Minutes of the North Carolina Building Code Council
December 13, 2016
Raleigh, NC

All members of the North Carolina Building Code Council were present for the Council Meeting with the exception of Paula Strickland, Eric Tjalma, Tony Sears and Mack Paul.

The following are summary minutes. The official minutes of this meeting are recorded on CD. Anyone desiring verbatim CDs or excerpts from these CDs should contact the Engineering Division of the NC Department of Insurance for information and reproduction costs. The next scheduled NC Building Code Council meeting will be held **Tuesday, March 14, 2017**. The location will be announced 30 days before the meeting.

Part A – Administrative Items

Item A – 1 Ethics Statement: Inquire upon conflicts of interest or appearance of conflicts of interest that exist within the Council.

There were no actual or potential conflicts of interest noted.

Item A – 2 Approval of Minutes of the September 13, 2016 NC Building Code Council Meeting.

A **motion** to accept the September 13th meeting minutes was made, **seconded**, and **approved**, as amended below.

There were 2 corrections to the September minutes.

Correction noted by the Chairman that he and Steve Knight were nominated and elected as Chairman and Vice Chairman.

It was noted there was a typo in the Minutes of the September 13th BCC Meeting on page 10. This has been corrected.

Item A – 3 Rules and Review Commission Meeting Report

Barry Gupton reported that all D-Items from the September 13, 2016 BCC meeting were approved by The Rules Review Commission.

Item A – 4 Public Comments

Roxanne Knight, President of Rising Star Christian Academy in Wake Forest, spoke in regards to the building code conflict involving a renovation of her building. Dan Tingen advised she may want to seek legal guidance with this issue.

Part B – New Petitions for Rulemaking

The following Petitions for Rulemaking have been received since the last Council meeting. The Council will vote either to deny or grant these Petitions. The Council will give no further consideration to Petitions that are denied. Petitions that are granted may proceed through the Rulemaking process. The Council may send any Petition to the appropriate committee. The hearing will take place during or after the March 2017 meeting.

Dan Tingen spoke about the 2 Super Committees and the process for recommending the B Items for approval by the Council. The Ad-Hoc Committees Chairperson provided updates on the past year and all of the time and work they put in involving the code changes. Terrance Friedman talked about the funds allocated from the General Assembly for on-line codes, negotiating for 2002, 2006 and 2009 versions of the Building Code available on line in PDF format plus 3 years enhanced 2012 code access since the 2018 Codes would not be adopted by this June. Daniel Jancusek, Mark Johnson and John Belsik from ICC joined in via screen presentation and reviewed the contents, including the enhanced features that would be available on the NC test site before going live. If there are any questions regarding the presentation, send them to Barry Gupton and he will submit them to ICC.

Commercial Super Committee
Steve Knight – Chair
Eric Tjalma
Wayne Hamilton
Keith Rogers
Wade White
Robbie Davis
Leon Skinner
Daniel Priest
Tony Sears

Residential Super Committee
Dan Tingen – Chair
David Smith
Steve Knight
Keith Hamilton
Wayne Hamilton
Tim Fowler
Leon Skinner

The Chairman requested each proponent to speak on behalf of their proposals prior to the Super Committees voting on the B Items. In the new process, the Super Committee must recommend the proposal for it to move forward to be voted on by the Council. Barry Gupton also shared the fiscal statements for the Ad-Hoc Committees and explained code changes and cost impacts.

Item B – 1 Request from John Fralick, representing The Harrington Corporation, to amend the 2012 NC Plumbing Code, Section 702.4 Table as follows:

Addition to table 702.4

Polyvinyl Chloride (PVC) Plastic pipe C900	ASTM D1784; ASTM D3139 ASTM F477

Tabel 702.4
Pipe Fittings

Material	Standard
Acrylonitrile butadiene styreen (ABS) plastic pipe in IPS diameters	ASTM D 2661; ASTM F 628; CSA B181.1
Acrylonotrile butadiene styreen (ABS) plastic pipe in sewer and drain diameters	ASTM D 2751
Asbestos Cement	ASTM C 428
Cast iron	ASME B 16.4; ASME B 16.12; ASTM A 74; ASTM A 888; CISPI 301
Copper or copper alloy	ASME B 16.15; ASME B 16.18; ASME B 16.22; ASME B 16.23; ASME B 16.26; ASME B 16.29
Glass	ASTM C 1053
Gray iron and ductile iron	AWWA C 110
Malleable iron	ASME B 16.3
Polyolefin	ASTM F 1412; CAN/CSA B181.3
Polyvinyl chloride (PVC) plastic in IPS diameters	ASTM D 2665; ASTM F 1866 (10 inches diameter and larger)
Polyvinyl chloride (PVC) plastic in sewer and drain diameters	ASTM D 3034
Polyvinyl chloride (PVC) plastic pipe with a 3.25-inch O.D.	ASTM D 2949
Polyvinylidene flouride (PVDF) plastic pipe	ASTM F 1673; CAN/CSA B181.3
Stainless steel drainage systems, Types 304 and 316L	ASME A 112.3.1
Steel	ASME B 16.9; ASME B 16.11; ASME B 16.28
Vitrified clay	ASTM C 700
***Polyvinyl chloride (PVC) plastic pipe C900**	***ASTM D 1784; ASTM D 3139; ASTM F 477**

***Revision Request to be included (The Harrington Corporation)**

Noted: Table sighted incorrectly. Should be 605.5

Commercial Super Committee:
Motion to Deny – Wade White **/ Second / Denied**

Item B – 2 Request by the NC Building Code Council, Ad-Hoc Committees, to adopt the 2018 North Carolina State Building Codes. The Base Documents for the 2018 NC Codes are the 2015 International Codes. The 2018 NC Ad-Hoc Committee amendments will be posted at the link below and are replacements to the Sections printed in the Base Documents.

http://www.ncdoi.com/OSFM/Engineering_and_Codes/Default.aspx?field1=BCC_-_Ad_Hoc_Committee_Meeting_Information&user=Building_Code_Council&sub=BCC_Committees
The 2015 International Codes are available at www.iccsafe.org **for purchase or at** http://codes.iccsafe.org/I-Codes.html#2015 **for public access.**

Item B - 2.1 North Carolina State Building Code, Volume – 2018 Building Code

Commercial Super Committee
Motion – Robbie Davis **/ Second / Approved**

Building Code Council
Motion – Ralph Euchner **/ Second –** David Smith **/ Granted**

Item B - 2.2 North Carolina State Building Code, Volume - 2018 Energy Conservation Code, including Residential Energy

Commercial Super Committee
Motion – Robbie Davis **/ Second –** Ralph Euchner **/ Approved**

Building Code Council
Motion –Keith Rogers / Second – Leah Barrett **/ Granted (Including Fiscal Note)**

Item B – 2.3 North Carolina State Building Code, Volume – 2018 Existing Building Code

Commercial Super Committee
Motion –Keith Rogers **/ Second / Approved**

Building Code Council
Motion – Steve Knight **/ Second –** Ralph Euchner **/ Granted**

Item B – 2.4 North Carolina State Building Code, Volume – 2018 Fire Prevention Code

Commercial Super Committee
Motion – David Smith **/ Second –** Wayne Hamilton **/ Approved**

Building Code Council
Motion – Steve Knight **/ Second –** Robbie Davis **/ Granted**

Item B – 2.5 North Carolina State Building Code, Volume – 2018 Fuel Gas Code

Commercial Super Committee
Motion – Robbie Davis **/ Second -** Wayne Hamilton **/ Approved**

Building Code Council
Motion – Tim Fowler **/ Second –** Ralph Euchner **/ Granted**

Item B – 2.6 North Carolina State Building Code, Volume – 2018 Mechanical Code

Commercial Super Committee
Motion – Keith Rogers **/ Second –** Leon Skinner **/ Approved**

Building Code Council
Motion – Steve Knight **/ Second –** Leah Barrett **/ Granted**

Item B – 2.7 North Carolina State Building Code, Volume – 2018 Plumbing Code

Commercial Super Committee
Motion – Keith Rogers **/ Second / Approved**

Building Code Council
Motion – Keith Rogers **/ Second / Granted**

Item B – 2.8 North Carolina State Building Code, Volume – 2018 Residential Code

Residential Super Committee
Motion – Tim Fowler **/ Second –** Ralph Euchner **/ Approved**

Building Code Council
Motion – David Smith **/ Second –** Leah Barrett **/ Granted (Including Energy Fiscal Note)**

***The Chairman suggested running the two Super Committees together on the B-3 Items.**

Item B – 3 Additional individual requests to further amend the 2018 North Carolina Energy Conservation Code

Item B - 3.1 Request from Ryan Miller, representing North Carolina Building Performance Association, to revise the 2018 NC Energy Conservation Code, Section 403.3.3 Duct Leakage (Perspective and duct testing (Mandatory).

403.3.3 Duct leakage (Perspective) and duct testing (Mandatory). Duct testing and duct leakage shall be verified by compliance with either Section 403.3.3.1or 403.3.3.2. Duct testing shall be performed and reported by the permit holder, a NC licensed general contractor, a NC licensed HVAC contractor, a NC licensed Home Inspector, a registered design professional, a certified BPI Envelope Professional or a certified HERS rater. A single point depressurization, not temperature corrected, test is sufficient to comply with this provision, provided that the duct testing fan assembly(s) has been certified by the manufacturer to be capable of conducting tests in accordance with ASTM E1554-07.

The duct leakage information, including duct leakage test selected and result, tester name, date and contact information, shall be included on the certificate described in Section 401.3.

For the Test Criteria, the report shall be produced in the following manner: perform the HVAC system air leakage test and record the CFM25. Calculate the total square

feet of Conditioned Floor Area (CFA) served by that system. Multiply CFM25 by 100, divide the result by the CFA and record the result. If the result is less than or equal to 5 CFM25/100SF for the "Total duct leakage test or less than or equal to 4CFM25/100SF for the "Duct leakage to the outside" test, then the HVAC system air tightness is acceptable. Appendix 3C contains optional sample worksheets for duct testing for the permit holder's use only.

Exceptions to testing requirements:

1. Duct systems or portions thereof inside the building thermal envelope shall not be required to be leak tested.
2. Installation of a partial system as part of replacement, renovation or addition does not require a duct leakage test.
3. Duct systems (complete) serving areas of 750 sq. ft. or less shall not need to be required to be leak tested.

Residential & Commercial Super Committees
Motion – David Smith **/ Second / Approved**

Building Code Council
Motion – David Smith **/ Second –** Leah Barrett **/ Granted**

Item B - 3.2 Request from Ryan Miller, representing North Carolina Building Performance Association, to revise the 2018 NC Energy Conservation Code, Section R406.5 Verification.

Verification of compliance with Section R406 shall be performed by the licensed design professional and the compliance documentation shall be provided to the code official. The rating performed by the licensed design professional shall be either a Confirmed or Sampled rating and certified by an Approved Rating Provider as defined by an ANSI RESNET ICC Standard 301-2014. Projected ratings are not permitted for compliance with Section R406. The code official shall inspect according to the requirements of Section R406.6.2. ~~completed by an approved third party~~.

