Alaska Housing Finance Corporation

Alaska-Specific Amendments to the IECC 2009

Version – March 9, 2011

This document is a list of Alaska-specific amendments to the International Energy Code 2009, First Printing, January 2009 (IECC 2009) adopted by the Alaska Housing Finance Corporation (AHFC) on March 9, 2011. It is meant to be read in conjunction with the IECC 2009 and ASHRAE 62.2 2010 which may be purchased at local bookstores or online. These amendments comprise both the Residential and Commercial Building Energy Efficiency Standards (BEES) for AHFC-funded residential mortgage loans and energy rebates, and energy retrofits of public buildings. These amendments supplant the BEES amendments to IECC 2006 for residential projects as adopted on June 17, 2009 and include the amendments previously made to the IECC 2009 known as the "Commercial BEES." These amendments are numbered and organized by the chapter and section numbers found in the IECC 2009 and follow immediately:

Chapter 1 – Administration

101.1 Title. Modify this subsection to read: "This code shall be known as the Building Energy Efficiency Standard (BEES) for Alaska Housing Finance Corporation (AHFC) and shall be cited as such. It is referred to herein as "this code."

Delete the remainder of this Chapter. This IECC chapter assumes that the energy standards in Chapters Four and Five will be administered by a code official representing a state or municipal entity. As these amendments are adopted by AHFC for the purpose of establishing the Building Energy Efficiency Standards (BEES) for programs solely administered by AHFC, the administration of these standards is also an AHFC function and will be established by policies set out by AHFC.

Chapter 2 – Definitions.

CODE OFFICIAL. Delete this term throughout all chapters and replace with "duly authorized representative of AHFC"

CHAPTER 3 - Climate Zones

301.2 & 301.3. Delete these subsections.

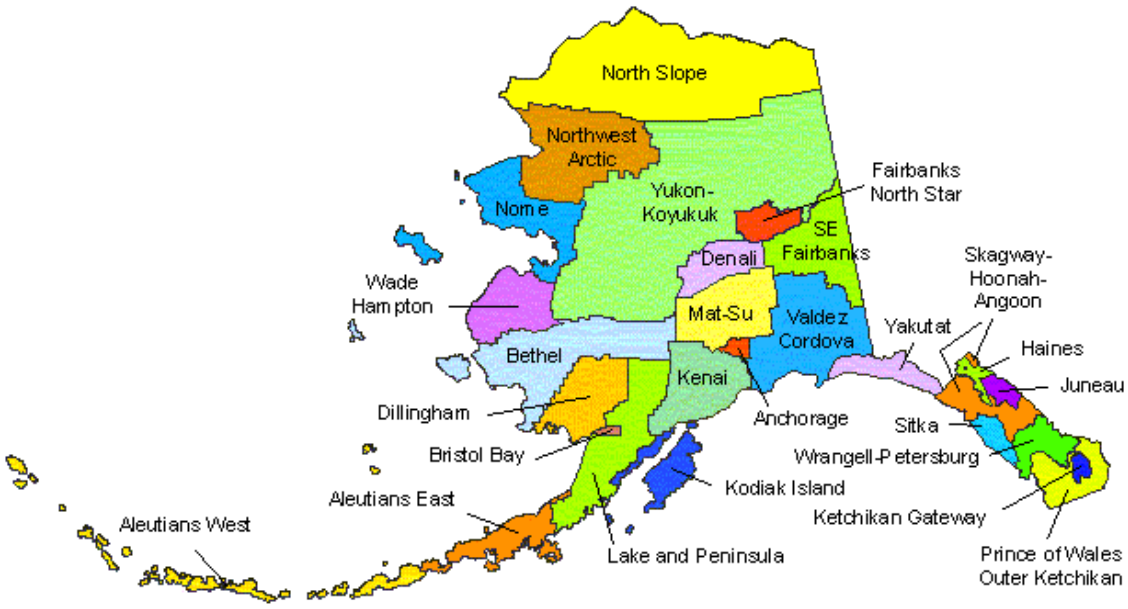

Figure A301.1 Alaska Census Areas

Table A301.1(1) Climate Zones for Alaska by Census Area			
Zone 6	**Zone 7**	**Zone 8**	**Zone 9**
Juneau	Aleutians East	Bethel	North Slope
Ketchikan Gateway	Aleutians West	Denali	
Prince of Wales	Anchorage	Fairbanks North Star	
Sitka	Bristol Bay	Nome	
Skagway-Hoonah-Angoon	Dillingham	Northwest Arctic	
Wrangell-Petersburg	Haines	Southeast Fairbanks	
Yakutat	Kenai Peninsula	Wade Hampton	
	Kodiak Island	Yukon-Koyukuk	
	Lake and Peninsula		
	Matanuska-Susitna		
	Valdez-Cordova		

