Type IIB, Type IIIB (Unprotected Construction)
Story Comparison (w/ NFPA 13 Sprinklers)

	SBC	NBC	UBC	2006 IBC
B	5	4	2	**5**
F-2	4	4	2	**4**
M	5	3	2	**5**
S-1	4	3	2	**4**
S-2	4	4	2	**5**
R* (13)	5	4	4	**5**
R*(13R)	4	4	3	**4**

NA- Not Applicable NP- Not Permitted
* - Applies for R-1, R-2 and R-3 Use Groups

The study group noted that for Use Group B, M, S-1, and R buildings of Type IIB or Type IIIB construction, the allowance for 4 or 5 stories in the IBC was premised on the story heights allowed in the SBC. In all these instances, the SBC sprinklered height allowance for these Use Groups relied on a multiple story sprinkler increase. For example, for Use Group B, the SBC allowed 2 stories for unsprinklered construction and 5 stories for sprinklered construction. This exceeds the consistent one story sprinkler height increase incorporated in the IBC height and area provisions. Based on this review, the study group identified two anomalies from what was permitted by the legacy codes. First, the story height allowance for S-2 use groups is not based on any of the legacy code allowances. Second, for Use Group B, M, S-1, and R (Type IIB and IIIB construction), the IBC story height allowance for unsprinklered construction exceeds what was allowed by any of the legacy codes. For example, the maximum height for an unsprinklered Type IIB office building in any of the legacy codes was the NBC allowance for 3 stories. Currently, the IBC allows 4 stories for this condition. Rather than modify the sprinkler increase in the IBC, the study group suggested the following recommended story height changes:

Unsprinklered IBC Table 503 Values

Use Group	IIB	IIIB
B	3	3
M	2	2
S-1	2	2
S-2	3	3
R* (13)	3	3

* - Applies for R-1, R-2 and R-3 Use Groups

In essence, these reductions would eliminate the anomalies created by the multi-story SBC sprinkler increase and drop the IBC value back to the next least restrictive legacy code (in these cases, the NBC).

The study group noted that the motivation for these recommendations was to address anomalies associated with unsprinklered 4 and 5 story buildings of nonrated construction. No evidence was submitted to suggest that the existing sprinklered height allowances for these buildings in either the IBC or the legacy codes had created an unsafe condition that requires correction.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: Disapproved

Committee Reason: The lifesafety statistics for Group M occupancies in the IBC has been better than for the legacy codes therefore decreases in the height limitations are not warranted.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Kate Dargan and David Collins, Co-Chairs, Code Technology Committee (CTC) Balanced Fire Protection Features Study Group, requests Approval as Submitted.

Commenter's Reason: Although the proposal will reduce the allowable height of Group M buildings of Types IIB and IIIB construction by two stories, the maximum area (total of all stories) of the tallest building that will then be permitted is generally greater than that permitted by any of the legacy codes, especially where sprinklers are provided (see table below). For example, consider an unsprinklered Type IIB mercantile building with a height of 2 stories; the tallest permitted by any of the legacy codes. If less than 20 feet of open space is provided around the building, the IBC permits the aggregate area of both stories to be 4% greater than the largest total area permitted by the legacy codes. If the width of the open space is increased to 40 feet, the IBC's total area is 9% less than that permitted by the largest legacy code. Where sprinklers are provided in the Type IIB building with less than 20 feet of open space, 3 stories will be permitted, and the maximum area permitted by the IBC will be 108% greater than that permitted by the largest legacy code. Although allowable heights are proposed to be reduced, the foregoing illustrates that buildings will still be able to have total areas that are comparable to or greater than permitted by the legacy codes.

Occupancy Group	Type of Construction	NFPA 13 Sprinklers – Yes/No	Width of Open Space (ft.)[a, b]	Ratio of IBC Maximum Building Area to the Largest Maximum Building Area Permitted by Legacy Codes				
				Number of Stories				
				1	2	3	4	5
M	IIB	No	< 20	1.04	1.04	NPLC	NPLC	NP
			40	0.91	0.91	NPLC	NPLC	NP
		Yes	< 20	1.39	1.30	2.08	1.56	1.25
			40	0.82	0.98	1.48	1.30	1.04
	IIIB	No	< 20	1.04	1.04	NPLC	NPLC	NP
			40	0.91	0.91	NPLC	NPLC	NP
		Yes	< 20	1.39	1.30	2.08	1.56	1.25
			40	0.82	0.98	1.48	1.30	1.04

NPLC means not permitted by any of the legacy codes, but permitted by IBC.
NP means not permitted by any of the legacy codes or IBC.
If G117 is approved, building heights represented by shaded cells will not be permitted by the IBC.

a. Width of open space around 100% of building perimeter.
b. 40 feet was used because the UBC required a minimum of 40 feet of open space on all sides in order to qualify for 100% area increase; the maximum permitted by that code. The NBC and SBC permitted maximum open space increases of 150% and 100%, respectively, at 30 feet.

Code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. This public comment is a result of the CTC's investigation of the area of study entitled "Balanced Fire Protection". The CTC web page for this area of study is: http://www.iccsafe.org/cs/cc/ctc/WTC.html. As part of the CTC process, Study Groups are often formed to address specific issues related to CTC areas of study. The CTC BFP Features Study group is one such study group. This study group was formed subsequent to the 2006 Orlando Code Development Hearings, with the focus being a review of the height and area provisions in the IBC. Since its inception, the study group has held ten meetings - all open to the public.

Final Action: AS AM AMPC____ D

G118-07/08
Table 503

Proposed Change as Submitted:

Proponent: Kate Dargan and David Collins, Co-Chairs, Code Technology Committee (CTC) Balanced Fire Protection Features Study Group

Revise table as follows:

TABLE 503
ALLOWABLE HEIGHT AND BUILDING AREAS[a]
Height limitations shown as stories and feet above grade plane.
Area limitations as determined by the definition of "Area, building," per story

		TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
GROUP	HGT(feet) HGT(S)	UL	160	65	55	65	55	65	50	40
R-1	S	UL	11	4	~~4~~ 3	4	~~4~~ 3	4	3	2
	A	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
R-2	S	UL	11	4	~~4~~ 3	4	~~4~~ 3	4	3	2
	A	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000
R-4	S	UL	11	4	~~4~~ 3	4	~~4~~ 3	4	3	2
	A	UL	UL	24,000	16,000	24,000	16,000	20,500	12,000	7,000

(Portions of table and footnotes not shown remain unchanged)

Reason: One area of concern identified for study by the Height and Area Task Group was 4 and 5 story buildings of unrated construction. The table below shows the occupancies in the IBC where that condition exists for sprinklered construction. In addition, the table shows the sprinklered height allowances for these occupancies in the legacy codes.

Type IIB, Type IIIB (Unprotected Construction)
Story Comparison (w/ NFPA 13 Sprinklers)

	SBC	NBC	UBC	2006 IBC
B	5	4	2	**5**
F-2	4	4	2	**4**
M	5	3	2	**5**
S-1	4	3	2	**4**
S-2	4	4	2	**5**
R* (13)	5	4	4	**5**
R*(13R)	4	4	3	**4**

NA- Not Applicable NP- Not Permitted
* - Applies for R-1, R-2 and R-3 Use Groups

The study group noted that for Use Group B, M, S-1, and R buildings of Type IIB or Type IIIB construction, the allowance for 4 or 5 stories in the IBC was premised on the story heights allowed in the SBC. In all these instances, the SBC sprinklered height allowance for these Use Groups relied on a multiple story sprinkler increase. For example, for Use Group B, the SBC allowed 2 stories for unsprinklered construction and 5 stories for sprinklered construction. This exceeds the consistent one story sprinkler height increase incorporated in the IBC height and area provisions. Based on this review, the study group identified two anomalies from what was permitted by the legacy codes. First, the story height allowance for S-2 use groups is not based on any of the legacy code allowances. Second, for Use Group B, M, S-1, and R (Type IIB and IIIB construction), the IBC story height allowance for unsprinklered construction exceeds what was allowed by any of the legacy codes. For example, the maximum height for an unsprinklered Type IIB office building in any of the legacy codes was the NBC allowance for 3 stories. Currently, the IBC allows 4 stories for this condition. Rather than modify the sprinkler increase in the IBC, the study group suggested the following recommended story height changes:

Unsprinklered IBC Table 503 Values

Use Group	IIB	IIIB
B	3	3
M	2	2
S-1	2	2
S-2	3	3
R* (13)	3	3

* - Applies for R-1, R-2 and R-3 Use Groups

In essence, these reductions would eliminate the anomalies created by the multi-story SBC sprinkler increase and drop the IBC value back to the next least restrictive legacy code (in these cases, the NBC).

The study group noted that the motivation for these recommendations was to address anomalies associated with unsprinklered 4 and 5 story buildings of nonrated construction. No evidence was submitted to suggest that the existing sprinklered height allowances for these buildings in either the IBC or the legacy codes had created an unsafe condition that requires correction.

Cost Impact: The code change proposal will increase the cost of construction.

Committee Action: Disapproved

Committee Reason: All Group R occupancies are now required to be protected by sprinklers in the IBC, therefore, this revision is inappropriate. When this table was originally constructed such occupancies were not required to be sprinklered.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Kate Dargan and David Collins, Co-Chairs, Code Technology Committee (CTC) Balanced Fire Protection Features Study Group, request Approval as Submitted.

Commenter's Reason: Although the proposal will reduce the allowable height of Group R buildings of Types IIB and IIIB construction by one story, the maximum area (total of all stories) of the tallest building that will then be permitted is generally considerably greater than that permitted by any of the legacy codes (see table below). For example, consider a building which does not have an NFPA 13 sprinkler system of Type IIB residential building with a height of 3 stories; the tallest permitted by any of the legacy codes. If less than 20 feet of open space is provided around the building, the IBC permits the aggregate area of all three stories to be 108% greater than the largest total area permitted by the legacy codes. If the width of the open space is increased to 40 feet, the IBC's total area is still 27% greater than that permitted by the largest legacy code. If NFPA 13 sprinklers are provided in a building of Type IIB construction, the height of the building can be increased to four stories. If the building has less than 20 feet of open space, the maximum area permitted by the IBC is 50% greater than that permitted by the largest legacy code. Although allowable heights are proposed to be reduced, the foregoing illustrates that buildings will still be able to have total areas that are comparable to or greater than that permitted by the largest legacy code. This proposal has no impact on residential buildings equipped with NFPA 13R or NFPA 13D sprinklers.

Occupancy Group	Type of Construction	NFPA 13 Sprinklers – Yes/No	Width of Open Space (ft.)[a, b]	Ratio of IBC Maximum Building Area to the Largest Maximum Building Area Permitted by Legacy Codes				
				Number of Stories				
				1	2	3	4	5
R-1 R-2 R-4	IIB	No	< 20	1.33	1.33	2.08	NPLC	NP
			40	1.17	1.17	1.27	NPLC	NP
		Yes	< 20	1.78	1.67	2.00	1.50	1.20
			40	1.39	1.39	1.67	1.25	1.00
	IIIB	No	< 20	1.33	1.33	2.08	NPLC	NP
			40	1.17	1.17	1.27	NPLC	NP
		Yes	< 20	1.78	1.67	2.00	1.50	1.20
			40	1.39	1.39	1.67	1.25	1.00

NPLC means not permitted by any of the legacy codes, but permitted by IBC.
NP means not permitted by any of the legacy codes or IBC.
If G118 is approved, building heights represented by shaded cells will not be permitted by the IBC.
a. Width of open space around 100% of building perimeter.
b. 40 feet was used because the UBC required a minimum of 40 feet of open space on all sides in order to qualify for 100% area increase; the maximum permitted by that code. The NBC and SBC permitted maximum open space increases of 150% and 100%, respectively, at 30 feet.

Code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. This public comment is a result of the CTC's investigation of the area of study entitled "Balanced Fire Protection". The CTC web page for this area of study is: http://www.iccsafe.org/cs/cc/ctc/WTC.html. As part of the CTC process, Study Groups are often formed to address specific issues related to CTC areas of study. The CTC BFP Features Study group is one such study group. This study group was formed subsequent to the 2006 Orlando Code Development Hearings, with the focus being a review of the height and area provisions in the IBC. Since its inception, the study group has held ten meetings - all open to the public.

Final Action: AS AM AMPC____ D

G119-07/08
Table 503

Proposed Change as Submitted:

Proponent: Kate Dargan and David Collins, Co-Chairs, Code Technology Committee (CTC) Balanced Fire Protection Features Study Group

Revise table as follows:

TABLE 503
ALLOWABLE HEIGHT AND BUILDING AREAS[a]
Height limitations shown as stories and feet above grade plane.
Area limitations as determined by the definition of "Area, building," per story

		TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
GROUP	HGT(feet) HGT(S)	UL	160	65	55	65	55	65	50	40
S-1	S	UL	11	4	~~3~~ 2	3	~~3~~ 2	4	3	1
	A	UL	48,000	26,000	17,500	26,000	17,500	25,500	14,000	9,000

(Portions of table and footnotes not shown remain unchanged)

Reason: One area of concern identified for study by the Height and Area Task Group was 4 and 5 story buildings of unrated construction. The table below shows the occupancies in the IBC where that condition exists for sprinklered construction. In addition, the table shows the sprinklered height allowances for these occupancies in the legacy codes.

Type IIB, Type IIIB (Unprotected Construction)
Story Comparison (w/ NFPA 13 Sprinklers)

	SBC	NBC	UBC	2006 IBC
B	5	4	2	**5**
F-2	4	4	2	**4**
M	5	3	2	**5**
S-1	4	3	2	**4**
S-2	4	4	2	**5**
R* (13)	5	4	4	**5**
R*(13R)	4	4	3	**4**

NA- Not Applicable NP- Not Permitted
* - Applies for R-1, R-2 and R-3 Use Groups

The study group noted that for Use Group B, M, S-1, and R buildings of Type IIB or Type IIIB construction, the allowance for 4 or 5 stories in the IBC was premised on the story heights allowed in the SBC. In all these instances, the SBC sprinklered height allowance for these Use Groups relied on a multiple story sprinkler increase. For example, for Use Group B, the SBC allowed 2 stories for unsprinklered construction and 5 stories for sprinklered construction. This exceeds the consistent one story sprinkler height increase incorporated in the IBC height and area provisions. Based on this review, the study group identified two anomalies from what was permitted by the legacy codes. First, the story height allowance for S-2 use groups is not based on any of the legacy code allowances. Second, for Use Group B, M, S-1, and R (Type IIB and IIIB construction), the IBC story height allowance for unsprinklered construction exceeds what was allowed by any of the legacy codes. For example, the maximum height for an unsprinklered Type IIB office building in any of the legacy codes was the NBC allowance for 3 stories. Currently, the IBC allows 4 stories for this condition. Rather than modify the sprinkler increase in the IBC, the study group suggested the following recommended story height changes:

Unsprinklered IBC Table 503 Values

Use Group	IIB	IIIB
B	3	3
M	2	2
S-1	2	2
S-2	3	3
R* (13)	3	3

* - Applies for R-1, R-2 and R-3 Use Groups

In essence, these reductions would eliminate the anomalies created by the multi-story SBC sprinkler increase and drop the IBC value back to the next least restrictive legacy code (in these cases, the NBC).

The study group noted that the motivation for these recommendations was to address anomalies associated with unsprinklered 4 and 5 story buildings of nonrated construction. No evidence was submitted to suggest that the existing sprinklered height allowances for these buildings in either the IBC or the legacy codes had created an unsafe condition that requires correction.

Cost Impact: The code change proposal will increase the cost of construction.

Committee Action: Disapproved

Committee Reason: Justification to reduce or revise height and area limitations for buildings based upon the legacy code requirements is not sufficient.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Kate Dargan and David Collins, Co-Chairs, Code Technology Committee (CTC) Balanced Fire Protection Features Study Group, request Approval as Submitted.

Commenter's Reason: Although the proposal will reduce the allowable height of Group S-1 buildings of Types IIB and IIIB construction by one story, the maximum area (total of all stories) of the tallest building that will then be permitted is generally greater than that permitted by any of the legacy codes, especially where sprinklers are provided (see table below). For example, consider an unsprinklered Type IIB S-1 storage building with a height of 2 stories; the tallest permitted by any of the legacy codes. If less than 20 feet of open space is provided around the building, the IBC permits the aggregate area of both stories to be 9% greater than the largest total area permitted by the legacy codes. If the width of the open space is increased to 40 feet, the IBC's total area is 4% less than that permitted by the largest legacy code. Where sprinklers are provided in the Type IIB building with less than 20 feet of open space, 3 stories will be permitted, and the maximum area permitted by the IBC will be 64% greater than that permitted by the largest legacy code. Although allowable heights are proposed to be reduced, the foregoing illustrates that buildings will still be able to have total areas that are comparable to or greater than permitted by the legacy codes.

Occupancy Group	Type of Construction	NFPA 13 Sprinklers – Yes/No	Width of Open Space (ft.)[a, b]	Ratio of IBC Maximum Building Area to the Largest Maximum Building Area Permitted by Legacy Codes			
				Number of Stories			
				1	2	3	4
S-1	IIB	No	< 20	1.09	1.09	NPLC	NP
			40	0.96	0.96	NPLC	NP
		Yes	< 20	1.46	1.64	1.64	1.23
			40	1.15	1.37	1.37	1.03
	IIIB	No	< 20	1.09	1.09	NPLC	NP
			40	0.96	0.96	NPLC	NP
		Yes	< 20	1.46	1.64	1.64	1.23
			40	1.15	1.37	1.37	1.03

NPLC means not permitted by any of the legacy codes, but permitted by IBC.
NP means not permitted by any of the legacy codes or IBC.
If G119 is approved, building heights represented by shaded cells will not be permitted by the IBC.
a. Width of open space around 100% of building perimeter.
b. 40 feet was used because the UBC required a minimum of 40 feet of open space on all sides in order to qualify for 100% area increase; the maximum permitted by that code. The NBC and SBC permitted maximum open space increases of 150% and 100%, respectively, at 30 feet.

Code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. This public comment is a result of the CTC's investigation of the area of study entitled "Balanced Fire Protection". The CTC web page for this area of study is: http://www.iccsafe.org/cs/cc/ctc/WTC.html. As part of the CTC process, Study Groups are often formed to address specific issues related to CTC areas of study. The CTC BFP Features Study group is one such study group. This study group was formed subsequent to the 2006 Orlando Code Development Hearings, with the focus being a review of the height and area provisions in the IBC. Since its inception, the study group has held ten meetings - all open to the public.

Final Action: AS AM AMPC____ D

G120-07/08
Table 503

Proposed Change as Submitted:

Proponent: Kate Dargan and David Collins, Co-Chairs, Code Technology Committee (CTC) Balanced Fire Protection Features Study Group

Revise table as follows:

TABLE 503
ALLOWABLE HEIGHT AND BUILDING AREAS[a]
Height limitations shown as stories and feet above grade plane.
Area limitations as determined by the definition of "Area, building," per story

		TYPE OF CONSTRUCTION								
		TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
		A	B	A	B	A	B	HT	A	B
GROUP	HGT(feet) HGT(S)	UL	160	65	55	65	55	65	50	40
S-2[b, c]	S	UL	11	5	~~4~~ 3	4	~~4~~ 3	5	4	2
	A	UL	79,000	39,000	26,000	39,000	26,000	38,500	21,000	13,500

(Portions of table and footnotes not shown remain unchanged)

Reason: One area of concern identified for study by the Height and Area Task Group was 4 and 5 story buildings of unrated construction. The table below shows the occupancies in the IBC where that condition exists for sprinklered construction. In addition, the table shows the sprinklered height allowances for these occupancies in the legacy codes.

Type IIB, Type IIIB (Unprotected Construction)
Story Comparison (w/ NFPA 13 Sprinklers)

	SBC	NBC	UBC	2006 IBC
B	5	4	2	**5**
F-2	4	4	2	**4**
M	5	3	2	**5**
S-1	4	3	2	**4**
S-2	4	4	2	**5**
R* (13)	5	4	4	**5**
R*(13R)	4	4	3	**4**

NA- Not Applicable NP- Not Permitted
* - Applies for R-1, R-2 and R-3 Use Groups

The study group noted that for Use Group B, M, S-1, and R buildings of Type IIB or Type IIIB construction, the allowance for 4 or 5 stories in the IBC was premised on the story heights allowed in the SBC. In all these instances, the SBC sprinklered height allowance for these Use Groups relied on a multiple story sprinkler increase. For example, for Use Group B, the SBC allowed 2 stories for unsprinklered construction and 5 stories for sprinklered construction. This exceeds the consistent one story sprinkler height increase incorporated in the IBC height and area provisions. Based on this review, the study group identified two anomalies from what was permitted by the legacy codes. First, the story height allowance for S-2 use groups is not based on any of the legacy code allowances. Second, for Use Group B, M, S-1, and R (Type IIB and IIIB construction), the IBC story height allowance for unsprinklered construction exceeds what was allowed by any of the legacy codes. For example, the maximum height for an unsprinklered Type IIB office building in any of the legacy codes was the NBC allowance for 3 stories. Currently, the IBC allows 4 stories for this condition. Rather than modify the sprinkler increase in the IBC, the study group suggested the following recommended story height changes:

Unsprinklered IBC Table 503 Values

Use Group	IIB	IIIB
B	3	3
M	2	2
S-1	2	2
S-2	3	3
R* (13)	3	3

* - Applies for R-1, R-2 and R-3 Use Groups

In essence, these reductions would eliminate the anomalies created by the multi-story SBC sprinkler increase and drop the IBC value back to the next least restrictive legacy code (in these cases, the NBC).

The study group noted that the motivation for these recommendations was to address anomalies associated with unsprinklered 4 and 5 story buildings of nonrated construction. No evidence was submitted to suggest that the existing sprinklered height allowances for these buildings in either the IBC or the legacy codes had created an unsafe condition that requires correction.

Cost Impact: The code change proposal will increase the cost of construction.

Committee Action: Disapproved

Committee Reason: The proposal was disapproved based upon action on G119-07/08.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Kate Dargan and David Collins, Co-Chairs, Code Technology Committee (CTC) Balanced Fire Protection Features Study Group, request Approval as Submitted.

Commenter's Reason: Although the proposal will reduce the allowable height of Group S-2 buildings of Types IIB and IIIB construction by one story, the maximum area (total of all stories) of the tallest building that will then be permitted is generally considerably greater than that permitted by any of the legacy codes, especially where sprinklers are provided (see table below). For example, consider an unsprinklered Type IIB S-2 storage building with a height of 3 stories; the tallest permitted by any of the legacy codes. If less than 20 feet of open space is provided around the building, the IBC permits the aggregate area of all three stories to be 126% greater than the largest total area permitted by the legacy codes. If the width of the open space is increased to 40 feet, the IBC's total area is 37% greater than that permitted by the largest legacy code. Where sprinklers are provided in the Type IIB building with less than 20 feet of open space, 4 stories will be permitted, and the maximum area permitted by the IBC will be 83% greater than that permitted by the largest legacy code. Although allowable heights are proposed to be reduced, the foregoing illustrates that buildings will still be able to have total areas that are comparable to or greater than permitted by the legacy codes.

Occupancy Group	Type of Construction	NFPA 13 Sprinklers – Yes/No	Width of Open Space (ft.)[a, b]	Ratio of IBC Maximum Building Area to the Largest Maximum Building Area Permitted by Legacy Codes				
				Number of Stories				
				1	2	3	4	5
S-2	IIB	No	< 20	1.44	1.44	2.26	NPLC	NP
			40	1.26	1.26	1.37	NPLC	NP
		Yes	< 20	1.93	1.81	2.44	1.83	NPLC
			40	1.14	1.35	2.03	1.52	NPLC
	IIIB	No	< 20	1.44	1.44	2.26	NPLC	NP
			40	1.26	1.26	1.37	NPLC	NP
		Yes	< 20	1.93	1.81	2.44	1.83	NPLC
			40	1.14	1.35	2.03	1.52	NPLC

NPLC means not permitted by any of the legacy codes, but permitted by IBC.
NP means not permitted by any of the legacy codes or IBC.
If G120 is approved, building heights represented by shaded cells will not be permitted by the IBC.

a. Width of open space around 100% of building perimeter.
b. 40 feet was used because the UBC required a minimum of 40 feet of open space on all sides in order to qualify for 100% area increase; the maximum permitted by that code. The NBC and SBC permitted maximum open space increases of 150% and 100%, respectively, at 30 feet.

Code issues are assigned to the CTC by the ICC Board as "areas of study". Information on the CTC, including: meeting agendas; minutes; reports; resource documents; presentations; and all other materials developed in conjunction with the CTC effort can be downloaded from the following website: http://www.iccsafe.org/cs/cc/ctc/index.html. This public comment is a result of the CTC's investigation of the area of study entitled "Balanced Fire Protection". The CTC web page for this area of study is: http://www.iccsafe.org/cs/cc/ctc/WTC.html. As part of the CTC process, Study Groups are often formed to address specific issues related to CTC areas of study. The CTC BFP Features Study group is one such study group. This study group was formed subsequent to the 2006 Orlando Code Development Hearings, with the focus being a review of the height and area provisions in the IBC. Since its inception, the study group has held ten meetings - all open to the public.

Final Action: AS AM AMPC____ D

G123-07/08
504.2

Proposed Change as Submitted:

Proponent: Rick Thornberry, PE, The Code Consortium, Inc., representing the Alliance for Fire and Smoke Containment and Control (AFSCC)

1. Revise as follows:

504.2 (Supp) Automatic sprinkler system increase. Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum height ~~is~~ shall be increased by ~~20~~ 10 feet (~~6096~~ 1524 mm), except that for Group B and H-4 occupancies in buildings of Type IIA or IV construction, the increase shall be 20 feet, and the maximum number of stories ~~is~~ shall be increased by one. These increases ~~are~~ shall be permitted in addition to the area increase in accordance with Sections 506.2 and 506.3. For Group R buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.2, the value specified in Table 503 for maximum height ~~is~~ shall be increased by ~~20~~ 10 feet (~~6096~~ 1524 mm) and the maximum number of stories ~~is~~ shall be increased by one, but shall not exceed ~~60 feet (18 288 mm) or~~ four stories~~, respectively~~.

Exceptions:

1. Buildings, or portions of buildings, classified as a Group I-2 occupancy of Type IIB, III, IV or V construction.
2. Buildings, or portions of buildings, classified as a Group H-1, H-2, H-3 or H-5 occupancy.
3. Fire-resistance rating substitution in accordance with Table 601, Note e.

Reason: The purpose of this proposed code change is to reduce from 20 feet to 10 feet the height increase allowed when an automatic sprinkler system is installed throughout the building. This would apply not only to NFPA 13 sprinkler systems, but also to NFPA 13R sprinkler systems for Group R occupancies. During a thorough review of the heights allowed by the International Building Code (IBC) in comparison to the three legacy codes, it was discovered that the 20 foot height increase for automatic sprinkler systems in the IBC allows taller buildings than any of the three legacy model building codes allowed with a few minor exceptions. Both the 1997 ICBO Uniform Building Code (UBC) and the 1999 SBCCI Standard Building Code (SBC) allowed the identical building heights for their comparable types of construction with the exception of IBC Type IB construction (UBC Type II – F.R. and SBC Type II) for which the UBC allowed the same height of 160 feet as the IBC as compared to 80 feet in the SBC. A maximum height of 120 feet was allowed in the 1999 BOCA National Building Code (NBC) for the comparable construction Type 2A.

For the lesser types of construction the BOCA NBC generally did not allow higher building heights, even with the 20 foot height increase for automatic sprinklers (the BOCA NBC was the only legacy model building code that allowed for the 20 foot height increase for automatic sprinklers), than the maximum building heights allowed by the IBC without the 20 foot height increase for automatic sprinklers.

For the Committee's information, we have provided a table which compares the IBC construction types with the comparable BOCA NBC construction types and shows the height limit allowed by the IBC without an automatic sprinkler increase of 20 feet and the BOCA NBC maximum height allowed with an automatic sprinkler increase of 20 feet. The column at the far right shows the maximum height that would be allowed by the IBC with the proposed automatic sprinkler system increase of 10 feet for an additional comparison. Where an occupancy group is not shown in the table, that means the maximum allowable height by the BOCA NBC with the 20 foot sprinkler height increase included did not exceed the maximum allowable height permitted in Table 503 of the IBC without the 20 foot height increase for automatic sprinklers.

Construction Type		**Height Limit (FT)**				
IBC	NBC	IBC*	NBC**		IBC**	IBC***
IIA	2B	65'	B 85'	85'	75'	
			F-1 70'			
			F-2 85'			
			H-3 70'			
			H-4 85'			
			I-1 70'			
			M 70'			
			R-1 70'			
			R-2 70'			
			R-3 70'			
			S-1 70'			
			S-2 85'			
IIB	2C	55'	B 60'	75'	65'	
			F-2 60'			
			H-4 60'			
			I-1 60'			
			R-1 60'			
			R-2 60'			
			R-3 60'			
			S-2 60'			
IIIA	3A	65'	B 70'	85'	75'	
			F-2 70'			
			H-4 70'			
			I-1 70'			
			R-1 70'			
			R-2 70'			
			R-3 70'			
			S-2 70'			
IIIB	3B	55'	B 60'	75'	65'	
			F-2 60'			
			H-4 60'			
			I-1 60'			
			R-1 60'			
			R-2 60'			
			R-3 60'			
			S-2 60'			
IV	4	65' B	85'	85'	75'	
			F-1 70'			
			F-2 85'			
			H-3 70'			
			H-4 85'			
			I-1 70'			
			M 70'			
			R-1 70'			
			R-2 70'			
			R-3 70'			
			S-1 70'			
			S-2 85'			
VA	5A	50' B	60'	70'	60'	
			F-2 60'			
			H-4 60'			
			I-1 60'			
			R-1 60'			
			R-2 60'			
			R-3 60'			
			S-2 60'			
VB	5B	40' B	50'	60'	50'	
			F-2 50'			
			H-4 50'			
			I-1 55'			

R-1	55’
R-2	55’
R-3	55’
S-1	50’
S-2	50’

*without 20 foot sprinkler increase
**with 20 foot sprinkler increase
*** with proposed 10 foot sprinkler increase

A review of the table clearly shows that in only eight cases would the BOCA NBC with the 20 foot height increase for an automatic sprinkler system allow building heights for specific types of construction and occupancy combinations to be as high as the IBC allowable height with the 20 foot sprinkler increase. For the vast majority of cases, however, for other than Type V construction, the BOCA NBC with the 20 foot sprinkler height increase allowed at most only a 5 foot increase, in effect, above that allowed by the IBC without the 20 foot height increase for automatic sprinklers. Thus, the IBC is allowing buildings to be built taller than they were ever allowed to be built by any of the three legacy model building codes prior to the IBC. We are not aware of any technical information being provided during the ICC drafting process to justify this extra height increase. So it is likely that there has been very little fire experience throughout the country to provide data that may indicate if the extra 20 foot height increase is acceptable and does not cause an adverse impact on fire and life safety.

We have compiled a second table which consolidates all of the outliers that would result if the 20 foot automatic sprinkler increase was reduced to 10 feet as proposed by this code change. These outliers are those occupancy groups and types of construction combinations that would exceed the total building height allowed by the IBC with the proposed 10 foot reduction in the height increase for automatic sprinklers as compared to the total building height allowed by the BOCA NBC. It is obvious that there is only a handful of outliers out of a possible 210 combinations.

Construction Type		**Height Limit (ft)**			**Maximum**
IBC	NBC	IBC*	NBC**	IBC***	**Stories******
IIA	2B	65’	B 85’ 75’	6	
			F-2 85’	6	
			H-4 85’	6	
			S-2 85’	6	
IV	4	65’	B 85’ 75’	6	
			F-2 85’	6	
			H-4 85’	6	
			S-2 85’	6	
VB	5B	40’		I-1 55’ 50’	3
				R-1 55’	3
				R-2 55’	3
				R-3 55’	4

*without 20 foot sprinkler increase
**with 20 foot sprinkler increase
***with proposed 10 foot sprinkler increase
****with 1 story sprinkler increase

A further look at the table entries above can even eliminate some of them as not being practical for the application of the height limitations. For example, the F-2’s and S-2’s can basically be discounted since they are very rare to begin with and certainly are not generally built to six stories or 85 feet in height. The R-3 entry can also be discounted since it is only allowed to be three stories in height under the BOCA NBC although it is allowed to be 4 stories under the IBC.

Basically, for Types IIA and IV construction this leaves Group B and H-4 occupancies which are 10 feet less in height than would have been allowed by the BOCA NBC. At the proposed 75 foot height limit, the average floor-to-floor height would be 12 feet 6 inches. Allowing for 3 feet of floor or roof structure including the floor or roof and the supporting beams and girders, this would accommodate an average finished ceiling height of at least 9 feet 6 inches per story which is not unreasonable. However, to accommodate these occupancies, we have further modified the text to allow the full 20 foot height increase to be consistent with the BOCA NBC.

For Type VB construction which basically allows a maximum three stories in height, at the proposed 50 foot height limit the average floor-to-floor height would be 16 feet 8 inches. Again, this should be much more than adequate for the Group I-1, R-1, and R-2 occupancies which would be 5 feet less in height than allowed by the BOCA NBC.

With this proposed code change there should be no significant impact on the existing building stock in those jurisdictions that have previously adopted the BOCA National Building Code. Yet when the buildings are sprinklered, this amendment would still allow for greater building heights than those currently allowed by both the SBCCI Standard Building Code and the ICBO Uniform Building Code where previously adopted. Basically, this code change proposal will bring the International Building Code somewhat closer to what was previously allowed for building heights in feet by all three of the legacy model codes from which the IBC evolved.

In conclusion, the 20 foot increase in the allowable building height currently allowed by the IBC will pose more of a challenge to the responding fire department to gain access to the roof or the upper floors of such buildings. This may mandate that they utilize more sophisticated ladders and aerial equipment which complicates their fire fighting and rescue efforts. Increased height means more time will be required to gain access to the roof or the upper stories of the building which delays rescue, as well as fire fighting operations, should the fire be on the upper floors or the roof. This will potentially reduce the overall level of fire and life safety provided in these buildings even though an automatic sprinkler system is installed. Since automatic sprinkler systems are not foolproof or fail safe, they may not be available at a critical time when a fire gets out of control and the fire department must respond to deal with a fire on the upper story of the building or the roof. This is even more critical in seismically active areas where an earthquake can knock out the water supply to the sprinkler system. Earthquakes will also put a greater demand on fire departments since they will be responding to multiple incidents and they will face more challenges if the buildings are allowed to be 20 feet higher than would have been allowed by any of the legacy codes. This will certainly result in more property damage and more risk for the building occupants, as well as the fire fighters who may have to respond to an uncontrolled fire in such buildings.

Cost Impact: This code change proposal will increase the cost of construction.

Committee Action: Disapproved

Committee Reason: This would create a conflict with currently constructed buildings undergoing alterations under these new provisions. This is also consistent with actions taken on code change G113-07/08 through G120-07/08.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Mike Ashley, CBO, Alliance for Fire and Smoke Containment and Control (AFSCC), requests Approval as Submitted.

Commenter's Reason: We have submitted this Public Comment to request the ICC Class A voting members to approve this code change proposal so that it can be incorporated into the 2009 edition of the International Building Code (IBC). One of the reasons the Committee disapproved this code change was that they were concerned it would create a conflict with currently constructed buildings undergoing alterations if this code change were to be approved. We are still not clear as to how these conflicts would occur since we have clearly demonstrated in the substantiation for this code change proposal that none of the legacy codes would have allowed a 20 foot height increase for automatic sprinkler installations above the heights allowed in Table 503. Therefore, we do not see how a conflict could result from this code change being approved. The Committee also indicated that their actions for disapproval were consistent with their actions taken on Code Changes G113 through G120-07/08. However, none of those code change proposals address building height in terms of the total number of feet allowed. They address the number of stories allowed. Furthermore, this code change proposal addresses an allowable increase in the total building height in terms of feet rather than stories but is coupled with a one-story increase in building height when an automatic sprinkler system is installed.

As noted in our supporting statement for our original code change proposal, there was no technical justification to allow a 20 foot height increase for an automatic sprinkler system. Since none of the legacy codes allowed such tall sprinklered buildings, we have no fire experience to justify allowing the increased height of the building. And we don't have that many buildings constructed since the 2000 IBC was adopted by various jurisdictions throughout this country to develop any reasonable data base of fire experience because fire is a relatively rare event to begin with. At best we may have 5 or 6 years of limited data from buildings constructed in accordance with the 2000 or later IBC but how many of those buildings may have been constructed to the maximum height limits allowed by this provision when those buildings were sprinklered? So the prudent, safe, and responsible thing to do is to approve this code change to reduce the allowable increase (which is still in many cases greater than that allowed by any of the legacy codes) for automatic sprinkler systems from the current 20 foot allowance to the 10 foot allowance proposed in this code change.

Final Action: AS AM AMPC____ D

G124-07/08
504.2, 506.3

Proposed Change as Submitted:

Proponent: John Dean, National Association of State Fire Marshals (NASFM) and Ken Kraus, Los Angeles Fire Department, CA

1. Revise as follows:

504.2 (Supp) Automatic sprinkler system increase. Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum height is increased by 20 feet (6096 mm) and the maximum number of stories is increased by one. These increases are permitted in addition to the area increase in accordance with Section~~s~~ 506.2 ~~and 506.3~~. For Group R buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.2, the value specified in Table 503 for maximum height is increased by 20 feet (6096 mm) and the maximum number of stories is increased by one, but shall not exceed 60 feet (18 288 mm) or four stories, respectively.

Exceptions:

1. Buildings, or portions of buildings, classified as a Group I-2 occupancy of Type IIB, III, IV or V construction.
2. Buildings, or portions of buildings, classified as a Group H-1, H-2, H-3 or H-5 occupancy.
3. Fire-resistance rating substitution in accordance with Table 601, Note e.
4. This increase is not permitted in addition to the area increase in accordance with Section 506.3.

