City of Chaska
Residential Decks Building & Zoning Requirements

Required information to be submitted for a deck permit:

1. The completed building permit application, include all required information in the number spaces, signed and dated.
2. Two copies of a site plan, drawn to scale indicating the location and area of proposed deck on the house and setbacks from property lines. Check if there is a Certificate of Survey for the property on file at City Hall.
3. Two copies of deck plans drawn to ¼ inch scale with the following information:
    a. Floor plan:
        - Proposed deck size.
        - Location on the house.
          Note: Safety glazing is required in house window(s).
            1. Within 3 feet in the direction of travel of the top or 5 feet of the bottom of any stair landing.
            2. Within 18 inches from the railing parallel to stairs unless 36 inches above the stair nosing.
        - Size, spacing and type of lumber of floor joist and beams.
        - Size of decking and type of material.
        - Size, type lumber, location and spacing of posts.
        - Location, diameter and depth of footings.
    b. Elevations plan: (this can be eliminated if information is on the floor plan)
        - Height of deck from established grade.
        - Guard height, type of rail and spacing. (if required)
        - Stairs. (location, size and stringer spacing)

Required Inspections:

1. **Footing**: after the holes have been dug, but before concrete is poured.
2. **Framing**: Required on decks built closer than 30" to the ground. Inspection to be completed after all framing, blocking and bracing are in place and prior to installing decking so it is accessible for inspection. (this inspection can be completed at the Final if all portions of the framing will be visible and accessible.)
3. **Final**: When the deck is complete, including guards, stairs, landing(s) & finished grade.

General notes:

1. Call Gopher State One Call at least two full working days (48 hours) prior to digging, at 651-454-0002, (800-252-1166) to verify utility locations.
2. The approved plan, survey and inspection card shall be made available at every inspection and kept on the job site until final inspection is completed.
3. *To schedule an inspection, call 952-448-9200 and ask for Building Inspections. Please give 24 hour notice.*

Commonly Asked Code Questions Regarding Deck Construction

- Decks-Platforms less than 30 inches off the established grade and not attached to the structure do not require a building permit but still must conform to the Building Code and City zoning requirements.

- **Frost footings**: Required for a deck attached to a structure that has frost footings. The minimum depth to the bottom of the footing is 42 inches. See handout to determine the diameter required to support the deck load. (Deck designs need to be capable of supporting 50 pounds per square foot. Any additional loads, i.e. future covered porch, hot tub, etc. should be designed accordingly, contact Building Inspections for assistance.)

- **Wood Required**: All exposed wood is required to be of natural resistance to decay such as redwood, cedar or approved treated lumber. This includes posts, beams, joists, decking and railings. **Note**: Any composite or plastic decking and railing material must be approved prior to installation by Building Inspections because some of these products have not been tested and approved for deck use.

- **Fasteners:** Nails and screws must be corrosion resistant. Joists that frame into ledger boards or beams shall be supported by a joist hanger (or equal). Provide a mechanical connection between post to footing and post to beam. All nail holes in joist hangers and mechanical fasteners are to be filled. (No roofing nails or screws are allowed)

- **Framing Details**: Ledger board is required to be lag bolted to the structure with 2 ea. - 3/8" x 4" lags, 16" on center or 24" on center for floor trusses.
  Note: Ledger boards cannot be attached to house cantilevers unless specifically designed for the additional load. Contact Building Inspections.
  Floor joists and stair stringers spaced 24" or 19.2" on center require a minimum of 2" nominal decking, 16" on center may use 1" decking boards. Some composite decking products may require joist spacing to be 12" on center.

- **Splices** in multiple beam members must occur over support posts.

- **Flashing:** All connections between deck and the building shall be weatherproof. Corrosion resistant flashing over the deck ledger and under siding is required. Also seal bottom and sides of ledger.

- **Cantilevers: (Overhanging joists and beams)** Joists should not over hang beams by more than 2 feet in front, nor should beams overhang posts on the sides by more than 1 foot or deck-specific engineering is required to be submitted.
  Note: Do not cantilever deck joists and beams if, in the future, the deck may be converted into a porch or room.

- **Guards**: Guards are required on all decks and both sides of stairs over 30 inches above grade. A guard shall be 36 inches above the finished deck surface and 34 to 38 inches above the stair nosing. Open guards require intermediate rails or an ornamental pattern such that a 4-inch diameter ball will not pass through open space.

  Exceptions:

  1. The triangle formed at the stair riser, tread and bottom element of the guardrail must be sized such that a 6-inch diameter ball will not pass through. See attached handout.
  2. The openings for required guards on sides of stairs shall allow a 4 3/8 inch ball to pass through. See attached handout.

- **Handrails**: Stairways having 4 or more risers shall have at least one gripable handrail. The top shall be placed between 34 to 38 inches above the stair nosings, starting even with the top tread nosing and bottom tread nosing. It shall be continuous with both ends returned back to a post or wall. Use attached handout as a guide.

- **Stairs**: If a stairway is provided, the minimum inside width is 36 inches. Maximum rise is 7 3/4 inches; the minimum tread depth is 10 inches measured osing to nosing. A nosing of ¾ inch to 1 ¼ inch is required. EXCEPTION: A nosing is not required where the tread is a minimum of 11 inches. The largest tread width or riser height and nosing depth cannot exceed the smallest by more than 3/8th inch. A 4-inch diameter ball will not pass through the riser opening on stairs greater than 30 inches above grade. Stair stringers shall be attached to the deck in a positive and secure fashion. All landings and stairways shall be illuminated. (See attached handout)

- **Landings** shall be provided at the bottom of the steps that is level, 36 inches wide minimum, (but not less than the width of the stairs), by 36 inches deep. The landing does not have to be concrete it may be grass. The rise from the landing to the first tread shall be the same as the other risers and not vary more than 3/8th inch.

