

## DECKS, PERGOLAS and GAZEBOS - RESIDENTIAL

This guideline has been developed to assist you in your efforts to design and construct a deck. Prior to constructing a deck a permit from the City of Wheaton is required to be obtained from the Building Department. Provided below is information that addresses; what information you need to submit to the City, pertinent building codes, sizing charts for piers and beams, zoning setback requirements, permit fees and required inspections. These guidelines are by no means all inclusive but they do identify the most critical requirements that are involved in this type of project. Please review this information and call us if you should have any questions.

### Required Submittals

The following documents, forms, and/or permits must be submitted prior to plan review. Referenced forms are available on the Building and Code Enforcement website and can be accessed throughout this document by following the appropriate link.

**1. Application for Permit**

When filling out the application for permit, include all required information that is pertinent to the proposed scope of work such as; site address, description of work, contractors to be used on the job and their respective costs per trade, total cost of work to be performed, complete applicant contact information, etc. Please refer to document titled [Application for Permit](#).

**2. Architectural Plans**

Please submit two (2) complete sets of architectural plans and any other required documentation that will be necessary to complete the review of the construction documents.

**3. Plat of Survey**

Please provide two (2) copies of a current Plat of Survey with the proposed deck drawn to scale on the plat of survey; indicate distance of the proposed deck to all adjacent side and rear lot lines and any accessory structures.

**4. Townhouse or Condominium Association Approval**

Provide a letter from your townhouse or condominium association president (if applicable) that identifies that they have reviewed your proposed deck and location within the townhome subdivision and have approved it.

### Architectural Plan Requirements

Where special conditions exist, the building official is authorized to require additional construction documents to be prepared by a registered design professional. Provide two (2) copies of Architectural Plans that indicate the following information:

#### Plan View

- Floor joist size, spacing and span between bearing points;
- Pier location, diameter, and distances to adjacent pier or building;
- Beam sizes and spans;
- Ledger board size, bolt type, bolt size and spacing, location of lateral load devices;

- Joist hanger placement and material.

**Cross Section**

- Pier depth below grade and diameters;
- Post sizes; Beam sizes and specific method of attachment to posts;
- Decking material specifications;
- Guardrail height and intermediate rail spacing;
- Flashing detail for ledger board assembly;
- Ledger board size, flashing detail, bolt type, bolt size and spacing, location of lateral load devices.

**Stair Details**

- Riser height (maximum 7-3/4") and tread depth (10" minimum measured from the nosing of the treads);
- Guardrail details (minimum 36" in height, spindles spaced so that a 4" sphere cannot pass through);
- Stair handrail details (must be 34"-38" above the nosing of the treads, extend the entire length of the stair run, and must comply with the grasp ability requirements), minimum 36" width for the stairway.

## Significant Codes - Building

**Pier Requirements**

Piers must be a minimum 42 inches below grade. Piers must be supported either by undisturbed soil, or engineered fill. The diameter and spacing of the proposed piers shall be capable of properly conveying all imposed loads to the soil and the size shall be determined in accordance with the chart included within this information. (2012 IRC R403.1.4.1, 2012 IRC R403.1).

**Beams, Posts and Floor Joist Requirements**

- All lumber utilized in the construction of the proposed deck must be decay resistant (pressure treated lumber, cedar, redwood or other material as approved by the Building Official) as listed per code;
- Please refer to the chart below for beam size and spacing;
- Please refer to the chart below for floor joist chart for size of lumber and maximum spans;
- Beams must be positively anchored to the posts with thru-bolts of a compatible material with the posts. The posts must be positively anchored to the pier with a mechanical device. (2012 IRC R501.2, 502.2, 502.6)

**Ledger Board Requirements**

- Refer to 2012 International Residential Code (Table R507.2.1(1)), which is part of this guideline, for the ledger board chart for bolt size and spacing. The ledger board must be positively anchored to the residence with bolts. The lateral load connections required by code must also be addressed. The ledger board must be properly flashed to prevent water infiltration into the residence. Any hangers must be installed per manufacturer

specifications, must be properly sized, and must be of a material that is compatible for use with the ledger board material. (2012 IRC R507.2, 507.2.3)

### **Joist Hangers**

- Joist hangers are required where joists are installed flush with beams and / or ledger boards. Any hangers must be installed per manufacturer specifications, must be properly sized, and must be of a material that is compatible for use with the ledger board material.

### **Stairs**

- Stairways shall not be less than 36-inches in clear width;
- The stairs shall have a maximum riser height of 7-3/4 inches, a minimum tread depth of 10 inches, and the riser height and tread depth shall remain constant throughout the run of the stairway;
- Stairways over 36-inches wide shall require additional stringers;
- Guardrails are required if the stairs exceed 30" above finished grade.

