Note: Proposed Amendments (added text to the code is: <u>underlined</u>, deleted text to the code is: ~~struck through~~)

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ITEM	SECTION	SUMMARY	PROPONENT	ACTION
IBC-2018-01	**Preface**	*Add *Preface* from existing 2014 GA Amendments to include the standard language for Code References, Appendices, Scope and the Code Reference Guide, etc. (Effective January 1, 2020)	Task Force (Team 1)	**A (CF)**
IBC-2018-02	**Preface**	*Add new paragraph (c) for International Existing Building Code references to read as follows: (c) <u>Replace all references to the *International Existing Building Code (IEBC)* with references to Chapter 34 'Existing Buildings' of these Georgia State Amendments.</u> <u>Note: By Georgia law, the *International Existing Building Code* is a permissive or optional State Minimum Standard Code. Consequently, the provisions contained in the *International Existing Building Code* are not mandatory or applicable unless specifically referenced in the adopting ordinance of local governments</u>. (Effective January 1, 2020)	Task Force (Team 1)	**A**
IBC-2018-03	**Chapter 1**	*Delete Chapter 1 'Scope and Administration' entirely without substitution. Chapter 1 to remain in the Code as a reference and guide for local governments to use in the development of their own *Administrative Procedures.* (Effective January 1, 2020)	Task Force (Team 1)	**A (CF)**
IBC-2018-04	**202**	*Add a new definition of 'Elevator Door Opening Protective Device' to read as follows: **ELEVATOR DOOR OPENING PROTECTIVE DEVICE.** Any device that either independently or in conjunction with the (elevator) door assembly allows the device(s) to meet the requirements of Sections <u>~~716.5.3,~~ 716, 716.2.2.1 and 3008.6.3</u>. (Effective January 1, 2020)	Task Force (Team 1)	**A (CF)**
IBC-2018-05	**308.3.3**	*Add a new Section 308.3.3 'Assisted living communities' to read as follows: **308.3.3 Assisted living communities.** Assisted living communities, licensed by the State, housing twenty-five or more persons, meeting the Georgia State Fire Marshal's Office Life Safety Code requirements shall be deemed as equivalent compliance to the International Building Code Chapters 3,4, 8, 9, and 10. (Effective January 1, 2020)	Task Force (Team 1)	**A (CF)**
IBC-2018-06	**[F] 415.9.2**	*Revise Section [F] 415.9.2 'Liquefied Petroleum Gas Facilities' to read as follows: **[F] 415.9.2 Liquefied petroleum gas facilities.** The construction and installation of liquefied petroleum gas facilities shall be in accordance with the requirements of this code, the *International Mechanical Code*, NFPA 58 and NFPA 54 as adopted by the Rules and Regulations of the Safety Fire Commissioner Chapter 120-3-16, "*Rules and Regulations for Liquefied Petroleum Gases".* (Effective January 1, 2020)	Task Force (Team 1)	**A (CF)**

<table>
<tr>
<td>IBC-2018-07</td>
<td>Table 504.4</td>
<td>*Revise Table 504.4 ‘Allowable Number of Stories Above Grade Plane [a, b]’ for the Occupancy Classification “I-1 Condition 2” as shown and add a new footnote “i” to read as follows:

TABLE 504.4
ALLOWABLE NUMBER OF STORIES ABOVE GRADE PLANE [a, b]
<table>
<tr><th rowspan="3">OCCUPANCY CLASSIFICATION</th><th colspan="10">TYPE OF CONSTRUCTION</th></tr>
<tr><th rowspan="2">SEE FOOTNOTES</th><th colspan="2">TYPE 1</th><th colspan="2">TYPE II</th><th colspan="2">TYPE III</th><th>TYPE IV</th><th colspan="2">TYPE V</th></tr>
<tr><th>A</th><th>B</th><th>A</th><th>B</th><th>A</th><th>B</th><th>HT</th><th>A</th><th>B</th></tr>
<tr><td rowspan="2">I-1 Condition 2</td><td>NS [d, e]</td><td>~~UL~~NP</td><td>~~9~~NP</td><td>~~4~~NP</td><td>NP</td><td>NP</td><td>NP</td><td>NP</td><td>NP</td><td>NP</td></tr>
<tr><td>S [i]</td><td>UL</td><td>10</td><td>~~5~~ 3</td><td>~~3~~ 2</td><td>~~4~~ 2</td><td>~~3~~ 1</td><td>~~4~~ 2</td><td>~~3~~ 2</td><td>~~2~~ 1</td></tr>
</table>
i. For all I-1 Condition 2, the building shall be protected throughout with an approved automatic sprinkler system, installed in accordance with NFPA 13 as adopted by the Rules and Regulations of the Safety Fire Commissioner. No increase in story height shall be permitted.
(Remainder of table unchanged)
(Effective January 1, 2020)</td>
<td>Task Force
(Team 1)</td>
<td>A</td>
</tr>
<tr>
<td>IBC-2018-08</td>
<td>706.2</td>
<td>*Revise Section 706.2 ‘Structural stability’ to read as follows:
706.2 Structural stability. Fire walls shall be designed and constructed to allow collapse of construction on either side without collapse of the wall under fire conditions and loading per Section 1607.15.2. Fire walls designed and constructed in accordance with NFPA 221 shall be deemed to comply with this section.
Exception: In Seismic Design Categories D through F, where double fire walls are used in accordance with NFPA 221, floor and roof sheathing not exceeding 3/4 inch (19.05 mm) thickness shall be permitted to be continuous through the wall assemblies of light frame construction.
(Effective January 1, 2020)</td>
<td>Task Force
(Team 2)</td>
<td>A
(CF)</td>
</tr>
<tr>
<td>IBC-2012-09</td>
<td>706.3</td>
<td>*Delete exception to Section 706.3 ‘Materials’ without substitution.
706.3 Materials. Firewalls shall be of any approved non-combustible materials.
~~Exception:~~ ~~Buildings of Type V construction.~~
(Effective January 1, 2020)</td>
<td>Task Force
(Team 2)</td>
<td>A
(CF)</td>
</tr>
<tr>
<td>IBC-2018-10</td>
<td>713.14.1</td>
<td>*Add new Section 713.14.1 ‘Designated floor lobbies for elevator return’ to read as follows:
713.14.1 Designated floor lobbies for elevator return. New elevators, escalators, dumbwaiters, and moving walks shall be installed in accordance with the requirements of ASME A17.1, Safety Code for Elevators and Escalators. The designated elevator lobby of the designated floor and the designated alternate floor specified by ASME A17.1 Section 2.27.3 shall be separated from the remainder of the building by 1-hour fire-rated construction. In buildings equipped with automatic sprinkler protection, smoke partitions in accordance with the ‘Rules and Regulations of the Safety Fire Commissioner Chapter 120-3-3 Rules and Regulations for the State Minimum</td>
<td>Task Force
(Team 2)</td>
<td>A
(CF)</td>
</tr>
</table>

		Fire Safety Standards' may be used in lieu of 1-hour fire-rated construction. Except health care occupancies, openings in the elevator lobby shall be limited to those required for access to the elevators from exit access corridors only. Elevator lobbies may be used as part of the means of egress from the building. **Exceptions:** 1. Designated floor elevator lobbies are not required within an atrium. 2. Designated floor elevator lobbies are not required where elevators are installed on open exterior walls. 3. Designated floor elevator lobbies are not required where elevators are installed in open air parking structures. 4. Designated floor elevator lobbies are not required in buildings three stories or less with vertical openings protected in accordance with the applicable occupancy chapter. ~~5. Elevator lobbies are not required in mercantile occupancies that have properly protected openings for escalators or stairs.~~ 5~~6~~.Existing installations acceptable to the authority having jurisdiction. 6~~7~~ For existing buildings or existing structures reference Section 3401.7 (GA Amendments). (Effective January 1, 2020)		
IBC-2018-11	**[F] 903.2.8**	*Revise Section [F] 903.2.8 'Group R' to add new exception to read as follows: **[F] 903.2.8 Group R.** **Exception:** Group R-1 and R-2 occupancies which meet the exceptions allowed by the 'Rules and Regulations of the Safety Fire Commissioner Chapter 120-3-3 Rules and Regulations for the State Minimum Fire Safety Standards' are exempt from this requirement. (Effective January 1, 2020)	Task Force (Team 2)	**A (CF)**
IBC-2018-12	**[F] 903.2.8.1**	*Revise Section [F] 903.2.8.1 'Group R-3' to read as follows: **[F] 903.2.8.1 Group R-3.** An *automatic sprinkler system* installed in accordance with Section ~~903.3.1.3~~ 903.3.1.2 shall be permitted in Group R-3 occupancies. (Effective January 1, 2020)	Task Force (Team 2)	**A**
IBC-2018-13	**[F] 903.2.8.2**	*Revise Section [F] 903.2.8.2 'Group R-4, Condition 1' to read as follows: **[F] 903.2.8.2 Group R-4, Condition 1.** An *automatic sprinkler system* installed in accordance with Section ~~903.3.1.3~~ 903.3.1.2 shall be permitted in Group R-4, Condition 1 occupancies. (Effective January 1, 2020)	Task Force (Team 2)	**A**
IBC-2018-14	**[F] 903.2.8.4**	*Revise Section [F] 903.2.8.4 'Care facilities' to read as follows: **[F] 903.2.8.4 Care facilities.** An a*utomatic sprinkler system* installed in accordance with Section ~~903.3.1.3~~ 903.3.1.2 shall be permitted in care facilities with five or fewer individuals in a single-family dwelling. (Effective January 1, 2020)	Task Force (Team 2)	**A**

Note: Proposed Amendments (added text to the code is: underlined, deleted text to the code is: ~~struck through~~)

IBC-2018-15	**[F] 903.3.1.3**	*Revise Section [F] 903.3.1.3 'NFPA 13D sprinkler systems' to read as follows: **[F] 903.3.1.3 NFPA 13D sprinkler systems.** *Automatic sprinkler systems* installed in one- and two-family *dwellings;* ~~Group R-3; Group R-4, Condition 1;~~ and *townhouses* separated by 2 hour firewalls shall be permitted to be installed throughout in accordance with NFPA 13D. (Effective January 1, 2020)	Task Force (Team 2)	**A**
IBC-2018-16	**909.21.1**	*Delete Section 909.21.1 'Pressurization requirements' entirely and substitute to read as follows: **909.21.1 Pressurization requirements.** The system shall be designed such that the maximum pressure differential shall not restrict or prohibit the free operation of the elevated cab and all hoistway doors serving all levels of the building. The air shall not be introduced into the hoistway in such a manner as to cause erratic operation by impingement of traveling cables, selector tapes, governor ropes, compensating ropes, and other components sensitive to excessive movement or deflection. **Exception:** In existing buildings, when testing existing elevator pressurization systems, they shall be certified to ensure a minimum positive pressure, subject to the approval of the authority having jurisdiction. This pressure shall be measured at the midpoint of each hoistway door, with all elevator cars at the floor of recall and all hoistway doors on the floor of recall open and all other hoistway doors closed. The opening and closing of hoistway doors at each level must be demonstrated during this test. The supply air intake shall be from an outside, uncontaminated source. (Effective January 1, 2020)	Task Force (Team 2)	**A (CF)**
IBC-2018-17	**Chapter 11**	* Delete Chapter 11 'Accessibility' entirely without substitution. {Cross-reference in State law: Title 30, Chapter 3 of the Official Code of Georgia Annotated (O.C.G.A) and the Rules and Regulations of the Georgia Safety Fire Commissioner.} (Effective January 1, 2020)	Task Force (Team 2)	**A (CF)**
IBC-2018-18	**[BS] 1404.19**	*Add new Section [BS] 1404.19 'Installation of wall coverings' as follows: **[BS] 1404.19 Installation of wall coverings**. Except masonry veneer, wall cladding shall be installed a minimum of 6 inches above the finished earth grade, or a minimum of 2 inches above paved areas to provide a clear, visible inspection gap. (Effective January 1, 2020)	Task Force (Team 3)	**A (CF)**
IBC-2018-19	**1701.2**	*Add new Section 1701.2 'Construction Documents' as follows: **1701.2 Construction Documents** The *construction documents* for special inspections shall include: 1. The statement of special inspections in accordance with 1704.3.	Task Force (Team 3)	**A (CF)**

		2. The following statement: "Special inspection reports and a final report in accordance with Section 1704.2.4 shall be submitted to the building official prior to the time that phase of the work is approved for occupancy." (Effective January 1, 2020)		
IBC-2018-20	**1701.3**	*Add new Section 1701.3 'Guidelines' as follows: **1701.3 Guidelines.** The local building official or authority having jurisdiction shall be authorized to use ACEC/SEAOG SI GL 01, Georgia Special Inspections Guidelines, in part or in whole for the purposes of implementing and enforcing the provisions of Chapter 17, 'Special Inspections and Tests', and/or establishing a Special Inspections program for their jurisdiction. (Effective January 1, 2020)	Task Force (Team 3)	**A (CF)**
IBC-2018-21	**1704.2**	*Revise Section 1704.2 'Special inspections and tests' to read as follows: **1704.2 Special inspections and tests.** Where application is made to the *building official* for construction as described in this section ~~105~~, the owner or the *registered design professional in responsible charge* acting as the owner's agent, other than the contractor, shall employ one or more *approved agencies* to provide *special inspections* and tests during construction on the types of work ~~listed under~~ specified in Section 1705. These inspections are in addition to the inspections by the *building official* identified in Section 110. **Exceptions:** 1. *Special inspections* are not required for construction of a minor nature that does not require the practice of professional engineering or architecture, as defined by Georgia statutes and regulations governing the professional registration and certification of engineers or architects or as warranted by conditions in the jurisdiction as *approved* by the *building official*. 2. Unless otherwise required by the *building official*, *special inspections* and tests are not required for Group U occupancies that are accessory to a residential occupancy including, but not limited to, those listed in Section 312.1. 3. *Special inspections* and tests are not required for portions of structures designed and constructed in accordance with the cold-formed steel light-frame construction provisions of Section 2211.1.2 or the conventional light-frame construction provisions of Section 2308. ~~4. The contractor is permitted to employ the *approved agencies* where the contractor is also the owner~~. (Effective January 1, 2020)	Task Force (Team 3)	**A (CF)**
IBC-2018-22	**1704.2.1**	*Revise Section 1704.2.1 'Special inspector qualifications' to read as follows: **1704.2.1 Special inspector qualifications.** The special inspector shall provide written documentation to the building official demonstrating his or her competence and relevant experience or training. Experience or training shall be considered relevant when the documented	Task Force (Team 3)	**A (CF)**

<table>
<tr><td></td><td></td><td>experience or training is related in complexity to the same type of special inspection activities for projects of similar complexity and material qualities. The special inspector shall be qualified in accordance with Table 1704.2. These qualifications are in addition to qualifications specified in other sections of this code.

The registered design professional in responsible charge and engineers of record involved in the design of the project are permitted to act as the approved agency and their personnel are permitted to act as the special inspector for the work designed by them, provided they qualify as special inspectors.
(Effective January 1, 2020)</td><td></td><td></td></tr>
<tr><td>IBC-2018-23</td><td>Table 1704.2</td><td>*Add new Table 1704.2 “Minimum Special Inspector Qualifications’ to read as follows:
<table>
<tr><th colspan="4">TABLE 1704.2 MINIMUM SPECIAL INSPECTOR QUALIFICATIONS</th></tr>
<tr><th rowspan="2">Category of Testing and Inspection</th><th colspan="3">Minimum Qualifications (refer to key at end of Table)</th></tr>
<tr><th>Shop Testing or Inspection</th><th>Field Testing or Inspection</th><th>Review Testing, Certification& Lab Reports</th></tr>
<tr><td colspan="4">1704.2.5 Inspection of Fabricators</td></tr>
<tr><td>Pre-cast concrete</td><td>A, C, E</td><td></td><td></td></tr>
<tr><td>Structural steel construction</td><td>C, F, G</td><td></td><td></td></tr>
<tr><td>Wood construction</td><td>A</td><td></td><td></td></tr>
<tr><td>Cold formed metal construction</td><td>A</td><td></td><td></td></tr>
<tr><td colspan="4">1705.2, 1705.10, 1705.11& 1705.12 Steel Construction</td></tr>
<tr><td>Verification of welding consumables, filler metals, procedure specifications, procedure qualification records and personnel performance qualification records</td><td></td><td></td><td>C, F</td></tr>
<tr><td>Nondestructive testing of welding</td><td>G</td><td>G</td><td></td></tr>
<tr><td>Inspection of welding</td><td>C, F</td><td>C, F</td><td></td></tr>
<tr><td>Verification of fabricator and erector documents as listed in AISC 360, chapter N, paragraph 3.2</td><td></td><td></td><td>A, C</td></tr>
</table>
</td><td>Task Force (Team 3)</td><td>A (CF)</td></tr>
</table>

			Material verification of weld filler materials			C, F		
			Inspection of high strength bolting and steel frame joint details		A, C			
			Inspection of embedment		A, C, F			
			Inspection of steel elements of composite construction		A, C, F			
			Verification of reinforcing steel, cold formed steel deck and truss materials			A, C, F		
			Inspection of reinforcing steel, cold formed steel deck and trusses		A, C			
			1705.3 & 1705.12 Concrete Construction					
			Reinforcing placement, cast-in-place bolts, post installed anchors concrete and shotcrete placement and curing operations. Inspection of formwork for shape, location and dimensions		A, C, H			
			Pre-stressing steel installation		A, C, D, E			
			Erection of pre-cast concrete members		A, C, H			
			Concrete field sampling and field testing		A, J			
			Concrete strength testing		P			
			Review certified mill reports			A, C		
			Verify use of required design mix		A, I, J, H, C			
			Pre-stressed (pre-tensioned) concrete force application	A, C, E				
			Post-tensioned concrete force application		A, C, D			
			Review of in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs		A, C, D,H			