Table A301.1(2) - Climate Zones for Alaska by HDD[a]			
IECC zones for Alaska	**HDD[a] Range (IECC)**	**Old BEES Climate Regions**	**HDD[a] Range (Old BEES)**
Zone 6	7200 - 9000	Region 1 - Southeast	7000-10,700
Zone 7	9000 -12,600	Region 2 - Southcentral	8600-13,500
Zone 8	12,600 -16,800	Region 3&4 - Interior & Western	11,300-17,700
Zone 9	16,800 -21,000	Region 5 – Arctic Slope	16,900-20,300

a. HDD = Heating Degree Day (based on 65 degrees Fahrenheit)

CHAPTER 4 - Residential Energy Efficiency

401.1 Scope. Replace this subsection with: "This chapter applies to residential buildings and the residential portion of buildings with mixed occupancies."

402.1- 402.3, 403.2.1 & 404.1 (Prescriptive).

IECC 2009 Sections 402.1 through 402.3, 403.2.1, and 404.1 describe the prescriptive method for compliance and establish minimum thermal envelope insulation, fenestration requirements, duct insulation levels, and lighting equipment specifications for *residential* buildings. IECC 2009 Tables 402.1.1 and 402.1.3 shall be replaced with Tables A402.1.1 and A402.1.3, respectively. In these replacement tables, below, only the zones applicable to Alaska are given (i.e., 6-9). These zones are defined in Chapter 3.

Table A402.1.1 Insulation and Glazing Minimum R-values by Component

Climate Zone	Windows & Skylights	Ceiling[a]	Exterior Wood Frame Wall	Floor	Below Grade Wall[d]	Slab[e] & Depth	Crawl Space Wall[d]
6	3	49 or 38	21 or 13+5[b]	30[c]	15/19	15, 4ft	15/19
7	3	49 or 38	21	38[c]	15/19	15, 4ft	15/19
8	4.5	49 or 38	30	38[c]	15/19	15, 4f	15/19
9	5	65 or 52	35	43[c]	NR	NR	NR

a. The smaller value may be used with a properly sized, energy-heel truss.
b. "13+5" means R-13 in the cavity and R-5 insulated sheathing
c. Or insulation sufficient to fill the cavity, R-19 minimum
d. "15/19" means R-15 continuous insulated sheathing on the interior or exterior of the home or R-19 cavity insulation at the interior of the basement wall. "15/19" shall be permitted to be met with R-13 cavity insulation on the interior of the basement wall plus R-5 continuous insulated sheathing on the interior or exterior of the home.
e. R-5 shall be added to the required slab edge R-values for heated slabs.

Table A402.1.3 Insulation and Glazing Maximum U-factors by Component[a]

Climate Zone	Windows & Skylights	Ceiling	Exterior Wood Frame Wall	Floor	Below Grade Wall	Slab	Crawl Space Wall
6	0.33	0.026	0.057	0.033	0.050	0.067	0.050
7	0.33	0.026	0.057	0.028	0.050	0.067	0.050
8	0.22	0.026	0.042	0.028	0.050	0.067	0.050
9	0.20	0.020	0.036	0.026	NR	NR	NR

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

402.2.1 Ceilings with attic spaces. Replace the second sentence in the subsection with the following two sentences: "Similarly, R-38 or R-52 shall be deemed to satisfy the requirement for R-49 or R-65, respectively, wherever the full height of the uncompressed R-

38 or R-52 insulation extends over the wall top plate at the eaves. In all cases, the installed insulation shall not compromise required attic ventilation clearances."

