

NEWAYGO COUNTY
DEPARTMENT *of*
BUILDING SAFETY & PERMITS
Insuring Public Safety, Health and Welfare



BUILDING GUIDELINES

PLEASE REFER TO THE MRC CODE BOOK FOR SPECIFIC WORDING

Please refer to the MRC BOOK for specific wording of the code sections.

GUARD RAILS:

Guard rails are required on all open sided walking surfaces which are located more than 30" above the floor or grade below.

Guards shall not be less than 36" in height.

Open guards shall have balusters such that a sphere with a diameter of 4" cannot pass through any opening. Guards shall not have an ornamental pattern that would provide a ladder effect.

Stairway guards shall not be less than 34" in height above the leading edge of the treads.

HAND RAILS:

Stairways shall be equipped with a minimum of one hand rail.

- A. Handrail – gripping surface shall be continuous, without interruption of newel posts.
- B. The clear space between hand rail and wall shall not be less than 1 ½", edges shall have a minimum radius of 1/8".
- C. Handrails shall not be less than 30" nor more than 38" in height.
- D. All handrails will be checked for grasp ability.
- E. Handrail end shall be returned to a wall or post.
- F. Handrails shall not project more than 3 ½" into required stairway width.

STAIRWAYS:

Stairways 3' minimum width – Landings 3' x 3' minimum

Stairways openings require guardrails during construction.

- A. Maximum riser height shall be 8 ¼".
- B. Minimum tread depth shall be 9", measured from nosing to nosing. A 1" nosing required on stairways with solid risers.
- C. Solid risers are not required, provided that no opening between treads is larger than 4 inches.
- D. Adjacent treads & risers shall not vary more than 3/16".
- E. No tread or riser will vary more than 3/8" in any flight of stairs.
- F. Winders shall have a minimum tread of 6" at narrowest point with 9" minimum tread at 12" from the narrowest point.
- G. 80" minimum headroom in all parts of stairway and for any walking surface.
- H. A maximum step height of 8" shall be permitted at exterior doors.
- I. Exterior door threshold height above finish floor surface is ¾" for sliding door and ½" for all other doors.

R-208.4 HAZARDOUS LOCATIONS:

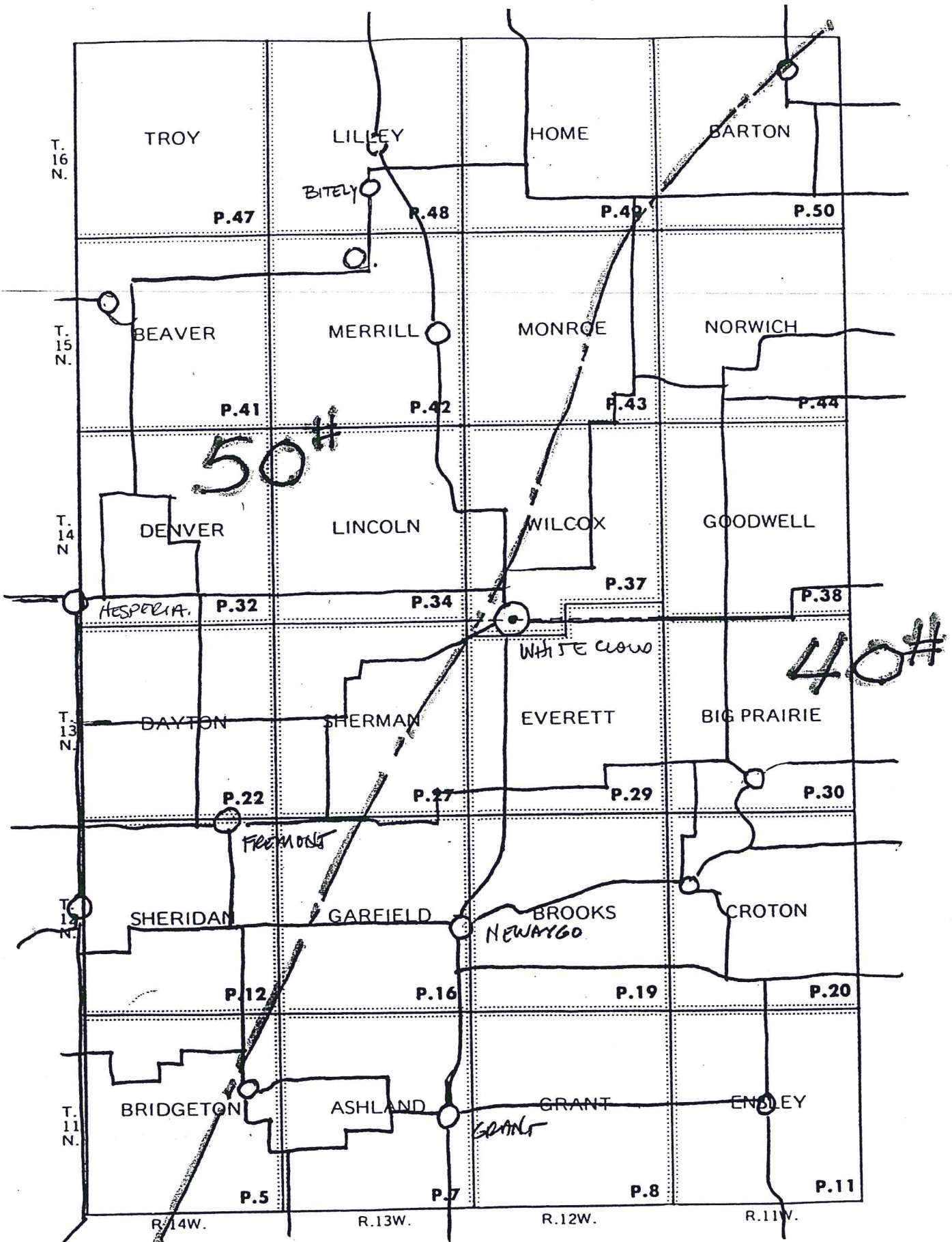
The following shall be considered specific hazardous locations for the purposes of glazing:

1. Glazing in the ingress and means of egress doors except jalousies.
2. Glazing in fixed and sliding panels of sliding (patio) door assemblies and panels in swinging doors.
3. Glazing in storm doors.
4. Glazing in all unframed swinging doors.
5. Glazing in doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs and showers. Glazing in any part of a building wall enclosing these compartments where the bottom edge of glazing is less than 60" above the drain inlet.
6. Glazing, in an individual fixed or operable panel adjacent to door where the nearest vertical edge is within a 24" arc of the door in a closed position and whose bottom edge is less than 60" above the floor or walking surface.
7. Glazing in an individual fixed or operable panel, other than those locations described in items 5 and 6 above, that meets all of the following conditions:
 - A. Exposed area of an individual pane greater than 9 sq. ft.
 - B. Bottom edge less than 18" above the floor.
 - C. Top edge greater than 36" above the floor.
 - D. One or more walking surfaces within 36" inches horizontally of the glazing.
8. All glazing in railings regardless of an area or height above a walking surface. Included are structural baluster panels and nonstructural in-fill panels.

EXCEPTIONS:

The following products, material and uses are exempt from the above hazardous locations:

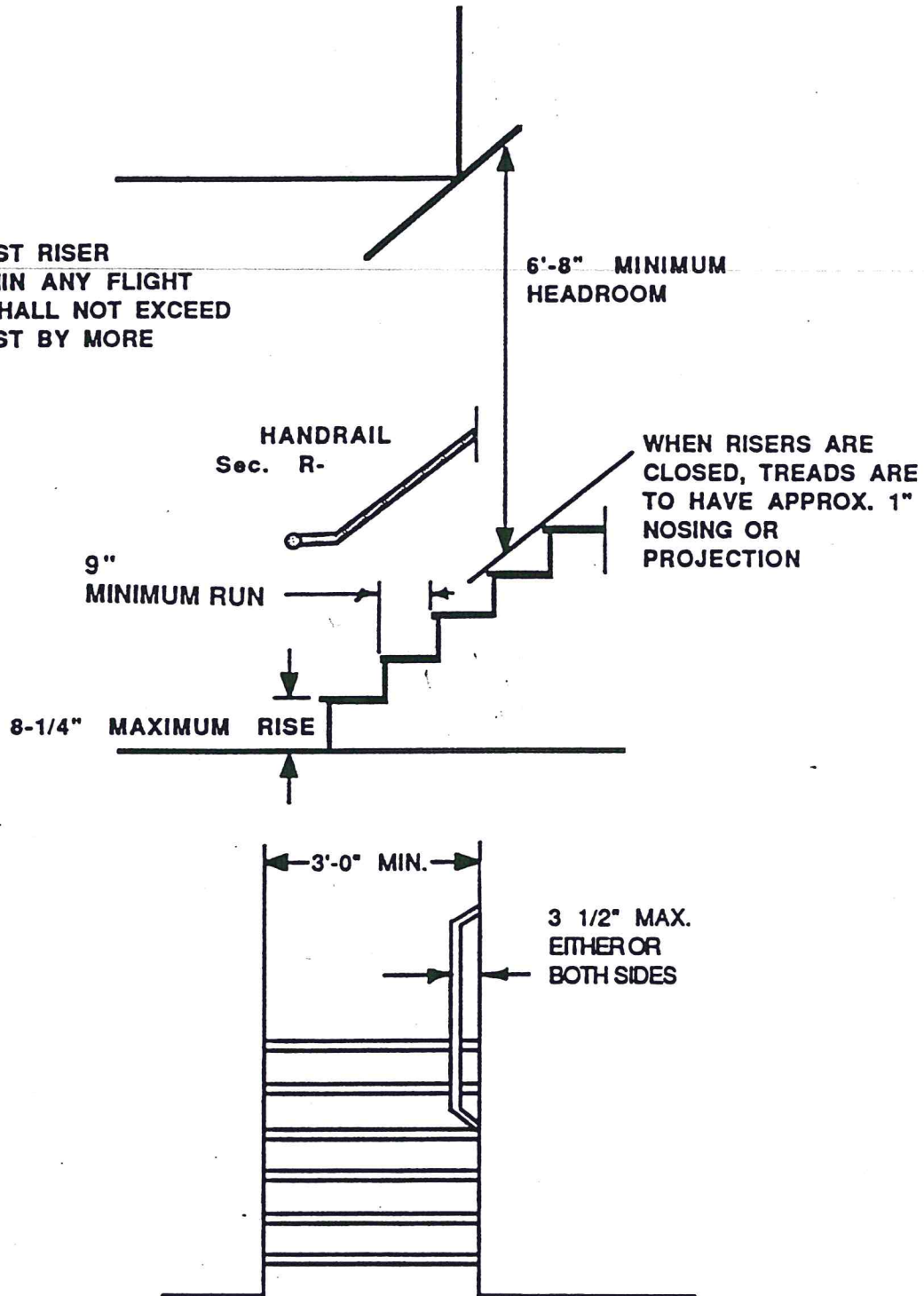
1. Openings in doors through which a 3" sphere is unable to pass.
2. Lead glass panels.
3. Faceted and decorative glass.
4. Glazing in Section R-208.4 item 6 when there is an intervening wall or other permanent barrier between the door and the glazing.
5. Glazing in Section R-208.4 item 7 when a protective bar is installed on the accessible side(s) of the glazing 36" \pm 2" above the floor. The bar shall be capable of withstanding a horizontal load of 50 lbs per linear foot without contacting the glass and be a minimum of 1 1/2" in height.
6. Outboard panes in insulating glass units and other multiple glazed panels in Section R-208.4 item 7 when the bottom edge of the glass is 25' or more above grade, a roof walking surface, or other horizontal (within 45° of horizontal) surface adjacent to the glass exterior.
7. Louvered windows and jalousies complying with the requirements of Section R-208.2.