			Reinforcing steel weldability, reinforcing welding, weld filler material		C, F			
			Testing of welding of reinforcing steel		G			
			1705.4 Masonry					
			Verification of f'_m and f'_{AAC}		A, C, L, M			
			Mortar joint construction, grout protection and placement, materials proportion, type/size/location of reinforcement, structural elements, anchorage, and connectors		A, C, K			
			Sampling/testing of grout/mortar specimens		A, C, L, M			
			Observe preparation of masonry prisms for testing of compressive strength of masonry, f'_m and f'_{AAC}		A, C, K, L, M			
			Inspection of welding of reinforcing steel		C, F			
			Testing of welding of reinforcing steel		G			
			1705.6 & 1804 Soils					
			Observe site preparation, fill placement testing of compaction for compliance with the construction documents for the project		A, C, I, N			
			Observe test bearing materials below shallow foundations for ability to achieve design bearing capacity		A, C, N, I (Level III)			
			Review compaction testing for compliance with the construction documents for the project			A		
			1705.5, 1705.10, 1705.11 & 1705.12 Wood Construction					
			Observe structural panel sheathing, size of framing		A			

			members, nail or staple diameter and length, number of fastener lines, and spacing of fastener lines and fasteners for compliance with construction documents for the project					
			Observe temporary and permanent truss member restraint/bracing, field gluing of elements. Observe bolting, anchoring or other fastening of: shear walls, diaphragms, drag struts, braces and hold-downs		A			
			1705.7, 1705.8, 1705.9 & 1810 Pile and Pier Foundations					
			Observe installation		A, N			
			Observe load tests		A			
			1705.13 Sprayed Fire-Resistant Materials					
			Observe surface conditions, application, average thickness and density of applied material, and cohesive/adhesive bond		A, C			
			1705.14 Mastic and Intumescent Fire-Resistant Coatings					
			Observe application compliance with AWCI 12-B		A, C			
			1705.15 Exterior Insulation and Finish Systems					
			Inspect EIFS systems		A, B, C, O			
			1705.1 Special Cases					
			Work of unusual or special nature		A, B, O			
			1705.16 Fire-Resistant Penetrations and Joints	*See Requirements of IBC Sections 1705.16.1 and 1705.16.2*				
			1705.17 Smoke Control	*See Requirements of IBC Section 1705.17.2*				
			1705.10, 1705.11 & 1705.12 Seismic and Wind Resistance					
			Periodic inspection of fabrication, installation and/or anchorage of building systems and components		A			

KEY:

A. Georgia Professional Engineer (GA PE) competent in the specific task area or graduate of accredited engineering/engineering technology program under the direct supervision of a GA PE.
B. Georgia Registered Architect (GA RA) or graduate of accredited architecture/architecture technology program under the direction of a GA RA.
C. International Code Council (ICC) Special Inspector Certification specific to the particular material and testing methodology applicable to each Category of Testing and Inspection listed in the table.
D. Post-tensioning Institute (PTI) Certification, Level 2, bonded or unbonded as applicable.
E. Pre-stressed Concrete Institute (PCI) Certified Inspector.
F. American Welding Society (AWS) Certified Welding Inspector (CWI) or AWS Certified Associate Welding Inspector working under the direct on-site supervision of a CWI.
G. American Society for Nondestructive Testing (ASNT) Level II certification, or a Level III certification if previously certified as a Level II in the particular material and testing methodology applicable to each Category of Testing and Inspection listed in the table.
H. American Concrete Institute (ACI) Concrete Construction Special Inspector.
I. National Institute for Certification in Engineering Technologies (NICET) Level II or higher certification specific to the particular material and testing methodology applicable to each Category of Testing and Inspection listed in the table.
J. ACI Concrete Field Testing Technician with Grade 1 certification.
K. Georgia Concrete and Products Association (GC&PA) – Masonry Association of Georgia (MAG) Masonry Construction Inspector Certification.
L. National Concrete Masonry Association (NCMA) Concrete Masonry Testing Procedures certification.
M. GC&PA – MAG Masonry Testing Technician certification.
N. NICET Certified Engineering Technologist (CT).
O. Other Qualified Special Inspector as approved by the Building Official.
P. American Concrete Institute (ACI) Strength Testing Technician.

Notes:

1. The Special Inspector shall meet one of the minimum qualifications listed for the applicable Category of Testing and Inspection.
2. Materials testing shall be done by an Approved Testing Agency meeting the requirements of IBC Section 1703 and ASTM E 329.

IBC-2018-24	**1704.2.4**	*Revise Section 1704.2.4 'Report Requirement' to read as follows: **1704.2.4 Report requirement.** *Approved agencies* shall keep records of inspections and tests. The *approved agency* shall submit reports of special inspections and tests to the *building official* and to the *registered design professional in responsible charge*. Reports shall indicate that work inspected was or was not completed in conformance to *approved construction documents*. Discrepancies shall be brought to the immediate attention of the contractor for correction. If they are not corrected, the discrepancies shall be brought to the attention of the *building official* and to the *registered design professional in responsible charge* prior to the completion of that phase of the work. A final report documenting required *special inspections* and correction of any discrepancies noted in the inspections or tests, shall be submitted to the *building official* prior to the time that phase of the work is approved for occupancy ~~at a point in time agreed upon prior to the start of work by the owner or the owner's authorized agent to the *building official*~~. (Effective January 1, 2020)	Task Force (Team 3)	**A (CF)**
IBC-2018-25	**1810.3.2.6**	*Revise Section 1810.3.2.6 'Allowable stresses' title to read as follows: **1810.3.2.6 Allowable axial stresses.** The allowable stresses for materials used in deep foundation elements shall not exceed those specified in Table 1810.3.2.6. (Effective January 1, 2020)	Task Force (Team 3)	**A**
IBC-2018-26	**Table 1810.3.2.6**	*Revise Table 1810.3.2.6 'Allowable Stresses For Materials Used in Deep Foundation Elements' Item 4 to read as follows: **TABLE 1810.3.2.6** **ALLOWABLE AXIAL STRESSES FOR MATERIALS USED IN DEEP FOUNDATION ELEMENTS** **MATERIAL TYPE AND CONDITION** / **MAXIMUM ALLOWABLE AXIAL STRESS[a]** 4. Non-prestressed reinforcement in tension Within micropiles: $0.6 f_y$ Other conditions For load combinations not including wind or seismic loads: $0.5 f_y \leq$ ~~24,000~~ 30,000 psi For load combinations including wind or seismic loads: $0.5 f_y \leq$ 40,000 psi Remainder of table and footnotes remain unchanged. (Effective January 1, 2020)	Task Force (Team 3)	**A**
IBC-2018-27	**Table 2902.1**	*Delete the requirements for "service sinks" from Table [P] 2902.1 'Minimum Number of Required Plumbing Fixtures[a]' without substitution. (Effective January 1, 2020)	Task Force (Team 4)	**A (CF)**
IBC-2018-28	**Table 3001.3**	*Revise Table 3001.3 'Elevators and Conveying Systems and Components' under STANDARDS for Elevators, escalators, dumbwaiters, moving walks, material lifts to add the following new standards to read as follows:	Task Force (Team 4)	**A**

		TABLE 3001.3 **ELEVATORS AND CONVEYING SYSTEMS AND COMPONENTS** **TYPE** / **STANDARDS** Elevators, escalators, dumbwaiters, moving walks, material lifts / ANSI/ASSE A10.4, ANSI/ASSE A10.5 (Effective January 1, 2020)		
IBC-2018-29	**3002.4**	*Revise Section 3002.4 'Elevator car to accommodate ambulance stretcher' to add a new exception at the end of the section to read as follows: **3002.4 Elevator car to accommodate ambulance stretcher.** **Exception:** Elevators with 50 feet or less of travel serving only one residence of a one- or two-family dwelling or townhouse shall be in compliance with ASME A17.1 as currently adopted and amended by the Georgia Office of Safety Fire Commissioner. (Effective January 1, 2020)	Task Force (Team 4)	**A (CF)**
IBC-2018-30	**3005.4**	*Delete Section 3005.4 'Machine rooms, control rooms, machinery spaces and control spaces' and substitute to read: **3005.4 Machine rooms, control rooms, machinery spaces and control spaces**. Elevator machine rooms and machinery spaces shall be enclosed with *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. The *fire- resistance rating* shall be not less two hours. Openings in the *fire barriers* shall be protected with assemblies having a *fire protection rating* not less than that required for the hoistway enclosure doors. **Exception**: Where machine rooms and machinery spaces do not meet the required *fire-resistance rating*, they shall require sprinklers and shunt trip breaker in accordance with NFPA 72. (Effective January 1, 2020)	Task Force (Team 4)	**A (CF)**
IBC-2018-31	**3005.5**	*Revise Section 3005.5 'Shunt trip' to read as follows: **3005.5 Shunt trip.** Where elevator hoistways or elevator machine rooms containing elevator control equipment are protected with automatic sprinklers, a means installed in accordance with NFPA 72, Section 6.16.4, Elevator Shutdown, shall be provided to disconnect automatically the main line power supply to the affected elevator prior to the application of water. If the means is located in the affected elevator machine room, it shall be in a water resistant enclosure. This means shall not be self-resetting. The activation of sprinklers outside the hoistway or machine room shall not disconnect the main line power supply. Machine rooms having a two-hour fire separation from the building and provided with smoke detection interconnected to the building fire alarm system are not required to be sprinklered. (Effective January 1, 2020)	Task Force (Team 4)	**A (CF)**

Note: Proposed Amendments (added text to the code is: underlined, deleted text to the code is: ~~struck through~~)

IBC-2018-32	**Chapter 34**	*Revise the title of Chapter 34 'Reserved' to read as 'Existing Buildings' and carry forward all the provisions from Chapter 34 'Existing Buildings' of the 2012 International Building Code. (Effective January 1, 2020)	Task Force (Team 5)	**A**
IBC-2018-33	**3401.7**	*Add new Section 3401.7 'Existing systems conformance' to read as follows: **3401.7 Existing systems conformance.** The extent to which the existing mechanical, electrical, plumbing and life safety systems shall be made to conform to the requirements of the State Minimum Standard Codes for new construction shall be as follows unless otherwise required by this section: 1. When the estimated cost of the new work is less than fifty percent (50%) of the replacement cost of the existing system, the new work shall be brought in to conformance with the requirements of the State Minimum Standard Codes for new construction. 2. When the estimated cost of the new work is equal to or greater than fifty percent (50%) of the replacement cost of the existing system, the entire system shall be made to conform to the requirements of the State Minimum Standard Codes for new construction. 3. For essential service facilities Occupancy Category IV type buildings as defined by Table 1604.5, when the estimated cost of the new work is equal to or greater than thirty percent (30%) of the replacement cost of the existing system, the entire system shall be made to conform to the requirements of the State Minimum Standard Codes for new construction. (Effective January 1, 2020)	Task Force (Team 5)	**A (CF)**
IBC-2018-34	**3408.2.1**	*Add new Section 3408.2.1 'Assisted living communities' to read as follows: **3408.2.1 Assisted living communities.** Existing buildings or portions of buildings proposed as a change of occupancy to Assisted Living Communities, licensed by the State, housing twenty-five or more persons, shall be allowed to meet the Georgia State Fire Marshal's Office Life Safety Code requirements for primary equivalent compliance to the International Building Code Chapters 3, 4, 8, 9, and 10. (Effective January 1, 2020)	Task Force (Team 5)	**A (CF)**
IBC-2018-35	**Chapter 35**	*Revise Chapter 35 'Referenced Standards' to add the following new reference standards: **ACEC/GA** American Council of Engineering Companies of GA, Peachtree Center, Harris Tower, Suite 700, 233 Peachtree Street, Atlanta, GA 30303 ACEG/SEAOG- SI GL 01-12 — Georgia Special Inspections Guidelines (http://www.seaog.org/si.html) — 1704.2.1, GA amendments	Task Force (Team 5)	**A (CF)**

		ASTM ASTM International 100 Barr Harbor Drive West Conshohocken, PA 19428-2859 E329-11c — Standard Specification for Agencies Engaged in Construction Inspection, Testing or Special Inspection — 1704.2.1, GA amendments **ANSI/ASSE** American Society of Safety Engineers 520 N. Northwest Highway Park Ridge, IL 60068 A10.4-2016 — Safety Requirements for Personnel Hoist and Employee Elevators on Construction and Demolition Sites — Table 3001.3, GA Amendments A10.5-2013 — Safety Requirements for Material Hoists — Table 3001.3, GA Amendments (Effective January 1, 2020)		
IBC-2018-36	**Appendix O**	*The Department of Community Affairs hereby adopts Appendix O 'Disaster Resilient Construction' as optional. This document can be downloaded at https://dca.ga.gov/local-government-assistance/construction-codes-industrialized-buildings/construction-codes. (Effective: January 1, 2020)	Task Force (Team 5)	**A (CF)**
		End of Report.		

CHAPTER 34

EXISTING BUILDINGS AND STRUCTURES

SECTION 3401 GENERAL

3401.1 Scope. The provisions of this chapter shall control the *alteration*, *repair*, *addition* and change of occupancy of existing buildings and structures.

Exception: Existing *bleachers*, grandstands and folding and telescopic seating shall comply with ICC 300.

3401.2 Maintenance. Buildings and structures, and parts thereof, shall be maintained in a safe and sanitary condition. Devices or safeguards which are required by this code shall be maintained in conformance with the code edition under which installed. The owner or the owner's designated agent shall be responsible for the maintenance of buildings and structures. To determine compliance with this subsection, the *building official* shall have the authority to require a building or structure to be reinspected. The requirements of this chapter shall not provide the basis for removal or abrogation of fire protection and safety systems and devices in existing structures.

3401.3 Compliance. *Alterations*, *repairs*, *additions* and changes of occupancy to, or relocation of, existing buildings and structures shall comply with the provisions for *alterations*, *repairs*, *additions* and changes of occupancy or relocation, respectively, in the *International Energy Conservation Code*, *International Fire Code*, *International Fuel Gas Code*, *International Mechanical Code*, *International Plumbing Code*, *International Property Maintenance Code*, *International Private Sewage Disposal Code*, *International Residential Code* and NFPA 70. Where provisions of the other codes conflict with provisions of this chapter, the provisions of this chapter shall take precedence.

3401.4 Building materials and systems. Building materials and systems shall comply with the requirements of this section.

3401.4.1 Existing materials. Materials already in use in a building in compliance with requirements or approvals in effect at the time of their erection or installation shall be permitted to remain in use unless determined by the *building official* to be unsafe per Section 116.

3401.4.2 New and replacement materials. Except as otherwise required or permitted by this code, materials permitted by the applicable code for new construction shall be used. Like materials shall be permitted for repairs and alterations, provided no hazard to life, health or property is created. Hazardous materials shall not be used where the code for new construction would not *permit* their use in buildings of similar occupancy, purpose and location.

3401.4.3 Existing seismic force-resisting systems. Where the existing seismic force-resisting system is a type that can be designated ordinary, values of R, Ω_0, and C_d for the existing seismic force-resisting system shall be those specified by this code for an ordinary system unless it is demonstrated that the existing system will provide performance equivalent to that of a detailed, intermediate or special system.

3401.5 Dangerous conditions. The *building official* shall have the authority to require the elimination of conditions deemed *dangerous*.

3401.6 Alternative compliance. Work performed in accordance with the *International Existing Building Code* shall be deemed to comply with the provisions of this chapter.

SECTION 3402 DEFINITIONS

3402.1 Definitions. The following terms are defined in Chapter 2:

DANGEROUS.

EXISTING STRUCTURE.

PRIMARY FUNCTION.

SUBSTANTIAL STRUCTURAL DAMAGE.

TECHNICALLY INFEASIBLE.

SECTION 3403 ADDITIONS

3403.1 General. *Additions* to any building or structure shall comply with the requirements of this code for new construction. *Alterations* to the existing building or structure shall be made to ensure that the existing building or structure together with the *addition* are no less conforming with the provisions of this code than the existing building or structure was prior to the *addition*. An existing building together with its *additions* shall comply with the height and area provisions of Chapter 5.

3403.2 Flood hazard areas. For buildings and structures in *flood hazard areas* established in Section 1612.3, any *addition* that constitutes *substantial improvement* of the *existing structure*, as defined in Section 202, shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3, any additions that do not constitute *substantial improvement* of the *existing structure*, as defined in Section 202, are not required to comply with the flood design requirements for new construction.

3403.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *addition* and its related alterations cause an increase in design gravity load of more than 5 percent shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by this code for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased shall be considered an altered element subject to the requirements of Section 3404.3. Any existing element that will form part of the lateral load path for any part of the *addition* shall be considered an existing lateral load-carrying structural element subject to the requirements of Section 3403.4.

3403.3.1 Design live load. Where the *addition* does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads *approved* prior to the *addition*. If the *approved* live load is less than that required by Section 1607, the area designed for the nonconforming live load shall be posted with placards of *approved* design indicating the *approved* live load. Where the *addition* does result in increased design live load, the live load required by Section 1607 shall be used.

3403.4 Existing structural elements carrying lateral load. Where the *addition* is structurally independent of the *existing structure*, existing lateral load-carrying structural elements shall be permitted to remain unaltered. Where the *addition* is not structurally independent of the *existing structure*, the *existing structure* and its *addition* acting together as a single structure shall be shown to meet the requirements of Section 1609 and 1613.

Exception: Any existing lateral load-carrying structural element whose demand-capacity ratio with the *addition* considered is no more than 10 percent greater than its demand-capacity ratio with the *addition* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces in accordance with Sections 1609 and 1613. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.

➡ **3403.5 Smoke alarms in existing portions of a building.** Where an *addition* is made to a building or structure of a Group R or I-1 occupancy, the existing building shall be provided with *smoke alarms* in accordance with Section 1103.8 of the *International Fire Code*.

SECTION 3404
ALTERATIONS

3404.1 General. Except as provided by Section 3401.4 or this section, *alterations* to any building or structure shall comply with the requirements of the code for new construction. *Alterations* shall be such that the existing building or structure is no less complying with the provisions of this code than the existing building or structure was prior to the *alteration*.

Exceptions:

1. An existing *stairway* shall not be required to comply with the requirements of Section 1011 where the existing space and construction does not allow a reduction in pitch or slope.
2. *Handrails* otherwise required to comply with Section 1011.11 shall not be required to comply with the requirements of Section 1014.6 regarding full extension of the *handrails* where such extensions would be hazardous due to plan configuration.

3404.2 Flood hazard areas. For buildings and structures in *flood hazard areas* established in Section 1612.3, any *alteration* that constitutes *substantial improvement* of the *existing structure*, as defined in Section 202, shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3, any *alterations* that do not constitute *substantial improvement* of the *existing structure*, as defined in Section 202, are not required to comply with the flood design requirements for new construction.

