ICC CODE TECHNOLOGY COMMITTEE

BALANCED FIRE PROTECTION – HEIGHT & AREA STUDY GROUP MEETING #3

December 11 – 12, 2006

DRAFT MINUTES

Wyndham Phoenix
50 E. Adams Street
Phoenix, AZ 85004

December 11: 8:00 am – 5:00 pm
December 12: 8:00 am – 5:00 pm

1.0 Welcome and introductions – Co-chairs Collins & Dargan

1.1 Call to order; introductions; welcoming remarks

The meeting was called to order at 8:10 am on December 11th, welcoming those in attendance. It was noted that the agenda was aggressive and the goal was to introduce and discuss the issues through agenda item 7.0 on the first day, and make decisions relative to the issues on the second day. Self introductions were made.

Voting members present: Carl Baldassarra, Laura Blaul, Dave Collins (Co-chair), Kate Dargan (Co-chair), Dave Frable, Sam Francis, Jim Messersmith, Jim Narva, Ron Nickson, Larry Perry, Dennis Richardson, Emory Rodgers, Jerry Sanzone, Rick Thornberry, Robert Wills

Non voting members present: Sean DeCrane, Jon Siu

Members absent: Paul Myers (non voting)

Staff liaison: Mike Pfeiffer

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

2.0 Approve agenda

Approved. It was noted that agenda item 7 should be titled " Review IBC code changes dealing with allowable height and area"

3.0 Approve minutes of Meeting #2 November 16 – 17, 2006

Amend Item 6 to read:

"Task group to review the philosophy behind the current IBC height and area provisions and to look at height and area from a forward looking approach to assess where the group thinks height and area should be and how it fits into the concept of balanced fire protection:"

4.0 Review history of the IBC H&A drafting process (Francis)

Sam noted entries in the table that were revised by the drafting committee just prior to the

drafting committee completing its work and issuing the results in the Working Draft of the IBC. This led to the identification of entries in the table which did not seem to be reflective of the maximum legacy code values. The following were noted:

2A: A-2, F-1????, I-2, I-3
2B: A-1, A-2, A-3, A-4, E, F-1 ????, I-2, I-3
3A: A-2, F-1, H-2, I-2, I-3, S-2
3B: A-1, A-2, A-3, A-4, E, H-5, I-3, S-2
VA: A-1, A-2, A-3, A-4, F-1, F-2, I-2, I-3, M, S-1, S-2
VB: A-1, A-2, A-3, A-4, B, E, F-2, I-1, I-3, R-1, R-2, S-2

Those with "????" required further investigation.

This led to a general discussion of height and area, points noted where:

- Overall volume/total building area may not be as important when it comes to life safety as floor-by-floor- considerations. Area per compartment may be more important.
- Height of building is a life safety issue.
- Need to take into account compartmentation - occupant and tenant separations - when evaluating life safety.

5.0 Report of task group to review IBC H&A for Type 2B and 3B (Wills)

Robert introduced the report entitled "Preliminary report to the 4/5 story unrated construction study group" dated December 5, 2006. This report included the following as possible revisions to the height requirements in Table 503:

Type IIB and IIIB (Unprotected construction) story comparison

	SBC	NBC	UBC	IBC	PROPOSED
B	5	4	2	5	4
F-2	4	4	2	4	4
M	5	3	2	5	3
S-1	4	3	2	4	3
S-2	4	4	2	5	4
I-1	NA	4	NP	4	4
R* (13)	5	4	4	5	4
R*(13R)	4	4	3	4	4

NA- Not applicable; NP – Not permitted
*- Applies for R-1, R-2 and R-3 Use Groups

The "proposed" values include the one-story sprinkler increase and thus reflect the maximum height for a sprinklered building. The discussion on group R was held pending Dennis Richardson's proposal. It was noted that this was intended to be a compromise proposal, not based on a history or record of fire related concerns.

