

Load Bearing Header Sizing Methods (BY BUILDER)

- Determine header size from FBC 2001, Tables 2308.3 A, B, & C, or 2308.5.
- Use supplier published data or Southern pine span tables.
- For engineered lumber beams have suppliers engineer size beam.
- Lookup jack studs from FBC 2001, Tables 2308.3 A, B, & C, or 2308.5.
- Use one jack stud for every 3000 lb vertical load.
- Total king plus jack studs = studs needed to be there if no opening was there.
- Calculate the uplift at each end of the header by summing the moments of all truss uplifts and dividing by the length of the header.
- Select header connections from table below or mfg. catalog to connect header to stud (top connection) and stud to foundation (bottom connection).

Option #	Uplift, lb.	Top Connector	Bottom Connector
#1	< 800	SP4, 6-10d1x1 1/2"	600
#2	< 1500	LSTA12, 10-10d	755
#3	< 1750	LSTA18, 14-10d	1065
#4	< 2500	LSTA18, 14-10d	2110
#5	< 3885	LSTA18, 14-10d	3480

FBC2001, TABLE 2308.3A
Header Spans For Exterior Bearing Walls Supporting Roof/Ceiling (20psi+20psi)

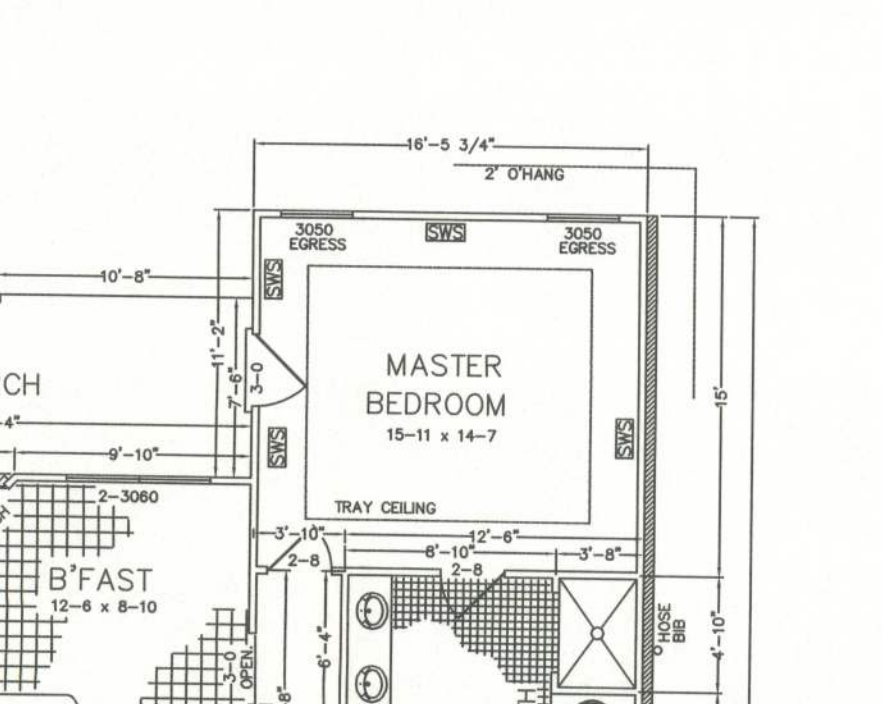
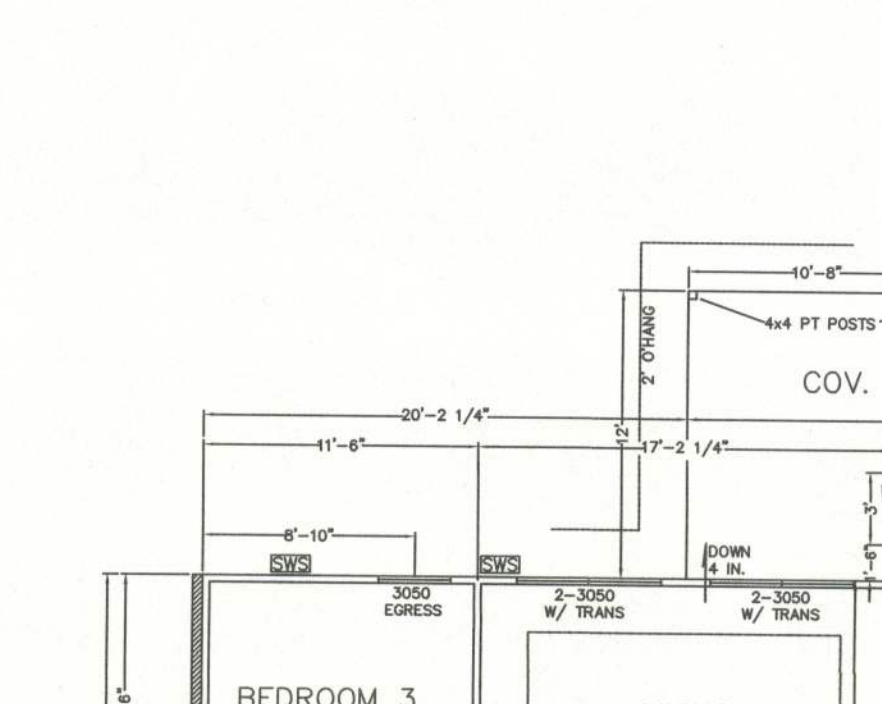
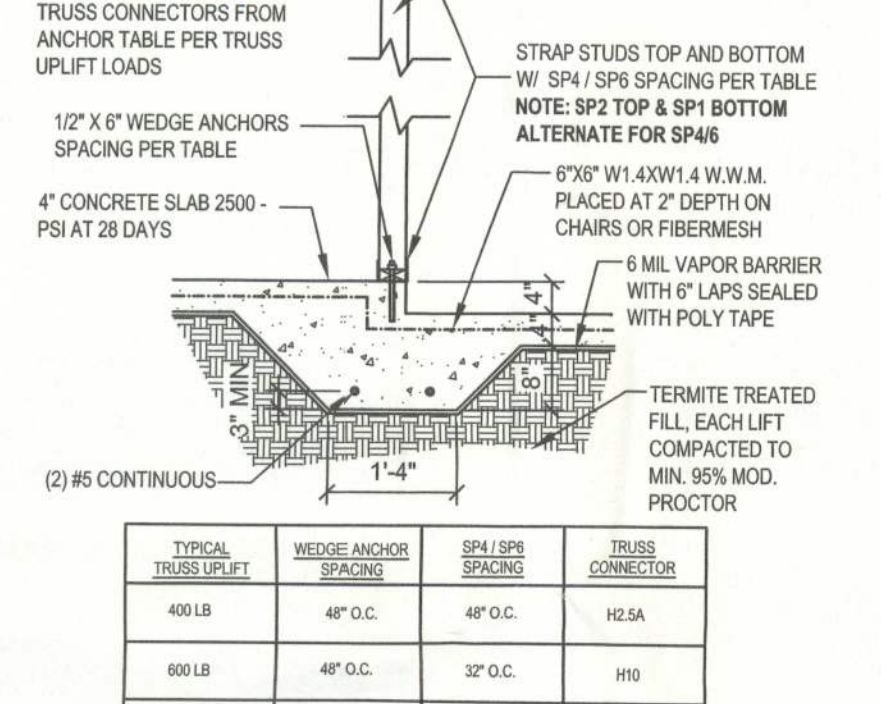
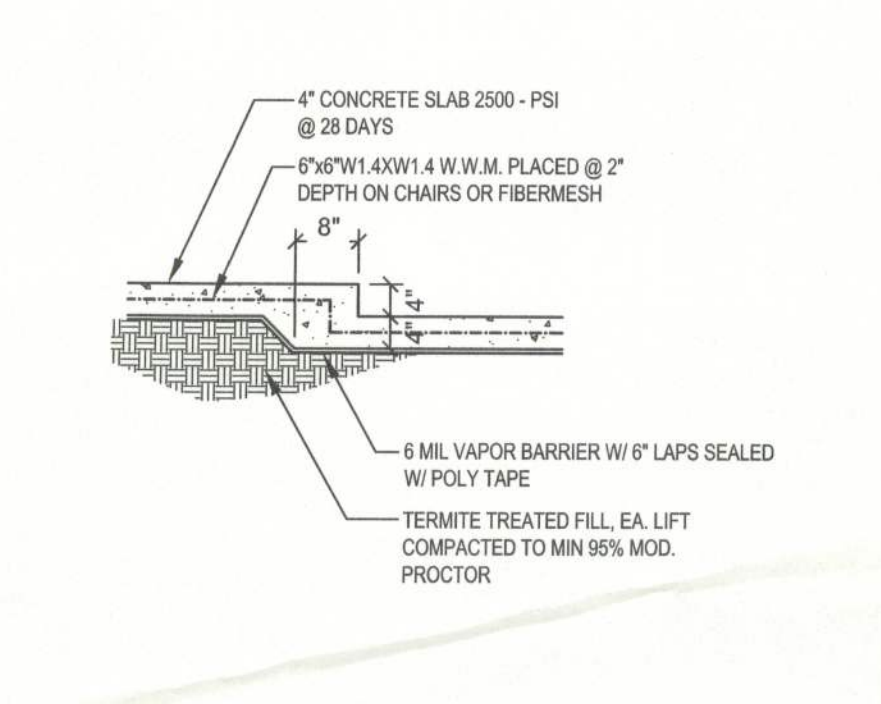
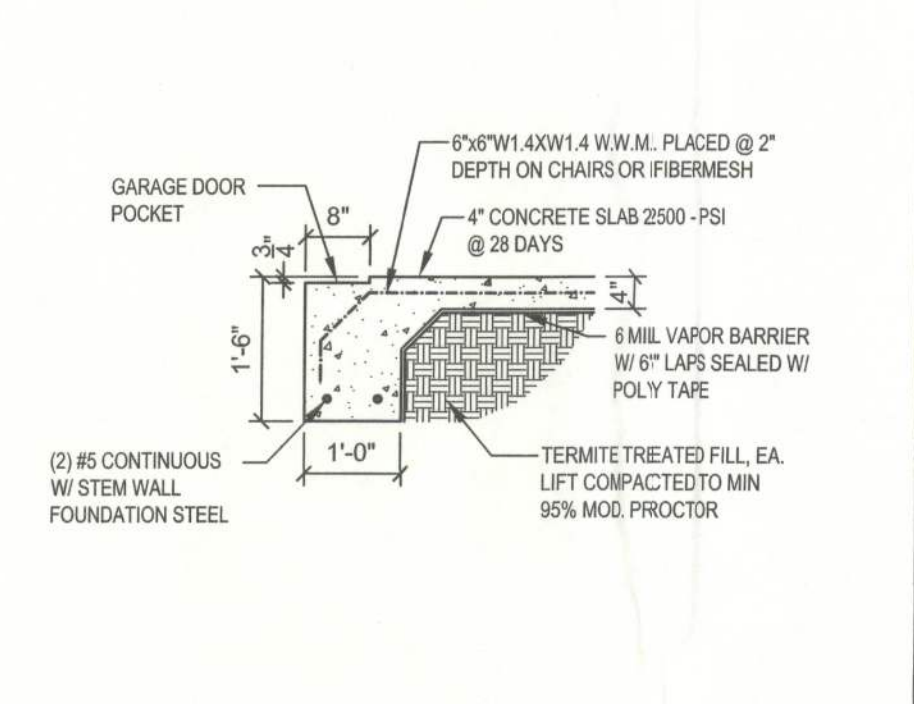
Header Span (ft-in)	Building Width / Truss Span (ft)			
	20	28	36	38
2-2x4	3-6	1	3-2	1
2-2x6	5-5	1	4-8	1
2-2x8	6-10	1	5-11	2
2-2x10	8-6	2	7-3	2
2-2x12	9-9	2	8-5	2
3-2x8	8-4	1	7-5	1
3-2x10	10-6	1	9-1	2
3-2x12	12-2	2	10-7	2
4-2x8	9-2	1	8-4	1
4-2x10	11-8	1	10-6	1
4-2x12	14-1	1	12-2	2

