

AGENDA FOR
Florida Department of Business and Professional Regulation
Elevator Safety Technical Advisory Council

May 10, 2016
9:00 a.m. to 1:00 p.m.

Members: John Antona, Chair; Tim Newton, Vice Chair; Rhonda Montoya Hasan; Tim Mowrey, Sr.; Chris Prather; William Snyder; Jerry Wooldridge; James Yohn

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| I. | Call to Order | Chair |
| II. | Opening remarks <ul style="list-style-type: none">▪ <i>Roll Call & Visitor introductions</i> | Chair |
| III. | Previous Meeting Minutes (Attachment A, pg. 2) | Chair |
| IV. | Bureau Report <ul style="list-style-type: none">A. Administrative UpdateB. 2016 Legislative Session<ul style="list-style-type: none">i. SB 1602 – 2016-211, LOF (Attachment B, pg. 8)ii. Fire Service Access Elevators (Attachment C, pg. 10)C. Sump pump rule (Attachment D, pg. 12) | BES Chief |
| V. | Industry Update <ul style="list-style-type: none">A. ManufacturingB. Building DesignC. Building Owners & ManagersD. Local GovernmentE. Private InspectionsF. Elevator Service CompaniesG. Labor | Chair |
| VI. | Old Business <ul style="list-style-type: none">A. 2017 Florida Building Code (Attachment E, pg. 13)<ul style="list-style-type: none">i. Proposed Modifications<ul style="list-style-type: none">1. Fire Fighters' Service – s. 3010.1.32. Hoistway Ventingii. 2015 International Building Code Changes<ul style="list-style-type: none">1. Hoistway Pressurization – s. 3006.3.42. Referenced Standards – ASME A17.1-2013B. Code Requirements for Permit Expirations
(Report from Mr. Wooldridge and Mr. Newton) | Chair |
| VI. | New Business <ul style="list-style-type: none">A. 2017 Legislative Proposals (Attachment F, pg. 28)B. Temporary Operating Permits for Alterations (Attachment G, pg. 29)C. General Discussion - Open Forum | Chair |
| VII. | Next Meeting <ul style="list-style-type: none">A. Agenda items and assignments for next meetingB. Date | Chair |
| V. | Closing Remarks and Adjourn | Chair |

**Florida Department of Business and Professional Regulation
Elevator Safety Technical Advisory Council
Meeting Minutes for November 17, 2015
Reedy Creek Improvement District Office – Lake Buena Vista, FL**

This document is not intended as a transcript

Members present: John Antona (Chair), Tim Newton (Vice Chair), Tim Mowrey, Charles Waters, Jerry Wooldridge

Guests present: Michelle Comingore – Bureau Chief, Karen Shivers – Bureau AA III, Michael Chavez – Miami Dade County, Joey Gann- City of Miami Beach, Lee Rigby

I. Call To Order: 9:05 a.m.

II. Opening Remarks

Chair Antona asked for roll call (see above list of members and guests present), made opening remarks and introductions, and recognized visitors. Chair Antona thanked everyone for their service to ESTAC and thanked Reedy Creek

III. Previous Meeting Minutes

Tim Mowrey made motion to accept minutes
Charles Waters seconded motion.
Motion approved and minutes passed

IV. Bureau Focus - update

Chief Comingore thanked Reedy Creek for hosting ESTAC, also mentioned holding next ESTAC meeting in Tallahassee.

Tim Mowrey offered his office and to walk us through his shop.

Everyone agreed to Tallahassee and Chair Antona said maybe a field trip to Tim's shop.

Chief Comingore said she would like to have our inspectors visit and stated that all Bureau staff positions are filled. She then went over delinquent elevators (94% compliance rate) and noted that the bureau is processing variances as they are submitted. Discussed recent change to when citations are issued, based on length of delinquency. Also professional renewals and credentials opened up on October 15 and due by 12/31/2015. Noted an increase in CC's and CET's, but a decline in inspectors and elevator companies. Accidents reported for 14/15 was 497 accidents reported - an increase over last few years.

Chief Comingore went over 3 rule changes- variances, sump pumps with alarm systems, and the definition of replacement.

Tim Mowrey asked how many accident reports were residential.

Chief Comingore stated that since the Bureau does not license residential, we do not have that information.

Chair Antona said the only way to know this would be to license residential elevators. Discussed how deaths were noted, probably police.

V. Old Business

- A. ASME A17.1-2013, Section 8.6
ESTAC motion passed to adopt as a rule in May 2015**

Chief Comingore stated she looked through 8.6 section and there are a lot of references back to other sections of the codes and that made her concerned that if we adopt just Section 8.6 that it's going to reference other things that have to be done or comply with that would be different in 2013 in some way from 2009.

Vice Chair Newton said that is always a question, but since we are just taking Section 8 and not parts of Section 8, he does not see any conflict.

Chair Antona, said we are only referring to the MCP.

Vice Chair Newton said they do not know if there is any real conflict there and if there are any that come up obviously we could work through them, maybe adopt by rule.

Chief Comingore says we cannot enforce the 2013 code.

Vice Chair Newton said we could use it as a reference.

Chief Comingore said yes, but we could not require someone to comply with it.

Chair Anton, said she had a good point because sometime when you take a piece of new code when we are not enforcing that code, that may refer to another item in the 2013 code, it may cause some issues. He stated from the beginning the whole point was to clarify the MCP because in the 2009 code the MCP was not clear and in the 2013 it was clarified. Chair Antona asked if they agreed with him that we should incorporate it?

Jerry Wooldridge stated if you have a reference the reference is included.

Chief Comingore said to adopt it we need to set an effective date in the future and the process can take about 90 days.

It was discussed that we do this and then the 2013 code be approved before this can go into effect.

Chief Comingore stated that as long as the FBC has 2009 we have to stay with 2009.

Chair Antona asked when the next FBC meets to adopt new code?

Chief Comingore said she is not sure when meeting is but comments are due in January 2016.

All agreed to proceed with adoption of s. 8.6, ASME A17.1-2013 by rule.

B. 2016 Legislative Proposals (handout)

Chief Comingore mentioned that at last meeting the council voted to present two items for legislative changes for the upcoming session. The recommendation to change the code that applies to elevator permits so that all components of the building would be under the same code was accepted, but it is not moving forward at this time. If Chapter 399 is opened up, the department will look at trying to get this language added into that bill as an amendment.

Vice Chair Newton, said we need to change this to the building permit (tie it to building permit), because it can take months to build building.

Chief Comingore said to implement this we would add a field to the application for permit to capture the building code.

Vice Chair Newton recommends changing (4)(a) also to allow applying for the permit at same time as building permit, align serial number to date.

Jerry Wooldridge stated FBC requires work on permit to remain active.

Jerry Wooldridge and Vice Chair Newton will research what the FBC vs. Elevator code state on permit expirations/length valid

Chief Comingore reported that the proposal to change the stretcher size for elevators did not pass so size remains 24" X 76".

C. Alterations and Permits, Replacement Rule 61C-5.008, F.A.C.

Chair Antona read existing definition of replacement to everyone and read draft proposed rule language.

Chief Comingore said it was trying to capture the language of the building code.

Vice Chair Newton discussed modification permit costs more then the part you use and pulling permits for replacement parts or updated parts that do the same thing the previous part did, but because it does it differently it is a modification per-se, but for it you need a modification permit which can cost more than the part and interpreting modifications the difference in the part from a modification or just changing out part for part.

Chief Comingore said it is a case-by-case basis, but what is put in rule is what the contracted jurisdictions are supposed to follow. How everyone interprets them, we cannot control that, and she noted that everyone in the meeting might interpret it differently and she cannot create a rule that covers every specific instance or item. The draft language is trying to align building code requirement with the rule.

Vice Chair Newton said we need to have a Florida Code and Florida interpretation and then we have one place to go and get the interpretation like something that states what we do not need permits for.

Tim Mowrey said that would be tough because there are so many thousands of parts.

Vice Chair Newton said no only the common ones, phones, door edges etc. He stated that on some the parts are the same, but a little better like buying better tires for your car they do the same thing mostly, but are better or updated.

Chief Comingore said if it operates in the same manner and does not require making another change, and all you have to do is pull that out and put it back in, she sees that as not changing anything.

Tim Mowrey said state is trying to define a like for like replacement.

Vice Chair Newton said if we took out the functionally part.

Lee Rigby said Tim is correct about functionally part.

Chair Antona said he does not disagree with the way it is written now as if you add functionally you should pull a permit.

Vice Chair Newton said we already have this in code, but we added functionality thing and that is the issue, which changes what is in our code book. He presented a situation that he considered a replacement, but was issued a citation for needing a permit for an alteration.

Chief Comingore said if citation is issued ask for a hearing to discuss.

