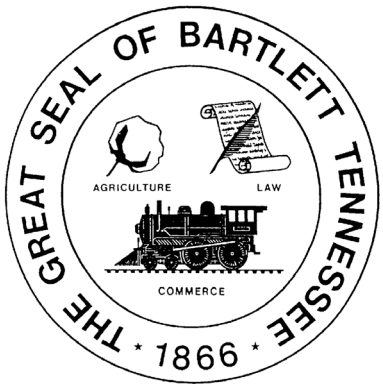

BUILDING CODE AMENDMENTS TO THE

2018 INTERNATIONAL RESIDENTIAL BUILDING CODE

When adopting the 2018 International Residential Code, the following Appendices will also be adopted: A, B, C, D, G, J, M & N. Please see last page for Appendices amendments.

AMEND Section R101.1 as follows:

R101.1 Title
These provisions shall be known as the Residential Code for One-and Two-Family Dwellings of The City of Bartlett, and shall be cited as such and will be referred to herein as "this code."

AMEND Section 103.1 to read as follows:

R103.1 Creation of Enforcement Agency
The Department of Code Enforcement is hereby created and the official in charge thereof shall be known as the Director of Code Enforcement.

ADD New Section 103.4 as follows:

R103.4 Restrictions on Employees
An officer or employee connected with the department, except one whose only connection is as a member of the board established by this code, shall not be financially interested in the furnishing of labor, material, or appliances for the construction, alteration, or maintenance of a building, structure, service, system, or in the making of plans or of specifications thereof, unless he is the owner of such. This officer or employee shall not engage in any other work which is inconsistent with his duties or conflict with the interests of the department.

DELETE R105.1 in its entirety and replace with the following:

R105.1 Permit Application Required
Any owner, authorized agent, or contractor who desires to construct, enlarge, alter, repair, move, demolish, or change the occupancy of a building or structure, or to erect, install, enlarge, alter, repair, remove, convert or replace any electrical, gas, mechanical, or plumbing system or to cause any such work to be done shall first hire or cause to hire a licensed and/or registered contractor. The contractor shall first make application to the Code Official and obtain the required permit for the work. Building permits may be issued to the property and building owners when so allowed by the City of Bartlett Technical Codes and the State of Tennessee Contractors' License Laws. Alterations, repairs or rehabilitation work may be made to any existing structure, building, electrical, gas, mechanical or plumbing system without requiring the building, structure, plumbing, electrical, mechanical or gas system to comply with all the requirements of this code, provided that the alteration, repair or rehabilitation work conforms to the requirements of this code for new construction. The Code Official shall determine the extent to which the existing system shall be made to conform to the requirements of this code for new construction. Permits are required to be obtained by an individual licensed in that field for plumbing, gas, mechanical, and electrical.

DELETE in R105.2 under Building: 1, 2, 3, 4, 5, 7, 9, & 10.

DELETE in R105.2 under Mechanical: 4 & 7

ADD to the end of Section R105.3.1 as follows:

R105.3.1
When a building or structure is improved and/or remodeled and the value of the work to be completed exceeds 50% of the market value of the building or structure before the damage has occurred, the structure or building shall be improved or remodeled to the requirements for new construction as determined by the Director of Code Enforcement.

Table R301.2 (1) shall read as follows and all existing footnotes shall remain unchanged.

Table R301.2 (1)
Climatic and Geographic Design Criteria

	Wind Design			Subject to Damage from								
Ground Snow Load	Speed (mph)[d]	Topographic Effects[k]	Seismic Design Category[g]	Weathering[a]	Frost Depth Line[b]	Termite[c]	Decay[d]	Winter Design Temp (°F)[f]	Ice Barrier Underlayment Required[i]	Flood Hazard[h]	Air Freezing Index[j]	Mean Annual Temp
10 lb/ft$_2$	89	No	D1	Moderate	5 inches	Moderate to Heavy	Moderate to Severe	18	No	9/29/2007	158	61.8

Sections R301.2.2.1 "Determination of seismic design category" and R301.2.2.1.1 "Alternative determinations of seismic design category" shall be deleted in their entirety along with Table R301.2.2.1 (1) and that section held in reserve so that when amended the code shall read as follows:

Section R301.2.2.1 – Reserved

REPLACE Section R301.2.2 with the following:

R301.2.2 Seismic Provisions.
The seismic provisions of this code shall apply as follows:

1. Townhouses in Seismic Design Categories C, D_0, D_1 and D_2.
2. Detached one and two family dwellings and large homes in Seismic Design Categories D_0, D_1 and D_2.
3. Townhouses and detached one and two family dwellings shall be allowed to follow Section R301.2.2.3.1 as an alternative compliance method for meeting the structural requirements of this code's seismic provisions.

