

# Boone County Building Department

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601 North Main Street, Belvidere, Illinois 61008 (815) 544-6176

## *Single Family Dwelling/Additions*

This handout serves *only* as a guide and does not contain all of the requirements of Boone County Building Codes.

To all builders and homeowners;

**As the Building Department for unincorporated Boone County, we are committed to the quality of construction within our jurisdiction. The following handout has been created in order to assist in more efficient permitting and construction by offering information and guidelines as well as common mistakes our department encounters. We ask that you please refer to this handout, as the information contained herein can potentially be time and cost effective for all parties.**

**This handout outlines many, but not all, of Boone County codes. It is important to note that ALL building and zoning codes must be in compliance. The codes that are in effect for Boone County at this time are as follows:**

**International Residential Code 2003 with local amendments  
International Building Code 2003  
National Electrical Code 2005 with local amendments  
Illinois Plumbing Code 2004 with local amendments  
Boone County Zoning Ordinance  
International Energy Conservation Code 2000 with 2001 Supplement (commercial only)**

**An appointment is no longer required for a building permit. Information for a building permit may be dropped off, mailed, or faxed to our department at any time. Once the review is complete the applicant will be notified whether it complied. Please note that any missing information can result in the delay of your processing. A building permit will be released once the review is approved and payment has been received.**

**Michele Holsker, our permit technician, will be the contact person regarding all applications. Any questions regarding the application process should be directed to her. If you have a technical question regarding building or zoning codes, Michele will take a message and an inspector will return your call.**

- Building Department **544-6176**
- Electrical Inspector, Phil Long **547-8669**
- Plumbing Inspector, Gunnar Bergland **1-737-2222**

**\*\*Candlewick Building Department **765-2827****

**Construction projects must be approved by Candlewick Lake Association before the County can issue a permit. (Roofing permits excluded.) Please be sure to include your Candlewick approved site plan and Candlewick hard card (blue card) with your submitted county application.**

**\*\*If you are located in one of the following incorporated areas please contact that person or office for all zoning and building inquiries.**

- City of Belvidere **547-7177**
- Village of Capron
  - Independent Inspections **1-800-422-5220****
  - Capron Village Hall **569-2206****
- Village of Caledonia
  - Diedra Johnson **765-3271****
- Village of Poplar Grove **765-3201**
- Village of Timberlane
  - Independent Inspections **1-800-422-5220****

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**Building permits are required for all Single Family Residences and Additions within unincorporated Boone County.**

*Required information when applying for a single family residence/addition permit:*

- Site plan: approximate size and shape of lot including dimensions, footprint of house, distance from house to lot lines, location of well and septic, location of all existing buildings/structures
- Construction Drawings:
  1. Foundation plans and details indicating depth and width of interior and perimeter footings and thickness of foundation walls
  2. Floor plans indicating dimensions of all rooms with each room labeled for its use
  3. Elevation plans indicating elevations of all exterior walls and height of home
  4. Sections and details of walls, floors, and roof indicating size and spans of all floor joists, rafters, ceiling joists, beams, headers, etc... as well as the species and grade of all lumber.
  5. If applicable, please refer to deck construction handout and finished basement handout for requirements and materials necessary at time of permit.
  6. Plumbing plans showing the location of fixtures, risers, and drains.
  7. Mechanical plans indicating equipment location, number of units, and energy efficiency of appliances
- Permit application and permit checklist: available from our office or downloadable at [www.boonecountyil.org](http://www.boonecountyil.org)
- All applicable contractor's information: including name, address, phone number, and license number of electrician, and license numbers for plumber (2 separate numbers- Plumber's and State Bond)
- Health Department Approval: approval of well and septic must be faxed to our office by the Health Department
- Rural Access Permit: obtainable from your local township highway department
- Lot of Record Letter: For all agricultural districts, a Lot of Record confirmation letter must be obtained by the Planning Department

*Required inspections:*

1. Footing: After footing is dug, but before concrete is placed.
2. Backfill: When walls are coated and drain tile is in place, but before backfill.
3. Rough-in: Before insulating building, but after electric and plumbing is roughed-in and approved.
4. Insulation: Once insulation is installed, but before the installation of any coverings.
5. Final: When all work is completed and electric and plumbing final have been approved, but before occupancy.

*\*The use of any structure (including pools and decks) is strictly prohibited until a final inspection is approved.*

*Guidelines for building a single family residence:*

- Location: A single family residence is a permitted use within the Agricultural and Residential Districts provided the lot meets current lot and yard requirements as well as current setbacks. For specific requirements please see zoning inspector.
- Number: Only one (1) single family residence is permitted per parcel.
- Height: No single family residence shall exceed 35 feet in height.