D. Fall Protection

Chief Comingore discussed whether or not escalators had to have the additional guard rails with State Fire Marshal to find out where they stood on issue. The State Fire Marshal said they do believe it is required of escalators, but it is more of a fire code authority issue. Building authorities can require them if they want, but it will not be an elevator violation.

Jerry Wooldridge says that is interesting from Fire Marshal as it is in his code but they are not enforcing it.

Vice Chair Newton and Jerry Wooldridge discussed escalators used as means of egress.

Jerry Wooldridge says this is in NFPA adopted in January 2015.

VI. New Business

E. Florida Building Code, Chapter 30-2014, FBC updates

Chief Comingore advised council of changes related to occupant evacuation elevators.

F. Fire Service Access Elevators.

Chief Comingore reported that HB 915 (2015) has been reintroduced in 2016 as HB 535 and SB 704.

BREAK – 10:33 am to 10:57 am

G. Sump Pump rule

Chief Comingore requested council input on draft on sump pump alarm rule.

Tim Mowrey stated these are installed by others.

Vice Chair Newton said alarm panel should be located somewhere related to elevator. Why take it out of elevator area, if in pit or machine room they will call elevator guy. Not an elevator device, but it tells you something is wrong with elevator. Not designed for public space; should be in a restricted space-the panel is designed to detect elevator issues. Discussed key and who should have access to the key.

Chair Antona asked if we should change the wording. Chair Antona discussed wording to be used- A sump pump with an alarm system approved by the plumbing authority having jurisdiction may be installed in the elevator pit.

Vice Chair Newton said the wording can read “A sump pump alarm where required, can be installed in the pit, hoistway or machine room. He suggested the alarm system controls can be installed in the pit, hoistway, machine space or machine room.

Chair Antona said he thinks it should say something like subject to the approval by the elevator contractor.

Vice Chair Newton disagreed, stating then every contract will have his own opinion, wants to be specific where it can be located and leave it at that it is not restricted to those locations it just says it is allowed in those locations.

Tim Mowrey agreed, but says to use shall be installed, because then it cannot be put say in a 3rd floor apartment.

Chief Comingore advised that “shall be” could be an issue, as it is not elevator equipment, but is under the plumbing code.

Council agreed the new wording is “Where required, can be installed in the pit, hoistway, machine space or machine room”.

H. Oil lines re: Broward County

Tim Mowrey stated he had sent an inquiry to Chief Comingore and Doug Melvin noting that on every job William Redmond of Broward County inspects on their equipment he says he does not like the oil line fittings; he does not think they meet code. Tim Mowrey said they submitted all the criteria on oil line fitting to the State of Florida probably 15 years ago, also to Broward County and Dade County. There is nothing wrong with the fittings; the problem is William Redmond who discusses this in front of the contractor in a very negative manner. Tim Mowrey wants to know who to get with to complain about William Redmond to the authority? Tim Mowrey said he asked Doug Melvin and Doug told him to call the building commission in Broward County; however, he has sent 3 emails to William Redmond and his son has called the Broward County Commission 3 times and they have not received any response from either of their requests. Tim Mowrey asked doesn't the State have a contract with them.

Chief Comingore advised she will go over the contract and get back with Tim and contact William Redmond on this issue.

Vice Chair Newton agreed with Tim Mowrey that you cannot get anyone to call you back.

Chief Comingore stated she will talk to William Redmond.

I. Proposed FBC Mods

i. Hoistway venting for observation elevators

Chair Antona asked where wording came from?

Mike Chavez stated he had drafted the language and he took it from car ventilation language in A17.1. He thinks it should be performance-based, rather than prescriptive and he thinks it should read “Ventilation shall be provided to ensure that

the temperature in the hoistway will not exceed more than two degrees than ambient and it is their choice how they do it. Whether it is forced ventilation or air conditioning, etc or depending on how they want to do it. Mr. Chavez also mentioned MRL elevators that are 2 stop and have no hoistway ventilation and machinery is located in the shaft and they get around this by enforcing the requirement in the elevator code that states that proper machine room ventilation shall be provided but if mentioned in the FBC then architects would know that proper ventilation in that type of equipment should be provided as well.

Chair Antona asked Jerry Wooldridge if the FBC has anything on this issue? Jerry Wooldridge said just the smoke and hot gas.

Chair Antona said the architect just puts glass in and does not know that we have special requirements for observation elevators. He thinks we need to put this in 3 or 4.

Jerry Wooldridge agreed with him that it makes sense.

Vice Chair Newton stated that temperatures can exceed 104 degrees.

Tim Mowrey thinks it depends on type of building.

Vice Chair Newton says they have no operational impact that he knows of, but they understand the human element and when the temperature gets up above 104, 105 or 106 degrees it is not a healthy work environment also mentioned OSHA on work space environment and this is more of a human element more than an equipment element.

Chair Antona said Jerry Wooldridge suggested this be put in FBC, but the wording needs changed.

Mr. Chavez to rewrite and will send updated draft to Michelle Comingore next week.

ii. Escalator Guards

Discussed the measurements and where you need guards.

Mike Chavez to rewrite and add escalators and moving walks and resubmit to Michelle Comingore.

iii. ASME A17.1-2013 Adoption

Chair Antona read the proposal from Member Snyder.

The council discussed Member Snyder's written request to consider the Bureau initiate the process of having the building commission to adopt the most current A17.1 code.

Chair Antona said he does not disagree. The current effective code, A17.1- 2013, has all of the elevator code requirements for the installation of occupant evacuation elevators (OEO), in addition to the much detailed MCP requirements, which now integrates all of the onsite documentation. We should be planning to adopt 2016 code when it is published (however it was noted by several members that we cannot see 2016).

Chair Antona asked all members at table if they agreed and they all agreed

Chair Antona asked Chief Comingore what we need to do?

Chief Comingore says we have to put in a proposal for a change to the FBC.

Council agreed to propose adding ASME A17.1-2013 to the Florida Building Code.

J. General Discussion

i. Open Forum

Tim Mowrey requested to discuss Schindler controller TXR5 SIM card being removed from units when a new company took over service; he has had several inquiries. Tim Mowrey said that Tim Newton said this morning you do not have to have the SIM card. Schindler pulled SIM cards out and if power goes out you can lose data control.

Tim Newton stated he cannot comment as there is a lawsuit in progress.

Tim Mowrey says he has reports that it is not locked in for good. He thinks that the SIM card is part of the equipment when they sell the equipment.

Chair Antona said so in other words if you take a contract over from Schindler they take the SIM cards out?

Tim Mowrey said yes.

Vice Chair Tim Newton stated there is a lawsuit, so he cannot respond to questions. He said he does not know the facts, so he cannot speak on it.

Charles Waters stated years ago there were issues with prints and wasn't it agreed that they belonged to the owners and it was agreed on years ago they owners should receive the prints.

Chair John Antona does not think the elevator company should take anything away.

Chief Comingore said that this may be a contract issue and we cannot get involved in that.

Chair Antona said it should have been known ahead of time.

ii. Industry Update

Charles Waters stated he is resigning from the council and gave Chief Comingore a resume for a suggested replacement.

Chief Comingore advised Member Waters that a written resignation may be required and would let him know, if so.

Chair Antona discussed attendance policy and suggested that if someone is absent more than 2 or 3 times maybe they should be replaced.

Chief Comingore will check and see what options are to replace someone.

Chief Comingore asked everyone to verify email addresses.

iii. Agenda items and assignments for next meeting

Chair Antona recapped the assignments:

- Jerry Wooldridge and Vice Chair Newton to work together on FBC and other code requirements for permit expirations.
- Mike Chavez to rewrite hoistway venting in observation elevators and escalator guards and send draft to Chief Comingore
- Chief Comingore to contact William Redmond and discuss issues Tim Mowrey mentioned.
- Chief Comingore to check and see what options are to replace ESTAC member.
- Tim Mowrey to send Vice Chair Newton and Chief Comingore info on SIM cards.

VI. Next Meeting Date

Chief Comingore to send out email with May date for meeting to be held in Tallahassee, FL

VII. Closing Remarks and Adjourn

Meeting adjourned at 12:05 pm.

END OF MINUTES

CHAPTER 2016-211

Committee Substitute for Committee Substitute for
Committee Substitute for Senate Bill No. 1602

An act relating to elevators; creating s. 399.031, F.S.; providing a short title; providing clearance requirements for elevators installed in private residences; requiring certain doors and gates to withstand a specified amount of force; requiring certain doors to reject a sphere of a specified size under certain circumstances; requiring all such elevators to be equipped with a certain device; providing requirements for the device; providing applicability; directing the Florida Building Commission to adopt the provisions of the act into the Florida Building Code by a certain date; providing an effective date.

