

West Virginia Energy Code Primer



West Virginia Office of Energy
State Capitol Complex Building 3, Suite 600
Charleston, WV 25305-0311

(304) 558-2234
www.energywv.org

Prepared by:
Energy Efficient West Virginia,
Downstream Strategies

February 11, 2021

TABLE OF CONTENTS

- Executive summary iv**
- 1. Introduction..... 1**
- 2. Benefits of adopting and enforcing energy codes4**
 - 2.1 ECONOMIC ENHANCEMENT4
 - 2.2 JOB CREATION.....6
 - 2.3 RESILIENCE6
- 3. Energy efficiency in West Virginia buildings8**
- 4. West Virginia’s energy codes 11**
 - 4.1 RESIDENTIAL ENERGY CODE..... 11
 - 4.2 COMMERCIAL ENERGY CODE 12
 - 4.3 ENERGY CODE ADOPTION 13
 - 4.4 ENERGY CODE ENFORCEMENT AND COMPLIANCE 13
- 5. Roadmap for cities and counties15**
- References18**
- Appendix A: Encouraging cities and counties to act22**
- Appendix B: Energy code adoption by selected West Virginia jurisdictions24**

TABLE OF TABLES

- Table 1: Municipalities and counties that adopted and enforce commercial energy codes 1
- Table 2: Cost savings and payback periods for ASHRAE 2007, 2010, and 2013..... 5
- Table 3: Cost savings for IECC 2009, 2012, and 2015 (\$)..... 6
- Table 4: Energy code adoption by selected West Virginia jurisdictions..... 16

TABLE OF FIGURES

- Figure 1: Systems and conditions regulated by energy codes 2
- Figure 2: Built environment per capita energy consumption (million Btu) 8
- Figure 3: National energy efficiency ranking and energy code scores 9
- Figure 4: Estimated status of energy code adoption in residential buildings..... 10
- Figure 5: Estimated status of energy code adoption in commercial buildings..... 10
- Figure 6: Timeline of West Virginia’s energy code adoption..... 11
- Figure 7: Climate zones by county 12

ABBREVIATIONS

ACEEE	American Council for an Energy-Efficient Economy
ASHRAE	American Society of Heating, Refrigerating, and Air-Conditioning Engineers
BCAP	Building Codes Assistance Project
ICC	International Code Council
IECC	International Energy Conservation Code
NEEP	Northeast Energy Efficiency Partnerships
USDOE	U.S. Department of Energy

ACKNOWLEDGEMENTS

This material is based on work funded by the U.S. Department of Energy’s Office of Energy Efficiency and Renewable Energy, State Energy Program Award Number DE-EE0007991. We thank Karen Lasure at the West Virginia Office of Energy; Emmett Pepper and Dan Taylor at Energy Efficient West Virginia; Kasey Osborne, Joey James, and Evan Hansen at Downstream Strategies; and Moses Riley at Northeast Energy Efficiency Partnerships for their feedback and assistance.

PARTNERS

The West Virginia Office of Energy, housed within the West Virginia Development Office, formulates and implements fossil energy, renewable energy, and energy efficiency initiatives designed to advance energy resource development opportunities and provide energy services to businesses, communities, and homeowners in West Virginia.

Energy Efficient West Virginia is a group of concerned West Virginia residents, businesses, and community organizations that have come together to promote energy efficiency. It advocates for common-sense energy efficiency policy at the Public Service Commission, at the Legislature, and through work with local organizations and municipal governments.

DISCLAIMER

This report is prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

EXECUTIVE SUMMARY

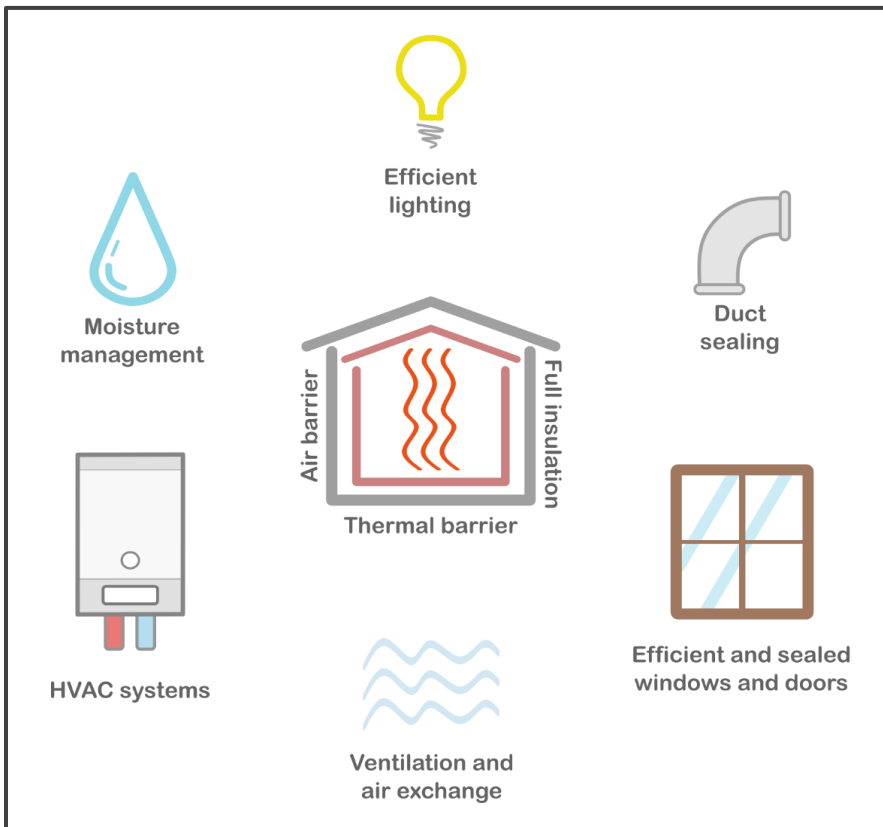
West Virginia’s residential and commercial buildings—its “built environment”—are energy inefficient. Energy codes are simple and effective tools that cities and counties can use to make new buildings more efficient, thereby saving people and businesses money. This primer provides a roadmap that will help local leaders across the state adopt and enforce energy codes to improve the efficiency of new and renovated buildings.

Across West Virginia, very few municipalities and counties have adopted energy codes. Only eight municipalities and two counties are known to be enforcing commercial energy codes. The number of jurisdictions enforcing residential energy codes is not known. Local jurisdictions are not seizing many of the easy opportunities to save money and reduce emissions that many neighboring states are taking advantage of.

When West Virginia adopts an energy code at the state level, local jurisdictions are not required to adopt it. In jurisdictions that do not adopt the code, the state-adopted code is in force, but enforcement is basically carried out through the honor system. This lack of regulation means compliance is likely spotty or even nonexistent in some areas.

Energy codes cover components of the building itself, such as wall insulation, windows, and air and duct leakage (see Figure ES-1); regulating these elements determines the thermal envelope of a building, thereby controlling moisture, air exchange, and thermal properties. These features not only translate to energy and cost savings over the life of the building, but also appreciate property value, increase comfort for occupants, improve building durability, improve health, and maintain safety.

Figure ES-1: Systems and conditions regulated by energy codes



Benefits of adopting and enforcing energy codes

Energy codes have many concrete benefits. Consumers and homebuyers can enjoy clean indoor air, lower utility bills, and sustainable homes. Businesses can reduce overhead spending, expand investment opportunities, and gain energy independence.

Economic enhancement: Buildings that comply with updated energy codes are simply more cost-effective to operate, yielding compounding savings over time for consumers. This means returning money to homeowners' and businessowners' pockets to be redistributed back into the local economy, investments, business improvements, and other goods and services.

Job creation: Enforcing energy codes also creates opportunities for energy, building technology, and construction-related industries. As energy codes become increasingly efficient and widespread, the demand for and diversity of jobs will also increase. Jobs range from trade to professional positions and include technical experts, leakage specialists, quality control assessors, code officials, commissioning agents, energy auditors, designers, construction workers, and compliance officers.

Resilience: Energy codes also guard against preventable environmental conditions related to moisture, air quality, fire, and extreme weather events that can diminish human—and building—health. Energy codes help prevent the formation of rot, mold, and mildew by controlling moisture from condensation, which develops when warm air meets a cold surface. Because energy codes prevent unsafe conditions in indoor air and reduce emissions that decrease outdoor air quality, they play a direct role in protecting human health.

Energy efficiency in West Virginia buildings

West Virginia has the highest residential electricity consumption per household east of the Mississippi River and the highest total energy consumption per capita in the Appalachian region (see Figure ES-2).

West Virginia tied with Mississippi and North Dakota as the 48th-least energy efficiency-friendly state in the nation, topping only Wyoming (see Figure ES-3).

Figure ES-2: Built environment per capita energy consumption (million Btu)

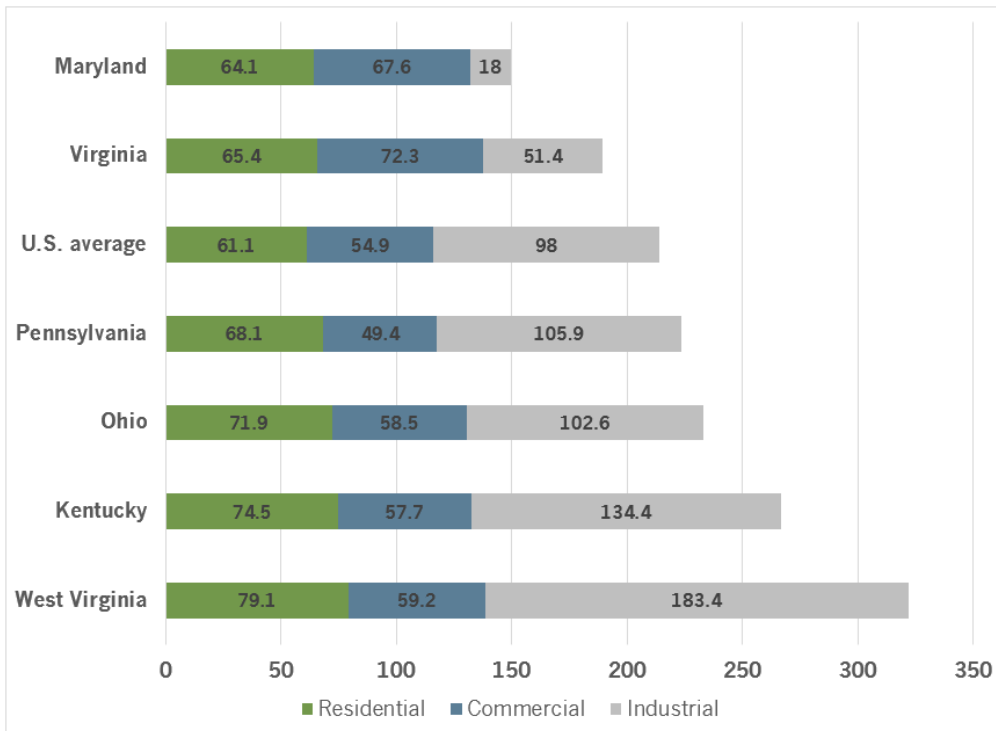
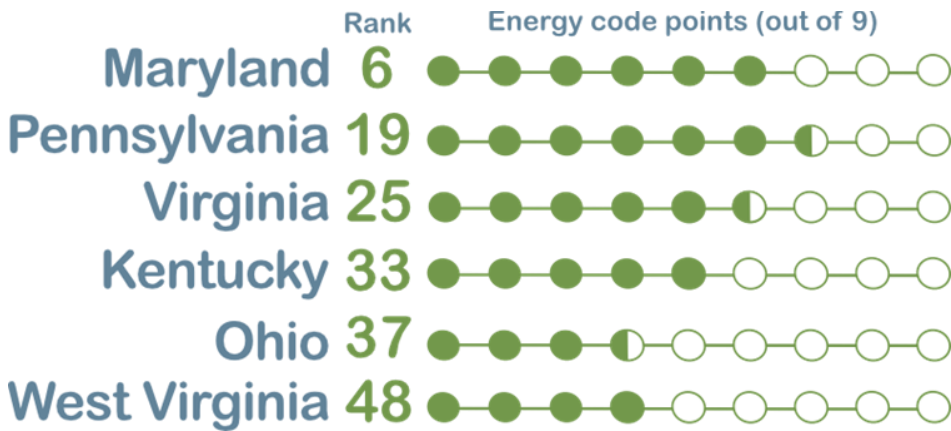


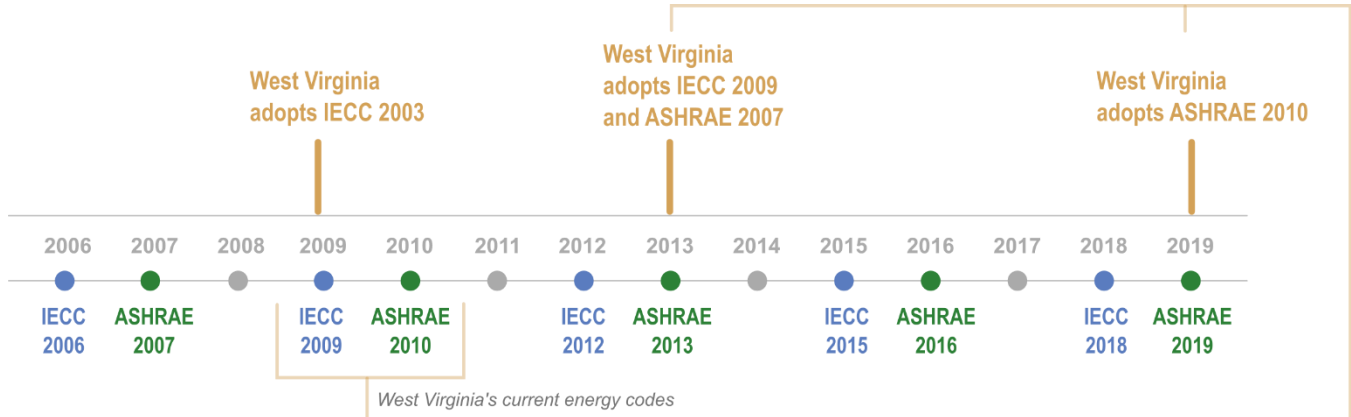
Figure ES-3: National energy efficiency ranking and energy code scores



West Virginia's energy codes

West Virginia has adopted the IECC 2009 energy code for residential buildings and the ASHRAE 90.1-2010 energy code for commercial buildings (see Figure ES-4,).

Figure ES-4: Timeline of West Virginia's energy code adoption



Energy codes are only effective when they are adopted and enforced. After an energy code is adopted at the state level, local jurisdictions may take action to adopt and enforce the state code. Additionally, while the state code outlines the minimum requirements, a local jurisdiction can voluntarily go beyond the base code in the form of an enhancing or “stretch” code, which is more aggressive and will yield greater energy savings.

Ultimately, a variety of individuals and entities play a role in achieving high levels of compliance—not just the diligence of building officials. Professions involved include architects, designers, contractors and construction professionals, real estate professionals, home inspectors, carpenters, brick masons, masons, concrete finishers, roofers, electricians, engineers, insulation workers, and energy modelers.

The most widely used energy code compliance tools are two software programs: COMcheck for commercial buildings and REScheck for residential buildings. These programs certify whether a building meets the requirements of the selected code, based on variables that are entered. At no cost, these programs can help inform design decisions, as well as serve as legal protection. Building officials and inspectors also use them to simply and efficiently determine whether a building meets the code.

Roadmap for cities and counties

While the cost savings figures at the end of long-term projections are impressive, they are only attainable with consistent and widespread adoption, enforcement, and compliance with updated codes. Statewide compliance, however, starts at the community level. Ultimately, it is the local jurisdictions that adopt—and more importantly, enforce—energy codes that will help businesses and residents fully realize the codes’ energy and cost savings.

The following roadmap will help local governments get incrementally closer to this goal with each milestone. While each phase will entail a series of sub-steps, which will vary depending on the needs and status of a certain jurisdiction, they can all be organized into three primary actions: (1) Engage stakeholders, (2) Adopt residential and commercial energy codes through an ordinance, and (3) Enforce the adopted residential and commercial energy codes.

1 Engage stakeholders

- Form a diverse working group of affected individuals
- Establish objective and realistic goals



2 Adopt residential and commercial energy codes

- From the working group, decide energy efficiency goals to pursue
- Adopt the energy code through an ordinance



3 Enforce the adopted energy codes

- Train code officials in energy-related building science
- Code officials ensure compliance tasks are completed
- Create and distribute education and training resources to officials, industry, and consumers



1. INTRODUCTION

West Virginia’s residential and commercial buildings—its “built environment”—are energy inefficient. Energy codes are simple and effective tools that cities and counties can use to make new buildings more efficient, thereby saving people and businesses money. This primer provides a roadmap (See Chapter 5) that will help local leaders across the state adopt and enforce energy codes to improve the efficiency of new and renovated buildings.

Across West Virginia, very few municipalities and counties have adopted energy codes. As shown in Table 1, only eight municipalities and two counties are known to be enforcing commercial energy codes. The number of jurisdictions enforcing residential energy codes is not known. Local jurisdictions are not seizing many easy opportunities to save money and reduce emissions.

Table 1: Municipalities and counties that adopted and enforce commercial energy codes

Jurisdiction	Version adopted
Municipalities	
Barboursville	Not known
Charleston	2007
Granville	2013
Martinsburg	2007
Morgantown	2010
Moundsville	2013
Summersville	2007
Wheeling	2007
Counties	
Berkeley County	2007
Jefferson County	2007

Source: Lasure (2020).