3404.3 Existing structural elements carrying gravity load. Any existing gravity load-carrying structural element for which an *alteration* causes an increase in design gravity load of more than 5 percent shall be strengthened, supplemented, replaced or otherwise altered as needed to carry the increased gravity load required by this code for new structures. Any existing gravity load-carrying structural element whose gravity load-carrying capacity is decreased as part of the *alteration* shall be shown to have the capacity to resist the applicable design gravity loads required by this code for new structures.

3404.3.1 Design live load. Where the *alteration* does not result in increased design live load, existing gravity load-carrying structural elements shall be permitted to be evaluated and designed for live loads *approved* prior to the *alteration*. If the *approved* live load is less than that required by Section 1607, the area designed for the nonconforming live load shall be posted with placards of *approved* design indicating the *approved* live load. Where the *alteration* does result in increased design live load, the live load required by Section 1607 shall be used.

3404.4 Existing structural elements carrying lateral load. Except as permitted by Section 3404.5, where the *alteration* increases design lateral loads in accordance with Section 1609 or 1613, or where the *alteration* results in a structural irregularity as defined in ASCE 7, or where the *alteration* decreases the capacity of any existing lateral load-carrying structural element, the structure of the altered building or structure shall be shown to meet the requirements of Sections 1609 and 1613.

Exception: Any existing lateral load-carrying structural element whose demand-capacity ratio with the *alteration*

considered is no more than 10 percent greater than its demand-capacity ratio with the *alteration* ignored shall be permitted to remain unaltered. For purposes of calculating demand-capacity ratios, the demand shall consider applicable load combinations with design lateral loads or forces per Sections 1609 and 1613. For purposes of this exception, comparisons of demand-capacity ratios and calculation of design lateral loads, forces, and capacities shall account for the cumulative effects of *additions* and *alterations* since original construction.

3404.5 Voluntary seismic improvements. *Alterations* to existing structural elements or additions of new structural elements that are not otherwise required by this chapter and are initiated for the purpose of improving the performance of the seismic force-resisting system of an *existing structure* or the performance of seismic bracing or anchorage of existing nonstructural elements shall be permitted, provided that an engineering analysis is submitted demonstrating the following:

1. The altered structure and the altered nonstructural elements are no less conforming with the provisions of this code with respect to earthquake design than they were prior to the alteration.
2. New structural elements are detailed as required for new construction.
3. New or relocated nonstructural elements are detailed and connected to existing or new structural elements as required for new construction.
4. The alterations do not create a structural irregularity as defined in ASCE 7 or make an existing structural irregularity more severe.

3404.6 Smoke alarms. Individual *sleeping units* and individual *dwelling units* in Group R and I-1 occupancies shall be provided with *smoke alarms* in accordance with Section 1103.8 of the *International Fire Code*.

SECTION 3405
REPAIRS

3405.1 General. Buildings and structures, and parts thereof, shall be repaired in compliance with Section 3405 and 3401.2. Work on nondamaged components that is necessary for the required *repair* of damaged components shall be considered part of the *repair* and shall not be subject to the requirements for *alterations* in this chapter. Routine maintenance required by Section 3401.2, ordinary repairs exempt from *permit* in accordance with Section 105.2, and abatement of wear due to normal service conditions shall not be subject to the requirements for *repairs* in this section.

3405.2 Substantial structural damage to vertical elements of the lateral force-resisting system. A building that has sustained *substantial structural damage* to the vertical elements of its lateral force-resisting system shall be evaluated and repaired in accordance with the applicable provisions of Sections 3405.2.1 through 3405.2.3.

Exceptions:

1. Buildings assigned to *Seismic Design Category* A, B, or C whose *substantial structural damage* was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.

3405.2.1 Evaluation. The building shall be evaluated by a *registered design professional*, and the evaluation findings shall be submitted to the *building official*. The evaluation shall establish whether the damaged building, if repaired to its pre-damage state, would comply with the provisions of this code for wind and earthquake loads.

Wind loads for this evaluation shall be those prescribed in Section 1609. Earthquake loads for this evaluation, if required, shall be permitted to be 75 percent of those prescribed in Section 1613.

3405.2.2 Extent of repair for compliant buildings. If the evaluation establishes compliance of the pre-damage building in accordance with Section 3405.2.1, then repairs shall be permitted that restore the building to its pre-damage state, based on material properties and design strengths applicable at the time of original construction.

3405.2.3 Extent of repair for noncompliant buildings. If the evaluation does not establish compliance of the pre-damage building in accordance with Section 3404.2.1, then the building shall be rehabilitated to comply with applicable provisions of this code for load combinations that include wind or seismic loads. The wind loads for the repair shall be as required by the building code in effect at the time of original construction, unless the damage was caused by wind, in which case the wind loads shall be as required by this code. Earthquake loads for this rehabilitation design shall be those required for the design of the pre-damage building, but not less than 75 percent of those prescribed in Section 1613. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

3405.3 Substantial structural damage to gravity load-carrying components. Gravity load-carrying components that have sustained *substantial structural damage* shall be rehabilitated to comply with the applicable provisions of this code for dead and live loads. Snow loads shall be considered if the *substantial structural damage* was caused by or related to snow load effects. Existing gravity load-carrying structural elements shall be permitted to be designed for live loads *approved* prior to the damage. Nondamaged gravity load-carrying components that receive dead, live or snow loads from rehabilitated components shall also be rehabilitated or shown to have the capacity to carry the design loads of the rehabilitation design. New structural members and connections required by this rehabilitation design shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

3405.3.1 Lateral force-resisting elements. Regardless of the level of damage to vertical elements of the lateral force-resisting system, if *substantial structural damage* to gravity load-carrying components was caused primarily by

wind or earthquake effects, then the building shall be evaluated in accordance with Section 3405.2.1 and, if noncompliant, rehabilitated in accordance with Section 3405.2.3.

Exceptions:

1. One- and two-family dwellings need not be evaluated or rehabilitated for load combinations that include earthquake effects.
2. Buildings assigned to *Seismic Design Category* A, B, or C whose *substantial structural damage* was not caused by earthquake need not be evaluated or rehabilitated for load combinations that include earthquake effects.

3405.4 Less than substantial structural damage. For damage less than *substantial structural damage*, *repairs* shall be allowed that restore the building to its pre-damage state, based on material properties and design strengths applicable at the time of original construction. New structural members and connections used for this repair shall comply with the detailing provisions of this code for new buildings of similar structure, purpose and location.

3405.5 Flood hazard areas. For buildings and structures in *flood hazard areas* established in Section 1612.3, any *repair* that constitutes *substantial improvement* of the *existing structure*, as defined in Section 202, shall comply with the flood design requirements for new construction, and all aspects of the *existing structure* shall be brought into compliance with the requirements for new construction for flood design.

For buildings and structures in *flood hazard areas* established in Section 1612.3, any *repairs* that do not constitute *substantial improvement* or *repair* of *substantial damage* of the *existing structure*, as defined in Section 202, are not required to comply with the flood design requirements for new construction.

SECTION 3406
FIRE ESCAPES

3406.1 Where permitted. Fire escapes shall be permitted only as provided for in Sections 3406.1.1 through 3406.1.4.

3406.1.1 New buildings. Fire escapes shall not constitute any part of the required *means of egress* in new buildings.

3406.1.2 Existing fire escapes. Existing fire escapes shall be continued to be accepted as a component in the *means of egress* in existing buildings only.

3406.1.3 New fire escapes. New fire escapes for existing buildings shall be permitted only where exterior *stairs* cannot be utilized due to lot lines limiting *stair* size or due to the sidewalks, alleys or roads at grade level. New fire escapes shall not incorporate ladders or access by windows.

3406.1.4 Limitations. Fire escapes shall comply with this section and shall not constitute more than 50 percent of the required number of *exits* nor more than 50 percent of the required *exit* capacity.

3406.2 Location. Where located on the front of the building and where projecting beyond the building line, the lowest landing shall not be less than 7 feet (2134 mm) or more than 12 feet (3658 mm) above grade, and shall be equipped with a counterbalanced stairway to the street. In alleyways and thoroughfares less than 30 feet (9144 mm) wide, the clearance under the lowest landing shall not be less than 12 feet (3658 mm).

3406.3 Construction. The fire escape shall be designed to support a live load of 100 pounds per square foot (4788 Pa) and shall be constructed of steel or other *approved* noncombustible materials. Fire escapes constructed of wood not less than nominal 2 inches (51 mm) thick are permitted on buildings of Type V construction. Walkways and railings located over or supported by combustible roofs in buildings of Type III and IV construction are permitted to be of wood not less than nominal 2 inches (51 mm) thick.

3406.4 Dimensions. *Stairs* shall be at least 22 inches (559 mm) wide with risers not more than, and treads not less than, 8 inches (203 mm) and landings at the foot of stairs not less than 40 inches (1016 mm) wide by 36 inches (914 mm) long, located not more than 8 inches (203 mm) below the door.

3406.5 Opening protectives. Doors and windows along the fire escape shall be protected with $^3/_4$-hour opening protectives.

SECTION 3407
GLASS REPLACEMENT

3407.1 Conformance. The installation or replacement of glass shall be as required for new installations.

SECTION 3408
CHANGE OF OCCUPANCY

3408.1 Conformance. No change shall be made in the use or occupancy of any building that would place the building in a different division of the same group of occupancies or in a different group of occupancies, unless such building is made to comply with the requirements of this code for such division or group of occupancies. Subject to the approval of the *building official*, the use or occupancy of existing buildings shall be permitted to be changed and the building is allowed to be occupied for purposes in other groups without conforming to all the requirements of this code for those groups, provided the new or proposed use is less hazardous, based on life and fire risk, than the existing use.

3408.2 Certificate of occupancy. A certificate of occupancy shall be issued where it has been determined that the requirements for the new occupancy classification have been met.

3408.3 Stairways. An existing *stairway* shall not be required to comply with the requirements of Section 1009 where the existing space and construction does not allow a reduction in pitch or slope.

3408.4 Seismic. When a change of occupancy results in a structure being reclassified to a higher risk category, the

structure shall conform to the seismic requirements for a new structure of the higher risk category.

Exceptions:

1. Specific seismic detailing requirements of Section 1613 for a new structure shall not be required to be met where the seismic performance is shown to be equivalent to that of a new structure. A demonstration of equivalence shall consider the regularity, overstrength, redundancy and ductility of the structure.
2. When a change of use results in a structure being reclassified from Risk Category I or II to Risk Category III and the structure is located where the seismic coefficient, $S_{DS,}$ is less than 0.33, compliance with the seismic requirements of Section 1613 are not required.

SECTION 3409
HISTORIC BUILDINGS

3409.1 Historic buildings. The provisions of this code relating to the construction, *repair*, *alteration*, *addition*, restoration and movement of structures, and change of occupancy shall not be mandatory for *historic buildings* where such buildings are judged by the *building official* to not constitute a distinct life safety hazard.

3409.2 Flood hazard areas. Within *flood hazard areas* established in accordance with Section 1612.3, where the work proposed constitutes *substantial improvement* as defined in Section 202, the building shall be brought into compliance with Section 1612.

Exception: *Historic buildings* that are:

1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places;
2. Determined by the Secretary of the U.S. Department of Interior as contributing to the historical significance of a registered historic district or a district preliminarily determined to qualify as an historic district; or
3. Designated as historic under a state or local historic preservation program that is *approved* by the Department of Interior.

SECTION 3410
MOVED STRUCTURES

3410.1 Conformance. Structures moved into or within the jurisdiction shall comply with the provisions of this code for new structures.

SECTION 3411
ACCESSIBILITY FOR EXISTING BUILDINGS

3411.1 Scope. The provisions of Sections 3411.1 through 3411.9 apply to maintenance, change of occupancy, *additions* and *alterations* to existing buildings, including those identified as *historic buildings*.

3411.2 Maintenance of facilities. A *facility* that is constructed or altered to be *accessible* shall be maintained *accessible* during occupancy.

3411.3 Extent of application. An *alteration* of an existing *facility* shall not impose a requirement for greater accessibility than that which would be required for new construction. *Alterations* shall not reduce or have the effect of reducing accessibility of a *facility* or portion of a *facility*.

3411.4 Change of occupancy. Existing buildings that undergo a change of group or occupancy shall comply with this section.

Exception: *Type B dwelling units* or *sleeping units* required by Section 1107 of this code are not required to be provided in existing buildings and facilities undergoing a change of occupancy in conjunction with *alterations* where the work area is 20 percent or less of the aggregate area of the building.

3411.4.1 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, any *alterations* shall comply with Sections 3411.6, 3411.7 and 3411.8.

3411.4.2 Complete change of occupancy. Where an entire building undergoes a change of occupancy, it shall comply with Section 3411.4.1 and shall have all of the following *accessible* features:

1. At least one *accessible* building entrance.
2. At least one *accessible route* from an *accessible* building entrance to *primary function* areas.
3. Signage complying with Section 1111.
4. *Accessible* parking, where parking is being provided.
5. At least one *accessible* passenger loading zone, when loading zones are provided.
6. At least one *accessible route* connecting *accessible* parking and *accessible* passenger loading zones to an *accessible* entrance.

Where it is *technically infeasible* to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent *technically feasible.*

Exception: The *accessible* features listed in Items 1 through 6 are not required for an *accessible* route to *Type B units*.

3411.5 Additions. Provisions for new construction shall apply to *additions*. An *addition* that affects the accessibility to, or contains an area of, a *primary function* shall comply with the requirements in Section 3411.7.

3411.6 Alterations. A *facility* that is altered shall comply with the applicable provisions in Chapter 11 of this code, unless *technically infeasible.* Where compliance with this

section is *technically infeasible*, the *alteration* shall provide access to the maximum extent technically feasible.

Exceptions:

1. The altered element or space is not required to be on an *accessible route*, unless required by Section 3411.7.
2. *Accessible means of egress* required by Chapter 10 are not required to be provided in existing facilities.
3. The *alteration* to *Type A* individually owned *dwelling units* within a Group R-2 occupancy shall be permitted to meet the provision for a *Type B dwelling unit.*
4. *Type B dwelling* or *sleeping units* required by Section 1107 of this code are not required to be provided in existing buildings and facilities undergoing a change of occupancy in conjunction with *alterations* where the work area is 50 percent or less of the aggregate area of the building.

3411.7 Alterations affecting an area containing a primary function. Where an *alteration* affects the accessibility to, or contains an area of *primary function*, the route to the *primary function* area shall be *accessible*. The *accessible route* to the *primary function* area shall include toilet facilities or drinking fountains serving the area of *primary function*.

Exceptions:

1. The costs of providing the *accessible route* are not required to exceed 20 percent of the costs of the *alterations* affecting the area of *primary function*.
2. This provision does not apply to *alterations* limited solely to windows, hardware, operating controls, electrical outlets and signs.
3. This provision does not apply to *alterations* limited solely to mechanical systems, electrical systems, installation or alteration of fire protection systems and abatement of hazardous materials.
4. This provision does not apply to *alterations* undertaken for the primary purpose of increasing the accessibility of a *facility*.
5. This provision does not apply to altered areas limited to *Type B dwelling* and *sleeping units*.

3411.8 Scoping for alterations. The provisions of Sections 3411.8.1 through 3411.8.14 shall apply to *alterations* to existing buildings and facilities.

3411.8.1 Entrances. *Accessible* entrances shall be provided in accordance with Section 1105.

Exception: Where an *alteration* includes *alterations* to an entrance, and the *facility* has an *accessible* entrance, the altered entrance is not required to be *accessible*, unless required by Section 3411.7. Signs complying with Section 1111 shall be provided.

3411.8.2 Elevators. Altered elements of existing elevators shall comply with ASME A17.1 and ICC A117.1. Such elements shall also be altered in elevators programmed to respond to the same hall call control as the altered elevator.

3411.8.3 Platform lifts. Platform (wheelchair) lifts complying with ICC A117.1 and installed in accordance with ASME A18.1 shall be permitted as a component of an *accessible route*.

3411.8.4 Stairs and escalators in existing buildings. In *alterations*, change of occupancy or *additions* where an escalator or *stair* is added where none existed previously and major structural modifications are necessary for installation, an *accessible* route shall be provided between the levels served by the escalator or *stairs* in accordance with Sections 1104.4 and 1104.5.

3411.8.5 Ramps. Where slopes steeper than allowed by Section 1012.2 are necessitated by space limitations, the slope of ramps in or providing access to existing *facilities* shall comply with Table 3411.8.5.

TABLE 3411.8.5
RAMPS

SLOPE	MAXIMUM RISE
Steeper than 1:10 but not steeper than 1:8	3 inches
Steeper than 1:12 but not steeper than 1:10	6 inches

For SI: 1 inch = 25.4 mm.

3411.8.6 Performance areas. Where it is *technically infeasible* to alter performance areas to be on an *accessible route*, at least one of each type of performance area shall be made *accessible*.

3411.8.7 Accessible dwelling or sleeping units. Where Group I-1, I-2, I-3, R-1, R-2 or R-4 *dwelling* or *sleeping units* are being altered or added, the requirements of Section 1107 for *Accessible units* apply only to the quantity of spaces being altered or added.

3411.8.8 Type A dwelling or sleeping units. Where more than 20 Group R-2 *dwelling* or *sleeping units* are being altered or added, the requirements of Section 1107 for *Type A units* apply only to the quantity of the spaces being altered or added.

3411.8.9 Type B dwelling or sleeping units. Where four or more Group I-1, I-2, R-1, R-2, R-3 or R-4 *dwelling* or *sleeping units* are being added, the requirements of Section 1107 for *Type B units* apply only to the quantity of the spaces being added. Where Group I-1, I-2, R-1, R-2, R-3 or R-4 *dwelling* or *sleeping units* are being altered and where the work area is greater than 50 percent of the aggregate area of the building, the requirements of Section 1107 for *Type B units* apply only to the quantity of the spaces being altered.

3411.8.10 Jury boxes and witness stands. In *alterations*, *accessible* wheelchair spaces are not required to be located within the defined area of raised jury boxes or witness stands and shall be permitted to be located outside these spaces where the ramp or lift access restricts or projects into the *means of egress*.

3411.8.11 Toilet rooms. Where it is *technically infeasible* to alter existing toilet and bathing rooms to be *accessible*, an *accessible* family or assisted-use toilet or bathing room constructed in accordance with Section 1109.2.1 is permitted. The family or assisted-use toilet or bathing room shall

be located on the same floor and in the same area as the existing toilet or bathing rooms.

