

Proponent	Section	Summary	Comment
<b>PROPOSED CHANGES BASED ON COMMENTS</b>			
Dewey Palmer 4/17/08	13-101.5	<p>Please take a look at ASHRAE 90.1, Scope section 2, more specifically 2.2 and 2.3. Section 2.2 is for the envelope of the building being exempt if unconditioned by heating or cooling. Section 2.3 only exempts other items such as lighting etc if the building is not fed by electricity or fossil fuels. Florida should not exempt unheated/not cooled buildings from meeting lighting provisions of the code.</p> <p><b>13-101.5 Exempt buildings.</b> Buildings exempt from compliance with this chapter include those described in Sections <u>13-101.5.1</u> through <u>13-101.5.7</u>.</p> <p><b>13-101.5.3</b> Any building which is neither heated nor cooled by a mechanical system designed to control or modify the indoor temperature and powered by electricity or fossil fuels <u>shall be exempt from the requirements of Sections 13-401 through 13-411</u>. Such buildings shall not contain electrical, plumbing or mechanical systems which have been designed to accommodate the future installation of heating or cooling equipment.</p>	
Ann Stanton 4/11/08	13-101.6 N1100.0.2	<p>The previous proposal to implement the provisions of DEC Statement DCA07-DEC-172 needs to be clarified as proposed below:</p> <p><b>13-101.6 [N1100.0.2] Building systems.</b> Thermal efficiency standards are set for the following building systems where new products are installed or replaced in existing buildings, and for which a permit must be obtained. Such systems shall meet the minimum efficiencies allowed for that system on Form N1100C for residential buildings.</p> <ol style="list-style-type: none"> <li>1. Heating, ventilating or air conditioning systems;</li> <li>2. Service water or pool heating systems;</li> </ol> <p><b>Exceptions:</b></p> <ol style="list-style-type: none"> <li>1. Where part of a functional unit is repaired or replaced. For example, replacement of an entire HVAC system is not required because a new compressor or other part does not meet code when installed with an older system. <u>Replacement of either the outdoor unit or indoor unit in a split air conditioning or heat pump system requires verification of equipment compatibility in accordance with Section N1107.ABC.3.1.1.</u></li> </ol> <p>[No change to rest of exceptions]</p>	
Stanton: Cochell, Quintela, Fairey	13-202 <i>FBC-B</i> , N1100.7.3, <i>FBC-R</i> Appendix G-B	<p>Based on comments made at the 3/17/08 Energy TAC meeting, the following clarifications of code are needed:</p> <p><del>CONDITIONED SPACE. That volume of a structure which is either mechanically heated, cooled, or both heated and cooled by direct means. Spaces within the thermal envelope that are not directly</del></p>	