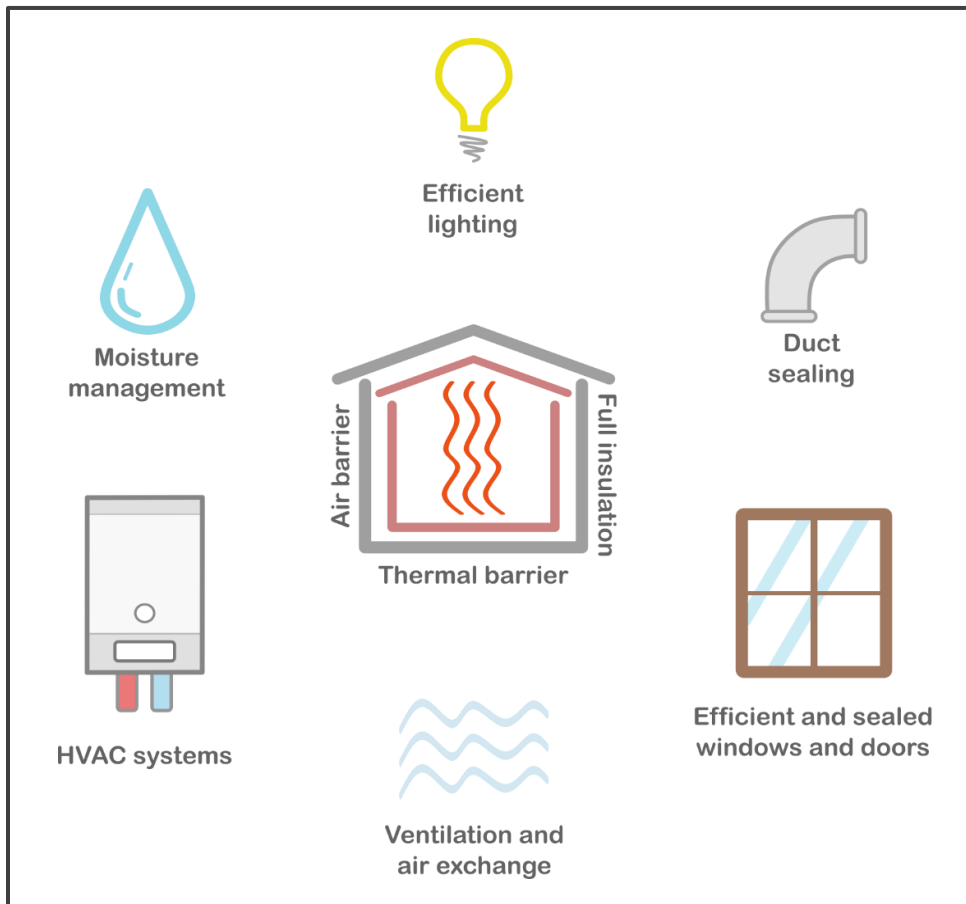
Energy codes, the focus of this primer, are among the most recent types of building codes. Building codes, more generally, are a collection of statutory requirements that regulate various aspects of the physical construction, conditions, and performance of new or proposed buildings and building sites. The first uniform national code was the 1905 National Building Code (McNabb, 2013).

Simply adopting an energy code is not enough to enjoy their benefits. When West Virginia adopts an energy code at the state level, local jurisdictions are not required to adopt it. Many jurisdictions neither adopt nor enforce any energy code at all. In jurisdictions that do not adopt the code, the state-adopted code is in force, but enforcement is basically carried out through the honor system. With no local enforcing authority, designers and builders must take it upon themselves to ensure building plans are to code. This lack of regulation means compliance is likely spotty or even nonexistent in some areas.

Now, building codes—which can refer to the overall “building code” for a jurisdiction or a subtype of the code, such as structural, plumbing, electrical, and energy codes—establish a consistent standard and minimum legal requirements for the design of buildings, materials used, construction practices, protection against fire and flooding, and other structural features. These minimum requirements not only protect and improve the health, safety, and general welfare of occupants and

the public, but also safeguard investments, enhance building stock, reduce insurance rates, conserve energy, and save money. (Federal Emergency Management Agency, 2014)

Figure 1: Systems and conditions regulated by energy codes



Energy codes work to align buildings with sustainability and cost management goals by establishing minimum energy efficiency requirements. As detailed in Chapter 2, energy codes are increasingly recognized for their importance to human health and safety, public benefit, cost and energy savings, and building durability (Cohan, 2016c). Enforcing energy codes achieves significant savings in energy and costs at the building, state, and national levels. Between 2012 and 2040, energy codes are projected to save U.S. homes and businesses \$126 billion and 12.82 quads of primary energy (Mendon et al., 2015; DOE, 2017).

For West Virginia, between 2018 and 2022, enforcing the currently adopted residential energy code can net **nearly \$11 million in cost savings**, which is the same as:

- funding 272 students to attend a four-year college,
- building 83 miles of new bike lanes, or
- powering 14,226 homes for one year (NEEP, 2018).

The first energy codes were adopted in the late 1970s and have been updated frequently since then. These codes generally apply to newly constructed or proposed buildings, additions, renovations, and retrofits. Energy codes cover components of the building itself, such as wall insulation, windows, and

air and duct leakage (see Figure 1); regulating these elements determines the thermal envelope of a building, thereby controlling moisture, air exchange, and thermal properties. (USDOE, 2016)

These features not only translate to energy and cost savings over the life of the building, but also appreciate property value, increase comfort for occupants, improve building durability, improve health, and maintain safety. Because of this, residents should have the “right to buildings that meet national standards for energy efficiency” (BCAP, 2012, p.1) and are constructed with “the occupant’s best interests in mind, which carry over to all facets of construction.” (Weeks, 2014)

Two organizations preside over energy codes: The International Code Council (ICC) and the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE). These organizations independently create the two baseline codes used in the United States: The ICC publishes the International Energy Conservation Code (IECC), and ASHRAE publishes the ANSI/ASHRAE/IESNA Standard 90.1. (Cohan, 2016a)

The IECC is the model energy code for residential construction and includes chapters for commercial buildings, but it allows ASHRAE 90.1 to substitute for commercial structures, which is the model energy code for commercial buildings.

Building codes constantly evolve to account for technological advancements, new insights into the effects of energy consumption, policy changes, and the landscape of construction standards. While building codes only define “the floor” or bare minimum, constructing to and beyond existing energy codes will ensure that buildings meet future requirements and building owners reap benefits in the long term. Because buildings use 40 percent of the nation’s energy and 70 percent of its electricity, “reducing energy use in the built environment through the adoption and enforcement of energy codes is one of the quickest, cheapest, and cleanest ways to help ensure a sustainable and prosperous future” (BCAP, 2014, p. 1; Livingston et al., 2014).

Chapter 2 outlines many of the consumer and economic benefits that energy code compliance can bring. Chapter 3 discusses how West Virginia’s energy efficiency and energy codes compare to those of neighboring states. Chapter 4 provides a brief background on how energy codes came to be, which energy codes West Virginia has adopted, and the basic procedure for energy code adoption, enforcement, and compliance in the state. Chapter 5 provides a roadmap for local government officials that wish to adopt or strengthen their energy codes.

2. BENEFITS OF ADOPTING AND ENFORCING ENERGY CODES

Despite energy codes' late arrival relative to many other long-standing building codes, they have had many concrete benefits: consumers and homebuyers can enjoy clean indoor air, lower utility bills, and sustainable homes, and businesses can reduce overhead spending, expand investment opportunities, and gain energy independence. Considering that residential and commercial buildings consume 40 percent of the nation's energy—and that energy codes regulate as much as 80 percent of a building's energy load—adopting and enforcing energy codes can reduce total national energy demand by one-third. (USDOE, 2015)

2.1 Economic enhancement

Buildings that comply with updated energy codes are simply more cost-effective to operate, yielding compounding savings over time for consumers. This means returning money to homeowners' and businessowners' pockets to be redistributed back into the local economy, investments, business improvements, and other goods and services. Energy codes give agency to consumers when buying, renting, or leasing a building by setting a base standard and preventing disproportionately high utility bills and costly retrofits. Occupants not only enjoy cost savings but are protected against the unforeseen and potentially drastic negative economic consequences of energy inefficiency; buildings that fail to meet energy code requirements can plague occupants with debilitating utility bills and subsequent financial hardship.

USDOE estimated that U.S. home and business owners could shave \$126 billion off their utility bills by 2040, even when considering just modest energy code updates and patchy enforcement (Athalye et al., 2016; NEEP, 2018). U.S. consumers have saved \$44 billion thanks to the adoption of energy codes over the past several decades (U.S. Environmental Protection Agency, 2015). However, as technologies improve, these numbers will likely grow; energy codes today already yield 30 percent more energy savings than they did 10 years ago (Athalye et al., 2016).

For West Virginia:

- Home and business owners could save up to \$50 million annually by adopting more stringent energy codes by 2030 (USDOE, 2013).
- Individuals can save \$2,259–\$2,466 over a 30-year period of home ownership by adopting the 2009 IECC over the 2006 version (Mendon et al., 2013).
- Those savings can triple to \$7,625–\$9,189 by adhering to the more stringent but not-yet-adopted 2012 IECC. (USDOE, 2012).

Table 2 compares the cost savings and payback periods for updated energy code standards for commercial buildings in climate zones 4A and 5A, the two zones in West Virginia. Table 3 presents similar information for residential buildings.

Because energy codes have such a significant hand in maintaining a healthy indoor living environment, abiding by them would save \$20 billion in avoided health care costs (NEEP, 2018).

Table 2: Cost savings and payback periods for ASHRAE 2007, 2010, and 2013

Building type	Climate zone 4A			Climate zone 5A		
	Annual energy cost savings (\$)	Life cycle energy cost savings (\$)	Simple payback period (years)	Annual energy cost savings (\$)	Life cycle energy cost savings (\$)	Simple payback period (years)
<u>ASHRAE 2010 versus 2007</u>						
Small office	973	6,100	15.5	993	14,300	8.7
Large office	124,939	1,500,000	4.1	110,379	1,730,000	2.2
Standalone retail	8,671	74,000	8.8	9,176	121,000	5.7
Primary school	24,580	197,000	6.7	24,810	307,000	4.5
Small hotel	5,209	284,700	1.4	5,320	325,000	Immediate
Mid-rise apartment	2,069	30,800	10.1	2,593	41,800	8
<u>ASHRAE 2013 versus 2010</u>						
Small office	567	2,900	22	535	5,000	17
Large office	17,461	300,000	5.1	14,079	1,340,000	Immediate
Standalone retail	4,551	67,000	Immediate	5,116	79,000	Immediate
Primary school	11,705	70,000	14.3	11,520	54,000	15.6
Small hotel	4,588	62,000	7.2	4,602	57,000	8.7
Mid-rise apartment	1,868	29,200	7.2	2,083	28,500	9.7

Sources: Thornton et al. (2013) and Hart et al. (2015).

Table 3: Cost savings for IECC 2009, 2012, and 2015 (\$)

	2009	2012	2015
First-year energy costs	1,427	1,769	1,068
Annual energy cost savings (over 2006)	134	476	500
Annual energy cost savings (over 2009)	--	342	360
Life cycle cost savings (over 2006)	1,957	7,239	7,301
Life cycle cost savings (over 2009)	--	5,260	4,552

Sources: All cost savings are from Menden et al. (2013, 2015, 2016), except the 2015 annual energy cost savings (over 2006), which is from USDOE (2016).

2.2 Job creation

Enforcing energy codes also creates opportunities for energy, building technology, and construction-related industries. As energy codes become increasingly efficient and widespread, the demand for and diversity of jobs will also increase. Jobs range from trade to professional positions and include technical experts, leakage specialists, quality control assessors, code officials, commissioning agents, energy auditors, designers, construction workers, and compliance officers. (USDOE, 2011).

Construction jobs generated from energy efficiency initiatives are especially positioned to benefit from energy code compliance. In 2019 alone, 54,000 net jobs in energy efficiency were added nationally, a 3.4 percent increase from the previous year. The energy efficiency workforce includes approximately 2.4 million employees—1.3 million of whom are in construction. Because energy codes inherently depend on the construction industry, construction jobs represent the majority of job opportunities in energy efficiency. In 2019, 27,600 energy efficiency jobs were added nationally; of these construction employees, 78 percent reported that most of their time was committed exclusively to energy efficiency work. (National Association of State Energy Officials and Energy Futures Initiative, 2020)

West Virginia’s 7,144 jobs in energy efficiency can be increased dramatically from energy code compliance. In 2020, these jobs represented just 13 percent of all jobs in the state’s traditional energy sector; for comparison, energy efficiency jobs represented 35 percent of traditional energy sector jobs across the country. (National Association of State Energy Officials and Energy Futures Initiative, 2020)

Many communities are investing in workforce development activities and incentives to help bolster and expand energy efficiency jobs. As shown in the overview of neighboring states in Chapter 3, Maryland boasts the highest marks for energy efficiency, which is likely helped by its EmPOWER initiative, which is estimated to create 68,000 new net jobs, increase state gross domestic product by \$3.75 billion, and save \$12 billion for homes and businesses (ACEEE, 2017).

2.3 Resilience

2.3.1 Health, safety, and building durability

Energy codes yield cost and energy savings and guard against preventable environmental conditions related to moisture, air quality, fire, and extreme weather events that can diminish human—and building—health. Energy codes work to safeguard the occupant as well as the investment (Spinu, 2012). Because of this, energy codes “go beyond energy and cost savings—energy codes are life safety codes” (NEEP, 2018).

The main objective of an energy code is a tight thermal envelope, also called a building envelope; it is a barrier that separates conditioned space from unconditioned space, such as floors, insulation, ceilings, floors, walls, and windows. A tight thermal envelope prevents the exchange of conditioned and unconditioned air, which can have far-reaching effects, as described below (Meres and Makela, 2013).

2.3.2 Moisture

Energy codes help prevent the formation of rot, mold, and mildew by controlling moisture from condensation, which develops when warm air meets a cold surface. Rot compromises the structural integrity of a building, which degrades the building's durability and makes it dangerous to occupy. Mold and mildew can cause serious health complications, ranging from respiratory reactions to neurologic damage—sometimes even death. Some energy code measures that help prevent moisture issues include:

- Air barriers are created when any openings that would permit unwanted airflow are sealed. Because air carries moisture, moisture is less likely to invade the wall cavities.
- Insulated and sealed ceilings prevent ice dams from forming and allowing water to leak into the house.
- Efficient, well-insulated, and well-sealed windows prevent unwanted heat transfer and reduce condensation that would damage nearby building materials.
- Appropriately sized heating, ventilation and air conditioning systems with sealed ductwork have longer service lives and dehumidify the air effectively. (Meres, 2015; Brinker, 2018)

2.3.3 Air quality

Per the saying, “Build tight and ventilate right,” proper ventilation and air sealing are critical to the thermal envelope and healthy air quality. If unwanted air exchange, drafts, and leaks occur, pollutants and contaminants from outside, such as exhaust or lawn chemicals, can seep into living space. Highly regulated air exchange and air sealing prevent the spread of contaminants and improve whole-house ventilation; efficient ventilation also prevents pollutants from within the house, such as those from cleaners and paints, from lingering in the living space instead of aerating outside. Poor air sealing in supply and return duct systems increase the risk of backdrafting in combustion appliances, which can be particularly dangerous. (Brinker, 2018; Meres, 2015)

Because energy codes prevent unsafe conditions in indoor air and reduce emissions that decrease outdoor air quality, they play a direct role in protecting human health. Reducing energy consumption nationwide by 15 percent annually would save six lives daily and prevent 30,000 asthma episodes (NEEP, 2019; USDOE, 2015). Energy codes can also help mitigate the effects of fires. Because of the highly regulated air exchange, the spread of fire and smoke throughout the structure—or from one building to another—is slowed (Brinker, 2018).

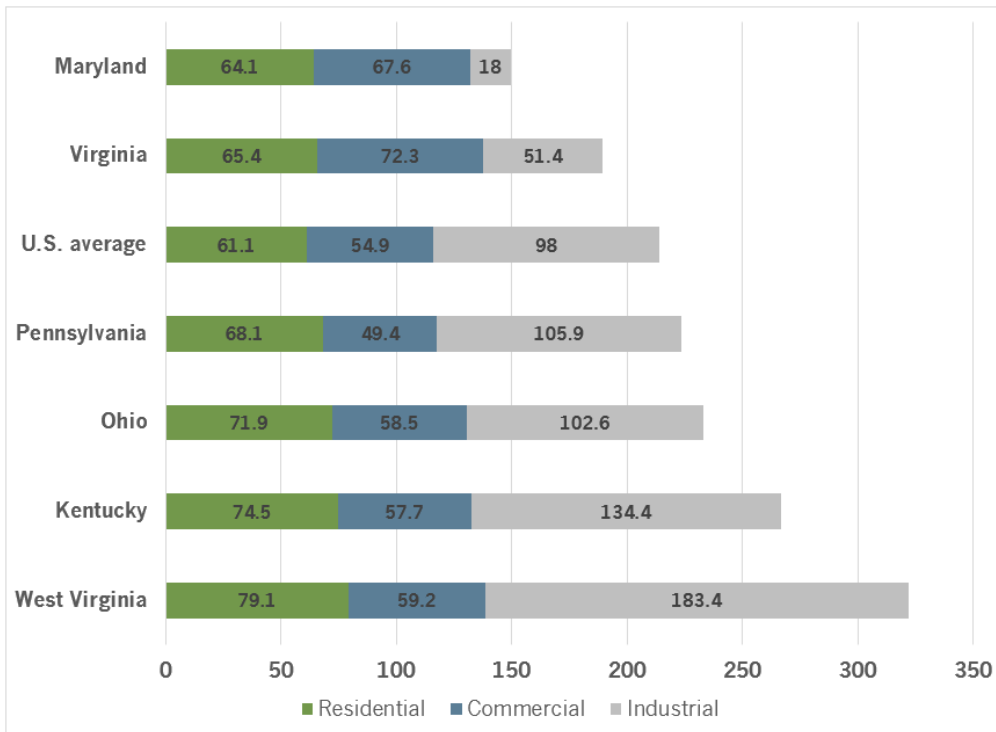
2.3.4 Extreme weather

Extreme weather—heat waves, cold snaps, flooding, and more—can quickly make buildings unsafe due to dangerous temperature and moisture levels, especially when there is a power outage or other system loss (USDOE, 2016). An energy-efficient building keeps the indoor temperature warmer longer when it is cold out, and cooler longer when it is hot out: This keeps the building stable, safe, and “passively survivable,” which allows occupants to remain inside for longer periods of time during power loss and when sheltering in place. (NEEP, 2019; Brinker, 2018; Meres, 2015) The thermal envelope still functions even when other major building systems are down (Brinker, 2018).