### *Minimum Structural Standards:*

The following section outlines many, but not all, of the most common mistakes made when building a single-family residence or addition. The section number at the beginning of each item is the applicable building code section from the 2003 International Residential Code. For further information on code requirements, either not listed below or of that pertaining to below please contact our department at 815-544-6176. We look forward to working with you as your construction project proceeds.

#### **General Planning:**

- 1) *R308.4 Glazing:* The following shall require tempered glass:
  - R308.4.5 Glazing in doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs, and showers. Glazing in any part of a building wall enclosing these compartments where the bottom edge of the glazing is less than 60 inches measured vertically above any standing of walking surface.
  - R308.4.6 Within a 24-inch arc of a door whose bottom edge is less than 60 inches.
  - R308.4.7 That which meets all following conditions:
    - 7.1 Exposed area of an individual or fixed pane greater than 9 square feet
    - 7.2 Bottom edge less than 18 inches above the floor
    - 7.3 Top edge greater than 36 inches above the floor
    - 7.4 One or more walking surfaces within 36 inches horizontally
  - R308.4.10 Glazing adjacent to stairways, landings, and ramps within 36 inches horizontally of a walking surface when the exposed surface of the glass is less than 60 inches above the plane of the adjacent walking surface.
  - R 308.4.11 Glazing adjacent to stairways within 60 inches of the bottom tread of a stairway in any direction when the exposed surface of the glass is less than 60 inches above the nose of the tread.
    - Exception: 9. Safety glazing in Section R308.4, Items 10 and 11 is not required where:
      - 9.1 The side of a stairway, landing, or ramp has a guardrail or handrail, including balusters or in-fill panels, complying with the provisions of Sections 1003.3.12 and 1607.7 of the *International Building Code*; and
      - 9.2 The pane of the glass is greater than 18 inches from the railing.
- 2) *R309.1 Opening Protection:* Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches thick, or 20-minute fire-rated doors.
- 3) *R309.2 Separation Required:* The garage shall be separated from the residence and its attic area by not less than 1/2 inch gypsum board applied to the garage side. Garages beneath habitable rooms shall be separated from all habitable rooms above by not less than 5/8 inch Type X gypsum board or equivalent. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall also be protected by not less than 1/2-inch gypsum board or equivalent.
- 4) *R310 Egress Windows:* Basements with habitable space and every sleeping room shall have at least one openable emergency escape with a sill height of no more than 44 inches. Minimum net clear opening must be 5.7 square feet or 5 square feet for grade floor windows. Minimum net clear opening height shall be 24 inches. Minimum net clear opening width shall be 20 inches. The window must be capable of opening without the use of a key or tool.

The minimum horizontal area of a window well shall be 9 square feet with a minimum horizontal projection and width of 36 inches. Window wells with a depth greater than 44 inches require a ladder.
- 5) *R311.2.2 Under Stair Protection:* Enclosed accessible space under stairs shall be enclosed with 1/2-inch gypsum board.
- 6) *R311.4 Doors:* Not less than one exit door is required for each unit (does not include exit access through garage). The door shall be a side-hinged door not less than 3 feet in width and 6 feet 8 inches in height.
- 7) *R311.5 Stairways:* Please refer to attached Stairway Handout.
- 8) *R312 Guards:* Please refer to attached Stairway Handout.
- 9) *R316.1 Insulation:* Any insulation with an exposed craft facing or vapor retarder shall be covered with a minimum 1/2 inch drywall. Minimum R-values are as follows: R-38 for ceilings and R-15 for walls (inside the wall cavity, not exterior to interior)
- 10) *R319 Protection Against Decay:* All lumber in contact with concrete must be treated. All structural wood joists closer than 18 inches and all wood girders closer than 12 inches to the exposed ground must be treated.

