

## DECKS

The following items are required to obtain a Uniform Dwelling Code Building Permit:

1. Zoning approval/permit from Waushara County Land Conservation & Zoning Department.
2. A completed Uniform Building Permit Application (available at the Building Inspection Office).
3. 2 complete sets of building plans which include:
  - a. Plan showing dimensions of deck.
  - b. Plan showing structural members (ie: joists, beams, posts, footing size).
4. A site plan showing:
  - c. Lot lines.
  - d. Location of proposed structure.
  - e. Location of all structures on the subject property.
  - f. Location of well and septic.
5. Erosion control plan.
6. Builders/Contractors applying for a building permit must supply a Dwelling Contractors Financial Responsibility Credential number as required by COMM 20.09.

### IMPORTANT NOTICE

The work you are doing under this permit must be inspected!

Inspections for the following must be made prior to proceeding to the next phase:

- Footings (forms in place, **prior** to pouring concrete).
  - Prior to decking and after decking is installed if the deck is **less** than 2 feet above grade.
- OR**
- After completion of deck if it is **more** than 2 feet above grade.

To schedule an inspection, call 1-800-422-5220

<p><b>BUILDING INSPECTOR OFFICE HOURS MONDAY – FRIDAY 8:00 – 10:30 AM</b></p>
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## Residential Deck Information Sheet

### Frost Footings

Required for any deck or porch that is attached or unattached serving as an exit from a dwelling that has frost footings. The minimum depth to the base of the footing is 48". Comm. 21.16

### Live Load

All decks shall be designed to support a live load of 40 pounds per square foot. Comm. 21.02

### Guardrails

Required on all decks more than 24" above grade. Rail must be 36" minimum in height. Open guardrails and stair railings must have intermediate rails or an ornamental pattern that a 4" sphere cannot pass through. Comm. 21.04 (3) (c)

### Handrails

Stair flights of more than 3 risers must have at least one handrail for the full length of the stair flight. Comm. 21.04 (3). The top of the handrail shall be at least 30" but not more than 38" above the nosing of the treads Comm 21.04 (3) (b). Handrail size & configuration shall follow Comm 21.04 (3) (b) 5.

### Stairs

Minimum width is 36" Comm. 21.04(2) (a). Maximum rise is 8" Comm. 21.04 (2) (b). Minimum tread depth is 9" Comm. 21.04 (2) (c). Tread widths and riser heights may vary by a maximum of 3/16" total. Comm. 21.04 (2) (c)

### Ramps

Comm.21.045 Slope shall not exceed 1 foot of rise in 8' of run

### Open Risers

Comm. 21.04 (2) (f) Stairways with open risers shall be constructed to prevent the through-passage of a sphere with a diameter of 4 inches or larger between any two adjacent treads.

### Cantilevers "Overhanging Joists & Beams"

Joists should not overhang beams by more than 2' Comm. 21.22 (6) (b). Beams should not overhang support posts by more than 1' unless designed through structural analysis. Comm. 21.22 (3).

### Framing Details

Header beams more than 6' and floor joists more than 8' long that frame into beams shall be supported by joist hangers or framing anchors, floor joists may be supported on ledger strips of at least 2" by 2" nominal. Comm 21.22 (7).

### Bridging

Bridging or solid blocking shall be provided on floor joists 2x10 and greater, that are 8 feet or longer in length. Comm. 21.22 (9)

### Wood Required

All exposed wood used in the construction of decks is required to be decay resistant. This includes posts, beams, joists, decking, and railings. Comm. 21.10

### Flashing

All connections between deck and dwelling shall be weatherproof. Any cuts in exterior finish shall be flashed. Comm 21.24 (3) (c) 5.

### Nails & Screws

Use only stainless steel, high strength aluminum, or hot dipped galvanized. Approved nails must be used on joist hangers per manufacturers specs.

### Special Design Note

Some deck designs may not be appropriate should the placement of a screen porch or 3 season porch on the deck platform be a future consideration.

## INSPECTIONS NEEDED

Footings need to be inspected before backfilling post or placement of concrete.

