AMENDMENTS TO VOLUME I-B
NC RESIDENTIAL CODE
ADOPTED DECEMBER 10, 1991
EFFECTIVE JANUARY 1, 1993

1. The final draft of the CABO One and Two Family Residential Building Code with North Carolina amendments was adopted with minor amendments. The effective date of the new code is January 1, 1993. The code will be designated as Volume VII. With this approval, Council recognized that there would be errors and omissions in the document and requested that staff use liberal interpretations when it was evident that an error or omission is creating a costly unnecessary construction requirement. It was also noted that amendments to the approved draft could be submitted for Council consideration at their March, June and September 1992 meetings. Any amendments approved at these meetings will also become effective on January 1, 1993. Copies of the approved draft are available at the offices of the Building Code Council members and inspection departments of Asheville, Greensboro, New Hanover County and Greenville, North Carolina Home Builders Office and the Department of Insurance. It is anticipated this new code will be available for sale around July 1992.

2. Delete existing Section 20(14) and replace with the following:

   Floors of wood construction shall be designed and constructed in accordance with the NFoPA "National Design Specification for Wood Construction," HPMA (ANSI) LHF, the "Canadian Dimension Lumber Data Book" and the "Southern Pine Maximum Spans for Joists and Rafters," and be capable of accommodating all applicable design loads specified in Section 41 and transmitting the resulting loads to its supporting structural elements.

3. Add the following to Section 20(14):

   "When floor spans exceed 20 feet, floor joists, trusses and built up beams shall not be spaced greater than 24 inches o.c. and the total live load deflection shall not exceed the span divided by 480."

4. Delete Section 20(25) and replace with the following:

   "Roof-ceilings of wood construction shall be designed and constructed in accordance with the NFoPA "National Design Specification for Wood Construction", the Canadian Dimension Lumber Data Book" or the "Southern Pine Maximum Spans for Joists and Rafters", and shall be capable of accommodating all design loads in Section 41 and shall transmit the resulting loads to its supporting structural elements. Roof members shall be designed for a load duration of 1.15. (Snow Load column)

5. Replace existing Section 24(6) with the following:

"Each dwelling shall be provided with two doors for means of egress - one of which shall be side hinged. The doors shall be placed a distance apart equal to not less than 1/2 of the length of the maximum overall diagonal dimension of living area of the building served measured in a straight line between the doors. If both doors open onto a porch, terrace or platform 36" or greater above adjacent finished grade, two remotely located stairways to grade shall be provided."

6. Delete the seven (7) joist span tables in Appendix C. (Accumulative Supplement).

AMENDMENTS TO VOLUME I-A
NC ADMINISTRATION AND ENFORCEMENT CODE
ADOPTED DECEMBER 10, 1991
EFFECTIVE JANUARY 1, 1993

1. Add new Section 8.4 to read as follows:

"Refer to Section 107 of Volume V for Fire Prevention Code Violations and Penalties."

AMENDMENTS TO VOLUME II
NC PLUMBING CODE
ADOPTED DECEMBER 10, 1991
EFFECTIVE JANUARY 1, 1993

1. Revise Section 1213.7.5 to read as follows:

"The discharge from the relief valve shall be piped full size separately to the crawlspace, outside of the building, 6" above the floor or to another approved terminal as provided for safety pan terminals but in no case shall the discharge from a relief valve be trapped."

Accumulative Supplement to the

NORTH CAROLINA UNIFORM RESIDENTIAL BUILDING CODE

1968 Edition with Amendments

thru December 10, 1985

AMENDMENTS ADOPTED BETWEEN

December 10, 1985 to June 12, 1991

Published by
NORTH CAROLINA BUILDING CODE COUNCIL
and
NORTH CAROLINA DEPARTMENT OF INSURANCE
Box 26387
Raleigh, N. C. 27611

DATE REVISED ITEMS CHANGED

AMENDMENTS TO VOLUME IB FROM DECEMBER 10, 1985 TO JUNE 12, 1991

9-9-86 Add the following exception to Section 10(2):
Exception: Kitchens shall have a ceiling height of not less than 7 feet measured to the lowest projection from the ceiling to finished floor, excluding lighting fixtures in designated eating areas.

3-13-90 Section 11(3) - Add "See Volume III-Mechanical Code for access door requirements when heating or cooling equipment is installed in a crawl space."

12-12-89 After sentence (5) of Section 11(3) add:
Where soil conditions exist which impede water absorption or natural drainage, a positive drain shall be provided.

12-12-89 In Section 12(1), add the following after the word "General":
Piers, columns, posts and masonry chimneys require adequately designed footings.

12-12-89 Revise Section 12(3)(a) to read as follows:
Minimum area under free standing piers, columns or posts shall be in accordance with the footing requirements in the girder tables of Section 20(4).

12-12-89 Revise Section 12(3)(b) to read as follows:
Project footing at least three inches from face of load bearing wall, pier, column, or post and in no case more than the footing thickness. The minimum depth of masonry chimney footings shall be 12 inches with a minimum projection of 12 inches.

12-12-89 In 13(1)(b)(1) change 6" x 4" x 1/4" to read 6" x 4" x 5/16".

12-8-87 Revise Table 3, Section 13 as follows:

(a) Change "Hollow Walls and Cavity Walls" to read:
Hollow, Cavity and Veneer Walls.

(b) Revise subsection (a) under Hollow Walls and Cavity Walls heading to read:
Design Wind Pressure Exceeds 110 MPH.

(c) Revise subsection (b) under Hollow Walls and Cavity Walls heading to read:
Design Wind Pressure of 110 MPH and less.

DATE REVISED ITEMS CHANGED

12-12-89 Add the following to Section 14(8):
The distance to finished grade may be less than 8" when the wood columns or posts are treated for ground contact in accordance with Section 19.

6-14-88 Revise subparagraph (c) of Section 14(9)(b) to read as follows:

(c) Unreinforced slabs shall be constructed with control joints having a depth of at least one-fourth the slab thickness. Joints shall be spaced at intervals not more than 10 feet in each direction. Slabs not rectangular in shape shall have control joints across the slab at

6-13-89 points of offset, if offset exceeds 10 feet or synthetic fibers specifically manufactured for concrete, as stated in ACI-544.1R-82. Fibers must be certified as a suitable replacement for welded wire fabric with the manufacturer's appropriate supporting test data, including ASTM C-1018-85 (Flexural Toughness Test), ASTM C-78-84 (Flexural Strength), and ASTM C-496-86 (Splitting Tensile Strength) and submit if requested to the Building Code Official for approval. Fiber lengths to be 1/2" to 2". Dosage amounts of .75 pounds per cubic yard to 1.5 pounds per cubic yard, as recommended by the fiber manufacturer, shall be strictly adhered to. When fiberous concrete is used, the load tickets shall clearly indicate the amount and type of fiber added to the mix. A sticker (supplied by the manufacturer) must be posted with the building permit at the jobsite (for floor inspections) indicating which approved fiber is to be used.

Exception: Control joints shall be spaced at 30 feet on center where welded wire fabric weighing 20 pounds or more per 100 square feet (6x6-10x10 which is 6x6-w1.4 x w1.4) is installed. Welded wire fabric shall be placed at mid-depth of the slab.

12-12-89 Delete Section 14(9)(c) - Structural Clay Tile.

DATE REVISED ITEMS CHANGED

12-12-89 Add the following Table to Section 15(7):

Allowable Spans for Lintels
Supporting Masonry Veneer

Size of Angles (1,3)	Maximum Span (2,4)
3-1/2" x 3-1/2" x 1/4"	6'-0"
5-0" x 3-1/2" x 5/16"	10'-0"

Footnotes:

(1) Long leg of the angle shall be placed in a vertical position.

(2) Spans over 4'-0" shall be shored up until cured.

(3) Steel members indicated are adequate typical examples; other
9-11-90 steel members including light gauge steel meeting structural design requirements may be used.

(4) Spans over 10'-0" shall be designed by a Professional Engineer.

12-8-87 Revise the third sentence of Section 16, Subsection 2 to read as follows:
Flues for equipment burning solid or liquid fuels shall have a minimum outside dimension of 8 1/2" x 8 1/2" in size or equivalent area and comply with ASTM-C315. A thimble shall be required for connecting fuel burning equipment to flues. Where thimbles are required, a flue liner manufactured with an integral thimble opening shall be used.

9-13-88 Delete the last sentence of Section 16(2) and replace with the following:
The net free area of square or rectangular flues as listed in Table 16A shall not be less than 1/10 the face area of the fireplace opening. The net free area of round flues as listed in Table 16B shall not be less than 1/12 the face area of the fireplace opening. For fireplaces with more than one opening, the combined areas of all faces shall be used.

DATE REVISED ITEMS CHANGED

TABLE 16A

RECTANGULAR AND SQUARE CLAY FLUE LINING

Nominal Outside Dimensions (In.)(1)	Net Free Area (In.)
8 1/2 x 8 1/2	49
8 1/2 x 13	76
8 1/2 x 17 3/4	102
13 x 13	127
13 x 17 3/4	173
17 3/4 x 17 3/4	233
20 x 20	298
20 x 24	357
24 x 24	431

(1) Variations of 1/2" in outside dimensions and 1/8" in wall thickness permitted.

TABLE 16B

ROUND CLAY FLUE LINING

Nominal Inside Dimension (In.)	Net Free Area (In.)
8 ± 1/4	50
10 ± 5/16	78
12 ± 3/8	113
15 ± 3/8	177
18 ± 7/16	254
21 ± 7/16	346
24 ± 1/2	452

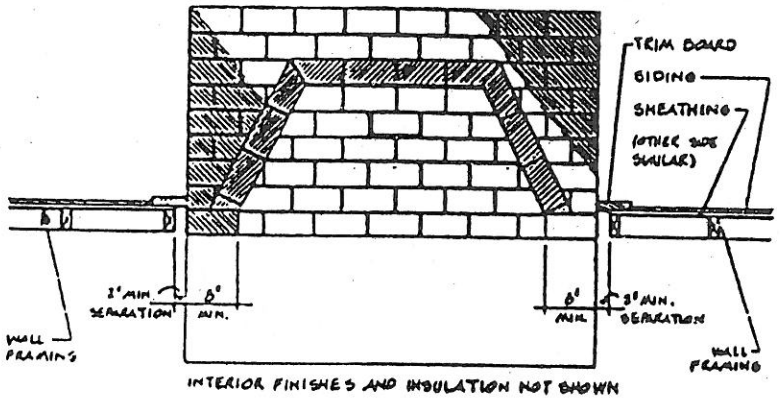
12-9-86 Add the following to Section 16(2)(a):
Individual corbels occurring at any point shall not exceed 1 1/2 inches.

12-9-86 Revise Section 16(2)(e) to read as follows:
Flue liners shall start at a point not less than 8 inches below the intake, or, in the case of a fireplace, from the top of the smoke chamber. If a change in direction is necessary, lining joints shall be made tight not only by mortaring but also by mitering or cutting equally the end of each adjoining section. The chimney shall be as vertical as possible with a maximum slope no greater than 30 degrees from vertical for the entire height of the chimney. All mitered joints shall be visible from either the top or bottom side of the chimney.

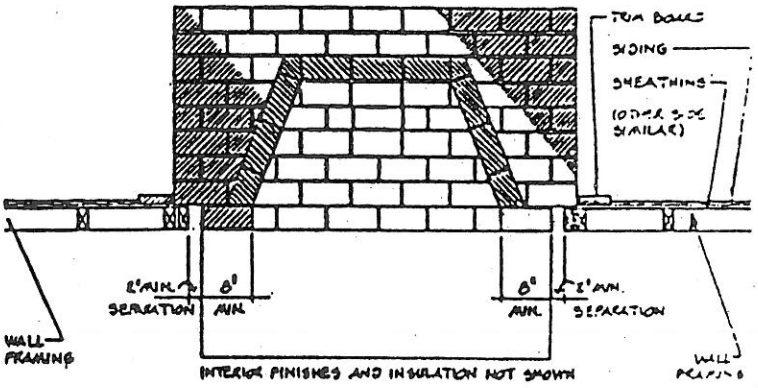
12-9-86 In Section 16(2)(f) after the word "into" insert the following:
but not beyond the innerface of the liner.

DATE REVISED ITEMS CHANGED

12-9-86 Add new paragraph (g) to Section 16(2) as follows:
All wood framing members shall be kept at least one (1) inch from chimney masonry and two (2) inches from fireplace masonry, excluding the fireplace facing material. Masonry
9-12-89 chimneys which are completely on the exterior of a building against the sheathing are not required to comply with these provisions. Woodwork, such as studs and paneling, shall not be placed within four (4) inches of the back masonry fireplaces. Note: Ends of wood girders may be supported on a corbeled shelf of a chimney.



MASONRY CHIMNEY ON EXTERIOR OF BUILDING (ALT. #1)



MASONRY CHIMNEY ON EXTERIOR OF BUILDING (ALT. #2)

DATE REVISED	ITEMS CHANGED
12-12-89	Delete Section 16(4)(b) - Asbestos Board.
12-9-86	Delete the last sentence in Section 16(5). In the second and third sentences of Section 16(5)(a) after the words "in front of", insert the following: the fireplace facing material.
12-9-86	At the end of Section 16(5)(b) add the following: The walls shall be drawn inward 30 degrees to the vertical, 8 inches above the damper, and smoothly plastered with cement mortar not less than one-half inch thick.
12-9-86	Add the following at the beginning of Section 16(5)(c): When soot pocket extends more than 12 inches below the thimble, ash dumps shall be provided.
12-13-88	In Section 16(5)(e), delete the words "or fire clay mortar" and replace with the words "type N or refractory mortar".
12-8-87	Add the following after the first sentence of Section 16(6)(a): Prefabricated metal chimneys shall not be enclosed until the installation is inspected and approved by the code enforcement official.
12-12-89	Delete Section 16(6)(b)(4) - Gas Vents.
3-12-91	Revise Section 19(5) to read as follows: (effective 1-1-92) All dressed dimensional lumber 2 inches and less in thickness including pressure preservatively treated lumber and plywood used for interior construction shall contain not more than 19% moisture at the time of permanent incorporation in a building.
3-10-87	Delete the word "exposed" from Section 19(6)(a)(2).

DATE REVISED ITEMS CHANGED

9-11-90 Delete Section 19(6)(c) and replace with the following: All lumber, sawn timber, plywood, piles and poles supporting permanent structures required by this Code to be pressure treated shall bear the quality mark of an approved inspection agency which maintains continued supervision, testing, and inspection over the quality of the product as described in the standards listed in Section 19(6)(f). The competency and performance of quality control inspection agencies for pressure treated wood shall be approved by the North Carolina State Building Code Council. The Southern Pine Inspection Bureau and inspection agencies approved by the American Wood Preservers Bureau shall be deemed as approved. All lumber shall be permanently marked so that the approved inspectionagency, preservative, retention, treating company and year(s) of treatment can be identified in service. Marking shall be as follows:

a. All rough lumber, 6" x 6" and larger pilings, 6" diameter and larger pilings and dressed dimensional lumber thicker than 2" shall be marked legibly with indelible ink, branding or non-corrosive metal tags.

b. All dressed dimensional lumber 2" and less in thickness and dressed dimensional 4" x 4" shall be legibly marked with indelible ink, branding or non-corrosive tags. If tags are used, after construction is completed, the contractor shall insure that 20% to 30% of the lumber used has an identification tag in an accessible location. This may require reattaching tags on the end or bottom of a portion of the lumber used.

c. Treating plants during normal working hours shall permit members of the Building Code Council or their staff access to its plant to monitor the performance of the third party agency by inspecting the operation of the facility and examining all records of the certification program.

9-13-88 Add the following to Section 19(6)(f).

The preservative retention requirements shall be in

9-12-89 accordance with the following table. Pressure treated wood shall be legibly and permanently marked with indelible ink stamps, branding or corrosion-resistant metal tags so that the approved inspection agency, preservative, retention, treating company and year of treatment can be identified in service.

DATE REVISED ITEMS CHANGED

PRESERVATIVE RETENTION REQUIREMENTS

Material & Usage	Creosote and Creosote Coal Tar	CCA[1] ACZA ACA	AWPA Standard
	Lbs./Cubic Foot		
Lumber, Timber & Plywood[a]			
Above Ground	8	0.25	C2/C9
Ground Contact	10	0.40	C2/C9
In Salt Water	25	2.5	C14/C9
Round Piles[b]			
Land or Fresh Water Use	12	0.8	C3
In Salt Water	20	2.5	C18
Square Piles[c]			
Land or Fresh Water Use	12	0.8	C24
In Salt Water	20	2.5	C24
Poles[d]			
Utility	9	0.6	C4
Structural	9	0.6	C4

PRESERVATIVE RETENTION REQUIREMENTS (CONT)

(1) CCA - Chromated Copper Arsenate
ACZA - Ammoniacal Copper Zinc Arsenate
ACA - Ammoniacal Copper Arsenate

3-14-89

9-12-89

Footnotes:

a. Marking shall be not closer than two feet from either end.

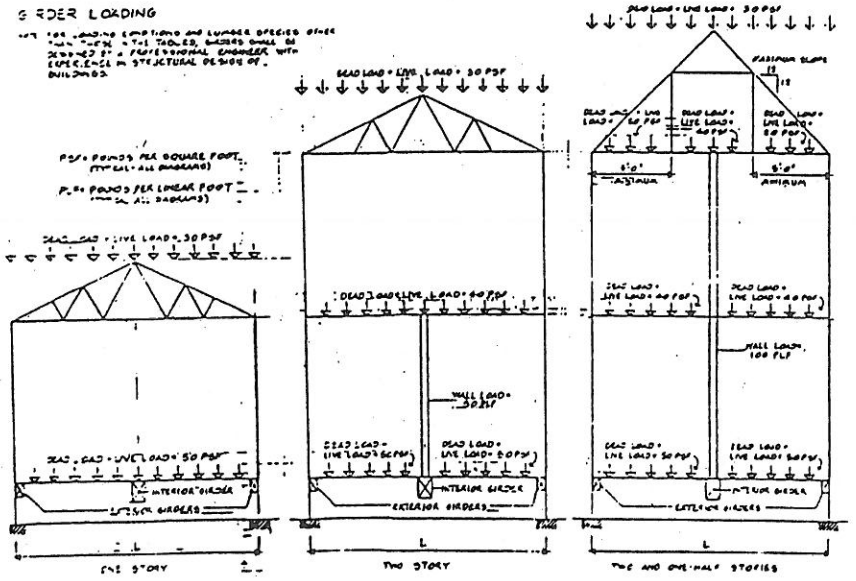
b. Marking shall be at points five feet and ten feet from the butt end of the piles.

c. Marking shall be at the approximate midpoint of the pile.

d. Marking shall be on the face side ten feet from the extreme butt for poles fifty feet and shorter and fourteen feet from the extreme butt for poles over fifty feet long.