### **Handrails**

- Handrails shall be provided on at least one side of stairways of two or more risers. Handrails for stairways shall be installed between 34" – 38" inches measured vertically above the nosing of the treads inches. The handrail must comply with grasp ability requirements. (2012 IRC R311.7.8)

### **Guardrails**

- Raised floor surfaces located more than 30 inches above the finished grade shall have guardrails not less than 36 inches in height;
- Spindle spacing shall not allow passage of an object four (4) inches or more in diameter. (2012 IRC R312.1)

### **Benches**

Benches can be located around the perimeter of a deck with the following stipulations:

- If the deck is 30" or more above grade, then the benches must either have seat backs or must be constructed in unison with a guardrail that is a minimum of 36-inches high. Any benches that are to be used as guardrails must comply with the guardrail provisions. (2012 IRC R312.1, R312.2)

### **Coatings**

Important Notes regarding all Metal material to be used in the construction of a deck:

- All fasteners, flashing, or other metal hardware that is to come into contact with any ACQ treated lumber must be of hot-dipped galvanized material. The new pressure-treated wood contains high concentrations of copper, which could quickly corrode the critical flashings, fasteners, and connectors where the house and the deck meet the foundation walls (or floor slabs);
- Hot-dip galvanized fasteners and connectors are generally acceptable for above grade applications. Hot-dip galvanized fasteners should meet ASTM A153. Hot-dip galvanized connectors should meet ASTM A653, Class G185 sheet with 1.85 ounces of zinc coating per square foot minimum;

- Fasteners and connectors used together should be of the same type (e.g. hot-dip nails with hot-dip joist hangers). Type 304 and 316 stainless steel products are recommended for maximum corrosion resistance.

### Significant Codes - Zoning

Please refer to Wheaton Zoning Ordinance Sections 24.4.3, 24.5.1 and 25.5.4.

#### Decks:

- Front and side yard setbacks abutting a street is the same as required for a Single-Family Residence;
- Interior side yard setback is the lessor of 8% of the lot width or 10 feet; and
- Rear yard setback is 25 feet

#### Gazebos:

- Front and side yard abutting a street is not permitted; and
- Interior side yard and/or rear yard setback is 10 feet

#### Arbors, Pergolas, Trellises:

- Permitted anywhere within boundaries of a lot

### Permit Fees

For associated Planning, Engineering and Building fees, please refer to Appendix B7 Fee Schedule per the Wheaton City Code - "[Community Development Fees](#)".

### Inspections

The inspections listed here are required for all deck and gazebo projects. Additional inspections may be needed based upon the scope of work for your project. If you are required to have additional inspections, they will be listed on your Plan Approval Notice that will be attached to the approved plans.

Type of Inspection	When to call
Pier	Once the holes have been excavated, but prior to the pouring of concrete.
Framing	Prior to installation of decking materials.
Final	When all work indicated on the Approved Plans has been completed.

**To schedule an inspection**, please call (630) 260-2050 between 8AM and 5PM Monday through Friday. Inspections must be scheduled no later than 3:30 PM the day before the desired inspection date. For more details, refer to [Inspection Scheduling](#).

## Websites

City of Wheaton [www.wheaton.il.us](http://www.wheaton.il.us)

International Building Codes [www.iccsafe.org](http://www.iccsafe.org)