3411.8.12 Dressing, fitting and locker rooms. Where it is *technically infeasible* to provide *accessible* dressing, fitting or locker rooms at the same location as similar types of rooms, one *accessible* room on the same level shall be provided. Where separate-sex facilities are provided, *accessible* rooms for each sex shall be provided. Separate-sex facilities are not required where only unisex rooms are provided.

3411.8.13 Fuel dispensers. Operable parts of replacement fuel dispensers shall be permitted to be 54 inches (1370 mm) maximum measured from the surface of the vehicular way where fuel dispensers are installed on existing curbs.

3411.8.14 Thresholds. The maximum height of thresholds at doorways shall be $^3/_4$ inch (19.1 mm). Such thresholds shall have beveled edges on each side.

3411.9 Historic buildings. These provisions shall apply to facilities designated as historic structures that undergo *alterations* or a change of occupancy, unless *technically infeasible*. Where compliance with the requirements for *accessible routes*, entrances or toilet rooms would threaten or destroy the historic significance of the facility, as determined by the applicable governing authority, the alternative requirements of Sections 3411.9.1 through 3411.9.4 for that element shall be permitted.

Exception: *Type B dwelling* or *sleeping units* required by Section 1107 are not required to be provided in historical buildings.

3411.9.1 Site arrival points. At least one *accessible* route from a site arrival point to an *accessible* entrance shall be provided.

3411.9.2 Multilevel buildings and facilities. An *accessible route* from an *accessible* entrance to public spaces on the level of the *accessible* entrance shall be provided.

3411.9.3 Entrances. At least one main entrance shall be *accessible*.

Exceptions:

1. If a main entrance cannot be made *accessible*, an *accessible* nonpublic entrance that is unlocked while the building is occupied shall be provided; or
2. If a main entrance cannot be made *accessible*, a locked *accessible* entrance with a notification system or remote monitoring shall be provided.

Signs complying with Section 1111 shall be provided at the primary entrance and the *accessible* entrance.

3411.9.4 Toilet and bathing facilities. Where toilet rooms are provided, at least one *accessible* family or assisted-use toilet room complying with Section 1109.2.1 shall be provided.

SECTION 3412
COMPLIANCE ALTERNATIVES

3412.1 Compliance. The provisions of this section are intended to maintain or increase the current degree of public safety, health and general welfare in existing buildings while permitting repair, *alteration*, *addition* and change of occupancy without requiring full compliance with Chapters 2 through 33, or Sections 3401.3, and 3403 through 3409, except where compliance with other provisions of this code is specifically required in this section.

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, M, R, S and U. These provisions shall not apply to buildings with occupancies in Group H or I.

3412.2.1 Change in occupancy. Where an existing building is changed to a new occupancy classification and this section is applicable, the provisions of this section for the new occupancy shall be used to determine compliance with this code.

3412.2.2 Partial change in occupancy. Where a portion of the building is changed to a new occupancy classification, and that portion is separated from the remainder of the building with *fire barriers* or *horizontal assemblies* having a *fire-resistance rating* as required by Table 508.4 for the separate occupancies, or with *approved* compliance alternatives, the portion changed shall be made to comply with the provisions of this section.

Where a portion of the building is changed to a new occupancy classification, and that portion is not separated from the remainder of the building with *fire barriers* or *horizontal assemblies* having a *fire-resistance rating* as required by Table 508.4 for the separate occupancies, or with *approved* compliance alternatives, the provisions of this section which apply to each occupancy shall apply to the entire building. Where there are conflicting provisions, those requirements which secure the greater public safety shall apply to the entire building or structure.

3412.2.3 Additions. *Additions* to existing buildings shall comply with the requirements of this code for new construction. The combined height and area of the existing building and the new *addition* shall not exceed the height and area allowed by Chapter 5. Where a *fire wall* that complies with Section 706 is provided between the *addition* and the existing building, the *addition* shall be considered a separate building.

3412.2.4 Alterations and repairs. An existing building or portion thereof, which does not comply with the requirements of this code for new construction, shall not be altered or repaired in such a manner that results in the building being less safe or sanitary than such building is currently. If, in the *alteration* or repair, the current level of safety or sanitation is to be reduced, the portion altered or repaired shall conform to the requirements of Chapters 2 through 12 and Chapters 14 through 33.

3412.2.4.1 Flood hazard areas. For existing buildings located in *flood hazard areas* established in Section 1612.3, if the *alterations* and *repairs* constitute *substantial improvement* of the existing building, the existing building shall be brought into compliance with the requirements for new construction for flood design.

3412.2.5 Accessibility requirements. All portions of the buildings proposed for change of occupancy shall conform to the accessibility provisions of Section 3411.

3412.3 Acceptance. For *repairs*, *alterations*, *additions* and changes of occupancy to existing buildings that are evaluated in accordance with this section, compliance with this section shall be accepted by the *building official*.

3412.3.1 Hazards. Where the *building official* determines that an unsafe condition exists, as provided for in Section 116, such unsafe condition shall be abated in accordance with Section 116.

3412.3.2 Compliance with other codes. Buildings that are evaluated in accordance with this section shall comply with the *International Fire Code* and the *International Property Maintenance Code*.

3412.4 Investigation and evaluation. For proposed work covered by this section, the building owner shall cause the existing building to be investigated and evaluated in accordance with the provisions of this section.

3412.4.1 Structural analysis. The owner shall have a structural analysis of the existing building made to determine adequacy of structural systems for the proposed *alteration*, *addition* or change of occupancy. The analysis shall demonstrate that the building with the work completed is capable of resisting the loads specified in Chapter 16.

3412.4.2 Submittal. The results of the investigation and evaluation as required in Section 3412.4, along with proposed compliance alternatives, shall be submitted to the *building official*.

3412.4.3 Determination of compliance. The *building official* shall determine whether the existing building, with the proposed *addition*, *alteration* or change of occupancy, complies with the provisions of this section in accordance with the evaluation process in Sections 3412.5 through 3412.9.

3412.5 Evaluation. The evaluation shall be comprised of three categories: fire safety, means of egress and general safety, as defined in Sections 3412.5.1 through 3412.5.3.

3412.5.1 Fire safety. Included within the fire safety category are the structural fire resistance, automatic fire detection, fire alarm, automatic sprinkler system and fire suppression system features of the facility.

3412.5.2 Means of egress. Included within the means of egress category are the configuration, characteristics and support features for *means of egress* in the facility.

3412.5.3 General safety. Included within the general safety category are the fire safety parameters and the means of egress parameters.

3412.6 Evaluation process. The evaluation process specified herein shall be followed in its entirety to evaluate existing buildings. 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.

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 of the building based on the occupancy of the space.

3412.6.1 Building height. The value for building height shall be the lesser value determined by the formula in Section 3412.6.1.1. Chapter 5 shall be used to determine the allowable height of the building, including allowable increases due to automatic sprinklers as provided for in Section 504.2. Subtract the actual *building height* in feet from the allowable and divide by 12 $^{1}/_{2}$ feet. Enter the height value and its sign (positive or negative) in Table 3412.7 under Safety Parameter 3412.6.1, Building Height, for fire safety, means of egress and general safety. The maximum score for a building shall be 10.

3412.6.1.1 Height formula. The following formulas shall be used in computing the *building height* value.

$$\text{Height value, feet} = \frac{(AH) - (EBH)}{12.5} \times CF \qquad \textbf{(Equation 34-1)}$$

$$\text{Height value, feet} = (AS - EBS) \times CF \qquad \textbf{(Equation 34-2)}$$

where:

AH = Allowable height in feet from 2012 IBC Table 503.

EBH = Existing *building height* in feet.

AS = Allowable height in stories from 2012 IBC Table 503.

EBS = Existing *building height* in *stories*.

CF = 1 if (*AH*) – (*EBH*) is positive.

CF = Construction-type factor shown in Table 3412.6.6(2) if (*AH*) – (*EBH*) is negative.

Note: Where mixed occupancies are separated and individually evaluated as indicated in Section 3412.6,

the values AH, AS, EBH and EBS shall be based on the height of the occupancy being evaluated.

3412.6.2 Building area. The value for building area shall be determined by the formula in Section 3412.6.2.2. Section 503 and the formula in Section 3412.6.2.1 shall be used to determine the allowable area of the building. This shall include any allowable increases due to frontage and automatic sprinklers as provided for in Section 506. Subtract the actual *building area* in square feet from the allowable area and divide by 1,200 square feet. Enter the area value and its sign (positive or negative) in Table 3412.7 under Safety Parameter 3412.6.2, Building Area, for fire safety, means of egress and general safety. In determining the area value, the maximum permitted positive value for area is 50 percent of the fire safety score as *listed* in Table 3412.8, Mandatory Safety Scores.

3412.6.2.1 Allowable area formula. The following formula shall be used in computing allowable area:

$$A_a = [A_t + (A_t \times I_f) + (A_t \times I_s)] \qquad \textbf{(Equation 34-3)}$$

where:

A_a = Allowable *building area* per story (square feet).

A_t = Tabular *building area* per story in accordance with 2012 IBC Table 503. (square feet).

I_s = Area increase factor due to sprinkler protection as calculated in accordance with 2012 IBC Section 506.3.

I_f = Area increase factor due to for frontage as calculated in accordance with 2012 IBC Section 506.2.

3412.6.2.2 Area formula. The following formula shall be used in computing the area value. Determine the area value for each occupancy floor area on a floor-by-floor basis. For each occupancy, choose the maximum area value of the set of values obtained for the particular occupancy

$$\text{Area value } i = \frac{\text{Allowable area}_i}{1{,}200 \text{ square feet}} \left[1 - \left(\frac{\text{Actual area}_i}{\text{Allowable area}_i} + \ldots + \frac{\text{Actual area}_n}{\text{Allowable area}_n} \right) \right]$$

(Equation 34-4)

where:

i = Value for an individual separated occupancy on a floor.

n = Number of separated occupancies on a floor.

3412.6.3 Compartmentation. Evaluate the compartments created by *fire barriers* or *horizontal assemblies* which comply with Sections 3412.6.3.1 and 3412.6.3.2 and which are exclusive of the wall elements considered under Sections 3412.6.4 and 3412.6.5. Conforming compartments shall be figured as the net area and do not include shafts, chases, *stairways*, walls or columns. Using Table 3412.6.3, determine the appropriate compartmentation value (*CV*) and enter that value into Table 3412.7 under Safety Parameter 3412.6.3, Compartmentation, for fire safety, means of egress and general safety.

3412.6.3.1 Wall construction. A wall used to create separate compartments shall be a *fire barrier* conforming to Section 707 with a *fire-resistance rating* of not less than 2 hours. Where the building is not divided into more than one compartment, the compartment size shall be taken as the total floor area on all floors. Where there is more than one compartment within a *story*, each compartmented area on such *story* shall be provided with a *horizontal exit* conforming to Section 1026. The *fire door* serving as the *horizontal exit* between compartments shall be so installed, fitted and gasketed that such *fire door* will provide a substantial barrier to the passage of smoke.

3412.6.3.2 Floor/ceiling construction. A floor/ceiling assembly used to create compartments shall conform to Section 711 and shall have a *fire-resistance rating* of not less than 2 hours.

3412.6.4 Tenant and dwelling unit separations. Evaluate the *fire-resistance rating* of floors and walls separating tenants, including *dwelling units*, and not evaluated under Sections 3412.6.3 and 3412.6.5. Under the categories and occupancies in Table 3412.6.4, determine the appropriate value and enter that value in Table 3412.7 under Safety Parameter 3412.6.4, Tenant and Dwelling Unit Separations, for fire safety, means of egress and general safety.

TABLE 3412.6.4
SEPARATION VALUES

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

3412.6.4.1 Categories. The categories for tenant and *dwelling unit* separations are:

1. Category a—No *fire partitions*; incomplete *fire partitions*; no doors; doors not self-closing or automatic-closing.
2. Category b—*Fire partitions* or floor assemblies with less than a 1-hour *fire-resistance rating* or not constructed in accordance with Sections 708 or 711.
3. Category c—*Fire partitions* with a 1-hour or greater *fire-resistance rating* constructed in accordance with Section 708 and floor assemblies with a 1-hour but less than 2-hour *fire-resistance rating* constructed in accordance with Section 711, or with only one tenant within the floor area.
4. Category d—*Fire barriers* with a 1-hour but less than 2-hour *fire-resistance rating* constructed in accordance with Section 707 and floor assemblies with a 2-hour or greater *fire-resistance rating* constructed in accordance with Section 711.

5. Category e—*Fire barriers* and floor assemblies with a 2-hour or greater *fire-resistance rating* and constructed in accordance with Sections 707 and 711, respectively.

3412.6.5 Corridor walls. Evaluate the *fire-resistance rating* and degree of completeness of walls which create *corridors* serving the floor, and constructed in accordance with Section 1020. This evaluation shall not include the wall elements considered under Sections 3412.6.3 and 3412.6.4. Under the categories and groups in Table 3412.6.5, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.5, Corridor Walls, for fire safety, means of egress and general safety.

TABLE 3412.6.5
CORRIDOR WALL VALUES

OCCUPANCY	CATEGORIES			
	a	b	c[a]	d[a]
A-1	-10	-4	0	2
A-2	-30	-12	0	2
A-3, F, M, R, S-1	-7	-3	0	2
A-4, B, E, S-2	-5	-2	0	5

a. Corridors not providing at least one-half the travel distance for all occupants on a floor shall be category b.

3412.6.5.1 Categories. The categories for Corridor Walls are:

1. Category a—No *fire partitions*; incomplete *fire partitions*; no doors; or doors not self-closing.
2. Category b—Less than 1-hour *fire-resistance rating* or not constructed in accordance with Section 708.4.
3. Category c—1-hour to less than 2-hour *fire-resistance rating*, with doors conforming to Section 716 or without *corridors* as permitted by Section 1020.
4. Category d—2-hour or greater *fire-resistance rating*, with doors conforming to Section 716.

3412.6.6 Vertical openings. Evaluate the *fire-resistance rating* of *exit* enclosures, hoistways, escalator openings and other shaft enclosures within the building, and openings between two or more floors. Table 3412.6.6(1) contains the appropriate protection values. Multiply that value by the construction type factor found in Table 3412.6.6(2). Enter the vertical opening value and its sign (positive or negative) in Table 3412.7 under Safety Parameter 3412.6.6, Vertical Openings, for fire safety, means of egress, and general safety. If the structure is a one-story building or if all the unenclosed vertical openings within the building conform to the requirements of Section 712, enter a value of 2. The maximum positive value for this requirement shall be 2.

TABLE 3412.6.6(1)
VERTICAL OPENING PROTECTION VALUE

PROTECTION	VALUE
None (unprotected opening)	-2 times number floors connected
Less than 1 hour	-1 times number floors connected
1 to less than 2 hours	1
2 hours or more	2

TABLE 3412.6.6(2)
CONSTRUCTION-TYPE FACTOR

	TYPE OF CONSTRUCTION								
	IA	IB	IIA	IIB	IIIA	IIIB	IV	VA	VB
	1.2	1.5	2.2	3.5	2.5	3.5	2.3	3.3	7

3412.6.6.1 Vertical opening formula. The following formula shall be used in computing vertical opening value.

$$VO = PV \times CF \qquad \textbf{(Equation 34-5)}$$

where:

VO = Vertical opening value.

PV = Protection value [Table 3412.6.6(1)].

CF = Construction type factor [Table 3412.6.6(2)].

3412.6.7 HVAC systems. Evaluate the ability of the HVAC system to resist the movement of smoke and fire beyond the point of origin. Under the categories in Section 3412.6.7.1, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.7, HVAC Systems, for fire safety, means of egress and general safety.

TABLE 3412.6.3
COMPARTMENTATION VALUES

OCCUPANCY	CATEGORIES[a]				
	a Compartment size equal to or greater than 15,000 square feet	b Compartment size of 10,000 square feet	c Compartment size of 7,500 square feet	d Compartment size of 5,000 square feet	e Compartment size of 2,500 square feet or less
A-1, A-3	0	6	10	14	18
A-2	0	4	10	14	18
A-4, B, E, S-2	0	5	10	15	20
F, M, R, S-1	0	4	10	16	22

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

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

3412.6.7.1 Categories. The categories for HVAC systems are:

1. Category a—Plenums not in accordance with Section 602 of the *International Mechanical Code*. -10 points.
2. Category b—Air movement in egress elements not in accordance with Section 1020.5. -5 points.
3. Category c—Both categories a and b are applicable. -15 points.
4. Category d—Compliance of the HVAC system with Section 1018.5 and Section 602 of the *International Mechanical Code*. 0 points.
5. Category e—Systems serving one *story*; or a central boiler/chiller system without ductwork connecting two or more stories. 5 points.

3412.6.8 Automatic fire detection. Evaluate the smoke detection capability based on the location and operation of *automatic fire detectors* in accordance with Section 907 and the *International Mechanical Code*. Under the categories and occupancies in Table 3412.6.8, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.8, Automatic Fire Detection, for fire safety, means of egress and general safety.

TABLE 3412.6.8
AUTOMATIC FIRE DETECTION VALUES

OCCUPANCY	CATEGORIES				
	a	b	c	d	e
A-1, A-3, F, M, R, S-1	-10	-5	0	2	6
A-2	-25	-5	0	5	9
A-4, B, E, S-2	-4	-2	0	1	8

3412.6.8.1 Categories. The categories for automatic fire detection are:

1. Category a—None.
2. Category b—Existing *smoke detectors* in HVAC systems and maintained in accordance with the *International Fire Code*.
3. Category c—*Smoke detectors* in HVAC systems. The detectors are installed in accordance with the requirements for new buildings in the *International Mechanical Code*.
4. Category d—*Smoke detectors* throughout all floor areas other than individual *sleeping units*, tenant spaces and *dwelling units*.
5. Category e—*Smoke detectors* installed throughout the floor area.

3412.6.9 Fire alarm systems. Evaluate the capability of the *fire alarm system* in accordance with Section 907. Under the categories and occupancies in Table 3412.6.9, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.9, Fire Alarm Systems, for fire safety, means of egress and general safety.

TABLE 3412.6.9
FIRE ALARM SYSTEM VALUES

OCCUPANCY	CATEGORIES			
	a	b[a]	c	d
A-1, A-2, A-3, A-4, B, E, R	-10	-5	0	5
F, M, S	0	5	10	15

a. For buildings equipped throughout with an *automatic sprinkler system*, add 2 points for activation by a sprinkler waterflow device.