DATE REVISED	ITEMS CHANGED	
9-12-89	Standards:	
	Preservative Treatment by Pressure Process - All Timber Products Standard for	AWPA C1-88
	of Lumber, Timber, Bridge Ties and Mine Ties (All Species) - Standards for	AWPA C2-88
	of Piles by Pressure Process - Standards for	AWPA C3-75
	of Poles by Pressure Process - Standards for	AWPA C4-88
	Pressure Process for Plywood	AWPA C9-88
	By Pressure Process - Wood for Commercial - Residential Construction Preservative Treatment	AWPA C15-84
	Fire Retardant Pressure Treatment, Plywood	AWPA C27-88
	Fire Retardant Pressure Treatment, Structural Lumber	AWPA C20-88
	Material in Marine Construction, Pressure Treatment	AWPA C18-88
	Lumber and Plywood for Permanent Wood Foundations -- Preservative Treatment by Pressure Processes	AWPA C22-88
	Pole Building Construction, Pressure Treatment	AWPA C23-84
	Sawn Timber Piles Used for Residential and Commercial Building -- Preservative Treatment by Pressure Processes	AWPA C24-88
	Care of Pressure Treated Wood Products	AWPA M4-84
	Creosote	AWPA P1-78(R)
	Creosote and Creosote Solutions	AWPA P2-85
	Creosote-Petroleum Oil Solution	AWPA P3-67
	Oil-Borne Preservatives	AWPA P9-87
	Waterborne Preservatives	AWPA P5-88
9-12-89	Delete Section 19(8)	

DATE REVISED	ITEMS CHANGED
6-10-86	Add the following new Section 19(9): Wood veneer and flakeboard core composite framing consisting of wood veneer facings laminated to an oriented flakeboard core shall conform to the Performance and Quality-Control Standards for Composite Floor, Wall, Truss Framing published by the USDA-Forest Service in General Technical Report SE-33-1985. Manufacturers of composite structural framing shall provide the North Carolina Building Code Council with their names, the name of the product, and the name of the certifying agency annually or whenever there is a change in the certifying agency. These certifying agencies shall provide information to the North Carolina Building Code Council that shows conformance with the definition of a qualified inspection and testing agency as described in Part II, Section 2 of the USDA-Forest Service's General Technical Report SE-33. This composite framing is for interior use only. The stiffness of the flakeboard in composite structural framing to be at least four times greater in the lengthwise direction than in the widthwise direction. Manufacturers are required to furnish to the North Carolina Building Code Council fastener information as outlined in paragraphs 3.4.10, 3.4.11, 3.4.12, and 3.4.13 on Technical Report SE-33.
12-9-86	Delete Section 20(1).
6-12-90	Replace Girder and Sill Tables in Section 20(4) with the following: (Effective Date 10-1-90)



DATE REVISED ITEMS CHANGED

INTERIOR GIRDER CLEAR SPANS [1.2] (FEET) - 1 STORY

Nominal Lumber	HOUSE WIDTH (FEET)									
	20		24		28		32		36	
Size	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP
2-2x8	5'-0"	6'-0"	4'-6"	5'-6"	4'-0"	4'-6"	-	4'-6"	-	4'-0"
3-2x8	7'-0"	8'-6"	6'-0"	7'-6"	5'-6"	6'-6"	5'-0"	6'-0"	4'-6"	5'-6"
2-2x10	6'-6"	8'-0"	5'-6"	7'-0"	5'-0"	6'-0"	4'-6"	5'-6"	4'-6"	5'-0"
3-2x10	9'-0"	11'-0"	8'-0"	9'-6"	7'-0"	8'-6"	6'-0"	7'-6"	5'-6"	7'-0"
2-2x12	7'-6"	9'-6"	7'-0"	8'-6"	6'-0"	7'-6"	5'-6"	6'-6"	5'-6"	6'-0"
3-2x12	11'-0"	13'-6"	9'-6"	12'-0"	8'-6"	10'-6"	7'-6"	9'-6"	7'-0"	8'-6"

EXTERIOR GIRDER CLEAR SPANS [1.2.3] (FEET) - 1 STORY

Nominal Lumber	HOUSE WIDTH (FEET)									
	20		24		28		32		36	
Size	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP
2-2x8	5'-6"	6'-6"	5'-0"	6'-0"	4'-6"	5'-6"	4'-0"	5'-0"	4'-0"	4'-6"
2-2x10	7'-0"	8'-6"	6'-6"	7'-6"	5'-6"	7'-0"	5'-0"	6'-0"	5'-0"	6'-0"
2-2x12	8'-6"	10'-6"	7'-6"	9'-6"	7'-0"	8'-6"	6'-6"	7'-6"	6'-0"	7'-6"

INTERIOR GIRDER CLEAR SPANS [1.2.4] (FEET) - 2 STORY

Nominal Lumber	HOUSE WIDTH (FEET)									
	20		24		28		32		36	
Size	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP
3-2x10	5'-6"	6'-6"	4'-6"	5'-6"	4'-6"	5'-0"	4'-0"	4'-6"	-	4'-6"
4-2x10	7'-0"	8'-6"	6'-0"	7'-6"	5'-6"	6'-6"	5'-0"	6'-0"	4'-6"	5'-6"
3-2x12	6'-6"	8'-0"	6'-0"	7'-0"	5'-6"	6'-6"	5'-0"	5'-6"	4'-6"	5'-6"
4-2x12	8'-6"	10'-0"	7'-6"	9'-0"	6'-6"	8'-0"	6'-0"	7'-0"	5'-6"	6'-6"

EXTERIOR GIRDER CLEAR SPANS [1.2.3.4] (FEET) - 2 STORY

Nominal Lumber	HOUSE WIDTH (FEET)									
	20		24		28		32		36	
Size	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP
2-2x10	5'-0"	6'-0"	4'-6"	5'-6"	4'-0"	5'-0"	-	4'-6"	-	4'-0"
3-2x10	7'-0"	8'-6"	6'-0"	7'-6"	5'-6"	6'-6"	5'-0"	6'-0"	4'-6"	5'-6"
2-2x12	6'-0"	7'-6"	5'-6"	6'-6"	5'-6"	6'-0"	4'-6"	5'-6"	4'-6"	5'-0"
3-2x12	8'-6"	10'-6"	7'-6"	9'-0"	6'-6"	8'-0"	6'-0"	7'-6"	5'-6"	7'-0"

DATE REVISED ITEMS CHANGED

INTERIOR GIRDER CLEAR SPANS[1,2,5] (FEET) - 2 1/2 STORY

Nominal Lumber Size	HOUSE WIDTH (FEET) 20		24		28		32		36	
	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP	#2SPF	#2SYP
4-2x10	5'-0"	6'-6"	4'-6"	6'-0"	4'-6"	5'-6"	4'0"	5'-0"	3'-6"	4'-6"
3-2x12	5'-0"	6'-0"	5'-0"	6'-0"	4'-6"	5'-6"	4'-0"	5'-0"	4'-0"	4'-6"
4-2x12	6'-6"	7'-6"	6'-0"	7'-6"	5'-6"	6'-6"	5'-0"	6'-0"	4'-6"	5'-6"

FOOTNOTES:

1. Girder clear span is the distance from face of support to face of support.
2. #2SPF = Number 2 grade Spruce-Pine-Fir
   #2SYP = Number 2 grade Southern Yellow Pine (19% Max Moisture Content)
3. Exterior girder tables are for use with pier and curtain wall construction. Pier and curtain wall construction is limited to two stories in height.
4. For 1 1/2 story houses, use girder tables for 2 story houses.
5. A live load reduction is taken in accordance with Volume I, Chapter 12, for 2 1/2 story construction.

PIER[1] AND FOOTING[2] SIZES FOR SUPPORT OF INTERIOR GIRDERS[3]

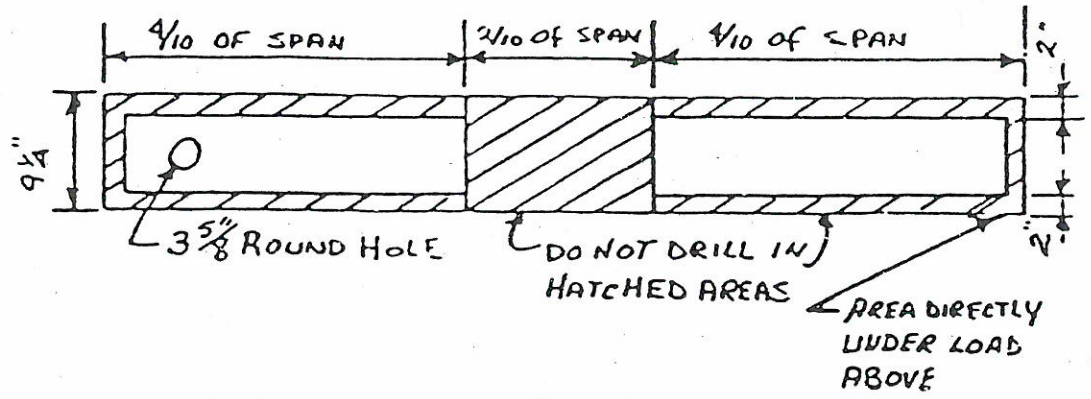
Area[6]	1 Story Pier[4,5]	1 Story Footing	2 Story Pier[4,5]	2 Story Footing	2 1/2 Story Pier[4,5]	2 1/2 Story Footing
50	8"x16"	1'-4"x2'-0"x8"	8"x16"	1'-4"x2'-0"x8"	8"x16"	1'-4"x2'-0"x8"
100	8"x16"	1'-4"x2'-0"x8"	8"x16"	2'-0"x2'-0"x10"	16"x16"	2'-6"x2'-6"x10"
150	8"x16"	2'-0"x2'-0"x8"	16"x16"	2'-8"x2'-8"x10"	16"x16"	3'-0"x3'-0"x10"
200	8"x16"	2'-4"x2'-4"x10"	16"x16"	3'-0"x3'-0"x10"	16"x16"	3'-8"x3'-8"x1'-0"
250	-	-	16"x16"	3'-4"x3'-4"x1'-0"	16"x24"	4'-0"x4'-0"x1'-0"
300	-	-	16"x16"	3'-8"x3'-8"x1'-0"	16"x24	4'-6"x4'-6"x1'-0"

FOOTNOTES:

1. Pier sizes are based on hollow CMU capped with 4" of solid masonry for 1 story and 8" of solid masonry for 2 and 2 1/2 story houses. Mortar shall be Type S. 2500
2. Footing sizes are based on 2000 psf allowable soil bearing and ~~3000~~ psi concrete.
3. Footing and pier sizes for exterior girders shall be the same size as required for interior girders.
4. Centers of piers shall bear in the middle 1/3 of the footings, and girders shall center in the middle 1/3 of the piers. Footings shall be full thickness over the entire area of the footing.
5. Pier sizes given are minimum. For height/thickness limitations see Section 14(4).
6. Area at first level supported by pier and footing (sq. ft)

DATE REVISED	ITEMS CHANGED
3-10-87	Delete last sentence of Section 20(5).
6-12-90	Add the following to Section 20(11): An overhang projection of 24 inches is permitted if the supporting joists are carried back 5 feet and framed into double joists. If the supporting joists are carried back 4 feet, they shall be framed into double joists with either a framing anchor or with ledger strips at both the top and bottom. Structural system will support only the floor and roof load of the bay window section as shown on the sketch in Appendix C.
3-10-87	Replace Section 20(15) with the following: Notches on the ends of joists shall not exceed one-fourth the depth. Holes bored for pipes or cable shall not be within two (2) inches of the top or bottom of the joist and the diameter of any such hole shall not exceed one-third the depth of the joist. Notches for pipes in the top or bottom of joists shall not exceed one-sixth of the depth and shall not be located in the middle third of the span.
6-12-90	Add the following to Section 20(15):

ACCEPTABLE LOCATION OF 3 5/8" DIAMETER HOLE IN 2 X 10 JOIST



(1) Do not drill in center 2/10's of joist span.
(2) Do not drill directly under load bearing walls at ends.
(3) Do not drill closer than 2" to top or bottom edge.
(4) Apply 4'-0" joist width x 1/2" CDX Plywood with face grain running with joist to bothsides using 6d nails or 1 1/2" screws 1" from top and bottom 4" o.c.
(5) Holes shall not be closer than 2'-0" o.c. within unhatched areas only.

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12-12-89	Delete Section 20(17) - Deadening Felt for Floors.
12-8-87	In the first sentence of note in Section 20(20) after the word "rooms" add the following: and is provided with permanent stairs.
12-12-89	Replace Section 20(22) with the following: Attic spaces shall be provided with an interior access opening not less than 21 x 30 inches. Access opening shall be readily accessible and provided with a lid or device that may be easily removed or operated. When mechanical equipment is to be installed in the attic, and only interior access is to be provided, the access opening shall be not less than specified above, but in no case less than the size required to install or remove the largest major component of the unit without disassembly. Exception: Concealed areas not located over the main structure including porches, kneewalls less than 5 feet in height dormers, bay windows, etc., are not required to have access.
6-14-88	Add the following to Section 20(25): Roof structural members shall be designed with a load duration factor of 1.15.
3-10-87	Delete Section 20(30) and renumber remaining sections.
9-12-89	Revise Section 20(30) to read as follows: Crickets or chimney saddles shall be installed on the upper side of all chimneys greater than thirty inches wide which run parallel to but do not intersect the ridge. They shall be covered and flashed so as not to leak.
12-12-89	Replace Header Table in Section 21(4) with the following:

Openings in Exterior Walls

Headers shall be provided over each opening in exterior bearing walls. The spans in Tables A through J may be used for one and two family residences. Headers may be of two pieces of nominal 2-inch framing lumber set on edge and nailed together or may be of solid lumber of equivalent size.
A wall stud shall be at each side of the opening with the ends of the header supported as follows:

1. For openings 3 ft. or less wide each end of the header shall rest on a single header stud or may be supported by framing anchors attached to the wall stud.

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2. For openings more than 3 ft. but not more than 6 ft. wide each end of the header shall rest on a single header stud.
3. For openings more than 6 ft. wide each end of the header shall rest on two header studs.

Notes to Tables A through J

*Sheathing or combined sheathing/siding having a minimum density of 18 pcf.

**Minimum 15/32" plywood sheathing or combined sheathing/siding applied between the bottom of the header, the top of the top plate and between the center lines of the broken vertical studs at the ends of the header and nailed to the header, top plates, cripples and studs - 6" o.c. at the edges and 12" o.c. at intermediate framing.

Note: Linear interpolation for house widths not in table is permitted. For example, assume a 26' wide with 15/32" plywood sheathing - roof load - 2 x 6 header allowable header span = 7'-5".

Header spans identified as having "no bearing" construction apply to both interior and exterior loadbearing walls which have tributary areas equal to one-half the house depth. Header spans identified with "bearing" construction apply only to exterior bearing walls with tributary areas equal to one-fourth of the house depth.

Supporting beam or bearing wall below floor.

Location of header.