Special design note: Some deck platform designs may not be appropriate if a screen porch or 3-season porch is going to be a future consideration. Porch and deck setbacks are not the same

THIS INFORMATION IS A GUIDE TO THE MOST COMMON QUESTIONS. IT IS NOT INTENDED, NOR SHALL IT BE CONSIDERED, A COMPLETE SET OF REQUIREMENTS.

Joist spans, Beam and Footing size tables

Maximum Joist Spans (Based on Treated # 2 or better wood grades)

joist	Spruce, Pine or Fir			joist	Southern Pine			joist	Western Cedar			joist
size	12" OC	16" OC	24" OC	size	12" OC	16" OC	24" OC	size	12" OC	16" OC	24" OC	size
2 x 6	9'-2"	8'-4"	7'-0"	2 x 6	10'-9"	9'-9"	8'-6"	2 x 6	9'-2"	8'-4"	7'-3"	2 x 6
2 x 8	12'-1"	10'-10"	8'-10"	2 x 8	14'-2"	12'-10"	11'-0"	2 x 8	12'-1"	11'-0"	9'-2"	2 x 8
2 x 10	15'-4"	13'-3"	10'-10"	2 x 10	18'-0"	16'-1"	13'-5"	2 x 10	15'-5"	13'-9"	11'-3"	2 x 10
2 x 12	17'-9"	15'-5"	12'-7"	2 x 12	21'-9"	19'-0"	15'-4"	2 x 12	18'-5"	16'-0"	13'-0"	2 x 12

Beam size Spruce, Pine or Fir (based on treated #2 or better wood grades)

joist	Post spacing											
length	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
6'	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12	3-2x10
8'	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10	3-2x10	3-2x10	3-2x12
10'	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12	
12'	2-2x6	2-2x6	2-2x6	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12	3-2x12	3-2x12		
14'	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12			
16'	2-2x6	2-2x6	2-2x8	2-2x10	2-2x10	3-2x10	3-2x10	3-2x12	3-2x12			

Beam size Southern Pine (minimum beam size based on treated #2 or better wood grades)

joist	Post spacing											
length	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
6'	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x10	2-2x10
8'	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x8	2-2x10	2-2x10	2-2x12	2-2x12
10'	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10	3-2x10
12'	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x6	2-2x10	2-2x10	2-2x12	3-2x10	3-2x10	3-2x12
14'	2-2x6	2-2x6	2-2x6	2-2x6	2-2x8	2-2x10	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12	3-2x12
16'	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	

Corner footings (minimum bottom diameter)

joist	Post spacing											
length	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
6'	8"	8"	8"	8"	8"	8"	8"	9"	9"	9"	10"	10"
8'	8"	8"	8"	8"	8"	9"	9"	10"	10"	11"	11"	12"
10'	8"	8"	8"	9"	9"	10"	11"	11"	12"	12"	13"	13"
12'	8"	8"	9"	9"	10"	11"	12"	12"	13"	13"	14"	14"
14'	8"	8"	9"	10"	11"	12"	12"	13"	14"	14"	15"	15"
16'	8"	9"	10"	11"	12"	12"	13"	14"	15"	15"	16"	16"

Intermediate footings (minimum bottom diameter)

joist	Post spacing											
length.	3'	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'
6'	8"	8"	9"	9"	10"	11"	12"	12"	13"	13"	14"	14"
8'	8"	9"	10"	11"	12"	12"	13"	14"	15"	15"	16"	16"
10'	9"	10"	11"	12"	13"	14"	15"	15"	16"	17"	18"	18"
12'	9"	11"	12"	13"	14"	15"	16"	17"	18"	18"	19"	20"
14'	10"	12"	13"	14"	15"	16"	17"	18"	19"	20"	21"	21"
16'	11"	12"	14"	15"	16"	17"	18"	19"	20"	21"	22"	23"

