AD HOC MEETING # 5
COMPLIANCE ALTERNATIVES

Discussion

The following was presented for consideration relative to the possible update of the provisions in IBC Section 3412 to provide a Compliance Alternative for I-2 hospitals. This is a general approach as to how this can best be achieved. Both NFPA 101A and the IBC use "risk factors" as an element of the analysis. Chapter 34 was developed using risk factors that formed the basis for development of the BOCA building code and the criteria in NYC Local Law 5 for high-rise business occupancies. Other occupancies were extrapolated using those numbers.

When the IBC was developed, a "zero based" revision was undertaken to establish compliance as a zero in all categories of compliance in Chapter 34's compliance alternatives. Additional text must be developed and testing performed on specific cases studies to determine the point values (noted by ??) to be used for those categories not currently covered in the IBC.

Necessary Changes to Chapter 34

1. Revise text as follows:

3412.2 Applicability. Structures existing prior to [DATE TO BE INSERTED BY THE JURISDICTION. NOTE: IT IS RECOMMENDED THAT THIS DATE COINCIDE WITH THE EFFECTIVE DATE OF BUILDING CODES WITHIN THE JURISDICTION], in which there is work involving additions, alterations or changes of occupancy shall be made to comply with the requirements of this section or the provisions of Sections 3403 through 3409. The provisions in Sections 3412.2.1 through 3412.2.5 shall apply to existing occupancies that will continue to be, or are proposed to be, in Groups A, B, E, F, I-2, M, R, S and U. These provisions shall not apply to buildings with occupancies in Group H or I-1, I-3 or I-4.

3412.6 Evaluation process. The evaluation process specified herein shall be followed in its entirety to evaluate existing buildings in Groups A, B, E, F, M, R, S and U. For existing buildings in Group I-2, the evaluation process specified herein shall be followed and applied to each and every individual smoke compartment.. Table 3412.7 shall be utilized for tabulating the results of the evaluation. References to other sections of this code indicate that compliance with those sections is required in order to gain credit in the evaluation herein outlined. In applying this section to a building with mixed occupancies, where the separation between the mixed occupancies does not qualify for any category indicated in Section 3412.6.16, the score for each occupancy shall be determined and the lower score determined for each section of the evaluation process shall apply to the entire building, or to each smoke compartment for Group I-2 occupancies.

Where the separation between mixed occupancies qualifies for any category indicated in Section 3412.6.16, the score for each occupancy shall apply to each portion, or smoke compartment of the building based on the occupancy of the space.

3412.6.16 Mixed occupancies. Where a building has two or more occupancies that are not in the same occupancy classification, the separation between the mixed occupancies shall be evaluated in accordance with this section. Where there is no separation between the mixed occupancies or the separation between mixed occupancies does not qualify for any of the categories indicated in Section 3412.6.16.1, the building shall be evaluated as indicated in Section 3412.6 and the value for mixed occupancies shall be zero. Under the categories and occupancies in Table 3412.6.16, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.16, Mixed Occupancies, for fire safety and general safety. For buildings without mixed occupancies, the value shall be zero.

3412.6.16.1 Categories. The categories for mixed occupancies are:
1. Category a — Minimum 1-hour fire barriers between occupancies.
2. Category b — Fire barriers between occupancies in accordance with Section 508.4
3. Category c — Fire barriers between occupancies having a fire-resistance rating of not less than twice that required by Section 508.4.
4. Category d — Minimum 2-hour fire barriers between occupancies.

TABLE 3412.6.16 MIXED OCCUPANCY VALUESa

OCCUPANCY	CATEGORIES			
	a	B	c	d
A-1, A-2, R	-10	0	10	??
A-3, A-4, B, E, F, M, S	-5	0	5	??
I-2	??	??	??	??

a. For fire-resistance ratings between categories, the value shall be obtained by linear interpolation.

2. Add new text as follows:

3412.6.20 Patient Ability for Self-preservation. Evaluate the ability of the patients for self-preservation in each smoke compartment in an emergency. under Section 3412.6.20.1. Under the categories and occupancies in Table 3412.6.20 determine the appropriate value and enter that value in Table 3412.7 under Safety Parameter 3412.6.20, Patient Ability for Self-Preservation, for means of egress and general safety.