Residential & Commercial Super Committees
Motion to Deny – Keith Hamilton **/ Second / Denied**

Item B - 3.3 Request from Ryan Miller, representing North Carolina Building Performance Association, to revise the 2018 NC Energy Conservation Code, Section R406.3.1 ERI Reference Design.

The ERI reference design shall be configured such that it meets the minimum requirements of the 2006 International Energy Conservation Code prescriptive requirements. In case that the ERI reference design shall change, the Maximum Energy Index values in Table R406.4.1.shall be adjusted to reflect the new reference design.

The proposed residential building shall be shown to have an annual total normalized modified load less than or equal to the annual total loads of the ERI reference design.

Residential & Commercial Super Committees
Motion to Deny – Leon Skinner **/ Second –** David Smith **/ Denied**

Item B – 3.4 **Request from Lauren Westmoreland, representing Southeast Energy Efficiency Alliance, to delete a section and add a substitution to the 2018 Energy Conservation Code.**

For Chapter 4 [CE**]** Commercial Energy Efficiency SEEA urges the North Carolina Building Code Council to remove all weaking amendments and replace with the original 2015 IECC to allow for a North Carolina-specific COMCheck software to be developed and utilized.

Residential & Commercial Super Committees
Motion to Deny – Leon Skinner **/ Second –** Robbie Davis **/ Denied**

Item B – 3.5 **Request from Bridget Herring, representing Mathis Consulting Company, to revise the 2018 NC Energy Conservation Code, Section R406.4.**

R406.4 ERI-based compliance.
Compliance based on an ERI analysis requires that the *rated design* be shown to have an ERI less than or equal to the appropriate value listed in Table R406.4.1 ~~or Table R406.4.2~~ when compared to the *ERI reference design*.

TABLE R406.4.1 MAXIMUM ENERGY RATING INDEX ~~without calculation of on-site renewable energy~~

Climate Zone	Jan 1, 2019 – Dec 31, 2022	Jan 1, 2023 and forward
3	65	61
4	67	63
5	67	63

~~TABLE R406.4.2 MAXIMUM ENERGY RATING INDEX including calculation of on-site renewable energy~~

~~Climate Zone~~	~~Jan 1, 2019 – Dec 31, 2022~~	~~Jan 1, 2023 and forward~~
~~3~~	~~51~~	~~47~~
~~4~~	~~54~~	~~50~~
~~5~~	~~55~~	~~51~~

R406.4.1 On-site renewable energy.
When on-site renewable energy is included in the calculation for ERI-based compliance, the building envelope components, as applicable, shall have R-values, U-factors, and Solar Heat Gain Coefficients in accordance with Table 406.4.1.1, or have U-factors and Solar Heat Gain Coefficients not to exceed the values in Table 406.4.1.2.

Table 406.4.1.1: Maximum SHGC, Fenestration and Insulation by Component When On-Site Power is Used

	Maximum SHGC	Maximum U-Factors		Minimum R-Values						
CLIMATE ZONE	GLAZED FENESTRATION	FENESTRATION	SKYLIGHTS	CEILINGS R-Value	FRAME WALLS R-Value	MASS WALLS R-Value	FLOORS R-Value	BASEMENT WALLS R-Value	SLAB R-VALUE & DEPTH	CRAWL SPACE WALLS R-Value
3	0.25	0.35	0.55	38	20 or 13+5	8/13	19	5/13	0	5/13
4	0.40	0.35	0.55	49	20 or 13+5	8/13	19	10/13	10, 2 ft.	10/13
5	NR	0.32	0.55	49	20 or 13+5	13/17	30	15/19	10, 2ft	15/19

Table 406.4.1.2: Maximum SHGC and U-factors When On-Site Power is Used

	Maximum SHGC	Maximum U-Factors							
CLIMATE		FENESTRATION		CEILINGS	FRAME	MASS	FLOORS	BASEMENT	CRAWL

ZONE	GLAZED FENESTRATION		SKYLIGHTS		WALLS	WALLS		WALLS	SPACE WALLS
3	0.25	0.35	0.55	0.030	0.060	0.098	0.047	0.091	0.136
4	0.40	0.35	0.55	0.026	0.060	0.098	0.047	0.059	0.065
5	NR	0.32	0.55	0.026	0.060	0.082	0.033	0.050	0.055

Residential & Commercial Super Committees
Motion to Deny – Leon Skinner **/ Second –** Ralph Euchner **/ Denied**

Item B – 3.6 **Request from Bridget Herring, representing Mathis Consulting Company, to revise the 2018 NC Energy Conservation Code, Section C503.**

Modify existing section, as follows:

Section C503 (Alterations), Section 503.1 (General), Exceptions

5. Roof recover ~~and roof replacement such that the existing building or structure is no less conforming to the provisions of this code than the existing building or structure was prior to the alteration~~.

Add new section, as follows:

C503.3.1 Roof replacement. Roof replacements shall comply with Table C402.1.3 or C402.1.4 where the existing roof assembly is part of the building thermal envelope and contains insulation entirely above the roof deck.

Residential & Commercial Super Committees
Motion to Deny – Leon Skinner **/ Second –** Robbie Davis **/ Denied**

Item B – 3.7 **Request from Bridget Herring, representing Mathis Consulting Company, to revise the 2018 NC Energy Conservation Code, Section C402.**

Modify existing section, as follows:

C402.2.2 Roof assembly. The minimum thermal resistance (R-value) of the insulating material installed either between the roof framing or continuously on the roof assembly shall be as specified in Table C402.1.3, based on construction materials used in the roof assembly. Skylight curbs shall be insulated to the level of roofs with insulation entirely above deck or R-5, whichever is less.

~~Exceptions~~ Exception:

~~1. Continuously insulated roof assemblies where the thickness of insulation varies 1 inch (25 mm) or less and where the area-weighted U-factor is equivalent to the same assembly with the R-value specified in Table C402.1.3.~~

~~2. Where tapered insulation is used with insulation entirely above deck, the R-value where the insulation thickness varies 1 inch (25 mm) or less from the minimum thickness of tapered insulation shall comply with the R-value specified in Table C402.1.3.~~

~~3.~~ Unit skylight curbs included as a component of a skylight listed and labeled in accordance with NFRC 100 shall not be required to be insulated.

Add new section, as follows:

C402.2.2.1 Determination of R-value for above deck tapered insulation. Where continuous above deck tapered roof insulation is used, the R-value specified in Table C402.1.3 shall be determined based on an area-weighted average.

Residential & Commercial Super Committees
Motion – Leon Skinner **/ Second –** Robbie Davis **/Approved**

Building Code Council
Motion – Ralph Euchner **/ Second –** Robbie Davis **/ Granted**

Item B – 3.8 **Request from Jeff Tiller, representing Appalachian State University, to add a new section to the 2018 NC Energy Conservation Code, Section R401.4 and Appendix 4 -- Additional Voluntary Criteria for Increasing Residential Energy Efficiency (High Efficiency Residential Option).**

R101.6 Additional Voluntary Criteria for Increasing Residential Energy Efficiency.
Appendix 4 contains additional voluntary measures for increasing residential energy efficiency beyond code minimums. Implementation of the increased energy efficiency measures is strictly voluntary at the option of the permit holder. The sole purpose of the appendix is to provide guidance for achieving additional residential energy efficiency improvements that have been evaluated to be those that are most cost effective for achieving an additional 10-15% ~~15-20%~~ improvement in energy efficiency beyond code minimums.

Appendix 4, with supporting tables, begins on the next page; only changes from the 2012 Appendix 4 are underlined.

APPENDIX 4 ADDITIONAL VOLUNTARY CRITERIA FOR INCREASING ENERGY EFFICIENCY (High Efficiency Residential Option)

1. **Introduction.** The increased energy efficiency measures identified in this appendix are strictly voluntary at the option of the permit holder and have been evaluated to be the most cost effective measures for achieving an additional 10-15% ~~15-20%~~ energy efficiency beyond the code minimums.

2. **Requirements**: Follow all sections of Chapter 4 RE Residential Energy Efficiency of the North Carolina Energy Conservation Code, except the following.
   a. Instead of using Table R402.1.2 in Section R402.1, use Table E-4A shown below. Emboldened items have different values than Table R402.1.2.

TABLE E-4A
INSULATION AND FENESTRATION REQUIREMENTS BY COMPONENTa

CLIMATE ZONE	FENESTRATION U-FACTOR[b]	SKYLIGHT[b] U-FACTOR	GLAZED FENESTRATION SHGC[b,e]	CEILING R-VALUE[k]	WOOD FRAME WALL R-VALUE[e]	MASS WALL R-VALUE[i]	FLOOR R-VALUE	BASEMENT[c] WALL R-VALUE	SLAB[d] R-VALUE	CRAWL SPACE[c] WALL R-VALUE
3	**0.32**	0.55~~0~~ ~~.65~~	**0.25**	38	**19, 13+5, or 15+3[eh]**	5/13 or 5/10ci ~~5/10~~	19	5~~10~~/13[f]	**5, ~~2 ft~~**	5~~10~~/13

4	**0.32**	0.55~~0~~ ~~.6~~	**0.25**	38	**19, 13+5, or 15+3[eh]**	5/13 or 5/10ci ~~5/10~~	19	10/15 [f]~~13~~	10~~,~~ ~~2 ft~~	10/1 5~~13~~
5	**0.32**	0.55~~0~~ ~~.6~~	(NR)	38	19, 13+5, or 15+3[eh]	13/17 or 13/12. 5 ci	30[g]	10/15 [f]~~13~~	10~~,~~ ~~2 ft~~	10~~15~~ /19

For SI: 1 foot = 304.8 mm.
a. *R*-values are minimums. *U*-factors and SHGC are maximums~~.~~
b. The fenestration *U*-factor column excludes skylights. The SHGC column applies to all glazed fenestration.
c. "10/13" means R-10 continuous insulated sheathing on the interior or exterior of the home or R-13 cavity insulation at the interior of the basement wall or crawl space wall.
d. For monolithic slabs, insulation shall be applied from the inspection gap downward to the bottom of the footing or a maximum of 18 inches below grade, whichever is less . For floating slabs, insulation shall extend to the bottom of the foundation wall or 24 inches, whichever is less. (See Appendix O) R-5 shall be added to the required slab edge *R*-values for heated slabs.
e.~~-~~ R -19 fiberglass batts compressed and installed in a nominal 2 × 6 framing cavity is deemed to comply. Fiberglass batts rated R-19 or higher compressed and installed in a 2x4 wall is not deemed to comply.
f. Basement wall insulation is not required in warm-humid locations as defined by Figures R301.1 and R301.2 and Tables R301.1 and R 301.3 (should this be Table R301.2?.
g. Or insulation sufficient to fill the framing cavity, R-19 minimum.
h. "13+5" means R-13 cavity insulation plus R-5 insulated sheathing. 15+3 means R-15 cavity insulation plus R-3 insulated sheathing. If structural sheathing covers 25 percent or less of the exterior, insulating sheathing is not required where structural sheathing is used. If structural sheathing covers more than 25 percent of exterior, structural sheathing shall be supplemented with insulated sheathing of at least R-2. 13+2.5 means R-13 cavity insulation plus R-2.5 sheathing.
i. For Mass Walls, the second *R*-value applies when more than half the insulation is on the interior of the mass wall.
j. R-30 shall be deemed to satisfy the ceiling insulation requirement wherever the full height of uncompressed R-30 insulation extends over the wall top plate at the eaves. Otherwise R-38 insulation is required where adequate clearance exists or insulation must extend to either the insulation baffle or within 1" of the attic roof deck.
k. Table value required except for roof edge where the space is limited by the pitch of the roof, there the insulation must fill the space up to the air baffle.

b. Instead of using Table R402.2 in Section R402.2, use Table E-4B to find the maximum U-factors for building components.