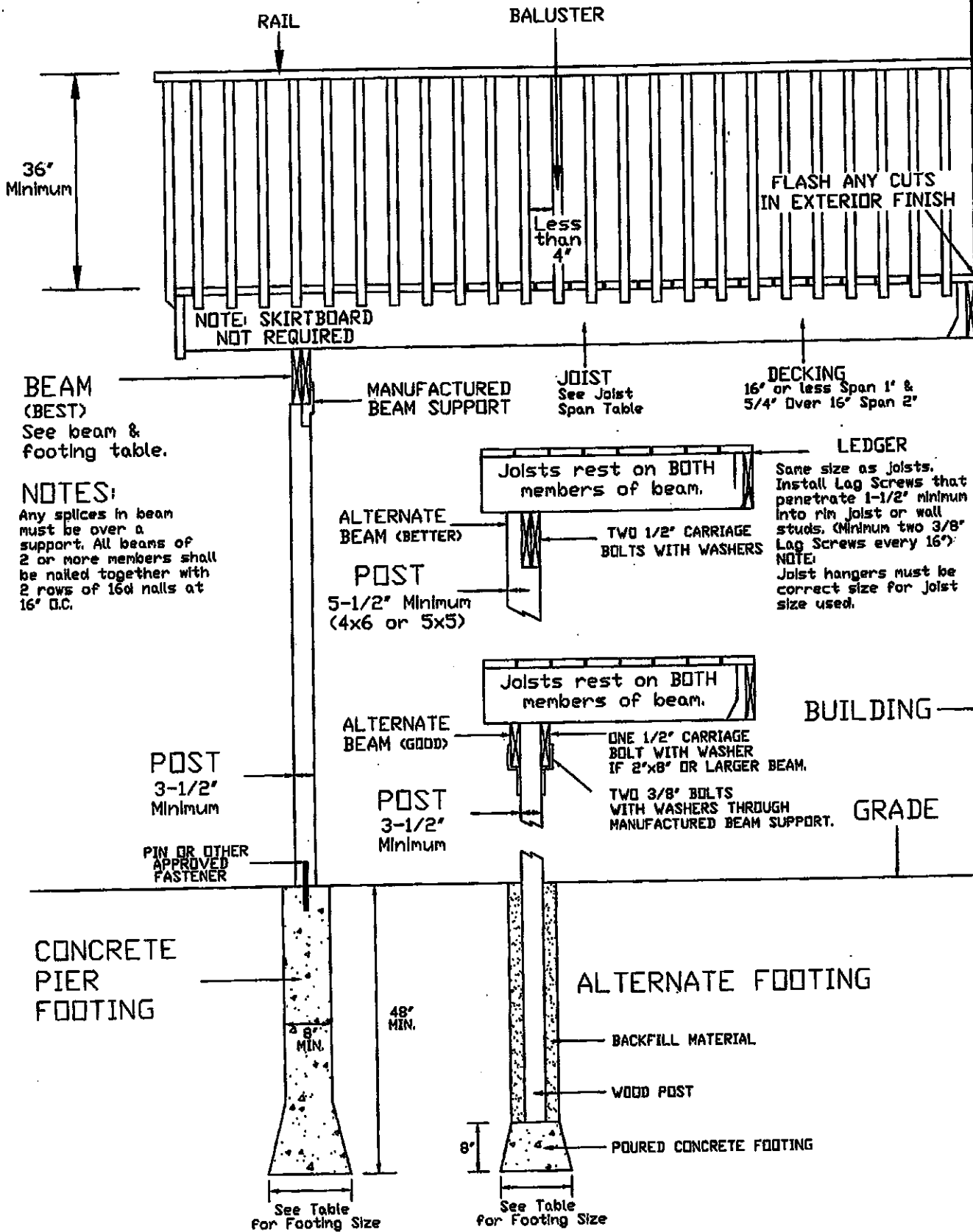
Construction Inspection required:

- Footings need to be inspected before backfilling post or placement of concrete
- Prior to decking and after if deck is less than 2 feet from grade.
- After completion if deck is more than 2 feet from grade.