TABLE A
HEADER DESIGN CHART
(Douglas Fir-Larch, Southern Pine No. 2, Roof Load = 20LL + 10DL, Floor Load = 40LL + 10DL)

$F_b = 1200$ $E = 1{,}600{,}000$ $F_v = 90$

Header Supporting:	Header Size:	Maximum Allowable Header Span (ft-in)								
		Non. Struct. Sheath.			1/2" Insul. Bd. Sheath.*			1/2" Plywood Sheath.**		
		House Depth (ft)			House Depth (ft)			House Depth (ft)		
		24	28	32	24	28	32	24	28	32
Roof	2-2x4	4-7	4-6	4-3	4-11	4-8	4-6	5-7	5-4	5-1
	2-2x6	6-8	6-4	5-11	6-11	6-7	6-4	7-7	7-3	7-0
	2-2x8	8-3	8-0	7-7	8-6	8-2	7-11	8-11	8-7	8-4
	2-2x10	9-10	9-6	9-3	10-0	9-8	9-4	10-4	10-0	9-9
	2-2x12	11-4	10-11	10-7	11-5	11-1	10-9	11-10	11-5	11-1
Roof + One Story (Bearing)	2-2x4	5-2	4-11	4-9	5-4	5-1	4-10	5-8	5-5	5-2
	2-2x6	6-9	6-5	6-0	6-11	6-7	6-3	7-4	7-0	6-8
	2-2x8	8-0	7-5	7-0	8-1	7-8	7-3	8-5	8-2	7-9
	2-2x10	9-3	8-9	8-3	9-4	9-0	8-5	9-7	9-3	8-11
	2-2x12	10-5	10-1	9-7	10-6	10-2	9-9	10-10	10-5	10-1
Roof + One Story (No Bearing)	2-2x4	4-8	4-5	4-3	4-9	4-6	4-3	5-1	4-10	4-8
	2-2x6	5-10	5-5	5-1	6-0	5-7	5-3	6-7	6-2	5-9
	2-2x8	6-9	6-3	5-11	7-0	6-6	6-1	7-6	7-0	6-7
	2-2x10	8-0	7-5	6-11	8-2	7-7	7-1	8-8	8-1	7-7
	2-2x12	9-3	8-7	8-1	9-5	8-9	8-3	9-11	9-3	8-8
Roof + Two Stories (Bearing)	2-2x4	4-8	4-5	4-3	4-9	4-6	4-3	5-1	4-10	4-8
	2-2x6	5-10	5-5	5-1	6-0	5-7	5-3	6-7	6-2	5-9
	2-2x8	6-9	6-3	5-11	7-0	6-6	6-1	7-6	7-0	6-7
	2-2x10	8-0	7-5	6-11	8-2	7-7	7-1	8-8	8-1	7-7
	2-2x12	9-3	8-7	8-1	9-5	8-9	8-3	9-11	9-3	8-8
Roof + Two Stories (No Bearing)	2-2x4	3-11	3-8	3-5	4-1	3-9	3-7	4-5	4-2	4-0
	2-2x6	4-8	4-4	4-0	4-10	4-5	4-2	5-3	4-11	4-7
	2-2x8	5-5	5-0	4-8	5-7	5-2	4-10	6-0	5-7	5-3
	2-2x10	6-4	5-11	5-6	6-6	6-0	5-8	6-11	6-5	6-0
	2-2x12	7-5	6-10	6-5	7-6	7-0	6-6	7-11	7-4	6-11

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TABLE B
HEADER DESIGN CHART
(Douglas Fir-Larch, Southern Pine No. 2, Roof Load = 30LL + 10DL, Floor Load = 40LL + 10DL)
F_b = 1200 E = 1,600,000 F_v = 90

Header Supporting:	Header Size:	Maximum Allowable Header Span (ft-in)								
		Non. Struct. Sheath.			1/2" Insul. Bd. Sheath.*			1/2" Plywood Sheath.**		
		House Depth (ft)			House Depth (ft)			House Depth (ft)		
		24	28	32	24	28	32	24	28	32
Roof	2-2x4	4-2	3-11	3-8	4-5	4-3	4-1	5-1	4-10	4-8
	2-2x6	5-10	5-6	5-2	6-3	5-10	5-6	6-11	6-7	6-4
	2-2x8	7-6	7-0	6-7	7-10	7-3	6-10	8-4	8-0	7-7
	2-2x10	9-2	8-8	8-2	9-3	8-11	8-5	9-8	9-4	9-1
	2-2x12	10-6	10-2	9-10	10-8	10-4	10-0	11-0	10-8	10-4
Roof + One Story (Bearing)	2-2x4	4-11	4-8	4-6	5-0	4-9	4-7	5-4	5-1	4-11
	2-2x6	6-3	5-10	5-6	6-6	6-1	5-8	6-11	6-7	6-3
	2-2x8	7-4	6-10	6-5	7-7	7-0	6-7	8-1	7-7	7-1
	2-2x10	8-7	8-1	7-6	8-10	8-2	7-8	9-2	8-8	8-2
	2-2x12	10-0	9-4	8-9	10-1	9-6	8-11	10-4	9-11	9-5
Roof + One Story (No Bearing)	2-2x4	4-5	4-3	4-0	4-9	4-4	4-2	4-10	4-8	4-5
	2-2x6	5-5	5-1	4-9	5-8	5-3	4-11	6-2	5-9	5-5
	2-2x8	6-4	5-11	5-6	6-6	6-1	5-8	7-0	6-6	6-2
	2-2x10	7-6	6-11	6-6	7-7	7-1	6-8	8-1	7-6	7-0
	2-2x12	8-8	8-1	7-7	8-10	8-2	7-8	9-3	8-8	8-1
Roof + Two Stories (Bearing)	2-2x4	4-5	4-3	4-0	4-9	4-4	4-2	4-10	4-8	4-5
	2-2x6	5-5	5-1	4-9	5-8	5-3	4-11	6-2	5-9	5-5
	2-2x8	6-4	5-11	5-6	6-6	6-1	5-8	7-0	6-6	6-2
	2-2x10	7-6	6-11	6-6	7-7	7-1	6-8	8-1	7-6	7-1
	2-2x12	8-8	8-1	7-7	8-10	8-2	7-8	9-3	8-8	8-1
Roof + Two Stories (No Bearing)	2-2x4	3-9	3-6	3-3	3-11	3-8	3-5	4-3	4-0	3-9
	2-2x6	4-5	4-1	3-10	4-7	4-3	4-0	5-1	4-8	4-5
	2-2x8	5-2	4-10	4-6	5-4	4-11	4-8	5-9	5-4	5-0
	2-2x10	6-1	5-8	5-4	6-3	5-9	5-5	6-7	6-2	5-9
	2-2x12	7-1	6-7	6-2	7-2	6-8	6-3	7-7	7-1	6-7

See notes preceding Table A

TABLE C
HEADER DESIGN CHART
(Hem Fir No. 2, Roof Load = 20LL + 10DL, Floor Load = 40LL + 10DL)
F_b = 1000 E = 1,400,000 F_v = 75

Header Supporting:	Header Size:	Maximum Allowable Header Span (ft-in)								
		Non. Struct. Sheath.			1/2" Insul. Bd. Sheath.*			/2" Plywood Sheath.**		
		House Depth (ft)			House Depth (ft)			House Depth (ft)		
		24	28	32	24	28	32	24	28	32
Roof	2-2x4	4-5	4-2	3-11	4-8	4-5	4-3	5-4	5-1	4-11
	2-2x6	6-2	5-9	5-5	6-7	6-1	5-9	7-4	7-1	6-8
	2-2x8	7-10	7-4	6-11	8-3	7-8	7-3	8-7	8-4	8-0
	2-2x10	9-6	9-2	8-8	9-8	9-4	8-10	10-0	9-8	9-5
	2-2x12	10-11	10-7	10-3	11-1	10-8	10-5	11-5	11-1	10-9
Roof + One Story (Bearing)	2-2x4	4-12	4-9	4-6	5-1	4-10	4-8	5-5	5-2	5-0
	2-2x6	6-3	5-10	5-5	6-6	6-1	5-8	7-0	6-8	6-3
	2-2x8	7-4	6-10	6-4	7-6	7-0	6-7	8-1	7-7	7-1
	2-2x10	8-7	8-0	7-6	8-10	8-2	7-8	9-4	8-8	8-2
	2-2x12	10-0	9-4	8-9	10-2	9-6	8-11	10-5	10-0	9-4
Roof + One Story (No Bearing)	2-2x4	4-5	4-2	3-11	4-7	4-4	4-1	4-10	4-8	4-5
	2-2x6	5-4	4-11	4-7	5-6	5-1	4-9	6-1	5-7	5-3
	2-2x8	6-2	5-9	5-5	6-4	5-11	5-6	6-10	6-5	6-0
	2-2x10	7-3	6-9	6-4	7-5	6-11	6-6	7-11	7-4	6-11
	2-2x12	8-5	7-10	7-4	8-7	8-0	7-6	9-1	8-5	7-11
Roof + Two Stories (Bearing)	2-2x4	4-5	4-2	3-11	4-7	4-4	4-1	4-10	4-8	4-5
	2-2x6	5-4	4-11	4-7	5-6	5-1	4-9	6-1	5-7	5-3
	2-2x8	6-2	5-9	5-5	6-4	5-11	5-6	6-10	6-5	6-0
	2-2x10	7-3	6-9	6-4	7-5	6-11	6-6	7-11	7-4	6-11
	2-2x12	8-5	7-10	7-4	8-7	8-0	7-6	9-1	8-5	7-11
Roof + Two Stories (No Bearing)	2-2x4	3-7	3-4	3-1	3-9	3-6	3-3	4-2	3-10	3-7
	2-2x6	4-3	3-11	3-8	4-5	4-1	3-10	4-10	4-6	4-2
	2-2x8	4-11	4-7	4-3	5-1	4-9	4-5	5-6	5-1	4-9
	2-2x10	5-10	5-5	5-1	5-11	5-6	5-2	6-4	5-10	5-6
	2-2x12	6-9	6-3	5-10	6-10	6-4	6-0	7-3	6-8	6-3

See Notes preceding Table A

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TABLE D
HEADER DESIGN CHART
(Hem Fir No. 2, Roof Load = 30LL + 10DL, Floor Load = 40LL + 10DL)
F_b = 1000 E = 1,400,000 F_v = 75

Header Supporting:	Header Size:	Maximum Allowable Header Span (ft-in)									
		Non. Struct. Sheath.			1/2" Insul. Bd. Sheath.*			1/2" Plywood Sheath.**			
		House Depth (ft)			House Depth (ft)			House Depth (ft)			
		24	28	32	24	28	32	24	28	32	
Roof	2-2x4	3-10	3-7	3-5	4-2	3-11	3-8	4-10	4-7	4-5	
	2-2x6	5-4	5-0	4-9	5-8	5-4	5-0	6-7	6-2	5-9	
	2-2x8	6-10	6-4	6-0	7-1	6-8	6-3	7-10	7-4	6-11	
	2-2x10	8-6	7-11	7-6	8-9	8-2	7-8	9-4	8-9	8-3	
	2-2x12	10-2	9-6	8-11	10-4	9-9	9-2	10-8	10-3	9-9	
Roof + One Story (Bearing)	2-2x4	4-8	4-5	4-3	4-9	4-7	4-5	5-2	4-11	4-8	
	2-2x6	5-9	5-3	5-0	5-11	5-6	5-2	6-6	6-1	5-8	
	2-2x8	6-8	6-3	5-10	6-11	6-5	6-0	7-5	6-11	6-6	
	2-2x10	7-10	7-4	6-11	8-0	7-6	7-0	8-6	7-11	7-6	
	2-2x12	9-2	8-6	8-0	9-4	8-8	8-2	9-9	9-1	8-7	
Roof + One Story (No Bearing)	2-2x4	4-2	3-11	3-8	4-4	4-1	3-10	4-8	4-5	4-3	
	2-2x6	5-0	4-7	4-4	5-2	4-9	4-6	5-8	5-3	4-11	
	2-2x8	5-9	5-5	5-1	6-0	5-7	5-2	6-5	6-0	5-7	
	2-2x10	6-10	6-4	5-11	6-11	6-6	6-1	7-5	6-10	6-5	
	2-2x12	7-11	7-4	6-11	8-1	7-6	7-0	8-6	7-11	7-5	
Roof + Two Stories (Bearing)	2-2x4	4-2	3-11	3-8	4-4	4-1	3-10	4-8	4-5	4-3	
	2-2x6	5-0	4-7	4-4	5-2	4-9	4-6	5-8	5-3	4-11	
	2-2x8	5-9	5-5	5-1	6-0	5-7	5-2	6-5	6-0	5-7	
	2-2x10	6-10	6-4	5-11	6-11	6-6	6-1	7-5	6-10	6-5	
	2-2x12	7-11	7-4	6-11	8-1	7-6	7-0	8-6	7-11	7-5	
Roof + Two Stories (No Bearing)	2-2x4	3-5	3-2	3-0	3-7	3-4	3-1	3-11	3-8	3-5	
	2-2x6	4-1	3-9	3-6	4-2	3-11	3-8	4-7	4-3	4-0	
	2-2x8	4-9	4-5	4-1	4-10	4-6	4-3	5-3	4-10	4-7	
	2-2x10	5-7	5-2	4-10	5-8	5-3	4-11	6-0	5-7	5-3	
	2-2x12	6-5	6-0	5-7	6-7	6-1	5-9	6-11	6-5	6-0	

See Notes preceding Table A

TABLE E
HEADER DESIGN CHART
(Spruce-Pine-Fir No. 2, Roof Load = 20LL + 10DL, Floor Load = 40LL + 10DL)
F_b = 875 E = 1,300,000 F_v = 70

Header Supporting:	Header Size:	Maximum Allowable Header Span (ft-in)									
		Non. Struct. Sheath.			1/2" Insul. Bd. Sheath.*			1/2" Plywood Sheath.**			
		House Depth (ft)			House Depth (ft)			House Depth (ft)			
		24	28	32	24	28	32	24	28	32	
Roof	2-2x4	4-2	3-11	3-8	4-5	4-3	4-0	5-2	5-0	4-9	
	2-2x6	5-10	5-5	5-1	6-2	5-9	5-5	7-1	6-7	6-3	
	2-2x8	7-4	6-10	6-6	7-8	7-2	6-9	8-6	7-11	7-6	
	2-2x10	9-2	8-7	8-1	9-5	8-9	8-3	9-10	9-6	8-11	
	2-2x12	10-9	10-3	9-8	10-10	10-6	9-11	11-3	10-10	10-6	
Roof + One Story (Bearing)	2-2x4	4-10	4-7	4-4	5-0	4-9	4-6	5-4	5-1	4-10	
	2-2x6	5-10	5-6	5-2	6-1	5-8	5-4	6-8	6-3	5-10	
	2-2x0	6-10	6-4	6-0	7-1	6-7	6-2	7-7	7-1	6-8	
	2-2x10	8-1	7-6	7-1	8-3	7-8	7-2	8-9	8-2	7-8	
	2-2x12	9-4	8-8	8-2	9-6	8-10	8-4	10-0	9-4	8-9	
Roof + One Story (No Bearing)	2-2x4	4-3	3-11	3-8	4-5	4-1	3-10	4-9	4-6	4-3	
	2-2x6	5-0	4-7	4-4	5-2	4-9	4-5	5-8	5-3	4-11	
	2-2x8	5-9	5-4	5-0	6-0	5-6	5-2	6-5	6-0	5-7	
	2-2x10	6-10	6-4	5-11	6-11	6-5	6-1	7-5	6-10	6-5	
	2-2x12	7-11	7-4	6-11	8-1	7-6	7-0	8-6	7-11	7-5	
Roof + Two Stories (Bearing)	2-2x4	4-3	3-11	3-8	4-5	4-1	3-10	4-9	4-6	4-3	
	2-2x6	5-0	4-7	4-4	5-2	4-9	4-5	5-8	5-3	4-11	
	2-2x8	5-9	5-4	5-0	6-0	5-6	5-2	6-5	6-0	5-7	
	2-2x10	6-10	6-4	5-11	6-11	6-5	6-1	7-5	6-10	6-5	
	2-2x12	7-11	7-4	6-11	8-1	7-6	7-0	8-6	7-11	7-5	
Roof + Two Stories (No Bearing)	2-2x4	3-4	3-1	2-11	3-6	3-3	3-0	3-10	3-7	3-4	
	2-2x6	4-0	3-8	3-5	4-1	3-10	3-7	4-6	4-2	3-11	
	2-2x8	4-7	4-3	4-0	4-9	4-5	4-2	5-1	4-9	4-5	
	2-2x10	5-5	5-1	4-9	5-7	5-2	4-10	5-11	5-6	5-2	
	2-2x12	6-4	5-10	5-6	6-5	6-0	5-7	6-9	6-3	5-11	

See Notes preceding Table A

DATE REVISED ITEMS CHANGED

TABLE F
HEADER DESIGN CHART
(Spruce-Pine-Fir No. 2, Roof Load = 30LL + 10DL, Floor Load = 40LL + 10DL)
F_b = 875 E = 1,300,000 F_v = 70

Header Supporting:	Header Size:	Maximum Allowable Header Span (ft-in)								
		Non. Struct. Sheath.			1/2" Insul. Bd. Sheath.*			1/2" Plywood Sheath.**		
		House Depth (ft)			House Depth (ft)			House Depth (ft)		
		24	28	32	24	28	32	24	28	32
Roof	2-2x4	3-7	3-4	3-2	3-11	3-8	3-5	4-10	4-6	4-3
	2-2x6	5-0	4-8	4-5	5-4	5-0	4-8	6-2	5-9	5-5
	2-2x8	6-5	5-11	5-7	6-8	6-3	5-11	7-4	6-11	6-6
	2-2x10	8-0	7-5	7-0	8-2	7-7	7-2	8-10	8-3	7-9
	2-2x12	9-6	8-11	8-5	9-9	9-1	8-7	10-5	9-8	9-2
Roof + One Story (Bearing)	2-2x4	4-7	4-3	4-0	4-8	4-5	4-2	5-0	4-9	4-7
	2-2x6	5-4	5-0	4-8	5-6	5-2	4-10	6-1	5-8	5-4
	2-2x8	6-3	5-10	5-6	6-5	6-0	5-8	6-11	6-5	6-1
	2-2x10	7-4	6-10	6-5	7-6	7-0	6-7	8-0	7-5	7-0
	2-2x12	8-6	7-11	7-6	8-8	8-1	7-7	9-2	8-6	8-0
Roof + One Story (No Bearing)	2-2x4	3-11	3-8	3-5	4-1	3-10	3-7	4-6	4-3	3-11
	2-2x6	4-8	4-4	4-1	4-10	4-6	4-2	5-3	4-11	4-7
	2-2x8	5-5	5-0	4-9	5-7	5-2	4-10	6-0	5-7	5-3
	2-2x10	6-5	5-11	5-7	6-6	6-1	5-8	6-11	6-5	6-0
	2-2x12	7-5	6-10	6-5	7-6	7-0	6-7	7-11	7-4	6-11
Roof + Two Stories (Bearing)	2-2x4	3-11	3-8	3-5	4-1	3-10	3-7	4-6	4-3	3-11
	2-2x6	4-8	4-4	4-1	4-10	4-6	4-2	5-3	4-11	4-7
	2-2x8	5-5	5-0	4-9	5-7	5-2	4-10	6-0	5-7	5-3
	2-2x10	6-5	5-11	5-7	6-6	6-1	5-8	6-11	6-5	6-0
	2-2x12	7-5	6-10	6-5	7-6	7-0	6-7	7-11	7-4	6-11
Roof + Two Stories (No Bearing)	2-2x4	3-3	3-0	2-10	3-4	3-1	2-11	3-8	3-5	3-3
	2-2x6	3-10	3-6	3-4	3-11	3-8	3-5	4-4	4-0	3-9
	2-2x8	4-5	4-1	3-10	4-6	4-3	4-0	4-11	4-6	4-3
	2-2x10	5-2	4-10	4-6	5-4	4-11	4-7	5-8	5-3	4-11
	2-2x12	6-0	5-7	5-3	6-2	5-9	5-4	6-6	6-0	5-8





See Notes preceding Table A

TABLE G
HEADER DESIGN CHART
(Douglas Fir-Larch, Southern Pine No. 2, Roof Load = 40LL + 10DL, Floor Load = 40LL + 10DL)
F_b = 1200 E = 1,600,000 F_v = 90