NOTES: NJ = Number of jack studs required to support each end. Building width is measured perpendicular to the ridge. For widths between shown, spans may be interpolated. Spans are based on uniform loads on header.

STUD ANCHOR TABLE

TRUSS UPLIFT (LBS)	ANCHOR BOLT SPACING	SP4/SP6 SPACING	ALTERNATE BRASS/SPRINGS SPACING
770 LB	48" O.C.	48" O.C.	N/A
850 LB	48" O.C.	32" O.C.	N/A
1370 LB	32" O.C.	16" O.C.	32" O.C.
1590 LB	24" O.C.	16" O.C.	16" O.C.
2200 LB	LTT01 W/ 5/8" X 7" WEDGE ANCHOR	N/A	(1) HTS20 NAILED TO STUD PACK

NOTE: SP2 TOP & SP1 BOTTOM ALTERNATE FOR SP4/6
NOTE: MINIMUM ANCHOR BOLT SPACING FOR WALLS WITH A HEIGHT GREATER THAN 10'-0" AND LESS THAN 14'-0" SHALL BE 32" O.C.



N2-GENERAL NOTES:

FOUNDATION: FOR POINT LOADS GRATER THAN 5000 LB OR REPETITIVE TRUSS LOADS GRATER THAN 2000 LB PER TRUSS PROVIDE A THICKENED SLAB OR PAD FOOTING 1'-0" X 1' sq ft. FOR EVERY 1000 LB OF BEARING REINFORCE WITH #5 @ 8" O.C. EACH WAY

CONCRETE: MINIMUM COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE $F_c = 3000$ PSI. WHERE EXCESS WATER IS ADDED TO THE CONCRETE SO THAT ITS SERVICABILITY IS DEGRADED, THE ATTAINMENT OF REQUIRED STRENGTH SHALL NOT RELEASE THE CONTRACTOR FROM PROVIDING SUCH MODIFICATIONS AS MAY BE REQUIRED BY THE ENGINEER TO PROVIDE A SERVICEABLE MEMBER OR SURFACE. ALL CONCRETE SHALL BE VIBRATED. NO REPAIR OR RUBBING OF CONCRETE SURFACES SHALL BE MADE PRIOR TO INSPECTION BY AND APPROVAL OF THE ENGINEER, OWNER OR HIS REPRESENTATIVE.

WELDED WIRE REINFORCED SLAB: 6" x 6" W1.4 X W1.4, $F_y = 65$ KSI, WELDED WIRE REINFORCEMENT FABRIC (W.W.M.) CONFORMING TO ASTM A185; LOCATED IN MIDDLE OF THE SLAB, SUPPORTED WITH APPROVED MATERIALS OR SUPPORTS AT SPACINGS NOT TO EXCEED 3'.

FIBER CONCRETE SLAB: CONCRETE SLABS ON GROUND CONTAINING SYNTHETIC FIBER REINFORCEMENT. FIBER LENGTHS SHALL BE 1/2 INCH TO 2 INCHES IN LENGTH. DOSAGE AMOUNTS SHALL BE FROM 0.75 TO 1.5 POUNDS PER CUBIC YARD IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. SYNTHETIC FIBERS SHALL COMPLY WITH ASTM C 1116. THE MANUFACTURER OR SUPPLIER SHALL PROVIDE CERTIFICATION OF COMPLIANCE WITH ASTM C 1116 WHEN REQUESTED BY THE BUILDING OFFICIAL.

CONTROL JOINTS: WHERE SPECIFIED, SAWN CONTROL JOINTS IN SLAB-ON-GRADE SHALL BE CUT IN ACCORDANCE WITH ACI 302. JOINTS SHALL BE CUT WITHIN 12 HOURS OF SLAB PLACEMENT. THE LENGTH / WIDTH RATIOS OF SLAB AREAS SHALL NOT EXCEED 1.5 AND TYPICAL SPACING OF CUTS TO BE 12FT. DO NOT CUT W/M OR REINFORCING STEEL. (RECOMMENDED LOCATION OF CONTROL JOINTS IS SUBJECT TO OWNER AND CONTRACTORS APPROVAL. THE CONTROL JOINTS ARE NOT INTENDED TO PREVENT CRACKS BUT RATHER TO ENCOURAGE THE SLAB TO CRACK ON A GIVEN LINE.)

REBAR: ASTM A 615, GRADE 60, DEFORMED BARS, $F_y = 60$ KSI. ALL LAPS SPLICES 48" db (30" FOR #5 BARS). UNO. ALL REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH ACI 315-95 WITH ACI 315-96 UNLESS NOTED OTHERWISE. ALL TENSION DEVELOPMENT LENGTHS SHALL BE 30 INCHES.

