
OUTER MITER DETAIL FOR SUPER GUTTER TO CARRIER BEAM

SCALE: 2" = 1'-0"



STRAP LOCATION FOR SUPER OR EXTRUDED GUTTER REINFORCEMENT

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



SELF MATING BEAM CONNECTION TO SUPER OR EXTRUDED GUTTER

SCALE: 2" = 1'-0"

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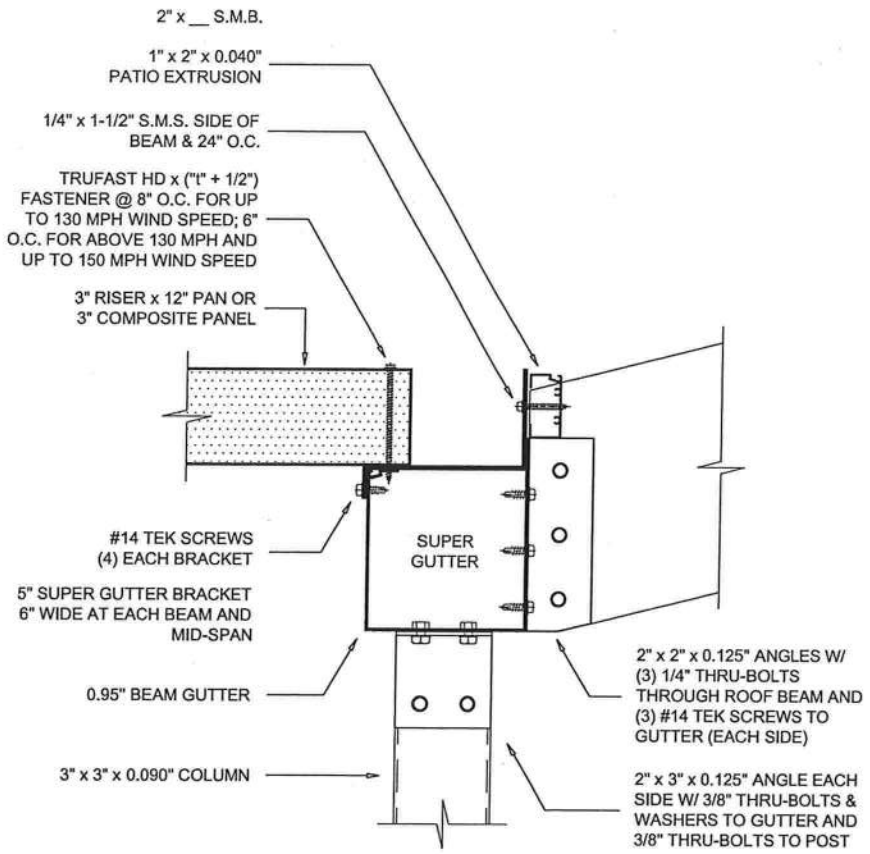
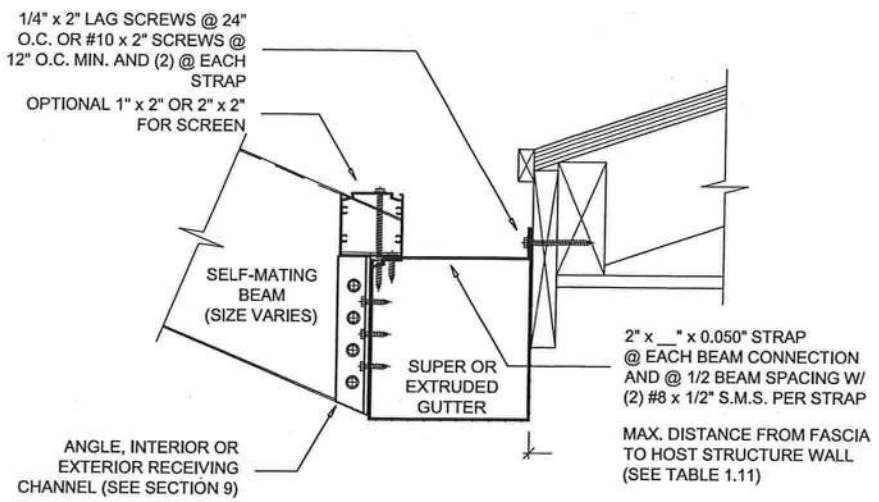
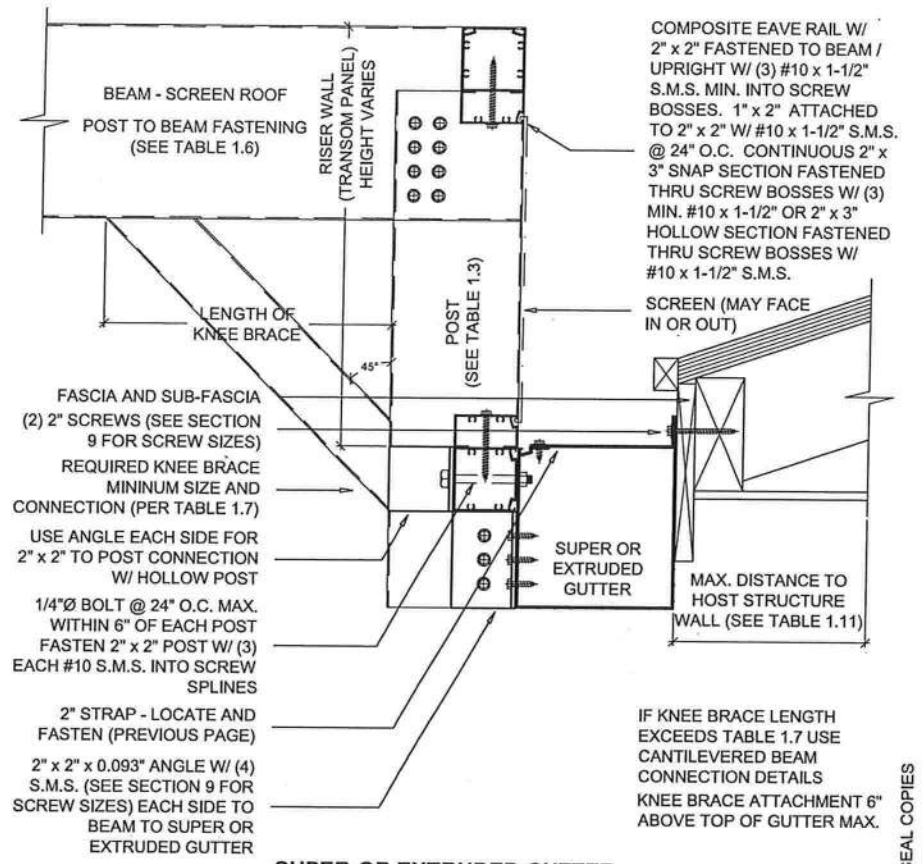


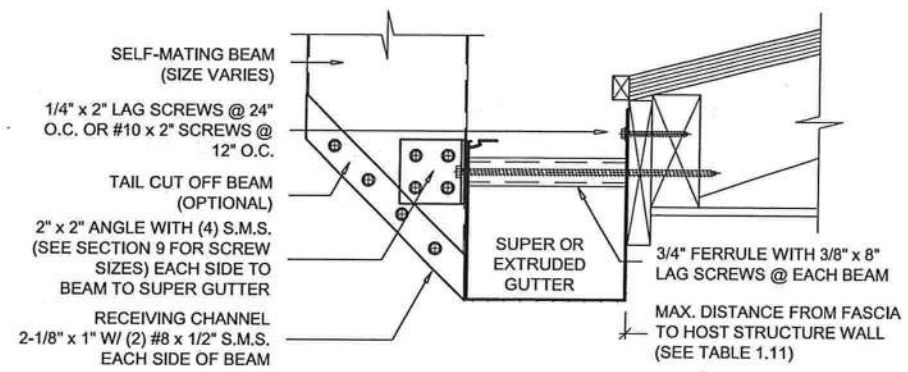
ALTERNATE SELF-MATING BEAM CONNECTION TO SUPER GUTTER
SCALE: 2" = 1'-0"



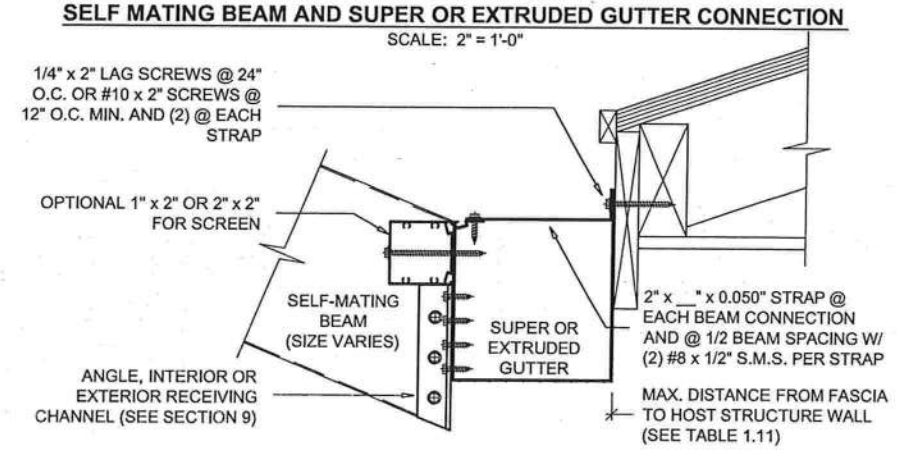
ALTERNATE SELF MATING BEAM CONNECTION TO SUPER OR EXTRUDED GUTTER
SCALE: 2" = 1'-0"



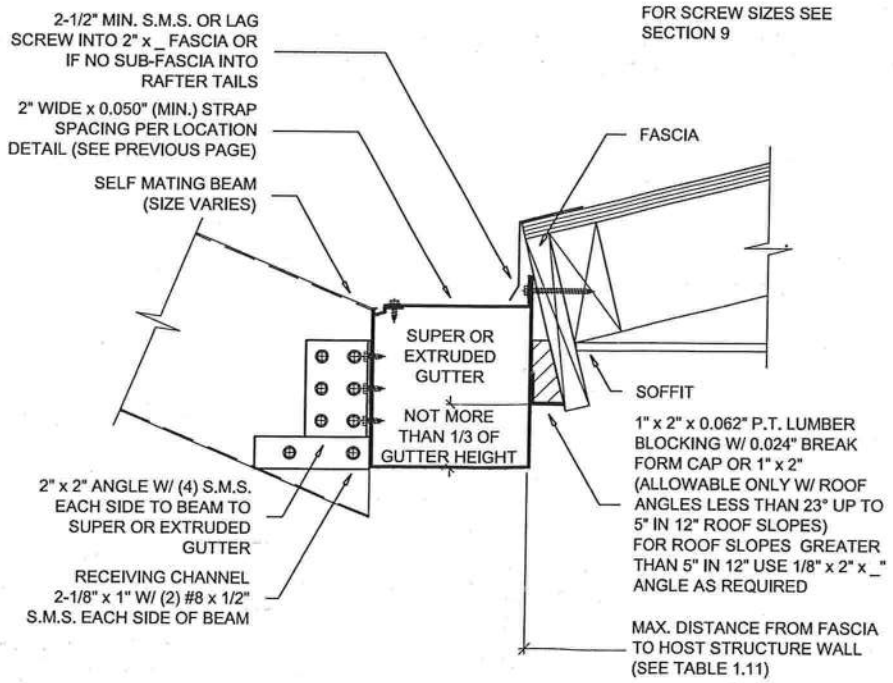
SUPER OR EXTRUDED GUTTER
RISER (OR TRANSOM) WALL AT FASCIA - DETAIL 1
SCALE: 2" = 1'-0"



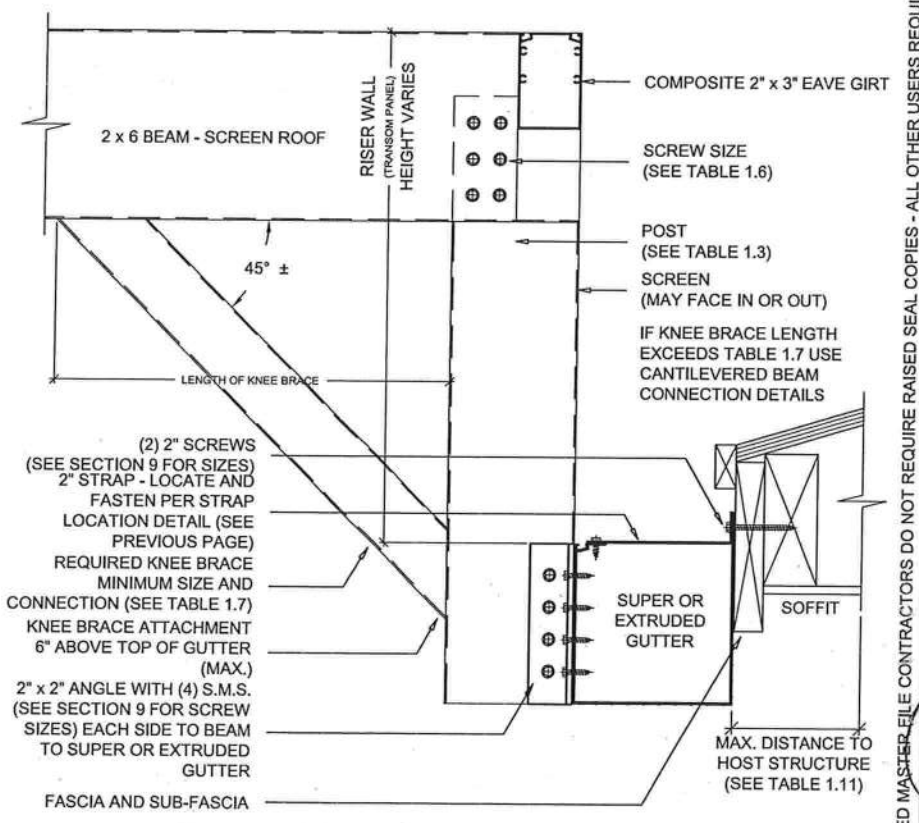
SELF MATING BEAM AND SUPER OR EXTRUDED GUTTER CONNECTION
SCALE: 2" = 1'-0"



SELF MATING BEAM CONNECTION TO SUPER OR EXTRUDED GUTTER
SCALE: 2" = 1'-0"



TYPICAL SELF MATING BEAM AND
SUPER OR EXTRUDED GUTTER CONNECTION
SCALE: 2" = 1'-0"



SUPER OR EXTRUDED GUTTER
RISER (OR TRANSOM) WALL AT FASCIA - DETAIL 2
SCALE: 2" = 1'-0"

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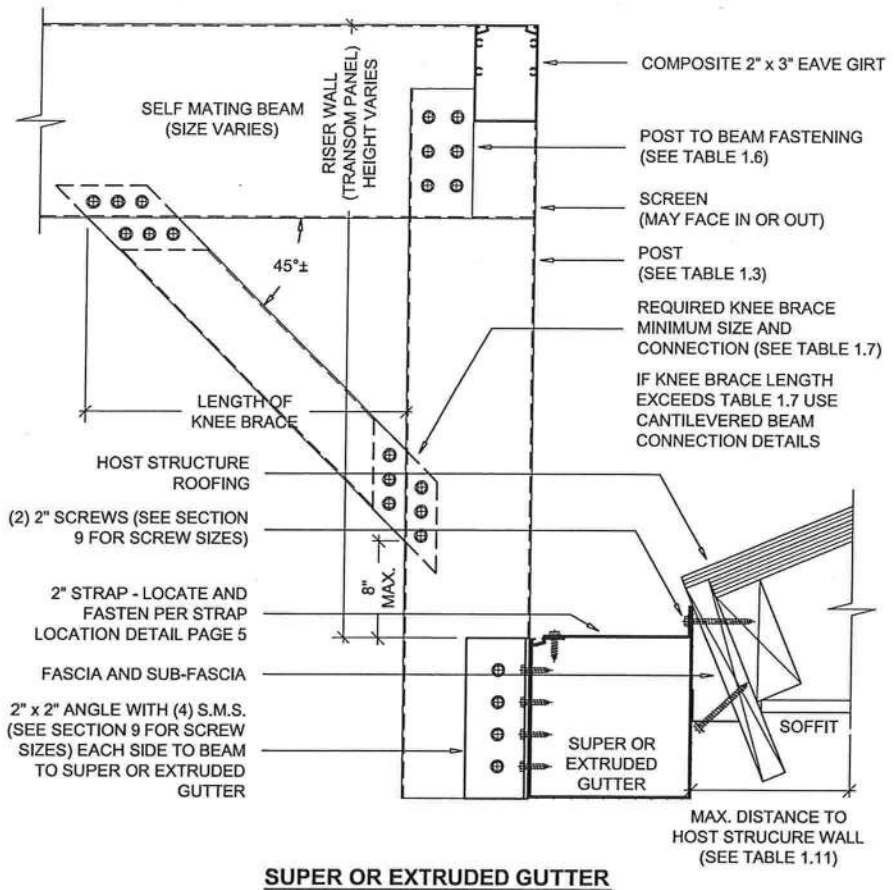
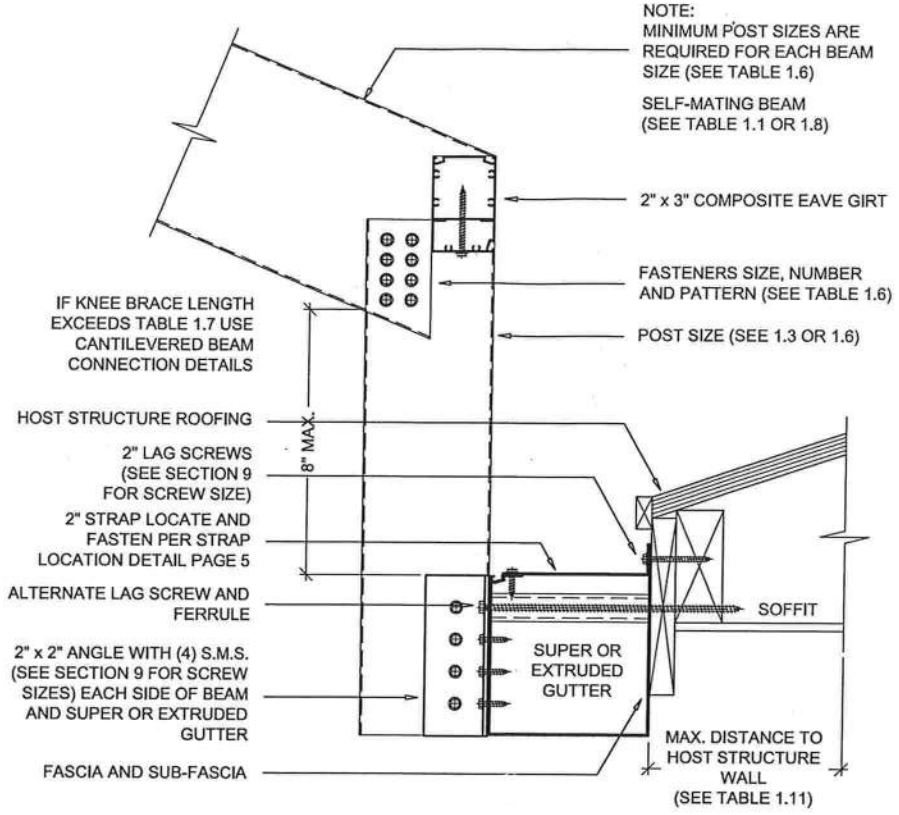
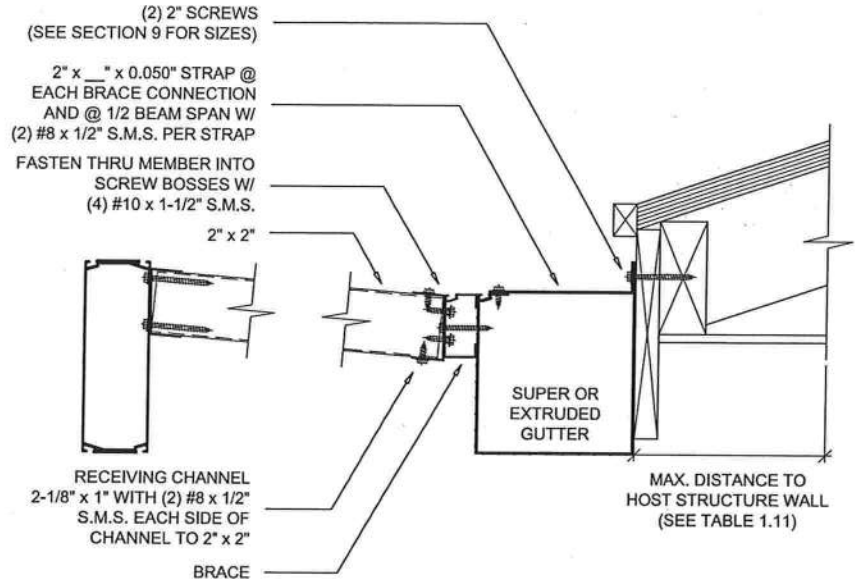


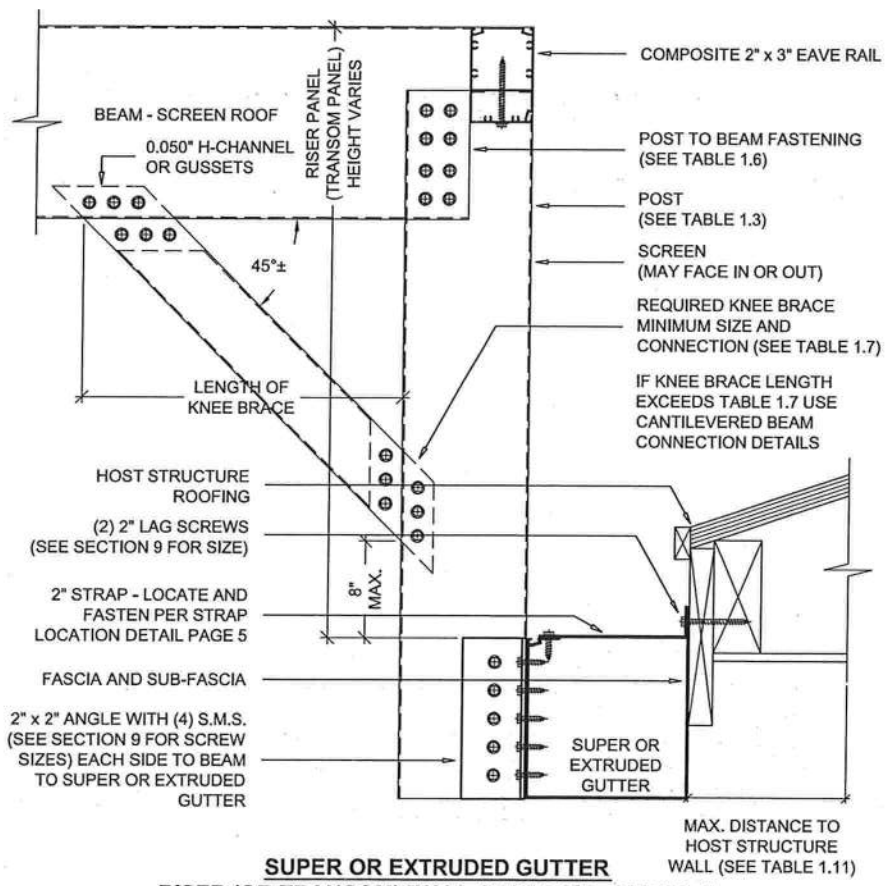
SUPER OR EXTRUDED GUTTER
RISER (OR TRANSOM) WALL AT FASCIA - DETAIL 3
SCALE: 2" = 1'-0"



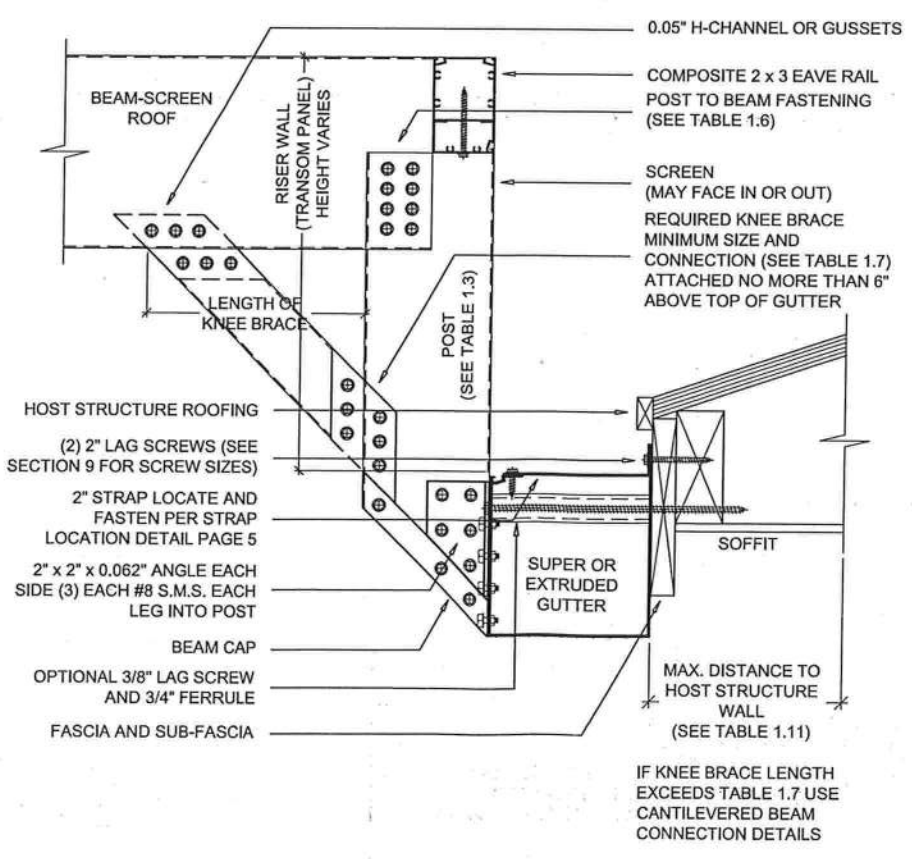
SUPER OR EXTRUDED GUTTER
RISER (OR TRANSOM) WALL AT FASCIA - DETAIL 5
SCALE: 2" - 1'-0"