TABLE E-4B
EQUIVALENT U-FACTORSa

CLIMATE ZONE	FENESTRATION U-FACTOR	SKYLIGHT U-FACTOR	CEILING U-FACTOR	FRAME WALL U-FACTOR	MASS WALL U-FACTORb	FLOOR U-FACTOR	BASEMENT WALL U-FACTORc	CRAWL SPACE WALL U-FACTOR
3	**0.32**	0.55	0.030	**0.061**	0.141	0.047	0.091	0.136
4	**0.32**	0.55	0.030	**0.061**	0.141	0.047	0.059	0.065
5	**0.32**	0.55	0.030	0.061	0.082	0.033	0.059	0.065

a. Nonfenestration U-factors shall be obtained from measurement, calculation or an approved source.

b. When more than half the insulation is on the interior, the mass wall U-factors shall be a maximum 0.12 in Zone 3, 0.10 in Zone 4, and the same as the frame wall U-factor in Zone 5.
c. Foundation U-factor requirements shown in Table E-5B include wall construction and interior air films but exclude soil conductivity and exterior air films. U-factors for determining code compliance in accordance with Section R402.1.3 (total UA alternative) shall be modified to include soil conductivity and exterior air films.

c. For compliance with Section R402.4 Air leakage control (Mandatory Requirements), Sections R402.4.1 (Building thermal envelope) and R402.4.2.2 (Testing option) must be followed, with the maximum leakage rate shown below. Section R402.4.2.1 (Visual inspection option) cannot be used to show compliance.

~~e. Instead of using the air leakage value for maximum leakage shown in Section 402.4.2.2, use the following:~~

i. **0.24** CFM50/Square Foot of Surface Area (SFSA) or
ii. **Four (4)** air changes per hour (ACH50)

d. Instead of using the duct leakage value for maximum leakage shown in Section R403.3.3 use the following:

1. **403.3.3.1 Total Duct Leakage**. Total duct leakage less than or equal to **4** ~~5~~ CFM (**113** L/min) per 100 ft^2 (9.29 m^2) of conditioned floor area served by that system when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure.
2. **403.3.3.2 Duct Leakage to the Outside.** Conduct the test using fan pressurization of distribution system and building at a fixed reference pressure for combined supply and return leak. Duct leakage to the outside shall be less than or equal to **3** CFM (**85** L/min) per 100 ft^2 (9.29 m^2) of conditioned floor area served by that system when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, relative to the outside, including the manufacturer's air handler enclosure.

~~d. Instead of using the duct leakage value for maximum leakage shown in Section 403.2.2 use the following:~~

~~Total duct leakage less than or equal to 4 CFM (12 L/min) per 100 ft2 (9.29 m2) of *conditioned floor area* served by that system when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system.~~

e. For compliance with Section R404.1 (Lighting equipment), the home must comply with the following:
Not less than 90 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps or not less than 90 percent of the permanently installed lighting fixtures shall contain only high-efficacy lamps.

Table E-4E: Sample Confirmation Form for ADDITIONAL VOLUNTARY CRITERIA FOR INCREASING ENERGY EFFICIENCY (High Efficiency Residential Option)

North Carolina Energy Conservation Code: High Efficiency Residential Option **Insulation and Fenestration Values**				**Proposed Project Values**
Climate Zone	**3**	**4**	**5**	
Fenestration U-Factor	**0.32**	**0.32**	**0.32**	
Skylight U-Factor	0.55~~0.65~~	0.55~~0.6~~	0.55~~0.6~~	
Glazed Fenestration SHGC [b, e]	**0.25**	**0.25**	(NR)	
Ceiling R-value	38	38	38	
Wood Frame Wall R-value [e]	**19, 13+5, or 15+3**	**19, 13+5, or 15+3**	19, 13+5, or 15+3	
Mass Wall R-value [j]	5/13 or 5/10ci ~~5/10~~	5/13 or 5/10ci ~~5/10~~	13/17 or 13/12.5 ci	
Floor R-value	19	19	30	
Basement Wall R-value [c]	5 10/13	10/15 ~~13~~	10/15 ~~13~~	
Slab R-value and Depth [d]	~~**5, 2 ft**~~	10~~, 2 ft~~	10~~, 2 ft~~	
Crawl Space Wall R-value [c]	5~~10~~/13	10/15~~13~~	10~~15~~/19	
	** Note: ci = continuous insulation*			
High Efficacy Lighting				
% of lighting that is high efficacy according to R404.1. (90% required)				
Building Air Leakage				
~~Visually inspected according to N1102.4.2.1 (check box) OR~~				
Building Air Leakage Test according to R402.4.2.2 ~~N1102.4.2.1~~ (check box). Show test value:				
ACH50 [Target: 4.0], or				
CFM50/SFSA [Target: 0.24]				
Name of Tester / Company:				
Date: Phone:				
Duct Insulation and Sealing				
Insulation Value	R-			
Duct Leakage Test Result (Sect. R403.3.3 ~~or N1103.3.3~~)	☐ Total duct leakage or ☐ Duct leakage to the exterior			
(CFM25 Total/100SF) [Target: 4 Total/ 3 To exterior]				
Name of Tester or Company:				
Date: Phone:				

4D.12
Air sealing: Testing option (Section 402.4.2.2)
Sample Worksheet for Alternative Residential Energy Code for Higher Efficiency

Air sealing. Building envelope air tightness shall be demonstrated by Section R402.4.2.2:

Air sealing: Testing option (Section R402.4.2.2)
Sample Worksheet for Alternative Residential Energy Code for Higher Efficiency

R402.4.2.2 Testing. Building envelope tightness shall be considered acceptable when items providing insulation enclosure in R402.2.12 and air sealing in R402.4.1 are addressed and when tested air leakage is less than or equal to one of the two following performance measurements:

1. 0.24 CFM50 (6.8 L/min)/Square Foot of Surface Area (SFSA) or
2. Four (4) air changes per hour (ACH50)

When tested with a blower door fan assembly, at a pressure of 0.2 inches water gauge (50 Pa). A single point depressurization, not temperature corrected, test is sufficient to comply with this provision, provided that the blower door fan assembly has been certified by the manufacturer to be capable of conducting tests in accordance with ASTM E779-03. Testing shall occur after rough in and after installation of penetrations of the building envelope, including penetrations for utilities, plumbing, electrical, ventilation and combustion appliances. Testing shall be reported by the permit holder, a NC licensed general contractor, a NC licensed HVAC contractor, a NC licensed Home Inspector, a registered design professional, a certified BPI Envelope Professional or a certified HERS rater.

During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed;
2. Dampers shall be closed, but not sealed, including exhaust, backdraft, and flue dampers;
3. Interior doors shall be open;
4. Exterior openings for continuous ventilation systems, air intake ducted to the return side of the conditioning system, and energy or heat recovery ventilators shall be closed and sealed;
5. Heating and cooling system(s) shall be turned off; and
6. Supply and return registers shall not be sealed.

The air leakage information, including building air leakage result, tester name, date, and contact information, shall be included on the certificate described in Section R401.3.

For Test Criteria 1 above, the report shall be produced in the following manner: Perform the blower door test and record the *CFM50*_____. Calculate the total square feet of surface area for the building thermal envelope, all floors, ceilings, and walls (this includes windows and doors) and record the area_____. Divide *CFM50* by the total square feet and record the result below. If the result is less than or equal to **[0.24 CFM50/SFSA]** the envelope tightness is acceptable; or

For Test Criteria 2 above, the report shall be produced in the following manner: Perform a blower door test and record the *CFM50* = _____. Multiply the CFM50 by 60 minutes to create CF/Hour50 and record = _____. Then calculate the total conditioned volume of the home and record = _____cubic feet. Divide the CF/Hour50 by the total volume and record the result = _____ ACH50. If the result is less than or equal to **[4 ACH50]** the envelope tightness is acceptable.

Property Address:_____
Fan attachment location _____ Company Name _____
Contact Information: _____
_____
_____ _____
Signature of Tester Date
Permit Holder, NC Licensed General Contractor, NC Licensed HVAC Contractor,

NC Licensed Home Inspector, Registered Design Professional,
Certified BPI Envelope Professional, or Certified HERS Rater **(circle one)**

4D.23

Duct sealing. Duct air leakage test (Section R403.3.3)

Sample Worksheet for Alternative Residential Energy Code for Higher Efficiency

~~**403.2.2 Sealing** All ducts, air handlers, filter boxes and building cavities used as ducts shall be sealed. Joints and seams shall comply with Part V – Mechanical, Section 603.9 of the *North Carolina Residential Code.*~~

~~Duct tightness shall be verified as follows:~~

~~Total duct leakage less than or equal to 4 CFM (12 L/min) per 100 ft2 (9.29 m2) of *conditioned floor area* served by that system when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure.~~

~~During testing:~~

~~1. Block, if present, the ventilation air duct connected to the conditioning system.~~

~~2. The duct air leakage testing equipment shall be attached to the largest return in the system or to the air handler.~~

~~3. The filter shall be removed and the air handler power shall be turned off.~~

~~3. Supply boots or registers and return boxes or grilles shall be taped, plugged, or otherwise sealed air tight.~~

~~4. The hose for measuring the 25 Pascals of pressure differential shall be inserted into the boot of the supply that is nominally closest to the air handler.~~

~~5. Specific instructions from the duct testing equipment manufacturer shall be followed to reach duct test pressure and measure duct air leakage.~~

~~Testing shall be performed and reported by the permit holder, a NC licensed general contractor, a NC licensed HVAC contractor, a NC licensed Home Inspector, a registered design professional, a certified BPI Envelope Professional or a certified HERS rater. A single point depressurization, not temperature corrected, test is sufficient to comply with this provision, provided that the duct testing fan assembly has been certified by the manufacturer to be capable of conducting tests in accordance with ASTM E1554-07.~~

~~The duct leakage information, including duct leakage result, tester name, date, company and contact information, shall be included on the certificate described in Section 401.3.~~

~~For the Test Criteria, the report shall be produced in the following manner: perform the HVAC system air leakage test and record the CFM25. Calculate the total square feet of Conditioned Floor Area (CFA) served by that system. Multiply CFM25 by 100, divide the result by the CFA and record the result. If the result is less than or equal to **[4 CFM25/100 SF]** the HVAC system air tightness is acceptable.~~

R403.3.3 Duct leakage (Prescriptive) and Duct Testing (Mandatory). Duct testing and duct leakage shall be verified by compliance with either Section R403.3.3.1 or R403.3.3.2. Duct testing shall be performed and reported by the permit holder, a NC licensed general contractor, a NC licensed HVAC contractor, a NC licensed Home Inspector, a registered design professional, a certified BPI Envelope Professional or a certified HERS rater. A single point depressurization, not temperature corrected, test is sufficient to comply with this provision, provided that the duct testing fan assembly(s) has been certified by the manufacturer to be capable of conducting tests in accordance with ASTM E1554-07.