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3/26/08	of <i>FBC-R</i> ,  Appendix 13-C5.1 of <i>FBC-B</i>	<p><del>conditioned shall be considered buffered unconditioned space. Such spaces may include, but are not limited to, mechanical rooms, stairwells, and unducted spaces beneath roofs and between floors. Air leakage into dropped ceiling cavities does not constitute conditioned space. See “SPACE (a) conditioned space”.</del></p> <p><b>B5.1 [13-C5.1] Ducts in conditioned space.</b> For ductwork to qualify as being in conditioned space, it shall be located <u>interior to both the thermal envelope and the pressure envelope of the building on the conditioned side of the envelope insulation and be situated in such a manner that any air leakage will be discharged into the conditioned space.</u> Systems having no return air ducts or plenums between the air intake and the air handler, such as those in mechanical closets which communicate with the conditioned space, shall be considered systems with return ducts in conditioned space. Systems which have no ducts, such as PTACs and room air conditioners, <u>shall be treated as un-ducted systems qualify as ducts in conditioned space.</u></p>																												
Ann Stanton 4/11/08	Table 13-410.ABC.2.2	<p>This table was incorrectly translated from the 2004 code to the 2007 code. Insulation should be required for ducts in unconditioned spaces as per the 2004 code.</p> <p style="text-align: center;"><b>TABLE 13-410.ABC.2.2 MINIMUM DUCT INSULATION R-VALUES, Combined Heating and Cooling Supply and Return Ducts</b></p> <table border="1" data-bbox="585 902 1865 1230"> <thead> <tr> <th data-bbox="585 902 1128 954">Location</th> <th data-bbox="1128 902 1438 954">Supply Duct</th> <th data-bbox="1438 902 1865 954">Return Duct</th> </tr> </thead> <tbody> <tr> <td data-bbox="585 954 1128 990">Exterior of building</td> <td data-bbox="1128 954 1438 990">R-6</td> <td data-bbox="1438 954 1865 990">R-4.2</td> </tr> <tr> <td data-bbox="585 990 1128 1026">Ventilated Attic</td> <td data-bbox="1128 990 1438 1026">R-6</td> <td data-bbox="1438 990 1865 1026">R-4.2</td> </tr> <tr> <td data-bbox="585 1026 1128 1062">Unvented attic above insulated ceiling</td> <td data-bbox="1128 1026 1438 1062">R-6<sup>3</sup></td> <td data-bbox="1438 1026 1865 1062">R-4.2</td> </tr> <tr> <td data-bbox="585 1062 1128 1097">Unvented attic with roof insulation</td> <td data-bbox="1128 1062 1438 1097">R-4.2</td> <td data-bbox="1438 1062 1865 1097">None</td> </tr> <tr> <td data-bbox="585 1097 1128 1133">Unconditioned spaces<sup>1</sup></td> <td data-bbox="1128 1097 1438 1133"><u>R-4.2</u> None</td> <td data-bbox="1438 1097 1865 1133"><u>R-4.2</u> None</td> </tr> <tr> <td data-bbox="585 1133 1128 1169">Indirectly conditioned spaces<sup>2</sup></td> <td data-bbox="1128 1133 1438 1169">None</td> <td data-bbox="1438 1133 1865 1169">None</td> </tr> <tr> <td data-bbox="585 1169 1128 1205">Conditioned spaces</td> <td data-bbox="1128 1169 1438 1205">None</td> <td data-bbox="1438 1169 1865 1205">None</td> </tr> <tr> <td data-bbox="585 1205 1128 1230">Buried</td> <td data-bbox="1128 1205 1438 1230">R-4.2</td> <td data-bbox="1438 1205 1865 1230">None</td> </tr> </tbody> </table> <p data-bbox="709 1230 1411 1263"><sup>1</sup> Includes crawl spaces, both ventilated and non-ventilated.</p> <p data-bbox="709 1263 1494 1295"><sup>2</sup> Includes return air plenums with or without exposed roofs above.</p> <p data-bbox="709 1295 1669 1328"><sup>3</sup> R-8 duct insulation is required for Miami-Dade, Broward and Monroe Counties</p>	Location	Supply Duct	Return Duct	Exterior of building	R-6	R-4.2	Ventilated Attic	R-6	R-4.2	Unvented attic above insulated ceiling	R-6 <sup>3</sup>	R-4.2	Unvented attic with roof insulation	R-4.2	None	Unconditioned spaces <sup>1</sup>	<u>R-4.2</u> None	<u>R-4.2</u> None	Indirectly conditioned spaces <sup>2</sup>	None	None	Conditioned spaces	None	None	Buried	R-4.2	None	
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Bob Volin 4/17/08	N1107.ABC.1.1, 13-607.ABC.1.1, Ch.43 <i>FBC-R</i> , Subch. 13-3, <i>FBC-B</i>	<p>Manual S needs to be inserted into the code as a referenced manual (see below). See DCA08-DEC-004 as a needed clarification of code for section 13-607.ABC.1.1 and N1107.ABC.1.1, cooling equipment capacity. This is needed so contractors can understand how equipment is selected and why, in addition ASHRAE defers to ACCA Manual S for equipment selection.</p> <p><b>N1107.ABC.1.1 [13-607.ABC.1.1] Cooling equipment capacity.</b> Cooling only equipment shall be selected so that its total capacity is not less than the calculated total load but not more than 1.15 times greater than the total load calculated according to the procedure selected in Section 13-607.ABC.1, or the closest available size provided by the manufacturer's product lines. The corresponding latent capacity of the equipment shall not be less than the calculated latent load.</p> <p>The published value for ARI total capacity is a nominal, rating-test value and shall not be used for equipment sizing. Manufacturer's expanded performance data shall be used to select cooling-only equipment <u>in accordance with ACCA Manual S</u>. This selection shall be based on the outdoor design dry bulb temperature for the load calculation (or entering water temperature for water-source equipment), the blower CFM provided by the expanded performance data, the design value for entering wet bulb temperature and the design value for entering dry bulb temperature.</p> <p>[No change to rest of section.]</p> <p><b>Chapter 43, <i>FBC-R</i> [13-301.0]:</b>  <u>ACCA Manual S -1995 Residential Equipment Selection N1107.ABC.1.1, [607.ABC.1.1]</u></p>																						