GENERAL INFORMATION
SNOW LOADS
(GROUND)

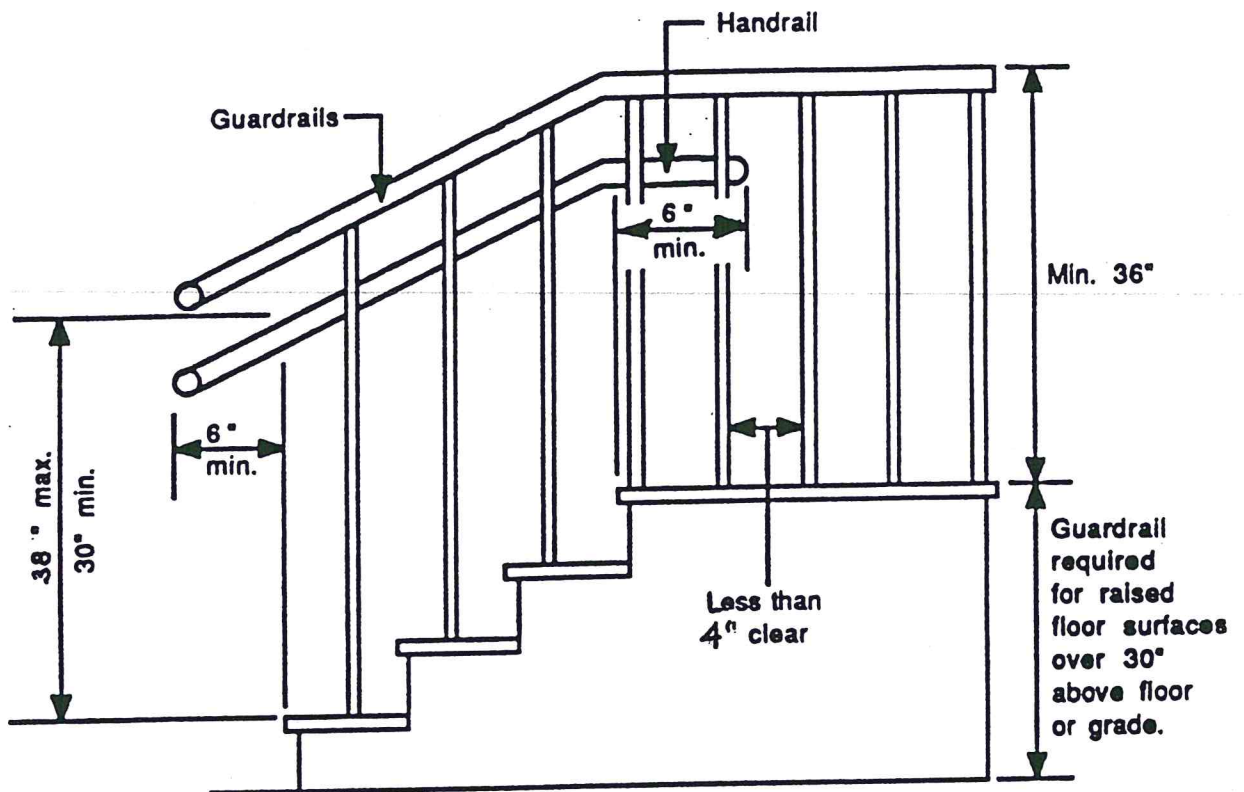
3'-0" MINIMUM STAIRWAY WIDTH

NOTE:
THE GREATEST RISER
HEIGHT WITHIN ANY FLIGHT
OF STAIRS SHALL NOT EXCEED
THE SMALLEST BY MORE
THAN 3/8"



STAIRWAYS

Sec. R-311.7



GUARDRAILS & HANDRAILS

Sec. R-312

HANDRAIL NOTES:

1. Must be provided on at least one side of stairway of three or more risers.
2. Must be continuous the full length of the stairs.
3. Must extend 6" beyond the top and bottom risers.
4. Ends must be returned or terminate in newel post or safety terminal.
5. Handgrip shall be max. 2-5/8" cross-sectional dimension or shape providing an equivalent gripping surface.
6. 1-1/2" minimum projection from wall.

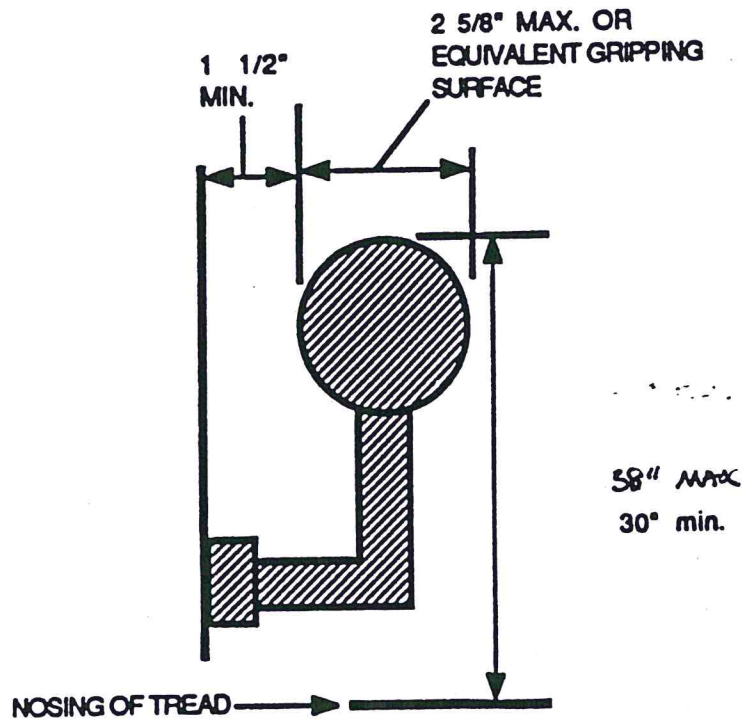


Table No. R-304.3a

MINIMUM THICKNESS AND ALLOWABLE DEPTH OF UNBALANCED FILL FOR UNREINFORCED MASONRY AND CONCRETE FOUNDATION WALLS ^{1,4} WHERE UNSTABLE SOIL OR GROUND WATER CONDITIONS DO NOT EXIST IN SEISMIC ZONES NO. 0, 1 OR 2

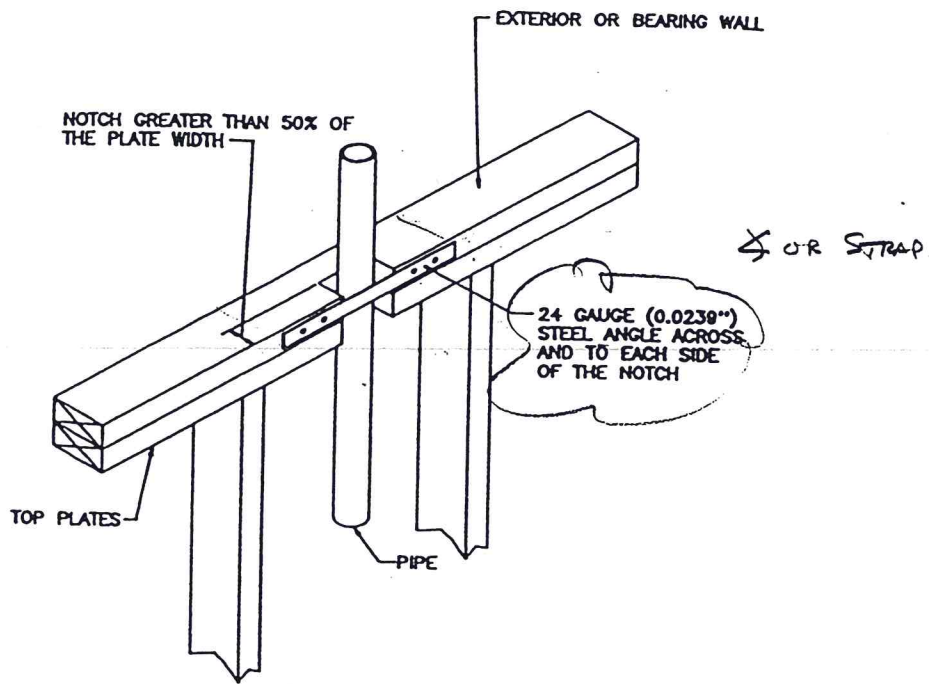
FOUNDATION WALL CONSTRUCTION	NOMINAL THICKNESS, ³ INCHES	MAXIMUM DEPTH OF UNBALANCED FILL, ¹ FEET
Masonry of Hollow Units, UngROUTed	8 10 12	4 5 6
Masonry of Solid Units	6 8 <hr/> 10 12	3 5 6 7
Masonry of Hollow or Solid Units, Fully Grouted	8 10 12	7 8 8
Plain Concrete	6 ² 8 <hr/> 10 12	6 <hr/> 7 8 8
Rubble Stone	Foundation wall of rubble stone shall be at least 16 inches thick. Rough or random rubble shall not be used as foundations for walls exceeding 35 feet in height.	
Masonry of hollow units reinforced vertically with #4 bars and grout at <u>24 inches</u> on center. Bars located not less than 4 1/2 inches from pressure side of wall.	8	7

¹ Maximum depths of unbalanced fill may be increased with the approval of the building official when soil conditions warrant such increase. Unbalanced fill is the height of outside finish grade above the basement floor or inside grade.

² 6-inch plain concrete walls shall be formed on both sides.

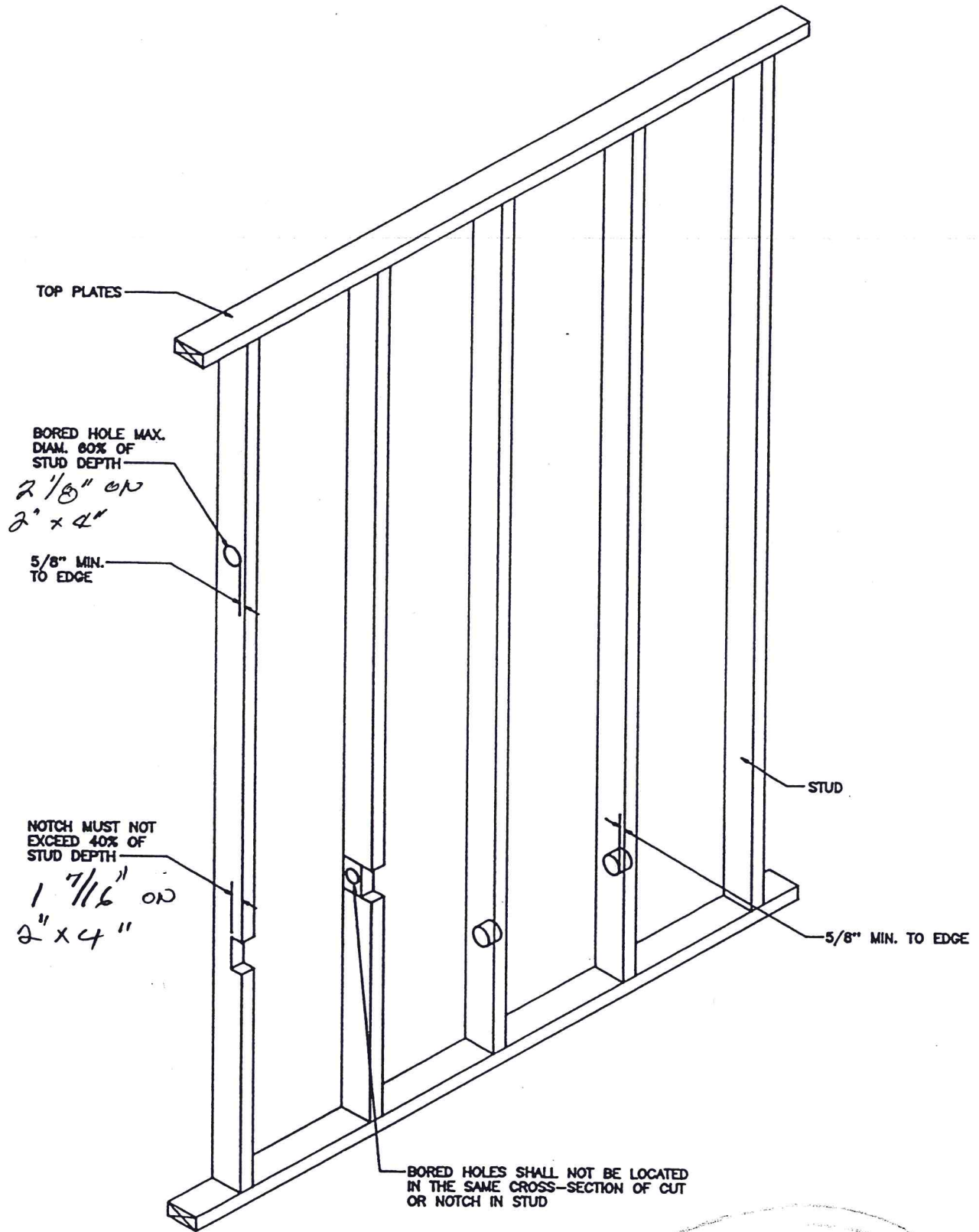
³ The actual thickness shall not be more than 1/2-inch less than the required nominal thickness specified in the table.