## To Contact Us

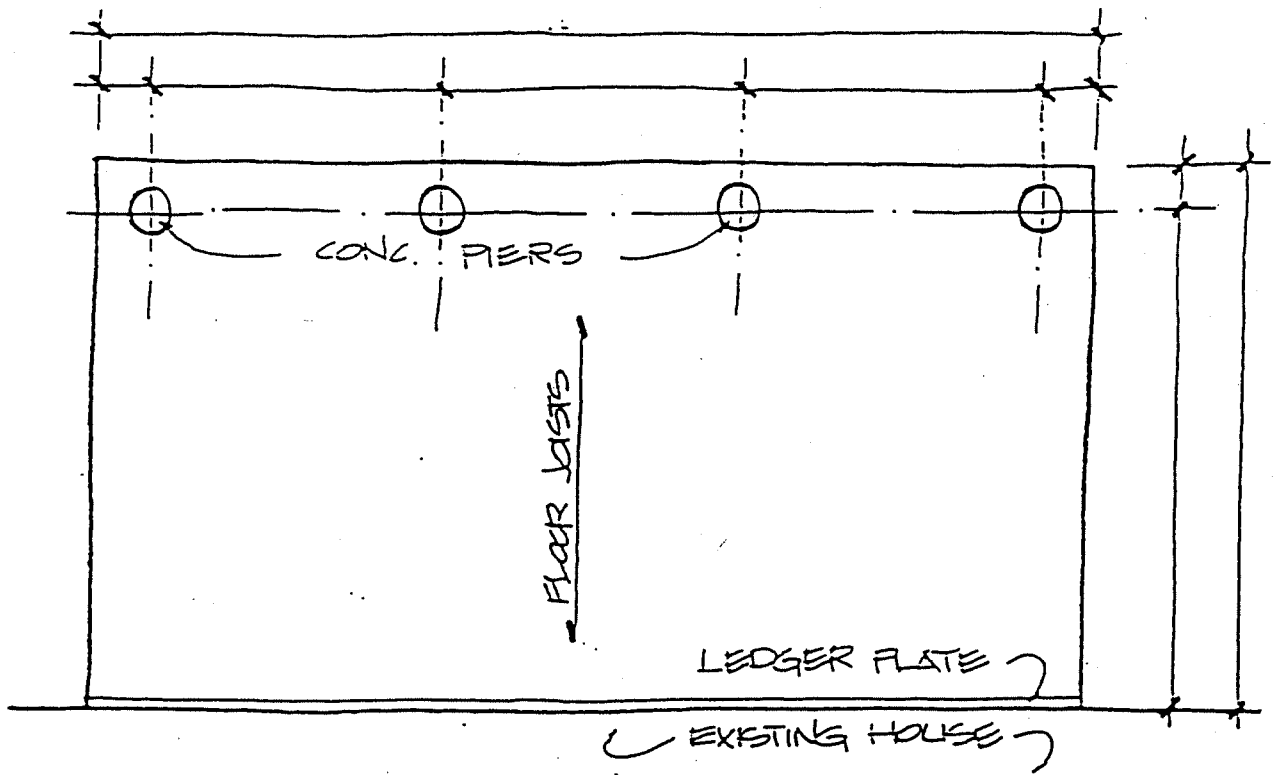
Business hours are Monday-Friday 8:00 AM – 5:00 PM

City of Wheaton Building Department  
303 W. Wesley Street  
P.O. Box 727  
Wheaton, IL 60187-0727  
Phone: 630-260-2050  
Fax: 630-260-2195

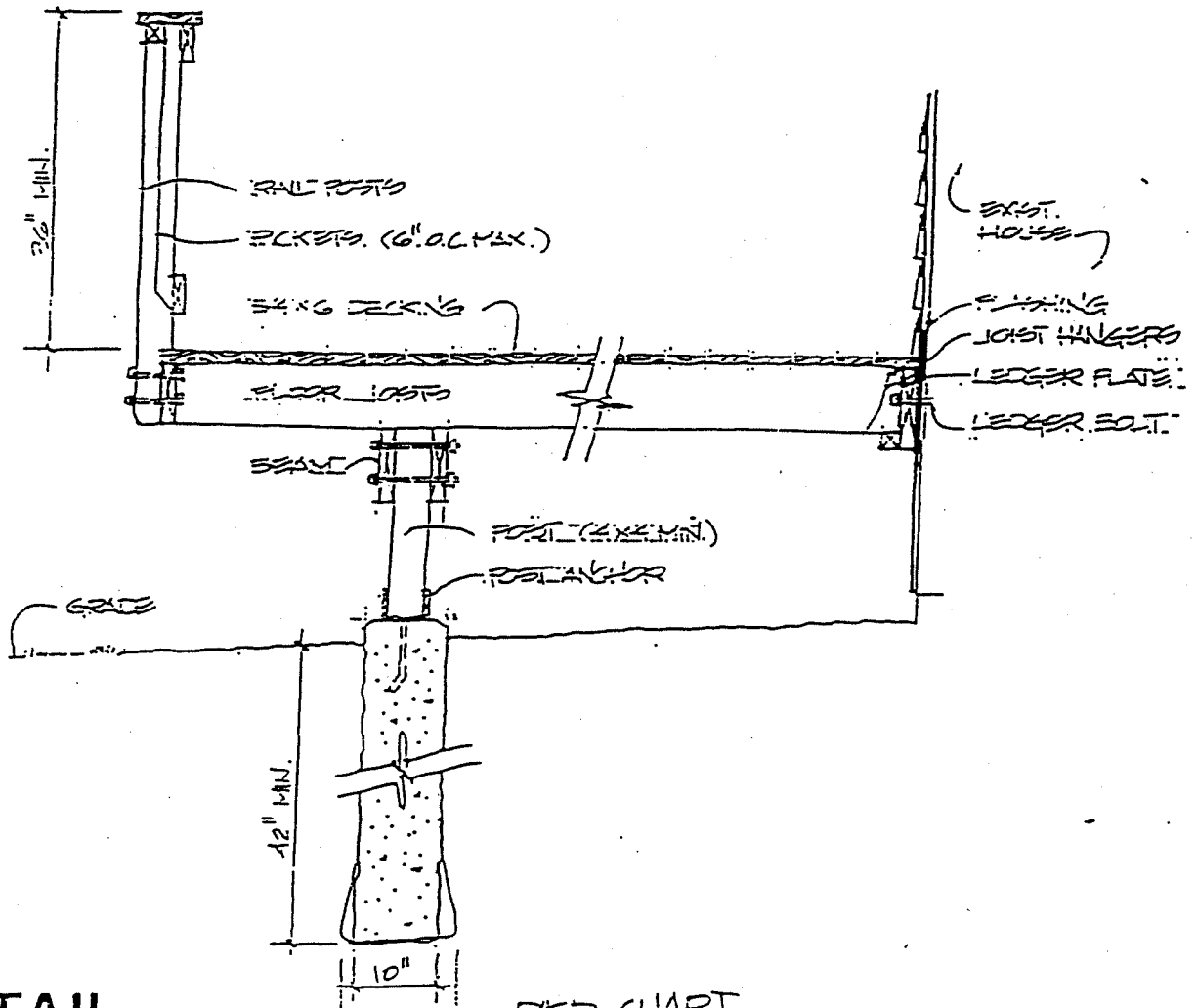
Inspection Scheduling  
Phone: 630-260-2050

