

2018 Code Change Training

Virginia Energy Conservation Code Residential Provisions

Jack A Proctor Virginia
Building Code Academy

Department of Housing
and Community Development



Welcome!

- Please turn your cell phones off or set to vibrate.

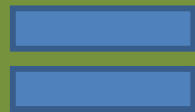


Agenda

- Virginia energy conservation provisions and related laws
- Significant international changes and state amendments
- VA Changes marked in yellow



State Code Change

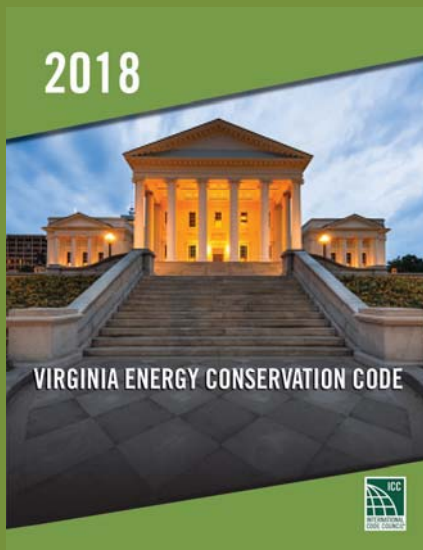


State Level Change

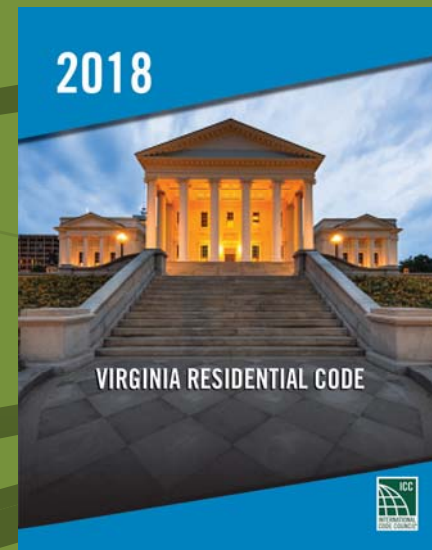


VECC/VRC Cross-Listing

- VECC residential provisions are cross-listed with the corresponding VRC section



R401 / N1101





R202/N1101.6 Air barrier

- Definition of "air barrier" updated
- Definition of "continuous air barrier" remains in the code

R401.2/N1101.13 Compliance

- Allows the use of REScheck keyed to the 2018 IECC
- VA multiplier removed from text, and resource is no longer available; default value acknowledged





IECC Energy Efficiency Certificate

Insulation Rating	R-Value
Ceiling / Roof	38.00
Wall	19.00
Floor / Foundation	19.00
Ductwork (unconditioned spaces):	_____

Glass & Door Rating	U-Factor	SHGC
Window	0.45	0.35
Door	0.40	0.25

Heating & Cooling Equipment	Efficiency
Heating System: _____	_____
Cooling System: _____	_____
Water Heater: _____	_____

Name: _____ Date: _____

Comments:



R401.3/N1101.14 Certificate

- Permanent certificate listing the predominant R-value, the U-factors and SHGC to be posted.

State Code Change



R402.1/N1102.1 Building Thermal Envelope for Log Homes

- New standard ICC 400 added as compliance path for log homes

Table R402.1.2/N1102.1.2 Insulation and Fenestration Requirements by Component

- Fenestration U-factor updated to 0.32

TABLE N1102.1.2 (R402.1.2)
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENT^a

CLIMATE ZONE	FENESTRATION U-FACTOR ^b	SKYLIGHT ^b U-FACTOR	GLAZED FENESTRATION SHGC ^{b, c}	CEILING R-VALUE	WOOD FRAME WALL R-VALUE	MASS WALL R-VALUE ⁱ	FLOOR R-VALUE	BASEMENT ^c WALL R-VALUE	SLAB ^d R-VALUE & DEPTH	CRAWL SPACE ^e WALL R-VALUE
4 except Marine	0.32	0.55	0.40	49	15 or 13 + 1 ^h	8/13	19	10 /13	10, 2 ft	10/13

