



Platte County Planning and Zoning

Planning * Zoning Enforcement * Engineering * Stormwater Management * Building Inspections * GIS

Residential Deck Permit and Construction Guidelines

The purpose of this document is to provide the public, contractors and homeowners with deck construction guidelines. This is a living document and is subject to change from time to time as codes or other requirements change. The guidelines are based on the 2006 International Residential Code. Building Permits are required prior to constructing, altering or replacing a deck.

This guideline does not contain all of the requirements for obtaining permits, fees, or procedures for inspection from Platte County. The guideline also does not prevent the County from asking for additional information or varying from specific requirements based on locally adopted code and ordinance requirements.

This guideline is limited to deck designs using a uniform floor loading of 40 pounds per square foot live load and 10 pounds per square foot dead load over the entire floor of the deck. Decks supporting loads in excess of the standard uniform loads will require specific approval from an engineer licensed in the State of Missouri. Decks supporting roof, hot tubs, spas, sun rooms, etc., and decks with cantilevers exceeding 2 feet are examples of deck design elements that are not covered by this guideline and will require additional direction from Platte County.

The first requirement is submittal of a site plan. The site plan shows the property boundaries, dimensions of the deck and how far away from the property lines the deck is located. If you currently have a site plan that has been performed by a surveyor, you are welcome to add the deck construction to that site plan. The distances to property lines must meet any front, side and rear yard setback requirements. Decks cannot be constructed within a platted easement.

The second requirement is the deck construction plan. This plan should contain as much information as possible about the deck and its construction. This plan may be drawn by the builder or home owner and does not require the seal of a design professional. Some more complicated designs with more complex structural elements may require the use of an engineer or other design professional.

A variety of decking materials may be used for the flooring and railings. Please specify the size and type of material and the framing direction. The deck must be constructed of either a naturally decay-resistant lumber or a pressure-treated lumber (ACQ) and be designed to support a live load of 40 pounds per square foot. All overhead power lines must be located at least 10

feet above the deck floor or be at least 3 feet horizontally away from the floor surface. An exterior light for the deck is required.

The size of the wood columns and concrete piers that are required to support a deck is based on the square footage of deck being supported by that column and pier. A column and pier supports an area of deck that is half way to the next support in any direction. The house is considered a support.

A critical part of a deck construction is the concrete pier that supports each post. If they are too small the deck could settle over time and become uneven. All piers are to be a minimum of 36 inches below grade. Be sure to specify some type of column anchor on the plans. Column anchors are made to fit 4 x 4 or 6 x 6 posts. Some column anchors are designed to be set directly in the concrete when it is poured. Others can be drilled into the concrete later so they can be placed exactly where they need to go after the concrete has set up. Column and posts in contact with the ground or embedded in concrete, earth or masonry must be of special pressure treated wood approved for ground contact.

Decks are usually supported on one side by a ledger attached to the house. This ledger attachment is critical to insure the deck is safely and securely supported at this point. When the ledger is attached to the house, there are very specific requirements that must be met. The deck ledger shall not be nailed to the house. It must be lagged or bolted to the rim joist of the house which in turn must be securely attached to the framing of the structure and sitting on the foundation wall.

Where deck ledgers are attached to the dwelling the assumed attachment is over hardboard siding with connection through to the rim joist of the house. Where the exterior consists of other siding materials (Stucco, Shingles, Asbestos Siding, etc.) or attachment of the ledger is to brick, concrete, stone or other materials, information will need to be provided that indicates how that attachment will be made. The ledger is a header attached to the house to support one side of the deck.

The size and spacing of the lag screws is based on their capacity. Lag screw values are assumed to be 325 pounds for 1/2 inch lag screws and 190 pounds for 3/8 inch lag screws. The span of the floor joists determines how much load is being transferred to the ledger and thus to the lag screws. The use of proper fasteners and connections with treated lumber is critical to the overall performance of the structure. Standard carbon-steel nails and fasteners will rust and corrode with time, causing unsightly stains and possibly an eventual failure to hold securely. Therefore, the lag screws supporting the ledger, and all other connectors used in constructing a deck, must be hot dipped galvanized or stainless steel. G60 Electroplated fasteners are NOT recommended for use with treated lumber. Since treated wood will corrode standard carbon-steel and aluminum, it is of extreme importance that all the connectors and flashings used in deck construction be able to withstand direct contact with this material.