Be It Enacted by the Legislature of the State of Florida:

Section 1. Section 399.031, Florida Statutes, is created to read:

399.031 Clearance requirements between elevator doors for elevators inside a private residence.—

(1) This section may be cited as the “Maxwell Erik ‘Max’ Grablin Act.”

(2) For elevators installed in a private residence:

(a) The distance between the hoistway face of the hoistway doors and the hoistway edge of the landing sill may not exceed $\frac{3}{4}$ inch for swinging doors and $2\frac{1}{4}$ inches for sliding doors.

(b)1. Horizontal sliding car doors and gates shall be designed and installed to withstand a force of 75 pounds applied horizontally on an area 4 inches by 4 inches at right angles to and at any location on the car door without permanent deformation. The deflection may not exceed $\frac{3}{4}$ inch and may not displace the door from its guides or tracks. The force must be applied while the door is in the fully closed position.

2. Folding car doors shall be designed and installed to withstand a force of 75 pounds applied horizontally using a 4-inch-diameter sphere at any location within the folds on the car door without permanent deformation. The deflection may not exceed $\frac{3}{4}$ inch and may not displace the door from its guides or tracks. The force must be applied while the door is in the fully closed position.

(c) The distance between the hoistway face of the landing door and the hoistway face of the car door or gate shall conform to one of the following:

1. If a power-operated horizontally sliding hoistway and car doors are used, the measurement between the leading edge of the doors or sight guard, if provided, may not exceed 4 inches. If it is possible for a user to detach or

disconnect either door from the operator and such detachment or disconnection allows the user to operate the door manually, the requirement in subparagraph 5. applies.

2. If swinging hoistway doors and folding car doors are used and both doors are in the fully closed position, the space between the hoistway door and the folding door must reject a 4-inch-diameter sphere at all points.

3. If swinging hoistway doors and car gates are used, the space between the hoistway door and the car gate must reject a 4-inch-diameter sphere at all points.

4. If the car doors are powered and arranged so that they cannot be closed until after the hoistway door is closed, and the car doors automatically open when the car is at a landing and the hoistway door is opened, the measurement between the hoistway face of the hoistway door and the hoistway face of the car door at its leading edge may not exceed 4 inches. If it is possible for a user to detach or disconnect either door from the operator and such detachment or disconnection allows the user to operate the door manually, the requirement in subparagraph 5. applies.

5. If swinging or horizontally sliding hoistway doors and manual horizontally sliding car doors are used and both doors are in the fully closed position, the space between the swinging or horizontally sliding hoistway door and the manual horizontally sliding car doors must reject a 4-inch-diameter sphere at all points.

(3) The underside of the platform of an elevator car shall be equipped with a device that, if the platform of the elevator car is obstructed anywhere on its underside in its downward travel, interrupts the electric power to the driving machine motor and brake, if provided, and stops the elevator car's downward motion within 2 inches. The stroke of the device may not be less than the stopping distance of the platform of the elevator car. The force required to operate the device may not exceed 15 pounds. Downward motion shall be permitted to resume only after the elevator has been manually reset.

(4) This section applies to all new elevators in a private residence.

Section 2. By October 1, 2016, the Florida Building Commission shall adopt s. 399.031, Florida Statutes, into the Florida Building Code pursuant to s. 553.73(8), Florida Statutes.

Section 3. This act shall take effect July 1, 2016.

Approved by the Governor April 8, 2016.

Filed in Office Secretary of State April 8, 2016.

553.73 Florida Building Code.—

(11)(a) In the event of a conflict between the Florida Building Code and the Florida Fire Prevention Code and the Life Safety Code as applied to a specific project, the conflict shall be resolved by agreement between the local building code enforcement official and the local fire code enforcement official in favor of the requirement of the code which offers the greatest degree of lifesafety or alternatives which would provide an equivalent degree of lifesafety and an equivalent method of construction. Local boards created to address issues arising under the Florida Building Code or the Florida Fire Prevention Code may combine the appeals boards to create a single, local board having jurisdiction over matters arising under either code or both codes. The combined local appeals board may grant alternatives or modifications through procedures outlined in NFPA 1, Section 1.4, but may not waive the requirements of the Florida Fire Prevention Code. To meet the quorum requirement for convening the combined local appeals board, at least one member of the board who is a fire protection contractor, a fire protection design professional, a fire department operations professional, or a fire code enforcement professional must be present.

(b) Any decision made by the local fire official regarding application, interpretation, or enforcement of the Florida Fire Prevention Code or by and the local building official regarding application, interpretation, or enforcement of the Florida Building Code, or the appropriate application of either code or both codes in the case of a conflict between the codes, may be appealed to a local administrative board designated by the municipality, county, or special district having firesafety responsibilities. If the decision of the local fire official and the local building official is to apply the provisions of either the Florida Building Code or the Florida Fire Prevention Code and the Life Safety Code, the board may not alter the decision unless the board determines that the application of such code is not reasonable. If the decision of the local fire official and the local building official is to adopt an alternative to the codes, the local administrative board shall give due regard to the decision rendered by the local officials and may modify that decision if the administrative board adopts a better alternative, taking into consideration all relevant circumstances. In any case in which the local administrative board adopts alternatives to the decision rendered by the local fire official and the local building official, such alternatives shall provide an equivalent degree of lifesafety and an equivalent method of construction as the decision rendered by the local officials.

(c) If the local building official and the local fire official are unable to agree on a resolution of the conflict between the Florida Building Code and the Florida Fire Prevention Code and the Life Safety Code, the local administrative board shall resolve the conflict in favor of the code which offers the greatest degree of lifesafety or alternatives which would provide an equivalent degree of lifesafety and an equivalent method of construction.

(d) All decisions of the local administrative board, or, if none exists, ~~the decisions of the local building official and the local fire official~~ in regard to

the application, enforcement, or interpretation of the Florida Fire Prevention Code, or conflicts between the Florida Fire Prevention Code and the Florida Building Code, are subject to review by a joint committee composed of members of the Florida Building Commission and the Fire Code Advisory Council. If the joint committee is unable to resolve conflicts between the codes as applied to a specific project, the matter shall be resolved pursuant to the provisions of paragraph (1)(d). Decisions of the local administrative board related solely to the Florida Building Code are subject to review as set forth in s. 553.775.

(e) The local administrative board shall, to the greatest extent possible, be composed of members with expertise in building construction and firesafety standards.

(f) All decisions of the local building official and local fire official and all decisions of the administrative board shall be in writing and shall be binding upon a person but do not limit the authority of the State Fire Marshal or the Florida Building Commission pursuant to paragraph (1)(d) and ss. 633.104 and 633.228. Decisions of general application shall be indexed by building and fire code sections and shall be available for inspection during normal business hours.

(15) An agency or local government may not require that existing mechanical equipment located on or above the surface of a roof be installed in compliance with the requirements of the Florida Building Code except during reroofing when the equipment is being replaced or moved ~~during reroofing~~ and is not in compliance with the provisions of the Florida Building Code relating to roof-mounted mechanical units.

(19) The Florida Building Code shall require two fire service access elevators in all buildings with a height greater than 120 feet measured from the elevation of street-level access to the level of the highest occupiable floor. All remaining elevators, if any, shall be provided with Phase I and II emergency operations. Where a fire service access elevator is required, a 1-hour fire-rated fire service access elevator lobby with direct access from the fire service access elevator is not required if the fire service access elevator opens into an exit access corridor that is no less than 6 feet wide for its entire length and is at least 150 square feet with the exception of door openings, and has a minimum 1-hour fire rating with three-quarter hour fire and smoke rated openings; and during a fire event the fire service access elevator is pressurized and floor-to-floor smoke control is provided. However, where transient residential occupancies occur at floor levels more than 420 feet above the level of fire service access, a 1-hour fire-rated service access elevator lobby with direct access from the fire service access elevator is required. Standpipes in high-rise buildings of Florida Building Code—Building Occupancy Group R1 or R2 must be located in stairwells and are subject only to the requirements of the Florida Fire Prevention Code and NFPA 14, Standard for the Installation of Standpipes and Hose Systems, adopted by the State Fire Marshal.

THE PRELIMINARY TEXT OF THE PROPOSED RULE DEVELOPMENT IS:

61C-5.010 Sump Pumps.

A sump pump with an alarm system approved by the plumbing authority having jurisdiction may be installed in the elevator pit. The alarm system operation must not allow water to accumulate in the pit. When installed, the alarm system controls may be installed in the pit, hoistway, machine space or machine room and the alarm annunciator must be in a continuously monitored location resulting in the notification of authorized personnel.

Rulemaking Authority 399.02, 399.10 FS. Law Implemented 399.02, FS. History–New _____.