3. ENERGY EFFICIENCY IN WEST VIRGINIA BUILDINGS

While West Virginia is a net exporter of electricity and a national leader in interstate electricity sales, West Virginians pay disproportionately high electricity bills. This, in large part, is due to the inefficiency of the state’s built environment. West Virginia has the highest residential electricity consumption per household east of the Mississippi River and the highest total energy consumption per capita in the Appalachian region (see Figure 2) (U.S. Energy Information Administration, 2020).

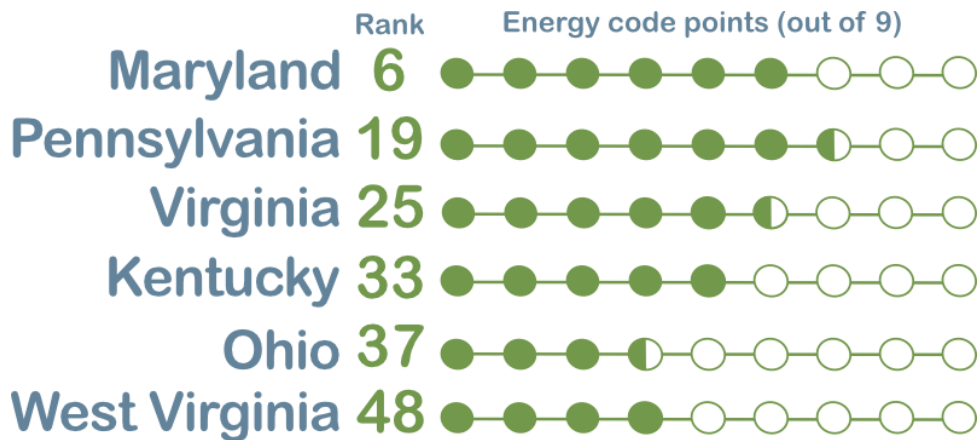
Figure 2: Built environment per capita energy consumption (million Btu)



Source: U.S. Energy Information Administration (2020).

West Virginia tied with Mississippi and North Dakota as the 48th-least energy efficiency-friendly state in the nation, topping only Wyoming (see Figure 3). This ranking is based on a cumulative score that includes energy codes and five other categories: utilities, transportation, building energy efficiency policies, state initiatives, and appliance standards. As illustrated in Figure 3, West Virginia trails behind each bordering state in both its overall energy efficiency rank and its energy code score.

Figure 3: National energy efficiency ranking and energy code scores



Source: Adapted from ACEEE (2020).

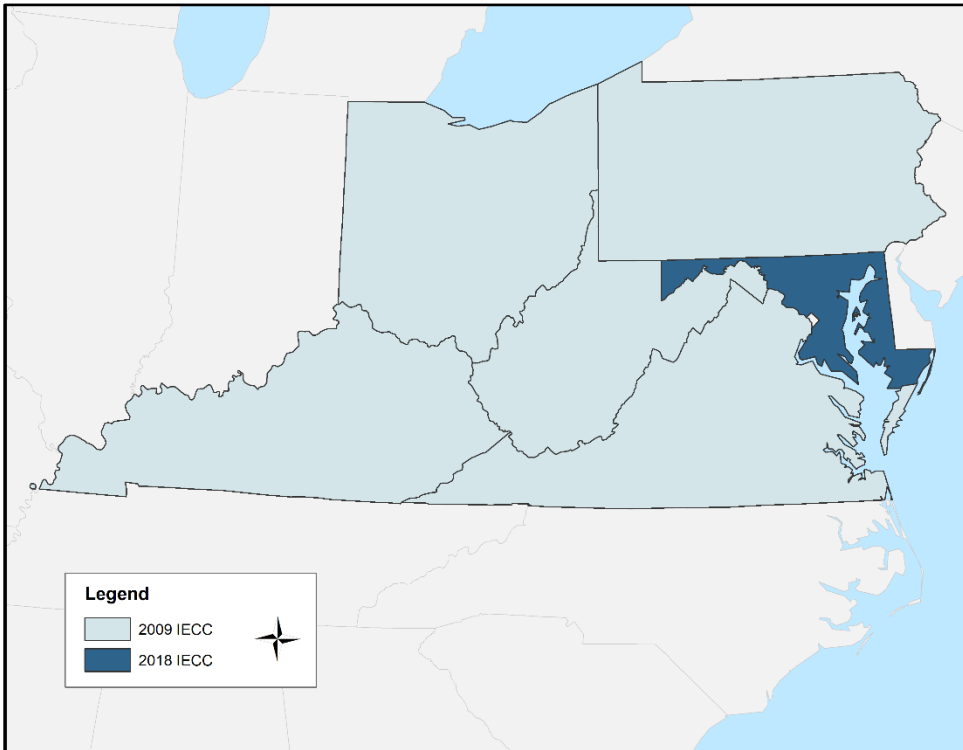
ACEEE's findings are also consistent with those of the U.S. Department of Energy (USDOE). USDOE tracks the adoption of residential and commercial energy codes throughout the country by conducting a quantitative analysis of energy savings impacts within a given state using USDOE's simulation program and a number of state-specific factors. The analysis results in an energy index and underlying energy use intensity values, which are then used to categorize each state according to recent model codes. (USDOE, 2019b)

For residential buildings, the only neighboring state to show energy savings that go beyond 2009 IECC was Maryland. Maryland leads in residential energy efficiency in the region and much of the eastern part of the country by adopting the latest 2018 building code at the state level, and USDOE validates the IECC 2018 savings (See Figure 4). (USDOE, 2019b)

For commercial buildings, West Virginia's 2010 standard surpasses both Ohio and Kentucky, which are classified as having adopted the 2007 standard (See Figure 5). Among neighboring states, Pennsylvania, Virginia, and Maryland are the frontrunners, with energy efficiency equivalent to the 2013 standard. (USDOE, 2019b)

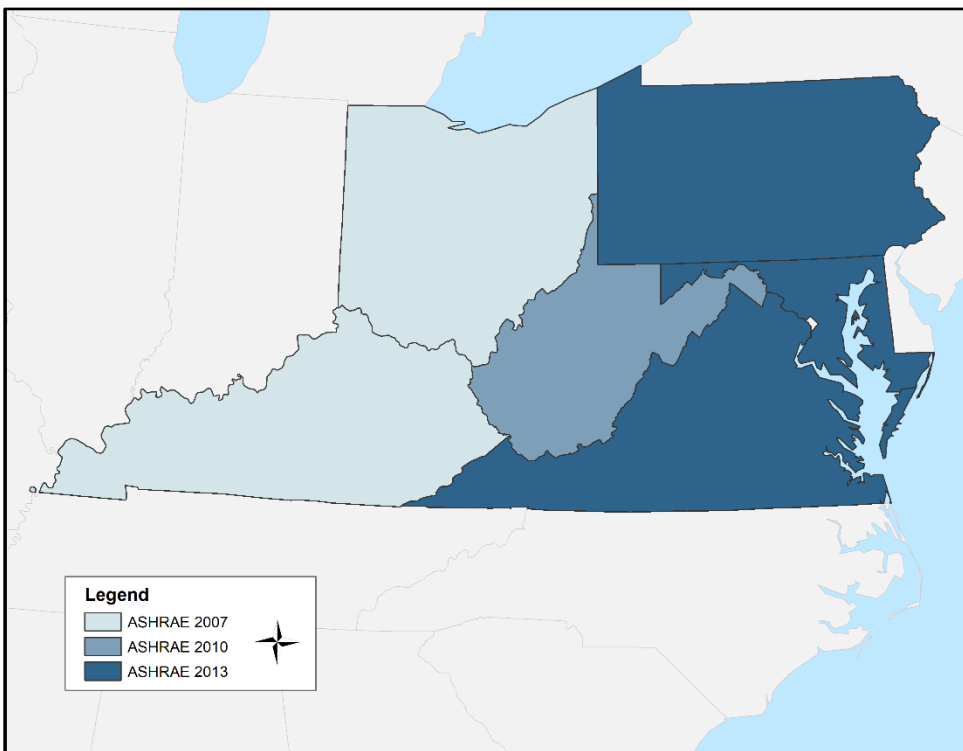
West Virginia lags many states in energy code adoption. Further, no matter which energy code the state adopts, it can easily be rendered meaningless because adoption and enforcement are only effectively enacted at the local jurisdictional level—and on a voluntary schedule, at that. A local jurisdiction may even adopt an energy code but stop short of enforcing it, or simply not adopt any energy code at all. However, because West Virginia's existing energy codes are at the lower end of an improving lineup of new editions, municipalities have significant opportunities to meet—and even exceed—standards.

Figure 4: Estimated status of energy code adoption in residential buildings



Source: Adapted from USDOE (2019a).

Figure 5: Estimated status of energy code adoption in commercial buildings



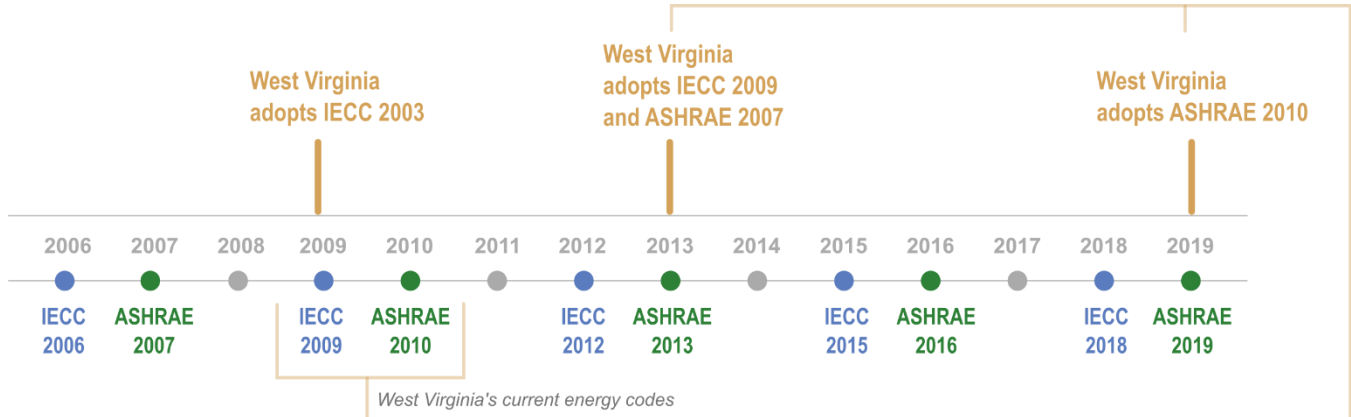
Source: Adapted from USDOE (2019a).

4. WEST VIRGINIA'S ENERGY CODES

As illustrated in Figure 6, West Virginia has adopted the IECC 2009 energy code for residential buildings and the ASHRAE 90.1-2010 energy code for commercial buildings.¹

Some code requirements, such as insulation, window, and door details, vary with climate zone designation. Both the ASHRAE and IECC codes work from the same climate map. West Virginia falls within the climate zones and moisture regime 5A (cool, humid) and 4A (mixed, humid) (see Figure 7). (Heinking and Zussman, 2019)

Figure 6: Timeline of West Virginia's energy code adoption



4.1 Residential energy code

In 2013, West Virginia adopted the 2009 IECC for residential buildings, replacing the 2003 IECC. The main differences between these codes include improvements to the thermal envelope.

The residential portion of the IECC applies to new construction, additions, alterations, renovations, and repairs on:

- houses with three or fewer stories (including single-family, multi-family, and townhouses),
- condominiums, and
- apartments.

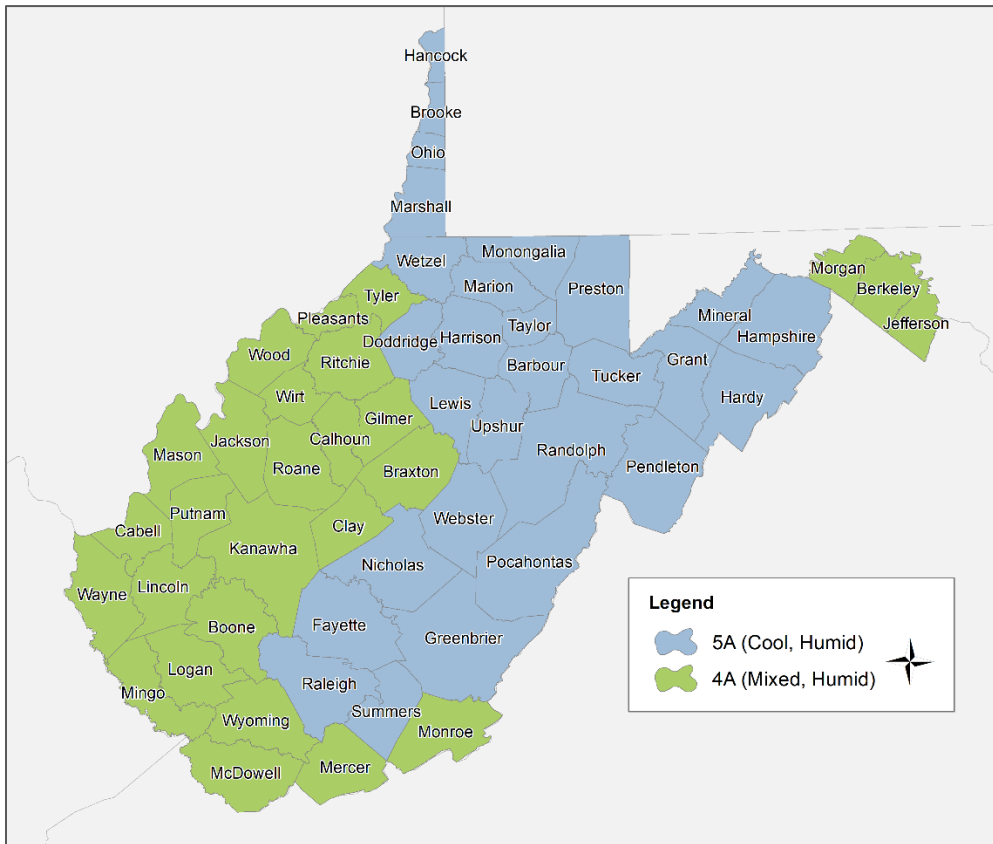
It does not apply to:

- buildings with very low energy use,
- entire buildings or portions of buildings that are not heated or cooled,
- existing buildings or unaltered areas during renovations (electrical power, lighting, and mechanical systems still apply; see Section 101.4.1), or
- buildings designated as historic.

In the case of mixed-use buildings in which one area is commercial and one is residential—such as a residential apartment above a commercial restaurant—the residential code is applicable to the residential section, and the commercial code is applicable to the commercial section. The entire building does not need to conform to a single code.

¹ State-owned/funded buildings must meet the requirements of the less stringent 2007 standard. These buildings are not explicitly covered in this report.

Figure 7: Climate zones by county



4.2 Commercial energy code

In 2019, West Virginia adopted ASHRAE Standard 90.1-2010. This updated the state’s commercial energy code from the 2007 version.

ASHRAE 90.1 applies to all commercial buildings or commercial segments of buildings. More specifically, it applies to new construction, additions, alterations, renovations, and repairs on:

- high rise (four or more stories) residential (e.g., dormitories, nursing homes, hospital patients’ rooms, prisons, hostels) buildings,
- previously exempt equipment or building systems specifically identified that are part of the industrial or manufacturing process, and
- commercial buildings or commercial segments of mixed-use buildings.

It does not apply to:

- residential buildings with three or fewer stories,
- buildings without electricity or fossil fuel use,
- entire buildings or portions of buildings that are not heated or cooled,
- spaces with a design load of 15,000 Btu per hour for cooling,
- existing buildings or unaltered areas during renovation, or
- buildings designated as historic.

4.3 Energy code adoption

States adopt energy codes, but their adoption is triggered by a positive determination from USDOE. If USDOE determines that a new version of a code would yield significant energy and cost savings, then the federal government requires that states review and potentially update their current energy code should the state deem it necessary. In West Virginia, if the code is adopted at the state level, the State Fire Commission then announces new requirements to local jurisdictions. Local jurisdictions may then take action to adopt or not adopt these new requirements. (USDOE, 2020a)

In West Virginia, energy codes are adopted via the state's standard rulemaking process:

1. First, the State Fire Commission proposes that an energy code be adopted. This process includes public hearings.
2. The Commission then files a rule adopting the new energy code with the Secretary of State.
3. The Commission conducts a public hearing and can then modify the rule.
4. The rule is then filed with the Legislative Rule-Making Review Committee for approval or modification.
5. The rule is then introduced as a bill during the legislative session. The Legislature can alter it during the session. Once it passes, the governor can sign it into law, veto it, or allow it to become law without his or her signature.
6. The Commission then spreads awareness of the new code to local jurisdictions, which may voluntarily adopt the code directly, a strengthening code, or a portion of a strengthening code.

Because both the ASHRAE and IECC codes are updated on a three-year schedule, keeping up to the latest code can be infeasible and sometimes not even cost-effective for many regions. For example, complying with the 2009 over the 2006 IECC would reduce energy use by 14 percent and complying with the 2012 IECC over the 2009 IECC would save an additional 21 percent. However, moving from the 2012 to the 2015 code would only save an additional 1 percent.