Wes Davis 4/17/08	Chapter 43 <i>FBC-R</i> , Subchapter 13-3, <i>FBC-B</i>	<p>The Air Conditioning Contractors of America supports updating the references to its manuals. The table below illustrates the former and current references. These changes to Section 13-301, Referenced Standards will ensure the Florida Building Code is using the most current references.</p> <table border="1" data-bbox="585 1036 1669 1414"> <thead> <tr> <th colspan="3" data-bbox="585 1036 1669 1073">Proposed Changes</th> </tr> <tr> <th data-bbox="585 1073 956 1175">ACCA</th> <th colspan="2" data-bbox="956 1073 1669 1175">Air Conditioning Contractors of America 2800 Shirlington Road, Suite 300 Arlington, VA 22206</th> </tr> <tr> <th data-bbox="585 1175 956 1213">Standard reference number</th> <th data-bbox="956 1175 1516 1213">Title</th> <th data-bbox="1516 1175 1669 1213">Reference</th> </tr> </thead> <tbody> <tr> <td data-bbox="585 1213 956 1247">ACCA Manual D-1995</td> <td data-bbox="956 1213 1516 1247">Residential Duct Systems</td> <td data-bbox="1516 1213 1669 1247">4</td> </tr> <tr> <td data-bbox="585 1247 956 1313">ACCA Manual <u>J8 version 2-2006J-2003</u></td> <td data-bbox="956 1247 1516 1313">Residential Load Calculation, Eighth Edition <u>version 2 with posted updates/errata.</u></td> <td data-bbox="1516 1247 1669 1313"></td> </tr> <tr> <td data-bbox="585 1313 956 1380">ACCA Manual <u>N5-2008-N-1988</u></td> <td data-bbox="956 1313 1516 1380">Commercial Load Calculation For Small <u>Commercial Buildings, Fifth Fourth</u> Edition.</td> <td data-bbox="1516 1313 1669 1380"></td> </tr> <tr> <td data-bbox="585 1380 956 1414"><u>ACCA Manual S - 1995</u></td> <td data-bbox="956 1380 1516 1414"><u>Residential Equipment Selection</u></td> <td data-bbox="1516 1380 1669 1414"></td> </tr> </tbody> </table>	Proposed Changes			ACCA	Air Conditioning Contractors of America 2800 Shirlington Road, Suite 300 Arlington, VA 22206		Standard reference number	Title	Reference	ACCA Manual D-1995	Residential Duct Systems	4	ACCA Manual <u>J8 version 2-2006J-2003</u>	Residential Load Calculation, Eighth Edition <u>version 2 with posted updates/errata.</u>		ACCA Manual <u>N5-2008-N-1988</u>	Commercial Load Calculation For Small <u>Commercial Buildings, Fifth Fourth</u> Edition.		<u>ACCA Manual S - 1995</u>	<u>Residential Equipment Selection</u>		
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Ann Stanton 4/11/08	13-301 <i>FBC-B</i> Ch. 43 <i>FBC-R</i>	Citing this updated standard resolves issues heat pump pool heater manufacturers had with a minor technical issue in the previous standard.  ARI Std. 1160-2008 4 Performance Rating of Heat Pump Pool Heaters Table 412.ABC.3, 612.ABC.2.3.4 [N1112.ABC.2.3.4]	
Jeff Householder 4/17/08	Appendix 13-D in <i>FBC-B</i> Ch. 13. & G in <i>FBC-R</i> .	Form 1100B & C Table 11B-2 and 11C-3: Add the words “warm air furnace” or “Combustion space heating systems” instead of “combustion heaters”. Form 400C: Add gas storage tank standards for units <75,000 Btu/h as per Table 13-412.  <b>Form 1100B, Table 11B-2 [Change as shown:]</b>  <u>Combustion Heating</u> N1108.ABC.3.2E Combustion space and water heating systems must be provided with outside combustion air , except for direct vent appliances. <u>Warm air furnaces shall have an interrupted or intermittent ignition device (IID) and have either power venting or an automatic flue damper.</u>  <b>Form 1100C, Table 11C-3 [Change as shown:]</b>  <u>Combustion Heating</u> N1108.ABC.3.2E Combustion space and water heating systems must be provided with outside combustion air , except for direct vent appliances. <u>Warm air furnaces shall have an interrupted or intermittent ignition device (IID) and have either power venting or an automatic flue damper.</u>  <b>Form 400C, page 2:</b> <u>Service hot water</u> <u>&lt;75,000Btu/h, &gt; 20 gallons 0.62-0.0019V EF</u>	
Rob Vieira 4/9/08	Appx.13-D, <i>FBC-B</i> Appx. G- <i>FBC-R</i> Form 1100B	As I understand the Rule 9B-13 Rule Development Workshop on 3/19/08, there was a motion to keep Method B the same, while making code compliance Method A 15 percent more stringent. Unequal code compliance methods invalidate the overall level of stringency of the code. This should be rectified. I would recommend that based on information presented at the 3/17/08 Energy TAC meeting and at the 3/19/08 Rule Development Workshop, that the original Rule 9B-13 proposal for Form 1100B-08 (including simplifying it to one form and adding Footnote 9) be amended to change the window requirements as follows: U-factor <u>0.65 0.40</u> , SHGC 0.30, <u>15.46</u> percent glass to floor area. This should make this compliance	