Building Code Questions  
Phone: 630-260-2051

Planning Department  
Phone: 630-260-2080



PLAN VIEW



DETAIL

NEW 11/10/07

# CHARTS

## SPAN TABLE FLOOR JOISTS

size in inches	spacing (in. o.c.)	grade	Southern Pine	Douglas Fir-Larch	Hem-Fir	Spruce Pine-Fur
2X6	12"	No. 1	10'-11"	10'-11"	10'-6"	10'-3"
		No. 2	10'-9"	10'-9"	10'-0"	10'-3"
		No. 3	9'-4"	8'-8"	8'-8"	8'-8"
	16"	No. 1	9'-11"	9'-11"	9'-6"	9'-4"
		No. 2	9'-9"	9'-9"	9'-1"	9'-4"
		No. 3	8'-1"	7'-6"	7'-6"	7'-6"
2X8	12"	No. 1	14'-5"	14'-5"	13'-10"	13'-6"
		No. 2	14'-2"	14'-2"	13'-2"	13'-6"
		No. 3	11'-11"	11'-0"	11'-0"	11'-0"
	16"	No. 1	13'-1"	13'-1"	12'-7"	12'-3"
		No. 2	12'-10"	12'-7"	12'-0"	12'-3"
		No. 3	10'-3"	9'-6"	9'-6"	9'-6"
2X10	12"	No. 1	18'-5"	18'-5"	17'-8"	17'-3"
		No. 2	18'-0"	17'-9"	16'-10"	17'-3"
		No. 3	14'-0"	13'-5"	13'-5"	13'-5"
	16"	No. 1	16'-9"	16'-5"	16'-0"	15'-5"
		No. 2	16'-1"	15'-5"	15'-2"	15'-5"
		No. 3	12'-2"	11'-8"	11'-8"	11'-8"

## LEDGER BOLT SIZE AND SPACING

JOIST SPAN	BOLT SIZE AND SPACING	
	ROOF	FLOOR
10'	$\frac{1}{2}$ @ 2'-6" $\frac{7}{8}$ @ 3'-6"	$\frac{1}{2}$ @ 2' $\frac{7}{8}$ @ 2'-9"
10' - 15'	$\frac{1}{2}$ @ 1'-9" $\frac{7}{8}$ @ 2'-6"	$\frac{1}{2}$ @ 1'-4" $\frac{7}{8}$ @ 2'
15' - 20'	$\frac{1}{2}$ @ 1'-3" $\frac{7}{8}$ @ 2'	$\frac{1}{2}$ @ 1'-4" $\frac{7}{8}$ @ 1'-6"





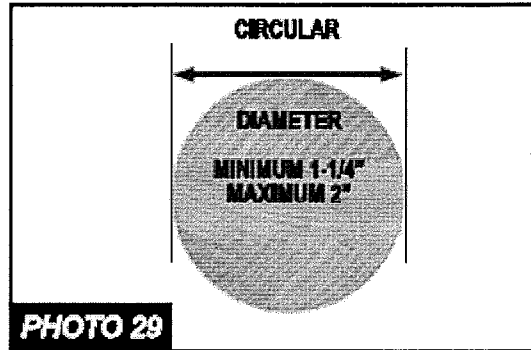
R311.5.6.3 Handrail grip size.  
 All required handrails shall be of one of the following types or provide equivalent graspability. DRAWING 28.