3412.6.9.1 Categories. The categories for *fire alarm systems* are:

1. Category a—None.
2. Category b—*Fire alarm system* with *manual fire alarm boxes* in accordance with Section 907.4 and alarm notification appliances in accordance with Section 907.5.2.

   Category c—*Fire alarm system* in accordance with Section 907.
4. Category d—Category c plus a required *emergency voice/alarm communications* system and a *fire command center* that conforms to Section 403.4.6 and contains the *emergency voice/alarm communications* system controls, fire department communication system controls and any other controls specified in Section 911 where those systems are provided.

3412.6.10 Smoke control. Evaluate the ability of a natural or mechanical venting, exhaust or pressurization system to control the movement of smoke from a fire. Under the categories and occupancies in Table 3412.6.10, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.10, Smoke Control, for means of egress and general safety.

TABLE 3412.6.10
SMOKE CONTROL VALUES

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-2, A-3	0	1	2	3	6	6
A-4, E	0	0	0	1	3	5
B, M, R	0	2[a]	3[a]	3[a]	3[a]	4[a]
F, S	0	2[a]	2[a]	3[a]	3[a]	3[a]

a. This value shall be 0 if compliance with Category d or e in Section 3412.6.8.1 has not been obtained.

3412.6.10.1 Categories. The categories for smoke control are:

1. Category a—None.
2. Category b—The building is equipped throughout with an *automatic sprinkler system*. Openings are provided in exterior walls at the rate of 20 square feet (1.86 m^2) per 50 linear feet (15 240

mm) of *exterior wall* in each *story* and distributed around the building perimeter at intervals not exceeding 50 feet (15 240 mm). Such openings shall be readily openable from the inside without a key or separate tool and shall be provided with ready access thereto. In lieu of operable openings, clearly and permanently marked tempered glass panels shall be used.

3. Category c—One enclosed *exit stairway*, with ready access thereto, from each occupied floor of the building. The *stairway* has operable exterior windows and the building has openings in accordance with Category b.
4. Category d—One *smokeproof enclosure* and the building has openings in accordance with Category b.
5. Category e—The building is equipped throughout with an *automatic sprinkler system*. Each floor area is provided with a mechanical air-handling system designed to accomplish smoke containment. Return and exhaust air shall be moved directly to the outside without recirculation to other floor areas of the building under fire conditions. The system shall exhaust not less than six air changes per hour from the floor area. Supply air by mechanical means to the floor area is not required. Containment of smoke shall be considered as confining smoke to the floor area involved without migration to other floor areas. Any other tested and *approved* design which will adequately accomplish smoke containment is permitted.
6. Category f—Each *stairway* shall be one of the following: a *smokeproof enclosure* in accordance with Section 1023.11; pressurized in accordance with Section 909.20.5 or shall have operable exterior windows.

3412.6.11 Means of egress capacity and number. Evaluate the *means of egress* capacity and the number of exits available to the building occupants. In applying this section, the *means of egress* are required to conform to the following sections of this code: 1003.7, 1004, 1005, 1006, 1007, 1016.2, 1017.2, 1026.1, 1029.2, 1028.5, 1029.2, 1029.3, 1029.4 and 1030. The number of exits credited is the number that is available to each occupant of the area being evaluated. Existing fire escapes shall be accepted as a component in the *means of egress* when conforming to Section 3406.

Under the categories and occupancies in Table 3412.6.11, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.11, Means of Egress Capacity, for means of egress and general safety.

TABLE 3412.6.11
MEANS OF EGRESS VALUES

OCCUPANCY	CATEGORIES				
	a[a]	b	c	d	e
A-1, A-2, A-3, A-4, E	-10	0	2	8	10
M	-3	0	1	2	4
B, F, S	-1	0	0	0	0
R	-3	0	0	0	0

a. The values indicated are for buildings six stories or less in height. For buildings over six stories above grade plane, add an additional -10 points.

3412.6.11.1 Categories. The categories for Means of Egress Capacity and number of *exits* are:

1. Category a—Compliance with the minimum required *means of egress* capacity or number of *exits* is achieved through the use of a fire escape in accordance with Section 3406.
2. Category b—Capacity of the *means of egress* complies with Section 1004 and the number of *exits* complies with the minimum number required by Section 1006.
3. Category c—Capacity of the *means of egress* is equal to or exceeds 125 percent of the required *means of egress* capacity, the *means of egress* complies with the minimum required width dimensions specified in the code and the number of *exits* complies with the minimum number required by Section 1006.
4. Category d—The number of *exits* provided exceeds the number of *exits* required by Section 1006. *Exits* shall be located a distance apart from each other equal to not less than that specified in Section 1006.
5. Category e—The area being evaluated meets both Categories c and d.

3412.6.12 Dead ends. In spaces required to be served by more than one *means of egress*, evaluate the length of the *exit* access travel path in which the building occupants are confined to a single path of travel. Under the categories and occupancies in Table 3412.6.12, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.12, Dead Ends, for means of egress and general safety.

TABLE 3412.6.12
DEAD-END VALUES

OCCUPANCY	CATEGORIES[a]		
	a	b	c
A-1, A-3, A-4, B, E, F, M, R, S	-2	0	2
A-2, E	-2	0	2

a. For dead-end distances between categories, the dead-end value shall be obtained by linear interpolation.

3412.6.12.1 Categories. The categories for dead ends are:

1. Category a—Dead end of 35 feet (10 670 mm) in nonsprinklered buildings or 70 feet (21 340 mm) in sprinklered buildings.
2. Category b—Dead end of 20 feet (6096 mm); or 50 feet (15 240 mm) in Group B in accordance with Section 1020.4, exception 2.
3. Category c—No dead ends; or ratio of length to width (l/w) is less than 2.5:1.

3412.6.13 Maximum exit access travel distance. Evaluate the length of *exit access* travel to an *approved exit*. Determine the appropriate points in accordance with the following equation and enter that value into Table 3412.7 under Safety Parameter 3412.6.13, Maximum Exit Access Travel Distance, for means of egress and general safety. The maximum allowable *exit access* travel distance shall be determined in accordance with Section 1017.1.

$$\text{Points} = 20 \times \frac{\text{Maximum allowable travel distance} - \text{Maximum actual travel distance}}{\text{Max. allowable travel distance}}$$

(Equation 34-6)

3412.6.14 Elevator control. Evaluate the passenger elevator equipment and controls that are available to the fire department to reach all occupied floors. Emergency recall and in-car operation of elevator recall controls shall be provided in accordance with the *International Fire Code*. Under the categories and occupancies in Table 3412.6.14, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.14, Elevator Control, for fire safety, means of egress and general safety. The values shall be zero for a sing[illegible]story building.

3412.6.14.1 Categories. The categories for elevator controls are:

1. Category a — No elevator.
2. Category b—Any elevator without Phase I emergency recall operation and Phase II emergency in-car operation.
3. Category c — All elevators with Phase I emergency recall operation and Phase II emergency in-car operation as required by the *International Fire Code*.
4. Category d—All meet Category c; or Category b where permitted to be without Phase I emergency recall operation and Phase II emergency in-car operation; and at least one elevator that complies with new construction requirements serves all occupied floors.

3412.6.15 Means of egress emergency lighting. Evaluate the presence of and reliability of *means of egress* emergency lighting. Under the categories and occupancies in Table 3412.6.15, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.15, Means of Egress Emergency Lighting, for means of egress and general safety.

TABLE 3412.6.15
MEANS OF EGRESS EMERGENCY LIGHTING VALUES

NUMBER OF EXITS REQUIRED BY SECT[illegible]007	CATEGORIES		
	a	b	c
Two or more exits	NP	0	4
Minimum of one exit	0	1	1

3412.6.15.1 Categories. The categories for means of egress emergency lighting are:

1. Category a—*Means of egress* lighting and *exit* signs not provided with emergency power in accordance with Chapter 27.
2. Category b—*Means of egress* lighting and *exit* signs provided with emergency power in accordance with Chapter 27.
3. Category c—Emergency power provided to *means of egress* lighting and exit signs which provides protection in the event of power failure to the site or building.

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.

TABLE 3412.6.14
ELEVATOR CONTROL VALUES

ELEVATOR TRAVEL	CATEGORIES			
	a	b	c	d
Less than 25 feet of travel above or below the primary level of elevator access for emergency fire-fighting or rescue personnel	-2	0	0	+2
Travel of 25 feet or more above or below the primary level of elevator access for emergency fire-fighting or rescue personnel	-4	NP	0	+4

For SI: 1 foot = 304.8 mm.
NP = Not permitted

TABLE 3412.6.16
MIXED OCCUPANCY VALUES[a]

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

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

3412.6.16.1 Categories. The categories for mixed occupancies are:

1. Category a—Occupancies separated by minimum 1-hour *fire barriers* or minimum 1-hour *horizontal assemblies*, or both.
2. Category b—Separations between occupancies in accordance with Section 508.4.
3. Category c—Separations between occupancies having a *fire-resistance rating* of not less than twice that required by Section 508.4.4.

3412.6.17 Automatic sprinklers. Evaluate the ability to suppress a fire based on the installation of an *automatic sprinkler system* in accordance with Section 903.3.1.1. "Required sprinklers" shall be based on the requirements of this code. Under the categories and occupancies in Table 3412.6.17, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.17, Automatic Sprinklers, for fire safety, means of egress divided by 2 and general safety.

TABLE 3412.6.17
SPRINKLER SYSTEM VALUES

OCCUPANCY	CATEGORIES					
	a	b	c	d	e	f
A-1, A-3, F, M, R, S-1	-6	-3	0	2	4	6
A-2	-4	-2	0	1	2	4
A-4, B, E, S-2	-12	-6	0	3	6	12

3412.6.17.1 Categories. The categories for *automatic sprinkler system* protection are:

1. Category a—Sprinklers are required throughout; sprinkler protection is not provided or the sprinkler system design is not adequate for the hazard protected in accordance with Section 903.
2. Category b—Sprinklers are required in a portion of the building; sprinkler protection is not provided or the sprinkler system design is not adequate for the hazard protected in accordance with Section 903.
3. Category c—Sprinklers are not required; none are provided.
4. Category d—Sprinklers are required in a portion of the building; sprinklers are provided in such portion; the system is one which complied with the code at the time of installation and is maintained and supervised in accordance with Section 903.
5. Category e—Sprinklers are required throughout; sprinklers are provided throughout in accordance with Chapter 9.
6. Category f—Sprinklers are not required throughout; sprinklers are provided throughout in accordance with Chapter 9.

3412.6.18 Standpipes. Evaluate the ability to initiate attack on a fire by making a supply of water available readily through the installation of standpipes in accordance with Section 905. Required standpipes shall be based on the requirements of this code. Under the categories and occupancies in Table 3412.6.18, determine the appropriate value and enter that value into Table 3412.7 under Safety Parameter 3412.6.18, Standpipes, for fire safety, means of egress and general safety.

TABLE 3412.6.18
STANDPIPE SYSTEM VALUES

OCCUPANCY	CATEGORIES			
	a[a]	b	c	d
A-1, A-3, F, M, R, S-1	-6	0	4	6
A-2	-4	0	2	4
A-4, B, E, S-2	-12	0	6	12

a. This option cannot be taken if Category a or b in Section 3412.6.17 is taken.

3412.6.18.1 Standpipe. The categories for standpipe systems are:

1. Category a—Standpipes are required; standpipe is not provided or the standpipe system design is not in compliance with Section 905.3.
2. Category b—Standpipes are not required; none are provided.
3. Category c—Standpipes are required; standpipes are provided in accordance with Section 905.
4. Category d—Standpipes are not required; standpipes are provided in accordance with Section 905.

3412.6.19 Incidental uses. Evaluate the protection of incidental uses in accordance with Section 509.4.2. Do not include those where this code requires automatic sprinkler systems throughout the buildings, including *covered or open mall buildings*, *high-rise buildings*, public garages and unlimited area buildings. Assign the lowest score from Table 3412.6.19 for the building or floor area being evaluated and enter that value into Table 3412.7 under safety Parameter 3412.6.19, Incidental Use Area, for fire safety, means of egress and general safety. If there are no specific occupancy areas in the building or floor area being evaluated, the value shall be zero.

3412.7 Building score. After determining the appropriate data from Section 3412.6, enter those data in Table 3412.7 and total the building score.

3412.8 Safety scores. The values in Table 3412.8 are the required mandatory safety scores for the evaluation process listed in Section 3412.6.

3412.9 Evaluation of building safety. The mandatory safety score in Table 3412.8 shall be subtracted from the building score in Table 3412.7 for each category. Where the final score for any category equals zero or more, the building is in compliance with the requirements of this section for that category. Where the final score for any category is less than zero, the building is not in compliance with the requirements of this section.

3412.9.1 Mixed occupancies. For mixed occupancies, the following provisions shall apply:

1. Where the separation between mixed occupancies does not qualify for any category indicated in Section 3412.6.16, the mandatory safety scores for the occupancy with the lowest general safety score in Table 3412.8 shall be utilized (see Section 3412.6).
2. Where the separation between mixed occupancies qualifies for any category indicated in Section 3412.6.16, the mandatory safety scores for each occupancy shall be placed against the evaluation scores for the appropriate occupancy.

TABLE 3412.6.[illegible]9
INCIDENTAL USE AREA VALUES

PROTECTION REQUIRED BY TABLE 509	PROTECTION PROVIDED						
	None	1 Hour	AS	AS with SP	1 Hour and AS	2 Hours	2 Hours and AS
2 Hours and AS	-4	-3	-2	-2	-1	-2	0
2 Hours, or 1 Hour and AS	-3	-2	-1	-1	0	0	0
1 Hour and AS	-3	-2	-1	-1	0	-1	0
1 Hour	-1	0	-1	0	0	0	0
1 Hour, or AS with SP	-1	0	-1	0	0	0	0
AS with SP	-1	-1	-1	0	0	-1	0
1 Hour or AS	-1	0	0	0	0	0	0

AS = Automatic sprinkler system; SP = Smoke partitions (See Section 509.4.2).
Note: For Table 3412.7, see next page.

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 ____ 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 locati_____

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 _____

SAFETY PARAMETERS	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 Systems			
3412.6.10 Smoke Control 3412.6.11 Means of Egress Capacity 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 3412.6.18 Standpipes 3412.6.19 Incidental Use		* * * * ÷ 2 =	
Building score — total value			

* * * *No applicable value to be inserted.

TABLE 3412.8
MANDATORY SAFETY SCORES[a]

OCCUPANCY	FIRE SAFETY (MFS)	MEANS OF EGRESS (MME)	GENERAL SAFETY (MGS)
A-1	20	31	31
A-2	21	32	32
A-3	22	33	33
A-4, E	29	40	40
B	30	40	40
F	24	34	34
M	23	40	40
R	21	38	38
S-1	19	29	29
S-2	29	39	39

a. MFS = Mandatory Fire Safety;
MME = Mandatory Means of Egress;
MGS = Mandatory General Safety.

TABLE 3412.9
EVALUATION FORMULAS[a]

FORMULA	T.3412.7			T.3412.8	SCORE	PASS	FAIL
FS-MFS ≥ 0	_____	(FS)	—	_____ (MFS) =	_____	_____	_____
ME-MME ≥ 0	_____	(ME)	—	_____ (MME) =	_____	_____	_____
GS-MGS ≥ 0	_____	(GS)	—	_____ (MGS) =	_____	_____	_____

a. FS = Fire Safety
ME = Means of Egress
GS = General Safety
MFS = Mandatory Fire Safety
MME = Mandatory Means of Egress
MGS = Mandatory General Safety

Georgia State
International Building Code

Appendix O
Disaster Resilient Construction

(2020 Edition)

Georgia Department of Community Affairs
Local Government Assistance Division
60 Executive Park South, N.E.
Atlanta, Georgia 30329-2231
(404) 679-3118
www.dca.ga.gov

January 1, 2020

GEORGIA STATE INTERNATIONAL BUILDING CODE
APPENDIX O
DISASTER RESILIENT CONSTRUCTION

The INTERNATIONAL BUILDING CODE, 2018 Edition, published by the International Code Council, when used in conjunction with the Georgia State Amendments to the INTERNATIONAL BUILDING CODE, 2018 Edition and Appendix O Disaster Resilient Construction, shall constitute the official *Georgia State Minimum Standard Building Code.*

FORWARD

Introduction

The Department of Community Affairs (DCA) was awarded a grant through the U.S. Department of Housing and Urban Development (HUD) to develop Disaster Resilient Building Code (DRBC) Appendices for the International Building Code (IBC) and the International Residential Code (IRC). The DRBC Appendices are optional regulations that local jurisdictions may adopt, in whole or in part, through local ordinance. A task force of stakeholders was appointed to look for opportunities to improve any code provisions relating to damage from hurricane, flood, and tornado disasters. In addition to the approved recommendations from the task force, the state has developed and will conduct a comprehensive training program for code enforcement officials on the importance, implementation and enforcement of the Disaster Resilient Construction Appendices.

The meetings for the Disaster Resilient Building Code Appendices Task Force were open to the public, interested individuals and organizations that desired participation. The technical content of currently published documents on flooding, high-wind construction, and storm shelters, were used and referenced. Those publications included documents of the International Code Council (ICC), American Society of Civil Engineers (ASCE), the Federal Emergency Management Agency (FEMA), Mitigation Assessment Team (MAT) Program, Georgia Emergency Management Agency/Homeland Security (GEMA), APA – The Engineered Wood Association, National Institute of Standards and Technology (NIST), National Oceanic and Atmospheric Administration (NOAA), National Science Foundation (NSF), The State of Florida, American Forest & Paper Association's American Wood Council, Southern Forest Products Association, NAHB Research Center, Insurance Institute for Business & Home Safety, and the Federal Alliance for Safe Homes.

Adoption

Local jurisdictions may adopt this entire appendix with chosen options or specific sections that apply to their communities through a local ordinance. The adopting ordinance must also be filed on record with DCA. A sample ordinance has been included in this document to assist the local jurisdictions with the adoption process. Recommended training is being offered to assist code enforcement officials in the implementation and enforcement of the appendices documents. Contact DCA at (404) 679-3118 or www.dca.ga.gov for more information.