Header Supporting:	Header Size:	Maximum Allowable Header Span (ft-in)								
		Non. Struct. Sheath.			1/2" Insul. Bd. Sheath.*			1/2" Plywood Sheath.**		
		House Depth (ft)			House Depth (ft)			House Depth (ft)		
		24	28	32	24	28	32	24	28	32
Roof	2-2x4	3-9	3-6	3-4	4-1	3-10	3-7	4-8	4-6	4-4
	2-2x6	5-3	4-11	4-7	5-7	5-3	4-11	6-5	6-0	5-8
	2-2x8	6-8	6-3	5-10	6-11	6-6	6-1	7-9	7-2	6-9
	2-2x10	8-4	7-9	7-4	8-7	8-0	7-6	9-2	8-8	8-1
	2-2x12	10-0	9-4	8-9	10-1	9-7	9-0	10-5	10-1	9-7
Roof + One Story ((Bearing)	2-2x4	4-8	4-5	4-3	4-9	4-6	4-4	5-1	4-10	4-8
	2-2x6	5-10	5-5	5-1	6-0	5-7	5-3	6-7	6-2	5-10
	2-2x8	6-9	6-4	5-11	7-0	6-6	6-1	7-6	7-0	6-7
	2-2x10	8-0	7-5	7-0	8-2	7-7	7-2	8-8	8-1	7-7
	2-2x12	9-3	8-7	8-1	9-5	8-9	8-3	9-11	9-3	8-8
Roof + One Story (No Bearing)	2-2x4	4-3	4-0	3-9	4-4	4-2	3-11	4-8	4-5	4-3
	2-2x6	5-2	4-9	4-6	5-4	4-11	4-8	5-10	5-5	5-1
	2-2x8	6-0	5-7	5-3	6-2	5-9	5-4	6-8	6-2	5-9
	2-2x10	7-0	6-6	6-2	7-2	6-8	6-3	7-8	7-1	6-8
	2-2x12	8-2	7-7	7-1	8-4	7-9	7-3	8-9	8-2	7-8
Roof + Two Stories (Bearing)	2-2x4	4-3	4-0	3-9	4-4	4-2	3-11	4-8	4-5	4-3
	2-2x6	5-2	4-9	4-6	5-4	4-11	4-8	5-10	5-5	5-1
	2-2x8	6-0	5-7	5-3	6-2	5-9	5-4	6-8	6-2	5-9
	2-2x10	7-0	6-6	6-2	7-2	6-8	6-3	7-8	7-1	6-8
	2-2x12	8-2	7-7	7-1	8-4	7-9	7-3	8-9	8-2	7-8
Roof + Two Stories (No Bearing)	2-2x4	3-7	3-4	3-2	3-9	3-6	3-3	4-2	3-10	3-7
	2-2x6	4-3	4-0	3-9	4-5	4-1	3-10	4-10	4-6	4-3
	2-2x8	5-0	4-7	4-4	5-1	4-9	4-5	5-6	5-1	4-10
	2-2x10	5-10	5-5	5-1	6-0	5-7	5-2	6-4	5-11	5-6
	2-2x12	6-9	6-4	5-11	6-11	6-5	6-0	7-4	6-9	6-4





See Notes preceding Table A

DATE REVISED ITEMS CHANGED

TABLE H
HEADER DESIGN CHART
(Hem Fir No. 2, Roof Load = 40LL + 10DL, Floor Load = 40LL + 10DL)
F_b = 1000 E = 1,400,000 F_v = 75

Header Supporting:	Header Size:	Maximum Allowable Header Span (ft-in)								
		Non. Struct. Sheath.			1/2" Insul. Bd. Sheath.*			1/2" Plywood Sheath.**		
		House Depth (ft)			House Depth (ft)			House Depth (ft)		
		24	28	32	24	28	32	24	28	32
Roof	2-2x4	3-5	3-3	3-0	3-9	3-6	3-4	4-6	4-3	4-0
	2-2x6	4-10	4-6	4-3	5-1	4-9	4-6	5-11	5-6	5-2
	2-2x8	6-1	5-8	5-4	6-4	5-11	5-7	7-0	6-7	6-2
	2-2x10	7-7	7-1	6-8	7-10	7-4	6-10	8-5	7-11	7-5
	2-2x12	9-1	8-6	8-0	9-4	8-9	8-2	9-11	9-3	8-9
Roof + One Story (Bearing)	2-2x4	4-5	4-2	3-11	4-7	4-4	4-1	4-10	4-8	4-5
	2-2x6	5-4	4-11	4-8	5-6	5-1	4-10	6-1	5-8	5-3
	2-2x8	6-2	5-9	5-5	6-4	5-11	5-7	6-10	6-5	6-0
	2-2x10	7-3	6-9	6-4	7-5	6-11	6-6	7-11	7-4	6-11
	2-2x12	8-5	7-10	7-5	8-7	8-0	7-6	9-1	8-5	7-11
Roof + One Story (No Bearing)	2-2x4	4-0	3-8	3-5	4-1	3-10	3-7	4-6	4-3	4-0
	2-2x6	4-8	4-4	4-1	4-10	4-6	4-3	5-4	4-11	4-8
	2-2x8	5-5	5-1	4-9	5-7	5-3	4-11	6-1	5-8	5-3
	2-2x10	6-5	6-0	5-7	6-7	6-1	5-9	7-0	6-6	6-1
	2-2x12	7-5	6-11	6-6	7-7	7-1	6-7	8-0	7-5	7-0
Roof + Two Stories (Bearing)	2-2x4	4-0	3-8	3-5	4-1	3-10	3-7	4-6	4-3	4-0
	2-2x6	4-0	4-4	4-1	4-10	4-6	4-3	5-4	4-11	4-8
	2-2x8	5-5	5-1	4-9	5-7	5-3	4-11	6-1	5-8	5-3
	2-2x10	6-5	6-0	5-7	6-7	6-1	5-9	7-0	6-6	6-1
	2-2x12	7-5	6-11	6-6	7-7	7-1	6-7	8-0	7-5	7-0
Roof + Two Stories (No Bearing)	2-2x4	3-4	3-1	2-10	3-5	3-2	3-0	3-10	3-6	3-4
	2-2x6	3-11	3-7	3-5	4-0	3-9	3-6	4-5	4-1	3-10
	2-2x8	4-6	4-3	3-11	4-8	4-4	4-1	5-0	4-8	4-5
	2-2x10	5-4	4-11	4-8	5-6	5-1	4-9	5-10	5-5	5-1
	2-2x12	6-2	5-9	5-5	6-4	5-10	5-6	6-8	6-2	5-10

See Notes preceding Table A

TABLE I MAXIMUM ALLOWABLE HEADER SPAN (ft-in)
Design Procedure: Single Top Plate Construction: Interior Bearing Walls

Species, Grade Properties	Header Supporting	Header Size	Non. Struct. Sheath. House Depth (ft)			1/2" Insul. Bd. Sheath.* House Depth (ft)			1/2" Plywood Sheath.** House Depth (ft)		
			24	28	32	24	28	32	24	28	32
Douglas Fir Larch Southern Pine No. 2 E = 1,600,000 F_b = 1200 F_v = 90	One Story Bearing	2-2x4	3-5	3-2	3-0	3-10	3-7	3-4	4-7	4-4	4-2
		2-2x6	5-1	4-8	4-5	5-5	5-0	4-8	6-4	5-10	5-6
		2-2x8	6-7	6-1	5-8	6-10	6-4	5-11	7-8	7-1	6-7
		2-2x10	8-3	7-8	7-2	8-6	7-11	7-4	9-1	8-6	8-0
		2-2x12	10-0	9-3	8-8	10-1	9-6	8-10	10-5	10-0	9-5
	Two Story Bearing	2-2x4	2-7	2-4	2-3	2-10	2-8	2-6	3-7	3-4	3-1
		2-2x6	3-9	3-6	3-3	4-0	3-9	3-6	4-8	4-4	4-1
		2-2x8	4-10	4-6	4-2	5-1	4-8	4-5	5-8	5-3	4-11
		2-2x10	6-1	5-8	5-4	6-4	5-10	5-6	6-10	6-4	5-11
		2-2x12	7-5	6-10	6-5	7-7	7-0	6-7	8-1	7-6	7-0
Hem Fir No. 2 E = 1,400,000 F_b = 1000 F_v = 75	One Story Bearing	2-2x4	3-2	2-11	2-9	3-6	3-3	3-0	4-4	4-1	3-10
		2-2x6	4-8	4-3	4-0	4-11	4-7	4-3	5-9	5-4	5-0
		2-2x8	6-0	5-6	5-2	6-3	5-9	5-5	7-0	6-5	6-0
		2-2x10	7-6	7-0	6-6	7-9	7-2	6-9	8-5	7-9	7-3
		2-2x12	9-1	8-5	7-11	9-4	8-8	8-1	10-0	9-3	8-7
	Two Story Bearing	2-2x4	2-4	2-2	2-0	2-7	2-5	2-3	3-3	2-11	2-8
		2-2x6	3-5	3-2	3-0	3-8	3-5	3-2	4-3	4-0	3-9
		2-2x8	4-5	4-1	3-10	4-8	4-3	4-0	5-2	4-9	4-6
		2-2x10	5-7	5-2	4-10	5-9	5-4	5-0	6-3	5-9	5-5
		2-2x12	6-9	6-3	5-10	6-11	6-5	6-0	7-5	6-10	6-5
Spruce-Pine-Fir No. 2 E = 1,300,000 F_b = 875 F_v = 70	One Story Bearing	2-2x4	2-11	2-9	2-7	3-3	3-0	2-10	4-1	3-10	3-7
		2-2x6	4-4	4-0	3-9	4-8	4-3	4-0	5-5	5-0	4-8
		2-2x8	5-7	5-2	4-10	5-10	5-5	5-1	6-6	6-0	5-8
		2-2x10	7-1	6-6	6-1	7-3	6-9	6-3	7-10	7-3	6-10
		2-2x12	8-6	7-11	7-5	8-9	8-1	7-7	9-4	8-7	8-1
	Two Story Bearing	2-2x4	2-2	2-0	1-11	2-5	2-3	2-1	3-1	2-10	2-6
		2-2x6	3-3	3-0	2-9	3-5	3-2	3-0	4-0	3-9	3-6
		2-2x8	4-2	3-10	3-7	4-4	4-0	3-9	4-10	4-6	4-2
		2-2x10	5-3	4-10	4-6	5-5	5-0	4-8	5-10	5-5	5-1
		2-2x12	6-4	5-10	5-6	6-6	6-0	5-7	6-11	6-5	6-0

See Notes preceding Table A

DATE REVISED ITEMS CHANGED

TABLE J MAXIMUM ALLOWABLE HEADER SPAN (ft-in)
Design Procedure: Double Top Plate Construction: Interior Bearing Walls

Species, Grade Properties	Header Supporting	Header Size	Non. Struct. Sheath. House Depth (ft)			1/2" Insul. Bd. Sheath.* House Depth (ft)			1/2" Plywood Sheath.** House Depth (ft)		
			24	28	32	24	28	32	24	28	32
Douglas Fir Larch Southern Pine No. 2 E = 1,600,000 F_b = 1200 F_v = 90	One Story Bearing	2-2x4	3-10	3-6	3-4	4-2	3-10	3-7	4-9	4-6	4-4
		2-2x6	5-4	4-11	4-7	5-8	5-3	4-11	6-6	6-1	5-8
		2-2x8	6-9	6-3	5-10	7-0	6-6	6-1	7-10	7-3	6-9
		2-2x10	8-5	7-9	7-3	8-8	8-0	7-6	9-2	8-8	8-1
		2-2x12	10-0	9-4	8-9	10-2	9-7	9-0	10-6	10-1	9-7
	Two Story Bearing	2-2x4	2-10	2-7	2-5	3-1	2-10	2-8	3-9	3-6	3-3
		2-2x6	3-11	3-8	3-5	4-2	3-11	3-8	4-10	4-6	4-2
		2-2x8	5-0	4-8	4-4	5-2	4-10	4-6	5-9	5-4	5-0
		2-2x10	6-3	5-9	5-5	6-5	5-11	5-7	6-11	6-5	6-0
		2-2x12	7-6	6-11	6-6	7-8	7-1	6-8	8-2	7-7	7-1
Hem Fir No. 2 E = 1,400,000 F_b = 1000 F_v = 75	One Story Bearing	2-2x4	3-6	3-3	3-0	3-10	3-6	3-4	4-6	4-3	4-0
		2-2x6	4-10	4-6	4-2	5-2	4-9	4-6	6-0	5-6	5-2
		2-2x8	6-2	5-8	5-4	6-5	5-11	5-7	7-1	6-7	6-2
		2-2x10	7-8	7-1	6-8	7-11	7-4	6-10	8-6	7-11	7-5
		2-2x12	9-3	8-7	8-0	9-5	8-9	8-2	10-1	9-4	8-9
	Two Story Bearing	2-2x4	2-7	2-5	2-3	2-10	2-7	2-5	3-5	3-2	3-0
		2-2x6	3-7	3-4	3-1	3-10	3-6	3-4	4-5	4-1	3-10
		2-2x8	4-7	4-3	3-11	4-9	4-5	4-1	5-3	4-11	4-7
		2-2x10	5-8	5-3	4-11	5-10	5-5	5-1	6-4	5-10	5-6
		2-2x12	6-10	6-4	5-11	7-0	6-6	6-1	7-6	6-11	6-6
Spruce-Pine-Fir No. 2 E = 1,300,000 F_b = 875 F_v = 70	One Story Bearing	2-2x4	3-3	3-0	2-10	3-7	3-4	3-1	4-4	4-0	3-9
		2-2x6	4-7	4-2	3-11	4-10	4-6	4-2	5-7	5-2	4-10
		2-2x8	5-9	5-4	5-0	6-0	5-7	5-2	6-8	6-2	5-9
		2-2x10	7-2	6-8	6-3	7-5	6-10	6-5	8-0	7-5	6-11
		2-2x12	8-8	8-0	7-6	8-10	8-2	7-8	9-5	8-9	8-2
	Two Story Bearing	2-2x4	2-5	2-3	2-1	2-8	2-5	2-3	3-3	3-0	2-9
		2-2x6	3-4	3-1	2-11	3-7	3-4	3-1	4-2	3-10	3-7
		2-2x8	4-3	3-11	3-8	4-5	4-1	3-10	4-11	4-7	4-3
		2-2x10	5-4	4-11	4-7	5-6	5-1	4-9	5-11	5-6	5-2
		2-2x12	6-5	5-11	5-7	6-7	6-1	5-8	7-0	6-6	6-1

See Notes preceding Table A

9-15-87 In Section 21(7), delete the words "up with slate chips or brick and thoroughly bedded in cement mortar".

6-10-86 Revise Section 21(8)(b) by adding the word "structural" between the words approved and sheathing in the first line.

DATE REVISED	ITEMS CHANGED
3-11-86	Revise Section 21(10) to read as follows: Except when plywood structural use panels, diagonal sheathing, or approved structural insulation board is used, all external corners shall have diagonal 1" x 4" braces or metal compression/tension braces, minimum 20 gauge steel, let into the top and bottom plates and the face of the studs at approximately 45 degrees and whenever possible, shall extend from bottom plate to top plate. Braces shall be securely nailed to each stud, and to top and bottom plate. Metal braces shall be installed in compliance with the manufacturer's installation instructions but shall have a minimum of two 16D nails at each plate and sill and a minimum of two 8D nails at each stud. Where openings occur near the corner, 1 x 4 inch knee braces shall be installed above and below any openings at approximately 45 degrees extending across not less than three (3) stud spaces and shall be let into the face of the studs. Where openings occur near a corner, metal braces, if used, shall be placed on the side adjacent to the "opening and installed in the same manner described above. If flat metal tension braces area used, they shall be minimum 16 gauge and shall be installed in an "X" bracing fashion. Installation and anchoring shall be the same as required for compression/tension braces.
3-10-87 6-14-88	Add new subsection 21 to Section 21 as follows: (21) When the exterior wall is less than five feet from the property line or less than ten feet between dwellings, this exterior wall shall be one (1) hour rated. Wall openings in this wall are limited to twenty percent (20%) of the wall's area.
12-12-89	In heading of Section 23, add the words: (open construction).

DATE REVISED ITEMS CHANGED

3-13-90 Section 24(2) - Revise to read as follows:
The greatest riser height within any flight of stairs shall not exceed the smallest by more than 3/8 ". The top and bottom riser of interior stairs shall not exceed the smallest riser within that stair run by more than 3/4". The height of the top and bottom riser of interior stairs shall be measured from permanent finished surface to permanent finished surface (carpet excluded.) Where the bottom riser of an exterior stair adjoins an exterior walk, porch, driveway, patio, garage floor or finish grade, the height of the riser may be less than the height of the adjacent risers.

6-13-89 Add the following to Section 24(2):
There shall be no variation exceeding 3/16 inch in depth of adjacent treads or in the height of adjacent risers and the tolerance between the largest and smallest riser or between the largest and smallest tread shall not exceed 3/8 inch in any flight. Exception: Where the bottom riser adjoins a sloping public way, walk or driveway having an established grade and serving as a landing, a variation in lesser height of the bottom riser is permitted to facilitate proper drainage.

9-13-88 Delete paragraphs (a) and (b) and substitute the following to Section 24(4).

(a) Winders shall be permitted as exit stair when they meet the general stair requirements as well as the additional: Winder treads to be a minimum depth of 4 inches and a minimum depth of 9 inches at a point 12 inches from the narrowest edge. (See Figure 1)

(b) Spiral stairs may be used as a means of egress when they meet all the following requirements:

(1) Tread depth is a minimum of 7 1/2 inches at a point 12 inches from the narrow edge.

(2) The risers must be sufficient to provide a clear headroom of 6 feet 6 inches minimum but risers height shall not be more than 9 1/2 inches.

(3) The minimum stair width is 26" clear of handrails. (See Figure 2.)

(4) All treads shall be identical.

