



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:** William M. Connolly **Date:** March 21, 2006
Jurisdiction/Company: State of New Jersey, Department of Community Affairs, Division of Codes and Standards
Submitted on Behalf of: International Code Council Ad Hoc Committee on Terrorism Resistant Buildings
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- 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](http://www.iccsafe.org) 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: IBC
 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.

Code	Send to:	Acronym	ICC Code Name
IBC	International Code Council	IBC	International Building Code
ICC EC	Chicago District Office	ICC EC	ICC Electrical Code–Administrative Provisions
IEBC	Attn: Diane Schoonover	IECC	International Energy Conservation Code
IFC	4051 West Flossmoor Road	IEBC	International Existing Building Code
IFGC	Country Club Hills, IL 60478-5795	IFC	International Fire Code
IPC	Fax: 708/799-0320	IFGC	International Fuel Gas Code
IPSDC	codechanges@iccsafe.org	IMC	International Mechanical Code
IPMC		ICC PC	ICC Performance Code
IWUIC		IPC	International Plumbing Code
IZC		IPSDC	International Private Sewage Disposal Code
		IPMC	International Property Maintenance Code
IECC	International Code Council	IRC	International Residential Code
ICC PC	Birmingham District Office	IWUIC	International Wildland-Urban Interface Code
IMC	Attn: Annette Sundberg	IZC	International Zoning Code
IRC	900 Montclair Road		
	Birmingham, AL 35213-1206		
	Fax: 205/592-7001		
	codechangesbhm@iccsafe.org		

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.

Code Sections/Tables/Figures Proposed for Revision (3.3.2): Section 403.15 (new); Section 1019.1

Note: If the proposal is for a new section, indicate (new).

Name/Company/Representing (3.3.1): William M. Connolly, Chairman, International Code Council Ad Hoc Committee on Terrorism Resistant Buildings

Note: You must indicate your name and the full name of who you are representing. Do not use acronyms.

Proposal:

(Add new text as follows) 403.15 Additional exit stair. For buildings other than Group R-2 that are more than 420 feet (128 m) in height, one additional stairway meeting the requirements of Section 1009 shall be provided in addition to the minimum number of exits required by Section 1019.1 and shall meet the egress width required by Section 1009.1. The total width of any combination of remaining stairs with one stair removed shall not be less than the total width required by Section 1005.1. Scissor stairs shall not be considered the additional exit stair required by this section.

(Revise as follows) 1019.1 Minimum number of exits. All rooms and spaces within each story shall be provided with and have access to the minimum number of approved independent exits as required by Table 1019.1 based on the occupant load of the story, except as modified in Sections 403.15, 1015.1 or 1019.2. For the purposes of this chapter, occupied roofs shall be provided with exits as required for stories. The required number of exits from any story, basement or individual space shall be maintained until arrival at grade or the public way.

Supporting Information (3.3.4 & 3.4):

This code change proposal is one of fourteen proposals being submitted by the International Code Council Ad Hoc Committee on Terrorism Resistant Buildings.

Purpose:

This proposed change is intended to enable rapid full evacuation of very tall buildings by ensuring that ongoing and critical firefighting activity does not reduce the total required exit capacity needed to evacuate the remaining occupants of the building. It implements, in part, Recommendation 17 of the National Institute of Standards and Technology (NIST) World Trade Center (WTC) report.

Reason:

The basic purpose behind the Code's current egress provisions for very tall buildings is to evacuate several floors near the fire floor. The provisions do not contemplate prompt full building evacuation. The NIST WTC report calls for Codes to consider that criterion. It is important to note that the need for full evacuation may be the result of a terrorist event, but that a range of other natural occurrences or man-made failures might also necessitate full building evacuation.

If the need for a full building evacuation occurs because of or at the same time as a fire then there will be very real problems. Necessary firefighting operations will reduce the capacity of the egress system. The extended period of time needed to fully evacuate a very tall building means that people will still be evacuating while full firefighting operations are taking place. Sound high rise fire fighting doctrine provides that the fire department take control of one stair, the one most appropriate to the circumstances of the given fire condition, in order to conduct suppression activities. In a building having two required stairs, each of the same width, this means that one-half of the exit capacity has been lost in a building which is still being evacuated.

This proposal calls for an additional stair so that egress capacity will be maintained through the time that full evacuation is complete. It is important to note that this additional stair is not proposed to be a dedicated fire department stair. The intent of the proposed provision is that the fire department be able to choose the stair which is most appropriate for the actual fire event. The principal purpose of this change is to maintain egress capacity in the case of fire events, but the additional stair will also significantly shorten the time needed for full evacuation in non-fire events.

The proponents recognize that effective use of this feature will require emergency responders to manage evacuation flow to

the available stairs. The proponents have submitted proposed changes to Articles 4, 7, and 9 of the IBC that will assist in that management. It should be pointed out, however, that this management problem exists under current code provisions; it is just magnified by the loss of egress capacity for full building evacuation.

The issue of “counter flow” has been much discussed since the WTC tragedy --counter flow meaning the fire fighters going up interfere with occupants moving down. The NIST report suggests that counter flow did not slow evacuation rates, but it did affect firefighter ascent rates. Some have suggested that widening the minimum width of stairs will resolve the counter flow problem.

The proponents disagree and believe that dedicating a stair to the fire service while maintaining necessary egress capacity in the remaining stairs is a better solution. There is a practical limit to how rapidly occupants can descend, no matter how wide the stair. Whether minimum width should be expanded because the practical limit cannot be obtained at the current minimum is a different code issue than the one addressed here. The proponents have not seen data or analysis which suggest that additional minimum width is needed, independent of counter flow considerations.

Really rapid evacuation of all occupants, but especially those with disabilities, depends upon the development of robust and safe evacuation elevators. That is the long term solution. The elevator industry and the ASME A-117.1 Committee are working hard on this important challenge but a lot of work remains to be done. The proponents recognize that evacuation elevators might one day eliminate the need for the extra stair proposed here, but believe that something must be done now to address this very real problem.

Substantiation:

The proposal adds a new Section 403.15 which requires one more stair than is otherwise required by Section 1019.1. It requires that the stair meet the minimum width requirements of Section 1009.1. More importantly, it also requires that the additional stair and the two (or more) stairs required by Section 1019.1 be sized, in terms of width, such that any combination of all stairs, less one, will provide for the required total width required by Section 1009.1. This meets the intent of the change that the required egress width be available even with one stair being used for firefighting operations.

It is important to note that the proposal does not require the additional stair to be located in accordance with other applicable requirements such as travel distance and separation. Those provisions of the Code will be met by the other stairs. The proponents believe that those requirements might be very difficult to meet with the additional stair and are not needed given the intent of the change.

Bibliography:

National Institute of Standards and Technology. Final Report of the National Construction Safety Team on the Collapses of the World Trade Center Towers. United States Government Printing Office: Washington, D.C. September 2005.

Referenced Standards (3.4 & 3.6):

None.

Cost Impact (3.3.4.6):

Costs:

This proposal will increase the cost of construction for very tall buildings.