402.2.2 Ceilings without attic spaces. Replace the second to last sentence of subsection with "This reduction of insulation from the requirements of Section 402.1.1 shall be limited to 450 square feet (42 m^2) or 15% of ceiling area, whichever is less."

402.2.4 Mass walls. Delete this subsection. [Mass walls are not a significant energy saver in Alaska; see Seifert, R.D. and George S. Mueller, June 1983, *An Analytical Study of Passive Solar Energy and Mass Storage Observations from a Test Building at Fairbanks, Alaska*, Report #AK-RD-85-21, 50 pages plus appendices, published by the State of Alaska, Department of Transportation and Public Facilities.]

402.2.6 Floors. At end of subsection add: "*Exception:* The above requirement is waived for floor systems that require space between the insulation and the floor for radiant tubing or other plumbing, ducting, or wiring, provided that the required amount of floor insulation is maintained and the perimeter edges are (1) insulated to the appropriate wall R-value and (2) sealed to prevent infiltration of cold air."

402.2.8 Slab-on-grade floors. In the second sentence, delete "or inside".

402.2.9 Crawl space walls. Replace the second sentence with "Crawl space wall insulation shall be permanently fastened to the wall and extend downward from the floor to the finished grade level and then either (a) for insulation on the inside of the wall, vertically down to the top of the footer, or (b) for insulation of the outside of the wall, vertically down and/or horizontally outward for a total of at least 36 inches." Move the last three sentences to the end of subsection 402.4.1 and delete "unvented". At end of this subsection add: "*Exception:* This alternative is permitted if the only venting in the crawlspace is mechanical."

402.3.6 Replacement fenestration. Delete this subsection [this *Chapter* applies to new construction only].

402.3.6 Glazing area limitation. [New subsection] The total glazed area may not exceed 18% of the conditioned floor area using the prescriptive method.

402.3.7 Skylights. [New subsection] In very cold climates, a skylight is essentially a low-R-value hot roof that is subject to ice damming and subsequent leakage; their use is strongly discouraged unless they are carefully designed to avoid these problems. The total skylight area shall not exceed 1% of the total ceiling thermal envelope area if the prescriptive path is used.

402.4.1 Building thermal envelope. Add at end of subsection: "Exposed earth in crawl space foundations shall be covered with a continuous vapor retarder. All joints of the vapor retarder shall overlap by 6 inches (153 mm) and be sealed or taped. The edges of the vapor retarder shall extend at least 6 inches (153 mm) up the stem wall and shall be attached to the stem wall. A vapor retarder may be installed within the thermal insulation so long as the R-value of the thermal insulation on the warm side of the vapor retarder does not exceed one third of the total R-value. Note that this is a statewide maximum and more restrictive values may be needed in the colder climate zones. Optional Verification: It is recommended that the sealing of the building thermal envelope be verified to an air-tightness level of 7 ACH_{50}, or less, utilizing an AHFC-approved blower-door testing protocol, even when using the prescriptive method."

402.4.4 Fenestration air leakage. Modify Exceptions to read: "**Exceptions:** (1) site-built windows, skylights and doors, (2) products for which air infiltration data are not available on the manufacturer's labels or at the manufacturer's website."

403.1 Controls (Mandatory). At end of subsection add: "**Exception:** solid fuel burning devices that are not designed to be controlled with a thermostat."

403.2.1 Insulation (Prescriptive). Replace first two sentences with: "Installing supply and return ducts in unconditioned spaces is not recommended; however, they shall be insulated to at least the wood-frame wall R-value specified in Table A402.1.1."

403.2.4 Duct material. [New subsection] A duct transporting ventilation air shall be constructed of a smooth-walled material, such as galvanized steel or lined fiberglass (rigid or semi-rigid), as much as possible. When necessary to use flexible ducting, it shall be supported along its full length with no sags and no bends greater than 90 degrees.

403.3 Mechanical system piping insulation (Mandatory). Add "Exception: piping carrying fluids above 105°F (41°C) within the thermal envelope."

403.5 Mechanical ventilation (Mandatory). Add at end of first sentence: "or positive closure that can be operated by occupants." Add second sentence: "An exterior exhaust vent shall be located to minimize exhaust air rising into an attic vent."