2. Revise as follows:

506.3 (Supp) Automatic sprinkler system increase. Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the area limitation in Table 503 is permitted to be increased by an additional 200 percent (I_s = 2) for buildings with more than one story above grade plane and an additional 300 percent (I_s = 3) for buildings with no more than one story above grade plane. ~~These increases are permitted in addition to the height and story increases in accordance with Section 504.2.~~

Exception: The area limitation increases shall not be permitted for the following conditions:

1. The automatic sprinkler system increase shall not apply to buildings with an occupancy in Group H-1.
2. The automatic sprinkler system increase shall not apply to the building area of an occupancy in Group H-2 or H-3. For buildings containing such occupancies, the allowable area shall be determined in accordance with Section 508.3.3.2, with the sprinkler system increase applicable only to the portions of the building not classified as Group H-2 or H-3.
3. Fire-resistance rating substitution in accordance with Table 601, Note e.
4. <u>These increases are not permitted in addition to the story increases in accordance with Section 504.2.</u>

Reason: Dean. Code officials recognize and support the benefits of automatic fire sprinkler protection in buildings. The need for a balanced approach to fire protection is also recognized and is the basis for this proposal which permits the use of a sprinkler system for an increase in height or area but not both. During California's statewide code adoption process, building and fire code officials reviewed data from various sources in an attempt to justify the increased building size over the allowable areas/heights in all three legacy codes. What they concluded was that there appeared to be little science behind the table values and formulas and code officials are not comfortable with the elimination of redundancy from the code and an over-reliance on fire sprinkler systems. Several factors support the need to restore balance to this code:

- There is a public expectation of the level of safety inherent in the current codes which become policy upon local adoption. The west coast has a lower fire loss record than the rest of the country, which may be, at least partially attributed to construction requirements. There is an increase in risk that accompanies larger building sizes which cannot be justified in light of national fire statistics that are among the worst of any other industrialized nation.
- There are no redundant mitigating protective features to address the potential for sprinkler failure due to a disruption in water supply, mechanical failure, lack of proper maintenance, human error, or temporary disruptions to sprinkler systems that occur during typical remodeling and tenant improvement projects. Furthermore, reductions in water supply usually result after weather-related or seismic events, which would render an automatic sprinkler system ineffective if a fire were to occur. What is the true reliability of a sprinkler system? A recent article cites 89% as the figure when both the performance and operational reliability are factored in. They are out of service for maintenance, construction, (tenant improvements), unintentional human error. There is also a vulnerability factor- besides seismic, we have experience where systems were taken out by vehicle crash or explosion. In instances of improper design/use or arson,
  the system can be overcome. Sprinkler systems often don't extinguish the fire and there can be tremendous smoke generation and spread (particularly smoldering or shielded fires, etc). In fact, sprinklers drive the smoke lower and impede visibility, building size becomes more of an issue to both rescue (panic) and firefighting.
- The quantity and capability of emergency response resources is based on the same infrastructures and building designs that have existed in the United States for decades. Therefore, the level of fire and life safety would be decreased below what we have today in terms of building size. Public safety departments are staffed for current building sizes and larger buildings may lead to larger fires and need for staffing/tactical/infrastructure changes which may not be financially or politically feasible.
- This results in a decreased level of public safety because fire rescue and fire suppression responders would be required to accomplish their emergency response tasks in larger multi-story buildings without the benefit of increased fire protection based on a combination of sprinkler, fire-resistive construction, and fire walls.

By limiting the use of a fire sprinkler system to an increase in height or area, but not both, serves to restore balance to the code by reducing over reliance on those systems.

Reason: Kraus: The intention of this code change proposal is to trim the Height and Area provisions of the IBC by allowing additional height **or** area as a tradeoff for fire sprinklers. Currently, if you install sprinklers for the benefit of additional height, you may also then also, without providing any further protection, add additional area. The same is true if you install sprinklers in order to take the additional area provision. There are many ways to adjust the height and allowances of the IBC. I have chosen this particular section and mechanism because previous similar proposals have seemed to resonate with the membership, i.e., Final Action Hearing discussions.

There exist 3 primary reasons that mandate modification to the height and area provisions of the International Building Code, specifically:

1 – The lack of fire history for buildings constructed to the current IBC height and area requirements.

During previous code hearings and at various committee meetings this sentiment was offered to console individuals that, after calculating height and area values under the IBC, found the IBC allowed buildings to be constructed taller and much larger (by a factor of 2 to 3) than any legacy code or BCMC recommendations. This reality came to the forefront after the Orlando code development hearing and caused, presumably and in part, the CTC BFP Work Group to rethink height and area. Once the Work Group identified some 50 "anomalies", concern grew when the science used to formalize Table 503 values could not be harnessed to the point that rendered confidence.

Add to this, the fact that the legacy groups had somewhat different height and area enhancements, (increased allowances or multipliers for location on property, type of construction, multiple stories etc). While these factors seemed to stand the test of time regionally, the additive combining of these elements and their influence on the suspect tabular values brings into question the efficacy of IBC Chapter 5 which allows buildings to be constructed both taller and larger that any legacy code.

These comments should not be considered a criticism of the effort of the drafting committee whose task was formidable and time constraints demanding.

2 - The value afforded to fire sprinkler systems.

While Fire sprinklers are well established as the single most important fire protection element in the fire and life safety toolbox they are not a panacea. The dynamic nature of fire incidents and the potential for life loss preclude the acceptance or over reliance on a single protective. Various and diverse tools must be employed to ensure that structures react in a predictable manner even when certain elements don't perform as designed. There are times when sprinklers don't perform satisfactorily. Some examples are:
Interruption of water supply due to natural disaster, intentional acts, unintentional careless acts (maintenance/construction).
Ineffective activation due to change in commodity or construction feature, improper storage, faulty sprinkler heads.

Each Legacy group had numerous tradeoffs for sprinklers but also made deliberate decisions to not institute other tradeoffs. By melding together each regions protection package, the IBC effectively voids the intentional non-inclusion of tradeoffs by the legacy groups.

3 - A prevailing rationale used in selecting the tabular values in 503, i.e., not to create non-compliant buildings upon adoption of the IBC.

This problem is faced each time a local or state jurisdiction adopts a new code or updates existing requirements. Buildings built to previous editions are automatically out of compliance with the new code. This perception is tempered by the fact that these buildings are still regulated by the code in effect when they were built, (except for retroactive requirements).

While not creating non-compliant buildings is a justifiable consideration, it is not a primary intent of the IBC. The intent of the IBC is to safeguard the public health, safety and general welfare through various means and to provide safety to life property and emergency responders. Over reliance on the non-complaint building concern may have, in some cases, caused these primary tenets to be relegated to secondary in importance.

Regarding related / concurrent proposals. I respect and support both the Balanced Fire Protection Work Group and their efforts. Time constraints have prevented me from fully assimilating their IBC Chapter 5 proposal.

I urge the Committee to weigh in the balance this proposal as a reasonable method of addressing an element of what has been the single most debated issue since the issuance of the final draft of the IBC.

Cost Impact: Dean.: The code change proposal will not increase the cost of construction.
Kraus: This code change will increase the cost of construction.

Committee Action: Disapproved

Committee Reason: The current approach provided in the code is felt to be appropriate and was specifically based upon existing codes at the time the IBC was originally drafted.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

John C. Dean, National Association of State Fire Marshals (NASFM), requests Approval as Submitted.

Commenter's Reason: In reviewing this comment we ask that you keep in mind that when the IBC was created, there was a policy decision made that when merging the three legacy codes into one any conflict would default to the lesser requirement. This reportedly was done to avoid adoption problems for jurisdictions when moving to the IBC from a legacy code, i.e., if the new code was more restrictive there could be opposition to adoption. The concept of balance is constantly bandied about when examining specific code provisions in that when looking at the code as a whole, one requirement balances out the other. This concept is spoken of specifically when dealing with automatic sprinkler system trade offs. If we accept the fact that the three separate legacy codes were balanced, i.e., they had some requirements less restrictive than the same topic in another legacy code but they had other topics that were more restrictive, what happened when we merged the three codes? We went through and took the lowest requirement from each code without taking the more restrictive. What happened to the balancing effect that each legacy code had developed over the years? It does not exist in the IBC.

Another way to look at this issue is that in many jurisdictions the building code is the minimum standard to apply, in some it is the minimum and the maximum standard, (mini-max code). In any jurisdiction that previously applied one of the legacy codes, at the time they had a legacy code effective, the current IBC provisions would be less than that applicable code permitted. In other words, application of many of the provisions in the IBC would be illegal. It is for that reason we seek to reduce the size of some of the buildings permitted to be built under the IBC to start to bring balance back to the code.

Code officials recognize and support the benefits of automatic fire sprinkler protection in buildings. The need for a balanced approach to fire protection is also recognized and is the basis for this proposal which permits the use of a sprinkler system for an increase in height or area but not both. During California's statewide code adoption process, building and fire code officials reviewed data from various sources in an attempt to justify the increased building size over the allowable areas/heights in all three legacy codes. What they concluded was that there appeared to be little science behind the table values and formulas and code officials are not comfortable with the elimination of redundancy from the code and an over-reliance on fire sprinkler systems. Several factors support the need to restore balance to this code:

- There is a public expectation of the level of safety inherent in the current codes which become policy upon local adoption. The west coast has a lower fire loss record than the rest of the country, which may be, at least partially attributed to construction requirements. There is an increase in risk that accompanies larger building sizes which cannot be justified in light of national fire statistics that are among the worst of any other industrialized nation.
- There are no redundant mitigating protective features to address the potential for sprinkler failure due to a disruption in water supply, mechanical failure, lack of proper maintenance, human error, or temporary disruptions to sprinkler systems that occur during typical remodeling and tenant improvement projects. Furthermore, reductions in water supply usually result after weather-related or seismic events, which would render an automatic sprinkler system ineffective if a fire were to occur. What is the true reliability of a sprinkler system? A recent article cites 89% as the figure when both the performance and operational reliability are factored in. They are out of service for maintenance, construction, (tenant improvements), unintentional human error. There is also a vulnerability factor- besides seismic, we have experience where systems were taken out by vehicle crash or explosion. In instances of improper design/use or arson, the system can be overcome. There can be tremendous smoke generation and spread (particularly smoldering or shielded fires, etc) during fire containment or extinguishing by sprinkler systems.

- The quantity and capability of emergency response resources is based on the same infrastructures and building designs that have existed in the United States for decades. Therefore, the level of fire and life safety would be decreased below what we have today in terms of building size. Public safety departments are staffed for current building sizes and larger buildings may lead to larger fires and need for staffing/tactical/infrastructure changes which may not be financially or politically feasible.
- This results in a decreased level of public safety because fire rescue and fire suppression responders would be required to accomplish their emergency response tasks in larger multi-story buildings without the benefit of increased fire protection based on a combination of sprinkler, fire-resistive construction, and fire walls.

By limiting the use of a fire sprinkler system to an increase in height or area, but not both, serves to restore balance to the code by reducing over reliance on those systems.

This proposed code change was disapproved by the General Committee on the basis that, "the current approach provided in the code is felt to be appropriate and was specifically based upon existing codes at the time the IBC was originally drafted." After lengthy testimony provided at the Code Development Hearings, during which there were numerous attempts to revise values in Table 503 back to the legacy codes, the committee stated several times during discussion of other proposed code changes, that justification to revise height and area limitations for buildings based upon the legacy codes is not sufficient, and that the focus should be on the IBC at this time, and not on the legacy codes. We would disagree. It is necessary to revisit the legacy codes as they provide the history for how buildings are currently constructed. To use new values without any kind of basis would be arbitrary. In viewing the committee's position on the various proposals, the committee conflicts with itself in the responses provided to proponents. It would appear that the committee's only consistent position is one of status quo, i.e., that buildings are permitted to be bigger under the current IBC- end of story. Even the largest state with the most organized fire protection in the country and the city with the largest fire department do not accept the values in the Table 503 as providing an adequate level of fire protection. In the absence of action to revise these values, this proposed change is a less complex way of dealing with unjustifiable height and area increases.

Public Comment 2:

Ken Kraus, Los Angeles Fire Department, requests Approval as Submitted.

Commenter's Reason: The intention of G124 is to adjust the Height and Area provisions of the IBC by allowing additional height *or* area as a tradeoff for providing fire sprinklers. Currently, if you install sprinklers for the benefit of additional height, you may also then, without justifying with additional rationale or construction features, add additional area. Conversely, the same is true for adding area. Additional height is awarded without additional mitigation.

There are many ways to adjust the Height and Area allowances of the IBC. I have chosen this particular section and mechanism because previous similar proposals, (e.g. Detroit FAH) seemed to resonate with the governmental members.
This comment is being submitted for three reasons.

Comment Reason A – Reduced Safety Without Appropriate Justification
The increased Height and Area allowances of the current IBC decrease the ability of the fire resistive and fire protection features of buildings to safeguard occupants and firefighters. Greater allowable areas equate to increased egress time for occupants. Taller buildings with larger areas also increase; emergency responder access and evacuation times, the number of fire apparatus needed, and duration of incidents.
This argument was rejected by the Committee because of the lack of technical justification and reliance on empirical data. Conversely, the Committee was not affected by the lack of technical justification admittedly employed when the IBC was originally compiled.
Committee members offered statements implying that the Height and Area numbers were not justified when they were created, and questioned the lack of technical substantiation for the tabular values. Yet in the Committee Reason statement for DISAPPROVAL of G124, the Committee stated that the approach provided in the code is appropriate.

Comment Reason B – Committee Failed to Address Reason Statement
While the Committee did address some elements of reason #1 of my original submittal, they failed to adequately respond to reasons #2 and #3. All three are submitted herein identified by [brackets]

There exist 3 primary reasons that mandate modification to the height and area provisions of the International Building Code.

[1 – The lack of fire history for buildings constructed to the current IBC height and area requirements.
During previous code hearings and at various committee meetings this sentiment was offered to console individuals that, after calculating height and area values under the IBC, found the IBC allowed buildings to be constructed taller and much larger (by a factor of 2 to 3) than any legacy code, or BCMC recommendations. This reality came to the forefront after the Orlando code development hearing and caused, presumably and in part, the CTC BFP Work Group to rethink height and area. **Once the BFP work group identified some 48 "anomalies", concern grew and the science used to formalize Table 503 values could not be harnessed to the point that rendered confidence in the Table.**

Add to this, the fact that the legacy groups had somewhat different height and area enhancements, (increased allowances or multipliers for location on property, type of construction, multiple stories etc**). While these factors seemed to stand the test of time regionally, the combination of these elements and their influence on the suspect tabular values brings into question the efficacy of IBC Chapter 5 which allows buildings to be constructed both taller and larger that any legacy code.**
These comments should not be considered a criticism of the effort of the drafting committee whose task was formidable and time constraints demanding.]

[2-The value afforded to fire sprinkler systems.
While Fire sprinklers are well established as the single most important fire protection element in the fire and life safety toolbox they are not a panacea. The dynamic nature of fire incidents and the potential for life loss preclude the acceptance or over reliance on a single protective. Various and diverse tools must be employed to ensure that structures react in a predictable manner even when certain elements don't perform as designed. There are times when sprinklers don't perform satisfactorily. Some examples are:
Interruption of water supply due to natural disaster, intentional acts, unintentional careless acts (maintenance/construction).
Ineffective activation due to change in commodity or construction feature, improper storage, faulty sprinkler heads.
Each Legacy group had numerous tradeoffs for sprinklers but also made deliberate decisions to not institute other tradeoffs. By melding together each regions protection package, the IBC effectively voids the intentional non-adoption of tradeoffs by the legacy groups.]

[3- A prevailing rationale used in selecting the tabular values in 503, i.e., not to create non-compliant buildings upon adoption of the IBC. This problem is faced each time a local or state jurisdiction adopts a new code or updates existing requirements. Buildings built to previous editions are automatically out of compliance with the new code. This perception is tempered by the fact that these buildings are still regulated by the code in effect when they were built, (except for retroactive requirements).

While not creating non-compliant buildings is a justifiable consideration, it is not a primary intent of the IBC. The intent of the IBC is to safeguard the public health, safety and general welfare through various means and to provide safety to life, property and emergency responders. Over reliance on the non-complaint building concern may have, in some cases caused these primary tenants to take a back seat.]

Comment Reason C- Inadequacy of Committee Reason Statement

The Committee reason for DISAPPROVAL as stated in the Report on Public Hearing is:

"The current approach provided in the code is felt to be appropriate and was specifically based upon existing codes at the time the IBC was originally drafted."

This statement is misleading and fails to capture the essence of the debate in Palm Springs.

The Committee seemed to imply, in part, that the approach used was not appropriate since there was little technical justification (an apparent yardstick to determine if arguments are valid) provided to substantiate the drafting of the IBC.

Also, I contend that the IBC was very loosely based on the Legacy Codes. If it were in fact specifically based on the existing codes (as detailed in the Committee statement), the tabular anomalies would not exist; building height and area would resemble those constructed to the existing codes, the performance of buildings under fire conditions and the sustainability of the built environment could be assessed through study of existing building stock.

I urge the members to consider this comment and the value of G124 as a reasonable method of bringing the IBC Height and Area allowances more in line with those found in the basis documents. The disparity between the Height and Areas allowed by the IBC and those permitted by any of the previous codes is too great to accept without commensurate mitigation.

Final Action: AS AM AMPC____ D

G125-07/08

504.2, 506.3

Proposed Change as Submitted:

Proponent: Rick Thornberry, PE, The Code Consortium, Inc., representing the Alliance for Fire and Smoke Containment and Control (AFSCC)

Revise as follows:

504.2 (Supp) Automatic sprinkler system increase. Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the value specified in Table 503 for maximum height is increased by 20 feet (6096 mm) and the maximum number of stories is increased by one. These increases ~~are~~ shall be permitted in addition to the area increase in accordance with Sections 506.2 and 506.3. For Group R buildings equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.2, the value specified in Table 503 for maximum height is increased by 20 feet (6096 mm) and the maximum number of stories is increased by one, but shall not exceed 60 feet (18 288 mm) or four stories, respectively.

504.2.1 Height increase limitations. ~~Exceptions:~~ The maximum height and maximum number of stories increases permitted in Section 504.2 shall not be permitted for the following conditions:

1. Buildings, or portions of buildings, classified as a Group I-2 occupancy of Type IIB, III, IV or V construction.
2. Buildings, or portions of buildings, classified as a Group H-1, H-2, H-3 or H-5 occupancy.
3. Fire-resistance rating substitution in accordance with Table 601, Note e.
4. Buildings of Type IIB, IIIB, or VB construction where the area increase permitted by Section 506.3 is used.

506.3 Automatic sprinkler system increase. Where a building is equipped throughout with an approved automatic sprinkler system in accordance with Section 903.3.1.1, the area limitation in Table 503 is permitted to be increased by an additional 200 percent (I_s = 2) for buildings with more than one story above grade plane and an additional 300 percent (I_s = 3) for buildings with no more than one story above grade plane. These increases ~~are~~ shall be permitted in addition to the height and story increases in accordance with Section 504.2.

506.3.1 Area increase limitations. ~~Exception:~~ The area limitation increases permitted in section 506.3 shall not be permitted for the following conditions:

1. The automatic sprinkler system increase shall not apply to buildings with an occupancy in Group H-1.
2. The automatic sprinkler system increase shall not apply to the building area of an occupancy in Group H-2 or H-3. For buildings containing such occupancies, the allowable area shall be determined in accordance with Section 508.3.3.2, with the sprinkler system increase applicable only to the portions of the building not classified as Group H-2 or H-3.
3. Fire-resistance rating substitution in accordance with Table 601, Note e.
4. Buildings of Type IIB, IIIB, or VB construction where the height and story increases permitted by Section 504.2 are used.

Reason: The purpose of this code change proposal is to eliminate the current allowance in the code that permits both a height increase in stories and feet, as well as an area increase where an automatic sprinkler system is installed in buildings constructed of the non-rated types of construction, i.e. Types IIB, IIIB, and VB. We have focused in on the non-rated types of construction since we believe they pose the greatest challenge to fire and life safety should they experience a fire. If such buildings are allowed to take advantage of both the height and area increase for the installation of an automatic sprinkler system, they will be subject to greater fire losses should the sprinkler system not operate as designed. Since an automatic sprinkler system is not 100 percent foolproof, we believe this is an over reliance on the use of that sprinkler system to allow for these significant increases in the building heights and areas. These buildings have basically no built-in passive fire-resistive protection so that a fire that gets out of control could readily spread to multiple stories and cause early collapse of the building construction. It has been well documented that automatic sprinkler systems have a failure performance rate of somewhere in the neighborhood of 10 to 15 percent of all building fires involving sprinklers where the fire was judged to be large enough that it should have activated the sprinkler system.

What is even more disconcerting is that a comparison of the three legacy model codes will show that the utilization of both the height increase and the area increase almost always results in a larger building in both terms of height and area than was previously allowed by those legacy model codes.

Please refer to the example comparing the maximum allowable heights and areas for a Group B office building of Type IIB construction based on the current provisions in the IBC versus the three legacy model building codes. The example also shows what the maximum allowable areas and building heights would be if this code change proposal were approved. One can see that the allowable areas and heights under the current IBC are significantly greater for virtually every case. However, the implementation of the proposed code change indicates that the maximum allowable building areas and heights are generally still greater but not nearly as much.

We have also compiled tables comparing the maximum allowable heights and areas for other occupancies for these non-rated types of construction. Again, they clearly show the significantly larger building areas and heights permitted by the current IBC as compared to the previous legacy model codes for the vast majority of cases. However, this code change proposal will reduce those very large heights and areas so that they won't be nearly as excessive as they currently are. This will result in allowable building heights and areas that are more comparable to those that have been traditionally allowed by the previous legacy model building codes.

Why is this important? Because we don't have any substantiated fire record for these greatly larger buildings that have not been previously allowed by the legacy model building codes. We can only assume that allowing larger buildings than previously allowed based on the same type of construction for a given occupancy can only result in an increase in fire loss statistics over time as these larger buildings are constructed and occupied and suffer fires over their lifetime. For these reasons, we recommend that this code change proposal be approved as submitted.

Example: Group B Office Building

Type IIB Construction

Area Per Story

	ICC IBC		BOCA NBC		ICBO UBC		SBCCI SBC	
	Area	Height	Area	Height	Area	Height	Area	Height
Base	23,000 s.f.	4 st. 55'	14,400 s.f.	3 st. 40'	12,000 s.f.	2 st. 55'	17,000 s.f.	2 st. 55'
Max.	86,250 s.f.*	5 st. 75'	47,520 s.f.	4 st. 60'	48,000 s.f.	2 st. 55'	51,000 s.f.	5 st. 55'
	51,750 s.f.**				or			
					24,000 s.f.	3 st. 55'		
As Revised by this Proposal								
Max.	86,250 s.f.*	4 st. 55'						
	64,688 s.f.**							
	or							
Max.	40,250 s.f.*	5 st. 75'						
	30,188 s.f.**							
Total Building Area								
Base	69,000 s.f.	4 st. 55'	43,200 s.f.	3 st. 40'	24,000 s.f.	2 st. 55'	34,000 s.f.	2 st. 55'
Max.	258,750 s.f.	5 st. 75'	190,080 s.f.	4 st. 60'	96,000 s.f.	2 st. 55'	204,000 s.f.	4 st. 55'
					or		or	
As Revised by this Proposal					48,000 s.f.	3 st. 55'	255,000 s.f.	5 st. 55'
Max.	258,750 s.f.	4 st. 55'						
	or							
Max.	120,750 s.f	5 st. 75'						

*Maximum area allowed for any story provided the total building area does not exceed that allowed as indicated below.
**Maximum area allowed per story if evenly divided between all the stories allowed.

"Double Dipping"

Type IIB Construction

8/20/2007

Maximum Allowable Total Building Area (sf)

Maximum Allowable Building Height (stories)

Occ.	Current IBC	BOCA NBC	ICBO UBC	SBCCI SBC	Area Increase Only IBC	Height Increase Only IBC
A-2	106,875	21,600	36,400	48,000	71,250	49,875
	3 st.	2 st.	2 st.	3 st.	2 st.	3 st.
			54,600	48,000		
			1 st.	2 st.		
A-3	106,875	83,160	36,400	48,000	71,250	49,875
	3 st.	3 st.	2 st.	3 st.	2 st.	3 st.
			54,600	48,000		
			1 st.	2 st.		
B	258,750	190,800	48,000	255,000	258,750	120,750
	5 st.	4 st.	3 st.	5 st.	4 st.	5 st.
			96,000			
			2 st.			
E	163,125	142,560	54,000	48,000	108,750	76,125
	3 st.	3 st.	2 st.	2 st.	2 st.	3 st.
			81,000	48,000		
			1 st.	1 st.		
F-1	174,375	95,040	48,000	252,000	116,250	81,375
	3 st.	3 st.	3 st.	4 st.	2 st.	3 st.
			96,000			
			2 st.			
I-1	112,500	110,880	NP	180,000	112,500	52,500
	4 st.	4 st.	NP	5 st.	3 st.	4 st.
I-2	52,250	32,400	NP	40,000	52,250	52,250
	1 st.	1 st.	NP	1 st.	1 st.	1 st.
M	140,625	95,040	48,000	135,000	140,625	65,625
	5 st.	3 st.	3 st.	5 st.	4 st.	5 st.
			96,000			
			2 st.			
R-1/	180,000	126,720	36,400	180,000	180,000	84,000
R-2	5 st.	4 st.	3 st.	5 st.	4 st.	5 st.
			72,800			
			2 st.			
S-1	196,875	83,160	48,000	192,000	196,875	91,875
	4 st.	3 st.	3 st.	4 st.	3 st.	4 st.
			96,000			
			2 st.			

"Double Dipping"

Type IIIB Construction

8/20/2007

Maximum Allowable Total Building Area (sf)

Maximum Allowable Building Height (stories)

Occ.	Current IBC	BOCA NBC	ICBO UBC	SBCCI SBC	Area Increase Only IBC	Height Increase Only IBC
A-2	106,875	21,600	36,400	48,000	71,250	49,875
	3 st.	2 st.	2 st.	3 st.	2 st.	3 st.
			54,600	48,000		
			1 st.	2 st.		
A-3	106,875	83,160	36,400	48,000	71,250	49,875
	3 st.	3 st.	2 st.	3 st.	2 st.	3 st.
			54,600	48,000		
			1 st.	2 st.		
B	213,750	190,080	48,000	210,000	213,750	99,750
	5 st.	4 st.	3 st.	5 st.	4 st.	5 st.
			96,000			
			2 st.			
E	163,125	142,560	54,000	48,000	108,750	76,125
	3 st.	3 st.	2 st.	2 st.	2 st.	3 st.
			81,000	48,000		
			1 st.	1 st.		
F-1	135,000	95,040	48,000	180,000	90,000	63,000
	3 st.	3 st.	3 st.	4 st.	2 st.	3 st.
			96,000			
			2 st.			
I-1	112,500	110,880	NP	180,000	112,500	52,500
	4 st.	4 st.	NP	5 st.	3 st.	4 st.
I-2	NP	NP	NP	NP	NP	NP
	NP	NP	NP	NP	NP	NP
M	140,625	95,040	48,000	135,000	140,625	65,625
	5 st.	3 st.	3 st.	5 st.	4 st.	5 st.
			96,000			
			2 st.			
R-1/	180,000	126,720	36,400	180,000	180,000	84,000
R-2	5 st.	4 st.	3 st.	5 st.	4 st.	5 st.
			72,800			
			2 st.			
S-1	196,875	83,160	48,000	192,000	196,875	91,875
	4 st.	3 st.	3 st.	4 st.	3 st.	4 st.
			96,000			
			2 st.			

"Double Dipping"

Type VB Construction

8/20/2007

Maximum Allowable Total Building Area (sf)

Maximum Allowable Building Height (stories)

Occ.	Current IBC	BOCA NBC	ICBO UBC	SBCCI SBC	Area Increase Only IBC	Height Increase Only IBC
A-2	45,000	10,800	24,000	20,000	28,500	21,000
	2 st.	2 st.	2 st.	2 st.	1 st.	2 st.
			36,000	20,000		
			1 st.	1 st.		
A-3	45,000	37,800	24,000	20,000	28,500	21,000
	2 st.	2 st.	2 st.	3 st.	1 st.	2 st.
			36,000	20,000		
			1 st.	2 st.		
B	101,250	71,280	32,000	54,000	67,500	47,250
	3 st.	3 st.	3 st.	3 st.	2 st.	3 st.
			64,000	54,000		
			2 st.	2 st.		
E	71,250	64,800	36,400	32,000	45,125	33,250
	2 st.	2 st.	2 st.	2 st.	1 st.	2 st.
			54,600	32,000		
			1 st.	1 st.		
F-1	63,750	43,200	32,000	40,000	40,375	29,750
	2 st.	2 st.	3 st.	2 st.	1 st.	2 st.
			64,000	40,000		
			2 st.	1 st.		
			48,000			
			1 st.			
I-1	50,625	41,580	NP	42,000	33,750	23,625
	3 st.	3 st.	NP	3 st.	2 st.	3 st.
				42,000		
				2 st.		
				28,000		
				1 st.		
I-2	NP	NP	NP	NP	NP	NP
	NP	NP	NP	NP	NP	NP
M	67,500	43,200	32,000	36,000	42,750	31,500
	2 st.	2 st.	3 st.	3 st.	1 st.	2 st.
			64,000	36,000		
			2 st.	2 st.		
			48,000	24,000		
			1 st.	1 st.		
R-1/	78,750	47,520	24,000	42,000	52,500	36,750

R-2	3 st.	3 st.	3 st.	3 st.	2 st.	3 st.
			48,000	42,000		
			2 st.	2 st.		
			36,000	28,000		
			1 st.	1 st.		
S-1	67,500	37,800	32,000	24,000	42,750	31,500
	2 st.	2 st.	3 st.	2 st.	1 st.	2 st.
			64,000	24,000		
			2 st.	1 st.		
			48,000			
			1 st.			

Cost Impact: The code change proposal will increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved based upon the committee action on G124-07/08.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Mike Ashley, CBO, Alliance for Fire and Smoke Containment and Control (AFSCC), requests Approval as Submitted.

Commenter's Reason: The Committee reason given for disapproving this code change proposal is that it was disapproved based upon the Committee's action taken on G124-07/08. The Committee reason statement given for disapproving G124-07/08 was that the current approach provided in the code was felt to be appropriate and was specifically based upon existing codes at the time the IBC was originally drafted. Certainly we agree that the current approach to allowable heights and areas was based upon existing codes at the time the IBC was originally drafted. That is a given. However, the issue is how the existing codes were considered and incorporated into the current approach in Chapter 5 for determining allowable heights and areas for buildings based upon their occupancy classification and type of construction. The Committee in general feels the current approach is appropriate even though we have shown in our supporting documentation that the current IBC allows significantly greater total building areas and increased heights over many of the buildings previously regulated by the legacy codes.

In our opinion, the simple and most straight forward fix to this issue in which the IBC allows buildings to be constructed larger than they've ever been allowed by any of the legacy codes is to limit the application of the automatic sprinkler system increase to either an allowable increase in building height or an allowable increase in building area, but not both. We have further focused our code change proposal on limiting the application of the automatic sprinkler system increase to only those buildings that have no built in passive fire-resistive protection for the basic structural elements and separating elements of floors, i.e. buildings of Type IIB, IIIB, and VB construction. Our rationale for this is that we believe a minimum of one-hour fire resistive construction should be provided where these buildings are allowed to take advantage of both an area increase and a height increase for the installation of automatic sprinklers which results in buildings generally larger than those previously allowed by any of the legacy codes. In this way there is a degree of redundancy built into these buildings with passive fire protection which will enhance the overall performance of the automatic sprinkler system which is relied upon for the significant height and area increases. We believe this is a reasonable compromise which recognizes the concept of balanced fire protection and will still allow the use of a sprinkler increase for both height and area in those buildings that have a minimum one-hour fire resistive construction throughout. However, this code change proposal, if approved, will not allow the "double dip" approach to sprinkler increases in both height and area in those buildings that have no built in passive fire resistive protection provided.

In conclusion, we stand on our reason statement for this code change proposal and supporting documentation which provides a comparison of the allowable increases under the 3 legacy codes and the current IBC and how they would be limited by this code change proposal.

Final Action: AS AM AMPC____ D

G137-07/08
506.4.1

Proposed Change as Submitted:

Proponent: John Dean, National Association of State Fire Marshals (NASFM) and Ken Kraus, Los Angeles Fire Department, CA

Revise as follows:

506.4.1 (Supp) Area determination. The total allowable building area of a building with more than one story above grade plane shall be determined by multiplying the allowable area per story (A_a), as determined in Section 506.1, by 2. ~~the number of stories above grade plane as listed below:~~

~~1. For buildings with two stories above grade plane, multiply by 2;~~
~~2. For buildings with three or more stories above grade plane, multiply by 3; and~~
~~3.~~ No story shall exceed the allowable area per story (*Aa*), as determined in Section 506.1, for the occupancies on that story.

Exceptions:

~~1.~~ Unlimited area buildings in accordance with Section 507.
~~2. The maximum area of a building equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.2 shall be determined by multiplying the allowable area per story *(Aa)*, as determined in Section 506.1, by the number of stories above grade plane.~~

Reason: **Dean:** NASFM proposes a reduction of the total allowable building area from three to two times that allowed for a single floor area based on the calculations of Aa (allowable area) per floor as determined in Section 506.1.

Two of the three Legacy Codes did not permit an architect to multiply the allowable floor space by a factor of three and the third only addressed this multiplier in limited situations. The National Association of State Fire Marshals (NASFM) understands the economic benefits to developers of being able to construct much larger buildings with less built-in fire-resistance on a defined parcel of land. But the economic benefits to developers do not justify the increased risk to occupants and emergency responders. Nor do they justify the on-going costs to owners and tenants.

Taken together with other provisions of the International Building Code (IBC), the current allowance means that occupancies – including health care facilities, schools, residences and office buildings – may be built taller and larger, with less built-in fire protection. If firefighters must enter a burning building to rescue patients, students, physically challenged or otherwise immobile persons, they now face the prospect of climbing higher and traveling further into hostile conditions. The longer they remain in a burning building, the greater the risk of structural collapse. In addition, our most vulnerable structures – tall buildings – will present challenges that many American fire departments are not equipped to handle. As these buildings are allowed to expand in area and in height, without a corresponding increase in built in fire resistance, the risks to occupants and emergency first responders grow exponentially. Larger, taller buildings with less built-in passive protection also invite increases in fire load comprising materials that generate higher temperatures much more quickly. Due to the increase in size, coupled with limited fire service resources, tall buildings will be required to sustain themselves for longer periods of time.

Firefighters take responsibility for their own safety. The National Institute of Occupational Safety and Health (NIOSH) has advised fire departments to refrain from sending firefighters into buildings if there are concerns about structural collapse. NASFM concurs with this advice from
NIOSH, and encourages fire departments to understand the implications of the fire protection requirements in the IBCi. Fire chiefs often bear responsibility for plan review, inspections and fire fighter safety. As a result of the NIOSH advisory, they have little choice but to use what they know about a building to prepare for suppression activities.

It makes little sense to await the loss of life and property before we consider returning to proven safety practices. In fact, “waiting and seeing” begs the question, “How many lives must be lost to justify a return to what we know to be safe?” Our intuitive presumption would be that making
buildings larger, both in height and area, with less built-in passive fire resistive protection and the use greater use of combustible materials can only result in greater property loss and the potential for greater loss of life. We all agree that one life lost is one too many. So let us prevent the loss of that one life.

The more responsible policy is to return to the well-tested requirements of the Legacy Codes, so that emergency responders and the persons they are sworn to protect may be confident in the safety of buildings.

Kraus: The intention of this code change proposal is to reduce the total building area for buildings with 3 or more stories above grade.

There are many ways to adjust the height and area allowances of the IBC. I have chosen this particular section and mechanism because it was not a primary mechanism of any of the legacy groups to calculate total building area for buildings 3 stories and taller. Eliminating the 3X multiplier significantly reduces the area of these buildings, bringing the IBC closer to alignment with areas allowed previously (although, generally they will still be larger).

The following text is substantially similar to the supporting information for proposed changes to 504.2 and 506.4.

There exist 3 primary reasons that mandate modification to the height and area provisions of the *International Building Code*, specifically:

1 – The lack of fire history for buildings constructed to the current IBC height and area requirements.

During previous code hearings and at various committee meetings this sentiment was offered to console individuals that, after calculating height and area values under the IBC, found the IBC allowed buildings to be constructed taller and much larger (by a factor of 2 to 3) than any legacy code or BCMC recommendations. This reality came to the forefront after the Orlando code development hearing and caused, presumably and in part, the CTC BFP Work Group to rethink height and area. Once the Work Group identified some 50 "anomalies", concern grew when the science used to formalize Table 503 values could not be harnessed to the point that rendered confidence.

Add to this, the fact that each legacy group had somewhat different height and area enhancements, (increased allowances or multipliers for location on property, type of construction, multiple stories etc). While these factors seemed to stand the test of time regionally, the additive combining of these elements and their influence on the suspect tabular values brings into question the efficacy of IBC Chapter 5 which allows buildings to be constructed both taller and larger that any legacy code.

These comments should not be considered a criticism of the effort of the drafting committee whose task was formidable and time constraints demanding.

2 - The value afforded to fire sprinkler systems.

While Fire sprinklers are well established as the single most important fire protection element in the fire and life safety toolbox they are not a panacea. The dynamic nature of fire incidents and the potential for life loss preclude the acceptance or over reliance on a single protective. Various and diverse tools must be employed to ensure that structures react in a predictable manner even when certain elements don't perform as designed. There are times when sprinklers don't perform satisfactorily. Some examples are:

Interruption of water supply due to natural disaster, intentional acts, unintentional careless acts (maintenance/construction). Ineffective activation due to change in commodity or construction feature, improper storage, faulty sprinkler heads.

Each Legacy group had numerous tradeoffs for sprinklers but also made deliberate decisions to not institute other tradeoffs. By melding together each regions protection package, the IBC effectively voids the intentional non-inclusion of tradeoffs by the legacy groups.

3 - A prevailing rationale used in selecting the tabular values in 503, i.e., not to create non-compliant buildings upon adoption of the IBC.

This problem is faced each time a local or state jurisdiction adopts a new code or updates existing requirements. Buildings built to previous editions are automatically out of compliance with the new code. This perception is tempered by the fact that these buildings are still regulated by the code in effect when they were built, (except for retroactive requirements).

While not creating non-compliant buildings is a justifiable consideration, it is not a primary intent of the IBC. The intent of the IBC is to safeguard the public health, safety and general welfare through various means and to provide safety to life property and emergency responders. Over reliance on the non-complaint building concern may have, in some cases, caused these primary tenets to be relegated to secondary in importance.

Regarding related / concurrent proposals. I respect and support both the Balanced Fire Protection Work Group and their efforts. Time constraints have prevented me from fully assimilating their IBC Chapter 5 proposal.

I urge the Committee to consider this proposal as a reasonable method of bringing the IBC area allowances more in line with those found in the basis documents. The disparity between the 3 story IBC areas and the legacy codes is too great to accept without additional mitigating protectives.

Cost Impact: Dean: The code change proposal will not increase the cost of construction.
Kraus: This code change will increase the cost of construction.

Committee Action: Disapproved

Committee Reason: The committee disapproved this approach which would limit the total building area by limiting the multiplier to 2. It was felt to be too limiting and does not match with any of the legacy approaches. Departing from the legacy approaches in this regard was felt to be inappropriate.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Ken Kraus, Los Angeles Fire Department, requests Approval as Submitted.

Commenter's Reason: The intention of G 137 is to adjust the Height and Area provisions of the IBC by reducing the total building area for buildings with 3 or more stories above grade. Eliminating the 3X multiplier significantly reduces the area of theses buildings, bringing the current IBC closer to values previously allowed.

There are many ways to adjust Height and Area allowances and life safety protectives in the IBC. I have chosen this particular section and mechanism because previous similar proposals, (e.g. Detroit FAH) seemed to resonate with the governmental members.

This comment is being submitted for three reasons. This Comment is substantially similar to the Comment submitted for G 124.

Comment Reason A – Reduced Safety Without Appropriate Justification

The increased Height and Area allowances of the current IBC decrease the ability of the building to safeguard occupants and firefighters. Greater allowable areas equate to increased egress time for occupants. Taller buildings with larger areas also increase; emergency responder access and evacuation times, the number of fire apparatus needed, and duration of incidents.

This argument was rejected by the Committee because of the lack of technical justification and reliance on empirical data. Conversely, the Committee was not affected by the lack of technical justification admittedly employed when the IBC was originally compiled.

Committee members' statements implied that the Height and Area numbers were not justified when they were created, and questioned the lack of technical substantiation for the tabular values.

Comment Reason B – Committee Failed to Refute Reason Statement

While the Committee did address some elements of reason #1 in my original submittal, they failed to adequately respond to reasons #2 and

#3. All three are resubmitted herein as identified by [brackets]
There exist 3 primary reasons that mandate modification to the height and area provisions of the International Building Code.