As illustrated above in Figure 6, the most recent energy code editions are 2018 for IECC and 2019 for ASHRAE. While some states are required to adopt each new energy code within a certain time period of its publication or observe a regular review schedule (often three years, to reflect the two main codes' revision cycles) West Virginia does not currently follow an established process for reviewing and adopting new energy codes proactively. (NEEP, 2018)

4.4 Energy code enforcement and compliance

Energy codes are only effective when they are adopted and enforced. After an energy code is adopted at the state level, local jurisdictions may take action to adopt and enforce the state code. Additionally, while the state code outlines the minimum requirements, a local jurisdiction can voluntarily go beyond the base code in the form of an enhancing or "stretch" code, which is more aggressive and will yield greater energy savings.

- If a local jurisdiction chooses to adopt the statewide codes (or another, enhancing code), the jurisdiction becomes the enforcing authority, and local building officials ensure compliance through plan reviews and inspections.
- For local jurisdictions that do not adopt the statewide codes, the State Fire Marshal is responsible for enforcement. In these areas, enforcement is generally accomplished through the honor system in which contractors, builders, and architects ensure their designs abide by the code requirements.

Compliance can fall under the responsibility of different players depending on local ordinances, and while designers and builders must legally meet the code requirements, subcontractors and workers

are integral in ensuring compliance. Legal issues can arise when an enforcement authority is not present or prepared to ensure a building certified as built to code is actually meeting those code requirements (USDOE, 2019; ACEEE, 2019)

For locales that have adopted an energy code, the building owner and relevant individuals follow the basic steps below to achieve enforcement:

1. Generally, codes are enforced by obtaining a permit from the local government’s building department.
2. Applicants must produce detailed plans and specifications that are reviewed and, if requirements are met, approved.
3. Then, inspections and tests are conducted at different points during construction: For example, wall insulation is checked before drywall is installed.

Ultimately, a variety of individuals and entities play a role in achieving high levels of compliance—not just the diligence of building officials. (Cohan, 2016c) Professions involved include architects, designers, contractors and construction professionals, real estate professionals, home inspectors, carpenters, brick masons, masons, concrete finishers, roofers, electricians, engineers, insulation workers, and energy modelers. (Missouri Department of Natural Resources, 2012)

4.4.1 Compliance pathways

Energy codes allow for some flexibility in how compliance can be achieved by providing pathways beyond simply checking off each requirement listed in the code. Builders and designers can take advantage of alternative pathways that still achieve energy code compliance but allow innovative approaches and techniques that would otherwise not be possible.

Generally, these pathways include mandatory, prescriptive, or tradeoff requirements, as discussed below. Each energy code might have different pathways for compliance.

- Some mandatory requirements must be met regardless of the compliance pathway chosen.
- Prescriptive: This pathway is the most straightforward. Every part of the building design must adhere to the energy code.
- Envelope tradeoff: This pathway allows one part of the building envelope to not meet requirements if another part of the design “makes up” for not meeting the requirement.

4.4.2 Compliance tools

The most widely used energy code compliance tools are two software programs: *COMcheck* for commercial buildings and *REScheck* for residential buildings. Building specifications, energy code, compliance pathway, and other variables are entered. The program then certifies whether the building meets the requirements of the selected code. At no cost, these programs can help inform design decisions, as well as serve as legal protection. Building officials and inspectors also use them to simply and efficiently determine whether a building meets the code.

If the envelope tradeoff compliance pathway is desired, the programs can perform the necessary calculations to ensure total heat loss still complies with the code requirements.

For more information on *COMcheck* and *REScheck*, visit energycodes.gov/software-and-web-tools. (USDOE, 2020b)

5. ROADMAP FOR CITIES AND COUNTIES

While the cost savings figures at the end of long-term projections are impressive, they are only attainable with consistent and widespread adoption, enforcement, and compliance with updated codes. Statewide compliance, however, starts at the community level. Ultimately, it is the local jurisdictions that adopt—and more importantly, enforce—energy codes that will help businesses and residents fully realize the codes' energy and cost savings (CBER, 2017).

Widespread energy code compliance can seem somewhat vague or even inaccessible to many jurisdictions; however, the following roadmap will help local governments get incrementally closer to this goal with each milestone. While each phase will entail a series of sub-steps, which will vary depending on the needs and status of a certain jurisdiction, they can all be organized into three primary actions: (1) Engage stakeholders, (2) Adopt residential and commercial energy codes through an ordinance, and (3) Enforce the adopted residential and commercial energy codes. Appendix A provides additional actions that can be taken at the state level to support and encourage local jurisdictions to take action.

1 Engage stakeholders

- Form a diverse working group of affected individuals
- Establish objective and realistic goals



2 Adopt residential and commercial energy codes

- From the working group, decide energy efficiency goals to pursue
- Adopt the energy code through an ordinance



3 Enforce the adopted energy codes

- Train code officials in energy-related building science
- Code officials ensure compliance tasks are completed
- Create and distribute education and training resources to officials, industry, and consumers



Engage stakeholders. Energy codes affect individuals, businesses, and government. Engaging with a diverse but comprehensive group of stakeholders—including those who may oppose the code—will help make the code adoption and compliance process thorough, fair, and sensitive to the concerns of all involved.

Local jurisdictions should consider forming a working group or collaborative that meets for frequent discussion and consists of individuals from the full spectrum of stakeholders: code officials and inspectors, architects, designers, engineers, builders, contractors and construction professionals, community members, home and building owners and managers (including residential, commercial, industrial, medical, academic, and others), building science experts, utilities, real estate professionals, energy code advocates, equity experts, local government officials (such as city council, mayor, planners, and others), and consumers. Regular meetings of this collaborative will streamline organization and information submission. (NEEP, 2020, 2019b)

By involving a variety of voices, jurisdictions can also better establish realistic and objective goals that consider all involved and help guide each step toward improving energy code compliance. Goals can include percent compliance, incorporating a stretch code, meeting specific benchmarks, or other objectives that can evolve with the community. The companion report to this report reviews benchmarking strategies that local jurisdictions can employ to reach their energy efficiency goals. (NEEP, 2019b)

Adopt residential and commercial energy codes. For a jurisdiction to enforce an energy code, it must first adopt the code. In this case, a “local jurisdiction” can include a county, town, or city. The appropriate local government must pass an ordinance declaring the adoption of the energy code and promulgate that fact to the public.

As stated above, the current West Virginia residential code is IECC 2009, and the current commercial code is ASHRAE 90.1-2010. The state codes outline the minimum requirements that may be adopted. Discussions with stakeholders may prompt the jurisdiction to pursue a stretch code, which amends the energy code to include certain improvements. Either way, counties and municipalities are required to notify the State Fire Commission of their intent.

Table 4 and Appendix B provide examples of four West Virginia cities and one county that have adopted the state energy code: Charleston, Huntington, Morgantown, Wheeling, and Jefferson County.

Table 4: Energy code adoption by selected West Virginia jurisdictions

	Charleston	Huntington	Morgantown	Wheeling	Jefferson County
Date adopted	April 15, 2019	May 13, 2019	June 18, 2019	September 17, 2019	April 4, 2019
Form	Bill No. 7812	Ordinance #2019-0-12	Ordinance 19—17	Ordinance No. 15308	Ordinance and Order
Residential	Adopted 2009 IECC	Not adopted	Adopted 2009 IECC	Adopted 2010 IECC	Adopted 2009 IECC
Commercial	Adopted ASHRAE 90.1-2010	Adopted ASHRAE 90.1-2010	Adopted ASHRAE 90.1-2010	Adopted ASHRAE 90.1-2010	Adopted ASHRAE 90.1-2007

Sources: City of Charleston (2019), City of Huntington (2019), City of Morgantown (2019), City of Wheeling (2019), County Commission of Jefferson County (2019).

Depending on the local government, energy code adoption may be in the form of a bill (Charleston), an ordinance (Huntington, Morgantown, Wheeling), or an ordinance and order (Jefferson County).

Also, as illustrated in Appendix B, the specific form of these bills, ordinances, or orders will differ among locations.

When notifying the State Fire Commission of their intent to adopt energy codes, all five local governments sent signed copies of the bill, ordinance, or order. Some included cover letters, while others did not. Jefferson County included a copy of the State Building Code Legislative Rule that passed the West Virginia Legislature in the 2019 session (87 CSR 4).

Three of the five localities adopted the 2009 IECC for residential buildings, which was the version adopted at the state level. Huntington did not adopt a residential energy code, and Wheeling adopted the more recent 2010 version.

All four cities adopted the 2010 version of the ASHRAE 90.1 energy code for commercial buildings, which was the version adopted at the state level; however, Jefferson County adopted the 2007 version.

Enforce the adopted residential and commercial energy codes. This is the most crucial step to improving energy code compliance. The local jurisdiction that adopts an energy code becomes the enforcing authority for that code, so it must build the capacity in the community and appropriate departments to start effectively implementing the code. Each jurisdiction should appoint a code official trained in energy code compliance who will handle the process of plan review, building inspections, and other tasks needed for compliance. Jurisdictions should also establish a streamlined system for enforcement that will simplify the process for all involved—and that system should include comprehensive education and training resources.

One of the major obstacles to compliance is the lack of accessible education and training on energy codes: what they are, what they do, the benefits they yield, how they affect different sectors and individuals, and how to actually integrate them into industry protocol. Education can include:

- benefits of energy code enforcement to industry professionals, building owners, and consumers through distinct public and industry education modules;
- the value, purpose, and necessity of energy code enforcement to local decision-makers and elected officials so resources can be adequately allocated;
- basic technical requirements for each adopted energy code and how to comply with them;
- step-by-step processes of enforcing energy codes; and
- ways building owners can integrate energy code requirements into renovations and additions.

However, no matter how informative or tailored training and education resources are, they are of no help if they are difficult to find, not advertised, or complicated. Jurisdictions should take care to make these resources well-known, user-friendly, pertinent to various user groups, and functional by regularly updating them according to feedback (NEEP, 2020, 2019b)

REFERENCES

- Athalye, R.A., Sivaraman, D., Elliott, D.B., Liu, B., and Bartlett, R. 2016. Impacts of Model Building Energy Codes. Pacific Northwest National Laboratory, prepared for USDOE.
- American Council for an Energy-Efficient Economy (ACEEE). 2020. 2020 State Energy Efficiency Scorecards. <https://www.aceee.org/sites/default/files/pdfs/u2011.pdf>
- _____. 2019 State Energy Efficiency Scorecards. <https://www.aceee.org/state-policy/scorecard>
- Brinker, C. 2018. Energy Codes are Life Safety Codes. Southwest Energy Efficiency Project. <https://www.swenergy.org/energy-codes-are-life-safety-codes>
- Building Codes Assistance Project (BCAP). 2014. Why Energy Codes Matter. <http://bcapcodes.org/getting-started/why-energy-codes-matter/>
- _____. 2012. 2012 Maryland Building Performance Standards Compliance Kit for Howard County. <http://bcapcodes.org/code-status/state/maryland/howard-county-compliance-kit/>
- City of Charleston. 2019. Bill No. 7812, A Bill to Amend Chapter 14, Article II, Section 14-33 of the Municipal Code of the City of Charleston for the purpose of updating the Building Code of the City of Charleston to be consistent with the recently amended State Building Code as set form in W. Va. Code § 29-3-5, and State of West Virginia Title 87, Legislative Rule Series 4 (§ 87-4-1 et seq.).
- City of Huntington, Cabell and Wayne Counties. 2019. Ordinance No. 2019-O-12, An Ordinance of Council Amendings, modifying and reenacting Article 1711 of the Codified Ordinances of the City of Huntington, as revised, concerning the Official Building Code of the City of Huntington.
- City of Morgantown. 2019. Ordinance 19—17, An Ordinance amending Section 1713.01 of the City Code Updating the State Building Code.
- City of Wheeling. 2019. Ordinance No. 15308, An Ordinance of the Council of the City of Wheeling amending and reenacting Article 1735 International Energy Conservation Code, to amend Sections 1735.01.
- Cohan, D. 2016a. Energy Codes 101: What are they and what is DOE’s Role? US Department of Energy. <https://www.energy.gov/eere/buildings/articles/energy-codes-101-what-are-they-and-what-doe-s-role>
- _____. 2016b. How are Building Codes Adopted? US Department of Energy. <https://www.energy.gov/eere/buildings/articles/how-are-building-codes-adopted>
- _____. 2016c. Building Energy Code Compliance. US Department of Energy. <https://www.energy.gov/eere/buildings/articles/energy-codes-101-what-are-they-and-what-doe-s-role>
- County Commission of Jefferson County. 2019. Ordinance and Order to prescribe Section 5b, Article 3, Chapter 29, of the Code of West Virginia, 1931, to Jefferson County Building Code Enforcement.
- Federal Emergency Management Agency. 2014. An Introduction to Building Codes for Property Owners. [https://www.fema.gov/media-library-data/04e952f7c7f8ec6e52d1afbe0394c955/Introduction To Building Codes PPT-New Brand.pdf](https://www.fema.gov/media-library-data/04e952f7c7f8ec6e52d1afbe0394c955/Introduction%20To%20Building%20Codes%20PPT-New%20Brand.pdf)

- Halverson, M., Rosenberg, M., and Liu, B. 2011. ANSI/ASHRAE/IES Standard 90.1-2010 Final Determination Quantitative Analysis. Pacific Northwest National Laboratory, US Department of Energy. PNNL-20882.
- Hart, R., Athalye, R.A., Halverson, M.A., Loper, S.A., Rosenberg, M.I, Xie, Y., and Richman, E.E. 2015. National Cost-Effectiveness of ANSI/ASHRAE/IES Standard 90.1-2013. Pacific Northwest National Laboratory, prepared for the US Department of Energy. PNNL-23824.
- Heinking, S. and C. Zussman. 2019. The Science of Building Codes and Climate Zones. Pepper Construction. <https://www.pepperconstruction.com/blog/science-building-codes-and-climate-zones>
- Hoy, A. Q. 2017. Government Report Provides Most Recent Evidence of Climate Change. American Association for the Advancement of Science (AAAS). <https://www.aaas.org/news/government-report-provides-most-recent-evidence-climate-change>
- Lasure, K. 2020. Personal communication with author Hansen. May 8.
- Livingston, O.V., Cole, P.C., Elliott, D.B., and Bartlett, R. 2014. Building Energy Codes program: National Benefits Assessment, 1992--2040. Pacific Northwest National Laboratory, US Department of Energy. PNL-22610.
- McNabb, N. 2013. The Evolution of Building Codes. NIST Engineering Laboratory, APEC Building Code Workshop. Lima, Peru. <https://www.mddb.apec.org>
- Mendon, V., Lucas, R., and Goel, S. 2013. Cost-Effectiveness Analysis of the 2009 and 2012 IECC Residential Provisions—Technical Support Document. Pacific Northwest National Laboratory, prepared for the US Department of Energy. PNNL-22068.
- Mendon, V.V., Selvacanabady, A., Zhao, M. and Taylor, Z.T. 2015. National Cost-Effectiveness of the Residential Provisions of the 2015 IECC. Pacific Northwest National Laboratory, prepared for USDOE. PNNL-24240.
- Mendon, V.V., Zhao, M., Taylor, Z.T., and Poehlman, E. 2016. Cost-Effectiveness Analysis of the Residential Provisions of the 2015 IECC for West Virginia. Pacific Northwest National Laboratory, prepared for the US Department of Energy. PNNL-24950 Rev-1.
- Meres, R. 2015. Energy Codes Preserve Homeowner Health and Comfort. Building Codes Assistance Project. <http://bcapcodes.org/energy-codes-preserve-homeowner-health-comfort/>
- Meres, R. and Makela, E. 2013. Building Energy Codes: Creating Safe, Resilient, Energy-efficient Homes. Institute for Market Transformation and Britt/Makela Group, Inc.
- Missouri Department of Natural Resources. 2012. Residential Requirements of the 2009 International Energy Conservation Code. Webinar: Awareness, New Construction, Additions/Remodels, and Implementation.
- Nadel, S. and L. Ungar. 2019. Halfway There: Energy Efficiency Can Cut Energy Use and Greenhouse Gas Emissions in Half by 2050. American Council for an Energy-Efficient Economy, Report U1907.
- National Association of State Energy Officials and Energy Futures Initiative. 2020. 2020 U.S. Energy & Employment Report. <https://www.usenergyjobs.org/s/USEER-2020-0323.pdf>
- Northeast Energy Efficiency Partnerships (NEEP). 2020. Various NEEP-created state roadmaps. _____ . 2019a. Energy Codes are Life Safety Codes.