Profiles other than Type I and Type II may be determined to provide equivalent graspability.

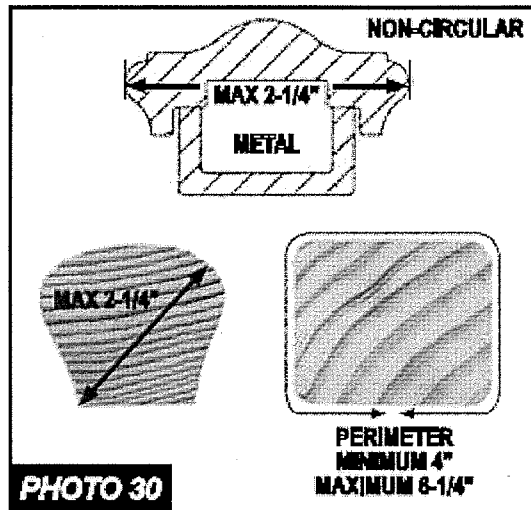


**DRAWING 28**

1. Type I Handrails with a circular cross section shall have an outside diameter of at least 1 1/4 inches (32 mm) and not greater than 2 inches (51 mm). PHOTO 29. If the handrail is not circular it shall have a perimeter dimension of at least 4 inches (102 mm) and not greater than 6 1/4 inches (160 mm) with a maximum cross section of dimension of 2 1/4 inches (57 mm). PHOTO 30.