The duct leakage information, including duct leakage test selected and result, tester name, date, and contact information, shall be included on the certificate described in Section U401.3.

For the Test Criteria, the report shall be produced in the following manner: perform the HVAC system air leakage test and record the CFM25. Calculate the total square feet of Conditioned Floor Area (CFA) served by that system. Multiply CFM25 by 100, divide the result by the CFA and record the result. If the result is less than or equal to 4 CFM25/100SF for the "Total duct leakage test or less than or equal to 3 CFM25/100SF for the 'Duct leakage to the outside" test, then the HVAC system air tightness is acceptable.

Exceptions to testing requirements:

1. Duct systems or portions thereof inside the building thermal envelope shall not be required to be leak tested.

2. Installation of a partial system as part of replacement, renovation or addition does not require a duct leakage test.

403.3.3.1 Total Duct Leakage. Total duct leakage less than or equal to 4 CFM (113 L/min) per 100 ft^2 (9.29 m^2) of conditioned floor area served by that system when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. During testing:

1. Block, if present, ventilation air duct(s) connected to the conditioning system.

2. The duct air leakage testing equipment shall be attached to the largest return in the system or to the air handler.

3. The filter shall be removed and the air handler power shall be turned off.

4. Supply boots or registers and return boxes or grilles shall be taped, plugged, or otherwise sealed air tight.

5. The hose for measuring the 25 Pascals of pressure differential shall be inserted into the boot of the supply that is nominally closest to the air handler.

6. Specific instructions from the duct testing equipment manufacturer shall be followed to reach duct test pressure and measure duct air leakage.

403.3.3.2 Duct Leakage to the Outside. Conduct the test using fan pressurization of distribution system and building at a fixed reference pressure for combined supply and return leak. Duct leakage to the outside shall be less than or equal to 3 CFM (85 L/min) per 100 ft2 (9.29 m2) of conditioned floor area served by that system when tested at a pressure differential of 0.1 inches w.g. (25 Pa) across the entire system, relative to the outside, including the manufacturer's air handler enclosure.

During testing:

1. Block, if present, the ventilation air duct(s) connected to the conditioning system.

2. The duct air leakage testing equipment shall be attached to the largest return in the system or to the air handler.

3. The filter shall be removed and the air handler power shall be turned off.

4. Supply boots or registers and return boxes or grilles shall be taped, plugged, or otherwise sealed air tight or as tight as possible.

5. The hose for measuring the 25 Pascals of pressure differential shall be inserted into the boot of the supply that is nominally closest to the air handler.

6. Open all interconnecting doors in the building, close dampers for fireplaces and other operable dampers.

7. Set up an envelope air moving/ flow-regulating/ flow measurement assembly, such as a blower door, following the manufacturer's prescribed procedure.

8. Specific instructions from the duct testing equipment manufacturer shall be followed to reach duct test pressure and measure duct air leakage used in combination with a blower door. Typical steps are as follows:

a. Depressurize the ductwork system to 25 Pa using the measurement hose in Step 5 above.

b. Depressurize the house to 25 Pa using an envelope air moving/ flow-regulating/ flow measurement assembly, such as a blower door.

c. Correct the duct pressure to measure 0 Pa of pressure differential between the house and the ductwork system.

d. Read the CFM of duct leakage using the procedures for the specific equipment being used. (Note that most automatically calculating pressure gauges cannot compute the CFM25 automatically with a duct-to-house difference in pressure of 0 Pa, so the gauge setting should be set to read CFM instead of CFM25).

Complete one duct leakage report for each HVAC system serving the home:
Property Address: _____

HVAC System Number: _____ Describe area of home served: _____
CFM25 Total _____. Conditioned Floor Area (CFA) served by system: _____ s.f.
CFM25 x 100 divided by CFA = ____ CFM25/100 SF
(e.g. 50 CFM25 x 100/ 2,000 CFA = 2.5 CFM25/100SF)
Fan attachment location _____
Company Name _____

Contact Information:_____
_____

_____ _____
Signature of Tester Date

Permit Holder, NC Licensed General Contractor, NC Licensed HVAC Contractor,
NC Licensed Home Inspector, Registered Design Professional,
Certified BPI Envelope Professional, or Certified HERS Rater **(circle one)**

Proposal was Withdrawn

Item B – 3.9 Request from Jeff Tiller, representing Appalachian State University, to revise the 2018 NC Energy Conservation Code, Section: Table R402.1.2 Fenestration Values.

TABLE R402.1.2
INSULATION AND FENESTRATION REQUIREMENTS

CLIMATE ZONE	FENESTRATION U-FACTOR[b]	SKYLIGHT[b] U-FACTOR	GLAZED FENESTRATION SHGC[b,~~e~~]
3	~~0.350~~0.32	0.55	~~0.300~~.25
4	~~0.350~~.32	0.55	~~0.300~~.25
5	~~0.350~~.32	0.55	NR

Residential & Commercial Super Committees
Motion to Deny – Ralph Euchner **/ Second / Denied**

Item B – 3.10 Request from Amy Dzura, representing Southeast Energy Efficiency Alliance, to revise the 2018 NC Energy Conservation Code, Section R402.4.2 Air Barrier Inspection.

TABLE R402.4.2
AIR BARRIER INSPECTION

COMPONENT	CRITERIA
General requirements	A continuous air barrier shall be installed in the building evelope. The exterior thermal envelop contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed.
Ceiling/attic	Sealants or gaskets provide a continuous air barrier system joining the top plate of framed walls with either the ceiling drywall or the top edge of wall drywall to prevent air leakage. Top plate penetrations are sealed. For ceiling finishes that are not air barrier systems such as tongue-and-groove planks, air barrier systems,(for example, taped house wrap), shall be used above the finish Note: It is acceptable that sealants or gaskets applied as part of the application of the drywall will not be observable by the code official
Walls	Sill plate is gasketed or sealed to subfloor or slab.
Windows and doors	Space between window and exterior door jambs and framing is sealed
Floors (including above-garage and cantilevered floors)	Air barrier system is installed at any exposed edge of insulation.
Penetrations	Utility penetrations through the building thermal envelope, including those for plumbing, electrical wiring, ductwork, security and fire alarm wiring, and control wiring, shall be sealed.
Garage separation	Air sealing is provided between the garage and conditioned spaces. An air barrier system shall be installed between the ceiling system above the garage and the ceiling system of interior spaces.
Ceiling penetrations	Ceiling electrical box penetrations and ceiling mechanical box penetrations shall be caulked, gasketed, or sealed at the penetration of the ceiling finish. See Appendix 1.2.4.
Recessed lighting	Recessed light fixtures are air tight, IC rated, and sealed to drywall. Exception— fixtures in conditioned space
Showers/tubs	Air sealing is provided after exterior walls adjacent to showers and tubs be insulated. An air barrier shall be installed between the exterior wall and the showers and tubs.

Residential & Commercial Super Committees
Motion to Deny – Ralph Euchner **/ Second –** David Smith **/ Denied**

Item B – 3.11 **Request from Eric Lacey, representing Responsible Energy Codes Alliance, to revise the 2018 NC Energy Conservation Code, Section: Table C402.4.**

Replace fenestration categories and U-factor requirements of NCECC Table 502.3 with fenestration categories and U-factor requirements of 2015 IECC Table C402.4:

TABLE C402.4
BUILDING ENVELOPE FENESTRATION MAXIMUM U-FACTOR AND SHGC REQUIREMENTS

BUILDING ENVELOPE REQUIREMENTS: FENESTRATION CLIMATE ZONE	**3**	**4**	**5**
Vertical Fenestration (30% maximum of above-grade wall)			
~~***U-Factor***~~			
~~**Framing materials other than metal with or without metal reinforcement or cladding**~~			
~~*U-Factor*~~	~~0.32~~	~~0.32~~	~~0.30~~
~~**Metal framing with or without thermal break**~~			
~~Curtain Wall/Storefront~~	~~0.45~~	~~0.45~~	~~0.38~~
~~*U-Factor*~~			
~~Entrance Door *U*-Factor~~	~~0.77~~	~~0.77~~	~~0.77~~
~~All Other *U*-Factora~~	~~0.45~~	~~0.45~~	~~0.45~~

CLIMATE ZONE	3	4	5
Vertical fenestration			
***U*-factor**			
Fixed fenestration	0.46	0.38	0.38
Operable fenestration	0.60	0.45	0.45
Entrance doors	0.77	0.77	0.77

Residential & Commercial Super Committees
Motion to Deny – Ralph Euchner **/ Second –** Robbie Davis **/ Denied**

Item B – 3.12 **Request from Chuck Perry, representing Appalachian State University, to revise the 2018 NC Energy Conservation Code, Section R406 Energy Rating Index Compliance Alternative.**

SECTION R406
ENERGY RATING INDEX COMPLIANCE ALTERNATIVE

R406.1 Scope. This section establishes criteria for compliance using an Energy Rating Index (ERI) analysis.

R406.2 Mandatory requirements.
Compliance with this section requires that the ~~mandatory~~ provisions identified in Sections ~~R401.2~~ R401 through R404 labeled as "mandatory" ~~and Section R403.5.3~~ be met. The building

thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficient in Table 402.1.1 or 402.1.3 of the ~~2009 *International Energy Conservation Code*~~ *2012 NC Energy Conservation Code*. Minimum standards associated with compliance shall be the ANSI RESNET ICC Standard 301-2014 "Standard for the Calculation and Labeling of the Energy Performance of Low-Rise Residential Buildings using an Energy Rating Index." A North Carolina licensed design professional ***or RESNET Certified Home Energy Rater*** is required to perform the analysis if required by North Carolina licensure laws.

Exception: ~~Supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-6.~~ Supply and return ducts in unconditioned space and outdoors shall be insulated to a minimum R-8. Supply ducts inside semi-conditioned space shall be insulated to a minimum R-4; return ducts inside conditioned and semi-conditioned space are not required to be insulated. Ducts located inside conditioned space are not required to be insulated other than as may be necessary for preventing the formation of condensation on the exterior of cooling ducts.