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		<p>method both more realistic and yet still equivalent to Method A. If adopted, the following changes should also be made to the code:</p> <p><b>N1101.B.1 [13-601.B.1] Percentage of glass.</b> The percentage of window area to conditioned floor area shall not exceed <del>15</del> 16 percent.</p> <p><b>N1110.B.1 [13-610.B.1] Ducts installed.</b> All ducts shall be insulated to at least the level required by Table 11B-1 on Form 1100B. <u>Ducts and air handling units shall either be installed inside conditioned space or shall be tested to meet the criteria for the tested duct option in Section N1110.A.2.</u></p>	

APPLIANCE EFFICIENCIES PROPOSED FOR INCLUSION IN CODE		
Rick Dixon 4/11/08	13-202 13-400.2.A.3	<p>Definition is required to clarify provisions of Sec. 13-404.2.A.3 proposed below.  <u>WALK-IN COOLER; WALK-IN FREEZER. An enclosed storage space refrigerated to temperatures, respectively, above, and at or below 32° F that can be walked into, and has a total chilled storage area of less than 3,000 square feet. Except: products designed and marketed exclusively for medical, scientific or research purposes.</u></p> <p><b><u>13-400.2.A.3 Walk-in coolers and freezers.</u></b> Walk-in coolers and freezers installed after July 1, 2009 shall meet the following criteria:</p> <ul style="list-style-type: none"> <li>a) <u>have automatic door closers that firmly close all walk-in doors that have been closed to within 1 inch of full closure, except that this shall not apply to doors wider than 3 feet 9 inches or taller than 7 feet;</u></li> <li>b) <u>have strip doors, spring hinged doors, or other method of minimizing infiltration when doors are open;</u></li> <li>c) <u>contain wall ceiling and door insulation of at least R-25 for coolers and R-32 for freezers, except that this shall not apply to glazed portions of doors nor to structural members;</u></li> <li>d) <u>contain floor insulation of at least R-28 for freezers;</u></li> <li>e) <u>for evaporator fan motors of under 1 horsepower, use:</u> <ul style="list-style-type: none"> <li>➤ <u>electronically commutated motors;</u></li> <li>➤ <u>permanent split capacitor-type motors; or</u></li> <li>➤ <u>3-phase motors.</u></li> </ul> </li> <li>f) <u>for condenser fan motors of under 1 horsepower, use</u> <ul style="list-style-type: none"> <li>➤ <u>electronically commutated motors;</u></li> <li>➤ <u>permanent split capacitor-type motors; or</u></li> <li>➤ <u>3-phase motors; and</u></li> </ul> </li> <li>g) <u>for all interior lights, use light sources with an efficacy of 40 lumens per watt or more, including ballast losses (if any), except that light sources with an efficacy of 40 lumens per watt or less, including ballast losses (if any), may be used in conjunction with a timer or device that turns off the lights within 15 minutes of when the walk-in cooler or walk-in freezer is not occupied by people.</u></li> </ul>