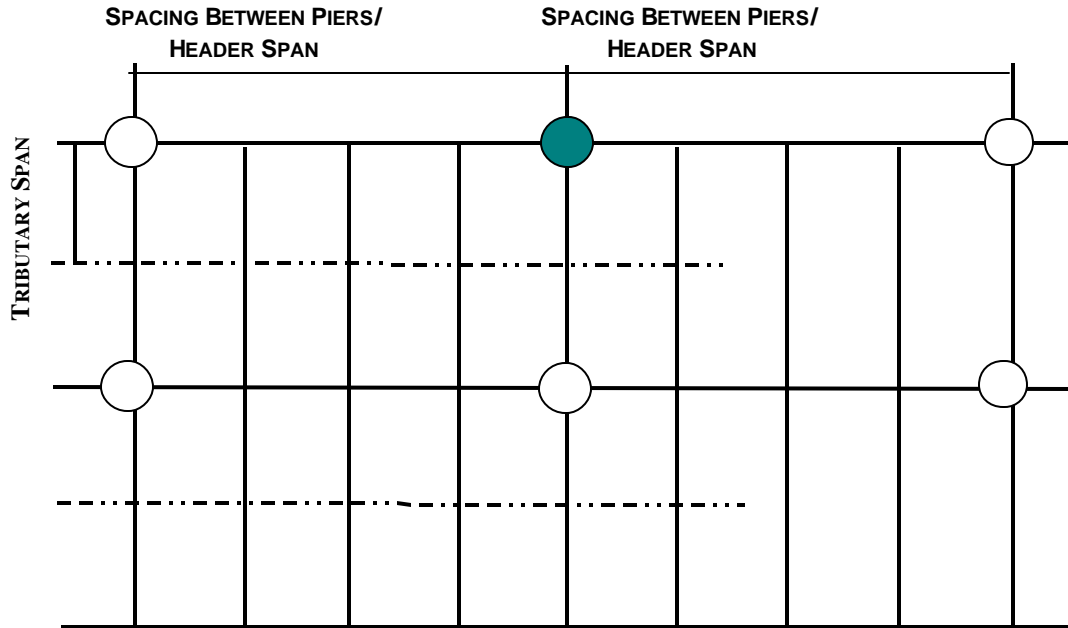


**PHOTO 29**



**PHOTO 30**

## DECK PIERS - INTERIOR PIER ON EXTERIOR LINE



SOIL TYPE: CLAY, SANDY CLAY, SILTY CLAY & CLAYEY SILT

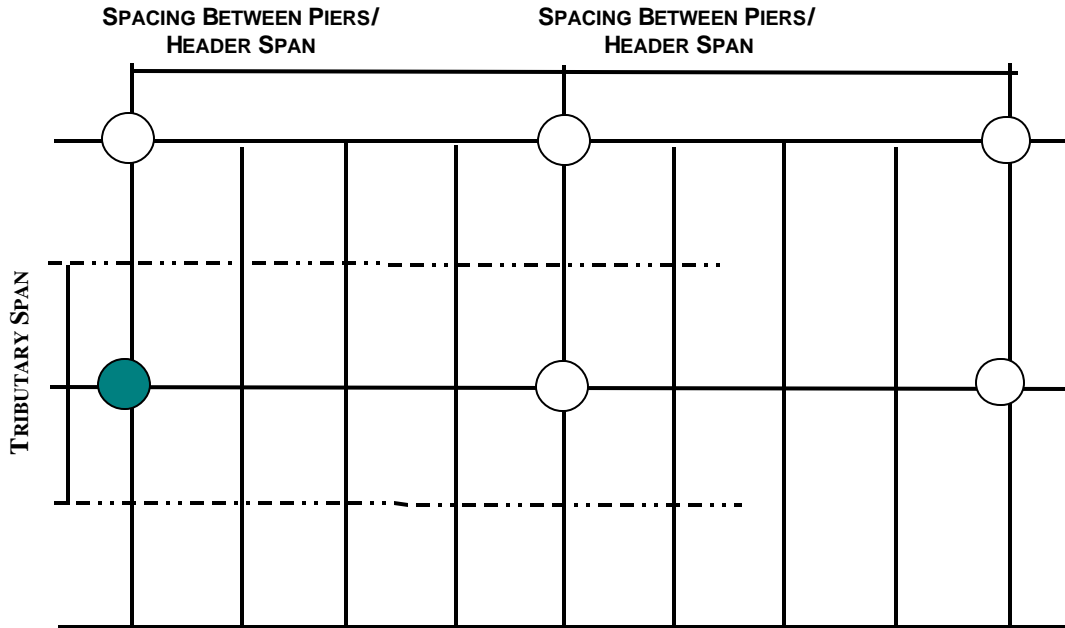
$Q_a = 2000$  psf

DECK LIVE LOAD: 40 psf  
 DECK DEAD LOAD: 10 psf  
 DECK TOTAL LOAD: 50 psf

### REQUIRED PIER DIAMETER

		SPACING BETWEEN PIERS / HEADER SPAN									
		4 ft	5 ft	6 ft	7 ft	8 ft	9 ft	10 ft	11 ft	12 ft	13 ft
TRIBUTARY SPAN	2 ft	8 in	8 in	8 in	10 in	10 in	10 in	10 in	12 in	12 in	12 in
	3 ft	8 in	8 in	10 in	10 in	10 in	12 in	12 in	12 in	12 in	14 in
	4 ft	8 in	10 in	10 in	10 in	12 in	12 in	12 in	14 in	14 in	14 in
	5 ft	10 in	10 in	10 in	12 in	12 in	14 in	14 in	14 in	14 in	16 in
	6 ft	10 in	10 in	12 in	12 in	14 in	14 in	14 in	16 in	16 in	16 in
	7 ft	10 in	12 in	12 in	14 in	14 in	14 in	16 in	16 in	16 in	18 in
	8 ft	10 in	12 in	12 in	14 in	14 in	16 in	16 in	16 in	18 in	18 in
	9 ft	12 in	12 in	14 in	14 in	16 in	16 in	16 in	18 in	18 in	20 in
	10 ft	12 in	12 in	14 in	14 in	16 in	16 in	18 in	18 in	20 in	20 in
	11 ft	12 in	14 in	14 in	16 in	16 in	18 in	18 in	20 in	20 in	20 in
	12 ft	12 in	14 in	14 in	16 in	18 in	18 in	18 in	20 in	20 in	24 in
	13 ft	12 in	14 in	16 in	16 in	18 in	18 in	20 in	20 in	24 in	24 in
	14 ft	14 in	14 in	16 in	18 in	18 in	20 in	20 in	24 in	24 in	24 in

