DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

DIVISION OF CLIMATE, COASTAL, & ENERGY

Statutory Authority: 7 Delaware Code, Chapter 60 and 16 Delaware Code, Section 7602 (7 **Del.C.** Ch. 60 & 16 **Del.C.** §7602)
7 **DE Admin. Code** 2101

FINAL

Secretary's Order No: 2020-CCE-0014

RE: Proposed Regulation Amendments to 7 DE Admin. Code 2101: *Regulations for State Energy Conservation Code*
Date of Issuance: April 28, 2020
Effective Date: June 11, 2020

2101 Regulations for State Energy Conservation Code

Under the authority vested in the Secretary of the Department of Natural Resources and Environmental Control ("Department" or "DNREC") pursuant to 7 *Del.C.* §§6006 and 6010, and all other relevant statutory authority, the following findings of fact based on the record, reasons and conclusions are entered as an Order of the Secretary in the above-referenced regulatory proceeding.

Background, Procedural History and Findings of Fact

This Order relates to 7 **DE Admin. Code** 2101: *Regulations for State Energy Conservation Code* ("Amendments"). Pursuant to 16 *Del.C.* §7602, *Delaware's Energy Conservation Code Act*, the Department proposes to adopt the most recent and/or highest available version of the International Energy Conservation Code ("IECC"), and the latest American Society of Heating, Refrigerating and Air-Conditioning Engineers/Illuminating Engineering Society of North America ("ASHRAE") energy standard, as determined by the Department on a triennial basis. In addition, the regulations set out procedures for certification of compliance with these codes and standards to be utilized by the respective local governments.

In 2014, the Department adopted the 2012 IECC with Delaware-specific amendments for the home building industry, due to the substantial variety and number of changes present in the 2012 IECC, relative to the 2009 IECC. At that time, the Department recognized that the Delaware building industry would have to significantly adapt many of its residential building, design, and construction practices following the 2012 IECC adoption. The Delaware-specific amendments to the 2012 IECC were intended to give builders additional time to learn the more stringent energy efficiency requirements, and to adapt their construction techniques and materials, while taking a conservative approach to reduce the risk of updating the code with negative impacts on housing prices (despite the overall cost-effectiveness of the 2012 code, in its entirety). While the 2012 IECC was adopted, these amendments were not intended to be permanent modifications to the code in every code cycle.

In accordance with 16 *Del.C.* §7602, *Delaware's Energy Conservation Code Act*, the Department convened the triennial review of the available energy conservation codes in March 2017, with the Delaware Energy Code Coalition ("Coalition"). The Department's Division of Climate, Coastal, and Energy ("DCCE") and the Coalition met over a 2-year period and evaluated the impacts of adopting the 2015 or 2018 IECC standards, in addition to the 90.1-2013 or 90.1-2016 ASHRAE standards. During this time the DCCE and Coalition collected input from stakeholders who offered opinions, proposed revisions, and identified potential impacts to the updated versions of the available energy codes. The Coalition and stakeholders specifically expressed concerns with the residential provisions (particularly the more stringent air leakage limits). To address the concerns of the Coalition and stakeholders and provide technical support, the Department sought technical assistance from the U.S. Department of Energy's Pacific Northwest National Lab, Northeast Energy Efficiency Partnerships, and Optimal Energy, Inc.

A technical analysis of the 2018 IECC residential requirements, conducted by a consultant, estimated a 40% reduction in air leakage associated with adopting the 2018 IECC energy conservation code. The 2012 IECC (as amended) limits air leakage to 5 Air Changes per Hour ("ACH"), while the 2018 IECC reduces the limit to 3 ACH. The air sealing requirements set forth in the 2018 IECC, specifically reducing the ACH limit from 5 to 3 ACH, will increase construction costs by $150-$225 per home, but will result in energy savings of $68 per year. Through this annual savings, it will take approximately three years to recoup the initial investment of $150-$225.

The Department has reviewed the energy savings, construction costs, and payback period associated with the more stringent air sealing requirements in the 2018 IECC and ASHRAE 90.1-2016 model codes and expects a modest increased cost with the implementation of the aforementioned energy codes; however, the increased cost will be offset by the benefits

accrued to the building owners and occupants over the life of the home.

The Department finds that adopting the 2018 IECC and ASHRAE 90.1-2016 energy conservation codes, in their entirety, will increase building sector energy efficiency, bring energy cost savings for building owners and occupants, increase occupant comfort, and reduce emissions in Delaware. With consideration of the stakeholders' concerns, the Department acknowledges that there will be transitional change between the 2012 IECC (as amended) and the 2018 IECC and the Department's DCCE is prepared to provide training.