## Footings and Foundations

- 1) *R403 Footings*: All footings and foundation systems shall extend 42 inches below grade.
- 2) *R401.3 Drainage*: The grade away from foundation walls shall be a minimum of 6 inches within the first ten feet.
- 3) *R403.1.6 Foundation Anchorage*: When braced wall panels are supported directly on continuous foundation, the wall wood sill plate shall be anchored to the foundation. Anchor bolts shall be spaced a maximum of 6 feet on center. There shall be a minimum of two bolts per plate section with one bolt located not more than 12 inches or less than seven bolt diameters from each end of the plate section. Bolts shall be at least ½-inch in diameter and shall extend a minimum of 7 inches into the concrete of masonry.
- 4) *R404.1.6 Height Above Finished Grade*: Concrete and masonry foundation walls shall extend above the finished grade a minimum of 4 inches where masonry veneer is used and a minimum of 6 inches elsewhere.
- 5) *R405 Foundation Drainage*: Drains shall be provided around all concrete or masonry foundations that retain earth and enclose habitable or usable spaces located below grade. Gravel or crushed stone shall extend at least 1 foot beyond the outside edge of footing and 6 inches above the top of the footing and be covered with an approved filter membrane material. The drain tiles or perforated pipe must be placed on a minimum of 2 inches of washed gravel or crushed rock and covered with not less than 6 inches of the same material.
- 6) *R406.1 Foundation Dampproofing*: Foundation walls that retain earth and enclose habitable or usable spaces located below grade shall be dampproofed from the top of the footing to the finished grade.

## Rough Framing

- 1) *R502.3 Joist Spans*: For allowable joist spans please contact our office. For sleeping rooms only, the design live load shall be 30 psf. For all other rooms the design live load shall be 40 psf.
- 2) *R502.3.3 Floor Cantilevers*: For allowable cantilever spans please contact our office.
- 3) *R502.5 Girder and Header Spans*: For allowable girder and header spans please contact our office.
- 4) *R502.6 Bearing*: The ends of each joist, beam, or girder shall have not less than 1.5 inches of bearing on wood and not less than 3 inches on masonry or concrete. Joists framing from opposite sides over a bearing support shall lap a minimum of 3 inches and shall be nailed together with a minimum of three 10d face nails. Joist framing into the side of a wood girder shall be supported by approved framing anchors or on ledger strips not less than nominal 2 inches by 2 inches.
- 5) *R502.8 Drilling and Notching*: Notches in wood joists, rafters or beams shall not exceed 1/6 of the depth of the member, and shall not be located within the middle third of the span. Notch depth at the ends of the member shall not exceed ¼ of the depth of the member. The diameter of a hole cut in wood joists, rafter or beams shall not exceed 1/3 of the depth of the member. The hole shall not be closer than 2 inches to the top or bottom of the member or any other hole in the member.
- 6) *R502.8.2 Engineered Wood Products*: Cuts, notches, and holes bored in trusses, laminated veneer lumber, glue-laminated members of I-joists are not permitted unless the effects of such penetrations are specifically considered in the design of the member.
- 7) *R502.11 Wood Trusses*. Truss members shall not be cut, notched, spliced, or otherwise altered in any way without the approval of a registered design professional. Submit manufacturer's engineering or certification for all wood roof and floor trusses showing support for all required loads. Install all required bracing indicated on manufacturer's engineering.
- 8) *R502.12 Draftstopping*: When there is usable space both above and below the concealed space of a floor/ceiling assembly, draftstops shall be installed so that the area of the concealed space does not exceed 1000 square feet. Draftstopping shall divide the concealed space into approximately equal areas. Where the assembly is enclosed by a floor membrane above and a ceiling membrane below draftstopping shall be provided in the floor/ceiling assemblies under the following circumstances: (1) Ceiling is suspended under the floor framing. (2) Floor framing is constructed of truss-type open-web or perforated members. Materials shall not be less than ½-inch gypsum board, 3/8-inch Type 2-M-W particleboard or other approved materials adequately supported. Draftstopping shall be installed parallel to the floor framing members.
- 9) *R502.13 & R602.8 Fireblocking*: Fireblocking shall be provided to cut off all concealed draft openings (both vertical and horizontal) and to form an effective fire barrier between stories and between a top story and the roof space. Fireblocking shall be provided in wood-frame construction in the following locations. (1) In concealed spaces of stud walls and partitions, including furred space, at the ceiling and floor level and at 10 foot intervals both vertical and horizontal. Batts or blankets of mineral or glass fiber or other approved nonrigid materials shall be allowed as fireblocking in walls constructed using parallel row of studs or staggered studs. (2) At all interconnections between concealed vertical and horizontal spaces such as soffits, drop ceilings, and cove ceilings. (3) In concealed spaces between stair stringers at the top and bottom of the run. (4) At openings around vents, pipes, and ducts at ceiling and floor level, with an approved material to resist the free passage of flame and products of combustion. (5) For the fireblocking of chimneys and fireplaces, see Section R1001.16.

