

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 supplier engineer size beam.
- Jack Studs and King Studs (BY BUILDER)
- Look up 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.
- Header Uplift Connections (BY BUILDER)
- 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 mfr. catalog to connect header to stud (top connection) and stud to foundation (bottom connection).

Option #	Uplift, lb.	Top Connector	Bottom Connector
#1	< 800	End nail or toe nail w/ 15"x10.25"	SP4, 6-10dX1 1/2"
#2	< 1500	LSTA12, 10-10d	725 (2) SP4, 6-10dX1 1/2", 2" AB
#3	< 1750	LSTA18, 14-10d	1055 LTT208, 10-10d, 2" AB
#4	< 2500	(2) LSTA18, 14-10d	2110 LTT208, 10-10d, 2" AB
#5	< 3885	(3) LSTA18, 14-10d	3480 LTT208, 10-10d, 2" AB

Uplift greater than 3885 lb requires engineering design.

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

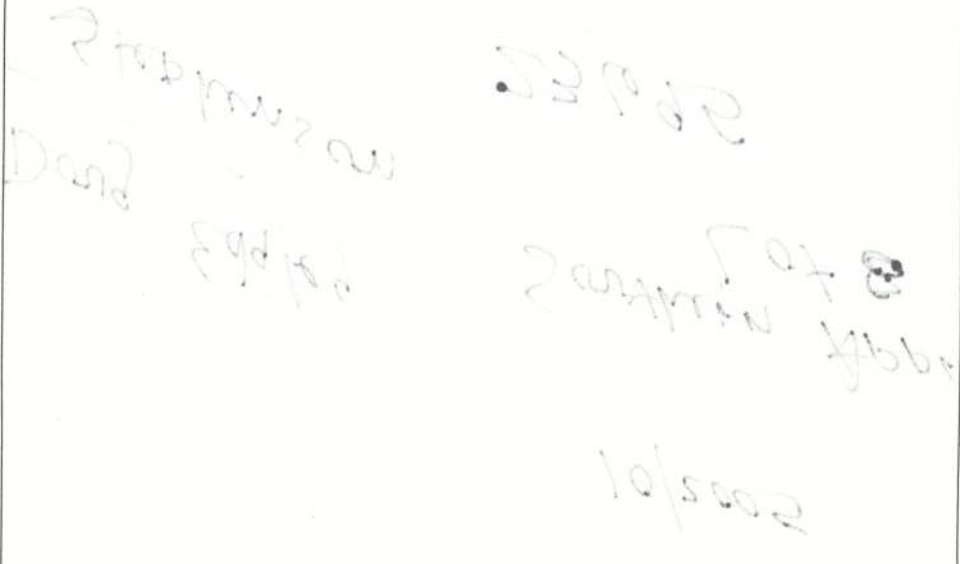
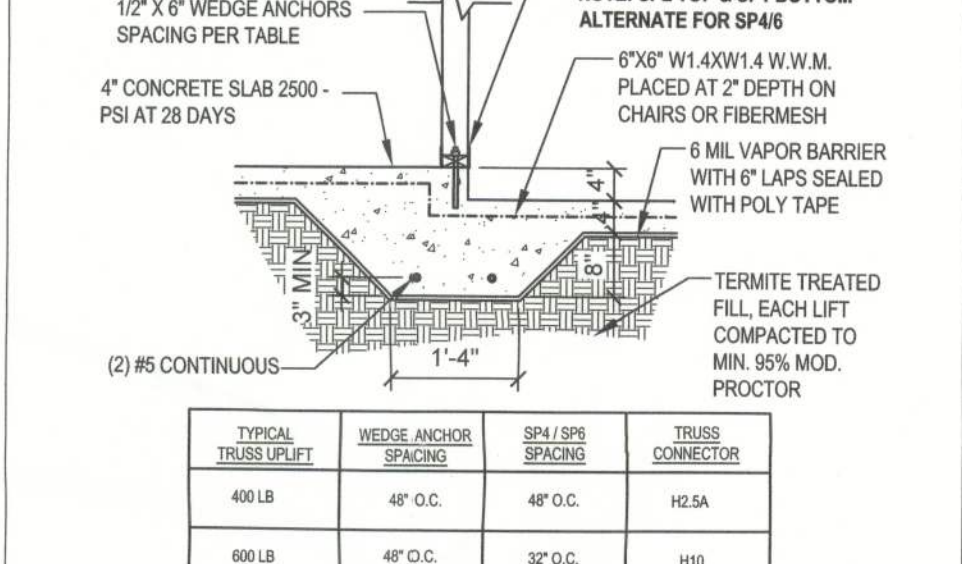
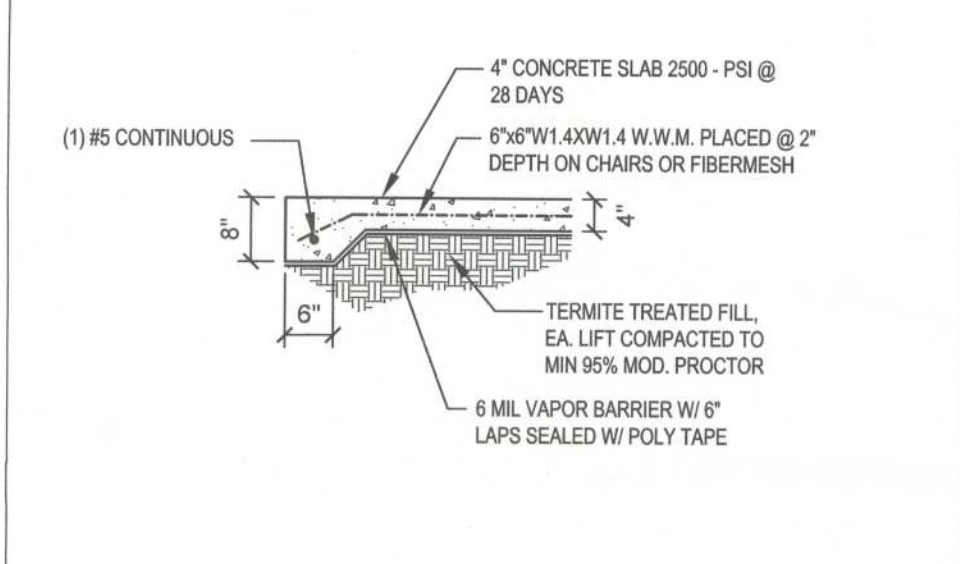
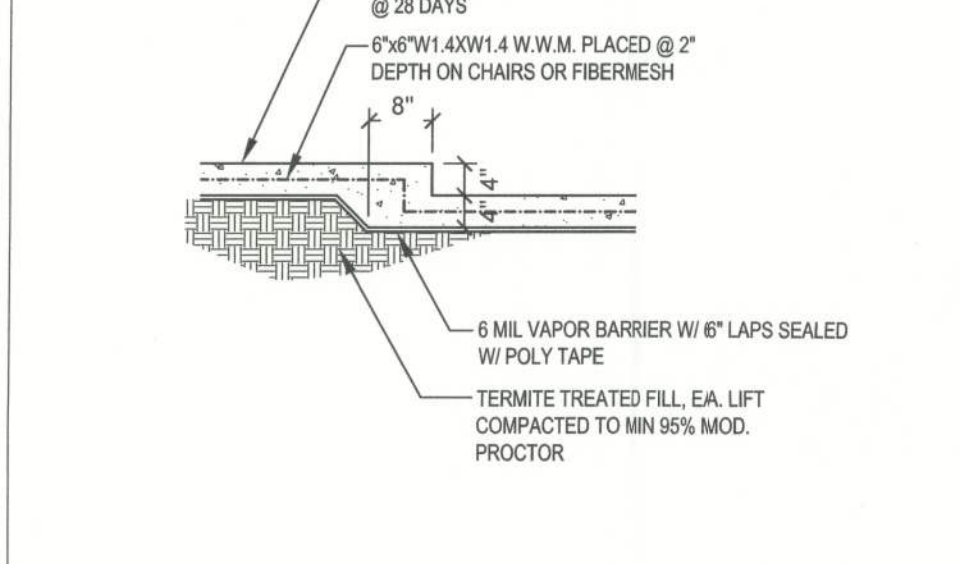
Header Spans (ft-in)	Building Width / Truss Span (ft)		
	20	28	36
2-2x4	3-6	1-3-2	1-2-10
2-2x6	5-5	1-4-8	1-4-2
2-2x8	8-10	1-5-11	2-5-4
2-2x10	8-5	2-7-3	2-6-8
2-2x12	9-9	2-8-5	2-7-6
3-2x8	8-4	1-7-5	1-6-8
3-2x10	10-4	1-8-1	2-6-2
3-2x12	12-2	2-10-7	2-8-5
4-2x8	9-2	1-8-4	1-7-6
4-2x10	11-8	1-10-6	1-9-5
4-2x12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

STUD ANCHOR TABLE

TYPICAL TRUSS UPLIFT & MAX 1/2" WALL HEIGHT	ANCHOR BOLT SPACING	SP4 / SP5 SPACING	ALTERNATE SPACING
770 LB	48" O.C.	48" O.C.	NA
950 LB	48" O.C.	32" O.C.	NA
1070 LB	32" O.C.	16" O.C.	32" O.C.
1500 LB	32" O.C.	16" O.C.	16" O.C.
2200 LB	LTT31 W/ 8"x7" WEDGE ANCHOR	NA	(2) HTS20 NAILED TO STUD PACK