Following promulgation of these regulations, the Department's DCCE will provide training to the local code enforcement officials, builders, and design professionals. A transition period of 6 months shall allow stakeholders to adapt to the 2018 IECC and ASHRAE 90.1-2016 energy conservation codes, in addition to the training that will be offered. Specifically, the Department will provide training on practical compliance strategies for new building requirements, construction and design strategies for air sealing smaller homes, hot water pipe insulation and heating, ventilating, and air conditioning duct design, the new Energy Rating Index compliance pathway, and other topics as needed, to transition to the new codes.

The Department has the statutory basis and legal authority to act with regard to the formal promulgation of these proposed Amendments, pursuant to 16 *Del.C.* §7602.

The Department published its initial proposed regulation Amendments in the November 1, 2019 *Delaware Register of Regulations*. Thereafter, the public hearing regarding this matter was held on December 3, 2019. There were nine (9) members of the public in attendance with five (5) comments provided at the public hearing. Pursuant to 29 *Del.C.* §10118(a), the hearing record remained open for receipt of additional written comment for 15 days following the public hearing. The hearing record formally closed for comment in this matter at close of business on December 18, 2019, with a total of 23 comments received by the Department during the phase of this formal promulgation.

It should be noted that all notification and noticing requirements concerning this matter were met by the Department. Proper notice of the hearing was provided as required by law.

Hearing Officer Theresa Newman prepared her Report dated March 20, 2020 ("Report"), which expressly incorporated the Department's proposed Amendments into the hearing record generated in this matter. The Report documents the proper completion of the required regulatory amendment process, establishes the record, and recommends the adoption of the proposed Amendments as attached to the Report as Appendix "A."

Reasons and Conclusions

Based on the record developed by the Department's experts in the Division of Climate, Coastal, and Energy, and established by the Hearing Officer's Report, I find that the proposed regulatory Amendments to 7 DE Admin. Code 2101: *Regulations for State Energy Conservation Code*, are well-supported. I further find that the Department's experts fully developed the record to support adoption of these Amendments. Therefore, the recommendations of the Hearing Officer are hereby adopted, and I direct that the proposed Amendments be promulgated as final.

The following reasons and conclusions are entered:

1. The Department has the statutory basis and legal authority to act with regard to this proposed regulatory promulgation, pursuant to 16 *Del.C.* §7602;

2.The Department has jurisdiction under its statutory authority, pursuant to 7 *Del.C.* Chapter 60, to issue an Order adopting these proposed Amendments as final;

3. The Department provided adequate public notice of the initial proposed Amendments and all proceedings in a manner required by the law and regulations, and provided the public with an adequate opportunity to comment on the same, including at the time of the public hearing held on December 3, 2019, and during the 15 days subsequent to the hearing (through December 18, 2019), before making any final decision;

4. Promulgation of the proposed Amendments to 7 DE Admin. Code 2101, *Regulations for State Energy Conservation Code,* will enable the Department to adopt by reference the 2018 IECC and ASHRAE 90.1-2016 in their entirety, pursuant to 16 *Del.C.* §7602, Delaware's Energy Conservation Code Act;

5. The Department has reviewed the proposed Amendments in the light of the Regulatory Flexibility Act, consistent with 29 *Del.C.* Ch. 104, and believes the same to be lawful, feasible and desirable, and the recommendations as proposed should be applicable to all Delaware citizens equally;

6. The Department's proposed regulatory Amendments, as initially published in the November 1, 2019 *Delaware Register of Regulations*, and as set forth in Appendix "A" hereto, are adequately supported, are not arbitrary or capricious, and are consistent with the applicable laws and regulations. Consequently, they should be approved as final regulatory Amendments, which shall go into effect ten days after their publication in the next available issue of the *Delaware Register of Regulations*; and

7. The Department shall submit the proposed Amendments as final regulatory amendments to the *Delaware Register of Regulations* for publication in its next available issue and provide such other notice as the law and regulation require, and the Department determines is appropriate.

Shawn M. Garvin

Secretary

2101 Regulations for State Energy Conservation Code

1.0 Purpose and Statutory Authority

1.1 The purpose of these regulations is to provide the Department of Natural Resources and Environmental Control's determination of the most recent and/or highest available version of the International Energy Conservation Code and the latest ASHRAE/IESNA standard. The goal of establishing these regulations is to provide a statewide building energy conservation code.

1.2 These regulations provide rules of practice and procedures for certification of compliance with these codes and standards to be utilized by the respective local governments.

1.3 ~~Delaware Code Title 16 Section 7602~~ 16 **Del.C.** §7602 provides the authority for adopting ~~Delaware Energy Conservation~~ the State Energy Conservation Code. These regulations are promulgated under the authority of 16 **Del.C.** §7602.

2.0 Definitions

For purposes of these regulations, the following words and phrases shall have the meanings set forth below.

"**ASHRAE**" means the ANSI/ASHRAE/IES Standard ~~90.1~~ 90.1-2016: Energy Standard for Buildings except Low-Rise Residential Buildings published by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

"**Department**" means the Department of Natural Resources and Environmental Control, the Division of ~~Energy and Climate~~ Climate, Coastal, & Energy or the Delaware Energy Office, as appropriate.