STRUCTURAL CONNECTORS: MANUFACTURERS AND PRODUCT NUMBER FOR CONNECTORS, ANCHORS, AND REINFORCEMENT ARE LISTED FOR EXAMPLE. E NOT ENDORSEMENT. AN EQUIVALENT DEVICE OF THE SAME OR OTHER MANUFACTURER CAN BE SUBSTITUTED FOR ANY DEVICES LISTED IN THE EXAMPLE TABLES AS LONG AS IT MEETS THE REQUIRED LOAD CAPACITIES. MANUFACTURER'S INSTALLATION INSTRUCTIONS MUST BE FOLLOWED TO ACHIEVE RATED LOADS.

ANCHOR BOLTS: A-307 ANCHOR BOLTS WITH MINIMUM EMBEDMENT AS SPECIFIED IN DRAWINGS BUT NO LESS THAN 7" IN CONCRETE OR REINFORCED BOND BEAM OR 15" IN GROUTED CMU.

WASHERS: WASHERS USED WITH 1/2" BOLTS TO BE 2" x 2" x 9/64"; WITH 5/8" BOLTS TO BE 3" x 3" x 9/64"; WITH 3/4" BOLTS TO BE 3" x 3" x 9/64"; WITH 7/8" BOLTS TO BE 3" x 3" x 9/16", NO.

