DEVELOPMENT REVIEW AND PERMITTING

Worcester County

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Worcester County 2021 International Residential Energy Code

By adoption of the Maryland Building Performance Standards and specifically the International Energy Code 2021 Edition (IECC 2021) and Residential Code (IRC2021), Worcester County and State of Maryland Building Code requires all new construction and additions to residential dwellings to meet IECC 2021/IRC 2021. Maryland allows alternates to 2021 building envelope requirements with the selection of alternate measures of 6% overall improvement if using the 2018 IECC building envelope insulation levels (see attached selection list option 2). Applicants for building permits are required to review requirements, select envelope options (1,2,or 3), review report/inspection requirements and sign on page 4.

Mandatory IECC 2021 Requirements:

Effective 5/29/24

- 1. Certificate of Compliance R401.3 Builder or Design Professional must post all energy compliance cert. on elect. Panel.
- 2. Thermal Envelope R402 Insulation, Fenestration, required prescriptive or performance Exceptions below for alterations.
- 3. Air Leakage R402.4 Building Envelope must limit air exchanges 3 per hour (at 50 Pascals) by Certified Tightness Test.
- 4. HVAC Controls R403.1 Programmable t-stat for furnaces and supplemental heat controls for heat pumps.
- 5. Duct Insulation R 403.3.1 Outside thermal envelope (TE) required. R8 ducts >3 inches dia., R6 ducts <3 inches dia.
- 6. Duct Sealing R 403.3.6 HVAC ducts tests Max leakage 4 CFM/100 SF outside, 8 CFM/100 inside TE. Report required.
- 7. Building Cavities R 403.3.7 Cavities shall not be used as ducts or plenums.
- 8. Mechanical System Pipe Insulation R403.4 R-3 minimum if fluid above 105 degrees F or less than 55 F.
- 9. Circulating Hot Water Systems R403.5.1 Controls and insulation required.
- 10. Mechanical Ventilation R403.6 Whole house ventilation is required per M1505. Testing and certification is required.
- 11. Additional Efficiency (R408) Thermal Env. Improvement fenestration, HVAC 16 SEER, Water heating 2.0 EF, Ducts in Envelope, Ventilation with HRV or ERV.
- 12. Equipment Sizing R403.7 HVAC equipment sized per Air Conditioning Contractors of America (ACCA) Standards.
- 13. Snow Melt System Controls R403.9- Special controls required if system installed.
- 14. Pools and Spas R403.10 Controls to minimize energy usage required. Covers required on heated pools and spas.
- 15 Lighting Equipment R404 All installed lighting shall utilize high efficacy lamps (> 65 lumens/watt). Interior controls including dimmers and occupancy sensors required except bathroom, hallways, exterior and safety. Exterior lights controls inloude daylight control auto off.

Notes:

- 1. Attention must be given to sealing the entire building envelope during construction to attain certified passing results. Consult your Certified Building Envelope Test Contractor (RESNET, BPI). A passing test report for both building tightness and ventilation by a certified contractor/inspector must be provided to Worcester County to obtain final building Certificate of Occupancy.
- 2. Construction Documentation is required per R103.2 including Insulation, Fenestration and Mechanical Systems (sizes and efficiencies.

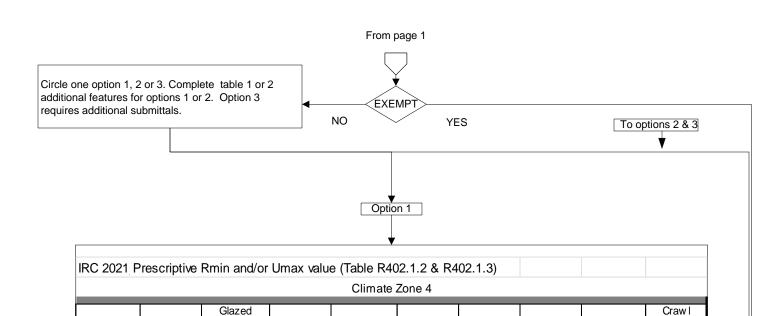
Building Envelope Exceptions - Alterations (only applies if building energy use is not increased by the repairs/renovations):

- Storm Window installed over existing windows.
- 2. Existing ceiling, wall or floor cavities exposed provided these cavities are filled with insulation.
- 3. Construction where existing roof, wall or floor cavity is not exposed.
- 4. Roof re-cover.
- 5. Surface applied window film installed on existing single pane fenestration assemblies to reduce the solar heat gain performance provided the glazing is not replaced.
- 6. Repairs/Renovations will not increase the building energy use (e.g., NO HVAC, NO Lights, NO hot water) NON- Conversion Agreement Required.

