Alaska Housing Finance Corporation
Alaska-Specific Amendments to the IECC 2006 and ASHRAE Standard 62.2-2004
April 4, 2007.

This document is a list of Alaska-specific amendments to the International Energy Code 2006, Second Printing, May 2006 (IECC 2006) and the ANSI/ASHRAE Standard 62.2-2004, *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings,* (ASHRAE 62.2-2004) that were adopted by reference in 15 AAC 155.010 on November 8, 2006. It is meant to be read in conjunction with the IECC 2006 and ASHRAE Standard 62.2-2004, which may be purchased at local bookstores. The amendments are numbered and organized by the chapter and section numbers found in the IECC 2006 and ASHRAE 62.2-2004, respectively. Immediately following are amendments to IECC 2006, the ASHRAE amendments are in IECC subsection 403.7:

Chapter 1 – Administration

101.4.3 Additions, alterations, renovations or repairs.
Applicability of the IECC and Alaska Specific Amendments shall be limited to new construction only for the purposes of this document, and shall not apply to additions, alterations, renovations, or repairs.

101.4.4 Changes in Occupancy.
For the purposes of this document, this section is deleted.

CHAPTER 3 - Climate Zones

301.1 General.
IECC 2006 Figure 301.1 and Table 301.1 shall be replaced with Table A301.1, below. To determine the IECC Climate Zone for a community, find the community in the climate region list below, note the climate region number, and then find the corresponding zone in Table A303.1. Zones for urban communities may be read directly from Table A301.1.

Table A301.1 - Climate Zones for Alaska

IECC zones for Alaska	HDD[a] Range (IECC)	BEES Climate Regions	HDD[a] Range (BEES)
Zone 6	7200 - 9000	Region 1	7000-10,700
Zone 7	9000 -12,600	Region 2	8600-13,500

Zone 8 urban	2,600 - 16,800 [1]	Region 3&4 – Fairbanks Borough	11,300-7,700 [1]
Zone 8 rural	2,600 - 16,800 [1]	Region 3&4 – non-urban Interior, Southwest, & Northwest	11,300-7,700 [1]
Zone 9	6,800 - 21,000 [1]	Region 5 – Arctic Slope	16,900-0,300 [2]

a. HDD = Heating Degree Day

Climate Region Lists

For consistency, these are the same regional lists as in the previous standard (BEES). In cases where the HDD for a community is significantly outside of the HDD range for the assigned IECC zone, the community may request to be placed in a more appropriate zone. Note, however, that the rural sub-zone for Zone 8 has been created to allow for the higher cost of energy away from the Fairbanks North Star Borough.

~~REGION~~ Zone 6~~1~~
SOUTHEAST
Alder Cove
Angoon
Annette
Annex Creek
Auke Bay
Baranof
Beaver Falls
Bell Island
Canyon Island
Chenega
Chichagof
Coffman Cove
Craig
Edna Bay
Eldred Rock
Elfin Cove
Five Finger Lt
Glacier Bay
Gull Cove
Gustavus
Haines
Hollis
Hoonah
Hydaburg
Hyder
Juneau
Kake
Kasaan
Ketchikan
Klawock
Klukwan
Kupreanof
Metlakatla
Myers Chuck
Lincoln Rock
Litl Port Walter
Moose Valley
Ocean Cape
Pelican
Petersburg
Port Alexander
Port Baker
Port Protection
Saxman
Seclusion Hbr.
Sitka
Skagway
Smuggler Cove
Snettisham
Tenakee Spgs
Thorne Bay
View Cove
Wrangell
Yakutat

~~REGION 2~~ Zone 7
SOUTHCENTRAL, ALEUTIAN, KODIAK
Adak
Afognak
Akhiok
Akutan
Anchor Point
Anchorage
Anderson
Atka
Attu
Belkofski
Big Lake
Cape Sarichef
Caswell
Chickaloon
Chignik
Chignik Lake
Chiniak
Chulitna
Clam Gulch
Cold Bay
Cold Harbor
Cooper Lndg
Cordova
Curry
Diamond Ridge
Driftwood Bay
Dutch Harbor
Eklutna
Elmendorf
English Bay
False Pass
Fort Glenn
Fort Richardson
Girdwood
Homer
Hope
Houston
Ivanoff Bay
Kachemak
Kaguyak
Karluk
Kasilof
Kenai
King Cove
Knik
Kodiak
Kulis ANGB
Larsen Bay
Latouche
Mat. Ag. Exp.
Middleton Is.
Moose Pass
Naptowne
Nelson Lagoon
Nikiski
Ninilchik
Nikolski
Old Harbor
Ouzinkie
Palmer
Perryville
Petersville
Pillar Mountain
Portage
Port Graham
Port Heiden
Port Lions
Port Moller
Portlock
Rabbit Creek
Salamatof
Sanak
Sand Point
Sawmill
Seldovia
Seward
Shemya
Skwentna
Soldotna
Squaw Harbor
Starisky Creek
Sterling

