ICC CODE TECHNOLOGY COMMITTEE
DRAFT MEETING MINUTES

MEETING #6

March 9-10, 2006
Wyndham O'Hare
Rosemont, IL 60018
(847) 297-1234

Thursday, March 9: 8:00 a.m. – 5:00 p.m.
Friday, March 10: 8:00 a.m. - 3:00 p.m.

1.0 Welcome and introductions - Chair Heilstedt

1.1 Call to order

Chair Heilstedt called the meeting to order at 8:10 am on Thursday March 9th.

1.2 Introduction of committee/attendees

Members present: Carl Baldassarra (Vice Chair), Dave Collins, Paul Heilstedt (Chair), Steve Jones, Marsha Mazz, Ron Nickson, Robert Salvaggio, Paul Tellez

Members absent: Shahriar Amiri, Marty Conant, Jeff Tubbs (alternate to Meacham)

Staff liaison: Mike Pfeiffer

Attendees: A list of attendees is provided at the end of these minutes

1.3 Welcoming remarks

Chair Heilstedt welcomed those in attendance

2.0 Approve agenda

Item 4 was moved after item 5.

3.0 Approve minutes of CTC Meeting #5 February 2-3, 2006

Approved with the following modification to revise the last paragraph of Item 6.2 to read:

> Motion/second/approval to ask the study group with the help of staff to revise the language for consistency between codes and produce an interim report for hearing at the next meeting.

4.0 Establishment of Study Groups

4.1 Follow-up to discussion held at CTC Meeting #5

There was consensus that the CTC study groups can meet at times/locations other than CTC meetings. Where there is a called CTC meeting, study groups shall not meet at the same time as to conflict with a CTC meeting. A checklist of issues to consider in the establishment of study groups will be developed.

5.0 Climbable Guards

5.1 Public Hearing- Interim Report

Revisions to the interim report were made based on the study group's file "Study Group Revise 3-7-2006". These revisions will be incorporated into the report and sent to the CTC for comments prior to submitting as a code change in the 2006/2007 cycle. *Staff note: Code change E96-06/07*

5.2 Status Report on the Study Group

The study group provided a status report of their activities. It was noted that NOMMA had issued a press release indicating that they had hired Whorton Marketing & Research of Columbia, MD to do a literature research of data on this subject. This may in turn lead to additional third party review of the research as

well as possible testing.

5.3 Working Meeting
None. Future work pending the outcome of activities noted in 5.2.

6.0 Day Care/Adult Care/Assisted Living

6.1 Public Hearing- Interim Report
The report was approved as revised, noting the need to coordinate the IBC internally and with the IRC. Code changes will be submitted in the 2006/2007 cycle. *Staff note: Code change G38-06/07*

6.2 Working Meeting
CTC member Steve Jones presented "Day Care Proposals 3806 Rev 1". Issues to consider/further investigate:

- Definitions of "normally asleep" and "normally awake"
- Definitions of types of evacuation – prompt, slow and impracticable
- 16 occupant threshold
- Impact on disabled community
- IRC Section R 322.1 and how it relates to Fair Housing

The file will be posted as a working draft for the next meeting.

7.0 Balanced Fire Protection

7.1 Status Report on the Study Group
CTC member Brian Meacham, chair of the study group, presented the report of the study group. It was questioned if the submitted code specific subject of roof vents should use the information in the report as a test case to evaluate the steps noted. The CTC was informed they could evaluate the issue on its own merits and will proceed accordingly.

As noted on the study group work plan, study group is currently investigating the following:
- Further review/refinement of the scope and goals/objectives
- Terminology/definitions: active fire protection, balanced fire protection design, passive fire protection
- Identification of code requirements related to BFP
- Identify the parameters which constitute level of safety
- Identification of methodologies which can be used to determine levels of safety

7.2 Working Meeting - code related specific subjects by interested parties, if any
Rich Schulte gave an overview of his submitted specific subject – roof vents. This will be on the September agenda.