Building Codes may be viewed at:

[www.commerce.wi.gov/SB/SB-DivCodesListing.html](http://www.commerce.wi.gov/SB/SB-DivCodesListing.html)

Comm 20-25 Uniform Dwelling (One and Two Family Dwelling)

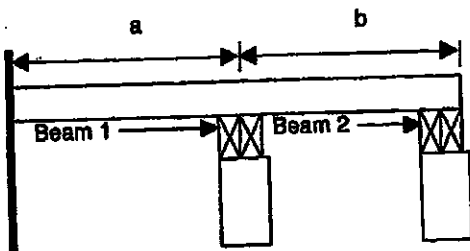
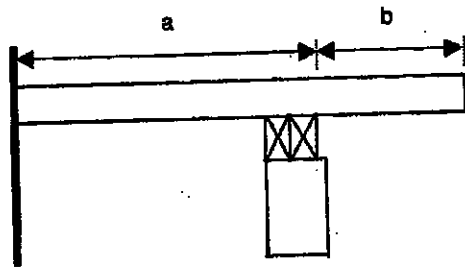
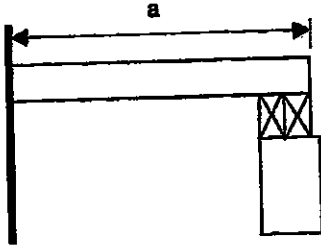


## Joist Span

Based on No. 2 or better wood grades.  
(Design Load = 40#LL + 10#DL, Deflections = L/360)

	Ponderosa Pine			Southern Pine			Western Red Cedar		
	12" OC	16" OC	24" OC	12" OC	16" OC	24" OC	12" OC	16" OC	24" OC
2x6	9-2	8-4	7-0	10-9	9-9	8-6	9-2	8-4	7-3
2x8	12-1	10-10	8-10	14-2	12-10	11-0	12-1	11-0	9-2
2x10	15-4	13-3	10-10	18-0	16-1	13-1	15-5	13-9	11-3
2x12	17-9	15-5	12-7	21-9	19-0	15-4	18-5	16-0	13-0

### Sample Calculations for Using Joist Span, Beam Size and Footing Size Tables



Refer to tables for joist, beam, and footing size requirements.

Example:  $a = 12'$ ; Post spacing = 8'

Use the Joist Span table to find the acceptable joist sizes for a 12' span, 2x8's at 12" OC; 2x10's at 16" OC; or 2x12's at 24" OC.

Use the Beam & Footing Sizes table and find the 8' post spacing column. With a 12' deck span, the beam may be either two 2x8's or two 2x10's, depending on wood used. Depending on the type of soil, the footing diameter at the base must be a minimum of 12", 10", or 9" for the corner post and 17", 14", or 12" for all intermediate posts.

Use "a" to determine joist size and "a" + "b" to determine beam and footing sizes. The length of "b" is restricted by both the length of "a" and the size of joists.

Example:  $a = 8'$ ,  $b = 2'$ , Post Spacing = 10'

Refer to the Joist Span table. For an 8' span, either 2x8's at 24" OC. Or 2x6's at 16" OC are acceptable.

For sizing the beam, use a joist length of 10' ( $8' + 2'$ ) and a post spacing of 10'. The Beam and Footing Sizes table indicates that the beam may be either two 2x10's or two 2x12's, depending on the wood used. Depending on the type of soil, the footing diameter at the base must be a minimum of 13", 11", or 10" for the corner post and 18", 15", or 13" for all intermediate posts. Note that because of the 2' cantilever all footing sizes were increased by 1" as required by footnote 2 at the end of the table.

Use "a" or "b" whichever is greater, to determine joist size. Use "a" + "b" to determine the size of Beam 1 and the post footing size for the posts supporting Beam 1. Use joist length "b" to determine both the size of Beam 2 and the post footing size for the posts supporting Beam 2.

Example:  $a = 6'$ ,  $b = 7'$ , Post spacing = 9'

Joist size is determined by using the longest span joist (7'). The Joist Span table indicates that 2x8's at 24" OC would be adequate for this span.

For Beam 1 and footings, use a joist length of 13' ( $6' + 7'$ ) and a post spacing of 9'. The Beam & Footing Size table indicates that a beam may be two 2x10's or two 2x12's, depending on the wood used. Depending on the type of soil, the footing diameters for Beam 1 posts shall be 13", 11", or 9" for the corner (outside) post and 19", 15" or 13" for all intermediate posts. For Beam 2 and footings use a joist length of 7' and post spacing of 9'. The beam may be two 2x8's or two 2x10's depending on wood used. Depending on the type of soil, the footing diameters for Beam 2 shall be 10", 8", or 7" for the corner posts, and 14", 11" or 10" for all intermediate posts.