DATE REVISED ITEMS CHANGED

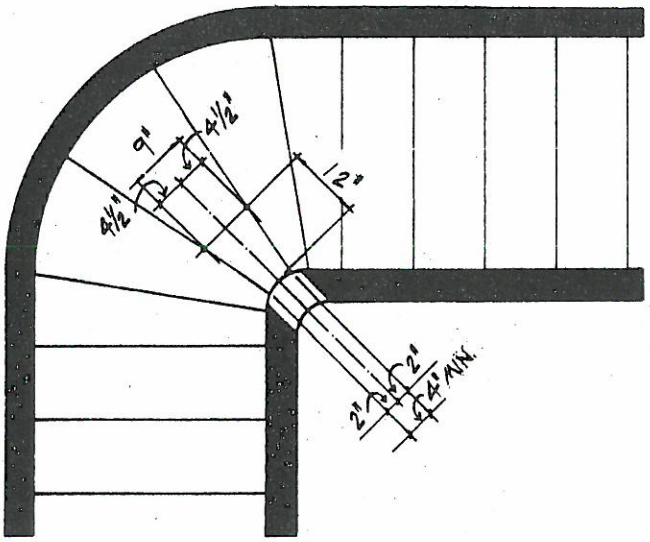


FIGURE 1

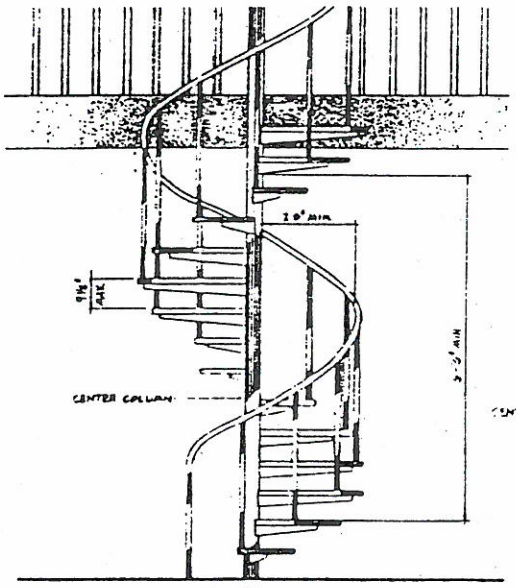
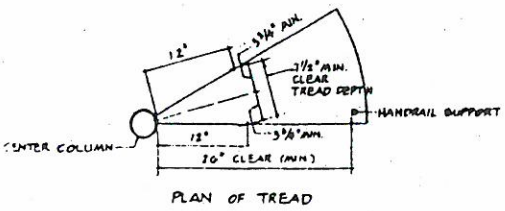


FIGURE 2



PLAN OF TREAD

3-10-87 Add the following new paragraph (c) to Section 24(4):

(c) Alternating tread stairways may be used within an individual family dwelling unit if the stairway is not a required exitway and as a stairway for an open mezzanine having a maximum area of 250 square feet and a maximum occupant capacity of 5. The minimum projected tread exclusive of nosing shall be 8 1/2 inches within a minimum total tread depth of 10 1/2 inches. The rise to the next alternating tread surface shall be a maximum of 8 inches. Distance between handrails shall be a minimum of 17 inches and maximum of 24 inches. A minimum distance of 6 inches shall be provided between the stair handrail and any other object. A minimum of 12 inches shall be provided between the stair handrails of adjacent alternating tread stairways.

DATE REVISED ITEMS CHANGED

3-13-90 Section 24(8) - Delete first sentence.

3-13-90 Section 24(10) - Add the following as new Section 24(10): Every porch, deck, terrace, raised porch surface or entrance platform with a height above finished grade or surface of 2'-6" to 6'-0" shall have guardrails with intermediate rails or ornamental patterns such that a maximum 18" sphere cannot pass through any openings. When the porch, deck, terrace, raised porch surface or entrance platform is at a height greater than 6'-0" above finished or surface, the guardrails shall have intermediate rails or ornamental patterns such that a 6" sphere cannot pass through any opening. The height of the guardrail shall be a minimum of 36".

3-13-90 Renumber existing 24(10) and 24(11) to 24(11) and 24(12) respectively.

3-15-88 Replace Subsection 24(11) (Effective June 1, 1988)

1. A deck is an exposed exterior wood floor structure which may be attached to the structure or freestanding.
2. Support posts shall be attached to a footing or embedded in the ground to a depth of 20% of the post length or a minimum of 2'-0". The footing width shall be a minimum

9-13-88 of four (4) times the maximum cross sectional dimension of the post with a minimum thickness of 6" for precast concrete or 8" for cast-in-place concrete.

3. Lumber in contact with the ground, concrete or masonry shall be pressure treated in accordance with AWPA Standard C-15. All remaining deck lumber shall be pressure treated in accordance with AWPA Standard C-2 or a standard giving equal protection. The building official may also approve a natural decay resistant wood per Section 19-6(a).
4. When attached to a structure, the structure to which attached shall have a treated wood band for the length of the deck, or metal flashing shall be used to prevent moisture from coming in contact with the untreated framing of the structure. The deck band and the structure band shall be constructed in contact with each other except on brick veneer structures and where plywood sheathing is required and properly flashed. Siding shall not be installed between the structure and the deck band. If attached to a brick veneer structure, neither flashing nor a treated band for the brick structure is required. In addition, the treated deck

band shall be constructed in contact with the brick veneer.

5. When the deck is supported at the structure by attaching the deck to the structure, the following attachment schedules shall apply for attaching the deck band to the structure:

A. All Structures Except Brick Veneer Structures:

Fasteners	8' Max Joist Span	12' Max Joist Span	16' Max Joist Span
5/8" Hot Dipped Galv. Bolts with Washers *	1 @ 42" o.c.	1 @ 20" o.c.	1 @ 20" o.c.
or	or	or	or
3/4" Hot Dipped Galv. Bolts with Washers *	1 @ 48" o.c.	1 @ 24" o.c.	1 @ 24" o.c.
and	and	and	and
12d Common Hot ** Dipped Galv. Nails	2 @ 8" o.c.	3 @ 8" o.c.	3 @ 6" o.c.

*Minimum edge distance for bolts is 3 inches.

**Nails must penetrate the supporting structure band a minimum of 1-1/2".

B. Brick Veneer Structures:

Fasteners	8' Max Joist Span	12' Max Joist Span	16' Max Joist Span
5/8" Hot Dipped Galv. Bolts *	1 @ 2'-0 o.c.	1 @ 2'-0" o.c.	1 @ 1'-4" o.c.
or	or	or	or
3/4" Hot Dipped Galv. Bolts *	1 @ 3'-4" o.c.	1 @ 2'-0" o.c.	1 @ 1'-4" o.c.

*Minimum edge distance for the bolts is 3 inches.

6. Decks shall be designed for a live load of 40 psf with a load duration factor of 1.0. For girder sizes and spans, refer to subsection 20(4). However, girders shall be a minimum of 2 @ 2x10's if the 2x10's are bolted to the side of the post and not fully bearing on the post. Girders shall bear directly on the posts and be attached to the posts using 1x4 wood side plates, 1/8" metal side plates, steel angles or a manufactured post cap.

3-13-90

Alternately, the posts may be notched a minimum of 1" on both sides of the post with the girder components bearing on the notches and bolted to the post with 2 @ 3/4" hot dipped galvanized bolts. Floor joists shall be sized in accordance with "Wood Structural Design Data" or the "National Design Specification" as published by N.Fo.P.A.

7. Floor decking shall be No. 2 grade treated Southern Pine or equivalent. The minimum floor decking thickness shall be as follows:

Joist Spacing	Decking
12 " o.c.	1" S4S (Nominal)
16" o.c. or 16" o.c.	1" T & G (Nominal) or 1 1/4" S4S (Nominal)
24" o.c.	2" S4S (Nominal)

8. Maximum Height of Deck Support Posts*

9-13-88

Post Size	Max. Tributary Area	Max. Post Height**
4 x 4	70 SF	8'-0"
4 x 6	160 SF	8'-0"
6 x 6	160 SF	14'-0"
8 x 8	285 SF	20'-0"***

*This table is based on No. 2 treated Southern Pine posts.
**From top of footing to bottom of girder
***Decks with post heights over 20'-0" shall be designed and sealed by a Professional Engineer or Architect.

9. Decks shall be braced to provide lateral stability by one of the following methods:

a. When the deck floor height is less than 4'-0" and the deck is attached to the structure in accordance with Section 24(11)(5) above, lateral bracing is not required. When the band and floor joists of the structure are parallel, full depth blocking or 1x4 diagonal bridging shall be provided at 2'-0" o.c. for a minimum of one joist space on the structure.

b. 2x6 diagonal vertical cross bracing may be provided in two perpendicular directions for freestanding decks or parallel to the structure at the exterior column line for attached decks. The 2x6's shall be attached to the posts with one
6-14-88 5/8" hot dipped galvanized bolt at each end of each bracing member.

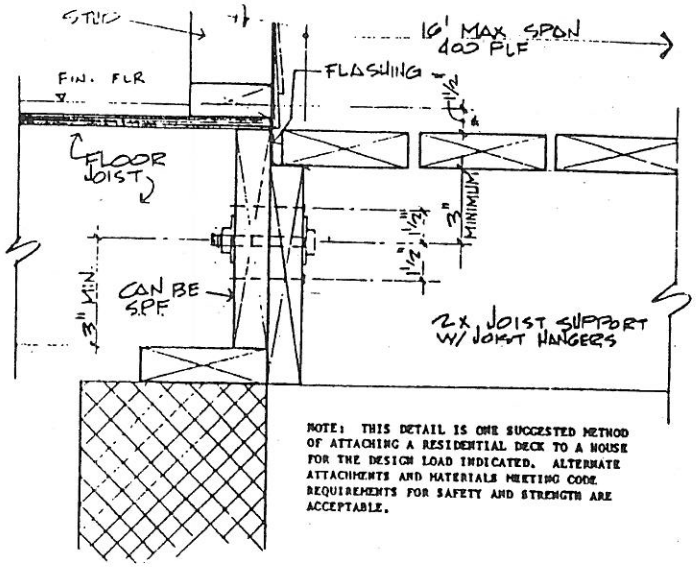
c. 4x4 wood knee braces may be provided on each column in both directions. The knee braces shall attach to each post at a point not less than 1/3 of the post length from the top of the post, and the braces shall be angled between 45 and 60 from the horizontal. Attach each brace to the post and the
6-14-88 girder with a minimum of one 5/8" hot dipped galvanized bolt at each end of the brace. Minimum post size for this type of construction is a 6x6.

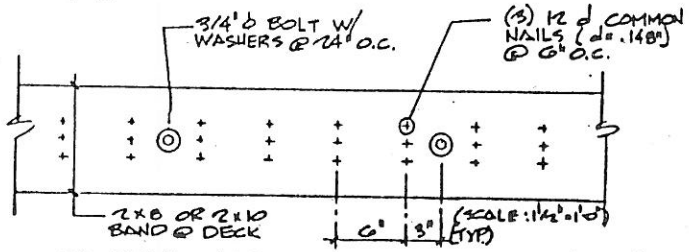
d. Posts may be embedded in 2500 psi concrete for stability with the following limitations:

Nom. Post Size	Max Tributary Area	Max Post Height	Embedment Depth	Total Post Length	Concrete Diameter
4x4	48SF	4'-0"	2'-6"	6'-6"	1'-0"
6x6	120SF	6'-0"	3'-6"	9'-6"	1'-8"
6x6	80SF	8'-0"	3'-6"	11'-6"	1'-8"
8x8	192SF	10'-0"	4'-6"	14'-6"	2'-0"
8x8	192SF	10'-0"	6'-6"	16'-6"	w/o concr.
8x8	140SF	12'-0"	4'-0"	16'-0"	2'-0"
8x8	140SF	12'-0"	6'-0"	18'-0"	w/o concr.

6-12-90 e. Porches or decks in ocean hazards and coastal high hazards shall be supported on piles per 39(3). Within the 120 mph wind zone if porches or decks are supported on piles, the pile installation shall be in accordance with Section 39(3).

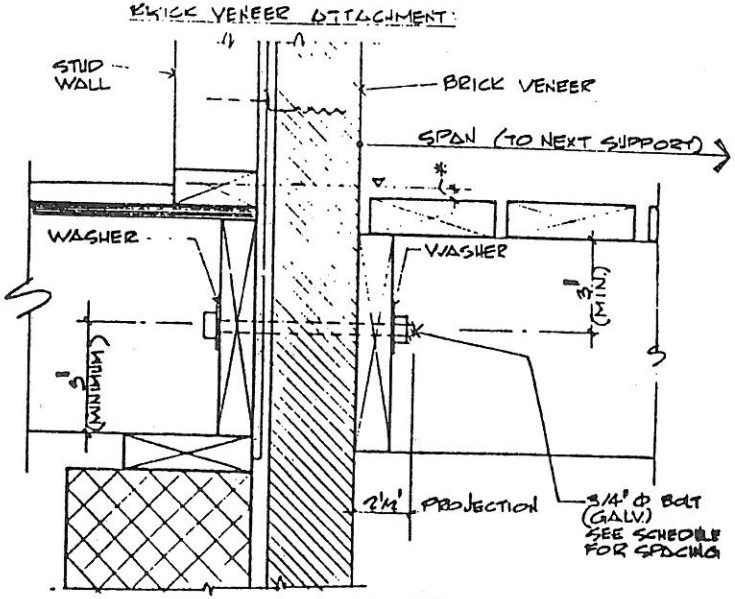
10. Variations in deck design may be approved by the Local Building Official when designed and sealed by a Professional Engineer or Architect.





(2) 5-1 DECK SUPPORT DETAIL @ HOUSE (10' SPAN)
3"=1'-0" * MINIMUM 3" IN COASTAL REGIONS

BRICK VENEER ATTACHMENT



BOLT SPACING SCHEDULE*

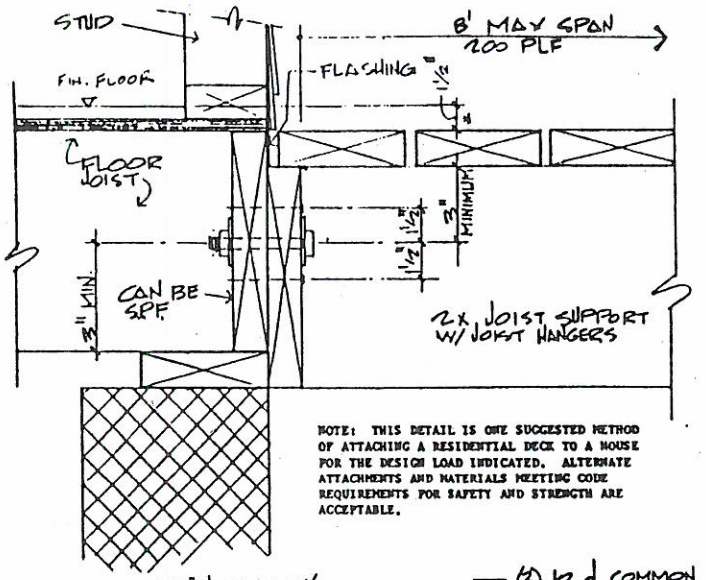
SPAN	BOLT SPACING
8 FT	3'-4" O.C.
12 FT	2'-0" O.C.
16 FT	1'-4" O.C.

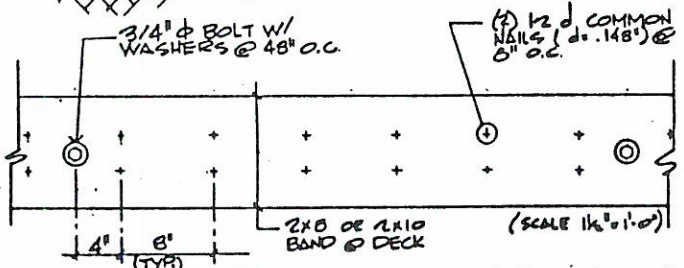
* ASSUMES THAT BRICK VENEER SUPPORTS BOLTS IN BEARING

(1) 5-1 DECK SUPPORT DETAIL @ BRICK VENEER
3"=1'-0"

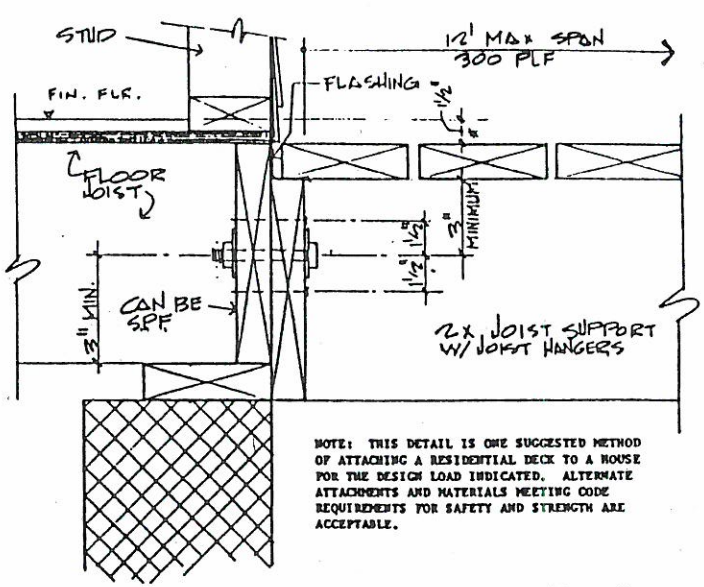
* 1½" MINIMUM, 3" MINIMUM IN COASTAL REGIONS

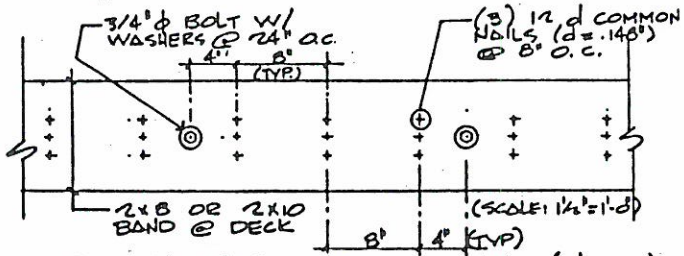
DATE REVISED ITEMS CHANGED





4/5-1 DECK SUPPORT DETAIL @ HOUSE (8' SPAN)
3/4"=1'-0" * MINIMUM 3" IN COASTAL REGIONS



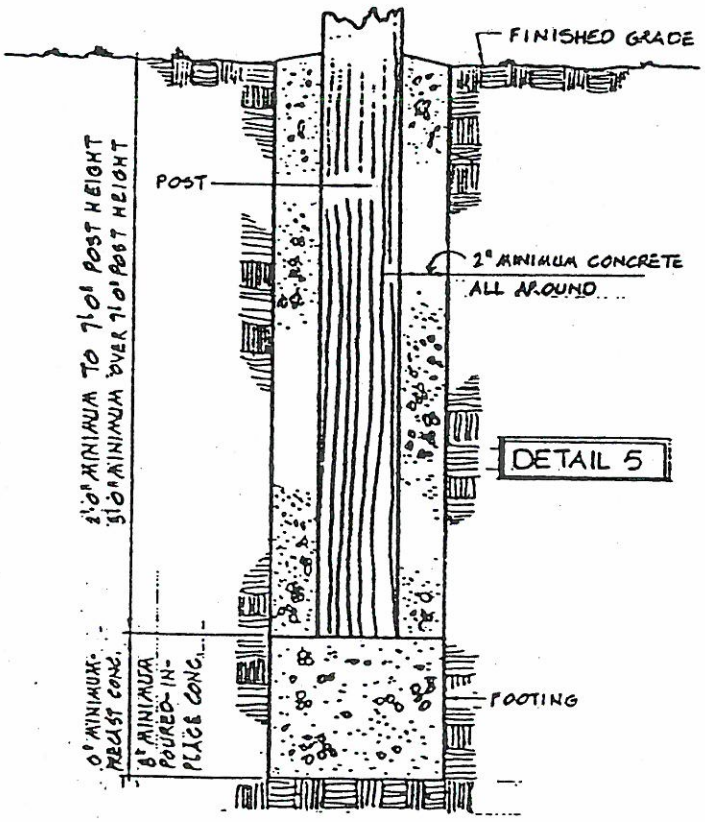


3/5-1 DECK SUPPORT DETAIL @ HOUSE (12' SPAN)
3/4"=1'-0" * MINIMUM 3" IN COASTAL REGIONS

DATE REVISED ITEMS CHANGED

DATE REVISED ITEMS CHANGED

3-13-90 Add the following sketch as an acceptable post footing as an alternate to Section 24(11)(2):



12-12-89 In Section 25(8) change "6 square feet" to "9 square feet".