A new Section R301.2.2.3.1 is added entitled "Alternative compliance method for structural requirements" along with its various subsections numbered R301.2.2.3.1 thru R301.2.2.3.1.12 which shall read as follows:

R301.2.2.3.1 Alternative compliance method for seismic structural requirements.
In addition to meeting all the structural requirements for Seismic Design Category C and Sections R301.2.2, an alternative compliance method for meeting seismic structural requirements when wood framing is used shall include compliance with the following items. In the event any requirement in this section differs from wind code structural requirements, the more stringent will apply.

R301.2.2.3.1.1 Anchorage exterior walls (Sole Plates). Exterior wall sole plates shall be secured to the foundation or framing below by one of the following methods:

1. Foundation: ½ inch (12.7 mm) anchor bolts, with 3 inch by 3 inch (76 mm by 76 mm) washers, embedded in the foundation a minimum of 7 inches (178 mm) in depth. Such anchor bolts are to be placed 4 feet on center maximum and within 12 inches (305 mm) of the end of each plate section. A minimum of 2 anchors per plate section is required.
2. Foundation: MASA anchors or equivalent embedded in the foundation and placed at 4 feet (1219 mm) on center maximum and within 12 inches (305 mm) of the end of each plate section. A minimum of 2 anchors per plate section is required.
3. Elevated Floors: 10d nails placed at 8 inches on center and embedded in a continuous rim board. Rim board depth to match depth of floor framing. Rim board shall be nailed to the end of each floor framing member with three 10d nails. Where floor framing parallels exterior wall, 2 rim boards shall be provided and nailed per Table R602.3(1). The rim board shall be fastened to wall top plate with metal plates at 6 feet (1829 mm) on center; installed plate capacity shall equal or exceed 440 pounds.

R301.2.2.3.1.2 Anchorage all interior structural walls (Sole Plates). Interior wall framing shall be secured by one of the following methods:

1. Foundation: ½ inch (12.7 mm) anchor bolts, with 3 inches by 3 inch (76 mm by 76 mm) washers, embedded a minimum of 7 inches (178 mm) in depth in the concrete foundation (thickened slab) at 4 feet (1219 mm) on center maximum and within 12 inches (305 mm) of the end of each plate section.
2. Foundation: By power actuated fasteners that provide 210 pounds per linear foot shear capacity, place 2 feet (610 mm) on center maximum and within 12 inches (305 mm) of each plate section or equivalent means of anchorage. A minimum of 2 anchors are required per plate section.
3. Elevated Floors: 10d nails placed at 8 inches (204 mm) on center and embedded in one of the following:
   a) Structural wall top plate flush with bottom of floor sheathing, or
   b) Floor joist parallel with and directly below plate, or
   c) Blocking, depth to match, placed between floor joists and running the full length of the plate. Blocking to be nailed per Table R602.3(1).

R301.2.2.3.1.3 Stud spacing – Exterior walls. All 2x4 exterior walls shall be a maximum of 16 inch (406 mm) stud spacing up to 3 stories. Gypcrete flooring or similar cementitous leveling products shall not be used on elevated floors.

Exception: Thin-set or other base material required for installation of flooring products in isolated confined spaces such as bathrooms.

R301.2.2.3.1.4 Wall Sheathing

R301.2.2.3.1.4.1 Exterior Wall Sheathing. Exterior wall sheathing shall be 7/16 inch (11 mm) exterior rated OSB or equivalent or 7/16 inch (11 mm) exterior rated plywood, minimum. Sheathing is to be fastened every 6 inches (152 mm) on the edges and 12 inches (305 mm) at intermediate supports.

R301.2.2.3.1.4.2 Interior Wall Sheathing. Interior walls shall have sheathing on both sides. Interior sheathing shall be a minimum of ½ inch (12.7 mm) gypsum fastened every 7 inches (178 mm) on edges and every 7 inches (178 mm) at intermediate supports. Minimum fastener size shall be 5d cooler or wall board nails or 1 ¼" #6 Types S or W screws.

