



# CITY OF ANN ARBOR, MICHIGAN

## Planning & Development Services

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### **DECKS**

Building a new deck? This information will help you understand some of the residential building codes for building a new deck or updating an existing one.

#### **Stairs**

Steps are to be a minimum of 36 inches in width.

Riser heights are 8 1/4 inches maximum, 4 inches minimum. Tread depths are 9 inches minimum with a 1 inch nosing. There can be no more than a 3/8 inch difference in riser heights or tread depths in the total run of the stair.

#### **Handrails**

Stairs with four or more risers require a graspable handrail on at least one side.

The handrail must be between 34 to 38 inches in height above the stair nosing. Handrails must be continuous for the full length of the stairs, from a point directly above the top riser of the flight to a point directly above the lowest riser of the flight.

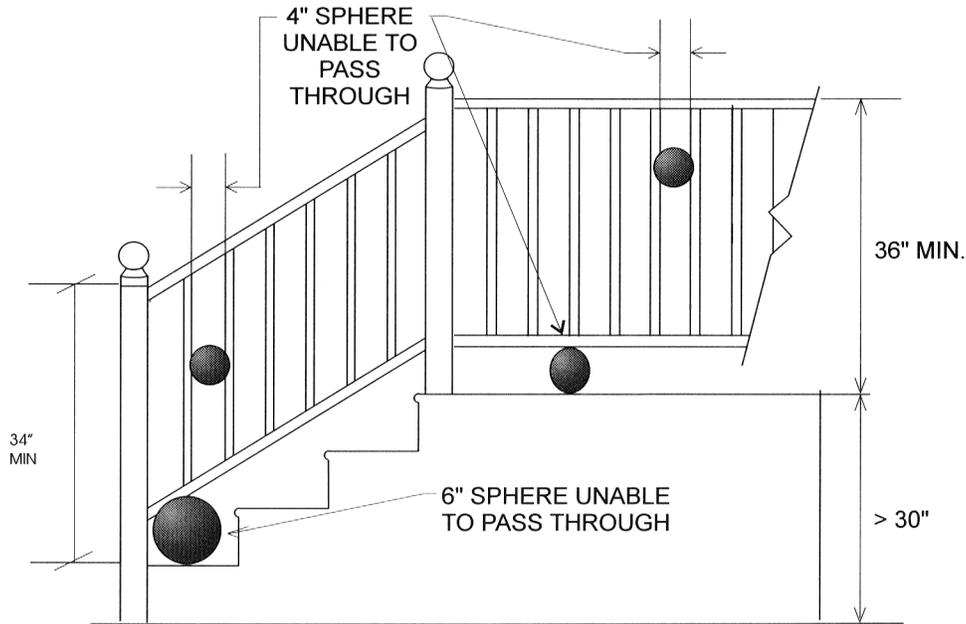
Handrail ends shall be returned to a wall or post or shall terminate in newel posts or safety terminals. Handrails adjacent to a wall shall have a space of not less than 1 1/2" between the wall and the handrail.

#### **Guardrails**

Decks or porches with a floor surface more than 30" above floor or grade below must have a guardrail system not less than 36 inches above the deck surface for single family buildings. For commercial and multi family buildings, the guardrail must be a minimum of 42 inches in height.

Guardrail systems must be able to withstand a 200 lb. load in either direction.

Openings in the guardrail system (and handrail supports), must have a maximum opening of less than 4 inches. The triangular openings formed by a riser, tread and bottom rail of the guard at the open side of a stairway are permitted to be such that a 6 inch sphere cannot pass through.



### Footings

Foundations must be a minimum of 8 inch piers or 4 inch by 4 inch posts. Post size depends on spacing, load and unbraced length. Foundations / posts must not rest on disturbed soils.

Footings must be 42 below finished grade if the deck is attached to the house or is freestanding and over 400 square feet. If the deck is unattached, and between 200 and under 400 square feet, the footings must be 12 inches below grade. Unattached decks under 200 square feet can be constructed on a pad or slab and are not required to have a footing.

### Beams

Sizes and spans must be designed to support a live load of 40 pounds per square foot live load.

### Joists

Joists must be designed to support a 40 pound per square foot live load.

Sizes and spans may not exceed those indicated in the following table. SPF lumber was used to determine the spans; other material may have a greater load capacity. In any case, check Table 502.3.1(2) in the 2003 Michigan Residential Code for a more complete listing.

Size	O.C.	Span	O.C.	Span
2 X 6	16"	9' - 4 "	24"	8' - 1"
2 X 8	16"	12' - 3"	24"	10' - 3"
2 X 10	16"	15' - 5"	24"	12' - 7"
2 X 12	16"	17' - 10"	24"	14' - 7"

### **Decking**

Nominal 2 inch material for joists spaced at a maximum of 24 inches on center.

Nominal 5/4 inch material for joists spaced at a maximum of 16 inches on center.

### **Material**

All wood materials must be preservative treated or naturally durable lumber. "Preservative treated lumber" must bear the quality mark of an improved inspection agency. "Naturally durable lumber" refers to the hardwood of the following species:

Decay resistant: redwood, cedars, black locust and black walnut.

Termite resistant: redwood and eastern red cedar.

The following specific wood members are required to be either naturally durable or preservative treated: Wood used above the ground on decks, porches or balconies including structural supports where such members are exposed without adequate protection from a roof, eave, or overhang or covering to prevent moisture or water accumulation on the surface or at the joists between members, including beams, joists, posts, railings and decking material. This also includes wood in contact with the ground when supporting structures for human occupancy.

The following specific wood members can only be preservative treated: Any wood embedded in concrete supporting structures for human occupancy. Painting or staining a standard wood member required to be treated is not considered adequate protection.

Joist hangers must be used on all connections without positive bearing.

Only double dipped galvanized nails, fasteners and hardware should be used.

Approved corrosion-resistant flashing is required at the intersection of exterior walls and decks. Flashing shall be inserted to the extent under the existing siding and over the ledger board to prevent water from collecting at this point. Flashing must be continuous.

### **Attachment to house**

Where supported by attachment to an exterior wall, decks shall be positively anchored to the primary structure and designed for both vertical and lateral loads as applicable with a minimum 1/2-inch diameter fastener. Such attachment shall not be accomplished by the use of toenails or nails subject to withdrawal. Where positive connection to the primary building structure cannot be verified during inspection, decks shall be self-supporting.

### **Drawings Required for Building Permit**

Site Plan – This should show the location of the deck on the lot and the distance from all property lines.

Deck Plan – A plan drawn preferably at 1/4 scale (1/4" equals a foot). This plan should show all framing sizes and spacing, location and depth of footings and other structural supports. Include planters, seats, stairs, etc.

Elevation – Include an elevation if the deck is 30 inches or more above finish grade.

### **Inspection Requirements**

Footing – Before post holes.

Framing – Before installing the decking (walking surface).

Final – After completion of all work (including trade work).

Note that any electrical work installed on decks must meet the current electrical code and will also require proper inspections