# Beam & Footing Sizes

Based on No.2 or better Ponderosa Pine and Southern Pine  
(Treated for weather and/or ground exposure)

		Post Spacing											
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	
JOIST LENGTH	6'	Southern Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10
		Ponderosa Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	2-2x12	3-2x10
		Corner Footing	6 5 4	7 6 5	7 6 5	8 7 6	9 7 6	9 7 6	10 8 7	10 8 7	10 9 7	11 9 8	11 9 8
	7'	Intermediate Footing	9 8 7	10 8 7	10 9 7	11 9 8	12 10 9	13 0 9	14 11 10	14 12 10	15 12 10	15 13 11	16 13 11
		Southern Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	2-2x12
		Ponderosa Pine Beam	1-2x6	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	2-2x12	3-2x10
	8'	Corner Footing	7 5 5	7 6 5	8 7 6	9 7 6	9 8 7	10 8 7	10 8 7	10 8 7	11 9 8	11 9 8	12 10 9
		Intermediate Footing	9 8 7	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	15 13 11	16 13 11	17 14 12	17 14 12
		Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	2-2x12
	9'	Ponderosa Pine Beam	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	3-2x10	3-2x10	3-2x12
		Corner Footing	7 6 5	8 6 6	9 7 6	9 8 7	10 8 7	10 8 7	11 9 8	11 9 8	12 10 9	13 10 9	13 11 9
		Intermediate Footing	10 9 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	16 13 11	16 13 11	17 14 12	18 15 13	18 15 13
10'	Southern Pine Beam	1-2x6	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	2-2x12	2-2x12	
	Ponderosa Pine Beam	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	3-2x10	3-2x12	3-2x12	
	Corner Footing	8 6 6	9 7 6	10 8 7	10 8 7	11 9 8	12 10 8	12 10 9	13 11 9	14 11 10	14 12 10	15 12 10	
11'	Intermediate Footing	11 9 8	12 10 9	14 11 10	15 12 10	16 13 11	17 14 12	17 14 12	18 15 13	19 16 14	20 16 14	21 17 15	
	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	2-2x12	2-2x12	3-2x10	
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	3-2x10	3-2x12	Eng. Bm.	
12'	Corner Footing	8 7 6	9 7 6	10 8 7	11 9 8	12 9 8	12 10 9	13 11 9	14 11 10	14 12 10	15 12 10	15 13 11	
	Intermediate Footing	12 9 8	13 11 9	14 12 10	15 12 10	16 13 11	17 14 12	17 14 12	18 15 13	19 16 14	20 16 14	21 17 15	
	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	2-2x12	3-2x10	3-2x10	
13'	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x10	3-2x10	3-2x12	Eng. Bm.	
	Corner Footing	9 7 6	10 8 7	11 9 8	12 10 8	13 10 9	13 11 9	14 12 10	15 12 10	15 13 11	16 13 11	17 14 12	
	Intermediate Footing	13 10 9	14 12 10	15 13 11	17 14 12	18 15 13	19 15 13	20 16 14	21 17 15	22 18 15	23 19 16	24 19 17	
14'	Southern Pine Beam	1-2x6	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12	
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x12	3-2x10	3-2x12	3-2x12	Eng. Bm.	Eng. Bm.	
	Corner Footing	9 8 7	10 8 7	11 9 8	12 10 9	13 11 9	14 11 10	15 12 10	15 13 11	16 13 11	17 14 12	17 14 12	
15'	Intermediate Footing	13 11 9	15 12 10	16 13 11	17 14 12	18 15 13	20 16 14	21 17 15	22 18 15	23 19 16	24 19 17	24 20 17	
	Southern Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	Eng. Bm.	
	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	3-2x10	3-2x10	3-2x12	3-2x12	Eng. Bm.	Eng. Bm.	
16'	Corner Footing	10 8 7	11 9 7	12 10 8	13 10 9	14 11 10	14 12 10	15 12 11	16 13 11	17 14 12	17 14 12	18 15 13	
	Intermediate Footing	14 11 10	15 12 11	17 14 12	18 15 13	19 16 14	20 17 14	21 17 15	22 18 16	23 19 17	24 20 17	25 21 18	
	Southern Pine Beam	2-2x6	2-2x6	2-2x6	2-2x6	2-2x10	2-2x12	2-2x12	3-2x10	3-2x12	3-2x12	Eng. Bm.	
16'	Ponderosa Pine Beam	2-2x6	2-2x6	2-2x10	3-2x10	3-2x10	3-2x12	3-2x12	3-2x12	Eng. Bm.	Eng. Bm.	Eng. Bm.	
	Corner Footing	10 8 7	12 9 8	12 10 9	13 11 9	14 11 10	15 12 10	16 13 11	16 13 12	17 14 12	18 15 13	18 15 13	
	Intermediate Footing	14 11 10	16 13 11	17 14 12	18 15 13	20 16 14	21 17 15	22 18 16	23 19 16	24 20 17	25 21 18	26 21 18	