403.6 Equipment sizing and installation (Mandatory). Add at end of subsection: "The AkWarm design heating load methodology is an approved heating calculation methodology. All heating, cooling, and ventilating equipment shall be installed in accordance with the manufacturer's installation instructions and the requirements of this code." All heating and cooling equipment shall be sized to meet less than 125% of the load calculated by the method provided in ACCA Manual J or other heating and cooling load calculation methodology whenever this is feasible given the size options for the equipment

available from the manufacturer; when this is not feasible, the equipment delivering the smallest output that will satisfy the load calculation shall be chosen.

403.10 Ventilation Standard (Mandatory). [New subsection] Ventilation must meet the ANSI/ASHRAE Standard 62.2-2010 as amended below.

The following amendments refer to the *ANSI/ASHRAE Standard 62.2-2010* and are numbered according to that standard.

ASHRAE 62.2-2010 – Section 3 – Definitions

Add the following:

Air change rate at 50 Pascals: the ***air change rate*** when a pressure differential of 50 Pascals in maintained between the inside and outside of the envelope; it is commonly abbreviated as ACH_{50}.

Amend definition of ***occupiable space*** by adding at the end: "; does not include garages or crawl spaces"

ASHRAE 62.2-2010 – Section 4 – Whole Building Ventilation

4.1 Ventilation Rate. Equations 4.1a and 4.1b shall be replaced by:

$$Q_{fan} = 0.01A_{floor} + 10(N_{br} + 1) \qquad A(4.1a)$$

and Tables 4.1a and 4.1b shall be replaced by

Table A4.1a, Ventilation Air Requirements, cfm

Floor Area (ft^2)	Bedrooms				
	0-1	2-3	4-5	6-7	>7
<1500	35	55	75	95	115
1501-3000	50	70	90	110	125
3001-4500	65	85	105	125	145
4501-6000	80	100	120	140	160
6001-7500	95	115	135	155	175
>7500	110	130	150	170	190

where the floor area (A_{floor}) is based on the definition of occupiable space.

4.1.1 Different Occupant Density. Replace "4.1a and 4.1b" with "A4.1a", "Equation 4.1" with "Equation A4.1", and "7.5 cfm (3.5 L/s)" with "10 cfm."

4.2 System Type. Add the following three sentences after the first one: "Supply-only systems are not permitted in Alaska during the heating season. Balanced, heat-recovery ventilation systems as described in Appendix C2.1 that provide well distributed ventilation throughout the entire occupiable space are strongly recommended in Alaska.

4.1.3 Deleted

4.6.2 Very Cold Climates. Replace this subsection with: "In Alaska supply-only ventilation during the heating season is not allowed."

ASHRAE 62.2-2010 – Section 6 – Other Requirements

6.5 Garages - Deleted

6.6 Ventilation Opening Area. After the second sentence, add: "Ventilation air through an exterior door or operable window shall not be considered as part of a mechanical ventilation system design and shall not be included in a calculation showing compliance with the required minimum ventilation rate."

6.8 Air Inlets. Add an additional exception: "(d) A ventilation system's supply and exhaust vents on the exterior of a building may be separated less than 10 feet as long as they are separated a minimum of 6 feet horizontally. They may be separated less than this if they are part of a system engineered to prevent entrainment of the exhaust air. Care should be taken to locate an intake vent where it can be easily cleaned at regular intervals."

ASHRAE 62.2-2010 – Section 7 – Air-moving Equipment

7.1 Selection and Installation. Add at end of subsection: "A ventilation appliance shall be located in a place that is accessible and convenient to access for annual or more frequent maintenance (changing of filters, oiling, cleaning, etc.).

ASHRAE 62.2-2010 – Informative Appendix C (not part of standard) [New Appendix]

C1.0 Exhaust Ventilation. For exhaust-only systems, passive intake vents should be provided where the sum of the intake capacity is at least equal to the exhaust rate and no single intake vent is rated at more than 25 cfm." In very cold climates, intakes that do not temper the incoming ventilation air have proven sufficiently problematic, that their use is strongly discouraged. A mechanical system with balanced supply and exhaust fan rates is strongly preferred.