Rick Dixon 4/11/08	Table 13-407.ABC.3.2.1A	<p style="text-align: center;"><b>TABLE 13-407.ABC.3.2.1A</b> <b>ELECTRICALLY OPERATED UNITARY AIR CONDITIONERS AND CONDENSING UNITS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td rowspan="6" style="text-align: center; vertical-align: middle;"><u>Computer room air conditioner</u></td> <td rowspan="2" style="text-align: center; vertical-align: middle;"><u>&lt;65,000 Btu/h</u></td> <td style="text-align: center;"><u>Air cooled</u></td> <td style="text-align: center;"><u>11.0 EER</u></td> <td rowspan="6" style="text-align: center; vertical-align: middle;"><u>ANSI/ASHRAE 127</u></td> </tr> <tr> <td style="text-align: center;"><u>Water-Glycol, Evaporatively cooled</u></td> <td style="text-align: center;"><u>11.1 EER</u></td> </tr> <tr> <td rowspan="2" style="text-align: center; vertical-align: middle;"><u>65,000–135,000 Btu/h</u></td> <td style="text-align: center;"><u>Air cooled</u></td> <td style="text-align: center;"><u>10.4 EER</u></td> </tr> <tr> <td style="text-align: center;"><u>Water-Glycol, Evaporatively cooled</u></td> <td style="text-align: center;"><u>10.5 EER</u></td> </tr> <tr> <td rowspan="2" style="text-align: center; vertical-align: middle;"><u>135,001-240,000Btu/h</u></td> <td style="text-align: center;"><u>Air cooled</u></td> <td style="text-align: center;"><u>10.2 EER</u></td> </tr> <tr> <td style="text-align: center;"><u>Water-Glycol, Evaporatively cooled</u></td> <td style="text-align: center;"><u>10.0 EER</u></td> </tr> </table>	<u>Computer room air conditioner</u>	<u>&lt;65,000 Btu/h</u>	<u>Air cooled</u>	<u>11.0 EER</u>	<u>ANSI/ASHRAE 127</u>	<u>Water-Glycol, Evaporatively cooled</u>	<u>11.1 EER</u>	<u>65,000–135,000 Btu/h</u>	<u>Air cooled</u>	<u>10.4 EER</u>	<u>Water-Glycol, Evaporatively cooled</u>	<u>10.5 EER</u>	<u>135,001-240,000Btu/h</u>	<u>Air cooled</u>	<u>10.2 EER</u>	<u>Water-Glycol, Evaporatively cooled</u>	<u>10.0 EER</u>	
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Ann Stanton 4/11/08	13-407.ABC.3.3	<p><b>13-407.ABC.3.3 Condensing Coils Installed in Cool Air Stream of Another Air-Conditioning Unit.</b> The condensing coil of one air-conditioning unit shall not be installed in the cool air stream of another air-conditioning unit.</p> <p><b>Exceptions:</b></p> <p>1- Where condenser heat reclaim is used in a properly designed system including enthalpy control devices to achieve requisite humidity control for process, special storage or equipment spaces and occupant comfort within the criteria of Standard ASHRAE Standard 55. Such systems shall result in less energy use than other appropriate options.</p> <p>2- <del>For computer or clean rooms whose location precludes the use of systems which would not reject heat into conditioned spaces.</del></p>																		
Rick Dixon 4/11/08	13-407.ABC.2.4.4 13-607.ABC.2.3 N1107.ABC.2.3	<p><b>13-407.ABC.2.4.4 Hard-wired dehumidifiers.</b> After July 1, 2009, where a hard-wired dehumidifier is installed to control humidity, it shall have an Energy Factor that meets or exceeds the values in Table 13-407.ABC.2.4.4 when tested in accordance with 10 CFR 430, Subpart B, Appendix X.</p> <p style="text-align: center;"><b>TABLE 13-407.ABC.2.4.4</b> <b>Hard-Wired Dehumidifiers, Minimum EF</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;"><u>Capacity (pints/day)</u></th> <th style="text-align: center;"><u>Minimum Energy Factor (liters/kWh)</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;"><u>Up to 35.00</u></td> <td style="text-align: center;"><u>1.35</u></td> </tr> <tr> <td style="text-align: center;"><u>35.01 – 45.00</u></td> <td style="text-align: center;"><u>1.50</u></td> </tr> <tr> <td style="text-align: center;"><u>45.01 – 54.00</u></td> <td style="text-align: center;"><u>1.60</u></td> </tr> <tr> <td style="text-align: center;"><u>54.01 – 75.00</u></td> <td style="text-align: center;"><u>1.70</u></td> </tr> <tr> <td style="text-align: center;"><u>&gt; 75.00</u></td> <td style="text-align: center;"><u>2.50</u></td> </tr> </tbody> </table> <p><b>N1107.ABC.2.3 [13-607.ABC.2.3] Humidity control.</b> Where a humidistat is used for comfort dehumidification, it shall be capable of being set to prevent the use of fossil fuel or</p>	<u>Capacity (pints/day)</u>	<u>Minimum Energy Factor (liters/kWh)</u>	<u>Up to 35.00</u>	<u>1.35</u>	<u>35.01 – 45.00</u>	<u>1.50</u>	<u>45.01 – 54.00</u>	<u>1.60</u>	<u>54.01 – 75.00</u>	<u>1.70</u>	<u>&gt; 75.00</u>	<u>2.50</u>						
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electricity to reduce humidities below 60 percent. After July 1, 2009, where a hard-wired dehumidifier is installed to control humidity, it shall have an Energy Factor that meets or exceeds the values in Table N1107.ABC.2.3 when tested in accordance with 10 CFR 430, Subpart B, Appendix X.