"**DET verifier**" means a certified Duct and Envelope Tightness verifier. A certified DET verifier shall be a certified Home Energy Rating Systems (HERS) rater, or be a certified Home Performance with ENERGY STAR contractor, or be a Building Performance Institute (BPI) Heating Professional to perform duct tightness testing or a BPI Building Analyst or Envelope Professional to perform building tightness testing, or successfully complete a course that is approved by the Department of Natural Resources and Environmental Control.

"**IECC**" means the 2018 International Energy Conservation Code published by the International Code Council, Inc.

3.0 Incorporation by Reference

3.1 The ~~2012~~ 2018 International Energy Conservation Code (IECC), published by the International Code Council, Inc., is hereby adopted and incorporated by reference ~~with revisions~~ as the Delaware Residential Building Energy Conservation Code and is an enforceable part of the Delaware Building Codes. ~~The revisions to the 2012 IECC code are stated in Section 4.0 of these regulations.~~

3.2 The American Society of Heating, Refrigerating and Air-Conditioning Engineers Standards (ASHRAE) 90.1-~~2010~~2016: Energy Standard for Buildings except Low-Rise Residential Buildings and ~~Commercial Provisions~~ the commercial provisions of the ~~2012~~ 2018 International Energy Conservation Code are hereby adopted and incorporated by reference in their entirety as the Delaware Commercial Building Energy Conservation Code and is an enforceable part of the Delaware Building Codes.

~~4.0 Revisions to the 2012 IECC~~

~~4.1 The following additions, insertions, deletions, and other changes are hereby made to the 2012 International Energy Conservation Code.~~

~~4.1.1 R403.2.2 amend to add: Supply duct tightness shall be verified by either of the following:~~

~~1. Post-construction test: Total leakage less than or equal to 6 cfm (169.9/min) per square feet (9.29 m2) of conditioned floor area when tested at the pressure differential of 0.1 inches w.g. (25 Pa)….~~

~~2. Rough-in test: Total leakage less than or equal to 6 cfm (169.9/min) per square feet (9.29 m2) of conditioned floor area when tested at the pressure differential of 0.1 inches w.g. (25 Pa) *(remainder unchanged – If the air handler is not installed….≤ 4 cfm…)*~~

~~4.1.2 R403.4.2: amend *list* to:~~

~~1. Piping larger than 3/4 inch nominal diameter.~~

~~2. Piping serving more than one dwelling unit.~~

~~3. Piping located outside the conditioned space.~~

~~4. Piping from the water heater to a distribution manifold.~~

~~5. Piping located under a floor slab.~~

~~6. Buried piping.~~

~~7. Supply and return piping in recirculation systems~~

~~Delete Table R403.4.2 without substitution.~~

~~4.1.3 R402.4.1.2:~~

~~***Exception**: A building or dwelling unit with 2,000 ft^2 or less of conditioned floor area (CFA) may satisfy R402.4.1.2 if it:*~~

~~*(1) is tested to have an air leakage rate no greater than:*~~

~~*5 ACH-50 for homes with < 1,500 ft^2 of CFA, or*~~

~~*4 ACH-50 for homes with 1,500 – 2,000 ft^2 of CFA.)*~~

~~4.1.4 R403.2.3 Building framing cavities shall not be used as ducts or plenums.~~

~~***Exception:** Returns run exclusively through conditioned space.*~~

~~4.1.5 R403.5 The building shall be provided with ventilation that meets the requirements of the *International Residential Code* (IRC) or *International Mechanical Code* (IMC), as applicable, or with other approved means of ventilation. Outdoor air intakes shall have automatic or gravity dampers that close when the ventilation system is not operating. Required ventilation rates shall also include adequate provisions for fuel-fired appliance, stove and fireplace makeup air supply; kitchen, bath, clothes dryer, and central vacuum exhausts; and other makeup air system supplies and/or exhausts as required in either the IRC or IMC.~~

~~*(remainder of section unchanged)*~~

~~5.0~~4.0 Implementation and Enforcement

~~5.1~~4.1 All buildings must meet all requirements of the applicable referenced code six months after date of promulgation.

~~5.2~~4.2 All projects may utilize the new applicable reference codes at any time after the date of promulgation, provided such choice is stated on the construction documents.

4.3 Procedures for certification of compliance and standards to be utilized by respective local governments are those specified in the IECC at Chapter 1 (“Scope and Administration”) and in the ASHRAE at Chapter 4 (“Administration and Enforcement”) as enforceable parts of the Delaware Building Codes pursuant to subsections 3.1 and 3.2 herein.

~~6.0~~5.0 Certified duct and envelope tightness (DET) verifier.

Testing for duct and building envelope tightness shall be conducted by a certified DET verifier.

17 DE Reg. 1086 (05/01/14)

23 DE Reg. 1036 (06/01/20) (Final)