NOTE: SP2 TOP & SP1 BOTTOM ALTERNATE FOR SP4/5

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 GREATER THAN 5000 LB OR REPETITIVE TRUSS LOADS GREATER 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 ACCEPTANCE 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" W14 x 4 W14, FB = 85KSI, WELDED WIRE REINFORCEMENT FABRIC (W.W.M.) CONFORMING TO ASTM A185, LOCATED IN MIDDLE OF THE SLAB, SUPPORTED WITH APPROVED MATERIALS OR SUPPORTS AT SPACES NOT TO EXCEED 3'.

FIBER CONCRETE SLAB: CONCRETE SLABS ON GROUND CONTAINING SYNTHETIC FIBER REINFORCEMENT. FIBER LENGTHS SHALL BE 12 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 WMM OR REINFORCING STEEL. (RECOMMENDED LOCATION OF CONTROL JOINTS IS SUBJECT TO OWNER AND CONTRACTOR'S APPROVAL. THE CONTROL JOINTS ARE NOT INTENDED TO PREVENT CRACKS BUT RATHER TO ENFORCE THE SLAB TO CRACK ON A GIVEN LINE.)

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

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

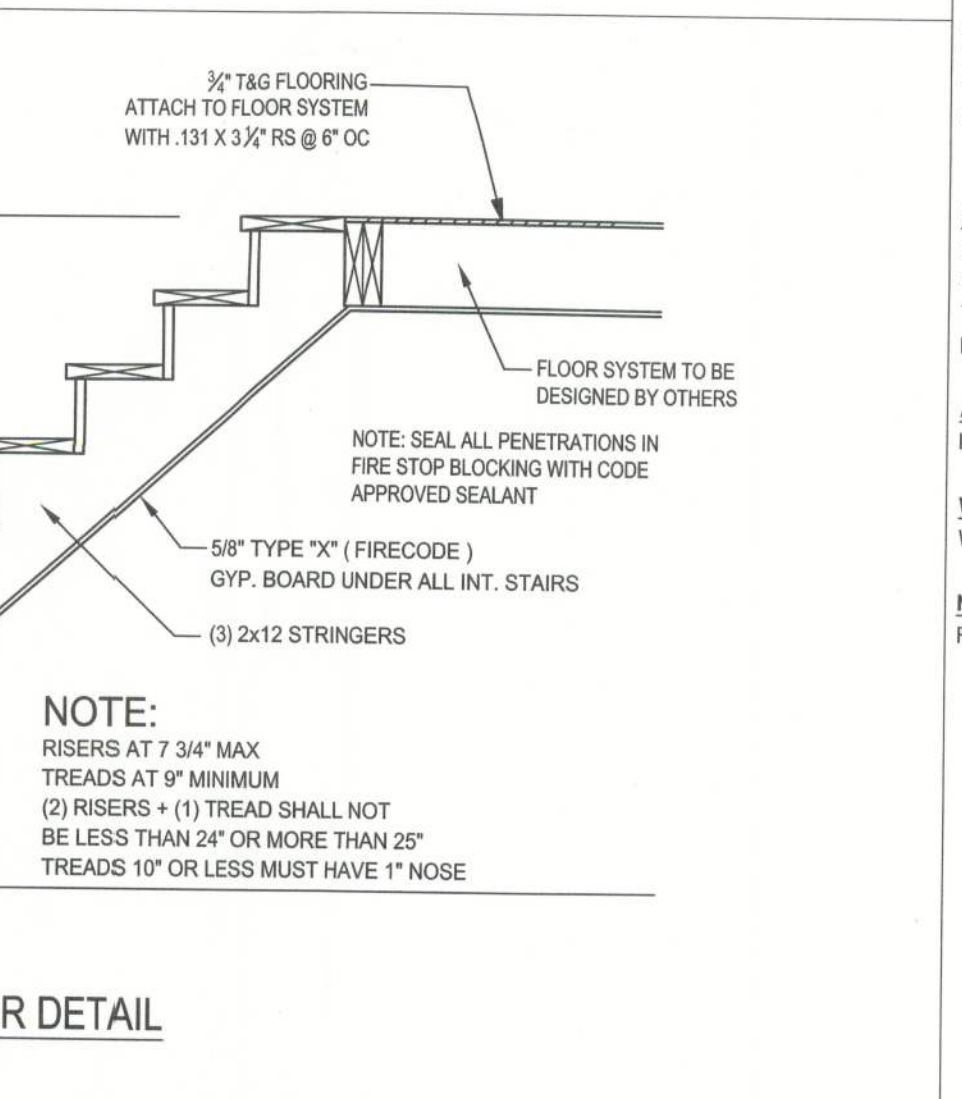
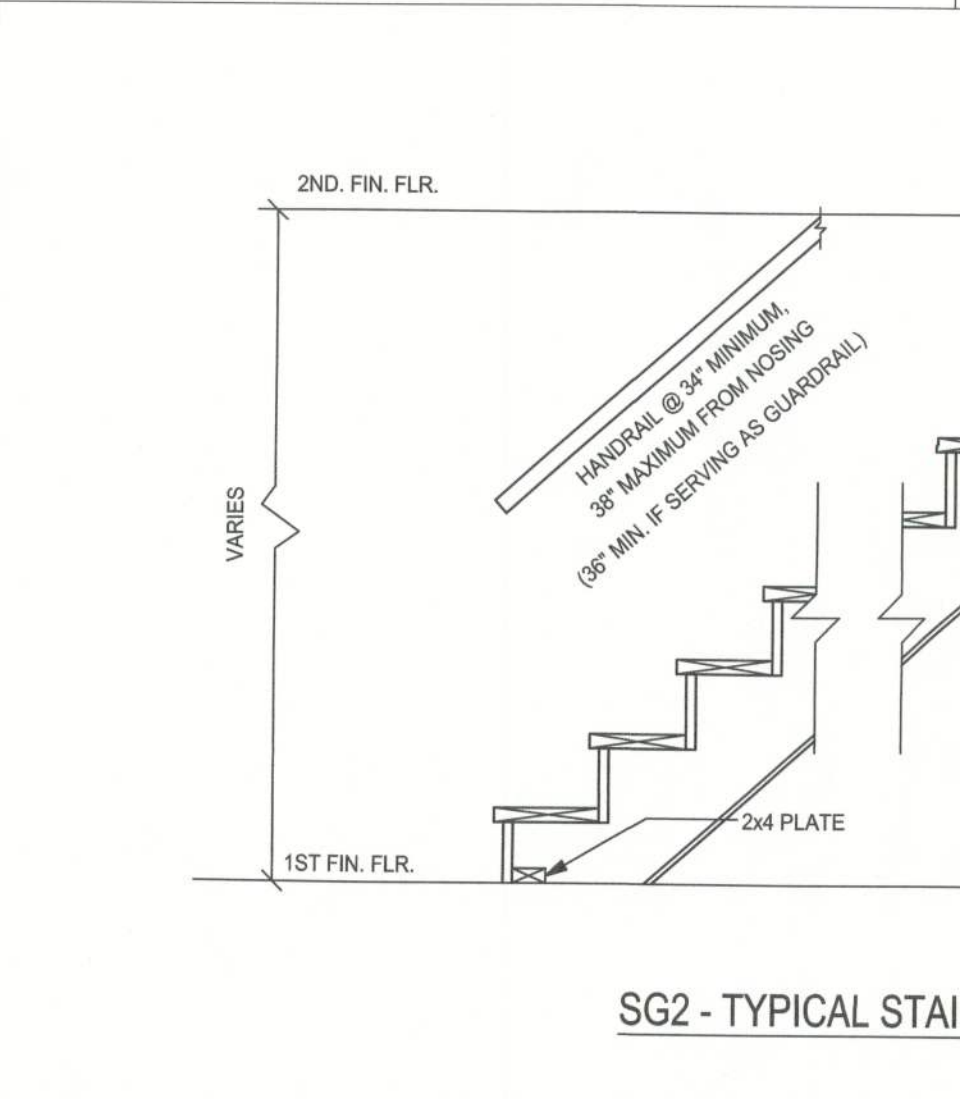
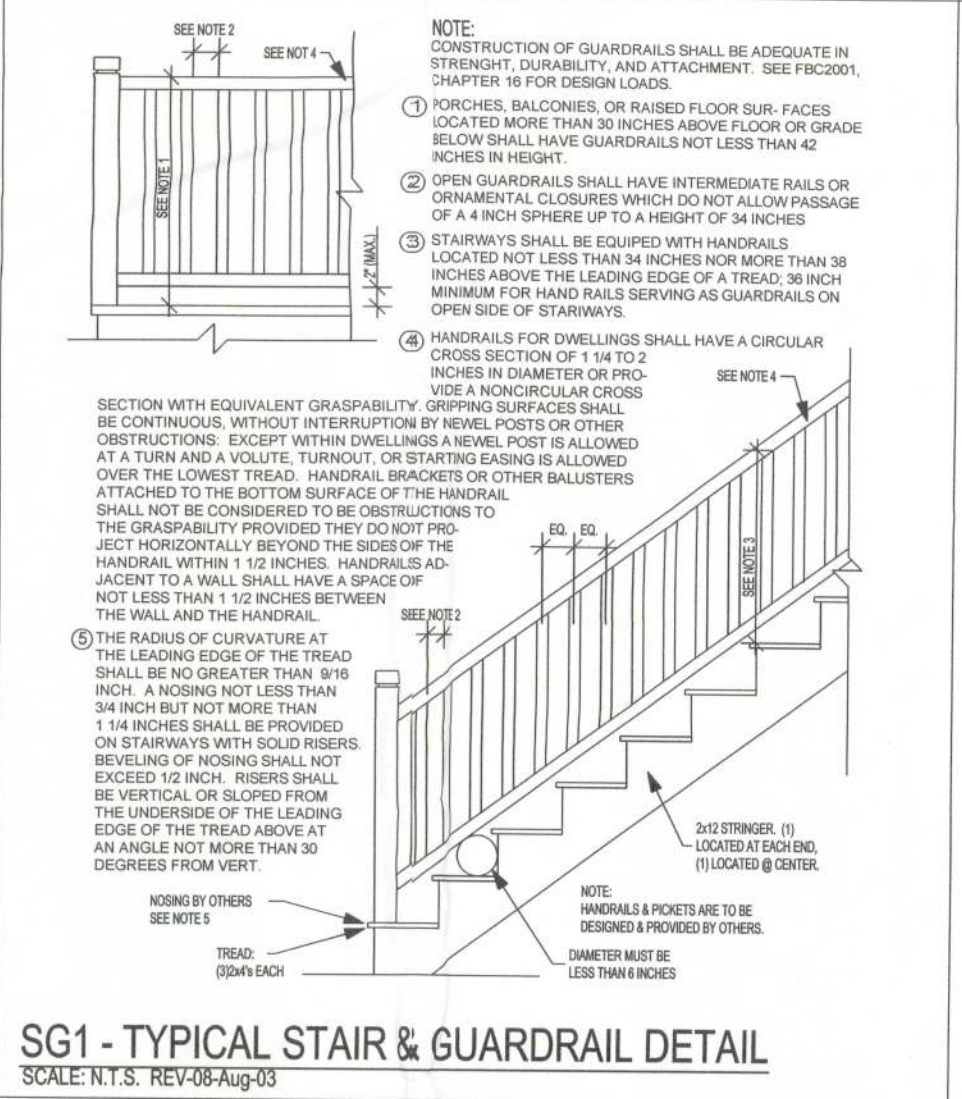
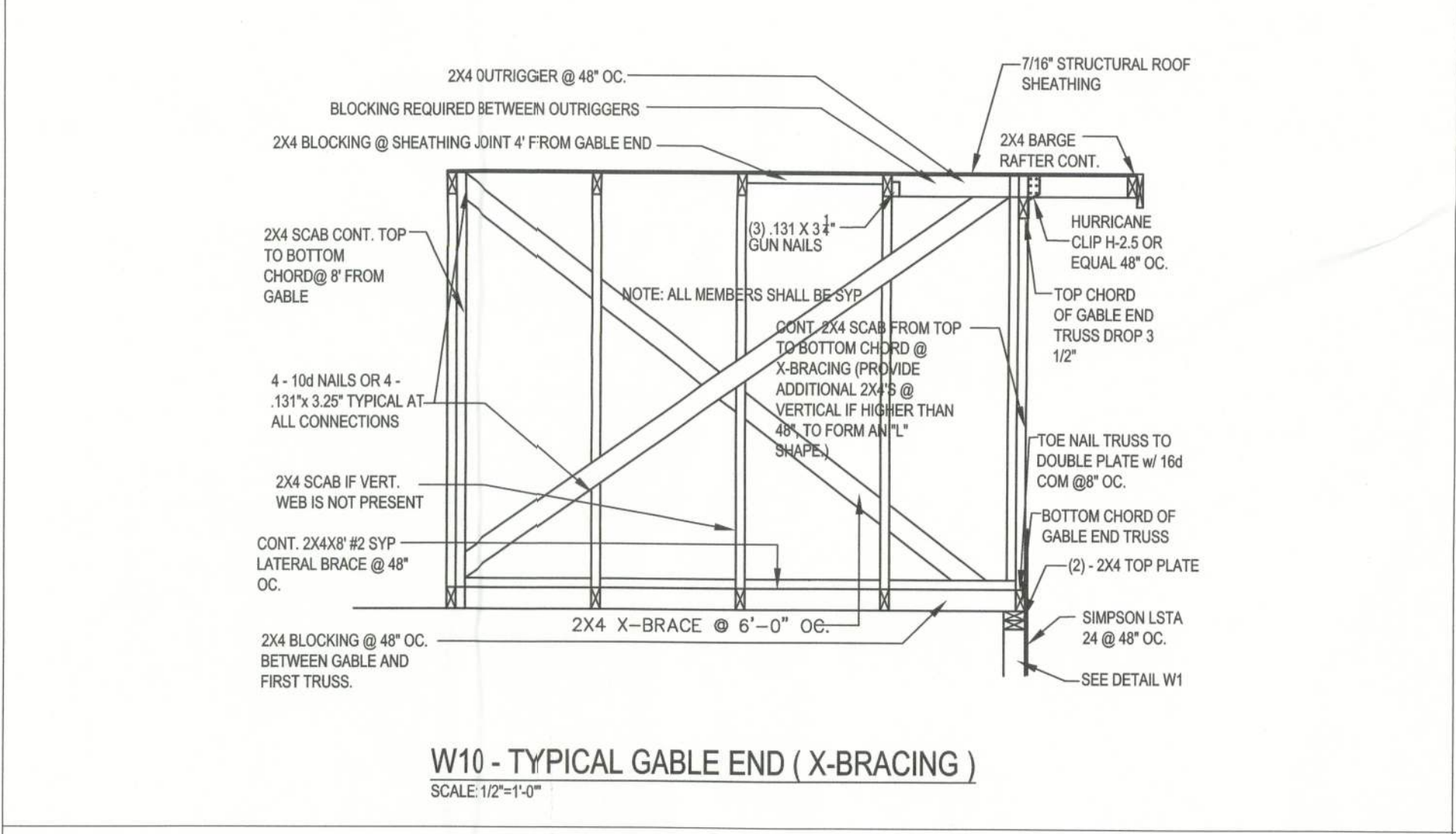
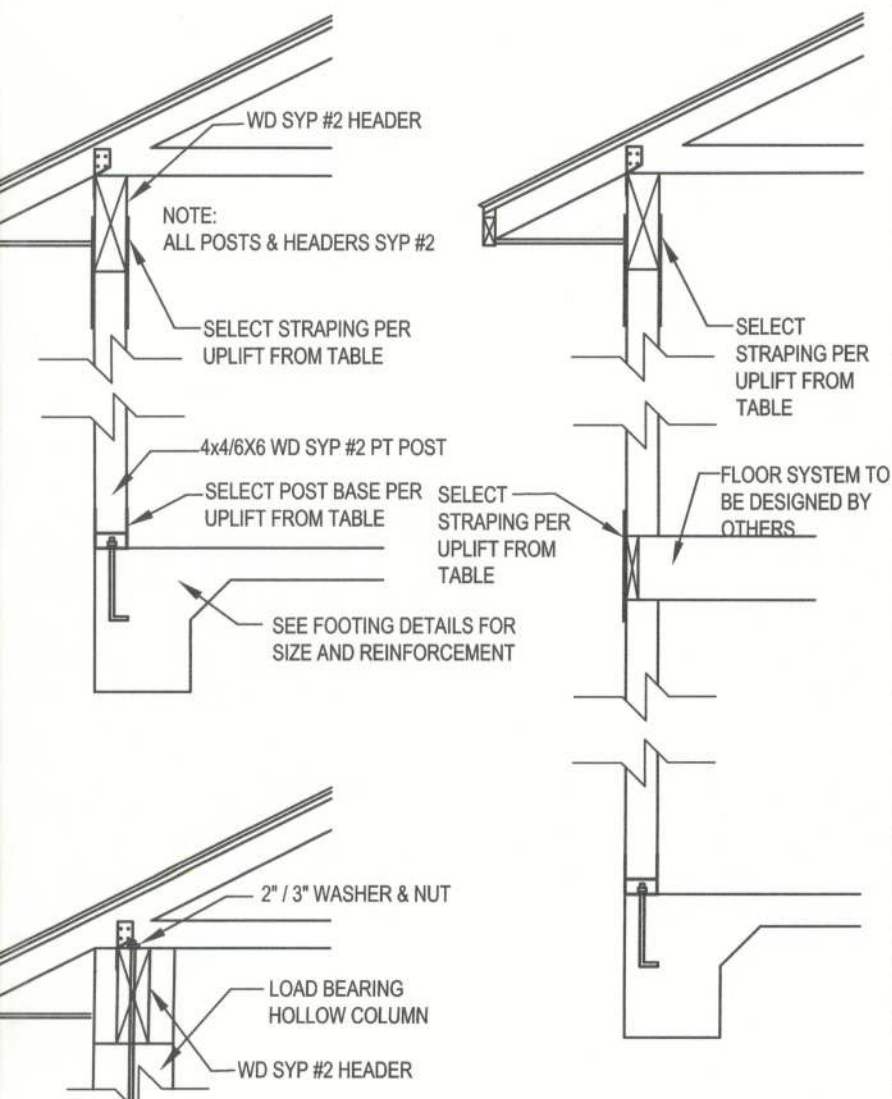
F13 - NON - BEARING THICKENED SLAB EDGE
SCALE: 1/2"=1'-0" REV-10-FEB-03