Summit
Susitna
Sutton
Talkeetna
Tatitlek
Tahneta Pass
Thompson Pass
Trappers Creek
Tyonek
Unalaska
Unga Island
Valdez
Wasilla
Whittier
Willow
Women's Bay
Yakataga Bay

Zone 8 Rural

INTERIOR, SOUTHWEST

Akiachak
Akiak
Alakanuk
Aleknagik
Allakaket
Anderson
Aniak
Anvik
Atmautluak
Beaver
Beaver Creek
Bethel
Bettles
Big Delta
Big Mountain
Bill Moore's
Birch Creek
Black Rapids
Boundary
Canyon Creek
Cap.Newenham
Cape Romanzof
Cathedral Rpds
Chalkyitsik
Chatanika
Chauthbaluk
Chefornak
Chevak
Chuloonawick
Clark's Point
Crooked Creek
Dillingham
Eek
Egegik
Ekuk
Ekwok
Emmonak
Farewell
Fort Yukon
Galena
Gold King Cr
Goodnews Bay
Grayling
Holy Cross
Hooper Bay
Hughes
Huslia
Iguigig
Illiamna
Indian Mtn
Kalskag
Kaltag
Kanatak
Kasigluk
King Salmon
Kipnuk
Knob Ridge
Kohkanok
Koliganek
Kongiganak
Kotlik
Koyukuk
Kwethluk
Kwigilingok
Lk.Minchumina
Lime Village
Livengood
Lower Kalskag
Lower Tonsina
Manley Hot Sp
Manokotak
Marshall
Ma Creek
McCallum
McCarthy
McGrath
Zone 8 Urban
Mekoryuk
Minto
Mountain Vil.
Naknek
Napakiak
Napamiute
Napaskiak
Nebesna
Nenana
Newhalen
New Stuyahok
Newtok
Nightmute
Nikolai
Nondalton
Nulato
Nunapitchuk
Ohogamiute
Ophir
Oscarville
Paimuit
Pilot Point
Pilot Station
Pitka's Point
Platinum
Port Alsworth
Quinhagak
Rampart
Red Devil
Russian Mission
Ruby
Saint George
Saint Mary's
Saint Matthew
St. Paul Island
Salchaket
Scammon Bay
Shageluk
Sheldon Point
Sleetmute
Slide Mountain
South Naknek
Sparrevohn
Stevens Village
Stony River
Suntrana
Tanana
Togiak
Toksook Bay
Tuluksak
Tununak
Tuntutuliak
Twin Hills
Ugashik
Upper Kalskag
Unkumiute
Venetie
Wiseman
St. Michael

Zone 8 Urban (road Connected)

Aurora
Cantwell
Central
Chandalar
Chandalar Lake
Chena Hot Spg
Chicken
Chistochina
Chitina
Circle
Circle Hot Spgs
Clear
Coldfoot Camp
College
Copper Center
Delta Junction
Donnelly
Dot Lake
Dry Creek
Eagle
Eielson
Ester
Eureka
Evansville
Fairbanks
Ferry
Flat
Fort Greeley
Fort Wainwright
Fox
Gakona
Georgetown
Gerstle River
Glennallen
Gulkana
Hamilton
Harding Lake
Healy
Healy Lake
Kennicott
Kenny Lake
McKinley Park
Medfra
Mentasta Lake
Murphy Dome
North Pole
Northway
Northway Jct
Paxson
Paxson Lake
Pedro Dome
Richardson
Slana
Summit
Takotna
Tanacross
Tatalina
Telida
Tetlin
Tok
Tonsina
Usibelli

~~REGION 3~~

~~**INTERIOR, SOUTHWEST**~~

~~Akiachak~~
~~Akiak~~
~~Alakanuk~~
~~Aleknagik~~
~~Allakaket~~
~~Anderson~~
~~Aniak~~
~~Anvik~~
~~Atmautluak~~
~~Aurora~~
~~Beaver~~