Floor joists and beams have certain span capabilities based on the size, grade, species and spacing of the material used for the joists or beams and the loads that are imposed on them. Deck joists are required to be designed for 40 pounds per square foot, just like a residential floor. Most joist material used for building decks is No. 2 and better, treated southern pine.

Guardrails are required when the deck floor is more than 30 inches above another floor or grade below. The guardrail shall not be less than 36 inches in height, measured for the walking surface. The perimeter support posts can be incorporated into the railing of the deck. The posts extend from the footings to the top rail cap. Balusters or ornamental closures that do not allow a 4 inch diameter sphere to pass through are used to fill in between the posts. These balusters in combination with the cap rail and bottom rail transfer the loads to the posts. In order to do this successfully, the main railing posts should be spaced approximately 6 feet apart. The advantage of this design is that the full length of the posts resists the rail load.

The guardrail in-fill components which consist of the balusters or panel fillers shall be designed to withstand a horizontally applied load of 50 pounds distributed over a 1 square foot area.

When guardrail posts are not a continuous part of the support post system, they must be attached so they can withstand the prescribed loads without twisting the rim joist. It is therefore necessary to be sure the rim joist is blocked so it cannot rotate. Lag screws into the ends of the perpendicular joists or blocking are the proper connectors for this purpose. Nails into the end grain of the framing lumber will simply withdraw allowing the rim joist to twist. Two lag screws in the deck joists or blocks on each side of the post are necessary to prevent the rim from rotating unless the post is blocked in from behind and lagged to a joist perpendicular to the rim joist.

Stairways shall have a minimum width of 36 inches. The maximum riser height shall be $7\frac{3}{4}$ inches and the minimum tread depth shall be 10 inches. Open risers are permitted provided the opening between the treads does not allow the passage of a 4 inch diameter sphere. The opening between adjacent treads is not limited on stairs with a total rise of 30 inches or less. The greatest riser height and tread depth within any flight of stairs shall not exceed the smallest by more than $\frac{3}{8}$ inch. These shall be a minimum of two stringers where the spacing between them is 24. This requires the treads to overhang 5 inches beyond each stringer. Three stringers may be used where the outside members are placed 36 inches apart and a third is centered in between. Open sides of stairs with a total rise of more than 30 inches above the floor or grade below shall have guards not less than 34 inches or more than 38 inches in height measured vertically from the nosing of the treads.

Graspable handrails are required on stairs with four or more risers. The graspable handrail shall be continuous the full length of the stairs and shall start at a point directly above the top riser of the flight and continue to a point directly above the lowest riser in the flight. The ends of the graspable handrail shall be returned to the posts at the top and bottom of the stairs.

The graspable handrail shall be between 34 inches and 38 inches above the nosing of the treads and shall be provided on at least one side of the stairway. There shall be a minimum clearance of 1 ½ inches between the handrail and adjacent framing. This means 2x2 lumber with eased edges with meet the requirements of the code.

Required inspections on a deck will include a pier inspection prior to the placement of concrete, a framing inspection to be made after all framing, blocking and bracing are in place and prior to covering the construction so it is accessible for inspection. This inspection can also be completed at the time of the final inspection if all parts of the framing are visible and accessible. A final inspection will be made upon completion of the deck and final grade. Additional inspections may be required if there are other components designed in the deck construction, i.e. electrical and or plumbing.

Should you have any additional questions , please feel free to contact this office at 816-858-3380 or 816-858-1940.

A deck is an outdoor floor supported by posts and footings in the ground. The following terms define the components of a typical deck. Specific types of decks may differ.

BEAMS OR GIRDERS: Hefty framing member (usually 4x, 6x or doubled 2x stock) attached horizontally to the posts to support the joists.

DECKING: 2x or 5/4 stock attached to the joists to form the floor of the deck.

FOOTINGS: Concrete columns below grade that support the posts and, thus, the deck. On sites where the soil freezes and thaws, concrete is poured in a form inserted in a hole that's dug to frost depth, 36" below grade.

HEADERS: Framing members perpendicular to the joists and attached to their ends.

JOISTS: Horizontal framing members (usually 2x stock) fastened on top of the beam or flush with the ledger to support the decking. A header is fastened to the ends of the deck's interior joists. Rim joists or end joists are the outermost joists perpendicular to the ledger.