## DECK PIERS - EXTERIOR PIER ON INTERIOR LINE



SOIL TYPE: CLAY, SANDY CLAY, SILTY CLAY & CLAYEY SILT

$Q_a = 2000 \text{ psf}$

DECK LIVE LOAD: 40 psf

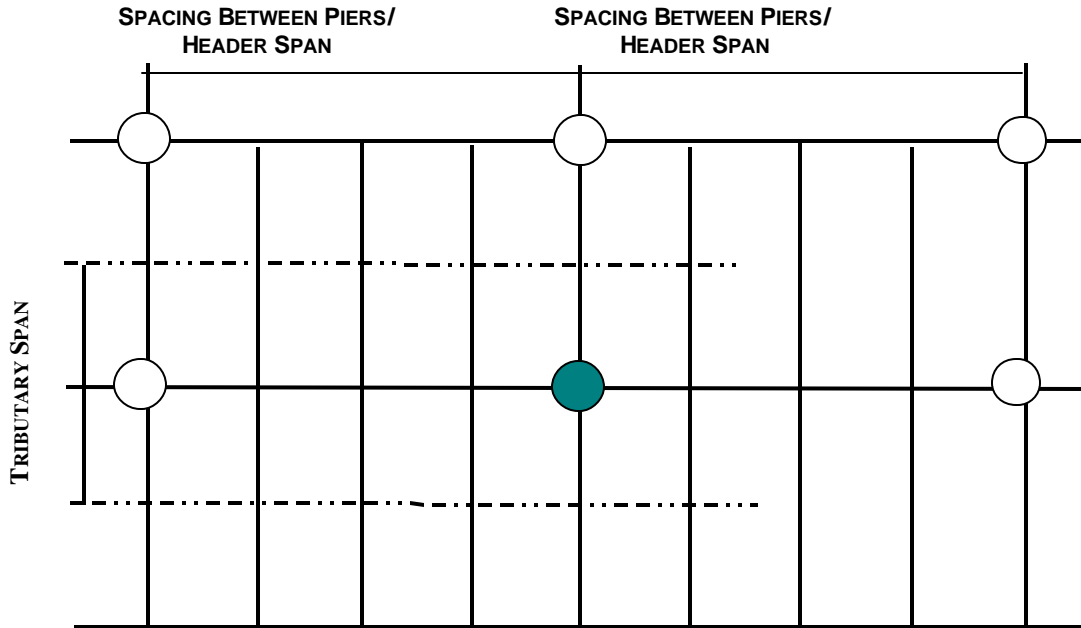
DECK DEAD LOAD: 10 psf

DECK TOTAL LOAD: 50 psf

### REQUIRED PIER DIAMETER

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		4 ft	5 ft	6 ft	7 ft	8 ft	9 ft	10 ft	11 ft	12 ft	13 ft
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	5 ft	8 in	8 in	10 in	10 in	10 in	12 in	12 in	12 in	12 in	14 in
	6 ft	8 in	10 in	10 in	10 in	12 in	12 in	12 in	14 in	14 in	14 in
	7 ft	10 in	10 in	10 in	12 in	12 in	14 in	14 in	14 in	14 in	16 in
	8 ft	10 in	10 in	12 in	12 in	14 in	14 in	14 in	16 in	16 in	16 in
	9 ft	10 in	12 in	12 in	14 in	14 in	14 in	16 in	16 in	16 in	18 in
	10 ft	10 in	12 in	12 in	14 in	14 in	16 in	16 in	16 in	18 in	18 in
	11 ft	12 in	12 in	14 in	14 in	16 in	16 in	16 in	18 in	18 in	20 in
	12 ft	12 in	12 in	14 in	14 in	16 in	16 in	18 in	18 in	20 in	20 in
	13 ft	12 in	14 in	14 in	16 in	16 in	18 in	18 in	20 in	20 in	20 in
	14 ft	12 in	14 in	14 in	16 in	18 in	18 in	18 in	20 in	20 in	24 in
	15 ft	12 in	14 in	16 in	16 in	18 in	18 in	20 in	20 in	24 in	24 in
16 ft	14 in	14 in	16 in	18 in	18 in	20 in	20 in	24 in	24 in	24 in	