C2.0 Distribution and Circulation of Supply Air. A ventilation system should be designed and installed to uniformly mix and circulate supply air throughout the occupiable space. Supply air should be introduced into a room in a manner that does not create human discomfort and is not potentially damaging to the building. There should be adequate air circulation into and out of a room at all times. A door or transom louver, undercut door, wall transfer fan, return grille or other means should be used.

This is the end of the amendments to *ANSI/ASHRAE Standard 62.2-2010*.

Section 405 - Simulated Performance Alternative (Performance)

405.2 Mandatory requirements. Replace second sentence of this subsection with: "All supply and return ducts not completely inside the *building thermal envelope* shall be insulated to at least the R-value specified in Table A402.1.1 for the portion of the envelope assembly (i.e. wall, floor, or ceiling) penetrated by the duct."

405.3 Performance-based compliance. Replace this subsection with the following:

"Compliance with this code may be shown through a home energy rating under a program approved by the Alaska Housing Finance Corporation (AHFC) that meets the following requirements:

a) At least a *Four-Star-Plus* rating to qualify.

b) An air-tightness level of 7 ACH_{50}, or less, utilizing an AHFC-approved blower-door testing protocol.

c) Only a person authorized by AHFC shall submit a rating for compliance. A copy of the energy rating shall be provided to AHFC officials. (A list of authorized home energy raters may be obtained from AHFC, Research Information Center.)"

Delete the remainder of this section (405.4 – 405.6.3).

CHAPTER 5 - Commercial Energy Efficiency

501.1 Scope. Replace the first sentence of this subsection with: "The requirements contained in this chapter are applicable to commercial buildings, or portions of commercial buildings, including the commercial portions of mixed occupancy buildings.

502.1 General (Prescriptive). Throughout this section IECC 2009 Tables 502.1.2, 502.2(1), and 502.3 shall be replaced with Tables A502.1.2, A502.2(1), and A502.3 respectively, below.

Table A502.1.2 Building Envelope Requirements - Opaque Element, Maximum *U*-Factors

Climate Zone	6		7		8		9	
	All Other	Group R	All Other	Group R	All Other	Group R	All Other	Group R
Roofs								
Insulation entirely above deck	U-0.039	U-0.039	U-0.039	U-0.039	U-0.033	U-0.033	U-0.025	U-0.025

Metal Buildings	U-0.040	U-0.040	U-0.040	U-0.040	U-0.035	U-0.035	U-0.025	U-0.025
Attic and other	U-0.027	U-0.027	U-0.027	U-0.027	U-0.020	U-0.020	U-0.017	U-0.017
Walls, Above Grade								
Mass	U-0.066	U-0.066	U-0.050	U-0.050	U-0.040	U-0.040	U-0.033	U-0.033
Metal building	U-0.69	U-0.69	U-0.048	U-0.048	U-0.042	U-0.042	U-0.034	U-0.034
Metal framed	U-0.057	U-0.057	U-0.048	U-0.048	U-0.037	U-0.037	U-0.032	U-0.032
Wood framed and other	U-0.051	U-0.051	U-0.050	U-0.050	U-0.036	U-0.036	U-0.030	U-0.030
Walls, Below Grade								
Below grade wall[a]	C-0.100	C-0.100	C-0.079	C-0.079	C-0.067	C-0.067	C-0.050	C-0.050
Floors								
Mass	U-0.060	U-0.060	U-0.057	U-0.057	U-0.051	U-0.051	U-0.048	U-0.048
Joist/Framing	U-0.033	U-0.033	U-0.033	U-0.033	U-0.026	U-0.026	U-0.023	U-0.023
Slab-on-Grade Floors								
Unheated slabs	F-0.804	F-0.804	F-0.767	F-0.767	F-0.654	F-0.654	NR	NR
Heated slabs	F-0.654	F-0.654	F-0.654	F-0.654	F-0.636	F-0.636	NR	NR

a. When heated slabs are placed below-grade, walls must meet the *F*-factor requirements for perimeter insulation according to the heated slab-on-grade construction.