- _____. 2019b. Benchmarking Gaps and Analysis for Small, Medium, and Rural Communities.
- _____. 2018. Construction Codes in the Northeast: Myths and Realities of Energy Code Adoption and the Economic Effects.
- Sipes, J. 2014. Tech Tips: ASHRAE 90.1 Changes in the 2007 Version vs. the 2010 Version. For Price Industries.
- Spinu, M. 2012. Design without Compromise: Balancing Durable and Energy-efficient Buildings. Construction Specifications Institute. <https://www.constructionspecifier.com/design-without-compromise-balancing-durable-and-energy-efficient-buildings/4/>
- Thornton, B.A., Halverson, M.A., Myer, M., Loper, S.A., Richman, E.E., Elliot, D.B., Mendon, V., Rosenberg, M.I. 2013. Pacific Northwest National Laboratory, prepared for USDOE. PNNL-22972.
- U.S. Department of Energy (USDOE). 2020a. Building Energy Codes Program: West Virginia. <https://www.energycodes.gov/adoption/states/west-virginia>
- _____. 2020b. Building Energy Codes Program: Software and Web Tools. <https://www.energycodes.gov/software-and-web-tools>
- _____. 2019a. Status of State Energy Codes Adoption. Building Energy Codes Program. <https://www.energycodes.gov/adoption/states>
- _____. 2019b. State Code Adoption Tracking Analysis. Building Energy Codes Program <https://www.energycodes.gov/adoption/state-code-adoption-tracking-analysis>
- _____. 2017. The Impact of Building Energy Codes. <https://www.energycodes.gov/about/results>
- _____. 2016. Saving Energy and Money with Building Energy Codes in the United States Fact Sheet. <https://www.energy.gov/sites/prod/files/2016/12/f34/Codes%20Fact%20Sheet%2012-28-16.pdf>
- _____. 2015. Why Building Energy Codes? Building Energy Codes Program. <https://www.energycodes.gov/about/why-building-energy-codes>
- _____. 2012. National Energy and Cost Savings for New Single- and Multi Family Homes. <https://www.energycodes.gov/sites/default/files/documents/NationalResidentialCostEffectiveness.pdf>
- _____. 2011. Building Energy Codes Resource Guide for Policy Makers. https://www.energycodes.gov/sites/default/files/documents/BECF_Policy_Maker_Resource%20Guide_June2011_v00_lores.pdf
- U.S. Energy Information Administration. 2020. Table C13. Energy Consumption Estimates per Capita by End-Use Sector, Ranked by State, 2017. https://www.eia.gov/state/seds/data.php?incfile=/state/seds/sep_sum/html/rank_use_capita.html&sid=US
- U.S. Environmental Protection Agency. 2015. Energy and Environment Guide to Action: State Policies and Best Practices for Advancing Energy Efficiency, Renewable Energy, and Combined Heat and Power. https://www.epa.gov/sites/production/files/2017-06/documents/guide_action_full.pdf

Weeks, K. 2014. Health, Safety, and Welfare Also Includes Building Performance. Building Codes Assistance Project. <http://bcapcodes.org/hsw-also-includes-performance/>

APPENDIX A: ENCOURAGING CITIES AND COUNTIES TO ACT

While it is a local decision to begin enforcing state energy codes, state agencies and other interested parties can take concrete steps to encourage cities and counties to act. One option would be to create the “West Virginia Energy Collaborative,” a working group comprised of stakeholders, which might take the actions identified below. For more examples of region-specific roadmaps for energy code initiatives, visit the Northeast Energy Efficiency Partnerships (NEEP) at neep.org. (NEEP, 2020)

Suggested goals

- Assist local jurisdictions in adopting and enforcing state-adopted energy codes
- Develop role-appropriate education and training resources and a formalized system for code officials, design professionals, contractors, and the general public
- Identify funding opportunities for training to help compensate funding and staffing gaps
- Create an optional stretch statewide stretch code with the help of stakeholder input
- Incentivize the industry workforce to comply with energy codes
- Create an ongoing forum for collaborative discussion of energy code compliance and enforcement issues among stakeholders

Suggested long-term strategies

- Develop a centralized resource center for code compliance training, tools reporting, applications, and other tasks and information for industry workers and state officials in the form of a practical and easy-to-use website
- Expand and publicize outreach to stakeholders and the public on benefits of the energy code
- Streamline promulgation, educational, and compliance resources among local jurisdictions
- Increase education to consumer audiences, such as residential
- Encourage local jurisdictions to strive toward incorporating optional stretch codes
- Discuss and deliver technical input to legislative, administrative, policy spheres and activities

Suggested short-term objectives, phased in a roadmap to energy code compliance

2020

- Create a working group/collaborative comprised of government officials, industry stakeholders, advocates, and consumers
- Engage with state and local energy code officials to identify obstacles to adoption and enforcement
- Develop an energy code training website and/or resource center
- Ensure each local jurisdiction has a trained energy code official
- Develop and distribute how-to materials explaining the value of energy codes and compliance pathways to policymakers, code officials, designers, appraisers, contractors, and consumers

2021

- Schedule and hold multiple open meetings for the working group/collaborative and those in the public who are interested to discuss energy code compliance topics, questions, and issues
- Start developing a benchmarking and rating system with input from stakeholders
- Organize training and educational opportunities for real estate professionals and home inspectors
- Integrate energy code compliance training resources into the foundation of workforce development
- Engage with policymakers and local decision makers to discuss resource allocation to support cost-effective advances in compliance resources

2022

- Implement the benchmarking and rating system to assess progress of initiatives and spread awareness
- Hold training sessions for using the benchmarking system that covers metrics, reporting, and
- Develop training tools to assist home inspectors
- Continue to hold regular working group/collaborative meetings and update technical resources based on industry feedback accordingly

2023

- Investigate additional funding and staffing opportunities to help meet increased demand of energy code officials
- Continue outreach and promote commercial code baseline compliance assessment based on benchmarking
- Update workforce development resources, trainings, and tools
- Use results from the benchmarking and rating system to help inform and adjust compliance goals and strategies

2024

- Update consumer outreach educational resources
- Update training materials for government and industry professionals
- Check in with code officials to verify the enforcement process is without issues
- Identify and begin addressing compliance gaps

2025

- Achieve 90% compliance (or another ultimate goal)
- Adoption and enforcement process for new and existing energy codes is established and streamlined
- Consumer demand for energy efficient houses, buildings, and components is increasing
- The industry, legislators, and public largely recognize the value of energy codes
- Begin planning for a statewide code compliance assessment (NEEP, 2019b, 2020)

APPENDIX B: ENERGY CODE ADOPTION BY SELECTED WEST VIRGINIA JURISDICTIONS

The following pages include energy code adoption letters from the cities of Charleston, Huntington, Morgantown, Wheeling as well as Jefferson County.



City of Charleston
Office of the City Clerk
P.O. Box 2749
Charleston, WV 25330
(304) 348-8179

RECEIVED
SFMO
APR 16 2019
LICENSING

I, the undersigned City Clerk of Charleston, do hereby certify that the foregoing is a true, correct and complete copy of Bill No. 7812, enacted by the City Council of the City of Charleston on April 15, 2019.

Witness the signature of the undersigned City Clerk of the City of Charleston, West Virginia, and the seal of the City, this 16th day of April, 2019.

Miles C. Cary II
City Clerk



Seal

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34

Bill No. 7812

Introduced in Council

Referred to

April 1, 2019

Ordinance & Rules

Introduced by:

Passed by Council

Jeanine Faegre

April 15, 2019

Bill No.7812: A BILL to amend Chapter 14, Article II, Section 14-33 of the Municipal Code of the City of Charleston for the purpose of updating the Building Code of the City of Charleston to be consistent with the recently amended State Building Code as set forth in W. Va. Code § 29-3-5, and State of West Virginia Title 87, Legislative Rule Series 4 (§ 87-4-1 et seq.).

Now, therefore, be it Ordained by the Council of the City of Charleston, West Virginia:

That effective ~~August 1, 2016~~ April 30, 2019, Chapter 14, Article II, Section 14-33 of the Municipal Code of the City of Charleston is hereby amended for the purpose of updating the Building Code of the City of Charleston to be consistent with the recently amended State Building Code as set forth in W. Va. Code § 29-3-5, and State of West Virginia Title 87, Legislative Rule Series 4 (§ 87-4-1 et seq.), to read as follows:

Sec. 14-33. Adoption of state building code; exercise of authority beyond corporate limits.

(a) There is adopted the state building code as authorized by W. Va. Code § 8-12-13 and promulgated pursuant to W. Va. Code § 29-3-5b, and by the State of West Virginia in Title 87, Legislative Rule Series 4 (§ 87-4-1 et seq.), state building code, which are collectively adopted by reference as if fully restated herein, and the provisions of such code sections and regulations shall be controlling within the city.

(b) The following amendments are made and incorporated into the codes adopted by 14-33 (a) herein:

Whenever referenced in the several ICC codes adopted herein, any reference to the International Fire Code should be substituted with the NFPA Life Safety Code 2015 edition.
The ANSI/ASHRAE/IESNA Standard 90.1-200 <u>7</u> 10 edition for commercial buildings.
International Building Code 2015:

Section 101.1	Insert "the City of Charleston"
Section 1612.3	Insert "the City of Charleston" dated "April 3, 1985"
Section 3412.2	Insert " August 1, 2016 <u>April 30, 2019</u> "
Delete Section 101.4.5 Fire Prevention, in its entirety.	
Delete Section 113.3 Qualifications, in its entirety and replace with the following: 113.3 Qualifications. The Board of Appeals shall consist of five members, with up to three alternates, who are qualified by experience or training to pass on matters pertaining to building construction and are not employees of the jurisdiction. They may include, but are not limited to, a WV Registered Professional Architect or Engineer, or a WV Licensed General Building, Residential, Electrical, Piping, Plumbing, Mechanical or Fire Protection Contractor, with at least 10 years' experience, five of which shall be in responsible charge or work. No less than one of the members of such Board of Appeals shall be a WV Registered Professional Architect or Engineer, or a WV Licensed General Building, Residential, Electrical, Piping, Plumbing, Mechanical or Fire Protection Contractor. Section 4.1.k.l. Omit references to International Fire Code and substitute NFPA Life Safety Code 2009 Edition.	
International Residential Code for One and Two Family Dwellings 2015:	
	Chapter 11 entitled "Energy Efficiency", is exempt from Title 87, Legislative Rule Series.
Section R101.1	Insert "the City of Charleston"
Section G2415.12 (404.10)	Delete and replace with: Minimum Burial Depth. Underground piping systems shall be installed a minimum depth of 12 inches (305 mm) below grade. If the minimum depth cannot be maintained, the piping system shall be installed in conduit or shielded in an approved manner.

Table R301.2(1)	<p>Insert into blank spaces as follows:</p> <p>Ground Snow Load - "20 psf"</p> <p>Wind Speed - "90115 mph"</p> <p>Seismic Design Category - "C"</p> <p>Weathering - "Severe"</p> <p>Frost Line Depth - "24 inch"</p> <p>Termite - "Moderate to Heavy"</p> <p>Decay - "Slight to Moderate"</p> <p>Winter Design Temperature - "11 degrees"</p> <p>Ice Shield Underlayment - No</p> <p>Flood Hazards - "see FIRM 1985 Floodplain Ordinance"</p> <p>Air Freezing Index - 500</p> <p>Mean Annual Temp - 54.5</p> <p>Topographic effects - "No"</p>
Section P2603.6.1	Insert "30 inches" and "12 inches"
<p>Delete Section 303.5.1 Light Activation, in its entirety.</p> <p>Delete sections R 311.3.1 Landings at doors in its entirety.</p>	
International Plumbing Code 2015:	
Section 101.1	Insert "the City of Charleston"
Section 106.6.2	Insert "See the Building Department Administrative Manual, Appendix A"
Section 106.6.3	<p>In No.2 Insert "100%"</p> <p>In No. 3 Insert "100%"</p>
Section 108.4	Insert "misdemeanor", "\$500", "30 days"
Section	<p>Amend last sentence in paragraph to read as follows:</p> <p>Any person who shall continue any work in or about the structure after having</p>

108.5	been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable for a fine up to \$500.00"
Section 305.6.1	Insert "30 inches" and "12 inches"
Section 904.1	Insert "12 inches"

International Mechanical Code 2015:

Section 101.1	Insert "the City of Charleston"
Section 106.5.2	Insert "See the Building Department Administrative Manual, Appendix A"
Section 106.5.3	In No. 2 Insert "100%" In No. 3 Insert "100%"
Section 108.4	Insert "misdemeanor", "\$500", "30 days"
Section 108.5	Amend last sentence in paragraph to read as follows: Any person who shall continue any work on the system after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable for a fine up to \$500.00"

International Existing Building Code 2015:

Section 101.1	Insert "the City of Charleston"
Section 1301.2	Insert " August 1, 2016 April 30, 2019"

International Energy Conservation Code 2009:	
Section 101.1	Insert "the City of Charleston"
International Fuel Gas Code 2015:	
Section 101.1	Insert "the City of Charleston"
Section 106.6.2	Insert "See the Building Department Administrative Manual, Appendix A"
Section 106.6.3	In No. 2 Insert "100%" In No. 3 Insert "100%"
Section 108.4	Insert "misdemeanor", "\$500", "30 days"
Section 108.5	Amend last sentence in paragraph to read as follows: Any person who shall continue any work on the system after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable for a fine up to \$500.00"
Section 404.10	Section 404.10 is deleted in its entirety and replaced with the following: "Underground piping systems shall be installed a minimum depth of 12 inches (305mm) below grade. If the minimum depth cannot be maintained, the piping system shall be installed in conduit or shielded in an approved manner."
International Property Maintenance Code 2015:	
Section 101.1	Insert "the City of Charleston"
Section 103.5	Insert "See the Building Department Administrative Manual, Appendix A"
Section	Modified as follows:

110.3	<p>Unless authorized by W. Va. Code §8-12-16, or absent the express consent of the owner, if the owner of a premises fails to comply with a demolition order within the time prescribed, the legal counsel of the jurisdiction shall institute appropriate action in the Circuit Court of the County in which the property is located against the owner of the premises where the structure is or was located seeking an Order causing the structure to be demolished and removed. Thereafter, the local jurisdiction, through an available public agency or by contract or arrangement with private persons, shall demolish and remove the structure and the costs thereof, as well as all fees and costs incurred in the legal action, shall be a lien upon such real estate.</p>
Section 112.4	<p>Amend last sentence in paragraph to read as follows: Any person who shall continue any work on the system after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be liable for a fine up to \$500.00"</p>
Section 302.4	<p>Insert "10 inches"</p>
Section 303.14	<p>Insert "January 1st to December 31st"</p>
Section 602.3	<p>Insert "January 1st to December 31st"</p>
Section 602.4	<p>Insert "September 1st to June 1st"</p>
<p>2014 National Electrical Code, NFPA 70:</p>	
<p>2009 ICC/ANSI A117.1 American National Standards for Accessibility & Usable Buildings and Facilities:</p>	
<p>Title 87 Legislative Rule, State Fire Commission, Series 4 § 87-4-5 Fire Protection of Floors in Residential Buildings</p> <p>5.1 New One and Two Family Dwellings over one level in height, New One and Two Family Dwellings containing a basement, and New One and Two Family Dwellings containing a</p>	

crawl space containing a fuel burning appliance below the first floor, shall provide one of the following methods for fire protection of floors: (1) A ½ inch (12.7 mm) gypsum wallboard membrane, 5/8 inch (16mm) wood structural panel membrane, or equivalent on the underside of the floor framing member; (2) Wood floor assemblies using dimension lumber or structural composite lumber equal or greater than 2 inch by 10 inch (50.8 mm by 254 mm) nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance; or (3) An Automatic Fire Sprinkler System as set forth in section R313.2 of the 2009 edition of the International Residential Code for One and Two Family Dwellings: *Provided*, That Floor assemblies located directly over a space protected by an automatic sprinkler system as set forth in section R313.2 of the 2009 edition of the International Residential Code for One and Two Family Dwellings are exempt from this requirement.

35

36 (c) Nothing in this section hereby adopted shall be construed to affect any suit or proceeding
37 impending in any court, or any rights acquired, or liability incurred, or any cause of action
38 acquired or existing, under any provision hereby repealed; nor shall any right or remedy of any
39 character be lost, impaired or affected by this chapter.

40

City Of Huntington

Office Of The City Attorney

Scott A. Damron, City Attorney - damrons@cityofhuntington.com

Ericka Hernandez, Asst. City Attorney - hernandeze@cityofhuntington.com

May 16, 2019

Kenneth E. Tyree, Jr., State Fire Marshal
Office of the State Fire Marshal
1207 Quarrier Street, 2nd Floor
Charleston, WV 25301

Re: Adoption of Official Building Code of the City of Huntington

Dear Marshal Tyree:

Enclosed please find a certified copy of the City of Huntington ordinance re-enacting the official building code of the City and adopting the prior changes enacted by Legislative Rule. Thank you for your attention to this matter.

Sincerely,



Scott A. Damron

SD/tr
Attachment





CITY CLERK
City Hall, Room 16
P. O. Box 1659
Huntington, WV 25717
Phone: (304) 696-5530
Fax: 304-696-5922

Attachment

State of West Virginia,
Counties of Cabell and Wayne

I, Barbara Miller, City Clerk of the City of Huntington, West Virginia, a municipal corporation, do hereby certify that the attached is a true and exact copy of Ordinance #2019-O-12 which was duly adopted by Huntington City Council at its meeting held on the 13th day of May, 2019.

Dated this 16th day of May, 2019.

A handwritten signature in blue ink that reads "Barbara Miller".

Barbara Miller, City Clerk

(SEAL)

2019-O-12

**AN ORDINANCE OF COUNCIL AMENDING, MODIFYING AND RE-ENACTING
ARTICLE 1711 OF THE CODIFIED ORDINANCES OF THE CITY OF HUNTINGTON,
AS REVISED, CONCERNING THE OFFICIAL BUILDING CODE
OF THE CITY OF HUNTINGTON.**

**BE IT ORDAINED BY THE COUNCIL OF THE CITY OF HUNTINGTON, CABELL
AND WAYNE COUNTIES, WEST VIRGINIA,** that Article 1711 of the Codified Ordinances of
the City of Huntington, as revised, is hereby **AMENDED, MODIFIED** and **RE-ENACTED** to read
as follows:

ARTICLE 1711

OFFICIAL BUILDING CODE

1711.01 ADOPTION.

(a) The International Building Code of 2015, with the amendment contained in Sec. 87-4-4.1.g of the Legislative Rule of the State Fire Commission which adopts ANSI/ASHRAE/IESNA standard 90.1 2010 edition for commercial building, superseding the 2007 edition, is adopted as the Official Building Code of the State of West Virginia, as promulgated by the State Fire Commission pursuant to West Virginia Code §§ 29-3-5b and 8-12-13, and 7-1-3n, as amended, together with any amendments and modifications thereto as may hereafter be adopted and promulgated from time to time by the Commission, is hereby adopted as the Official Building Code of the City.

(b) The City of Huntington does not adopt any of the additional appendices authorized pursuant to the W.Va. Legislative Rule identified as §87-4-1, *et seq.* and specifically authorized in §87-4-7(7.3).

(c) The City of Huntington does adopt the provisions of the national codes with respect to the penalty for imprisonment, but the penalty for any violation shall be limited to a maximum of \$500.00 and/or 30 days imprisonment for any single violation.