⁴ The height between lateral supports shall not exceed 8 feet.

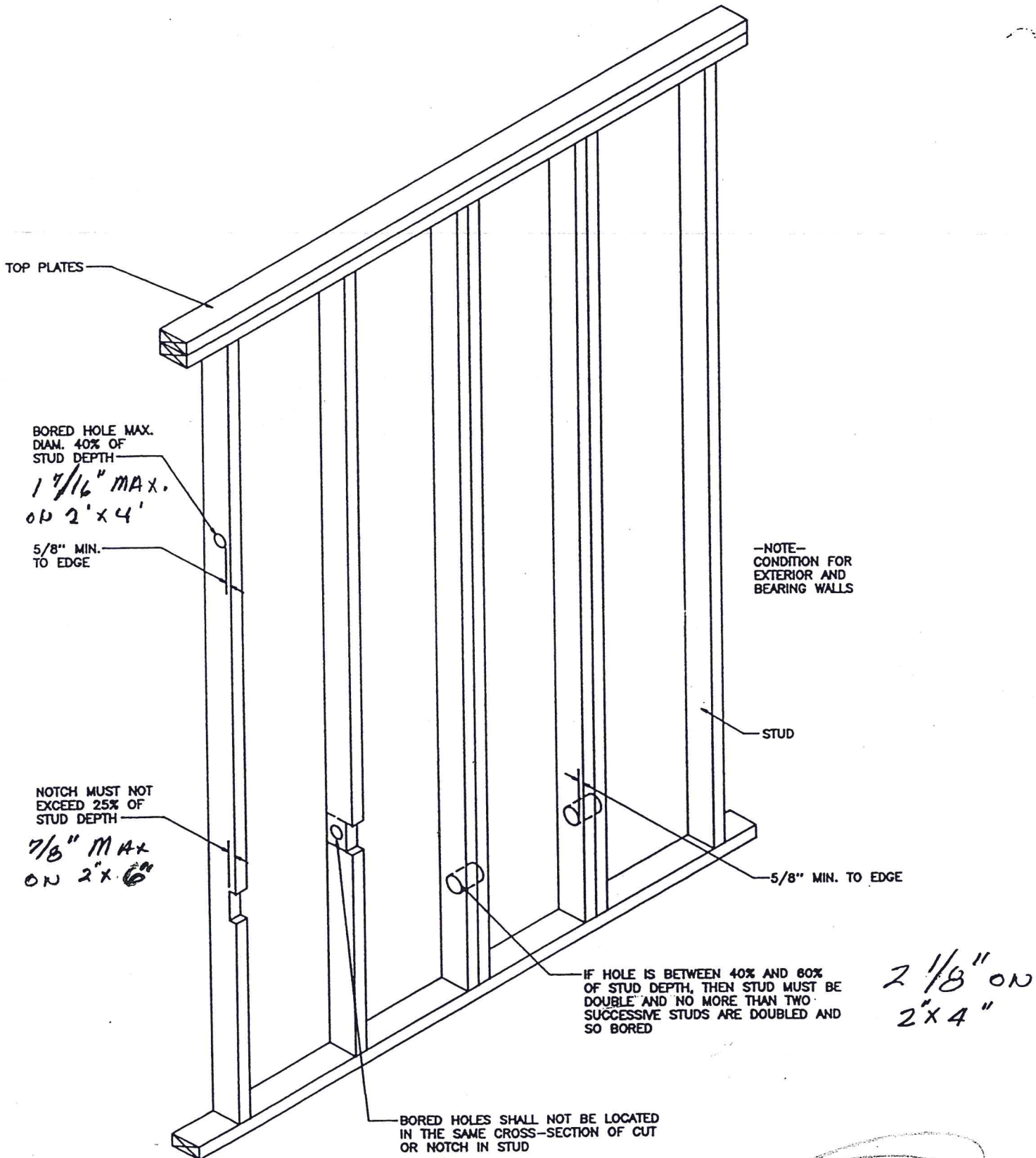


TOP PLATE FRAMING TO ACCOMMODATE PIPING

WALL CONSTRUCTION



NOTCHING AND BORED HOLE LIMITATIONS FOR INTERIOR NONBEARING WALLS



BORED HOLE MAX. DIAM. 40% OF STUD DEPTH

1 7/16" MAX. ON 2" x 4"

5/8" MIN. TO EDGE

NOTCH MUST NOT EXCEED 25% OF STUD DEPTH

7/8" MAX ON 2" x 6"

-NOTE-
CONDITION FOR EXTERIOR AND BEARING WALLS

STUD

5/8" MIN. TO EDGE

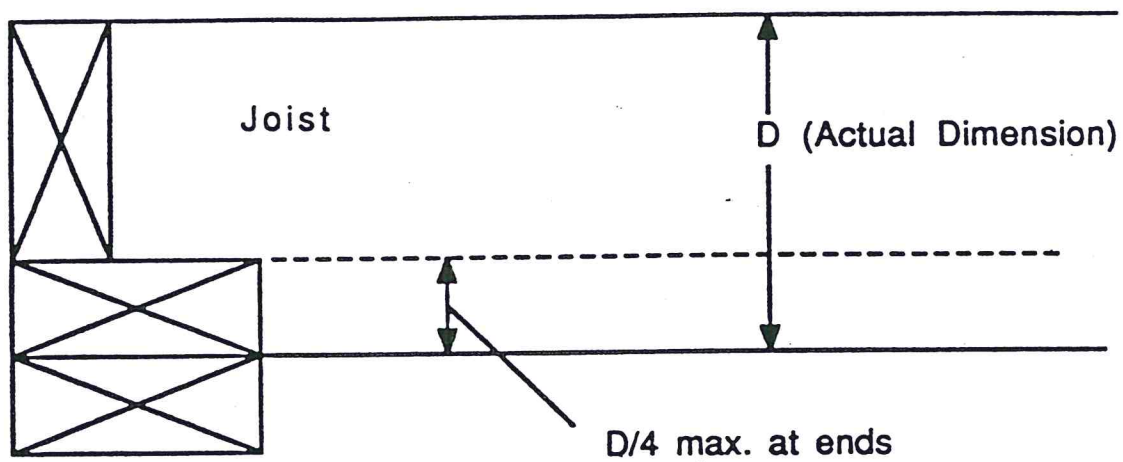
IF HOLE IS BETWEEN 40% AND 60% OF STUD DEPTH, THEN STUD MUST BE DOUBLE AND NO MORE THAN TWO SUCCESSIVE STUDS ARE DOUBLED AND SO BORED

2 1/8" ON 2" x 4"

BORED HOLES SHALL NOT BE LOCATED IN THE SAME CROSS-SECTION OF CUT OR NOTCH IN STUD

NOTCHING AND BORED HOLE LIMITATIONS FOR EXTERIOR WALLS AND BEARING WALLS

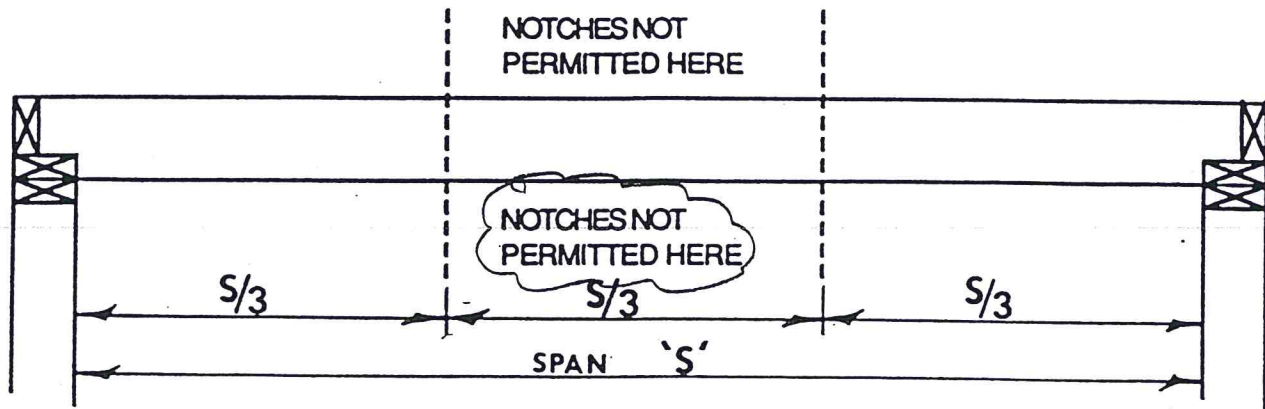
**ENDS OF JOISTS: NOTCH MUST
NOT EXCEED 1/4 DEPTH OF JOIST**



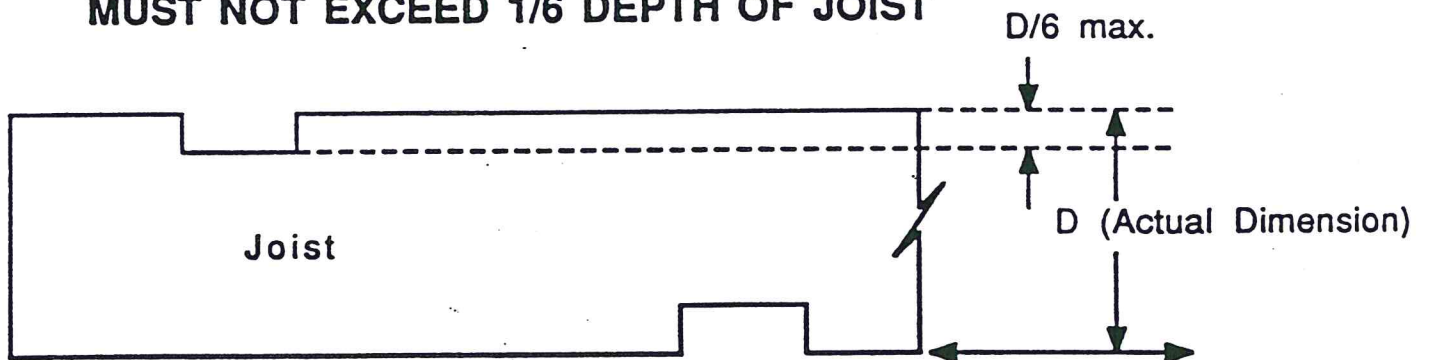
2 X 8 JOIST: 7.25" X 1/4 = .181" OR 1-13/16"
2 X 10 JOIST: 9.25" X 1/4 = 2.31" OR 2-5/16"