2. Sidewalk elevator hoistways are not required to be vented.

3. Elevators contained within and serving open parking garages only.

4. Elevators within individual residential dwelling units.

3002.11.2 Location of vents. Vents shall be located at the top the hoistway and shall open either directly to the outer air or through noncombustible ducts to the outer air. Noncombustible ducts shall be permitted to pass through the elevator machine room, provided that portions of the ducts located outside the hoistway or machine room are enclosed by construction having not less than the fire-resistance rating required for the hoistway. Holes in the machine room floors for the passage of ropes, cables or other moving elevator equipment shall be limited as not to provide greater than 2 inches (51 mm) of clearance on all sides.

3002.11.3 Area of vents. Except as provided for in Section 3002.11.3.1, the area of the vents shall not be less than 31/2 percent of the area of the hoistway nor less than 3 square feet (0.28 m²) for each elevator car, and not less than 31/2 percent nor less than 0.5 square feet (0.047 m²) for each dumbwaiter car in the hoistway, whichever is greater. Of the total required vent area, not less than one-third shall be permanently open. Closed portions of the required vent area shall consist of openings glazed with annealed glass not greater than 1/8 inch (3.2 mm) in thickness.

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

3002.11.3.1 Reduced vent area. Where mechanical ventilation conforming to the Florida Building Code, Mechanical is provided, a reduction in the required vent area is allowed provided that all of the following conditions are met:

1. The occupancy is not in Group R-1, R-2, I-1 or I-2 or of a similar occupancy with overnight sleeping units.

2. The vents required by [Section 3002.11.2](#) do not have outside exposure.

3. The hoistway does not extend to the top of the building.

4. The hoistway and machine room exhaust fan is automatically reactivated by thermostatic means.

5. Equivalent venting of the hoistway is accomplished.

TAC
Recommendation **Withdrawn**

Code Change No: G166-12

Original Proposal

Section(s): 3004

Proponent: Jonathan Siu, City of Seattle Department of Planning & Development, Richard Bukowski, The RJA Group, Inc., Dave Frable, U.S. General Services Administration

Revise as follows:

SECTION 3004 HOISTWAY VENTING

~~3004.1 Vents required. Hoistways of elevators and dumbwaiters penetrating more than three stories shall be provided with a means for venting smoke and hot gases to the outer air in case of fire.~~

~~Exception: Venting is not required for the following elevators and hoistways:~~

- ~~1. In occupancies of other than Groups R-1, R-2, I-1, I-2 and similar occupancies with overnight sleeping units, where the building is equipped throughout with an approved automatic sprinkler system installed in accordance with Section 903.3.1.1 or 903.3.1.2.~~
- ~~2. Sidewalk elevator hoistways.~~
- ~~3. Elevators contained within and serving open parking garages only.~~
- ~~4. Elevators within individual residential dwelling units.~~

~~3004.2 Location of vents. Vents shall be located at the top of the hoistway and shall open either directly to the outer air or through noncombustible ducts to the outer air. Noncombustible ducts shall be permitted to pass through the elevator machine room, provided that portions of the ducts located outside the hoistway or machine room are enclosed by construction having not less than the fire-resistance rating required for the hoistway. Holes in the machine room floors for the passage of ropes, cables or other moving elevator equipment shall be limited as not to provide greater than 2 inches (51 mm) of clearance on all sides.~~

~~3004.3 Area of vents. Except as provided for in Section 3004.3.1, the area of the vents shall be not less than 3 1/2 percent of the area of the hoistway nor less than 3 square feet (0.28 m²) for each elevator car, and not less than 3 1/2 percent nor less than 0.5 square feet (0.047 m²) for each dumbwaiter car in the hoistway, whichever is greater. Of the total required vent area, not less than one-third shall be permanently open. Closed portions of the required vent area shall consist of openings glazed with annealed glass not greater than 1/8 inch (3.2 mm) in thickness.~~

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

~~3004.3.1 Reduced vent area. Where mechanical ventilation conforming to the International Mechanical Code is provided, a reduction in the required vent area is allowed provided that all of the following conditions are met:~~

- ~~1. The occupancy is not in Group R-1, R-2, I-1 or I-2 or of a similar occupancy with overnight sleeping units.~~
- ~~2. The vents required by Section 3004.2 do not have outside exposure.~~

- 3. ~~The hoistway does not extend to the top of the building.~~
- 4. ~~The hoistway and machine room exhaust fan is automatically reactivated by thermostatic means.~~
- 5. ~~Equivalent venting of the hoistway is accomplished.~~

3004.4 3002.9 Plumbing and mechanical systems. Plumbing and mechanical systems shall not be located in an elevator hoistway enclosure.

Exception: Floor drains, sumps and sump pumps shall be permitted at the base of the hoistway enclosure provided they are indirectly connected to the plumbing system.

Reason: The purpose of this code change proposal is to delete the requirement for providing vents in elevator hoistways, since the provisions are potentially harmful, conflict with other provisions in the code, and are now considered unnecessary in the elevator safety standard adopted by reference in the IBC.

The purpose of hoistway venting is unclear in terms of the original intent. Provisions date back to the 1950s but appear to be focused more upon firefighting and post-fire overhaul. Since that time, the provisions have shifted for the vents to be readily available (always open) or to operate automatically via a smoke detector in the lobby or the hoistway. The concern is that such venting may have the effect of drawing smoke through the building where it is not appropriate. This is a specific concern after consideration of overall smoke movement by the CTC Elevator Lobby Study Group related to stack effect and preventing smoke movement throughout the building. This provision also conflicts with the allowance for hoistway pressurization in accordance with Section 909.21 which does not currently exempt hoistway venting when using pressurization. Furthermore, the requirement for hoistway venting has been removed from the 2010 edition of the ANSI/ASME A17.1 Safety Code for Elevators and Escalators, no conflict will result from this change.

However, the requirements in Section 3004.4 are still valid. With the deletion of Section 3004, these provisions need to be relocated. Section 3002 is titled "Hoistway Enclosures," and these provisions restricting what can be located in an elevator hoistway enclosure fit neatly within that subject matter. It can be argued that they never belonged in Section 3004 to begin with, since they do not relate to hoistway vents.

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

Public Hearing Results

Committee Action:

Approved as Submitted

Committee Reason: Hoistway venting was no longer necessary and creates conflicts within the code. In addition hoistway venting openings are a huge source of conditioned air loss.

Assembly Action:

Final Hearing Results

None

G166-12

AS

ii. 2015 International Building Code Changes

1. Hoistway Pressurization.

s. 3006.3.4 The elevator hoistway shall be pressurized in accordance with Section 909.21.

[F] 908.6 Refrigerant detector. Machinery rooms shall contain a refrigerant detector with an audible and visual alarm. The detector, or a sampling tube that draws air to the detector, shall be located in an area where refrigerant from a leak will concentrate. The alarm shall be actuated at a value not greater than the corresponding TLV-TWA values for the refrigerant classification shown in the *International Mechanical Code* for the refrigerant classification. Detectors and alarms shall be placed in *approved* locations. The detector shall transmit a signal to an *approved* location.

* [F] 908.7 Carbon dioxide (CO₂) systems. Emergency alarm systems in accordance with Section 5307.5.2 of the *International Fire Code* shall be provided where required for compliance with Section 5307.5 of the *International Fire Code*.

SECTION 909 SMOKE CONTROL SYSTEMS

[F] 909.1 Scope and purpose. This section applies to mechanical or passive smoke control systems where they are required by other provisions of this code. The purpose of this section is to establish minimum requirements for the design, installation and acceptance testing of smoke control systems that are intended to provide a tenable environment for the evacuation or relocation of occupants. These provisions are not intended for the preservation of contents, the timely restoration of operations or for assistance in fire suppression or overhaul activities. Smoke control systems regulated by this section serve a different purpose than the smoke- and heat-venting provisions found in Section 910. Mechanical smoke control systems shall not be considered exhaust systems under Chapter 5 of the *International Mechanical Code*.

[F] 909.2 General design requirements. Buildings, structures or parts thereof required by this code to have a smoke control system or systems shall have such systems designed in accordance with the applicable requirements of Section 909 and the generally accepted and well-established principles of engineering relevant to the design. The *construction documents* shall include sufficient information and detail to adequately describe the elements of the design necessary for the proper implementation of the smoke control systems. These documents shall be accompanied by sufficient information and analysis to demonstrate compliance with these provisions.

[F] 909.3 Special inspection and test requirements. In addition to the ordinary inspection and test requirements that buildings, structures and parts thereof are required to undergo, smoke control systems subject to the provisions of Section 909 shall undergo *special inspections* and tests sufficient to verify the proper commissioning of the smoke control design in its final installed condition. The design submission accompanying the *construction documents* shall clearly detail procedures and methods to be used and the items subject to such inspections and tests. Such commissioning shall be in accordance with generally accepted engineering practice and, where possible, based on published standards for the particular testing involved. The special inspections and tests required by this section shall be conducted under the same terms in Section 1704.