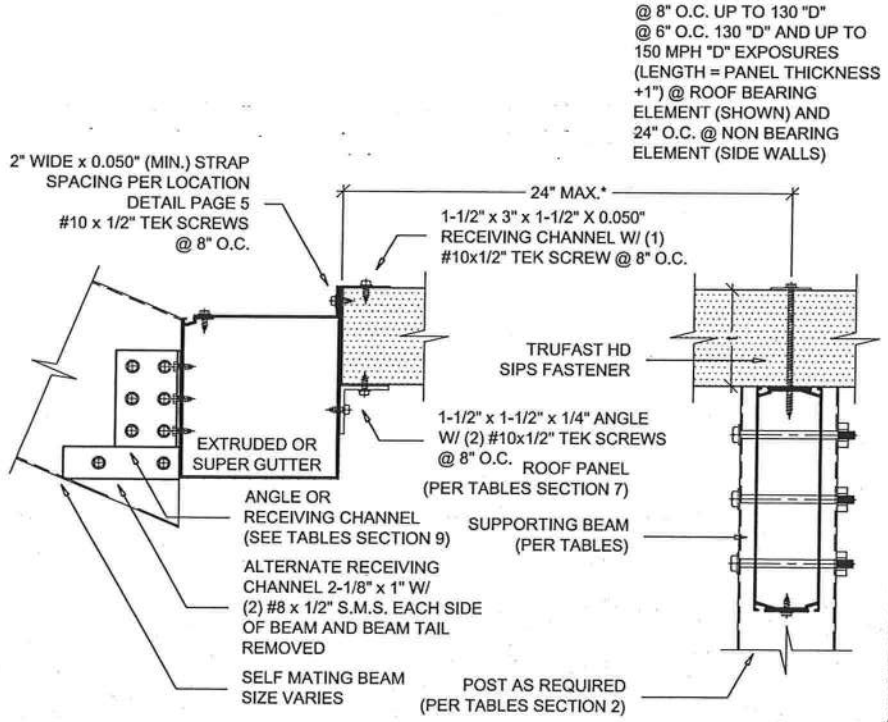
NON-STRUCTURAL BRACE CONNECTION TO SUPER OR EXTRUDED GUTTER
SCALE: 2" = 1'-0"



SUPER OR EXTRUDED GUTTER
RISER (OR TRANSOM) WALL AT FASCIA - DETAIL 4
SCALE: 2" = 1'-0"



SUPER OR EXTRUDED GUTTER
RISER (OR TRANSOM) WALL AT FASCIA - DETAIL 6
SCALE: 2" = 1'-0"



* WITHOUT SITE SPECIFIC ENGINEERING

NOTE:
1. VARIATIONS OF SUPER GUTTER ATTACHEMENTS MAY BE MODIFIED TO ATTACH TO COMPOSITE ROOF SYSTEM
2. CAULK ALL EXPOSED SCREW HEADS

NON-STRUCTURAL BRACE CONNECTION TO SUPER OR EXTRUDED GUTTER
SCALE: 2" = 1'-0"

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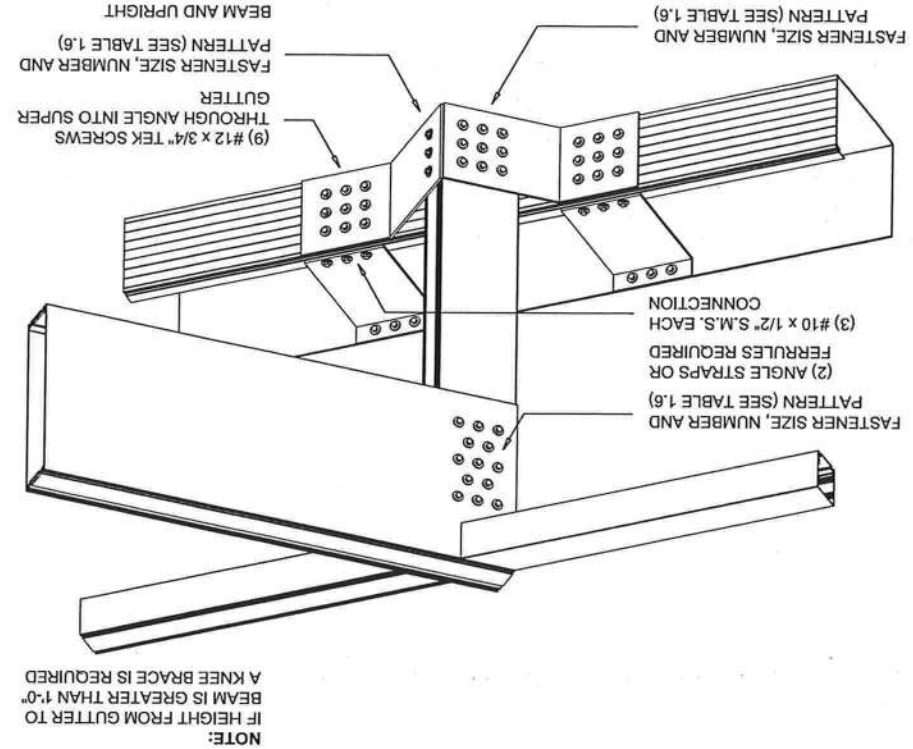
SUPER GUTTER TO UPRIGHT WITH ANGLE CONNECTION DETAIL

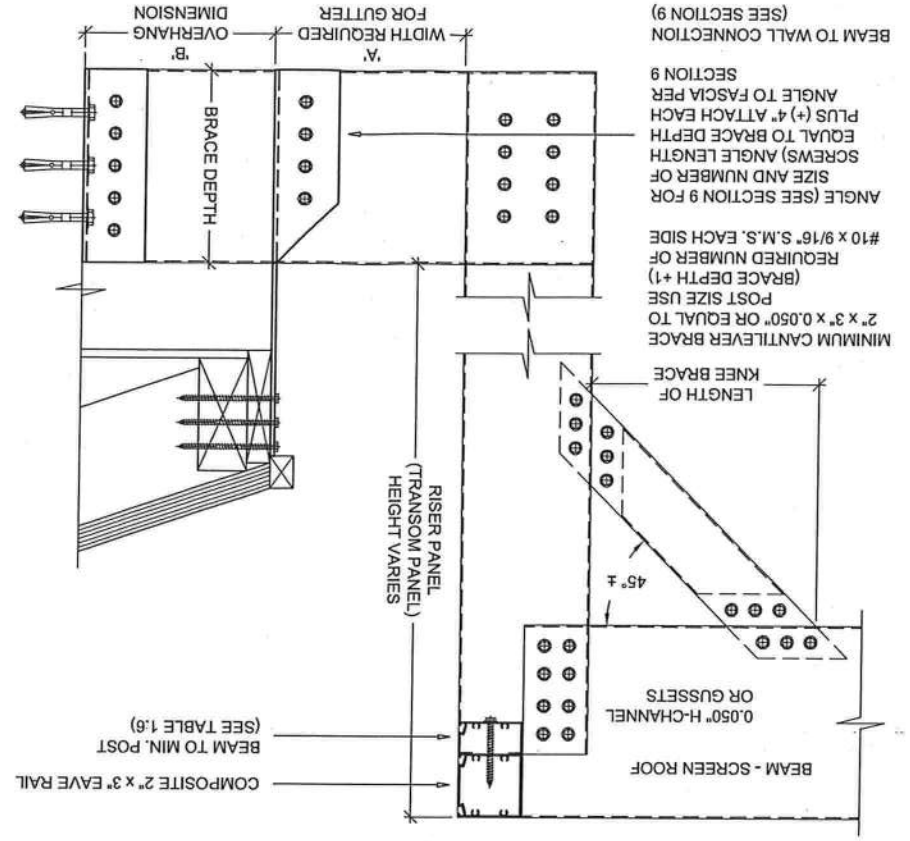
SCALE: N.T.S.



NOTE:
IF HEIGHT FROM GUTTER TO BEAM IS GREATER THAN 1'-0" A KNEE BRACE IS REQUIRED

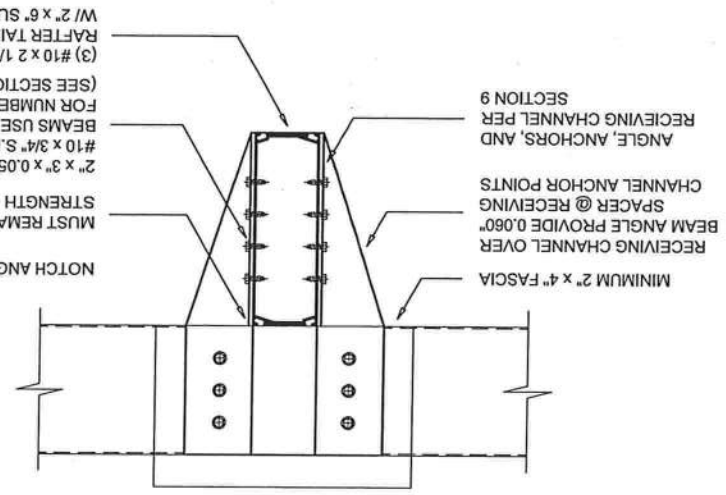
CANTILEVERED BRACE CONNECTION TO WALL AND FASCIA DETAIL

SCALE: 2" = 1'-0"



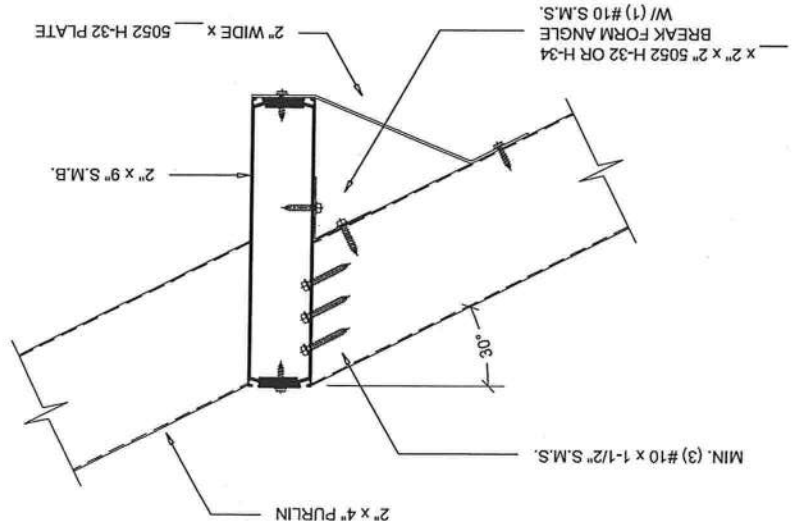
CANTILEVERED BRACE CONNECTION AT FASCIA (END VIEW)

SCALE: 2" = 1'-0"



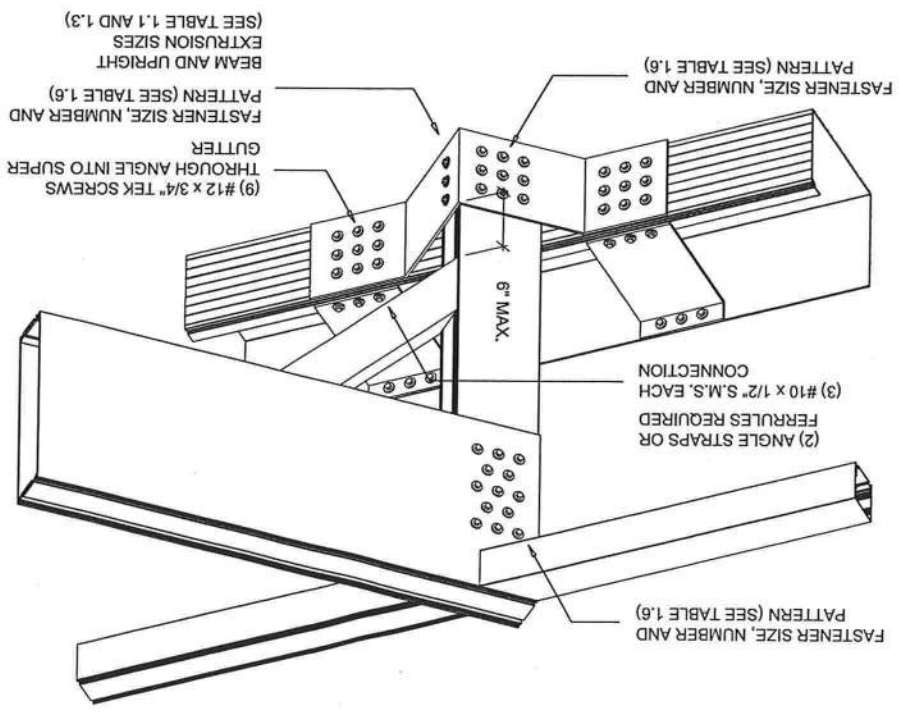
BRACING SYSTEM FOR STEEP ANGLE GABLES

SCALE: 2" = 1'-0"



SUPER GUTTER TO UPRIGHT WITH ANGLE CONNECTION DETAIL

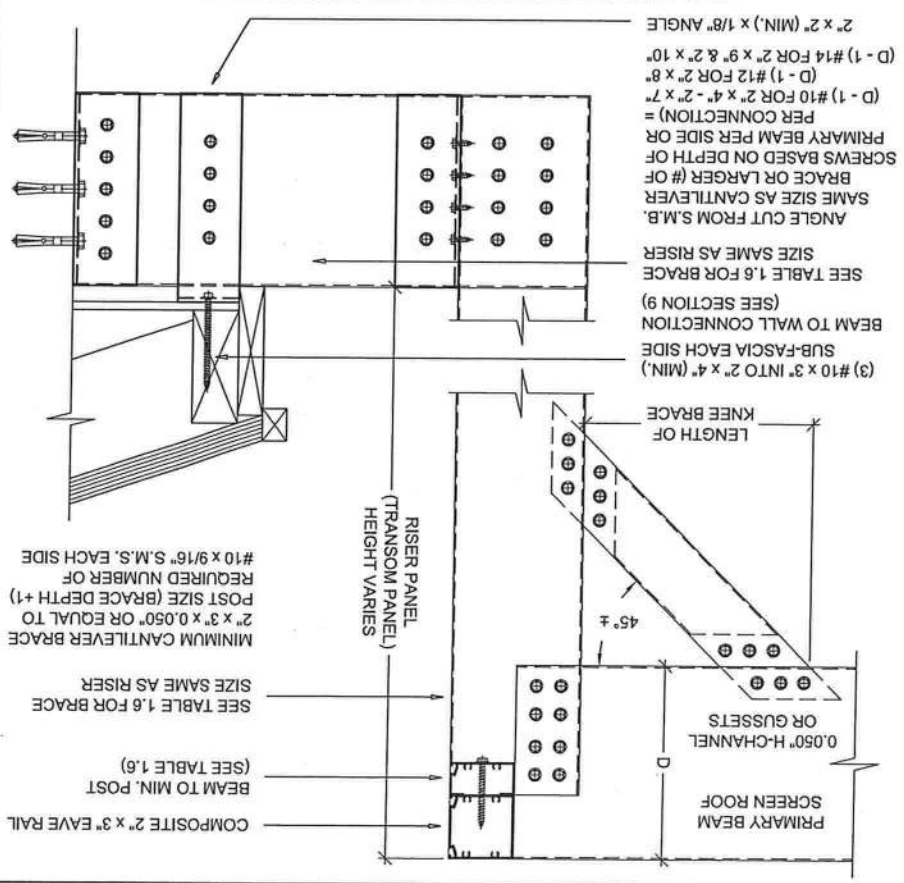
SCALE: N.T.S.



NOTE:
IF HEIGHT FROM GUTTER TO BEAM IS GREATER THAN 1'-0" A KNEE BRACE IS REQUIRED

ALTERNATE CANTILEVERED BRACE CONNECTION TO WALL AND FASCIA DETAIL

SCALE: 2" = 1'-0"



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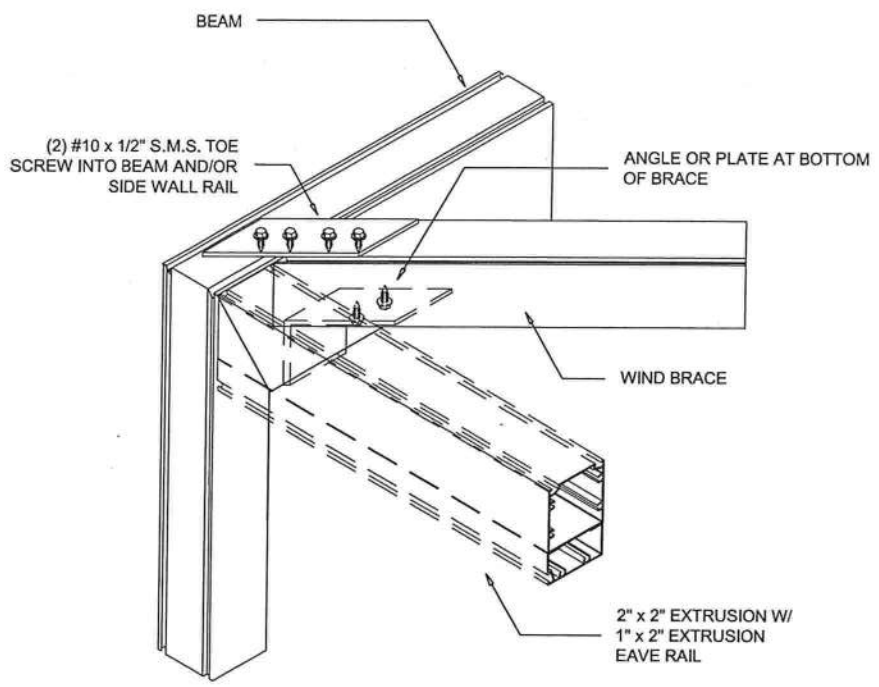
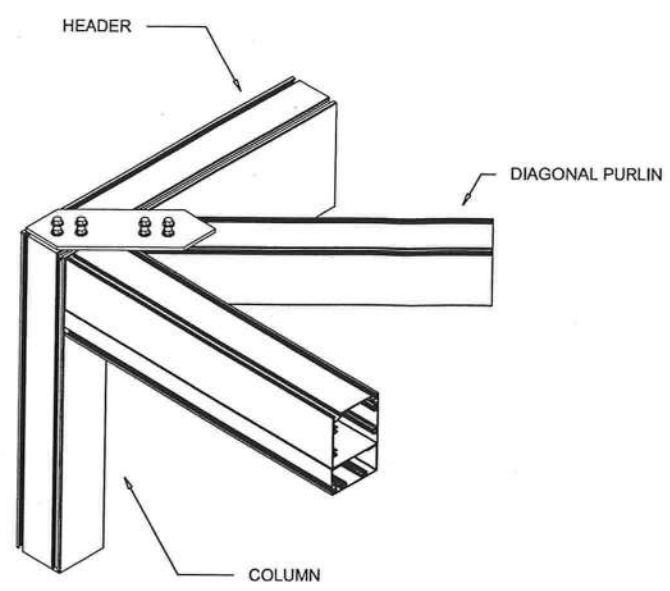


WIND BRACE CONNECTION DETAIL

SCALE: 2" = 1'-0"

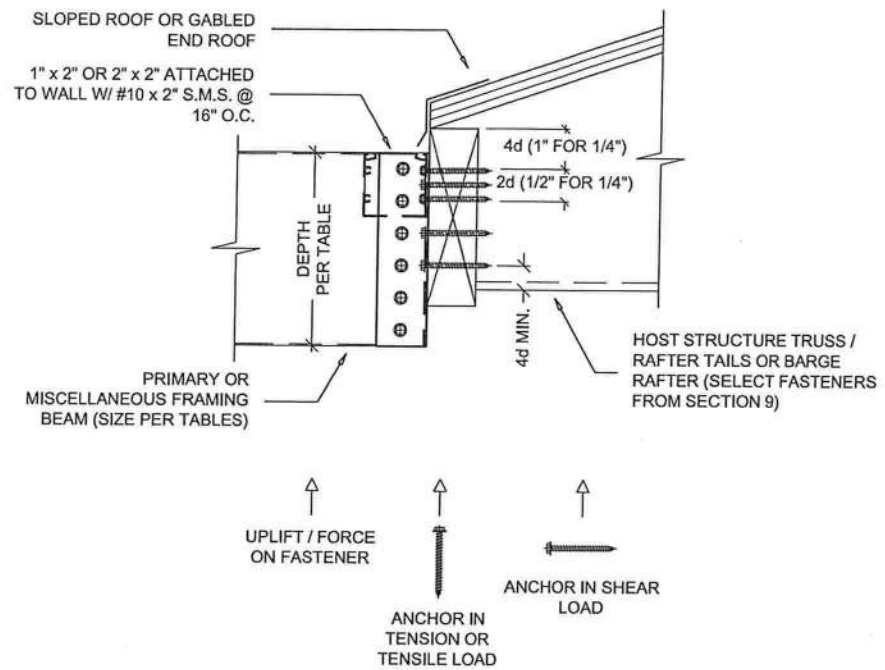
NOTES:
1. Wind bracing shall be provided at each side wall panel when enclosure projects more than (4) panels from host structure.



WIND BRACE CONNECTION DETAIL

SCALE: 2" = 1'-0"

NOTES:
1. Wind bracing shall be provided at each side wall panel when enclosure projects more than three panels from host structure. Structures of four or more panels shall be spaced for even number of panels for opposing wind bracing.
2. Cut brace parts with min. 12" lap of larger and smaller brace.
3. Cut receiving channel with angle.



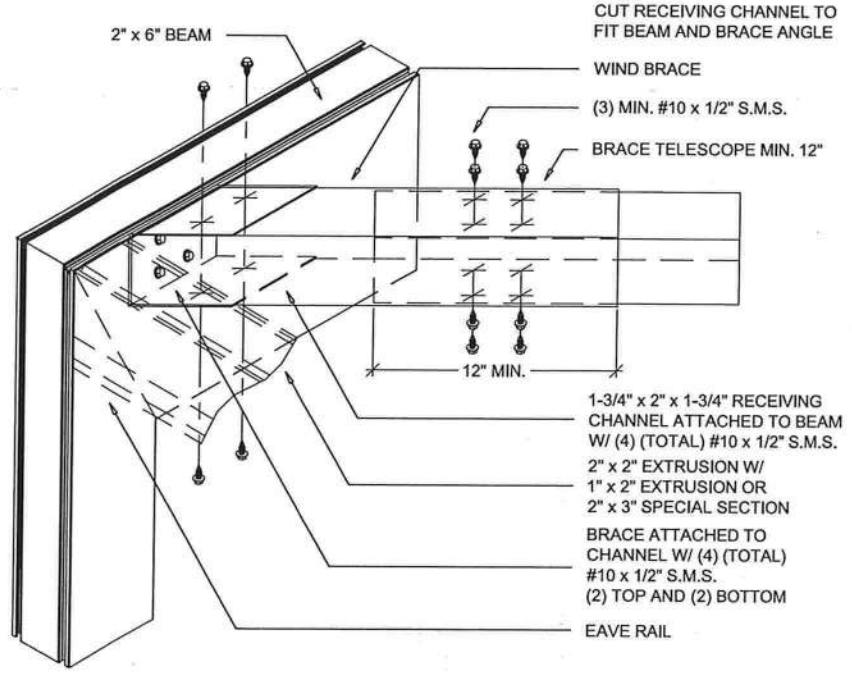
CALCULATE THE NUMBER OF SCREWS REQUIRED BY SOLVING THE FOLLOWING EQUATION:

$$\left[\frac{\text{ROOF WIND LOAD*} \times \text{BEAM SPACING} \times \left(\frac{\text{BEAM SPAN}}{2}\right)}{\text{ANCHOR ALLOWABLE LOAD}}\right] = \#\text{ OF ANCHORS}$$

* FIND ROOF WIND LOAD IN DESIGN SPECIFICATIONS ON PAGE 1

BEAM TO FASCIA CONNECTION DETAIL

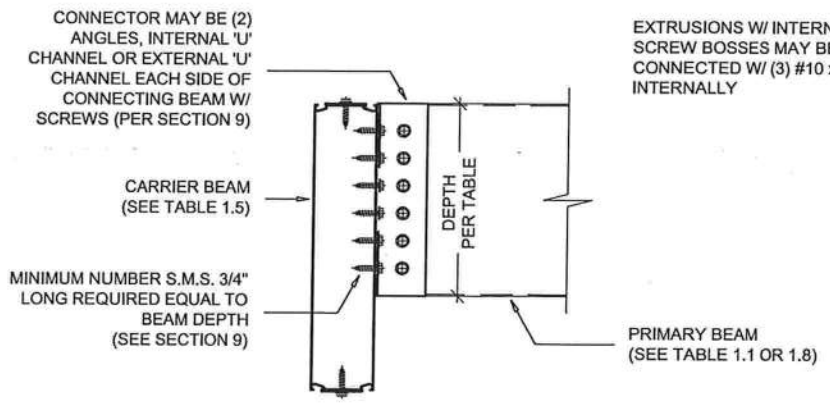
SCALE: 2" = 1'-0"



TELESCOPING WIND BRACE CONNECTION DETAIL

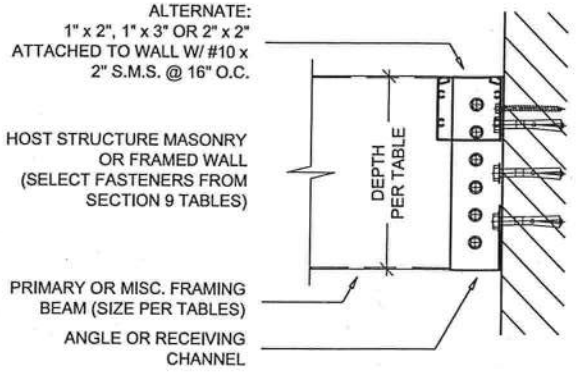
SCALE: 2" = 1'-0"

NOTES:
1. Wind bracing shall be provided at each side wall panel when enclosure projects more than three panels from host structure. Structures of four or more panels shall be spaced for even number of panels for opposing wind bracing.
2. Cut brace parts with min. 12" lap of larger and smaller brace.
3. Cut receiving channel with angle.