CUTTING AND NOTCHING

**NOTCHES ARE NOT PERMITTED
IN CENTER 1/3 OF SPAN:**



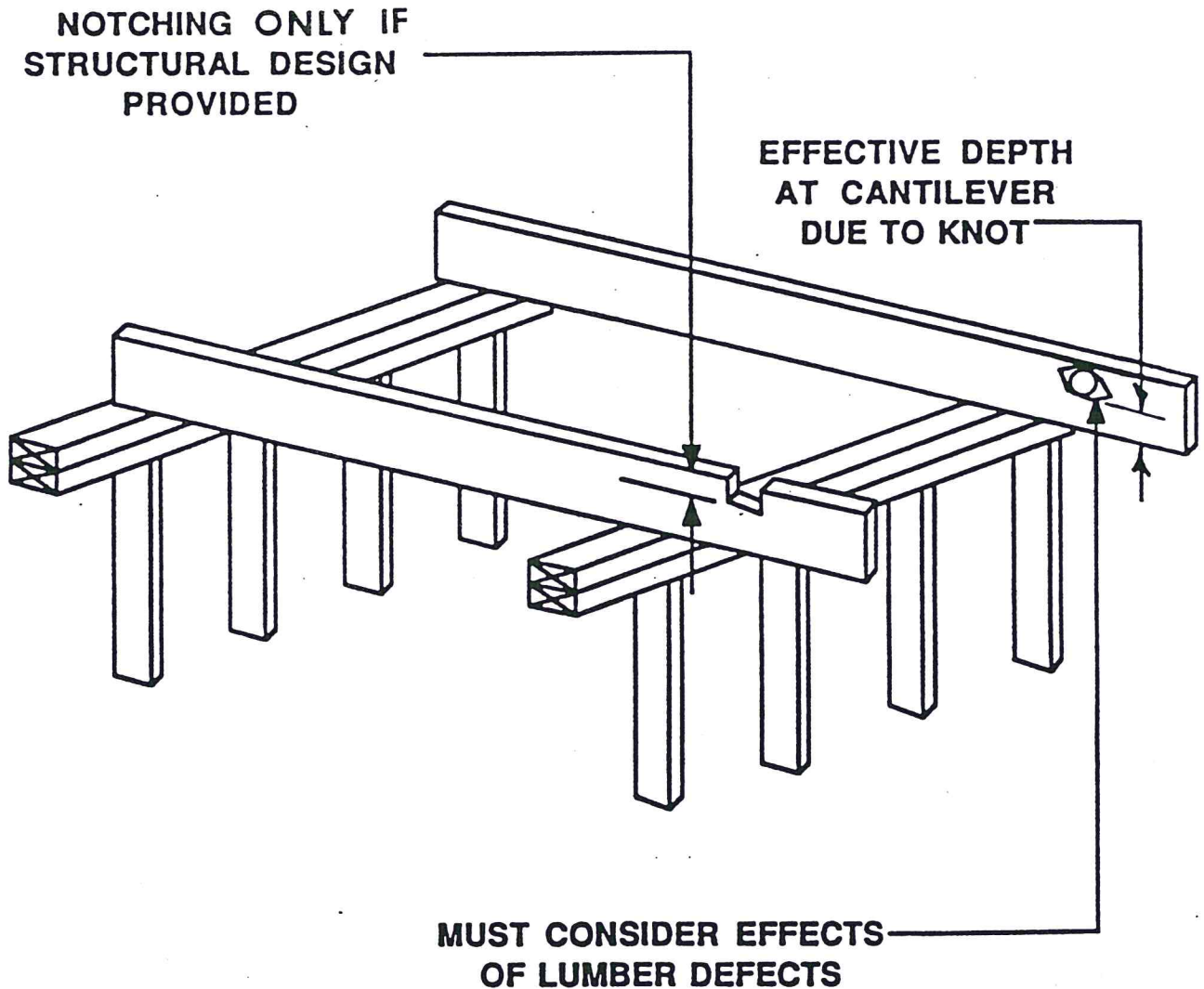
**TOP AND BOTTOM OF JOISTS: NOTCH
MUST NOT EXCEED 1/6 DEPTH OF JOIST**



2 X 8 JOIST: 7.25" X 1/6 = 1.20" OR 1-3/16"
2 X 10 JOIST: 9.25" X 1/6 = 1.54" OR 1-1/2"

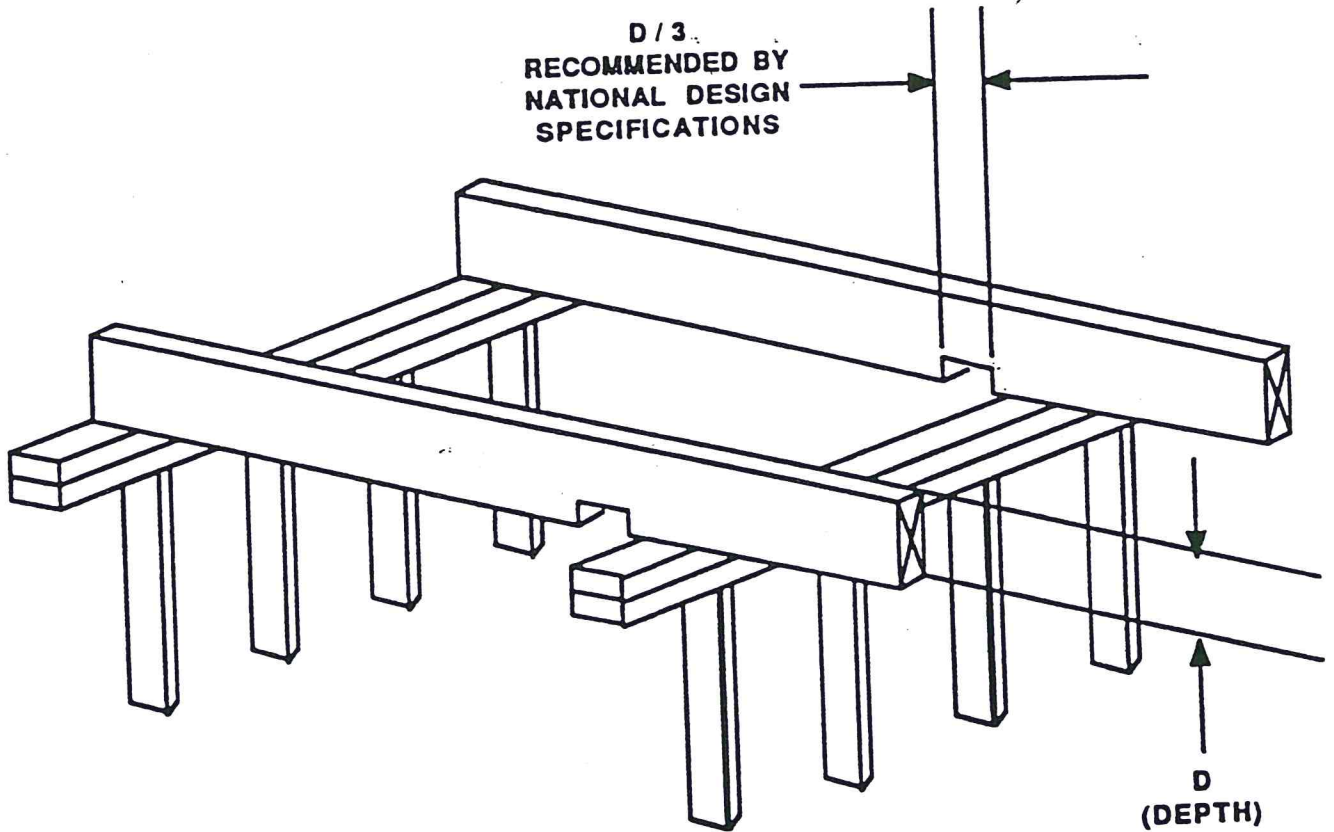
CUTTING AND NOTCHING

Cutting and Notching. . . . Cantilevered portions of members less than 4 inches in nominal thickness shall NOT be notched unless the reduced section properties and lumber defects are considered in the design. . . .



NOTCHING OF CANTILEVERED MEMBERS

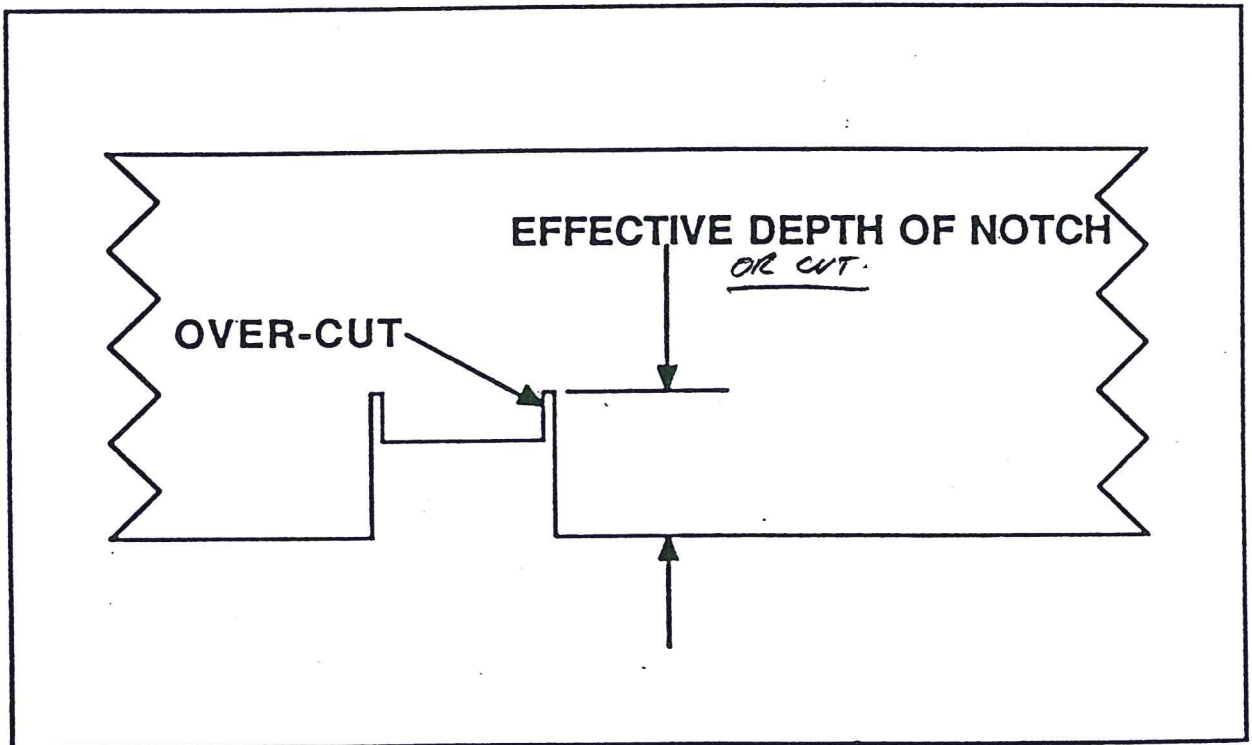
the National Design Specification recommends
that a notch have a length NO greater than one third of the member's
depth.