R301.2.2.3.1.5 Garage Door Openings. Brace wall panels are required for garage openings as per Section R602.10.6 of the Code.

Exception: An engineered pre-manufactured wall panel is allowed to be used at garage openings.

R301.2.2.3.1.6 APA Narrow Wall Systems are not permitted. Use of APA narrow wall systems is not permitted for establishing compliance with these requirements.

R301.2.2.3.1.7 Connections across floor joist space. 18 gauge galvanized steel coil strapping (ex. CS 18) installed at 48 inch (1219 mm) on center across floor joist space or equivalent is required on all exterior walls and stacked interior structural walls. Strapping shall run vertical along edge of studs and shall be centered on floor joist space. Studs shall be vertically aligned.

R301.2.2.3.1.8 Roof framing connections. Roof framing members shall be fastened to wall top plate with 18 gauge galvanized steel clips (ex. H2.5A) or equivalent, not to exceed 48 inches (1219 mm) on center maximum. Provide clips in addition to fastening requirements in Table R602.3(1). This requirement applies to all contact points with structural walls. In the event wind fastening requirements differ, the more stringent shall apply.

R301.2.2.3.1.9 Shearwall holddowns.

1. Exterior walls: A single holddown shall be installed at each end of each wall over 8 feet (2438 mm) in length (2 holddowns per wall length). Holddown capacity (P), in pounds, shall be equal to 210 lbs/ft times wall height. (P = 210 * H)
2. Wall height (H): distance from wall bottom plate to wall top plate.
3. A cut sheet of the holddown type(s) used shall be provided to Code Enforcement when requested to the Code Official. Cut sheet shall show tested product load rating and manufacturer information.

R301.2.2.3.1.10 Opening straps/clips. This section applies only to window and door openings and only to openings located in exterior walls and interior structural walls. Louver, pipe penetrations, dryer vents, and all other wall openings are not required to meet this section unless they exceed 4 sq. ft. in area.

1. Studs above and below headers and window sill plates; Provide 18 gauge galvanized steel clips (ex. H2.5A) or equivalent at 32 inches (813 mm), top and bottom of studs, minimum 2 clips per opening width at headers and sills.
2. Headers: Headers shall bear on minimum 1 ply jack post and be fastened to post with 18 gauge galvanized steel clips (ex. H2.5A), or continuous sheathing from king post to header or sill or equivalent.
3. Window Sill Plate: Sill plate shall be end nailed with three 10d nails each end through minimum 1 ply of king/jack post, or continuous sheathing from king post to header or sill, or equivalent.
4. King/Jack Posts: Provide 20 gauge galvanized steel stud plate connector (ex. SP1) or equivalent from post to wall plate, top and bottom. Post plys shall be nailed together with 10 d nails at 8 inches (204 mm) on center staggered full height.

R301.2.2.3.1. Brick Veneer.

1. Exterior brick veneer shall not exceed 25 feet (7620 mm) in height above non-combustible foundation. Brick at gable peaks shall not exceed 40 feet (12 192 mm) in height above non-combustible foundation.
2. Exterior brick veneer shall comply with all other applicable Chapter 7 IRC requirements.
3. Interior brick veneer and masonry chimneys shall comply with Chapter 7 IRC requirements.

R301.2.2.3.1.12 Floor Openings. When floor openings in the second or third floors exceed 15 percent of the ground floor square footage, garage space excluded, they shall be considered as large floor openings.

1. The gross floor area shall be the area bounded by exterior walls.
2. Openings for stairs and egress are excluded from the net floor opening area.
3. Perimeter interior walls bounding a large floor opening shall be considered structural walls and shall be subject to all requirements as such. If perimeter walls are not present below opening perimeter (i.e. beam and column system is used), the supporting structure shall be engineered.

R302.3 and R302.3.1 shall be amended to delete the entire sections and replace with the following :

R302.3 Two-Family Dwellings

R302.3.1 Two-Family Dwellings

Dwelling units in two-family dwellings shall be separated from each other by wall and floor assemblies having not less than a 1-hour fire-resistance rating where tested in accordance with ASTM E119, UL 263, or Section 703.2.2 of the International Building Code. Such separation shall be provided regardless of whether a lot line exists between the dwelling units or not. Fire-resistance-rated floor/ceiling and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend from the foundation to the underside of the roof sheathing.