(d) The City of Huntington does not reject the International Property Maintenance Code and hereby incorporates said Code in its adoption of the Official Building Code.

BE IT FURTHER ORDAINED that all other sections and subsections of Article 1711 of the Codified Ordinances of the City of Huntington, as revised, shall remain in full force and effect until further Ordinance of this Council.

BE IT FURTHER ORDAINED that Sections 1711.01 of the Codified Ordinances of the City of Huntington, as revised, shall become effective on April 30, 2019.

SPONSORED BY COUNCILMAN MIKE SHOCKLEY

APPROVED AS TO FORM BY SD

FIRST READING 2019.04.22 - ORDERED ADVERTISED

SECOND READING 2019-05-13 - ADOPTED (11 yeas, 0 nay)

DATE May 13, 2019

Barbara Miller,
BARBARA MILLER, CITY CLERK

DATE May 13, 2019

Steve Williams
STEVE WILLIAMS, MAYOR

APPROVE

DATE 5/14/2019

VETO

January 22, 2020

Kenneth E. Tyree, State Fire Marshal
West Virginia Fire Commission
Office of the State Fire Marshal
1207 Quarrier St. (2nd Flr.)
Charleston, WV 25301

RECEIVED

JAN 27 2020

STATE FIRE MARSHAL
Administration

RE: Ordinance Amending Section 1713.01 of the City Code

Mr. Kenneth E. Tyree, State Fire Marshal

Enclosed please find a copy of "An Ordinance Amending Section 1713.01 of the City Code Updating the State Building Code", for your record as evidence to you of Morgantown's adoption of the current state building code. If you have any questions or concerns, please feel free to contact our office.

Sincerely,



Ryan Simonton

RECEIVED
SFMO

JAN 28 2020

LICENSING

**AN ORDINANCE AMENDING SECTION 1713.01 OF THE CITY CODE UPDATING
THE STATE BUILDING CODE**

The City of Morgantown hereby ordains that Section 1713.01 of the City Code is amended as follows:

1713.01 ADOPTION.

There are hereby adopted and incorporated by reference herein the following portions of the State Building Code, as published by the International Code Council ("ICC"), to be known as the Building Code of the City of Morgantown, West Virginia, for the purpose of regulating construction, alteration, addition, removal and demolition of buildings and structures, together with the additions and amendments hereinafter provided:

(a) The 2015 edition, International Building Code, with the following exceptions and additions:

(i) The section entitled "Fire Prevention" and identified as Section 101.4.5 is deleted and not considered to be a part of this section.

(ii) The entire subsection entitled "Qualifications" and identified as Section 113.3 is deleted and replaced with the following:

"Section 113.3. Board of Appeals

113.3 Qualifications. The board of appeals shall consist of five members, with up to three alternates, who are qualified by experience and training to pass on matters pertaining to building construction and are not employees of the jurisdiction. They may include, but are not limited to, a WV Registered Professional Architect or Engineer, or a WV Licensed General Building, Residential, Electrical, Piping, Plumbing, Mechanical or Fire Protection Contractor, with at least 10 years experience, five of which shall be in responsible charge of work. No less than one of the members of such Board of Appeals shall be a WV Registered Professional Architect or Engineer, or a WV Licensed General Building, Residential, Electrical, Piping, Plumbing, Mechanical or Fire Protection Contractor."

(iii) The following appendices are applicable:

Appendix E - Supplementary Accessibility Requirements; and
Appendix H - Signs.

(b) The 2015 edition of the International Plumbing Code

(c) The 2015 edition of the International Mechanical Code

(d) The 2015 edition of the International Fuel Gas Code, with the following exception:

(i) Section 404.10 Underground piping systems shall be installed a minimum depth of 12 inches (305 mm) below grade. If the minimum depth cannot be maintained, the piping system shall be installed in conduit or shielded in an approved manner.

(e) The 2015 edition of the International Property Maintenance Code, with the following exceptions and additions:

(i) Section 110.3 Failure to Comply, shall be modified as follows:

"Unless authorized by W.Va. Code§ 8-12-16, or absent the express

consent of the owner, if the owner of a premises fails to comply with a demolition order within the time prescribed. the legal counsel of the jurisdiction shall institute appropriate action in the Circuit Court of the County in which the property is located against the owner of the premises where the structure is or was located seeking an Order causing the structure to be demolished and removed. Thereafter, the local jurisdiction, through an available public agency or by contract or arrangement with private persons, shall demolish and remove the structure and the costs thereof, as well as all fees and costs incurred in the legal action, shall be a lien upon such real estate."

(ii) The following appendix is applicable:

Appendix A - Boarding standards.

(f) The 2009 edition of the International Energy Conservation Code for residential buildings.

(g) The ANSI/ASHRAE /IESNA Standard 90.1-2007~~10~~ edition for commercial buildings. For purposes of this section. "ANSI" means American National Standards Institute, "ASHRAE" means American Society of Heating, Refrigerating, and Air-Conditioning Engineers, and "IESNA" means Illuminating Engineering Society of North America.

(h) The 2015 edition of the International Residential Code for One and Two Family Dwellings, with the following exceptions and additions:

(i) Chapter 11 of the 2015 edition of the International Residential Code for One and Two Family Dwellings, Seventh Printing, entitled Energy Efficiency," is exempt from this section.

(iii) Section G2415.12 (404.10) Minimum Burial Depth. Underground piping systems shall be installed a minimum depth of 12 inches (305 mm) below grade. If the minimum depth cannot be maintained, the piping system shall be installed in conduit or shielded in an approved manner.

(iv) Section R311.7.5 Stair Treads and Risers

(A) 311.7.5.1 Riser Heights -- The maximum riser height shall be eight and one-quarter (8 1/4) inches.

(B) 311.7.5.2 Tread Depth- The minimum tread depth shall be nine (9) inches.

(v) Section R403.1.7.1: Building Clearances From Ascending Slopes is not applicable to this section.

(vi) Section R403.1.7.2: Footings Setbacks From Descending Slope Surfaces is not applicable to this section.

(vii) Pursuant to Title 87, West Virginia Code of State Rule, Series 4, Section 5.1, New One and Two Family Dwellings over one level in height, New One and Two Family Dwellings containing a basement, and New One and Two Family Dwellings containing a crawl space containing a fuel burning appliance below the first floor, shall provide one of the following methods for fire protection of floors: (1) A 1/2 inch (12.7 mm) gypsum wallboard membrane, 5/8 inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member; (2) Wood floor assemblies using dimension lumber or structural composite lumber equal or greater than 2 inch by 10 inch (50.8 mm by 254 mm) nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance: or (3) An Automatic Fire Sprinkler System as set forth in Section R313.1 or

R313.2 of the 2015 edition of the International Residential Code for One and Two Family Dwellings: Provided, That floor assemblies located directly over a space protected by an automatic sprinkler system as set forth in section R313.1 or R313.2 of the 2015 edition of the International Residential Code for One and Two Family Dwellings are exempt from this requirement.

(viii) Pursuant to Title 87, West Virginia Code of State Rules, Series 4, Section 5.2, Townhouses meeting the Fire Resistant Construction Standard R302.2 will be treated as New One and Two Family Dwellings and shall comply with the referenced Section 5.1 immediately above.

(ix) The following appendices are applicable:

Appendix D - Safety inspections of existing appliances

Appendix E - Manufactured Housing used as Dwellings.

(i) The 2009 ICC/ANSI A117.1 American National Standards for Accessibility & Usable Buildings & Facilities

(j) The 2015 International Existing Building Code. with the following exception: (i) Omit reference to International Fire Code and substitute NFPA Life Safety Code 2015 edition.

(k) The 2014 edition of the National Electric Code, NFPA 70

(l) The 2015 edition of the International Swimming Pool and Spa Code

Wherever referenced in the several ICC codes adopted above, any reference to the International Fire Code should be substituted with the NFP Life Safety Code 2015 edition. The State Building Code and its application within this City shall be subject to Legislative Rules adopted by the West Virginia State Fire Commission and authorized by the West Virginia Legislature.

This ordinance shall be effective upon adoption.

FIRST READING: June 4, 2019

ADOPTED: June 18, 2019

FILED: June 19, 2019

RECORDED: June 19, 2019


MAYOR


CITY CLERK

CITY OF WHEELING



CITY COUNTY BUILDING
1500 CHAPLINE STREET
WHEELING, WEST VIRGINIA 26003

DEPARTMENT OF ECONOMIC AND COMMUNITY DEVELOPMENT
Building Inspection 304.234.3701 Fax 304.234.3683 www.wheelingwv.gov

September 19th, 2019

Ken Tyree – State Fire Marshall
Office of the State Fire Marshall
1207 Quarrier St. 2nd Floor
Charleston, WV 25301
Tel: 304.558.2191

RE: **Title 87 – Series 4 – State Building Code: Adoption of ANSI/ASHRAE/IESNA Standard 90.1
2010 Edition**

Dear Mr. Tyree,

The City of Wheeling has modified our local ordinance to adopt the change that was made to Title 87 – Series which took effect on April 30, 2019.

Please see the attached: **Ordinance No. 15308 Introduced: September 3, 2019**

Sincerely,

A handwritten signature in blue ink, appearing to read "Joseph Touvell", is written over the word "Sincerely,".

Joseph Touvell, ICC
Building Code Official
Floodplain Manager

2/2

Ordinance No. 15308

Introduced September 3, 2019

AN ORDINANCE OF THE COUNCIL OF THE CITY OF WHEELING AMENDING AND REENACTING ARTICLE 1735 INTERNATIONAL ENERGY CONSERVATION CODE, TO AMEND SECTIONS 1735.01

BE IT ORDAINED BY THE COUNCIL OF THE CITY OF WHEELING:

Section 1. Sections 1735.01, Article 1735, entitled “International Energy Conservation Code” of the Codified Ordinances amended and reenacted to provide for the modifications of the Sections which shall hereafter read as follows:

1735.01 ADOPTION.

There is hereby adopted and incorporated by reference as if set out at length herein that part of the State Building Code entitled the 2010 edition, International Energy Conservation Code, Second Printing, as published by the International Code Council, to be known as the Energy Conservation Code of the City of Wheeling, West Virginia, for the purpose of establishing minimum regulations governing the consumption of energy resources in buildings and structures, or portions thereof, erected after the effective date of this section which provide facilities or shelter for human occupancy, subject to the modification herein. The adoption of that part of State Building Code entitled 2010 International Energy Conservation Code by the City of Wheeling includes the Appendix and ANSI/ASHRAE/IESNA Standard 90.1 - 2010 Energy Standard for Buildings Except Low Rise Residential Buildings and the updates to the ANSI/ASHRAE/IESNA standard 90.1 to the 2010 edition for commercial buildings.

Section 2. Nothing in this ordinance or in the Energy Conservation Code hereby adopted shall be construed to affect any suit or proceeding pending in court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing, under any act or ordinance hereby repealed by the provisions of Section 1 of this ordinance; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this ordinance.

Section 3. Any existing municipal ordinance that is more stringent or imposes a higher standard than is required by the Energy Conservation Code herein adopted shall govern, provided such other ordinance is not inconsistent with the laws of the State of West Virginia and is not contrary to recognize standards and good engineering practices. Provided: that it is the intention of the City of Wheeling, through the adoption of this and other related ordinances, to adopt the State Building Code promulgated in accordance with the provisions of West Virginia Code §29-

3-5b and Title 87 of the August I, 2016 Legislative Rule, State Fire Commission 2015 NFPA 101-Life Safety Code and all other State Building Codes.

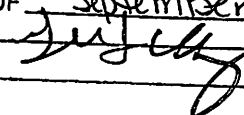
Section 4. A copy of the 2010 edition of the International Energy Conservation Code., and ANSI/ASHRAE/IESNA Standard 90.1 - 2010 Energy Standard for Buildings, is available for public inspection in the Office of the City Clerk.

Section 5. At least five days before the meeting at which this ordinance is to be finally adopted, the City Clerk shall cause notice of the proposed adoption of this ordinance to be published as a Class I-0 legal advertisement, in accordance with the provisions of West Virginia Code §8-11-4.

Section 6. Within thirty days after the adoption of this ordinance, the City Clerk shall cause a copy of this ordinance to be sent to the State Fire Marshall of the West Virginia State Fire Commission.

Section 7. This ordinance shall be effective from and after the date of its adoption.

By the Administration.

PASSED BY THE COUNCIL OF
THE CITY OF WHEELING, W. VA.
AT A REGULAR MEETING
HELD ON THE 17 DAY
OF September 2019

MAYOR

JEFFERSON COUNTY, WEST VIRGINIA
Department of Planning, Zoning & Engineering
116 East Washington Street
P.O. Box 716
Charles Town, West Virginia 25414

RECEIVED
SFMO

APR 22 2019

PHONE: 304-728-3257
FAX: 304-728-3953

Email: engineering@jeffersoncountywv.org

April 16, 2019

West Virginia State Fire Marshal
West Virginia State Fire Commission
1207 Quarrier Street, 2nd Floor
Charleston, WV 25301

Attn: Mr. Kenneth E. Tyree, State Fire Marshal

Re: Jefferson County – 2019 Building Code Enforcement Ordinance Adoption

Dear Mr. Tyree,

In accordance with Title 87, Series 4, State Building Code, Section 87-4-7, which states:


“§87-4-7. Adoption by Local Jurisdiction.

7.1. Each local jurisdiction adopting the State Building Code shall notify the State Fire Commission in writing. The local jurisdiction shall send a copy of the ordinance or order to the State Fire Marshal, West Virginia State Fire Commission, 1207 Quarrier Street, 2nd floor, Charleston, West Virginia 25301, within thirty (30) days of adoption.”

...find enclosed a copy of the Resolution and the Ordinance & Order adopting the Jefferson County Building Code Enforcement Ordinance, as required. The ordinance adopts the new standards that become effective on April 30, 2019.

Please contact me at 304-728-3257 if you have any questions or need further information.

Sincerely,



Roger L. Goodwin, P.E.
Chief County Engineer/Building Code Official

C: Mike Monaghan, Building Inspector
Rebecca Burns, Office Manager

Enc.

RESOLUTION

WHEREAS, It is the desire of the County Commission of Jefferson County, West Virginia to protect the life and property of the citizens of Jefferson County; and

WHEREAS, The County Commission of Jefferson County, West Virginia duly passed an Ordinance adopting the State of West Virginia building code on March 29, 2001; and

WHEREAS, the County Commission of Jefferson County, West Virginia desires that all building permits issued before April 30, 2019, shall remain valid and regulated under the state building codes adopted and in effect prior to April 30, 2019; and

WHEREAS, The State of West Virginia has decreed that as of April 30, 2019, the State of West Virginia building code shall be revised to the following codes with local amendment as permitted by law:

2015 International Building Code (with exceptions/amendments).

2015 International Plumbing Code

2015 International Mechanical Code

2015 International Fuel Gas Code (with exception/amendment).

2015 International Property Maintenance Code (at the option of Jefferson County, this ordinance is not adopted)

2009 International Energy Conservation Code for Residential Buildings

2007 ANSI/ASHRAE/IESNA Standard 90.1 – for Commercial Buildings

2015 International Residential Code for One & Two Family Dwellings (with exceptions/amendments)

2009 ICC/ANSI A117.1 American National Standards for Accessibility & Usable Buildings and Facilities

**2015 International Existing Building Code
(with amendment adopting the NFPA 101, Life Safety Code 2015 Edition)**


2014 Edition of the National Electric Code, NFPA 70

2015 International Swimming Pool and Spa Code; and

Jefferson County
Jacqueline C Shadle, Clerk
Instrument 20190003852
04/09/2019 @ 03:30:16 PM
ORDINANCE
Book 1221 @ Page 1
Pages Recorded 23

WHEREAS, the County Commission of Jefferson County, West Virginia desires that all building permits issued on or after April 30, 2019, be regulated under the revised State building code, as adopted by the County Commission of Jefferson County, West Virginia.

THEREFORE, BE IT RESOLVED that the County Commission of Jefferson County, West Virginia desires to adopt the revised State of West Virginia building code that shall become effective April 30, 2019, and HEREBY adopts the new Building Code Enforcement Ordinance, as attached.

BY:  DATE: April 4, 2019
Patsy Noland, President
County Commission of Jefferson County

ATTEST:


Jacqueline C. Shadle
CLERK OF JEFFERSON COUNTY



ORDINANCE AND ORDER

An ordinance and order to ADOPT the State of West Virginia building code relating to building construction and building inspection activities in Jefferson County, West Virginia, and enforcement of said codes.

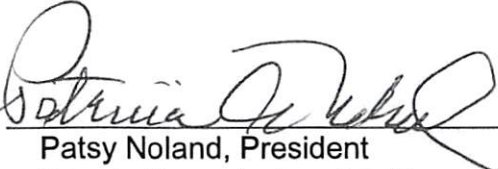
WHEREAS, it is the desire of the County Commission of Jefferson County, West Virginia to adopt the state building code relating to minimum building and housing construction standards for the public safety, health, and well-being; and

WHEREAS, the adoption of this code is to facilitate proper permitting, inspection, and enforcement activities relating to the construction of buildings, structures, and additions within the jurisdiction of Jefferson County, West Virginia.


NOW, THEREFORE, BE IT ORDAINED AND ORDERED BY The County Commission of Jefferson County, by authority of the Code of West Virginia under Section 3n, Article 1, Chapter 7, of the Code of West Virginia, One-thousand Nine-hundred Thirty-one, that the State Building Code as provided for in Section 5b, Article 3, Chapter 29, of the Code of West Virginia, One-thousand Nine-hundred Thirty-one, are hereby adopted and made a part hereof, as if fully set out in this ordinance, with the amendments/additions/insertions/changes/exceptions, if any, prescribed in the Jefferson County Building Code Enforcement Ordinance.

BE IT FURTHER ORDAINED AND ORDERED that **this Ordinance and Order shall take effect and be in force from the 30th Day of April, 2019**, the public welfare requiring it.