Dennis introduced his report entitled "Discussion paper for CTC height and area study group non rated 5 to 5 story buildings sub-committee R-1 and R-2 occupancies". This report included the following as possible revisions to the height requirements in Table 503:

TABLE 503

GROUP		IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
R-1	S	UL	11	~~4~~ 5[d]	~~4~~ 2	~~4~~ 5[d]	~~4~~ 2	~~4~~ 5[d]	~~3~~ 4[d]	2
	A	UL	UL	24000	16000	24000	16000	20500	12000	7000
R-2	S	UL	11	~~4~~ 5[d]	~~4~~ 2	~~4~~ 5[d]	~~4~~ 2	~~4~~ 5[d]	~~3~~ 4[d]	2
	A	UL	UL	24000	16000	24000	16000	20500	12000	24000

d. In buildings over 3 stories, smoke barriers shall be provided to subdivide floors (every story containing sleeping rooms or combinations of stories and levels when within a dwelling unit) along with contiguous exit corridors or passageways to be contained in the same compartment so that the maximum total floor area contained within a smoke compartment shall not exceed 12,000 square feet.

903.1.2.2 Four story buildings. Sprinklers installed in a four story building shall be installed in all areas throughout the building without any omissions allowed by the standard.

The following issues were noted:

- Coordination with footnote e of Table 601 was needed
- Is there data to support the trade-off for smoke compartments?
- Due to current requirements for tenant and dwelling unit separations, net impact of this proposal may be just the addition of a door across the corridor to complete the smoke compartment
- Group R has a good fire record. Fires are contained to the room of origin.
- This would require a dry pipe sprinkler system in cold climates
- Smoke is the #1 threat to occupants. The smoke compartmentation provided in this proposal addresses this.
- This too is a compromise proposal
- No significant history of fire deaths in sprinklered Group R-2
- Inspection concerns over the need to inspect these buildings to ensure the smoke compartments and doors are functioning.

Ron Nickson passed out two handouts entitled 'Putting things into perspective" and "The facts concerning apartment fires and sprinklers"

6.0 Report of task group to review the H&A philosophy (Baldassarra)

Carl cited excerpts from "Working draft - heights and areas table, background and purpose" dated December 7, 2006 noting the history of code regulations going back to 1905 and a 1949 ENR article citing the basis for 1950 BOCA "construction" and "occupancy" factor. The summary notes:

- Building code height and area provisions were originally intended to limit size of the building to reduce exposure which led to conflagrations. These provisions have also been used to reduce building exposure, facilitate manual fire suppression activities and to limit the amount of people and fuel exposed to a fire incident.
- The height and area limitations were empirically derived.
- Limitations on building height are a greater factor associated with life safety as opposed than building area due to the proportional effect of egress time.
- Height and area limitations have been in effect for several years with few changes owing

to adverse experience.

The following issues were raised:

- Is the lack of height and area code changes in the legacy codes an indicator that the H&A tables were adequate?
- Legacy codes had a data set of requirements that the user was comfortable with. The IBC brings forth a new data set.
- May not have been significant H&A changes in the legacy codes but there were significant life safety related changes that were proposed and accepted
- Lack of checks and balances in the IBC due to taking the largest legacy code value for H&A
- H&A code changes were identified as code change candidates to provide a singular focus, there are other concerns with the IBC as well
- Need to not only look at the legacy maximum value but also the other fire protection/egress provisions that went with the respective legacy code-it's a package of requirements
- Height and area has been an issue since the drafting committee finished its work. There are other issues such as occupant and fire fighter safety - which may even be more pressing that we should focus on.
- Its difficult to evaluate a "system" if the goal/objective is not defined

It was noted that this task force is to not only look at the current IBC height and area philosophy but also is to take a forward looking approach as to where they feel height and area should go in the future. A document entitled 1974 "Decision tree" on systems concepts was handed out.

Carl requested that information be sent directly to him for compilation of the next draft report.

7.0 Review IBC maximum allowable height table (Dargan & Collins) – 2006/2007 code changes presented by representation noted

Agenda item 7.0 revised to read: "Review IBC code changes dealing with allowable height and area". Agenda item 7.0 was addressed as follows:

1. The committee initially discussed the individual code changes, starting with G10 and progressed through G120. G119, G122, G123, G223 were not discussed. Handouts were passed out on the following:

NASFM: "Height & area study group proposals requested for disapproval" – all code changes
NASFM: "NASFM proposal to height & area study group" – code changes G104, G105 and G106
Rick Thornberry: Package of emails and memos related to G113

2. Kate identified a series of steps that ties together the activities of the study group to the CA adoption process, as follows:

1/5/06: Public comment consideration of:

- Table 503 max values based on legacy codes (attachment A, w/ revisions for single and two story to be developed)
- Type IIB and IIIB height revisions

- Group R-1 and R-2 height revisions
- H&A long term white paper

1/29/06: CA adopts current package

May/07: Rochester Final Action results in 2007 Supplement

Sept/07: CA reviews 2007 Supplement and considers it in rule making. It was noted that if the H&A code changes are not successful in Rochester, then they would not be considered in the CA review.