R406.3 Energy Rating Index.
The Energy Rating Index (ERI) shall be a numerical integer value that is based on a linear scale constructed such that the *ERI reference design* has an Index value of 100 and a *residential building* that uses no net purchased energy has an Index value of 0. Each integer value on the scale shall represent a 1-percent change in the total energy use of the rated design relative to the total energy use of the *ERI reference design*. The ERI shall consider all energy used in the *residential building*.

R406.3.1 ERI reference design.
The *ERI reference design* shall be configured such that it meets the minimum requirements of the 2006 *International Energy Conservation Code* prescriptive requirements**.**

The proposed *residential building* shall be shown to have an annual total normalized modified load less than or equal to the annual total loads of the *ERI reference design*.

R406.4 ERI-based compliance.
Compliance based on an ERI analysis requires that the *rated design* be shown to have an ERI less than or equal to the appropriate value listed in Table R406.4.1 or Table R406.4.2 when compared to the *ERI reference design*.

~~TABLE R406.4~~
~~MAXIMUM ENERGY RATING INDEX~~

~~CLIMATE ZONE~~	~~ENERGY RATING INDEX~~
~~1~~	~~52~~
~~2~~	~~52~~
~~3~~	~~51~~
~~4~~	~~54~~
~~5~~	~~55~~
~~6~~	~~54~~
~~7~~	~~53~~
~~8~~	~~53~~

TABLE R406.4.1 MAXIMUM ENERGY RATING INDEX without calculation of on-site renewable

energy

Climate Zone	Jan 1, 2019 – Dec 31, 2022	Jan 1, 2023 and forward
3	65	61
4	67	63
5	67	63

TABLE R406.4.2 MAXIMUM ENERGY RATING INDEX including calculation of on-site renewable energy

Climate Zone	Jan 1, 2019 – Dec 31, 2022	Jan 1, 2023 and forward
3	51	47
4	54	50
5	55	51

R406.5 Verification ~~by approved agency~~.
Verification of compliance with Section R406 shall be performed by the licensed design professional ***or RESNET Certified Home Energy Rater*** and the compliance documentation shall be provided to the code official. The code official shall inspect according to the requirements of Section R406.6.2 ~~completed by an *approved* third party.~~

R406.6 Documentation.
Documentation of the software used to determine the ERI and the parameters for the residential building shall be in accordance with Sections R406.6.1 through R406.6.3.

R406.6.1 Compliance software tools.
~~Documentation verifying that the methods and accuracy of the compliance software tools conform to the provisions of this section shall be provided to the *code official*.~~ Compliance software tools for this section shall be in compliance with ANSI RESNET ICC Standard 301-2014.

R406.6.2 Compliance report. Compliance software tools shall generate a report that documents that the ERI of the *rated design* complies with Sections R406.3 and R406.4. The compliance documentation shall include the following information:

1. Address or other identification of the residential building.
2. An inspection checklist documenting the building component characteristics of the *rated design*. The inspection checklist shall show results for both the *ERI reference design* and the *rated design*, and shall document all inputs entered by the user necessary to reproduce the results.
3. Name of individual completing the compliance report.
4. Name and version of the compliance software tool.

Exception: ~~Multiple orientations. Where an otherwise identical building model is offered in multiple orientations, compliance for any orientation shall be permitted by documenting that the building meets the performance requirements in each of the four (north, east, south and west) cardinal orientations.~~

R406.6.3 Additional documentation.
Deleted. ~~The *code official* shall be permitted to require the following documents:~~

~~1. Documentation of the building component characteristics of the *ERI reference design*.~~
~~2. A certification signed by the builder providing the building component characteristics of the *rated design.*~~
~~3. Documentation of the actual values used in the software calculations for the *rated design*.~~

R406.7 Calculation software tools. Calculation software, where used, shall be in accordance with Sections R406.7.1 through R406.7.3.

R406.7.1 Minimum capabilities.
Calculation procedures used to comply with this section shall be software tools capable of calculating the ERI as described in Section R406.3, and shall be in compliance with ANSI RESNET ICC Standard 301-2014 ~~and shall include the following capabilities.~~ The software shall include the following capabilities:

1. Computer generation of the *ERI reference design* using only the input for the *rated design*.

   The calculation procedure shall not allow the user to directly modify the building component characteristics of the *ERI reference design*.

2. Calculation of whole building, as a single *zone*, sizing for the heating and cooling equipment in the *ERI reference design* residence in accordance with Section R403.7.

3. Calculations that account for the effects of indoor and outdoor temperatures and part-load ratios on the performance of heating, ventilating and air-conditioning equipment based on climate and equipment sizing.

4. Printed *code official* inspection checklist listing each of the *rated design* component characteristics determined by the analysis to provide compliance, along with their respective performance ratings.

R406.7.2 Specific approval.
Deleted. ~~Performance analysis tools meeting the applicable sections of Section R406 shall be *approved*. Tools are permitted to be *approved* based on meeting a specified threshold for a jurisdiction. The *code official* shall approve tools for a specified application or limited scope.~~

R406.7.3 Input values.
Deleted. ~~When calculations require input values not specified by Sections R402, R403, R404 and R405, those input values shall be taken from an approved source.~~

Residential & Commercial Super Committees
Motion – David Smith **/ Second / Approved**

Building Code Council
Motion – Ralph Euchner **/** Leah Barrett **/ Granted**

Item B – 3.13 **Request from Chuck Perry, representing Appalachian State University, to revise the 2018 NC Energy Conservation Code, Section N1106 Energy Rating Index Compliance Alternative.**

SECTION N1106
ENERGY RATING INDEX COMPLIANCE ALTERNATIVE

N1106.1 Scope. This section establishes criteria for compliance using an Energy Rating Index (ERI) analysis.

N1106.2 Mandatory requirements.
Compliance with this section requires that the ~~mandatory~~ provisions identified in Sections ~~N1101.2~~ N1101 through N1104 labeled as "mandatory" ~~and Section N1103.5.3~~ be met. The building

thermal envelope shall be greater than or equal to levels of efficiency and Solar Heat Gain Coefficient in Table 1102.1.1 or 1102.1.3 of the ~~2009 *International Energy Conservation Code*~~ *2012 NC Energy Conservation Code*. Minimum standards associated with compliance shall be the ANSI RESNET ICC Standard 301-2014 "Standard for the Calculation and Labeling of the Energy Performance of Low-Rise Residential Buildings using an Energy Rating Index." A North Carolina licensed design professional ***or RESNET Certified Home Energy Rater*** is required to perform the analysis if required by North Carolina licensure laws.

Exception: ~~Supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-6.~~ Supply and return ducts in unconditioned space and outdoors shall be insulated to a minimum R-8. Supply ducts inside semi-conditioned space shall be insulated to a minimum R-4; return ducts inside conditioned and semi-conditioned space are not required to be insulated. Ducts located inside conditioned space are not required to be insulated other than as may be necessary for preventing the formation of condensation on the exterior of cooling ducts.

N1106.3 Energy Rating Index.
The Energy Rating Index (ERI) shall be a numerical integer value that is based on a linear scale constructed such that the *ERI reference design* has an Index value of 100 and a *residential building* that uses no net purchased energy has an Index value of 0. Each integer value on the scale shall represent a 1-percent change in the total energy use of the rated design relative to the total energy use of the *ERI reference design*. The ERI shall consider all energy used in the *residential building*.

N1106.3.1 ERI reference design.
The *ERI reference design* shall be configured such that it meets the minimum requirements of the 2006 *International Energy Conservation Code* prescriptive requirements**.**

The proposed *residential building* shall be shown to have an annual total normalized modified load less than or equal to the annual total loads of the *ERI reference design*.

N1106.4 ERI-based compliance.
Compliance based on an ERI analysis requires that the *rated design* be shown to have an ERI less than or equal to the appropriate value listed in Table N1106.4.1 or Table N1106.4.2 when compared to the *ERI reference design*.

~~TABLE N1106.4~~
~~MAXIMUM ENERGY RATING INDEX~~

~~CLIMATE ZONE~~	~~ENERGY RATING INDEX~~
~~1~~	~~52~~
~~2~~	~~52~~
~~3~~	~~51~~
~~4~~	~~54~~
~~5~~	~~55~~
~~6~~	~~54~~
~~7~~	~~53~~
~~8~~	~~53~~

TABLE N1106.4.1 MAXIMUM ENERGY RATING INDEX without calculation of on-site renewable

energy

Climate Zone	Jan 1, 2019 – Dec 31, 2022	Jan 1, 2023 and forward
3	65	61
4	67	63
5	67	63

TABLE N1106.4.2 MAXIMUM ENERGY RATING INDEX including calculation of on-site renewable energy

Climate Zone	Jan 1, 2019 – Dec 31, 2022	Jan 1, 2023 and forward
3	51	47
4	54	50
5	55	51

N1106.5 Verification ~~by approved agency~~.
Verification of compliance with Section N1106 shall be performed by the licensed design professional ***or RESNET Certified Home Energy Rater*** and the compliance documentation shall be provided to the code official. The code official shall inspect according to the requirements of Section N1106.6.2 ~~completed by an *approved* third party.~~

N1106.6 Documentation.
Documentation of the software used to determine the ERI and the parameters for the residential building shall be in accordance with Sections N1106.6.1 through N1106.6.3.

N1106.6.1 Compliance software tools.
~~Documentation verifying that the methods and accuracy of the compliance software tools conform to the provisions of this section shall be provided to the *code official*.~~ Compliance software tools for this section shall be in compliance with ANSI RESNET ICC Standard 301-2014.

N1106.6.2 Compliance report. Compliance software tools shall generate a report that documents that the ERI of the *rated design* complies with Sections N1106.3 and N1106.4. The compliance documentation shall include the following information:

1. Address or other identification of the residential building.
2. An inspection checklist documenting the building component characteristics of the *rated design*. The inspection checklist shall show results for both the *ERI reference design* and the *rated design*, and shall document all inputs entered by the user necessary to reproduce the results.
3. Name of individual completing the compliance report.
4. Name and version of the compliance software tool.

Exception: ~~Multiple orientations. Where an otherwise identical building model is offered in multiple orientations, compliance for any orientation shall be permitted by documenting that~~

~~the building meets the performance requirements in each of the four (north, east, south and west) cardinal orientations.~~

N1106.6.3 Additional documentation.
Deleted. ~~The *code official* shall be permitted to require the following documents:~~

~~1. Documentation of the building component characteristics of the *ERI reference design*.~~
~~2. A certification signed by the builder providing the building component characteristics of the *rated design.*~~
~~3. Documentation of the actual values used in the software calculations for the *rated design*.~~

N1106.7 Calculation software tools. Calculation software, where used, shall be in accordance with Sections N1106.7.1 through N1106.7.3.