Neither The Disaster Resilient Building Code Appendices Task Force, its members nor those participating in the development of Appendix O Disaster Resilient Construction accept any liability resulting from compliance or noncompliance with the provisions of Appendix O Disaster Resilient Construction.

The 2012 Disaster Resilient Building Code (DRBC) Appendices Task Force was charged with the development of two appendices. One appendix is for the International Residential Code and the other appendix is for the International Building Code. These two appendices look for opportunities to improve any provisions relating to hurricane, flood, and tornado disasters. In addition to improving existing provisions in the codes, the task force also developed new provisions to be included in the appendices that address these issues. These appendices contain increased construction requirements for disaster resilience and are intended to be made available for adoption by local jurisdictions in the State of Georgia.

These appendices have reasonable and substantial connection with the public health, safety, and general welfare. In addition, the financial impact and costs associated with these appendices have been taken into consideration.

Members:
Mr. Gregori Anderson, Chairman, States Codes Advisory Committee (SCAC)
Mr. David L. Adams, , Vice Chairman, States Codes Advisory Committee (SCAC)
Mr. Bill Abballe, AIA, American Institute of Architects (AIA) – Georgia Chapter
Mr. John Hutton, P.E., S.E., American Council of Engineering Companies of Georgia (ACEC/G)
Mr. Ron Anderson, Code Consultant
Mr. Lamar Smith, Home Builders Association of Georgia (HBAG)
Mr. Thomas Harper, Georgia State Inspectors Association (GSIA)
Mr. Tom Buttram, Building Officials Association of Georgia (BOAG)
Capt. Zane Newman, Georgia State Fire Marshal's Office (Local Fire Official)
Mr. Terry Lunn, Georgia Emergency Management Agency (GEMA)
Mr. Alan Giles, , CFM, Georgia Department of Natural Resources (EPD / Floodplain Management Unit)
Mr. Tony Hebert, HUD Georgia State Representative (Region IV Office)
Mr. Jim C. Beck, Sr., Georgia Underwriting Association
Mr. Tim Thornton, Georgia Association of Realtors (GAR)
Mr. Steve Harrison, Building Owners and Managers Association – Georgia (BOMA)
Mr. Tom Aderhold, Georgia Apartment Association (GAA)
Mr. Tim Bromley, Accessibility Consultant – Georgia State ADA Coordinator's Office
Mayor Mark Mathews, Georgia Municipal Association (GMA)
Commissioner Jeff Long, Association of County Commissioners of Georgia (ACCG)

Ad Hoc Subcommittee:
Mr. Tom Buttram, Chairman, DRBC Task Force Liaison (BOAG)
Mr. Ron Anderson, Vice Chairman, Code Consultant
Mr. Stephen V. Skalko, Concrete Industry
Mr. Jeffrey B. Stone, Wood Industry (AWC)
Mr. Robert Wills, Steel Industry (AISC)
Mr. Tom Cunningham, PhD., Residential Building Design
Mr. Duncan J. Hastie, P.E., Disaster Mitigation

DCA Staff:
Mr. Ted Miltiades, Director of Construction Codes & Industrialized Buildings
Mrs. Deirdre "Dee" Leclair, DRBC Grant Project Manager
Mr. Max Rietschier, Lead Codes Consultant
Mr. Bill Towson, 2012 International Residential Code Task Force Liaison, Code Consultant
Mr. Calvin Jordan, 2012 International Building Code Task Force Liaison, Code Consultant

How to Use *Appendix O Disaster Resilient Construction*

The appendix may be adopted in whole or in part by Local Jurisdictions to fit the needs of their community. The following sample ordinance has been provided to aid in the process of identifying Chapters and Sections of the appendix that may be adopted. The format easily allows for choosing to adopt, revise or delete individual Chapters and Sections. Download the MS Word (.doc) version from the DCA website to take advantage of the dropdown menu choices and edit ability features of the document. Note that in Chapter 3, choose one of three options for flood elevation. Only one option may be chosen and that option must be higher than what has been previously adopted and enforced by the jurisdiction. Also note that in Chapter 4, choose one of three options for increased wind load. Only one option may be chosen and that option must be higher than what has been previously adopted and enforced by the jurisdiction. The Sample Ordinance document takes into account the flood elevation option in Chapter 3 and the wind load option in Chapter 4 of this appendix.

SAMPLE ORDINANCE FOR ADOPTION OF

GEORGIA STATE INTERNATIONAL BUILDING CODE

APPENDIX O
DISASTER RESILIENT CONSTRUCTION

ORDINANCE NO._____

An ordinance of the **[JURISDICTION]** adopting the latest edition as adopted and amended by the Georgia Department of Community Affairs of *Appendix O Disaster Resilient Construction* regulating and governing the mitigation of hazard to life and property from natural weather related disasters, high-wind damages, flooding, and establishing construction standards for storm shelters in the **[JURISDICTION]**; providing for the issuance of permits and collection of fees therefore; repealing Ordinance No. ____ of the **[JURISDICTION]** and all other ordinances or parts of the laws in conflict therewith.

The **[GOVERNING BODY]** of the **[JURISDICTION]** does ordain as follows:

Section 1. That a certain document, three (3) copies of which are on file in the office of the **[TITLE OF JURISDICTION'S KEEPER OF RECORDS]** of **[NAME OF JURISDICTION]**, being marked and designated as *Appendix O Disaster Resilient Construction* to the International Building Code, the latest edition as adopted and amended by the Georgia Department of Community Affairs, be and is adopted as the *Appendix O Disaster Resilient Construction* of the **[JURISDICTION]**, in the State of Georgia for regulating and governing the mitigation of hazard to life and property from natural weather related disasters, high-wind damages, flooding, and establishing construction standards for storm shelters; providing for the issuance of permits and collection of fees therefore; and each and all of the regulations, provisions, penalties, conditions and terms of said *Appendix O Disaster Resilient Construction* on file in the office of the **[JURISDICTION]** are hereby referred to, adopted, and made a part hereof, as if fully set out in this ordinance, with the additions, insertions, deletions and changes, if any prescribed in Section 2 of this ordinance.

Section 2. [NAME Of JURISDICTION] hereby:

Choose an item. CHAPTER AO1 SCOPE AND ADMINISTRATION Choose an item.

Choose an item. SECTION AO101 ADMINISTRATION Choose an item.

Choose an item. AO101.1 Purpose Choose an item.

Choose an item. AO101.2 Objectives Choose an item.

Choose an item. AO101.3 Scope Choose an item.

AO101.3.1 Insert [Name Of Jurisdiction] for [NAME OF JURISDICTION].

Choose an item. AO101.4 Violations Choose an item.

Insert [Name Of Jurisdiction] for [NAME OF JURISDICTION].

Choose an item. SECTION AO102 APPLICABILITY Choose an item.

Choose an item. AO102.1 General Choose an item.

Choose an item. AO102.2 Other laws Choose an item.

Choose an item. AO102.3 Referenced codes and standards Choose an item.

Choose an item. SECTION AO103 POST DISASTER EVENT INSPECTIONS GUIDLINES Choose an item.

Choose an item. AO103.1 Inspections Choose an item.

Choose an item. AO103.1.1 Right of entry Choose an item.

Choose an item. AO103.2 Types of inspections Choose an item.

Choose an item. AO103.3 Post disaster building safety evaluation chart Choose an item.

Choose an item. Figure AO103.3 Post Disaster Building Safety Evaluation Chart Choose an item.

Choose an item. AO103.4 Evaluation Forms Choose an item.

Insert [Name Of Jurisdiction] for [NAME OF JURISDICTION].

Choose an item. AO103.5 Placement and remove of placards Choose an item.

Choose an item. CHAPTER AO2 DEFINITIONS Choose an item.

Choose an item. SECTION AO201 GENERAL Choose an item.

Choose an item. AO201.1 Scope Choose an item.

Choose an item. AO201.2 Terms defined in other codes Choose an item.

Choose an item. AO201.3 Terms not defined Choose an item.
Choose an item. SECTION AO202 DEFINITIONS Choose an item.
Choose an item. CHAPTER AO3 FLOOD-RESISTANT CONSTRUCTION Choose an item.
Choose an item. SECTION AO301 HAZARD IDENTIFICATION Choose an item.
Choose an item. AO301.1 Identification of flood hazard areas Choose an item.
Insert [Name Of Jurisdiction] for [NAME OF JURISDICTION].
Insert [Date of Issuance] for [DATE OF ISSUANCE].
Choose an item. SECTION AO302 SCOPE Choose an item.
Choose an item. AO301.1 Flood Loads Choose an item.
Choose an item. FLOOD ELEVATION OPTION Choose an item. Choose an item.
Choose an item. SECTION AO303 FLOOD DAMAGE-RESISTANT MATERIALS Choose an item.
Choose an item. AO303.1 Flood damage-resistant materials Choose an item.
Choose an item. AO303.2 Location of flood damage-resistant materials Choose an item.
Choose an item. AO303.3 Fasteners and connectors used for flood-resistant materials Choose an item.
Choose an item. CHAPTER AO4 HIGH-WIND RESISTIVE CONSTRUCTION Choose an item.
Choose an item. SECTION AO401 GENERAL Choose an item.
Choose an item. AO401.1 Applications Choose an item.
Choose an item. AO401.2 Limitations Choose an item.
Choose an item. AO402 DEFINITIONS AND NOTATIONS Choose an item.
Choose an item. AO403 WIND LOADS Choose an item.
Choose an item. AO403.1 Wind Directionality Factor Choose an item.
Choose an item. AO403.2 Exposure Choose an item.
Choose an item. AO403.3 Enclosure classification Choose an item.
Choose an item. AO403.4 Continuous operation of Risk Category IV buildings Choose an item.
Choose an item. SECTION Choose an item. Choose an item.
Choose an item. CHAPTER AO5 STORM SHELTERS, SAFE ROOMS AND BEST AVAILABLE REFUGE AREAS Choose an item.
Choose an item. SECTION AO501 GENERAL Choose an item.
Choose an item. AO501.1 General Choose an item.
Choose an item. AO501.2 Occupant load Choose an item.
Choose an item. AO501.3 Construction documents Choose an item.
Choose an item. AO501.4 Signage Choose an item.
Choose an item. SECTION AO502 DEFINITIONS AND NOTATIONS Choose an item.
Choose an item. AO502.1 Definitions Choose an item.
Choose an item. AO502.2 Additional definitions Choose an item.
Choose an item. SECTION AO503 BEST AVAILABLE REFUGE AREAS Choose an item.
Choose an item. AO503.1 General Choose an item.
Choose an item. AO503.2 Occupant Density Choose an item.
Choose an item. AO503.3 Identification of best available refuge areas Choose an item.
Choose an item. SECTION AO504 APPLICABILITY Choose an item.
Choose an item. AO504.1 Required storm shelters or safe rooms Choose an item.

Section 3. That Ordinance No. ____ of **[JURISDICTION]** entitled **[FILL IN HERE THE COMPLETE TITLE OF THE LEGISLATION OR LAWS IN EFFECT AT THE PRESENT TIME SO THAT THEY WILL BE REPEALED BY DEFINITE MENTION]** and all other ordinances or parts of laws in conflict herewith are hereby repealed.

Section 4. That if any section, subsection, sentence, clause or phrase of this ordinance is, for any reason, held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this ordinance. The **[GOVERNING BODY]** hereby declares that it would have passed this law, and each section, subsection, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses and phrases be declared unconstitutional.

Section 5. That nothing in this ordinance or in *Appendix O Disaster Resilient Construction* hereby adopted shall be construed to affect any suit or proceeding impending in any court, or any rights acquired, or liability incurred, or any cause or causes of action acquired or existing under any act or ordinance hereby repealed as cited in Section 3 of this ordinance; nor shall any just or legal right or remedy of any character be lost, impaired or affected by this ordinance.

Section 6. That the **[JURISDICTION'S KEEPER OF RECORDS]** is hereby ordered and directed to cause this ordinance to be published. (An additional provision may be required to direct the number of times the ordinance is to be published and to specify that it is to be in a newspaper in general circulation. Posting may also be required.)

Section 7. That this ordinance and the rules, regulations, provisions, requirements, orders and matters established and adopted hereby shall take effect and be in full force and effect **[TIME PERIOD]** from and after the date of its final passage and adoption.

Section 8. Chapter AO6 Resources, of this document is intended to be used by the building officials as a resource guide.

TABLE OF CONTENTS

APPENDIX O
DISASTER RESILIENT CONSTRUCTION

CHAPTER AO1
SCOPE AND ADMINISTRATION

SECTION AO101
ADMINISTRATION

AO101.1 Purpose. The scope of this appendix is to promote enhanced public health, safety and general welfare and to reduce public and private property losses due to hazards and natural disasters associated with flooding, high-winds, and windborne debris above that which is provided in the general provisions of this appendix.

AO101.2 Objectives. The objectives of this appendix are to:

1. Protect human life, to minimize property loss and to minimize the expenditures of public money associated with natural weather related disasters, including flooding, tornadoes and other high-wind events.
2. Establish enhanced design and construction regulations consistent with nationally recognized good practices for the safeguarding of life and property.

AO101.3 Scope.

AO101.3.1 The provisions of this appendix are not mandatory unless specifically referenced in an adopting ordinance of **[NAME OF JURISDICTION]**. If adopted, the provisions shall apply to all new development and to substantial improvements to existing development.

AO101.3.2 The provisions of this appendix supplement the jurisdiction's building and fire codes to provide for enhanced provisions to mitigate the hazard to life and property from natural weather related disasters, including flooding, tornadoes and other high-wind events.

AO101.3.3 The provisions of this appendix establish design and construction standards for storm shelters.

AO101.4 Violations. Any violation of a provision of this appendix or failure to comply with a permit of variance issued pursuant to this appendix or any requirement of this appendix shall be handled in accordance with the ordinances of **[NAME OF JURISDICTION]**.

SECTION AO102
APPLICABILITY

AO102.1 General. This appendix provides enhanced minimum requirements for development of new construction and substantial improvement of existing development above that contained in the *International Building Code (IBC)*.

AO102.1.1 The provisions of this appendix shall apply to all new construction and additions, and shall apply to substantial alterations in flood hazard areas unless it is technically infeasible or otherwise exempted in Section 3403.2 of the *International Building Code*.

AO102.1.2 Regardless of the category of work being performed, the work shall not cause the structure to become unsafe or adversely affect the performance of the building; shall not cause an existing mechanical or plumbing system to become unsafe, hazardous, insanitary or overloaded; and unless expressly permitted by these provisions, shall not make the building any less compliant with this appendix or to any previously approved alternative arrangements than it was before the work was undertaken.

AO102.1.3 Where there is a conflict between a requirement of the *International Building Code* and a requirement of this appendix, the requirement of this appendix shall govern. Where there is a conflict between a general requirement of this appendix and a specific requirement of this appendix, the specific requirement shall govern. Where, in any specific case, different sections of this appendix specify different materials, methods of construction or other requirements, the most restrictive shall govern.

AO102.2 Other laws. The provisions of this appendix shall not be deemed to nullify any provisions of local, state or federal law.

AO102.3 Referenced codes and standards. The codes and standards referenced in this appendix shall be those that are listed in Chapter AO7 and such codes and standards shall be considered as part of the requirements of this appendix to the prescribed extent of each such reference. Where differences occur between provisions

this appendix and referenced codes and standards, the provisions of this appendix shall apply.

SECTION AO103
POST DISASTER EVENT INSPECTIONS GUIDELINES

AO103.1 Inspections. The building official or agents shall inspect buildings and structures to determine the habitability of each with the goal of getting the community back into their residences quickly and safely. Inspections shall always be performed by teams of at least two individuals, also known as disaster assessment teams.

AO103.1.1 Right of entry. Unless permitted under the exigent circumstances provisions or from an order from State or Federal Authorities, disaster assessment teams shall confirm the right of entry requirements with the incident commander. Upon approval, the assessment teams shall be authorized to enter the structure or premises at reasonable times to inspect or perform duties as provided by this code, provided that the structure or premises be occupied, that credentials are presented, that entry is requested, and that entry is granted by the owner or person having charge over the structure or premises.

AO103.2 Types of inspections.

AO103.2.1 Rapid evaluation. Rapid evaluation is performed after a disaster event to determine if a building is apparently safe or obviously unsafe. The evaluation should last 10 to 30 minutes per building and shall be performed by the building official and/or their designated responders. Evaluation shall determine if a detailed evaluation is necessary. Placards are posted on buildings indicating status as one of the following:

1. INSPECTED
2. RESTRICTED USE
3. UNSAFE

See Section AO605 for Placards that may be reproduced for use in the field during evaluations. The jurisdiction shall alter placards to meet the jurisdiction and building department's requirements.

AO103.2.2 Detailed evaluation. Detailed evaluation is a thorough visual examination of a damaged building performed by a team of two, including an inspector and a design professional. Evaluation should last 30 minutes to 4 hours per building. Evaluation shall determine necessary restrictions on a damaged building's use, the need for an engineering evaluation or to evaluate postings.

AO103.2.3 Engineering evaluation. When indicated by the building official as necessary, engineering evaluations shall be completed by a registered design professional hired by the building owner.

AO103.3 Post disaster building safety evaluation chart. See Figure AO103.3 for Post Disaster Building Safety Evaluation Chart.