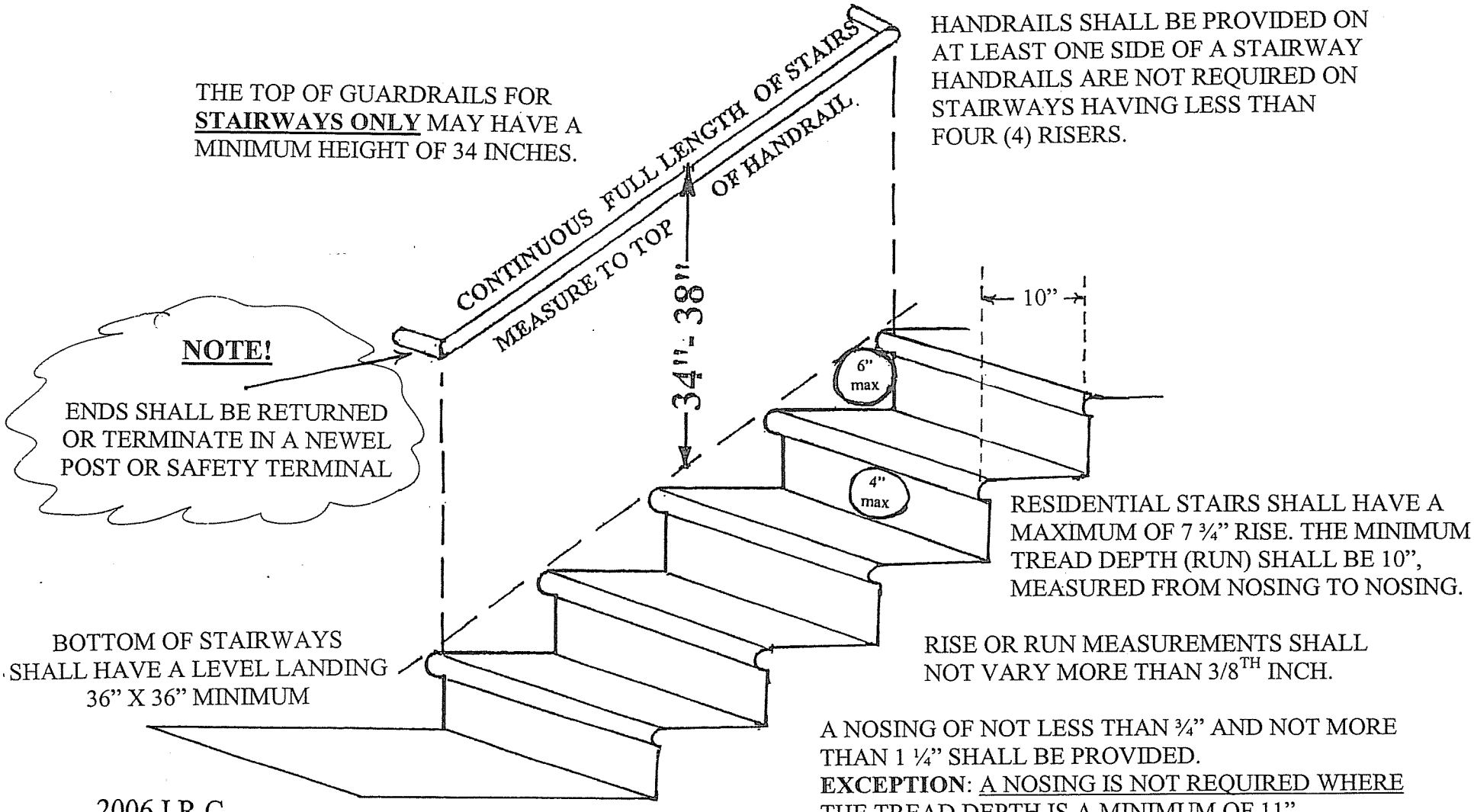
RESIDENTIAL STAIRS AND HANDRAILS

ATTACH STAIR STRINGERS PROPERLY TO DECK
3 STRINGERS PER STAIRS, 36" MINIMUM WIDTH

GUARDRAILS ARE REQUIRED
ON BOTH SIDES OF STAIRWAYS
OVER 30 INCHES ABOVE GRADE.

HANDRAILS SHALL BE PROVIDED ON
AT LEAST ONE SIDE OF A STAIRWAY
HANDRAILS ARE NOT REQUIRED ON
STAIRWAYS HAVING LESS THAN
FOUR (4) RISERS.

THE TOP OF GUARDRAILS FOR
STAIRWAYS ONLY MAY HAVE A
MINIMUM HEIGHT OF 34 INCHES.



NOTE!

ENDS SHALL BE RETURNED
OR TERMINATE IN A NEWEL
POST OR SAFETY TERMINAL

RESIDENTIAL STAIRS SHALL HAVE A
MAXIMUM OF 7 ¾" RISE. THE MINIMUM
TREAD DEPTH (RUN) SHALL BE 10",
MEASURED FROM NOSING TO NOSING.

BOTTOM OF STAIRWAYS
SHALL HAVE A LEVEL LANDING
36" X 36" MINIMUM

RISE OR RUN MEASUREMENTS SHALL
NOT VARY MORE THAN 3/8TH INCH.

A NOSING OF NOT LESS THAN ¾" AND NOT MORE
THAN 1 ¼" SHALL BE PROVIDED.
EXCEPTION: A NOSING IS NOT REQUIRED WHERE
THE TREAD DEPTH IS A MINIMUM OF 11"