## DECK PIERS - INTERIOR PIER ON INTERIOR LINE



SOIL TYPE: CLAY, SANDY CLAY, SILTY CLAY & CLAYEY SILT

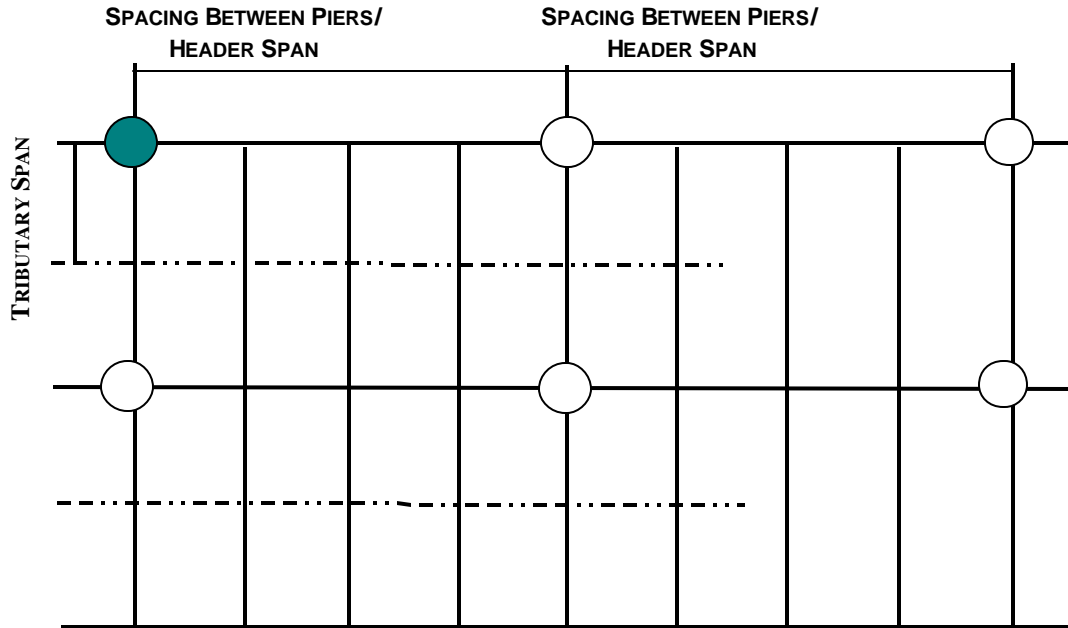
$Q_a = 2000$  psf

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 DECK DEAD LOAD: 10 psf  
 DECK TOTAL LOAD: 50 psf

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TRIBUTARY SPAN	4 ft	10 in	10 in	12 in	12 in	14 in	14 in	14 in	16 in	16 in	16 in
	5 ft	10 in	12 in	12 in	14 in	14 in	16 in	16 in	16 in	18 in	18 in
	6 ft	12 in	12 in	14 in	14 in	16 in	16 in	18 in	18 in	20 in	20 in
	7 ft	12 in	14 in	14 in	16 in	18 in	18 in	18 in	20 in	20 in	24 in
	8 ft	14 in	14 in	16 in	18 in	18 in	20 in	20 in	24 in	24 in	24 in
	9 ft	14 in	16 in	16 in	18 in	20 in	20 in	24 in	24 in	24 in	24 in
	10 ft	14 in	16 in	18 in	18 in	20 in	24 in	24 in	24 in	24 in	28 in
	11 ft	16 in	16 in	18 in	20 in	24 in	24 in	24 in	24 in	28 in	28 in
	12 ft	16 in	18 in	20 in	20 in	24 in	24 in	24 in	28 in	28 in	28 in
	13 ft	16 in	18 in	20 in	24 in	24 in	24 in	28 in	28 in	28 in	28 in
	14 ft	18 in	18 in	20 in	24 in	24 in	28 in	28 in	28 in	28 in	30 in
	15 ft	18 in	20 in	24 in	24 in	24 in	28 in	28 in	28 in	30 in	30 in
16 ft	18 in	20 in	24 in	24 in	28 in	28 in	28 in	30 in	30 in	32 in	

## DECK PIERS - EXTERIOR PIER ON EXTERIOR LINE



SOIL TYPE: CLAY, SANDY CLAY, SILTY CLAY & CLAYEY SILT

Qa = 2000 psf

DECK LIVE LOAD: 40 psf  
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 DECK TOTAL LOAD: 50 psf

### REQUIRED PIER DIAMETER

		SPACING BETWEEN PIERS / HEADER SPAN										
		4 ft	5 ft	6 ft	7 ft	8 ft	9 ft	10 ft	11 ft	12 ft	13 ft	
TRIBUTARY SPAN	2 ft	8 in	8 in	8 in	8 in	8 in	8 in	8 in	8 in	8 in	8 in	8 in
	3 ft	8 in	8 in	8 in	8 in	8 in	8 in	8 in	8 in	8 in	10 in	10 in
	4 ft	8 in	8 in	8 in	8 in	8 in	8 in	8 in	10 in	10 in	10 in	10 in
	5 ft	8 in	8 in	8 in	8 in	10 in	10 in	10 in	10 in	10 in	10 in	12 in
	6 ft	8 in	8 in	8 in	10 in	10 in	10 in	10 in	10 in	12 in	12 in	12 in
	7 ft	8 in	8 in	8 in	10 in	10 in	10 in	12 in	12 in	12 in	12 in	12 in
	8 ft	8 in	8 in	10 in	10 in	10 in	12 in	12 in	12 in	12 in	12 in	14 in
	9 ft	8 in	8 in	10 in	10 in	12 in	12 in	12 in	12 in	12 in	14 in	14 in
	10 ft	8 in	10 in	10 in	10 in	12 in	12 in	12 in	12 in	14 in	14 in	14 in
	11 ft	8 in	10 in	10 in	12 in	12 in	12 in	14 in	14 in	14 in	14 in	14 in
	12 ft	10 in	10 in	10 in	12 in	12 in	14 in	14 in	14 in	14 in	14 in	16 in
	13 ft	10 in	10 in	12 in	12 in	12 in	14 in	14 in	14 in	14 in	16 in	16 in
	14 ft	10 in	10 in	12 in	12 in	14 in	14 in	14 in	14 in	16 in	16 in	16 in