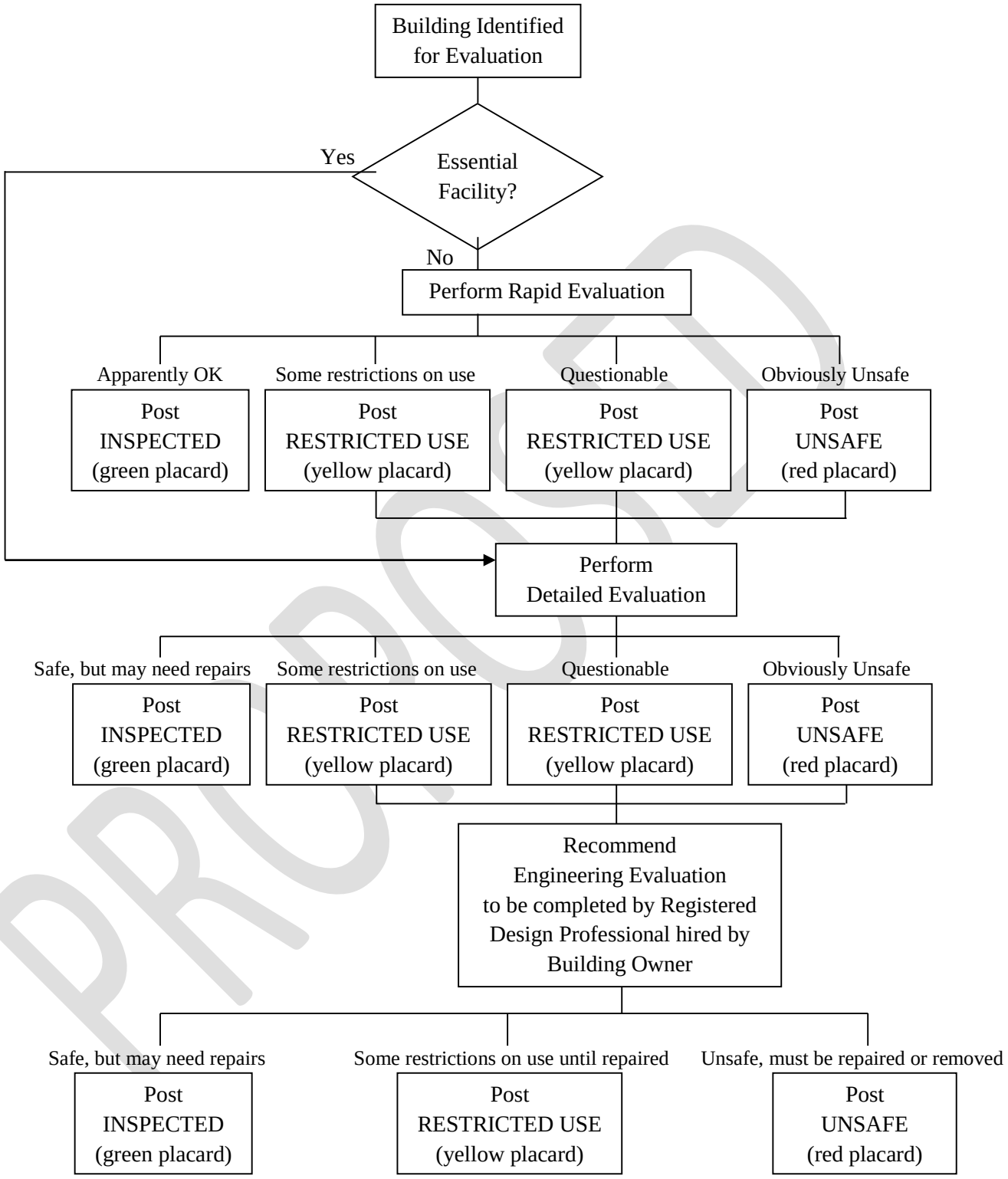
AO103.4 Evaluation Forms. *ATC-45 Rapid Evaluation Safety Assessment Form* and *ATC-45 Detailed Evaluation Safety Assessment Form* shall be used by **[Name of Jurisdiction]'s** Building Official for post disaster inspections. See Section AO605 for copies of the Safety Assessment Forms.

AO103.5 Placement and removal of placards.

AO103.5.1 Placement. Placards are to be posted in a clearly visible location near the main entrance and shall be visible from the public right-of-way. RESTRICTED USE or UNSAFE placards shall be placed at all entrances.

AO103.5.2 Removal. Placards shall not be removed or replaced, except by the authorized representatives of the local jurisdiction.

Figure AO103.3 Post Disaster Building Safety Evaluation Chart [a]



[a] *When Disaster Strikes* by the International Code Council, Inc., Seventh Printing: November 2011, copyright 2007

CHAPTER AO2
DEFINITIONS

SECTION AO201
GENERAL

AO201.1 Scope. Unless otherwise expressly stated the following words and terms shall, for the purposes of this appendix, have the meanings shown in this chapter.

AO201.2 Terms defined in other codes. Where terms are not defined in this appendix and are defined in other *International Codes*, such terms shall have the meanings ascribed to them as in those codes.

AO201.3 Terms not defined. Where terms are not defined through the methods authorized by this section, such terms shall have their ordinarily accepted meanings such as the context implies.

SECTION AO202
DEFINITIONS

500-YEAR FLOOD. Flood having a 0.2% annual probability of being equaled or exceeded.

ADVISORY BASE FLOOD ELEVATION (ABFE). An advisory base flood elevation (BFE) issued by the Federal Emergency Management Agency (FEMA) that reflects post-storm conditions and vulnerability to damages from future flooding.

BASE FLOOD. Flood having a 1% chance of being equaled or exceeded in any given year, also referred to as the 100-year flood.

BASE FLOOD ELEVATION (BFE). The elevation of flooding, including wave height, having a 1% chance of being equaled or exceeded in any given year established relative to the National Geodetic Vertical Datum (NGVD), North American Vertical Datum (NAVD) or other datum specified on the *Flood Insurance Rate Map* (FIRM).

BUILDING OFFICIAL. The officer or other designated authority charged with the administration and enforcement of the *International Building Code*, or the building official's duly authorized representative.

DESIGN FLOOD. The greater of the following two flood events:

(1) The *base flood*, affecting those areas identified as *special flood hazard areas* on the community's FIRM;

(2) The flood corresponding to the area designated as a *flood hazard area* on a community's *flood hazard map* or otherwise legally designated.

DESIGN FLOOD ELEVATION (DFE). The elevation of the *design flood*, including wave height, relative to the datum specified on the community's legally designated flood hazard map. In areas designated as Zone AO, the *design flood elevation* shall be the elevation of the highest existing grade of the building's perimeter plus the depth number (in feet) specified on the flood hazard map.

FLOOD [DAMAGE]-RESISTANT MATERIAL. Any building product [material, component or system] capable of withstanding direct and prolonged contact with floodwaters without sustaining significant damage.

FLOOD HAZARD MAP. Map delineating *flood hazard areas* adopted by the authority having jurisdiction.

FLOOD INSURANCE RATE MAP (FIRM). An official map of a community on which the Federal Emergency Management Agency (FEMA) has delineated both the *special flood hazard areas* and the risk premium zones applicable to the community.

FREEBOARD. A factor of safety expressed in feet above a flood level for purposes of floodplain management.

FUTURE-CONDITIONS FLOOD. The flood having a 1% chance of being equaled or exceeded in any given year based on future-conditions hydrology. Also known as the 100-year future-conditions flood.

FUTURE-CONDITIONS FLOOD ELEVATION. The flood standard equal to or higher than the Base Flood Elevation. The future-conditions flood elevation is defined as the highest water surface anticipated at any given point during the future-conditions flood.

CHAPTER AO3
FLOOD-RESISTANT CONSTRUCTION

Forward: This appendix provides three different options for increased freeboard. The jurisdiction may pick only one option that is higher than previously adopted and enforced by the jurisdiction. The National Flood Insurance Program (NFIP) minimum standards reference Base Flood Elevation without any freeboard in high risk flood hazard areas. Due to the flood damage prevention updates performed during the Map Modernization initiative that led to flood risks being digitally identified in all 159 Georgia counties, all Georgia NFIP participating communities have freeboard standards that meet or exceed the 1 foot standard used in the State model ordinances for areas where BFEs have been established.

SECTION AO301
HAZARD IDENTIFICATION

AO301.1 Identification of flood hazard areas. To establish flood hazard areas:

(a) flood hazard map adopted by jurisdiction based on areas of special flood hazard as identified by the Federal Emergency Management Agency in an engineering report entitled "The Flood Insurance Study of **[INSERT NAME OF JURISDICTION]**," dated **[INSERT DATE ISSUANCE]**, and amended or revised with the accompanying Flood Insurance Rate Map (FIRM) and Flood Boundary and Floodway Map (FBFM) and related supporting data along with any revisions thereto.

(b) FIRM maps provided by the Federal Emergency Management Agency.

SECTION AO302
SCOPE

AO302.1 Flood loads. Buildings designed and constructed in flood hazard areas defined in IBC Section 1612.3 shall comply with the following:

AO302.1.1 Flood hazard areas without base flood elevations. In flood hazard areas without base flood or future-conditions flood elevation data, new construction and substantial improvements of existing structures shall have the lowest floor of the lowest enclosed area (including basement) elevated no less than three (3) feet above the highest adjacent grade to the building foundation.

OPTION A – FLOOD ELEVATION

AO302.1.2 Increase to base flood elevation requirements. Floors required by ASCE 24 to be built above base flood elevations as follows:

The higher of:

(a) Design flood elevation plus one (1) foot, or
(b) Base flood elevation plus one (1) foot, or
(c) Advisory base flood elevation, or
(d) Future-conditions plus one (1) foot, if known or
(e) 500-year flood, if known

OPTION B– FLOOD ELEVATION

AO302.1.3 Increase to base flood elevation requirements. Floors required by ASCE 24 to be built above base flood elevations as follows:

The higher of:

(a) Design flood elevation plus two (2) feet, or
(b) Base flood elevation plus two (2) feet, or
(c) Advisory base flood elevation, or
(d) Future-conditions plus one (1) foot, if known or
(e) 500-year flood, if known

OPTION C – FLOOD ELEVATION

AO302.1.4 Increase to base flood elevation requirements. Floors required by ASCE 24 to be built above base flood elevations as follows:

The higher of:

(a) Design flood elevation plus three (3) feet, or
(b) Base flood elevation plus three (3) feet, or
(c) Advisory base flood elevation, or
(d) Future-conditions plus one (1) foot, if known or
(e) 500-year flood, if known

SECTION AO303
FLOOD DAMAGE-RESISTANT MATERIALS

AO303.1 Flood damage-resistant materials. Flood damage-resistant materials comply with FEMA Technical Bulletin 2, Table 2. Types, Uses, and Classifications of Materials.

AO303.2 Location of flood damage-resistant materials. Building components and materials located below the increase to base flood elevation as determined by the local jurisdiction in accordance with AO302.1 shall be flood damage-resistant as defined by Section AO303.1.

AO303.3 Fasteners and connectors used for flood damage-resistant materials. Fasteners and connectors used for flood damage-resistant materials to be made of stainless steel, hot-dipped zinc-coated galvanized steel, mechanically deposited-zinc coated, silicon bronze or copper. Copper fasteners shall not be permitted for use in conjunction with steel.

CHAPTER AO4
HIGH-WIND RESISTIVE CONSTRUCTION

SECTION AO401
GENERAL

AO401.1 Applications. Buildings, and parts thereof shall be designed to withstand the minimum wind loads and meet the opening protection requirements of IBC Section 1609 as modified in this chapter. **Wind Load Option A, B or C shall be selected. Table AO401.1 may be used to assist in the selection of an appropriate Wind Load Option.**

AO401.2 Limitations. The following limitations shall apply to the design and construction of buildings with respect to winds.

AO401.2.1 Empirical masonry. The empirical masonry provisions in IBC Section 2109 or Chapter 5 of TMS 402/ACI 530/ASCE 5 shall not be permitted to be used for the wind load resisting elements of buildings, or parts of buildings or other structures.

AO401.2.2 Unreinforced (plain) masonry. The unreinforced masonry provisions in IBC Section 2109 or sections 2.2, 3.2 or 8.2 of TMS 402/ACI 530/ASCE 5 shall not be permitted to be used for the wind load resisting elements of buildings, or parts of buildings or other structures.

AO401.2.3 Conventional light-frame construction. The *conventional light-frame constriction* provisions in IBC Section 2308 shall not be permitted to be used for the wind load resisting elements of buildings, or parts of buildings or other structures.

Exception: Compliance with AF&PA WFCM shall be permitted subject to the limitations therein and the limitations of this appendix.

SECTION AO402
DEFINITIONS AND NOTATIONS

AO402.1 General. The following terms are defined in Chapter 2 of the International Building Code:

CONVENTIONAL LIGHT-FRAME CONSTRUCTION.

MASONRY.

Unreinforced (plain) masonry.

WIND-BORNE DEBRIS REGION.

WIND SPEED, V_{ult}.

SECTION AO403
WIND LOADS

AO403.1 Wind Directionality Factor. The directionality factor for Wind Option B and C shall be taken as 1.0.

AO403.2 Exposure. Wind pressures for Wind Option B and C shall be based on exposure category C or D in accordance with IBC Section1609.4 or ASCE 7.

AO403.3 Enclosure classification. The enclosure classification shall be determined in accordance with ASCE 7 with the largest door or window on a wall that receives positive external pressure considered as an opening.

AO403.4 Continuous operation of Risk Category IV buildings. When a building or an internal area within a building in Risk Category IV is required to remain operational during a design wind event (target performance level OB), that building or that internal area shall be designed in accordance with ICC-500 or FEMA-361.

SECTION AO404
WIND LOAD OPTION A

AO404.1 Basic wind speed. The ultimate design wind speed, V_{ult}, for use in the design of buildings and structures shall be obtained from IBC Section 1609.3.

AO404.2 Debris Hazard and Protection of Openings. Buildings shall be designed for impact resistance in accordance with IBC Section 1609.2 or ASCE 7.

Exception:

1. For Risk Category III buildings with a Life Safety target performance level for the entire building, the exterior glazing shall be impact resistant or be protected with an impact resistant covering meeting the requirements of ASTM E1996.
2. For Risk Category IV buildings with an Immediate Occupancy target performance level for the entire building, the exterior glazing shall be impact resistant or be protected with an impact resistant covering meeting the requirements of ASTM E1996 for *Enhanced Protection*.

SECTION AO405
WIND LOAD OPTION B

AO405.1 Basic wind speed. The ultimate design wind speed, V_{ult}, for use in the design of Risk Category I buildings and structures shall be obtained from 0 Section 1609.3. The ultimate design wind speed, V_{ult}, for use in the design of Risk Category II buildings and structures shall be obtained from IBC Figure 1609.3(1). The ultimate design wind speed, V_{ult}, for use in the design of Risk Category III and IV buildings and structures shall be obtained from IBC Figure 1609.3(1) or 135 mph, whichever is greater.

AO405.2 Debris Hazard and Protection of Openings. Buildings shall be designed for impact resistance in accordance with this Section in addition to IBC Section 1609.2 or ASCE 7.

Exception:

1. For Risk Category IV buildings, all components of the exterior envelope shall be impact resistant or be protected with an impact resistant covering meeting the requirements of ASTM E1996 for *Enhanced Protection*.

SECTION AO406
WIND LOAD OPTION C

AO406.1 Basic wind speed. The ultimate design wind speed, V_{ult}, for use in the design of Risk Category I buildings and structures shall be obtained from IBC Section 1609.3. The ultimate design wind speed, V_{ult}, for use in the design of Risk Category II buildings and structures shall be obtained from IBC Figure 1609.3(1). The ultimate design wind speed, V_{ult}, for use in the design of Risk Category III and IV buildings and structures shall be obtained from IBC Figure 1609.3(1) or 170 mph, whichever is greater.

AO406.2 Debris Hazard and Protection of Openings. Buildings shall be designed for impact resistance in accordance with this Section in addition to IBC Section 1609.2 or ASCE 7.

Exception:

1. For Risk Category IV buildings, all components of the exterior envelope shall be impact resistant or be protected with an impact resistant covering meeting the requirements of ASTM E1996 for *Enhanced Protection*.

Table AO401.1
WIND LOAD OPTIONS:
TARGET PERFORMANCE LEVELS AND DESIGN CRITERIA[4]

OPTION	DESIGN WIND EVENT	Risk Category II[1]			Risk Category III[1]			Risk Category IV[1]		
		Target Performance Level[2]	Min Wind Speed V_{ult}	Wind-Borne Debris	Target Performance Level[2]	Min Wind Speed V_{ult}	Wind-Borne Debris	Target Performance Level[2]	Min Wind Speed V_{ult}	Wind-Borne Debris
A	EF0 & 1 Tornado – IBC level Hurricane	CP[3]	IBC 1609.3	IBC 1609.2 or ASCE 7	CP[3]	IBC 1609.3	IBC 1609.2 or ASCE 7	CP[3]	IBC 1609.3	IBC 1609.2 or ASCE 7
					LS		Glazing	IO[5]		Glazing
B	EF2 Tornado – Cat 3 Hurricane	CP[3] for EF0-EF1-IBC Hurricane for Risk Cat. III/IV	IBC 1609.3 for Risk Cat. III/IV	IBC 1609.2 or ASCE 7	LS	145 mph	Req'd for glazing per IBC 1609.2 and ASCE 7	IO[5]	145 mph	Exterior Envelope
C	EF3 Tornado – Cat 4 Hurricane	CP[3] for EF0-EF1-IBC Hurricane for Risk Cat. III/IV	IBC 1609.3 for Risk Cat. III/IV	IBC 1609.2 or ASCE 7	LS	170 mph	Req'd for glazing per IBC 1609.2 and ASCE 7	IO[5]	170 mph	Exterior Envelope

Notes:

1. Risk Category per IBC Section 1604.5
2. Performance Levels:
   CP: Collapse Prevention
   LS: Life Safety
   IO: Immediate Occupancy
   OB: Operational Building
3. LS for occupants away from exterior envelope. IO for storm shelters or safe rooms.
4. See Section AO401 and Section AO403 for additional limitations and criteria.
5. OB for building or an internal area within a building designed to ICC-500 or FEMA 361.

CHAPTER AO5
STORM SHELTERS, SAFE ROOMS AND BEST AVAILABLE REFUGE AREAS

SECTION AO501
GENERAL

AO501.1 General. This section applies to the location and construction of storm shelters and safe rooms when constructed as separate detached buildings or as internal areas within buildings for the purpose of providing safe refuge for storms that produce high winds, such as tornados and hurricanes, and to the selection of best available refuge areas. Storm shelters shall be designed and constructed in accordance with IBC Section 423. Safe rooms shall be designed and constructed in accordance with FEMA 361. Storm shelters, safe rooms, and best available refuge areas shall be located on an accessible route.

Exception: *Residential Safe Rooms* and safe rooms serving a Business Group B Occupancy and having an *occupant load* not exceeding 16 persons may be constructed in accordance with FEMA 320.

AO501.2 Occupant load. The occupant load for storm shelters and safe rooms shall be determined by ICC 500 and FEMA 361 respectively.

AO501.3 Construction documents. Construction documents for buildings containing a storm shelter or safe room shall include the information required in ICC 500 or FEMA 361 respectively. Construction documents for buildings with access to a remote community storm shelter or safe room shall indicate the location of and access to the community storm shelter or safe room. Construction documents for buildings not containing or without access to a remote storm shelter or safe room, shall indicate the best available refuge area.