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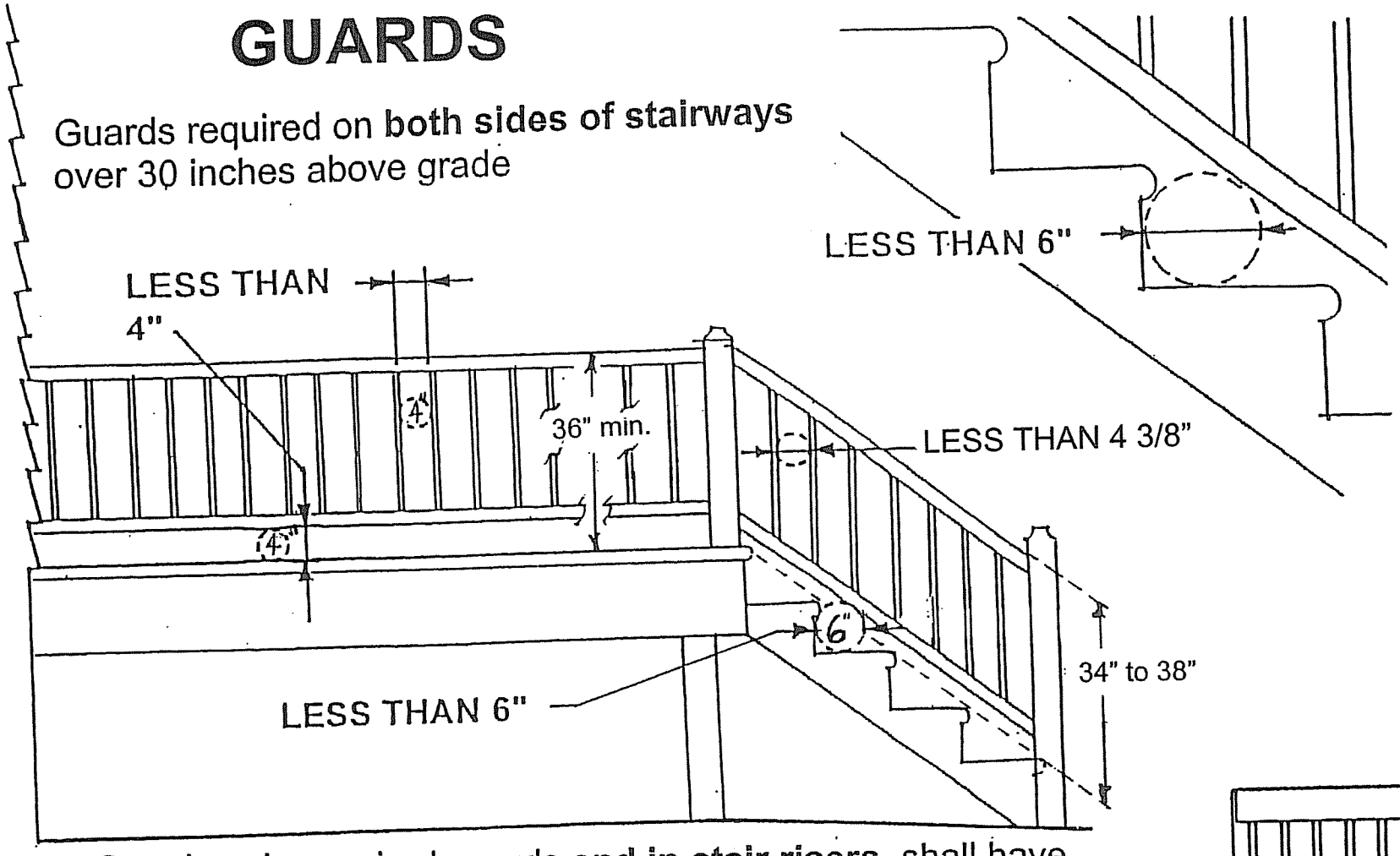
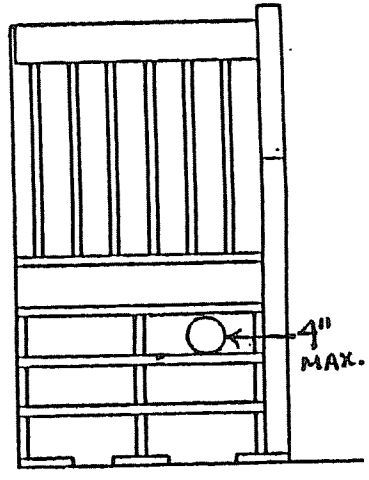
GUARDS

Guards required on **both sides of stairways** over 30 inches above grade



Openings in required guards **and in stair risers**, shall have intermediate rails or ornamental closures such that a 4 inch diameter sphere cannot pass through.

Exception: The triangle openings formed by the riser, tread, and bottom rail of the guard at the open side of a stairway are permitted to be of a size such that a sphere 6 inches in diameter cannot pass through.



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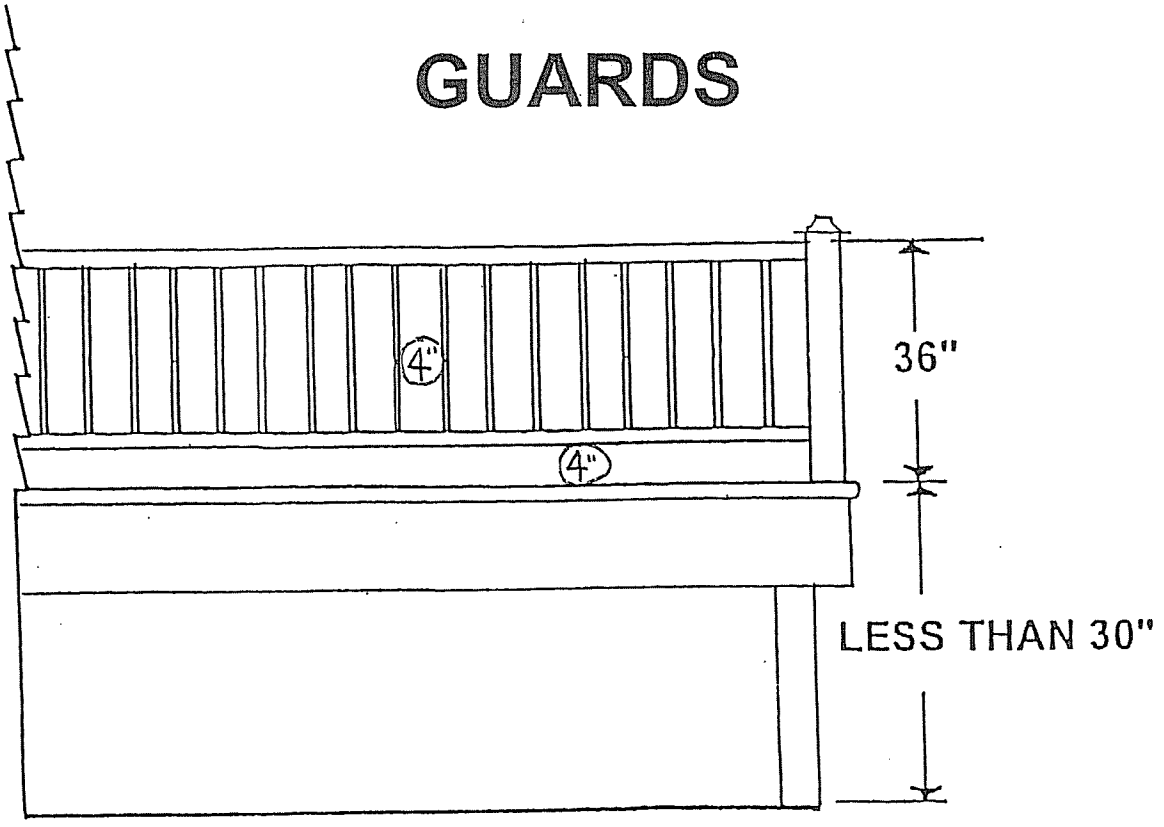
GUARDS