[1 – The lack of fire history for buildings constructed to the current IBC height and area requirements.
During previous code hearings and at various committee meetings this sentiment was offered to console individuals that, after calculating height and area values under the IBC, found the IBC allowed buildings to be constructed taller and much larger (by a factor of 2 to 3) than any legacy code, or BCMC recommendations. This reality came to the forefront after the Orlando code development hearing and caused, presumably and in part, the CTC BFP Work Group to rethink height and area**. Once some 48 "anomalies" were identified by the BFP work group, concern grew when the science used to formalize Table 503 values could not be harnessed to the point that rendered confidence in the Table.** Add to this, the fact that the legacy groups had somewhat different height and area enhancements, (increased allowances or multipliers for location on property, type of construction, multiple stories etc). **While these factors seemed to stand the test of time regionally, the combination of these elements and their influence on the suspect tabular values brings into question the efficacy of IBC Chapter 5 which allows buildings to be constructed both taller and larger that any legacy code.**

These comments should not be considered a criticism of the effort of the drafting committee whose task was formidable and time constraints demanding.]

[2 - The value afforded to fire sprinkler systems many of which effect height and area calculations.
While Fire sprinklers are well established as the single most important fire protection element in the fire and life safety toolbox they are not a panacea. The dynamic nature of fire incidents and the potential for life loss preclude the acceptance or over reliance on a single protective. Various and diverse tools must be employed to ensure that structures react in a predictable manner even when certain elements don't perform as designed. There are times when sprinklers don't perform satisfactorily. Some examples are:
Interruption of water supply due to natural disaster, intentional acts, unintentional careless acts (maintenance/construction).
Ineffective activation due to change in commodity or construction feature, improper storage, faulty sprinkler heads.

Each Legacy group had numerous tradeoffs for sprinklers but also made deliberate decisions to not institute other tradeoffs. By melding together each regions protection package, the IBC effectively voids the intentional non-adoption of tradeoffs by the legacy groups.]

[3 - A prevailing rationale used in selecting the tabular values in 503, i.e., not to create non-compliant buildings upon adoption of the IBC.
This problem is faced each time a local or state jurisdiction adopts a new code or updates existing requirements. Buildings built to previous editions are automatically out of compliance with the new code. This perception is tempered by the fact that these buildings are still regulated by the code in effect when they were built, (except for retroactive requirements).
While not creating non-compliant buildings should be a consideration, it is not a primary concern of the IBC. The intent of the IBC is to safeguard the public health, safety and general welfare through various means and to provide safety to life, property and emergency responders. Over reliance on the non-complaint building concern may have, in some cases caused these primary tenants to take a back seat.]

Comment Reason C- Inadequacy of Committee Reason Statement
The Committee reason for DISAPPROVAL as stated in the Report of Public Hearing is:
"The current approach provided in the code is felt to be appropriate and was specifically based upon existing codes at the time the IBC was originally drafted."

This statement is misleading and fails to capture the essence of the debate in Palm Springs.
The Committee seemed to imply, in part, that the approach used was not appropriate since there was little technical justification (an apparent yardstick to determine if arguments are valid) provided to substantiate the drafting of the IBC.
Also, I contend that the IBC was very loosely based on the Legacy Codes. If it were in fact specifically based on the existing codes, the tabular anomalies would not exist; building height and area would resemble those constructed to the existing codes, the performance of buildings under fire conditions and the sustainability of buildings could be assessed through study of existing building stock.
I urge the voting members to consider this comment and the value of G 137 as a reasonable method of bringing the IBC area allowances more in line with those found in the basis documents. The disparity between the areas allowed by the IBC and those permitted by any of the previous codes is too great to accept without commensurate mitigation.

Public Comment 2:

John Dean, National Association of State Fire Marshals (NASFM), requests Approval as Modified by this public comment.

Modify proposal as follows:

506.4.1 (Supp) Area determination. The ~~total~~ maximum ~~allowable building~~ area of a building with more than one story above grade plane shall be determined by multiplying the allowable area ~~per~~ of the first story (A_a), as determined in Section 506.1, by 2. No story shall exceed the allowable area per story (A_a), as determined in Section 506.1, for the occupancies on that story.

Exceptions: Unlimited area buildings in accordance with Section 507.

506.4.1.1 (Supp) Mixed occupancies. In buildings with mixed occupancies, the allowable area per story (Aa) shall be based on the most restrictive provisions for each occupancy when the mixed occupancies are treated according to Section 508.3.2. When the occupancies are treated according to Section 508.3.3 as separated occupancies, the maximum total building area shall be such that the sum of the ratios for each such area on all floors as calculated according to Section 508.3.3.2 shall not exceed 2 ~~for two-story buildings and 3 for buildings three stories or higher~~.

Commenter's Reason: In reviewing this comment we ask that you keep in mind that when the IBC was created, there was a policy decision made that when merging the three legacy codes into one any conflict would default to the lesser requirement. This reportedly was done to avoid adoption problems for jurisdictions when moving to the IBC from a legacy code, i.e., if the new code was more restrictive there could be opposition to adoption. The concept of balance is constantly bandied about when examining specific code provisions in that when looking at the code as a whole, one requirement balances out the other. This concept is spoken of specifically when dealing with automatic sprinkler system trade offs. If we accept the fact that the three separate legacy codes were balanced, i.e., they had some requirements less

restrictive than the same topic in another legacy code but they had other topics that were more restrictive, what happened when we merged the three codes? We went through and took the lowest requirement from each code without taking the more restrictive. What happened to the balancing effect that each legacy code had developed over the years? It does not exist in the IBC.

Another way to look at this issue is that in many jurisdictions the building code is the minimum standard to apply, in some it is the minimum and the maximum standard, (mini-max code). In any jurisdiction that previously applied one of the legacy codes, at the time they had a legacy code effective, the current IBC provisions would be less than that applicable code permitted. In other words, application of many of the provisions in the IBC would be illegal. It is for that reason we seek to reduce the size of some of the buildings permitted to be built under the IBC to start to bring balance back to the code.

NASFM proposes a reduction of the total allowable building area from three to two times that allowed for a single floor area based on the calculations of Aa (allowable area) per floor as determined in Section 506.1.

Two of the three Legacy Codes did not permit an architect to multiply the allowable floor space by a factor of three and the third only addressed this multiplier in limited situations. The National Association of State Fire Marshals (NASFM) understands the economic benefits to developers of being able to construct much larger buildings with less built-in fire-resistance on a defined parcel of land. But the economic benefits to developers do not justify the increased risk to occupants and emergency responders. Nor do they justify the on-going costs to owners and tenants.

Taken together with other provisions of the International Building Code (IBC), the current allowance means that occupancies – including health care facilities, schools, residences and office buildings – may be built taller and larger, with less built-in fire protection. If firefighters must enter a burning building to rescue patients, students, physically challenged or otherwise immobile persons, they now face the prospect of climbing higher and traveling further into hostile conditions. The longer they remain in a burning building, the greater the risk of structural collapse. In addition, our most vulnerable structures – tall buildings – will present challenges that many American fire departments are not equipped to handle. As these buildings are allowed to expand in area and in height, without a corresponding increase in built-in fire resistance, the risks to occupants and emergency first responders grow exponentially. Larger, taller buildings with less built-in passive protection also invite increases in fire load comprising materials that generate higher temperatures much more quickly. Due to the increase in size, coupled with limited fire service resources, tall buildings will be required to sustain themselves for longer periods of time.

Firefighters take responsibility for their own safety. The National Institute of Occupational Safety and Health (NIOSH) has advised fire departments to refrain from sending firefighters into buildings if there are concerns about structural collapse. NASFM concurs with this advice from NIOSH, and encourages fire departments to understand the implications of the fire protection requirements in the IBC[1]. Fire chiefs often bear responsibility for plan review, inspections and fire fighter safety. As a result of the NIOSH advisory, they have little choice but to use what they know about a building to prepare for suppression activities.

It makes little sense to await the loss of life and property before we consider returning to proven safety practices. In fact, "waiting and seeing" begs the question, "How many lives must be lost to justify a return to what we know to be safe?" Our intuitive presumption would be that making buildings larger, both in height and area, with less built-in passive fire resistive protection and the use greater use of combustible materials can only result in greater property loss and the potential for greater loss of life. We all agree that one life lost is one too many. So let us prevent the loss of that one life.

The more responsible policy is to return to the well-tested requirements of the Legacy Codes, so that emergency responders and the persons they are sworn to protect may be confident in the safety of buildings.

This proposed code change was disapproved by the General Committee on the basis that the language in the proposal "does not match with any of the legacy approaches". After lengthy testimony provided at the Code Development Hearings, during which there were numerous attempts to revise values in Table 503 back to the legacy codes, the committee stated several times during discussion of other proposed code changes, that justification to revise height and area limitations for buildings based upon the legacy codes is not sufficient, and that the focus should be on the IBC at this time, and not on the legacy codes. In viewing the committee's position on the various proposals, the committee conflicts with itself in the responses provided to proponents. It would appear that the committee's only consistent position is one of status quo, i.e., that buildings are permitted to be bigger under the current IBC- end of story. Even the largest state with the most organized fire protection in the country and the city with the largest fire department do not accept the values in the Table 503 as providing an adequate level of fire protection. In the absence of action to revise these values, this proposed change is a less complex way of dealing with unjustifiable height and area increases.

This proposal is specifically intended to address a multiplier currently in the IBC that allows much larger buildings than the legacy codes permitted without justification. It is focused on the IBC which was an expressed desire of the committee for other changes which is why this proposed change should be approved as submitted by the membership.

[1] NIOSH Alert: Preventing Injuries and Deaths of Fire Fighters due to Structural Collapse. (1999, August). Center for Disease Control & National Institute for Occupational Safety and Health. *NIOSH Alert*, *99: 146*. Retrieved from: http://www.cdc.gov/niosh/99-146.html

Final Action: AS AM AMPC____ D

G139-07/08
506.4.1

Proposed Change as Submitted:

Proponent: Rick Thornberry, PE, The Code Consortium, Inc., representing the Alliance for Fire and Smoke Containment and Control (AFSCC)

Revise as follows:

506.4.1 (Supp) Area determination. The total allowable building area of a building with more than one story above grade plane shall be determined by multiplying the allowable area per story (*Aa*), as determined in Section 506.1, by the number of stories above grade plane as listed below:

1. For buildings with two stories above grade plane, multiply by 2;
2. For buildings <u>of other than Types IIB, IIIB, and VB construction</u> with three or more stories above grade plane, multiply by 3; and
3. No story shall exceed the allowable area per story (*Aa*), as determined in Section 506.1, for the occupancies on that story.

Exceptions:

1. Unlimited area buildings in accordance with Section 507.
2. The maximum area of a building <u>of other than Type IIB, IIIB, or VB construction</u> equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.2 shall be determined by multiplying the allowable area per story *(Aa),* as determined in Section 506.1, by the number of stories above grade plane.

Reason: The purpose of this code change is to reduce the total allowable building area from three times to two times that allowed for a single floor area based on the calculations of A_a (allowable area) per floor. The overall volume of the building determined by the allowable area per floor and the allowable number of stories and height of the building is significantly greater in the majority of cases than was allowed by any of the legacy model codes. By limiting the total building area to twice that allowed for a single floor, the volume of the building will be significantly reduced, but will be more in line with the legacy codes in most cases.

The proposed approach of limiting the total allowable building area to twice that allowed for a single floor area is the same as that used in the ICBO UBC, and is similar to the approach that was used in the BOCA NBC.

However, this proposed code change limits the 2x multiplier for multistory buildings to those buildings of the non-fire-resistance rated types of construction which include Types IIB, IIIB, and VB construction. This represents a compromise between previous code change submittals that were made by the Building Officials Association of Florida (BOAF) Code Development Committee (G123-06/07), the California Fire Chiefs Association/Tri-chapters Code Committee (G121-06/07) and the National Association of State Fire Marshals (NASFM) (G122-06/07). These code change proposals were not actually discussed during the ICC Code Development Committee Hearings held in Lake Buena Vista, FL for the beginning of the last cycle due to the fact that they were incorporated into an effort to study these issues and come out with a consensus on how to deal with the concerns expressed about the excessive allowable heights and areas in the current International Building Code (IBC). What we are attempting to do with this code change proposal is to provide a vehicle for reaching consensus on this issue by compromising with the limitation of the 3x multiplier not being applicable to multistory buildings of the non-fire-resistance rated types of construction. Obviously, those types of construction are the greatest concern since they have no built in passive fire-resistive protection to protect the structure from early collapse during an uncontrolled fire condition.

We have also put together some tables comparing the allowable heights and areas of the current IBC to the IBC as it would be modified if this code change proposal were approved, as well as to the three legacy model codes to the show the maximum allowable areas permitted by those codes. This should help the Committee to understand the overall impact of this code change on the existing building stock throughout the country.

Multi-Story Multiplier

3x vs. 2x

Type IIB Construction

Maximum Allowable Total Building Area (sf)

Maximum Allowable Building Height (stories)

Occ.	3 x Current IBC	BOCA NBC	ICBO UBC	SBCCI SBC	2 x Revised IBC
A-2	106,875	21,600	36,400	48,000	71,250
	3 st.	2 st.	2 st.	3 st.	3 st.
			54,600	48,000	
			1 st.	2 st.	
A-3	106,875	83,160	36,400	48,000	71,250
	3 st.	3 st.	2 st.	3 st.	3 st.
			54,600	48,000	
			1 st.	2 st.	
B	258,750	190,800	48,000	255,000	172,500
	4 st.	4 st.	3 st.	5 st.	4 st.
			96,000		
			2 st.		
E	163,125	142,560	54,000	48,000	108,750
	3 st.	3 st.	2 st.	2 st.	3 st.
			81,000	48,000	
			1 st.	1 st.	
F-1	174,375	95,040	48,000	252,000	116,250
	3 st.	3 st.	3 st.	4 st.	3 st.
			96,000		
			2 st.		
I-1	112,500	110,880	NP	180,000	75,000
	4 st.	4 st.	NP	5 st.	4 st.
I-2	52,250	32,400	NP	40,000	52,250
	1 st.	1 st.	NP	1 st.	1 st.
M	140,625	95,040	48,000	135,000	93,750
	3 st.	3 st.	3 st.	5 st.	3 st.
			96,000		
			2 st.		
R-1/	180,000	126,720	36,400	180,000	120,000
R-2	4 st.	4 st.	3 st.	5 st.	4 st.
			72,800		
			2 st.		
S-1	196,875	83,160	48,000	192,000	131,250
	3 st.	3 st.	3 st.	4 st.	3 st.
			96,000		
			2 st.		

Multi-Story Multiplier

3x vs. 2x

Type IIIB Construction

Maximum Allowable Total Building Area (sf)

Maximum Allowable Building Height (stories)

Occ.	3 x Current IBC	BOCA NBC	ICBO UBC	SBCCI SBC	2 x Revised IBC
A-2	106,875	21,600	36,400	48,000	71,250
	3 st.	2 st.	2 st.	3 st.	3 st.
			54,600	48,000	
			1 st.	2 st.	
A-3	106,875	83,160	36,400	48,000	71,250
	3 st.	3 st.	2 st.	3 st.	3 st.
			54,600	48,000	
			1 st.	2 st.	
B	213,750	190,080	48,000	210,000	142,500
	4 st.	4 st.	3 st.	5 st.	4 st.
			96,000		
			2 st.		
E	163,125	142,560	54,000	48,000	108,750
	3 st.	3 st.	2 st.	2 st.	3 st.
			81,000	48,000	
			1 st.	1 st.	
F-1	135,000	95,040	48,000	180,000	90,000
	3 st.	3 st.	3 st.	4 st.	3 st.
			96,000		
			2 st.		
I-1	112,500	110,880	NP	180,000	75,000
	4 st.	4 st.	NP	5 st.	4 st.
I-2	NP	NP	NP	NP	NP
	NP	NP	NP	NP	NP
M	140,625	95,040	48,000	135,000	93,750
	3 st.	3 st.	3 st.	5 st.	3 st.
			96,000		
			2 st.		
R-1/	180,000	126,720	36,400	180,000	120,000
R-2	4 st.	4 st.	3 st.	5 st.	4 st.
			72,800		
			2 st.		
S-1	196,875	83,160	48,000	192,000	131,250
	3 st.	3 st.	3 st.	4 st.	3 st.
			96,000		
			2 st.		

Multi-Story Multiplier

3x vs. 2x

Type VB Construction

Maximum Allowable Total Building Area (sf)

Maximum Allowable Building Height (stories)

Occ.	3 x Current IBC	BOCA NBC	ICBO UBC	SBCCI SBC	2 x Revised IBC
A-2	45,000	10,800	24,000	20,000	45,000
	2 st.	2 st.	2 st.	2 st.	2 st.
			36,000	20,000	
			1 st.	1 st.	
A-3	45,000	37,800	24,000	20,000	45,000
	2 st.	2 st.	2 st.	3 st.	2 st.
			36,000	20,000	
			1 st.	2 st.	
B	101,250	71,280	32,000	54,000	67,500
	3 st.	3 st.	3 st.	3 st.	3 st.
			64,000	54,000	
			2 st.	2 st.	
E	71,250	64,800	36,400	32,000	71,250
	2 st.	2 st.	2 st.	2 st.	2 st.
			54,600	32,000	
			1 st.	1 st.	
F-1	63,750	43,200	32,000	40,000	63,750
	2 st.	2 st.	3 st.	2 st.	2 st.
			64,000	40,000	
			2 st.	1 st.	
			48,000		
			1 st.		
I-1	50,625	41,580	NP	42,000	33,750
	3 st.	3 st.	NP	3 st.	3 st.
				42,000	
				2 st.	
				28,000	
				1 st.	
I-2	NP	NP	NP	NP	NP
	NP	NP	NP	NP	NP
M	67,500	43,200	32,000	36,000	67,500
	2 st.	2 st.	3 st.	3 st.	2 st.
			64,000	36,000	
			2 st.	2 st.	
			48,000	24,000	
			1 st.	1 st.	
R-1/	78,750	47,520	24,000	42,000	52,500

R-2	3 st.	3 st.	3 st.	3 st.	3 st.
			48,000	42,000	
			2 st.	2 st.	
			36,000	28,000	
			1 st.	1 st.	
S-1	67,500	37,800	32,000	24,000	67,500
	2 st.	2 st.	3 st.	2 st.	2 st.
			64,000	24,000	
			2 st.	1 st.	
			48,000		
			1 st.		

Cost Impact: The code change proposal will increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: No direction is provided for unrated construction which may lead to confusion in applying this exception and associated section related to the determination of total building area.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Mike Ashley, CBO, Alliance for Fire and Smoke Containment and Control (AFSCC), requests Approval as Modified by this public comment.

Modify proposal as follows:

506.4.1(Supp) Area determination. The total allowable area of a building with more than one story above grade plane shall be determined by multiplying the allowable area of the first floor (A_a), as determined in Section 506.1, by the number of stories above grade plane as listed below:

1. For buildings with two stories above grade plane, multiply by 2;
2. For buildings of Types IIB, IIIB or VB construction with three or more stories above grade plane, multiply by 2;
~~2.~~3. For buildings of other than Types IIB, IIIB, and VB construction with three or more stories above grade plane, multiply by 3; and,
~~3.~~4. No story shall exceed the allowable area per floor (A_a), as determined in Section 506.1, for the occupancies on that story.

Exception~~s~~:

1. Unlimited area buildings in accordance with Section 507.
2. The maximum area of a building of other than Type IIB, IIIB, or VB construction equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.2 shall be determined by multiplying the allowable area per floor (A_a), as determined in Section 506.1, by the number of stories above grade plane.

Commenter's Reason: This Public Comment corrects the problem pointed out by the Committee in their recommendation for disapproval. We have revised Section 506.4.1(Supp) Area Determination to include the case for buildings of non-rated types of construction, i.e. Types IIB, IIIB, and VB, for calculating the total allowable building area for buildings 3 or more stories above grade plane. For that case these non-rated types of construction are limited to a multiple of 2 for the total allowable building area. That was the intent of the original code change proposal which only allowed the 3 times multiplier for determining total building area for buildings that had a minimum 1-hour fire-resistive construction, i.e. Types I, IIA, IIIA, IV, and V construction (those others than Types IIB, IIIB, and VB construction).

Furthermore, we believe that the Reason statement in our code change proposal and the supporting documentation comparing total allowable areas by the 3 legacy building codes to the current IBC and the revised IBC justify this limitation on the non-rated types of construction.

Our documentation clearly shows that the current IBC will allow greater building areas in many cases for buildings that were not allowed to have such large areas by any of the previous legacy codes. By applying the reduced multi-story multiplier from 3 times to 2 times that of the non-rated types of construction, this brings the total allowable building areas more into line with what was previously allowed for the 3 legacy building codes for these types of construction. We have focused in on the non-rated types of construction since we believe they are the most vulnerable to fire and thus have an increased risk to both fire and life safety for the building occupants, property protection and the responding fire department since there is no structural integrity provided against fire exposure or compartmentation from floor to floor as a result of not having a minimum one-hour fire resistive construction provided by any of the rated types of construction. This means the fire

department could face a very large fire involving several floors with the potential for early structural collapse. This could jeopardize their efforts to rescue trapped occupants as well as to preserve property and protect against the total destruction of the building. We believe the responsible thing to do is to put a more reasonable limit on the total allowable building area for multiple story buildings of non-rated types of construction in the IBC to bring them more into line with what was previously allowed by the legacy codes.

Final Action: AS AM AMPC____ D

G145-07/08
507.3

Proposed Change as Submitted:

Proponent: Jason Thompson, PE, National Concrete Masonry Association NCMA, representing the Masonry Alliance for Codes and Standards (MACS)

Revise as follows:

507.3 (Supp) Sprinklered, one story. The area of a Group B, F, M or S building no more than one-story above grade plane, or a Group A-4 building no more than one-story above grade plane, of other than Type V construction, shall not be limited when the building is provided with an automatic sprinkler system throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

Exceptions:

1. Buildings and structures of Type I and II construction for rack storage facilities that do not have access by the public shall not be limited in height, provided that such buildings conform to the requirements of Sections 507.2 and 903.3.1.1 and NFPA 230.
2. The automatic sprinkler system shall not be required in areas occupied for indoor participant sports, such as tennis, skating, swimming and equestrian activities in occupancies in Group A-4, provided that:
   2.1. Exit doors directly to the outside are provided for occupants of the participant sports areas; and
   2.2. The building is equipped with a fire alarm system with manual fire alarm boxes installed in accordance with Section 907.
3. Group A-1 and A-2 occupancies in buildings of other than Type V construction shall be permitted, provided:
   3.1. ~~All assembly occupancies are separated from other spaces as required for separated occupancies in Section 508.3.3.4 with no reduction allowed in the fire-resistance rating of the separation based upon the installation of an automatic sprinkler system;~~
   Each Group A-1 and A-2 occupancy shall be separated from each other and from all other spaces in the building by fire barriers having a fire-resistance rating of not less than 2-hours constructed in accordance with Section 706;
   3.2. The area of each Group A-1 and A-2 occupancy shall not exceed the maximum allowable area permitted in Section 503.1; ~~and~~
   3.3 The aggregate area of the Group A-1 and A-2 occupancies shall not exceed 50 percent of the area of the building; and

~~3.3~~ 3.4 All required exits shall discharge directly to the exterior.

Reason: This code change proposal is a follow up to our Code Change Proposal G128-06/07 which was disapproved as further revised by our Public Comment during the ICC Final Action Hearings held last May in Rochester, NY. That Code Change Proposal was one of a series of several code change proposals attempting to address the issue of how to allow certain types of Group A occupancies in one-story unlimited area buildings which began with Code Change G124-04/05. This Code Change Proposal has been revised to address the issues raised during the Rochester hearings.

A maximum area limit needs to be specified for the Group A occupancies being allowed by this Exception. Without putting such limits on the total area allowances for the Group A assembly occupancies, it is conceivable that the entire unlimited area building could be occupied by these Group A-1 and A-2 assembly occupancies. In our opinion, if it is desirable to have very large, in essence, unlimited area buildings containing Group A-1 and A-2 occupancies, then the building should be constructed as Type IB construction which permits unlimited areas for these occupancy groups.

We have proposed a maximum aggregate area for all the Group A-1/A-2 assembly occupancies permitted by this exception of 50% of the total area of the building. With the 50% limit, the building would still be classified as the primary occupancy specified in the charging paragraph of the section (i.e. Group B, F, M or S occupancy). Then with the Group A occupancies would, in essence, be considered

accessory occupancies. If this issue was not dealing with an unlimited area building, then it would not be necessary to specify a maximum percent of aggregate area for the Group A assembly occupancies since the nonseparated occupancies option would determine how the allowable building height and area were to be calculated based on the percentage areas of each of the occupancies in the building compared to the maximum allowable area for each of those occupancies. But with an unlimited area building, the ratio of the actual area of the occupancy to the allowable area of the occupancy cannot be determined since, in essence, one would divide by infinity which represents the unlimited area allowed. However, under the separated occupancies option for mixed occupancy buildings, each occupancy is appropriately separated by fire barriers and the calculations are made as noted.

But in the nonseparated occupancies option the code specifies that the allowable height and area shall be determined based on that of the most restrictive occupancy in the building. But that doesn't work for an unlimited area building under the special provisions of this section. Under the case where the Group A occupancies would be treated as an accessory occupancy, the code would limit the aggregate area of the accessory occupancies to a maximum of 10% of the area of the story in which they are located and would further limit them to the tabular values in Table 503 without area increases in accordance with Section 506 for such accessory occupancies. What we have under this Exception 3 is a unique condition in which the Group A-1 and A-2 occupancies are allowed as part of the unlimited area building but they are not being treated as accessory occupancies and they are not being treated as the major occupancy for the building. Thus, there is a need to provide a clear limitation on the aggregate area to represent a compromise between the two extremes. We believe the 50% limit makes sense and is appropriate.

This code change also makes it clear that even the individual Group A-1 and A-2 occupancies located in the building would also need to be separated from each other if they were adjacent to one another. This would have been a requirement had not Table 508.3.3 Required Separation of Occupancies been significantly revised during the ICC Final Action Hearings in Detroit, MI based on Code Change Proposal G32-04/05. That table was previously designated as Table 302.3.2 Required Separation of Occupancies in the 2003 International Building Code (IBC) upon which the original Code Change Proposal G124-04/05 that introduced this Exception 3 was based. It would have required a minimum 2-hour fire-resistance rating between a Group A-1 and Group A-2 occupancy. Furthermore, Table 706.3.9 (previously Table 706.3.7) Fire-Resistance Rating Requirements for Fire Barrier Assemblies between Fire Areas requires Group A occupancies subdivided into fire areas of the same occupancy classification to also be separated by 2-hour fire-resistance rated construction. So that is why we put in the requirement in 3.1 that each Group A occupancy be separated from adjacent Group A occupancies by fire barriers having a minimum fire-resistance rating of 2-hours.

Cost Impact: This code change will increase the cost of construction.

Committee Action: Disapproved

Committee Reason: The code change was disapproved based upon the action on G143-07/08 and the concern with 50% limitation proposed in Exception Section 3.3. More specifically, Section 508 deals with necessary separation requirements for occupancies.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Jason Thompson, PE, National Concrete Masonry Association, representing the Masonry Alliance for Codes and Standards (MACS), requests Approval as Modified by this public comment.

Replace proposal as follows:

507.3 Sprinklered, one story. The area of a Group B, F, M or S building no more than one-story above grade plane, or a Group A-4 building no more than one-story above grade plane, of other than Type V construction, shall not be limited when the building is provided with an automatic sprinkler system throughout in accordance with Section 903.3.1.1 and is surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

Exceptions:

1. Buildings and structures of Type I and II construction for rack storage facilities that do not have access by the public shall not be limited in height, provided that such buildings conform to the requirements of Sections 507.2 and 903.3.1.1 and NFPA 230.
2. The automatic sprinkler system shall not be required in areas occupied for indoor participant sports, such as tennis, skating, swimming and equestrian activities in occupancies in Group A-4, provided that:
   2.1. Exit doors directly to the outside are provided for occupants of the participant sports areas; and
   2.2. The building is equipped with a fire alarm system with manual fire alarm boxes installed in accordance with Section 907.

~~3.~~ **507.3.1 Mixed occupancy buildings with Group A-1 and A-2.** Group A-1 and A-2 occupancies in buildings of other than Type V construction shall be permitted within mixed occupancy buildings of unlimited area complying with Section 507.3, provided:

~~3.1. All assembly occupancies are separated from other spaces as required for separated occupancies in Section 508.3.3.4 with no reduction allowed in the fire-resistance rating of the separation based upon the installation of an automatic sprinkler system;~~

1. Each Group A-1 and A-2 occupancy shall be separated from each other and from all other occupancies by fire barriers having a fire-resistance rating of not less than 2-hours;

~~3.2~~2. The area of each Group A-1 and A-2 occupancy shall not exceed the maximum allowable area permitted in Section 503.1; ~~and~~

3 The aggregate area of all Group A-1 and A-2 occupancies shall not exceed 50 percent of the area of the building; and

~~3.3~~ 4. All ~~required exits~~ exit doors from Group A-1 and A-2 occupancies shall discharge directly to the exterior of the building.

Commenter's Reason: The purpose of this Public Comment is two-fold. First, we have revised the format of our code change proposal to be consistent with that in Code Change Proposal G144-07/08 which was approved as modified by the Committee. We agree with the Committee that the modification of the formatting of what was previously designated as Exception 3 is better served as a subsection of Section 507.3 to address the mixed occupancy unlimited area buildings containing Group A-1 and A-2 occupancies.

Second, we have made some minor revisions to our original code change proposal to clarify how the Group A-1 and A-2 occupancies are to be separated from the rest of the building, as well as how to address the determination of the aggregate area allowed for the Group A-1 and A-2 occupancies in these unlimited area buildings. We have also incorporated some of the other changes made in G144 since they were approved by the Committee.

So the significant differences between this Public Comment for which we are seeking approval as modified and Code Change G144-07/08 which was approved as modified, are as follows.

1. Item 1 of the new Subsection 507.3.1 specifies that the occupancy separations in all cases involving the Group A-1 and A-2 occupancies must have a fire-resistance rating of not less than 2-hours. This differs from that specified in G144 which would, in essence, allow adjacent Group A-1 and A-2 occupancies in these unlimited area buildings without a fire-resistance rated occupancy separation between them based on Table 508.3.3 which indicates "N" for the required separation of occupancies between Group A occupancies. The "N" means that there is no separation requirement. Furthermore, Table 508.3.3 would allow a 1-hour occupancy separation between the Group A occupancies and F-2 and S-2 occupancies. Otherwise, Table 508.3.3 would require a minimum 2-hour fire-resistance rated occupancy separation between Group A occupancies and Group B, F-1, M, and S-1 occupancies based on the provision that no reduction is allowed in the fire-resistance rating of the separation where an automatic sprinkler system is installed as stated in the current requirement of Exception 3.1 of Section 507.3 of the Supplement. The reason we've specified a minimum 2-hour fire-resistance rating for any occupancy separation for the Group A-1 and A-2 occupancies allowed to be placed in these unlimited area buildings is based on the original code change proposal that allowed Group A-1 and A-2 occupancies in these buildings. It was based on the previous Table 302.3.2 of the 2003 International Building Code which was subsequently replaced by Table 508.3.3 in the current code. In that table without a decrease allowed in the occupancy separation required fire-resistance ratings for automatic sprinklers, the minimum separation required was 2-hours wherever Group A-1 or A-2 occupancies were adjacent to the types of occupancies allowed in these unlimited area buildings.
2. The other significant technical difference between this Public Comment and Code Change Proposal G144-07/08 is Item 3 of the new Subsection 507.3.1 which specifies that the aggregate area of all Group A-1 and A-2 occupancies allowed in the unlimited area building must not exceed 50% of the area of the building. We explained this in our Reason statement for the original code change proposal. Basically, by limiting the aggregate area to 50%, the main occupancy of the building still remains as the Group B, F, M, or S occupancy allowed by this section to be an unlimited area building. Without this maximum area limit, the building would then be classified as the Group A occupancy which was never the intent of this section. It is interesting to note that this section originally excluded all Group A occupancies from being allowed in unlimited area buildings except for Group A-4 occupancies. We believe this would clarify the intent of this section to assure that the total allowable area of all Group A occupancies is not such as to reclassify the occupancy of the overall building.

In summary, we believe this further clarifies the intent of the original Exception 3 to Section 507.3 to allow Group A-1 and A-2 occupancies in unlimited area buildings of other than Type V construction based on Code Change G124-04/05.

Final Action: AS AM AMPC____ D

G147-07/08

507.6, 507.7 (New)

Proposed Change as Submitted:

Proponent: Wayne R. Jewell, CBO, City of Southfield, MI

Revise as follows:

507.6 (Supp) Group A-3 buildings Type II Construction. The area of a Group A-3 building no more than one-story above grade plane, used as a place of religious worship, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor swimming pool or tennis court of Type II construction shall not be limited when all of the following criteria are met:

1. The building shall not have a stage other than a platform.
2. The building shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. ~~The assembly floor shall be located at or within 21 inches (533 mm) of street or grade level and all exits are provided with ramps complying with Section 1010.1 to the street or grade level.~~
4. ~~3.~~ The building shall be surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

507.7 Group A-3 buildings Type III and IV Construction. The area of a Group A-3 building no more than one-story above grade plane, used as a place of religious worship, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor swimming pool or tennis court of Type III or IV construction shall not be limited when all of the following criteria are met:

1. The building shall not have a stage other than a platform.

2. The building shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. The assembly floor shall be located at or within 21 inches (533 mm) of street or grade level and all exits are provided with ramps complying with Section 1010.1 to the street or grade level.
4. The building shall be surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

(Renumber subsequent sections)

Reason: Section 507.6 was added into the IBC by code change G104-00, which had a supporting statement that cited one story buildings of Group A-3 were permitted in two legacy codes. While two of the three legacy codes did permit one story unlimited area buildings of Group A-3, the language that was proposed, modified and approved by the membership did not completely reflect the scope of what was permitted in the previous codes.

Those previously permitted unlimited area buildings were not:

1. Limited to just Type II construction by either code.
2. Not all A-3 Uses were subject to the provision of having the assembly floor within 21 inches (533mm) of street or grade level.
   a. Provision to limit the elevation of assembly floors was not applied to any Group A-3 Uses in one of the codes.
   b. Wasn't applied to sport facility type uses without spectator seating in the other code.

What has occurred in adding this language is to group a selection of A-3 Uses together that were not identified in either of the legacy codes. What was limited to having an assembly floor within 21" of street or grade level within the Standard Building Code was all Group A buildings without a stage requiring proscenium opening protection of Type V 1-hour, IV or III construction. The types of construction in the Standard building Code were different from those we now use Type IV is what is now known as Type IIB. Another Section in the Standard Building Code addressed large and small Group A occupancies with and without stages requiring proscenium protection. What has been done is to narrow the scope of what was permitted in both legacy codes by listing selected uses. This language further prohibits uses that are less of a risk to persons than others permitted to be two stories and unlimited in area such as Group M. What is current language ignored what was permitted; having a building containing participant sports from being unlimited in area. G104-00 allowed some of what was missing from the IBC, but increased the limitations than previously were required. Also it greatly impacted all A-3 Uses for the other code of origin.

I have no concern with the added limitation for Types of Construction that current language requires that didn't previously, but to not allow a mezzanine or raised floor surface beyond 21 inches for the uses such as a running track or location to have tread mills, aerobic cycles or dance studios or business offices is very restrictive. More restrictive than either of the codes of origin and is more restrictive than the source of the original language and what was the expressed intent of the original proposal.

Elimination of the 21 inch floor elevation limit for Type II construction and retaining it for Types III and IV which more closely reflects a compromise of the provisions of both legacy codes. While retaining the restriction for types of construction that permit combustible materials.

If we want to restrict unlimited area buildings used as a place of worship or lecture hall to the floor level elevation limit of 21 inches (533 mm), I guess that we have done. Such a restriction eliminates all balconies and reduces or limits the slope of a floor to improve sight lines to a platform or stage. It certainly limits the height of raised areas in an exhibition hall; even those completely accessed by ramps.

This is one of two code change proposals accomplishing essentially the same end goal. The first proposal is preferred but represents a larger shift from current code text. Therefore the second option G148-07/08 is offered as an alternative.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was approved based upon proponent's reason; which is to allow balconies in one story unlimited area Group A-3 buildings of Type II construction. The new section provides the same requirements for unlimited area Group A-3 buildings for Type III and IV construction with the additional limitation on the height of the assembly floor.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Stephen V. Skalko, PE, Portland Cement Association, requests Approval as Modified by this public comment.

Modify proposal as follows:

507.7 Group A-3 buildings Type III<u>A</u> and IV Construction. The area of a Group A-3 building no more than one-story above grade plane, used as a place of religious worship, community hall, dance hall, exhibition hall, gymnasium, lecture hall, indoor swimming pool or tennis court of Type III<u>A</u> or IV construction shall not be limited when all of the following criteria are met:

1. The building shall not have a stage other than a platform.
2. The building shall be equipped throughout with an automatic sprinkler system in accordance with Section 903.3.1.1.
3. The assembly floor shall be located at or within 21 inches (533 mm) of street or grade level and all exits are provided with ramps complying with Section 1010.1 to the street or grade level.
4. The building shall be surrounded and adjoined by public ways or yards not less than 60 feet (18 288 mm) in width.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: Code change G147 was based on the criteria for unlimited area Group A3 buildings in two of the three legacy codes (BOCA National Building Code and Standard Building Code). One of the criteria for Group A3 buildings of Type III construction in the Standard Building Code however was not included. That criterion is that these unlimited area Group A3 buildings were required to be constructed with a one-hour fire resistance rating for the structure. Type IIIA construction, which is considered one-hour fire resistance rated construction is similar to the fire resistance rating of Type IV construction, which Group A3 buildings are also permitted to be constructed of. Type IV construction, commonly known as "heavy timber" construction, is considered to have an inherent one-hour fire resistance rating because of the heavy timber sizes of the structural members. This code change adds the additional provision that limits Group A3 buildings to Type IIIA construction consistent with the previous Standard Building Code upon which the original proposal was based and consistent with Type IV construction.

Final Action: AS AM AMPC____ D

G149-07/08
507.7

Proposed Change as Submitted:

Proponent: Robert J Davidson, Davidson Code Concepts, LLC, representing himself

Revise as follows:

507.7 (Supp) Group H occupancies. Group H-2, H-3 and H-4 occupancies shall be permitted in unlimited area buildings containing Group F and S occupancies, in accordance with Sections 507.3 and 507.4 and the limitations of this section. The aggregate floor area of the Group H occupancies located at the perimeter of the unlimited area building shall not exceed 10 percent of the area of the building nor the area limitations for the Group H occupancies as specified in Table 503 as modified by Section 506.2, based upon the percentage of the perimeter of each Group H floor area that fronts on a street or other unoccupied space. The aggregate floor area of Group H-4 occupancies not located at the perimeter of the building shall not exceed 25 percent of the area limitations for the Group H occupancies as specified in Table 503. Group H occupancies shall be separated from the rest of the unlimited area building and from each other in accordance with Table 508.3.3. For two-story unlimited area buildings, the Group H occupancies shall not be located more than one story above grade plane unless permitted by the allowable height in stories and feet as set forth in Table 503 based on the type of construction of the unlimited area building.