Note: If repairs/renovations are limited to items 1-6 above, then there is no building envelope specific requirements.

See Page 2

Rev. 9/25/24



assembly assembly assembly assembly U=0.024 U=0.045 U=0.098 U=0.047 10ci or R13 10ci, 4 ft 0.3 0.55 0.4 Select One additional energy savings feature from TABLE 1 (Circle Selection Below)

Ceiling R

60 or

R49(raised

heel) or

Fenestration

SHGC max

Wood Frame

Wall R

30 or 20+5ci,

or 13+10ci,

or 0+20ci, or

Mass Wall R

8/13 or

Floor R

19 or

Table 1-2	Table 1 – 2021 IRC Select one additional efficiency option – IRC 2021 R408				
Circle one Option					
1	R408.2.1 - Enhanced Envelope performance. 5% improvement.				
	R408.2.2 More efficient HVAC equipment performance. Greater than or equal to 95				
2A	AFUE natural gas furnace and 16 SEER air conditioner.				
2B	R408.2.2 Greater than 10 HSPF/16 SEER air source heat pump				
2C	R408.2.2 Greater than 3.5 COOP ground source heat pump.				
	R408.2.3 Reduced energy use in water heating. Greater than or equal to 0.82 EF fossil				
3A	fuel system.				
	R408.2.3 Reduced energy use in water heating. Greater than or equal to 2.0 EF electric				
3B	heating system.				
	R408.2.3 Reduced energy use in water heating. Greater than or equal to 0.4 solar				
3C	fraction solar heating system.				
	R408.2.4 More efficient duct distribution system. All ducts and air handlers completely				
4A	within the building envelope. Systems must meet leakage requirements.				
	R408.2.4 More efficient duct distribution system. 100% of ductless or hydronic thermal				
4B	distribution systems in the thermal envelope.				
	R408.2.4 More efficient duct distribution system. 100% of duct systems located in				
4C	conditioned space (see R403.2.2 – insulation and air barrier detail)				
	R408.2.5 Improved air sealing and efficient ventilation system. ACH50 less than or equal				
5	to 3.0 with ERV or HRV installed.				

See Page 3

Space Wall

R

10ci or 13

or assembly U=0.065

1

Slab R-

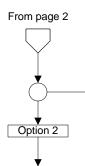
val,depth

Basement

Wall R

Fenestration

Skylight U



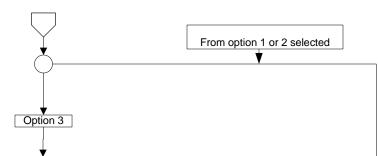
Maryland Prescriptive R-Value Alternate (Table R402.1.3.1)

	Climate Zone 4										
Fenestration		Glazed Fenestration		Wood Frame			Basement	Slab R-	Craw I Space Wall		
U	Skylight U	SHGC max	Ceiling R	Wall R	Mass Wall R	Floor R	Wall R	val,depth	R		
			49 or R38 w ith raised				10ci or 13 or assembly				
0.3	0.55	0.4	heel	20 or 15+3ci	8/13	19	U=0.059	10ci, 4 ft	10ci or 13		