N1106.7.1 Minimum capabilities.
Calculation procedures used to comply with this section shall be software tools capable of calculating the ERI as described in Section N1106.3, and shall be in compliance with ANSI RESNET ICC Standard 301-2014 ~~and shall include the following capabilities.~~ The software shall include the following capabilities:

1. Computer generation of the *ERI reference design* using only the input for the *rated design*.

   The calculation procedure shall not allow the user to directly modify the building component characteristics of the *ERI reference design*.

2. Calculation of whole building, as a single *zone*, sizing for the heating and cooling equipment in the *ERI reference design* residence in accordance with Section N1103.7.

3. Calculations that account for the effects of indoor and outdoor temperatures and part-load ratios on the performance of heating, ventilating and air-conditioning equipment based on climate and equipment sizing.

4. Printed *code official* inspection checklist listing each of the *rated design* component characteristics determined by the analysis to provide compliance, along with their respective performance ratings.

N1106.7.2 Specific approval.
Deleted. ~~Performance analysis tools meeting the applicable sections of Section N1106 shall be *approved*. Tools are permitted to be *approved* based on meeting a specified threshold for a jurisdiction. The *code official* shall approve tools for a specified application or limited scope.~~

N1106.7.3 Input values.
Deleted. ~~When calculations require input values not specified by Sections N1102, N1103, N1104 and N1105, those input values shall be taken from an approved source.~~

Residential & Commercial Super Committees
Motion to Deny – Leon Skinner **/ Second / Denied**

Note: The BCC met on January 18, 2017 at the OSFM, and some by call-in, to reconsider Item B 3.13. The contents of this item are the same as B 3.12. Item B 3.12 was granted, but 3.13 was denied.

Residential & Commercial Super Committees
Motion to Reconsider – Ralph Euchner **/ Second –** Tim Fowler **/ Approved**
Motion – Tim Fowler **/ Second –** David Smith **/ Approved**

Building Code Council
Motion – Leon Skinner **/ Second –** David Smith **/ Granted**

Item B – 3.14 **Request from Amy Musser, representing Vandemusser Design, PLLC, to revise the 2018 Energy Conservation Code, Chapter 4 (residential) Section 403.**

403.5 Circulating hot water systems (Mandatory Requirements). All circulating service hot water piping shall be insulated to at least R-2. ~~Circulating hot water systems shall include an automatic or readily accessible manual switch that can turn off the hot water circulating pump when the system is not in use.~~

Residential & Commercial Super Committees
Motion to Deny – Leon Skinner **/ Second –** Robbie Davis **/ Denied**

Item B – 4 **Request from Dave Crawford, representing AIA-North Carolina, to revise the 2018 NC Building Code, Section 2902.1.2, and the 2018 NC Plumbing Code, Section 403.1 and Section 403.2 Separate Facilities**

Part 1: Code Change Proposal

2018 NC Building Code
Section 2902.1.2: delete the words “in assembly and mercantile occupancies”. Add the words "in all occupancies noted in Table 2902.1"

2018 NC Plumbing Code
Section 403.1: add the following new section
403.1.1 Single-occupancy toilet facility and bathing room fixtures.
The plumbing fixtures located in single- occupancy toilet facilities and bathing rooms, including family or assisted-use toilet and bathing rooms that are required by Section 1109.2.1 of the North Carolina Building Code, and including all occupancies noted in Table 403.1, shall contribute towards the total number of required plumbing fixtures for a building or tenant space.

Section 403.2 Separate facilities: add the following
Exceptions:
5. Except as provided in Section 403.2.1.

403.2.1. Single- occupancy toilet facilities and bathing rooms, and family or assisted- use toilet and bathing rooms shall not be required to be identified by gender.

Residential & Commercial Super Committee
Motion – Leon Skinner **/ Second –** Robbie Davis **/ Approved**

Building Code Council
Motion – Ralph Euchner **/ Second –** Keith Rogers **/ Granted**

Item B – 5 **Request from Terry Cromer, representing NC Association of Electrical Contractors, to amend the 2014 NC Electrical Code, Section 680.21(C)(1) Pool Pump Motor Replacement as follows:**

680.21(C)(1) Pool Pump Motor Replacement. Whenever a pool pump motor requires replacing and the existing branch circuit or receptacle, providing power to the pump motor, does not provide ground-fault circuit-interrupter protection for personnel the branch circuit or receptacle shall be updated to provide ground-fault circuit-interrupter protection for personnel.

Residential & Commercial Super Committees
Motion – David Smith **/ Second / Approved**

Building Code Council
Motion – Ralph Euchner **/** Wayne Hamilton **/ Granted**

Item B – 6 **Request from Daniel Priest, representing Priest Architecture, PLLC, to amend Section 901.1 from the 2018 NC Fire Prevention Code, as follows:**

901.1 Scope. ~~The provisions of this chapter shall specify where fire protection systems are required and shall apply to the design, installation, inspection, operation, testing and maintenance of all *fire protection systems.*~~

901.1 Scope. The provisions of the International Building Code shall specify where *fire protection systems* are required and shall apply to the design, installation, inspection, operation, testing of all fire protection systems. Fire protection systems shall be repaired, operated and maintained in accordance to the *International Fire Code.*

Residential & Commercial Super Committees
Motion – Robbie Davis **/ Second / Approved**

Building Code Council
Motion – Daniel Priest **/ Second / Granted**

Item B – 7 **Request from Robbie Davis, representing the NC Building Code Council Building/Fire Ad-Hoc Committees, to amend the 2018 NC Building Code, Section [A] 101.2 Scope, as follows:**

[A] 101.2 Scope. The provisions of this code shall apply to the construction, *alteration*, relocation, enlargement, replacement, *repair*, equipment, use and occupancy, location, maintenance, removal and demolition of every building or structure or any appurtenances connected or attached to such buildings or structures.

Exceptions: If any of the following apply the building or structure is exempt from the provisions of this code:

1. Detached one- and two-family *dwellings* and multiple single-family *dwellings (townhouses)* not more than three *stories above grade plane* in

height with a separate *means of egress*, and their accessory structures not more than three *stories above grade plane* in height, shall comply with the *International Residential Code*.

~~2. Farm *buildings* located outside of the buildings rules jurisdiction of any municipality.~~

~~**Exception:** All buildings used for sleeping purposes shall conform to the provisions of the technical codes.~~

2. *Farm buildings* not used for:

a. Sleeping purposes, or

b. Storage of hazardous materials in excess of those listed in Tables 307.1(1) and 307.1(2) within the building rules jurisdiction of any municipality.

3. The design construction, location, installation or operation of equipment for storing, handling and transporting liquefied petroleum gases for fuel purposes up to the outlet of the first stage pressure regulator, anhydrous ammonia or other liquid fertilizer.

4. The design construction, location, installation or operation of equipment or facilities of a public utility, as defined in NC G.S. 62-3, or electric or telephone membership corporation, including without limitation poles, towers and other structures supporting electric or communication lines from the distribution network up to the meter location.

Note: All *buildings* owned and operated by a public utility or an electric or telephone membership corporation shall meet the provisions of this code.

5. The storage and handling of hazardous chemicals as they relate to NC G.S. 95, Article 18 - Hazardous Chemicals Right to Know Act.

SECTION 202 DEFINITIONS

FARM BUILDING. Any building not used for sleeping purposes that is not accessed by the general public and is used primarily for a bona fide farm purpose. Bona-fide farm purposes includes but is not limited to structures or *buildings* for storage and processing of agricultural products or commodities such as: crops, fruits, vegetables, ornamental or flowering plants, dairy, timber, livestock, poultry and all other such forms of agricultural products by the specific farm on which the structure or *building* is located. Bona-fide farm purposes do not include structures or *buildings* for uses such as education facilities, research facilities, or aircraft hangers.

Commercial Super Committee
Motion – Robbie Davis **/ Second / Approved**

Building Code Council
Motion – Robbie Davis **/ Second –** Daniel Priest **/ Granted**

Item B – 8 **Request by Robbie Davis, representing the NC Building Code Council Building/Fire Ad-Hoc Committees, to amend the 2018 NC Fire Prevention Code, Chapter 1, Section 102.13 Exception to applicability and Chapter 2, as follows:**

CHAPTER 1 CHANGES NC Fire Prevention Code

102.13 Exception to applicability.
The provisions of this code shall not apply to the following:

1. Occupancy of one- and two-family dwellings.

~~2. Farm buildings located outside the building rules jurisdiction of any municipality.~~

~~**Exception:** All buildings used for sleeping purposes shall conform to the provisions of the technical codes.~~

2. *Farm buildings* not used for:

a. Sleeping purposes, or
b. Storage of hazardous materials in excess of those listed in Tables 5003.1(1) and 5003.1(2) within the building rules jurisdiction of any municipality.

3. The design, construction, location, installation or operation of equipment for storing, handling, and transporting liquefied petroleum gases for fuel purposes up to the first stage regulator, liquefied natural gases, and anhydrous ammonia or other liquid fertilizers.

4. The design, construction, location, installation or operation of equipment or facilities of a public utility, as defined in *N.C.G.S* 62-3, or an electric or telephone membership corporation, including without limitation poles, towers and other structures supporting electric or communication lines from the distribution network up to the meter location.
Exception: All buildings owned and operated by a public utility or an electric or telephone membership corporation shall meet the provisions of the code.

5. The Storage and Handling of Hazardous Chemicals Right to Know Act. North Carolina *N.C.G.S* 95-173 through 95-218.

6. Open burning pursuant to *N.C.G.S.* 106 - 940 through 106 - 950 under the jurisdiction of the North Carolina Department of Agriculture and Consumer Services.

CHAPTER 2 CHANGES

FARM BUILDING. *Any building not used for sleeping purposes that is not accessed by the general public and is used primarily for a bona fide farm purpose. Bona-fide farm purposes includes but is not limited to structures or buildings for storage and processing of agricultural products or commodities such as: crops, fruits, vegetables, ornamental or flowering plants, dairy, timber, livestock, poultry and all other such forms of agricultural products by the specific farm on which the structure or building is located. Bona-fide farm purposes do not include structures or buildings for uses such as education facilities, research facilities, or aircraft hangars.*

Commercial Super Committee
Motion – Robbie Davis **/ Second –** Ralph Euchner **/ Approved**

Building Code Council
Motion – Robbie Davis **/ Second -** Daniel Priest **/ Granted**

Item B – 9 **Request from Robbie Davis, representing the NC Building Code Council Building/Fire Ad-Hoc Committees, to amend the 2018 NC Fire Prevention Code, Chapter 1, Section 105.6.45 Temporary membrane structures and tents (mandatory permit), Section 105.7.18 Temporary membrane structures and tents and Chapter 31, Section 3103.2 Approval required, as follows:**

CHAPTER 1 CHANGES

105.6.45 Temporary membrane structures and tents (mandatory permit). An operational permit is required to operate an air-supported temporary membrane structure ,or a temporary stage canopy having an area in excess of 400 square feet (37 m2) or a tent having an area in excess of ~~400~~ 800 square feet (~~37~~ 74 m2).