8.0 Review of NIST WTC Recommendations (Start no earlier than 1:00 pm, Thursday, March 9 - including participation from ICC Ad Hoc Committee on Terrorism Resistant Buildings - TRB)

8.1 Public Hearing – Interim Report
The CTC Interim Report includes three code changes to address specific NIST recommendations. The following is the disposition on each recommendation:

NIST Rec 2- Wind tunnel testing:
Approved as modified. The modification to Section 1609.1.1.2 clarifies that any type of wind tunnel test, regardless of why it is performed, needs to follow the standard. Disposition: Submit as a code change in the 2006/2007 cycle. *Staff note: Code change S16 -06/07*

NIST Rec #6 Spray applied fire resistant material- inspection:
Approved as modified. The modification to Section 1704.10.1 requires that the installation complies with the listing of the product and the density test sample parameters of Section 1704.10.5 have been expanded to mirror the proposed language for test samples for bond strength in Section 1704.10.6. Disposition: Submit as a code change in the 2006/2007 cycle. *Staff note: Code change S39-06/07*

NIST Rec #7 Structural frame rating:
Approved as written. Disposition: Submit as a code change in the 2006/2007 cycle. *Staff note: Code change FS98-06/07*

8.2 Working Meeting
The CTC reviewed the package of Ad Hoc Terrorism Resistant Buildings (TRB) proposals. These proposals were packaged into two separate documents. One titled "TRB Proposals – Progressive Collapse-NIST Rec #1" dated March 9, 2006 - this included 4 alternative proposals on NIST Rec #1. The second "TRB Proposals" dated March 9, 2006 - this included proposals on NIST Recs #4, 6, 8, 12, 17, 18 (2 proposals) and 24. The proposals to NIST Recs #4 (height & area, ratings: pages 3 – 10) and fuel oil storage (page 37 -41) were not considered by the CTC.

Also presented were proposals by CTC (NIST Rec #16), the NIBS/MMC Task Group (NIST Rec #21) and Jeff Tubbs (NIST Rec #21).

The proposals are presented in NIST Recommendation order, with the proponent indicated.

NIST Rec #1:TRB- Progressive collapse – page 59
The TRB identified 4 possible proposals on this subject, based on "Class of building" – height coupled with type of occupancy. The discussion focused on "Class 4" – page 59 of the handout.

The TRB notes that in the absence of model code and standard's developer activity on this subject, the TRB is moving forward on this proposal. The proposal is noted by TRB as sound and in use in the UK. The CTC was interested in the views of key stakeholders. Individuals from the following organizations offered their views:

NCSEA – not in favor. Need an alternative.
ACI – seems to have significant departures from the ACI methodology. ACI will be meeting later this month
AISI- proposal refers to outdated steel specifications. Need to look at both the load and resistance side
SEI- SEI is looking at the load side of this issue

> CTC position: Hold a Public Hearing at the next CTC meeting on the actual proposal that the TRB submits to the 2006/2007 cycle. *Staff note: Code change S5-06/07*

NIST Rec #6: TRB- Spray applied materials- pages 11-18
This recommendation includes 3 issues.: bond strength; application; inspection.

Bond strength (page 11): The bond strength values of 430 and 1000 psf are intended to correlate with Master Spec. The values are intended to provide a level of assurance that the material will remain in place. Higher values for taller building due to higher lateral movement and vibrations due to elevators. Issues:
- Confusion over the correlation of density versus bond strength
- Identification of type of event that warrants such an increase over the current 150 psf requirement in IBC 1704.10.5.

> CTC position: Unchanged from Feb/2006 meeting - requires further study. *Staff note: Code change G68-06/07*

Application (page 12): One of the keys to this proposal is the need for a listed product that will ensure that the material will adequately adhere to the substrate. The 80% value in 714.8.3.2 (4) is a percentage of either the minimum 150 psf bond strength in the code or the actual value per the specifications.

> CTC position: Hold a Public Hearing at the next CTC meeting on the actual proposal that the TRB submits to the 2006/2007 cycle. *Staff note: Code change FS100-06/07*

Inspection (page 14): This issue was addressed in the CTC public hearing – see NIST Rec #6 under agenda item 8.1.

NIST Rec #8:TRB - Burnout-page 19
The proposal will be revised to remove the reference to the International Fire Engineering Guidelines. The intent is to use assume a design fire based on the fuel loads associated with the use of the space on a given floor and the assumes a non-sprinklered building (even if the building is sprinklered – assume it is not operational). The resulting ratings are to be based on either T601 or the analysis performed – whichever is greater. Issues:
- No evidence to support the need to require this analysis and design
- Not consistent with the NIST recs
- What is "local failure"?

CTC position: Unchanged from Feb/2006 meeting - requires further study. *Staff note: Code change G69-06/07*

NIST Rec #12:TRB - Performance/Reliability of Fire Protection Systems- page 21
It was noted that this proposal is also related to the CTC Balanced Fire Protection area of study. Issues:
- Why a secondary water supply?
- The propose riser spacing is more restrictive than stair spacing in the code
- There are other ways of increasing reliability, this is not the only way

CTC position: Unchanged from Feb/2006 meeting - requires further study. *Staff note: Code change F221-06/07*

NIST Rec #16 CTC - Evacuation plans:
The following was presented as a follow-up to the December/2005 CTC meeting to address the issue of lack of fire evacuation plans in the building code:

Proposed new text to the high rise section of the IBC:
403.15 Fire safety and evacuation plans: High rise buildings shall have an approved fire safety and evacuation plan in accordance with the International Fire Code.