[F] 909.4 Analysis. A rational analysis supporting the types of smoke control systems to be employed; their methods of operation, the systems supporting them and the methods of construction to be utilized shall accompany the submitted *construction documents* and shall include, but not be limited to, the items indicated in Sections 909.4.1 through 909.4.7.

[F] 909.4.1 Stack effect. The system shall be designed such that the maximum probable normal or reverse stack effect will not adversely interfere with the system's capabilities. In determining the maximum probable stack effect, altitude, elevation, weather history and interior temperatures shall be used.

[F] 909.4.2 Temperature effect of fire. Buoyancy and expansion caused by the design fire in accordance with Section 909.9 shall be analyzed. The system shall be designed such that these effects do not adversely interfere with the system's capabilities.

[F] 909.4.3 Wind effect. The design shall consider the adverse effects of wind. Such consideration shall be consistent with the wind-loading provisions of Chapter 16.

[F] 909.4.4 HVAC systems. The design shall consider the effects of the heating, ventilating and air-conditioning (HVAC) systems on both smoke and fire transport. The analysis shall include all permutations of systems status. The design shall consider the effects of the fire on the HVAC systems.

[F] 909.4.5 Climate. The design shall consider the effects of low temperatures on systems, property and occupants. Air inlets and exhausts shall be located so as to prevent snow or ice blockage.

[F] 909.4.6 Duration of operation. All portions of active or engineered smoke control systems shall be capable of continued operation after detection of the fire event for a period of not less than either 20 minutes or 1.5 times the calculated egress time, whichever is greater.

909.4.7 Smoke control system interaction. The design shall consider the interaction effects of the operation of multiple smoke control systems for all design scenarios.

[F] 909.5 Smoke barrier construction. *Smoke barriers* required for passive smoke control and a smoke control system using the pressurization method shall comply with Section 709, and shall be constructed and sealed to limit leakage areas exclusive of protected openings. The maximum allowable leakage area shall be the aggregate area calculated using the following leakage area ratios:

1. Walls $A/A_w = 0.00100$
2. Interior *exit stairways* and *ramps* and *exit passageways*:
 $A/A_w = 0.00035$
3. Enclosed *exit access stairways* and *ramps* and all other shafts: $A/A_w = 0.00150$
4. Floors and roofs: $A/A_F = 0.00050$

where:

A = Total leakage area, square feet (m²).

A_F = Unit floor or roof area of barrier, square feet (m²).

A_w = Unit wall area of barrier, square feet (m²).

The leakage area ratios shown do not include openings due to gaps around doors and operable windows. The total leakage area of the *smoke barrier* shall be determined in accordance with Section 909.5.1 and tested in accordance with Section 909.5.2.

[F] **909.5.1 Total leakage area.** Total leakage area of the barrier is the product of the *smoke barrier* gross area multiplied by the allowable leakage area ratio, plus the area of other openings such as gaps around doors and operable windows.

[F] **909.5.2 Testing of leakage area.** Compliance with the maximum total leakage area shall be determined by achieving the minimum air pressure difference across the barrier with the system in the smoke control mode for mechanical smoke control systems utilizing the pressurization method. Compliance with the maximum total leakage area of passive smoke control systems shall be verified through methods such as door fan testing or other methods, as *approved* by the fire code official.

[F] **909.5.3 Opening protection.** Openings in *smoke barriers* shall be protected by automatic-closing devices actuated by the required controls for the mechanical smoke control system. Door openings shall be protected by *fire door assemblies* complying with Section 716.5.3.

Exceptions:

1. Passive smoke control systems with automatic-closing devices actuated by spot-type smoke detectors *listed* for releasing service installed in accordance with Section 907.3.
2. Fixed openings between smoke zones that are protected utilizing the airflow method.
3. In Group I-1 Condition 2, Group I-2 and ambulatory care facilities, where a pair of opposite-swinging doors are installed across a corridor in accordance with Section 909.5.3.1, the doors shall not be required to be protected in accordance with Section 716. The doors shall be close-fitting within operational tolerances and shall not have a center mullion or undercuts in excess of $\frac{3}{4}$ inch (19.1 mm), louvers or grilles. The doors shall have head and jamb stops and astragals or rabbets at meeting edges and, where permitted by the door manufacturer's listing, positive-latching devices are not required.
4. In Group I-2 and ambulatory care facilities, where such doors are special-purpose horizontal sliding, accordion or folding door assemblies installed in accordance with Section 1010.1.4.3 and are automatic closing by smoke detection in accordance with Section 716.5.9.3.
5. Group I-3.
6. Openings between smoke zones with clear ceiling heights of 14 feet (4267 mm) or greater and bank-down capacity of greater than 20 minutes as determined by the design fire size.

909.5.3.1 Group I-1 Condition 2; Group I-2 and ambulatory care facilities. In Group I-1 Condition 2, Group I-2 and *ambulatory care facilities*, where doors are installed across a *corridor*, the doors shall be automatic closing by smoke detection in accordance with Section 716.5.9.3 and shall have a vision panel with fire protection-rated glazing materials in fire protection-rated frames, the area of which shall not exceed that tested.

[F] **909.5.3.2 Ducts and air transfer openings.** Ducts and air transfer openings are required to be protected with a minimum Class II, 250°F (121°C) *smoke damper* complying with Section 717.

[F] **909.6 Pressurization method.** The primary mechanical means of controlling smoke shall be by pressure differences across smoke barriers. Maintenance of a tenable environment is not required in the smoke control zone of fire origin.

[F] **909.6.1 Minimum pressure difference.** The minimum pressure difference across a *smoke barrier* shall be 0.05-inch water gage (0.0124 kPa) in fully sprinklered buildings.

In buildings permitted to be other than fully sprinklered, the smoke control system shall be designed to achieve pressure differences not less than two times the maximum calculated pressure difference produced by the design fire.

[F] **909.6.2 Maximum pressure difference.** The maximum air pressure difference across a *smoke barrier* shall be determined by required door-opening or closing forces. The actual force required to open *exit* doors when the system is in the smoke control mode shall be in accordance with Section 1010.1.3. Opening and closing forces for other doors shall be determined by standard engineering methods for the resolution of forces and reactions. The calculated force to set a side-hinged, swinging door in motion shall be determined by:

$$F = F_{dc} + K(WA\Delta P)/2(W-d) \quad \text{(Equation 9-1)}$$

where:

A = Door area, square feet (m²).

d = Distance from door handle to latch edge of door, feet (m).

F = Total door opening force, pounds (N).

F_{dc} = Force required to overcome closing device, pounds (N).

K = Coefficient 5.2 (1.0).

W = Door width, feet (m).

ΔP = Design pressure difference, inches of water (Pa).

[F] **909.6.3 Pressurized stairways and elevator hoistways.** Where stairways or elevator hoistways are pressurized, such pressurization systems shall comply with Section 909 as smoke control systems, in addition to the requirements of Sections 909.20 of this code and 909.21 of the *International Fire Code*.

[F] **909.7 Airflow design method.** Where *approved* by the fire code official, smoke migration through openings fixed in

a permanently open position, which are located between smoke control zones by the use of the airflow method, shall be permitted. The design airflow shall be in accordance with this section. Airflow shall be directed to limit smoke migration from the fire zone. The geometry of openings shall be considered to prevent flow reversal from turbulent effects. Smoke control systems using the airflow method shall be designed in accordance with NFPA 92.

[F] 909.7.1 Prohibited conditions. This method shall not be employed where either the quantity of air or the velocity of the airflow will adversely affect other portions of the smoke control system, unduly intensify the fire, disrupt plume dynamics or interfere with exiting. In no case shall airflow toward the fire exceed 200 feet per minute (1.02 m/s). Where the calculated airflow exceeds this limit, the airflow method shall not be used.

[F] 909.8 Exhaust method. Where *approved* by the fire code official, mechanical smoke control for large enclosed volumes, such as in atriums or malls, shall be permitted to utilize the exhaust method. Smoke control systems using the exhaust method shall be designed in accordance with NFPA 92.

[F] 909.8.1 Smoke layer. The height of the lowest horizontal surface of the smoke layer interface shall be maintained not less than 6 feet (1829 mm) above a walking surface that forms a portion of a required egress system within the smoke zone.

[F] 909.9 Design fire. The design fire shall be based on a rational analysis performed by the *registered design professional* and *approved* by the fire code official. The design fire shall be based on the analysis in accordance with Section 909.4 and this section.

[F] 909.9.1 Factors considered. The engineering analysis shall include the characteristics of the fuel, fuel load, effects included by the fire and whether the fire is likely to be steady or unsteady.

[F] 909.9.2 Design fire fuel. Determination of the design fire shall include consideration of the type of fuel, fuel spacing and configuration.