A 36 inch high guard is required for residential porches, balconies or raised floor (decks) surfaces that are located more than 30 inches above a floor or grade. Guards shall have intermediate rails or ornamental closures that do not allow the passage of a sphere 4 inch in diameter.

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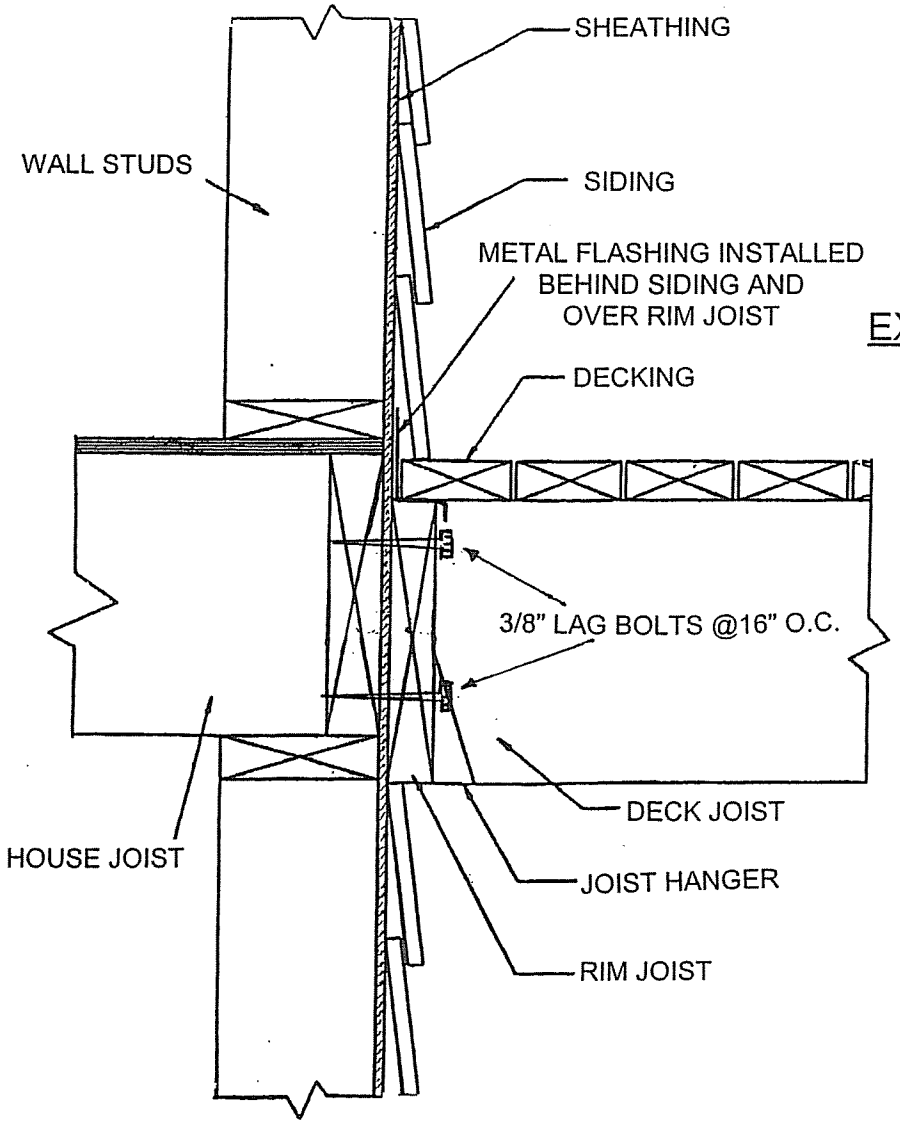
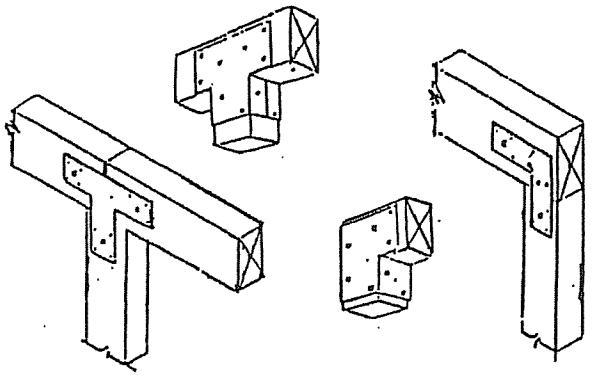
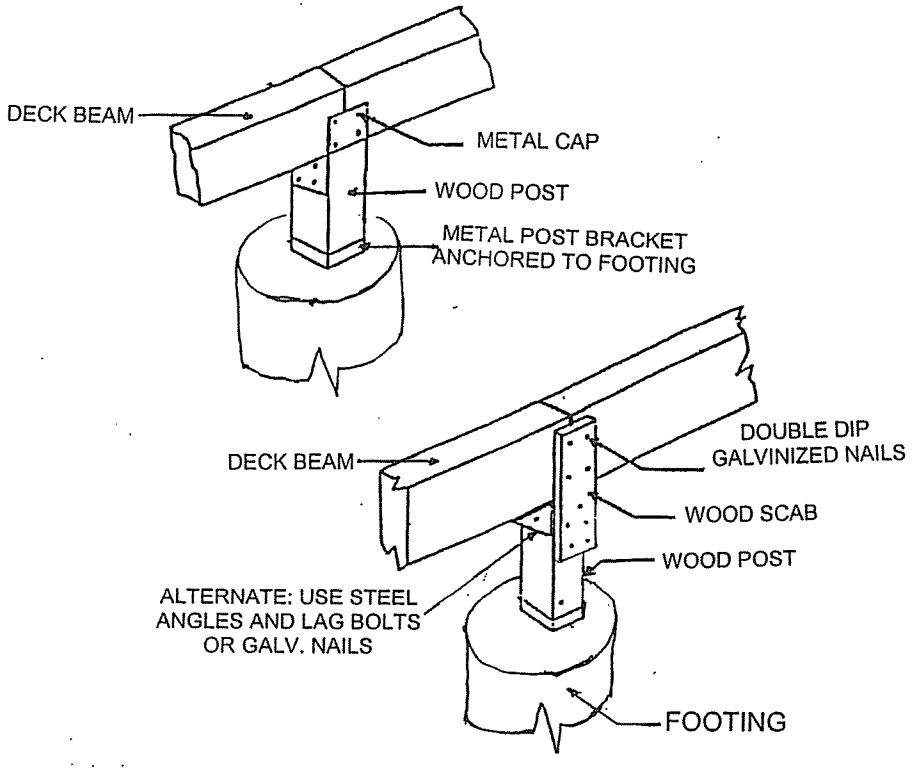
DECK RIM (AT HOUSE) DETAIL