Table A502.2(1) Building Envelope Requirements - Opaque Assemblies

Climate Zone	6		7		8		9	
	All Other	Group R	All Other	Group R	All Other	Group R	All Other	Group R
Roofs								
Insulation entirely above deck	R-25ci	R-25ci	R-25ci	R-25ci	R-30ci	R-30ci	R-40ci	R-40ci
Metal Buildings(with R-5 thermal blocks[a,b])	R-13+ R-19	R-19+ R-10	R-13+ R-19	R-19+ R-10	R-13+ R-21	R-21+ R-13	R-19+ R-21	R-21+ R-19
Attic and other	R-38	R-38	R-38	R-38	R-49	R-49	R-60	R-60
Walls, Above Grade								
Mass	15.2ci	15.2	R-20ci	20	R-25ci	25	R-30ci	30
Metal building[b]	R-13+ R-5.7ci	14	R-19+ R-10ci	21	R-13+ R-14.6ci	24	R-13+ R-18.8ci	29
Metal framed	R-13+ R-7.5ci	16	R-13+ R-11.4	21	R-13+ R-16.7ci	27	R-13+ R-20.1ci	31
Wood framed and other	R-11+ R-9.5ci	18.4	R-11+ R-11.4ci	20.3	R-13+ R-15.2ci	25.1	R-13+ R-22.8ci	32.7
Walls, Below Grade								
Below grade wall[d]	R-10ci	10	R-12.5ci	12.5	R-15ci	15	R-20ci	20
Floors								
Mass	R-14.6ci	14.6	R-16.7ci	16.7	R-18.8ci	18.8	R-20.9ci	20.9
Joist/framing Wood/Steel	R-30/38	30/38	R-30/38	30/38	R-38/43	38/43	R-43/50	43/50
Slab-on-Grade Floors								
Unheated slab edges	R-15, 24" below	F=0.804	R-15, 24" below	F=0.767	R-15, 48" below	F=0.654	NR	
Heated slab edges	R-15, 48" below	F=0.654	R-15, 48" below	F-0.654	R-20, 48" below	F=0.636	NR	
Opaque Doors								
Swinging	U-0.70	U-0.50	U-0.50	U-0.50	U-0.50	U-0.50	U-0.50	U-0.50
Roll-up or sliding	U-0.50	U-0.50	U-0.50	U-0.50	U-0.50	U-0.50	U-0.50	U-0.50

For SI: 1 inch = 25.4 mm

ci = Continuous insulation. NR = No requirement.

a. When using R-value compliance method, a thermal spacer block is required, otherwise use the *U*-factor compliance method [see Tables A502.1.2 and A502.2(2)].
b. Assembly descriptions can be found in Table A502.2(2).
c. R-5.7 is allowed to be substituted with concrete block walls complying with ASTM C90, ungrouted or partially grouted at 32 inches or less on center vertically and 48 inches or less on center horizontally, with ungrouted cores filled with material having a maximum thermal conductivity of 0.44 Btu-in./h-f^2 F.
d. When heated slabs are placed below grade, below-grade walls must meet the exterior insulation requirements for perimeter insulation according to the heated slab-on-grade construction requirements.
e. Steel floor joist systems shall be insulated to R-38.

Table A502.3 Building Envelope Requirements: Fenestration

Climate Zone	6	7	8	9
Vertical fenestration (40% maximum of above-grade wall)				
***U*-factors**				
Framing materials other than metal with or without metal reinforcement or cladding				
U-factor	0.33	0.286	0.25	0.20
Metal framing with or without thermal break				
Curtain wall/storefront *U*-factor	0.45	0.40	0.40	0.40
Entrance door *U*-factor	0.80	0.80	0.80	0.80
All other *U*-factor	0.55	0.45	0.45	0.45
SHGC - all frame types				
SHGC: PF < 0.25	0.40	0.45	0.45	0.45
SHGC: 0.25 ≤ PF < 0.5	NR	NR	NR	NR
SHGC: PF ≥ 0.5	NR	NR	NR	NR
Skylights (3% maximum)				
U-factor	0.35	0.33	0.286	0.25
SHGC	0.40	NR	NR	NR

NR = No requirement.
PF = Projection factor (see Section 502.3.2)
a. All others includes operable windows, fixed windows and nonentrance doors.