PASSED AND APPROVED BY The County Commission of Jefferson County, West Virginia on the **4th** day of **April, 2019**.

BY: 
Patsy Noland, President
County Commission of Jefferson County

ATTEST:


Jacqueline C. Shadle
CLERK OF JEFFERSON COUNTY



JEFFERSON COUNTY BUILDING CODE ENFORCEMENT ORDINANCE

GENERAL AUTHORITY

By authority of the Code of West Virginia, Chapter 7, Article 1, Section 3n & Chapter 29, Article 3, Section 5b, to enforce minimum regulations governing the design, construction, alteration, enlargement, repair, demolition, removal, and use of all buildings and structures: providing for the issuance of permits, collection of fees, making of inspections, providing penalties for the violation thereof, to be known as the "Jefferson County Building Code Enforcement Ordinance".

STANDARDS & CODES

In accordance with the provisions of the Code of West Virginia, Chapter 29, Article 3, Section 5b, the County Commission of Jefferson County, West Virginia does hereby adopt the State Building Code as set forth in Title 87, Legislative Rules, State Fire Commission, Series 4, State Building Code, which becomes effective on August 1, 2016. The standards and requirements as set out and published by the International Code Council (ICC) and the American National Standards Institute (ANSI), as listed below, shall have the same force and effect as if set out verbatim in this Section, except as modified and/or amended herein; any reference to the ICC Electrical Code shall mean NFPA 70, National Electrical Code 2014.

The Property Maintenance Code is not adopted and shall not be enforced.

ADMINISTRATIVE PROCESS

The administration of the building code shall be in accordance with the Administration Chapter of the applicable building code.

AMENDMENTS, INSERTIONS, CHANGES & APPENDIX ADOPTION

Fee Schedules for all codes: "Attachment A – Schedule of Permit Fees," shall apply. The Schedule of Permit Fees contained in this ordinance may be periodically amended by the County Commission of Jefferson County, as they deem necessary.

1) International Residential Code 2015:

Section R101.1 Title, insert "*Jefferson County, West Virginia*" where "[NAME OF JURISDICTION]" appears.

Section R113.4 Violation Penalties, shall be amended to read as follows:

“Any person, firm or corporation violating any of the provisions of any of the adopted codes shall be guilty of a misdemeanor and each such person, firm or corporation shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this code is committed, continued, or permitted. Upon conviction of any such violation such person, firm or corporation shall be punishable by a fine of not less than \$50.00 or more than \$500.00. In addition to the criminal penalties provided herein, Jefferson County may, at its option, pursue injunctive relief in the Circuit Court of Jefferson County, West Virginia.”

Section R114.2 Unlawful Continuance, shall be amended to read as follows:

“Any person, firm, or corporation who shall continue any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be guilty of a misdemeanor and each such person, firm, or corporation shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this code is committed, continued, or permitted. Upon conviction of any such violation such person, firm, or corporation shall be punishable by a fine of not less than \$50.00 or more than \$500.00. In addition to the criminal penalties provided herein, Jefferson County may, at its option, pursue injunctive relief in the Circuit Court of Jefferson County, West Virginia.”

Section R202 Definitions, [RB] Dwelling – add the following:

“Structures that can be registered as Travel Trailers (Class R) with the West Virginia Department of Motor Vehicles shall not be considered as “dwellings”. Occupation that exceeds 180 days per year will be will be considered “living” and the structure shall meet building code requirements in order to remain on site as a habitable structure. This amendment does not include storage of unoccupied Travel Trailers.

Table R301.2 (1) insert the following design criteria:

Ground Snow Load	Wind	Seismic Design Category	Subject to Damage From				Winter Design Temp (Deg. F)	Ice Shield Under-layment Regd.	Flood Hazard	Air Freezing Index	Mean Annual Temp. (Deg. F)
			Weathering	Frost Line Depth (24")	Termite	Decay					
(lbs per sq. ft.)	Speed (mph)										
30	90	B	Severe	Min. 30 inches to bottom of footing	Heavy to Moderate	Slight to Moderate	10	No	F.I.R.M. 1980, as amended	1000	52.6

IRC Section P2603.5.1 Sewer Depth, insert "28 (twenty eight) (710 mm)" where "[Number]" appears.

IRC Section G2415.12 Minimum Burial Depth, delete and replace with: "Underground piping systems shall be installed a minimum depth of 12 inches (305mm) below grade. If the minimum depth cannot be maintained, the piping system shall be installed in conduit or shielded in an approved manner".

IRC Section R311.7.5 Stair Treads and Risers:

Section R311.7.5.1 Riser – The maximum riser height shall be eight and one-quarter (8-1/4) inches.

Section R311.7.4.2 Treads – The minimum tread depth shall be nine (9) inches.

IRC Section R403.1.7.1 Building Clearances From Ascending Slopes, delete in its entirety, no replacement.

IRC Section R403.1.7.2 Footing Setbacks From Descending Slope Surfaces, delete in its entirety, no replacement.

IRC Section N1101-N1104 (Chapter 11) Energy Efficiency, delete in its entirety, replace with 2009 International Energy Code, Chapter 4 - Residential Energy Efficiency.

Fire Protection of Floors in Residential Buildings –

5.1 New One and Two Family Dwellings over one level in height. New One and Two Family Dwellings containing a basement, and One and Two Family Dwellings containing a crawl space containing a fuel burning appliance below the first floor, shall provide a method of fire protection of floors (1) A ½ inch (12.7mm) gypsum wall board membrane, 5/8 inch (16 mm) wood structural panel or equivalent on the underside of the floor framing member; (2) Wood floor assemblies using dimensional lumber or structural composite lumber equal or greater than 2 inch by 10 inch (50.8 mm by 254mm) nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance; or (3) An Automatic Fire Sprinkler System as set forth in section R313.1 or R313.2 of the 2015 edition of the International Residential Code for One and Two Family Dwellings: *Provided*, That floor assemblies located directly over a space protected by an automatic sprinkler system as set forth in section R313.2 of the 2015 edition of the International Residential Code for One and Two Family Dwellings are exempt from this requirement.

5.2 Townhouses meeting the Fire Resistant Construction Standard R302.2 will be treated as New One and Two Dwellings and shall comply with section 5.1 above

IRC Section R507 Exterior Decks, in addition to complying with this section, decks shall also comply with the most recent edition of the **American Wood Council's Design for Code Acceptance 6 – Prescriptive Residential Deck Construction Guide**.

Note: DCA 6 will be available for review in the engineering office or obtain a copy at the following web address:

www.awc.org/codes-standards/publications/dca6

International Residential Code 2015 – Appendix Adoption:

The following appendices are specifically adopted:

- Appendix A – Sizing and Capacities of Gas Piping.
- Appendix B – Sizing of Venting Systems Serving Appliances Equipped With Draft Hoods, Category I Appliances, And Appliances Listed For Use With Type B Vents.
- Appendix C - Exit Terminals of Mechanical Draft and Direct-Vent Venting Systems.
- Appendix E - Manufactured Housing Used As Dwellings.
- Appendix F - Radon Control Methods.
- Appendix G - Piping Standards for Various Applications
- Appendix H - Patio Covers
- Appendix J - Existing Buildings and Structures.
- Appendix M - Home Day Care – R3 Occupancy.
- Appendix R - Light Straw-Clay Construction
- Appendix S - Strawbale Construction

2) **International Building Code 2015:**

Section 101.1 Title insert “*Jefferson County, West Virginia*” where “[NAME OF JURISDICTION]” appears.

Section 101.4.5 Fire Prevention is deleted.

Section 113.3 Board of Appeals is deleted and replaced with the following:

113.3 Qualifications. *The board of appeals shall consist of five members, with up to three alternates, who are qualified by experience and training to pass on matters pertaining to building construction and are not employees of the jurisdiction. They may include, but are not limited to, a WV Registered Professional Architect, or Engineer, or a WV Licensed General Building, Residential, Electrical, Piping, Plumbing, Mechanical or Fire Protection Contractor, with at least 10 years experience, five of which shall be in responsible charge of work."*

Section 114.4 Violation Penalties shall be amended to read as follows:

"Any person, firm or corporation violating any of the provisions of any of the adopted codes shall be guilty of a misdemeanor and each such person, firm or corporation shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this code is committed, continued, or permitted. Upon conviction of any such violation such person, firm or corporation shall be punishable by a fine of not less than \$50.00 or more than \$500.00. In addition to the criminal penalties provided herein, Jefferson County may, at its option, pursue injunctive relief in the Circuit Court of Jefferson County, West Virginia."

Section 115.3 Unlawful Continuance shall be amended to read as follows:

"Any person, firm, or corporation who shall continue any work in or about the structure after having been served with a stop work order, except such work as that person is directed to perform to remove a violation or unsafe condition, shall be guilty of a misdemeanor and each such person, firm, or corporation shall be deemed guilty of a separate offense for each and every day or portion thereof during which any violation of any of the provisions of this code is committed, continued, or permitted. Upon conviction of any such violation such person, firm, or corporation shall be punishable by a fine of not less than \$50.00 or more than \$500.00. In addition to the criminal penalties provided herein, Jefferson County may, at its option, pursue injunctive relief in the Circuit Court of Jefferson County, West Virginia"

Section 1608.2 Ground Snow Loads add the following sentence at the end of the paragraph:

"The ground snow load for Jefferson County, West Virginia shall be a minimum of 30 pounds per square foot."

Section 1612.3 Establishment of Flood Hazard Areas insert "Jefferson County, West Virginia" where "[NAME OF JURISDICTION]" appears. Insert "2009" where "[INSERT DATE OF ISSUANCE]" appears in the first paragraph.

Section 1809.5 Frost Protection, method no. 1, extending below the frost line of the locality shall mean the depth to the bottom of the footing is a minimum of thirty (30) inches.

Chapter 34 is deleted and replaced by the International Existing Building Code (IEBC))

International Building Code 2015 – Appendix Adoption:

The following appendices are specifically adopted:

Appendix E - Supplementary Accessibility Requirements

Appendix H - Signs

Appendix I - Patio Covers

3) **International Plumbing Code 2015:**

Section 101.1 Title insert “Jefferson County, West Virginia” where “[NAME OF JURISDICTION]” appears.

Section 106.6.3 Fee Refunds insert “zero percent (0%)” in paragraph no. 2 where “[SPECIFY PERCENTAGE]” appears.

Section 106.6.3 Fee Refunds insert “zero percent (0%)” in paragraph no. 3 where “[SPECIFY PERCENTAGE]” appears.

Section 108.4 Violation Penalties shall be amended as follows:

“Any person, firm or corporation violating any of the provisions of any of the adopted codes or shall fail to comply with any of the requirements thereof or who shall erect, install, alter or repair plumbing work in violation of the approved construction documents or directive of the code official, or of a permit or certificate issued under the provisions of this code, shall be guilty of a misdemeanor; and each such person, firm or corporation shall be deemed guilty of a separate offense for each and every day or portion thereof, during which any violation of any of the provisions of this code is committed, continued, or permitted, after notice has been served. Upon conviction of any such violation such person, firm or corporation shall be punishable by a fine of not less than \$50.00 or more than \$500.00. In addition to the criminal penalties provided herein, Jefferson County may, at its option, pursue injunctive relief in the Circuit Court of Jefferson County, West Virginia”.

Section 108.5 Stop Work Orders insert “fifty (50)” for the not less than “[AMOUNT]” and “five-hundred (500)” for the not more than “[AMOUNT]”.

Section 305.4.1 Sewer Depth insert “28 (twenty eight) (710mm)” where “[NUMBER]” appears twice in the first paragraph.

International Plumbing Code 2015 – Appendix Adoption:

The following appendices are specifically adopted:

Appendix B - Tables for Pressure Distribution

4) **International Mechanical Code 2015:**

Section 101.1 Title insert “Jefferson County, West Virginia” where “[NAME OF JURISDICTION]” appears.

Section 106.5.3 Fee Refunds insert “zero percent (0%)” in paragraph no. 2 where “[SPECIFY PERCENTAGE]” appears.

Section 106.5.3 Fee Refunds insert “zero percent (0%)” in paragraph no. 3 where “[SPECIFY PERCENTAGE]” appears.

Section 108.4 Violation Penalties shall be amended as follows:

“Any person, firm or corporation violating any of the provisions of any of the adopted codes or shall fail to comply with any of the requirements thereof or who shall erect, install, alter or repair plumbing work in violation of the approved construction documents or directive of the code official, or of a permit or certificate issued under the provisions of this code, shall be guilty of a misdemeanor; and each such person, firm or corporation shall be deemed guilty of a separate offense for each and every day or portion thereof, during which any violation of any of the provisions of this code is committed, continued, or permitted, after notice has been served. Upon conviction of any such violation such person, firm or corporation shall be punishable by a fine of not less than \$50.00 or more than \$500.00. In addition to the criminal penalties provided herein, Jefferson County may, at its option, pursue injunctive relief in the Circuit Court of Jefferson County, West Virginia”.

Section 108.5 Stop Work Orders insert “fifty (50)” for the not less than “[AMOUNT]” and “five-hundred (500)” for the not more than “[AMOUNT]”.

International Mechanical Code 2015 – Appendix Adoption:

The following appendices are specifically adopted:

Appendix A – Chimney Connector Pass -Through

2019 Building Code Enforcement Ordinance

5) **International Fuel Gas Code 2015:**

Section 101.1 Title insert “*Jefferson County, West Virginia*” where “[NAME OF JURISDICTION]” appears.

Section 106.6.3 Fee Refunds insert “*zero percent (0%)*” in paragraph no. 2 where “[SPECIFY PERCENTAGE]” appears.

Section 106.6.3 Fee Refunds insert “*zero percent (0%)*” in paragraph no. 3 where “[SPECIFY PERCENTAGE]” appears.

Section 108.4 Violation Penalties shall be amended as follows:

“Any person, firm or corporation violating any of the provisions of any of the adopted codes or shall fail to comply with any of the requirements thereof or who shall erect, install, alter or repair plumbing work in violation of the approved construction documents or directive of the code official, or of a permit or certificate issued under the provisions of this code, shall be guilty of a misdemeanor; and each such person, firm or corporation shall be deemed guilty of a separate offense for each and every day or portion thereof, during which any violation of any of the provisions of this code is committed, continued, or permitted, after notice has been served. Upon conviction of any such violation such person, firm or corporation shall be punishable by a fine of not less than \$50.00 or more than \$500.00. In addition to the criminal penalties provided herein, Jefferson County may, at its option, pursue injunctive relief in the Circuit Court of Jefferson County, West Virginia.”

Section 108.5 Stop Work Orders insert “*fifty (50)*” for the not less than “[AMOUNT]” and “*five-hundred (500)*” for the not more than “[AMOUNT]”.

International Fuel Gas Code 2015 – Appendix Adoption:

The following appendices are specifically adopted:

- Appendix A – Sizing and Capacities of Gas Piping (IFGS)
- Appendix B - Sizing of Venting Systems Serving Appliances Equipped With Draft Hoods, Category I Appliances, And Appliances Listed For Use With Type B Vents (IFGS)
- Appendix C - Exit Terminals of Mechanical Draft and Direct-Vent Venting Systems (IFGS)

6) **International Energy Conservation Code 2009:**

Section 101.1 Title insert “*Jefferson County, West Virginia*” where “[NAME OF JURISDICTION]” appears.

7) **Existing Buildings Code 2015:**

Section 101.1 Title insert "Jefferson County, West Virginia" where "[NAME OF JURISDICTION]" appears.

Section 101.4.2 Buildings previously occupied, omit reference to "International Fire Code" and substitute "NFPA Life Safety Code 2009 Edition."

Section 113.4 Violation Penalties shall be amended as follows:

"Any person, firm or corporation violating any of the provisions of any of the adopted codes or shall fail to comply with any of the requirements thereof or who shall erect, install, alter or repair plumbing work in violation of the approved construction documents or directive of the code official, or of a permit or certificate issued under the provisions of this code, shall be guilty of a misdemeanor; and each such person, firm or corporation shall be deemed guilty of a separate offense for each and every day or portion thereof, during which any violation of any of the provisions of this code is committed, continued, or permitted, after notice has been served. Upon conviction of any such violation such person, firm or corporation shall be punishable by a fine of not less than \$50.00 or more than \$500.00. In addition to the criminal penalties provided herein, Jefferson County may, at its option, pursue injunctive relief in the Circuit Court of Jefferson County, West Virginia."

8) **NFPA 70, National Electric Code, 2014 Edition:** (no amendments).

Electrical inspections shall be conducted by an approved private (third-party) electrical inspector, using the National Electric Code approved by the West Virginia State Fire Commission. Fees for said electrical inspections shall be paid by the applicant directly to the private inspector or inspection service provider and shall not be included in the permit fees paid to the County.

9) **2009 ICC/ANSI A117.1 Standards for Accessibility and Useable Buildings and Facilities:** (no amendments).

EXCEPTIONS:

A) The following structures are not subject to inspection by local jurisdictions:

Group U utility structures and storage sheds comprising an area not more than 200 sq.-ft. which have no plumbing or electrical connections and are used only for residential storage purposes. (Examples include sheds that are for the residential storage of lawnmowers, tools, bicycles or

furniture). Not included are those utility structures and storage sheds which have plumbing or electrical connections, are a non-residential use, or for the storage of explosives or other hazardous or explosive materials.