NOTCH LENGTH RECOMMENDATIONS

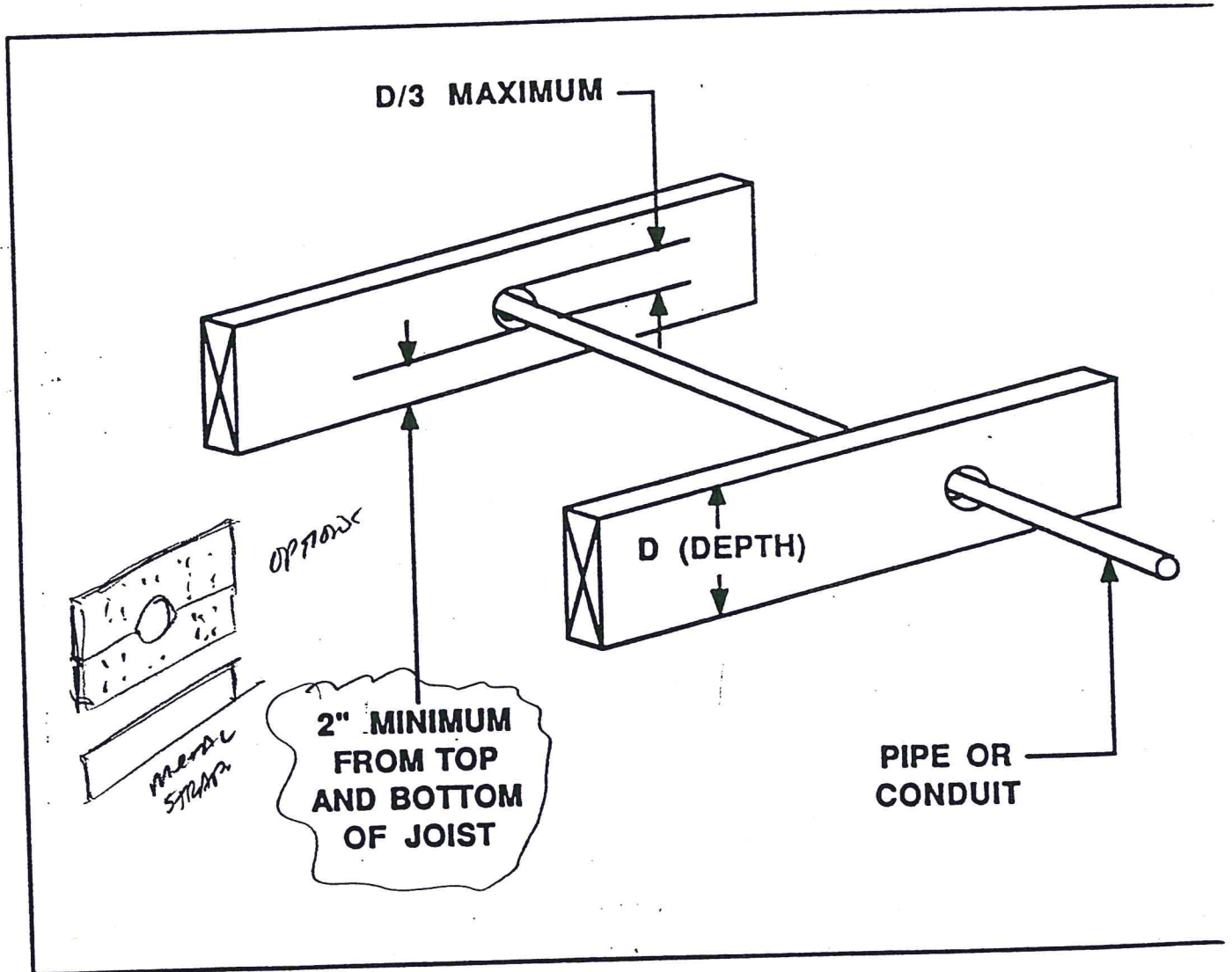
OVER-CUTS

The actual cut should be considered to be the critical notch dimension.

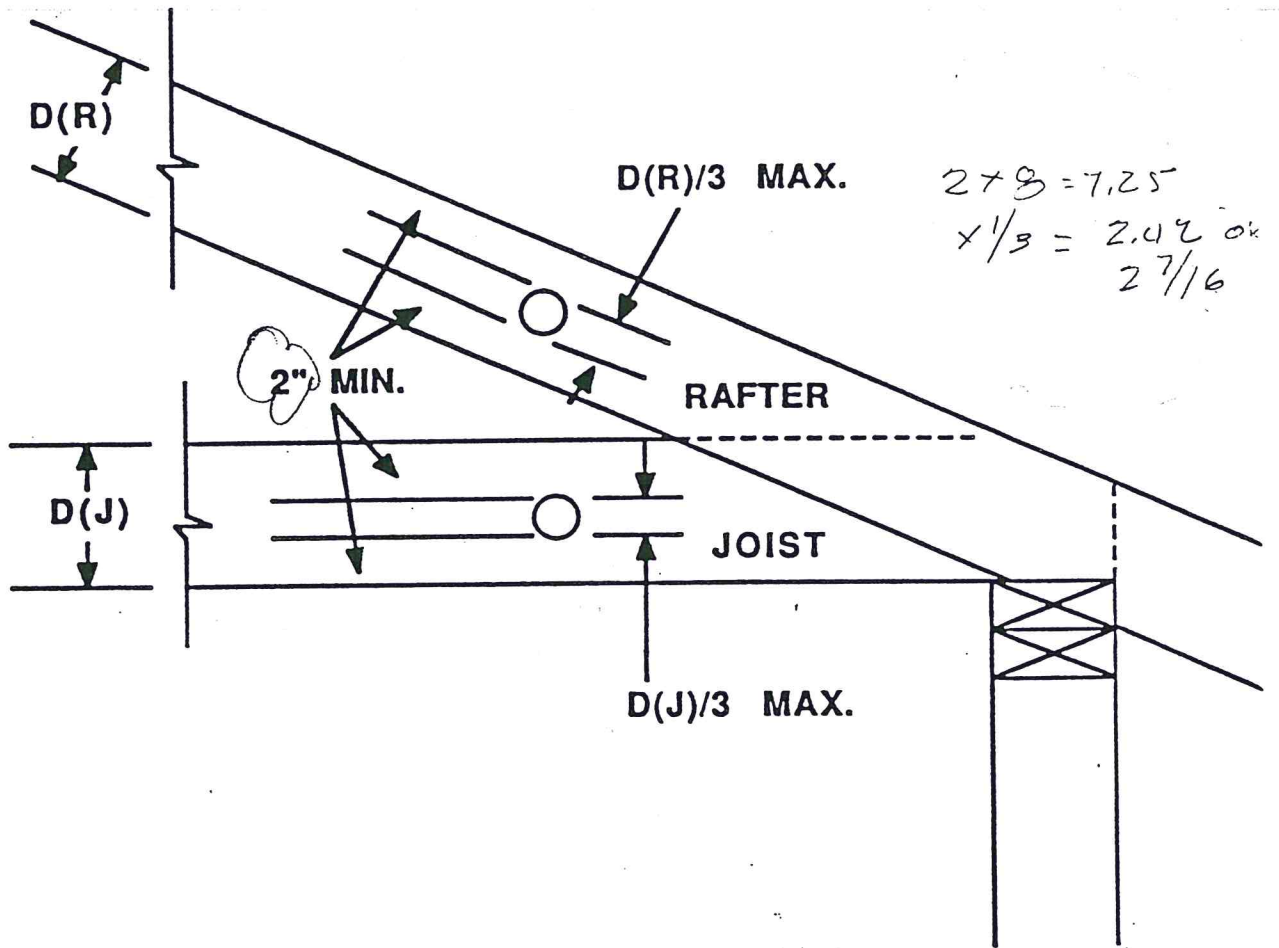


Holes bored in joists shall NOT be within 2 inches of the top or bottom of the joist, and the diameter of any such hole shall NOT exceed one third the depth of the joist.

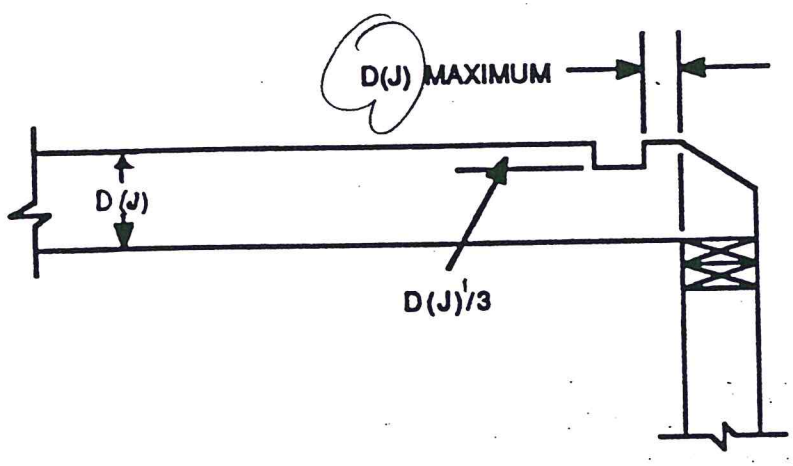
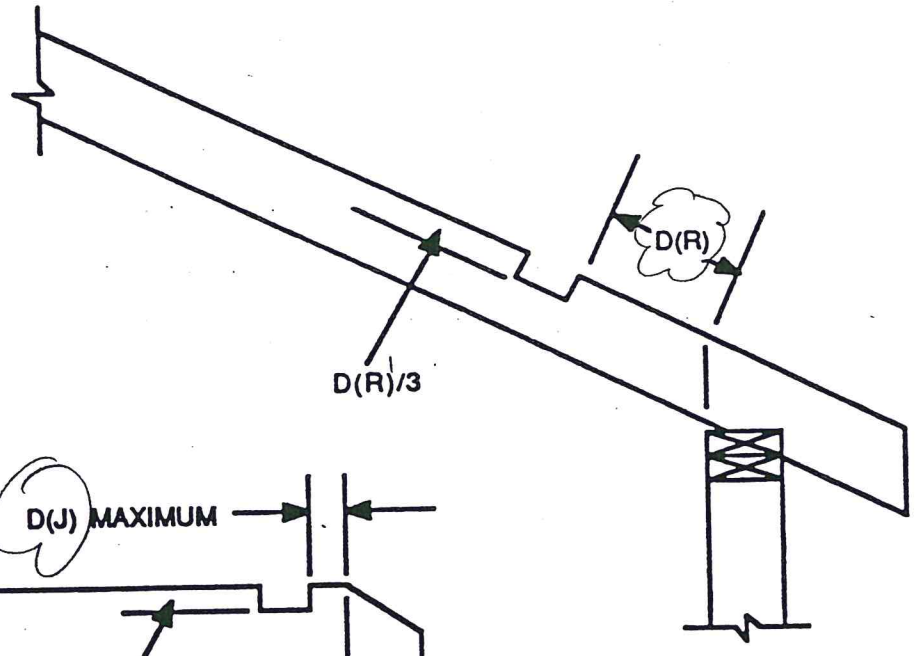
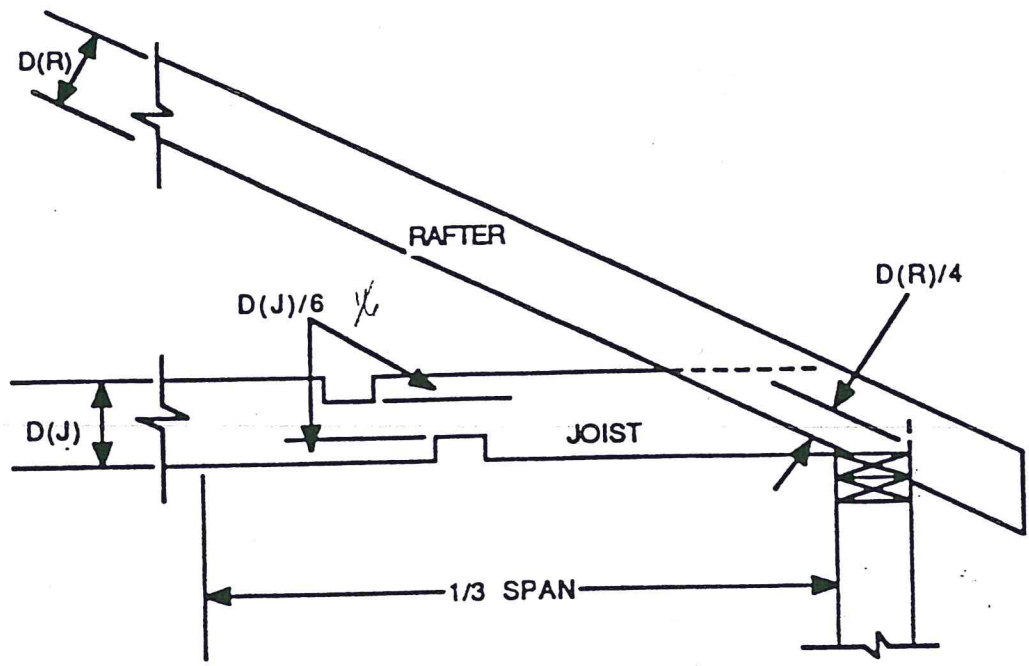
2 X 8 JOIST: $7.25" \times \frac{1}{3} = 2.42"$ OR $2\text{-}7/16"$
2 X 10 JOIST: $9.25" \times \frac{1}{3} = 3.08"$ OR $3\text{-}1/16"$