Summer/08: CA will not pursue the prohibition on increases for height and area for NFPA 13 systems or the maximum building size reduction below the "3X" rule. It was noted that CA concerns for NFPA 13R trade-offs; seismic issues; and Groups R-1 and R-2 remain.

3. The committee went back to revisit those issues to determine which ones consensus may be reached, as follows:

- Table 503 revisions needed to reflect maximum legacy code building area
- Proposed height revisions for Types IIB and IIIB
- Proposed height revisions for Groups R-1 and R-2
- Review and committee position on 2006/2007 code changes

These minutes reflect the order of #3 above.

Table 503 revisions needed to reflect maximum legacy code building area

As a starting point, the discrepancies noted in agenda item 4.0 were used to identify the entries in Table 503 where the tabular value was not correlated with the resultant maximum legacy code building area. These were identified using a spreadsheet generated by Jim Messersmith and are identified as possible revisions to Table 503 in Attachment A to these minutes. It was noted that for certain legacy codes, additional investigation was needed relative to one and two story buildings to accurately portray the maximum legacy building area. These will be compiled by Jim for presentation at the next meeting.

Assembly
Issues: The Assembly occupancy classification requires confirmation that the legacy code assembly group which is the basis for the maximum building area is correlated with the applicable assembly group in the IBC.

Action: None

Group I-2
Issues: Concern may not be H&A but rather compartmentation – it is required in I-2 but not I-1; one option is to break the building into fire areas of a size based on the UBC tabular values.

Action: Approve revisions to Table 503 for I-2

Group I-1
Action: Approve revisions to Table 503 for I-1

A motion was made to approve all the entries in the table. It was noted this may be premature as the one and two story values still need work and the vote should occur at the next meeting.

Proposed height revisions for Types IIB and IIIB
The committee agreed with the proposed revisions noted in agenda item 5.0 under the table indicated as "Type IIB and IIIB (Unprotected construction) story comparison."

Action: Approve

Proposed height revisions for Groups R-1 and R-2

Action: A task group was formed to further study the proposed revisions noted in agenda item 5.0 for Groups R-1 and R-2 under the table indicated as "Table 503". Task group members are:

Laura Blaul
Sam Francis
Ron Nickson
Dennis Richardson
Jon Siu
Robert Wills

Issues to investigate:

- Reduction in number of stories for non rated construction?
- Increase number of stories for rated construction?
- Effect of compartmentation
- Sprinklers?
- 30 minute versus 1 hour corridors
- Compare the values of this proposal versus the Type IIB and IIIB proposal noted above
- A smoke compartment versus a 2 hour horizontal exit

The systems concept decision tree handout noted in agenda item 6.0 may be useful in the review.

Review and committee position on 2006/2007 code changes

G10
Issues: allows multiple basements; this would allow a space above ground which is non compliant to become compliant if located below ground as a basement

Action: Disapprove

G95
Issues: approach similar to NFPA 5000 task group; height is the important life safety issue

Action: Disapprove – further study with the H&A philosophy task group

G98
Issues: none. Code change was approved in Orlando

G99 – G103, G107, G108
Issues: proposes UBC values for groups A-1, A-2, A-3, B, E, R-1, R-2; are the UBC occupancies the same as the IBC occupancies?

Action: Table

G104, G105, G106
Issues: Handout. proposes UBC values for groups I-1, I-3 and I-4; need redundancy in terms of increased passive protection due to poorly trained/overworked staff and these are occupancies that require supervision and possibly assistance to evacuate; I-1 is an occupancy that is analogous to R-2 in terms of occupant response capability so it should not be treated differently than R-2

Action: Table

G109
Issues: editorial

Action: None. The meeting was adjourned shortly after the action taken G106.

G110
Issues: editorial

Action: None. The meeting was adjourned shortly after the action taken G106.

G111 & G112
Issues: editorial

Action: None. The meeting was adjourned shortly after the action taken G106.

G113
Issues: Handout. The original code change proposed the elimination of height increases for sprinklers, a modification was identified to not eliminate the increase but rather to reduce from 20' to 5'; floor-to-floor heights could be impacted by the modification

Action: None. The meeting was adjourned shortly after the action taken G106.