**TABLE N1107.ABC.2.3  
Hard-Wired Dehumidifiers, Minimum EF**

<b>Capacity (pints/day)</b>	<b>Minimum Energy Factor (liters/kWh)</b>
<u>Up to 35.00</u>	<u>1.35</u>
<u>35.01 – 45.00</u>	<u>1.50</u>
<u>45.01 – 54.00</u>	<u>1.60</u>
<u>54.01 – 75.00</u>	<u>1.70</u>
<u>&gt; 75.00</u>	<u>2.50</u>

Rick Dixon  
4/11/08

13-408.ABC.3.2.1  
13-608.ABC.3.2.1  
N1108.ABC.3.2.1

Furnace fans should be as efficient as the a/c fan replaced when a/c and furnaces are combined. Also, the IID requirements in the residential code should be reflected in the commercial code applications:

**13-408.ABC.3.2.1** [Equipment rating descriptions are consolidated into Section 13-408.ABC.3.2] **Gas and oil-fired furnaces.** Gas-fired and oil-fired forced air furnaces with input ratings  $\geq 225,000$  Btu/h shall also have an intermittent ignition or interrupted device (IID) and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for furnaces where combustion air is drawn from the conditioned space. Furnace fans shall be of equal or better efficiency than the fan tested and rated for use with the air-conditioner assembly with which the furnace will be installed. All furnaces with input ratings  $\geq 225,000$  Btu/h, including electric furnaces, that are not located within the conditioned space shall have jacket losses not exceeding 0.75 percent of the input.

**N1108.ABC.3.2.1 [13-608.ABC.3.2.1] Gas and oil-fired furnaces.** Gas-fired and oil-fired forced air furnaces with input ratings  $\geq 225,000$  Btu/h shall also have an intermittent ignition or interrupted device (IID) and have either power venting or a flue damper. A vent damper is an acceptable alternative to a flue damper for furnaces where combustion air is drawn from the conditioned space. Furnace fans shall be of equal or better efficiency than the fan tested and rated for use with the air-conditioner assembly with which the furnace will be installed. All furnaces with input ratings  $\geq 225,000$  Btu/h, including electric furnaces, that are not located within the conditioned space shall have jacket losses not exceeding 0.75 percent of the input.