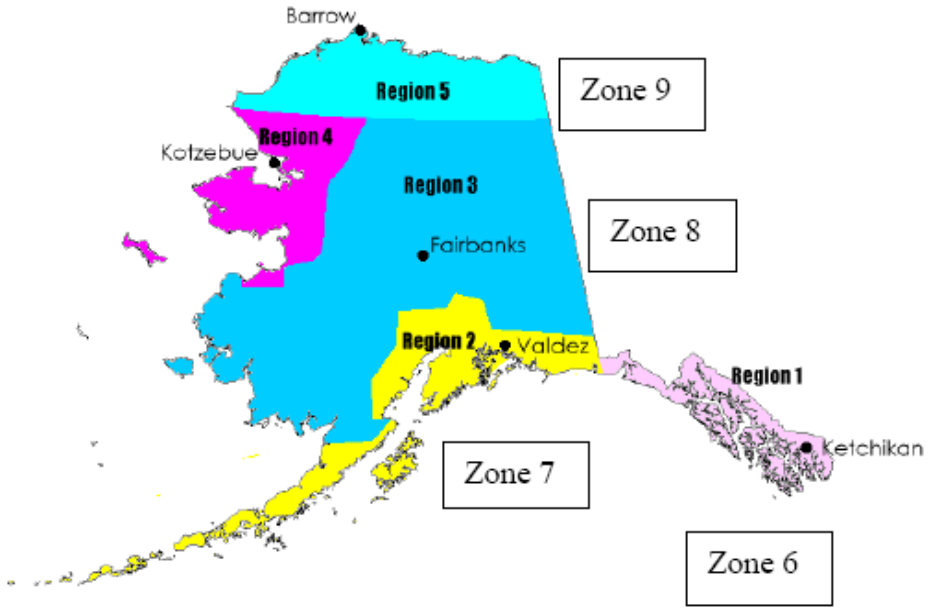
~~Beaver Creek~~
~~Bethel~~
~~Bettles~~
~~Big Delta~~
~~Big Mountain~~
~~Bill Moore's~~
~~Birch Creek~~
~~Black Rapids~~
~~Boundary~~
~~Canyon Creek~~
~~Cap.Newenham~~
~~Cape Romanzof~~
~~Cathedral Rpds~~
~~Cantwell~~
~~Central~~
~~Chalkyitsik~~
~~Chandalar~~
~~Chandalar Lake~~
~~Chatanika~~
~~Chauthbaluk~~
~~Chefornak~~
~~Chena Hot Spg~~
~~Chevak~~
~~Chicken~~
~~Chistochina~~
~~Chitina~~
~~Chuloonawick~~
~~Circle~~
~~Circle Hot Spgs~~
~~Clark's Point~~
~~Clear~~
~~Coldfoot Camp~~
~~College~~
~~Copper Center~~
~~Crooked Creek~~
~~Delta Junction~~
~~Dillingham~~
~~Donnelly~~
~~Dot Lake~~
~~Dry Creek~~
~~Eagle~~
~~Eek~~
~~Egegik~~
~~Eielson~~
~~Ekuk~~
~~Ekwok~~
~~Emmonak~~
~~Ester~~
~~Eureka~~
~~Evansville~~
~~Fairbanks~~
~~Farewell~~
~~Ferry~~
~~Flat~~
~~Fort Greeley~~
~~Fort Wainwright~~
~~Fort Yukon~~
~~Fox~~
~~Gakona~~
~~Galena~~
~~Gerstle River~~
~~Georgetown~~
~~Glennallen~~
~~Gold King Cr~~
~~Goodnews Bay~~
~~Grayling~~
~~Gulkana~~
~~Hamilton~~
~~Harding Lake~~
~~Healy~~
~~Healy Lake~~
~~Holy Cross~~
~~Hooper Bay~~
~~Hughes~~
~~Huslia~~
~~Iguigig~~
~~Illiamna~~
~~Indian Mtn~~
~~Kalskag~~
~~Kaltag~~
~~Kanatak~~
~~Kasigluk~~
~~Kennicott~~
~~Kenny Lake~~
~~King Salmon~~
~~Kipnuk~~
~~Knob Ridge~~
~~Kohkanok~~
~~Koliganek~~
~~Kongiganak~~
~~Kotlik~~
~~Koyukuk~~
~~Kwethluk~~
~~Kwigilingok~~
~~Lk.Minchumina~~
~~Lime Village~~
~~Livengood~~
~~Lower Kalskag~~
~~Lower Tonsina~~
~~Manley Hot Sp~~
~~Manokotak~~
~~Marshall~~
~~Ma Creek~~
~~McCallum~~
~~McCarthy~~
~~McGrath~~
~~McKinley Park~~
~~Medfra~~
~~Mekoryuk~~
~~Mentasta Lake~~
~~Minto~~
~~Mountain Vil.~~
~~Murphy Dome~~
~~Naknek~~
~~Napakiak~~
~~Napamiute~~
~~Napaskiak~~
~~Nebesna~~
~~Nenana~~
~~Newhalen~~
~~New Stuyahok~~
~~Newtok~~
~~Nightmute~~
~~Nikolai~~
~~Nondalton~~
~~North Pole~~
~~Northway~~
~~Northway Jct~~
~~Nulato~~
~~Nunapitchuk~~
~~Ohogamiute~~
~~Ophir~~
~~Oscarville~~
~~Paimuit~~
~~Paxson~~
~~Paxson Lake~~
~~Pedro Dome~~
~~Pilot Point~~
~~Pilot Station~~
~~Pitka's Point~~
~~Platinum~~
~~Port Alsworth~~
~~Quinhagak~~
~~Rampart~~
~~Red Devil~~
~~Richardson~~
~~Russian Mission~~
~~Ruby~~
~~Saint George~~
~~Saint Mary's~~
~~Saint Matthew~~
~~St. Paul Island~~
~~Salchaket~~
~~Scammon Bay~~
~~Shageluk~~
~~Sheldon Point~~
~~Slana~~
~~Sleetmute~~
~~Slide Mountain~~
~~South Naknek~~
~~Sparrevohn~~
~~Stevens Village~~
~~Stony River~~
~~Suntrana~~
~~Summit~~
~~Takotna~~
~~Tanacross~~
~~Tanana~~
~~Tatalina~~
~~Telida~~
~~Tetlin~~
~~Togiak~~
~~Tok~~
~~Toksook Bay~~
~~Tonsina~~
~~Tuluksak~~
~~Tununak~~
~~Tuntutuliak~~
~~Twin Hills~~
~~Ugashik~~
~~Upper Kalskag~~
~~Usibelli~~
~~Unkumiute~~
~~Venetie~~
~~Wiseman~~