**Notes:**

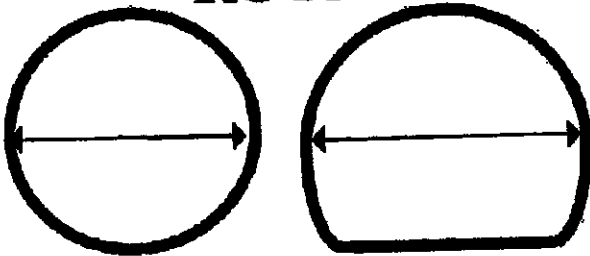
- Joist length is total length of joist, including cantilevers.
- When joist extends (cantilevers) beyond support beam by 16" or more, add 1" to footing dimensions shown.
- Requirements for future 3-season porches or screen porches:
  - Increase corner footing size shown by 90%
  - Increase center footing size shown by 55%.
  - Locate all footings at extremities of deck (no cantilevers).
  - Beam sizes indicated need not be altered.

4. All footing sizes above are base diameters (in inches) and are listed for THREE SOIL TYPES:

	CLAY	SAND	GRAVEL
Corner Footing	10	8	7
Intermediate Footing	14	11	10

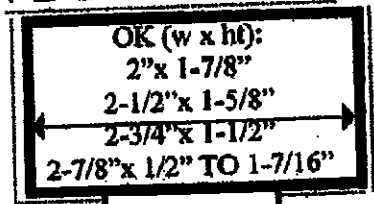
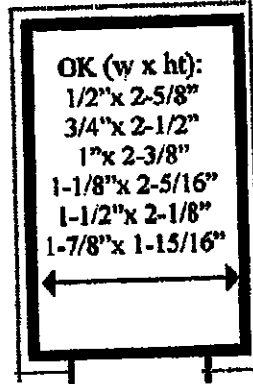
# 21.04(2)(a)5. HANDRAIL SHAPES