Issues:
- Why just high rises? The IBC should refer to the IFC for all occupancies that require an evacuation plan.

CTC position: Hold a Public Hearing at the next CTC meeting to consider a reference from the IBC to the IFC for evacuation requirements for all occupancies required to have an evacuation plan in the IFC.

NIST Rec #17:TRB - Tall building egress/evacuation- pages 25, 30
NIST Rec #18: TRB -Exits – remoteness, robustness, signage – pages 26- 29, 31
This recommendation includes 6 issues: additional exit stair; exit path markings; remoteness; structural integrity of stairs; exit continuity; obstacles to egress.

Additional exit stair (page 25): The intent is to provide an additional stair as the fire department will take over one of the stairs in order to attack the fire. The second to last sentence will be rewritten as it is confusing. Issues:
- Why just R-2, why not R-1 due to unfamiliarity with surroundings?
- Can the objective be accomplished with wider stairs versus the proposed additional stair?
- What about the need to have evacuation capabilities for those with those with physical disabilities – need a holistic approach to address all needs when considering exit stairs.

CTC position: Consider this issue in a working meeting forum at the next CTC meeting based on the actual proposal that the TRB submits to the 2006/2007 cycle. *Staff note: Code change G71-06/07*

Exit path markings (page 26): Issues:
- Low level and markings within the stair may be of questionable value.

CTC position: Consider this issue in a working meeting forum at the next CTC meeting based on the actual proposal that the TRB submits to the 2006/2007 cycle. The CTC is not in favor of the low level signs. *Staff note: Code change E84-06/07*

Remoteness (page 28): Issues:
- Need coordination of references from Chapter 4 to Chapter 10.

CTC position: Consider this issue in a working meeting forum at the next CTC meeting based on the actual proposal that the TRB submits to the 2006/2007 cycle. *Staff note: Code change G72-06/07*

Structural integrity of stairs (page 29): The 2 psi value is based on a NIST "strawman". Issues:
-Type of loading: static, dynamic, impact?
- Impact on design – how far to transfer the loads. Just the enclosure? Connection of the enclosure to structure? Full height of building with simultaneous load on every enclosure?
- What event is assumed?

CTC position: Consider this issue in a working meeting forum at the next CTC meeting based on the actual proposal that the TRB submits to the 2006/2007 cycle. *Staff note: Code change G73-06/07*

Exit continuity (page 30): This proposal responds to issues caused by offsets in building designs. New York City is also looking into this issue. Issues:
-This impacts those with vision impairments/mobility issues

CTC position: Hold a Public Hearing at the next CTC meeting on the actual proposal that the TRB submits to the 2006/2007 cycle. *Staff note: Code change E137-06/07*

Obstacles to egress (page 31): This is a code change to address obstacles to egress in existing high rise buildings and therefore is a change to the IFC. The reference to 1011.6 is the proposed new text indicated on page 26 of the handout for photoluminescent exit path markings. Issues:
- Should to code require a retrospective requirement for illumination?
- The intent is not clear – just exits or all means of egress?

CTC position: Consider this issue in a working meeting forum at the next CTC meeting based on the actual proposal that the TRB submits to the 2006/2007 cycle. *Staff note: Code change F135-06/07*

NIST Rec #21:Jeff Tubbs – Use of elevators for evacuation

Add new section ..
1023 Elevator Evacuation System
1023.1 General. An elevator evacuation system shall be permitted to serve as one of the required exits in a means of egress system, where approved by the Authority Having Jurisdiction. An elevator evacuation system shall not account for more than one required exit. Normal use of elevators within an elevator evacuation system shall not constitute an interference with its function as a means of egress per Section 1017.1.
1023.2 Life Safety Evaluation. A life safety evaluation complying with NFPA 101 and timed egress analysis to review evacuation times shall be performed for buildings using an elevator evacuation system as a required exit in a means of egress system.
1023.3 Out of Service Elevators. Fifty percent of elevators within an evacuation elevator system shall be considered as out of service when developing times egress calculations.
1023.4 Emergency Communication. Elevators used as part of an elevator evacuation system, along with associated elevator lobbies, shall be provided with a two-way voice communication system. The voice communications system shall be capable of providing independent messages to each elevator and elevator lobby used in the system from the Fire Command Center or other approved location.