3412.6.20.1 Categories: The categories for patient ability for self-preservation are:
1. Category a – (mobile) Patients are capable of self preservation without assistance.
2. Category b – (limited mobile) Patients are capable of self preservation with assistance
3. Category c – (not mobile) Patients rely on assistance for evacuation or relocation.
4. Category d – (not movable) Patients cannot be evacuated or relocated
5. Category e – no patients

TABLE 3412.6.20 PATIENT ABILITY VALUES

OCCUPANCY	CATEGORIES				
	a	b	C	d	e
A, B, E, F, M, R and S	0	0	0	0	0
I-2	??	??	??	??	??

3412.6.21 Patient Concentration. Evaluate the concentration of patients in each smoke compartment under Section 3412.6.21.1. Under the categories and occupancies in Table 3412.6.21 determine the appropriate value and enter that value in Table 3412.7 under Safety Parameter 3412.6.20, Patient Concentration, for means of egress and general safety.

3412.6.21.1 Categories: The categories for patient concentration are:
1. Category a – smoke compartment has 1 to 5 patients.
2. Category b – smoke compartment has 6 to 10 patients
3. Category c – smoke compartment has 11 to 30 patients
4. Category d – smoke compartment has greater than 30 patients
5. Category e – no patients

TABLE 3412.6.21 PATIENT CONCENTRATION VALUES

OCCUPANCY	CATEGORIES				
	a	b	C	d	e
A, B, E, F, M, R and S	0	0	0	0	0
I-2	??	??	??	??	??

3412.6.22 Smoke Compartment Location Above Grade. Evaluate the location of each smoke compartment relative to the level of exit discharge under Section 3412.6.22.1. Under the categories and occupancies in Table 3412.6.22 determine the appropriate value and enter that value in Table 3412.7 under Safety Parameter 3412.6.20, Smoke Compartment Location Above Grade, for fire safety, means of egress and general safety.

3412.6.22.1 Categories: The categories for smoke compartment location relative to the level of exit discharge are:

1. Category a – smoke compartment is located below the level of exit discharge.
2. Category b – smoke compartment is located on level of exit discharge.
3. Category c – smoke compartment is located on 1st or 2nd floor above the level of exit discharge.
4. Category d – smoke compartment is located on 4th, 5th or 6th floor above the level of exit discharge.
5. Category e – smoke compartment is located above the 6th floor above the level of exit discharge.
6. Category f – no patients

TABLE 3412.6.22 SMOKE COMPARTMENT LOCATION VALUES

OCCUPANCY	CATEGORIES					
	a	b	C	d	e	f
A, B, E, F, M, R and S	0	0	0	0	0	0
I-2	??	??	??	??	??	??

3412.6.23 Attendant-to-Patient Ratio. Evaluate the attendant-to-patient ratio for each compartment under Section 3412.6.23.1. Under the categories and occupancies in Table 3412.6.23 determine the appropriate value and enter that value in Table 3412.7 under Safety Parameter 3412.6.23, Attendant-to-Patient Ratio, for means of egress and general safety.

3412.6.23.1 Categories: The categories for attendant-to-patient concentrations are:

1. Category a – attendant-to-patient concentrations is 1:1 or 1:2.
2. Category b – attendant-to-patient concentrations is 1:3, 1:4 or 1:5.
3. Category c – attendant-to-patient concentrations is 1:6, 1:7, 1:8, 1:9 or 1:10.
4. Category d – attendant-to-patient concentrations is greater than 1:10.
5. Category e – no attendants in immediate area of patients.
6. Category f – no patients

TABLE 3412.6.22 ATTENDANT-TO-PATIENT RATIO VALUES

OCCUPANCY	CATEGORIES					
	a	b	C	d	e	f
A, B, E, F, M, R and S	0	0	0	0	0	0
I-2	??	??	??	??	??	??

3412.6.24 Average Patient Age. Evaluate the average patient age for each smoke compartment under Section 3412.6.24.1. Under the categories and occupancies in Table 3412.6.24 determine the appropriate value and enter that value in Table 3412.7 under Safety Parameter 3412.6.24, Average Patient Age, for means of egress and general safety.