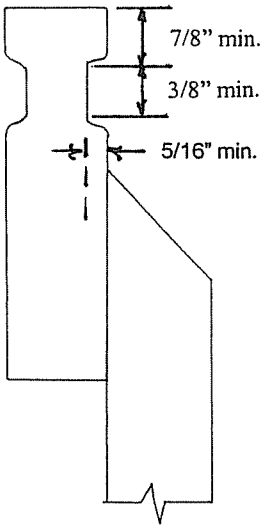


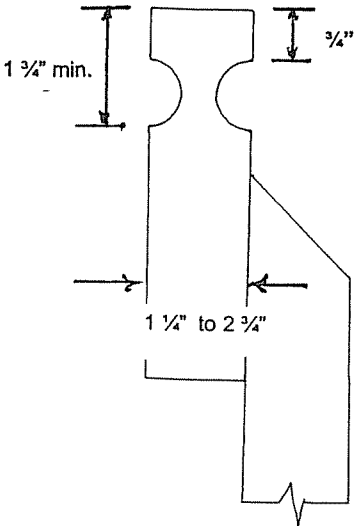
EXAMPLE ONLY

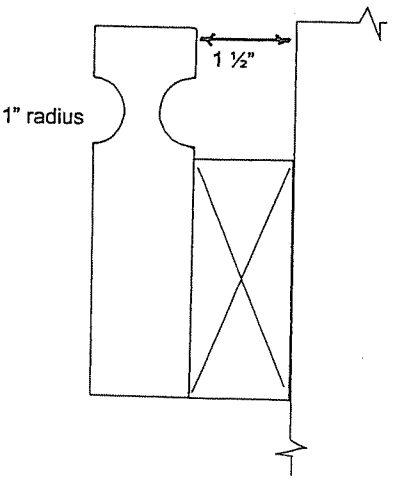


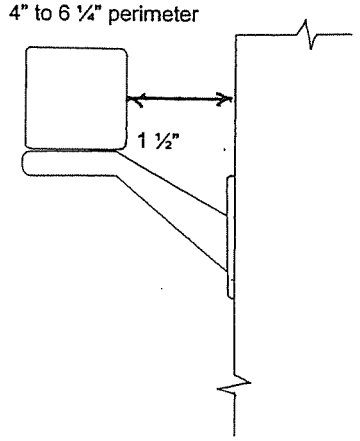
POST TO BEAM CONNECTIONS

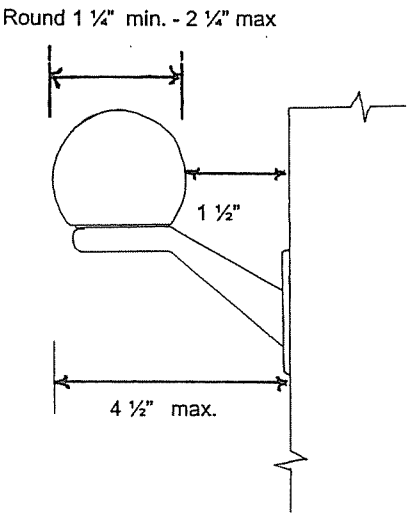
Acceptable Gripable Handrail Design

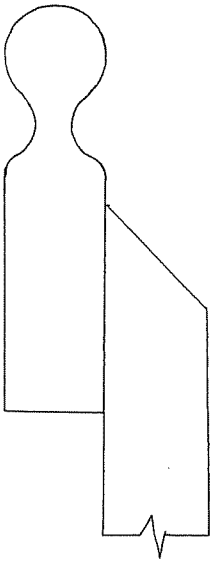