1023.5 Video Surveillance. Evacuation elevators and associated elevator lobbies shall be provided with a video surveillance system with associated video monitoring equipment located within the fire command room to allow responders to view all areas of the lobby and each evacuation elevator.

1023.6 Controls. Evacuation elevators used as part of an elevator evacuation system shall be provided with controls appropriate to the evacuation plan. Controls shall also be provided within the fire command center to allow independent control of each elevator.

1023.7 Emergency Power. Evacuation elevators used as part of an elevator evacuation system shall be provided with emergency power in accordance with Chapter 27.

1023.8 Threat, Risk and Vulnerability Analysis. A threat, risk and vulnerability analysis shall be performed to analyze the adequacy of use of an elevator evacuation system for a particular facility. The threat, risk and vulnerability analysis shall consider the following:

1. Protection from smoke and heat
2. Protection from CBR (Chemical, Biological, and Radiation) contaminants (where appropriate)
3. Earthquake protection (where appropriate)
4. Protection from sprinkler system and other sources of water
5. Equipment overheating protection

Renumber sections following 1023, as appropriate

For Coordination add the following ..

1017.1 General. Exits shall comply with Sections 1017 through ~~1022~~ 1023 and the applicable requirements of Sections 1003 through 1012.

2702.20 Evacuation Elevator System. Emergency power shall be provided for all elevators used within an Elevator Evacuation System in accordance with Section 1023.7.

Justification

An elevator evacuation system should be implemented as part of a coordinated life safety program. It is expected that a number of code changes will be submitted to address life safety in high-rise or other high-risk facilities. Our committee should review the spectrum of proposed code changes and recommend a coordinated set of code changes to address life safety concerns for these buildings. This code change will (1) stand alone if other code changes are not provided to allow a coordinated set of changes, or (2) serve as a base to adjust elevator evacuation system requirements if included as a coordinated set of changes. \

CTC position: Consider this issue in a working meeting forum at the next CTC meeting based on the actual proposal that the TRB submits to the 2006/2007 cycle. *Staff note: Code change E148-06/07*

NIST Rec #21: NIBS/MMC Task Group – Use of elevators for fire department use

Proposed IBC code change for fire department-use elevator:

403.9.1 Fire Department-Use Elevator. In buildings over 420 feet in height, a fire department-use elevator shall be provided in accordance with Sections 403.9.1.1 through 403.9.1.9.

403.9.1.1 Elevator Shaft.

403.9.1.1.1 The fire department-use elevator shall be enclosed in a shaft of 2-hour fire-resistance rating.

403.9.1.1.2 The fire department-use elevator shall be the only elevator in this shaft.

403.9.1.1.3 The only openings permitted in this shaft shall be for the elevator doors and for ventilation at the top of the shaft.

403.9.1.2 Elevator Lobby.

403.9.1.2.1 The fire department-use elevator shall open into an elevator lobby having direct access to a building exit stair and to each floor of the building.

403.9.1.2.2 The fire department use elevator shall be the only elevator served by this lobby.

403.9.1.3 Elevator Car Size.

403.9.1.3.1 The elevator car size shall be in accordance with Section 3002.4.

403.9.1.3.2 The elevator car shall have a minimum load carrying capacity of 3,500 pounds.

403.9.1.4 Emergency Power. The elevator shall be provided with emergency power in accordance with Section 3003.

403.9.1.5 Emergency Communications. A bidirectional amplification system shall be installed that will achieve minimum radio signal strength required to provide effective emergency communications.

403.9.1.5 Elevator Equipment Room.

403.9.1.5.1 The fire department-use elevator shall have its own dedicated equipment room.

403.9.1.5.2 The equipment room shall be separated from other areas by 2-hour fire resistant construction.

Commentary:

The intent is for the fire department-use elevator to be a secure method for fire fighters to reach the level below the fire floor, stage, and walk up the stair to the fire floor. To meet the fire department needs, several considerations were reviewed:

1. Use of elevator – The need for the elevator to be used exclusively for emergency response was discussed. It was agreed that the elevator could be used for normal building operations as a service elevator, yet be specifically dedicated in an emergency for emergency responders.
2. Elevator shaft – To provide added reliability of shaft integrity and elevator car protection, it was agreed that it should be in a separate shaft. The shaft is to be of 2-hour fire resistance rating and have no penetrations other than elevator doors and ventilation at the top of the shaft.
3. Elevator lobby – The elevator will be required to have a lobby that opens directly into a pressurized exit stair (as shown on the attached drawing). Although the attached drawing shows pressurization for the lobby as well as the exit stair, it was agreed that the lobby should not be required to be pressurized. It should be noted that the drawing shows two doors on the elevator, one opening into the lobby that opens into the stair and one that opens into the service elevator lobby. It was agreed that the second door will give the emergency responders the ability to access the floor without the need to go through the exit stair.
4. Elevator car size – The car size is required to be able to accommodate an ambulance stretcher in the horizontal, open position. The car will be required to have a minimum capacity of 3,500 pounds.
5. Emergency power – The elevator will be required to be provided with emergency power in accordance with the requirements for emergency operations.
6. Emergency communications – It was agreed that there does not need to be any requirements for emergency communications per se. The building will be required to be provided with a repeater system that will enhance the signal quality to enable the emergency responders to use their own radios.
7. Elevator equipment room – As a reliability consideration, the elevator will be required to have a dedicated elevator equipment room, separated from other areas by 2-hour fire resistive construction.
8. Fire fighting water supply – It was agreed that no changes would be required to fire fighting water supply as the fire department connection to the standpipe system located in the exit stair will meet the fire fighters' needs.

CTC position: Consider this issue in a working meeting forum at the next CTC meeting based on the actual proposal that the TRB submits to the 2006/2007 cycle. *Staff note: Code change G63-06/07*

NIST Rec #24: TRB- Command and control systems - page 33

This will provide for a system of monitoring prior to arrival of the fire department. Issues:

- Hard wired versus radio
- Impact on building owners to stay current with technology
- Basis for 2 hour requirement for command center separation
- Lacks direction to the AHJ for considering off site monitoring
- All high rises or just those > 420'?

CTC position: Consider this issue in a working meeting forum at the next CTC meeting based on the actual proposal that the TRB submits to the 2006/2007 cycle. *Staff note: Code change G7-06/07*

9.0 Old business

ASME elevator task group status: Last meeting was February 8th, continuing with the hazard analysis. Next meetings in April and July. Expect work product by the end of the year.

10.0 New business

None

11.0 Future Meetings/Update CTC Work Plan

11.1 CTC Meeting #7: September 6 - 8, 2006 Washington D.C. (Revised at Meeting #5 from July 27-28)

It was noted that Meeting #7 should be a full 2 1/2 days due to the anticipated agenda. Start at 1:00 on Sept. 6th and go 8 am – 5 pm on Sept 7th and 8th.

CTC Meeting #8: October 19 - 20, 2006 Location TBD *Staff note: Kansas City*

CTC Meeting #9: December 13 - 14, 2006 Location TBD *Staff note: Phoenix*

11.2 Meeting #7 agenda

12.0 Adjourn

Chair Heilstedt adjourned the meeting at approximately 11:15 am on March 10th.

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List of Attendees

Allison Crowley, NASFM
Augie Sisco, NAAMM
Basile Rabbot, ACI 318
Bill Connolly, Director, Division of Codes and Standards New Jersey Department of Community Affairs (TRB)
Bill McHugh, Firestop Contractors International Assoc.
Cliff Black, USG
Dan O'Brien, Universal Building Systems, Inc.
Dan Smits, Calumet City Fire Dept. (TRB)
Dave Frable, GSA
David Cooper, Stairway Manufacturers Assoc.
David Dratnol, Isolatek International
Francis Laux, USG
Garrett Hovett, North American Deck Rail Assocication
Gerald Jones, NIBS/MMC
Henry Kosarzycki, AIA
Jason Thompson, NCMA
Jerry Heppes, DHI
Jim Messersmith, PCA
John Battles, ICC (TRB)
John Hooper, Magnuson Klemenicic
John Polchin, Cornell & DASMA
Kevin Kelly, NFSA
Kurt Gustafson, AISC
Larry Perry, BOMA
Michael Gardner, GA
Michael Tylk, NCSEA
Miroslav Vejvoda, ACI
Nadine Post, ENR
Pat McLaughlin, McLaughlin & Associates
Patrick Kelly, Decorcable Innov.
Rich Bukowski, NIST
Rich Walke, UL
Richard Schulte, Schulte & Assoc.
Rick Thornberry, The Code Consortium, Inc.
Robert Polk, NASFM
Robert Wills, AISI
Sam Francis, AF&PA
Sarah Rice, Schirmer/AHLA
Stan Hathorn, Vinyl Fence Deck Rail Assoc.
Steve Thorsell, ICC-ES
Thom Zaremba, Pilkington and Firerated Glazing Ind.
Thomas Zuzik, Artistic Railings Inc.
Tim Moss, NOMMA
Tom Frost, ICC staff

Tom Hammerberg, Automatic Fire Alarm Association
William Koffel, Koffel Associates Inc.