Tables R402.1.2 /N1102.1.2 and R402.1.4/N1102.1.4 Insulation & Fenestration Requirements by Component

- Ceiling insulation values increased from R-38 to R-49, meeting the 2018 IECC



State Code Change



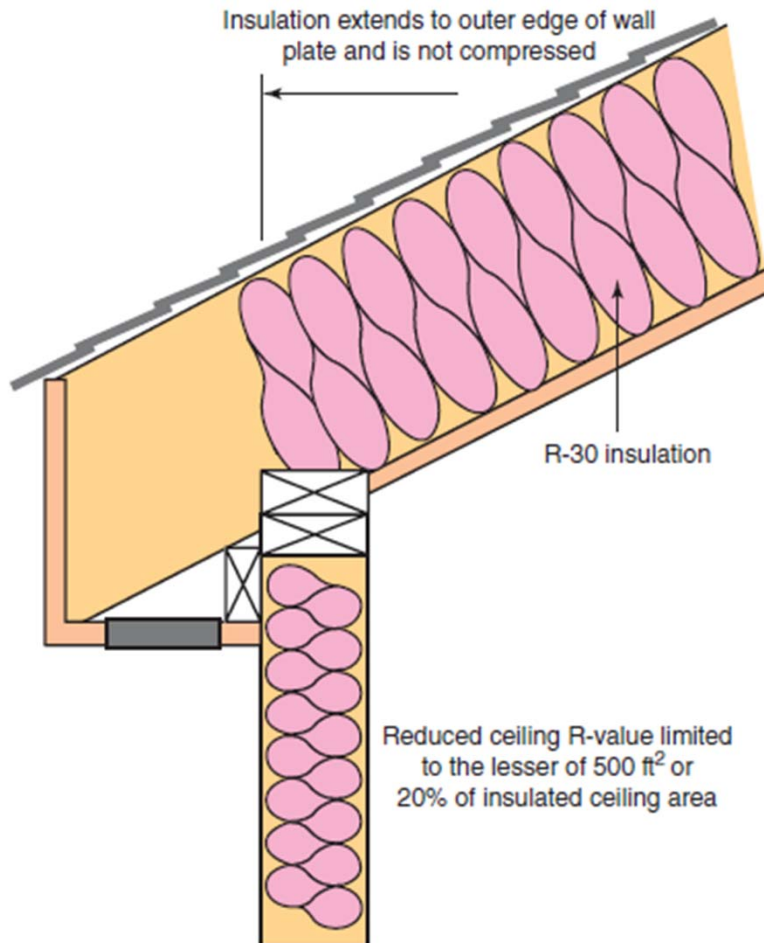
R402.4.1.2/N1102.4.1.2, R402.4.1.3/N1102.4.1.3 Testing

- The visual inspection of thermal envelope tightness is no longer an option in lieu of blower door testing.



R402.2.2/N1102.2.2 Reduction of Ceiling Insulation

- Insulation must extend over top plate in certain ceilings without attic spaces



Reduced R-value for vaulted ceiling

© International Code Council

RESNET
RESIDENTIAL ENERGY SERVICES NETWORK



ANSI/RESNET/ICC 380-2019

**Standard for Testing Airtightness of
Building, Dwelling Unit, and Sleeping Unit
Enclosures; Airtightness of Heating and
Cooling Air Distribution Systems; and
Airflow of Mechanical Ventilation Systems**



November 21, 2018

Residential Energy Services Network, Inc.
P.O. Box 4561
Oceanside, CA 92052-4561
<http://resnet.us/>