Select Additional Energy savings features equal to or greater than 6% total from TABLE 2 (Circle selection(s))

er than or equal to 5% reduction in total UA er than or equal to 5% reduction in total UA Jfactor windows Derformance cooling system (greater than or equal to 18 SEER and 14 EER air conditioner) Derformance gas furnace (greater than or equal to 16 SEER and 12 EER air conditioner) Derformance gas furnace (greater than or equal to 96 AFUE furnace) Derformance gas furnace (greater than or equal to 96 AFUE furnace) Derformance heat pump (greater than or equal to 91 SPF/18 SEER air source heat pump) Derformance heat pump (greater than or equal to 91 SPF/16 SEER air source heat pump) Derformance heat pump (greater than or equal to 91 SPF/16 SEER air source heat pump) Derformance heat pump (greater than or equal to 3.5 COP) If uel source water heating system greater than or equal to 82 EF Derformance heat pump water heating system with efficiency greater than or equal to 3.2 UEF	199 229 229 339 339 339 359 559 659 659 659 339 859
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performance heat pump water heating system with efficiency greater than or equal to 2.9 UEF	+
	8'
performance heat pump water heating system with efficiency greater than or equal to 3.2 UFF	
romanio manipump mater matering by stem mitromerene) greater man er equal to ele ele	8
Hot water heating system (greater than or equal to 0.4 solar fraction)	6
efficient HVAC distribution system (100% thermal distribution system in thermal envelope)	10
of ducts in conditioned space. Insulation and air barriers and ducts installed per IRC 2021 R403.3.2.	12
ced total duct leakage when located outside conditioned space. Measured per IRC 2021 R403.3.5 shall be 2.0 CF/min 00 SF conditioned space with air handler installed OR 1.75 CF/min per 100 SF conditioned space without air handler.	1'
ved building envelope – 2 ACH50 with ERV or HRV installed tested certified.	10
ved building envelope – 2 ACH50 with balanced ventilation tested certified. See 2021 IMC for balanced ventilation tion.	4
ved building envelope – 1.5 ACH50 with ERV or HRV installed tested certified.	12
ved building envelope – 1 ACH50 with ERV or HRV installed tested certified.	14
• • • • • • • • • • • • • • • • • • • •	
 Refrigerator – Energy Star Program product specification for consumer refrigeration products, version 5.1 8/5/21 	7
) 1	0 SF conditioned space with air handler installed OR 1.75 CF/min per 100 SF conditioned space without air handler. ved building envelope – 2 ACH50 with ERV or HRV installed tested certified. ved building envelope – 2 ACH50 with balanced ventilation tested certified. See 2021 IMC for balanced ventilation tion. ved building envelope – 1.5 ACH50 with ERV or HRV installed tested certified. ved building envelope – 1 ACH50 with ERV or HRV installed tested certified. ved building envelope – 1 ACH50 with ERV or HRV installed tested certified. ved ficient appliances (minimum 3 appliances not to exceed 1 of each type with following efficiencies.



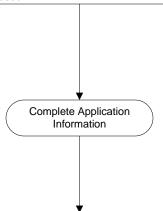


Performance Option (choose and provide design and certification documents)- (Circle Selection)

- 1. Department of Energy Res- Check version for IECC 2021. Total UA Alternative Envelope alternatives.
- 2. Total Building Performance IRC R405 Additional reports and compliance energy plans required.
- 3. Alternative Energy Rating Index Compliance Alternative must be 5% less than ERI target per IRC 2021 R406. Additional reports and compliance energy plans are required.
- 4. National Green Building Standard ICC-700 Silver Rating with certification proof.

Inspections:

- 1. Insulation Building Envelope Required during construction by Worcester County Inspector.
- 2. Air Leakage and Building Ventilation Blower Door Test and building ventilation test required by Certified Contractor/Inspector Based on Building Performance Institute (BPI,Resnet) accreditation. Passing reports due at final inspection and required for Certificate of Occupancy from Worcester County.
- 3. Certificate of Compliance (By Builder or Design Professional with checks at final inspection by Local Jurisdiction-label complete and posted in electrical panel with copy to inspector)
 - A. Insulation Rating
 - B. Window and Door Ratings
 - C. HVAC Equipment Sizing and performance ratings
 - D. Building air leakage results
 - E. photovoltaic and ERI index if determined
 - F. Additional energy efficiency option used



Owner/Contractor/Project Information:		Permit No
Owner Name (print):	Date:	Owner Signature:
Contractor Name (print):	Date:	Contractor Signature:
Building Tightness Test Contractor:		Phone:
Building Reviewer (DRP Office Use):		