12-12-89 Delete Section 25(10) - Access to Equipment.

3-11-86 Revise first sentence of Section 27(2) to read as follows: All metals other than copper, lead, zinc, stainless steel galvanized and aluminum shall be painted both sides before installation.

12-12-89 Delete Section 27(3)(a) - Gutters and Downspouts.

DATE REVISED ITEMS CHANGED

12-12-89 Delete Section 27(6) - Gutters and Downspouts.

9-15-87 In Section 27(6), delete third sentence and revise second sentence to read as follows:
Solid wood gutters will be acceptable if the inside surface is protected by a product approved for such application.

12-12-89 Replace Sections 28, 29 and 30 with the following:

SECTION 28: LATHING, PLASTERING AND GYPSUM CONSTRUCTION

28(1) GENERAL

Lathing, plastering and gypsum construction shall be done in the manner and with materials specified in this section. The Building Official may require that test holes be made in the wall for the purpose of determining the thickness and proportioning of the plaster, provided that the permit holder has been notified 24 hours in advance of the time of making such tests.

28(2) MATERIALS

Materials	Designation
Sand--Shall be washed and when used with portland cement for scratch coat plastering the amount of sand retained on a No. 16 sieve shall not be less than 10% nor more than 40%.	ASTM C35
Perlite	ASTM C35
Vermiculite	ASTM C35
Gypsum Plasters	ASTM C29
Gypsum Veneer Plaster	ASTM C587
Gypsum Veneer Base	ASTM C588
Water Resistant Gypsum Backing Board	ASTM C630
Bonding Compounds for Interior Plastering	ASTM C631
Lime-Special Finishing Hydrated Lime Type "S"	ASTM C206
Quicklime for structural purposes (Lime putty shall be made from quicklime or hydrated lime and shall be prepared in an approved manner.)	ASTM C5
Keene's Cement	ASTM C61

Portland Cement	
Type I, II, or III	ASTM C150
Type I-A, II-A, or III-A	

EXCEPTION: Approved types of plasticizing agents may be added to portland cement. Type I or II in the manufacturing process, but not in excess of 12% of the total volume. Plastic or waterproofed cements so manufactured shall meet the requirements for portland cement as specified in ASTM C150 except in respect to the limitation on insoluble residue, air-entrainment and additions subsequent to calcination.

Masonry Cement Type II	ASTM C91
Portland Blast Furnace Slag Cement	ASTM C595 Type IS-A
Gypsum Lath	ASTM C37
Metal Lath	ASTM C847
Exterior Soffit Board	ASTM C931
Gypsum Wallboard	ASTM C36
Gypsum Backing Board	ASTM C442
Joint Reinforcing Tape	ASTM C474
and Adhesive Materials	ASTM C475
Exterior Soffit Board	ASTM C931
Steel Studs, (for use with Gypsum Boards)	ASTM C645
Steel Studs, Loadbearing (for use with Gypsum Boards	ASTM C955
Screws (for use with Framing covered with gypsum boards; Types G, S and W)	ASTM C1002
Screws (for Loadbearing Steel Framing)	ASTM C954

28(3) APPLICATION - INTERIOR LATHING AND PLASTERING

Installation of interior gypsum lathing and furring shall comply with ASTM C841. Interior gypsum plastering shall comply with ASTM C842. Portland cement plaster shall comply with ASTM C926.

28(4) EXTERIOR LATHING AND PLASTERING

Exterior use of Portland cement plaster shall comply with application requirements of ASTM C926. Installation of exterior lathing and framing shall comply with ASTM C1047.

28(5) PNEUMATICALLY PLACED PORTLAND CEMENT

Pneumatically placed Portland cement plaster shall be a mixture of Portland cement and aggregate conveyed by air through a pipe or flexible tube, and deposited by air pressure in its final position. Rebound material may be screened and reused as aggregate in an amount not greater than 25 percent of the total sand in the batch.

Pneumatically placed Portland cement plaster shall consist of a mixture of one part cement to not more than five parts of aggregate. Plasticity agents may be used as specified elsewhere in this section. Except when applied to concrete or masonry, such plaster shall be applied in not less than two coats a minimum total thickness of seven-eights of an inch.

28(6) APPLICATION OF GYPSUM WALLBOARD

Interior and exterior application and finishing of gypsum board, other than gypsum veneer base in plaster, shall be done in accordance with Section 28(9). Gypsum veneer base and veneer plaster shall be applied and finished in compliance with Section 28(9) or ASTM C844 and ASTM C843.

28(7) APPLICATION OF STEEL STUDS

Non-loadbearing steel framing shall be installed in compliance with the provisions of ASTM C754. Loadbearing (transverse and axial) steel studs and related accessories shall be installed in compliance with the provisions of ASTM C1007.

28(8) ALLOWABLE PARTITION HEIGHTS

Composite partitions of gypsum wallboard and steel studs shall be limited in height in accordance with Table 2800A.

28(9) VERTICAL GYPSUM BOARD DIAPHRAGM

Gypsum wallboard, gypsum sheathing and gypsum veneer base may be used on wood studs for vertical diaphragms is applied in accordance with this section. Sheer resisting values shall not exceed those set forth in Table 2800B. The sheer values tabulated shall not be cumulative with the sheer value of other materials applied to the same wall. The sheer values may be doubled when identical materials are applied as specified in 28(11) are applied to both sides of the wall.

DATE REVISED ITEMS CHANGED

TABLE 2800A ALLOWABLE PARTION HEIGHTS
BASED ON WALLBOARD AND NO. 25 GAGE
STUDS ACTING AS A COMPOSITE SECTION[1] [2]

Stud Spacing (in)	Facing On Each Side	Stud Depth (in) 1 5/8	2/12	3 1/4	3 5/8	4	6
16	1/2"-one ply	11'0'	14'8"	17'10"	19'5"	20'8"	18'10"
24	1/2"-one ply	10'0"	13'5"	16'0"	17'3"	18'5"	17'8"
24	1/2"-two ply	12'4"	15'10"	18'3"	19'5"	20'8"	19'0"

Footnotes:

1. The tabulated stud heights are based on 0.0179" uncoated thickness (25 ga) steel studs manufactured in compliance with ASTM C754 for installation of screw type steel framing members to receive gypsum boards.
2. Gypsum board product must be 1/2" minimum thick and may be applied vertically or horizontally.

28(10) WALL FRAMING

Framing for vertical diaphragm shall comply with Section 21.

28(11) APPLICATION

End joints of adjacent courses of gypsum board sheath shall not occur over the same stud. Where required, In Table 2800B, blocking shall have the same cross-sectional dimensions as the studs shall be provided at all joints that are perpendicular to the studs. The size and spacing of nails shall be set forth in Table 2800B. Nails shall be spaced not less than 3/8 inch from edges and ends of gypsum boards to sides of studs, blocking and top and bottom plates. Gypsum sheathing four feet wide may be applied parallel or perpendicular to studs. Pieces two feet wide shall be set forth in Table 2800B. Gypsum wallboard or veneer base may be applied parallel or perpendicular to studs. Maximum allowable sheer values shall be set forth in Table 2800B.

28(12) MASONRY AND CONCRETE CONSTRUCTION

Gypsum board shall not be used in vertical diaphragms to resist forces imposed by masonry or concrete construction.

DATE REVISED ITEMS CHANGED

28(13) REINFORCED GYPSUM CONCRETE AND CAPS

Standard Specifications

Reinforced, poured gypsum concrete shall conform to the requirements of ASTM C317. The design and application of reinforced gypsum concrete shall be in accordance with the requirements of ASTM C956.

Inspection

A competent inspector satisfactory to the building inspector shall be present on the work at all time when cast-in-place gypsum concrete is being mixed or deposited.

TABLE 2800B

ALLOWABLE SHEAR FOR WIND OR SEISMIC FORCES IN POUNDS PER FOOT FOR GYPSUM BOARD VERTICAL DIAPHRAGMS[1]

Material	Size	Wall Construction	Nail Spacing[2] (in)	Shear Value	Mininum Nail Size
Gypsum Sheathing Board	1/2"x2"x8"	Unblocked	4	75	No.11 gage 13/4"long 7/16" head diamond-point galvanized
	1/2"x4"	Blocked	4	175	
	1/2"x4"	Unblocked	7	100	
Gypsum Wallboard or Veneer Base	1/2"	Unblocked	7	100	5d coller nails
			4	125	
			7	125	
		Blocked	4	150	
	5/8"	Blocked	4	175	6d cooler nails
		Blocked	Base Ply 9	250	Base Ply-6d cooler nail
		Two-Ply	Face Ply 7	250	Face Ply-8d cooler nail

Footnotes:

1. These vertical diaphragms shall not be used to resist loads imposed by masonry or concrete walls. Values for short-time loading due to wind or earthquake and must be reduced 25% for normal loading.
2. Applies to nailing at all studs, top and bottom plates, and blocking.

3-13-90 Section 31 - Revise to read as follows:

Every residence or tenement hereafter erected shall have an approved potable water and sewage disposal system.

DATE REVISED	ITEMS CHANGED
12-12-89	Revise first paragraph of Section 33 to read as follows: Any person desiring to question a decision of a Code Enforcement Official may appeal to the Commissioner of Insurance or his designee for a technical interpretation. Upon request in writing by any such person, the appropriate official interpretation setting forth the facts found, the decision reached and the reasons therefor. In the event of dissatisfaction of such technical interpretation, the person affected shall have the options of: 1. Appealing to the Building Code Council, or 2. Appealing directly to Superior Court.
12-12-89	Revise Section 34(2) to read as follows: General Penalty - shall be as established by G.S. 143-138(h).
6-12-90	At the end of Section 35(2) add: See Section 210-71 of State Electrical Code Volume IV.
12-12-89	At the end of Section 36-1.3(b), change "See diagram 1 on page 104" to "See diagram 1 in Appendix H."
6-10-86	Add the following new paragraph (c) to Section 36(1.5): (c) Gas fired under counter and table top water heaters and gas fired water heaters less than 40 inches in height, including draft diverters, which are designed for and installed beneath a building or other low headroom location are exempt from these efficiency requirements.
6-12-90	Add the following to Section 38(3.3): C. Public Fishing Piers 1. Mean low water line to land 100 psf. 2. Mean low water line to end of pier 50 psf.
9-12-89	After third sentence of Section 38-5.1, insert the following: Timber pilings shall be preservatively treated in accordance with AWPA-M4.
9-13-88	Delete the words "cement asbestos" from Subsection 7.1(e) of Section 38.
3-15-88	Add the following to Section 39-1.0: Mountain Wind Velocities listed in Table 1205.2C are not applicable to this Section.

DATE REVISED ITEMS CHANGED

6-10-86 Add the following to Section 39-3.1:
Within the 120 MPH wind zone or portions of the regulatory floor plain which are outside the Ocean Hazard and Coastal High Hazard Areas, pile foundations, if used, shall comply with the requirements of this section.

3-11-86

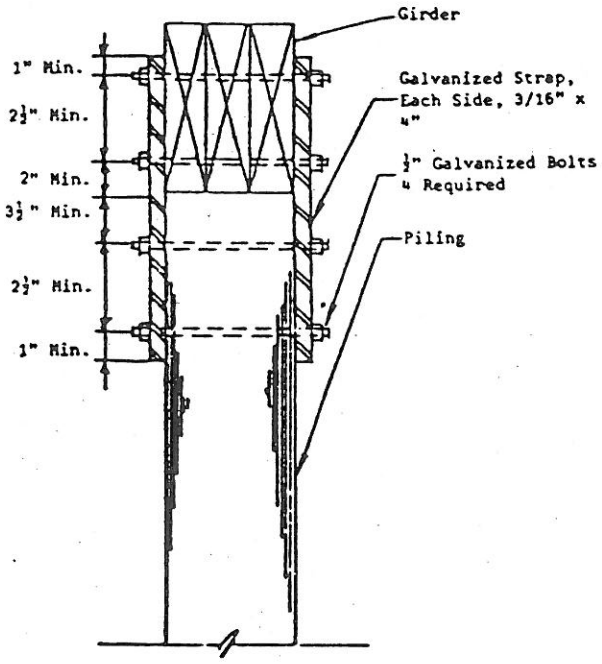


ILLUSTRATION OF SECTION 39-3.6

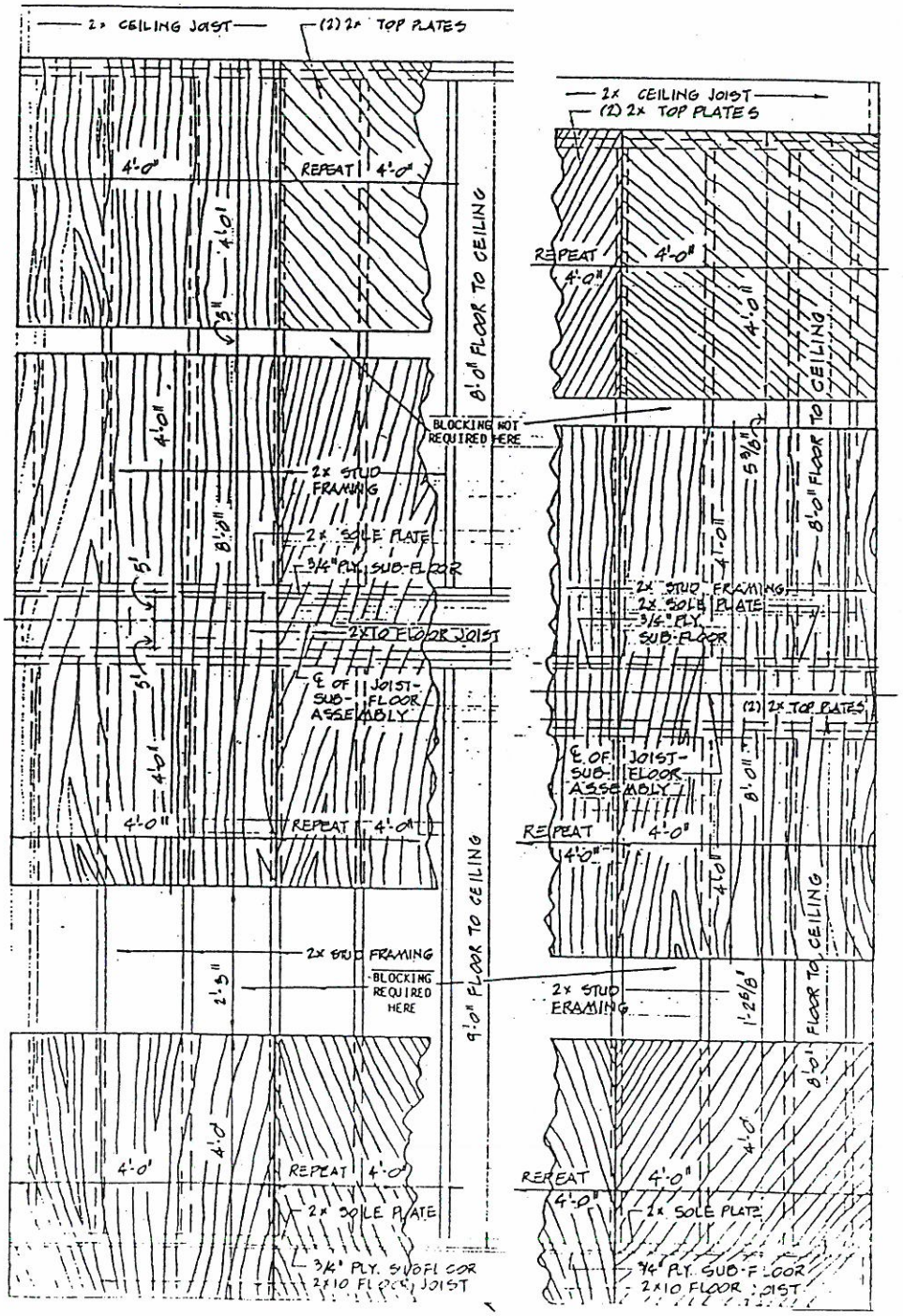
9-13-88 Revise Subsection 3.7, Section 39 to read as follows:
The minimum net retention of preservatives shall be in accordance with the retention requirement table in Section 19(6)(f). The code enforcement official may require certification from the manufacturer.