Rick Dixon  
4/11/08

Tables  
N1112.ABC.3, 13-  
412.ABC.3, 13-  
612.ABC.3

**TABLE 13-412.ABC.3**  
**Performance Requirements for Water Heating Equipment**

Equipment Type	Size Category (input)	Subcategory or Rating Condition	Performance Required <sup>1</sup>	Test Procedure <sup>2</sup>
Electric Water Heaters	≤ 12kW	Resistance >20 gal	0.93-0.00132V EF	DOE 10 CRF Part 430 <sup>3</sup>
	<12kW	>120 gal	0.93-(0.00132V) EF	California Title 20, Section 1604(f)
	>12 kW	Resistance >20 gal	20+35 √V SL, Btu/h	ANSI Z21.10.3
	<24 Amps & <250Volts	Heat Pump	0.93-0.00132V EF	DOE 10 CFR Part 430 <sup>3</sup>
Gas Storage Water Heaters	<75,000 Btu/h	< 20 gal	0.62-(0.0019V) EF	California Title 20, Section 1604(f)
	<75,000 Btu/h	> 20 gal	0.62-0.0019V EF	DOE 10 CFR Part 430 <sup>3</sup>
	<75,000 Btu/h	>100 gal	0.62-(0.0091V) EF	California Title 20, Section 1604(f)
	>75,000 Btu/h and	<4,000 (Btu/h)/gal	80% E <sub>t</sub> (Q/800+110√V) SL, Btu/h	ANSI Z21.10.3
Gas Instantaneous Water Heaters	<50K Btu/h	Any size	0.62-(0.0019V) EF	California Title 20, Section 1604(f)
	>50,000 Btu/h and <200,000 Btu/h <sup>4</sup>	>4,000 (Btu/h)/gal and < 2 gal	0.62-0.0019V EF	DOE 10 CFR Part 430
	<200 K btu/h	> 2 gal	0.62-(0.0019V) EF	California Title 20, Section 1604(f)
	≥200,000 Btu/h	>4,000 (Btu/h)/gal and <10 gal	80% E <sub>t</sub>	ANSI Z21.10.3
	≥200,000 Btu/h	>4,000 (Btu/h)/gal and ≥10 gal	80% E <sub>t</sub> (Q/800+110√V) SL, Btu/h	
Electric Instantaneous Water Heaters	< 12 kW	Any	0.93-(0.00132V) EF	California Title 20, Section 1604(f)

[Rest of table unchanged]