CARRIER BEAM TO BEAM CONNECTION DETAIL

SCALE: 2" = 1'-0"



BEAM TO WALL CONNECTION:
(2) 2" x 2" x 0.060" EXTERNALLY MOUNTED ANGLES ATTACHED TO WOOD FRAME WALL W/ MIN. (2) 3/8" x 2" LAG SCREWS PER SIDE OR TO CONCRETE W/ (2) 1/4" x 2-1/4" ANCHORS OR MASONRY WALL ADD (1) ANCHOR PER SIDE FOR EACH INCH OF BEAM DEPTH LARGER THAN 3"

ALTERNATE CONNECTION:
(1) 1-3/4" x 1-3/4" x 1-3/4" x 1/8" INTERNAL U-CHANNEL ATTACHED TO WOOD FRAME WALL W/ MIN. (3) 3/8" x 2" LAG SCREWS OR TO CONCRETE OR MASONRY WALL W/ (3) 1/4" x 2-1/4" ANCHORS OR ADD (1) ANCHOR PER SIDE FOR EACH INCH OF BEAM DEPTH LARGER THAN 3"

BEAM TO WALL CONNECTION DETAIL

SCALE: 2" = 1'-0"

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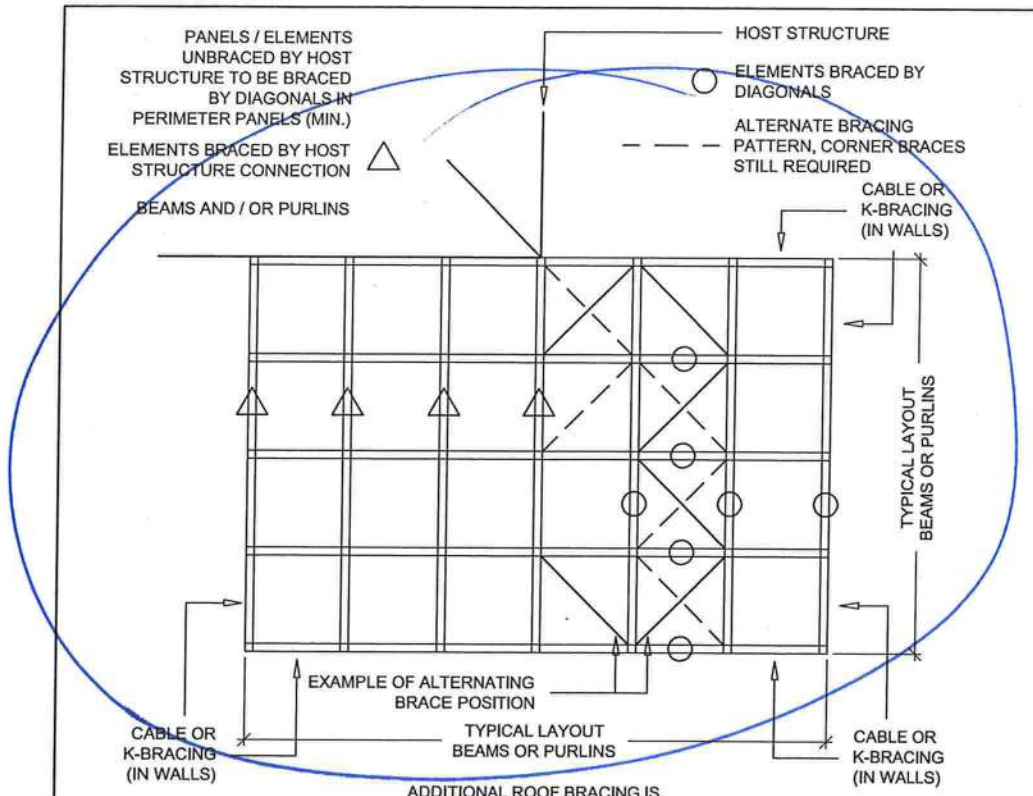
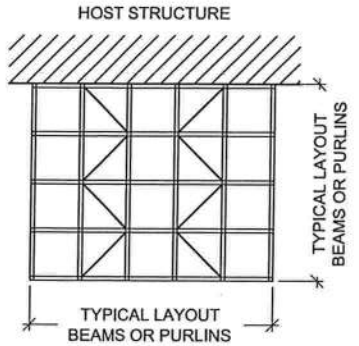


(POOL ENCLOSURE SCREEN ROOF MAY BE FLAT, GABLE, MANSARD, DOME, OR HIP)

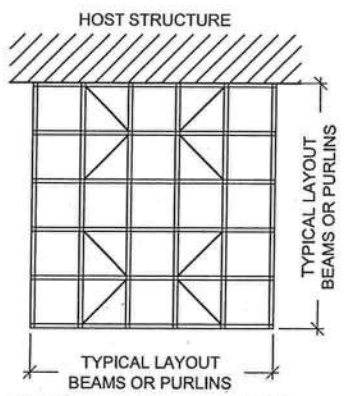
POOL ENCLOSURE DIAGONAL BRACING - SCHEMATIC PLAN VIEW

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



WIND BRACING PATTERN
TYPICAL FOR EVEN NUMBER OF SIDE PANELS OVER 4

SCALE: 1/8" = 1'-0"



WIND BRACING PATTERN
TYPICAL FOR ODD NUMBER OF SIDE PANELS OVER 4

SCALE: 1/8" = 1'-0"

CABLE BRACING

General Notes and Specifications:

1) The following shall apply to the installation of cables as additional bracing to DIAGONAL bracing for pool enclosures:

a) FRONT WALL CABLES - 7 x 19 STAINLESS STEEL

CABLE DIAMETER	TOTAL ALLOWABLE WALL AREA *
3/32"	233 Sq. Ft. / PAIR OF CABLES
1/8"	445 Sq. Ft. / PAIR OF CABLES

* TOTAL WALL AREA = 100% OF FRONT WALL + 50% OF ONE SIDE WALL

EXAMPLE: FRONT WALL AREA @ 100% (8' x 32') = 256 Sq. Ft.
SIDE WALL AREA @ 50% (8' x 20') = 80 Sq. Ft.
TOTAL WALL AREA = 336 Sq. Ft.

233 Sq. Ft. x 2 sets = 466 Sq. Ft. > 336 Sq. Ft.; thus two sets of 3/32" cables is required.

b) SIDE WALL CABLES - 7 x 19 STAINLESS STEEL

CABLE DIAMETER	SIDE WALL CABLE **
3/32"	ONE PER 233 Sq. Ft. OF WALL
1/8"	ONE PER 445 Sq. Ft. OF WALL

** SIDE WALL CABLES ARE NOT REQUIRED FOR SIDE WALLS LESS THAN 233 Sq. Ft.

c) To calculate the required pair of cables for free standing pool enclosures use 100% of each wall area & 50% of the area of one adjacent wall.

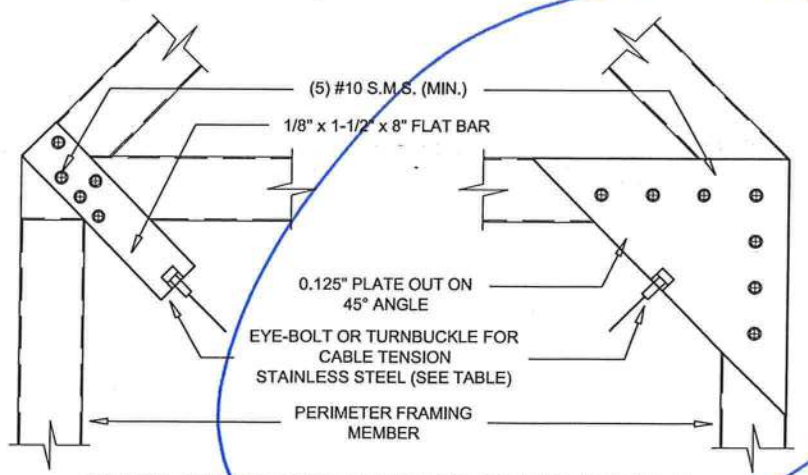
NOTES:

1. Where wall height is such that a girt is required between the top or eave rail and the chair rail, (i.e. a mid-rise girt), then the front wall shall have two cable pairs and they shall be attached to the top rail and the mid-rise rail. If more than one additional girt is required between the top or eave rail and the chair rail, then there shall be an additional front wall cable pair at that girt also.

2. Side walls do not require cables until the side wall area is greater than 233 Sq. Ft.. The side wall cable may be attached at the mid-rise girt or the top rail.

3. Standard rounding off rules apply. ie: if the number of cables calculated is less than 2.5 pairs use two cables; if the number of cables calculated is 2.5 pairs or greater use 3 pairs of cables.

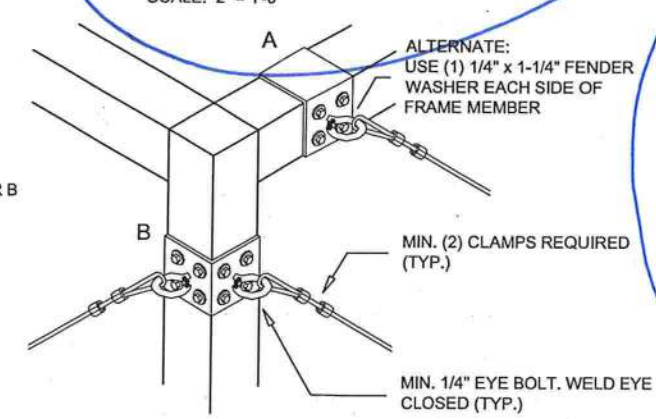
4. Additional roof bracing is required for all side walls larger than 4 panels. Number of panels shall be even and position shall be alternating.



TYPICAL CABLE CONNECTIONS AT CORNER - DETAIL 1

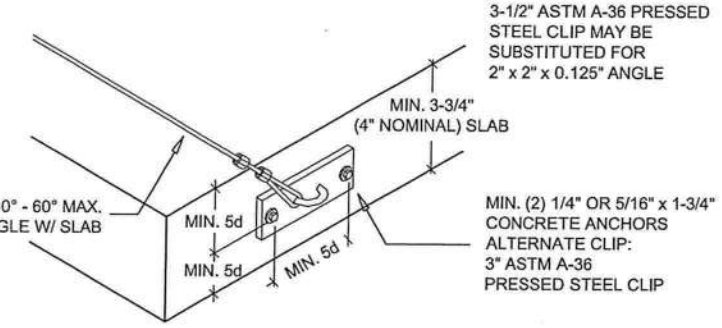
SCALE: 2" = 1'-0"

1" x 2" x 0.125" CLIP AND (4) #10 x 3/4" S.M.S. EACH SIDE FOR CABLES



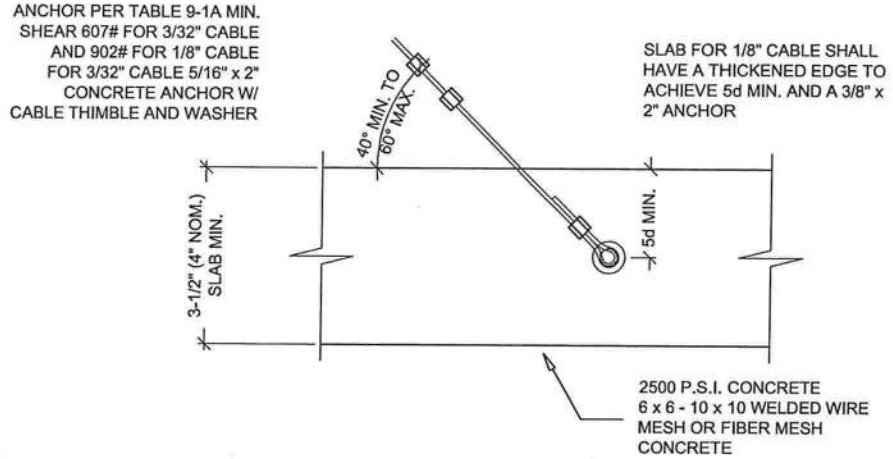
ALTERNATE TOP CORNER OF CABLE CONNECTION - DETAIL 1A

SCALE: 2" = 1'-0"



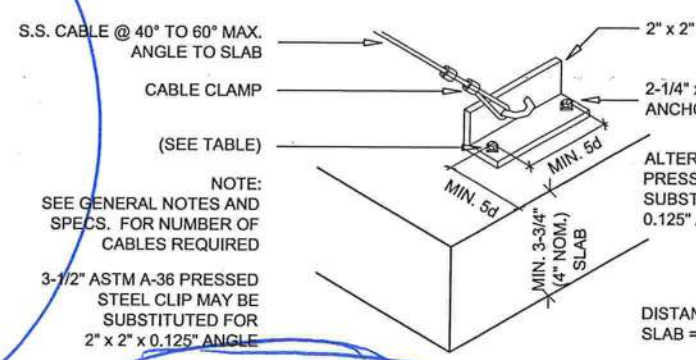
TYPICAL CABLE CONNECTION AT SLAB DETAIL - DETAIL 2

SCALE: 2" = 1'-0"



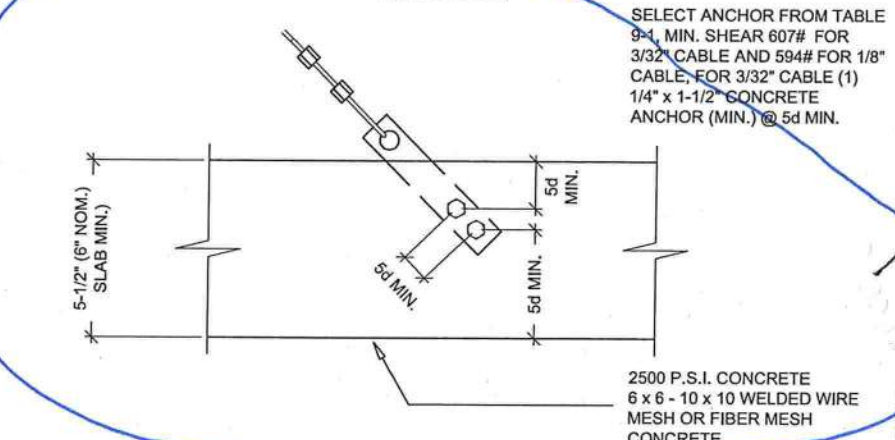
ALTERNATE CABLE CONNECTIONS AT FOUNDATION - DETAIL 2A

SCALE: 2" = 1'-0"



ALTERNATE CABLE CONNECTION AT SLAB DETAIL - DETAIL 2B

SCALE: 2" = 1'-0"



ALTERNATE CABLE CONNECTIONS AT FOUNDATION - DETAIL 2C

SCALE: 2" = 1'-0"

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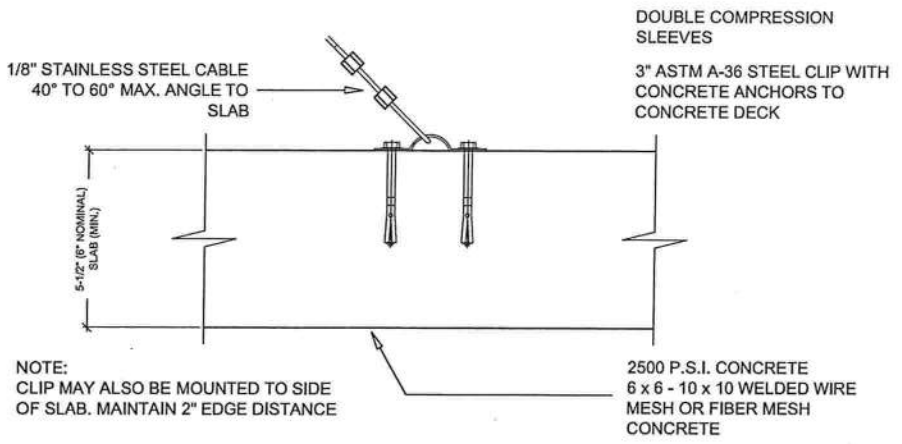


ALTERNATE CABLE CONNECTIONS AT FOUNDATION - DETAIL 2D

SCALE: 2" = 1'-0"

K-BRACING

General Notes and Specifications:

1) The following shall apply to the installation of K-BRACINGas additional bracing to diagonal wind bracing for pool enclosures:

   a) FRONT WALL K-BRACING - ONE SET FOR EACH 800 SF OF TOTAL WALL AREA
   TOTAL WALL AREA = 100% OF FRONT WALL + 50% OF ONE SIDE WALL

   EXAMPLE: FRONT WALL AREA @ 100% (8' x 32') = 256 Sq. Ft.
   SIDE WALL AREA @ 50% (8' x 20') = 80 Sq. Ft.
   TOTAL WALL AREA = 336 Sq. Ft.

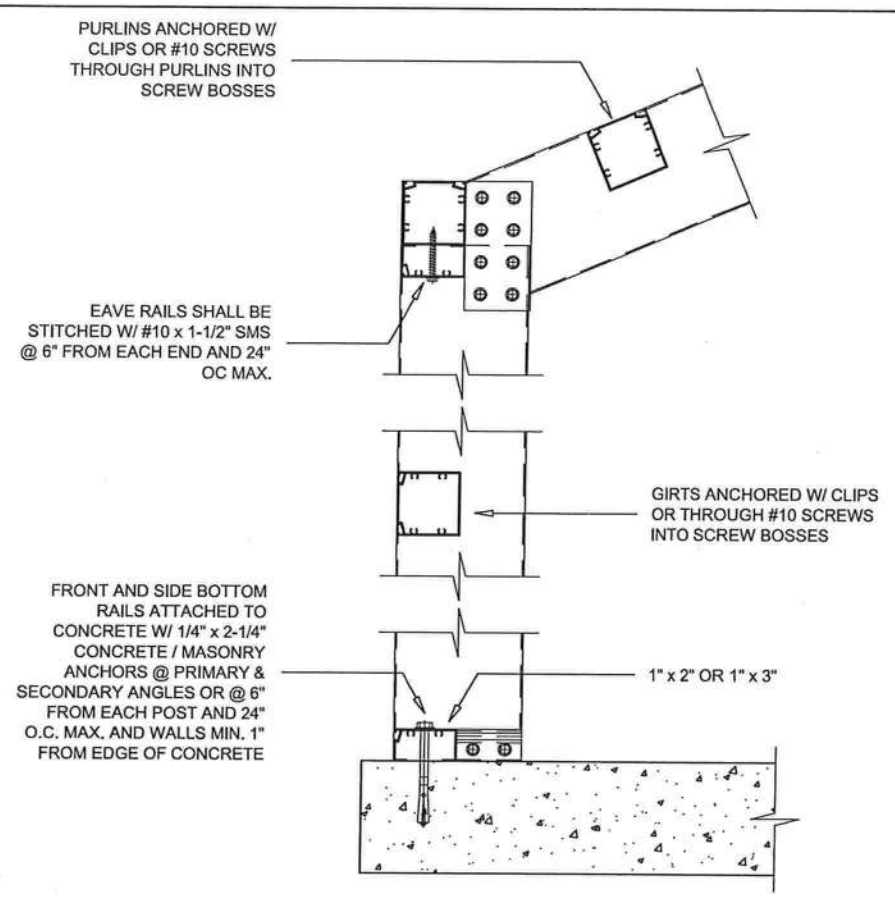
   800 SF > 336 SF THUS ONE SET OF FRONT WALL K-BRACING IS REQUIRED.

   b) SIDE WALL K-BRACING - ONE SET FOR 233 SF TO 800 SF OF WALL.

   c) To calculate the required pair of k-bracing for free standing pool enclosures use 100% of each wall area & 50% of the area of one adjacent wall.

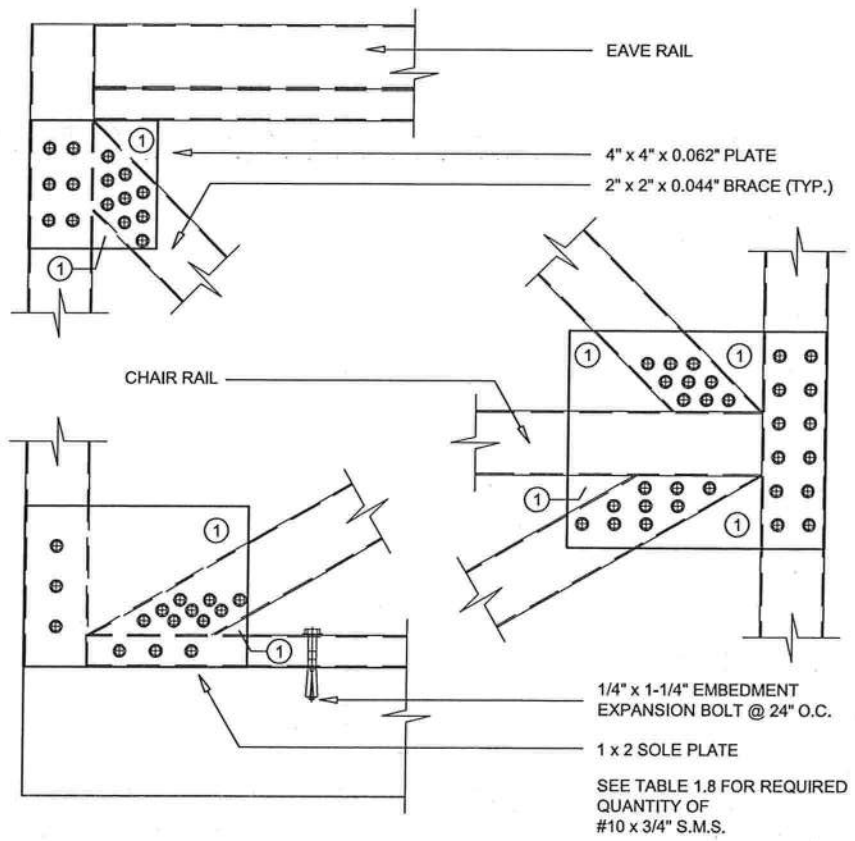
NOTES:

1. K-bracing shall be used for all wind zones of 130 MPH and higher.
2. Side walls do not require k-bracing until the side wall area is greater than 233 SF.
3. Standard rounding off rules apply. ie: if the number of k-bracing sets calculated is less than 1.5 sets use one set of k-braces; if the number of k-braces calculated is 1.5 sets or greater use 2 sets of k-bracing.



PURLIN & CHAIR RAIL DETAIL

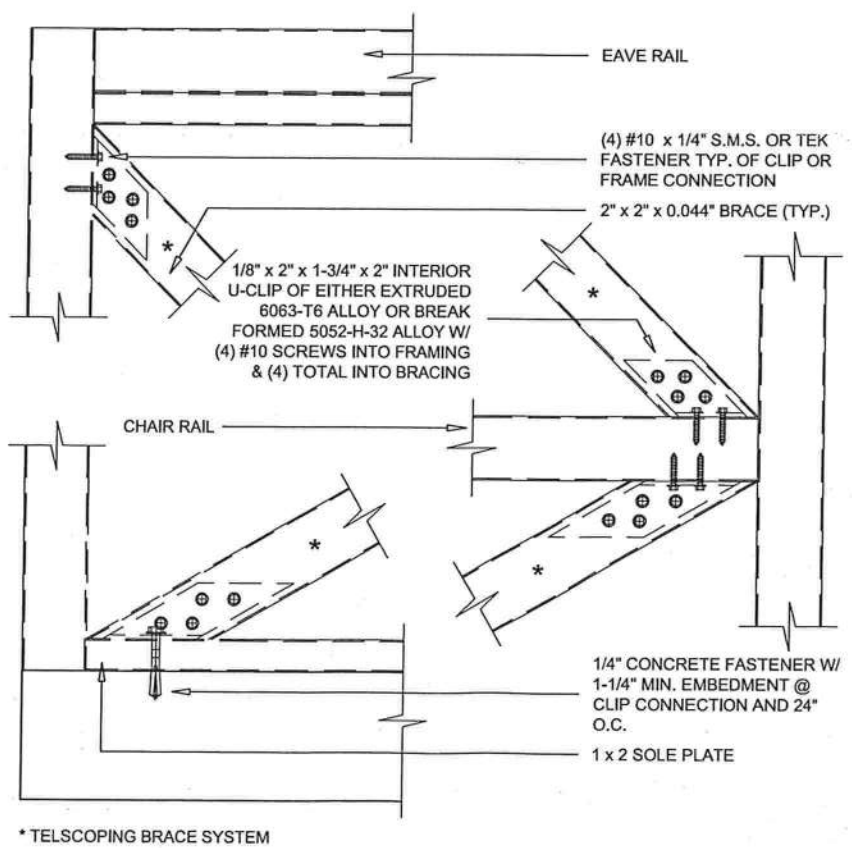
SCALE: 2" = 1'-0"



K-BRACING CONNECTION DETAILS

SCALE: 2" = 1'-0"

NOTES:
1. Can trim plate this area.
2. Alternate connections use 'H' bar cut to fit connections.