Reason: This proposal is intended to eliminate a conflict between Sections 415.3 and 507.7 of the IBC concerning the requirement for an H-2 or H-3 occupancy to have at least 25 percent of the perimeter wall of the occupancy to be an exterior wall.

Section 507.7 permits H-2, H-3, and H-4 occupancies to be located in unlimited area buildings containing Group F and S occupancies with certain area limitations. One of the limitations provides for a Group H occupancy that is not located at the perimeter of the building. However, there is a conflict with Section 415.3 of the IBC which requires H-2 and H-3 occupancies to have not less than 25 percent of their perimeter wall to be an exterior wall with three minor exceptions.

The 2006 IBC Commentary identifies that the issue concerning the H occupancy to be located on an exterior wall has to do with adequate access for fire fighting.

2006 IBC Commentary – 507.7
If the high-hazard occupancy is surrounded on all sides by an unlimited area building, it is difficult for fire department personnel to locate and access that area; therefore, Group H-2, H-3 and H-4 occupancies that are not located at the perimeter of the building are limited to 25 percent of the area limitation specified in Table 503 for the building type of construction, as shown in Figure 507.6(1).

2006 IBC Commentary 415.3
This section specifies the location of Group H storage areas within a building. In order to provide adequate access for fire-fighting operations and venting of the products of combustion, Group H-2 and H-3 storage areas within a building must be located along an exterior wall.

To eliminate the conflict and to maintain adequate fire fighting access the proposed change would limit the Section 507.7 allowance for the H occupancy not having its perimeter located at an exterior wall to be restricted to the H-4 Group.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The proposal was disapproved based upon the proponents request and concern that it would change the application of the section drastically.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Robert J Davidson, Davidson Code Concepts, LLC, representing himself requests Approval as Submitted.

Commenter's Reason: As the proponent I asked the committee to disapprove the proposal to allow for interested parties to submit public comments with more comprehensive fixes for the conflict identified in the current code based upon their assertion that the proposal would make a drastic change and they would like the opportunity to craft a different fix. Hopefully the interested parties followed through on their intent to submit public comments with alternate proposals that are more comprehensive. I am making this public comment with the language of the initial reason statement in case no alternatives are proposed in an effort to allow the membership the opportunity to eliminate a clear conflict currently in the code language.

This proposal is intended to eliminate a conflict between Sections 415.3 and 507.7 of the IBC concerning the requirement for an H-2 or H-3 occupancy to have at least 25 percent of the perimeter wall of the occupancy to be an exterior wall. Section 507.7 permits H-2, H-3, and H-4 occupancies to be located in unlimited area buildings containing Group F and S occupancies with certain area limitations. One of the limitations provides for a Group H occupancy that is not located at the perimeter of the building. However, there is a conflict with Section 415.3 of the IBC which requires H-2 and H-3 occupancies to have not less than 25 percent of their perimeter wall to be an exterior wall with three minor exceptions.

The 2006 IBC Commentary identifies that the issue concerning the H occupancy to be located on an exterior wall has to do with adequate access for fire fighting.

> *2006 IBC Commentary – 507.7*
> *If the high-hazard occupancy is surrounded on all sides by an unlimited area building, it is difficult for fire department personnel to locate and access that area; therefore, Group H-2, H-3 and H-4 occupancies that are not located at the perimeter of the building are limited to 25 percent of the area limitation specified in Table 503 for the building type of construction, as shown in Figure 507.6(1).*
>
> *2006 IBC Commentary 415.3*
> *This section specifies the location of Group H storage areas within a building. In order to provide adequate access for fire-fighting operations and venting of the products of combustion, Group H-2 and H-3 storage areas within a building must be located along an exterior wall.*

To eliminate the conflict and to maintain adequate fire fighting access the proposed change would limit the Section 507.7 allowance for the H occupancy not having its perimeter located at an exterior wall to be restricted to the H-4 Group.

Final Action: AS AM AMPC____ D

G151-07/08

508, 303.1 (IFC 202), 407.2.1, 407.2.3, 407.8 (New), 407.9 (New), 408.9 (New), [F] 416.5 (New), [F]420.9 (New), 421 (New), 706.3.6, 706.5, 711.4, IBC [F] Table 903.2.13 (IFC Table 903.2.13), 3410.6.18 (IEBC [B] 1301.19), Table 3410.6.18 (IEBC [B] Table 1301.19), Table 3410.7 (IEBC [B] Table 1301.7), IEBC 902.1

Proposed Change as Submitted:

Proponent: Gregory R. Keith, Professional heuristic Development, representing the Boeing Company; Sarah A. Rice, CBO, Schirmer Engineering Corp.

1. Revise as follows:

SECTION 508 (Supp)
MIXED ~~USE AND~~ OCCUPANCY

508.1 (Supp) General. Each portion of a building shall be individually classified in accordance with Section 302.1. Where a building contains more than one occupancy group, the building or portion thereof shall comply with the applicable provisions of Section 508.2, 508.3 or 508.4, or a combination of these sections.

Exceptions:

1. Occupancies separated in accordance with Section 509.
2. Where required by Table 415.3.2, areas of Group H-1, H-2 and H-3 occupancies shall be located in a separate and detached building or structure.
3. Live/Work Units in accordance with Section 419 are not considered separate occupancies.

<u>The maximum total allowable area for buildings containing mixed occupancies shall be determined in accordance with the provisions of Section 506.4.1.</u>

~~508.3~~ **508.2 (Supp) Nonseparated occupancies.** Buildings or portions of buildings that comply with the provisions of this section shall be considered as nonseparated occupancies.

~~508.3.1~~ **508.2.1 (Supp) Occupancy classification.** Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space except that the most restrictive applicable provisions of Section 403 and Chapter 9 shall apply to the building or portion thereof in which the nonseparated occupancies are located.

~~508.3.2~~ **508.2.2 (Supp) Allowable area and height.** In each story, the building ~~allowable~~ area and height ~~of the building or portion thereof~~ shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction of the building in accordance with Section 503.1.

~~508.3.3~~ **508.2.3 (Supp) Separation.** No separation or partitioning is required between distinct occupancies.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section ~~508.3.3~~ 508.4.
2. All Group R occupancies shall be separated from other occupancies in accordance with Section 508.4.4.

~~508.2~~ **508.3 (Supp) Accessory occupancies.** Buildings or portions of buildings that comply with the provisions of this section shall be considered as accessory occupancies. Accessory occupancies are those occupancies that are ancillary to the main occupancy of the building or portion thereof. Accessory occupancies shall comply with the provisions of Sections ~~508.2.1~~ 508.3.1 through ~~508.2.5.3~~ 508.3.3.

~~**508.2.1 (Supp) Area limitations.** Aggregate accessory occupancies shall not occupy more than 10 percent of the area of the story in which they are located and shall not exceed the tabular values in Table 503, without area increases in accordance with Section 506 for such accessory occupancies.~~

~~508.2.2~~ **508.3.1 (Supp) Occupancy classification.** Accessory occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space.

~~508.2.3~~ **508.3.2 (Supp) Allowable area and height.** In each story, the building ~~allowable~~ area and height ~~of the building~~ shall be based on the allowable area and height for the main occupancy in accordance with Section 503.1. Aggregate accessory occupancies shall not occupy more than 10 percent of the area of the story in which they are located and shall not exceed the tabular values in Table 503, without area increases in accordance with Section 506 for such accessory occupancies. The height of each accessory occupancy shall not exceed the tabular values in Table 503, without increases in accordance with Section 504 for such accessory occupancies. ~~The area of the accessory occupancies shall be in accordance with Section 508.2.1.~~

~~508.2.4~~ **508.3.3 (Supp) Separation of occupancies.** No separation is required between accessory occupancies and the main occupancy or each other.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. ~~Incidental accessory occupancies required to be separated or protected by Section 508.2.5.~~
3. 2. Group R occupancies shall be separated from other accessory occupancies in accordance with Section 508.4.4.

~~**508.2.5 (Supp) Separation of incidental accessory occupancies.** The incidental accessory occupancies listed in Table 508.2.5 shall be separated from the remainder of the building or equipped with an automatic fire-extinguishing system, or both, in accordance with Table 508.2.5.~~

~~**Exception:** Incidental accessory occupancies within and serving a dwelling unit are not required to comply with this section.~~

~~**TABLE 508.2.5 (Supp)**~~
~~**INCIDENTAL ACCESSORY OCCUPANCIES**~~

~~ROOM OR AREA~~	~~SEPARATION AND/OR PROTECTION~~
~~Furnace room where any piece of equipment is over 400,000 Btu per hour input~~	~~1 hour or provide automatic fire-extinguishing system~~
~~Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower~~	~~1 hour or provide automatic fire-extinguishing system~~
~~Refrigerant machinery room~~	~~1 hour or provide automatic sprinkler system~~
~~Hydrogen cut-off rooms, not classified as Group H~~	~~1-hour in Group B, F, M, S and U occupancies. 2-hour in Group A, E, I and R occupancies.~~
~~Incinerator rooms~~	~~2 hours and automatic sprinkler System~~
~~Paint shops, not classified as Group H, located in occupancies other than Group F~~	~~2 hours; or 1 hour and provide automatic fire-extinguishing System~~
~~Laboratories and vocational shops, not classified as Group H, located in Group E or I-2 occupancies~~	~~1 hour or provide automatic fire-extinguishing system~~
~~Laundry rooms over 100 square feet~~	~~1 hour or provide automatic fire-extinguishing system~~
~~Group I-3 cells equipped with padded surfaces~~	~~1 hour~~
~~Group I-2 waste and linen collection rooms~~	~~1 hour~~
~~Waste and linen collection rooms over 100 square feet~~	~~1 hour or provide automatic fire-extinguishing system~~
~~Stationary storage battery systems having a liquid capacity of more than 100 gallons used for facility standby power, emergency power or uninterrupted power supplies~~	~~1-hour in Group B, F, M, S and U occupancies. 2-hour in Group A, E, I and R occupancies.~~

~~For SI: 1 square foot = 0.0929 m2, 1 pound per square inch = 6.9 kPa,~~
~~1 British thermal unit per hour = 0.293 watts, 1 horsepower = 746 watts,~~
~~1 gallon = 3.785 L~~

~~**508.2.5.1 (Supp) Fire resistance rated separation.** Where Table 508.2.5 specifies a fire-resistance rated separation, the incidental accessory occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both.~~

~~**508.2.5.2 (Supp) Nonfire-resistance rated separation and protection.** Where Table 508.2.5 permits an automatic fire extinguishing system without a fire barrier, the incidental accessory occupancies shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the fire-resistance-rated floor/ceiling assembly above or fire-resistance-rated roof/ceiling assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic closing upon detection of smoke in accordance with Section 715.4.7.3. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80.~~

~~**508.2.5.3 (Supp) Protection.** Where an automatic fire-extinguishing system or an automatic sprinkler system is provided in accordance with Table 508.2.5, only the space occupied by the incidental accessory occupancy need be equipped with such a system.~~

508.4 (Supp) ~~**Separated**~~ **Calculated occupancies.** Buildings or portions of buildings that comply with the provisions of this section shall be considered as ~~separated~~ calculated occupancies.

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

	A[d], E		I		R[c]		F-2, S-2[b,c], U[c]		B, F-1, M, S-1		H-1		H-2		H-3, H-4, H-5	
OCCUPANCY	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**	**S**	**NS**
A[d], E	N	N	1	2	1	2	N	1	1	2	NP	NP	3	4	2	3[a]

(Portions of table not shown remain unchanged)

For SI: 1 square foot = 0.0929 m^2.
S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.

N = No separation requirement.
NP = Not permitted.

a. For Group H-5 occupancies, see Section 903.2.4.2.
b. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.
c. See Section 406.1.4.
~~d. Commercial kitchens need not be separated from the restaurant seating areas that they serve.~~

508.4.1 (Supp) Occupancy classification. ~~Separated~~ Calculated occupancies shall be individually classified in accordance with Section 302.1. Each ~~separated~~ space shall comply with this code based on the occupancy classification of that portion of the building.

508.4.2 (Supp) Allowable area. In each story, the building area shall be such that the sum of the ratios of the actual building area of each ~~separated~~ distinct occupancy divided by the allowable area of each ~~separated~~ distinct occupancy shall not exceed one.

508.4.3 (Supp) Allowable height. Each ~~separated~~ occupancy shall comply with the height limitations based on the type of construction of the building in accordance with Section 503.1.

Exception: Special provisions permitted by Section 509.

508.4.4 (Supp) Separation. Individual occupancies shall be separated from adjacent occupancies in accordance with Table 508.4. Where Table 508.4 does not require an occupancy separation, no partitioning is required between individual occupancies.

508.4.4.1 (Supp) Construction. Required separations shall be fire barriers constructed in accordance with Section 706 or horizontal assemblies constructed in accordance with Section 711, or both, so as to completely separate adjacent occupancies.

303.1 (Supp) (IFC 202) Assembly Group A. Assembly Group A occupancy includes, among others, the use of a building or structure, or a portion thereof, for the gathering of persons for purposes such as civic, social or religious functions; recreation, food or drink consumption; or awaiting transportation.

Exceptions:

1. A building or tenant space used for assembly purposes with an occupant load of less than 50 persons shall be classified as a Group B occupancy.
2. A room or space used for assembly purposes with an occupant load of less than 50 persons and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
3. A room or space used for assembly purposes that is less than 750 square feet (70 m^2) in area and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
4. Assembly areas that are accessory to Group E occupancies are not considered separate occupancies except when applying the assembly occupancy requirements of Chapter 11.
5. Accessory religious educational rooms and religious auditoriums with occupant loads of less than 100 are not considered separate occupancies.

Assembly occupancies shall include the following:

A-1 Assembly uses, usually with fixed seating, intended for the production and viewing of the performing arts or motion pictures including, but not limited to:

Motion picture theaters
Symphony and concert halls
Television and radio studios admitting an audience
Theaters

A-2 Assembly uses intended for food and/or drink consumption including, but not limited to:

Banquet halls
Night clubs

Restaurants (including associated commercial kitchens)
Taverns and bars

A-3 Assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A including, but not limited to:

Amusement arcades
Art galleries
Bowling alleys
Places of religious worship
Community halls
Courtrooms
Dance halls (not including food or drink consumption)
Exhibition halls
Funeral parlors
Gymnasiums (without spectator seating)
Indoor swimming pools (without spectator seating)
Indoor tennis courts (without spectator seating)
Lecture halls
Libraries
Museums
Waiting areas in transportation terminals
Pool and billiard parlors

A-4 Assembly uses intended for viewing of indoor sporting events and activities with spectator seating including, but not limited to:

Arenas
Skating rinks
Swimming pools
Tennis courts

A-5 Assembly uses intended for participation in or viewing outdoor activities including, but not limited to:

Amusement park structures
Bleachers
Grandstands
Stadiums

2. Add new text as follows:

407.8 Laboratories and vocational shops. Laboratories and vocational shops shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system. Where sprinklered, such areas shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the fire-resistance-rated floor/ceiling assembly above or fire-resistance-rated roof/ceiling assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic closing upon detection of smoke in accordance with Section 715.4.7.3. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80. Only the laboratory and vocational shop need be equipped with such sprinkler system.

407.9 Waste and linen collection rooms. Waste and linen collection rooms shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour.

408.9 Cells equipped with padded surfaces. Cells equipped with padded surfaces shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour.

[F] 416.5 Paint shops. Paint shops, not classified as Group H occupancies and located in other than Group F occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 2 hours or having a fire-resistance rating of not less than 1 hour where the area is equipped with an approved automatic sprinkler system. Only the paint shop need be equipped with such sprinkler system.

[F] 420.9 Separation. Hydrogen cut-off rooms, not classified as Group H occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour in Group B, F, M, S and U occupancies and not less than 2-hours in Group A, E, I and R occupancies.

SECTION 421
SPECIAL RISK AREAS

421.1 General. The special risk areas listed in this section shall be separated from the remainder of the building or equipped with an automatic fire-extinguishing system, or both, in accordance the provisions of this section.

Exception: Special risk areas within and serving a dwelling unit are not required to comply with this section.

Where this section specifies an automatic sprinkler system, only the special risk area need be equipped with such a system.

Where this section permits an automatic fire extinguishing system without a fire barrier or horizontal assembly, the special risk areas shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the fire-resistance-rated floor/ceiling assembly above or fire-resistance-rated roof/ceiling assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic closing upon detection of smoke in accordance with Section 715.4.7.3. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80.

421.2 Furnace rooms. Furnace rooms where any piece of equipment is over 400,000 Btu per hour input shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.3 Boiler rooms. Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.4 Refrigerant machinery rooms. Refrigerant machinery rooms shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.5 Incinerator rooms. Incinerator rooms shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 2 hours and such areas shall be protected with an approved automatic sprinkler system.

421.6 Laboratories and vocational shops. Laboratories and vocational shops, not classified as Group H occupancies, located in Group E occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.7 Laundry rooms. Laundry rooms over 100 square feet in area shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.8 Waste and linen collection rooms. Waste and linen collection rooms over 100 square feet in area shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.

421.8 Storage battery rooms. Rooms containing stationary storage battery systems having a liquid capacity of more than 100 gallons used for facility standby power, emergency power or uninterrupted power supplies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour in Group B, F, M, S and U occupancies and not less than 2-hours in Group A, E, I and R occupancies.

3. Revise as follows:

407.2.1 (Supp) Spaces of unlimited area. Waiting areas and similar spaces constructed as required for corridors shall be permitted to be open to a corridor, only where all of the following criteria are met:

1. The spaces are not occupied for patient sleeping units, treatment rooms, ~~hazardous or~~ laboratories and vocational shops in accordance with Section 407.8, waste and linen collection rooms in accordance with Section 407.9 and special risk areas in accordance with Section 421.~~incidental accessory occupancies in accordance with Section 508.2~~.
2. The open space is protected by an automatic fire detection system installed in accordance with Section 907.
3. The corridors onto which the spaces open, in the same smoke compartment, are protected by an automatic fire detection system installed in accordance with Section 907, or the smoke compartment in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
4. The space is arranged so as not to obstruct access to the required exits.

407.2.3 Mental health treatment areas. Areas wherein mental health patients who are not capable of self-preservation are housed, or group meeting or multipurpose therapeutic spaces other than laboratories and vocational shops in accordance with Section 407.8, waste and linen collection rooms in accordance with Section 407.9 and special risk areas in accordance with Section 421, ~~incidental use areas as defined in Section 508.2~~, under continuous supervision by facility staff, shall be permitted to be open to the corridor, where the following criteria are met:

1. Each area does not exceed 1,500 square feet (140 m2).
2. The area is located to permit supervision by the facility staff.
3. The area is arranged so as not to obstruct any access to the required exits.
4. The area is equipped with an automatic fire detection system installed in accordance with Section 907.2.
5. Not more than one such space is permitted in any one smoke compartment.
6. The walls and ceilings of the space are constructed as required for corridors.

706.3.6 Special risk areas ~~Incidental Accessory Occupancies~~. The fire barrier separating special risk areas ~~incidental accessory occupancies~~ from other spaces in the building shall have a fire-resistance rating of not less than that indicated in Section 421.~~Table 508.2~~.

706.5 Continuity. Fire barriers shall extend from the top of the floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such fire barriers shall be continuous through concealed spaces, such as the space above a suspended ceiling. The supporting construction for a fire barrier shall be protected to afford the required fire-resistance rating of the fire barrier supported, except for 1-hour fire barriers required by Sections 407.8, 407.9, 408.9, 416.5, 420.9 and 421 ~~Table 508.2~~ in buildings of Type IIB, IIIB and VB construction. Hollow vertical spaces within a fire barrier shall be fireblocked in accordance with Section 717.2 at every floor level.

Exceptions:

1. The maximum required fire-resistance rating for assemblies supporting fire barriers separating tank storage as provided for in Section 415.6.2.1 shall be 2 hours, but not less than required by Table 601 for the building construction type.
2. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 707.12.

711.4 Continuity. Assemblies shall be continuous without openings, penetrations or joints except as permitted by this section and Sections 707.2, 712.4, 713 and 1020.1. Skylights and other penetrations through a fire resistance-rated roof deck or slab are permitted to be unprotected, provided that the structural integrity of the fire resistance-rated roof construction is maintained. Unprotected skylights shall not be permitted in roof construction required to be fire-resistance rated in accordance with Section 704.10. The supporting construction shall be protected to afford the required fire-resistance rating of the horizontal assembly supported.

Exception: In buildings of Type IIB, IIIB or VB construction, the construction supporting the horizontal assembly is not required to be fire-resistance-rated at the following:

1. Horizontal assemblies at the separations of special risk areas ~~incidental accessory occupancies~~ as specified by Section 421 ~~Table 508.2,~~ provided the required fire-resistance rating does not exceed 1-hour.
2. Horizontal assemblies at the separations of dwelling units and sleeping units as required by Section 419.3.
3. Horizontal assemblies at smoke barriers constructed in accordance with Section 709.

TABLE 903.2.13 (SUPP)(IBC [F] TABLE 903.2.13)
ADDITIONAL REQUIRED SUPPRESSION SYSTEMS

Section	Subject
~~508.2~~ 421	Special Risk Areas ~~Incidental Accessory Occupancies~~

(Portions of table not shown remain unchanged)

3410.6.18 (Supp) (IEBC [B] 1301.19) Incidental use. Evaluate the protection of special risk areas ~~Incidental Accessory Occupancies~~ in accordance with Section ~~508.2~~ 421. Do not include those where this code requires suppression throughout the building including covered mall buildings, high-rise buildings, public garages and unlimited area buildings. Assign the lowest score from Table 3410.6.18 for the building or fire area being evaluated. If there are no specific occupancy areas in the building or fire area being evaluated, the value shall be zero.

TABLE 3410.6.18 (Supp) (IEBC [B] TABLE 1301.19)
SPECIAL RISK AREA ~~INCIDENTAL ACCESSORY OCCUPANCY~~ VALUES[a]

(Portions of table not shown remain unchanged)

TABLE 3410.7 (IEBC[B] 1301.7)
SUMMARY SHEET BUILDING CODE

SAFETY PARAMETERS	FIRE SAFETY (FS)	MEANS OF EGRESS(ME)	GENERAL SAFETY (GS)
3410.6.18 (IEBC [B]1301.19) Special Risk Areas ~~Incidental Accessory Occupancy~~			

(Portions of table not shown remain unchanged)

IEBC 902.1 Compliance with the building code. Where the character or use of an existing building or part of an existing building is changed to one of the following special use or occupancy categories as defined in the International Building Code, the building shall comply with all of the applicable requirements of the International Building Code:

1. Covered mall buildings.
2. Atriums.
3. Motor vehicle-related occupancies.
4. Aircraft-related occupancies.
5. Motion picture projection rooms.
6. Stages and platforms.
7. Special amusement buildings.
8. Special risk areas ~~Incidental Accessory Occupancies~~.
9. Hazardous materials.

Reason: This proposal is intended to complete the restructuring of IBC mixed occupancy provisions. The 2006 Edition featured the relocation and reorganization of mixed occupancy requirements as well as improving the functionality of the "separated occupancy" design option. In fact, this proposal changes the title of that design option to "calculated occupancy." This is due to the fact that Table 508.4 does not necessarily require an occupancy separation based on similar risk; however, always requires that the risk be balanced through the performance of the sum of the ratios calculation. This proposal also clarifies that where Table 508.4 does not require an occupancy separation, no partition is required between the various occupancies under consideration. Additionally, a somewhat confusing and unnecessary commercial kitchen exception was deleted from Table 508.4 in favor of clarifying that the restaurant and associated kitchen are the same, Group A-2 occupancy in Section 303.1.

Perhaps the most significant feature of this proposal is that it eliminates the so-called "incidental use." Long a source of confusion by designers and code enforcement officials alike, many have erroneously associated the incidental use with mixed occupancies. In reality, they are areas that are typically associated with a given occupancy and which generally pose a greater level of risk to that occupancy. Incidental uses can occur in both single occupancy and mixed occupancy buildings. In fact, the only incidental uses in the IBC were those prescriptively listed in Table 508.2. Given this fairly explicit nature of the use conditions and the mitigating requirements, it was felt that these provisions were better located in Chapter 4—SPECIAL DETAILED REQUIREMENTS BASED ON USE AND OCCUPANCY. Accordingly, those provisions specifically associated with a use or occupancy condition currently contained in Chapter 4 were incorporated into the applicable section. A new Section 421—SPECIAL RISK AREAS, was created to accommodate those former incidental uses having no natural home in Chapter 4. Additionally, several related provisions that currently reference "incidental accessory occupancies" or Section 508.2 have been modified to be consistent with the new terminology and section references contained in this proposal.

Additionally, the three mixed occupancy methods or design options have been arranged in the order of likelihood of typical application. Clearly, the nonseparated occupancy method is the practical default design option and is therefore listed first. The next option of least resistance is the accessory occupancy method and is listed second. The calculated method is shown last. This arrangement represents the natural design hierarchy and also lends itself to instruction on the subject of mixed occupancies.

The modifications contained in this proposal complete the reformatting of IBC mixed occupancy provisions and will provide for the final clarification of these very important design requirements. This restructuring has occurred during the development of two editions of the IBC, but these final technical and editorial adjustments ensure that the 2009 mixed occupancy requirements will be technically comprehensive while being easily interpreted thereby promoting consistency in interpretation of these oft used provisions. Cumulatively, they represent a significant improvement in the *International Building Code*.

Cost Impact: The code change proposal will not increase the cost of construction.

Analysis: The provisions found within this code change were all editorially revised to change the terms "incidental use(s) and "incidental use areas" to "incidental accessory occupancies" to be consistent with code change G149-06/07.

Committee Action: **Disapproved**

Committee Reason: The concept of special risk areas appears to be more difficult to apply than the incidental accessory occupancies requirements currently found in Section 508.2.5 of the 2007 Supplement.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Gregory R. Keith, Professional heuristic Development, representing the Boeing Company; Sarah A. Rice, CBO, Schirmer Engineering Corp., request Approval as Modified by this public comment.

Modify proposal as follows:

SECTION 508 (Supp)
MIXED OCCUPANCY

508.1 (Supp) General. Each portion of a building shall be individually classified in accordance with Section 302.1. Where a building contains more than one occupancy group, the building or portion thereof shall comply with the applicable provisions of Section 508.2, 508.3 or 508.4, or a combination of these sections.

Exceptions:

1. Occupancies separated in accordance with Section 509.
2. Where required by Table 415.3.2, areas of Group H-1, H-2 and H-3 occupancies shall be located in a separate and detached building or structure.
3. Live/Work Units in accordance with Section 419 are not considered separate occupancies.

The maximum total allowable area for buildings containing mixed occupancies shall be determined in accordance with the provisions of Section 506.4.1.

508.2 (Supp) Nonseparated occupancies. Buildings or portions of buildings that comply with the provisions of this section shall be considered as nonseparated occupancies.

508.2.1 (Supp) Occupancy classification. Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space except that the most restrictive applicable provisions of Section 403 and Chapter 9 shall apply to the building or portion thereof in which the nonseparated occupancies are located.

508.2.2 (Supp) Allowable area and height. In each story, the building area and height shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction of the building in accordance with Section 503.1.

508.2.3 (Supp) Separation. No separation ~~or partitioning~~ is required between ~~distinct~~ occupancies.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. All Group R occupancies shall be separated from other occupancies in accordance with Section 508.4.4.

508.3 (Supp) Accessory occupancies. Buildings or portions of buildings that comply with the provisions of this section shall be considered as accessory occupancies. Accessory occupancies are those occupancies that are ancillary to the main occupancy of the building or portion thereof. Accessory occupancies shall comply with the provisions of Sections 508.3.1 through 508.3.3.

508.3.1 (Supp) Occupancy classification. Accessory occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space.

508.3.2 (Supp) Allowable area and height. In each story, the building area and height shall be based on the allowable area and height for the main occupancy in accordance with Section 503.1. The aggregate area of accessory occupancies shall not exceed ~~occupy more than~~ 10 percent of the area of the story in which they are located and shall not exceed the applicable tabular values in Table 503~~, without area increases in accordance with Section 506 for such accessory occupancies~~. The height of each accessory occupancy shall not exceed the applicable tabular values in Table 503~~, without increases in accordance with Section 504 for such accessory occupancies~~. Area and height increases allowed by Sections 504 and 506 shall not be permitted for such accessory occupancies.

508.3.3 (Supp) Separation. No separation is required between accessory occupancies and the main occupancy or each other.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. Incidental accessory occupancies required to be separated or protected by Section 508.3.4.
3. ~~2.~~ Group R occupancies shall be separated from other accessory occupancies in accordance with Section 508.4.4.

508.3.4 (Supp) Separation of incidental accessory occupancies. The incidental accessory occupancies listed in Table 508.3.4 shall be separated from the remainder of the building or equipped with an automatic fire-extinguishing system, or both, in accordance with Table 508.3.4.

Exception: Incidental accessory occupancies within and serving a dwelling unit are not required to comply with this section.

TABLE 508.3.4 (Supp)
INCIDENTAL ACCESSORY OCCUPANCIES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Furnace room where any piece of equipment is over 400,000 Btu per hour input	1 hour or provide automatic fire-extinguishing system
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower	1 hour or provide automatic fire-extinguishing system
Refrigerant machinery room	1 hour or provide automatic sprinkler system
Hydrogen cut-off rooms, not classified as Group H	1-hour in Group B, F, M, S and U occupancies. 2-hour in Group A, E, I and R occupancies.
Incinerator rooms	2 hours and automatic sprinkler System
Paint shops, not classified as Group H, located in occupancies other than Group F	2 hours; or 1 hour and provide automatic fire-extinguishing System
Laboratories and vocational shops, not classified as Group H, located in Group E or I-2 occupancies	1 hour or provide automatic fire-extinguishing system
Laundry rooms over 100 square feet	1 hour or provide automatic fire-extinguishing system
Group I-3 cells equipped with padded surfaces	1 hour
Group I-2 waste and linen collection rooms	1 hour
Waste and linen collection rooms over 100 square feet	1 hour or provide automatic fire-extinguishing system
Stationary storage battery systems having a liquid capacity of more than 100 gallons used for facility standby power, emergency power or uninterrupted power supplies	1-hour in Group B, F, M, S and U occupancies. 2-hour in Group A, E, I and R occupancies.

For SI: 1 square foot = 0.0929 m2, 1 pound per square inch = 6.9 kPa,
1 British thermal unit per hour = 0.293 watts, 1 horsepower = 746 watts,
1 gallon = 3.785 L

508.3.4.1 (Supp) Fire-resistance-rated separation. Where Table 508.3.4 specifies a fire-resistance rated separation, the incidental accessory occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both.

508.3.4.2 (Supp) Nonfire-resistance-rated separation and protection. Where Table 508.3.4 permits an automatic fire extinguishing system without a fire barrier, the incidental accessory occupancies shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the fire-resistance-rated floor/ceiling assembly above or fire-resistance-rated roof/ceiling assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic closing upon detection of smoke in accordance with Section 715.4.7.3.

Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80.

508.3.4.3 (Supp) Protection. Where an automatic fire-extinguishing system or an automatic sprinkler system is provided in accordance with Table 508.3.4, only the space occupied by the incidental accessory occupancy need be equipped with such a system.

508.4 (Supp) Calculated occupancies. Buildings or portions of buildings that comply with the provisions of this section shall be considered as calculated occupancies.

TABLE 508.4
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

(No changes from original proposal)

For SI: 1 square foot = 0.0929 m^2.

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.

a. For Group H-5 occupancies, see Section 903.2.4.2.
b. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.
c. See Section 406.1.4.

508.4.1 (Supp) Occupancy classification. Calculated occupancies shall be individually classified in accordance with Section 302.1. Each space shall comply with this code based on the occupancy classification of that portion of the building.

508.4.2 (Supp) Allowable area. In each story, the building area shall be such that the sum of the ratios of the actual building area of each ~~distinct~~ occupancy divided by the allowable area of each ~~distinct~~ occupancy shall not exceed one.

508.4.3 (Supp) Allowable height. Each occupancy shall comply with the height limitations based on the type of construction of the building in accordance with Section 503.1.

Exception: Special provisions permitted by Section 509.

508.4.4 (Supp) Separation. Individual occupancies shall be separated from adjacent occupancies in accordance with Table 508.4. ~~Where Table 508.4 does not require an occupancy separation, no partitioning is required between individual occupancies.~~

508.4.4.1 (Supp) Construction. Required separations shall be fire barriers constructed in accordance with Section 706 or horizontal assemblies constructed in accordance with Section 711, or both, so as to completely separate adjacent occupancies.

303.1 (Supp) (IFC 202) Assembly Group A. Assembly Group A occupancy includes, among others, the use of a building or structure, or a portion thereof, for the gathering of persons for purposes such as civic, social or religious functions; recreation, food or drink consumption; or awaiting transportation.

Exceptions:

1. A building or tenant space used for assembly purposes with an occupant load of less than 50 persons shall be classified as a Group B occupancy.
2. A room or space used for assembly purposes with an occupant load of less than 50 persons and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
3. A room or space used for assembly purposes that is less than 750 square feet (70 m2) in area and accessory to another occupancy shall be classified as a Group B occupancy or as part of that occupancy.
4. Assembly areas that are accessory to Group E occupancies are not considered separate occupancies except when applying the assembly occupancy requirements of Chapter 11.
5. Accessory religious educational rooms and religious auditoriums with occupant loads of less than 100 are not considered separate occupancies.

Assembly occupancies shall include the following:

A-1 Assembly uses, usually with fixed seating, intended for the production and viewing of the performing arts or motion pictures including, but not limited to:

Motion picture theaters
Symphony and concert halls
Television and radio studios admitting an audience
Theaters

A-2 Assembly uses intended for food and/or drink consumption including, but not limited to:

Banquet halls
Night clubs
Restaurants (including associated commercial kitchens)
Taverns and bars

A-3 Assembly uses intended for worship, recreation or amusement and other assembly uses not classified elsewhere in Group A including, but not limited to:

Amusement arcades
Art galleries
Bowling alleys
Places of religious worship
Community halls
Courtrooms
Dance halls (not including food or drink consumption)
Exhibition halls
Funeral parlors
Gymnasiums (without spectator seating)
Indoor swimming pools (without spectator seating)
Indoor tennis courts (without spectator seating)
Lecture halls
Libraries
Museums
Waiting areas in transportation terminals
Pool and billiard parlors

A-4 Assembly uses intended for viewing of indoor sporting events and activities with spectator seating including, but not limited to:

Arenas
Skating rinks
Swimming pools
Tennis courts

A-5 Assembly uses intended for participation in or viewing outdoor activities including, but not limited to:

Amusement park structures
Bleachers
Grandstands
Stadiums

2. Revise as follows:

~~**407.8 Laboratories and vocational shops.** Laboratories and vocational shops shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system. Where sprinklered, such areas shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the fire-resistance-rated floor/ceiling assembly above or fire-resistance-rated roof/ceiling assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic closing upon detection of smoke in accordance with Section 715.4.7.3. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80. Only the laboratory or vocational shop need be equipped with such sprinkler system.~~

~~**407.9 Waste and linen collection rooms.** Waste and linen collection rooms shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour.~~

~~**408.9 Cells equipped with padded surfaces.** Cells equipped with padded surfaces shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour.~~

~~**416.5 Paint shops.** Paint shops, not classified as Group H occupancies and located in other than Group F occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 2 hours or having a fire-resistance rating of not less than 1 hour where the area is equipped with an approved automatic sprinkler system. Only the paint shop need be equipped with such sprinkler system.~~

~~**420.9 Separation.** Hydrogen cut-off rooms, not classified as Group H occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour in Group B, F, M, S and U occupancies and not less than 2 hours in Group A, E, I and R occupancies.~~

~~**SECTION 421**~~
~~**SPECIAL RISK AREAS**~~

~~**421.1 General.** The special risk areas listed in this section shall be separated from the remainder of the building or equipped with an automatic fire-extinguishing system, or both, in accordance the provisions of this section.~~

~~**Exception:** Special risk areas within and serving a dwelling unit are not required to comply with this section.~~

~~Where this section specifies an automatic sprinkler system, only the special risk area need be equipped with such a system.~~

~~Where this section permits an automatic fire extinguishing system without a fire barrier or horizontal assembly, the incidental accessory occupancies shall be separated from the remainder of the building by construction capable of resisting the passage of smoke. The walls shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the fire-resistance-rated floor/ceiling assembly above or fire-resistance-rated roof/ceiling assembly above or to the underside of the floor or roof sheathing, deck or slab above. Doors shall be self- or automatic closing upon detection of smoke in accordance with Section 715.4.7.3. Doors shall not have air transfer openings and shall not be undercut in excess of the clearance permitted in accordance with NFPA 80.~~

~~**421.2 Furnace rooms.** Furnace rooms where any piece of equipment is over 400,000 Btu per hour input shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.~~

~~**421.3 Boiler rooms.** Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.~~

~~**421.4 Refrigerant machinery rooms.** Refrigerant machinery rooms shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.~~

~~**421.5 Incinerator rooms.** Incinerator rooms shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 2 hours and such areas shall be protected with an approved automatic sprinkler system.~~

~~**421.6 Laboratories and vocational shops.** Laboratories and vocational shops, not classified as Group H occupancies, located in Group E occupancies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.~~

~~**421.7 Laundry rooms.** Laundry rooms over 100 square feet in area shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.~~

~~**421.8 Waste and linen collection rooms.** Waste and linen collection rooms over 100 square feet in area shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour or such areas shall be protected with an approved automatic sprinkler system.~~

~~**421.8 Storage battery rooms.** Rooms containing stationary storage battery systems having a liquid capacity of more than 100 gallons used for facility standby power, emergency power or uninterrupted power supplies shall be separated from the remainder of the building by a fire barrier constructed in accordance with Section 706 or a horizontal assembly constructed in accordance with Section 711, or both, having a fire-resistance rating of not less than 1 hour in Group B, F, M, S and U occupancies and not less than 2-hours in Group A, E, I and R occupancies.~~

3. Revise as follows:

407.2.1 (Supp) Spaces of unlimited area. Waiting areas and similar spaces constructed as required for corridors shall be permitted to be open to a corridor, only where all of the following criteria are met:

1. The spaces are not occupied for patient sleeping units, treatment rooms, hazardous or ~~laboratories and vocational shops in accordance with Section 407.8, waste and linen collection rooms in accordance with Section 407.9 and special risk areas in accordance with Section 421.~~ incidental accessory occupancies in accordance with Section 508.3.4.
2. The open space is protected by an automatic fire detection system installed in accordance with Section 907.
3. The corridors onto which the spaces open, in the same smoke compartment, are protected by an automatic fire detection system installed in accordance with Section 907, or the smoke compartment in which the spaces are located is equipped throughout with quick-response sprinklers in accordance with Section 903.3.2.
4. The space is arranged so as not to obstruct access to the required exits.

407.2.3 Mental health treatment areas. Areas wherein mental health patients who are not capable of self-preservation are housed, or group meeting or multipurpose therapeutic spaces other ~~than laboratories and vocational shops in accordance with Section 407.8, waste and linen collection rooms in accordance with Section 407.9 and special risk areas in accordance with Section 421,~~ incidental accessory occupancies in accordance with Section 508.3.4, under continuous supervision by facility staff, shall be permitted to be open to the corridor, where the following criteria are met:

1. Each area does not exceed 1,500 square feet (140 m^2).
2. The area is located to permit supervision by the facility staff.
3. The area is arranged so as not to obstruct any access to the required exits.
4. The area is equipped with an automatic fire detection system installed in accordance with Section 907.2.
5. Not more than one such space is permitted in any one smoke compartment.
6. The walls and ceilings of the space are constructed as required for corridors.