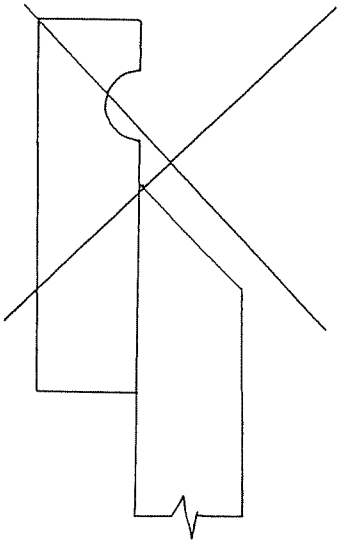








Not Acceptable



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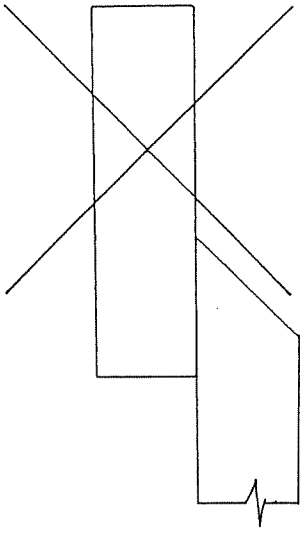

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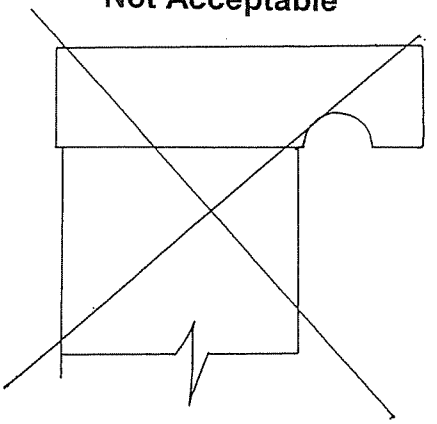

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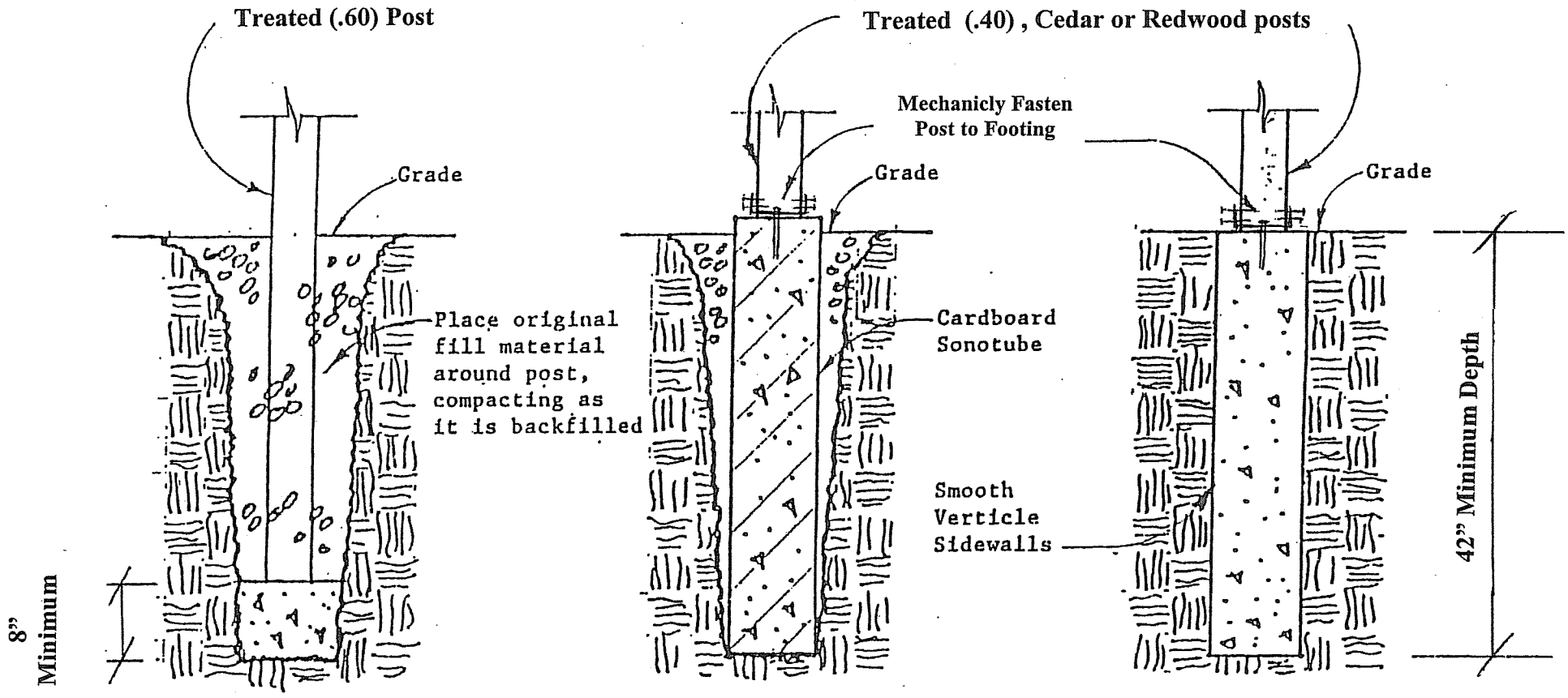
Example only