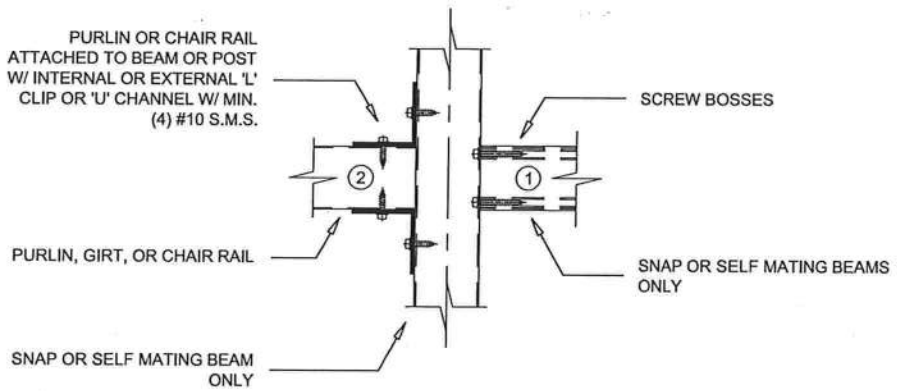


* TELSCOPING BRACE SYSTEM

ALTERNATE K-BRACING CONNECTION DETAILS

SCALE: 2" = 1'-0"

NOTE:
Alternate connections use 'H' bar cut to fit connections.



PURLIN TO BEAM OR GIRT TO POST DETAIL

SCALE: 2" = 1'-0"

① FOR WALLS LESS THAN 6'-8" FROM TOP OF PLATE TO CENTER OF BEAM CONNECTION OR BOTTOM OF TOP RAIL THE GIRT IS DECORATIVE AND SCREW HEADS MAY BE REMOVED AND INSTALLED IN PILOT HOLES

② FOR ALL OTHER PURLINS AND GIRTS IF THE SCREW HEADS ARE REMOVED THEN THE OUTSIDE OF THE CONNECTION MUST BE STRAPPED FROM GIRT TO POST WITH 0.050" x 1-3/4" x 4" STRAP AND (4) #10 x 3/4" S.M.S. SCREWS TO POST AND GIRT

IF GIRT IS ON BOTH SIDES OF THE POST THEN STRAP SHALL BE 6" LONG AND CENTERED ON THE POST AND HAVE A TOTAL (12) #10 x 3/4" S.M.S.

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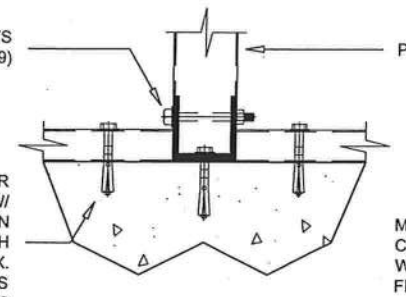
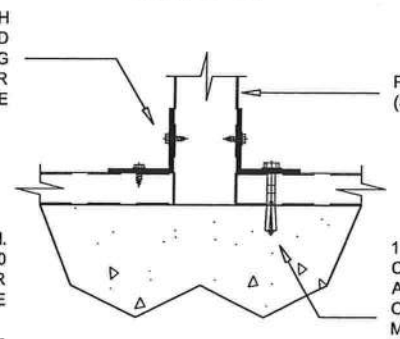
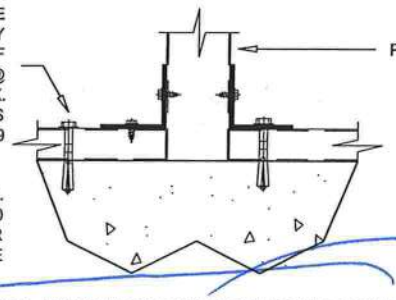


SIDE WALL
POST TO PLATE TO CONCRETE DETAIL
SCALE: 2" = 1'-0"

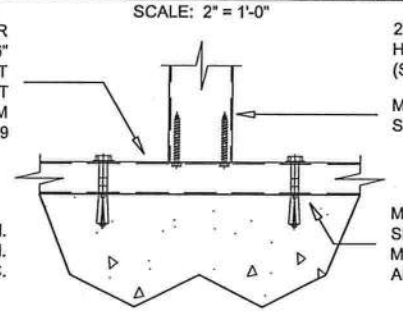


SIDE WALL
ALTERNATE POST TO BEAM AND PLATE TO CONCRETE DETAIL
SCALE: 2" = 1'-0"

FOR WOOD DECKS (MIN. 2" NOMINAL THICKNESS) USE WOOD FASTENERS W/ THESE DETAILS



SIDE WALL POST TO PLATE TO CONCRETE DETAIL
SCALE: 2" = 1'-0"

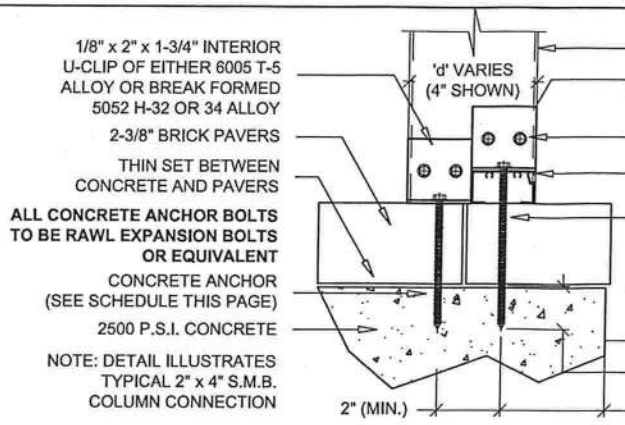


SIDE WALL HOLLOW POST TO BASE DETAIL
SCALE: 2" = 1'-0"

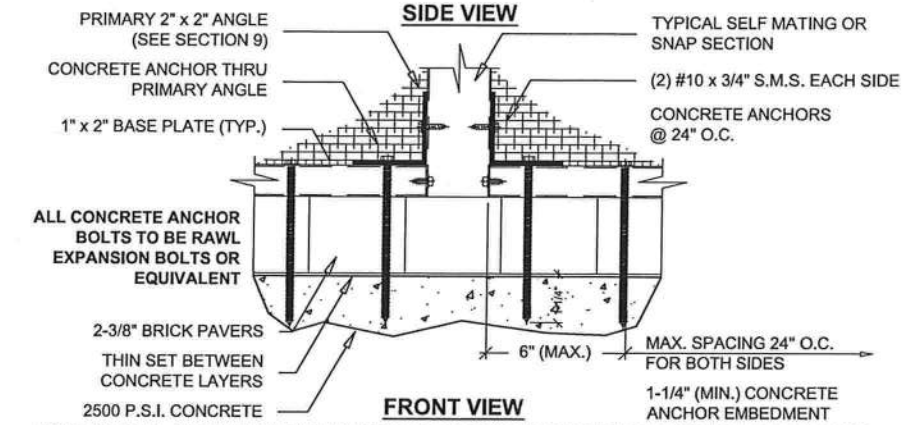
POOL ENCLOSURE UPRIGHT TO DECK ANCHOR REQUIREMENTS

General Notes and Specifications:

1. The uplift load on a pool enclosure upright is calculated as 1/2 the beam span x the beam spacing x the screen load of 7# / Sq. Ft.
   EXAMPLE:
   FOR A 2" x 6" BEAM WITH A SPAN OF 23' AND A BEAM & UPRIGHT SPACING OF 7' USE: 1/2 x 17'-11" x 7' x 10# / Sq. Ft. = 627.2# UPLIFT
2. Table 1.6 of this manual uses the worst case loads for all cases.
3. In all cases there must be a primary anchor within 6" of each side of the upright.
4. For attachment to wood deck (min. 2" nominal thickness) use wood anchors with details shown above (min. 1-3/8" embedment).



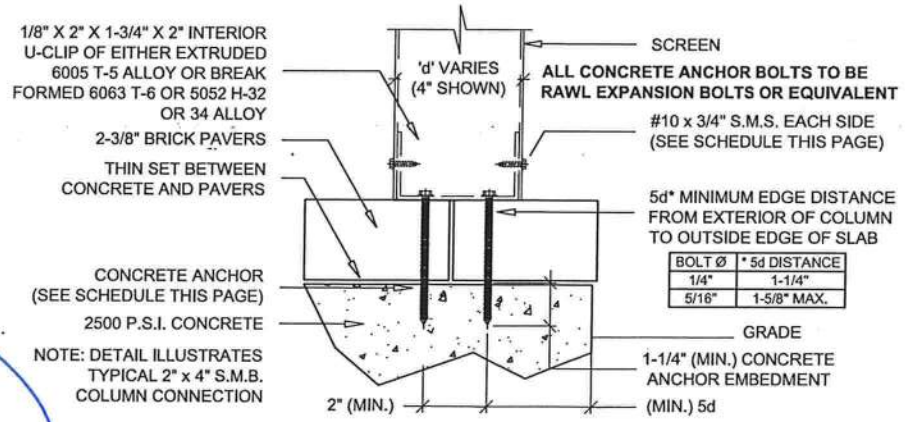
SIDE VIEW



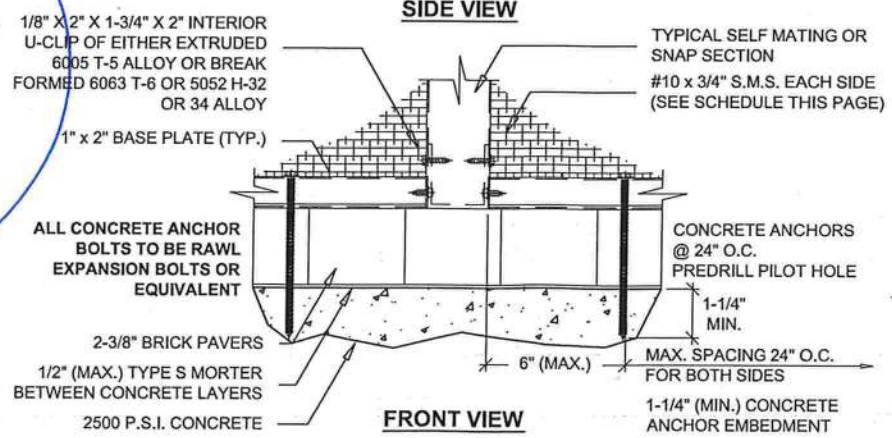
FRONT VIEW

2" x 4" OR LARGER SELF MATING SECTION POST TO DECK/PAVER DETAILS
SCALE: 2" = 1'-0"

NOTE: FOR SIDE WALLS OF 2" x 4" OR SMALLER ONLY ONE ANGLE IS REQUIRED.



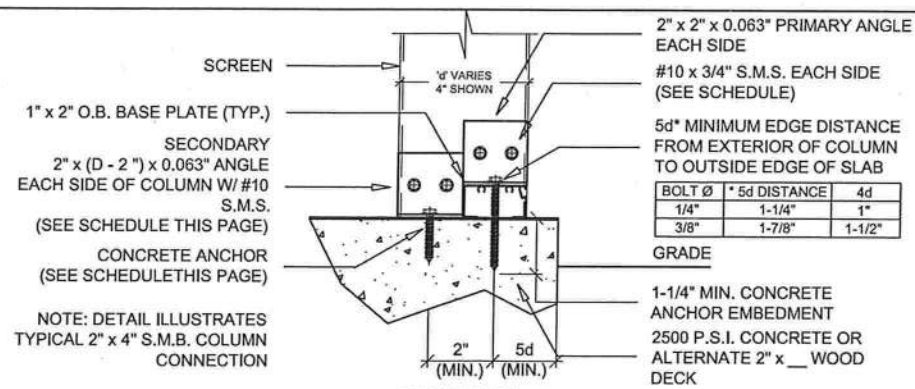
SIDE VIEW



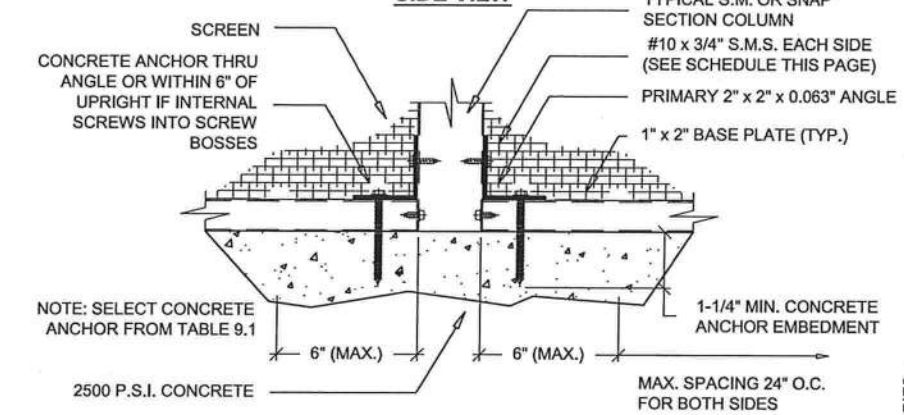
FRONT VIEW

2" x 4" OR LARGER SELF MATING SECTION POST TO DECK/PAVER DETAILS
SCALE: 2" = 1'-0"

NOTE:
1. FOR SIDE WALLS OF 2" x 4" OR SMALLER ONLY ONE ANGLE IS REQUIRED.
2. PREDRILL PAVERS W/ MIN. 1/4" MASONRY BIT.



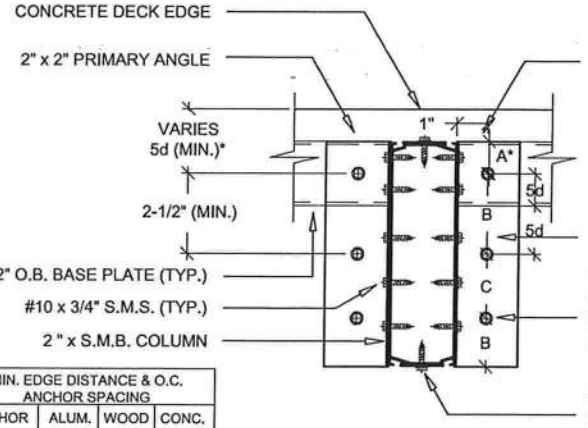
SIDE VIEW



FRONT VIEW

2" x 4" OR LARGER SELF MATING OR SNAP SECTION POST TO DECK DETAILS
SCALE: 2" = 1'-0"

NOTE:
1. FOR SIDE WALLS OF 2" x 4" OR SMALLER ONLY ONE ANGLE IS REQUIRED.
2. PREDRILL PAVERS W/ MIN. 1/4" MASONRY BIT.



MIN. EDGE DISTANCE & O.C. ANCHOR SPACING			
ANCHOR	ALUM. 2-1/2d	WOOD 4d	CONC. 5d
1/4"	5/8"	1"	1-1/4"
5/16"	25/32"	1-1/4"	1-9/16"
3/8"	15/16"	1-1/2"	1-7/8"

TOP VIEW POST TO DECK DETAIL
SCALE: 2" = 1'-0"

Primary and Secondary Anchor Schedule

Column Size	Secondary Angle	Maximum Number and Spacing Anchors													
	Angle Length "L"	Number of Anchors			5/16"						3/8"				
		1/4"	5/16"	3/8"	#	"A"	"B"	"C"	#	"A"	"B"	"C"	#	"A"	"B"	"C"
2 x 4	2"	4	4	4	4	1"	1"	1"	4	1"	1"	1"	4	1"	1"	1"
2 x 5	3"	4	4	4	4	1"	1-1/2"	-	4	1"	1-1/2"	-	4	1"	1-1/2"	-
2 x 6	4"	4	4	4	4	1"	2"	-	4	1"	2"	-	4	1"	2"	-
2 x 7	5"	6	4	4	6	1"	5/8"	1-7/8"	4	1"	2-1/2"	-	4	1"	2-1/2"	-
2 x 8	6"	6	4	4	6	1"	5/8"	2-3/8"	4	1"	3"	-	4	1"	3"	-
2 x 9	7"	8	6	4	6	1"	5/8"	2-7/8"	6	1"	13/16"	2-7/8"	4	1"	3-1/2"	-
2 x 10	8"	8	6	6	8	1"	5/8"	2"	6	1"	13/16"	3-3/16"	6	1"	3/4"	3-1/4"

Example:
Calculate the number of anchors required: 1.5 x beam span / 2 x beam spacing x roof wind pressure (PSF) = total #;
If 1.5 x 30'/2 x 6' x 10 PSF = = 1350# and 1/4" x 1/4" Tapcon in tension @ 5d = 427# / ea. (see table 9.1)
then 1350# / 427# / ea. = 3.16 ea. use (3) ea., secondary angle not required
Actual Edge Distance Example:
From edge of concrete to fastener = 2" / dia. of 0.25" = 8d
Note:
For attachment to wood deck substitute wood fasteners for concrete fasteners & calculate the required number of fasteners using tables from section 9.

10-24-2008

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ALUMINUM STRUCTURES DESIGN MANUAL
SCREEN ENCLOSURES
SECTION 1 DETAILS
2004 FBC W/ 2006 SUPPLEMENTS
2006 EDITION

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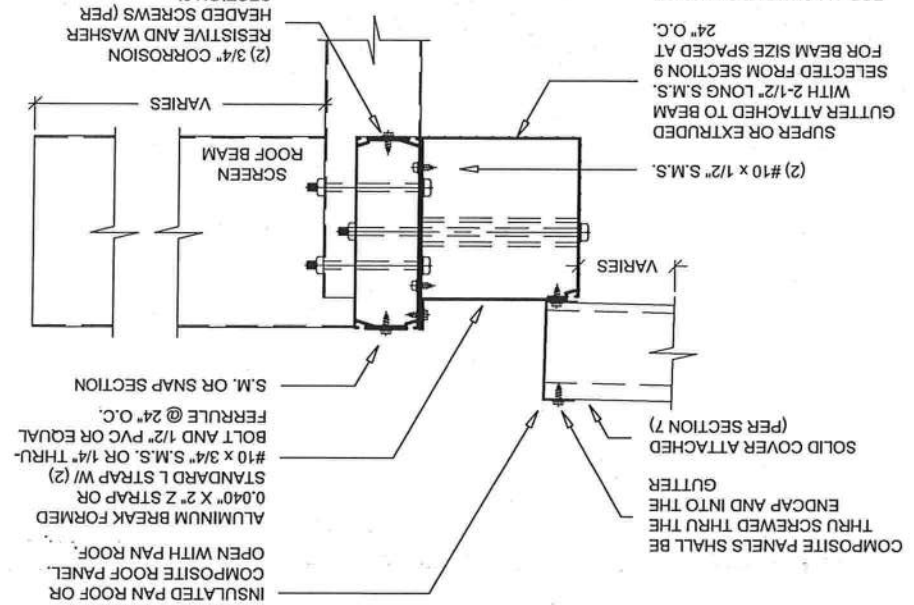
10-24-2008

SUPER OR EXTRUDED GUTTER - SOLID ROOF / SCREEN ROOF COMBINATION

SCALE: 2" = 1'-0"



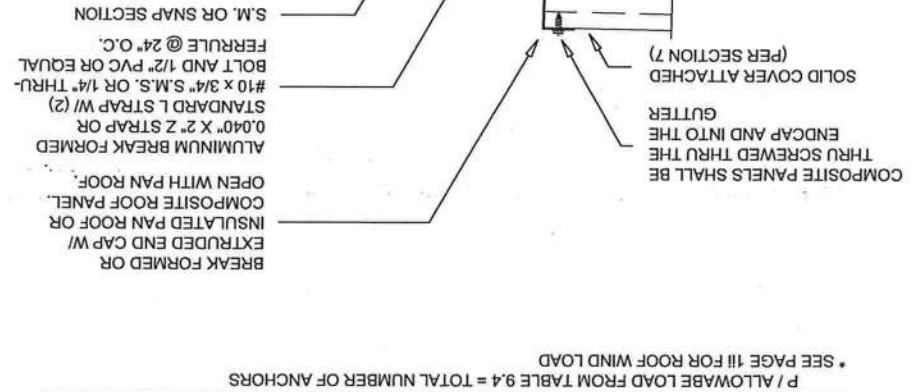
NOTE:
BEAM MAY BE ATTACHED TO SUPER GUTTER AND SOLID ROOF TO S.M.B. PROVIDED A STRAP OR 1/2" P.V.C. OR EQUAL FERRULE IS PROVIDED AT EACH BEAM.

* SEE PAGE III FOR ROOF WIND LOAD

EXAMPLE OF NUMBER OF SRCREWS REQUIRED:
ANCHOR LOAD = BEAM / UPRIGHT SPACING x BEAM SPAN / 2 x 10 PSF* = P
1. CONCRETE ANCHORS: ANCHORS ARE IN TENSILE OR TENSION LOAD
P / ALLOWABLE LOAD FROM TABLE 9.1 = TOTAL NUMBER OF ANCHORS
2. UPRIGHT WALL ANCHORS: ANCHORS ARE IN SHEAR & THROUGH BOLTS ARE IN DOUBLE SHEAR
P / ALLOWABE LOAD FROM TABLE 9.4 = TOTAL NUMBER OF ANCHORS
* SEE PAGE III FOR ROOF WIND LOAD

TOP VIEW POST THRU PAVER DETAIL

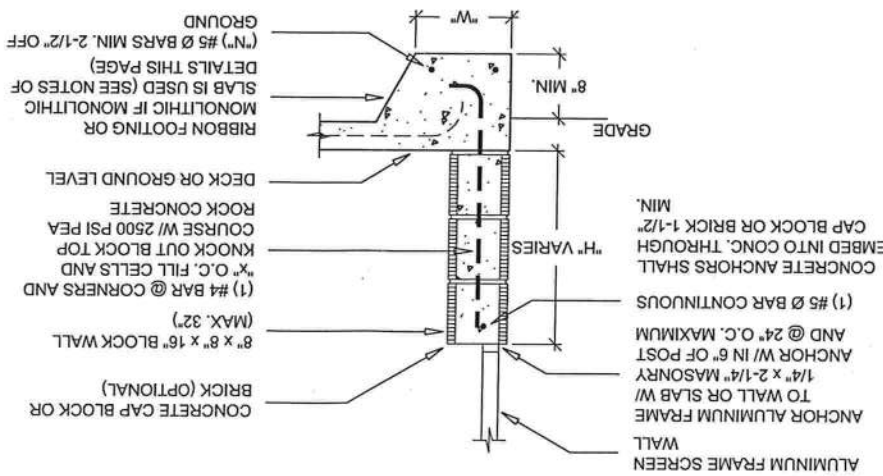
SCALE: 2" = 1'-0"



Edge Distance		
BOLT Ø	Metal 2-1/2d	Concrete 5d
1/4"	5/8"	1-1/4"
5/16"	13/16"	1-9/16"
3/8"	15/16"	1-7/8"

KNEE WALL FOOTING FOR SCREENED ENCLOSURES

SCALE: 1/2" = 1'-0"

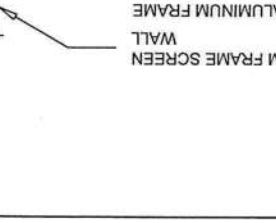


h	N W		X
	#3	#4	
32"	12"	2	10'-0"
40"	12"	3	8'-0"
48"	18"	3	6'-0"
56"	18"	3	4'-0"
64"	24"	3	2'-8"
72"	30"	4	1'-8"

Knee Wall Table

RIBBON FOOTING - TYPE 1

SCALE: 1/2" = 1'-0"



RIBBON FOOTING - TYPE 2

SCALE: 1/2" = 1'-0"

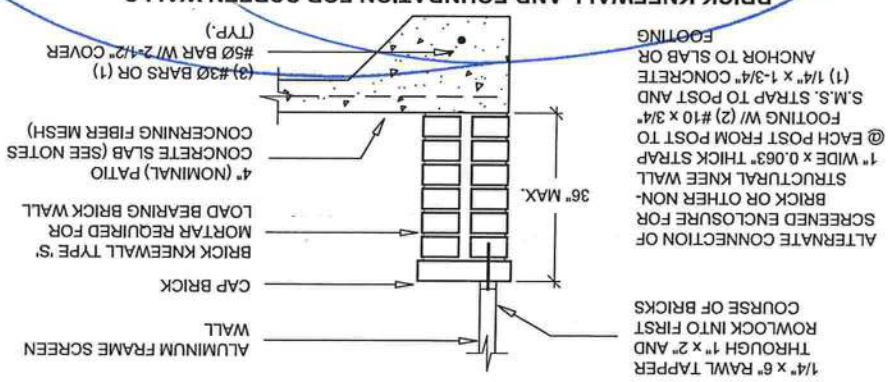
Allowable Beam Span for Wind Zone & Exposure Category