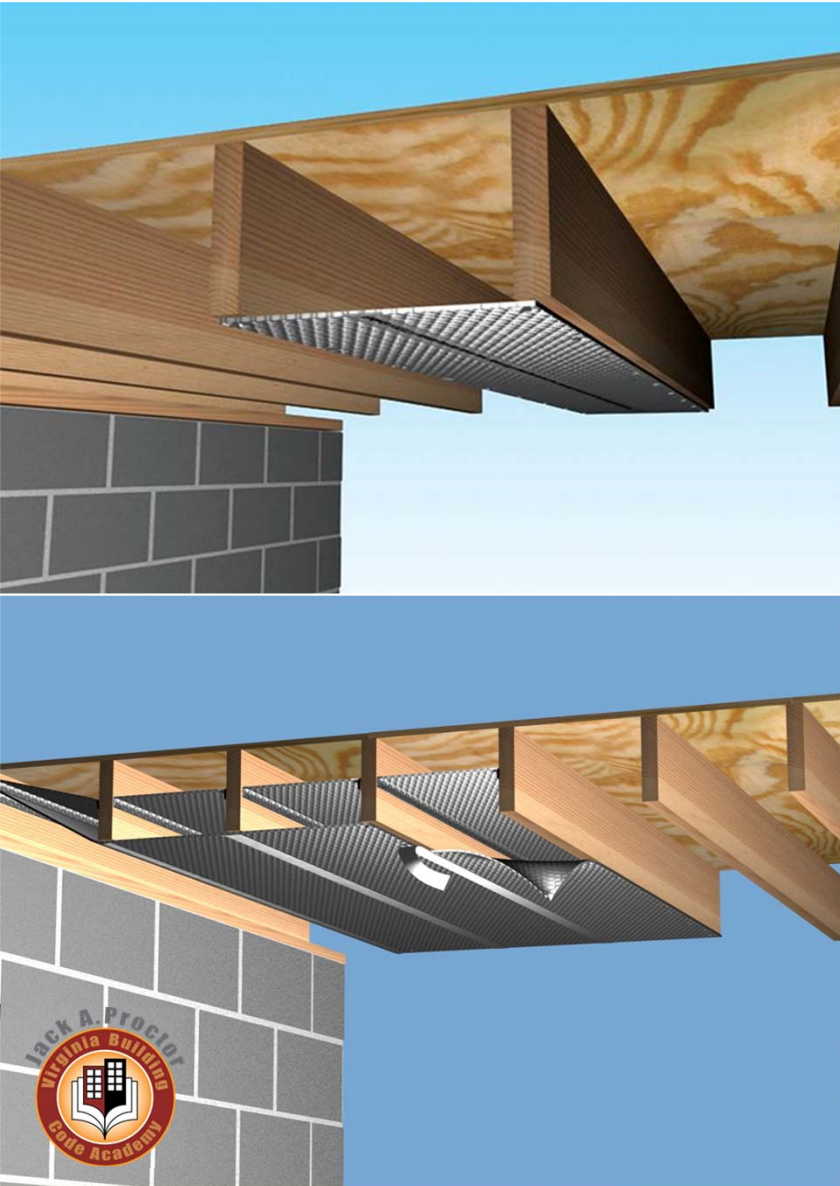
International Code Council
500 New Jersey Avenue, NW, 6th Floor
Washington, D.C. 20001
www.iccsafe.org

©Residential Energy Services Network, 2018. All rights reserved.



R402.4.1.2/N1102.4.1.2 Testing for Air Leakage

- New standard for testing air leakage
- RESNET/ICC 380



R403.3.5/N1103.3.5 Building Cavities

- Section deleted
- Removes conflict between energy and mechanical provisions
- Building framing cavities allowed to be used as plenums when meeting M1601.1.1 #7

State Code Change

R403.3.6/N1103.3.6, R403.3.7/N1103.3.7 Ducts Buried Within Ceiling Insulation

- New section provides requirements for ducts buried within ceiling insulation
- Additional section for deeply buried ducts when using the simulated performance compliance method