Exceptions:

1. Tents used exclusively for recreational camping purposes.

2. Tents open on all sides, which comply with all of the following:
   2.1. Individual tents having a maximum size of ~~700~~ 1800 square feet (~~65~~ 148 m2).
   2.2. The aggregate area of multiple tents placed side by side without a fire break clearance of not less than 12 feet (3658 mm) shall not exceed ~~700~~ 1800 square feet (~~65~~ 148 m2) total.

   2.3. A minimum clearance of 12 feet (3658 mm) to structures and other tents shall be provided.

3. Funeral tents and curtains or extensions attached thereto, when used for funeral services.

[A] 105.7.18 Temporary membrane structures and tents. A construction permit is required to erect an air-supported temporary membrane structure,or a temporary stage canopy having an area in excess of 400 square feet (37 m2) or a tent having an area in excess of ~~400~~ 800 square feet (~~37~~ 74 m2).

Exceptions:

1. Tents used exclusively for recreational camping purposes.

2. Tents open on all sides, which comply with all of the following:
   2.1. Individual tents having a maximum size of ~~700~~ 1800 square feet (~~65~~ 148 m2).
   2.2. The aggregate area of multiple tents placed side by side without a fire break clearance of not less than 12 feet (3658 mm) shall not exceed ~~700~~ 1800 square feet (~~65~~ 148 m2) total.
   2.3. A minimum clearance of 12 feet (3658 mm) to structures and other tents shall be provided.

3. Funeral tents and curtains or extensions attached thereto, when used for funeral services.

CHAPTER 31 CHANGES

3103.2 Approval required. Tents and membrane structures ~~having an area in excess of 400 square feet (37 m2)~~ shall not be erected, operated or maintained for any purpose without first obtaining a permit and approval from the *fire code official*.

3103.2.1 Membrane Structures.
Membrane structures having an area in excess of 400 square feet (37 m2)

3103.2.2 Tents.

Tents having an area in excess of 800 square feet (74.32 m2).

Exceptions:
1. Tents used exclusively for recreational camping purposes.

2. Tents open ~~on all sides~~ without sidewalls, drops or other physical obstructions on 75 percent or more of the perimeter that comply with all of the following:
   2.1. Individual tents having a maximum size of ~~700~~ 1800 square feet (~~65~~ 148.6 m2).
   2.2. The aggregate area of multiple tents placed side by side without a fire break clearance of 12 feet (3658 mm), not exceeding ~~700~~ 1800 square feet (~~65~~ 148.6 m2) total.
   2.3. A minimum clearance of 12 feet (3658 mm) to all structures and other tents.
3. Funeral tents and curtains or extensions attached thereto, when used for funeral services.

3103.5 Use period. A t~~T~~emporary tent~~s~~, air-supported, air-inflated or tensioned membrane structures shall not be erected for a period of more than 180 consecutive days within a 12-month period on a single premises.

Commercial Super Committee
Motion – Robbie Davis **/ Second –** Ralph Euchner **/ Approved**

Building Code Council
Motion – Robbie Davis **/ Second –** Daniel Priest **/ Granted**

Item B – 10 **Request from Robbie Davis, representing the NC Building Code Council Building/Fire Ad-Hoc Committees, to amend the 2018 NC Fire Prevention Code, Chapter 34, Section 3406.1 Required access, as follows:**

3406.1 Required access.
New tire storage yards shall be provided with fire apparatus access roads in accordance with Section 503 and Section 3406.2. Existing tire storage yards shall be provided with fire apparatus access roads where required in ~~Chapter 11~~ Section 3406.1.1.

3406.1.1 Existing tire storage yards.
Existing tire storage yards in excess of 150,000 cubic feet shall be provided with fire apparatus access roads in accordance with Section 3406.1.1.1 and 3406.1.1.2.

3406.1.1.1 Access to piles.
Access roadways shall be within 150 feet (45 720 mm) of any point in the storage yard where storage piles are located not less than 20 feet (6096 mm) from any storage pile.

3406.1.1.2 Location within piles.
Fire apparatus access roads shall be located within all pile clearances identified in Section 3405.4 and within all fire breaks required in Section 3405.5.

Commercial Super Committee
Motion – Robbie Davis **/ Second –** Ralph Euchner **/ Approved**

Building Code Council
Motion – Keith Rogers **/ Second / Granted**

Item B – 11 **Request from Robbie Davis, representing the NC Building Code Council Building/Fire Ad-Hoc Committees, to amend the 2018 NC Building Code, Section 1107.6.2.2.1 Type A units, as follows:**

1107.6.2.2.1 Type A units.
In Group R-2 occupancies containing ~~11or more~~ more than 20 *dwelling units* or *sleeping unit*s, at least ~~5~~ 2 percent but not less than one of the units shall be a *Type A unit*. ~~For a site with more than 100 units, at least 2 percent of the number of units exceeding 100 shall bt Type A units.~~ All Group R-2 units on a *site* shall be considered to determine the total number of units and the required number of *Type A units*.*Type A units* shall be dispersed among the various classes of units.Bedrooms in monasteries and convents shall be counted as *sleeping units* for the purpose of determining the number of units.Where the *sleeping units* are grouped into suites, only one *sleeping unit* in each suite shall count towards the number of required *Type A unit*

Exceptions:
1. The number of *Type A units* is permitted to be reduced in accordance with Section 1107.7.

2. *Existing structures* on a *site* shall not contribute to the total number of units on a *site*.

Commercial Super Committee
Motion – Robbie Davis **/ Second -** Keith Rogers **/ Approved**

Building Code Council
Motion – Wayne Hamilton **/ Second / Granted**

Item B – 12 **Request from Robbie Davis, representing the NC Building Code Council Building/Fire Ad-Hoc Committees, to amend the 2018 NC Fire Prevention Code, Chapter 9, Section 903.4.1 Monitoring, as follows:**

903.4.1 Monitoring.
Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an *approved* supervising station, where approved by the *fire code official*, shall be an audible signal at a constantly attended location.

Exceptions:

1. Underground key or hub valves in roadway boxes provided by the municipality or public utility are not required to be monitored.

2. Backflow prevention device test valves located in limited area sprinkler system supply piping shall be locked in the open position. In occupancies required to be equipped with a fire alarm system, the backflow preventer valves shall be electrically supervised by a tamper switch installed in accordance with NFPA 72 and separately annunciated.

~~3. A group R-2 building sprinklered in accordance with NFPA 13R where sprinklers are provided for porches, balconies, corridors and stairs that are open and attached and installed supervised in accordance with Section 903.4. At a minimum an approved audible alarm device shall be provided on every sprinklered~~

~~R-2 building in accordance with Section 903.4.2 of the North Carolina Fire Code. No on-site supervision is required at a constantly attended location.~~

Commercial Super Committee
Motion – Wayne Hamilton **/ Second –** Keith Rogers **/ Approved**

Building Code Council
Motion –Keith Rogers **/ Second / Granted**

Part C – Notice of Rulemaking Proceedings and Public Hearing
The following Petitions for Rulemaking have been granted by the Council. Notice of Rulemaking proceedings has been made. The Public Hearing was held December 13, 2016 and the Final Adoption meeting may take place on or after December 13, 2016. The written public comment period expires on October 14, 2016.

There were no C items.

Part D – Final Adoption
With the exception of Item D-1, the following Petitions for Rulemaking have been granted by the Council. Notice of Rulemaking proceedings and Public Hearing has been made. The Public Hearings were held September 13, 2016. The Final Adoption meeting took place on December 13, 2016. The Council will give no further consideration to Petitions that are disapproved. Petitions that are approved will proceed through the Rulemaking process. The effective date is January 1, 2018 unless otherwise noted.

Item D – 1 **Request by Dan Hartley, representing BHM Architects, to amend the 2012 NC Building Code, Section 509.2 as follows:**

509.2 Horizontal building separation allowance. A building shall be considered as separate and distinct buildings for the purpose of determining area limitations, continuity of *fire walls*, limitation of number of *stories* and type of construction where all of the following conditions are met:

1. The buildings are separated with a *horizontal assembly* having a minimum 3-hour *fire-resistance rating*.
2. ~~The building below the *horizontal assembly* is no more than one *story above grade plane*.~~ Deleted.
3. The building below the *horizontal assembly* is of Type IA construction.
4. Shaft, *stairway*, ramp and escalator enclosures through the *horizontal assembly* shall have not less than a 2-hour *fire-resistance rating* with opening protectives in accordance with Section 715.4.

Exception: Where the enclosure walls below the *horizontal assembly* have not less than a 3-hour *fire resistance rating* with opening protectives in accordance with Section 715.4, the enclosure walls extending above the *horizontal assembly* shall be permitted to have a 1-hour *fire-resistance rating*, provided:

1. The building above the *horizontal assembly* is not required to be of Type I construction;
2. The enclosure connects less than four *stories*; and
3. The enclosure opening protectives above the *horizontal assembly* have a minimum 1-hour *fire protection rating*.

5. The building or buildings above the *horizontal assembly* shall be permitted to have multiple Group A occupancy uses, each with an *occupant load* of less than 300, or Group B, M, R or S occupancies.
6. The building below the *horizontal assembly* shall be protected throughout by an *approved automatic sprinkler system* in accordance with Section 903.3.1.1, and shall be permitted to be any of the following occupancies:
    6.1. Group S-2 parking garage used for the parking and storage of private motor vehicles;
    6.2. Multiple Group A, each with an *occupant load* of less than 300;
    6.3. Group B;
    6.4. Group M;
    6.5. Group R; and
    6.6. Uses incidental to the operation of the building (including entry lobbies, mechanical rooms, storage areas and similar uses).

7. The maximum *building height* in feet (mm) shall not exceed the limits set forth in Section 503 for the building having the smaller allowable height as measured from the *grade plane*.

Commercial Super Committee
Motion – Robbie Davis **/ Second / Approved**

Building Code Council
Motion – Daniel Priest **/ Second / Adopted**

Item D – 2 Request by Ralph Euchner, representing NC Building Code Council, to amend the 2012 NC Plumbing Code, Section 306.2.4 as follows:

306.2.4 Tracer wire. For plastic sewer *piping*, an insulated copper tracer wire or other *approved* conductor shall be installed adjacent to and over the full length of the *piping*. Access shall be provided to the tracer wire or the tracer wire shall terminate at the cleanout between the building drain and building sewer. The tracer wire size shall be not less than 14 AWG and the insulation type shall be listed for direct burial.

Residential & Commercial Super Committees
Motion – David Smith **/ Second / Approved**

Building Code Council
Motion – Ralph Euchner **/ Second / Adopted as Modified, Effective March 1, 2017**

Item D – 3 Request by Robert Privott, representing NC Home Builders Association, to amend the 2012 NC Residential Code, Section AG105.2 as follows:

AG105.2 Outdoor swimming pool. An outdoor swimming pool, including an in-ground, above-ground or on-ground pool, hot tub or spa shall be surrounded by a barrier which shall comply with the following:

1. The top of the barrier shall be at least 48 inches (1219 mm) above *grade* measured on the side of the barrier which faces away from the swimming pool. The maximum vertical clearance between grade and the bottom of the barrier shall be 2 inches (51 mm) or 4 inches (102 mm) where concrete or fixed solid material is used measured on the side of the barrier which faces away from the swimming pool. Where the top of the pool structure is above grade, such as an above-ground pool, the barrier may be at ground level, such as the pool structure, or mounted on top of the pool structure. Where

the barrier is mounted on top of the pool structure, the maximum vertical clearance between the top of the pool structure and the bottom of the barrier shall be 4 inches (102 mm).