Ribbon Footing Data			100-125 MPH		126-134 MPH		135-144 MPH		145-150 MPH		Area's sq. in.		Number of Bars	
Depth	x	n1*	n2**	B	C	B	C	B	C	B	C	Footing	Steel	#3Ø	#5Ø
8"	8"	2	1	15.4'	12.8'	15.4'	11.0'	12.8'	9.5'	11.0'	8.5'	64	0.12	2	1
12"	8"	1	1	23.0'	19.2'	23.0'	16.5'	19.2'	14.4'	16.5'	12.8'	72	0.13	2	1
8"	12"	2	1	23.0'	19.2'	23.0'	16.5'	19.2'	14.4'	16.5'	12.8'	72	0.13	2	1
12"	12"	3	2	24.0'	20.0'	24.0'	17.1'	17.1'	15.0'	17.1'	13.3'	144	0.26	3	2
12"	16"	3	2	30.7'	25.6'	31.9'	25.5'	19.2'	21.9'	19.2'	17.1'	192	0.35	4	2
12"	18"	3	2	37.9'	30.0'	36.0'	25.7'	30.0'	22.5'	25.7'	20.0'	216	0.39	4	2
12"	24"	4	3	57.6'	48.0'	57.6'	41.1'	48.0'	36.0'	41.1'	32.0'	288	0.52	-	2
12"	30"	4	3	72.0'	60.0'	72.0'	51.4'	60.0'	45.0'	51.4'	40.0'	360	0.65	-	3
12"	36"	4	3	86.4'	72.0'	86.4'	61.7'	72.0'	54.0'	61.7'	48.0'	432	0.78	-	3
Depth			B	C	B	C	B	C	B	C					
3-1/2"			50.4'	42.0'	50.4'	36.0'	42.0'	31.5'	36.0'	28.0'					

*n1 = number of #3Ø bars @ 0.11 sq. in. grade 60 steel
**n2 = number of #5Ø bars @ 0.31 sq. in grade 60 steel

BRICK KNEEWALL AND FOUNDATION FOR SCREEN WALLS

SCALE: 1/2" = 1'-0"

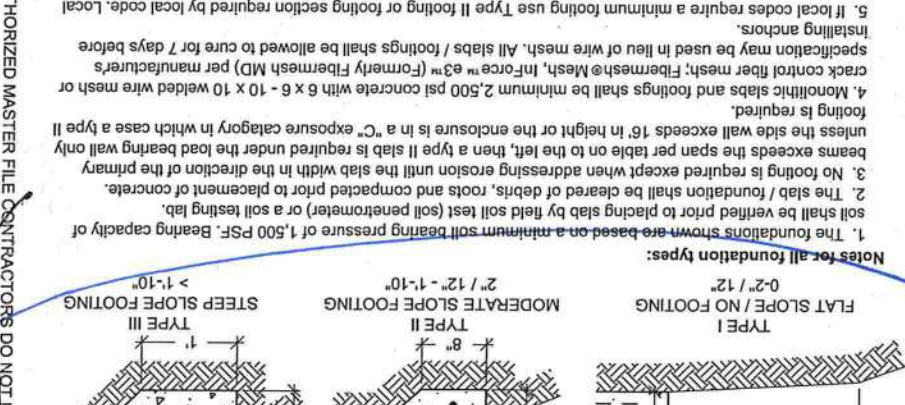


RETAINING WALL FOOTING - DETAIL 1

SCALE: 1/2" = 1'-0"

RETAINING WALL TO FOOTING - DETAIL 2

SCALE: 1/2" = 1'-0"

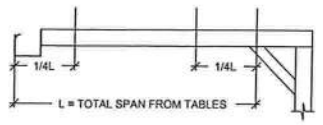


SLAB-FOOTING DETAILS

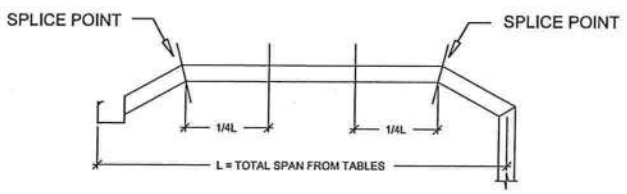
SCALE: 1/2" = 1'-0"

Notes for all foundation types:

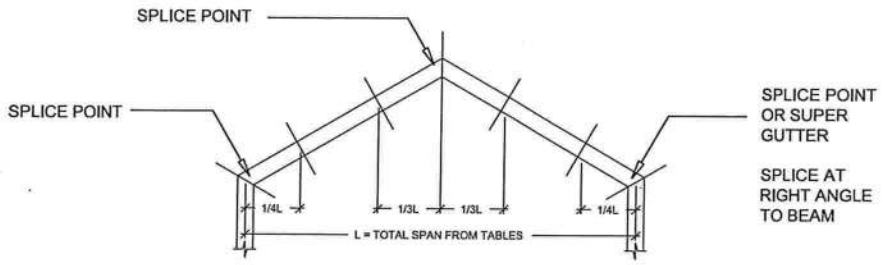
1. The foundations shown are based on a minimum soil bearing pressure of 1,500 PSF. Bearing capacity of soil shall be verified prior to placing slab by field soil test (soil penetrometer) or a soil testing lab.
2. The slab / foundation shall be cleared of debris, roots and compacted prior to placement of concrete.
3. No footing is required except when addressing erosion until the slab width in the direction of the primary beams exceeds 8' then a type I slab is required under the load bearing wall only unless the side wall exceeds 16' in height or the enclosure is in a "C" exposure category in which case a type II footing is required.
4. Monolithic slabs and footings shall be minimum 2,500 psi concrete with 6 x 6 - 10 x 10 welded wire mesh or crack control fiber mesh; Fibermesh Mesh, InForce™ 63™ (Formerly Fibermesh MD) per manufacturer's specification may be used in lieu of wire mesh. All slabs / footings shall be allowed to cure for 7 days before installing anchors.
5. If local codes require a minimum footing use Type II footing or footing section required by local code. Local codes govern.



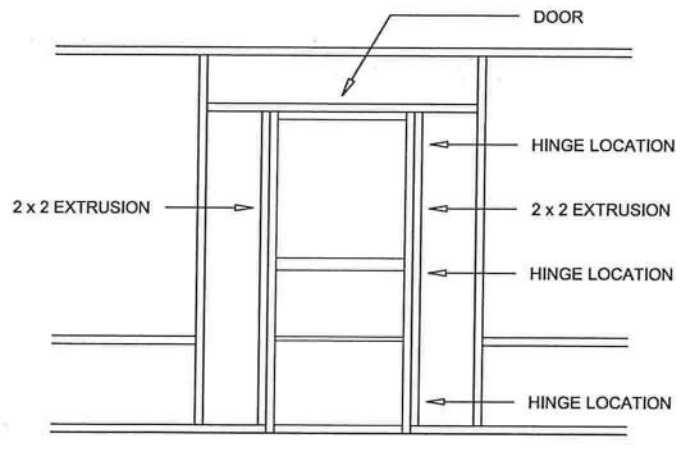
SPLICE POINTS FOR FLAT OR DOME ROOF
SCALE: N.T.S.



SPLICE POINTS FOR FLAT OR DOME ROOF
SCALE: N.T.S.



SPLICE POINTS FOR GABLE ROOF
SCALE: N.T.S.



NOTES:

1. Door to be attached to structure with minimum two (2) hinges.
2. Each hinge to be attached to structure with minimum four (4) #12 x 3/4" S.M.S..
3. Each hinge to be attached to door with minimum three (3) #12 x 3/4" S.M.S..
4. Bottom hinge to be mounted between 10 inches and 20 inches from ground.
5. Top hinge to be mounted between 10 inches and 20 inches from top of door.
6. If door location is adjacent to upright a 1" x 2" x 0.044" may be fastened to upright with #12 x 1" S.M.S. at 12" on center and within 3" from end of upright.

TYPICAL SCREEN DOOR CONNECTION DETAIL
SCALE: N.T.S.

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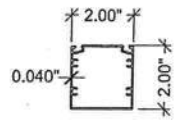
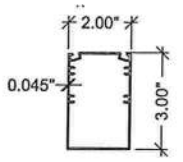


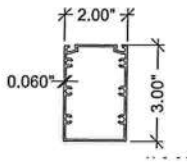
A = 0.434 in.²
Ix = 0.234 in.⁴
Sx = 0.240 in.³
6005 - T5

2" x 2" x 0.040" HOLLOW SECTION
SCALE 2" = 1'-0"



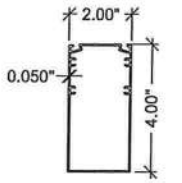
A = 0.538 in.²
Ix = 0.642 in.⁴
0.428 in.³
6005 - T5

2" x 3" x 0.045" HOLLOW SECTION
SCALE 2" = 1'-0"



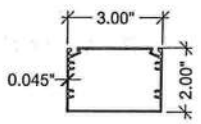
A = 0.768 in.²
Ix = 0.530 in.⁴
Sx = 0.585 in.³
6005 - T5

2" x 3" x 0.060" HOLLOW SECTION
SCALE 2" = 1'-0"



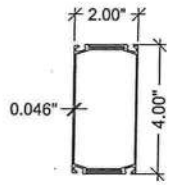
A = 0.697 in.²
Ix = 1.428 in.⁴
Sx = 0.714 in.³
6005 - T5

2" x 4" x 0.050" HOLLOW SECTION
SCALE 2" = 1'-0"



A = 0.552 in.²
Ix = 0.342 in.⁴
Sx = 0.342 in.³
6005 - T5

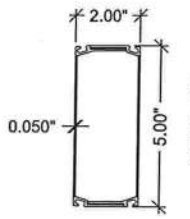
3" x 2" x 0.045" HOLLOW SECTION
SCALE 2" = 1'-0"



A = 0.776 in.²
Ix = 1.953 in.⁴
Sx = 0.977 in.³
6005 - T5

STITCH W/ (1) #12x3/4" S.D.S. HEX HEAD @ 24" O.C.
TOP AND BOTTOM OF EACH BEAM

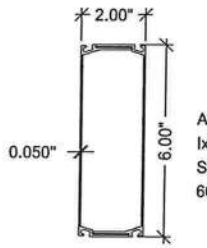
2" x 4" x 0.046" x 0.115"
SELF MATING SECTION
SCALE 2" = 1'-0"



A = 0.964 in.²
Ix = 3.688 in.⁴
Sx = 1.475 in.³
6005 - T5

STITCH W/ (1) #12x3/4" S.D.S. HEX HEAD @ 24" O.C.
TOP AND BOTTOM OF EACH BEAM

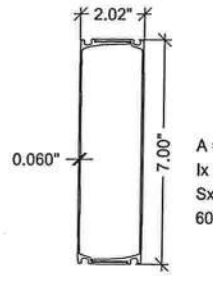
2" x 5" x 0.050" x 0.131"
SELF MATING SECTION
SCALE 2" = 1'-0"



A = 1.098 in.²
Ix = 5.938 in.⁴
Sx = 1.979 in.³
6005 - T5

STITCH W/ (1) #12x3/4" S.D.S. HEX HEAD @ 24" O.C.
TOP AND BOTTOM OF EACH BEAM

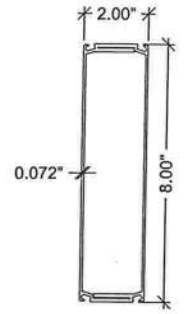
2" x 6" x 0.050" x 0.135"
SELF MATING SECTION
SCALE 2" = 1'-0"



A = 1.277 in.²
Ix = 8.873 in.⁴
Sx = 2.534 in.³
6005 - T5

STITCH W/ (1) #12x3/4" S.D.S. HEX HEAD @ 24" O.C.
TOP AND BOTTOM OF EACH BEAM

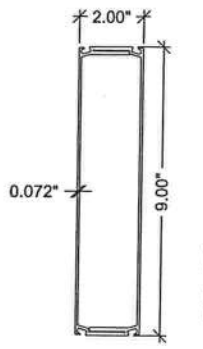
2" x 7" x 0.060" x 0.135"
SELF MATING SECTION
SCALE 2" = 1'-0"



A = 1.855 in.²
Ix = 16.622 in.⁴
Sx = 4.156 in.³
6005 - T5

STITCH W/ (1) #12x3/4" S.D.S. HEX HEAD @ 24" O.C.
TOP AND BOTTOM OF EACH BEAM

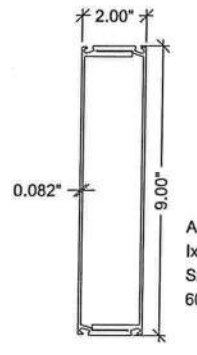
2" x 8" x 0.072" x 0.239"
SELF MATING SECTION
SCALE 2" = 1'-0"



A = 1.999 in.²
Ix = 22.116 in.⁴
Sx = 4.915 in.³
6005 - T5

STITCH W/ (1) #12x3/4" S.D.S. HEX HEAD @ 24" O.C.
TOP AND BOTTOM OF EACH BEAM

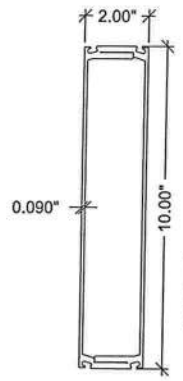
2" x 9" x 0.072" x 0.239"
SELF MATING SECTION
SCALE 2" = 1'-0"



A = 2.398 in.²
Ix = 27.223 in.⁴
Sx = 6.050 in.³
6005 - T5

STITCH W/ (1) #12x3/4" S.D.S. HEX HEAD @ 24" O.C.
TOP AND BOTTOM OF EACH BEAM

2" x 9" x 0.082" x 0.239"
SELF MATING SECTION
SCALE 2" = 1'-0"



A = 3.023 in.²
Ix = 42.466 in.⁴
Sx = 8.493 in.³
6005 - T5

STITCH W/ (1) #12x3/4" S.D.S. HEX HEAD @ 24" O.C.
TOP AND BOTTOM OF EACH BEAM

2" x 10" x 0.092" x 0.389"
SELF MATING SECTION
SCALE 2" = 1'-0"

OCTOBER 21, 2008

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6005 PRODUCT PROPERTIES AND DETAILS
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Table 1.1 120 Town & Country Industries, Inc.
6005 TCI Allowable Spans for Primary Screen Roof Frame Members
Aluminum Alloy 6005 T-5

For Wind Zones up to 120 M.P.H., Exposure "B" and Latitudes Below 30°-30'-00" North (Jacksonville, FL)
Uniform Load = 4 #/SF, a Point Load of 300 #/SF over (1) linear ft. Is also considered

Hollow Sections	Tributary Load Width 'W' = Beam Spacing															
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"			
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)															
2" x 2" x 0.040	5'-7"	Pd	5'-7"	Pd	5'-7"	Pd	5'-7"	Pd	5'-7"	Pd	5'-7"	Pd	5'-7"	Pd		
2" x 3" x 0.045"	9'-6"	Pd	9'-6"	Pd	9'-6"	Pd	9'-6"	Pd	9'-6"	Pd	9'-6"	Pd	9'-6"	Pd		
2" x 3" x 0.060"	11'-1"	Pd	11'-1"	Pd	11'-1"	Pd	11'-1"	Pd	11'-1"	Pd	11'-1"	Pd	11'-1"	Pd		
2" x 4" x 0.050"	14'-2"	Pd	14'-2"	Pd	14'-2"	Pd	14'-2"	Pd	14'-2"	Pd	14'-2"	Pd	13'-11"	Ud		
3" x 2" x 0.045"	6'-9"	Pb	6'-9"	Pb	6'-9"	Pb	6'-9"	Pb	6'-9"	Pb	6'-9"	Pb	6'-9"	Pb		

Self Mating Sections	Tributary Load Width 'W' = Beam Spacing															
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"			
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)															
2" x 4" x 0.046" x 0.050"	16'-7"	Pd	16'-7"	Pd	16'-7"	Pd	16'-7"	Pd	16'-7"	Pd	16'-0"	Ud	15'-5"	Ud		
2" x 5" x 0.050" x 0.048"	22'-9"	Pd	22'-9"	Pd	22'-9"	Pd	21'-10"	Ud	20'-9"	Ud	19'-10"	Ud	19'-1"	Ud		
2" x 6" x 0.050" x 0.060"	28'-10"	Pd	28'-10"	Pd	27'-2"	Ud	25'-7"	Ud	24'-3"	Ud	23'-3"	Ud	22'-4"	Ud		
2" x 7" x 0.060" x 0.060"	35'-3"	Pd	33'-5"	Ud	31'-1"	Ud	29'-3"	Ud	27'-9"	Ud	26'-7"	Ud	25'-6"	Ud		
2" x 8" x 0.072" x 0.112"	45'-4"	Ud	41'-3"	Ud	38'-3"	Ud	36'-0"	Ud	34'-3"	Ud	32'-9"	Ud	31'-6"	Ud		
2" x 9" x 0.072" x 0.112"	49'-11"	Ud	45'-4"	Ud	42'-1"	Ud	39'-7"	Ud	37'-8"	Ud	35'-11"	Ud	34'-7"	Ud		
2" x 9" x 0.082" x 0.153"	53'-6"	Ud	48'-7"	Ud	45'-1"	Ud	42'-5"	Ud	40'-4"	Ud	38'-7"	Ud	37'-1"	Ud		
2" x 10" x 0.092" x 0.187"	62'-0"	Ud	56'-4"	Ud	52'-4"	Ud	49'-3"	Ud	46'-9"	Ud	44'-9"	Ud	43'-0"	Ud		

Notes:
1. Thicknesses shown are "nominal" industry standard tolerances. No wall thickness shall be less than 0.040".
2. The structures designed using this section shall be limited to a maximum combined span and upright height of 50' and a maximum upright height of 16'. Structures larger than these limits shall have site specific engineering.
3. Span is measured from center of beam and upright connection to fascia or wall connection.
4. Above spans do not include length of knee brace. Add horizontal distance from upright to center of brace to beam connection to the above spans for total beam spans.
5. Tables are based on a maximum wall height of 16' including a 4' max. mansard or gable. Other conditions may offer better spans w/ enclosure site specific engineering.
6. Spans may be interpolated.
7. To convert spans to "C" and "D" exposure categories see exposure multipliers and example on page 1-ii.

Table 1.2 120 Town & Country Industries, Inc.
6005 TCI Allowable Spans for Secondary Screen Roof Frame Members
Aluminum Alloy 6005 T-5

For Wind Zones up to 120 M.P.H., Exposure "B" and Latitudes Below 30°-30'-00" North (Jacksonville, FL)
Uniform Load = 4 #/SF, a Point Load of 300 #/SF over (1) linear ft. Is also considered

A. Sections Fastened To Beams With Clips

Hollow Sections	Tributary Load Width 'W' = Purlin Spacing															
	3'-6"		4'-0"		4'-6"		5'-0"		5'-6"		6'-0"		6'-8"			
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)															
2" x 2" x 0.040	5'-9"	Pd	5'-9"	Pd	5'-9"	Pd	5'-9"	Pd	5'-9"	Pd	5'-9"	Pd	5'-9"	Pd		
2" x 3" x 0.045"	9'-6"	Pd	9'-6"	Pd	9'-6"	Pd	9'-6"	Pd	9'-6"	Pd	9'-6"	Pd	9'-6"	Pd		
2" x 3" x 0.060"	11'-1"	Pd	11'-1"	Pd	11'-1"	Pd	11'-1"	Pd	11'-1"	Pd	11'-1"	Pd	11'-1"	Pd		
2" x 4" x 0.050"	14'-2"	Pd	14'-2"	Pd	14'-2"	Pd	14'-2"	Pd	14'-2"	Pd	14'-2"	Pd	14'-2"	Pd		
3" x 2" x 0.045"	6'-11"	Pd	6'-11"	Pd	6'-11"	Pd	6'-11"	Pd	6'-11"	Pd	6'-11"	Pd	6'-11"	Pd		

B. Sections Fastened Through Beam Webs Into Screw Bosses

Hollow Sections	Tributary Load Width 'W' = Purlin Spacing															
	3'-6"		4'-0"		4'-6"		5'-0"		5'-6"		6'-0"		6'-8"			
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)															
2" x 2" x 0.040	9'-11"	Pb	9'-11"	Pb	9'-8"	Ud	9'-4"	Ud	9'-0"	Ud	8'-9"	Ud	8'-5"	Ud		
2" x 3" x 0.045"	14'-7"	Ud	13'-11"	Ud	13'-5"	Ud	12'-11"	Ud	12'-6"	Ud	12'-2"	Ud	11'-9"	Ud		
2" x 3" x 0.060"	16'-2"	Ud	15'-6"	Ud	14'-10"	Ud	14'-4"	Ud	13'-11"	Ud	13'-6"	Ud	13'-0"	Ud		
2" x 4" x 0.050"	19'-0"	Ud	18'-2"	Ud	17'-6"	Ud	16'-11"	Ud	16'-4"	Ud	15'-11"	Ud	15'-4"	Ud		
3" x 2" x 0.045"	10'-7"	Pb	10'-7"	Pb	10'-7"	Pb	10'-6"	Ud	10'-2"	Ud	9'-10"	Ud	9'-6"	Ud		

Notes:
1. Thicknesses shown are "nominal" industry standard tolerances. No wall thickness shall be less than 0.040".
2. Span is measured from center of beam and upright connection to fascia or wall connection.
3. Tables are based on a maximum wall height of 16' including a 4' max. mansard or gable. Other conditions may offer better spans w/ enclosure site specific engineering.
4. Spans may be interpolated.
5. 2" x 4" & 2" x 5" Hollow Girts shall be connected w/ an internal or external 1-1/2" x 1-1/2" x 0.044" angle.

Table 1.3 120 Town & Country Industries, Inc.
6005 TCI Allowable Post / Upright Heights for Primary Screen Wall Frame
Aluminum Alloy 6005 T-5

For 3 second wind gust at a velocity of 120 MPH, Exposure "B" or an applied load of 15 #/sq. ft.

Hollow Sections	Tributary Load Width 'W' = Upright Spacing															
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"			
	Allowable Height "H" / bending (b), deflection (d)															
2" x 2" x 0.040	7'-1"	d	6'-5"	d	5'-11"	d	5'-8"	d	5'-4"	d	4'-11"	b	4'-9"	b		
2" x 3" x 0.045"	9'-10"	d	8'-11"	d	8'-6"	d	7'-9"	b	7'-2"	b	6'-7"	b	6'-4"	b		
2" x 3" x 0.060"	10'-11"	d	9'-11"	d	9'-11"	d	9'-1"	d	8'-5"	d	7'-10"	b	7'-5"	b		
2" x 4" x 0.050"	12'-11"	d	11'-9"	d	10'-8"	b	9'-7"	b	8'-9"	b	8'-1"	b	7'-7"	b		
3" x 2" x 0.045"	8'-0"	d	7'-3"	d	6'-11"	d	6'-3"	b	5'-9"	b	5'-4"	b	5'-2"	b		

Self Mating Sections	Tributary Load Width 'W' = Upright Spacing															
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"			
	Allowable Height "H" / bending (b), deflection (d)															
2" x 4" x 0.046" x 0.050"	14'-4"	d	12'-11"	d	11'-10"	b	10'-9"	b	9'-11"	b	9'-3"	b	8'-10"	b		
2" x 5" x 0.050" x 0.048"	17'-8"	d	16'-1"	d	14'-11"	d	13'-9"	b	12'-8"	b	11'-10"	b	11'-3"	b		
2" x 6" x 0.050" x 0.060"	20'-9"	d	18'-10"	d	17'-3"	b	15'-8"	b	14'-6"	b	13'-6"	b	12'-11"	b		
2" x 7" x 0.060" x 0.060"	23'-8"	d	21'-6"	d	19'-11"	d	18'-5"	b	17'-0"	b	15'-10"	b	15'-1"	b		
2" x 8" x 0.072" x 0.112"	29'-2"	d	26'-6"	d	24'-8"	d	23'-2"	d	22'-0"	d	20'-11"	b	19'-9"	b		
2" x 9" x 0.072" x 0.112"	32'-1"	d	29'-2"	d	27'-1"	d	25'-6"	d	24'-3"	d	22'-9"	b	21'-6"	b		
2" x 9" x 0.082" x 0.153"	34'-5"	d	31'-3"	d	29'-0"	d	27'-4"	d	25'-11"	d	24'-10"	d	23'-10"	b		
2" x 10" x 0.092" x 0.187"	39'-11"	d	36'-3"	d	33'-8"	d	31'-8"	d	30'-1"	d	28'-9"	d	27'-8"	d		

Notes:
1. Thicknesses shown are "nominal" industry standard tolerances. No wall thickness shall be less than 0.040".
2. Using screen panel width 'W' select upright length 'H'.
3. Above heights do not include length of knee brace. Add vertical distance from upright to center of brace to beam connection to the above spans for total beam spans.
4. Site specific engineering required for pool enclosures over 30' in mean roof height.
5. Height is to be measured from center of beam and upright connection to fascia or wall connection.
6. Chair rails of 2" x 2" x 0.044" min. and set @ 36" in height are designed to be residential guardrails provided they are attached with min. (3) #10 x 1-1/2" S.M.S. into the screw bosses and do not exceed 8'-0" in span.
7. Max. beam size for 2" x 5" is 2" x 7" x 0.055" x 0.120"
8. Spans may be interpolated.