- 10) *R602.3 Fasteners*: All wood framing members and sheathing materials shall be fastened together in accordance with the fastening schedule.
- 11) *R602.6 Drilling/Notching of Studs*: Any stud in an exterior wall or bearing partition may be cut or notched to a depth not exceeding 25% of its width. Studs in non-bearing partitions may be notched to a depth not to exceed 40% of a single stud width. Any stud may be drilled providing the hole is no greater than 40% of the stud width, the edge of the hole is no closer than 5/8" to the edge of the stud, and the hole is not located in the same section as a cut or notch. EXCEPTION: A stud may be bored to a diameter not to exceed 60% of its width providing that such studs located in exterior walls or bearing partitions are doubled and that not more than two successive studs are bored.
- 12) *R602.6.1 Drilling and notching of top plate*: When piping or ductwork is placed in or partly in an exterior wall or interior load-bearing wall, necessitating cutting, drilling, or notching by more than 50% of its width, a galvanized metal tie of not less than .054 inches thick and 1 ½ inches wide shall be fastened to each plate across and to each side of the opening with not less than 16d nails at each side.
- 13) *R602.9 Cripple Walls*: Cripple walls with a stud height less than 14 inches shall be sheathed on at least one side with a wood structural panel that is fastened to both the top and bottom plates, or the cripple walls shall be constructed of solid blocking.
- 14) *R602.10.3 Wind Bracing*: Install wind bracing at the corners of exterior frame walls and every 25 feet between. Approved wind bracing materials include diagonal let-in 1-inch by 4-inch, wood structural panels, diagonal wood sheathing, or other approved wind bracing systems.
- 15) *R703.8 Flashing*: Approved corrosion-resistive flashing shall be provided in the exterior wall envelope in such a manner to prevent entry of water into the wall cavity at all the following locations: (1) At the top of all exterior windows and door opening, except that self-flashing windows (2) At the intersection of chimneys or other masonry (3) Under and at ends of masonry, wood, or metal copings and sills (4) Continuously above all projecting wood trim (5) Where exterior porches, decks or stairs attach to a wall or floor assembly of wood-frame construction (6) At wall and roof intersections (7) At built-in gutters.
- 16) *R802.7.2 Engineer wood products*: Cuts, notches, and holes bored in laminated veneer lumber, glue-laminated members, or I-joists are not permitted unless the effect of such penetrations are specifically considered in the design of the member.
- 17) *R802.10.5 Truss to Wall Connection*: Hurricanes clips shall be required.
- 18) *R807 Attic Access*: An attic access shall be provided to attic areas that exceed 30 square feet and have a vertical height of 30 inches or greater. The framed opening shall not be less than 22 inches by 30 inches and shall be located in a hallway or other accessible location. A 30-inch minimum headroom in the attic space shall be provided at some point above the access opening.
- 19) *R1001.6 Chimney Termination*: Chimneys shall extend at least 2 feet higher than any portion of a building within 10 feet, but shall not be less than 3 feet above the highest point where the chimney passes through the roof.
- 20) *R1002 and R1004 Factory-built chimneys and fireplaces*: Factory-built chimneys and fireplaces shall be installed according to manufacturer's installation instructions.

## **Mechanicals**

- 1) *M1305.1.2 Appliances in Rooms*: Appliances installed in a compartment, alcove, basement, or similar space shall be accessed by an opening or door and an unobstructed passageway measuring not less than 24 inches wide and large enough to allow removal of the largest appliance in the space.
- 2) *M1305.1.3 and M1305.1.4 Appliances in Attics and Underfloor Spaces*: Attics and underfloor spaces containing appliances shall be provided with an opening and an unobstructed passageway large enough to remove the largest appliance, but not less than 30 inches high and 22 inches wide.
- 3) *M1306.1 Appliance Clearance*: Appliances shall be installed according to manufacturer's installation instructions.
- 4) *M1501.3 Dryer Exhaust*: The maximum length of a clothes dryer exhaust duct shall not exceed 25 feet from the dryer location to the wall or roof termination. The maximum length of duct shall be reduced 2.5 feet for each 45-degree bend and 5 feet for each 90-degree bend.
- 5) *M1602 Return Air*: Outside or return air may *not* be taken from the following locations: (1) Closer than 10 feet from an appliance vent outlet (2) Where there is the presence of flammable vapors (3) A closet, bathroom, toilet room, kitchen, garage, mechanical room, furnace room, or other dwelling unit (4) A room containing a fuel-burning appliance that is not direct vent.
- 6) *M1701.4 Combustion Air*: Combustion air shall not be obtained from a sleeping room, bathroom, or toilet room. Where the space in which the appliance is located is less than 50 cubic feet per 1,000 Btu/h, two permanent openings to adjacent spaces shall be provided. One opening shall be within 12 inches of the top and one within 12 inches of the bottom of the space which each opening having a free area of 1 square inch per 1000 Btu/h , but not less than 100 square inches.