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

Hand-drawn sketch of a staircase with a railing. The sketch shows the railing, the stairs, and the foundation. It includes notes about the railing height and the foundation.

Hand-drawn sketch of a staircase with a railing. The sketch shows the railing, the stairs, and the foundation. It includes notes about the railing height and the foundation.

Hand-drawn sketch of a staircase with a railing. The sketch shows the railing, the stairs, and the foundation. It includes notes about the railing height and the foundation.



REBAR: ASTM A 615, GRADE 60, DEFORMED BARS, FY = 60 KSI. ALL LAP SPICES 48" db (30" FOR #5 BARS). UNIFORM 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 NOT FOR ORSUREMENT. 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 5/16" NO.

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

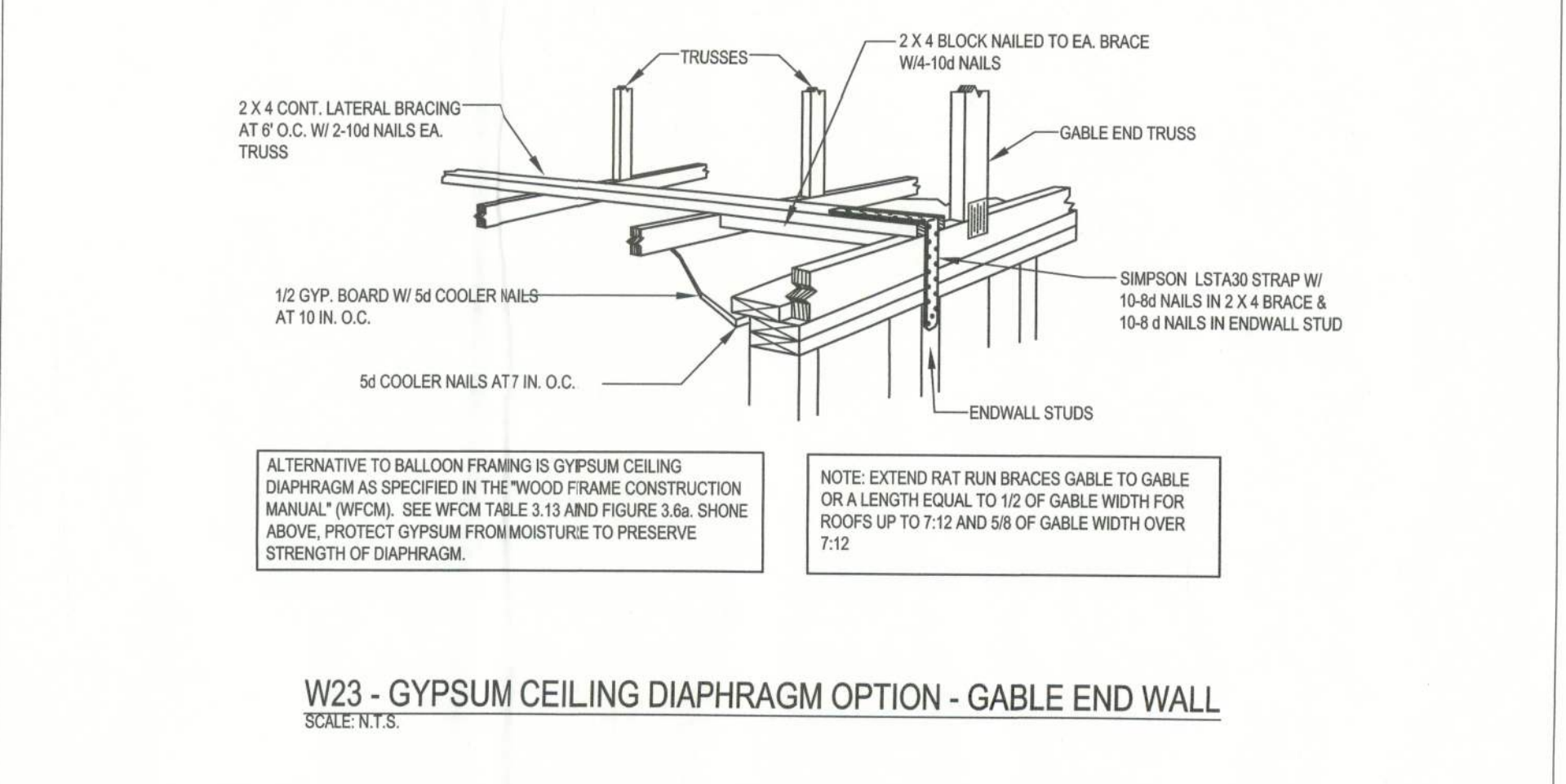
W12 - PORCH HEADER ANCHORS
SCALE: N.T.S. REV-16-JUL-03