[F] 909.9.3 Heat-release assumptions. The analysis shall make use of best available data from *approved* sources and shall not be based on excessively stringent limitations of combustible material.

[F] 909.9.4 Sprinkler effectiveness assumptions. A documented engineering analysis shall be provided for conditions that assume fire growth is halted at the time of sprinkler activation.

[F] 909.10 Equipment. Equipment including, but not limited to, fans, ducts, automatic *dampers* and balance *dampers*, shall be suitable for its intended use, suitable for the probable exposure temperatures that the rational analysis indicates and as *approved* by the fire code official.

[F] 909.10.1 Exhaust fans. Components of exhaust fans shall be rated and certified by the manufacturer for the probable temperature rise to which the components will be exposed. This temperature rise shall be computed by:

$$T_s = (Q_c/mc) + (T_a) \quad \text{(Equation 9-3)}$$

where:

c = Specific heat of smoke at smoke layer temperature, Btu/lb°F (kJ/kg · K).

m = Exhaust rate, pounds per second (kg/s).

Q_c = Convective heat output of fire, Btu/s (kW).

T_a = Ambient temperature, °F (K).

T_s = Smoke temperature, °F (K).

Exception: Reduced T_s as calculated based on the assurance of adequate dilution air.

[F] 909.10.2 Ducts. Duct materials and joints shall be capable of withstanding the probable temperatures and pressures to which they are exposed as determined in accordance with Section 909.10.1. Ducts shall be constructed and supported in accordance with the *International Mechanical Code*. Ducts shall be leak tested to 1.5 times the maximum design pressure in accordance with nationally accepted practices. Measured leakage shall not exceed 5 percent of design flow. Results of such testing shall be a part of the documentation procedure. Ducts shall be supported directly from fire-resistance-rated structural elements of the building by substantial, noncombustible supports.

Exception: Flexible connections, for the purpose of vibration isolation, complying with the *International Mechanical Code* and that are constructed of *approved* fire-resistance-rated materials.

[F] 909.10.3 Equipment, inlets and outlets. Equipment shall be located so as to not expose uninvolved portions of the building to an additional fire hazard. Outside air inlets shall be located so as to minimize the potential for introducing smoke or flame into the building. Exhaust outlets shall be so located as to minimize reintroduction of smoke into the building and to limit exposure of the building or adjacent buildings to an additional fire hazard.

[F] 909.10.4 Automatic dampers. Automatic *dampers*, regardless of the purpose for which they are installed within the smoke control system, shall be *listed* and conform to the requirements of *approved*, recognized standards.

[F] 909.10.5 Fans. In addition to other requirements, belt-driven fans shall have 1.5 times the number of belts required for the design duty, with the minimum number of belts being two. Fans shall be selected for stable performance based on normal temperature and, where applicable, elevated temperature. Calculations and manufacturer's fan curves shall be part of the documentation procedures. Fans shall be supported and restrained by noncombustible devices in accordance with the requirements of Chapter 16.

Motors driving fans shall not be operated beyond their nameplate horsepower (kilowatts), as determined from measurement of actual current draw, and shall have a minimum service factor of 1.15.

[F] 909.11 Standby power. Smoke control systems shall be provided with standby power in accordance with Section 2702.

909.11.1 Equipment room. The standby power source and its transfer switches shall be in a room separate from the normal power transformers and switch gears and ventilated directly to and from the exterior. The room shall be enclosed with not less than 1-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

[F] 909.11.2 Power sources and power surges. Elements of the smoke control system relying on volatile memories or the like shall be supplied with uninterruptable power sources of sufficient duration to span 15-minute primary power interruption. Elements of the smoke control system susceptible to power surges shall be suitably protected by conditioners, suppressors or other *approved* means.

[F] 909.12 Detection and control systems. Fire detection systems providing control input or output signals to mechanical smoke control systems or elements thereof shall comply with the requirements of Section 907. Such systems shall be equipped with a control unit complying with UL 864 and listed as smoke control equipment.

909.12.1 Verification. Control systems for mechanical smoke control systems shall include provisions for verification. Verification shall include positive confirmation of actuation, testing, manual override and the presence of power downstream of all disconnects. A preprogrammed weekly test sequence shall report abnormal conditions audibly, visually and by printed report. The preprogrammed weekly test shall operate all devices, equipment and components used for smoke control.

Exception: Where verification of individual components tested through the preprogrammed weekly testing sequence will interfere with, and produce unwanted effects to, normal building operation, such individual components are permitted to be bypassed from the preprogrammed weekly testing, where *approved* by the building official and in accordance with both of the following:

1. Where the operation of components is bypassed from the preprogrammed weekly test, presence of power downstream of all disconnects shall be verified weekly by a listed control unit.
2. Testing of all components bypassed from the preprogrammed weekly test shall be in accordance with Section 909.20.6 of the *International Fire Code*.

[F] 909.12.2 Wiring. In addition to meeting requirements of NFPA 70, all wiring, regardless of voltage, shall be fully enclosed within continuous raceways.

[F] 909.12.3 Activation. Smoke control systems shall be activated in accordance with this section.

[F] 909.12.3.1 Pressurization, airflow or exhaust method. Mechanical smoke control systems using the pressurization, airflow or exhaust method shall have completely automatic control.

[F] 909.12.3.2 Passive method. Passive smoke control systems actuated by *approved* spot-type detectors listed for releasing service shall be permitted.

[F] 909.12.4 Automatic control. Where completely automatic control is required or used, the automatic-control sequences shall be initiated from an appropriately zoned *automatic sprinkler system* complying with Section 903.3.1.1, manual controls that are readily accessible to the fire department and any smoke detectors required by engineering analysis.

[F] 909.13 Control air tubing. Control air tubing shall be of sufficient size to meet the required response times. Tubing shall be flushed clean and dry prior to final connections and shall be adequately supported and protected from damage. Tubing passing through concrete or masonry shall be sleeved and protected from abrasion and electrolytic action.

[F] 909.13.1 Materials. Control-air tubing shall be hard-drawn copper, Type L, ACR in accordance with ASTM B 42, ASTM B 43, ASTM B 68, ASTM B 88, ASTM B 251 and ASTM B 280. Fittings shall be wrought copper or brass, solder type in accordance with ASME B 16.18 or ASME B16.22. Changes in direction shall be made with appropriate tool bends. Brass compression-type fittings shall be used at final connection to devices; other joints shall be brazed using a BCuP-5 brazing alloy with solidus above 1,100°F (593°C) and liquids below 1,500°F (816°C). Brazing flux shall be used on copper-to-brass joints only.

Exception: Nonmetallic tubing used within control panels and at the final connection to devices provided all of the following conditions are met:

1. Tubing shall comply with the requirements of Section 602.2.1.3 of the *International Mechanical Code*.
2. Tubing and connected devices shall be completely enclosed within a galvanized or paint-grade steel enclosure having a minimum thickness of 0.0296 inch (0.7534 mm) (No. 22 gage). Entry to the enclosure shall be by copper tubing with a protective grommet of neoprene or Teflon or by suitable brass compression to male barbed adapter.
3. Tubing shall be identified by appropriately documented coding.
4. Tubing shall be neatly tied and supported within the enclosure. Tubing bridging cabinets and doors or moveable devices shall be of sufficient length to avoid tension and excessive stress. Tubing shall be protected against abrasion. Tubing serving devices on doors shall be fastened along hinges.

[F] 909.13.2 Isolation from other functions. Control tubing serving other than smoke control functions shall be isolated by automatic isolation valves or shall be an independent system.

[F] 909.13.3 **Testing.** Control air tubing shall be tested at three times the operating pressure for not less than 30 minutes without any noticeable loss in gauge pressure prior to final connection to devices.

[F] 909.14 **Marking and identification.** The detection and control systems shall be clearly marked at all junctions, accesses and terminations.

[F] 909.15 **Control diagrams.** Identical control diagrams showing all devices in the system and identifying their location and function shall be maintained current and kept on file with the fire code official, the fire department and in the fire command center in a format and manner *approved* by the fire chief.

[F] 909.16 **Fire fighter's smoke control panel.** A fire fighter's smoke control panel for fire department emergency response purposes only shall be provided and shall include manual control or override of automatic control for mechanical smoke control systems. The panel shall be located in a fire command center complying with Section 911 in high-rise buildings or buildings with smoke-protected assembly seating. In all other buildings, the fire fighter's smoke control panel shall be installed in an *approved* location adjacent to the fire alarm control panel. The fire fighter's smoke control panel shall comply with Sections 909.16.1 through 909.16.3.