Table 1.4 120 Town & Country Industries, Inc.
6005 TCI Allowable Post / Girt / Chair Rail Spans, Header Spans & Upright Heights
for Secondary Screen Wall Frame Members
Aluminum Alloy 6005 T-5

For 3 second wind gust at a velocity of 120 MPH, Exposure "B" or an applied load of 15 # / sq. ft.

A. Sections As Horizontals Fastened To Posts With Clips

Hollow Sections	Tributary Load Width 'W' = Member Spacing															
	3'-6"		4'-0"		4'-6"		5'-0"		5'-6"		6'-0"		6'-8"			
	Allowable Height "H" or Span "L" / bending (b), deflection (d)															
2" x 2" x 0.040	6'-9"	d	6'-5"	d	6'-2"	d	5'-11"	d	5'-10"	d	5'-8"	d	5'-5"	d		
2" x 3" x 0.045"	9'-5"	d	8'-11"	d	8'-10"	d	8'-6"	d	8'-1"	d	7'-9"	b	7'-4"	b		
2" x 3" x 0.060"	10'-5"	d	9'-11"	d	10'-4"	d	9'-11"	d	9'-6"	d	9'-1"	d	8'-7"	d		
2" x 4" x 0.050"	12'-3"	d	11'-9"	d	11'-4"	d	10'-10"	b	10'-3"	b	9'-9"	b	9'-2"	b		
3" x 2" x 0.045"	7'-7"	d	7'-3"	d	7'-4"	d	6'-11"	d	6'-8"	d	6'-4"	b	5'-11"	b		

B. Sections As Horizontals Fastened To Posts Through Side Into Screw Bosses

Hollow Sections	Tributary Load Width 'W' = Member Spacing															
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"			
	Allowable Height "H" or Span "L" / bending (b), deflection (d)															
2" x 2" x 0.040	8'-6"	b	7'-11"	b	7'-5"	b	7'-1"	b	6'-9"	b	6'-6"	b	6'-2"	b		
2" x 3" x 0.045"	11'-4"	b	10'-8"	b	9'-11"	b	9'-6"	b	9'-1"	b	8'-8"	b	8'-3"	b		
2" x 3" x 0.060"	13'-3"	b	12'-5"	b	11'-7"	b	11'-1"	b	10'-7"	b	10'-2"	b	9'-7"	b		
2" x 4" x 0.050"	14'-8"	b	13'-8"	b	12'-8"	b	12'-1"	b	11'-5"	b	10'-11"	b	10'-3"	b		
3" x 2" x 0.045"	9'-5"	b	8'-9"	b	8'-2"	b	7'-10"	b	7'-5"	b	7'-1"	b	6'-8"	b		

Notes:
1. Thicknesses shown are "nominal" industry standard tolerances. No wall thickness shall be less than 0.040".
2. Using screen panel width 'W' select girt lengths.
3. Site specific engineering required for pool enclosures over 30' in mean roof height.
4. Span/height is to be measured from center of beam and upright connection to fascia or wall connection.
5. Chair rails of 2" x 2" x 0.044" min. and set @ 36" in height are designed to be residential guardrails provided they are attached with min. (3) #10 x 1-1/2" s.m.s. into the screw bosses and do not exceed 8'-0" o.c.
6. Girt spacing shall not exceed 6'-8".
7. Max. beam size for 2" x 5" is 2" x 7" x 0.055" x 0.120"
8. 2" x 4" & 2" x 5" hollow girts shall be connected w/ an internal or external 1-1/2" x 1-1/2" x 0.044" angle.
9. Spans/heights may be interpolated.

Table 1.5 120 Town & Country Industries, Inc.
6005 TCI Allowable Spans for Miscellaneous Framing Beams as Supporting Screen Roof Frame Members
(110 & 120 MPH) Aluminum Alloy 6005 T-5

for Areas with Wind Loads up to 110 & 120 M.P.H., Exposure "B" and Latitudes Below 30°-30'-00" North (Jacksonville, FL)
Uniform Load = 4 #/SF, a Point Load of 300 #/SF over (1) linear ft. Is also considered

Single Self-Mating Beams	Tributary Load Width																			
	10'-0"		14'-0"		18'-0"		22'-0"		26'-0"		30'-0"		34'-0"		38'-0"		42'-0"		46'-0"		50'-0"		54'-0"	
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)																							
2" x 4" x 0.046" x 0.050"	14'-11"	Ud	13'-4"	Ud	12'-3"	Ud	11'-3"	Ud	10'-5"	Ub	9'-8"	Ub	9'-1"	Ub	8'-7"	Ub	8'-2"	Ub	7'-10"	Ub	7'-6"	Ub	7'-2"	Ub
2" x 5" x 0.050" x 0.048"	18'-5"	Ud	16'-5"	Ud	15'-1"	Ud	14'-2"	Ud	13'-3"	Ub	12'-4"	Ub	11'-7"	Ub	10'-11"	Ub	10'-5"	Ub	9'-11"	Ub	9'-7"	Ub	9'-2"	Ub
2" x 6" x 0.050" x 0.060"	21'-7"	Ud	19'-3"	Ud	17'-9"	Ud	16'-6"	Ud	15'-2"	Ub	14'-1"	Ub	13'-3"	Ub	12'-6"	Ub	11'-11"	Ub	11'-5"	Ub	10'-11"	Ub	10'-6"	Ub
2" x 7" x 0.060" x 0.060"	24'-8"	Ud	22'-0"	Ud	20'-3"	Ud	18'-11"	Ud	17'-7"	Ub	16'-4"	Ub	15'-4"	Ub	14'-6"	Ub	13'-10"	Ub	13'-2"	Ub	12'-8"	Ub	12'-2"	Ub
2" x 8" x 0.072" x 0.112"	30'-4"	Ud	27'-2"	Ud	24'-11"	Ud	23'-4"	Ud	22'-1"	Ud	20'-11"	Ub	19'-8"	Ub	18'-7"	Ub	17'-8"	Ub	16'-11"	Ub	16'-3"	Ub	15'-7"	Ub
2" x 9" x 0.072" x 0.112"	33'-5"	Ud	29'-10"	Ud	27'-6"	Ud	25'-8"	Ud	24'-4"	Ud	22'-9"	Ub	21'-5"	Ub	20'-3"	Ub	19'-3"	Ub	18'-5"	Ub	17'-8"	Ub	16'-11"	Ub
2" x 9" x 0.082" x 0.153"	35'-10"	Ud	32'-0"	Ud	29'-5"	Ud	27'-6"	Ud	26'-0"	Ud	24'-10"	Ud	23'-9"	Ub	22'-5"	Ub	21'-4"	Ub	20'-5"	Ub	19'-7"	Ub	18'-10"	Ub
2" x 10" x 0.092" x 0.187"	41'-6"	Ud	37'-1"	Ud	34'-2"	Ud	31'-11"	Ud	30'-2"	Ud	28'-9"	Ud	27'-7"	Ud	26'-7"	Ub	25'-4"	Ub	24'-2"	Ub	23'-2"	Ub	22'-4"	Ub

Double Self-Mating Beams	Tributary Load Width																			
	10'-0"		14'-0"		18'-0"		22'-0"		26'-0"		30'-0"		34'-0"		38'-0"		42'-0"		46'-0"		50'-0"		54'-0"	
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)																							
(2) 2" x 8" x 0.072" x 0.112"	38'-3"	Ud	34'-3"	Ud	31'-6"	Ud	29'-5"	Ud	27'-10"	Ud	26'-6"	Ud	25'-5"	Ud	24'-6"	Ud	23'-9"	Ud	23'-0"	Ud	22'-5"	Ud	21'-10"	Ud
(2) 2" x 9" x 0.072" x 0.112"	42'-1"	Ud	37'-8"	Ud	34'-7"	Ud	32'-4"	Ud	30'-7"	Ud	29'-2"	Ud	27'-11"	Ud	26'-11"	Ud	26'-1"	Ud	25'-4"	Ud	24'-7"	Ud	23'-11"	Ud
(2) 2" x 9" x 0.082" x 0.153"	45'-1"	Ud	40'-4"	Ud	37'-1"	Ud	34'-8"	Ud	32'-10"	Ud	31'-3"	Ud	29'-11"	Ud	28'-11"	Ud	27'-11"	Ud	27'-1"	Ud	26'-5"	Ud	25'-9"	Ud
(2) 2" x 10" x 0.092" x 0.187"	52'-4"	Ud	46'-9"	Ud	43'-0"	Ud	40'-3"	Ud	38'-1"	Ud	36'-3"	Ud	34'-10"	Ud	33'-6"	Ud	32'-5"	Ud	31'-5"	Ud	30'-7"	Ud	29'-10"	Ud

Notes:
1. It is recommended that the engineer be consulted on any carrier beam that spans more than 50'
2. Span is measured from center of connection to fascia or wall connection.
3. Above spans do not include length of knee brace. Add horizontal distance from upright to center of brace to beam connection to the above spans for total beam spans.
4. Spans may be interpolated.
5. To convert spans to "C" and "D" exposure categories see exposure multipliers and example on page 1.

Table 1.11 Maximum Overhang for Rafter / Truss Tails when Connected to Screen Roof

20' Max. Enclosure Span		Rafter / Truss Tail #2 Span / bending (b) or deflection (d)									
Wind Zone ("B" Exp.)	Wind Pressure (#/SF)	2x4		2x6		2x8		2x10		2x12	
100-110	4	2'-2"	b	5'-4"	b	9'-3"	b	15'-0"	b	22'-3"	b
120	4	2'-2"	b	5'-4"	b	9'-3"	b	15'-0"	b	22'-3"	b
123	4.3	2'-0"	b	4'-11"	b	8'-7"	b	13'-11"	b	20'-8"	b
130	5	1'-9"	b	4'-3"	b	7'-5"	b	12'-0"	b	17'-10"	b
140	6	1'-5"	b	3'-7"	b	6'-2"	b	10'-0"	b	14'-10"	b
150	7	1'-3"	b	3'-0"	b	5'-3"	b	8'-7"	b	12'-9"	b

30' Max. Enclosure Span		Rafter / Truss Tail #2 Span / bending (b) or deflection (d)									
Wind Zone ("B" Exp.)	Wind Pressure (#/SF)	2x4		2x6		2x8		2x10		2x12	
100-110	4	1'-5"	b	3'-7"	b	6'-2"	b	10'-0"	b	14'-10"	b
120	4	1'-5"	b	3'-7"	b	6'-2"	b	10'-0"	b	14'-10"	b
123	4.3	1'-4"	b	3'-4"	b	5'-9"	b	9'-4"	b	13'-10"	b
130	5	1'-2"	b	2'-10"	b	4'-11"	b	8'-0"	b	11'-10"	b
140	6	0'-11"	b	2'-4"	b	4'-1"	b	6'-8"	b	9'-11"	b
150	7	0'-10"	b	2'-0"	b	3'-6"	b	5'-9"	b	8'-6"	b

40' Max. Enclosure Span		Rafter / Truss Tail #2 Span / bending (b) or deflection (d)									
Wind Zone ("B" Exp.)	Wind Pressure (#/SF)	2x4		2x6		2x8		2x10		2x12	
100-110	4	1'-1"	b	2'-8"	b	4'-7"	b	7'-6"	b	11'-1"	b
120	4	1'-1"	b	2'-8"	b	4'-7"	b	7'-6"	b	11'-1"	b
123	4.3	1'-0"	b	2'-6"	b	4'-4"	b	6'-11"	b	10'-4"	b
130	5	0'-10"	b	2'-2"	b	3'-8"	b	6'-0"	b	8'-11"	b
140	6	0'-9"	b	1'-9"	b	3'-1"	b	5'-0"	b	7'-5"	b
150	7	0'-7"	b	1'-6"	b	2'-8"	b	4'-4"	b	6'-4"	b

Note:
1. For overhangs with spans that exceed those listed above site specific engineering is required.
2. If truss bottom cord extends more than 24" over the wall site specific engineering is required.
3. To convert from exposure "B" spans to "C" or "D" exposure spans see multipliers and example on page 1ii.

Example:
For a pool inclosure with 30' max. beam span, in a 123 MPH wind zone, "B" exposure. For 2 x 6 rafter / truss the max overhand from the wall of the host structure to the sub-fascia is 3'-4".
To convert from exposure "B" spans to "C" or "D" exposure spans see multipliers and example on page 1ii.

Table 1.14a 120 TCI Town & Country Industries, Inc.
6005 Allowable Spans for 5" Super Gutter and Self Mating Beam
Screened Enclosure One Side/Solid Roof Other Side
Aluminum Alloy 6063 T-6

for Areas In Wind Zones of 120 M.P.H., Exposure "B" or Less and Latitudes Below 30°-30'-00" North
Uniform Load on Screen = 4 #/SF, Solid Roof = 27.4 #/SF
300# Point Load Is Considered over (1) LF of Beam

Single Self-Mating Beams	Tributary Load Width											
	10'-0"		12'-0"		14'-0"		16'-0"		18'-0"		20'-0"		22'-0"	
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b) or deflection (d)													
2" x 6" x 0.050" x 0.060"	14'-9"	Ub	14'-4"	Ub	13'-11"	Ub	13'-7"	Ub	13'-3"	Ub	12'-11"	Ub	12'-7"	Ub
2" x 7" x 0.060" x 0.060"	16'-3"	Ub	15'-9"	Ub	15'-3"	Ub	14'-11"	Ub	14'-6"	Ub	14'-2"	Ub	13'-10"	Ub
2" x 8" x 0.072" x 0.112"	20'-4"	Ub	19'-8"	Ub	19'-2"	Ub	18'-8"	Ub	18'-2"	Ub	17'-9"	Ub	17'-4"	Ub
2" x 9" x 0.072" x 0.112"	21'-4"	Ub	20'-9"	Ub	20'-2"	Ub	19'-7"	Ub	19'-1"	Ub	18'-8"	Ub	18'-3"	Ub
2" x 9" x 0.082" x 0.153"	23'-5"	Ub	22'-8"	Ub	22'-1"	Ub	21'-6"	Ub	20'-11"	Ub	20'-5"	Ub	19'-11"	Ub
2" x 10" x 0.092" x 0.187"	27'-2"	Ud	26'-8"	Ud	25'-11"	Ub	25'-2"	Ub	24'-7"	Ub	23'-11"	Ub	23'-5"	Ub

Notes:
1. If the solid panel is greater or less than 10'-0", then the 1/2 the allowable screen roof beam span shall be adjusted by the factor of +/- 2 x 1/2 (the solid roof panel span difference between the actual and 10'-0"). The adjustment to the allowable screen roof panel width is applied as a plus if the solid roof panel is larger than 10'-0" and minus if the solid roof panel is smaller than 10'-0".
2. For span of "L" of beam; use screen panel width "W" from drawing.
3. Load span = 1/2 of screen beam length + 1/2 of solid roof span .
4. Spans may be interpolated.
5. For minimum beam to upright sizes use Table 2.3
6. To convert spans to "C" and "D" exposure categories see exposure multipliers and example on page 1.

10-24-2008

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ALUMINUM STRUCTURES DESIGN MANUAL
SCREEN ENCLOSURES
120 MPH ROOF & WALL MEMBER SPANS
2004 FBC W/ 2006 SUPPLEMENTS
2006 EDITION

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Table 1.9.1 **Town & Country Industries, Inc.**
TCI 6005 **Allowable Spans for Primary Screen Roof Frame Members**
Aluminum Alloy 6005 T-5

for Areas in Wind Zones up to 130 M.P.H., Exposure "B" and Latitudes North 30°-30'-00" North (Jacksonville, FL)
Uniform Load = 15 #/SF, a Point Load of 300 #/SF over (1) linear ft. Is also considered

Hollow Sections	Tributary Load Width 'W' = Beam Spacing																	
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"					
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)																	
2" x 2" x 0.040	5'-7"	Pb	5'-7"	Pb	5'-7"	Pb	5'-7"	Pb	5'-4"	Ud	5'-1"	Ud	4'-11"	Ud				
2" x 3" x 0.045"	6'-3"	Pd	6'-3"	Pd	6'-3"	Pd	6'-3"	Pd	6'-3"	Pd	6'-3"	Pd	6'-3"	Pd				
2" x 3" x 0.060"	7'-8"	Pd	7'-8"	Pd	7'-8"	Pd	7'-8"	Pd	7'-8"	Pd	7'-8"	Pd	7'-7"	Ud				
2" x 4" x 0.050"	7'-9"	Pd	7'-9"	Pd	7'-9"	Pd	7'-9"	Pd	7'-9"	Pd	7'-9"	Pd	7'-9"	Pd				
3" x 2" x 0.045"	6'-9"	Pb	6'-9"	Pb	6'-9"	Pb	6'-4"	Ud	6'-0"	Ud	5'-9"	Ud	5'-7"	Ud				

Self Mating Sections	Tributary Load Width 'W' = Beam Spacing																	
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"					
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)																	
2" x 4" x 0.046" x 0.050"	14'-4"	Ud	12'-11"	Ud	12'-1"	Ud	11'-4"	Ud	10'-9"	Ud	10'-2"	Ub	9'-7"	Ub				
2" x 5" x 0.050" x 0.048"	17'-8"	Ud	16'-1"	Ud	14'-11"	Ud	14'-0"	Ud	13'-4"	Ud	12'-9"	Ud	12'-3"	Ud				
2" x 6" x 0.050" x 0.060"	20'-9"	Ud	18'-10"	Ud	17'-6"	Ud	16'-5"	Ud	15'-7"	Ud	14'-11"	Ud	14'-1"	Ub				
2" x 7" x 0.060" x 0.060"	23'-8"	Ud	21'-6"	Ud	19'-11"	Ud	18'-10"	Ud	17'-10"	Ud	17'-1"	Ud	16'-5"	Ud				
2" x 8" x 0.072" x 0.112"	29'-2"	Ud	26'-6"	Ud	24'-8"	Ud	23'-2"	Ud	22'-0"	Ud	21'-1"	Ud	20'-3"	Ud				
2" x 9" x 0.072" x 0.112"	32'-1"	Ud	29'-2"	Ud	27'-1"	Ud	25'-6"	Ud	24'-3"	Ud	23'-2"	Ud	22'-3"	Ud				
2" x 9" x 0.082" x 0.153"	34'-5"	Ud	31'-3"	Ud	29'-0"	Ud	27'-4"	Ud	25'-11"	Ud	24'-10"	Ud	23'-10"	Ud				
2" x 10" x 0.092" x 0.187"	39'-11"	Ud	36'-3"	Ud	33'-8"	Ud	31'-8"	Ud	30'-1"	Ud	28'-9"	Ud	27'-8"	Ud				

Notes:
1. Thicknesses shown are "nominal" industry standard tolerances. No wall thickness shall be less than 0.040".
2. The structures Uniformed using this section shall be limited to a maximum combined span and upright height of 50' and a maximum upright height of 16'. Structures larger than these limits shall have site specific engineering.
3. Span is measured from center of beam and upright connection to fascia or wall connection.
4. Above spans do not include length of knee brace. Add horizontal distance from upright to center of brace to beam connection to the above spans for total beam spans.
5. Tables are based on a maximum wall height of 16' including a 4' max. mansard or gable. Other conditions may offer better spans w/ enclosure site specific engineering.
6. Spans may be interpolated.
7. To convert spans to "C" and "D" exposure categories see exposure multipliers and example on page 1.

Table 1.9.2 6063 **Town & Country Industries, Inc.**
Allowable Spans for Secondary Screen Roof Frame Members
Aluminum Alloy 6063 T-6

for Areas in Wind Zones up to 130 M.P.H., Exp. "B" and Latitudes North of 30°-30'-00" North (Jacksonville, FL)
Uniform Load = 15 #/SF, a Point Load of 300 #/SF over (1) linear ft. Is also considered
A. Sections Fastened To Beams With Clips

Hollow Sections	Tributary Load Width 'W' = Purlin Spacing													
	3'-6"		4'-0"		4'-6"		5'-0"		5'-6"		6'-0"		6'-8"	
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)													
2" x 2" x 0.040	5'-9"	Pd	5'-9"	Pd	5'-9"	Pd	5'-9"	Pd	5'-9"	Pd	5'-8"	Ud	5'-5"	Ud
2" x 3" x 0.045"	9'-5"	Ud	8'-11"	Ud	8'-7"	Ud	8'-4"	Ud	8'-1"	Ud	7'-9"	Ub	7'-4"	Ub
2" x 3" x 0.060"	10'-5"	Ud	9'-11"	Ud	9'-7"	Ud	9'-3"	Ud	8'-11"	Ud	8'-8"	Ud	8'-5"	Ud
2" x 4" x 0.050"	12'-3"	Ud	11'-9"	Ud	11'-3"	Ud	10'-9"	Ub	10'-2"	Ub	9'-8"	Ub	9'-1"	Ub
3" x 2" x 0.045"	6'-11"	Pd	6'-11"	Pd	6'-11"	Pd	6'-9"	Ud	6'-6"	Ud	6'-3"	Ub	5'-11"	Ub

Uniform Load = 4 #/SF, a Point Load of 300 #/SF over (1) linear ft. Is also considered
B. Sections Fastened Through Beam Webs Into Screw Bosses

Hollow Sections	Tributary Load Width 'W' = Purlin Spacing													
	3'-6"		4'-0"		4'-6"		5'-0"		5'-6"		6'-0"		6'-8"	
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)													
2" x 2" x 0.040	5'-9"	Pd	5'-9"	Pd	5'-9"	Pd	5'-9"	Pd	5'-9"	Pd	5'-8"	Ud	5'-5"	Ud
2" x 3" x 0.045"	9'-5"	Ud	8'-11"	Ud	8'-7"	Ud	8'-4"	Ud	8'-1"	Ud	7'-10"	Ud	7'-7"	Ud
2" x 3" x 0.060"	10'-5"	Ud	9'-11"	Ud	9'-7"	Ud	9'-3"	Ud	8'-11"	Ud	8'-8"	Ud	8'-5"	Ud
2" x 4" x 0.050"	12'-3"	Ud	11'-9"	Ud	11'-3"	Ud	10'-10"	Ud	10'-6"	Ud	10'-3"	Ud	9'-10"	Ud
3" x 2" x 0.045"	6'-11"	Pd	6'-11"	Pd	6'-11"	Pd	6'-9"	Ud	6'-6"	Ud	6'-4"	Ud	6'-2"	Ud

Notes:
1. Thicknesses shown are "nominal" industry standard tolerances. No wall thickness shall be less than 0.040".
2. The structures Uniformed using this section shall be limited to a maximum combined span and upright height of 50' and a maximum upright height of 16'. Structures larger than these limits shall have site specific engineering.
3. Span is measured from center of beam and upright connection to fascia or wall connection.
4. Above spans do not include length of knee brace. Add horizontal distance from upright to center of brace to beam connection to the above spans for total beam spans.
5. Tables are based on a maximum wall height of 16' including a 4' max. mansard or gable. Other conditions may offer better spans w/ enclosure site specific engineering.
6. Spans may be interpolated.
7. To convert spans to "C" and "D" exposure categories see exposure multipliers and example on page 1.

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ALUMINUM STRUCTURES DESIGN MANUAL
SCREEN ENCLOSURES
FRAME MEMBER SPANS - SUBJECT TO SNOW
2004 FBC W/ 2006 SUPPLEMENTS
2006 EDITION

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Table 1.6 Minimum Upright Sizes and Number of Screws for Connection of Roof Beams To Wall Uprights or Beam Splicing

Beam/Upright or Post	Upright or Post/Beam	Minimum Purlin, Girt & Knee Brace Size	Minimum Number of Screws*			Beam Stitching Screw at 24" OC
			#8 x ½"	#10 x ½"	#12 x ½"	
2 x 4 SMB	2 x 3 SMB or H	2" x 2" x 0.044"	8	6	4	#10
2 x 5 SMB	2 x 3 SMB or H	2" x 2" x 0.044"	8	6	4	#8
2 x 6 SMB	2 x 3 SMB or H	2" x 2" x 0.044"	10	8	6	#10
2 x 7 SMB	2 x 4 SMB or H	2" x 3" x 0.044"	14	12	10	#12
2 x 8 SMB	2 x 5 SMB or H	2" x 3" x 0.044"	16	14	12	#14
2 x 9 SMB	2 x 6 SMB	2" x 3" x 0.045"	18	16	14	#14**
2 x 9 SMB *	2 x 7 SMB	2" x 4" x 0.050"	20	18	16	#14**
2 x 10 SMB	2 x 8 SMB	2" x 5" x 0.050"	20	18	16	#14**

Screw Size	Minimum Distance and Spacing of Screws		Gusset Plate Thickness	
	Edge To Center	Center To Center	Beam Size	Thickness
#8	5/16"	5/8"	2" x 7" x 0.055" x 0.120"	0.063"
#10	3/8"	3/4"	2" x 8" x 0.072" x 0.224"	0.125"
#12	1/2"	1"	2" x 9" x 0.072" x 0.224"	0.125"
#14 or 1/4"	3/4"	1-1/2"	2" x 9" x 0.082" x 0..306"	0.190"
5/16"	7/8"	1-3/4"	2" x 10" x 0.092" x 0.369"	0.250"
3/8"	1"	2"		

* 0.082" wall thickness, 0.310" flange thickness
** (1) Stitching screw at 16" O.C. max., at 12" O.C. for Eagle 6061 T-6 self mating beams.
Connection Example:
2" x 7" beam & 2" x 4" at beam & gusset plate, (14) #8 x 1/2" sms & upright & gusset plate
(14) #8 x 1/2" sms ea. side of beam & upright.