G114
Issues: prohibits sprinkler height and area increases relative to non rated construction

Action: None. The meeting was adjourned shortly after the action taken G106.

G115, G118, G121
Issues:
G115: prohibits sprinkler increases for both height and area, increase limited to one or the other
G118: prohibits height increase for 13R sprinklers
G121: reduces allowable maximum building size with the "3X" multiplier reduced to "2X"

Action: None. The meeting was adjourned shortly after the action taken G106.

G116
Issues: prohibits height increase for 13R sprinklers; prohibits both a height and area increase for sprinklers, increase limited to one or the other; reduces allowable maximum building size with the "3X" multiplier reduced to "2X"; proposal addresses the biggest concern which is Group A, E, I and R occupancies; brings the code back to the original drafting philosophy; results in a cost increase without identified material benefit; this proposal is similar to those seen in past cycles with no additional documentation

Action: None. The meeting was adjourned shortly after the action taken G106.

G117 & G120
Issues:
G117: prohibits height increase for 13R sprinklers
G120: reduces area increase for sprinklers from 300% to 200% for single story and from 200% to 100% for single story

This completes item 1 under agenda item 7.0. Following the discussion on G117 &G120, a motion was made and accepted to move on to those issues where it was thought consensus could be reached. The committee moved on to item 2 under agenda item 7.0 and reviewed the issues and rendered an action.

Action: None. The meeting was adjourned shortly after the action taken G106.

G119, G122, G123, G223
Issues: Not discussed. Following the discussion on G117 &G120, a motion was made and accepted to move on to those issues where it was thought consensus could be reached.

Action: None. The meeting was adjourned shortly after the action taken G106.

Following the action taken on G106, a discussion ensued as to whether or not the Study Group would take a position and testify on code changes that are on the Final Action Agenda or would the study group only testify on those code changes for which the study group submitted a public comment.

Views offered:

- Taking a position and testifying on code changes is one of the roles of ICC committees and is within the scope of this study group
- When certain parties agreed to participate in the study group, they were under the impression that the only action that would come out of the study group was positive action on code changes for which the study group agreed to submit a public comment.
- If certain parties knew that the study group may take positions and speak against code changes, they may not have participated in the effort.
- In requesting denial and the code committee denying the code change, there was an expectation that the results of the study group's review on all the H&A code changes would be conveyed to the membership at the Final Action Hearing
- Kate Dargan read the Orlando statement that was read to the IBC General committee when the disapproval was requested. She noted her understanding that the study group would take positive action only

A motion was made to adjourn. There was no second. A short recess was called.

Following the recess, Dave Collins noted:

- All actions taken by the study group to date are not official positions of the group but rather straw votes
- At this time, we will suspend review and consideration of individual code changes
- We need to develop a comprehensive approach to this issue

8.0 Develop public comments, if any
Review tabled until Meeting #4

9.0 Old business
None

10.0 New business
None

11.0 Future Meetings
Meeting #4: January 3 – 4, 2007 Orange County, CA
Hotel: Embassy Suites- Irvine
Meeting location: Orange County Fire Authority Building

12.0 Adjourn
The meeting was adjourned at 5:20 on December 12th.

CTC website for posted materials: **http://www.iccsafe.org/cs/cc/ctc/balanced.html**