AO501.4 Signage. The location(s) of storm shelters, safe rooms or the best available refuge area(s) shall be clearly marked with a permanent sign.

SECTION AO502
DEFINITIONS AND NOTATIONS

AO502.1 Definitions. The following terms are defined in Chapter 2 of the International Building Code:

DWELLING UNITS.
OCCUPANT LOAD.
STORM SHELTER.
Community Storm Shelter.
Residential Storm Shelter.

AO502.2 Additional definitions.

BEST AVAILABLE REFUGE AREAS. Areas in a building that have been deemed by a registered design professional to likely offer the greatest safety for building occupants during a tornado or hurricane. Because these areas were not specifically designed as storm shelters or safe rooms, their occupants may be injured or killed during a tornado or hurricane. However, people in the best available refuge areas are less likely to be injured or killed than people in other areas of a building.

SAFE ROOM. A building, structure or portions thereof, constructed in accordance with FEMA 361 and designed for use during a severe wind storm event, such as a hurricane or tornado.

Community Safe Room. A safe room not defined as a "Residential Safe Room"

Residential Safe Room. A safe room serving occupants of *dwelling units* and having an *occupant load* not exceeding 16 persons.

SECTION AO503
BEST AVAILABLE REFUGE AREAS

AO503.1 General. Best available refuge area occupants may be injured or killed during a tornado or hurricane. However, people in the best available refuge areas are less likely to be injured or killed than people in other areas of a building.

AO503.2 Occupant Density. The minimum required floor area per occupant for best available refuge area(s) shall be determined in accordance with ICC 500 Table 501.1.1.

AO503.3 Identification of best available refuge areas. Best available refuge areas shall be identified by a registered design professional in accordance with the Wind Hazard Checklist of FEMA 361, Appendix B and FEMA P-431.

SECTION AO504
APPLICABILITY

AO504.1 Required storm shelters or safe rooms.

1. All new kindergarten through 12th grade schools with 50 or more occupants in total, per school, shall have a storm shelter or safe room.
2. All new 911 call stations, emergency operation centers, and fire, rescue, ambulance, and police stations shall have a storm shelter or safe room.

CHAPTER AO6
RESOURCES

SECTION AO601
CONTACTS

Georgia Department of Community Affairs (DCA)
Construction Codes
Georgia State Amendments to the State Minimum Standard Codes
dca.ga.gov/local-government-assistance/construction-codes-industrialized-buildings/construction-codes
Phone: 404-679-3118

Georgia Department of Natural Resources (DNR)
Floodplain Management
4220 International Parkway, Ste. 101
Atlanta, GA 30354-3902
www.georgiadfirm.com
Phone: 404-675-1757

Federal Emergency Management Agency (FEMA)
www.fema.gov; www.floodsmart.gov
www.fema.gov/rebuild/buildingscience/
FEMA Publications and Technical Bulletins:
(www.fema.gov/library/index.jsp)
(www.fema.gov/plan/prevent/floodplain/techbul.shtm)

Georgia Emergency Management Agency (GEMA)
Georgia Office of Homeland Security
P.O. Box 18055
Atlanta, GA 30316-0055
www.gema.ga.gov
www.ready.ga.gov
Phone: 404-635-7000

Georgia Association of Regional Commissions (GARC)
www.garc.ga.gov
(http://garc.ga.gov/main.php?Regional-Commissions-2)
(for assistance in identifying Flood Hazard Areas)

International Code Council (ICC)
www.iccsafe.org

National Weather Service
www.weather.gov

State Fire Marshal's Office
2 Martin Luther King Jr. Drive
Suite 920 / West Tower
Atlanta, Georgia 30334
www.oci.ga.gov
Phone: 404-656-7087

SECTION AO602
EMERGENCY INSPECTION KIT [b]

- □ **Staff's disaster response management plan**
- □ **Team contact list**
- □ **Area maps**
- □ **Official identification**
- □ **Personal identification**
- □ **Inspection forms and placards**
- □ **Communication equipment**
- □ **Clipboard**
- □ **Hard hat**
- □ **Orange safety vest**
- □ **Dust mask**
- □ **Work gloves**
- □ **Steel toe and waterproof boots**
- □ **Whistle**
- □ **First aid kit**
- □ **Latex gloves**
- □ **Safety glasses**
- □ **Sunglasses**
- □ **Pocket knife**
- □ **Matches**
- □ **Antibacterial hand wipes or alcohol-based hand sanitizer**
- □ **Insect repellant (w/ Deet or Picaridin)**
- □ **Sunscreen (SPF 15 or greater)**
- □ **Camera**
- □ **Black markers**
- □ **Pens & pencils**
- □ **Envelope for expense receipts**
- □ **Compass, GPS unit**
- □ **Backpack, waistpack**
- □ **Flashlight and extra batteries**
- □ **Battery-operated radio**
- □ **Duct tape**
- □ **Staples & stapler**
- □ **Staple gun**
- □ **Calculator**
- □ **Tire repair kit**

Remember to grab:

- □ **Personal identification**
- □ **Rain gear, extra clothing**
- □ **Water bottle**
- □ **Prescription medication**
- □ **Cell phone and charger**
- □ **Cash for personal expenses**
- □ **Toiletries**

(b) *Disaster Mitigation: A Guide for Building Departments* by the International Code Council, Inc., copyright 2009

SECTION AO603
SAFETY TIPS [a]

1. **Always travel in teams of at least two people.**
2. **Always wear a hard hat, gloves, goggles, safety vest, and dust masks.**
3. **Always wear safety shoes capable of protecting the toes and bottom of the foot.**
4. **Survey the building exterior completely before entering.**
5. **Enter building only if authorized and if deemed safe to do so.**
6. **Be alert for falling objects.**
7. **In case of fire, injuries or victims, evacuate the area and alert the fire department immediately.**
8. **Avoid downed power lines and buildings under them or water surrounding them.**
9. **In case of gas leaks, shut off the gas (if possible) and report the leak.**
10. **In a flood situation, have a "walking stick."**

(a)*When Disaster Strikes* by the International Code Council, Inc., Seventh Printing: November 2011, copyright 2007

SECTION AO604
MAJOR DISASTER PROCESS

(from link https://www.fema.gov/disaster-declaration-process)

A Major Disaster Declaration usually follows these steps:

- **Incident occurs and local government responds,** supplemented by neighboring communities and volunteer agencies. If overwhelmed, turn to the state for assistance;

Generally the local government will issue a local state of emergency

- **The State responds** with state resources, such as the National Guard and state agencies;

Prior to committing state resources, the Governor will declare a state of emergency in the counties impacted by the event for which assistance is needed.

- **Damage assessment** by local, state, federal, and volunteer organizations determine losses and recovery needs;

Generally the locals will submit a preliminary damage assessment to the state and the state will review and determine if state and/or federal assistance is needed. If federal assistance is needed, the state will request FEMA perform a preliminary joint damage assessment. If the Governor determines that the incident is of such severity and magnitude that effective response is beyond the capabilities of the state and the affected local governments then supplementary Federal assistance is requested (next step).

- **A Major Disaster Declaration** is requested by the Governor, based on the damage assessment, and agreement to commit state funds and resources to the long-term recovery;
- **FEMA evaluates** the request and recommends action to the White House based on the disaster, the local community and the state's ability to recover;
- **The President approves** the request or FEMA informs the Governor it has been denied. This decision process could take a few hours or several weeks depending on the nature of the disaster.

SECTION AO605
SAMPLE EVALUATION FORMS AND INSPECTION PLACARDS [b] (following pages)

Figure AO605.1 [b]

ATC-45 Rapid Evaluation Safety Assessment Form

Inspection

Inspector ID: _____ Inspection date: _____

Affiliation: _____ Inspection time: _____ ☐ AM ☐ PM

Areas inspected: ☐ Exterior only ☐ Exterior and interior

Building Description

Building name: _____

Address: _____

_____

Building contact/phone: _____

Number of stories: _____

"Footprint area" (square feet): _____

Number of residential units: _____

Type of Building

☐ Mid-rise or high-rise ☐ Pre-fabricated

☐ Low-rise multi-family ☐ One- or two-family dwelling

☐ Low-rise commercial

Primary Occupancy

☐ Dwelling ☐ Commercial ☐ Government

☐ Other residential ☐ Offices ☐ Historic

☐ Public assembly ☐ Industrial ☐ School

☐ Emergency services ☐ Other: _____

Evaluation

Investigate the building for the conditions below and check the appropriate column.

Observed Conditions:	Minor/None	Moderate	Severe
Collapse, partial collapse, or building off foundation	☐	☐	☐
Building significantly out of plumb or in danger	☐	☐	☐
Damage to primary structural members, racking of walls	☐	☐	☐
Falling hazard due to nonstructural damage	☐	☐	☐
Geotechnical hazard, scour, erosion, slope failure, etc.	☐	☐	☐
Electrical lines / fixtures submerged / leaning trees	☐	☐	☐
Other (specify) _____	☐	☐	☐

Estimated Building Damage (excluding contents)

☐ None

☐ > 0 to < 1%

☐ 1 to < 10%

☐ 10 to < 30%

☐ 30 to < 70%

☐ 70 to < 100%

☐ 100%

☐ See back of form for further comments.

Posting

Choose a posting based on the evaluation and team judgment. Severe conditions endangering the overall building are grounds for an Unsafe posting. Localized Severe and overall Moderate conditions may allow a Restricted Use posting.

☐ **INSPECTED** (Green placard) ☐ **RESTRICTED USE** (Yellow placard) ☐ **UNSAFE** (Red placard)

Record any use and entry restrictions exactly as written on placard: _____

_____

_____

Number of residential units vacated: _____

Further Actions

Check the boxes below only if further actions are needed.

☐ Barricades needed in the following areas: _____

_____

☐ Detailed Evaluation recommended: ☐ Structural ☐ Geotechnical ☐ Other: _____

☐ Substantial Damage determination recommended

☐ Other recommendations: _____

_____

☐ See back of form for further comments.

Figure AO605.2 [b]

ATC-45 Detailed Evaluation Safety Assessment Form

Inspection

Inspector ID: _____ Inspection date: _____

Affiliation: _____ Inspection time: _____ ☐ AM ☐ PM

Final Posting
from page 2

☐ Inspected
☐ Restricted Use
☐ Unsafe

Building Description

Building name: _____

Address: _____

_____

Building contact/phone: _____

Number of stories: _____

"Footprint area" (square feet): _____

Number of residential units: _____

Type of Building

☐ Mid-rise or High-rise
☐ Low-rise multi-family
☐ Low-rise commercial
☐ Pre-fabricated
☐ One- or two-family dwelling
☐ Other: _____

Primary Occupancy

☐ Dwelling
☐ Other residential
☐ Public assembly
☐ Emergency services
☐ Commercial
☐ Offices
☐ Industrial
☐ Other: _____
☐ Government
☐ Historic
☐ School

Evaluation

Investigate the building for the conditions below and check the appropriate column. There is room on the second page for a sketch.

	Minor/None	Moderate	Severe	Comments
Overall hazards:				
Collapse or partial collapse	☐	☐	☐	
Building or story lean or drift	☐	☐	☐	
Fractured or displaced foundation	☐	☐	☐	
Structural hazards:				
Failure of significant element/connection	☐	☐	☐	
Column, pier, or bearing wall	☐	☐	☐	
Roof/floor framing or connection	☐	☐	☐	
Superstructure/foundation connection	☐	☐	☐	
Moment frame	☐	☐	☐	
Diaphragm/horizontal bracing	☐	☐	☐	
Vertical bracing	☐	☐	☐	
Shear wall	☐	☐	☐	
Nonstructural hazards:				
Parapets, ornamentation	☐	☐	☐	
Canopy	☐	☐	☐	
Cladding, glazing	☐	☐	☐	
Ceilings, light fixtures	☐	☐	☐	
Stairs, exits, access walkways, gratings	☐	☐	☐	
Interior walls, partitions	☐	☐	☐	
Mechanical & electrical equipment	☐	☐	☐	
Elevators	☐	☐	☐	
Building contents, other _____	☐	☐	☐	
Geotechnical hazards:				
Slope failure, debris impact	☐	☐	☐	
Ground movement, erosion, sedimentation	☐	☐	☐	
Differential settlement	☐	☐	☐	

Continue on page 2

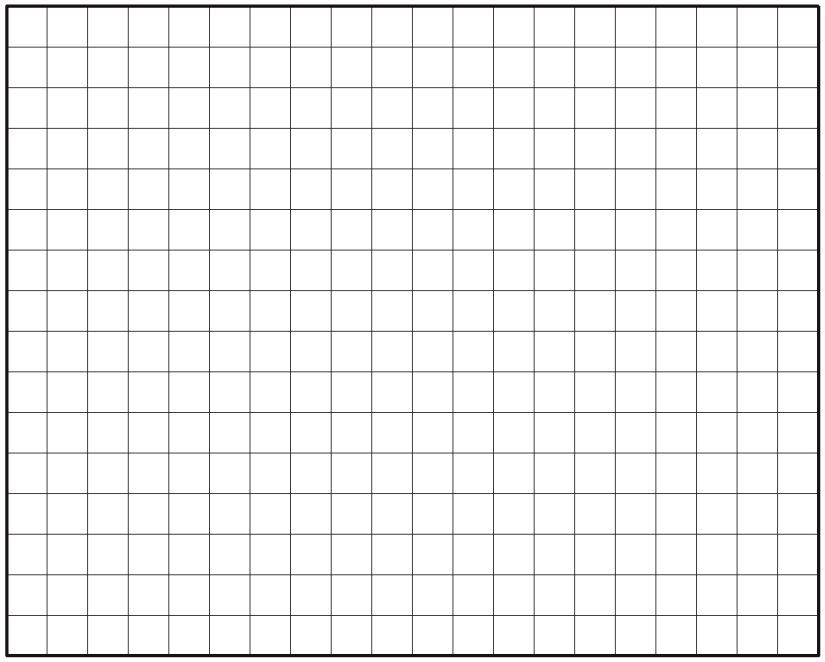
Figure AO605.2 [b] (Continued)

ATC-45 Detailed Evaluation Safety Assessment Form — Page 2

Building name: _____ Inspector ID: _____

Sketch

Make a sketch of the damaged building in the space provided. Indicate damage points.



Estimated Building Damage
(excluding contents)

- ☐ None
- ☐ >0 to <1%
- ☐ 1 to <10%
- ☐ 10 to <30%
- ☐ 30 to <70%
- ☐ 70 to <100%
- ☐ 100%

Posting

If there is an existing posting from a previous evaluation, check the appropriate box.

Previous posting: ☐ INSPECTED ☐ RESTRICTED USE ☐ UNSAFE Inspector ID: _____ Date: _____

If necessary, revise the posting based on the new evaluation and team judgment. *Severe* conditions endangering the overall building are grounds for an Unsafe posting. Local *Severe* and overall *Moderate* conditions may allow a Restricted Use posting. Indicate the current posting below and at the top of page one, whether the posting has been revised or not.

☐ **INSPECTED** (Green placard) ☐ **RESTRICTED USE** (Yellow placard) ☐ **UNSAFE** (Red placard)

Record any use and entry restrictions exactly as written on placard: _____

_____

Number of residential units vacated: _____

Further Actions Check the boxes below only if further actions are needed.

☐ Barricades needed in the following areas: _____

_____

☐ Engineering Evaluation recommended: ☐ Structural ☐ Geotechnical ☐ Other _____

☐ Substantial Damage determination recommended

☐ Other recommendations: _____

_____

INSPECTED

LAWFUL OCCUPANCY PERMITTED

This structure has been inspected (as indicated below) and no apparent structural hazard has been found.

Date _____

Time _____

☐ **Inspected Exterior Only**

☐ **Inspected Exterior and Interior**

Report any unsafe condition to local authorities; reinspection may be required.

Inspector Comments:

_____

_____

_____

_____

Facility Name and Address:

_____

_____

_____

This facility was inspected under emergency conditions for:

_____

(Jurisdiction)

Inspector ID / Agency

_____

_____

_____

Do Not Remove, Alter, or Cover this Placard until Authorized by Governing Authority

Figure AO605.3 [b]

RESTRICTED USE

Caution: This structure has been inspected and found to be damaged as described below:

_____

_____

_____

_____

Entry, occupancy, and lawful use are restricted as indicated below:

☐ Do not enter the following areas: _____

_____

☐ Brief entry allowed for access to contents: _____

_____

☐ Other restrictions: _____

_____

Facility name and address:

_____

_____

_____

Date _____

Time _____

This facility was inspected under emergency conditions for:

_____

(Jurisdiction)

Inspector ID / Agency

_____

_____

_____

Do Not Remove, Alter, or Cover this Placard until Authorized by Governing Authority

Figure AO605.4 [b]

UNSAFE

DO NOT ENTER OR OCCUPY
(THIS PLACARD IS NOT A DEMOLITION ORDER)

This structure has been inspected, found to be seriously damaged and is unsafe to occupy, as described below:

_____
_____
_____
_____
_____
_____

Do not enter, except as specifically authorized in writing by jurisdiction. Entry may result in death or injury.

Facility Name and Address:

_____
_____
_____

Date _____

Time _____

This facility was inspected under emergency conditions for:

_____
(Jurisdiction)

Inspector ID / Agency

_____
_____
_____

Do Not Remove, Alter, or Cover this Placard until Authorized by Governing Authority

Figure AO605.5 [b]

CHAPTER AO7
REFERENCES

REFERENCED STANDARDS

ASCE Standards ASCE/SEI 24-14 Flood Resistant Design and Construction
FEMA P-320, Fourth Edition / December 2014 Taking Shelter From the Storm: Building a Safe Room For Your Home or Small Business, Includes Construction Plans and Cost Estimates
FEMA 361, Third Edition / March 2015 Design and Construction Guidance for Community Safe Rooms
FEMA P-431, Second Edition/October 2009 Tornado Protection: Selecting Refuge Areas in Buildings
FEMA Technical Bulletin 2, Table 2. Types, Uses, and Classifications of Materials

REFERENCED RESOURCES

(a) *When Disaster Strikes* by the International Code Council, Inc., Seventh Printing: November 2011, copyright 2007
(b) *Disaster Mitigation: A Guide for Building Departments* by the International Code Council, Inc., copyright 2009

INDEX OF FIGURES:

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