Note:
1. Connection of 2" x 6" to 2" x 4" shall use a full lap cut or 1/16" gusset plate.
2. For beam splice connections the number of screws shown is the total for each splice with 1/2 the screws on each side of the cut.
3. The number of screws is based on the maximum allowable moment of the beam.
4. The number of deck anchors is based on RAWL R Tapper allowable load data for 2,500 psi concrete and / or equal anchors may be used. The number shown is the total use 1/2 per side.
5. Hollow splice connections can be made provided the connection is approved by the engineer.
6. If a larger than minimum upright is used the number of screws is the same for each splice with 1/2 the screws on each side of the cut.
7. The side wall upright shall have a minimum beam size as shown above, ie., a 2" x 4" upright shall have a 2" x 3" beam.
8. For minimum girt size read upright size as a beam and purlin size is minimum girt size. (i.e. 2" x 9" x 0.072" x 0.224" s.m.b. w/ 2" x 6" x 0.050 x 0.120" s.m.b. upright requires a 2" x 3" x 0.045" girt / chair rail.)
9. All connection shall use a full lap cut.

Table 1.7 Minimum Size Screen Enclosure Knee Braces and Anchoring Required

Aluminum 6063 T-6

Brace Length*	Extrusion	Anchoring System
0' - 2'-0"	2" x 2" x 0.044"	2" H-Channel With (3) #10 x 1/2" each leg of channel
To 3'-0"	2" x 3" x 0.045"	2" H-Channel With (3) #10 x 1/2" each leg of channel
Up to 6'-0"	2" x 4" x 0.044" x 0.100"	2" H-Channel With (4) #10 x 1/2" each leg of channel

* Knee brace length shall be the horizontal and vertical length @ a 45° angle from the center of the connection to the face of the beam or upright.

Note:
1. For required knee braces greater than 4'-6" contact engineer for specifications and details.
2. Cantilever beam detail shown on page 1-40 shall be used for transom wall to host structure attachment when knee brace length exceeds 6'-0".

Table 1.8 K-Bracing Fastening Schedule

Maximum Wall Width =	Number of #10 x 3/4" S.M.S. Required				
	Corner Post @ Top	Diagonals (K) per End	Intermediate Post @ Chair Rail	Corner Post @ Bottom	Plate to Sole Plate
20'-0"	2	2	4	2	2
30'-0"	2	2	4	2	2
40'-0"	3	4	6	2	2
50'-0"	4	5	8	3	3
60'-0"	6	7	12	3	3

*** Use screw sizes specified in the table below.**
Use front wall width when determining number of s.m.s. for the side wall K-bracing.
Use side wall width when determining number of s.m.s. for the front and / or back wall K-bracing.

Wind Zone	Screw Size
90 MPH	#10
100 MPH	#10
110 MPH	#10
120 MPH	#10
130 MPH	#12
140-1&2 MPH	#14
150 MPH	#14

Table 1.11 Maximum Overhang for Rafter / Truss Tails when Connected to Screen Roof

20' Max. Enclosure Span		Rafter / Truss Tail #2 Span / bending (b) or deflection (d)									
Wind Zone ("B" Exp.)	Wind Pressure (#/SF)	2x4		2x6		2x8		2x10		2x12	
100-110	4	2'-2"	b	5'-4"	b	9'-3"	b	15'-0"	b	22'-3"	b
120	4	2'-2"	b	5'-4"	b	9'-3"	b	15'-0"	b	22'-3"	b
123	4.3	2'-0"	b	4'-11"	b	8'-7"	b	13'-11"	b	20'-8"	b
130	5	1'-9"	b	4'-3"	b	7'-5"	b	12'-0"	b	17'-10"	b
140	6	1'-5"	b	3'-7"	b	6'-2"	b	10'-0"	b	14'-10"	b
150	7	1'-3"	b	3'-0"	b	5'-3"	b	8'-7"	b	12'-9"	b
30' Max. Enclosure Span		Rafter / Truss Tail #2 Span / bending (b) or deflection (d)									
Wind Zone ("B" Exp.)	Wind Pressure (#/SF)	2x4		2x6		2x8		2x10		2x12	
100-110	4	1'-5"	b	3'-7"	b	6'-2"	b	10'-0"	b	14'-10"	b
120	4	1'-5"	b	3'-7"	b	6'-2"	b	10'-0"	b	14'-10"	b
123	4.3	1'-4"	b	3'-4"	b	5'-9"	b	9'-4"	b	13'-10"	b
130	5	1'-2"	b	2'-10"	b	4'-11"	b	8'-0"	b	11'-10"	b
140	6	0'-11"	b	2'-4"	b	4'-1"	b	6'-8"	b	9'-11"	b
150	7	0'-10"	b	2'-0"	b	3'-6"	b	5'-9"	b	8'-6"	b
40' Max. Enclosure Span		Rafter / Truss Tail #2 Span / bending (b) or deflection (d)									
Wind Zone ("B" Exp.)	Wind Pressure (#/SF)	2x4		2x6		2x8		2x10		2x12	
100-110	4	1'-1"	b	2'-8"	b	4'-7"	b	7'-6"	b	11'-1"	b
120	4	1'-1"	b	2'-8"	b	4'-7"	b	7'-6"	b	11'-1"	b
123	4.3	1'-0"	b	2'-6"	b	4'-4"	b	6'-11"	b	10'-4"	b
130	5	0'-10"	b	2'-2"	b	3'-8"	b	6'-0"	b	8'-11"	b
140	6	0'-9"	b	1'-9"	b	3'-1"	b	5'-0"	b	7'-5"	b
150	7	0'-7"	b	1'-6"	b	2'-8"	b	4'-4"	b	6'-4"	b

Note:
1. For overhangs with spans that exceed those listed above site specific engineering is required.
2. If truss bottom cord extends more than 24" over the wall site specific engineering is required.
3. To convert from exposure "B" spans to "C" or "D" exposure spans see multipliers and example on page 1il.

Example:
For a pool inclosure with 30' max. beam span, in a 123 MPH wind zone, "B" exposure. For 2 x 6 rafter / truss the max overhand from the wall of the host structure to the sub-fascia is 3'-4".
To convert from exposure "B" spans to "C" or "D" exposure spans see multipliers and example on page 1il.

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ALUMINUM STRUCTURES DESIGN MANUAL
SCREEN ENCLOSURES
SECTION 1 TABLES
2004 FBC W/ 2006 SUPPLEMENTS
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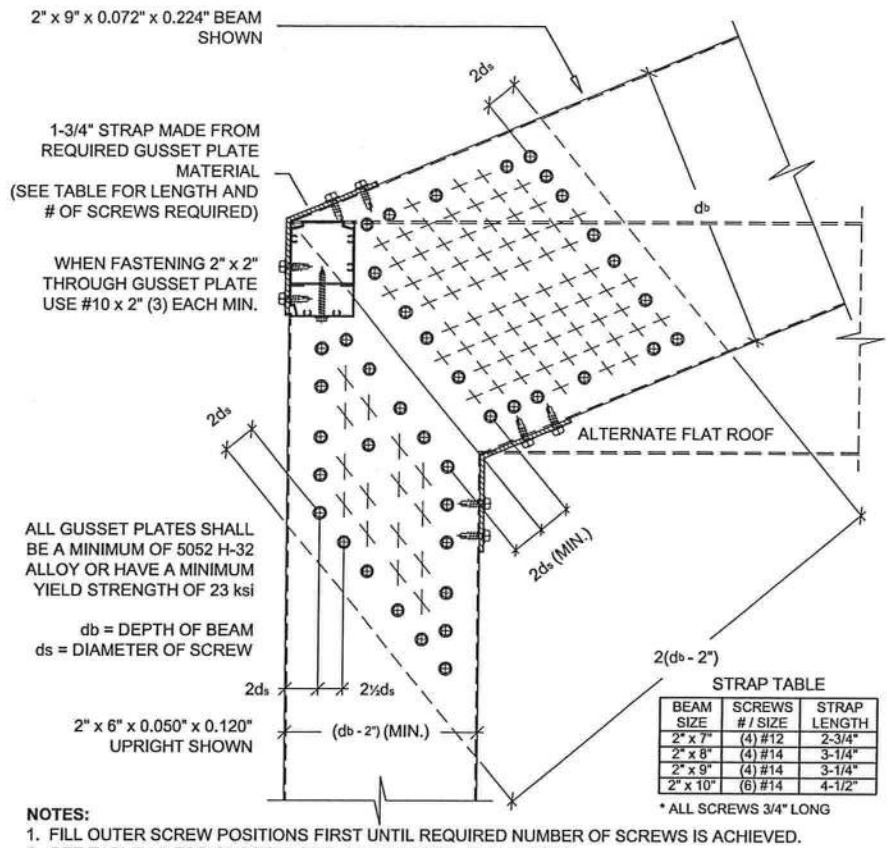


STRAP TABLE

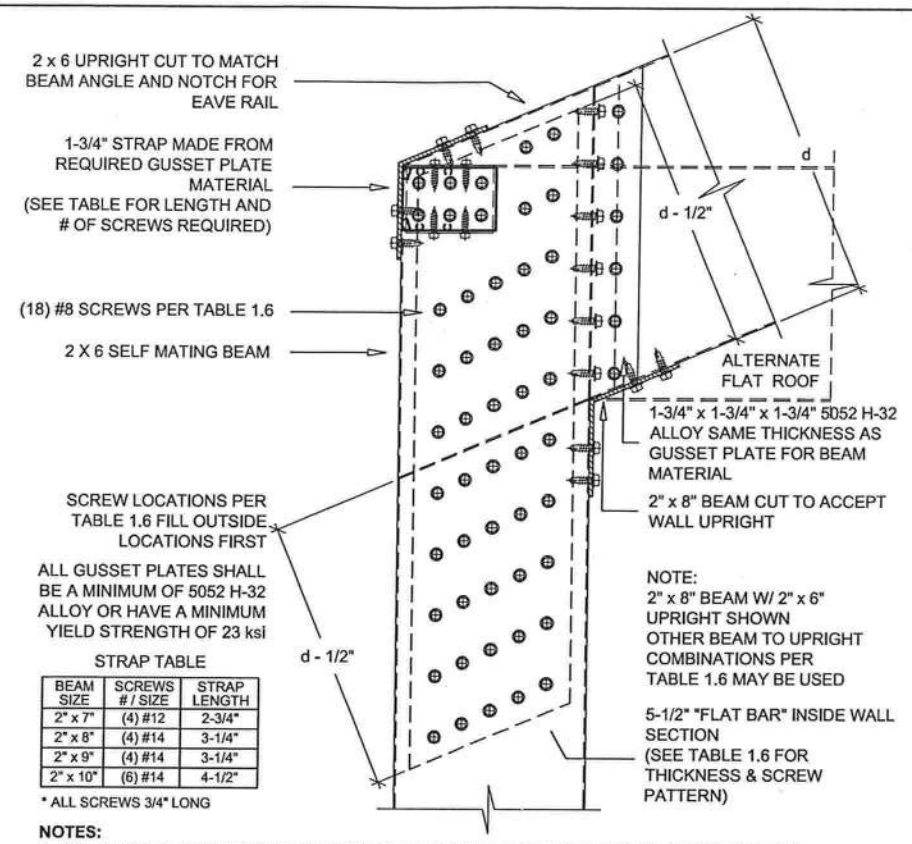
BEAM SIZE	SCREWS # / SIZE	STRAP LENGTH
2" x 7"	(4) #12	2-3/4"
2" x 8"	(4) #14	3-1/4"
2" x 9"	(4) #14	3-1/4"
2" x 10"	(6) #14	4-1/2"

* ALL SCREWS 3/4" LONG

NOTES:
1. FILL OUTER SCREW POSITIONS FIRST UNTIL REQUIRED NUMBER OF SCREWS IS ACHIEVED.
2. SEE TABLE 1.6 FOR GUSSETT SIZE, SCREW SIZES, AND NUMBER.
3. GUSSET PLATES ARE REQUIRED ON ALL BEAMS 2" x 7" AND LARGER.
4. SCREW PATTERN LAYOUT W/ SPACING BETWEEN SCREWS GREATER THAN MINIMUM IS ALLOWED SO THAT EQUAL SPACING IS ACHIEVED.

BEAM SPLICE CUT, GUSSET PLATE CONNECTION & GUSSET SCREW PATTERN BEAM TO POST MOMENT CONNECTION DETAIL

SCALE: 2" = 1'-0"



STRAP TABLE

BEAM SIZE	SCREWS # / SIZE	STRAP LENGTH
2" x 7"	(4) #12	2-3/4"
2" x 8"	(4) #14	3-1/4"
2" x 9"	(4) #14	3-1/4"
2" x 10"	(6) #14	4-1/2"

* ALL SCREWS 3/4" LONG

NOTES:
1. FILL OUTER SCREW POSITIONS FIRST UNTIL REQUIRED NUMBER OF SCREWS IS ACHIEVED.
2. SEE TABLE 1.6 FOR GUSSETT SIZE, SCREW SIZES, AND NUMBER.
3. GUSSET PLATES ARE REQUIRED ON ALL BEAMS 2" x 7" AND LARGER.
4. SCREW PATTERN LAYOUT W/ SPACING BETWEEN SCREWS GREATER THAN MINIMUM IS ALLOWED SO THAT EQUAL SPACING IS ACHIEVED.
5. BEAMS THAT ARE 2 x 7 OR LARGER MUST HAVE GUSSET PLATE.

ALTERNATE BEAM TO POST MOMENT CONNECTION DETAIL

SCALE: 2" = 1'-0"

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ALUMINUM STRUCTURES DESIGN MANUAL
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SECTION 1 MOMENT CONNECTION DETAILS
2004 FBC W/ 2006 SUPPLEMENTS
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Table 1.1M 120 Town & Country Industries, Inc.
6005 TCI Moment Connection
Allowable Spans for Primary Screen Roof Frame Members
Aluminum Alloy 6005 T-5

for Areas in Wind Zones up to 120 M.P.H, Exposure "B" and Latitudes Below 30°-30'-00" North (Jacksonville, FL)
Uniform Load = 4 #/SF, a Point Load of 300 #/SF over (1) linear ft. Is also considered

Hollow Sections	Tributary Load Width 'W' = Beam Spacing															
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"			
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)															
2" x 2" x 0.040	5'-7"	Pb	5'-7"	Pb	5'-7"	Pb	5'-7"	Pb	5'-7"	Pb	5'-7"	Pb	5'-7"	Pb		
2" x 3" x 0.045"	9'-6"	Pb	9'-6"	Pb	9'-6"	Pb	9'-6"	Pb	9'-6"	Pb	9'-6"	Pb	9'-6"	Pb		
2" x 3" x 0.060"	12'-10"	Pb	12'-10"	Pb	12'-10"	Pb	12'-10"	Pb	12'-10"	Ud	12'-3"	Ud	11'-10"	Ud		
2" x 4" x 0.050"	15'-7"	Pb	15'-7"	Pb	15'-7"	Pb	15'-7"	Pb	15'-1"	Ud	14'-5"	Ud	13'-11"	Ud		
3" x 2" x 0.045"	6'-9"	Pb	6'-9"	Pb	6'-9"	Pb	6'-9"	Pb	6'-9"	Pb	6'-9"	Pb	6'-9"	Pb		

Self Mating Sections	Tributary Load Width 'W' = Beam Spacing															
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"			
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)															
2" x 4" x 0.046" x 0.050"	18'-7"	Pb	18'-7"	Pb	18'-7"	Pb	17'-8"	Ud	16'-9"	Ud	16'-0"	Ud	15'-5"	Ud		
2" x 5" x 0.050" x 0.048"	27'-6"	Ud	24'-11"	Ud	23'-2"	Ud	21'-10"	Ud	20'-9"	Ud	19'-10"	Ud	19'-1"	Ud		
2" x 6" x 0.050" x 0.060"	32'-2"	Ud	29'-3"	Ud	27'-2"	Ud	25'-7"	Ud	24'-3"	Ud	23'-3"	Ud	22'-4"	Ud		
2" x 7" x 0.060" x 0.060"	36'-10"	Ud	33'-5"	Ud	31'-1"	Ud	29'-3"	Ud	27'-9"	Ud	26'-7"	Ud	25'-6"	Ud		
2" x 8" x 0.072" x 0.112"	45'-4"	Ud	41'-3"	Ud	38'-3"	Ud	36'-0"	Ud	34'-3"	Ud	32'-9"	Ud	31'-6"	Ud		
2" x 9" x 0.072" x 0.112"	49'-11"	Ud	45'-4"	Ud	42'-1"	Ud	39'-7"	Ud	37'-8"	Ud	35'-11"	Ud	34'-7"	Ud		
2" x 9" x 0.082" x 0.153"	53'-6"	Ud	48'-7"	Ud	45'-1"	Ud	42'-5"	Ud	40'-4"	Ud	38'-7"	Ud	37'-1"	Ud		
2" x 10" x 0.092" x 0.187"	62'-0"	Ud	56'-4"	Ud	52'-4"	Ud	49'-3"	Ud	46'-9"	Ud	44'-9"	Ud	43'-0"	Ud		

Notes:
1. Thicknesses shown are "nominal" industry standard tolerances. No wall thickness shall be less than 0.040".
2. The structures designed using this section shall be limited to a maximum combined span and upright height of 50' and a maximum upright height of 16'. Structures larger than these limits shall have site specific engineering.
3. Span is measured from center of beam and upright connection to fascia or wall connection.
4. Above spans do not include length of knee brace. Add horizontal distance from upright to center of brace to beam connection to the above spans for total beam spans.
5. Tables are based on a maximum wall height of 16' including a 4' max. mansard or gable. Other conditions may offer better spans w/ enclosure site specific engineering.
6. Spans may be interpolated.
7. To convert spans to "C" and "D" exposure categories see exposure multipliers and example on page 1.

Table 1.3M 120 Town & Country Industries, Inc.
6005 TCI Moment Connection
Allowable Post / Upright Heights for Primary Screen Wall Frame Members
Aluminum Alloy 6005 T-5

For 3 second wind gust at a velocity of 120 MPH, Exposure "B" or an applied load of 15 #/sq. ft.

Hollow Sections	Tributary Load Width 'W' = Upright Spacing															
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"			
	Allowable Height "H" / bending (b), deflection (d)															
2" x 2" x 0.040	9'-2"	b	7'-11"	b	7'-1"	b	6'-6"	b	6'-0"	b	5'-8"	b	5'-3"	b		
2" x 3" x 0.045"	12'-3"	b	10'-8"	b	9'-6"	b	8'-8"	b	8'-0"	b	7'-6"	b	6'-11"	b		
2" x 3" x 0.060"	14'-4"	b	12'-5"	b	11'-1"	b	10'-2"	b	9'-5"	b	8'-9"	b	8'-3"	b		
2" x 4" x 0.050"	15'-10"	b	13'-8"	b	12'-1"	b	10'-11"	b	9'-11"	b	9'-2"	b	8'-6"	b		
3" x 2" x 0.045"	10'-3"	b	8'-9"	b	7'-10"	b	7'-1"	b	6'-6"	b	6'-0"	b	5'-8"	b		

Self Mating Sections	Tributary Load Width 'W' = Upright Spacing															
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"			
	Allowable Height "H" / bending (b), deflection (d)															
2" x 4" x 0.046" x 0.050"	17'-4"	b	14'-11"	b	13'-4"	b	12'-1"	b	11'-2"	b	10'-4"	b	9'-9"	b		
2" x 5" x 0.050" x 0.048"	22'-2"	b	19'-1"	b	17'-0"	b	15'-6"	b	14'-3"	b	13'-3"	b	12'-5"	b		
2" x 6" x 0.050" x 0.060"	25'-3"	b	21'-9"	b	19'-5"	b	17'-7"	b	16'-3"	b	15'-2"	b	14'-2"	b		
2" x 7" x 0.060" x 0.060"	29'-7"	b	25'-7"	b	22'-9"	b	20'-9"	b	19'-1"	b	17'-10"	b	16'-9"	b		
2" x 8" x 0.072" x 0.112"	38'-3"	b	33'-1"	b	29'-7"	b	27'-0"	b	25'-0"	b	23'-5"	b	22'-1"	b		
2" x 9" x 0.072" x 0.112"	41'-7"	b	36'-0"	b	32'-3"	b	29'-5"	b	27'-3"	b	25'-6"	b	24'-0"	b		
2" x 9" x 0.082" x 0.153"	46'-1"	d	39'-11"	b	35'-9"	b	32'-7"	b	30'-2"	b	28'-3"	b	26'-8"	b		
2" x 10" x 0.092" x 0.187"	53'-6"	d	47'-4"	b	42'-4"	b	38'-8"	b	35'-9"	b	33'-6"	b	31'-7"	b		

Notes:
1. Thicknesses shown are "nominal" industry standard tolerances. No wall thickness shall be less than 0.040".
2. Using screen panel width 'W' select upright length 'H'.
3. Above spans do not include length of knee brace. Add vertical distance from upright to center of brace to beam connection to the above spans for total beam spans.
4. Site specific engineering required for pool enclosures over 30' in mean roof height.
5. Span is to be measured from center of beam and upright connection to fascia or wall connection.
6. Chair rails of 2" x 2" x 0.044" min. and set @ 36" in height are designed to be installed guardrails provided they are attached with min. (3) #10 x 1-1/2" S.M.S. into the screw bosses and do not exceed 8'-0" in span.
7. Maximum beam size for 2"x 5" is a 2"x 7"x 0.055"x 0.120"
8. Spans may be interpolated.
9. To convert spans to "C" and "D" exposure categories see exposure multipliers and example on page 1.

Table 1.6M Moment Connection
Minimum Upright Sizes and Number of Screws for
Connection of Roof Beams To Wall Uprights or Beam Splicing

Beam/Upright or Post	Upright or Post/Beam	Minimum Purlin, Girt & Knee Brace Size	Notes	Minimum Number of Screws*			Beam Stitching Screw at 24" OC
				#8 x ½"	#10 x ½"	#12 x ½"	
2 x 3 H	2 x 3 H	2" x 2" x 0.044"	Moment Connection	6	4	4	-
2 x 4 SMB	2 x 3 H	2" x 2" x 0.044"	Moment Connection	8	6	4	#8
2 x 4 SMB	2 x 4 H	2" x 2" x 0.044"	Moment Connection	8	6	4	#10
2 x 5 SMB	2 x 3 H	2" x 2" x 0.044"	Moment Connection	8	6	4	#8
2 x 6 SMB	2 x 3 H	2" x 2" x 0.044"	Moment Connection	10	8	6	#10
2 x 6 SMB	2 x 4 SMB	2" x 2" x 0.044"	Moment Connection	10	8	6	#10
2 x 7 SMB	2x5 H OR SMB	2" x 2" x 0.044"	Moment Connection	14	12	10	#12
2 x 8 SMB	2 x 6 SMB	2" x 3" x 0.044"	Moment Connection	16	14	12	#14
2 x 9 SMB	2 x 6 SMB	2" x 3" x 0.045"	Moment Connection	18	16	14	#14
2 x 9 SMB **	2 x 7 SMB	2" x 4" x 0.050"	Moment Connection	20	18	16	#14
2 x 10 SMB	2 x 8 SMB	2" x 5" x 0.050"	Moment Connection	20	18	16	#14

Screw Size	Minimum Distance and Spacing of Screws		Gusset Plate Thickness	
	Edge To Center	Center To Center	Beam Size	Thickness
#8	5/16"	5/8"	2" x 7" x 0.055" x 0.120"	0.063"
#10	3/8"	3/4"	2" x 8" x 0.072" x 0.224"	0.125"
#12	1/2"	1"	2" x 9" x 0.072" x 0.224"	0.125"
#14 or 1/4"	3/4"	1-1/2"	2" x 9" x 0.082" x 0..306"	0.190"
5/16"	7/8"	1-3/4"	2" x 10" x 0.092" x 0.369"	0.250"
3/8"	1"	2"		

* Refers to each side of the connection of the beam and upright and each side of splice connection.
Connection Example:
2" x 7" beam & 2" x 5" at beam & gusset plate, (14) #8 x 1/2" sms & upright & gusset plate (14) #8 x 1/2" sms ea. side of beam & upright.
** 0.082" wall thickness, 0.310" flange thickness
Notes:
1. Connection of 2" x 6" to 2" x 3" shall use a full lap cut or 1/16" gusset plate.
2. For beam splice connections the number of screws shown is the total for each splice with 1/2 the screws on each side of the cut.
3. The number of screws is based on the maximum allowable moment of the beam.
4. The number of deck anchors is based on RAWL R Tapper allowable load data for 2,500 psi concrete and / or equal anchors may be used. The number shown is the total use 1/2 per side.
5. Hollow splice connections can be made provided the connection is approved by the engineer.
6. If a larger than minimum upright is used the number of screws is the same for each splice with 1/2 the screws on each side of the cut.
7. All beam to upright connections for 2" x 7" beams or larger shall have an internal gusset plate except when a knee brace is used at the connection. Gusset plates are required for mansard, gabled and all spliced connections.
8. For gusset plate connections 2" x 9" beams or larger use 3/4" long screws.
9. The side wall upright shall have a minimum beam size as shown above, Ie., a 2" x 4" upright shall have a 2" x 3" beam.
10. For minimum girt size read upright size as a beam and purlin size is minimum girt size. (I.e. 2" x 9" x 0.072" x 0.224" s.m.b. w/ 2" x 6" x 0.050 x 0.120" s.m.b. upright requires a 2" x 3" x 0.045" girt / chair rail.)