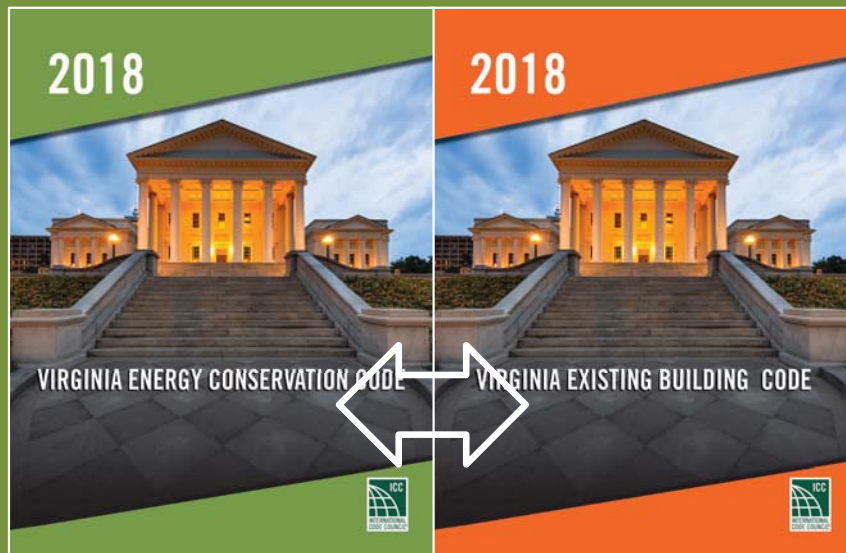


R404.1/N1104.1 Lighting

- Percentage of lamps required to be high efficacy increased from 75% to 90%.



Chapter 5 Existing buildings



- Chapter 5 brought into alignment with VEBC.

State Code Change

R501/N1107 General

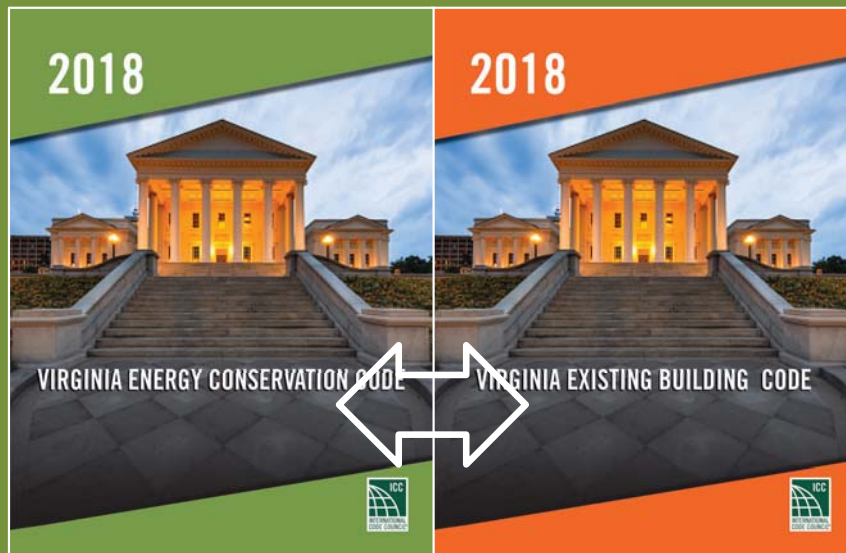
- Now points reader to VEBC for administration of existing building energy provisions.