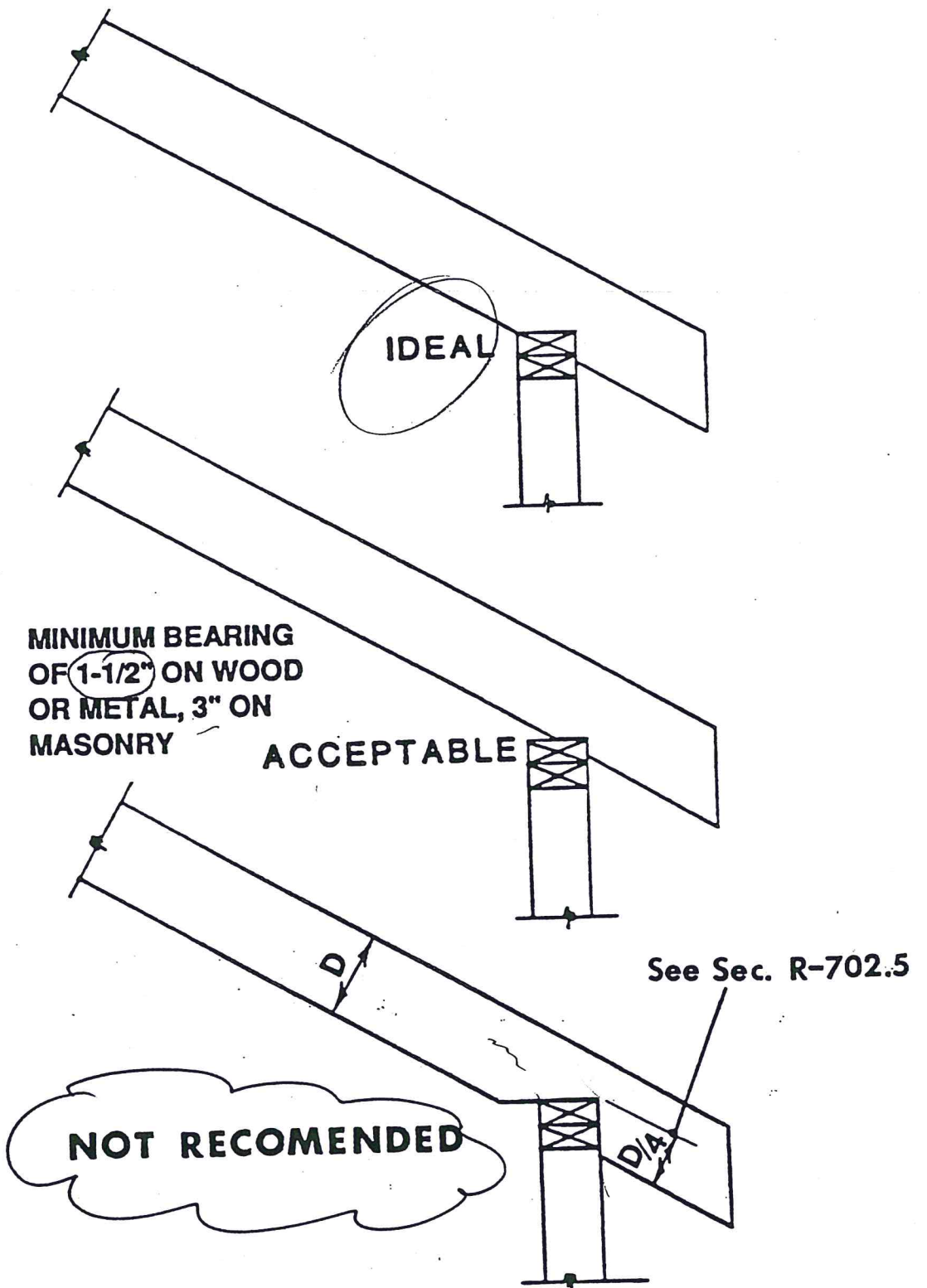
BORED HOLES



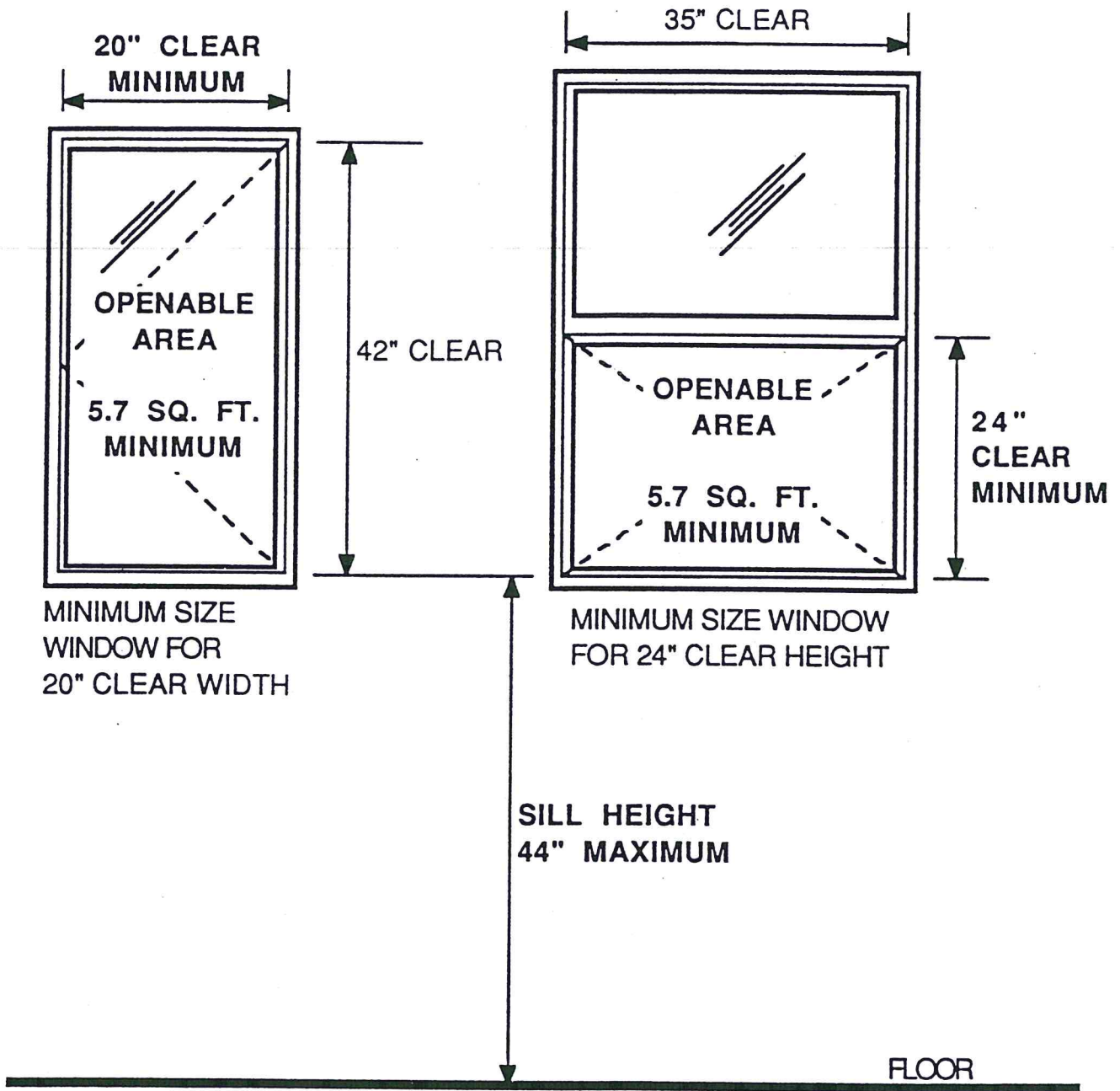
ROOF CONSTRUCTION BORED HOLES



ROOF CUTTING AND NOTCHING



RAFTER BEARING



MINIMUM SIZED RESCUE OR ESCAPE WINDOWS FROM SLEEPING ROOMS

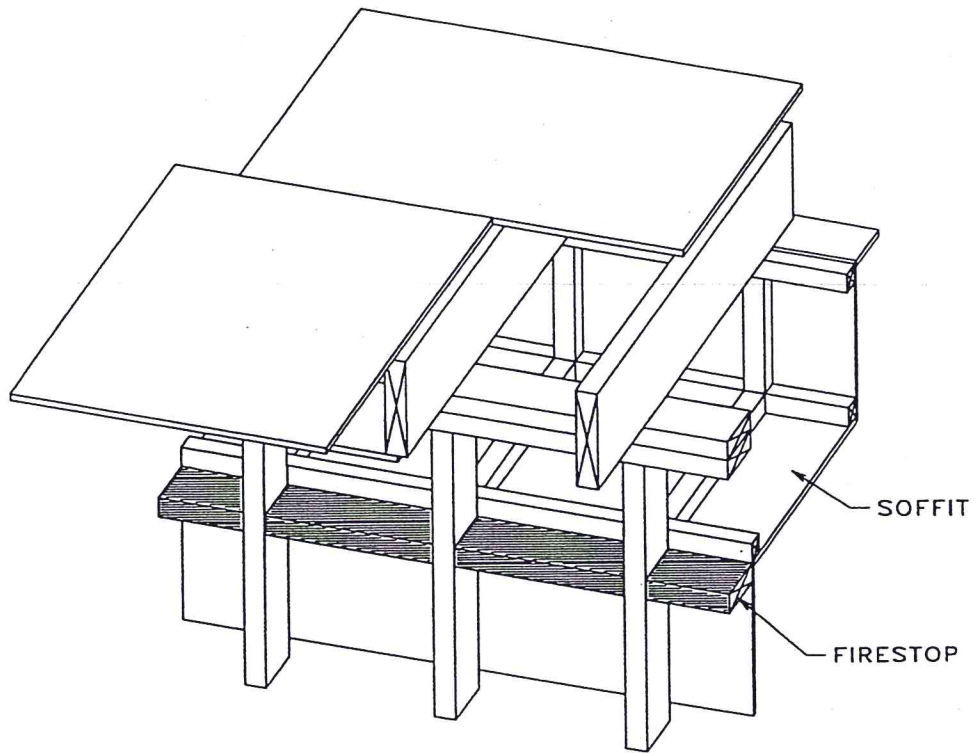


Figure No. 402.7c
FIRESTOPPING — FURRED SOFFIT

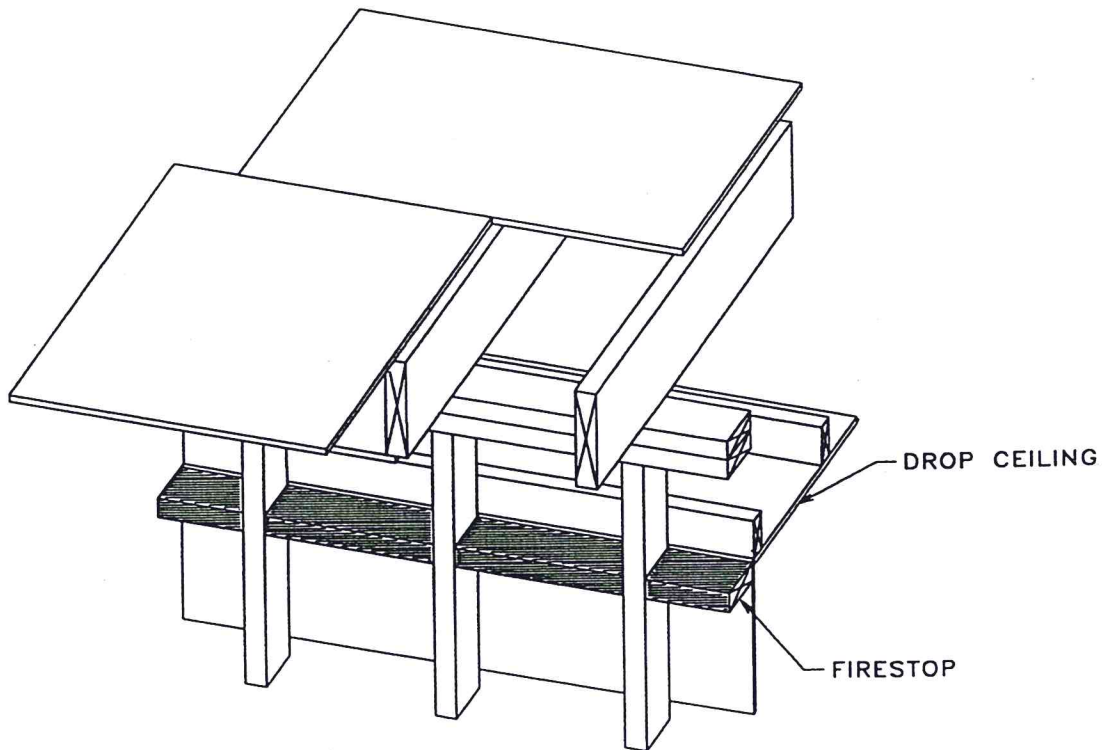


Figure No. 402.7d
FIRESTOPPING — DROPPED CEILING

APPLICATION AND COMMENTARY

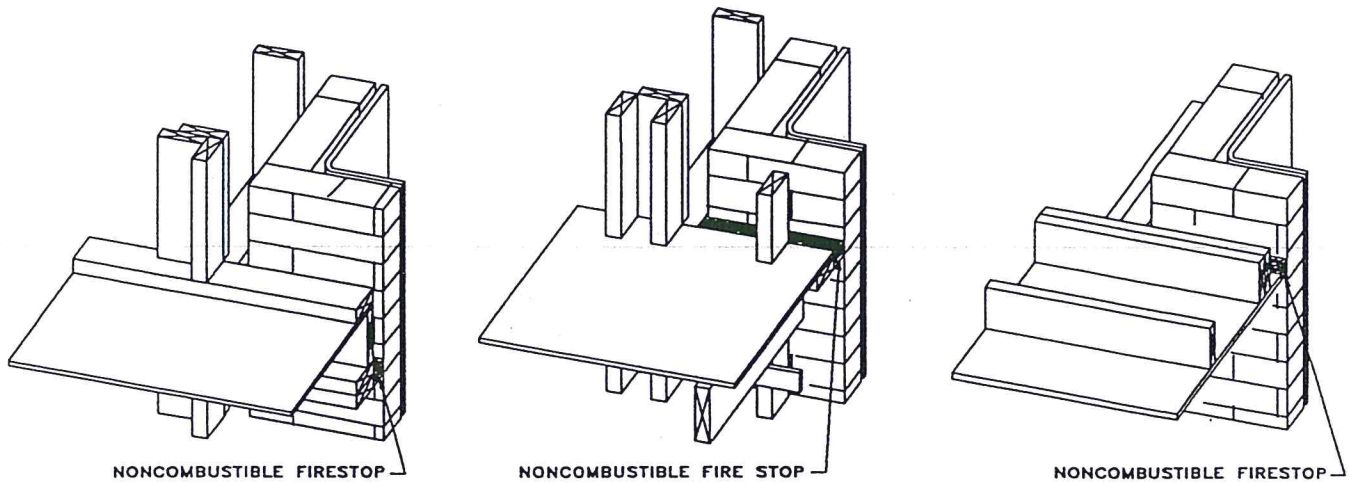


Figure No. 402.7i
FIRESTOPPING — AROUND CHIMNEYS AND FIREPLACES

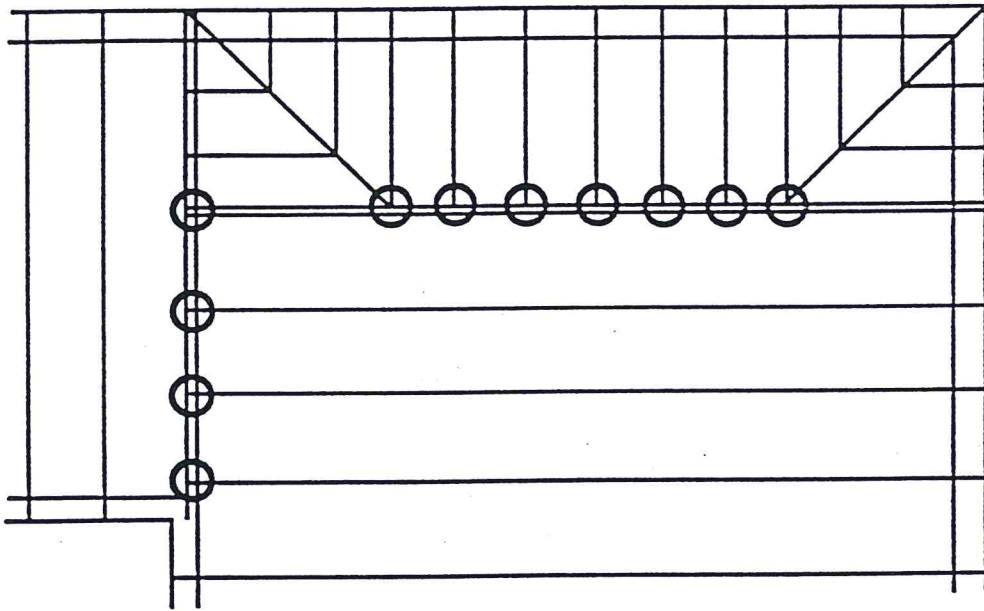
Draftstopping: Draftstopping is required to limit the spread of fire through combustible spaces in floor/ceiling assemblies when such spaces create a connected area beyond the normal joist cavity. For example, draftstopping is required when the ceiling is suspended under the floor framing (as illustrated in Figure No. 402.8a) or when the floor framing is constructed of truss-type or open-web perforated members (as illustrated in Figure No. 402.8b). When such spaces are present, the space between the ceiling membrane and the floor is required to be divided into a minimum of two approximately equal areas with