Exceptions:

1. A fire-resistance rating of ½ hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13 D.
2. Wall assemblies need not extend through attic spaces where the ceiling is protected by not less than 5/8-inch (15.9 mm) Type X gypsum board, an attic draft stop constructed as specified in Section R302.12.1 is provided above and along the wall assembly separating the dwellings and the structural framing supporting the ceiling is protected by not less than 1/2-inch (12.7 mm) gypsum board or equivalent.

AMEND Section R312.1.1 as follows:

R312.1.1 Retaining Walls
Retaining walls 36” in height or greater are required to be designed by a licensed engineer and a plan submitted at the time of application for a permit. Height of the retaining wall shall be measured from the top of the footing to the top of the wall. A minimum of a 4 foot barrier (fence or guard) at the top of the wall may be required as determined by the Director of Code Enforcement. Retaining walls less than 36 inches in height may be constructed of wood. Retaining walls taller than 36 inches are required to be made of concrete or masonry. Permits are required for all retaining walls.

ADD New Section R312.1.1.1 as follows:

R312.1.1.1 Curtain Wall
A curtain wall is required to be placed around the perimeter of a manufactured house when not supported with a perimeter foundation wall. A curtain wall is required to be a minimum of 4 inch masonry supported by a footing.

AMEND Section R313.1 as follows:

R313.1 Townhouses.

EXCEPTION 1: Rename Exception to Exception 1.
EXCEPTION 2: Except where a two hour wall is provided between units.

AMEND Section R313.2 to read as follows:

R313.2 When an automatic residential fire sprinkler system is installed in one-and-two family dwellings it shall comply per Section R313.2.1.

ADD Section R401.2.1 and R401.2.2 as follows:

R401.2.1 All new buildings with concrete slab foundations 400 square feet and greater shall be required to submit an engineer's letter verifying compliance for footing and foundation requirements as per the 2018 International Residential Code and the City of Bartlett residential building amendments for footing and foundation. The required engineer's letter shall be submitted prior to framing.

R401.2.2 A foundation form board survey letter will be required for all new homes. The required form board survey complying with the required zoning setbacks shall be required for all new houses prior to any framing being erected.

DELETE Section R401.3 and its Exception in their entirety and REPLACE as follows:

R401.3 Drainage and Foundation Elevation
Surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard. Lots shall be graded to drain surface water away from foundation walls. The finish floor (elevation) shall be nominal 10 inches above the exterior finish grade (ground) and the finish grade shall slope a minimum of 8% (1 in 12) away from foundation for a minimum of 3 feet for drainage.

DELETE Section R403.1.1 "Minimum Size" in its entirety and REPLACE as follows:

R403.1.1 Minimum Size
Minimum size for concrete and masonry footings shall be as set forth in Table R403.1 and Figure R403.1(1). The footing width, *W,* shall be based on the load-bearing value of the soil in accordance with Table R401.4.1. All footings shall be at least 10 inches (255 mm) in thickness. Footing projections, *P,* shall be at least 2 inches (51 mm) and shall not exceed the thickness of the footing. The size of footing supporting piers and columns shall be based on the tributary load and allowable soil pressure in accordance with Table R401.4.1.

DELETE Section R403.1.4 "Minimum Depth" in its entirety and REPLACE as follows:

R403.1.4 Minimum Depth
All footings shall bear on undisturbed or properly compacted soils a minimum of 13 inches (330 mm) below grade. When applicable the depth of footing shall also conform to Section R403.1.4.1 through R403.1.4.2.

Figure R403.1 (2) entitled "Permanent Wood Foundation Basement Wall Section" and Figure R403.1 (3) entitled "Permanent Wood Foundation Craw Space Section" are deleted with no replacement provided.

Section R403.2 is deleted in its entirety and replaced with the following language:

Section R403.2. Reserved.

ADD Section 403.4.3 as follows:

R403.4.3 Accessory Structures.

Section R404.2 is deleted in its entirety and replaced with the following language:

Section R404.2. Reserved.

Section R405.2 is deleted in its entirety and replaced with the following language:

Section R405.2. Reserved.

Section R406.3 is deleted in its entirety and replaced with the following language:

Section R406.2. Reserved.

Chapter 5 Floors

Section R504 is deleted in its entirety and replaced with the following language:

Section R504. Reserved.

