



PUBLIC CODE CHANGE PROPOSAL FORM
FOR PUBLIC PROPOSALS IN THE INTERNATIONAL CODES

2006/2007 CODE DEVELOPMENT CYCLE

CLOSING DATE: All Proposals Must Be Received by March 24, 2006

The 2006/2007 Code Development Hearings are scheduled for
September 20 to 30, 2006 in Orlando, FL

1) Name: Ronald Majette Date: March 24, 2006
Jurisdiction/Company: United States Department of Energy
Submitted on Behalf of: United States Department of Energy
Address: 1000 Independence Avenue, EE-2J, IJ-018
City: Washington State: DC Zip Code: 20585
Phone: 202-586-7935 Ext. Fax: 202-586-4617 E-mail address: Ronald.majette@ee.doe.gov

2) \*Signature:
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Signature for electronic submittal: When submitting proposals electronically, to complete the submittal process, print a copy of the ICC Electronic Copyright Release form found at www.iccsafe.org, fill in the requested information, send to ICC. One completed form is required. This must be done for each code change cycle and can be used for code changes and public comments.

3) Indicate appropriate International Code(s) associated with this Public Proposal - Please use Acronym: IECC
If you have also submitted a separate coordination change to another I-Code, please indicate the code:
(See section below for list of names and acronyms for the International Codes).

4) Be sure to format your proposal and include all information as indicated on Page 2 of this form.

5) Proposals should be sent to the following offices via regular mail or email. An e-mail submittal is preferred, including an electronic version, in either Wordperfect or Word. The only formatting that is needed is BOLDING, STRIKEOUT AND UNDERLINING. Please do not provide additional formatting such as tabs, columns, etc., as this will be done by ICC

Please use a separate form for each proposal submitted. Note: All code changes received will receive an acknowledgment.

Please check here if separate graphic file provided. [ ]

Graphic materials (Graphs, maps, drawings, charts, photographs, etc.) must be submitted as separate electronic files in .CDR,.IA,.TIF or .JPG format (300 DPI Minimum resolution; 600 DPI or more preferred) even though they may also be embedded in your Word or Wordperfect submittal.

Table with 4 columns: Code, Send to, Acronym, ICC Code Name. Lists various codes like IBC, IECC, IFGC, etc. and their corresponding contact information and full names.

**Allow reduced duct insulation in simulated performance alternative**

**CODE CHANGE PROPOSAL**

Please provide all of the following items in your code change proposal. Your proposal may be entered on the following form, or you may attach a separate file. However, please read the instructions provided for each part of the code change proposal. The sections identified in parentheses are the applicable sections from CP #28 Code Development. The full procedures can be downloaded from [www.iccsafe.org](http://www.iccsafe.org).

**Code Sections/Tables/Figures Proposed for Revision (3.3.2):** IECC Section 404.2 and Table 404.5.2(2).

**Name/Company/Representing (3.3.1):** Ronald Majette / United States Department of Energy

**Proposal:**

Revise as follows:

**404.2 Mandatory Requirements.** Compliance with this section requires that the criteria of Section 401, 402.4, 402.5, 402.6, and 403 all sections of 403 except 403.2.1 be met. Supply and return ducts not completely inside the building thermal envelope shall be insulated to a minimum of R-4.

List all subsections of Section 403 except for 403.2.1 as "Mandatory".

**Table 404.5.2(2) Default Distribution System Efficiencies for Proposed Designs <sup>(a)</sup>**

Distribution System Configuration and Condition:	Forced Air Systems	Hydronic Systems <sup>(b)</sup>
Distribution system components located in unconditioned space <sup>(b)</sup>	0.80	0.95
Distribution systems entirely located in conditioned space <sup>(c)</sup>	0.88	1.00
Proposed "reduced leakage" with entire air distribution system located in the conditioned space <sup>(d)</sup>	0.96	--
Proposed "reduced leakage" air distribution system with components located in the unconditioned space <sup>(b)</sup>	0.88	--
"Ductless" systems <sup>(e)</sup>	1.00	--

**Notes:**

(a) ~~Default values given by this table are for untested distribution systems, which must still meet minimum requirements for duct system insulation.~~

(b) Hydronic Systems shall mean those systems that distribute heating and cooling energy directly to individual spaces using liquids pumped through closed loop piping and that do not depend on ducted, forced air flows to maintain space temperatures.

(b) Reduction in duct insulation from R-8 to R-6 shall reduce the distribution system efficiency by 0.01 for forced air systems not located entirely within the conditioned space. Further reductions from R-6 to R-4 shall reduce the distribution system efficiency by 0.02 below that for R-6. Other distribution system efficiencies between R-4 and R-8 shall be obtained by linear interpolation.

(c) Entire system in conditioned space shall mean that no component of the distribution system, including the air handler unit, is located outside of the conditioned space.

(d) Proposed "reduced leakage" shall mean leakage to outdoors not greater than 3 cfm per 100 ft<sup>2</sup> of conditioned floor area and total leakage not greater than 9 cfm per 100 ft<sup>2</sup> of conditioned floor area at a pressure differential of 0.02 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure. Total leakage of not greater than 3 cfm per 100 ft<sup>2</sup> of conditioned floor area at a pressure difference of 0.02 inches w.g. (25 Pa) across the entire system, including the manufacturer's air handler enclosure, shall be deemed to meet this requirement without measurement of leakage to outdoors. This performance shall be specified as required in the construction documents and confirmed through field-testing of installed systems as documented by an approved independent party.

(e) Ductless systems may have forced airflow across a coil but shall not have any ducted airflows external to the manufacturer's air handler enclosure.

**Supporting Information (3.3.4 & 3.4):**

The purpose of this code change is to allow duct insulation to be reduced to R-4 in the simulated performance path. The current code requires R-8 duct insulation for all but ducts in floor trusses with no possibility for trade-offs. R-4 is a more reasonable mandatory minimum value. The proposed reductions in the distribution system efficiencies are based on an extensive research project conducted in 1996. The exact impact of duct insulation is highly complicated and depends on factors such as duct types, lengths, and location, heating system type, climate, and other variables. This proposal presents a reasonable simplification that permits duct-R trade-offs without

## Allow reduced duct insulation in simulated performance alternative

requiring thorough testing of the distribution system.

Footnote (a) should be deleted as the values are not all for untested systems and this proposal addresses minimum duct insulation requirements in section 404.2.

Substantiation: Triedler, B., R. G. Lucas, M. P. Modera, and J. D. Miller. 1996. "Impacts of Residential Duct Insulation on HVAC Energy Use and Life-Cycle Cost to Consumers." ASHRAE Transactions 102 (1). AT-96-13-4.

### **Referenced Standards (3.4 & 3.6):**

**Cost Impact (3.3.4.6):** The code change proposal will not increase the cost of construction.