706.3.6 ~~Special risk areas~~ Incidental Accessory Occupancies. The fire barrier separating ~~special risk areas~~ incidental accessory occupancies from other spaces in the building shall have a fire-resistance rating of not less than that indicated in ~~Section 421.~~Table 508.3.4.

706.5 Continuity. Fire barriers shall extend from the top of the floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and shall be securely attached thereto. Such fire barriers shall be continuous through concealed spaces, such as the space above a suspended ceiling. The supporting construction for a fire barrier shall be protected to afford the required fire-resistance rating of the fire barrier supported, except for 1-hour fire barriers required by ~~Sections 407.8, 407.9, 408.9, 416.5, 420.9 and 421~~ Table 508.3.4 in buildings of Type IIB, IIIB and VB construction. Hollow vertical spaces within a fire barrier shall be fireblocked in accordance with Section 717.2 at every floor level.

Exceptions:

1. The maximum required fire-resistance rating for assemblies supporting fire barriers separating tank storage as provided for in Section 415.6.2.1 shall be 2 hours, but not less than required by Table 601 for the building construction type.
2. Shaft enclosures shall be permitted to terminate at a top enclosure complying with Section 707.12.

711.4 Continuity. Assemblies shall be continuous without openings, penetrations or joints except as permitted by this section and Sections 707.2, 712.4, 713 and 1020.1. Skylights and other penetrations through a fire resistance-rated roof deck or slab are permitted to be unprotected, provided that the structural integrity of the fire resistance-rated roof construction is maintained. Unprotected skylights shall not be permitted in roof construction required to be fire-resistance rated in accordance with Section 704.10. The supporting construction shall be protected to afford the required fire-resistance rating of the horizontal assembly supported.

Exception: In buildings of Type IIB, IIIB or VB construction, the construction supporting the horizontal assembly is not required to be fire-resistance-rated at the following:

1. Horizontal assemblies at the separations of ~~special risk areas~~ incidental accessory occupancies as specified by ~~Section 421~~ Table 508.3.4, provided the required fire-resistance rating does not exceed 1-hour.
2. Horizontal assemblies at the separations of dwelling units and sleeping units as required by Section 419.3.
3. Horizontal assemblies at smoke barriers constructed in accordance with Section 709.

TABLE 903.2.13 (SUPP)(IBC [F] TABLE 903.2.13)
ADDITIONAL REQUIRED SUPPRESSION SYSTEMS

Section	Subject
508.3.4 ~~421~~	~~Special Risk Areas~~ Incidental Accessory Occupancies

(Portions of table not shown remain unchanged)

3410.6.18 (Supp) (IEBC [B] 1301.19) Incidental accessory occupancies ~~use~~. Evaluate the protection of ~~special risk areas~~ incidental accessory occupancies in accordance with Section 508.3.4 ~~421~~. Do not include those where this code requires suppression throughout the building including covered mall buildings, high-rise buildings, public garages and unlimited area buildings. Assign the lowest score from Table 3410.6.18 for the building or fire area being evaluated. If there are no specific occupancy areas in the building or fire area being evaluated, the value shall be zero.

TABLE 3410.6.18 (Supp) (IEBC [B] TABLE 1301.19)
~~SPECIAL RISK AREA~~ INCIDENTAL ACCESSORY OCCUPANCY VALUESa

(Portions of table not shown remain unchanged)

TABLE 3410.7 (IEBC[B] 1301.7)
SUMMARY SHEET BUILDING CODE

SAFETY PARAMETERS	FIRE SAFETY (FS)	MEANS OF EGRESS(ME)	GENERAL SAFETY (GS)
3410.6.18 (IEBC [B]1301.19) ~~Special Risk Areas~~ Incidental Accessory Occupancy			

(Portions of table not shown remain unchanged)

IEBC 902.1 Compliance with the building code. Where the character or use of an existing building or part of an existing building is changed to one of the following special use or occupancy categories as defined in the International Building Code, the building shall comply with all of the applicable requirements of the International Building Code:

1. Covered mall buildings.
2. Atriums.
3. Motor vehicle-related occupancies.
4. Aircraft-related occupancies.
5. Motion picture projection rooms.
6. Stages and platforms.
7. Special amusement buildings.
8. ~~Special risk areas~~ Incidental accessory occupancies.
9. Hazardous materials.

Commenter's Reason: Item G151-07/08 was intended to complete the restructuring of IBC mixed occupancy provisions. The 2006 Edition featured the relocation and reorganization of mixed occupancy requirements as well as improving the functionality of the "separated occupancy" design option.

Based on comments received during the discussion of the item in Palm Springs, it became apparent that most practitioners wanted to retain the current incidental accessory occupancy table. The original proposal eliminated the table in favor of specifically located text requirements. Accordingly, the 2007 Supplement Table 508.2.5 has been restored into Section 508 with the proposed text additions being deleted.

Also, the original proposal contained several provisions intended to clarify that no partitioning is required where there is no separation requirement between different occupancies. Testimony indicated that such language was unnecessary. Therefore, those provisions have been removed.

What remains is a proposal that is essentially editorial in nature. It reorganizes the current three mixed occupancy design options into the order of likelihood typical application: Section 508.2 Nonseparated Occupancies, Section 508.3 Accessory Occupancies and Section 508.4 Calculated Occupancies. . Clearly, the nonseparated occupancy method is the practical default design option and is therefore listed first. The next option of least resistance is the accessory occupancy method and is listed second. The calculated method is shown last. This arrangement represents the natural design hierarchy and also lends itself to instruction on the subject of mixed occupancies. The term "calculated occupancies" was included in the original proposal to replace the current "separated" occupancy title. This was due to the fact that Table 508.4 does not necessarily require an occupancy separation based on similar risk; however, always requires that the risk be balanced through the performance of the sum of the ratios calculation.

Additionally, a somewhat confusing and unnecessary commercial kitchen exception was deleted from Table 508.4 in favor of clarifying that the restaurant and associated kitchen are the same, Group A-2 occupancy in Section 303.1.

The modifications contained in this public comment complete the reformatting of IBC mixed occupancy provisions and will provide for the final clarification of these very important design requirements. This restructuring has occurred during the development of two editions of the IBC, but these final technical and editorial adjustments ensure that the 2009 mixed occupancy requirements will be technically comprehensive while being easily interpreted thereby promoting consistency in interpretation of these oft used provisions. Cumulatively, they represent a significant improvement in the International Building Code.

Final Action: AS AM AMPC____ D

G152-07/08

508.1, 508.3, 508.3.1, 508.3.2, 508.3.3, 506.4.1.1

Proposed Change as Submitted:

Proponent: Jason Thompson, PE, National Concrete Masonry Association NCMA, representing the Masonry Alliance for Codes and Standards (MACS)

1. Revises as follows:

508.1 (Supp) General. Each portion of a building shall be individually classified in accordance with Section 302.1. Where a building contains more than one occupancy group, the building or portion thereof shall comply with the applicable provisions of Section 508.2~~,~~ or ~~508.3 or~~ 508.4, or a combination of these sections.

Exceptions:

1. Occupancies separated in accordance with Section 509.
2. Where required by Table 415.3.2, areas of Group H-1, H-2 and H-3 occupancies shall be located in a separate and detached building or structure.
3. Live/Work Units in accordance with Section 419 are not considered separate occupancies.

2. Delete without substitution:

~~**508.3 (Supp) Nonseparated occupancies.** Buildings or portions of buildings that comply with the provisions of this section shall be considered as nonseparated occupancies.~~

~~**508.3.1 (Supp) Occupancy classification.** Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space except that the most restrictive applicable provisions of Section 403 and Chapter 9 shall apply to the building or portion thereof in which the nonseparated occupancies are located.~~

~~**508.3.2 (Supp) Allowable area and height.** The allowable area and height of the building or portion thereof shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction of the building in accordance with Section 503.1.~~

~~**508.3.3 (Supp) Separation.** No separation is required between nonseparated occupancies.~~

~~**Exceptions:**~~

~~1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.3.3.~~
~~2. All Group R occupancies shall be separated from other occupancies in accordance with Section 508.4.4.~~

(Renumber subsequent sections)

3. Revise as follows:

506.4.1.1 (Supp) Mixed occupancies. In buildings with mixed occupancies, ~~the allowable area per story (A_a) shall be based on the most restrictive provisions for each occupancy when the mixed occupancies are treated according to Section 508.3. When the occupancies are treated according to Section 508.4 as separated occupancies,~~ the maximum total building area shall be such that the sum of the ratios for each ~~such area on~~ a separated occupancy in all ~~floors~~ stories as calculated according to Section 508.3.2 shall not exceed 2 for two-story buildings and 3 for buildings three stories or higher.

Reason: The purpose of this code change proposal is to eliminate the nonseparated occupancies option for mixed occupancy buildings as specified in Section 508.3 of the 2007 Supplement to the 2006 International Building Code (IBC). The main reason is that the nonseparated occupancies option is basically incorporated into the present Table 508.4 which is used for the separated occupancies option specified in Section 508.4. A review of that table indicates that there are a significant number of "N"s in the various cells of the table. The "N" indicates that there is no fire-resistance rated occupancy separation required for that particular mixed occupancy combination. Therefore, that would result in a nonseparated occupancy condition. So it is not clear why there is still a nonseparated occupancies option when the new Table 508.4 contains both separated and nonseparated occupancy conditions.

Section 508.3 General is a completely new section in the 2006 IBC. It is basically a complete rewrite of previous Section 302.3 of the 2003 IBC. In that edition of the IBC, the separated and nonseparated occupancy options for mixed occupancy buildings were very clear. Table 302.3.2 for separated occupancies clearly specified a minimum fire-resistance rating required for every occupancy combination where mixed occupancies occurred under the separated occupancies option. The new Table 508.4, however, has eliminated many of the required fire-resistance ratings for mixed occupancy separations and has also reduced the vast number of those occupancy separation fire-resistance ratings as well. And all of this was done without any technical substantiation to justify such a dramatic change in the occupancy separation requirements under the separated occupancies option of the code.

A review of Table 508.4 will quickly reveal that there are many cases where occupancy separations are not required. The significant cases occur with the Group A and Group E occupancies where there is no occupancy separation required between a Group A and a Group E occupancy, nor is there an occupancy separation between any of the sub-occupancy classifications in the Group A occupancies, such as A-1, A-2, etc. Nor are there any occupancy separations required between any of the Group I sub-occupancy classifications or the Group R sub-occupancy classifications. Furthermore, no occupancy separations are required between Group B, F-2, M, and S-1 occupancies nor are any occupancy separations required between any of the Group H sub-occupancy classifications except for the H-1 which is not permitted to be in a building with any other occupancy classification. So what does that leave as far as requiring occupancy separations by the table that is supposed to specify required separation of occupancies?

We believe this proves our point that there is no need to have a nonseparated occupancies option with the current Table 508.3.3. Possibly another approach would be to revise Table 508.3.3 so that all of the Ns are replaced with a number to indicate that at least some degree of fire-resistance is required to separate occupancies under the separated occupancies option in Section 508.3.3. At least under the 2003 IBC it was clear as to the separated and nonseparated occupancies based on Table 302.3.2 of that edition of the IBC which specified a minimum fire-resistance rating for every occupancy combination unless the combination was not permitted. It is also interesting to note that the exception to current Section 508.3.2.3 Separation in the nonseparated occupancies option would still require Group H-2, H-3, H-4, and H-5 occupancies to be separated from all other occupancies in accordance with Section 508.3.3 Separated Occupancies, yet Table 508.3.3 would not require any occupancy separations between the H-3, H-4, and H-5 occupancies. We believe that Section 508 is definitely broken so we offer this at least as a partial fix.

Cost Impact: The code change will increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The committee felt that deleting the non separated occupancy requirements would be deleting an option that is widely utilized and such a deletion will not resolve concerns with the separated occupancy requirements.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Jason Thompson, P.E., National Concrete Masonry Association, representing the Masonry Alliance for Codes and Standards (MACS), requests Approval as Submitted.

Commenter's Reason: We respectfully disagree with the Committee's disapproval of this code change proposal G152-07/08 which deletes the nonseparated occupancies option in the current code. In actuality, by deleting the nonseparated occupancies option we are actually clarifying the code because of the provisions in Table 508.3.3 (which has been redesignated as Table 508.4 in the Supplement). As noted in our Reason statement for our original code change submittal, the table contains the letter "N" in many areas throughout the table. The letter "N" indicates that there is no separation requirement even though this is a required separation of occupancies table. Therefore, the nonseparated occupancies option is, in effect, already allowed as it is built into the table wherever the "N" is provided. We simply do not understand how an occupancy can be separated from another occupancy in a building and treated as a separated occupancy if no fire-resistance rating is required for that occupancy separation. And evidently there is not even a physical separation required between adjacent occupancies where the "N" is contained in the table.

This was not a problem under the 2003 International Building Code (IBC) and previous editions which contained Table 302.3.2 for fire-resistance rated separations of occupancies. In that table there was always a minimum fire-resistance rating specified for any occupancy combination for a mixed occupancy building. Perhaps the better solution to this issue is to simply reinstate Table 302.3.2 of the 2003 IBC as a substitute to current Table 508.3.3 (Table 508.4 of the Supplement). In fact, we have submitted a separate Public Comment to Code Change Proposal G159-07/08 which does just that. So you as the ICC voting membership have an option as to which way to best address the issue of separation of occupancies in mixed occupancy buildings so that minimum fire-resistance ratings are provided for the fire barriers and horizontal assemblies that are used to separate multiple occupancies in a mixed occupancy building when the separated occupancies option in Section 508 is used.

Final Action: AS AM AMPC____ D

G155-07/08
Table 508.2.5

Proposed Change as Submitted:

Proponent: Greg Johnson, City of Saint Paul, MN

Revise table as follows:

TABLE 508.2.5 (Supp)
INCIDENTAL ACCESSORY OCCUPANCIES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Rooms containing fire pumps	2 hours; or 1 hour and provide automatic fire extinguishing system

(Portions of table and footnotes not shown remain unchanged)

Reason: The proposal correlates fire pump room construction requirements that already exist through the reference to NFPA 20 in IFC Section 913.2. The addition of this language in the IBC clarifies that a separation requirement exists for fire pump rooms and improves the ease of use of the document.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The proposed requirements need to be correlated with NFPA 20 before such provisions can be placed within Table 508.2.5.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Greg Johnson, representing the City of Saint Paul, MN and Wayne R. Jewell, CBO, City of Southfield, representing himself request Approval as Modified by this public comment.

Modify proposal as follows:

TABLE 508.2.5 (Supp)
INCIDENTAL ACCESSORY OCCUPANCIES

ROOM OR AREA	SEPARATION AND/OR PROTECTION
Rooms in non-high-rise buildings containing fire pumps	2 hours; or 1 hour and provide automatic fire extinguishing system throughout the building.
Rooms in high-rise buildings containing fire pumps	2 hours

508.2.5.3 Protection (Supp). Except as specified in Table 508.2.5 for certain incidental accessory occupancies, where an automatic fire-extinguishing system or an automatic sprinkler system is provided in accordance with Table 508.2.5, only the space occupied by the incidental accessory occupancy need be equipped with such system.

Commenter's Reason: The intent of the original proposal was to bring to the attention of the user of the International Building Code that fire pump rooms in NFPA 20 are required to be separated out from the remainder of the building by fire barriers like other incidental accessory use areas. NFPA 20 is referenced in Section 913.2 of the International Fire Code. However it was pointed out in the code hearings in Palm Springs that NFPA 20 does not permit a reduction in the fire resistance of the separation barrier in high-rise buildings that are provided with sprinkler protection. And a further review of NFPA 20 indicates that the reduction to 1 hour is only allowed in a fully sprinklered building. This public comment revises the requirements for fire pump rooms so any reduction in the fire resistance ratings of the fire barrier for sprinklers is consistent with the requirements in NFPA 20, referenced in the IFC. Since the code now only requires the sprinkler protection within the incidental accessory areas, per Section 508.2.5.3 (2007 Supplement), we have proposed an additional change to this section to coordinate with the proposed change in the table.

Final Action: AS AM AMPC____ D

G158-07/08
508.2.4

Proposed Change as Submitted:

Proponent: Maureen Traxler, City of Seattle, WA, representing The Washington Association of Building Officials Technical Code Development Committee

508.2.4 (Supp) Separation of occupancies. No separation is required between accessory occupancies and the main occupancy.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. Incidental accessory occupancies required to be separated or protected by Section 508.2.5.
3. Group R occupancies shall be separated from ~~other~~ accessory occupancies in accordance with Section 508.4.4

Reason: This is intended as an editorial clarification. Exception 2 was added when G140-06/07 was approved. The word "other" creates an implication that the Group R occupancy is also an accessory occupancy. The intent of the provision is to require Group R occupancies to be separated from other occupancies in all cases, regardless of whether the R occupancy is classified as accessory or as the main occupancy.

Cost Impact: This code change will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: This proposal was disapproved based upon action on G104-07/08 which was a more comprehensive revision to the 3rd exception to Section 508.2.4 thus eliminating the need for this proposal.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Maureen Traxler, City of Seattle, WA, representing The Washington Association of Building Officials Technical Code Development Committee, requests Approval as Submitted.

Commenter's Reason: The Code Development Committee disapproved this proposal because G104-07/08, which was approved as submitted, eliminates the language in Section 508.2.4 that is modified by this proposal. This public comment is submitted in case G104 is disapproved or modified in such a way that the language in Section 508.2.4 is reinstated.

Final Action: AS AM AMPC____ D

G159-07/08
Table 508.4

Proposed Change as Submitted:

Proponent: Tony Crimi, A.C. Consulting Solutions, Inc., representing the North American Insulation Manufacturer's Association (NAIMA); Jason Thompson, PE, National Concrete Masonry Association (NCMA), representing the Masonry Alliance for Codes and Standards (MACS)

Delete table and substitute as follows:

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

OCCUPANCY	A[d], E[d]		I		R[c]		F-2, S-2[b,c], U[c]		B, F-1, M, S-1		H-1		H-2		H-3, H-4, H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A[d], E[d]	N	N	1	2	1	2	N	1	1	2	NP	NP	3	4	2	3[a]
I	—	—	N	N	1	NP	1	2	1	2	NP	NP	3	NP	2	NP
R[e]	—	—	—	—	N	N	1	2	1	2	NP	NP	3	NP	2	NP
F-2, S-2[b,c], U[c]	—	—	—	—	—	—	N	N	1	2	NP	NP	3	4	2	3[a]
B[b], F-1, M, S-1	—	—	—	—	—	—	—	—	N	N	NP	NP	2	3	1	2[a]
H-1	—	—	—	—	—	—	—	—	—	—	N	NP	NP	NP	NP	NP
H-2	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	1	NP
H-3, H-4, H-5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP

For SI: 1 square foot = 0.0929 m^2.
S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.
a. For Group H-5 occupancies, see Section 903.2.4.2.
b. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.
c. See Section 406.1.4.
d. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)[a]

USE	A-1	A-2	A-3	A-4	A-5	B[b]	E	F-1	F-2	H-1	H-2	H-3	H-4	H-5	I-1	I-2	I-3	I-4	M[b]	R-1	R-2	R-3, R-4	S-1	S-2[c]	U
A-1	___	2	2	2	2	2	2	3	2	NP	4	3	2	4	2	2	2	2	2	2	2	2	3	2	1
A-2[e]	___	___	2	2	2	2	2	3	2	NP	4	3	2	4	2	2	2	2	2	2	2	2	3	2	1
A-3	___	___	___	2	2	2	2	3	2	NP	4	3	2	4	2	2	2	2	2	2	2	2	3	2	1
A-4	___	___	___	___	2	2	2	3	2	NP	4	3	2	4	2	2	2	2	2	2	2	2	3	2	1
A-5	___	___	___	___	___	2	2	3	2	NP	4	3	2	4	2	2	2	2	2	2	2	2	3	2	1
B[b]	___	___	___	___	___	___	2	3	2	NP	2	1	1	1	2	2	2	2	2	2	2	2	3	2	1
E	___	___	___	___	___	___	___	3	2	NP	4	3	2	3	2	2	2	2	2	2	2	2	3	2	1
F-1	___	___	___	___	___	___	___	___	3	NP	2	1	1	1	3	3	3	3	3	3	3	3	3	3	3
F-2	___	___	___	___	___	___	___	___	___	NP	2	1	1	1	2	2	2	2	2	2	2	2	3	2	1
H-1	___	___	___	___	___	___	___	___	___	___	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
H-2	___	___	___	___	___	___	___	___	___	___	___	1	2	2	4	4	4	4	2	4	4	4	2	2	1
H-3	___	___	___	___	___	___	___	___	___	___	___	___	1	1	4	3	3	3	1	3	3	3	1	1	1
H-4	___	___	___	___	___	___	___	___	___	___	___	___	___	1	4	4	4	4	1	4	4	4	1	1	1
H-5	___	___	___	___	___	___	___	___	___	___	___	___	___	___	4	4	4	3	1	4	4	4	1	1	3
I-1	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	2	2	2	2	2	4	3	2
I-2	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	2	2	2	2	3	2	1
I-3	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	2	2	2	3	2	1
I-4	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	2	2	3	2	1
M[b]	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	2	3	2	1
R-1	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	2	3	2	1
R-2	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	2	3	2	1
R-3, R-4	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	3	2[d]	1[d]
S-1	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	3	3
S-2[c]	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	1
U	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___	___

For SI: 1 square foot = 0.0929 m^2.

NP = Not permitted.

a. Except for Group H and I-2 occupancies, where the building is equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1, the fire-resistance ratings shall be reduced by 1 hour but to not less than 1 hour and to not less than that required for the floor construction according to the type of construction.

b. Occupancy separation need not be provided for storage areas within Groups B and M if the:

1. Area is less than 10 percent of the floor area;
2. Area is provided with an automatic fire-extinguishing system and is less than 3,000 square feet; or
3. Area is less than 1,000 square feet.

c. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.

d. See Section 406.1.4 for private garages and carports.

e. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

Reason: Crimi: To restore the separated uses (occupancies) concept previously prescribed in Section 302 of the 2003 IBC (and 2003 Supp) and clarify the distinction between separated uses and the non-separated use options.

During the 2006 cycle the separated uses section of the IBC was changed based on public proposal G32-04/05 on the basis that it presented no significant technical changes. To the contrary, there are dozens of reductions in fire resistance ratings resulting from these changes, without justification or supporting rationale. The result of this Code change is to reduce the level of protection provided by the IBC over any of the previous Legacy Codes.

This proposal aims to restore the previous Table 302.3.2 from the 2003 IBC, but retain the modified text of section 508 on Mixed Use & Occupancy. While the Code change was first accepted in the 2006 IBC, few jurisdictions have any history with the lack of fire resistance rated construction between occupancies which the 2006 IBC would now permit.

The occupancy separation Table has existed in the BOCA National Building Code for a very long time, and was incorporated into the first edition of the IBC. The concept of separation of major occupancies exists in Building regulations throughout the world. Certainly, those occupancy separations requirements used in the separated occupancies option have stood the test of time. There continues to be a critical need to separate adjacent occupancies of dissimilar use, with fire-resistance rated construction. This proposal would delete the current Table 508.3.3 in its entirety and substitute the previous Table 302.3.2 which was replaced in Code Change G32-04/05. The previous Table 302.3.2 had been is use for the three plus years it existed in the 2000 and 2003 editions of the IBC. Furthermore, the occupancy separation fire resistance ratings from this predecessor table were taken directly from the BOCA National Building Code, along with the entire concept of the non-separated and separated occupancies in mixed occupancy buildings.

The proponent of G32-04/05 original example utilized a Group B and Group F-1 in a building of Type IIB construction. One example used a ratio of 11% Group F-1 and 89% Group B. The calculations, without any area modifications, indicated that the allowable area for the Group F-1 would increase by 230 square feet over what would be allowed if the accessory use area provisions were used. Furthermore, the proponent points out that the overall allowable building area would decrease by 1150 square feet. However the proponent did not point out that using a similar approach with 11% Group B and 89% Group M and Type IIA construction, the Group B use may now be 1975 square feet larger than permitted by the accessory use area provisions and the overall building area may be increased by 1760 square feet. It should be noted that the IBC 2006 would permit these increases with no separation between the Group B and Group M occupancies and no additional requirements.

As currently published, the 2006 Code provisions in Section 508 blur the distinction between separated uses and the non-separated use options previously prescribed in Section 302.3.1. In some cases, the reductions in required fire resistance ratings are as large as 3 hours for given occupancy separations, while in others, the requirement to provide fire separations is removed altogether. In the published "Report of the Public Hearing on the 2003 editions of the International Building Code", the committee's published reason for recommending adoption of G32-04/05 is reported as follows: "The proposal does not have any significant technical changes from the current requirements." In reality, this code change proposals has lead to literally dozens of separate and distinct reductions in fire resistance rating requirements, in both sprinklered and unsprinklered occupancies, without justification or compensation of any kind.

The following is a Summary of changes to fire resistance ratings for occupancy separations between the 2006 IBC and the various Legacy Codes:

Comparison of 2006 IBC vs	IBC 2003[1]	BOCA 1996[2]	SBC 1997[3]	UBC 1997[4]
Reductions in FRR	85	49	56	37
Increases in FRR (Excluding cases "Not Permitted")	40	11	21	102
Total Changes	125	60	77	139

To illustrate some specific examples, this change has unilaterally reduced the fire separation between a mixed use office and a moderate hazard warehouse from the previously existing 3-hour minimum fire separation to zero, while providing no technical justification or compensating measures. Table 302.3.2 of the 2003 IBC, as well as the Exception to Section 302.2.3 (IBC 2003 Supplement), specified a minimum fire resistance for every occupancy separation and did not permit a fire resistance rating to be less than one hour, even when an automatic sprinkler system was provided. In contrast, the new Table 302.3.2 allows numerous instances where the fire resistance ratings are waived entirely. Further, while exception 1 of the old section 302.3.2 did not apply to Group H and I-2 areas, the revised Table in the new section 508 shows a reduction of 1-h in fire resistance rating between all I occupancies and for F-2, S-2, U, B, F-1, M, and S-1 without any justification or compensation. While it has been argued that a number of these separated use combinations are unrealistic, an equal number are very realistic and represent an unjustified reduction from current code requirements for fire-resistant construction. To unilaterally propose that a mixed use office and moderate hazard warehouse be reduced from the current 3-hour minimum fire separation to a zero separation is unjustifiable.

The adoption of this Code change in the 2006 IBC has had a significant detrimental impact on fire safety in buildings by arbitrarily reducing fire resistance ratings to levels significantly below most of the Legacy Codes, without providing any compensating safety measures. The full impact of this change has not yet been felt. This change needs to be corrected, and a selective process of review, consideration, and justification undertaken to determine which, if any, of these changes are desirable and justifiable.

Bibliography & References:

[1] 2003 IBC, International Codes Council, Table 302.3.2
[2] 1996 BOCA National Building Code, BOCA
[3] 1997 Standard Building Code, SBCCI
[4] 1997 Uniform Building Code, ICBO

Thompson: This is a follow up to Code Change G32-04/05 which was approved as modified during a previous code development cycle. We are very concerned that that code change proposal was approved based on no significant technical changes being made by that Code Change Proposal. Yet the premise of the new table was that similar hazards may be lumped together and not separated from each other with fire resistance rated fire barriers or horizontal assemblies. This is obviously a significant technical change from the previous provisions of Section 302.3.2 Separated Uses and Table 302.3.2 Required Separation of Occupancies (Hours) in the 2003 IBC. In no case in the previous Table 302.3.2 is a fire resistance rating required to separate occupancies allowed to be less than one hour, even when a automatic

sprinkler system is installed and the occupancy separation is allowed to be reduced by one hour. The Exception to Section 302.3.2 did not permit the rating to be reduced to less than one hour even where the sprinkler reduction was applied. However, the new Table 508.4 has virtually most of the table allowing no fire resistance ratings for the separation requirements as designated by "N" throughout the table. Thus, there is no fire resistance rated separation required between those different occupancies in Table 508.4 where the letter "N" is shown. This looks more to us like the nonseparated uses option allowed by Section 508.3. So there appears to be an overlap and potential conflict between this revised Section 508.4 and current Section 508.3.

We believe that if a designer does not wish to utilize fire resistance rated occupancy separations where the building contains mixed occupancies, then the designer should utilize the nonseparated use option of Section 508.3. Revising Table 508.4 in the manner proposed virtually renders useless the separated occupancies option in Section 508.4.

This also begs the question as to how to determine where the separate occupancies are and where the fire areas are that are created by these separate occupancies in order to apply Section 508.4. If there are no fire resistance ratings provided, there can be no fire areas and there can be no separated occupancies. Please refer to the definition in Section 702.1 for "fire area." It states the following: "The aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls, or fire-resistance rated horizontal assemblies of a building." The only time a fire area is created by Table 508.4 and Section 508.4 is if there is an actual number provided in the table to indicate the hourly rating. This is further exacerbated by Footnote b which allows a one hour reduction for Group S-2 Parking Garages used for private or pleasure vehicles. For the case of separating such occupancies from Groups B, F-1, M, and S-1 occupancies which are protected throughout with an automatic sprinkler system, the separation rating goes to "0". Again, there would be no fire separation and thus no fire area created. It should also be noted that such a reduction was not allowed by the previous table.

It is also not clear to us how Section 508.4.1 Occupancy Classification applies to separated occupancies. The second sentence states: "Each separated space shall comply with this code…" But what defines a separated space in the case where Table 508.4 contains "N"? The note to the table indicates that "N" means there is no separation requirement. So how can a space be separated if there is no such requirement? A possible solution may be to utilize the concept in Section 508.2.5.2 Non-Fire-Resistance Rated Separation and Protection where a sprinkler trade-off of the fire-resistance rating specified in Table 508.2.5 Incidental Accessory Occupancies would still require a separation by "construction capable of resisting the passage of smoke." At least there would be some degree of separation to provide some minimal protection from smoke movement from one occupancy to another. However, we do not believe that is an adequate solution for the separated occupancies option in this code.

To help address this problem and fix what is apparently a broken code section, we have proposed to delete the current Table 508.4 in its entirety and substitute the previous Table 302.3.2 which was replaced in Code Change G32-04/05. We were certainly able to utilize the previous Table 302.3.2 for the three plus years it existed in the 2000 and 2003 editions of the IBC. Furthermore, the predecessor table to that table was taken directly from the BOCA National Building Code as was the entire concept of the nonseparated and separated occupancies in mixed occupancy buildings. Apparently it had worked quite well under the BOCA code system so we see no reason why it can't continue to work just as well under the IBC. Certainly, those occupancy separations when used in the separated occupancies option have evidently stood the test of time.

A review of the tabular summary included with this code change identifies 30 technical changes to the hourly fire-resistance ratings in the previous Table 302.3.2, not to mention several other equally significant changes proposed to water down the concept of separated uses. It could be argued that a number of these separated use combinations are unrealistic. However, an equal number, though, are very real and represent an unjustified reduction from current code requirements for fire-resistant construction. To unilaterally propose that a mixed use office and moderate hazard warehouse be reduced from the current 3-hour minimum fire separation to a zero separation is unjustifiable. Office employees have an expectation to be protected from the dissimilar risk posed to them by a warehousing operation with moderate to severe fuel loading. Likewise, no rationale has been supplied for the removal of any minimum fire separation between a moderate hazard factory generally with a much higher risk of ignition sources, and either those same office employees in an adjacent portion of the building or large quantities of highly combustible fuel loads associated with either the raw materials or finished products. In fact, no justification has been given for any of the rating reductions.

Another basic flaw in the approach taken by Code Change G32-04/05 is the seemingly innocent deletion of the exception to previous Section 302.3.2.1. That exception, which the proponent of G32-04/05 would lead you to believe, was simply inserted into the proposed new Table 508.4. But that is not the case which is obvious by looking at the numbers, or lack thereof, in the table. That exception contained two long-standing provisions that: 1) any reduction for sprinklers never be permitted to be reduced below the floor rating for the type of construction; and 2) the 1-hour sprinkler reduction never result in less than a one hour separation.

Finally, there is absolutely no good argument for removing all passive fire protection between H-3 and H-4 uses. Even though the IBC recognizes that these do not normally include the most flammable or most explosive of materials, the code requires a 1-hour separation so that a fire involving flammable solids of water-reactive materials does not adversely impact an immediately adjacent stockpile of highly toxic H-4 substances.

A very similar code change proposal G148-06/07 and G150-06/07 were discussed during the ICC Final Action Hearings held this past May in Rochester, NY due to several Public Comments having been submitted requesting approval. Basically, the Public Comments requested that what is now Table 508.4 be deleted and replaced with previous Table 302.3.2 in the 2003 IBC. The Public Comments were successful in overturning the Committee recommendation for disapproval but were unsuccessful in achieving the two-thirds majority vote required for approval by a vote of 100 for and 77 against. That strong support of the Class A voting members encouraged us to submit this code change proposal as a follow up to their actions requesting that this code change in essence be approved.

See table attached.

Separated Occupancy Groups	Required Occupancy Separation		Net Loss in Fire-Resistance (Hours)
	2003 IBC	2006 IBC	
A-1/all other A	2	0	-2
A-1/E	2	0	-2
A-1/F-1 or S-1	3	2	-1
A-1/F-2 or S-2	2	1	-1
A-2/all other A	2	0	-2
A-2/E	2	0	-2
A-2/F-1 or S-1	3	2	-1
A-2/F-2 or S-2	2	1	-1
A-3/all other A	2	0	-2
A-3/F-1 or S-1	3	2	-1
A-3/F-2 or S-2	2	1	-1
A-4/all other A	2	0	-2
A-4/E	2	0	-2
A-4/F-1 or S-1	3	2	-1
A-4/F-2 or S-2	2	1	-1
A-5/E	2	0	-2
A-5/F-1 or S-1	3	2	-1
A-5/F-2 or S-2	2	1	-1
B/F-1 or S-1	3	0	-3
B/M	2	0	-2
E/F-1 or S-1	3	2	-1
E/F-2 or S-2	2	1 (or zero)	-1
F-1/F-2 OR S-2	3	2	-1
F-1/S-1	3	0	-3
I-1/all other I	2	0	-2
I-1/F-1 OR S-2	3	2	-1
I-1/S-1	4	2	-2
I-2/all other I	2	0	-2
I-2/F-1 or S-1	3	2	-1
I-3/all other I	2	0	-2
I-3/F-1 or S-1	3	2	-1
I-4/all other I	2	0	-2
I-4/F-1 or S-1	3	2	-1
R/F-1 or S-1	3	2	-1

Cost Impact: Crimi: The code change proposal will not increase the cost of construction.
Thompson: This code change will increase the cost of construction.

Committee Action: Disapproved

Committee Reason: There was opposition to deleting and replacing the entire table with the format and values of the 2003 IBC. The preference is that if problems exist with the separations that individual revisions should be proposed to the table.

Assembly Action: None

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Mike Ashley, CBO, Alliance for Fire and Smoke Containment and Control (AFSCC), requests Approval as Submitted.

Commenter's Reason: We are submitting this Public Comment to show our support for the proponents of this code change proposal which we believe correctly fixes the problems associated with the separated occupancies option in Section 508 of the Supplement to the International Building Code (IBC). We have been following this issue very closely since the code was revised for the 2006 edition to include the new Table 508.3.3 (Table 508.4 in the Supplement) which establishes the required fire resistance ratings for separations of occupancies under new Section 508.4 Separated Occupancies in the Supplement. As noted in the supporting statements by the proponents, that Table contains no separation requirements for several different occupancy combinations as indicated the by "N" in the Table which means there is no separation requirement although the Table is provided for required separation of occupancies. We believe substituting Table 302.3.2 of the 2003 IBC resolves this problem and puts the code back to where it used to be where it clearly defined the required separation of occupancies and the fire-resistance ratings specified which were never reduced below one hour, even with the installation of an automatic sprinkler system.

This would also be consistent with Table 706.3.9 Fire-Resistance Rating Requirements for Fire Barrier Assemblies Between Fire Areas which establishes minimum fire resistance ratings for the separation of a single occupancy into separate fire areas. That Table is provided for those conditions where a designer may wish to subdivide the same occupancy into fire compartments that do not exceed the threshold areas for triggering automatic sprinkler system requirements, for example. It should also be noted that these fire area separation are not allowed to have their fire resistance ratings reduced where an automatic sprinkler system is provided. Yet in the current Table 508.4 of the Supplement the required separations are generally reduced by one hour where automatic sprinkler systems are provided or, of course, they are allowed to have no separation requirement wherever "N" is indicated in the Table. A close look at this Table indicates that Group B, F-1, M, and S-1 Occupancies are not required to be provided with a fire resistive occupancy separation between any of those occupancies in the same building. Yet if the same occupancies were subdivided into fire areas they would have a minimum 2-hour fire-resistance separation required by Table 706.3.9. The application of Table 508.4 in the Supplement will also allow a building containing a Group M Occupancy and a Group B Occupancy with an area less than 12,000 square feet without an occupancy separation. But if the building was increased in area to 30,000 square feet and a 2-hour fire barrier was provided to subdivide the Group M Occupancy so that the fire area does not exceed the 12,000 square foot threshold for requiring automatic sprinklers, how is the extra 6,000 sq ft of Group B occupancy dealt with? Since the Group B occupancy would not be required to have a fire barrier separation from the Group M Occupancy, what determines the Group M fire area and what determines the Group B fire area, if any?

In conclusion, we believe that the current code is definitely flawed regarding the application of the separated occupancies option and needs to be corrected by substituting the Table indicated in this code change proposal for the current Table 508.4 of the Supplement for determining minimum required fire-resistance rated separations of occupancies. Therefore, we strongly urge the ICC Class A voting members to approve this code change proposal as submitted.

Public Comment 2:

Tony Crimi, A.C. Consulting Solutions Inc., representing North American Insulation Manufacturers Association (NAIMA) and representing the International Firestop Council, requests Approval as Submitted.

Commenter's Reason: This proposal aims to restore the previous Table 302.3.2 from the 2003 IBC, but retain the modified text of section 508 on Mixed Use & Occupancy. In addition to restoring the separated uses (occupancies) concept previously prescribed in Section 302 of the 2003 IBC (and 2003 Supp), the proposal clarifies the distinction between separated uses and the non-separated use options. During the 2006 cycle the separated uses section of the IBC was changed based on public proposal G32-04/05 on the basis that it presented no significant technical changes. To the contrary, there are dozens of reductions in fire resistance ratings resulting from these changes, without justification or supporting rationale. The result of this Code change is to reduce the level of protection provided by the IBC over any of the previous Legacy Codes.

Substantiation: Approximately 40% of the jurisdictions who have adopted the IBC are now using the 2006 (or later) edition. In contrast, when this Code change was first accepted in the 2006 IBC, few jurisdictions had any history with the lack of fire resistance rated construction between occupancies which the 2006 IBC now permits. As a result, there is a growing level of concern with the reductions in fire resistance ratings between separated occupancies in mixed occupancy buildings in the 2006 IBC. The adoption of this Code change in the 2006 IBC arbitrarily reduced fire resistance ratings to levels significantly below most of the Legacy Codes, without providing any compensating safety measures. The full impact of this change has not yet been felt. This change needs to be corrected, and a selective process of review, consideration, and justification undertaken to determine which, if any, of these changes are desirable and justifiable.