State Code Change



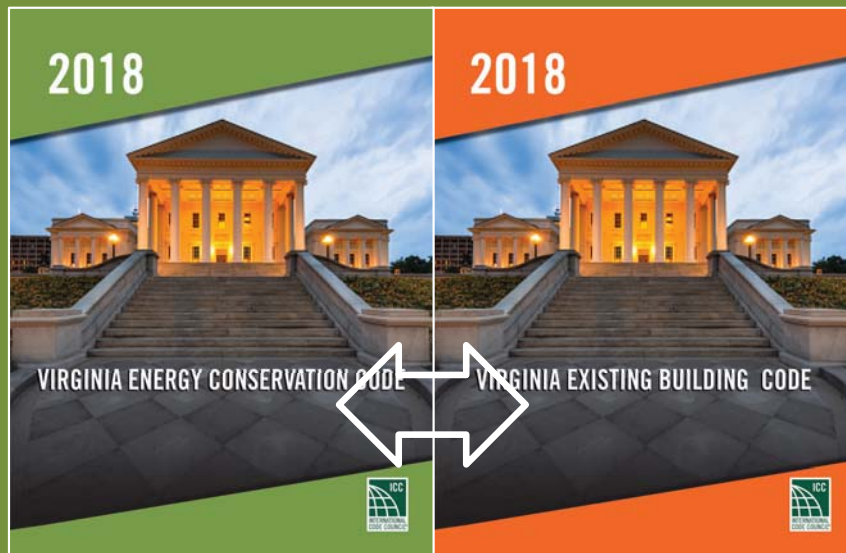
R502/N1108 Additions



- Relocation of energy provisions applicable to building additions from the VECC to the VEBC.

State Code Change

R503/N1109 Alterations



- Relocation of energy provisions applicable to building alterations from the VECC to the VEBC.

State Code Change

R504/N1110 Repairs

- Relocation of energy provisions applicable to building repairs from the VECC to the VEBC.



State Code Change



Questions?

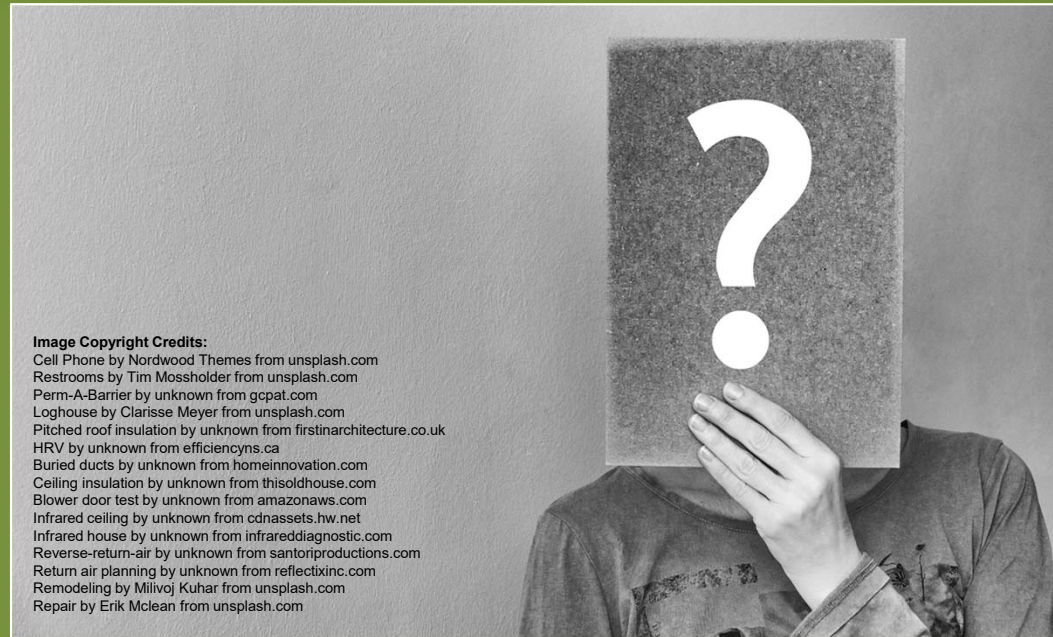


Image Copyright Credits:

Cell Phone by Nordwood Themes from unsplash.com
Restrooms by Tim Mossholder from unsplash.com
Perm-A-Barrier by unknown from gcpat.com
Loghouse by Clarisse Meyer from unsplash.com
Pitched roof insulation by unknown from firstinarchitecture.co.uk
HRV by unknown from efficiencyns.ca
Buried ducts by unknown from homeinnovation.com
Ceiling insulation by unknown from thisoldhouse.com
Blower door test by unknown from amazonaws.com
Infrared ceiling by unknown from cdnassets.hw.net
Infrared house by unknown from infrareddiagnostic.com
Reverse-return-air by unknown from santoriproductions.com
Return air planning by unknown from reflectixinc.com
Remodeling by Milivoj Kuhar from unsplash.com
Repair by Erik Mclean from unsplash.com

Thank You!