9-15-87 Add the following to Section 39-4.3:
This requirement does not apply to the addition, renovation or reconstruction to any building which was constructed prior to the initial Flood Insurance Study for that area if the addition, renovation or reconstruction does not exceed 50% of the present market value of the structure.

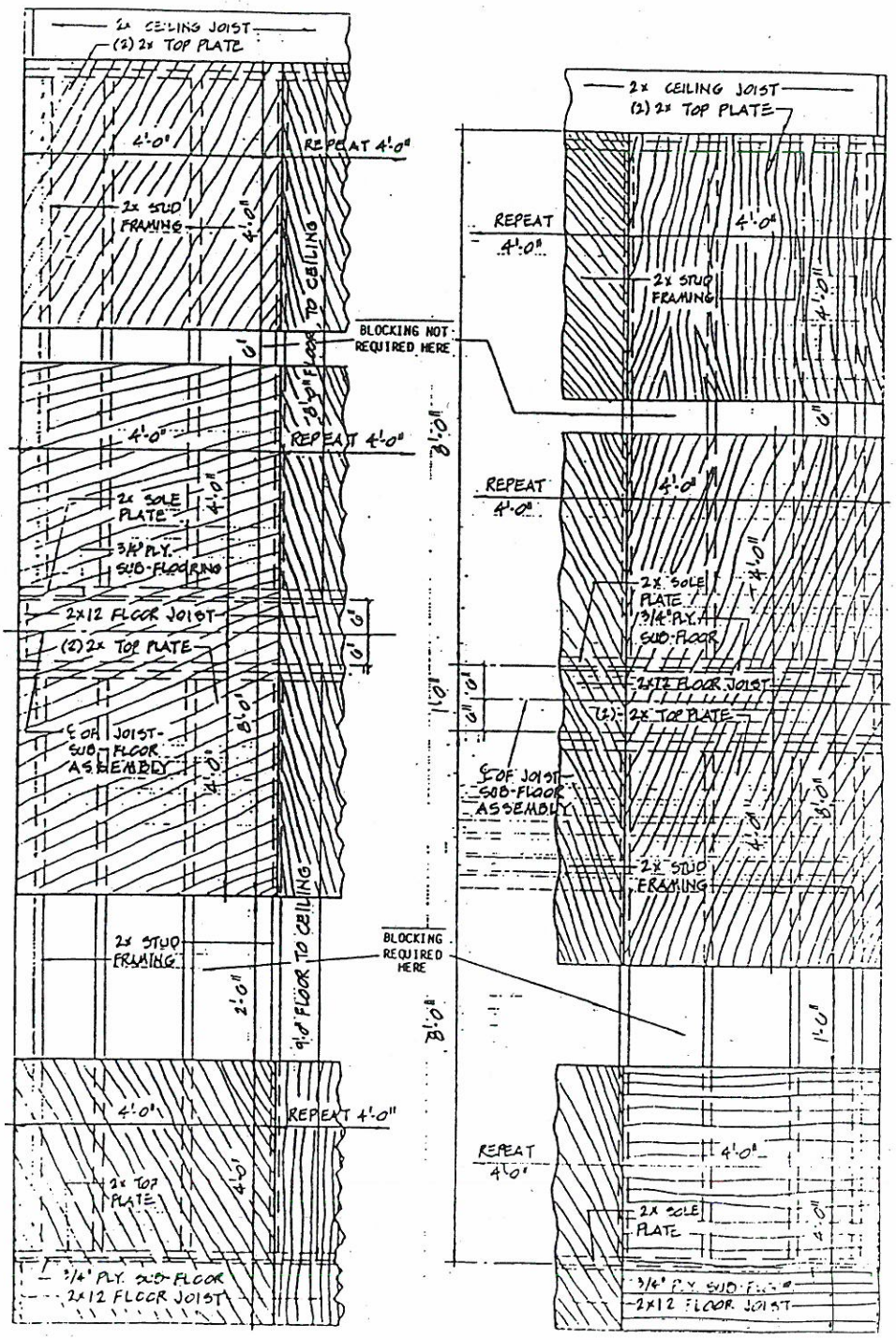
DATE REVISED	ITEMS CHANGED
12-12-89	Revise Section 39-5.3 as follows: 5.3 Wood Frame Wall Construction. Maximum stud spacing shall be 16" o.c. for 2 x 4's and 24" for 2 x 6's. Continuous 15/32" plywood or structural use panel sheathing shall fully overlap the top wall plate and continue down so that it overlaps the sill,
9-11-90	beam, or girder at least 6" on buildings with gabled end construction, plywood shall extend to the top chord of roof trusses or top of rafter at roof line. Exception: For a wall stud spacing of 16" o.c. or less, 7/16" nonveneer structural use panel sheathing is permissible. Note especially the nailing requirements found in Appendix B. The minimum height of the top and bottom panel shall be 4 feet. The long side of plywood or structural use panels shall be installed in the vertical direction only. This requirement applies to full and partial panels. (See sketch for blocking requirements.) In lieu of plywood or structural use panel system".....remainder unchanged.
9-11-90	In (existing) fifth sentence of Section 39-5.3 delete the word "bearing".
12-8-87	Revise Section 39-5.6(a) as follows: In last sentence between the words "walls" and "shall", add "including masonry veneer walls".

DATE REVISED ITEMS CHANGED

SECTION 39-5.3



DATE REVISED ITEMS CHANGED



DATE REVISED ITEMS CHANGED

3-11-86 Revise Table A of Section 39, as follows:

(a) Add to heading of table: "Applies only to structures located in the Coastal High Hazard Area and Ocean Hazard Area."

(b) Add "hot dipped galvanized after fabrication" after the words "Stainless Steel" adjacent to metal connectors and truss plates.

12-9-86 Add new Section 40 as follows:

SECTION 40: TOWNHOUSES

(a) Each townhouse (see definition in Article III) shall be considered as a single family dwelling unit and shall be constructed in accordance with the North Carolina Uniform Residential Code, Volume Ib.

(b) Townhouses shall meet the fire separation and maximum area requirements indicated in Section 403.4 & 403.5 of Volume I.

12-8-87 Add new Section 41 as follows:

SECTION 41 - DESIGN LOADS

1. The tables included in this Code are based upon the following design loads.

A. LIVE LOAD

9-12-89	Exterior balconies and decks	40 lbs. per sq. ft.
	Attics (no storage with roof slope not steeper than 3 in 12)	10 lbs. per sq. ft.
	Attics (limited attic storage)	20 lbs. per sq. ft.
3-13-90	Attics (with walk-up stairs but lacking sufficient height and area to meet the requirements of Section 10 for habitable room)	30 lbs. per sq. ft.
6-12-90	Dwelling	
	Primary level	40 lbs. per sq. ft.
	Other levels	30 lbs. per sq. ft.
	Stairs	40 lbs. per sq. ft.
	Roofs	20 lbs. per sq. ft.

6-12-90 Add the following to Section 41:

"LIVE LOADS 100 POUND-FORCE PER SQUARE FOOT OR LESS. For live loads of 100 psf or less, the design live load on any member supporting 150 square feet or more may be reduced at the rate of 0.08% per square foot of area supported by the member, except that no reduction shall be made for areas to be occupied as places of public assembly, for garage* or for roofs.

*Private pleasure car storage garages may be reduced by the above formula where R does not exceed 40%.

The reduction shall exceed neither R as determined by the following formula, nor 60%:

$$R = 23\left(1 + \frac{D}{L}\right)$$

where R = Reduction in percent

D = Dead load per square foot of area supported by the member

L = Design live load per square foot of area supported by the member

B. **DEFLECTION** - The allowable deflection of any structural member under the approved live load shall not exceed 1/240 of the span.

EXCEPTIONS:

1. Deflection shall not exceed 1/360 of the span for floor construction and plastered ceiling construction.
2. Deflection shall not exceed 1/180 of the span for high slope (over 4" in 12") after construction with no ceiling load.
3. Deflection shall not exceed 1/180 of the vertical span for interior walls or partitions.

C. **PARTITION LOAD** - Interior walls and partitions shall be designed to resist a minimum lateral load of 5 psf.

6-14-88 D. **WIND LOADS:** Use Table 40-1 for wind loads.

TABLE 40-1

Velocity Pressures in Pounds Per Square Foot (1)

Design Pressure	Basic Wind Design Velocity (MPH)				
	80	90	100	110	120
Normal to Roof Surface	-16	-20	-25	-30	-36
Overhangs and Eaves	-20	-24	-30	-36	-44
Leeward Walls	-7	-9	-11	-14	-17
Windward Walls	+12	+15	+18	+22	+27

NOTES:

(1) Shape factors have been taken into consideration. Apply this wind load for one and two family dwellings only.

(2) (+) Indicates forces inward. (-) Indicates forces outward.

DATE REVISED ITEMS CHANGED

E. **DEAD LOAD ASSUMPTIONS:**

Finished floor	2.5 lbs. per sq. ft.
Rough floor	2.5 lbs. per sq. ft.
Roof sheating	2.5 lbs. per sq. ft.
Plaster and Lath	10.0 lbs. per sq. ft.
1/2" Gypsum Dry Wall	2.0 lbs. per sq. ft.
Shingles	2.5 lbs. per sq. ft.
Timber Trusses (24" o.c.)	3.0 lbs. per sq. ft.
8" Insulation	4.0 lbs. per sq. ft.
1" Rigid Insulation	1.0 lbs. per sq. ft.
Exterior Stud Walls 2x4 @ 16", 5/8" gypsum, insulated, 3/8" siding	11.0 lbs. per sq. ft.
2x4 @ 16", 5/8" gypsum, insulated, with brick veneer	48.0 lbs. per sq. ft.

F. **FLOOR-CEILING JOISTS:**

SIZE	12" SPACING	16" SPACING	24" SPACING
2 x 6	6 psf	5 psf	5 psf
2 x 8	6 psf	6 psf	5 psf
2 x 10	7 psf	6 psf	6 psf
2 x 12	8 psf	7 psf	6 psf

3-10-87 Add the following definitions to Article III:
Alternating Tread Stairway--A stairway between 50 degrees and 70 degrees from horizontal having a series of steps attached in an alternating manner so that the user never had both feet at the same level at the same time. The initial tread of the stairway begins at the same elevation as the platform, landing, or floor space.

12-12-89 Amend the following definitions in Article III Definitions to read as follows:
"Alteration" to "Alter or alteration means any change in construction or occupancy classification."
"Apartment" to "shall mean a dwelling unit as defined in this Code."
"Approved" to "means approved by the building official or other authority having jurisdiction."

3-13-90 "Basement" - means a story of a building or structure having 1/2 or more of its clear height below grade. Also see "Story". A basement used as habitable space shall be considered a story.

DATE REVISED	ITEMS CHANGED
6-12-90	"Primary Level - The level of a one or two family dwelling which contains the primary living areas such as kitchen, den and living room. The primary level may also contain bedrooms."
12-12-89	Add the following new definitions: "Court: Court is a space, open and unobstructed to the sky, located at or above grade level on a lot and bounded on three or more sides by walls or a building." "Dead Load" to "Load, Dead means the weight of all permanent construction including walls, floors, roofs, partitions, stairs and fixed service equipment." "Dwelling Unit is a single unit providing complete, independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation." "Habitable Room" to "Habitable Space means a space in a structure for living, sleeping, eating or cooking. Bathrooms, toilet compartments, closets, halls, storage or utility space, and similar areas are not considered habitable space." "Live Load" to "Load, Live is the weight superimposed by the use and occupancy of the building, not including the wind load, earthquake load or dead load." "Prefabricated Construction means construction of prefabricated units of "open construction" which are fabricated prior to erection or installation of a building or structure and may be shipped to their final on-site location either as individual prefabricated units or prefabricated subassemblies." "Structure is that which is built or constructed." "Written Notice" to "A notification in writing delivered in person to the individual or parties intended, or delivered at, or sent by certified or registered mail to the last residential or business address of legal record." "Yard" to "an unoccupied open space other than a court."
3-13-90	"Fireplace, Firebox - consists of a hearth, back and side walls which extend from the hearth to the throat of the smoke chamber." "Fireplace Smoke Chamber - that part of a masonry fireplace which extends from the top of the firebox to the start of the chimney flue lining.. A smoke chamber shall have a damper and smoke shelf." "Fireplace Chimney - A masonry passageway extending from the top of a smoke chamber for the purpose of discharging combustion emission from the firebox to the atomsphere."

DATE REVISED	ITEMS CHANGED
	"Story - is that portion of a building included between the upper surface of a floor and upper surface of the floor or roof next above. The basement of a building shall be considered a story if it is used for purposes other than storage or the placement of heating and/or cooling equipment."
12-12-89	Delete definition of: "Multifamily House". "Municipality". "Structural Clay Tile".
12-12-89	Add to "curtain wall" - "but is supported on appropriate footing."
12-9-86	Townhouse--A single family dwelling unit constructed in a series or group of attached units with property lines separating such units.
12-8-87	Delete Appendix A.
12-12-89	APPENDIX B: 1. For Double Studs, face nail, change 16d to 10d. 2. For Double Top Plate, face nail, change 16d to 10d. 3. Under Plywood, Particleboard and Structural Use Panel Subflooring, adjacent to 1/2", 15/32", after 6d common, add "annular or spiral thread" and change 10" o.c. to 12" o.c. 4. Under Plywood, Particleboard and Structural Use Panel Subflooring, adjacent to 19/32" and 3/4", after 8d common, add 6d annual or spiral thread and change 10" to 12" o.c. 5. Under Plywood, Particleboard and Structural Use Panel Subflooring, adjacent to 1" and 1-1/2", change ring shank to annular or spiral thread.

DATE REVISED ITEMS CHANGED

6-12-90 Add the following tables and drawings to Appendix C:

Effective June 12, 1990

J-1 ****

FLOOR JOIST (All rooms and attics with stairs) L.L. - 40 LB/SQ. FT.

SPECIES		*SOUTHERN YELLOW PINE			SPRUCE-PINE-FIR		
GRADE		No.1	No.2	No.3	No.1	No.2	No.3
SIZE							
	12	10-11	10-9	8-10	10-6	10-0	7-3
2x6	16	9-11	9-9	7-9	9-6	8-7	6-2
	24	8-8	8-4	6-2	7-9	7-0	5-4
	12	14-5	14-2	11-8	13-10	13-2	9-7
2X8	16	13-1	12-10	10-2	12-7	11-4	8-1
	24	11-5	11-0	8-1	10-2	9-3	7-1
	12	18-5	18-0	14-11	17-8	16-10	12-3
2X10	16	16-9	16-5	13-0	16-0	14-6	10-4
	24	14-7	14-0	10-4	13-0	11-10	9-0
	12	22-5	21-11	18-1	21-6	20-6	14-11
2X12	16	20-4	19-11	15-10	19-6	17-7	12-7
	24	17-9	17-0	12-7	15-10	14-4	11-0

R-1 ****

RAFTERS - Flat Roof or Cathedral ceiling with drywall Ceiling and no attic space (snow loading)

L.L. = 20 lb/sq. ft.
D.L. = 15 lb/sq. ft.

SPECIES		*SOUTHERN YELLOW PINE			SPRUCE-PINE-FIR		
GRADE		No.1	No.2	No.3	No.1	No.2	No.3
SIZE							
	12	15-8	15-2	11-5	13-8	12-7	9-4
2X6	16	14-4	13-2	9-10	11-10	10-11	8-1
	24	11-8	10-9	8-1	9-8	8-11	6-7
	12	20-8	20-0	15-0	18-0	16-7	12-3
2X8	16	18-11	17-4	13-0	15-7	14-4	10-7
	24	15-5	14-2	10-7	12-9	11-9	8-8
	12	26-4	25-6	19-2	23-0	21-2	15-8
2X10	16	24-1	22-1	16-7	19-11	18-4	13-5
	24	19-8	18-1	13-6	16-3	15-0	11-1
	12	32-0	31-1	23-3	28-0	25-0	19-0
2X12	16	29-4	26-11	20-2	24-3	22-4	16-6
	24	23-11	21-11	16-6	19-10	18-2	13-5

DATE REVISED ITEMS CHANGED

J-6
****

CEILING JOIST
No attic storage (roof slope
3 in 12 or less)

L.L.=10 lb/sq.ft.
D.L.= 5 lb/sq.ft.

SPECIES		*SOUTHERN YELLOW PINE			SPRUCE-PINE-FIR		
GRADE		No. 1	No. 2	No.3	No.1	No.2	No.3
SIZE							
	12	12-8	12-5	10-11	12-2	11-7	9-5
2x4	16	11-6	11-3	9-4	11-0	10-6	8-1
	24	10-0	9-10	7-10	9-8	8-8	6-2
	12	19-11	19-6	16-1	19-1	18-2	13-3
2x6	16	18-1	17-8	4-3	17-4	15-7	12-0
	24	15-9	15-2	12-3	14-1	12-9	9-9
	12	26-2	25-8	21-2	25-2	24-0	17-5
2x8	16	23-10	23-4	18-6	22-10	20-7	15-10
	24	20-10	19-11	16-2	18-6	16-10	12-10
	12	33-5	32-9	25-10	32-1	30-7	22-3
2x10	16	30-5	29-9	23-8	29-2	26-3	20-2
	24	26-6	25-5	18-9	23-8	21-6	16-5

R-13
****

RAFTERS Medium or High Slope.
No Ceiling Load
Light roof covering (snow loading)

L.L.=20 lb/sq.ft.
D.L.=7 lb/sq.ft.