LEDGER: A header attached to the house to support one side of the deck.

POST ANCHORS: Metal framing connectors that attach posts to piers or footings. Some types raise the base of the posts slightly above the top of the footings, protecting them from water and insect damage.

POSTS: Timber (usually 4x or 6x) set vertically to support the deck framing. Posts are used on all but the shortest decks. The posts can be cut off below the deck surface, or they may rise above the surface to provide support for the railing.

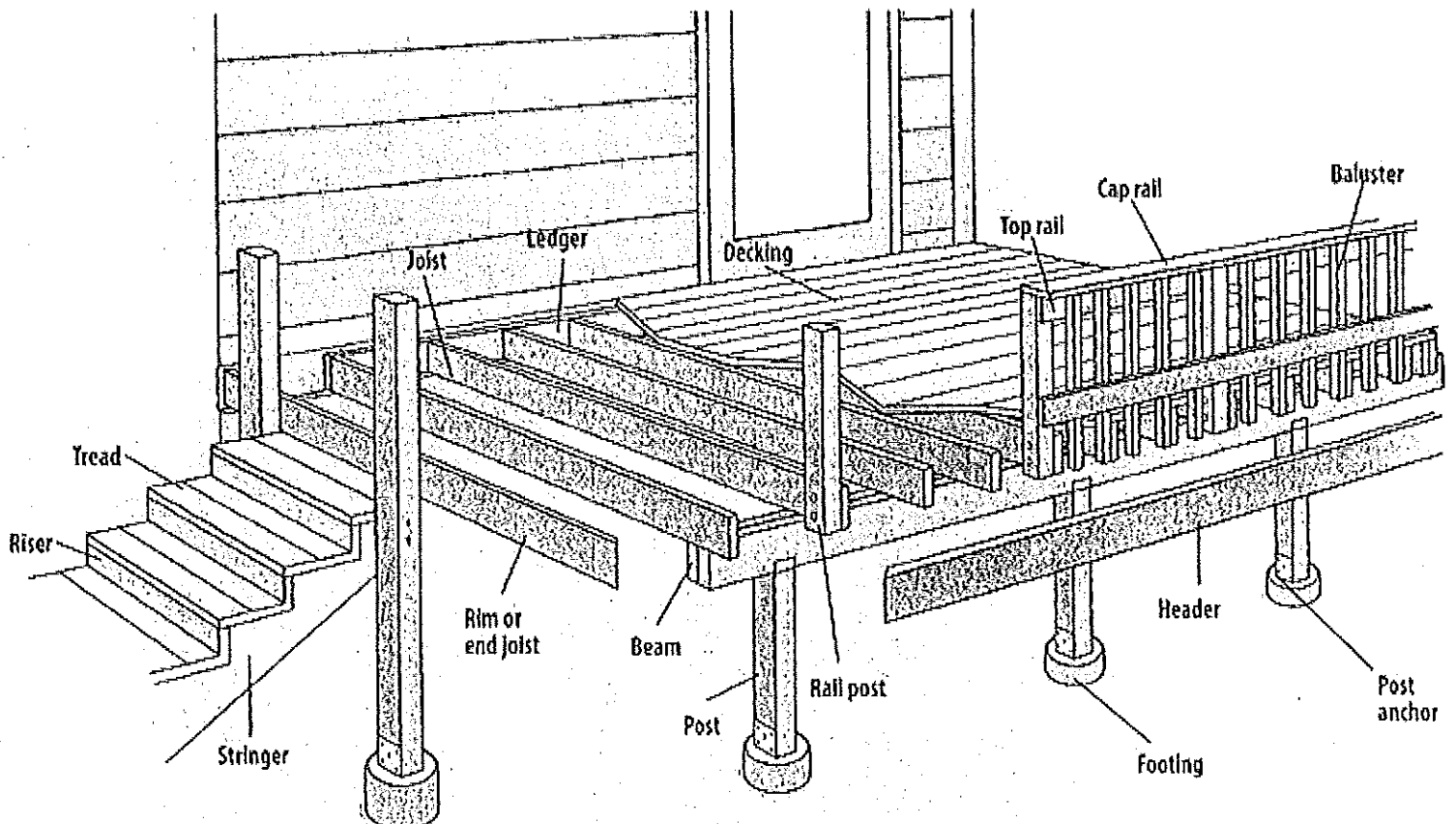
Posts may rest on top of concrete footings, or they can be set in the hole before the concrete is poured.