[F] 909.16.1 **Smoke control systems.** Fans within the building shall be shown on the fire fighter's control panel. A clear indication of the direction of airflow and the relationship of components shall be displayed. Status indicators shall be provided for all smoke control equipment, annunciated by fan and zone, and by pilot-lamp-type indicators as follows:

1. Fans, *dampers* and other operating equipment in their normal status—WHITE.
2. Fans, *dampers* and other operating equipment in their off or closed status—RED.
3. Fans, *dampers* and other operating equipment in their on or open status—GREEN.
4. Fans, *dampers* and other operating equipment in a fault status—YELLOW/AMBER.

[F] 909.16.2 **Smoke control panel.** The fire fighter's control panel shall provide control capability over the complete smoke control system equipment within the building as follows:

1. ON-AUTO-OFF control over each individual piece of operating smoke control equipment that can also be controlled from other sources within the building. This includes *stairway* pressurization fans; smoke exhaust fans; supply, return and exhaust fans; elevator shaft fans and other operating equipment used or intended for smoke control purposes.
2. OPEN-AUTO-CLOSE control over individual *dampers* relating to smoke control and that are also controlled from other sources within the building.
3. ON-OFF or OPEN-CLOSE control over smoke control and other critical equipment associated with a

fire or smoke emergency and that can only be controlled from the fire fighter's control panel.

Exceptions:

1. Complex systems, where *approved*, where the controls and indicators are combined to control and indicate all elements of a single smoke zone as a unit.
2. Complex systems, where *approved*, where the control is accomplished by computer interface using *approved*, plain English commands.

[F] 909.16.3 **Control action and priorities.** The fire-fighter's control panel actions shall be as follows:

1. ON-OFF and OPEN-CLOSE control actions shall have the highest priority of any control point within the building. Once issued from the fire fighter's control panel, automatic or manual control from any other control point within the building shall not contradict the control action. Where automatic means are provided to interrupt normal, nonemergency equipment operation or produce a specific result to safeguard the building or equipment including, but not limited to, duct freezestats, duct smoke detectors, high-temperature cutouts, temperature-actuated linkage and similar devices, such means shall be capable of being overridden by the fire fighter's control panel. The last control action as indicated by each fire fighter's control panel switch position shall prevail. Control actions shall not require the smoke control system to assume more than one configuration at any one time.

Exception: Power disconnects required by NFPA 70.

2. Only the AUTO position of each three-position fire-fighter's control panel switch shall allow automatic or manual control action from other control points within the building. The AUTO position shall be the NORMAL, nonemergency, building control position. Where a fire fighter's control panel is in the AUTO position, the actual status of the device (on, off, open, closed) shall continue to be indicated by the status indicator described in Section 909.16.1. Where directed by an automatic signal to assume an emergency condition, the NORMAL position shall become the emergency condition for that device or group of devices within the zone. Control actions shall not require the smoke control system to assume more than one configuration at any one time.

[F] 909.17 **System response time.** Smoke-control system activation shall be initiated immediately after receipt of an appropriate automatic or manual activation command. Smoke control systems shall activate individual components (such as *dampers* and fans) in the sequence necessary to prevent physical damage to the fans, *dampers*, ducts and other equipment. For purposes of smoke control, the fire fighter's control panel response time shall be the same for automatic or manual smoke control action initiated from any other building control point. The total response time, including that necessary for

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detection, shutdown of operating equipment and smoke control system startup, shall allow for full operational mode to be achieved before the conditions in the space exceed the design smoke condition. The system response time for each component and their sequential relationships shall be detailed in the required rational analysis and verification of their installed condition reported in the required final report.

[F] 909.18 Acceptance testing. Devices, equipment, components and sequences shall be individually tested. These tests, in addition to those required by other provisions of this code, shall consist of determination of function, sequence and, where applicable, capacity of their installed condition.

[F] 909.18.1 Detection devices. Smoke or fire detectors that are a part of a smoke control system shall be tested in accordance with Chapter 9 in their installed condition. Where applicable, this testing shall include verification of airflow in both minimum and maximum conditions.

[F] 909.18.2 Ducts. Ducts that are part of a smoke control system shall be traversed using generally accepted practices to determine actual air quantities.

[F] 909.18.3 Dampers. *Dampers* shall be tested for function in their installed condition.

[F] 909.18.4 Inlets and outlets. Inlets and outlets shall be read using generally accepted practices to determine air quantities.

[F] 909.18.5 Fans. Fans shall be examined for correct rotation. Measurements of voltage, amperage, revolutions per minute (rpm) and belt tension shall be made.

[F] 909.18.6 Smoke barriers. Measurements using inclined manometers or other *approved* calibrated measuring devices shall be made of the pressure differences across *smoke barriers*. Such measurements shall be conducted for each possible smoke control condition.

[F] 909.18.7 Controls. Each smoke zone equipped with an automatic-initiation device shall be put into operation by the actuation of one such device. Each additional device within the zone shall be verified to cause the same sequence without requiring the operation of fan motors in order to prevent damage. Control sequences shall be verified throughout the system, including verification of override from the fire-fighter's control panel and simulation of standby power conditions.

[F] 909.18.8 Testing for smoke control. Smoke control systems shall be tested by a special inspector in accordance with Section 1705.18.

[F] 909.18.8.1 Scope of testing. Testing shall be conducted in accordance with the following:

1. During erection of ductwork and prior to concealment for the purposes of leakage testing and recording of device location.
2. Prior to occupancy and after sufficient completion for the purposes of pressure-difference testing, flow measurements, and detection and control verification.

[F] 909.18.8.2 Qualifications. *Approved* agencies for smoke control testing shall have expertise in fire protection engineering, mechanical engineering and certification as air balancers.

[F] 909.18.8.3 Reports. A complete report of testing shall be prepared by the *approved* agency. The report shall include identification of all devices by manufacturer, nameplate data, design values, measured values and identification tag or *mark*. The report shall be reviewed by the responsible *registered design professional* and, when satisfied that the design intent has been achieved, the responsible *registered design professional* shall sign, seal and date the report.

[F] 909.18.8.3.1 Report filing. A copy of the final report shall be filed with the fire code official and an identical copy shall be maintained in an *approved* location at the building.

[F] 909.18.9 Identification and documentation. Charts, drawings and other documents identifying and locating each component of the smoke control system, and describing its proper function and maintenance requirements, shall be maintained on file at the building as an attachment to the report required by Section 909.18.8.3. Devices shall have an *approved* identifying tag or *mark* on them consistent with the other required documentation and shall be dated indicating the last time they were successfully tested and by whom.

[F] 909.19 System acceptance. Buildings, or portions thereof, required by this code to comply with this section shall not be issued a certificate of occupancy until such time that the fire code official determines that the provisions of this section have been fully complied with and that the fire department has received satisfactory instruction on the operation, both automatic and manual, of the system and a written maintenance program complying with the requirements of Section 909.20.1 of the *International Fire Code* has been submitted and approved by the fire code official.

Exception: In buildings of phased construction, a temporary certificate of occupancy, as *approved* by the fire code official, shall be allowed provided that those portions of the building to be occupied meet the requirements of this section and that the remainder does not pose a significant hazard to the safety of the proposed occupants or adjacent buildings.

909.20 Smokeproof enclosures. Where required by Section 1023.11, a smokeproof enclosure shall be constructed in accordance with this section. A smokeproof enclosure shall consist of an *interior exit stairway* or *ramp* that is enclosed in accordance with the applicable provisions of Section 1023 and an open exterior balcony or ventilated vestibule meeting the requirements of this section. Where access to the roof is required by the *International Fire Code*, such access shall be from the smokeproof enclosure where a smokeproof enclosure is required.

909.20.1 Access. Access to the *stairway* or *ramp* shall be by way of a vestibule or an open exterior balcony. The

minimum dimension of the vestibule shall be not less than the required width of the *corridor* leading to the vestibule but shall not have a width of less than 44 inches (1118 mm) and shall not have a length of less than 72 inches (1829 mm) in the direction of egress travel.

909.20.2 Construction. The smokeproof enclosure shall be separated from the remainder of the building by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. Openings are not permitted other than the required *means of egress* doors. The vestibule shall be separated from the *stairway* or *ramp* by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both. The open exterior balcony shall be constructed in accordance with the *fire-resistance rating* requirements for floor assemblies.

909.20.2.1 Door closers. Doors in a smokeproof enclosure shall be self- or automatic closing by actuation of a smoke detector in accordance with Section 716.5.9.3 and shall be installed at the floor-side entrance to the smokeproof enclosure. The actuation of the smoke detector on any door shall activate the closing devices on all doors in the smokeproof enclosure at all levels. Smoke detectors shall be installed in accordance with Section 907.3.

909.20.3 Natural ventilation alternative. The provisions of Sections 909.20.3.1 through 909.20.3.3 shall apply to ventilation of smokeproof enclosures by natural means.