~~REGION 4~~
~~**NORTHWEST**~~
~~Ambler~~
~~Anvil Mountain~~
~~Brevig Mission~~
~~Buckland~~
~~Candle~~
~~Council~~
~~Deering~~
~~Diomede~~
~~Elim~~
~~Gambell~~
~~Golovin~~
~~Granite Mtn~~
~~Haycock~~
~~Kalakaket Cr~~
~~Kiana~~
~~King Island~~
~~Kivalina~~
~~Kobuk~~
~~Kotzebue~~
~~Koyuk~~
~~Mary's Igloo~~
~~Moses Point~~
~~Noatak~~
~~Nome~~
~~Noorvik~~
~~Northeast Cape~~
~~North River~~
~~Savoonga~~
~~Selawik~~
~~Shaktoolik~~
~~Shishmaref~~
~~Shungnak~~
~~Solomon~~
~~Stebbins~~
~~St. Michael~~
~~Teller~~
~~Tin City~~
~~Unalakleet~~
~~Wales~~
~~White Mountain~~

~~REGION 5~~ Zone 9

ARCTIC SLOPE
Anaktuvuk Pass
Arctic Village
Atqasut
Barrow
Cape Lisburne
Deadhorse

Kaktovik	Point Hope	Sagwon
Nuiqsut	Point Lay	Umiat
Oliktok	Prudhoe Bay	Wainwright



CHAPTER 4 - RESIDENTIAL ENERGY EFFICIENCY

402.1 General. (Prescriptive)

IECC 2006 Sections 402.1 through 402.3 describe the prescriptive method for compliance and establish minimum thermal envelope insulation requirements for buildings. Exceeding these minimums is encouraged. IECC 2006 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, only the zones applicable to Alaska are given (i.e., 6-9). These zones are defined in Chapter 3. When using the Prescriptive Method as the means of compliance, all mandatory measures specified in Section 403 shall also be accomplished.

