## **Delaware Energy Code Update – Residential (2021 IECC)**

The Delaware Department of Natural Resources and Environmental Control (DNREC) is in the process of evaluating the 2021 International Energy Conservation Code (IECC) for possible adoption in 2023. To assist construction and code enforcement stakeholders, this guide provides an overview of significant changes between the 2018 and 2021 IECC.



2021 IECC Code Section	Торіс	Changes		
Scope and Administration				
R102.1.1	Above Code Program	Above code programs must meet Table R405.2 (formerly "mandatory" requirements) and the building envelope must meet or exceed 2009 IECC prescriptive R-values, U-factors, and SHGCs.		
R103.2	Compliance Path Documentation	Adds compliance path to the list of information required on construction documents.		
Definitions				
R202	New Definitions	New definitions were added to correspond with new provisions in the code. These include Access To, Cavity Insulation, Dwelling Unit Enclosure Area, Ready Access To, Roof Recover, Thermal Distribution Efficiency (TDE), Dimmer, High Efficacy Light Source, Occupant Sensor Control, Onsite Renewable Energy, Renewable Energy Certificate (REC), and Renewable Energy Resources.		
R202	Changed Definitions	The following additions were modified to improve clarity. Demand Recirculation Water System and Skylights		
Climate Zones				
R301	Climate Zones	Various towns had climate zone changed, none in Delaware		
R303.1.2	Insulation labeling	Adds specific requirements when the manufacturer's R-value mark is not visible on the material, a certificate will immediately be left behind designating the effective R-value in a conspicuous place within the building		
General				
R401.2.2	Total Building Performance	Changes the name of the Simulated Performance Alternative to Total Building Performance Option		
R401.2.5	Additional energy efficiency	Adds a requirement for every project to achieve additional energy efficiency. Projects using the prescriptive path must select from one of five options. Projects using the performance path must select one of the five options or be at least 5% better than the reference home. Projects using the Energy Rating Index path must have a 5% lower ERI score.		

R401.3	Certificate	Requires additional items to be listed on the certificate that is to be posted in the furnace/utility room including photovoltaic system information (if applicable), the Energy Rating Index score with and without on-site generation (if applicable), and the energy code edition and compliance path used.
	Building Therma	I Envelope Provisions for Climate Zone 4
Table R402	Reordering of U- factor and R-value tables	Assembly U-factor is established as the primary insulation metric with R-values as an alternative. This change has no impact other than reversing the order of the two tables.
Table R402.1.4	Equivalent U Factors	Fenestration U-Factor decreases from 0.32 to 0.30
Table R402.1.4	Equivalent U Factors	Ceiling U-Factor decreases from 0.026 to 0.024
Table R402.1.4	Equivalent U Factors	Wood frame wall factor decreases from 0.060 to 0.045
Table R402.1.2	Insulation and Fenestration Requirements by Component	Fenestration U-Factor decreases from 0.32 to 0.30
Table R402.1.2	Insulation and Fenestration Requirements by Component	Ceiling R-Value increases from 49 to 60
Table R402.1.2	Insulation and Fenestration Requirements by Component	Wood Frame Wall R-values increase from 20 or 13+5 to 30 or 20+5ci or 13+10ci or 0+20ci
Table R402.1.2	Insulation and Fenestration Requirements by Component	Slab R value and depth 10, 4ft.
R402.2.1	Ceilings with attic spaces	Ceilings with attic spaces follow the same idea as in the prior version of the code where attic insulation R-values may be reduced from R-49 to R-38 or R-60 to R-49 over 100% of the ceiling or attic area as long as the uncompressed insulation extends over the top plates at the eaves.
R402	Eave baffles	Requires the eave baffles to be installed at the outer edge of the exterior wall top plate to provide maximum space for insulation above the top plate.
R402	Attic hatches and doors	Adds an exception to the insulation R-value requirement for pull-down stairs, provided the hatch meets certain requirements.
R402	Floors	Adds an option to install floor insulation that is not in contact with the subfloor above, provided the bottom of the floor joists is sheathed and all perimeter framing members are sealed and insulated from top to bottom.
R402	Thermal Envelope	Adds a list of conditions under which basement walls to not need to be insulated.
R402	Heated garage insulation	Adds heated garages to the fenestration R-value exceptions that previously only applied to sunrooms.

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R402	Heated garage fenestration	Adds heated garages to the fenestration U-factor exceptions that previously only applied to sunrooms.		
R402	Thermal Envelope	Sets an absolute cap on envelope air leakage of 5 ACH50 or 0.28 cfm/ sqft of floor area for projects using the Total Building Performance Option or the Energy Rating Index Option. Adds an exception for attached dwelling units and units ≤ 1500 sqft are allowed up to 0.30 cfm/sqft. (3.0 ACH50 remains the leakage limit for projects using the prescriptive path.)		
R402.4.6	Electrical and communication outlet boxes (air- sealed boxes)	New section that adds air sealing criteria and limits for electrical and communication outlet boxes.		
		Mechanical Systems		
R403.2	Hot water boiler outdoor temperature setback	Hot water boiler temperature reset controls must now be manufacturer installed.		
R403.3.2	Ducts in conditioned space	Clarifies conditions under which ducts in floors over unconditioned spaces and exterior walls may be considered in conditioned space.		
R403.3.3.3.1	Effective R-value of deeply buried ducts.	Clarifies that the effective R-value of R-25 for deeply buried ducts only applies to the Total Building Performance Compliance Option.		
R403.3.5	Duct Testing	Adds referenced standards for how duct leakage testing must be performed.		
R403.6.2	Whole-dwelling mechanical ventilation system fan efficacy	Adds language about listing, labeling, and determination of fan airflow and efficacy.		
R403.6.3	Testing	New requirement for field testing of whole-house mechanical ventilation system airflow.		
Electrical Power and Lighting				
R404.1	Electrical Power and Lighting Systems	All lighting installed in permanently installed fixtures must be high efficacy (up from 90%), excluding kitchen appliance lighting fixtures.		
R404.1.1	Electrical Power and Lighting Systems	Closes loophole for exterior lighting in multifamily buildings that fall under the scope of the residential provisions of the IECC. Requires compliance with the commercial provisions of the IECC.		
R404.2	Electrical Power and Lighting Systems	Requires dimmers, occupancy sensors, or in-fixture lighting controls for all permanently installed interior lighting.		
R404.3	Electrical Power and Lighting Systems	Requires automatic daylight shutoff for exterior lighting when total exterior lighting power exceeds 30 watts.		

Total Building Performance				
R405	Simulated Building Performance	Consolidates items previously referred to as "mandatory" into a table with this section.		
Table R405.4.2(1)		Adds hot water distribution systems compactness as an option to reduce energy use in the proposed home.		
R405	Simulated Building Performance	Adds mechanical ventilation system dehumidification as a component in the energy simulation.		
Energy Rating Index				
R406.2	Mandatory Requirements	Consolidates items previously referred to as "mandatory" into a table with this section.		
R406.3	Energy Rating Index	Creates envelope "backstops" for when renewables are and are not included.		
R406.3.3	Table	Restores the lower maximum ERI scores from the 2015 IECC.		
Additional Efficiency Packages				
R408.2	Additional Efficiency Packages	New section requires applicants to choose one of five additional efficiency options including enhanced envelope, more efficient HVAC, reduced energy use in service hot water, more efficient thermal distribution systems, and improved air sealing with efficient ventilation		