Table 1.9.1M Town & Country Industries, Inc.
TCI 6005 Moment Connection
Allowable Spans for Primary Screen Roof Frame Members
Aluminum Alloy 6005 T-5

For areas with wind loads up to 130 M.P.H., Exposure "B" and latitudes above 30°-30'-00" North (Jacksonville, Florida) that are subject to Ice and snow
Uniform Load on Screen = 15 #/SF 300# Point Load Is Considered over (1) LF of Beam

Hollow Sections	Tributary Load Width 'W' = Beam Spacing															
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"			
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)															
2" x 2" x 0.040	6'-7"	Pb	6'-7"	Pb	6'-3"	Ub	5'-8"	Ub	5'-3"	Ub	4'-11"	Ub	4'-8"	Ub		
2" x 3" x 0.045"	7'-9"	Pb	7'-7"	Ub	6'-10"	Ub	6'-3"	Ub	5'-9"	Ub	5'-5"	Ub	5'-1"	Ub		
2" x 3" x 0.060"	10'-9"	Ub	9'-4"	Ub	8'-4"	Ub	7'-7"	Ub	7'-1"	Ub	6'-7"	Ub	6'-3"	Ub		
2" x 4" x 0.050"	10'-11"	Ub	9'-5"	Ub	8'-5"	Ub	7'-8"	Ub	7'-2"	Ub	6'-8"	Ub	6'-3"	Ub		
3" x 2" x 0.045"	11'-11"	Ub	10'-4"	Ub	9'-3"	Ub	8'-5"	Ub	7'-10"	Ub	7'-4"	Ub	6'-11"	Ub		

Self Mating Sections	Tributary Load Width 'W' = Beam Spacing															
	3'-0"		4'-0"		5'-0"		6'-0"		7'-0"		8'-0"		9'-0"			
	Allowable Span 'L' / Point Load (P) or Uniform Load (U), bending (b), deflection (d)															
2" x 4" x 0.046" x 0.050"	14'-0"	Ub	12'-0"	Ub	10'-8"	Ub	9'-8"	Ub	8'-11"	Ub	8'-3"	Ub	7'-8"	Ub		
2" x 5" x 0.050" x 0.048"	17'-3"	Ub	14'-11"	Ub	13'-3"	Ub	12'-0"	Ub	11'-1"	Ub	10'-3"	Ub	9'-7"	Ub		
2" x 6" x 0.050" x 0.060"	19'-5"	Ub	16'-8"	Ub	14'-10"	Ub	13'-6"	Ub	12'-5"	Ub	11'-7"	Ub	10'-10"	Ub		
2" x 7" x 0.060" x 0.060"	21'-0"	Ub	18'-1"	Ub	16'-2"	Ub	14'-8"	Ub	13'-6"	Ub	12'-7"	Ub	11'-10"	Ub		
2" x 8" x 0.072" x 0.112"	31'-1"	Ud	27'-2"	Ub	24'-3"	Ub	22'-1"	Ub	20'-5"	Ub	19'-1"	Ub	17'-11"	Ub		
2" x 9" x 0.072" x 0.112"	33'-1"	Ub	28'-7"	Ub	25'-6"	Ub	23'-3"	Ub	21'-5"	Ub	20'-0"	Ub	18'-10"	Ub		
2" x 9" x 0.082" x 0.153"	36'-7"	Ud	33'-3"	Ud	29'-10"	Ub	27'-2"	Ub	25'-2"	Ub	23'-6"	Ub	22'-1"	Ub		
2" x 10" x 0.092" x 0.187"	42'-6"	Ud	38'-7"	Ud	35'-10"	Ud	33'-2"	Ub	30'-8"	Ub	28'-7"	Ub	26'-11"	Ub		

Notes:
1. Thicknesses shown are "nominal" industry standard tolerances. No wall thickness shall be less than 0.040".
2. The structures designed using this section shall be limited to a maximum combined span and upright height of 50' and a maximum upright height of 16'. Structures larger than these limits shall have site specific engineering.
3. Span is measured from center of beam and upright connection to fascia or wall connection.
4. Above spans do not include length of knee brace. Add horizontal distance from upright to center of brace to beam connection to the above spans for total beam spans.
5. Tables are based on a maximum wall height of 16' including a 4' max. mansard or gable. Other conditions may offer better spans w/ enclosure site specific engineering.
6. Spans may be interpolated.
7. To convert spans to "C" and "D" exposure categories see exposure multipliers and example on page 1.

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ALUMINUM STRUCTURES DESIGN MANUAL
SCREEN ENCLOSURES
120 MPH MOMENT CONNECTION TABLES
2004 FBC W/ 2006 SUPPLEMENTS
2006 EDITION

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OF 18

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Table 9.1 Allowable Loads for Concrete Anchors

Screw Size d = diameter	Embedment Depth (in.)	Min. Edge Dist. & Anchor Spacing 5d (in.)	Allowable Loads Tension	Allowable Loads Shear
ZAMAC NAILIN (Drive Anchors)				
1/4"	1-1/2"	1-1/4"	273#	236#
	2"	1-1/4"	316#	236#
TAPPER (Concrete Screws)				
3/16"	1-1/4"	15/16"	288#	167#
	1-3/4"	15/16"	371#	259#
1/4"	1-1/4"	1-1/4"	427#	200#
	1-3/4"	1-1/4"	544#	216#
3/8"	1-1/2"	1-9/16"	511#	402#
	1-3/4"	3-3/8"	703#	455#
POWER BOLT (Expansion Bolt)				
1/4"	2"	1-1/4"	624#	261#
5/16"	3"	1-7/8"	936#	751#
3/8"	3-1/2"	1-9/16"	1,575#	1,425#
1/2"	5"	2-1/2"	2,332#	2,220#
POWER STUD (Wedge-Bolt ®)				
1/4"	2-3/4"	1-1/4"	812#	326#
3/8"	4-1/4"	1-7/8"	1,358#	921#
1/2"	6"	2-1/2"	2,271#	1,218#
5/8"	7"	2-1/4"	3,288#	2,202#
Wedge Bolt				
1/4"	2-1/2"	2-1/4"	878#	385#
3/8"	3-1/2"	3-1/4"	1,705#	916#
1/2"	4"	3-3/4"	1,774#	1,095#

Notes:
1. Concrete screws are limited to 2" embedment by manufacturers.
2. Values listed are allowed loads with a safety factor of 4 applied.
3. Products equal to rawl may be substituted.
4. Anchors receiving loads perpendicular to the diameter are in tension.
5. Allowable loads are increased by 1.00 for wind load.
6. Minimum edge distance and center to center spacing shall be 5d.
7. Anchors receiving loads parallel to the diameter are shear loads.
8. Manufacturers recommended reductions for edge distance of 5d have been applied.

Example:
Determine the number of concrete anchors required for a pool enclosure by dividing the uplift load by the anchor allowed load.
For a 2" x 6" beam with:
spacing = 7'-0" O.C.
allowed span = 20'-5" (Table 1.1)

UPLIFT LOAD = 1/2(BEAM SPAN) x BEAM & UPRIGHT SPACING

NUMBER OF ANCHORS = $\frac{1/2(20.42') \times 7' \times 10\#\ /\ Sq.\ Ft.}{ALLOWED\ LOAD\ ON\ ANCHOR}$

NUMBER OF ANCHORS = $\frac{714.70\#}{427\#} = 1.67$

Therefore, use 2 anchors, one (1) on each side of upright.

Table is based on Rawl Products' allowable loads for 2,500 p.s.i. concrete.

Allowable Load Coversion Multipliers for Edge Distances More Than 5d		
Edge Distance	Multipliers Tension	Multipliers Shear
5d	1.00	1.00
6d	1.04	1.20
7d	1.08	1.40
8d	1.11	1.60
9d	1.14	1.80
10d	1.18	2.00
11d	1.21	-
12d	1.25	-

Table 9.2 Wood & Concrete Fasteners for Open or Enclosed Buildings Loads and Areas for Screws in Tension Only

Maximum Allowable - Load and Attributable Roof Area for 120 MPH Wind Zone (27.42 # / SF)
(For Wind Regions other than 120 MPH, Use Conversion Table at Bottom of this page)

CONNECTING TO: WOOD for OPEN or ENCLOSED Buildings						
Fastener Diameter	Length of Embedment	Number of Fasteners 1	2	3	4
1/4"ø	1"	264# - 10 SF	528# - 19 SF	792# - 29 SF	1056# - 39 SF
	1-1/2"	396# - 14 SF	792# - 29 SF	1188# - 43 SF	1584# - 58 SF
	2-1/2"	660# - 24 SF	1320# - 48 SF	1980# - 72 SF	2640# - 96 SF
5/16"ø	1"	312# - 11 SF	624# - 23 SF	936# - 34 SF	1248# - 46 SF
	1-1/2"	468# - 17 SF	936# - 34 SF	1404# - 51 SF	1872# - 68 SF
	2-1/2"	780# - 28 SF	1560# - 57 SF	2340# - 85 SF	3120# - 114 SF
3/8"ø	1"	356# - 13 SF	712# - 26 SF	1068# - 39 SF	1424# - 52 SF
	1-1/2"	534# - 19 SF	1068# - 39 SF	1602# - 58 SF	2136# - 78 SF
	2-1/2"	890# - 32 SF	1780# - 65 SF	2670# - 97 SF	3560# - 130 SF
CONNECTING TO: CONCRETE [Min. 2,500 psi] for PARTIALLY ENCLOSED Buildings						
Fastener Diameter	Length of Embedment	Number of Fasteners 1	2	3	4
TYPE OF FASTENER = "Quick Set" Concrete Screw (Rawl Zamac Nailin or Equivalent)					
1/4"ø	1-1/2"	273# - 10 SF	546# - 20 SF	819# - 30 SF	1092# - 40 SF
	2"	316# - 12 SF	632# - 23 SF	948# - 35 SF	1264# - 46 SF
TYPE OF FASTENER = Concrete Screw (Rawl Tapper or Equivalent)					
3/16"ø	1-1/4"	288# - 11 SF	576# - 21 SF	864# - 32 SF	1152# - 42 SF
	1-3/4"	371# - 14 SF	742# - 27 SF	1113# - 41 SF	1484# - 54 SF
1/4"ø	1-1/4"	365# - 13 SF	730# - 27 SF	1095# - 40 SF	1460# - 53 SF
	1-3/4"	427# - 16 SF	854# - 31 SF	1281# - 47 SF	1708# - 62 SF
3/8"ø	1-1/2"	511# - 19 SF	1022# - 37 SF	1533# - 56 SF	2044# - 75 SF
	1-3/4"	703# - 26 SF	1406# - 51 SF	2109# - 77 SF	2812# - 103 SF
TYPE OF FASTENER = Expansion Bolts (Rawl Power Bolt or Equivalent)					
3/8"ø	2-1/2"	1050# - 38 SF	2100# - 77 SF	3150# - 115 SF	4200# - 153 SF
	3-1/2"	1575# - 57 SF	3150# - 115 SF	4725# - 172 SF	6300# - 230 SF
1/2"ø	3"	1399# - 51 SF	2798# - 102 SF	4197# - 153 SF	5596# - 204 SF
	5"	2332# - 85 SF	4664# - 170 SF	6996# - 255 SF	9328# - 340 SF

Note:
1. The minimum distance from the edge of the concrete to the concrete anchor and spacing between anchors shall not be less than 5d where d is the anchor diameter.
2. Allowable roof areas are based on loads for Glass / Enclosed Rooms (MWFRS); I = 1.00.
3. For partially enclosed buildings use a multiplier to roof areas of 0.77.
4. For sections 1 & 2 multiply roof areas by 1.30.

WIND LOAD CONVERSION TABLE:
For Wind Zones/Regions other than 120 MPH (Tables Shown), multiply allowable loads and roof areas by the conversion factor.

WIND REGION	APPLIED LOAD	CONVERSION FACTOR
100	26.6	1.01
110	26.8	1.01
120	27.4	1.00
123	28.9	0.97
130	32.2	0.92
140-1	37.3	0.86
140-2	37.3	0.86
150	42.8	0.80

Table 9.3 Wood & Concrete Fasteners for Partially Enclosed Buildings Loads and Areas for Screws in Tension Only

Maximum Allowable - Load and Attributable Roof Area for 120 MPH Wind Zone (35.53 # / SF)
(For Wind Regions other than 120 MPH, Use Conversion Table at Bottom of this page)

CONNECTING TO: WOOD for PARTIALLY ENCLOSED Buildings						
Fastener Diameter	Length of Embedment	Number of Fasteners 1	2	3	4
1/4"ø	1"	264# - 7 SF	528# - 15 SF	792# - 22 SF	1056# - 30 SF
	1-1/2"	396# - 11 SF	792# - 22 SF	1188# - 33 SF	1584# - 45 SF
	2-1/2"	660# - 19 SF	1320# - 37 SF	1980# - 56 SF	2640# - 74 SF
5/16"ø	1"	312# - 9 SF	624# - 18 SF	936# - 26 SF	1248# - 35 SF
	1-1/2"	468# - 13 SF	936# - 26 SF	1404# - 40 SF	1872# - 53 SF
	2-1/2"	780# - 22 SF	1560# - 44 SF	2340# - 66 SF	3120# - 88 SF
3/8"ø	1"	356# - 10 SF	712# - 20 SF	1068# - 30 SF	1424# - 40 SF
	1-1/2"	534# - 15 SF	1068# - 30 SF	1602# - 45 SF	2136# - 60 SF
	2-1/2"	890# - 25 SF	1780# - 50 SF	2670# - 75 SF	3560# - 100 SF
CONNECTING TO: CONCRETE [Min. 2,500 psi] for PARTIALLY ENCLOSED Buildings						
Fastener Diameter	Length of Embedment	Number of Fasteners 1	2	3	4
TYPE OF FASTENER = "Quick Set" Concrete Screw (Rawl Zamac Nailin or Equivalent)					
1/4"ø	1-1/2"	233# - 8 SF	466# - 17 SF	699# - 25 SF	932# - 34 SF
	2"	270# - 10 SF	540# - 20 SF	810# - 30 SF	1080# - 39 SF
TYPE OF FASTENER = Concrete Screw (Rawl Tapper or Equivalent)					
3/16"ø	1-1/2"	246# - 7 SF	492# - 14 SF	738# - 21 SF	984# - 28 SF
	1-3/4"	317# - 9 SF	634# - 18 SF	951# - 27 SF	1268# - 36 SF
1/4"ø	1-1/2"	365# - 10 SF	730# - 21 SF	1095# - 31 SF	1460# - 41 SF
	1-3/4"	465# - 13 SF	930# - 26 SF	1395# - 39 SF	1860# - 52 SF
3/8"ø	1-1/2"	437# - 12 SF	874# - 25 SF	1311# - 37 SF	1748# - 49 SF
	1-3/4"	601# - 17 SF	1202# - 34 SF	1803# - 51 SF	2404# - 68 SF
TYPE OF FASTENER = Expansion Bolts (Rawl Power Bolt or Equivalent)					
3/8"ø	2-1/2"	1205# - 34 SF	2410# - 68 SF	3615# - 102 SF	4820# - 136 SF
	3-1/2"	1303# - 37 SF	2606# - 73 SF	3909# - 110 SF	5212# - 147 SF
1/2"ø	3"	1806# - 51 SF	3612# - 102 SF	5418# - 152 SF	7224# - 203 SF
	5"	1993# - 56 SF	3986# - 112 SF	5979# - 168 SF	7972# - 224 SF

Note:
1. The minimum distance from the edge of the concrete to the concrete anchor and spacing between anchors shall not be less than 5d where d is the anchor diameter.
2. Allowable loads have been increased by 1.33 for wind loading.
3. Allowable roof areas are based on loads for Glass / Partially Enclosed Rooms (MWFRS) I = 1.00
4. For Glass / Enclosed Rooms and Sections 1 & 2 use a multiplier to roof area of 1.30.

WIND LOAD CONVERSION TABLE:
For Wind Zones/Regions other than 120 MPH (Tables Shown), multiply allowable loads and roof areas by the conversion factor.

WIND REGION	APPLIED LOAD	CONVERSION FACTOR
100	25	1.22
110	30	1.11
120	35	1.03
123	37	1.00
130	42	0.94
140-1&2	48	0.88
150	56	0.81

Table 9.4 Maximum Allowable Fastener Loads for SAE Grade 5 Steel Fasteners Into 6063 T-6 Alloy Aluminum Framing

(As Recommended By Manufacturers)
Self-Tapping and Machine Screws Allowable Loads Tensile Strength 55,000 psi; Shear 24,000 psi

Screw/Bolt		Allowable Tensile Loads on Screws for Nominal Wall Thickness ('t') (lbs.)						
#8	0.164"	122	139	153	200	228	255	-
#10	0.190"	141	161	177	231	263	295	-
#12	0.210"	156	178	196	256	291	327	-
#14	0.250"	186	212	232	305	347	389	529
1/4"	0.240"	179	203	223	292	333	374	508
5/16"	0.3125"	232	265	291	381	433	486	661
3/8"	0.375"	279	317	349	457	520	584	793
1/2"	0.50"	373	423	465	609	693	779	1057

Screw/Bolt		Allowable Shear Loads on Screws for Nominal Wall Thickness ('t') (lbs.) Single Shear						
Size	Nd	0.044"	0.050"	0.055"	0.072"	0.082"	0.092"	0.125"
#8	0.164"	117	133	147	192	218	245	-
#10	0.190"	136	154	170	222	253	284	-
#12	0.210"	150	171	188	246	280	293	-
#14	0.250"	179	203	223	292	333	374	508
1/4"	0.240"	172	195	214	281	320	358	487
5/16"	0.3125"	223	254	279	366	416	467	634
3/8"	0.375"	268	305	335	439	499	560	761
1/2"	0.50"	357	406	447	585	666	747	1015

Bolt		Allowable Shear Loads on Screws for Nominal Wall Thickness ('t') (lbs.) Double Shear						
Size	Nd	0.044"	0.050"	0.055"	0.072"	0.082"	0.092"	0.125"
1/4"	0.240"	343	390	429	561	639	717	974
5/16"	0.3125"	446	508	559	732	832	934	1269
3/8"	0.375"	536	610	670	878	998	1120	1522
1/2"	0.50"	714	812	894	1170	1332	1494	2030

Notes:
1. Screw goes through two sides of members.
2. All barrel lengths; Celus Industrial Quality. Use manufacturers grip range to match total wall thickness of connection. Use tables to select rivet substitution for screws of anchor specifications in drawings.
3. Minimum thickness of frame members is 0.036" aluminum and 26 ga. steel.

Multipliers for Other Alloys	
6063 T-6	1269
5052 H-25	1522
6005 T-5	2030

Table 9.5A Allowable Loads & Roof Areas Over Posts for Metal to Metal, Beam to Upright Bolt Connections Open or Enclosed Structures @ 27.42 #/SF

Fastener diam.	min. edge distance	min. ctr. to ctr.	No. of Fasteners / Roof Area (SF) 1 / Area	2 / Area	3 / Area	4 / Area
1/4"	1/2"	5/8"	1,454 - 53	2,908 - 106	4,362 - 159	5,819 - 212
5/16"	3/8"	7/8"	1,894 - 69	3,788 - 138	5,682 - 207	7,576 - 276
3/8"	3/4"	1"	2,272 - 82	4,544 - 166	6,816 - 249	9,088 - 331
1/2"	1"	1-1/4"	3,030 -110	6,060 - 221	9,090 - 332	12,120 - 442

Table 9.5B Allowable Loads & Roof Areas Over Posts for Metal to Metal, Beam to Upright Bolt Connections Partially Enclosed Structures @ 35.53 #/SF

Fastener diam.	min. edge distance	min. ctr. to ctr.	No. of Fasteners / Roof Area (SF) 1 / Area	2 / Area	3 / Area	4 / Area
1/4"	1/2"	5/8"	1,454 - 41	2,908 - 82	4,362 - 125	5,819 - 164
5/16"	3/8"	7/8"	1,894 - 53	3,788 - 107	5,682 - 160	7,576 - 213
3/8"	3/4"	1"	2,272 - 64	4,544 - 128	6,816 - 192	9,088 - 256
1/2"	1"	1-1/4"	3,030 -85	6,060 - 171	9,090 - 256	12,120 - 341

Notes for Tables 9.5 A, B:
1. Tables 9.5 A & B are based on 3 second wind gusts at 120 MPH; Exposure "B"; I = 1.0. For carports & screen rooms multiply the Glass / Partially Enclosed loads & roof areas above by 1.3.
2. Minimum spacing is 2-1/2d O.C. for screws & bolts and 3d O.C. for rivets.
3. Minimum edge distance is 2d for screws, bolts, and rivets.

Allowable Load Conversions for Edge Distances More Than 5d		
Edge Distance	Allowable Load Multipliers Tension	Shear
12d	1.25	-
11d	1.21	-
10d	1.18	2.00
9d	1.14	1.80
8d	1.11	1.60
7d	1.08	1.40
6d	1.04	1.20
5d	1.00	1.00

Table 9.6 Maximum Allowable Fastener Loads for Metal Plate to Wood Support

	Metal to Plywood 1/2" 4 ply Shear (lbs.)	1/2" 4 ply Pull Out (lbs.)	5/8" 4 ply Shear (lbs.)	5/8" 4 ply Pull Out (lbs.)	3/4" 4 ply Shear (lbs.)	3/4" 4 ply Pull Out (lbs.)
Screw Ø						
#8	93	48	113	59	134	71
#10	100	55	120	69	141	78
#12	118	71	131	78	143	94
#14	132	70	145	88	157	105

Table 9.7 Aluminum Rivets with Aluminum or Steel Mandrel

Rivet Diameter	Aluminum Mandrel Tension (lbs.)	Aluminum Mandrel Shear	Steel Mandrel Tension (lbs.)	Steel Mandrel Shear
1/8"	129	176	210	325
5/32"	187	263	340	490
3/16"	262	375	445	720

Table 9.8 Alternative Angle and Anchor Systems for Beams Anchored to Walls, Uprights, Carrier Beams, or Other Connections

Extrusion Type	Size Description	Maximum Screw / Anchor Size To Wall	To Upright / Beam
Angle	1" x 1" x 0.045"	3/16"	#10
Angle	1" x 1" x 1/16' (0.063")	3/16"	#12
Angle	1" x 1" x 1/8" (0.125")	3/16"	#12
Angle	1-1/2" x 1-1/2" 1/16"(0.062")	1/4"	#12
Angle	1-1/2" x 1-1/2" 3/16"(0.188")	1/4"	#14
Angle	1-1/2" x 1-1/2" 1/8"(0.062")	1/4"	#14
Angle	1-3/4" x 1-3/4" x 1/8"(0.125")	1/4"	#14
Angle	2" x 2" x 0.093"	3/8"	3/8"
Angle	2" x 2" x 1/8"(0.125")	5/16"	5/16"
Angle	2" x 2" x 3/16"(0.313")	1/2"	1/2"
U-channel	1-3/4" x 1-3/4" x 1-3/4" x 1/8"	3/8"	#14
U-channel	1" x 2-1/8" x 1" x 0.050"	5/16"	5/16
U-channel	1-1/2" x 2-1/8" x 1-1/2" x 0.043"	1/2"	#14

Note:
# of screws to beam, wall, and/or post equal to depth of beam. For screw sizes use the stitching screw size for beam / upright found in table 1.6.

Table 9.9 Minimum Anchor Size for Extrusions

Extrusions	Wall	Wall Connection Metal Upright	Concrete	Wood
2" x 10"	1/4"	#14	1/4"	1/4"
2" x 9"	1/4"	#14	1/4"	1/4"
2" x 8"	1/4"	#12	1/4"	#12
2" x 7"	3/16"	#10	3/16"	#10
2" x 6" or less	3/16"	#8	3/16"	#8

Note:
Wall, beam and upright minimum anchor sizes shall be used for super gutter connections.

Table 9.10 Alternative Anchor Selection Factors for Anchor / Screw Sizes

Anchor Size	Metal to Metal #8	#10	#12	#14*	5/16"	3/8"
#8	1.00	0.80	0.58	0.46	0.27	0.21
#10	0.80	1.00	0.72	0.57	0.33	0.26
#12	0.58	0.72	1.00	0.78	0.46	0.36
#14	0.46	0.57	0.78	1.00	0.59	0.46
5/16"	0.27	0.33	0.46	0.59	1.00	0.79
3/8"	0.21	0.26	0.36	0.58	0.79	1.00

Alternative Anchor Selection Factors for Anchor / Screw Sizes

Concrete and Wood Anchors (concrete screws: 2" maximum embedment) Anchor Size	3/16"	1/4"	3/8"
3/16"	1.00	0.83	0.50
1/4"	0.83	1.00	0.59
3/8"	0.50	0.59	1.00

Dyna Bolts (1-5/8" and 2-1/4" embedment respectively) Anchor Size	3/16"	1/2"
3/16"	1.00	0.46
1/2"	0.46	1.00

* Multiply the number of #8 screws x size of anchor/screw desired and round up to the next even number of screws.
Example:
If (10) #8 screws are required, the number of #10 screws desired is:
0.8 x 10 = (8) #10

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