Chapter 7 Wall Covering

Section R703.2 Water-Resistive Barrier is amended to add #5 in the list of approved materials as follows:

5) **Tyvek sheeting for exterior sheathing.**

Delete Chapter 11 in its entirety and replace it with the following Sections:

Chapter 11 Energy Efficiency

Section N1101 – General

N1101.1 Scope. This chapter sets forth the energy-efficiency related requirements for the design and construction of buildings regulated by this code.

> **Exception:** Provided that they are separated by building envelope assemblies from the remainder of the building, portions of the building that do not enclose conditioned space shall be exempt from the building envelope provision, but shall comply with the provisions for building mechanical and service water heating systems.

N1101.2 Compliance for one and two family dwellings.
Compliance for one and two family dwellings shall be demonstrated by meeting the requirements of the 2021 Edition of the *ICC International Energy Conservation Code* for detached one and two family dwellings in Climate Zone 3A as found in the Residential provisions thereof and as those provisions are amended by the local ordinances adopting that code.

N1103.3 Compliance for Townhouses.
Compliances for townhouses shall be demonstrated by meeting the requirements of the 2021 Edition of the *ICC International Energy Conservation Code* for residential buildings of Group R-2 or townhouses in Climate Zone 3A as found in the Residential provisions thereof and as those provisions are amended by the local ordinances adopting that code.

ADD Section E3405.8 as follows:

E3405.8 Weather Proof Panels
Weather Proof Panels are not allowed in the City of Bartlett per Ordinance #93-14.

AMEND Section E3406.2 as follows:

DELETE phrase [except as otherwise provided in the code]. This is a reference to allow other than copper conductors. Conductors of material other than copper may be used from a transformer through to the electrical panel box when proper connections are made.

ADD Section E3406.2(A) as follows:

E3406.2(A) Aluminum and copper-clad aluminum conductors are not allowed beyond the panel or in the interior of a residential house.

ADD TO Section E3601 as follows:

E3601.8 Unprotected Services Conductors Length
Service entrance conductors (without over current protection) shall not be extended more than 15 feet inside a building measuring horizontal from the point of entrance.

ADD TO Section E3702 as follows:

E3702.15 Any residential appliance or equipment rated at 1,000 watts and any electric motor of ½ H.P. (horse power) or larger shall be supplied by individual circuits of adequate capacity for the device to be connected. Receptacles installed in such circuits shall be single opening grounding type rated at 125% of the name plate current of the equipment to be connected, but in no case shall they be rated less than 20 amperes. Service outlets installed at heating equipment may be duplex outlets rated at 20 amperes.

ADD TO Section E3703 as follows:

E3703.3(A) Electric washer-dryer combinations rated 5 KW or less may be wired on a 30 ampere circuit with a 30 ampere grounding type receptacle. The service demand shall be 20 amperes.

ADD TO Section E3706 as follows:

E3706.1(A) Weather Proof Panels
Weather Proof Panels are not allowed in the City of Bartlett per Ordinance #93-14.

ADD TO Section E3901.4.2 as follows:

Exception: Receptacles are **NOT** required or allowed on moveable island counters without appliances (See Definitions below).

ADD to DEFINTIONS as follows:

MOVEABLE: Capable of being moved without being injured by one person or on wheels.

ADD Section E3910 as follows:

E3910 Fire Damage and Building Relocating
Buildings moved from one location to another that is to be used as a single family dwelling shall meet the following minimum requirements:

E3910.1 Service entrance conductors shall be governed by new service rules.

E3910.2 Kitchens shall have no less than two (2) circuits with a maximum of three (3) convenience outlets per circuit.

E3910.3 Lights and convenience outlets shall comply with existing branch circuit residential occupancies general requirements.

E3910.4 An inspection and written FIRE ruling must be obtained from the City of Bartlett Code Enforcement Office prior to commencing work on fire damaged jobs.

DELETE APPENDIX J IN ITS ENTIRETY AND REPLACE WITH THE FOLLOWING:

Appendix J-New Installations of Manufactured Homes

New manufactured homes are required to be provided with curtain wall masonry around the perimeter of the structure. The masonry curtain wall shall be a minimum of 4 inches wide and shall give an appearance of other buildings in the area of the installation. Trailer type hitches are to be removed from the structure prior to installation of the curtain wall.