The occupancy separation Table has existed in the BOCA National Building Code for a very long time, and was incorporated into the first edition of the IBC. The concept of separation of major occupancies exists in Building regulations throughout the world. Certainly, those occupancy separations requirements used in the separated occupancies option have stood the test of time. There continues to be a critical need to separate adjacent occupancies of dissimilar use, with fire-resistance rated construction. This proposal would delete the current Table 508.3.3 in its entirety and substitute the previous Table 302.3.2 which was replaced in Code Change G32-04/05. The previous Table 302.3.2 had been is use for the three plus years it existed in the 2000 and 2003 editions of the IBC. Furthermore, the occupancy separation fire resistance ratings from this predecessor table were taken directly from the BOCA National Building Code, along with the entire concept of the non-separated and separated occupancies in mixed occupancy buildings.

This code change has lead to literally dozens of separate and distinct reductions in fire resistance rating requirements, in both sprinklered and unsprinklered occupancies, without justification or compensation of any kind. To illustrate some specific examples, this change has unilaterally reduced the fire separation between a mixed use office and a moderate hazard warehouse from the previously existing 3-hour minimum fire separation to zero, while providing no technical justification or compensating measures. Table 302.3.2 of the 2003 IBC, as well as the Exception to Section 302.2.3 (IBC 2003 Supplement), specified a minimum fire resistance for every occupancy

separation and did not permit a fire resistance rating to be less than one hour, even when an automatic sprinkler system was provided. In contrast, the new Table 302.3.2 allows numerous instances where the fire resistance ratings are waived entirely. Further, while Exception 1 of the old section 302.3.2 did not apply to Group H and I-2 areas, the revised Table in the new section 508 shows a reduction of 1-h in fire resistance rating between all I occupancies and for F-2, S-2, U, B, F-1, M, and S-1 without any justification or compensation. While it has been argued that a number of these separated use combinations are unrealistic, an equal number are very realistic and represent an unjustified reduction from current code requirements for fire-resistant construction. To unilaterally propose that a mixed use office and moderate hazard warehouse be reduced from the current 3-hour minimum fire separation to a zero separation is unjustifiable.

Public Comment 3:

Jason Thompson, P.E., National Concrete Masonry Association, representing the Masonry Alliance for Codes and Standards (MACS), requests Approval as Submitted.

Commenter's Reason: The reason the Committee gave for disapproving this code change proposal is that there was opposition to substituting an entire new table. They felt it would be better to address individual revisions to the current Table 508.3.3 (Table 508.4 in the Supplement) where these required separations were considered inadequate. We respectfully disagree since just that has been proposed over the last several code change cycles after Table 508.3.3 (Table 508.4 in the Supplement) was introduced into the code. And each time those code change proposals were recommended for disapproval by the Committee. As noted in our Reason statement for our code change proposal, those code changes were brought before the general membership with Public Comments in Rochester, NY where the members agreed that the Committee's recommendation for disapproval was inappropriate and the disapproval was overturned. However, those code change proposals were unsuccessful in achieving the two-thirds majority vote for approval. In the case of the substitution of the previous Table 302.3.2 as proposed in this code change proposal, the final vote was 100 for and 77 against. We believe the ICC voting membership has made it clear that they wish to fix the problems with the separated occupancies option in Section 508. We further believe this is the appropriate fix and strongly encourage all of the Class A voting members to vote for approval of this Public Comment to reinstate Table 302.3.2.

Final Action: AS AM AMPC____ D

G160-07/08
Table 508.4

Proposed Change as Submitted:

Proponent: Tom Lariviere, Fire Department, Madison, MS, representing the Joint Fire Service Review Committee

Revise table as follows:

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

OCCUPANCY	A[d], E		~~I~~ I-1, I-3, I-4		I-2		R[c]		F-2, S-2[b,d], U[d]		B, F-1, M, S-1		H-1		H-2		H-3, H-4, H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A[d], E[d]	N	N	1	2	2	2	1	2	N	1	1	2	NP	NP	3	4	2	3[a]
~~I~~ I-1, I-3, I-4	—	—	N	N	2	2	1	NP	1	2	1	2	NP	NP	3	NP	2	NP
I-2	—	—	—	—	N	N	2	NP	2	2	2	2	NP	NP	3	NP	2	NP
R[c]	—	—	—	—	—	—	N	N	1	2	1	2	NP	NP	3	NP	2	NP
F-2, S-2[b,c] U[c]	—	—	—	—	—	—	—	—	N	N	1	2	NP	NP	3	4	2	3[a]
B, F-1, M, S-1	—	—	—	—	—	—	—	—	—	—	N	N	NP	NP	2	3	1	2[a]
H-1	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	NP	NP	NP	NP
H-2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	1	NP
H-3, H-4, H-5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP

For SI: 1 square foot = 0.0929 m^2.

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.

a. For Group H-5 occupancies, see Section 903.2.4.2.
b. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.
c. See Section 406.1.4.
d. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

Reason: This proposal will require Group I-2 occupancies to be separated by at least a two hour separation from the remainder of the building. Group I-2 occupancies contain patients who need assistance during evacuation and thus require longer evacuation time. The separation of a minimum of 2 hours will provide for horizontal movement and then vertical movement/evacuation if needed.
This provision will provide consistency in the IBC with Federal Regulations for these facilities.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: Group I-2 occupancies already have smoke compartment requirements in Section 407 therefore the separation requirements currently in Table 508.4 were considered adequate.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Tom Lariviere, Fire Department, Madison, MS, representing the Joint Fire Service Review Committee, requests Approval as Modified by this public comment.

Modify proposal as follows:

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

Occupancy	A[e], E		I-1, I-3, I-4		I-2		R[d]		F-2, S-2[c,d], U[d]		B[b], F-1, M[b], S-1		H-1		H-2		H-3, H-4, H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A[e], E[e]	N	N	1	2	2	~~2~~ NP	1	2	N	1	1	2	NP	NP	3	4	2	3[a]
I-1, I-3, I-4	—	—	N	N	2	~~2~~ NP	1	NP	1	2	1	2	NP	NP	3	NP	2	NP
I-2	—	—	—	—	N	N	2	NP	2	~~2~~ NP	2	~~2~~ NP	NP	NP	3	NP	2	NP
R[d]	—	—	—	—	—	—	N	N	1	2	1	2	NP	NP	3	NP	2	NP
F-2, S-2[c,d], U[d]	—	—	—	—	—	—	—	—	N	N	1	2	NP	NP	3	4	2	3[a]
B[b], F-1, M[b], S-1	—	—	—	—	—	—	—	—	—	—	N	N	NP	NP	2	3	1	2[a]
H-1	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	NP	NP	NP	NP
H-2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	1	NP
H-3, H-4, H-5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP

For SI: 1 square foot = 0.0929 m^2.
S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.
a. For Group H-5 occupancies, see Section 903.2.4.2.
b. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.
c. See Section 406.1.4.
d. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

Commenter's Reason: This Public Comment requires that I-2 occupancies be separated from other occupancies by at least 2-HR fire resistive construction. The Code Development Committee disapproved this original proposal. The reason was that the smoke compartments exist in I-2 occupancies therefore this change is not necessary.

However, even with the smoke compartments, this proposal will specify that Group I-2 occupancies need to be separated by at least a two hour separation from other occupancies. Group I-2 occupancies contain patients who need assistance during evacuation and thus require longer evacuation time. The separation of a minimum of 2 hours will provide for horizontal movement and then vertical movement/evacuation if needed.

Four entries in the Table are revised from 2-HR to NP for separations between I-2 and other occupancies. This is consistent with Section 903.2.5 which requires that the entire building must be sprinklered when it contains a I occupancy. Therefore, a non-sprinklered situation could not exist for new construction.

This provision will provide consistency and correlation of the IBC with mandated Federal Regulations for these facilities. In other words, the Federal Regulations already require this separation. Without the inclusion of this information in the IBC, a new facility could be constructed and completed only to find out that they need to go back and install a 2 hour fire separation. If the IBC contains this requirement, it will eliminate confusion and frustration on the part of the owner/developer and eliminate finger pointing after the code official has "approved" the facility.

Final Action: AS AM AMPC____ D

G163-07/08
Table 508.4

Proposed Change as Submitted:

Proponent: Don Davies, Salt Lake City Corporation, representing the Utah Chapter of ICC

Revise table as follows:

TABLE 508.4 (Supp)
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)

(Portions of table not shown remain unchanged)

S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
N = No separation requirement.
NP = Not permitted.

a. For Group H-5 occupancies, see Section 903.2.4.2.
b. The required separation from areas used only for private or pleasure vehicles shall be ~~allowed to~~ reduced ~~separation~~ by 1 hour but to not less than one hour.
c. See Section 406.1.4.
d. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

Reason: The code user is alerted in IBC Section 406.2.7 that there must be some type of occupancy separation between a garage and another occupancy which does not normally occur in the code. When one turns to Section 508.3 as directed they are directed to Section 508.3.2 as one of the options which allows nonseparated uses. In most instances the nonseparated option would be the preferred and likely used option. Even though vehicle fires have gone down and there is a good history of that there should be at least a minimal amount of protection to the adjoining uses as required in other areas of the code as required for private garages in Section 406.1.4 which have a few vehicles.

Cost Impact: This code change will increase the cost of construction.

Committee Action: **Approved as Submitted**

Committee Reason: The proposal was a good clarification that a minimum of 1 hour fire resistive construction is required for separation of areas housing private or pleasure vehicles.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Maureen Traxler, City of Seattle Department of Planning and Development, requests Disapproval.

Commenter's Reason: This proposal is based on a misinterpretation of Section 406.2.7 and imposes a significantly more restrictive requirement on parking garages than is justified. Section 406.2.7 does not say that there must be a separation between a garage and another occupancy—it allows nonseparated uses. Section 406.2.7 refers to Section 508.3 which includes both separated and nonseparated occupancies.

The separation required for garages used for private and pleasure vehicles is less than the requirement for other S-2 occupancies because the hazard is less. The IBC recognizes that the fire loss history of these occupancies is very low; this provision has been in the IBC since the 2000 edition.

Requiring that the separation be at least 1 hour, as this proposal does, will create a conflict with the cells in Table 508.4 that explicitly allow separations with no rating. For example, the separation between S-2 and A or E occupancies may be unrated. Those cells also reference this footnote.

Final Action: AS AM AMPC____ D

G168-07/08
509.9

Proposed Change as Submitted:

Proponent: Maureen Traxler, City of Seattle, WA, representing the Department of Planning and Development

Revise as follows:

509.9 (Supp) Multiple buildings above an enclosed or open Group S-2 parking garage. Where two or more buildings are provided above the horizontal assembly separating a Group S-2 open or closed parking garage from the buildings above in accordance with the special provisions in Sections 509.2 and 509.3, the buildings above the horizontal assembly shall be regarded as separate and distinct buildings <u>from each other</u> and shall comply with all other provisions of this code as applicable to each separate and distinct building.

Reason: Section 509.9 was added to the code by item G158-06/07. It addresses one interpretation issue, but raises another question. The intent behind G158-06/07 was to clarify that the buildings above the horizontal separation are separate, but the language also seems to say that those upper buildings are to be considered as separate from the building below the horizontal separation. Section 509.2 clearly states that the horizontal separation "shall be considered as a separate and distinct building for the purpose of determining area limitations, continuity of fire walls, limitation of number of stories and type of construction". The effect of the horizontal separation in Section 509.3 is even more limited— the garage below the separation "shall be classified as a separate and distinct building for the purpose of determining the type of construction".

This proposal removes the inconsistency between the new Section 509.9 and Sections 509.2 and 509.3 by stating that the buildings above the horizontal separation are separate from each other, and allowing Section 509.2 and 509.3 to answer the question of whether they are separate from the building below the separation.

Cost Impact: This code change will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The proponent sought to clarify that each of the buildings above the horizontal assembly were considered as separate from one another, but the committee felt that the code was already clear enough in this regard.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

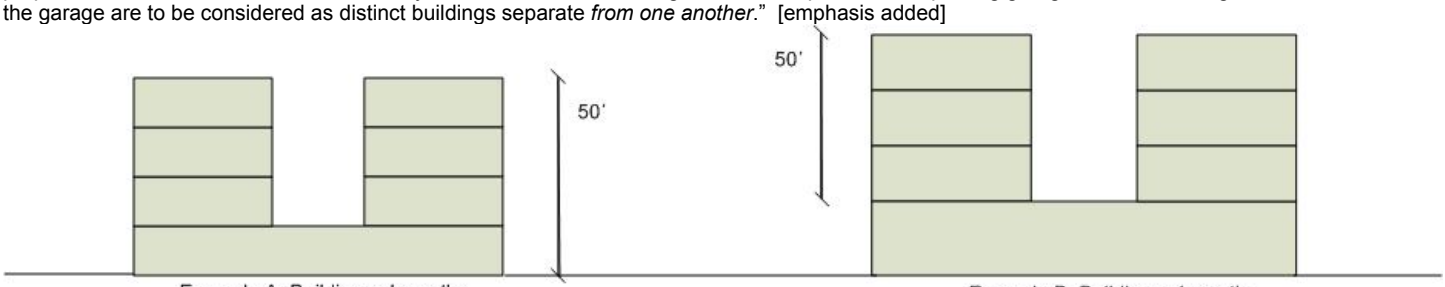
Public Comment:

Maureen Traxler, City of Seattle Department of Planning and Development, requests Approval as Submitted.

Commenter's Reason: Section 509.9 says that, for buildings built according to Section 509.2 or 509.3, the buildings above the horizontal assembly are separate buildings. It doesn't say what they are separate from, and could easily be read to say they are separate from the building below the horizontal assembly.

The sketches below illustrate the two interpretations of Section 509.9. The buildings in both sketches comply with Section 509.2—their lower stories are parking garages of Type IA construction; the upper stories are unsprinklered Group B occupancies of Type VA construction. Example A illustrates the correct interpretation of Section 509.9, which is that the Type VA buildings are separate from each other, but are only separate from the lower story to the extent provided in Section 509.2. Example B illustrates the effect of interpreting Section 509.9 as allowing the Type VA stories to be separate from the Type IA story—if the height of the building is measured from the top of the three-hour separation, the allowable building height is much greater.

This proposal is consistent with the reason for adding this section to the code in the 2006-2007 code cycle. The reason for that proposal stated "This text is needed to clarify when two or more buildings are built atop a common parking garage that the buildings above the garage are to be considered as distinct buildings separate *from one another*." [emphasis added]



Example A: Buildings above the horizontal assembly are separate from each other; 50′ height is measured from grade plane according to Section 509.2

Example B: Buildings above the horizontal assembly are separate from the building below the horizontal assembly; 50′ height is measured from the horizontal assembly according to Section 509.9

Final Action: AS AM AMPC____ D

G169-07/08
Table 601

Proposed Change as Submitted:

Proponent: Mike Ennis, SPRI, Inc.

Revise table as follows:

TABLE 601 (Supp)
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours

	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
BUILDING ELEMENT	**A[h]**	**B**	**A[d]**	**B**	**A[d]**	**B**	**HT**	**A[d]**	**B**
Roof construction Including supporting beams and joists[h]	1½[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

(Portions of table not shown remain unchanged)

For SI: 1 foot = 304.8 mm.

a. Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.

e. Not less than the fire-resistance rating required by other sections of this code.
f. Not less than the fire-resistance rating based on fire separation distance
g. Not less than the fire-resistance rating as referenced in Section 714.5
h. The requirements of this table for roof construction are not applicable to above deck components.

Reason: Note "b" has in some instances been interpreted to apply to above deck components, thus raising the cost of construction. For example, nail-base products that are composed of foam plastic insulation with an OSB sheet laminated to one side to act as a nail base for roofing shingles, tile, etc. are being required to be manufactured with fire-retardant-treated plywood instead of the OSB because of a misinterpretation of Note "b". These products are installed on top of the roof deck and are not part of the structural assembly.

Providing this clarification will allow for the use of more cost effective construction materials and still meet the intent of the building code.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The language provided by the proponent was felt to be too broad and may bring into the exception too many important components of the roof assembly that need to be regulated. It was suggested a more narrow focus to the footnote be provided.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Mike Ennis, SPRI, Inc., requests Approval as Modified by this public comment.

Modify proposal as follows:

TABLE 601 (Supp)
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours

	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
BUILDING ELEMENT	**A[h]**	**B**	**A[d]**	**B**	**A[d]**	**B**	**HT**	**A[d]**	**B**
Roof construction Including supporting beams and joists[h]	1½[b]	1[b,c]	1[b,c]	0[c]	1[b,c]	0	HT	1[b,c]	0

(Portions of table not shown remain unchanged)

For SI: 1 foot = 304.8 mm.
a. Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.
e. Not less than the fire-resistance rating required by other sections of this code.
f. Not less than the fire-resistance rating based on fire separation distance
g. Not less than the fire-resistance rating as referenced in Section 714.5
h. The requirements of this table for roof construction are not applicable to above deck components. The materials used in above deck components shall meet the requirements of Section 603.1.

Commenter's Reason: The proposed Code Change added the following footnote to Table 601 - Fire Resistance Rating Requirements for Building Elements: h. The requirements of this table for roof construction are not applicable to above deck components. This footnote applied only to the Building Element identified as Roof Construction – Including Supporting Beams and Joists

This footnote was added because footnote "b" has in some instances been interpreted to apply to above deck components, thus raising the cost of construction. For example, nail-base products that are composed of foam plastic insulation with an OSB sheet laminated to one side to act as a nail base for roofing shingles, tile, etc. are being required to be manufactured with fire-retardant-treated plywood instead of the OSB because of a misapplication of Note "b". These products are installed on top of the roof deck and are not part of the structural assembly.

Upon Committee review we were asked to narrow the focus of the footnote. The above modification has been proposed in an effort to narrow the focus as requested. The proposal in no way limits the hourly rating requirements of the Table.

Final Action: AS AM AMPC____ D

G173-07/08

Table 602(2) (New), 602.1, Table 601, Table 602, 402.7.1, 406.3.7, 704.5, 704.11, 714.5, 2103.2, 3103.3

Proposed Change as Submitted:

Proponent: Greg Lake, Sacramento Metropolitan Fire District, representing the California Fire Chiefs Association (Cal Chiefs)

1. Add new table as follows:

TABLE 602(2)
FOR BUILDINGS ASSIGNED TO SEISMIC DESIGN CATEGORY D, E, or F
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, e]

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H	OCCUPANCY GROUP F-1, M, S-1	OCCUPANCY GROUP A, B, E, F-2, I, R[b], S-2, U[b]
X < 5[c]	I, III, IV II, V	3 3	3 3	3 2[f]
5 ≤ X < 10	I, III IV II, V	3 2	3 1	2 1
10 ≤ X < 20	I, III, IV II, V	2 1	2 1	2[d] 1[d]
20 ≤ X < 30	I, III, IV II, V	1 1	1 0	1[d] 0
X ≥ 30	All	0	0	0

For SI: 1 foot = 304.8 mm.

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.
b. For special requirements for Group U occupancies see Section 406.1.2.
c. See Section 705.1.1 for party walls.
d. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.
e. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.
f. The fire-resistance rating shall be permitted to be 1 hour for Group R occupancies.

2. Revise as follows:

602.1 (Supp) General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. The building elements shall have a fire-resistance rating not less than that specified in Table 601 and exterior walls shall have a fire resistance rating not less than that specified in Tables 602(1) and 602(2). Where required to have a fire-resistance rating by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

TABLE 601 (Supp)
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
BUILDING ELEMENT	**A**	**B**	**A[d]**	**B**	**A[d]**	**B**	**HT**	**A[d]**	**B**
Nonbearing walls and partitions Exterior	See Tables 602(1) and 602(2)								

(Portions of table not shown remain unchanged)

a. Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.
e. Not less than the fire-resistance rating required by other sections of this code.
f. Not less than the fire-resistance rating based on fire separation distance (see Table 602(1) and 602(2)).
g. Not less than the fire-resistance rating as referenced in Section 714.5

TABLE 602(1)
FOR BUILDINGS ASSIGNED TO SEISMIC DESIGN CATEGORY A, B, or C
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS
BASED ON FIRE SEPARATION DISTANCE[a, e]

(Portions of table and footnotes not shown remain unchanged)

402.7.1 (Supp) Attached garage. An attached garage for the storage of passenger vehicles having a capacity of not more than nine persons and open parking garages shall be considered as a separate building where it is separated from the covered mall building by not less than 2-hour fire barriers constructed in accordance with Section 706 or horizontal assemblies constructed in accordance with Section 711, or both.

Exception: Where an open parking garage or enclosed parking garage is separated from the covered mall building or anchor building a distance greater than 10 feet (3048 mm), the provisions of Tables 602(1) and 602(2) shall apply. Pedestrian walkways and tunnels which attach the open parking garage or enclosed parking garage to the covered mall building or anchor building shall be constructed in accordance with Section 3104.

406.3.7 Fire separation distance. Exterior walls and openings in exterior walls shall comply with Tables 601, ~~and~~ 602(1) and 602(2). The distance to an adjacent lot line shall be determined in accordance with Tables 602(1) and 602(2) and Section 704.

704.5 Fire-resistance ratings. Exterior walls shall be fire-resistance rated in accordance with Tables 601, ~~and~~ 602(1) and 602(2). The fire-resistance rating of exterior walls with a fire separation distance of greater than 5 feet (1524 mm) shall be rated for exposure to fire from the inside. The fire-resistance rating of exterior walls with a fire separation distance of 5 feet (1524 mm)or less shall be rated for exposure to fire from both sides.

704.11 Parapets. Parapets shall be provided on exterior walls of buildings.

Exceptions: A parapet need not be provided on an exterior wall where any of the following conditions exist:

1. The wall is not required to be fire-resistance rated in accordance with Tables 602(1) and 602(2) because of fire separation distance.
2. The building has an area of not more than 1,000 square feet (93 m^2) on any floor.
3. Walls that terminate at roofs of not less than 2-hour fire-resistance-rated construction or where the

roof, including the deck or slab and supporting construction, is constructed entirely of noncombustible materials.

4. One-hour fire-resistance-rated exterior walls that terminate at the underside of the roof sheathing, deck or slab, provided:
   - 4.1. Where the roof/ceiling framing elements are parallel to the walls, such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction for a width of 4 feet (1220 mm) for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
   - 4.2. Where roof/ceiling framing elements are not parallel to the wall, the entire span of such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction.
   - 4.3. Openings in the roof shall not be located within 5 feet (1524 mm) of the 1-hour fire-resistance-rated exterior wall for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
   - 4.4. The entire building shall be provided with not less than a Class B roof covering.
5. In Groups R-2 and R-3 where the entire building is provided with a Class C roof covering, the exterior wall shall be permitted to terminate at the underside of the roof sheathing or deck in Type III, IV and V construction, provided:
   - 5.1. The roof sheathing or deck is constructed of approved noncombustible materials or of fire-retardant-treated wood for a distance of 4 feet (1220 mm); or
   - 5.2. The roof is protected with 0.625-inch (16 mm) Type X gypsum board directly beneath the underside of the roof sheathing or deck, supported by a minimum of nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members for a minimum distance of 4 feet (1220 mm).
6. Where the wall is permitted to have at least 25 percent of the exterior wall areas containing unprotected openings based on fire separation distance as determined in accordance with Section 704.8.

714.5 Exterior structural members. Load-bearing structural members located within the exterior walls or on the outside of a building or structure shall be provided with the highest fire-resistance rating as determined in accordance with the following:

1. As required by Table 601 for the type of building element based on the type of construction of the building;
2. As required by Table 601 for exterior bearing walls based on the type of construction; and
3. As required by Tables 602(1) and 602(2) for exterior walls based on the fire separation distance.

2103.2 (Supp) Clay or shale masonry units. Clay or shale masonry units shall conform to the following standards: ASTM C 34 for structural clay load-bearing wall tile; ASTM C 56 for structural clay nonload-bearing wall tile; ASTM C 62 for building brick (solid masonry units made from clay or shale); ASTM C 1088 for solid units of thin veneer brick; ASTM C 126 for ceramic-glazed structural clay facing tile, facing brick and solid masonry units; ASTM C 212 for structural clay facing tile; ASTM C 216 for facing brick (solid masonry units made from clay or shale); ASTM C 652 for hollow brick (hollow masonry units made from clay or shale); and ASTM C 1405 for glazed brick (single-fired solid brick units).

Exception: Structural clay tile for nonstructural use in fireproofing of structural members and in wall furring shall not be required to meet the compressive strength specifications. The fire-resistance rating shall be determined in accordance with ASTM E 119 or UL 263 and shall comply with the requirements of Tables 602(1) and 602(2).

3103.3 Location. Temporary structures shall be located in accordance with the requirements of Tables 602(1) and 602(2) based on the fire-resistance rating of the exterior walls for the proposed type of construction.

Reason: We have submitted this code change proposal as a follow up to the Public Comment we submitted to Code Change Proposal G166-06/07 during the last code development cycle requesting approval. Although we were successful in getting the Committee's recommendation for disapproval overturned, we failed to get the two-thirds majority vote needed for approval by the narrow margin of 81 to 49. One of the main reasons this code change was recommended for disapproval was because the Committee said it lacked technical justification for requiring increased fire-resistance construction of exterior walls in more seismically active areas. Unfortunately, such statistical information is very difficult to come by and one needs to rely, at best, on anecdotal information of fires that have occurred after significant seismic events. We certainly know from experience that more fires occur than normal after a significant seismic event and the subsequent after shocks. And we know that as a result of a significant seismic event the fire service will be facing extreme challenges to provide emergency services and respond to such fires. One of our major concerns in such situations is to prevent building to building fire spread since we know there is a high likelihood that water supplies will be interrupted and access to buildings may even be significantly

reduced or not available at all to within reasonable distances. Let alone the fact that response times will greatly increase because of the demand on services and because of obstructions that will have occurred as a result of the seismic event. Therefore, we believe it is very prudent to provide increased fire-resistance ratings for exterior walls of buildings relatively close to each other or to adjacent property lines in seismically active areas.

This code change proposal addresses the significant potential for exterior fire spread from building to building in areas of the country that are subject to significant seismic events. It has been well documented in recent earthquakes in California and elsewhere that fires follow major earthquakes. Probably the most well-known earthquakes in this regard occurred in San Francisco in 1906, Loma Prieta, CA in 1989, and in Kobe, Japan in 1995. The 1906 San Francisco earthquake caused hundreds of fires which destroyed thousands of buildings within the city creating a virtual wasteland. It is somewhat ironic that last year was the 100th anniversary of that most dramatic and tragic earthquake. We've learned a lot since then about how to build buildings and how to protect them from fire. However, current Table 602 is inadequate to protect against a major conflagration, especially in densely built-up areas when the next significant earthquake strikes.

The fire resistance ratings in proposed Table 602(2) are generally modeled after the fire-resistance ratings and separation distances for the various types of construction and occupancies contained in the 1997 ICBO Uniform Building Code (UBC). However, we reduced the 4-hour ratings in the UBC to 3-hours to be consistent with the highest ratings currently in Table 601 and 602. The UBC is the legacy code that was adopted and used throughout most of the states that have buildings assigned to Seismic Design Category D, E, or F. We limited the scope of the table to those seismic design categories to parallel Section 903.3.5.2 Secondary Water Supply. That section requires a secondary on-site water supply for high-rise buildings assigned to Seismic Design Category C, D, E, or F. If a secondary on-site water supply is necessary for high-rise buildings in these seismic design categories, it is also appropriate to require higher fire-resistance ratings for exterior walls for buildings assigned to Seismic Design Category D, E or F.

The basic philosophy for the fire-resistance ratings in this table is that the closer a building is to a property line or an adjacent building, the more fire-resistance should be provided to protect against potential exposure fires or to prevent a fire within a building from becoming an exposure fire to an adjacent building. Of course, this is similar to the concept in current Table 602 where the closer a building is to an adjacent building or property line, the more severe the potential fire exposure will be. But in the case of buildings assigned to Seismic Design Category D, E, or F, there is a major concern that fires may burn out of control since the fire department may not be able to respond to every fire in a timely manner. Their access may be disrupted by earthquake damage caused to roadways, bridges, and buildings that collapse across roadways blocking their access throughout their area of coverage. The fire department will also be spread very thin having to respond to many incidents virtually simultaneously or within close proximity to each other so they may find it extremely difficult, if not impossible, to respond to each and every fire incident. Thus, it can be expected that many fires will go uncontrolled and will need to be contained as long as possible within the structures in which they originate or be resisted by structures adjacent to those that have caught on fire in order to prevent building to building fire spread.

This is the reason for requiring 3-hour fire rated walls for virtually all types of construction for all occupancy groups that are located within 5 feet of an adjacent property line or building. Exterior walls with 3-hour fire-resistance ratings are generally more substantial in construction. Therefore, there is a greater likelihood that they will also remain in place after the seismic event and be able to withstand fires that occur subsequent to the seismic event.

Another significant problem with earthquakes is that the water supplies are often disrupted as the water mains are ruptured and/or electric power is interrupted so there may not be pumps available to pump the water that might be available in the public water systems. Therefore, automatic sprinkler systems may not have water supplies available to deal with a fire that occurs in those buildings that are protected with sprinklers. Also, the fire department may not have adequate water to combat a fire within a building, thus having to fall back and protect adjacent structures from the fire within the building that is burning out of control. Therefore, it is very important that exterior walls of buildings assigned to Seismic Design Category D, E or F have generally higher degrees of fire-resistance than otherwise required by current Table 602.

There are two key points to this code change proposal from the fire service perspective that we see value in. The first is that virtually all exterior walls of most occupancies, regardless of construction type, are required to have a minimum 3-hour fire-resistance rating where the fire separation distance is less than 5 feet. However, in some cases the fire-resistance rating is allowed to be reduced to 1-hour. Currently, the International Building Code (IBC) only requires a fire-resistance rating of 3-hours for Group H occupancies. Fire-resistance ratings of exterior walls are allowed to be as low as 1-hour for most other occupancies. We believe this is totally inadequate for such a minimal fire separation distance.

The second key point is that this table differs from current Table 602 in that the fire separation distance from 10 feet to 30 feet has been broken down into two ranges of fire separation distances from 10 feet to 20 feet and from 20 feet to 30 feet. We believe this is a very important differentiation so that buildings between 10 feet and 20 feet from a property line or an adjacent building exposure will have a higher degree of fire-resistance required for their exterior walls as compared to the current code which treats a fire separation distance of 10 feet the same as 30 feet. This proposed new Table 602(2) will require all exterior walls located between 10 feet and 20 feet fire separation distance to have not less than a 1-hour fire-resistance rating, whereas the IBC does not require a fire-resistance rating for Types IIB and VB construction for other than Group H occupancies. All other exterior wall ratings are only required to be 1-hour fire-resistance rated except for Group H occupancies which require a minimum 2-hour fire-resistance rating. This code change proposal will specify a minimum 2-hour fire-resistance for all occupancy classifications in construction Types I, III, and IV. Then from the 20 foot to 30 foot fire separation distance range the table basically mimics that of current Table 602 for the 10 foot to 30 foot range.

We believe this approach is more realistic for protecting exterior walls of buildings from adjacent exposures of other buildings nearby, especially after a significant seismic event. Having these greater fire-resistance ratings for exterior walls for the fire separation distances less than 20 feet will greatly assist the fire service in preventing building to building fire spread after a major seismic event since our resources will be taxed to the maximum and water supplies will be very limited if not totally unavailable. We believe that providing the additional fire-resistive protection for the exterior walls will help minimize building to building fire spread during a significant seismic event.

Cost Impact: The code change proposal will not increase the cost of construction.

Individual Consideration Agenda

Committee Action: Disapproved

Committee Reason: The proposal was disapproved based upon the proponent's request.

Assembly Action: None

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Christine Reed, Central County Fire Department representing the California Fire Chiefs Association requests, Approval as Modified by this public comment.

Modify proposal as follows:

TABLE ~~602(2)~~ 603
FOR BUILDINGS ASSIGNED TO SEISMIC DESIGN CATEGORY D, E, or F
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE[a, e]

FIRE SEPARATION DISTANCE = X (feet)	TYPE OF CONSTRUCTION	OCCUPANCY GROUP H	OCCUPANCY GROUP F-1, M, S-1	OCCUPANCY GROUP A, B, E, F-2, I, R[b], S-2, U[b]
X < 5[c]	I, III, IV	3	3	3
	II, V	3	~~3~~ 2	2[f]
5 ≤ X < 10	I, III IV	3	~~3~~ 2	2
	II, V	2	1	1[h]
10 ≤ X < 20	I, III, IV	2	2	2[d g]
	II, V	1	1	1[d h]
20 ≤ X < 30	I, III, IV	1	1	1[d]
	II, V	1	0	0
X ≥ 30	All	0	0	0

For SI: 1 foot = 304.8 mm

a. Load-bearing exterior walls shall also comply with the fire-resistance rating requirements of Table 601.
b. For special requirements for Group U occupancies see Section 406.1.2.
c. See Section 503.2 for party walls.
d. Open parking garages complying with Section 406 shall not be required to have a fire-resistance rating.
e. The fire-resistance rating of an exterior wall is determined based upon the fire separation distance of the exterior wall and the story in which the wall is located.
f. The fire-resistance rating shall be permitted to be 1 hour for Group R occupancies.
g. The fire-resistance rating shall be permitted to be 1 hour for Group R-2 occupancies.
h. A fire-resistance rating shall not be required for Group R-3 occupancies of Type IIB or Type VB construction.

2. Revise as follows:

602.1 (Supp) General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in Sections 602.2 through 602.5. The building elements shall have a fire-resistance rating not less than that specified in Table 601 and exterior walls shall have a fire resistance rating not less than that specified in Tables 602~~(1) and 602(2)~~ and 603. Where required to have a fire-resistance rating by Table 601, building elements shall comply with the applicable provisions of Section 703.2. The protection of openings, ducts and air transfer openings in building elements shall not be required unless required by other provisions of this code.

TABLE 601 (Supp)
FIRE-RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (hours)

BUILDING ELEMENT	TYPE I		TYPE II		TYPE III		TYPE IV	TYPE V	
	A	B	A[d]	B	A[d]	B	HT	A[d]	B
Nonbearing walls and partitions Exterior	See Tables 602~~(1) and 602(2)~~ and 603								

(Portions of table not shown remain unchanged)

a. Roof supports: Fire-resistance ratings of structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
b. Except in Group F-1, H, M and S-1 occupancies, fire protection of structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
c. In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
d. An approved automatic sprinkler system in accordance with Section 903.3.1.1 shall be allowed to be substituted for 1-hour fire-resistance-rated construction, provided such system is not otherwise required by other provisions of the code or used for an allowable area increase in accordance with Section 506.3 or an allowable height increase in accordance with Section 504.2. The 1-hour substitution for the fire resistance of exterior walls shall not be permitted.
e. Not less than the fire-resistance rating required by other sections of this code.
f. Not less than the fire-resistance rating based on fire separation distance (see Table 602~~(1) and 602(2)~~ and 603).
g. Not less than the fire-resistance rating as referenced in Section 714.5

TABLE 602~~(1)~~
FOR BUILDINGS ASSIGNED TO SEISMIC DESIGN CATEGORY A, B, or C
FIRE-RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS
BASED ON FIRE SEPARATION DISTANCE[a, e]

(Portions of table and footnotes not shown remain unchanged)

402.7.1 (Supp) Attached garage. An attached garage for the storage of passenger vehicles having a capacity of not more than nine persons and open parking garages shall be considered as a separate building where it is separated from the covered mall building by not less than 2-hour fire barriers constructed in accordance with Section 706 or horizontal assemblies constructed in accordance with Section 711, or both.

Exception: Where an open parking garage or enclosed parking garage is separated from the covered mall building or anchor building a distance greater than 10 feet (3048 mm), the provisions of Tables 602~~(1) and 602(2)~~ and 603 shall apply. Pedestrian walkways and tunnels which attach the open parking garage or enclosed parking garage to the covered mall building or anchor building shall be constructed in accordance with Section 3104.

406.3.7 Fire separation distance. Exterior walls and openings in exterior walls shall comply with Tables 601, ~~and~~ 602~~(1) and 602(2)~~ and 603. The distance to an adjacent lot line shall be determined in accordance with Tables 602~~(1) and 602(2)~~ and 603 and Section 704.

704.5 Fire-resistance ratings. Exterior walls shall be fire-resistance rated in accordance with Tables 601, ~~and~~ 602~~(1) and 602(2)~~ and 603. The fire-resistance rating of exterior walls with a fire separation distance of greater than 5 feet (1524 mm) shall be rated for exposure to fire from the inside. The fire-resistance rating of exterior walls with a fire separation distance of 5 feet (1524 mm)or less shall be rated for exposure to fire from both sides.

704.11 Parapets. Parapets shall be provided on exterior walls of buildings.

Exceptions: A parapet need not be provided on an exterior wall where any of the following conditions exist:

1. The wall is not required to be fire-resistance rated in accordance with Tables 602~~(1) and 602(2)~~ and 603 because of fire separation distance.
2. The building has an area of not more than 1,000 square feet (93 m2) on any floor.
3. Walls that terminate at roofs of not less than 2-hour fire-resistance-rated construction or where the roof, including the deck or slab and supporting construction, is constructed entirely of noncombustible materials.
4. One-hour fire-resistance-rated exterior walls that terminate at the underside of the roof sheathing, deck or slab, provided:
   4.1. Where the roof/ceiling framing elements are parallel to the walls, such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction for a width of 4 feet (1220 mm) for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
   4.2. Where roof/ceiling framing elements are not parallel to the wall, the entire span of such framing and elements supporting such framing shall not be of less than 1-hour fire-resistance-rated construction.
   4.3. Openings in the roof shall not be located within 5 feet (1524 mm) of the 1-hour fire-resistance-rated exterior wall for Groups R and U and 10 feet (3048 mm) for other occupancies, measured from the interior side of the wall.
   4.4. The entire building shall be provided with not less than a Class B roof covering.
5. In Groups R-2 and R-3 where the entire building is provided with a Class C roof covering, the exterior wall shall be permitted to terminate at the underside of the roof sheathing or deck in Type III, IV and V construction, provided:
   5.1. The roof sheathing or deck is constructed of approved noncombustible materials or of fire-retardant-treated wood for a distance of 4 feet (1220 mm); or
   5.2. The roof is protected with 0.625-inch (16 mm) Type X gypsum board directly beneath the underside of the roof sheathing or deck, supported by a minimum of nominal 2-inch (51 mm) ledgers attached to the sides of the roof framing members for a minimum distance of 4 feet (1220 mm).
6. Where the wall is permitted to have at least 25 percent of the exterior wall areas containing unprotected openings based on fire separation distance as determined in accordance with Section 704.8.

714.5 Exterior structural members. Load-bearing structural members located within the exterior walls or on the outside of a building or structure shall be provided with the highest fire-resistance rating as determined in accordance with the following:

1. As required by Table 601 for the type of building element based on the type of construction of the building;
2. As required by Table 601 for exterior bearing walls based on the type of construction; and
3. As required by Tables 602~~(1) and 602(2)~~ and 603 for exterior walls based on the fire separation distance.