RAILS: Horizontal components of railings that provide a safety barrier and handhold for stairs or along the sides of the deck.

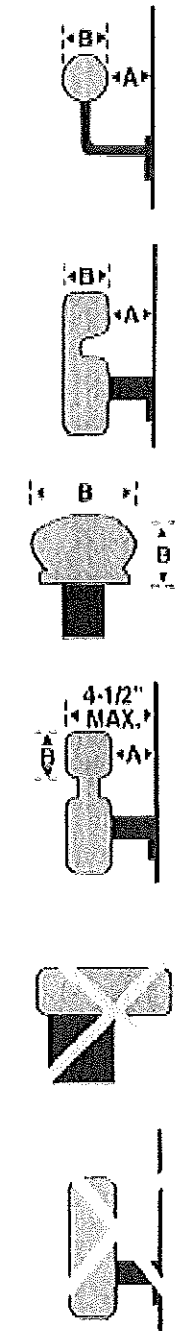
RISERS: Boards that enclose the vertical spaces between stairway treads.

STRINGERS: Lone diagonal framing members (usually 2x12's) that support stairs. The stair treads are attached to the stringers.

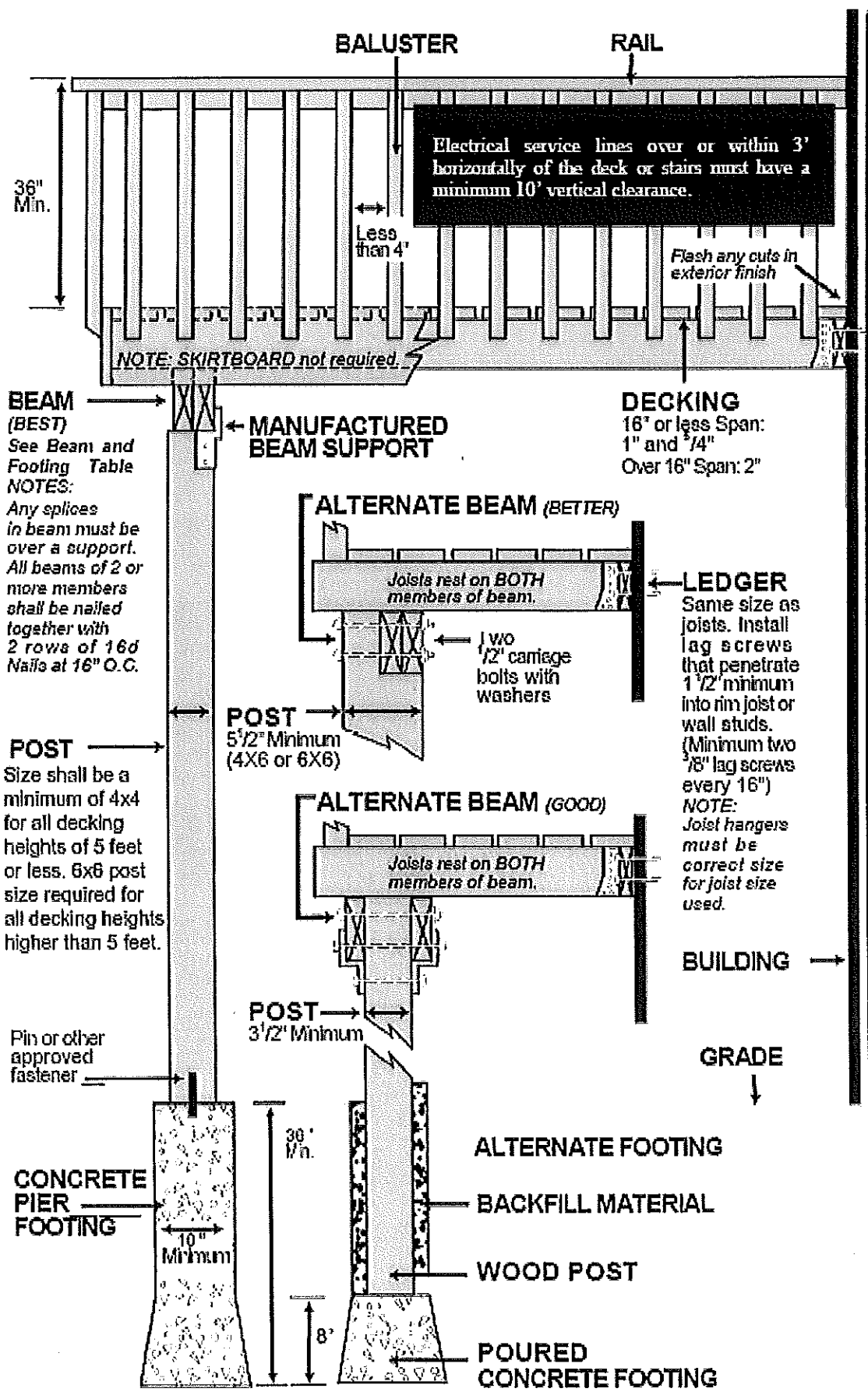
TREADS: The horizontal stepping surfaces of a stairway.