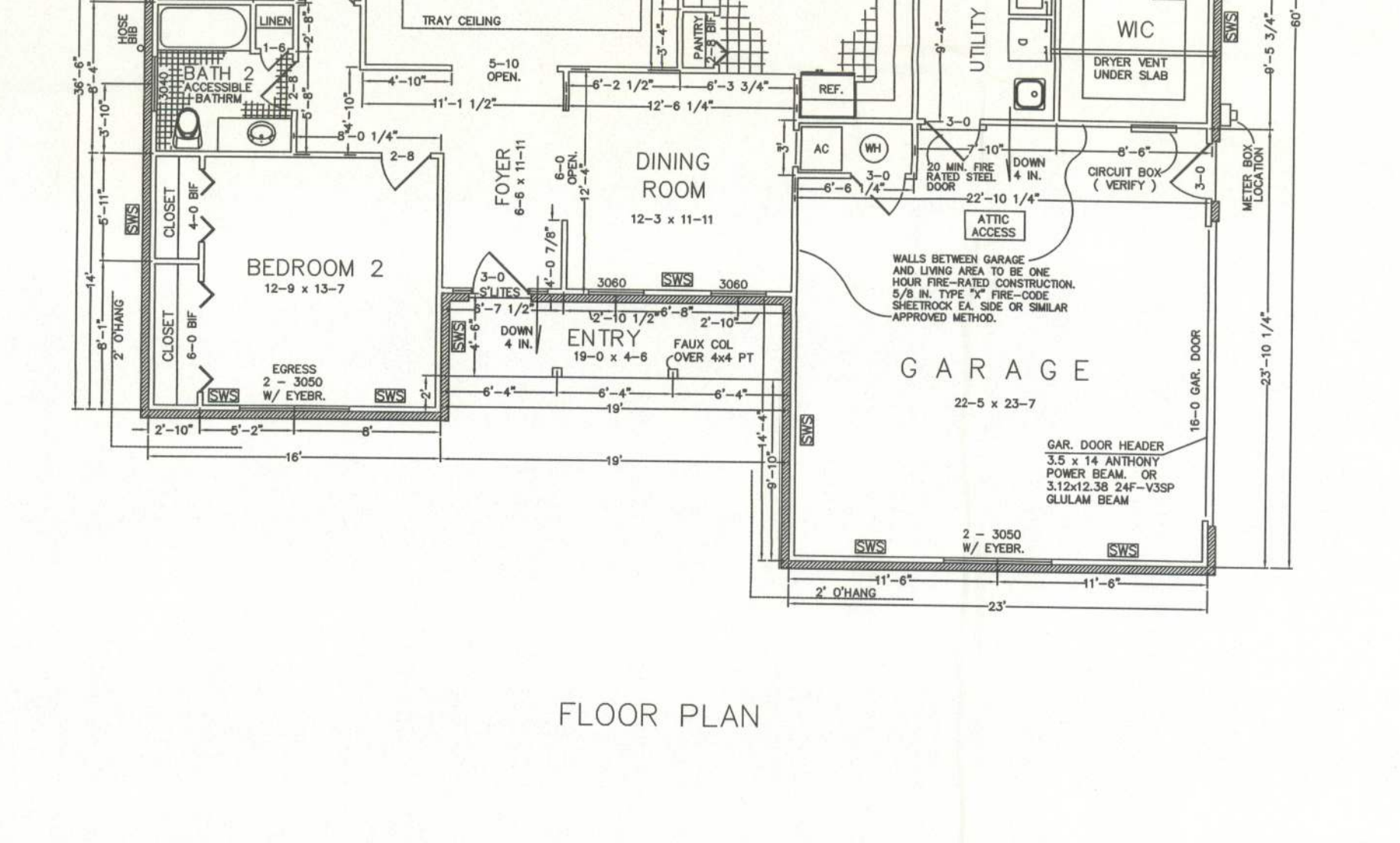
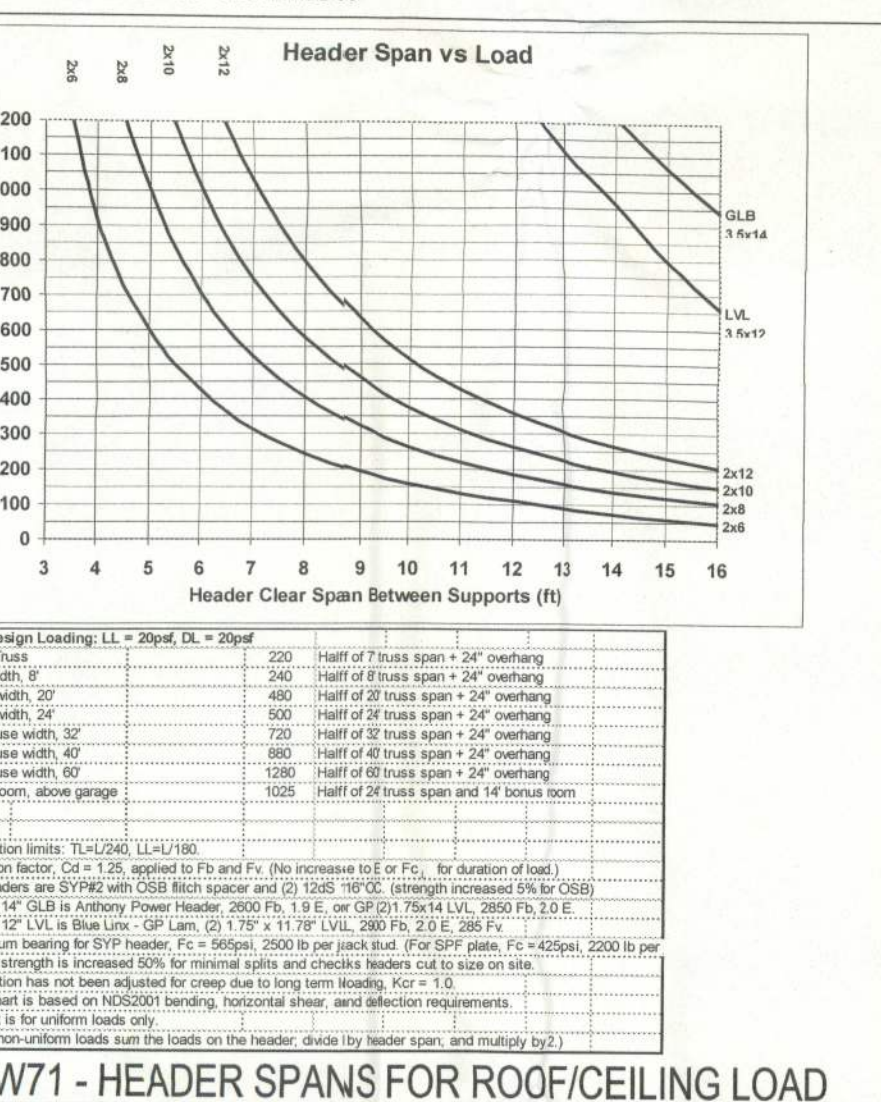
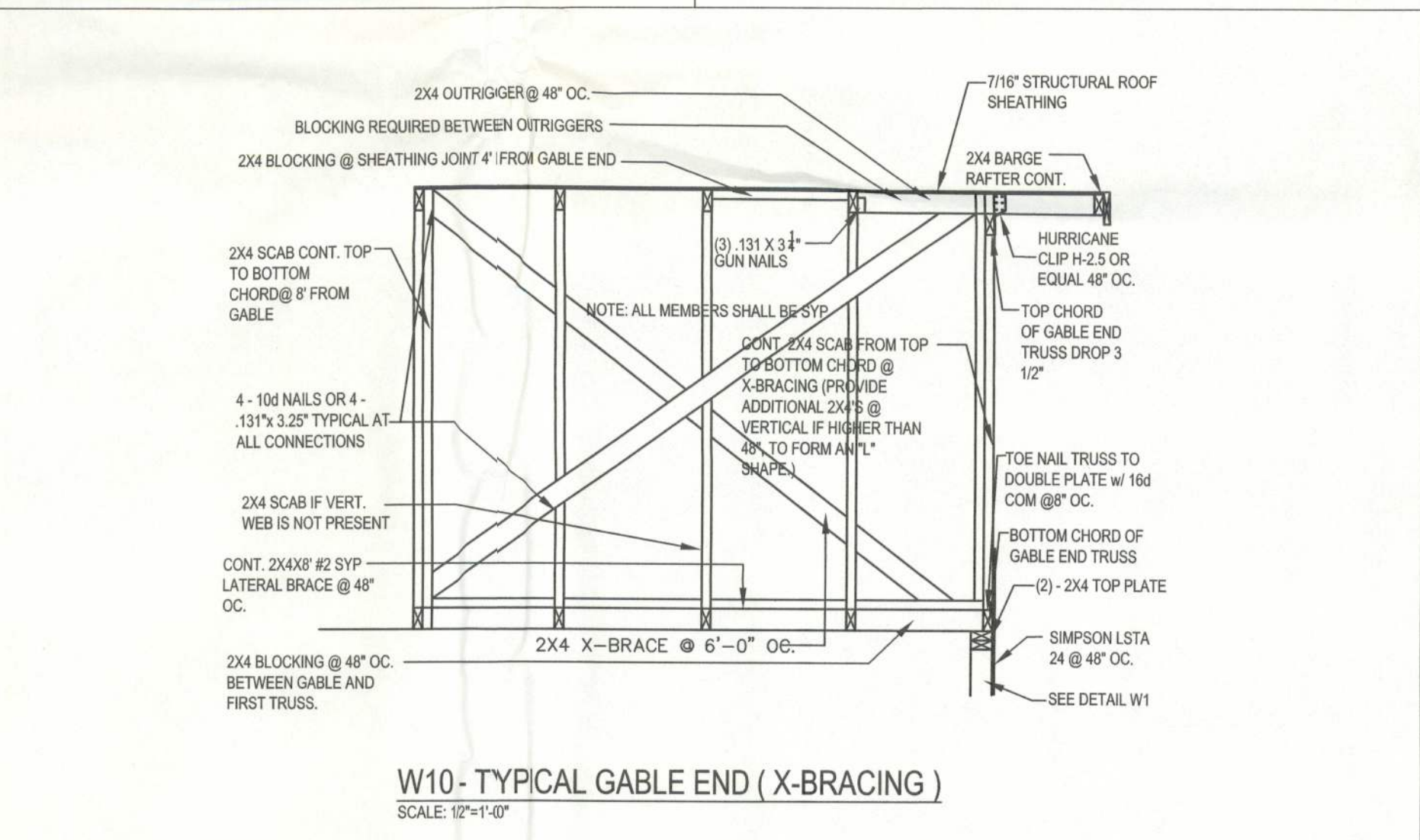
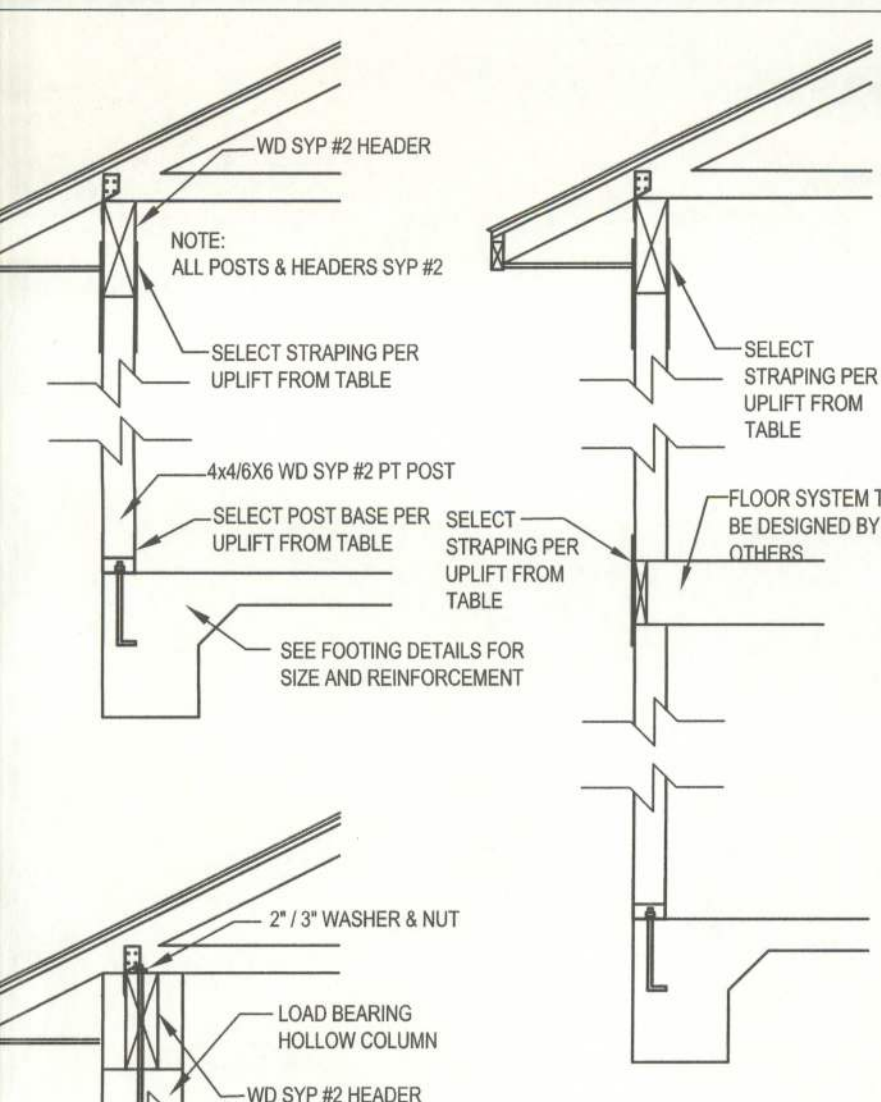
NAILS: ALL NAILS ARE COMMON NAILS UNLESS OTHERWISE SPECIFIED OR ACCEPTED BY FBC TEST REPORTS AS HAVING EQUAL STRUCTURAL VALUES.