Rick Dixon 4/11/08	N1112.ABC.2.3.5- .6, 13-612.ABC.2.3.5-.6, 13-412.ABC.2.6.4-5	<p><b><u>N1112.ABC.2.3.5 [13-412.ABC.2.3.4, 13-612.ABC.2.3.5] Pool pumps.</u></b> After July 1, 2009, pool pumps with a capacity of 1 hp or more shall have the capability of operating at two or more speeds with a low speed having a rotation rate that is no more than one-half of the motor’s maximum rotation rate. The default circulation speed shall be the lowest speed, with a high speed override capability being for a temporary period not to exceed one normal cycle. No split-phase or capacitor start induction run type motors shall be installed.</p> <p><b><u>N1112.ABC.2.3.6 [13-412.ABC.2.3.5, 13-612.ABC.2.3.6] Spa standby power.</u></b> Spa standby power shall not equal or exceed <math>5 \times V^{2/3}</math> when tested in accordance with California Title 20, Section 1604(g), where V is in gallons.</p>																
Rick Dixon 4/11/08	13-415.ABC.6.1 13-415.ABC.6.2	<p><b><u>13-415.ABC.6 Fixture efficiencies.</u></b></p> <p><b><u>13-415.ABC.6.1 Fluorescent lamps.</u></b> After July 1, 2009, fluorescent lamps shall meet the minimum efficacy ratings in Table 13-415.ABC.6.1 when tested in accordance with 10 CFR, Section 430.23(q).</p> <p style="text-align: center;"><b><u>TABLE 13-415.ABC.6.1</u></b> <b><u>Fluorescent Lamp Minimum Efficacy</u></b></p> <table border="1" data-bbox="634 730 1809 906"> <thead> <tr> <th><b><u>Lamp type</u></b></th> <th><b><u>Watts</u></b></th> <th><b><u>Minimum Efficacy</u></b></th> </tr> </thead> <tbody> <tr> <td><u>One F40T12</u></td> <td><u>40</u></td> <td><u>2.29</u></td> </tr> <tr> <td><u>Two F40T12</u></td> <td><u>80</u></td> <td><u>1.17</u></td> </tr> <tr> <td><u>Two F96T12</u></td> <td><u>150</u></td> <td><u>0.63</u></td> </tr> <tr> <td><u>Two F96T12HO</u></td> <td><u>220</u></td> <td><u>0.39</u></td> </tr> </tbody> </table> <p><b><u>13-415.ABC.6.2 Ballast efficacy.</u></b> After July 1, 2009, metal halide lamp fixtures designed to be operated with lamps rated greater than or equal to 150 watts but less than or equal to 500 watts shall contain:</p> <ul style="list-style-type: none"> <li>a) a pulse-start metal halide ballast with a minimum ballast efficiency of 88 percent;</li> <li>b) a magnetic probe-start ballast with a minimum ballast efficiency of 94 percent; or</li> <li>c) a nonpulse-start electronic ballast with <ul style="list-style-type: none"> <li>(1) a minimum ballast efficacy of 92 percent for wattages greater than 250 watts; and</li> <li>(2) a minimum ballast efficiency of 90 percent for wattages less than or equal to 250 watts.</li> </ul> </li> </ul> <p>when tested in accordance with ANSI C82.6.</p>	<b><u>Lamp type</u></b>	<b><u>Watts</u></b>	<b><u>Minimum Efficacy</u></b>	<u>One F40T12</u>	<u>40</u>	<u>2.29</u>	<u>Two F40T12</u>	<u>80</u>	<u>1.17</u>	<u>Two F96T12</u>	<u>150</u>	<u>0.63</u>	<u>Two F96T12HO</u>	<u>220</u>	<u>0.39</u>	
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Ann Stanton 4/11/08	13-301 <i>FBC-B</i> Chapter 43 <i>FBC-R</i>	<p>If the above requirements are added to the code, the following standards should also be added to or updated in the code:</p> <p><b>ACCA</b>  Manual J8-2006J-2003 Residential Load Calculation, Eighth Edition version 2 with posted updates/errata. 607.ABC.1 [N1107.ABC.1]  Manual N5-2008 2005 Commercial Load Calculation For Small Commercial Buildings, Fifth <del>Fourth</del> Edition. 607.ABC.1, Appendix 13-B B-3.1.1  Manual S – 1995 Residential Equipment Selection 607.ABC.1.1, [N1107.ABC.1.1]</p> <p><b>ANSI</b>  ANSI C82.6-2005 Ballasts for High Intensity Discharge Lamps – Method of Measurement 415.ABC.6.2</p> <p><b>ASHRAE</b>  ANSI/ASHRAE 127-2001 Method of Testing for Rating Computer and Data Processing Room Unitary Air Conditioners. Table 407.ABC.3.2.1</p> <p><b>CEC California Energy Commission</b>  1516 Ninth Street  Sacramento, California 95814</p> <table border="1"> <thead> <tr> <th>Standard reference number</th> <th>Title</th> <th>Referenced in Code Section Number</th> </tr> </thead> <tbody> <tr> <td>California Title 20, 2007</td> <td>Appliance Efficiency Regulations</td> <td></td> </tr> <tr> <td>Section 1604(f)</td> <td></td> <td>Tables 412.ABC.3, 612.ABC.3, [Table N1112.ABC.3]</td> </tr> <tr> <td>Section 1604(g)</td> <td></td> <td>412.ABC.2.3.5, 612.ABC.2.3.6, [N1112.ABC.2.3.6]</td> </tr> </tbody> </table> <p><b>DOE</b>  10 CFR, Part 430.23(q)-2005 Fluorescent Lamp Ballasts 415.ABC.6  10 CFR, Part 431 Uniform test method for the measurement of energy efficiency of commercial packaged boilers. Table 13-408.ABC.3.2F, Subpart E [Table 13-608.ABC.3.2F] [Table 13-N1108.ABC.3.2F]</p> <p>10 CFR, Part 430, Subpart B, Appendix X Uniform Test Method for Measuring the Energy Consumption of Dehumidifiers 13-407.ABC.2.4.4, 13-607.ABC.2.3 [N1107.ABC.2.3]</p>	Standard reference number	Title	Referenced in Code Section Number	California Title 20, 2007	Appliance Efficiency Regulations		Section 1604(f)		Tables 412.ABC.3, 612.ABC.3, [Table N1112.ABC.3]	Section 1604(g)		412.ABC.2.3.5, 612.ABC.2.3.6, [N1112.ABC.2.3.6]	
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