DECK AND PORCH PIER FOOTING DETAIL

(Example only)

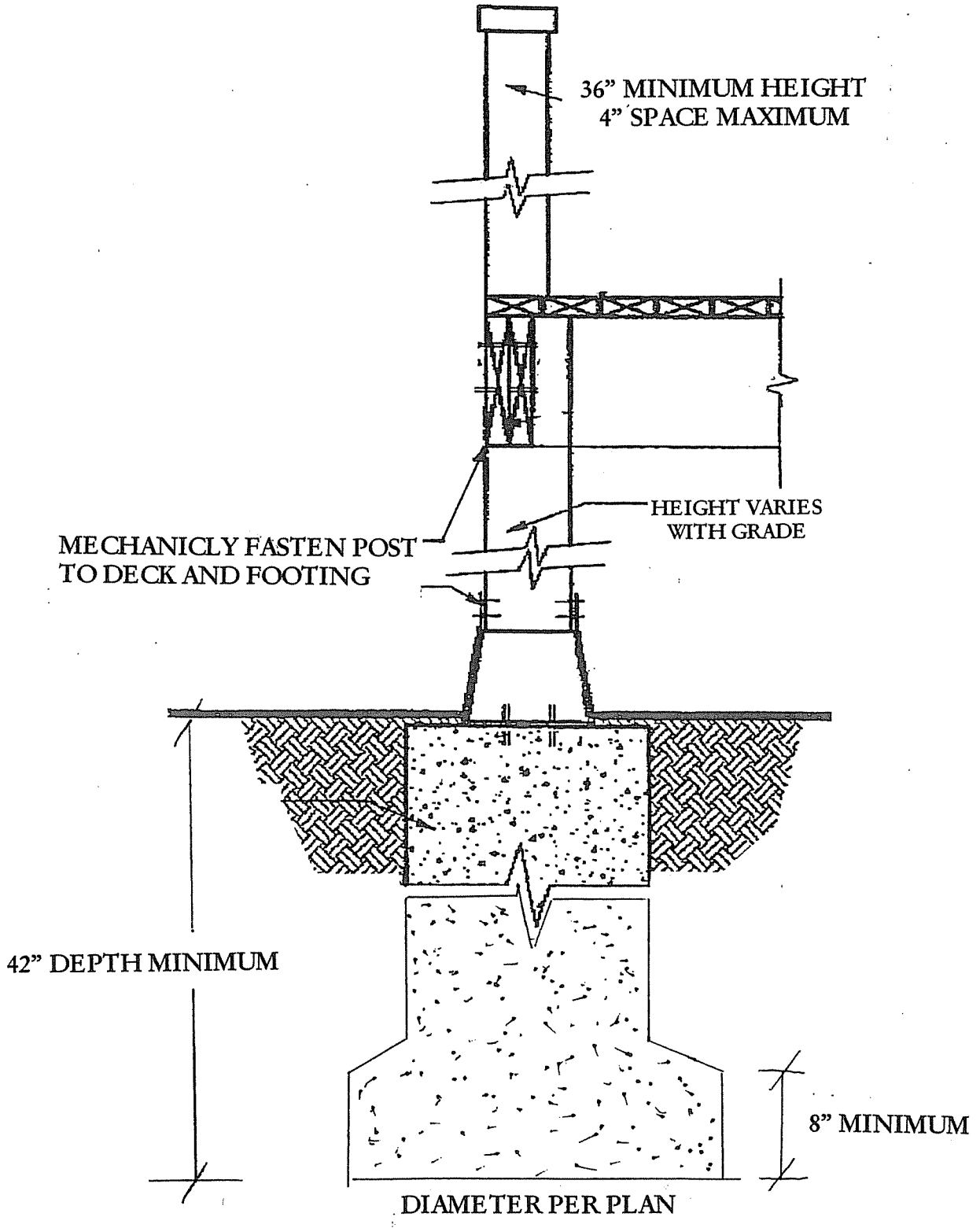


SHALLOW CONCRETE PIER FOOTING
Soil type: Sand, Sandy clay & Rocky
Sidewall of hole is uneven and tapers outward at the top.

SONOTUBE CONCRETE PIER FOOTING
Soil type: Any type
Sidewall of hole is uneven and tapers outward at the top.

SOLID CONCRETE PIER FOOTING
Soil type: Clay
Sidewall of hole must be verticle and smooth.

NOTE: DIAMETER OF FOOTING IS DETERMINED BY THE LOAD OF THE STRUCTURE



DECK & RAILING DETAIL

(EXAMPLE ONLY)