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

Climate Zone	Windows & Skylights	Ceiling[a]	Exterior Frame Wall	Floor	Below Grade Wall[b]	Slab & Depth[c]	Crawl Space Wall[b]
6	3	49 or 38	20	30	15/19	15, 4ft	15/19

7	3	49 or 38	20	30	15/19	15, 4ft	15/19
8U	4	49 or 38	25	38	15/19	15, 4f	15/19
8R	4.5	49 or 38	30	38	15/19	15, 4f	15/19
9	5	65 or 52	35	43	NR	NR	NR

a. The smaller value may be used with a properly sized, energy-heel truss.
b. The first R-value applies to continuous insulation, the second to framing cavity insulation; either meets the requirement.
c. 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[d]

Climate Zone	Windows & Skylights	Ceiling[a]	Exterior Frame Wall	Floor	Below Grade Wall[b]	Slab	Crawl Space Wall[c]
6	0.33	0.020	0.053	0.033	0.067/0.053	0.067	c
7	0.33	0.020	0.053	0.033	0.067/0.053	0.067	c
8U	0.25	0.020	0.040	0.026	0.067/0.053	0.067	c
8R	0.22	0.020	0.033	0.026	0.067/0.053	0.067	c
9	0.20	0.015	0.029	0.023	NR	NR	NR

a. The larger factor of 0.0263 (0.0192 for Zone 9) may be used with a properly sized, energy-heel truss.
b. The first U-factor applies to continuous insulation, the second to framing cavity insulation; either meets the requirement.
c. See below grade wall factors.
d. Nonglazing U-factors shall be obtained from measurement, calculation or an approved source.

402.2.1 Ceilings and attic spaces. Add at the end of the subsection: "And in a similar fashion, an uncompressed R-52 over the top plate will satisfy the requirement for R-65."

402.2.3 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.)

402.2.8 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) vertically down to the top of the footer, or (b) vertically down and/or horizontally outward for a total of at least 36 inches." At end of subsection add: "*Exception:* This alternative is permitted if the only venting in the crawlspace is mechanical."

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. A skylight sidewall that is not an integral part of a skylight product shall be insulated to the same R-value as the ceiling.~~

402.5 Moisture control. Add under Exceptions "4. 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 minimum and more restrictive values may be needed in the colder climate zones.)"

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. Add "Exception: piping ~~carrying fluids above 105° F (41° C)~~ within the thermal envelope, unless there is a significant potential for condensation."

403.5 Mechanical ventilation. 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. 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."

403.7 Ventilation Standard. [New subsection] Ventilation must meet the ANSI/ASHRAE Standard 62.2-2004 as amended below.

The following amendments refer to the *ANSI/ASHRAE Standard 62.2-2004* and are numbered according to that standard.

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}.

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

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."

4.1.3 Infiltration Credit. Delete this subsection. (ASHRAE is likely to delete this section because of the confusion that it causes; in any case, it was not intended to change the amount of mechanical ventilation air required.)

4.2 System Type. Add the following two 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 B4.5 that provide well distributed ventilation throughout the entire occupiable space are strongly recommended in Alaska."

4.5.2 Very Cold Climates. Delete this subsection. (In Alaska supply-only ventilation during heating season is not allowed.)

6.5 Garages. Third sentence, after "located in garages" insert "are not recommended."

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 proving compliance with the required minimum ventilation rate."

6.8 Air Inlets. [New subsection under ***Exceptions to 6.8***] (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.

7.1 Selection and Installation. Add at end of subsection: "A ventilation appliance should not be located in a space that is difficult or inconvenient to access ~~such as a crawl space or attic~~ if the appliance requires annual or more frequent maintenance (changing of filters, oiling, cleaning, etc.).

B4.4 Exhaust Ventilation. Add at the end of subsection, "In very cold climates, intakes that do not temper the incoming ventilation air have proven sufficiently problematic, that their use is strongly discouraged."

B4.7 Distribution and Circulation of Supply Air. [New subsection] 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 *ANSI/ASHRAE Standard 62.2-2004* amendments.

Section 404 - Simulated Performance Alternative (Energy Rating Method)

404.3 Performance-based compliance. Replace this subsection with 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 (404.4 – 404.6.3).

Chapter 5 - Commercial Energy Efficiency

Delete chapter 5. (Alaska Statute 46.11.040 and AHFC regulations 15 AAC 155.010 - 15 AAC 155.030 only apply to residential buildings.)

Chapter 6 – Referenced Standards

Add to the ASHRAE section: “62.2-2004 Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.”