Green indicates amended also by the Municipality of Anchorage

502.2.1 Roof assembly. Replace the exception with the following:
Exception: Continuously insulated tapered roof assemblies with an average R-value of not less than that specified in Table 502.2(1) and having not less than R-12.5 at each roof drain location.

502.4.2 Curtain wall, storefront glazing and commercial entrance doors. Add at end of subsection: "Curtain wall and store front systems shall incorporate exterior openings for ventilation and drainage."

502.4.3 Sealing the building envelope. Add at end of subsection:

This does not include required moisture channels and exterior openings for ventilation and drainage in curtain wall and store front systems. These shall be maintained open and functional.

502.5 Moisture control (mandatory). [New subsection]

The building design shall incorporate both interior and exterior moisture control strategies to prevent the accumulation of moisture within insulated assemblies. Exterior moisture control shall comply with the IBC. Interior moisture control shall comply with section 502.5.1. Should insulated assemblies become wet, or start out wet, the design strategy shall allow the assembly to dry to either the exterior or the interior. Materials shall be allowed to dry prior to enclosure.

502.5.1 Interior moisture control. [New subsection]

Methods to control moisture accumulation within insulated assemblies from the building interior shall address both vapor diffusion and air leakage. Vapor diffusion shall be controlled by the installation of a class I or II vapor retarder on the warm-in-winter side of the insulation. The vapor retarder shall be continuous and seams shall be lapped 6 inches minimum. Penetrations and seams shall be sealed with approved tape or sealant to control air leakage. Where duct work is located in dropped ceilings adjacent to attics and exterior walls, the vapor retarder continuity shall be maintained above the dropped ceiling.

Exceptions:

1. A vapor retarder is not required in construction where moisture or its freezing will not damage materials.
2. A vapor retarder is not required on basement and crawlspace walls designed to dry to the interior.
3. A vapor retarder is not required at cantilevered floor assemblies where the floor decking consists of nominal ¾ inch OSB or other approved material having a perm rating of less than one. Joints shall be sealed in an approved manner. Joint sealing is not required where the deck is covered with concrete or a gypsum based floor topping.
4. The rim joist does not require a vapor retarder when insulated to a minimum value of R-21 with spray foam having a minimum density of 2 pounds per cubic foot.
5. A class 3 vapor retarder may be used on walls insulated to a minimum value of R-21 with spray foam having a minimum density of 2 pounds per cubic foot.
6. Up to one-third of the total installed insulation R-value may be installed on the warm side of the vapor retarder.

7. Factory manufactured insulated panels consisting of a metal skin encapsulating and bonded to a foam plastic core do not require a vapor retarder.

503.2.2 Equipment and system sizing. Add exception number 3:

3. Heating equipment may be oversized by up to 20 percent.

503.2.4.4 Shutoff damper controls. Add exception number 4:

4. Motorized dampers shall not be required for exhaust systems where grease, lint, and similar particulates may accumulate on the damper and create a fire hazard.

503.2.6 Energy recovery ventilation systems. Add exception number 8:

8. Where the system does not operate continuously and is controlled only to operate under a safety operation such as carbon monoxide exhaust systems in garages.

503.2.7.1.3 High-pressure duct systems. Delete last sentence which reads: "Documentation shall be furnished by the designer demonstrating…"

503.2.8 Piping insulation. Add exception number 6:

6. Piping within baseboard radiation assemblies and piping that is intended to serve as a terminal heating device.

Table A503.2.8 Replace Table 503.2.8 with Table A503.2.8:

Table A503.2.8 Minimum Pipe Insulation (inches)

FLUID	NOMINAL PIPE DIAMETER	
	≤ 1.5"	> 1.5"
Steam	1	2
Hot Water	1	1
Chilled water, brine or refrigerant	1	1

506.5.2 Thermal blocks. Add at end of subsection:

Exception: When modeling a simple building and using a software tool that does not use thermal blocks.

506.6 Calculation software tools. Add at end of subsection:

Exception: AHFC may approve the use of a simpler software tool, such as AkWarm, for modeling less complicated buildings that are deemed simple enough to be modeled with the software tool proposed.

CHAPTER 6 – Referenced Standards

Add to the ASHRAE section: “62.2-2010 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.”