Residential Super Committee
Motion – David Smith **/ Second / Approved**

Building Code Council
Motion – Wayne Hamilton **/ Second / Adopted**

Item D – 4 **Request by Terry Cromer, representing NC Association of Electrical Contractors, to amend the 2014 NC Electrical Code, Article 680.25(A) Exception as follows:**

680.25 Feeders. These provisions shall apply to any feeder on the supply side of panelboards supplying branch circuits for pool equipment covered in Part II of this article and on the load side of the service equipment or the source of a separately derived system.

(A) Wiring Methods.

(1) Feeders. Feeders shall be installed in rigid metal conduit or intermediate metal conduit. The following wiring methods shall be permitted if not subject to physical damage:

(1) Liquidtight flexible nonmetallic conduit
(2) Rigid polyvinyl chloride conduit
(3) Reinforced thermosetting resin conduit
(4) Electrical metallic tubing where installed on or within a building
(5) Electrical nonmetallic tubing where installed within a building
(6) Type MC cable where installed within a building and if not subject to corrosive environment

Exception: An existing feeder within a one-family dwelling unit or two-family dwelling unit between an existing remote panelboard and service equipment shall be permitted to run in flexible metal conduit or an approved cable assembly that includes an equipment grounding conductor within its outer sheath. The equipment grounding conductor shall comply with 250.24(A)(5).

Residential & Commercial Super Committee
Motion – Daniel Priest **/Second / Approved**

Building Code Council
Motion – Tim Fowler **/ Second –** Wade White **/ Adopted as Modified**

Item D – 5 **Request by Michael Rettie, representing Orange County Inspection Department, to amend the 2012 NC Residential Code, Section N1102.4.3 and the 2012 NC Energy Conservation Code, Section 402.4.3 as follows:**

N1102.4.3 Fireplaces. Site-built masonry fireplaces shall have dampers and comply with Section R1006 of the *North Carolina Residential Code* for combustion air.

402.4.3 Fireplaces. Site-built masonry fireplaces shall have dampers and comply with Section R1006 of the *North Carolina Residential Code* for combustion air.

Residential Super Committee
Motion to approve, (with amended language) – Keith Hamilton **/ Second –** Leah Barrett **/ Approved**

Building Code Council
Motion to approve, (with amended language) – David Smith **/ Second –** Ralph Euchner **/ Adopted as Modified, Effective date March 1, 2017**

Item D – 6 Request by Patrick Keal, representing Big Ass Solutions, to amend the 2012 NC Mechanical Code, Section 202 as follows:

202 General Definitions.

High Volume Low Speed Fan. A ceiling fan that circulates high volumes of air at low rotational speeds. Such fans are greater than 7 feet in diameter.

Commercial Super Committee
Motion – Robbie Davis **/ Second –** Leah Barrett **/ Approved**

Building Code Council
Motion – Tim Fowler **/ Second –** Wayne Hamilton **/ Adopted**

Item D – 7 Request by Patrick Keal, representing Big Ass Solutions, to amend the 2012 NC Mechanical Code, Chapter 15 as follows:

Chapter 15

Referenced Standards.

AMCA

Air Movement and Control Association International
30 West University Drive
Arlington Heights, IL 60004

Standard Reference Number	Title	Referenced in Code Section Number
230-15	Laboratory Methods of Testing Air Circulating Fans for Rating and Certification	931

UL

Underwriters Laboratories, Inc.
333 Pfingsten Road
Northbrook, IL 60062-2096

Standard Reference Number	Title	Referenced in Code Section Number
507-99 9th Edition	Standard for Electric Fans	931

[Note: 540-08 is not referenced in the code.**]**

Commercial Super Committee
Motion – Keith Rogers **/ Second –** Leah Barrett **/ Approved**

Building Code Council
Motion – Keith Rogers **/ Second / Adopted as Modified**

Item D – 8 Request by Patrick Keal, representing Big Ass Solutions, to amend the 2012 NC Mechanical Code, Section 929 as follows:

931 High Volume Low Speed Fans.
931.1 General. Where provided, high volume low speed fans shall be tested and labeled in accordance with AMCA 230, listed and labeled in accordance with UL 507, and installed in accordance with the manufacturer's instructions.

Commercial Super Committee
Motion – Keith Rogers **/ Second –** Leah Barrett **/ Approved**

Building Code Council
Motion – Leah Barrett **/ Second / Adopted as Modified**

Item D – 9 Request by Ed Johnson, representing Campus Safety Products, LLC, to amend the 2012 NC Building Code and Fire Code, Section 1008; and the Existing Building Code, Sections 403 and 704 as follows:

2012 NC Building Code

1008.1.4.6 Locking arrangements in educational occupancies. In Group E and Group B educational occupancies, egress doors from classrooms, offices and other occupied rooms shall be permitted to be provided with locking arrangements designed to keep intruders from entering the room where all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. The door shall be openable from within the room in accordance with Section 1008.1.9.
3. Modifications shall not be made to listed panic hardware, fire door hardware or door closers.
4. Modifications to fire door assemblies shall be in accordance with NFPA 80.

1008.1.4.6.1 Remote operation of locks. Remote operation of locks complying with Section 1008.1.4.6 shall be permitted.

2012 NC Fire Code

1008.1.4.6 Locking arrangements in educational occupancies. In Group E and Group B educational occupancies, egress doors from classrooms, offices and other occupied rooms shall be permitted to be provided with locking arrangements designed to keep intruders from entering the room where all of the following conditions are met:

1. The door shall be capable of being unlocked from outside the room with a key or other approved means.

2. The door shall be openable from within the room in accordance with Section 1008.1.9 of the *North Carolina Building Code*.
3. Modifications shall not be made to listed panic hardware, fire door hardware or door closers.
4. Modifications to fire door assemblies shall be in accordance with NFPA 80.

2015 NC Existing Building Code

403.7 Locking arrangements in educational occupancies. In Group E and Group B educational occupancies, egress doors from classrooms, offices and other occupied rooms shall be permitted to be provided with locking arrangements designed to keep intruders from entering the room where all of the following conditions are met:
1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. The door shall be openable from within the room in accordance with Section 1008.1.9 of the *North Carolina Building Code.*
3. Modifications shall not be made to listed panic hardware, fire door hardware or door closers.
4. Modifications to fire door assemblies shall be in accordance with NFPA 80.

704.2 Locking arrangements in educational occupancies. In Group E and Group B educational occupancies, egress doors from classrooms, offices and other occupied rooms shall be permitted to be provided with locking arrangements designed to keep intruders from entering the room where all of the following conditions are met:
1. The door shall be capable of being unlocked from outside the room with a key or other approved means.
2. The door shall be openable from within the room in accordance with Section 1008.1.9 of the *North Carolina Building Code*.
3. Modifications shall not be made to listed panic hardware, fire door hardware or door closers.
4. Modifications to fire door assemblies shall be in accordance with NFPA 80.

Commercial Super Committee
Motion - Wayne Hamilton **/ Second –** Keith Rogers **/ Approved**

Building Code Council
Motion – Daniel Priest **/ Second –** Tim Fowler **/ Adopted**

Item D–10 Request by Ed Johnson & Tommy Faulkner, representing Campus Safety Products, LLC, to amend the 2012 NC Fire Code, Section 1008. The proposed amendment is as follows:

1008.1.11 Emergency lockdown safety mechanisms. *Approved* emergency lockdown safety mechanisms shall be permitted in schools, government, and non-government office environments for the purposes of establishing a secured area in accordance with lockdown plans in Section 404.3.3 and Items 1-8 below:
1. The emergency lockdown safety mechanism shall be readily distinguishable as engaged or disengaged.
2. Clearly identifiable operating procedures shall be posted on or within close proximity of the installed mechanism.
3. The emergency lockdown safety mechanism shall be readily engaged from the egress side without the use of a key or special knowledge or effort.
4. The emergency lockdown safety mechanism shall have a built-in mechanical feature to prevent unintended engagement.

5. The emergency lockdown safety mechanism shall have the capability to operate on outward swinging doors, inward swinging doors, and free-swinging doors.
6. The emergency lockdown safety mechanism shall be readily disengaged from the ingress side with proper tools and instruction.
7. The mechanism shall be installed 6 inches (152 mm) minimum and 48 inches (1219 mm) maximum above the finished floor. However, the maximum installed height shall be limited such that the emergency lockdown safety mechanism is at least 30 inches (762 mm) from any glass openings within the door.

   A building occupant shall not be required to pass through more than one door equipped with an emergency lockdown safety mechanism before entering an exit.

Commercial Super Committee
Motion to Deny – Wayne Hamilton **/ Second –** Keith Rogers **/ Denied**

Part E – Reports

Chairman's Report

Dan Tingen spoke about the new voting process with the Super Committees and how the process for recommending the B Items for approval by the Council is going. He also commented on the ICC progress and when it may be available for use. Terrance Friedman talked about the funds allocated from the General Assembly for on-line codes, negotiating for 2002, 2006 and 2009 versions of the Building Code available on line in PDF format plus 3 years enhanced 2012 code access since the 2018 Codes would not be adopted by this June.

Dan commented to the Standing Committees to be prepared with any "B" Items and code changes in June. He also suggested to possibly having meetings over a 2 day period.

Commissioner Mike Causey briefly dropped in to say a few words during the meeting.

Ad Hoc Committee Reports
All of the Ad-Hoc Committees Chairperson's provided updates on the past year and all of the time and work they put in involving the code changes.

Standing Committee Reports
There were none

Election of Officers
Tony Sears and Eric Tjalma were newly appointed to office. Tony is the new Municipal Representative, replacing Scott Stevens, and Eric is the new State Agency representative, taking Cindy Registers place. Leon Skinner replaced Lon McSwain as the Municipal/County Building Inspector. David Smith, Daniel Priest and Frankie Meads have all been reappointed. Paula Strickland has resigned due to health reasons.

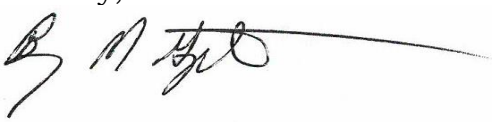
Staff Reports
Barry Gupton gave an update on OSFM's move into the Albemarle Building and reported that the move it still optimistically scheduled for February/March 2017. He also went over upcoming meeting dates for the New Year and noted that Leah Barrett will be leaving in March.

Public Comments

Part F – Appeals

The Davis & Weeks Appeal was held December 14, 2016.

Sincerely,



Barry Gupton, P.E.Secretary,
NC Building Code Council