2103.2 (Supp) Clay or shale masonry units. Clay or shale masonry units shall conform to the following standards: ASTM C 34 for structural clay load-bearing wall tile; ASTM C 56 for structural clay nonload-bearing wall tile; ASTM C 62 for building brick (solid masonry units made from clay or shale); ASTM C 1088 for solid units of thin veneer brick; ASTM C 126 for ceramic-glazed structural clay facing tile, facing brick and solid masonry units; ASTM C 212 for structural clay facing tile; ASTM C 216 for facing brick (solid masonry units made from clay or shale); ASTM C 652 for hollow brick (hollow masonry units made from clay or shale); and ASTM C 1405 for glazed brick (single-fired solid brick units).

Exception: Structural clay tile for nonstructural use in fireproofing of structural members and in wall furring shall not be required to meet the compressive strength specifications. The fire-resistance rating shall be determined in accordance with ASTM E 119 or UL 263 and shall comply with the requirements of Tables 602~~(1) and 602(2)~~ and 603.

3103.3 Location. Temporary structures shall be located in accordance with the requirements of Tables 602~~(1) and 602(2)~~ and 603 based on the fire-resistance rating of the exterior walls for the proposed type of construction.

Commenter's Reason: This proposal has been modified from the original 07/08 submittal after further discussions with building officials in an attempt to make Table 603 more realistic and acceptable. The modification makes allowances for a reduction in fire-resistance ratings for R-2 and R-3 Occupancies within 20 feet of property lines. The modification also includes a reduction in rating for F-1, M and S-1 Occupancies within 10 feet of property lines.

As stated in the previous reasoning statement, we certainly know from experience that more fires occur than normal after a significant seismic event and the subsequent after shocks. And we know that as a result of a significant seismic event the fire service will be facing extreme challenges to provide emergency services and respond to such fires. One of our major concerns in such situations is to prevent building to building fire spread since we know there is a high likelihood that water supplies will be interrupted and access to buildings may even be significantly reduced or not available at all to within reasonable distances. Let alone the fact that response times will greatly increase because of the demand on services and because of obstructions that will have occurred as a result of the seismic event. Therefore, we believe it is very prudent to provide increased fire-resistance ratings for exterior walls of buildings relatively close to each other or to adjacent property lines in seismically active areas.

This code change proposal addresses the significant potential for exterior fire spread from building to building in areas of the country that are subject to significant seismic events. It has been well documented in recent earthquakes in California and elsewhere that fires follow major earthquakes. Probably the most well-known earthquakes in this regard occurred in San Francisco in 1906, Loma Prieta, CA in 1989, and in Northridge, CA 1994. The 1906 San Francisco earthquake caused hundreds of fires, which destroyed thousands of buildings within the city creating a virtual wasteland. The 1998 Loma Prieta earthquake caused almost 400 water main breaks, allowing fires ignited as a result of the earthquake to burn and extend uncontrolled. The Southern California Northridge 6.8 earthquake in 1994 resulted in over 3000 water main and service breaks that took over three months to repair. Within the first 24-hours after the Northridge earthquake, 466 fires were reported with 50 fires reported in the first two hours. Twenty-nine water tankers had to be deployed throughout the valley to supply water to fire personnel to fight these fires (information taken from Los Angeles Fire Department Operations Report). These three seismic events alone are evident that water supplies will be compromised and fire personnel will be over-extended after a significant earthquake. The current Table 602 is inadequate to protect against a major conflagration, especially in densely built-up areas when the next significant earthquake strikes.

The fire resistance ratings in proposed Table 603 are generally modeled after the fire-resistance ratings and separation distances for the various types of construction and occupancies contained in the 1997 ICBO Uniform Building Code (UBC). However, we reduced the 4-hour ratings in the UBC to 3-hours to be consistent with the highest ratings currently in Table 601 and 602. The UBC is the legacy code that was adopted and used throughout most of the states that have buildings assigned to Seismic Design Category D, E, or F. We limited the scope of the table to those seismic design categories to parallel Section 903.3.5.2 Secondary Water Supply. That section requires a secondary on-site water supply for high-rise buildings assigned to Seismic Design Category C, D, E, or F. If a secondary on-site water supply is necessary for high-rise buildings in these seismic design categories, it is also appropriate to require higher fire-resistance ratings for exterior walls for buildings assigned to Seismic Design Category D, E or F for the additional needed protection.

The basic philosophy for the fire-resistance ratings in this table is that the closer a building is to a property line or an adjacent building, the more fire-resistance should be provided to protect against potential exposure fires or to prevent a fire within a building from becoming an exposure fire to an adjacent building. Of course, this is similar to the concept in Table 602 where the closer a building is to an adjacent building or property line, the more severe the potential fire exposure will be. Table 602 can include the assumption that water supply capabilities, operational fire hydrants and fire sprinkler systems are in place. But in the case of buildings assigned to Seismic Design Category D, E, or F, there is a major concern that fires may burn out of control since there is the assumption that water supply capabilities and operational fire hydrants and fire sprinkler systems may not be in place, especially after an earthquake. The fire department may not be able to respond to every fire in a timely manner. Their access may be disrupted by earthquake damage caused to roadways, bridges, and buildings that collapse across roadways blocking their access throughout their area of coverage. The fire department will also be spread very thin having to respond to many incidents virtually simultaneously or within close proximity to each other so they may find it extremely difficult, if not impossible, to respond to each and every fire incident. Thus, it can be expected that many fires will go uncontrolled and will need to be contained as long as possible within the structures in which they originate or be resisted by structures adjacent to those that have caught on fire in order to prevent building to building fire spread.

Another significant problem with earthquakes is that the water supplies are often disrupted as the water mains are ruptured and/or electric power is interrupted so there may not be pumps available to pump the water that might be available in the public water systems. Therefore, automatic sprinkler systems may not have water supplies available to deal with a fire that occurs in those buildings that are protected with sprinklers. Also, the fire department may not have adequate water to combat a fire within a building, thus having to fall back and protect adjacent structures from the fire within the building that is burning out of control. Therefore, it is very important that exterior walls of buildings assigned to Seismic Design Category D, E or F have generally higher degrees of fire-resistance than otherwise required by Table 602 in order to maintain a similar level of protection through passive systems when active systems may not be available or operational after a seismic event.

One key point is that this new Table 603 differs from Table 602 in that the fire separation distance from 10 feet to 30 feet has been broken down into two ranges of fire separation distances from 10 feet to 20 feet and from 20 feet to 30 feet. We believe this is a very important differentiation so that buildings between 10 feet and 20 feet from a property line or an adjacent building exposure will have a higher degree of fire-resistance required for their exterior walls as compared to the current code which treats a fire separation distance of 10 feet the same as 30 feet. This proposed new Table 603 will require all exterior walls located between 10 feet and 20 feet fire separation distance to have not less than a 1-hour fire-resistance rating (with one exception), whereas the IBC does not require a fire-resistance rating for Types IIB and VB construction for other than Group H occupancies. All other exterior wall ratings are only required to be 1-hour fire-resistance rated except for Group H occupancies which require a minimum 2-hour fire-resistance rating. This code change proposal will specify a minimum 2-hour fire-resistance for all occupancy classifications in construction Types I, III, and IV (with 2 exceptions). Then from the 20 foot to 30 foot fire separation distance range the table basically mimics that of Table 602 for the 10 foot to 30 foot range.

We believe this approach is more realistic for protecting exterior walls of buildings from adjacent exposures of other buildings nearby, especially after a significant seismic event.

Final Action: AS AM AMPC____ D

G179-07/08, Part I
1203.2.1; IRC R806.1

Proposed Change as Submitted:

Proponent: Matthew Dobson, Vinyl Siding Institute

PART I – IBC GENERAL

1203.2.1 (Supp) Openings into attic. Exterior openings into the attic space of any building intended for human occupancy shall be protected to prevent the entry of birds, squirrels, rodents, snakes and other similar creatures. Openings for ventilation having a least dimension of ~~1/8~~ 1/16 inch (~~3.2~~ 1.6 mm) minimum and 1/4 inch (6.4 mm) maximum shall be permitted. Openings for ventilation having a least dimension larger than 1/4 inch (6.4 mm) shall be provided with corrosion resistant wire cloth screening, hardware cloth, perforated vinyl or similar material with openings having a least dimension of ~~1/8~~ 1/16 inch (~~3.2~~ 1.6 mm) minimum and 1/4 inch (6.4 mm) maximum ~~openings~~. Where combustion air is obtained from an attic area, it shall be in accordance with Chapter 7 of the *International Mechanical Code*.

Reason: Soffit and opening sizes have changed and become more innovative, products like hidden vents and other have helped to improve the architectural ability of these exterior attic openings. This change does not change the venting requirement but reflects minimum requirements that are now being used effectively in the market place. It is also more consistent with current language in the IRC.

Cost Impact: The code change proposal will not increase the cost of construction.

PART I – IBC GENERAL
Committee Action: **Approved as Submitted**

Committee Reason: The proposal clarifies the code and is consistent with the provisions of the IRC for attic vents.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Michael Vieira, Willdan, representing Sacramento Valley Association of Building Officials (SVABO), requests Disapproval for Part I.

Commenter's Reason: Mesh screening of 1/16" can easily become clogged with spider webs, paint, and other debris and render them incapable of providing any vent capacity. The reason provided at the Code Hearings states that this change would allow for products currently used in the market place. This reason is flawed. Current products utilizing 1/16" screen are in violation of current code.

Final Action: AS AM AMPC____ D

G179-07/08, Part II
1203.2.1; IRC R806.1

Proposed Change as Submitted:

Proponent: Matthew Dobson, Vinyl Siding Institute

PART II – IRC BUILDING/ENERGY

R806.1 (Supp) Ventilation required. Enclosed attics and enclosed rafter spaces formed where ceilings are applied directly to the underside of roof rafters shall have cross ventilation for each separate space by ventilating openings protected against the entrance of rain or snow. Ventilation openings shall have a least dimension of 1/16 inch (1.6 mm) minimum and 1/4 inch (6.4 mm) maximum. Ventilation openings having a least dimension larger than 1/4 inch (6.4 mm) shall be provided with corrosion-resistant wire cloth screening, hardware cloth, or similar material with openings having a least dimension of ~~1/8~~ 1/16 inch (~~3.2~~ 1.6 mm) minimum and 1/4 inch (6.4 mm) maximum ~~openings~~.

Reason: Soffit and opening sizes have changed and become more innovative, products like hidden vents and other have helped to improve the architectural ability of these exterior attic openings. This change does not change the venting requirement but reflects minimum requirements that are now being used effectively in the market place. It is also more consistent with current language in the IRC.

Cost Impact: The code change proposal will not increase the cost of construction.

PART II – IRC
Committee Action: **Approved as Submitted**

Committee Reason: This change adds necessary clarity on how to figure the minimum opening requirements for attic vents.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Michael Vieira, Willdan, representing Sacramento Valley Association of Building Officials (SVABO), requests Disapproval for Part II.

Commenter's Reason: Mesh screening of 1/16" can easily become clogged with spider webs, paint, and other debris and render them incapable of providing any vent capacity. The reason provided at the Code Hearings states that this change would allow for products currently used in the market place. This reason is flawed. Current products utilizing 1/16" screen are in violation of current code.

Final Action: AS AM AMPC____ D

G183-07/08
1301.1.1, 202 (New); IECC 404.2 (New), 202 (New)

THIS CODE CHANGE WILL BE HEARD ON THE IECC PORTION OF THE HEARING ORDER.

Proposed Change as Submitted:

Proponent: Dave Collins, AIA, The Preview Group, Inc., representing the AIA Codes Committee

1. IBC Revise as follows:

1301.1.1 Criteria. Buildings shall be designed and constructed in accordance with the *International Energy Conservation Code*. The energy use of all structures shall be 50% less than the average building site energy intensity per square foot as determined by the building occupancy and location in the U.S. Department of Energy's Energy Information Administration (EIA) 2003 Commercial Building Energy Consumption Survey (CBECS). Where a building occupancy is used for an activity that does not align closely the activities listed, the code official is authorized to determine the activity that the building occupancy most nearly resembles:

US DOE EIA	Occupancy
Education	(E)
Food Sales	(B)
Food Services	(A-2)
Health Care	
Inpatient	(I-2)
Outpatient	(B)
Lodging	(R-1, R-2, R-3, R-4, I-4)
Mercantile	(M)
Retail (Other Than Mall)	(M)
Enclosed and Strip Malls	(See Section 402)
Office	(B)
Public Assembly	(A-1, A-3, A-4)
Public Order and Safety	(B, I-3)
Religious Worship	(A-3)
Service	
Warehouse and Storage	(S-1.S-2)
Other	(F-1, F-2, H)
Vacant	(U)

SECTION 202
DEFINITIONS

SITE ENERGY INTENSITY. Site energy intensity is the energy use in a building and facilities on the site expressed in kBtu's used per year per area of total useful area of a building – (kBtu/ft^2/yr).

2. IECC Add new text as follows:

101.6 Site energy intensity criteria. The energy use of all structures shall be 50% less than the average building site energy intensity per square foot as determined by the building occupancy and location in the U.S. Department of Energy's Energy Information Administration (EIA) 2003 Commercial Building Energy Consumption Survey (CBECS). Where a building occupancy is used for an activity that does not align closely the activities listed, the code official is authorized to determine the activity that the building occupancy most nearly resembles:

US DOE EIA	Occupancy
Education	(E)
Food Sales	(B)
Food Services	(A-2)
Health Care	
Inpatient	(I-2)
Outpatient	(B)
Lodging	(R-1, R-2, R-3, R-4, I-4)
Mercantile	(M)
Retail (Other Than Mall)	(M)
Enclosed and Strip Malls	(See Section 402)
Office	(B)
Public Assembly	(A-1, A-3, A-4)
Public Order and Safety	(B, I-3)
Religious Worship	(A-3)
Service Warehouse and Storage	(S-1,S-2)
Other	(F-1, F-2, H)
Vacant	(U)

SECTION 202
GENERAL DEFINITIONS

SITE ENERGY INTENSITY. Site energy intensity is the energy use in a building and facilities on the site expressed in kBtu's used per year per area of total useful area of a building – (kBtu/ft^2/yr).

Reason: The United States leads the world in per capita consumption of energy. Buildings are fully 48% of the consumption of energy nationwide. The US Department of Energy has compiled data showing how the energy is being used by various types of buildings. The following table shows the distribution of the samples as of 2003.

Table A1. Summary Table for All Buildings (Including Malls), 2003

	Number of Buildings (thousand)	Total Floor Space (million square feet)	Mean Square Feet per Building (thousand)	Median Square Feet per Building (thousand)
All Buildings	4,859	71,658	14.7	5.0
Building Floorspace (Square Feet)				
1,001 to 5,000	2,586	6,922	2.7	2.4
5,001 to 10,000	948	7,033	7.4	7.2
10,001 to 25,000	810	12,659	15.6	15.0
25,001 to 50,000	261	9,382	36.0	35.0
50,001 to 100,000	147	10,291	70.2	67.0
100,001 to 200,000	74	10,217	138.6	130.0
200,001 to 500,000	26	7,494	287.6	260.0
Over 500,000	8	7,660	937.6	700.0
Principal Building Activity				
Education	386	9,874	25.6	7.0
Food Sales	226	1,255	5.6	2.8
Food Service	297	1,654	5.6	3.5
Health Care	129	3,163	24.6	6.0
Inpatient	8	1,905	241.4	106.0
Outpatient	121	1,258	10.4	6.0
Lodging	142	5,096	35.8	12.5
Mercantile	657	11,192	17.0	6.9
Retail (Other Than Mall)	443	4,317	9.7	4.8
Enclosed and Strip Malls	213	6,875	32.2	12.3
Office	824	12,208	14.8	4.0
Public Assembly	277	3,939	14.2	6.7
Public Order and Safety	71	1,090	15.5	5.0
Religious Worship	370	3,754	10.1	6.0
Service	622	4,050	6.5	2.8
Warehouse and Storage	597	10,078	16.9	5.2
Other	79	1,738	21.9	4.6
Vacant	182	2,567	14.1	3.7
Year Constructed				
Before 1920	333	3,784	11.4	4.9
1920 to 1945	536	6,985	13.0	4.0
1946 to 1959	573	7,262	12.7	4.0
1960 to 1969	600	8,641	14.4	5.0
1970 to 1979	784	12,275	15.6	5.8
1980 to 1989	768	12,468	16.2	4.2
1990 to 1999	917	13,981	15.2	5.0
2000 to 2003	347	6,262	18.1	5.6

As a first step toward improvement of energy consumption in buildings, we can begin to reduce the energy consumption in new construction and renovations as they are being undertaken, making a significant impact on their long-term consumption of energy. This is a welfare issue affecting the health and productivity of our society. By making significant reductions in the use of energy in buildings the codes will have an enduring affect on our economy and the depletion of valuable resources.

Awareness of the impact of building energy use and the need to address this is a rising concern among various communities. Codes and standards are being developed and adopted locally to include various types of guideline systems for sustainable design such as LEED, Green Globes, EnergyStar, and others. While these are an important aspect of improved building design, they do not yet address the threshold of energy consumption and improved energy efficiency that we believe is critical. By incorporating a maximum energy use criteria, the ICC family of codes will set a precedent for communities to follow, making measurable change.

Standards such as ASHRAE 90.1 and the proposed standard for high performance buildings ASHRAE/USGBC/IESNA SPC 189, *Standard for High-Performance Green Buildings Except Low-Rise Residential Buildings*, both will include criteria that are similar to this proposal. While these standards may be available in the near future, it is imperative that the codes make a statement as to how the subject should be addressed now.

Use of the CBECS data to establish energy consumption criteria addresses two very important aspects of this issue. Defining the energy target at the outset of the design process gives the design team a clear, achievable target. This target will allow the design team to focus its effort on achieving the target through a range of design strategies without reference to other model designs. Having the criteria based on reductions in real world, actual energy use for each occupancy type in a given region provides a second identifiable achievement. The code is not seeking reductions in the theoretical energy consumption determined through design efforts. Using CEBECS data to determine the criteria will lead to reductions in what buildings really use.

Cost Impact: The code change proposal will increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: While the committee appreciates the aggressive sentiment of this proposal, the proponent did not provide a basis for a 50% reduction. In addition, there would be considerable confusion regarding the calculation of that value.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Dave Collins, AIA, The Preview Group, Inc., representing the AIA Codes Committee, requests Approval as Modified by this public comment.

Modify proposal as follows:

1301.1.1 Criteria. Buildings shall be designed and constructed in accordance with the *International Energy Conservation Code*. The energy use of all structures shall be ~~50%~~ 20% less than the average building site energy intensity per square foot as determined by the building occupancy and location in the U.S. Department of Energy's Energy Information Administration (EIA) 2003 Commercial Building Energy Consumption Survey (CBECS). Where a building occupancy is used for an activity that does not align closely the activities listed, the code official is authorized to determine the activity that the building occupancy most nearly resembles:

US DOE EIA	Occupancy
Education	(E)
Food Sales	(B)
Food Services	(A-2)
Health Care	
Inpatient	(I-2)
Outpatient	(B)
Lodging	(R-1, R-2, R-3, R-4, I-4)
Mercantile	(M)
Retail (Other Than Mall)	(M)
Enclosed and Strip Malls	(See Section 402)
Office	(B)
Public Assembly	(A-1, A-3, A-4)
Public Order and Safety	(B, I-3)
Religious Worship	(A-3)
Service	
Warehouse and Storage	(S-1.S-2)
Other	(F-1, F-2, H)
Vacant	(U)

IECC: 101.6 Site energy intensity criteria. The energy use of all structures shall be ~~50%~~ 20% less than the average building site energy intensity per square foot as determined by the building occupancy and location in the U.S. Department of Energy's Energy Information Administration (EIA) 2003 Commercial Building Energy Consumption Survey (CBECS). Where a building occupancy is used for an activity that does not align closely the activities listed, the code official is authorized to determine the activity that the building occupancy most nearly resembles:

US DOE EIA	Occupancy
Education	(E)
Food Sales	(B)
Food Services	(A-2)
Health Care	
Inpatient	(I-2)
Outpatient	(B)
Lodging	(R-1, R-2, R-3, R-4, I-4)
Mercantile	(M)
Retail (Other Than Mall)	(M)
Enclosed and Strip Malls	(See Section 402)
Office	(B)
Public Assembly	(A-1, A-3, A-4)
Public Order and Safety	(B, I-3)
Religious Worship	(A-3)
Service Warehouse and Storage	(S-1,S-2)
Other	(F-1, F-2, H)
Vacant	(U)

(Portions of proposal not shown remain unchanged)

Commenter's Reason: Energy needs in this country and the world are increasingly important to everyone. Buildings consume a full 40% of the energy consumed, without making significant changes in the way we design, build and operate buildings, we are not taking seriously the issues that are facing us all today.

This original change was asking for a 50% reduction from the average building site energy intensity which is based on the US Department of Energy's CBECS database. This database measures the average energy use of a building type over a period of three years, which establishes a real tool for designing to real conditions. Part of the problem with other systems which are being proposed to address energy savings is the difficulty in performing such designs and making proper decisions. ASHRAE requires the design of a "compliant building" and then a second design which you measure against the first to determine that you are improving the energy performance.

History has shown that even with the best of intentions that the design of buildings using such approaches fails to actually save energy, and in some circumstances even wastes more energy. The recent report on the vaunted LEED program is an interesting example. http://www.usgbc.org/ShowFile.aspx?DocumentID=3930. Of the 121 buildings studied in the *Energy Performance of LEED NC Buildings*. The summary states:

> *Measured Performance in Relation to Modeling*
> *The LEED program awards energy performance points on the basis of predicted energy cost savings compared to a modeled code baseline building. The baseline is generated using the energy cost budget (ECB) approach and performance requirements in the ASHRAE 90.1 standard. Most buildings in this study used the 1999 version of this standard. Measured energy savings for the buildings in this study average 28% compared to code baselines, close to the average 25% savings predicted by energy modeling in the LEED submittals.*
>
> *Program-wide, energy modeling turns out to e a good predictor of "average" building energy performance for the sample. However, as with the other metrics in the study, there is wide scatter among the individual results that make up the average savings. Some buildings do much better than anticipated, …. On the other hand, nearly an equal number are doing worse – sometimes much worse.*

Designing buildings with tools that do not achieve the desired result in half the buildings is an unacceptable standard of measure. Certainly we wouldn't accept a failure rate of 50% for any other aspect of code application. Why should we do that here.

Building greener buildings means providing the right standards for measurement and the right tools for design. Instituting a measuring stick that provides real building performance as the base line and a measurable and achievable result as the decision point for compliance is ideal for designers, owners and the building official. In the long-run we achieve what we are all aiming for and do it in a straightforward and appropriate way.

Final Action: AS AM AMPC____ D

G187-07/08
3002.1.3 (New)

Proposed Change as Submitted:

Proponent: Gregory J. Cahanin, Cahanin Fire and Code Consulting, representing the Smoke Safety Council

Add new text as follows:

3002.1.3 Water intrusion. Hoistway equipment shall be protected from the effects of water intrusion from openings into the hoistway. Protection shall be by the restriction of water flow into the shaft or by the protection of elevator electrical and mechanical equipment.

Reason: Elevators are used during Phase II recall for firefighter staging and rescue. There are not currently provisions in the Code or ASME A17.1 that address the negative effects of water upon Phase II use of the elevators.

Water entering elevator shafts from fire sprinkler operation on a floor can flow down the shaft disabling elevator door and operational components. Phase II elevator use by emergency personnel relies upon the availability of the elevators through the fire event with fire sprinklers operating on upper floors.

Other provisions of this Code and ASME A17.1 help to insure that the elevators will be available for rescue and fire department access. Lobby provisions in the Code help to keep fire products out of the shaft so that emergency responders can effectively use elevators and provide for emergency power. Water flowing into a hoistway will negatively impact electrical components, putting emergency responders in harms way. The allowance for protection of key components in the shaft by sealing or protecting them from water which moves into the shaft is a design option. Restriction of water flow into hoistways can be accomplished using several approaches: A combination of sealed elevator lobby doors, sloped floors, floor drains and sealed elevator shaft walls can be used. Elevators mounted on the exterior of buildings have seals that are used on lobby doors and elevators separated at each floor by an exterior elevator lobby can be used. The NIST publication *Feasibility of Fire Evacuation by Elevators at FAA Control Towers* also provides insight into possible design solutions

Cost Impact: The code change proposal will increase the cost of construction

Committee Action: **Disapproved**

Committee Reason: The requirements are too broad and do not provide guidance as to how to come up with a solution. The fact that this would apply to all buildings, including non sprinklered buildings, seemed excessive.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Gregory J. Cahanin, Cahanin Fire and Code Consulting, representing the Smoke Safety Council, requests Approval as Modified by this public comment.

Modify proposal as follows:

3002.1.3 Water Intrusion. Where automatic sprinkler protection is installed, hoistway equipment shall be protected from the effects of water intrusion from openings into the hoistway. Protection shall be by the restriction of water flow into the shaft or by the protection of elevator electrical and mechanical equipment.

Exception: Protection from water intrusion is not required in buildings of three stories or less in height.

Commenter's Reason: Water entering elevator shafts from fire sprinkler operation on a floor can flow down the shaft disabling elevator door and operational components. Phase II elevator use by emergency personnel relies upon the availability of the elevators through the fire event with fire sprinklers operating on upper floors. The original proposal is modified consistent with comments from the committee in Palm Springs- the provision only applies to buildings over 3 levels in height with automatic sprinkler protection.

Other provisions of this Code and ASME A17.1 help to insure that the elevators will be available for rescue and fire department access. Lobby provisions in the Code help to keep fire products out of the shaft so that emergency responders can effectively use elevators and provide for emergency power. Water flowing into a hoistway will negatively impact electrical components, putting emergency responders in harms way. The allowance for protection of key components in the shaft by sealing or protecting them from water which moves into the shaft is a design option. Restriction of water flow into hoistways can be accomplished using several approaches: A combination of sealed elevator lobby doors, sloped floors, floor drains and sealed elevator shaft walls can be used. Elevators mounted on the exterior of buildings have seals that are used on lobby doors and elevators separated at each floor by an exterior elevator lobby can be used. The NIST publication *Feasibility of Fire Evacuation by Elevators at FAA Control Towers* also provides insight into possible design solutions.

Final Action: AS AM AMPC____ D

G191-07/08
3004.3

Proposed Change as Submitted:

Proponent: Tim Nogler, Washington State, representing Washington State Building Code Council

Revise as follows:

3004.3 (Supp) Area of vents. Except as provided for in Section 3004.3.1, the area of the vents shall not be less than $3^1/_2$ percent of the area of the hoistway nor less than 3 square feet (0.28 m^2) for each elevator car, and not less than $3^1/_2$ percent nor less than 0.5 square feet (0.047 m^2) for each dumbwaiter car in the hoistway, whichever is greater. ~~Of the total required vent area, not less than one-third shall be permanently open. Closed portions of the required vent area shall consist of openings glazed with annealed glass not greater than 0.125 inch (3.2 mm) in thickness.~~ The total required vent area shall be equipped with dampers that remain closed until automatically opened when smoke is detected in the elevator lobby or hoistway. The dampers shall open upon power failure.

~~**Exception:** The total required vent area shall not be required to be permanently open where all the vent openings automatically open upon detection of smoke in the elevator lobbies or hoistway, upon power failure and upon activation of a manual override control. The manual override control shall be located in an approved location.~~

Reason: The purpose of this code change is to add a new requirement, requiring the total vent area to be equipped with dampers. The proposal also eliminates the requirement for a manual override. The new requirement adds clarity to the code, provides a more effective system, and saves energy. The vent openings are provided to release smoke in the event of a fire. The current code requires that one third of the vent area be permanently open. This creates an open path for uncontrolled heat loss or gain during the normal operation of the elevator. The exception in the current code provides an alternative to permanent openings, however the language is unclear, stating that the vent openings must open. By specifying a damper the code would define a method to automatically open the vents. This mechanical means is safer and more practical than glazed openings, and limits heat loss or gain during normal operation of the elevator. The manual override has proven ineffective as an operational procedure. Locating the override switch and opening the vents is not a standard practice for fire departments, and the override is unnecessary as the dampers open automatically. This proposed revision is in effect in the state of Washington.

Cost Impact: This code change will increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: The concept of automatic opening vents should be an option; not the only solution provided. Energy use concerns will vary with regard to constantly open vents depending upon the climate conditions of the region. Energy use may need to be addressed, but not by entirely removing the option of open vents in all cases.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Tim Nogler, Washington State Building Code Council, representing the Washington Association of Building Officials (WABO), requests Approval as Submitted.

Commenter's Reason: The proposal eliminates permanent openings in elevator shafts, by requiring a damper. The change provides clear language on how to regulate the vent openings; the current exception does not specify a damper. Energy use is an issue nationally in all buildings, and the code should not allow a permanent opening in the building envelope.

Final Action: AS AM AMPC____ D

G192-07/08
3005.2.3 (New)

Proposed Change as Submitted:

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

Add new text as follows:

3005.2.3 Water intrusion. When escalator landings are open to the exterior, the landing shall be sloped away from the escalator at a minimum of 1 percent.

Reason: The purpose of this code change is to prevent water from running into an escalator during rainstorms. The minimum slope is a number used in the plumbing code associated with the slope of floors in indoor locations for drains.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: Slope criteria needs to include a distance from the escalator. In addition, concerns were raised that a minimum slope was provided but no upper limit on slope was provided. This raised some concerns on how this may affect compliance with the accessibility requirements. Finally, it was suggested that some type of criteria, such as rainfall, was provided.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Brian Black, BDBlack Codes, Inc., representing the National Elevator Industry, Inc., requests Approval as Modified by this public comment.

Modifiy proposal as follows:

3005.2.3 Water intrusion. When escalator landings are open to the exterior, the landing shall be sloped away from the escalator at a minimum of 1 percent and 2 percent maximum. The escalator landing shall extend the entire width of the escalator for a distance of 2 feet minimum from the escalator access plate.

Commenter's Reason: The purpose of this code change is to prevent water from running into an escalator during rainstorms. The minimum slope is a number used in the plumbing code associated with the slope of floors in indoor locations for drains.

The modifications address the General Committee's concerns that 1) a maximum slope be specified; and 2) the space of the landing be specified.

Concerns about accessibility are unwarranted as escalators can not be part of an accessible route, and any required accessible route can be provided away from the escalator landing. Note, however that the 2 percent maximum slope is the same as the maximum cross slope for an accessible route specified by ICC A117.1, so an accessible route could overlap the escalator landing.

Final Action: AS AM AMPC____ D

G193-07/08

3007, 403.10, [F] 903.3.1.1.1 (IFC 903.3.1.1.1)

Proposed Change as Submitted:

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

Revise as follows:

SECTION 3007 (Supp)
~~FIRE SERVICE ACCESS~~ ROBUST FIRE SERVICE ELEVATOR

3007.1 (Supp) General. Where required by Section 403.10, every floor of the building shall be served by a ~~fire service access~~ robust fire service elevator. Except as modified in this section, the ~~fire service access~~ robust fire service elevator shall be installed in accordance with this chapter and ASME A17.1.

3007.2 (Supp) Hoistway enclosures protection. The ~~fire service access~~ robust fire service elevator shall be located in a shaft enclosure complying with Section 707.

3007.3 (Supp) ~~Fire service access~~ Robust fire service elevator lobby. The ~~fire service access~~ robust fire service elevator shall open into a ~~fire service access~~ robust fire service elevator lobby in accordance with Sections 3007.3.1 through 3007.3.3.

Exception: Where a ~~fire service access~~ robust fire service elevator has two entrances onto a floor, the second entrance shall be permitted to open into an elevator lobby in accordance with Section 707.14.1.

3007.3.1 (Supp) Access. The ~~fire service access~~ robust fire service elevator lobby shall have direct access to an exit enclosure.

3007.3.2 (Supp) Lobby enclosure. The ~~fire service access~~ robust fire service elevator lobby shall be enclosed with a smoke barrier having a minimum 1-hour fire-resistance rating, except that lobby doorways shall comply with Section 3007.3.3.

Exception: Enclosed ~~fire service access~~ robust fire service elevator lobbies are not required at the street floor.

3007.3.3 (Supp) Lobby doorways. Each ~~fire service access~~ robust fire service elevator lobby shall be provided with a doorway that is protected with a 3/4-hour fire door assembly complying with Section 715.4.

3007.4 (Supp) Standpipe hose connection. A Class I standpipe hose connection in accordance with Section 905 shall be provided in the exit enclosure having direct access from the ~~fire service access~~ robust fire service elevator lobby.

3007.5 (Supp) Elevator system monitoring. The ~~fire service access~~ robust fire service elevator shall be continuously monitored at the fire command center by a standard emergency service Interface system meeting the requirements of NFPA 72.

3007.6 (Supp) Electrical power. The following features serving each ~~fire service access~~ robust fire service elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator machine room ventilation and cooling equipment.
3. Elevator controller cooling equipment.

3007.6.1 (Supp) Protection of wiring or cables. Wires or cables that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to ~~fire service access~~ robust fire service elevators shall be protected by construction having a minimum 1-hour fire-resistance rating or shall be circuit integrity cable having a minimum 1-hour fire-resistance rating.

403.10 (Supp) ~~Fire service access~~ Robust fire service elevator. In buildings with an occupied floor more than 120 feet (36 576 mm) above the lowest level of fire department vehicle access, a minimum of one ~~fire service access~~ robust fire service elevator shall be provided in accordance with Section 3007.

[F] 903.3.1.1.1 (IFC 903.1.1.1) Exempt locations. Automatic sprinklers shall not be required in the following rooms or areas where such rooms or areas are protected with an approved automatic fire detection system in accordance with Section 907.2 that will respond to visible or invisible particles of combustion. Sprinklers shall not be omitted from any room merely because it is damp, of fire-resistance rated construction or contains electrical equipment.

1. Any room where the application of water, or flame and water, constitutes a serious life or fire hazard.
2. Any room or space where sprinklers are considered undesirable because of the nature of the contents, when approved by the fire code official.
3. Generator and transformer rooms separated from the remainder of the building by walls and floor/ceiling or roof/ceiling assemblies having a fire-resistance rating of not less than 2 hours.
4. Rooms or areas that are of noncombustible construction with wholly noncombustible contents.
5. ~~Fire service access~~ robust fire service elevator machine rooms and machinery spaces.

Reason: This particular change is intended to change the terminology from "Fire Service Access Elevator" as used in Section 3007 and related referenced sections to "Robust Fire Service Elevator". The basis for this change is related to the fact that elevators in all buildings have some level of fire service access associated with them with the requirements for Phase I recall and Phase II emergency operation. Therefore the current terminology does not highlight the enhanced features that the requirements in Section 3007 provide.

Background. As a result of the September 11, 2001 attacks on the World Trade Center, code provisions for emergency egress from tall buildings are being re-examined. There is renewed interest in the use of elevators for both occupant egress and fire fighters access. Therefore a Workshop on the Use of Elevators in Fires and Other Emergencies was held March 2-4, 2004, in Atlanta, Georgia. The workshop was cosponsored by American Society of Mechanical Engineers (ASME International), National Institute of Standards and Technology (NIST), International Code Council (ICC), National Fire Protection Association (NFPA), U.S. Access Board, and the International Association of Fire Fighters (IAFF).

The workshop focused on two general topics:
(1) Use of Elevators by Fire fighters and
(2) Use of Elevators by Occupants during Emergencies
To follow up on the ideas generated at the workshop, 2 task groups were formed; one for each topic. Their goals are:

- Review the suggestions from the Workshop on the Use of Elevators in Fires and other Emergencies.
- Develop a prioritized list of issues.
- Conduct a hazard analysis of the prioritized list of issues to see if there are any residual hazards.
- Draft code revisions for those issues that survive the process and the task group members still want addressed.

The membership of these task groups is broad and includes representatives from the elevator industry and manufacturers of devices such as fire alarms, the fire service, model codes and standards development organizations, and the accessibility community as well as fire protection engineers, architects and specialists in human factors and behavior. Since February 2005 the groups have each been conducting a hazard analysis on their assigned topic. The results of the hazard analysis focused upon the fire fighter needs is nearing completion.

The task group studied 16 different cases. In these cases a particular hazard followed by a cause/trigger was reviewed. The result of the hazard interacting with cause/trigger events may create a particular incident/effect. To address possible incident/effects corrective actions are proposed. Such corrective actions are then reviewed to see if they create any residual hazards. The hazard analysis then carries out each of the residual hazards with additional corrective actions until the hazard is mitigated. It is strictly a hazard analysis (I.e. not probabilistic) and certain assumptions were made such as a single fire start in a high rise building. The following link provides a summary of the cases reviewed for the fire service elevator hazard analysis (PROVIDE LINK).

The code changes generated by this analysis are related both to the summary of corrective actions resulting from the hazard analysis and the existing language related to fire service access elevators placed into the 2007 Supplement.

These proposals will work with the 2007 supplement requirements for fire service access elevators to address these concerns. It should be noted that the hazard analysis assumed a lobby to be directly connected with the fire service access elevator thus making the result of the analysis consistent with the philosophical approach found in the 2007 Supplement.

Cost Impact: The code change proposal will not increase the cost of construction.

Committee Action: **Disapproved**

Committee Reason: A definition should accompany such a revision of terminology. The term Fire Service Access Elevators was deemed sufficient to describe the intent of the provisions.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Brian Black BDBlack Codes, Inc., representing the National Elevator Industry, Inc., John J. O'Donoghue, representing the International Association of Fire Fighters, and Jack J. Murphy, representing the Fire Safety Directors Association of Greater New York, request Approval as Submitted.

Commenter's Reason: This change is intended to change the terminology from "Fire Service Access Elevator" as used in Section 3007 and related referenced sections to "Robust Fire Service Elevator".

The basis for this change is related to the fact that elevators in all buildings have some level of fire service access associated with them with the requirements for Phase I recall and Phase II emergency operation. Therefore, the current terminology does not highlight the enhanced features that the requirements in Section 3007 provide. At the Workshop on the Use of Elevators in Fires and Other Emergencies, held March 2-4, 2004, in Atlanta, various terms were considered and the consensus of the firefighters involved was that the term "Robust Fire Service Elevator" was the most appropriate.

The requirements in Section 3007 adequately describe the robust fire service elevator so a separate definition is not required.

Final Action: AS AM AMPC____ D

G194-07/08
3007.2

Proposed Change as Submitted:

Proponent: Greg Lake, Sacramento Metropolitan Fire District, representing the California Fire Chiefs Association (Cal Chiefs)

Revise as follows:

3007.2 (Supp) Hoistway enclosures protection. The fire service access elevator shall be located in a shaft enclosure complying with Section 707. <u>The fire-resistance rating of the fire service access elevator hoistway enclosure walls shall be determined by meeting the conditions of acceptance specified in ASTM E119 with the hose stream test conducted at the end of the fire test for the original test specimen to determine the integrity of the wall.</u>

Reason: Cal Chiefs has decided to submit this code change proposal as a result of discussions which occurred during the Public Hearings held at the ICC Final Action Hearings on Code Change Proposals G70-06/07 submitted by the Masonry Alliance for Codes and Standards (MACS) and G73-06/07 submitted by the Ad Hoc Committee on Terrorism Resistant Buildings to address the issue of the physical integrity of elevator hoistway and exit stairway shaft enclosures in super high rise buildings (those buildings greater than 420 in height). Both code changes received significant debate but were subsequently disapproved. However, the Class A voting membership was able to successfully overturn the Committee's recommendation for disapproval of Code Change G70-06/07 but was unsuccessful in achieving the necessary two-thirds majority vote for approval of the code change. We believe that code change had merit so we reviewed it and revised it to better clarify it and make it more enforceable in our opinion based on this code change submittal.