no area greater than 1,000 square feet. Although unlikely, a floor/ceiling assembly having a space exceeding 2,000 square feet but not exceeding 3,000 would have to be divided into a minimum of three approximately equal areas.

An additional restriction is placed on the specific location of the draftstopping. This restriction mandates that the draftstopping be placed parallel to the main framing members. Two examples of draftstopping orientation placed as required above are shown in Figure Nos. 402.8a and 402.8b.

Materials used to meet the draftstopping requirements are typically $\frac{1}{2}$ -inch gypsum board, $\frac{3}{8}$ -inch plywood, or $\frac{3}{8}$ -inch Type 2-M-W particleboard adequately attached to the supporting members. Other materials may be used for draftstopping provided that such materials produce an equivalent barrier.

When a penetration through the draftstopping is necessary, the integrity of the draftstop must be maintained similar to what is typically done for firestopping penetrations.

LOOK OUT FOR...

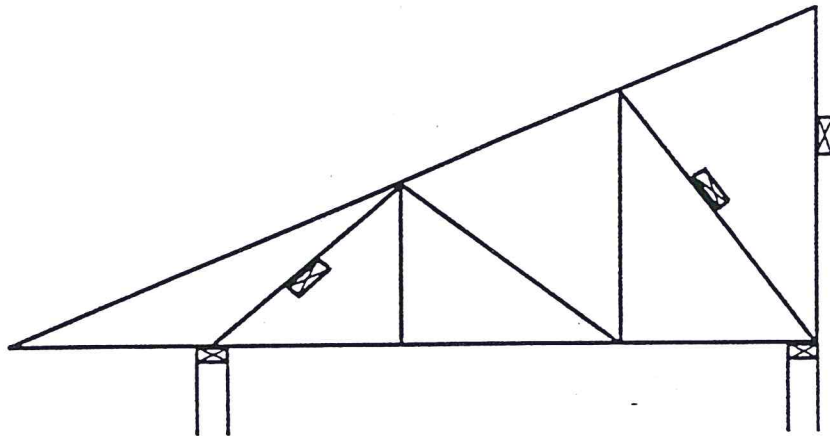


MISSING HANGERS AT
CONNECTIONS TO GIRDERS

WATG
G&E.

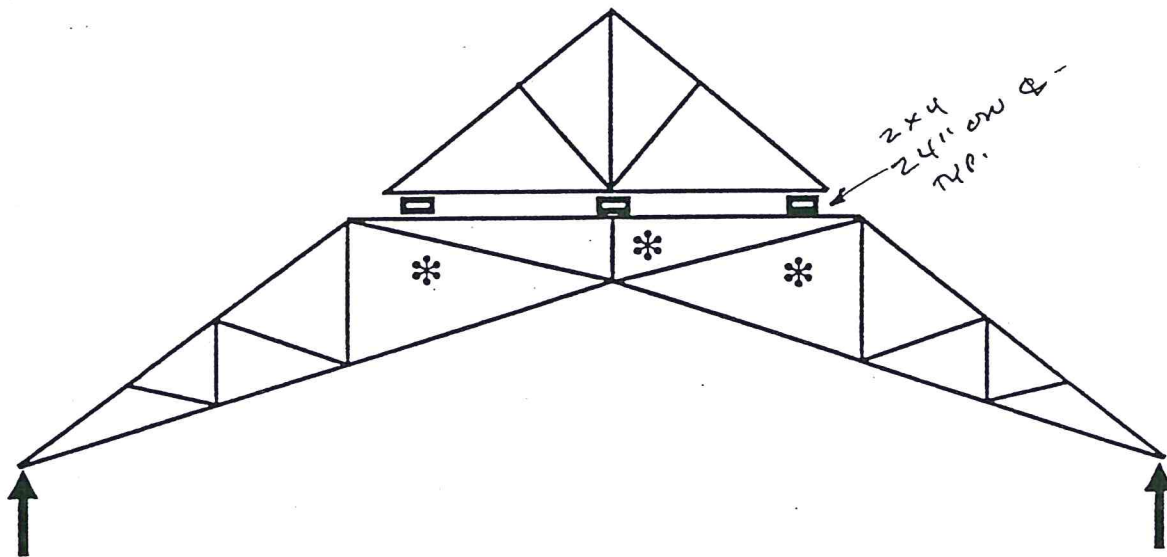
NO END NAILS -

LOOK OUT FOR...