Attachment A

Revisions to IBC Table 503 to reflect max legacy code building size Created at Meeting #3									
	IA	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**IV**	**VA**	**VB**
A-1	UL	UL	15,500	~~8,500~~ 7,500	14,000	~~8,500~~ 7,500	15,000	~~11,500~~ 7,500	5,500
A-2	UL	UL	~~15,500~~ 10,000	~~8,500~~ 5,000	~~14,000~~ 10,000	~~8,500~~ 5,000	~~15,000~~ 10,000	~~11,500~~ 7,500	~~5,500~~ 5,000
A-3	UL	UL	15,500	~~8,500~~ 7,500	14,000	~~8,500~~ 7,500	15,000	~~11,500~~ 7,500	~~6,000~~ 5,500
A-4	UL	UL	15,500	~~8,500~~ 7,500	14,000	~~8,500~~ 7,500	15,000	~~11,500~~ 7,500	~~6,000~~ 5,500
A-5	UL	UL	UL	UL	UL	UL	UL	UL	UL
B	UL	UL	37,500	23,000	28,500	19,000	36,000	18,000	~~9,000~~ 6,500
E	UL	UL	26,500	~~14,500~~ 13,000	23,500	~~14,500~~ 13,000	25,500	18,500	~~9,500~~ 9,000
F-1	UL	UL	~~25,000~~ 34,000	~~15,500~~ 22,500	~~19,000~~ 24,000	~~12,000~~ 16,000	~~33,500~~ 50,500	~~14,000~~ 10,000	8,500
F-2	UL	UL	37,500	23,000	28,500	18,000	50,500	~~21,000~~ 18,000	~~13,000~~ 9,000
H-1	21,000	16,500	11,000	7,000	9,500	7,000	10,500	7,500	NP
H-2	21,000	16,500	~~11,000~~ 10,000	7,000	~~9,500~~ 9,000	7,000	~~10,500~~ 9,500	7,500	3,000
H-3	UL	60,000	26,500	14,000	17,500	13,000	25,500	~~10,000~~ 20,500	~~5,000~~ 17,500
H-4	UL	UL	37,500	17,500	28,500	17,500	36,000	18,000	6,500
H-5	UL	UL	37,500	~~23,000~~ 17,000	28,500	~~19,000~~ 17,000	36,000	18,000	9,000
I-1	UL	55,000	19,000	10,000	16,500	10,000	18,000	10,500	~~4,500~~ 4,000
I-2	UL	UL	~~15,000~~ 12,000	~~11,000~~ 8,500	~~12,000~~ 9,500	NP	~~12,000~~ 15,500	~~9,500~~ 7,500	NP
I-3	UL	UL	~~15,000~~ 12,000	~~11,000~~ 8,000	~~10,500~~ 8,500	7,500	~~12,000~~ 8,000	~~7,500~~ 6,000	~~5,000~~ 4,000
I-4	UL	60,500	26,500	13,000	23,500	13,000	25,500	18,500	9,000
M	UL	UL	21,500	12,500	18,500	12,500	20,500	~~14,000~~ 10,000	9,000
R-1	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	~~7,000~~ 4,500
R-2	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	~~7,000~~ 4,500
R-3	UL	UL	UL	UL	UL	UL	UL	UL	UL
R-4	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000

Revisions to IBC Table 503 to reflect max legacy code building size Created at Meeting #3									
	IA	**IB**	**IIA**	**IIB**	**IIIA**	**IIIB**	**IV**	**VA**	**VB**
S-1	UL	48,000	26,000	17,500	26,000	17,500	~~25,500~~ 38,500	~~14,000~~ 10,000	9,000
S-2	UL	79,000	39,000	~~26,000~~ 17,500	~~39,000~~ 28,500	~~26,000~~ 17,500	38,500	~~21,000~~ 18,000	~~13,500~~ 9,000
U	UL	35,500	19,000	8,500	14,000	8,500	18,000	9,000	5,500

ICC CODE TECHNOLOGY COMMITTEE

BALANCED FIRE PROTECTION – HEIGHT & AREA STUDY GROUP MEETING #3

DRAFT MINUTES

List of Attendees

Thom Zaremba	Firerated Glazing Industry
Tom Mewborne	AFG Industries
Mark Kluver	Portland Cement Association
Carl Wren	IAFC/Austin Fire Dept.
Jeff Shapiro	International Code Consultants/NMHC
Gregory Keith	The Boeing Company
Kevin Kelly	NFSA
Farid Alfawakhiri	AISI
Jeri Morey	Jeri Morey, Arch.
Ken Kraus	California Fire Chiefs
David Dratnol	Isolatek International
Bill McHugh	FCIA
Vickie Lovell	Intercode Inc.
Sarah Rice	Schirmer Eng.
Jason Thompson	Masonry Alliance C & S
Jerry Razwick	Technical Glass Products
Erin Ashley	National Ready Mixed Concrete Assoc.
Katie Flower	Door and Hardware Institute
Steve Hahn	Lawrence Roll-up Doors
Robert Polk	NASFM
Allison Crowley	NASFM
Scott Poster	Los Angeles County Fire Dept.
Greg Victor	Glendale F.D. AZ
Ron Clements	VISCOA
John Crull	The Boeing Company
Don Weiss	TPAC
Joe McElvaney	City of Phoenix
Jeff Razwick	Technical Glass Products