SPECIES		*SOUTHERN YELLOW PINE			SPRUCE-PINE-FIR		
GRADE		No.1	No.2	No.3	No.1	No.2	No.3
SIZE							
	12	11-0	10-8	8-8	10-3	9-11	7-3
2x4	16	9-10	9-10	7-6	9-6	8-7	6-4
	24	8-8	8-6	6-2	7-9	7-0	5-2
	12	17-3	16-9	13-0	15-7	14-4	10-7
2x6	16	15-5	15-0	11-3	13-6	12-5	9-2
	24	13-4	12-3	9-2	11-0	10-2	7-6
	12	22-9	22-1	17-1	20-6	18-11	13-11
2x8	16	20-4	19-9	14-11	17-9	16-4	12-1
	24	17-7	16-1	12-1	14-6	13-4	9-10
	12	29-1	28-2	21-10	26-2	24-1	17-10
2x10	16	25-11	25-2	18-11	22-8	20-10	15-5
	24	22-5	20-7	15-5	18-6	17-1	12-7

DATE REVISED ITEMS CHANGED

CEILING JOIST Drywall Ceiling
Limited storage - No future room possible

L.L.= 20 lb/sq.ft.
D.L.= 10 lb/sq.ft.

J-4
****

SPECIES		*SOUTHERN YELLOW PINE			SPRUCE-PINE-FIR		
GRADE		No.1	No.2	No.3	No.1	No.2	No.3
SIZE							
	12	10-0	9-10	7-10	9-8	8-8	6-2
2x4	16	9-1	8-11	6-9	8-4	7-8	5-8
	24	8-0	7-6	5-4	6-11	6-2	**
	12	15-9	15-2	11-2	14-1	12-9	9-9
2x6	16	14-4	13-1	9-6	12-0	11-2	**
	24	11-9	10-10	7-9	9-9	8-10	**
	12	12-10	19-11	14-8	18-6	16-10	12-10
2x8	16	18-11	17-3	12-7	15-10	14-8	**
	24	15-6	14-3	10-2	12-10	11-8	**
	12	26-6	25-5	18-9	23-8	21-6	16-5
2x10	16	24-1	22-1	16-0	20-2	18-9	**
	24	19-9	18-3	13-0	16-5	14-11	**

RAFTERS Flat or Low Slope
No ceiling load
(Snow loading)

L.L.=20 lb/sq.ft.
D.L.=10 lb/sq.ft.

R-7
****

SPECIES		*SOUTHERN YELLOW PINE			SPRUCE-PINE-FIR		
GRADE		No.1	No.2	No.3	No.1	No. 2	No.3
SIZE							
	12	15-4	15-4	12-4	14-9	13-7	10-0
2x6	16	14-2	13-9	10-8	12-10	11-9	8-8
	24	12-4	11-7	8-8	10-5	9-7	7-1
	12	20-3	20-3	16-3	19-6	17-11	13-3
2x8	16	18-9	18-2	14-0	16-10	15-6	11-6
	24	16-3	15-3	11-6	13-9	12-8	9-4
	12	25-10	25-10	20-8	24-10	22-10	16-11
2x10	16	23-11	23-2	17-11	21-6	19-10	14-8
	24	20-8	19-6	14-8	17-7	16-2	11-11
	12	31-4	31-4	25-2	30-3	27-10	20-6
2x12	16	29-1	28-2	21-9	26-2	24-1	17-9
	24	25-2	23-9	17-9	21-5	19-8	14-6

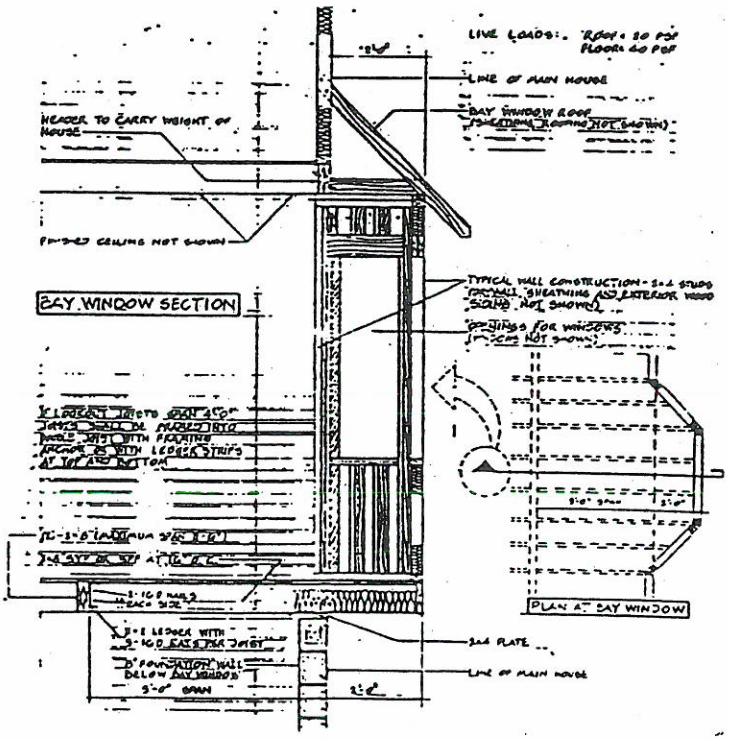
DATE REVISED ITEMS CHANGED

FLOOR JOIST L.L.=30 lb/sq.ft.
Rooms on secondary floors and attics with stairs D.L.=10 lb/sq.ft.

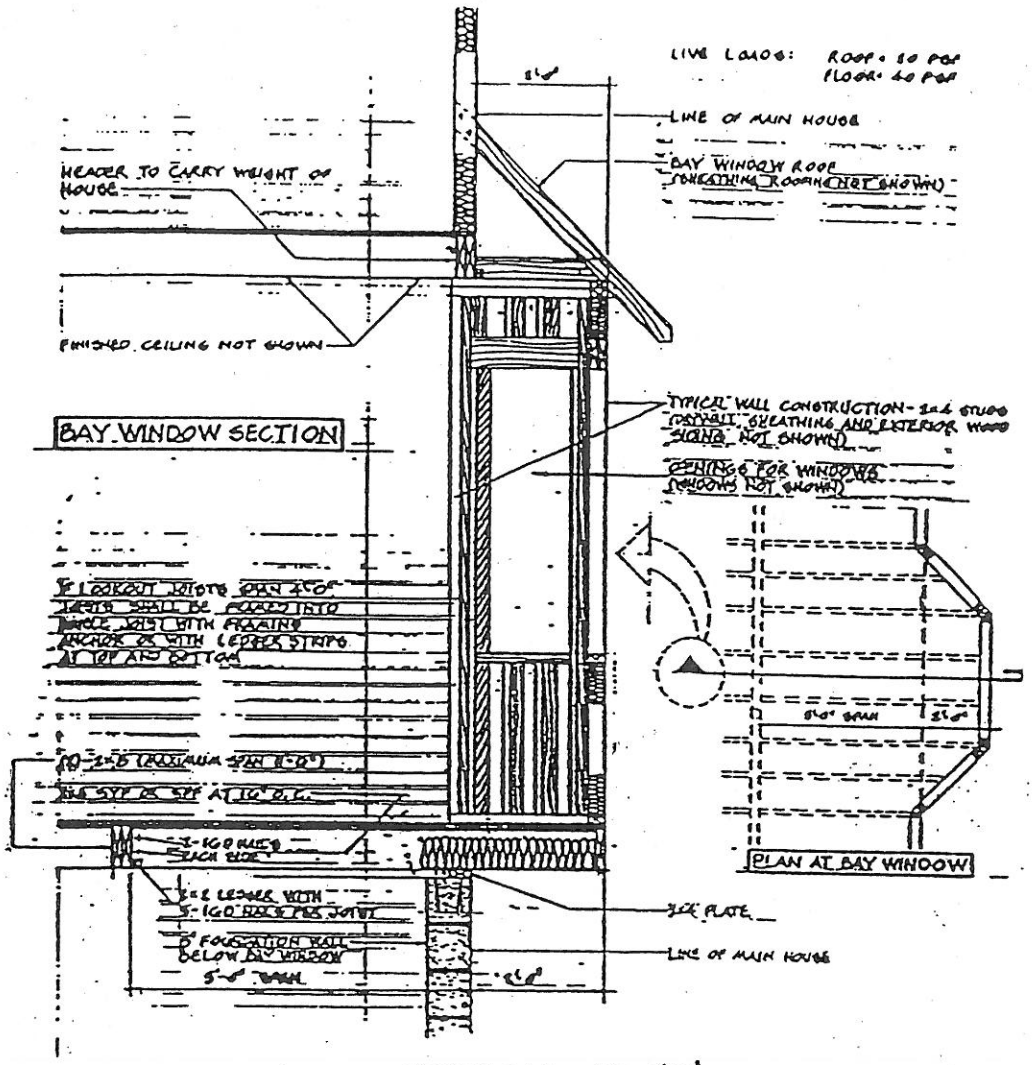
J-2
**

SPECIES		*SOUTHERN YELLOW PINE			SPRUCE-PINE-FIR		
GRADE		No.1	No.2	No.3	No.1	No.2	No.3
SIZE							
	12	12-0	11-10	9-9	11-7	11-0	8-6
2x6	16	10-11	10-9	8-6	10-6	9-9	7-3
	24	9-7	9-4	7-1	8-6	7-9	5-11
	12	15-10	15-7	12-10	15-3	14-6	11-3
2x8	16	14-5	14-2	11-3	13-10	12-10	9-7
	24	12-7	12-4	9-4	11-3	10-2	7-9
	12	20-3	19-10	16-5	19-5	18-6	14-4
2x10	16	18-5	18-0	14-4	17-8	16-5	12-3
	24	16-1	15-9	11-11	14-4	13-0	9-11
	12	24-8	24-2	19-11	23-7	22-6	17-5
2x12	16	22-5	21-11	17-5	21-6	19-11	14-11
	24	19-7	19-2	14-7	17-5	15-10	12-1

* Assumed surfaces dry and applied at 19% MC or less.
** Not covered by NFPA Span Tables for Joists and Rafters.
*** Allowable spans taken directly from NFPA Span Tables for Joists and Rafters. No calculations or interpolations made.
**** (---) Denotes table number from NFPA Span Tables.



DATE REVISED ITEMS CHANGED



SECTION 20 (11)
OVERHANG PROJECTION

DATE REVISED ITEMS CHANGED

9-13-88 Delete Appendix F.

3-13-90 Appendix G - Replace Flitch Plate Beam Tables with new tabl attached.

FLITCH PLATE BEAMS-DESIGN VALUES & ASSUMPTIONS

Steel- Fb=24000(psi) E=29000000(psi)
Wood- Fb= 1200(psi) E= 1600000(psi)
Deflection- 1/360 of Span
(Top of Beam Laterally Supported)

BOLT SPACING
1/2" ϕ BOLTS @ 2'-0" o.c.
MIN STEEL EDGE CLEARANCE 1 1/2"

2 @ 2x6

			ALLOWABLE LOAD(Pounds/Ft)					
1 PLATE	Bm Wgt(lbs/ft)	8	10	13	15	17	21
	Span(ft) Plate	1/4 X 5	3/8 X 5	1/2 X 5	5/8 X 5	3/4 X 5	1 X 5
	6.00	756	965	1175	1385	1595	2014
	7.00	555	709	863	1018	1172	1480
	8.00	411 *	520 *	638 *	739 *	848 *	1067 *
	9.00	289 *	365 *	442 *	519 *	596 *	749 *
	10.00	210 *	266 *	322 *	378 *	434 *	546 *
	11.00	158 *	200 *	242 *	284 *	326 *	410 *
	12.00	122 *	154 *	187 *	219 *	251 *	316 *

* Denotes Load Controlled by Deflection

2 @ 2x8

			ALLOWABLE LOAD(Pounds/Ft)					
1 PLATE	Bm Wgt(lbs/ft)	11	14	17	20	23	29
	Span(ft) Plate	1/4 X 7	3/8 X 7	1/2 X 7	5/8 X 7	3/4 X 7	1 X 7
	6.00	1486	1818	2229	2648	3051	3873
	7.00	1033	1335	1637	1939	2242	2846
	8.00	791	1022	1254	1485	1716	2179
	9.00	625	808	991	1173	1356	1722
	10.00	506	654	802	950	1098	1394
	11.00	418 *	516 *	631 *	746 *	862 *	1092 *
	12.00	308 *	397 *	486 *	575 *	664 *	841 *
	13.00	243 *	312 *	382 *	452 *	522 *	662 *
	14.00	194 *	250 *	306 *	362 *	418 *	530 *
	15.00	158 *	203 *	249 *	294 *	340 *	431 *
	16.00	130 *	168 *	205 *	243 *	280 *	355 *

* Denotes Load Controlled by Deflection

DATE REVISED ITEMS CHANGED

2 @ 2 x 10

2 - 2 X 10		ALLOWABLE LOAD(Pounds/Ft)					
1 PLATE	Bm Wgt(lbs/ft)	14	18	22	26	30	37
	Span(ft) Plate	1/4 X 9	3/8 X 9	1/2 X 9	5/8 X 9	3/4 X 9	1 X 9
	6.00	2312	2990	3669	4349	5029	6388
	7.00	1697	2197	2696	3195	3695	4693
	8.00	1299	1682	2064	2446	2829	3593
	9.00	1027	1329	1631	1933	2235	2839
	10.00	832	1076	1321	1566	1810	2300
	11.00	687	890	1092	1294	1496	1901
	12.00	576	747	917	1087	1257	1597
	13.00	492	637	782	926	1071	1361
	14.00	409 *	528 *	647 *	765 *	884 *	1122 *
	15.00	332 *	429 *	526 *	622 *	719 *	912 *
	16.00	274 *	353 *	433 *	513 *	592 *	752 *
	17.00	228 *	295 *	361 *	427 *	494 *	627 *
	18.00	192 *	248 *	304 *	360 *	416 *	528 *
	19.00	164 *	211 *	259 *	306 *	354 *	449 *
	20.00	140 *	181 *	222 *	263 *	303 *	385 *

* Denotes Load Controlled by Deflection

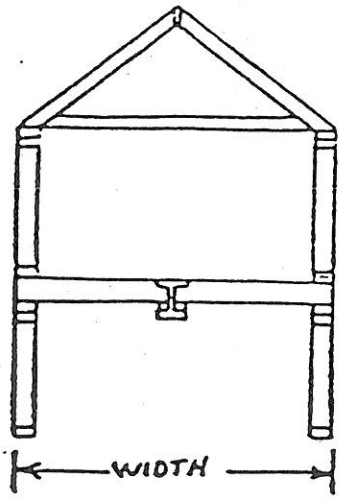
2 @ 2 x 12

2 - 2 X 12		ALLOWABLE LOAD(Pounds/Ft)					
1 PLATE	Bm Wgt(lbs/ft)	18	22	27	32	36	46
	Span(ft) Plate	1/4 X 11	3/8 X 11	1/2 X 11	5/8 X 11	3/4 X 11	1 X 11
	6.00	3437	4432	5468	6483	7498	9529
	7.00	2525	3271	4017	4763	5509	7001
	8.00	1933	2504	3076	3647	4218	5360
	9.00	1528	1979	2430	2881	3333	4235
	10.00	1237	1603	1968	2334	2699	3430
	11.00	1023	1325	1627	1929	2231	2835
	12.00	859	1113	1367	1621	1875	2382
	13.00	732	948	1165	1381	1597	2030
	14.00	631 —	818	1004	1191	1377	1750
	15.00	550	712	875	1037	1200	1525
	16.00	483	626	769	912	1054	1340
	17.00	414 *	535 *	657 *	778 *	899 *	1142 *
	18.00	349 *	451 *	553 *	655 *	757 *	962 *
	19.00	297 *	384 *	470 *	557 *	644 *	818 *
	20.00	254 *	329 *	403 *	478 *	552 *	701 *
	21.00	220 *	284 *	348 *	413 *	477 *	606 *
	22.00	191 *	247 *	303 *	359 *	415 *	527 *
	23.00	167 *	216 *	265 *	314 *	363 *	461 *
	24.00	147 *	190 *	233 *	276 *	320 *	406 *

* Denotes Load Controlled by Deflection

DATE REVISED ITEMS CHANGED

6-12-90 Add Appendix I - Steel Beam in Garage Span Chart as follows:



Effective date October 1, 1990

STEEL W BEAM SPAN CHART

~~WEIGHT OF BEAM X HEIGHT (AISC-A36)~~ NOMINAL Depth (Inches) X Nominal Weight (ft.) (ASTM A36)

40 LB/SQ. FT. DESIGN LIVE LOAD

STEEL BEAM LOCATED IN MIDDLE HALF OF GARAGE

WIDTH (FEET)	22	N	24	N	26	N	28	N	30	N
BEAM SPAN (FEET)										
22	W8 X 31 W10 X 22 W12 X 19	4	W8 X 35 W10 X 22 W12 X 19	4	W8 X 35 W10 X 22 W12 X 19	4	W8 X 40 W10 X 26 W12 X 19	4	W8 X 40 W10 X 26 W12 X 22	4
24	W8 X 40 W10 X 26 W12 X 22	4	W8 X 48 W10 X 30 W12 X 22	4	W8 X 48 W10 X 30 W12 X 22	4	W8 X 48 W10 X 30 W12 X 26	5	W8 X 48 W10 X 39 W12 X 26	5
26	W14 X 22 W10 X 39 W12 X 26	4	W14 X 22 W10 X 39 W12 X 26	4	W14 X 26 W10 X 39 W12 X 26	5	W14 X 26 W10 X 39 W12 X 26	5	W14 X 26 W10 X 45 W12 X 30	5
28	W14 X 26 W10 X 45 W12 X 30	4	W14 X 26 W10 X 45 W12 X 30	4	W14 X 26 W10 X 45 W12 X 30	5	W14 X 30 W10 X 49 W12 X 35	5	W14 X 30 W10 X 54 W12 X 35	5

NOTES:

1. Beam must be anchored at each end with a minumin of 4 - 16d nails and latterally supported.
2. N = Number of 2 x 4 studs (# 2 SPF) required in stud column at each end of beam span.
3. Stud column shall be nailed with 2 - 12d nails @ 12" o.c. for each stud.
4. Stud column shall not exceed 11' 0" in height.
5. Floor system shall be tied together using minimun of 7/16" structural sheathing.