W1 - SINGLE STORY EXT. WALL SECTION
SCALE: 1/2"=1'-0" REV-22-AUG-03

F3 - GARAGE DOOR POCKET
SCALE: 1/2"=1'-0" 22-AUG-03

F12 - NON - BEARING STEP FOOTING
SCALE: 1/2"=1'-0" REV-08-JAN-05

F5 - INTERIOR BEARING STEP FOOTING
SCALE: 1/2"=1'-0" REV-22-AUG-03



FLOOR PLAN

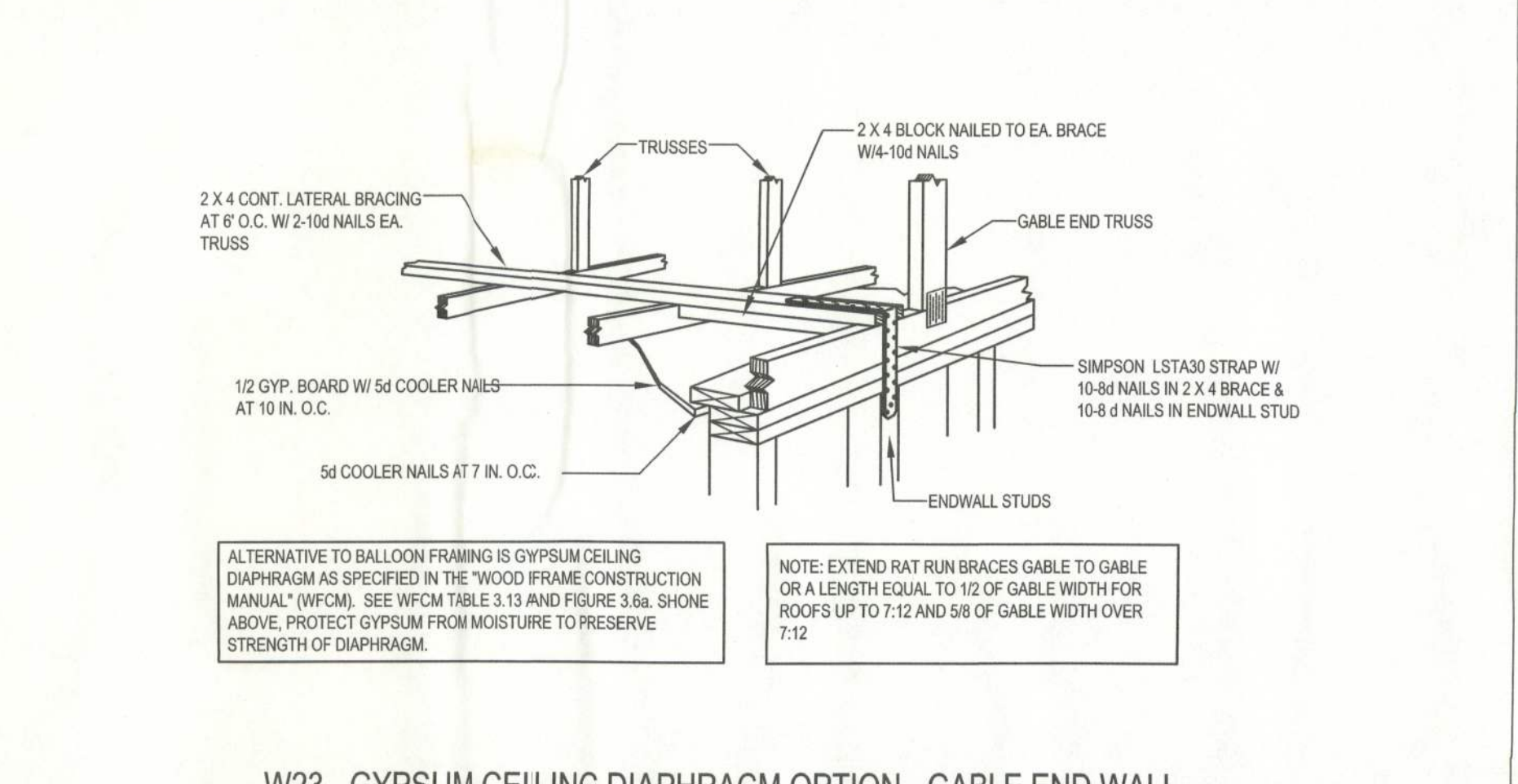
W10 - TYPICAL GABLE END (X-BRACING)
SCALE: 1/2"=1'-0"

TYPICAL POST UPLIFT	POST BASE ANCHOR	BETWEEN FLOOR STRAPPING	HEADER STRAPPING
555 LB	AB44 W/ (8)-16d 1/2" AB	(1) LSTA12 W/ (8)-10d EA.	(1) LSTA12 W/ (8)-10d EA.
725 LB	AB44 W/ (8)-16d 1/2" AB	(1) LSTA12 W/ (8)-10d EA.	(1) LSTA12 W/ (8)-10d EA.
2200 LB	AB44 W/ (12)-16d 1/2" BOLTS & 5/8" AB	(1) LSTA12 W/ (16)-10d EA.	(1) LSTA12 W/ (16)-10d EA.
2200 LB	AB46 W/ (12)-16d 1/2" BOLTS & 5/8" AB	(1) LSTA12 W/ (16)-10d EA.	(1) LSTA12 W/ (16)-10d EA.

HOLLOW COLUMN

1/2" x 10" AB ATTACHED TO 2" THREADED ROD WITH 1/2" COUPLER THRU COLUMN & HEADERS WITH 2" WASHER & NUT TOP

1/2" x 10" AB ATTACHED TO 2" THREADED ROD WITH 1/2" COUPLER THRU COLUMN & HEADERS WITH 2" WASHER & NUT TOP



N5 - TRUSS UPLIFT CONNECTOR TABLE REV-18-NOV-04

All connectors are Simpson Strongtie, unless noted. Select top and bottom connections from this table or SST catalog to meet truss uplift. Use fasteners as specified.

Uplift SPF	Uplift SYP	Truss Connector	To Plate	To Truss / Rafter
320	455	H3	4-8d	4-8d
245	350	H5A	3-8d	3-8d
535	600	H2-SA	5-8d	5-8d
620	720	H10	6-10d1 1/2"	6-10d1 1/2"
850	890	LTS12	8-8d1 1/2"	8-8d1 1/2"
1245	1450	HTS20	10-10d or 12-10d1 1/2"	10-10d or 12-10d1 1/2"
1265	1470	H16, H16-2	10-10d1 1/2"	210d1 1/2"
1785	2050	LG12	11-10d Sinker	11-10d Sinker
3655	4200	MGT	5/8" Thd. Rod	21-10d