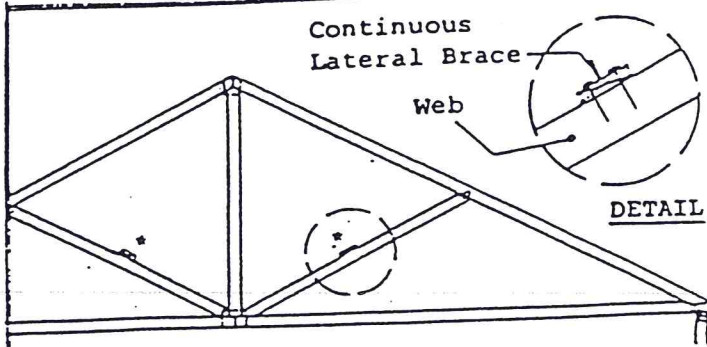


MISSING LATERAL BRACES
ON LONG WEBS AT BEARINGS

LOOK OUT FOR...



* PIGGYBACK FLAT TOPS
WITH NO LATERAL BRACING

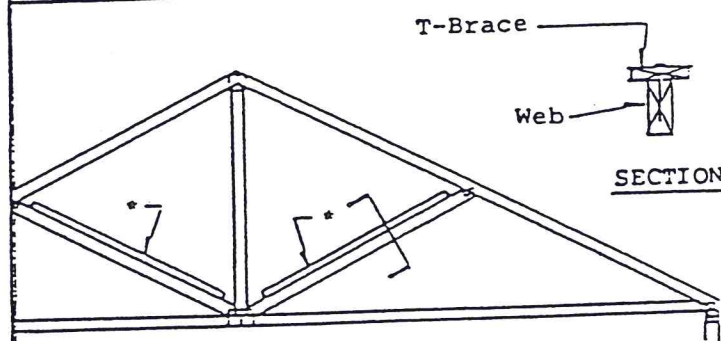


1X4 CONTINUOUS LATERAL BRACING ATTACHED WITH TWO (2) 8d NAILS.

OR

2X4 CONTINUOUS LATERAL BRACING ATTACHED WITH TWO (2) 12d NAILS.

CONTINUOUS LATERAL BRACE

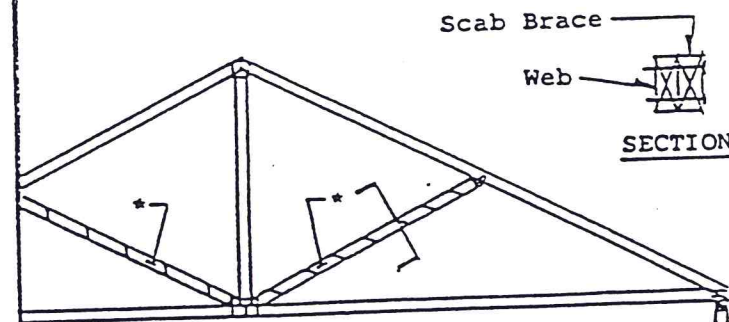


1X4 "T" BRACE STIFFENER NAILED FLAT TO EDGE OF WEB WITH 8d NAILS AT 8 INCHES O.C. "T" BRACE TO EXTEND FOR 90% OF WEB LENGTH.

OR

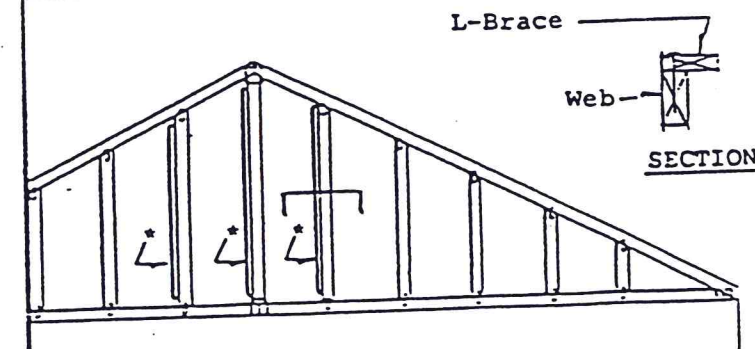
2X6 "T" BRACE STIFFENER NAILED FLAT TO EDGE OF WEB WITH 12d NAILS AT 6 INCHES O.C. STAGGERED. "T" BRACE TO EXTEND FOR 90% OF WEB LENGTH.

T-BRACE



SCAB BRACE OF THE SAME DIMENSION AND GRADE AS WEB NAILED TO FACE OF WEB WITH 10d NAILS 8 INCHES O.C. STAGGERED. SCAB BRACE TO EXTEND FOR 90% OF WEB LENGTH.

SCAB BRACE



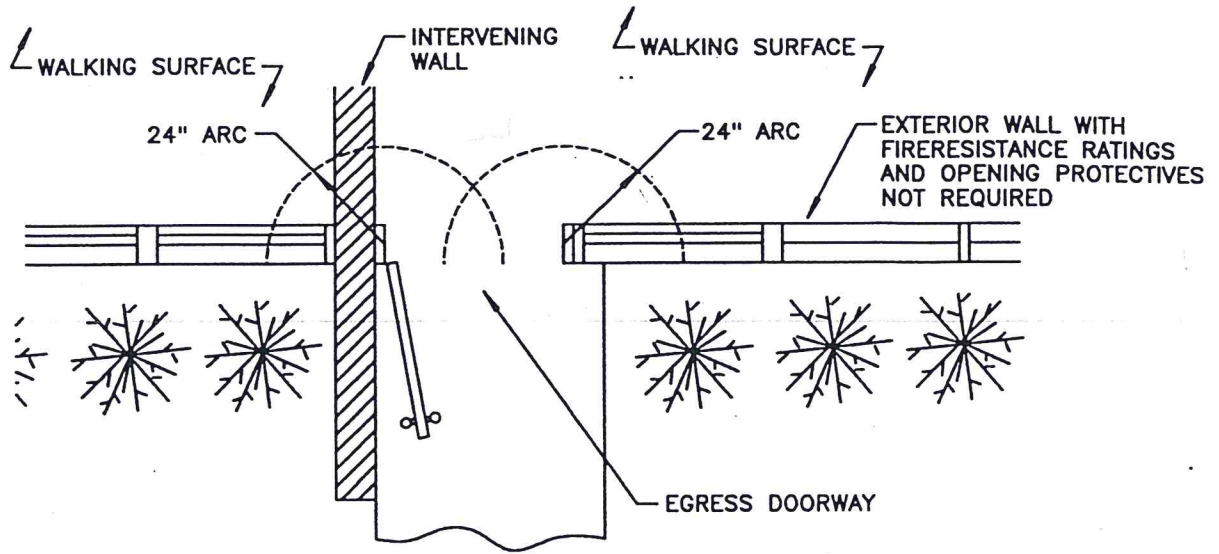
2X4 "STRONGBACK" BRACE ATTACHED WITH TWO (2) 16d NAILS TO EACH MEMBER.

"STRONGBACK" CONSISTS OF 2X4'S IN THE FORM OF AN "L" FASTENED TOGETHER WITH 10d NAILS AT 8 INCHES O.C.

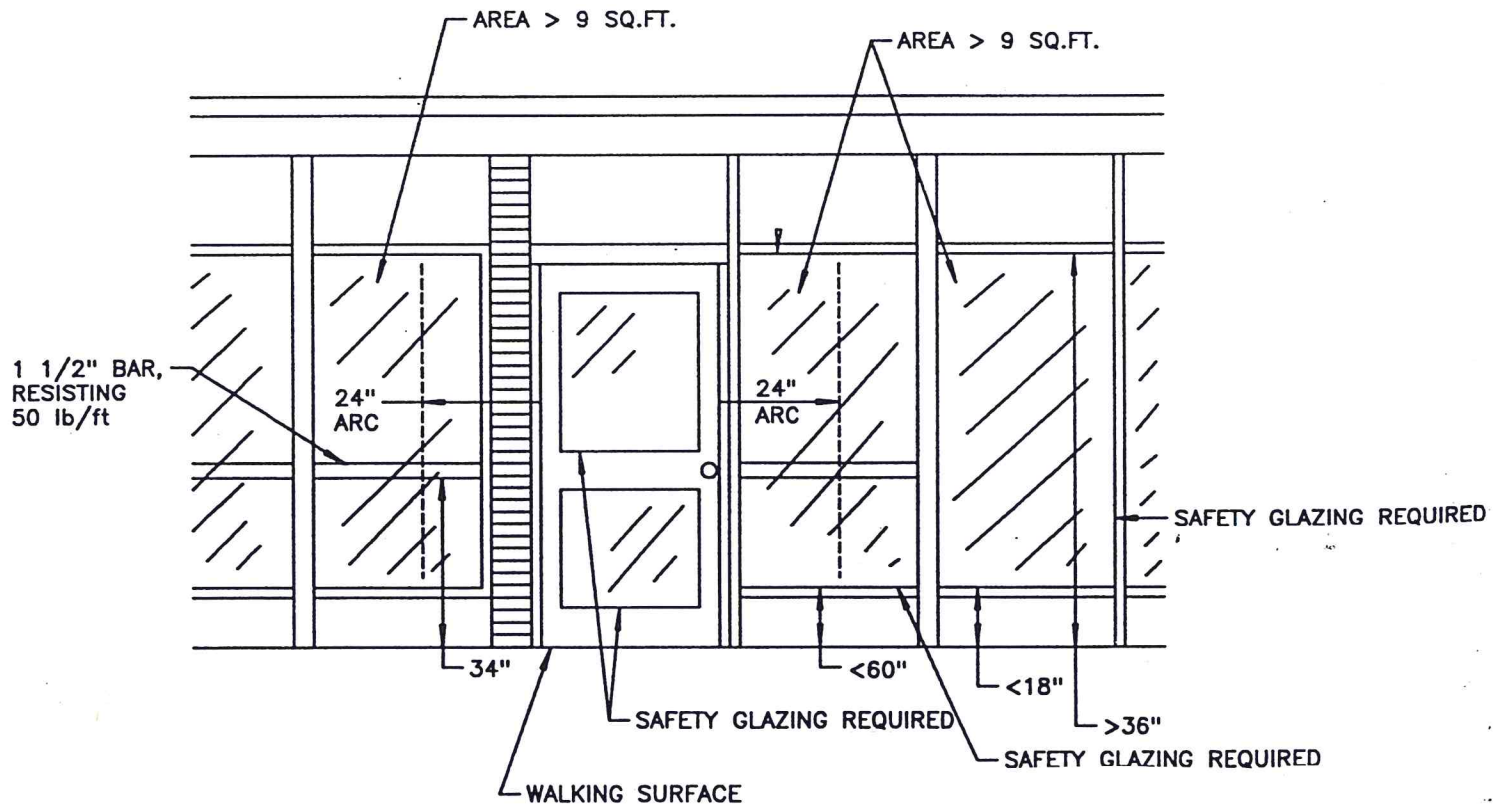
GABLE ENDS

L-BRACE

EXAMPLES OF WEB BRACES



PLAN VIEW



ELEVATION

**Figure 2405.2
SPECIFIC HAZARDOUS LOCATION EXAMPLES (SAFETY GLAZING)**