A special thanks to

Bruce Cornwall, Culpeper County
Rick Fortner, City of Norfolk (retired)
Haywood Kines, Prince William County
Richard Moore, Henrico County

for their partnership, commitment of resources and time to the Jack A.
Proctor Virginia Building Code Academy in developing this
presentation.



Credits

Image Copyright Credits (in order of appearance):

Commercial roof insulation by unknown from [insulfoam.com](#)
Roof insulation ThermaTR27 by unknown from [kingspan.com](#)
Garage door by unknown from [forestdoor.com](#)
Rolling door by unknown from [nationsservealbuquerque.com](#)
Frosted glass entry door by unknown from [pinimg.com](#)
Glazed garage door by unknown from [bohds.com](#)
Airspace R value by unknown from [continuousinsulation.org](#)
Daylight by Alesia Kazantseva from [unsplash.com](#)
Modern fireplace by unknown from [shopify.com](#)
Mechanical room by unknown from [bacnetinternational.net](#)
Mechanical room by unknown from [nebula.wsimg](#)
Vestibule by unknown from [hga.com](#)
Bedroom by Kelcie Papp from [unsplash.com](#)
Ventilation unit by unknown from [ny-engineers.com](#)
Refrigerator by Eduardo Soares from [unsplash.com](#)
Boiler economizer by unknown from [agence-d.com](#)
Geothermal central pumping by unknown from [squarespace-cdn.com](#)
VSD Panel by unknown from [chainanddrives.com.au](#)
VAV Controller by unknown from [miro.medium.com](#)
Water heater by unknown from [i2.wp.com](#)
Recirculation pump by unknown from [absoluteprecisionnj.com](#)
Lighting by Mateo Fernandez from [unsplash.com](#)
Lighting by Huy Nguyen from [unsplash.com](#)
Patient room by unknown from [armstrongflooring.com](#)
Lighting by Jake Nebov from [unsplash.com](#)
Open office by Alex Kotliarskyi from [unsplash.com](#)
Empty workplace by Michal Kubalczyk from [unsplash.com](#)
Lighting by Toa Heftiba from [unsplash.com](#)
Lighting by Lycs Architecture from [unsplash.com](#)
Exterior lighting by unknown from [squarespace-cdn.com](#)
Sports arena by Yassine Khalfalli from [unsplash.com](#)
Shopping center by Markus Spiske from [unsplash.com](#)
Gallery by Brayden from [unsplash.com](#)
Parking lot by Sven Mieke from [unsplash.com](#)
Lighting by Cody Weiss from [unsplash.com](#)
Escalator by David Clarke from [unsplash.com](#)
Electricity by Markus Spiske from [unsplash.com](#)
Sheathing affordable housing by unknown from [greenbiz.com](#)
EV charging station by Cardmapr from [unsplash.com](#)

Image Copyright Credits (continued):

Solar canopy by unknown from [lumossolar.com](#)
Humans by Simon Karemann from [unsplash.com](#)
Humans by Lucas Swennen from [unsplash.com](#)
Commercial renovation by unknown from [cpmnw.com](#)
Repair by unknown from [peakviewroofing.com](#)
Skylight by unknown from [filmhub.co.uk](#)
Tapered insulation by unknown from [googleusercontent.com](#)
Curtain wall by unknown from [constructionspecifier.com](#)
Exhaust hood by unknown from [qremshop.com](#)
Question by Anemone123 from [pixabay.com](#)