SPF SYP Strap Connector

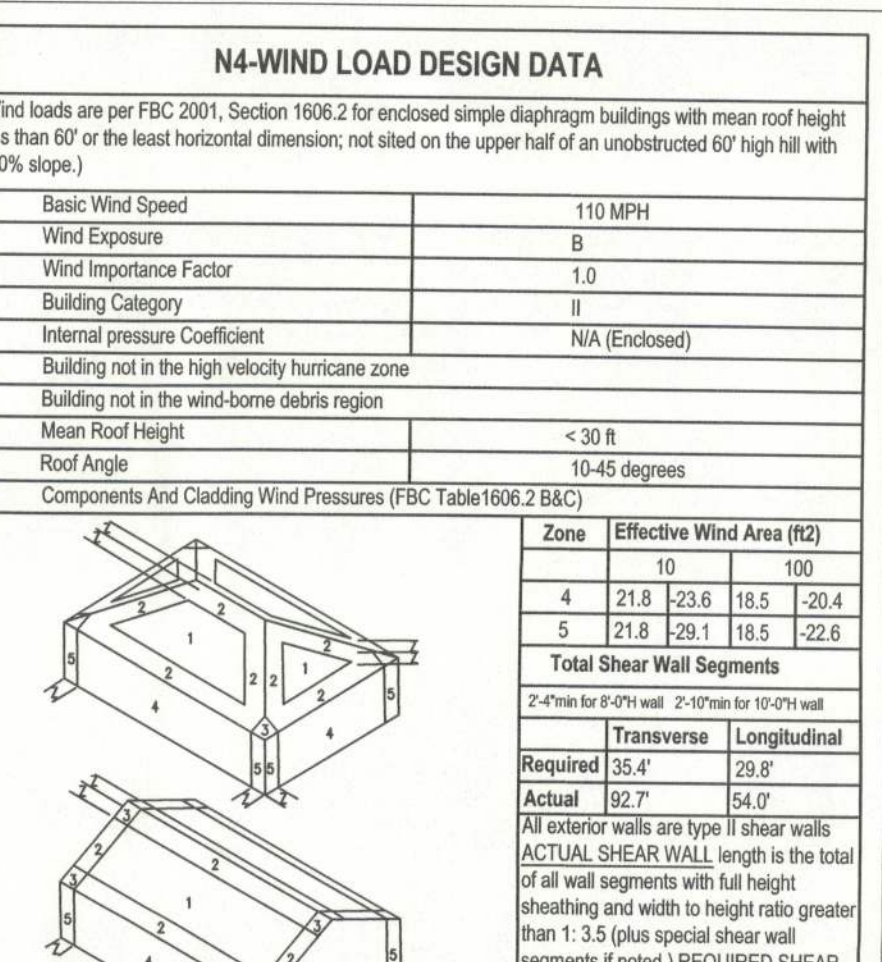
SPF	SYP	Strap Connector	To One Member	To Other Member
760	885	SP4	6-10d1 1/2"	N/A
865	1005	CS10	9-8d or 7-10d	9-8d or 7-10d
1085	1265	LSTA18-24	7-10d	7-10d
1170	1380	SP4	12-10d1 1/2"	N/A
420	455	SSP	4-10d	3-10d to double plate or 1-10d to single
600	825	DSP	6-10d	6-10d to double plate or 2-10d to single
1420	1650	CS16	14-8d or 11-10d	14-8d or 11-10d

SPF SYP Column Anchor

SPF	SYP	Column Anchor	To Foundation	To Column / Truss
1160	1350	LTT19	3/4" x 16" AB	8-16d Sinker
1985	2310	LTT131	3/4" x 16" AB	16-10d1 1/2"
2385	2775	H22A	3/4" x 16" AB	3/4" Bolts
3580	4175	HT16	3/4" x 16" AB	16-16d
1975	2200	AB46	3/4" x 16" AB	12-16d

Notes:

- Collection factor: $C_d = 1.25$ (see FBC 2001, Table 16.06.2).
- Duration factor: $C_d = 1.25$ (see FBC 2001, Table 16.06.2).
- For trusses with 24" or 30" spacing, use $C_d = 1.25$ for 24" spacing and $C_d = 1.0$ for 30" spacing.
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N4-WIND LOAD DESIGN DATA

(Wind loads are per FBC 2001, Section 1606.2 for enclosed simple diaphragm buildings with mean roof height less than 60' or the least horizontal dimension; not sited on the upper half of an unobstructed 60' high hill with >10% slope.)

Basic Wind Speed	110 MPH
Wind Exposure	B
Wind Importance Factor	1.0
Building Category	II
Internal pressure Coefficient	N/A (Enclosed)
Building not in the high velocity hurricane zone	
Building not in the wind-borne debris region	
Mean Roof Height	< 30 ft
Roof Angle	10-45 degrees
Components And Cladding Wind Pressures (FBC Table 1606.2 B&C)	

Zone Effective Wind Area (ft²)

Zone	Effective Wind Area (ft²)
10	100
21.8	23.6
5	21.8
21.8	23.6

Total Shear Wall Segments

2'-4" max for 5'-0" wall, 2'-10" max for 10'-0" wall

Transverse Longitudinal

Required 35.4' 29.8'

Actual 92.7' 54.0'

All exterior walls are type II shear walls. ACTUAL SHEAR WALL length is the total of all wall segments with full height sheathing and wind to height ratio greater than 1:3.5 (plus special shear wall segments if noted). REQUIRED SHEAR WALL length is from WFCM-2001, table 3.17A & 3.17B with table 3.17E (adjustment for type II shear wall or equivalent calculation)

REV-27-Jun-03

WINDLOAD ENGINEERING

"EVERYTHING YOU NEED FOR YOUR BUILDING PERMIT"

Mark Disosway P.E.

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Location: Lot 15 Stonehenge S/D Phase II Columbia County, Florida

Spec House

Lot 15 Stonehenge S/D Phase II

Builder: Jonathan Perry

Designer: Tim Delbene Job #05043-15

Approved: FLPER53615

Revisions:

Sheet S-1 of 1 Sheet

Windload Engineering

Job # 509156

W12 - PORCH HEADER ANCHORS
SCALE: N.T.S. REV-18-JUL-03

W23 - GYPSUM CEILING DIAPHRAGM OPTION - GABLE END WALL
SCALE: N.T.S.

W71 - HEADER SPANS FOR ROOF/CEILING LOAD

N4-WIND LOAD DESIGN DATA

N3-WINDLOAD ENGINEER'S SCOPE OF WORK:

WINDLOAD ENGINEERING