TYPICAL POST UPLIFT	POST BASE ANCHOR	BETWEEN FLOOR STRAPPING	HEADER STRAPPING
555 LB	AB46 W/ 8"x10" AB	(2) LSTA1 W/ 8"x10" EA	(2) LSTA1 W/ 8"x10" EA
720 LB	AB46 W/ 8"x10" AB	(2) LSTA1 W/ 8"x10" EA	(2) LSTA1 W/ 8"x10" EA
2200 LB	AB46 W/ 12"x14" (2) 3/4" BOLTS & 3/4" AB	(2) LSTA1 W/ 16"x10" EA	(2) LSTA1 W/ 16"x10" EA
2300 LB	AB46 W/ 12"x14" (2) 3/4" BOLTS & 3/4" AB	(2) LSTA1 W/ 16"x10" EA	(2) LSTA1 W/ 16"x10" EA

HOLLOW COLUMN

1500 LB: 3/4" x 10" AB ATTACHED TO 3/4" THREADED ROD WITH 1/2" COUPLER THRU COLUMN & HEADER WITH 2" WASHER & NUT TOP

2300 LB: 3/4" x 10" AB ATTACHED TO 3/4" THREADED ROD WITH 1/2" COUPLER THRU COLUMN & HEADER WITH 2" WASHER & NUT TOP



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

All connectors are Simpson Strong-Tie, Inc. 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	H2.5A	5-8d	5-8d
620	720	H4	6-10dX1 1/2"	6-10dX1 1/2"
650	890	LTS12	8-8dX1 1/2"	8-8dX1 1/2"
1245	1450	HTS20	10-10d or 12-10dX1 1/2"	10-10d or 12-10dX1 1/2"
1265	1470	H16, H16-2	10-10dX1 1/2"	10-10dX1 1/2"
1785	2050	LG12	14-10d Sinkers	14-10d Sinkers
3655	4200	MGT	5/8" Thd. Rod	22-10d
SPF	SYP	Strap Connector	To One Member	To Other Member
760	885	SP4	6-10dX1 1/2"	N/A
865	1005	CS20	9-8d or 7-10d	9-8d or 7-10d
1095	1265	LSTA18-24	1-10d	7-10d
1170	1360	SP4	12-10dX1 1/2"	N/A
420	455	SSP	4-10d	3-10d to double plate or 1-10d to single
600	625	DSP	8-10d	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	To Foundation	To Column / Truss
1160	1350	LTT19	5/8" x 18" AB	8-16d Sinkers
1985	2310	LTT19	5/8" x 18" AB	18-10dX1 1/2"
2385	2775	HD2A	5/8" x 18" AB	2-9/16" Bolts
3590	4175	HTT16	5/8" x 18" AB	18-16d
1975	2300	ABJ96	5/8" x 18" AB	12-16d

Notes: 1. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 2. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 3. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 4. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 5. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 6. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 7. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 8. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 9. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 10. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 11. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 12. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 13. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 14. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 15. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 16. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 17. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 18. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 19. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 20. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 21. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 22. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 23. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 24. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 25. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 26. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 27. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 28. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 29. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 30. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 31. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 32. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 33. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 34. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 35. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 36. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 37. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 38. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 39. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 40. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 41. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 42. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 43. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 44. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 45. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 46. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 47. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 48. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 49. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 50. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 51. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 52. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 53. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 54. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 55. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 56. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 57. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 58. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 59. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 60. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 61. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 62. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 63. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 64. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 65. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 66. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 67. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 68. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 69. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 70. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 71. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 72. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 73. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 74. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 75. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 76. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 77. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 78. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 79. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 80. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 81. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 82. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 83. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 84. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 85. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 86. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 87. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 88. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 89. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 90. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 91. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 92. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 93. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 94. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 95. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 96. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 97. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 98. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 99. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 100. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 101. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 102. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 103. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 104. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 105. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 106. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 107. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 108. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 109. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 110. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 111. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 112. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 113. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 114. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 115. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 116. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 117. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 118. Check the minimum bearing requirements of the truss and top plate (FBC 2001, Section 1606.2). 119. Check the minimum bearing requirements of