B) The intent and requirements for an appeals board in each of the separate codes may be met with the creation of a single appeals board for the entire State Building Code, in accordance with and as amended in this ordinance under the International Building Code 2015

Attachment A

**Jefferson County, West Virginia
Office of Building Permits & Inspections**

116 East Washington Street
Charles Town, WV 25414
304-725-2998

**Schedule of Residential Building Permit Fees (IRC)
Effective July 1, 2018**

Residential Permit Type	Fee Amount		
	Base Fee	plus Fee per Sq.-Ft. of Finished Area	plus Fee per Sq.-Ft. of Un-finished Area*
Single-Family Dwelling	\$95.00	\$0.20	\$0.20
Mobile/Manufactured Home	\$95.00	\$0.20	\$0.20
Townhouse & Duplex (less than 4 story)	\$95 per unit	\$0.20	\$0.20
Residential Dwelling Addition	\$100.00	\$0.20	\$0.20
* Attached Garages, Porches & Unfinished Basements are considered Unfinished Area			
Residential Interior Room/Basement Renovation	\$100 + \$65 per required inspection		
Chimney/Fireplace (added to existing dwelling)	\$150 per chimney		
Sheds/Garage/Structure ancillary to Residence	\$75.00	\$0.20	\$0.20
Decks & Above Ground Pool/Hot Tub Platforms	\$75.00	plus \$0.20/sq.-ft. of deck area	
Swimming Pool	\$75.00	plus \$0.20/sq.-ft. of pool area and patio area.	
Replacement Windows	\$150.00		
Electrical Wiring Only (Electric panel, new outlets, new lights, HVAC, generator, solar panels, hot tub, etc.)	\$150.00		
Demolition - Residential Dwelling	\$125.00	\$0.00	\$0.00
Retaining Wall (4' or more from footer to top wall)	\$75 plus \$0.10/lineal foot of wall		
Fence (6' or more in height above ground surface)	\$75 plus \$0.10/lineal foot of fence		
Agricultural Building	\$55.00	\$0.00	\$0.00
Re-inspection Fee	\$65/each re-inspection, paid prior to re-inspection		
Plan change after permit issued	\$65 plus \$65 for each additional inspection due to plan change.		
Permit Application Denied & Resubmitted within 90 days for review;	\$75 re-application fee		
Beginning Construction Without a Permit	1st time = \$75	2nd time = \$150	3rd time = \$300

Round Pool Fee Calculator				
Round Pool Diameter (Feet)	Base Fee	Area of Pool (Sq-Ft)	per Sq-Ft Fee	Total Fee
15	\$75	176.71	\$0.10	\$92.67
16	\$75	201.06	\$0.10	\$95.11
17	\$75	226.98	\$0.10	\$97.70
18	\$75	254.47	\$0.10	\$100.45
19	\$75	283.53	\$0.10	\$103.35
20	\$75	314.16	\$0.10	\$106.42
24	\$75	452.39	\$0.10	\$120.24
27	\$75	572.55	\$0.10	\$132.26
28	\$75	615.75	\$0.10	\$136.58
29	\$75	660.52	\$0.10	\$141.05
30	\$75	706.86	\$0.10	\$145.69
33	\$75	855.30	\$0.10	\$160.53

Round Pool Fee includes the Base Fee + per Sq-Ft. Fee Amounts only. The applicant will also need to add the fee for any deck/platform

All fees are due upon submission of permit applications, plan changes, reinspection requests, etc; and are payable to:

Attachment A

Jefferson County, West Virginia
Office of Building Permits & Inspections
 116 East Washington Street
 Charles Town, WV 25414
 304-725-2998

Schedule of Commercial/Industrial Building Permit Fees (IBC)
 Effective July 1, 2018

Commercial Permit Type	Fee Amount		
	Base Fee	Fee per Sq.-Ft. of Finished Floor Area	Fee per Sq.-Ft. of Un-finished Floor Area
Commercial/Industrial/Multi-Family Buildings (Less than 1,000 sq.-ft. floor area)	\$350.00	\$0.25	\$0.25
Commercial/Industrial/Multi-Family Buildings (Greater than or equal to 1,000 sq.-ft. floor area)	\$675.00	\$0.25	\$0.25
Commercial Interior Room Renovation	\$1,000 plus \$50 per required inspection		
Church Building	\$675.00	\$0.25	\$0.25
Church Addition, Pavillions & Ancillary Structures (Less than 1,000 sq.-ft. floor area/foot print)	\$100 + \$65 per required inspection		
Church Addition, Pavillions & Ancillary Structures (Greater than or equal to 1,000 sq.-ft. floor area/foot print)	\$350	\$0.25	\$0.25
Institutional (hospital, school, fire hall, etc.)	\$275	\$0.18	\$0.18
Commercial/Institutional Swimming Pool	\$350 per pool + \$0.25/sq-ft of pool & patio; \$350 per Whirlpool/Hot Tub		
Demolition Permit	\$275.00	\$0.00	\$0.00
Existing Cell Tower or Electric Substation & Equipment	\$350.00	\$0.00	\$0.00
New Cell Tower or Electric Substation & Equipment	\$1,400.00	\$0.00	\$0.00
Temporary Construction/Office Trailers	\$75.00	\$0.00	\$0.00
Sign Permit: Value < or = to \$2,500	\$75.00	N/A	N/A
Sign Permit: Value > \$2,500	\$350.00	N/A	N/A
Retaining Wall (4' or more from footer to top wall)	\$75 plus \$0.10/lineal foot of wall		
Fence (6' or more in height above ground surface)	\$75 plus \$0.10/lineal foot of fence		
Replacement Windows	\$150.00		
Electrial Wiring Only (New electric panel & electric panel upgrades, new outlets, new lights, HVAC, generators, solar panels, hot tub electrial, etc.)	\$150.00		
Site Plan with no Structures (parking lot, walkway, etc.)	\$350.00	plus \$1.25 for every \$1,000 value > \$50,000	
Re-inspection Fee	\$65/each re-inspection, paid prior to re-inspection		
Plan change after permit application reviewed	\$65 plus \$65 for each additional inspection due to plan change.		
Permit Application Denied & Resubmitted within 90 days for review;	\$100 re-application fee.		
Beginning Construction Without a Permit	(1st time = \$75, 2nd time \$150, 3rd time \$300) + permit fee		

All fees are due upon submission of permit applications, plan changes, reinspections requests, etc; and are payable to:

ATTACHMENT – B

Legislative Rule, Title 87, Series 4, State Building Code

Effective April 30, 2019



WEST VIRGINIA SECRETARY OF STATE
MAC WARNER
ADMINISTRATIVE LAW DIVISION

eFILED
2/22/2019 2:52:51 PM
Office of West Virginia
Secretary Of State

**NOTICE OF FINAL FILING AND ADOPTION OF A LEGISLATIVE RULE AUTHORIZED
BY THE WEST VIRGINIA LEGISLATURE**

AGENCY: Fire Commission TITLE-SERIES: 87-04
RULE TYPE: Legislative Amendment to Existing Rule: Yes Repeal of existing rule: No
RULE NAME: State Building Code
CITE STATUTORY AUTHORITY: W.Va. Code 29-3-5b

The above rule has been authorized by the West Virginia Legislature.

Authorization is cited in (house or senate bill number) SB 177

Section 64-6-1 Passed On 1/31/2019 12:00:00 AM

This rule is filed with the Secretary of State. This rule becomes effective on the following date:

April 30, 2019

This rule shall terminate and have no further force or effect from the following date:

April 30, 2024

BY CHOOSING 'YES', I ATTEST THAT THE PREVIOUS STATEMENT IS TRUE AND CORRECT.

Yes

Stacy L Nowicki-Eldridge -- By my signature, I certify that I am the person authorized to file legislative rules, in accordance with West Virginia Code §29A-3-11 and §39A-3-2.

87CSR4
LEGISLATIVE RULE
STATE FIRE COMMISSION

SERIES 4
STATE BUILDING CODE

§87-4-1. General.

1.1. Scope. -- This rule establishes the standards considered necessary by the State Fire Commission for the safeguarding of life and property and to ensure compliance with the minimum standards of safe construction of all structures erected or renovated throughout this state.

1.2. Authority. -- W. Va. Code §29-3-5b.

1.3. Filing Date. -- February 22, 2019.

1.4. Effective Date. -- April 30, 2019.

1.5. Sunset Provision. -- This rule shall terminate and have no further force or effect on April 30, 2024.

1.6. Incorporation of Other Documents. -- This rule does not include a reprinting of all the requirements imposed by statute or by the incorporation of various nationally recognized standards and codes cited in Subsection 4.1 of this rule. For ascertaining these additional standards and requirements, it is necessary to make reference to the other documents.

§87-4-2. Definitions.

2.1. "ANSI" means American National Standards Institute, 25 West 43rd St., Fourth Floor, New York, NY 10036.

2.2. "ASTM" means American Society of Testing and Materials.

2.3. "Fire Commission" means the thirteen (13) appointed members of the West Virginia State Fire Commission.

2.4. "Fire Marshal" means the West Virginia State Fire Marshal and/or his or her designated representatives.

2.5. "ICC" or "International" means International Code Council.

2.6. "Local jurisdiction" means municipal, county, or other local government.

2.7. "NFPA" means National Fire Protection Association.

2.8. "State Building Code" means the entire contents of this rule and the referenced national standards and codes.

2.9. "State Fire Code" means the entire contents of the State Fire Code, 87CSR1, and the referenced standards and codes.

§87-4-3. Conflicts.

3.1. Whenever there is a conflict between the State Fire Code and the State Building Code, the State Fire Code takes precedence.

3.2. Whenever there is a conflict between the International Plumbing Code requirements of the State Building Code and the rules of the West Virginia State Department of Health and Human Resources, the rules of the Department of Health and Human Resources take precedence.

3.3. Whenever there is a conflict between the State Building Code and statutory laws of the State of West Virginia, the laws of the State of West Virginia take precedence.

§87-4-4. National Standards and Codes.

4.1. The standards and requirements as set out and as published by the International Code Council, and American National Standards Institute, and the National Fire Protection Association as listed in this subsection, have the same force and effect as if set out verbatim in this rule.

4.1.a. The 2015 edition, International Building Code, with the following exceptions:

4.1.a.1. Provided; that the section entitled "Fire Prevention" and identified as Section 101.4.5 is deleted and not considered to be a part of this rule.

4.1.a.2. Further provided that the entire subsection entitled "Qualifications" and identified as Section 113.3 is deleted and replaced with the following:

"Section 113.3. Board of Appeals

113.3 Qualifications. The board of appeals shall consist of five members, with up to three alternates, who are qualified by experience and training to pass on matters pertaining to building construction and are not employees of the jurisdiction. They may include, but are not limited to, a WV Registered Professional Architect or Engineer, or a WV Licensed General Building, Residential, Electrical, Piping, Plumbing, Mechanical or Fire Protection Contractor, with at least 10 years experience, five of which shall be in responsible charge of work. No less than one of the members of such Board of Appeals shall be a WV Registered Professional Architect or Engineer, or a WV Licensed General Building, Residential, Electrical, Piping, Plumbing, Mechanical or Fire Protection Contractor."

4.1.b. The 2015 edition of the International Plumbing Code.

4.1.c. The 2015 edition of the International Mechanical Code.

4.1.d. The 2015 edition of the International Fuel Gas Code, with the following exception:

4.1.d.1. Section 404.10 Underground piping systems shall be installed a minimum depth of 12 inches (305 mm) below grade. If the minimum depth cannot be maintained, the piping system shall be installed in conduit or shielded in an approved manner.

4.1.e. The 2015 edition of the International Property Maintenance Code. This code may be rejected at the option of the local jurisdiction.

4.1.e.1. *Provided*, that Section 110.3 Failure to Comply, shall be modified as follows:

"Unless authorized by W.Va. Code §8-12-16, or absent the express consent of the owner, if the owner of a premises fails to comply with a demolition order within the time prescribed, the legal counsel of the jurisdiction shall institute appropriate action in the Circuit Court of the County in which the property is located against the owner of the premises where the structure is or was located seeking an Order causing the structure to be demolished and removed. Thereafter, the local jurisdiction, through an available public agency or by contract or arrangement with private persons, shall demolish and remove the structure and the costs thereof, as well as all fees and costs incurred in the legal action, shall be a lien upon such real estate."

4.1.e.2. This code may be adopted by the local jurisdiction without requiring adoption of the other national codes and standards listed in this rule.

4.1.f. The 2009 edition of the International Energy Conservation Code for residential buildings.

4.1.g. The ANSI/ASHRAE/IESNA Standard 90.1 2010 edition for commercial buildings.

4.1.h. The 2015 edition of the International Residential Code for One- and Two Family Dwellings, with the following exceptions:

4.1.h.1. Chapter 11 of the 2015 edition of the International Residential Code for One and Two Family Dwellings, Seventh Printing, entitled "Energy Efficiency", is exempt from this rule.

4.1.h.2. Section G2415.12 (404.10) Minimum Burial Depth. Underground piping systems shall be installed a minimum depth of 12 inches (305 mm) below grade. If the minimum depth cannot be maintained, the piping system shall be installed in conduit or shielded in an approved manner.

4.1.h.2. Section R311.7.5 Stair Treads and Risers

4.1.h.2.A. 311.7.5.1 Riser Heights -- The maximum riser height shall be eight and one-quarter (8 1/4) inches.

4.1.h.2.B. 311.7.5.2 Tread Depth -- The minimum tread depth shall be nine (9) inches.

4.1.h.3. Section R403.1.7.1: Building Clearances From Ascending Slopes is not applicable to this rule.

4.1.h.4. Section R403.1.7.2: Footings Setbacks From Descending Slope Surfaces is not applicable to this rule.

4.1.i. The 2009 ICC/ANSI A117.1 American National Standards for Accessibility & Usable Buildings & Facilities.

4.1.j. The 2015 International Existing Building Code, with the following exception:

4.1.j.1. Omit reference to International Fire Code and substitute NFPA Life Safety Code 2015 edition.

4.1.k. The 2014 edition of the National Electric Code, NFPA 70.

4.1.l. The 2015 edition of the International Swimming Pool and Spa Code.

4.2. Wherever referenced in the several ICC codes adopted above, any reference to the International Fire Code should be substituted with the NFPA Life Safety Code 2015 edition.

4.3. Whenever a certificate of occupancy is required of a commercial structure greater in size than 7,600 feet, the project documents shall be designed by an Architect licensed by the WV Board of Architects, or a Professional Engineer licensed by the WV State Board of Registration for Professional Engineers.

§87-4-5. Fire Protection of Floors in Residential Buildings

5.1 New One and Two Family Dwellings over one level in height, New One and Two Family Dwellings containing a basement, and New One and Two Family Dwellings containing a crawl space containing a fuel burning appliance below the first floor, shall provide one of the following methods for fire protection of floors: (1) A 1/2 inch (12.7 mm) gypsum wallboard membrane, 5/8 inch (16 mm) wood structural panel membrane, or equivalent on the under side of the floor framing member; (2) Wood floor assemblies using dimension lumber or structural composite lumber equal or greater than 2 inch by 10 inch (50.8 mm by 254 mm) nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance; or (3) An Automatic Fire Sprinkler System as set forth in section R313.1 or R313.2 of the 2015 edition of the International Residential Code for One and Two Family Dwellings: *Provided*, That floor assemblies located directly over a space protected by an automatic sprinkler system as set forth in section R313.1 or R313.2 of the 2015 edition of the International Residential Code for One and

Two Family Dwellings are exempt from this requirement.

5.2. Townhouses meeting the Fire-Resistant Construction Standard R302.2 will be treated as New One and Two Family Dwellings and shall comply with Section 5.1 above.

§87-4-6. Exceptions.

6.1. The following structures are not subject to inspection by local jurisdictions:

6.1.a. Group U utility structures and storage sheds comprising an area not more than 200 sq. ft. which have no plumbing or electrical connections and are used only for residential storage purposes. (Examples include sheds that are for the residential storage of lawnmowers, tools, bicycles or furniture.) Not included are those utility structures and storage sheds which have plumbing or electrical connections are a non-residential use or for the storage of explosives or other hazardous or explosive materials.

§87-4-7. Adoption by Local Jurisdiction.

7.1. Each local jurisdiction adopting the State Building Code shall notify the State Fire Commission in writing. The local jurisdiction shall send a copy of the ordinance or order to the State Fire Marshal, West Virginia State Fire Commission, 1207 Quarrier Street, 2nd floor, Charleston, West Virginia 25301, within thirty (30) days of adoption.

7.2. Each local jurisdiction which adopts the State Building Code is responsible for the enforcement of the building code as provided in West Virginia Code 7-1-3n and 8-12-13.

7.3. Throughout the national codes, adopted in subsection 4.1 of this rule, there are discretionary provisions or amendments which require further action by the adopting local jurisdiction in order to adapt these codes to various local conditions. The appendices are not a part of the code and must also be adopted by the local jurisdiction to be enforceable. It is therefore the intent of this rule to further authorize each local jurisdiction to further complete, by order or ordinance, those respective areas which are indicated to be completed by the adopting "jurisdiction" and any of the appendices the local jurisdiction wishes to adopt.

7.4. Within the penalty sections of each of the national codes, adopted in Section 4.1 of this rule, there is a penalty for imprisonment. The provision of imprisonment for any violation of this rule is optional with each adopting local jurisdiction.

7.5. Each of the national codes adopted in subsection 4.1 of this rule provides for a separate appeals board. However, the intent and requirements for an appeal board may be met with the creation by the local jurisdiction of a single appeals board for the entire "State Building Code."

7.6. Each local jurisdiction adopting the State Building Code shall comply with the requirements set forth in Title 87, Series 7 "Standards for the Certification and Continuing Education of Municipal, County, and Public-Sector Building Code Officials, Building Code Inspectors and Plans Examiners."

7.7. The local jurisdiction shall submit an annual report to the State Fire Commission indicating the number of employees in their respective code enforcement department, their job title, whether the employee is or is not certified by the State Fire Commission in their respective discipline, as well as a verification that the entity has adopted the current version of the State Building Code. The municipality, county or local governmental entity, shall also report what ICC codes are being enforced respectively.

7.8. This annual report shall be filed with the State Fire Commission no later than the thirtieth day of June of each year.

7.9. All questions of interpretation and enforcement of the State Building Code are delegated to the local jurisdiction unless expressly provided by State Code, by this Rule, or by the incorporated codes and standards referenced in this Rule.

§87-4-8. Existing Building Codes.

8.1. All building codes previously adopted by local jurisdictions are null and void.