## ROUND



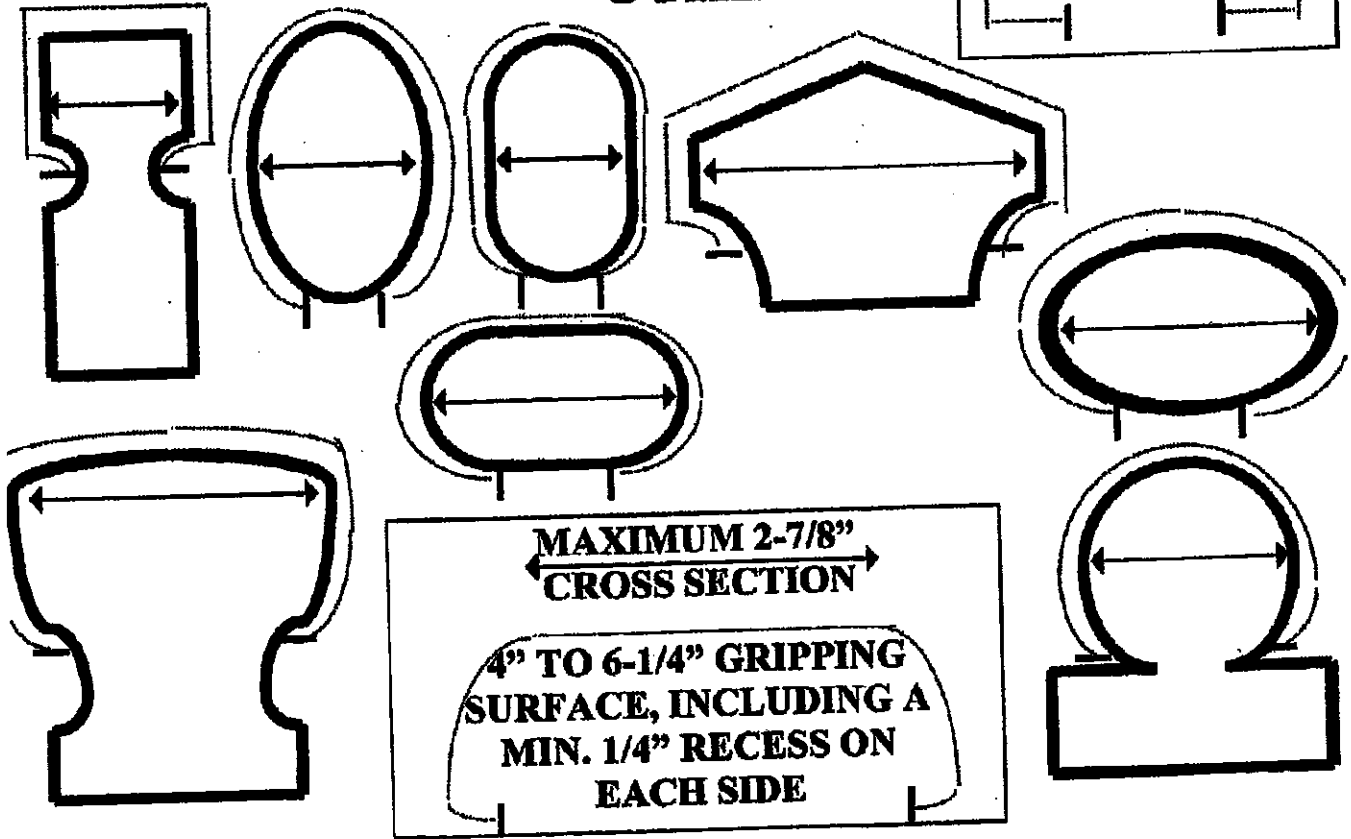
**MAXIMUM 2"  
DIAMETER**

## RECTANGULAR



**MAXIMUM 2-7/8"  
CROSS SECTION**  
**MAX. 6-1/4"  
GRIPPING  
SURFACE INCL.  
MIN. 1/4"  
RECESS ON  
EACH SIDE**

## OTHERS



## RESIDENTIAL DECK SPECIFICATION

Floor Joist Clear Span: _____	Floor Joist Spacing: _____
Floor Joist Size: _____	Floor Joist Species of Lumber: _____
Floor Joist Grade of Lumber: _____	Deck Floor Material: _____
Girder Beam Size: _____	Number of Members: _____
Beam Species of Lumber: _____	Beam Grade of Lumber: _____
Is the Deck Attached to the House? _____ Yes _____ No	
Are the footings of the House _____ more _____ less than 48 inches below grade?	
Support Post Size: _____	Post Spacing: _____ Feet _____ Inches
Footing Depth Below Grade: _____ inches	
Footings: Width _____	Height _____

**Use space below or the back of the sheet to draw a scale plan view of the deck.**

***FEE SCHEDULE***  
***1 or 2 Family Dwellings***

- New Structure - Addition                   - \$.11 per sq. foot all floor area  
  - \$75.00 minimum
  
- Erosion Control                               - New \$75.00  
  - Addition \$50.00  
  - Re-inspection Fee \$75.00
  
- Remodel                                       - \$6.00 per thousand of valuation  
  - \$40.00 minimum
  
- Decks   - \$.11 per sq. foot all areas  
  - \$40.00 minimum
  
- Occupancy Permit \*                         - \$30.00 per dwelling unit
  
- UDC Seal - New Construction Only \*     - \$35.00
  
- Temporary Occupancy Permit             - \$50.00
  
- Early Start Permit                         - \$50.00 (Footings and Foundations)
  
- Other   - \$30.00 minimum
  
- HVAC   - \$35.00 plus \$.025 per sq. foot  
  - \$30.00 minimum
  
- Electrical                                   - \$35.00 plus \$.035 per sq. foot  
  - \$30.00 minimum
  
- Plumbing                                    - \$35.00 plus \$.035 per sq. foot  
  - \$30.00 minimum
  
- One Year Extension                         - \$100.00

\* Does not apply to additions, remodels, or decks.

**NOTE:**

- 1. In addition to the fees listed above, a \$50 administrative fee is required for all projects whose total costs, including labor, materials and supplies, will equal or exceed \$15,000.**
  
- 2. Fees for conversions from one use to another shall be the same as listed above.**