3412.6.24.1 Categories: The categories for the average patient age are:

1. Category a – average patient age is greater than 1 year of age, and less than 65 years of age.
2. Category b – average patient age is less than or equal to 1 year of age, or 65 years of age older.
3. Category c – no patients

TABLE 3412.6.21 PATIENT CONCENTRATION VALUES

OCCUPANCY	CATEGORIES		
	a	b	c
A, B, E, F, M, R and S	0	0	0
I-2	??	??	??

3412.6.25 Smoke Compartmentation. Evaluate the smoke compartments for compliance with Section 417.5. Using Table 3412.6.25, determine the appropriate smoke compartmentation value (*SCV*) and enter that value into Table 3412.7 under Safety Parameter 3412.6.25, Smoke Compartmentation, for fire safety, means of egress and general safety.

TABLE 3412.6.25 SMOKE COMPARTMENTATION VALUES

OCCUPANCY	CATEGORIES [a]		
	a Compartment size equal to or less than 22,500 square feet	B Compartment size greater than 22,500 square feet	c No smoke Compartment
A, B, E, F, M, R and S	0	0	0
I-2	??	??	??

For SI: 1 square foot = 0.093 m^2.

a. For areas between categories, the smoke compartmentation value shall be obtained by linear interpolation.

3. Revise text as follows

TABLE 3412.7
SUMMARY SHEET – BUILDING CODE

Existing occupancy _____

Proposed occupancy _____

Year building was constructed _____

Number of stories _____

Height in feet _____

Type of construction _____

Area per floor _____

Percentage of open perimeter increase _____%

Completely suppressed: Yes_____ No _____

Type _____

Corridor wall rating _____

Compartmentation: Yes_____ No _____

Required door closers: Yes_____ No _____

Fire-resistance rating of vertical opening enclosures _____

Type of HVAC system: _____

Serving number of floors _____

Automatic fire detection: Yes_____ No _____

Type and location _____

Fire alarm system: Yes_____ No _____

Type _____

Smoke control: Yes_____ No _____

Type _____

Adequate exit routes: Yes_____ No _____

Dead ends: Yes_____ No _____

Maximum exit access travel distance _____

Elevator controls: Yes_____ No _____

Means of egress emergency lighting: Yes_____ No _____

Mixed occupancies: Yes_____ No _____

Standpipes: Yes_____ No _____

Incidental Use: Yes_____ No _____

Patient Ability for Self-preservation: _____

Patient Concentration: _____

Smoke Compartment Location Above Grade: _____

Attendant-to-Patient Ratio: _____

Average Patient Age _____ years

Smoke Compartmentation Yes_____ No _____

TABLE 3412.8

SUMMARY SHEET FOR GROUP

SAFETYPARAMETERS	FIRE SAFETY (FS)	MEANS OF EGRESS (ME)	GENERAL SAFETY (GS)
3412.6.1 Building Height			
3412.6.2 Building Area			
3412.6.3 Compartmentation			
3412.6.4 Tenant and Dwelling Unit Separations			
3412.6.5 Corridor Walls			
3412.6.6 Vertical Openings			
3412.6.7 HVAC Systems			
3412.6.8 Automatic Fire Detection			
3412.6.9 Fire Alarm System			
3412.6.10 Smoke control	* * * *		
3412.6.11 Means of Egress	* * * *		
3412.6.12 Dead ends	* * * *		
3412.6.13 Maximum Exit Access Travel Distance	* * * *		
3412.6.14 Elevator Control			
3412.6.15 Means of Egress Emergency Lighting	* * * *		
3412.6.16 Mixed Occupancies			
3412.6.17 Automatic Sprinklers		* * * *	
3412.6.17 Standpipes		÷ 2	
3412.6.19 Incidental Use			
3412.6.20 Patient Ability for Self-preservation	* * * *		
3412.6.21 Patient Concentration	* * * *		
3412.6.22 Smoke Compartment Location Above Grade			
3412.6.23 Attendants to Patient Ratio	* * * *		
3412.6.24 Average Patient Age	* * * *		
3412.6.25 Smoke Compartmentation			
Building score — total value			

* * * * No applicable value to be inserted.