It is clear in the NIST Final Report of the National Construction Safety Team on the collapse of the World Trade Center Towers which can be found on the NIST website at www.NIST.gov that there is a need to provide a means for determining minimum structural integrity criteria for the means of egress in very tall buildings which may include elevator hoistways for elevators that may be used for emergency access by emergency responders, or as a method of emergency evacuation, especially for people with disabilities. Recommendation 18 in Chapter 9 of the NIST Report stated the following:

> "NIST recommends that egress systems (i.e. stairs, elevators, exits) should be designed … (2) to maintain their functional integrity and survivability under foreseeable building-specific or large-scale emergencies…"
>
> Item B in this recommendation further states:
>
> "The design, functional integrity, and survivability of the egress and other life safety systems, (e.g., stairwell and elevator shafts…) should be enhanced by considering accidental structural loads such as those induced by overpressures (e.g., gas explosions), impacts, or major hurricanes and earthquakes, in addition to fire separation requirements… The stairwells and elevators shafts… should have adequate structural integrity to withstand accidental structural loads and anticipated risks."

In other words, the exit stairway shaft enclosures should be "hardened" beyond what they may be today based on the fire tests currently prescribed in ASTM E119.

We believe that the most direct and effective approach at this time based on the use of nationally recognized standards to determine the structural integrity of the exit stairway shaft enclosure walls is to specify that when the fire-resistance rating for the wall assembly is determined in accordance with ASTM E119, that it is based on the hose stream test portion of the test being conducted at the end of the fire-resistance test for the original test specimen. That is one of three options prescribed in ASTM E119 for when the hose stream test is to be applied. Another option for applying the hose stream test for wall assemblies having a fire-resistance rating of 1-hour or more is to test a

second test specimen for one-half the duration of the fire-resistance rating determined by the original test specimen but for not more than 1-hour and then apply the hose stream test. So for a 2-hour fire-resistance rated wall which would be required for these shaft enclosures, the hose stream test under that option would be applied after a 1-hour fire-resistance test has been conducted on a duplicate test specimen of the original 2-hour fire-resistance rated wall assembly. It is obvious to us that if we specify the hose stream test to be conducted at the end of the fire-resistance test for the original test specimen, the wall must be substantially more robust and "hardened" in order to withstand the "impact, erosion, and cooling effects of a hose stream" as specified in Section 11.1 of ASTM E119. The purpose of the hose stream test is also explained in Appendix X5 Commentary to ASTM E119. Section X5.9 Integrity states: "In this hose stream test, the ability of the construction to resist disintegration under adverse conditions is examined."

As representatives of the fire service, we are very concerned that the elevator hoistway enclosures in these very tall buildings be sufficiently "hardened" to assure that they will withstand various impacts and stresses that may occur during an uncontrolled fire. This is especially important since we may be utilizing the elevators to assist in evacuation of the occupants of the building. In the NIST Report it was estimated that the evacuation of a fully occupied World Trade Center Tower would have taken approximately 4 hours. And, of course, we may need to deal with evacuation of disabled occupants utilizing these elevators as well. Also, the responding fire department may also utilize these elevators to gain access to the fire floor since the stairways may not be practical. It was also noted in the NIST Report that it was estimated that the fire department response using the stairways to gain access to the 58th floor of a hypothetical 60 story building for fire fighting operations and rescue purposes would require at least 90 minutes provided the fire department personnel were not carrying any equipment or breathing apparatus but could take as much as 120 minutes if the emergency responders were in fact carrying equipment and breathing apparatus.

Since the fire service will be relying on the fire service access elevator to move their man power and equipment up into the building to the fire floor immediately below the fire floor in these high rise buildings, it is essential that they have adequate structural integrity to withstand an uncontrolled fire exposure which may subject the hoistway enclosure walls to unusual stresses and physical impacts by falling objects and debris, etc. We need some very firm assurances that the hoistway enclosure integrity will be maintained so that we can reasonably safely use the elevator for our emergency fire fighting purposes. Based on our understanding of how the hose stream test is applied ASTM E119 and our observation of its application to different fire-resistance rated 2-hour assemblies, we would feel much better utilizing fire service access elevators in a hoistway enclosure protected as prescribed by this code change proposal.

In conclusion, Cal Chiefs strongly supports the need to "harden" the elevator hoistway enclosures in these super high rise buildings in order to provide adequate fire and life safety for not only the occupants of the building but also for the responding fire department and other emergency personnel who may be using those elevators to gain access to the fire floor, as well as to assist in evacuation of the occupants. We believe that this code change proposal will provide that additional degree of integrity for "hardening" these elevator hoistway enclosures.

Cost Impact: This code change will increase the cost of construction.

Analysis: The 2007 Supplement includes a new section 3007, Fire Service Access Elevators. The requirement is scoped in Section 403.10.

Committee Action: Disapproved

Committee Reason: The hose stream test does not mimic real world conditions during fire fighting operations. Therefore, adding such a requirement for fire service elevators may provide little or no benefit. In addition, the topic of stair and hoistway hardening is one that needs a more global review.

Assembly Action: None

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Gini Krippner, University of California at Merced, representing the California Fire Chiefs Association, requests Approval as Modified by this public comment.

Modify proposal as follows:

3007.2 (Supp) Hoistway enclosures protection. The fire service access elevator shall be located in a shaft enclosure complying with Section 707. The fire-resistance rating of the fire service access elevator hoistway enclosure walls shall be determined by meeting the conditions of acceptance specified in ASTM E119 or UL 263 with the hose stream test conducted at the end of the fire test for the original test specimen to determine the integrity of the wall.

Commenter's Reason: The Cal Chiefs believe it is time for the International Building Code (IBC) to respond to one of the more critical recommendations made in the NIST Final Report of the National Construction Safety Team on the Collapse of the World Trade Center Towers. This particular code change proposal specifically addresses the need to "harden" the elevator hoistway shaft enclosures for the fire service elevator to provide additional structural integrity beyond that presently provided for in the code. This hardening of the elevator shaft enclosure is consistent with proposals G55 and G57 for super high rise buildings. Because of the need for reliability in fire service elevators the shaft walls should be expected to be provided with a higher degree of integrity than typical shaft wall enclosures. Applying the hose stream test specified in ASTM E119 to the original wall tested assembly increases the likelihood the wall assembly will be more durable under fire conditions.

ICC Code proposal G194 – 07/08 uses the existing ASTM E119 standard hose stream test to assure a heightened level of robustness or hardening of fire service access elevator shaft walls, without introducing new test standards. ASTM E119 is an established standard and includes the option to apply the hose stream test at the end of the fire test. (ASTM E119 Section 11.3). This is a simple and inexpensive approach to address the recommendations of the NIST World Trade Center Report listed in the original reason statement. Similar proposals have been narrowly defeated the past two code change cycles. The committee's reasoning for disapproval was cited as "the hose stream test does not mimic real world conditions during fire fighting operations" and "the topic of stair and hoistway hardening is one that needs more global review."

There is much misunderstanding as to what the hose stream test represents. The test is not intended to replicate the use of hose streams by fire service personnel. It is a controlled water application at a specified pressure and duration based on the timed fire exposure. The hose stream was originally developed to address the brittleness of cast and wrought iron after fire exposure. Unlike mild steel, these materials will fail in a brittle manner when exposed to a fire condition. The intent of the hose stream test today is to assess the effects caused by the impact, erosion and cooling of the tested specimen. Applying the hose stream at the end of the required fire test is a simple, yet effective approach to assuring that the critical protection provided to fire fighters using these elevator hoistways in super high buildings will be maintained. To the lack of documentation, we would suggest that the NIST report took into account the findings of the investigation and did not add the recommendation for shaft hardening without cause.

Other opponents have stated that this proposal would eliminate gypsum products from being used. Since gypsum board is already undergoing and passing the hose stream test, we find it perplexing how this would somehow eliminate this product from meeting this requirement.

In similar code proposals, the Fire Safety Committee voted to modify the proposals to include a reference to UL 263, which is reflected in this Public Comment. UL 263 is considered to be an equal test standard to ASTM E119.

In conclusion, we believe that this approach has an overall negligible increase in cost while providing a shaft enclosure that can be depended on to withstand a modest amount of increased impact, provide erosion resistance from fire hose streams and sprinkler water spray and not be adversely affected by the rapid cooling effects of water. This is a reasonable approach to a recommendation that the fire service access elevator hoistway shaft enclosures be enhanced to account for unforeseeable emergencies.

Final Action: AS AM AMPC____ D

G195-07/08

3007.3 (New), 3007.6

Proposed Change as Submitted:

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

1. Add new text as follows:

3007.3 (Supp) Hoistway lighting. The entire hoistway shall be illuminated at not less than 1 foot-candle (11 lux) at each hoistway entrance when firefighters' emergency operation is active.

(Renumber subsequent sections)

2. Revise as follows:

3007.6 (Supp) Electrical power. The following features serving each fire service access elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power:

1. Elevator equipment.
2. Elevator hoistway lighting
3. ~~2.~~ Elevator machine room ventilation and cooling equipment.
4. ~~3.~~ Elevator controller cooling equipment.

Reason: The focus of this proposal was upon providing illumination to assist fire fighters as they to advance up into the building. The prescribed procedure before leaving the designated level (DL), is to shine a light up into the hoistway to try and detect smoke, flame or water above them. They will repeat this step every 5 floors until they safely arrive at their staging floor, which is two floors below the lowest reported floor in alarm. By having hoistway lighting this will make their life safety maneuver much more effective.

Background. As a result of the September 11, 2001 attacks on the World Trade Center, code provisions for emergency egress from tall buildings are being re-examined. There is renewed interest in the use of elevators for both occupant egress and fire fighters access. Therefore a Workshop on the Use of Elevators in Fires and Other Emergencies was held March 2-4, 2004, in Atlanta, Georgia. The workshop was cosponsored by American Society of Mechanical Engineers (ASME International), National Institute of Standards and Technology (NIST), International Code Council (ICC), National Fire Protection Association (NFPA), U.S. Access Board, and the International Association of Fire Fighters (IAFF).

The workshop focused on two general topics:
(1) Use of Elevators by Fire fighters and
(2) Use of Elevators by Occupants during Emergencies

To follow up on the ideas generated at the workshop, 2 task groups were formed; one for each topic. Their goals are:

- Review the suggestions from the Workshop on the Use of Elevators in Fires and other Emergencies.
- Develop a prioritized list of issues.
- Conduct a hazard analysis of the prioritized list of issues to see if there are any residual hazards.
- Draft code revisions for those issues that survive the process and the task group members still want addressed.

The membership of these task groups is broad and includes representatives from the elevator industry and manufacturers of devices such as fire alarms, the fire service, model codes and standards development organizations, and the accessibility community as well as fire protection engineers, architects and specialists in human factors and behavior. Since February 2005 the groups have each been conducting a hazard analysis on their assigned topic. The results of the hazard analysis focused upon the fire fighter needs is nearing completion.

The task group studied 16 different cases. In these cases a particular hazard followed by a cause/trigger was reviewed. The result of the hazard interacting with cause/trigger events may create a particular incident/effect. To address possible incident/effects corrective actions are proposed. Such corrective actions are then reviewed to see if they create any residual hazards. The hazard analysis then carries out each of the residual hazards with additional corrective actions until the hazard is mitigated. It is strictly a hazard analysis (I.e. not probabilistic) and certain assumptions were made such as a single fire start in a high rise building.

The code changes generated by this analysis are related both to the summary of corrective actions resulting from the hazard analysis and the existing language related to fire service access elevators placed into the 2007 supplement.

These proposals will work with the 2007 supplement requirements for fire service access elevators to address these concerns. It should be noted that the hazard analysis assumed a lobby to be directly connected with the fire service access elevator thus making the result of the analysis consistent with the philosophical approach found in the 2007 Supplement.

Cost Impact: The code change proposal will increase the cost of construction.

Analysis: The 2007 Supplement includes a new Section 3007, Fire Service Access Elevators. The requirement is scoped in Section 403.10.

Committee Action: **Disapproved**

Committee Reason: The proposal is not clear how it would deal with multiple elevators in a single hoistway, and how the light level would be measured. Generally, the committee felt that such requirements were unnecessary.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Brian Black BDBlack Codes, Inc., representing the National Elevator Industry, Inc., John J. O'Donoghue, representing the International Association of Fire Fighters, and Jack J. Murphy, representing the Fire Safety Directors Association of Greater New York, request Approval as Modified by this public comment.

Modify proposal as follows:

3007.3 (Supp) Hoistway lighting. When firefighters' emergency operation is active the entire height of the hoistway shall be illuminated at not less than 1 foot-candle (11 lux) ~~at each hoistway entrance when firefighters' emergency operation is active~~ as measured from the top of the car of each fire service access elevator.

(Portions of proposal not shown remain unchanged)

Commenter's Reason: The proposal was modified to address the comments received at the ICC hearing regarding adequacy of light, location of measurement and extent of hoistway coverage. The focus of this proposal was upon providing illumination to assist fire fighters as they to advance up into the building. If firefighters become trapped in a stopped elevator and need to self rescue through the top of car emergency exit, they need adequate light to safely escape. The illumination level specified is taken from means of egress illumination provisions of section 1006 of the IBC.

The current prescribed procedure before leaving the elevator's designated level (typically the ground floor) is to shine a light up into the hoistway to try and detect smoke, flame or water above them. They will repeat this step every 5 floors until they safely arrive at their staging floor, which is two floors below the lowest reported floor in alarm. By providing hoistway lighting, this will make their life safety maneuver much more effective.

Final Action: AS AM AMPC____ D

G196-07/08

3007.3.3, 3007.3.3.1 (New)

Proposed Change as Submitted:

Proponent: Gregory J. Cahanin, Cahanin Fire and Code Consulting, representing the Smoke Safety Council

Revise as follows:

3007.3.3 Lobby doorways. Each fire service access elevator lobby shall be provided with a doorway that is protected with a $^{3}/_{4}$-hour fire door assembly complying with Section 715.4.

3007.3.3.1 Fire doors. Fire door assemblies shall meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784 without an artificial bottom seal installed across the full width of the bottom of the door assembly during the test. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot [ft3/(min × ft2)](0.015424 m3/ s × m2) of door opening at 0.10 inch (24.9 Pa)of water column for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.

Reason: This revision to lobby doorways as a part of the newly approved Fire Service Access Elevator requirements brings consistency with the door specification requirements found in the code. While the 715.4 reference now in this new section will lead many to believe that 715.4.3.1 is to be applied; the language of 715.4 states that doors conforming to 715.4.1, 715.4.2 or 715.4.3 are approved.

Provisions added to the IBC in the last cycle establish a Fire Service Access Elevator that will operate through a fire event for the use of firefighters and occupants that are rescued from upper floors due to mobility impairments or by virtue of being trapped by the fire on upper floors. Sections 715.4.3.1 in the code provide more complete prescriptive requirements for the doors behind which occupants and firefighters may seek refuge.

Doors which are utilized to protect occupants and rescue personnel for extended periods of time will be challenged by smoke spread on a fire floor that is impacted by the size of the fire, the presence or absence of building ventilation on the fire floor, stack effect, and wind load upon the building. The UL 1784 test allows for testing with or without an artificial bottom seal, with the use of duct tape being the typical mode of providing an artificial bottom seal during testing. Doors which have been tested to UL 1784 without taping of the bottom of the door and passed the leakage requirements mirror possible smoke impact that will be experienced during a fire better provide for the safety of firefighters and occupants staying in the Fire Service Access Elevator lobby for extended periods of time.

Cost Impact: There is no cost impact.

Committee Action: **Disapproved**

Committee Reason: The reference to Chapter 7 should be more specific to Section 715.4.3.1. In addition the issue being addressed by this proposal is better addressed within Chapter 7 instead of within Section 3007.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because public comments were submitted.

Public Comment 1:

Mike Ashley, CBO, Alliance for Fire and Smoke Containment and Control (AFSCC), requests Approval as Modified by this public comment.

Modify proposal as follows:

3007.3.3 Lobby doorways. Each fire service access elevator lobby shall be provided with a doorway that is protected with a $^{3}/_{4}$-hour fire door assembly complying with Section 715.4. The fire door assembly shall also comply with the smoke and draft control door assembly requirements of Section 715.4.3.1 with the UL1784 test conducted without the artificial bottom seal.

~~**3007.3.3.1 Fire doors.** Fire door assemblies shall meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784 without an artificial bottom seal installed across the full width of the bottom of the door assembly during the test. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot [ft3/(min × ft2)](0.015424 m3/ s × m2) of door opening at 0.10 inch (24.9 Pa)of water column for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.~~

Commenter's Reason: We believe that this Public Comment which modifies the original code change proposal addresses the concerns expressed by the Committee and others during the code hearings held in Palm Springs, CA. The preferred way of achieving the necessary degree of smoke and draft control door protection for these fire service access elevator lobby doors is to provide direct reference to Section 715.4.3.1. Section 715.4.3.1 of the Supplement specifies the testing requirements for smoke and draft control door assemblies based on UL1784. The additional provision is included to address that the test method be performed without an artificial bottom seal installed across the full width of the bottom of the door assembly in order to measure the complete leakage rate for the door assembly on the assumption that leakage could occur under the bottom of the door in this application. This will assure that the doorways not only have an adequate fire protection rating for protecting the fire service access elevator lobbies but they will also protect against smoke intrusion into the lobby where the fire service will stage its operations before attacking a fire on the fire floor. This is a very important component of the overall protection package provided for the fire service access elevators.

Public Comment 2:

Gregory J. Cahanin, Cahanin Fire & Code Consulting, representing the Smoke Safety Council, requests Approval as Modified by this public comment.

Modify proposal as follows:

3007.3.3 Lobby doorways. Each fire service access elevator lobby shall be provided with a doorway that is protected with a $^{3}/_{4}$-hour fire door assembly complying with Section 715.4 for smoke and draft control complying with 715.4 and tested in accordance with UL 1784 without an artificial bottom seal installed across the full width of the bottom of the door assembly during the test.

~~**3007.3.3.1 Fire doors.** Fire door assemblies shall meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784 without an artificial bottom seal installed across the full width of the bottom of the door assembly during the test. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot [ft3/(min × ft2)](0.015424 m3/ s × m2) of door opening at 0.10 inch (24.9 Pa)of water column for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.~~

Commenter's Reason: This AM revision to lobby doorways as a part of the newly approved Fire Service Access Elevator requirements brings consistency with the door specification requirements found in the code. While the 715.4 reference now in this new section will lead many to believe that 715.4.3.1 is to be applied; the language of 715.4 states that doors conforming to 715.4.1, 715.4.2 or 715.4.3 can be used when the smoke and draft control requirements for UL 1784 are an important provision.

Provisions added to the IBC in the last cycle establish a Fire Service Access Elevator that will operate through a fire event for use by firefighters and occupants. Section 715.4.3.1 in the code provides more complete prescriptive requirements for the doors behind which occupants and firefighters may seek refuge but are not clearly referenced in 3007.3.3. A smoke control door that is tight to the floor with testing to mirror actual fire conditions is important.

Doors which are utilized to protect occupants and rescue personnel for extended periods of time will be challenged by smoke spread on a fire floor and impacted by the size of the fire, the presence or absence of building ventilation on the fire floor, stack effect, and wind load upon the building. The UL 1784 test allows for testing with or without an artificial bottom seal. Doors which have been tested to UL 1784 without taping of the bottom of the door and passed the leakage requirements mirror possible smoke impact that will be experienced during a fire better provide for the safety of firefighters and occupants staying in the Fire Service Access Elevator lobby for extended periods of time.

Public Comment 3:

Gregory J. Cahanin, Cahanin Fire & Code Consulting, representing the Smoke Safety Council, requests Approval as Modified by this public comment.

Replace proposal as follows:

715.4.3.1 (Supp) Smoke and draft control. Fire door assemblies shall also meet the requirements for a smoke and draft control door assembly tested in accordance with UL 1784. The air leakage rate of the door assembly shall not exceed 3.0 cubic feet per minute per square foot (0.01524 $m^3/s \cdot m^2$) of door opening at 0.10 inch (24.9 Pa) of water for both the ambient temperature and elevated temperature tests. Louvers shall be prohibited. Installation of smoke doors shall be in accordance with NFPA 105.

715.4.3.1.1 Lobby doors. Lobby doorway assemblies associated with fire service access elevators shall be tested in accordance with UL 1784 without an artificial bottom seal installed across the full width of the bottom of the door assembly during the test.

Commenter's Reason: This AM revision to add lobby doorway provisions is consistent with the General Committee direction for G 196. Language presented in a proposed change to 3007.3.3.1 is incorporated in this new subsection of 7.15.4.3.1.

Provisions added to the IBC in the last cycle establish a Fire Service Access Elevator that will operate through a fire event for the use of firefighters and occupants that are rescued from upper floors due to mobility impairments or by virtue of being trapped by the fire on upper floors. Section 715.4.3.1 in the code provides a more complete prescriptive requirement for the doors behind which occupants and firefighters may seek refuge. A smoke control door that is tight to the floor with testing to mirror actual fire conditions is important.

Doors which are utilized to protect occupants and rescue personnel for extended periods of time will be challenged by smoke spread on a fire floor that is impacted by the size of the fire, the presence or absence of building ventilation on the fire floor, stack effect, and wind load upon the building. The UL 1784 test allows for testing with or without an artificial bottom seal. Doors which have been tested to UL 1784 without taping of the bottom of the door and passed the leakage requirements mirror possible smoke impact that will be experienced during a fire will better provide for the safety of firefighters and occupants staying in the Fire Service Access Elevator lobby for extended periods of time. There are other applications in the code that define UL 1784 testing with or without a bottom seal.

Final Action: AS AM AMPC____ D

G197-07/08
3007.3.4 (New)

Proposed Change as Submitted:

Proponent: Ken Kraus, Los Angeles Fire Department, CA

Add new text as follows:

3007.3.4 Lobby size. Each fire service access elevator lobby shall be a minimum of 150 square feet (14 m^2) in area. The lobby shall increase in size by 50 square feet (4.65 m^2) for each additional elevator car served.

Reason: The purpose of this change is to enhance the efficacy of provisions recently added to the IBC as G63-06/07.

Stipulating a minimum size for the fire service elevator lobby is essential to ensure the effectiveness of the intended use. Areas used as a basis for firefighting emergency operations must be able to accommodate; multiple fire attack teams, tactical equipment, practical use of the associated standpipe, and do not conform to standard occupancy factor calculations.

A minimum size is also necessary to; ensure the effective utilization of the associated exit enclosure.

Without this change, design constraints, egress configuration limitations and other factors could dictate or limit the size of the lobby rendering it potentially useless.

Cost Impact: This code change proposal will increase the cost of construction.

Analysis: The 2007 Supplement includes a new section 3007, Fire Service Access Elevators. The requirement is scoped in Section 403.10.

Committee Action: **Disapproved**

Committee Reason: The committee felt it was a good idea to provide guidance on the size of the lobbies but there was a concern that the justification for the size of the area needed to be provided. There was added concern that the requirement may conflict with the exception to Section 3007.3.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Ken Kraus, Los Angeles Fire Department, requests Approval as Modified by this public comment.

Modify proposal as follows:

3007.3.4 Lobby Size. Each enclosed fire service access elevator lobby shall be a minimum of 150 square feet (14 m^2) in area with a minimum dimension of 8 feet (2440 mm). ~~The lobby shall increase in size by 50 square feet (4.65 m^2) for each additional elevator car served.~~

Commenter's Reason: The word "enclosed" is inserted to address the concern of the Committee regarding creating conflict with Section 3007.3 (Supp), which exempts street level lobbies from the enclosure requirement.

Basis for the 150 Sq Ft.:

The Fire Service Access Elevator provisions exist to ensure the access and operational capabilities of firefighters in high-rise buildings greater than 120 feet in height. A minimum lobby size stipulation is necessary to make sure that the space provided is adequate for firefighters during emergencies.

Most Fire Departments operate with high-rise fire attack teams comprised of either 3 & 4 firefighters. The lobby should be large enough to accommodate 1 team preparing to enter the fire area (floor) and 1 team needing to withdraw from the fire area, while leaving access to the hoist-way and exit enclosure doors clear. On average this equates to 7 firefighters).

I used as a basis an occupancy factor of 15 (waiting area per Table 1004.1.1). I increased 15 by a factor of 1.5 to adjust for the additional space required for firefighters on-person and related equipment. (15 X 1.5 = **22.5**)

My calculation of **7** firefighters **@22.5** square feet per FF rendered a lobby size of **157.5** square feet. I rounded down to **150 square feet.**

Basis for the 8 feet minimum dimension:

My reason for requiring additional lobby size when additional cars are provided was to avoid a long narrow lobby that would compromise the 2-team scenario above. In lieu of increased size, I have added a minimum dimension component.

I subjected an accepted shoulder width allowance of 32 inches to a factor of 1.5, again due to the bulk of firefighters clothing and equipment, which resulted in 48 inches. To remain consistent with the 2-team scenario, I allowed each team a **4 foot** wide operating area, arriving at the **8 feet minimum dimension.**

The additional car increase is deleted.

Final Action: AS AM AMPC____ D

G199-07/08
3007.6.1

Proposed Change as Submitted:

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

Revise as follows:

3007.6.1 (Supp) Protection of wiring or cables. Wires or cables that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to fire service access elevators shall be protected by construction having a minimum ~~1~~ 2-hour fire-resistance rating or shall be circuit integrity cable having a minimum ~~1~~ 2-hour fire-resistance rating.

Exception: Wire and cables inside 2 hour fire-resistance rated machine rooms and hoistways shall not require fire-resistance rating.

Reason: The safety of the firefighters during their firefighting operations is dependent upon the life safety support systems (listed above) being maintained during the critical first 2 hours of their efforts. Locating, surrounding and extinguishing the fire, as well as removing those lives in jeopardy, will take time. Those activities cannot be run while looking at their watches to determine if that "hour" is nearly up. If they have not gotten the fire under control by 2 hours into the effort, then it is probably time to evacuate. Providing the 2 hour protection will provide the necessary safety factor for fire fighters to undertake fire fighting and rescue operations without increased concern for system failure.

Background. As a result of the September 11, 2001 attacks on the World Trade Center, code provisions for emergency egress from tall buildings are being re-examined. There is renewed interest in the use of elevators for both occupant egress and fire fighters access. Therefore a Workshop on the Use of Elevators in Fires and Other Emergencies was held March 2-4, 2004, in Atlanta, Georgia. The workshop was cosponsored by American Society of Mechanical Engineers (ASME International), National Institute of Standards and Technology (NIST), International Code Council (ICC), National Fire Protection Association (NFPA), U.S. Access Board, and the International Association of Fire Fighters (IAFF).

The workshop focused on two general topics:
(1) Use of Elevators by Fire fighters and
(2) Use of Elevators by Occupants during Emergencies

To follow up on the ideas generated at the workshop, 2 task groups were formed; one for each topic. Their goals are:

- Review the suggestions from the Workshop on the Use of Elevators in Fires and other Emergencies.
- Develop a prioritized list of issues.
- Conduct a hazard analysis of the prioritized list of issues to see if there are any residual hazards.
- Draft code revisions for those issues that survive the process and the task group members still want addressed.

The membership of these task groups is broad and includes representatives from the elevator industry and manufacturers of devices such as fire alarms, the fire service, model codes and standards development organizations, and the accessibility community as well as fire protection engineers, architects and specialists in human factors and behavior. Since February 2005 the groups have each been conducting a hazard analysis on their assigned topic. The results of the hazard analysis focused upon the fire fighter needs is nearing completion.

The task group studied 16 different cases. In these cases a particular hazard followed by a cause/trigger was reviewed. The result of the hazard interacting with cause/trigger events may create a particular incident/effect. To address possible incident/effects corrective actions are proposed. Such corrective actions are then reviewed to see if they create any residual hazards. The hazard analysis then carries out each of the residual hazards with additional corrective actions until the hazard is mitigated. It is strictly a hazard analysis (I.e. not probabilistic) and certain assumptions were made such as a single fire start in a high rise building.

The code changes generated by this analysis are related both to the summary of corrective actions resulting from the hazard analysis and the existing language related to fire service access elevators placed into the 2007 Supplement.

These proposals will work with the 2007 Supplement requirements for fire service access elevators to address these concerns. It should be noted that the hazard analysis assumed a lobby to be directly connected with the fire service access elevator thus making the result of the analysis consistent with the philosophical approach found in the 2007 Supplement.

Cost Impact: The code change proposal will increase the cost of construction.

Analysis: The 2007 Supplement includes a new section 3007, Fire Service Access Elevators. The requirement is scoped in Section 403.10.

Committee Action: **Disapproved**

Committee Reason: Technical justification was not provided to warrant such an increase in fire resistance rating from 1 to 2 hours for wires or cables providing normal and standby power, control signals, communication with the car, lighting and heating, air conditioning, ventilation and fire detecting systems for fire service access elevators.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Brian Black BDBlack Codes, Inc., representing the National Elevator Industry, Inc., John J. O'Donoghue, representing the International Association of Fire Fighters, and Jack J. Murphy, representing the Fire Safety Directors Association of Greater New York, request Approval as Modified by this public comment.

Modify proposal as follows:

3007.6.1 (Supp) Protection of wiring or cables. Wires or cables that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to fire service access elevators shall be protected by construction having a minimum 2-hour fire-resistance rating or shall be circuit integrity cable having a minimum 2-hour fire-resistance rating.

~~**Exception:** Wire and cables inside 2 hour fire resistance rated machine rooms and hoistways shall not require fire resistance rating.~~

Commenter's Reason: The safety of the firefighters during their firefighting operations is dependent upon the life safety support systems (listed above) being maintained during the critical first 2 hours of their efforts. Locating, surrounding and extinguishing the fire, as well as removing those lives in jeopardy, will take time. If they have not gotten the fire under control by 2 hours into the effort, then it is probably time to evacuate. Providing the 2 hour protection will provide the necessary safety factor for fire fighters to undertake fire fighting and rescue operations without increased concern for system failure. The 2-hour rating is consistent with the hoistway fire rating and fire pump feeder enclosure rating, which addresses the committee concerns. The exception was deleted since wiring and cables will not be located in hoistways due to difficultly related to their installation and maintenance. Therefore such an exception could rarely be applied.

Final Action: AS AM AMPC____ D

G200-07/08
3007.7 (New)

Proposed Change as Submitted:

Proponent: Ed Donoghue, Edward Donoghue Associates Inc. (EADAI)

Add new text as follows:

3007.7 Protection from water. The fire service access elevator lobby and hoistway shall be protected from the intrusion of water from sprinklers in accordance with Sections 3007.7.1 through Section 3007.7.5.

3007.7.1 Lobby entrance. The floor outside the entrance to the fire service access elevator lobby shall be sloped in order to prevent water from entering the lobby at a minimum of 1 percent toward a drain outside of the lobby with the capacity to drain the discharge water from not less than two sprinklers discharging simultaneously.

3007.7.2 Hoistway entrance. The Fire Service access elevator hoistway entrance shall be protected from the intrusion of water in accordance with Section 3007.7.2.1 and 3007.7.2.2.

3007.7.2.1 Drains. Water shall be diverted from entering the hoistway through the hoistway entrance using one of the following methods.

1. A trench drain placed in the floor at the hoistway entrance; or
2. The lobby floor is sloped in order to prevent water from entering the hoistway away from the hoistway entrance at a minimum of 1 percent and leading to a drain.

Floor drains and trench drains shall have the capacity to drain the discharge water from not less than two sprinklers that are closest to the hoistway and discharging simultaneously.

3007.7.2.2 Gasketed barriers. Gasketed barriers, designed to act as water doors, shall be designed and installed to separate the hoistway entrance from the lobby when a sprinkler in the lobby has activated. The barriers shall be designed such that a fire fighter can view and access the lobby area.

3007.7.3 Hoistway walls. Walls forming the fire service access elevator hoistway shall be protected from the intrusion of water by one of the following methods.

1. Trench drains placed in the floor around the perimeter;
2. Floors sloped away from the hoistway walls at a minimum of 1 percent and leading to drains; or
3. Curbs or dams above a floor to a height of 4 inches (102 mm) minimum.

Floor drains and trench drains shall have the capacity to drain the discharge water from not less than two sprinklers discharging simultaneously.

3007.7.4 Tripping hazards. Any drains or gaskets shall be arranged such that the tops are substantially flush with the floor surface elevation to avoid tripping hazards.

3007.8 Water protection. Sprinklers shall be prohibited in fire service access elevators hoistways and machine rooms.

Exception: Sprinklers installed in the elevator pit not greater than 2 feet (610 mm) above the pit floor.

Reason: This particular proposal focuses on keeping water from fire sprinklers from disabling the elevators the firefighters will use. With current building designs, sprinkler water that accumulates on the floor tends to drain through the elevator hoistways and stairwells. In order to keep the elevators operational, the electric circuits on the car and in the hoistway must be kept dry. The Hazard Analysis considered outdoor elevator equipment, but concluded that the best way to do this is to prevent the water from entering the hoistway in the first place. This is done by directing the water to drains designed for that purpose.

Background. As a result of the September 11, 2001 attacks on the World Trade Center, code provisions for emergency egress from tall buildings are being re-examined. There is renewed interest in the use of elevators for both occupant egress and fire fighters access. Therefore a Workshop on the Use of Elevators in Fires and Other Emergencies was held March 2-4, 2004, in Atlanta, Georgia. The workshop was cosponsored by American Society of Mechanical Engineers (ASME International), National Institute of Standards and Technology (NIST), International Code Council (ICC), National Fire Protection Association (NFPA), U.S. Access Board, and the International Association of Fire Fighters (IAFF).

The workshop focused on two general topics:

(1) Use of Elevators by Fire fighters and

(2) Use of Elevators by Occupants during Emergencies

To follow up on the ideas generated at the workshop, 2 task groups were formed; one for each topic. Their goals are:

- Review the suggestions from the Workshop on the Use of Elevators in Fires and other Emergencies.
- Develop a prioritized list of issues.
- Conduct a hazard analysis of the prioritized list of issues to see if there are any residual hazards.
- Draft code revisions for those issues that survive the process and the task group members still want addressed.

The membership of these task groups is broad and includes representatives from the elevator industry and manufacturers of devices such as fire alarms, the fire service, model codes and standards development organizations, and the accessibility community as well as fire protection engineers, architects and specialists in human factors and behavior. Since February 2005 the groups have each been conducting a hazard analysis on their assigned topic. The results of the hazard analysis focused upon the fire fighter needs is nearing completion.

The task group studied 16 different cases. In these cases a particular hazard followed by a cause/trigger was reviewed. The result of the hazard interacting with cause/trigger events may create a particular incident/effect. To address possible incident/effects corrective actions are proposed. Such corrective actions are then reviewed to see if they create any residual hazards. The hazard analysis then carries out each of the residual hazards with additional corrective actions until the hazard is mitigated. It is strictly a hazard analysis (I.e. not probabilistic) and certain assumptions were made such as a single fire start in a high rise building.

The code changes generated by this analysis are related both to the summary of corrective actions resulting from the hazard analysis and the existing language related to fire service access elevators placed into the 2007 Supplement.

These proposals will work with the 2007 Supplement requirements for fire service access elevators to address these concerns. It should be noted that the hazard analysis assumed a lobby to be directly connected with the fire service access elevator thus making the result of the analysis consistent with the philosophical approach found in the 2007 Supplement.

Cost Impact: The code change proposal will increase the cost of construction.

Analysis: The 2007 Supplement includes a new section 3007, Fire Service Access Elevators. The requirement is scoped in Section 403.10.

Committee Action: **Disapproved**

Committee Reason: The concerns are valid but the current proposal appears onerous. Many of the provisions need clarifying. Performance criteria may be a better approach.

Assembly Action: **None**

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted.

Public Comment:

Brian Black BDBlack Codes, Inc., representing the National Elevator Industry, Inc., John J. O'Donoghue, representing the International Association of Fire Fighters, and Jack J. Murphy, representing the Fire Safety Directors Association of Greater New York, request Approval as Modified by this public comment.
Modify proposal as follows:

~~**3007.7 Protection from water.** The fire service access elevator lobby and hoistway shall be protected from the intrusion of water from sprinklers in accordance with Sections 3007.7.1 through Section 3007.7.5.~~

~~**3007.7.1 Lobby entrance.** The floor outside the entrance to the fire service access elevator lobby shall be sloped in order to prevent water from entering the lobby at a minimum of 1 percent toward a drain outside of the lobby with the capacity to drain the discharge water from not less than two sprinklers discharging simultaneously.~~

~~**3007.7.2 Hoistway entrance.** The Fire Service access elevator hoistway entrance shall be protected from the intrusion of water in accordance with Section 3007.7.2.1 and 3007.7.2.2.~~

~~**3007.7.2.1 Drains.** Water shall be diverted from entering the hoistway through the hoistway entrance using one of the following methods.~~

~~1. A trench drain placed in the floor at the hoistway entrance; or~~
~~2. The lobby floor is sloped in order to prevent water from entering the hoistway away from the hoistway entrance at a minimum of 1 percent and leading to a drain.~~

~~Floor drains and trench drains shall have the capacity to drain the discharge water from not less than two sprinklers that are closest to the hoistway and discharging simultaneously.~~

~~**3007.7.2.2 Gasketed barriers.** Gasketed barriers, designed to act as water doors, shall be designed and installed to separate the hoistway entrance from the lobby when a sprinkler in the lobby has activated. The barriers shall be designed such that a fire fighter can view and access the lobby area.~~

~~**3007.7.3 Hoistway walls.** Walls forming the fire service access elevator hoistway shall be protected from the intrusion of water by one of the following methods.~~

~~1. Trench drains placed in the floor around the perimeter;~~
~~2. Floors sloped away from the hoistway walls at a minimum of 1 percent and leading to drains; or~~
~~3. Curbs or dams above a floor to a height of 4 inches (102 mm) minimum.~~

~~Floor drains and trench drains shall have the capacity to drain the discharge water from not less than two sprinklers discharging simultaneously.~~

~~**3007.7.4 Tripping hazards.** Any drains or gaskets shall be arranged such that the tops are substantially flush with the floor surface elevation to avoid tripping hazards.~~

~~**3007.8 Water protection.** Sprinklers shall be prohibited in fire service access elevators hoistways and machine rooms.~~

~~**Exception:** Sprinklers installed in the elevator pit not greater than 2 feet (610 mm) above the pit floor.~~

3007.7 Protection from water. The fire service access elevator hoistway shall be designed utilizing an approved method to prevent water from the operation of the sprinkler system from infiltrating the hoistway enclosure.

Commenter's Reason: This revised proposal provides a performance-based approach to keep water from fire sprinklers from disabling the elevators the firefighters will use.

With current building designs, sprinkler water that accumulates on the floor tends to drain through the elevator hoistways and stairwells. In order to keep the elevators operational, the electric circuits on the car and in the hoistway must be kept dry.

The original proposal created a tripping hazard that was deleted. The water protection rule was deleted because it is addressed in 903.3.1.1.1 of the 2007 Supplement to the IBC. Approved methods may include drains, scuppers, troughs, curbs, dams, floor sloping, etc.

Final Action: AS AM AMPC____ D

G201-07/08
3101.1, 3110 (New), Chapter 35 (New)

Proposed Change as Submitted:

Proponent: Joseph R. Hetzel, PE, Thomas Associates, Inc., representing the Door & Access Systems Manufacturers Association

1. Revise as follows:

3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, pedestrian walkways and tunnels, automatic vehicular gates, awnings and canopies, marquees, signs, and towers and antennas.