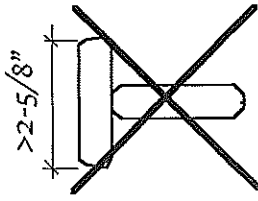
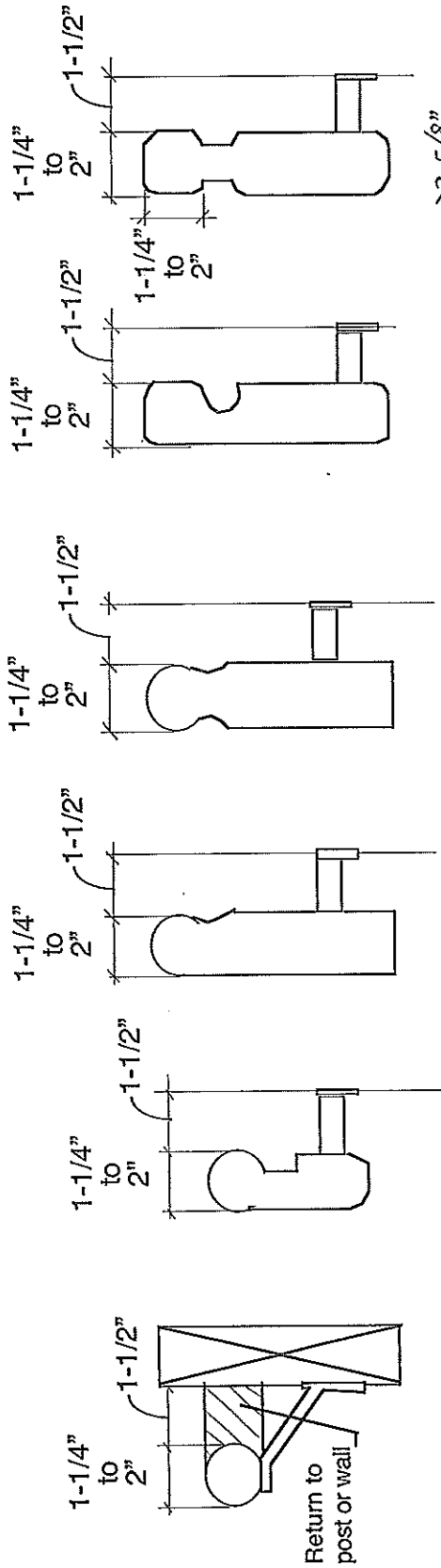
Approved handrail solutions at stairs



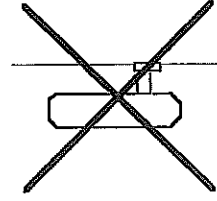
A = 1-1/2" MIN
B = 1-1/4" to 2"



ACCEPTABLE HANDRAIL EXAMPLES



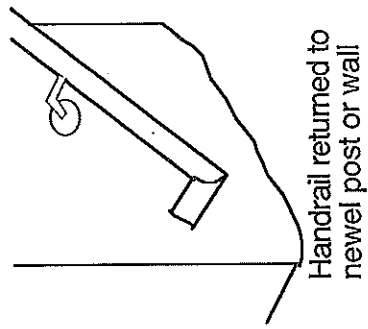
Not acceptable



Not acceptable

Handrail Grip Size

The hand grip portion of handrails shall have a circular cross section of 1-1/4\"/>



Handrail returned to newel post or wall

HANDRAILS SHALL BE 34\"/>