909.20.3.1 Balcony doors. Where access to the *stairway* or *ramp* is by way of an open exterior balcony, the door assembly into the enclosure shall be a *fire door assembly* in accordance with Section 716.5.

909.20.3.2 Vestibule doors. Where access to the *stairway* or *ramp* is by way of a vestibule, the door assembly into the vestibule shall be a *fire door assembly* complying with Section 716.5. The door assembly from the vestibule to the *stairway* shall have not less than a 20-minute *fire protection rating* complying with Section 716.5.

909.20.3.3 Vestibule ventilation. Each vestibule shall have a minimum net area of 16 square feet (1.5 m²) of opening in a wall facing an outer *court*, *yard* or *public way* that is not less than 20 feet (6096 mm) in width.

909.20.4 Mechanical ventilation alternative. The provisions of Sections 909.20.4.1 through 909.20.4.4 shall apply to ventilation of smokeproof enclosures by mechanical means.

909.20.4.1 Vestibule doors. The door assembly from the building into the vestibule shall be a *fire door assembly* complying with Section 716.5.3. The door assembly from the vestibule to the *stairway* or *ramp* shall not have less than a 20-minute *fire protection rating* and shall meet the requirements for a smoke door assembly in accordance with Section 716.5.3. The door shall be installed in accordance with NFPA 105.

909.20.4.2 Vestibule ventilation. The vestibule shall be supplied with not less than one air change per minute and the exhaust shall be not less than 150 percent of supply. Supply air shall enter and exhaust air shall discharge from the vestibule through separate, tightly constructed ducts used only for that purpose. Supply air shall enter the vestibule within 6 inches (152 mm) of the floor level. The top of the exhaust register shall be located at the top of the smoke trap but not more than 6 inches (152 mm) down from the top of the trap, and shall be entirely within the smoke trap area. Doors in the open position shall not obstruct duct openings. Duct openings with controlling *dampers* are permitted where necessary to meet the design requirements, but *dampers* are not otherwise required.

909.20.4.2.1 Engineered ventilation system.

Where a specially engineered system is used, the system shall exhaust a quantity of air equal to not less than 90 air changes per hour from any vestibule in the emergency operation mode and shall be sized to handle three vestibules simultaneously. Smoke detectors shall be located at the floor-side entrance to each vestibule and shall activate the system for the affected vestibule. Smoke detectors shall be installed in accordance with Section 907.3.

909.20.4.3 Smoke trap. The vestibule ceiling shall be not less than 20 inches (508 mm) higher than the door opening into the vestibule to serve as a smoke and heat trap and to provide an upward-moving air column. The height shall not be decreased unless *approved* and justified by design and test.

909.20.4.4 Stairway or ramp shaft air movement system. The *stairway* or *ramp* shaft shall be provided with a dampered relief opening and supplied with sufficient air to maintain a minimum positive pressure of 0.10 inch of water (25 Pa) in the shaft relative to the vestibule with all doors closed.

909.20.5 Stairway and ramp pressurization alternative.

Where the building is equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, the vestibule is not required, provided each interior *exit stairway* or *ramp* is pressurized to not less than 0.10 inch of water (25 Pa) and not more than 0.35 inches of water (87 Pa) in the shaft relative to the building measured with all *interior exit stairway* and *ramp* doors closed under maximum anticipated conditions of stack effect and wind effect.

909.20.6 Ventilating equipment. The activation of ventilating equipment required by the alternatives in Sections 909.20.4 and 909.20.5 shall be by smoke detectors installed at each floor level at an *approved* location at the entrance to the smokeproof enclosure. When the closing device for the *stairway* and *ramp* shaft and vestibule doors is activated by smoke detection or power failure, the mechanical equipment shall activate and operate at the required performance levels. Smoke detectors shall be installed in accordance with Section 907.3.

FIRE PROTECTION SYSTEMS

909.20.6.1 Ventilation systems. Smokeproof enclosure ventilation systems shall be independent of other building ventilation systems. The equipment, control wiring, power wiring and ductwork shall comply with one of the following:

1. Equipment, control wiring, power wiring and ductwork shall be located exterior to the building and directly connected to the smokeproof enclosure or connected to the smokeproof enclosure by ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
2. Equipment, control wiring, power wiring and ductwork shall be located within the smokeproof enclosure with intake or exhaust directly from and to the outside or through ductwork enclosed by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.
3. Equipment, control wiring, power wiring and ductwork shall be located within the building if separated from the remainder of the building, including other mechanical equipment, by not less than 2-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

Exceptions:

1. Control wiring and power wiring utilizing a 2-hour rated cable or cable system.
2. Where encased with not less than 2 inches (51 mm) of concrete.
3. Control wiring and power wiring protected by a listed electrical circuit protective system with a fire-resistance rating of not less than 2 hours.

909.20.6.2 Standby power. Mechanical vestibule and *stairway* and *ramp* shaft ventilation systems and automatic fire detection systems shall be provided with standby power in accordance with Section 2702.

909.20.6.3 Acceptance and testing. Before the mechanical equipment is *approved*, the system shall be tested in the presence of the *building official* to confirm that the system is operating in compliance with these requirements.

909.21 Elevator hoistway pressurization alternative. Where elevator hoistway pressurization is provided in lieu of required enclosed elevator lobbies, the pressurization system shall comply with Sections 909.21.1 through 909.21.11.

909.21.1 Pressurization requirements. Elevator hoistways shall be pressurized to maintain a minimum positive pressure of 0.10 inch of water (25 Pa) and a maximum positive pressure of 0.25 inch of water (67 Pa) with respect

to adjacent occupied space on all floors. 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 pressure differentials shall be measured between the hoistway and the adjacent elevator landing. 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 located a minimum distance of 20 feet (6096 mm) from any air exhaust system or outlet.

Exceptions:

1. On floors containing only Group R occupancies, the pressure differential is permitted to be measured between the hoistway and a *dwelling unit* or *sleeping unit*.
2. Where an elevator opens into a lobby enclosed in accordance with Section 3007.6 or 3008.6, the pressure differential is permitted to be measured between the hoistway and the space immediately outside the door(s) from the floor to the enclosed lobby.
3. The pressure differential is permitted to be measured relative to the outdoor atmosphere on floors other than the following:
 - 3.1. The fire floor.
 - 3.2. The two floors immediately below the fire floor.
 - 3.3. The floor immediately above the fire floor.
4. The minimum positive pressure of 0.10 inch of water (25 Pa) and a maximum positive pressure of 0.25 inch of water (67 Pa) with respect to occupied floors are not required at the floor of recall with the doors open.

909.21.1.1 Use of ventilation systems. Ventilation systems, other than hoistway supply air systems, are permitted to be used to exhaust air from adjacent spaces on the fire floor, two floors immediately below and one floor immediately above the fire floor to the building's exterior where necessary to maintain positive pressure relationships as required in Section 909.21.1 during operation of the elevator shaft pressurization system.

909.21.2 Rational analysis. A rational analysis complying with Section 909.4 shall be submitted with the *construction documents*.

909.21.3 Ducts for system. Any duct system that is part of the pressurization system shall be protected with the same *fire-resistance rating* as required for the elevator shaft enclosure.

909.21.4 Fan system. The fan system provided for the pressurization system shall be as required by Sections 909.21.4.1 through 909.21.4.4.

909.21.4.1 Fire resistance. Where located within the building, the fan system that provides the pressurization shall be protected with the same *fire-resistance rating* required for the elevator shaft enclosure.

909.21.4.2 Smoke detection. The fan system shall be equipped with a smoke detector that will automatically shut down the fan system when smoke is detected within the system.

909.21.4.3 Separate systems. A separate fan system shall be used for each elevator hoistway.

909.21.4.4 Fan capacity. The supply fan shall be either adjustable with a capacity of not less than 1,000 cfm (0.4719 m³/s) per door, or that specified by a *registered design professional* to meet the requirements of a designed pressurization system.

909.21.5 Standby power. The pressurization system shall be provided with standby power in accordance with Section 2702.

909.21.6 Activation of pressurization system. The elevator pressurization system shall be activated upon activation of either the building fire alarm system or the elevator lobby smoke detectors. Where both a building fire alarm system and elevator lobby smoke detectors are present, each shall be independently capable of activating the pressurization system.

909.21.7 Testing. Testing for performance shall be required in accordance with Section 909.18.8. System acceptance shall be in accordance with Section 909.19.

909.21.8 Marking and identification. Detection and control systems shall be marked in accordance with Section 909.14.

909.21.9 Control diagrams. Control diagrams shall be provided in accordance with Section 909.15.

909.21.10 Control panel. A control panel complying with Section 909.16 shall be provided.

909.21.11 System response time. Hoistway pressurization systems shall comply with the requirements for smoke control system response time in Section 909.17.

SECTION 910 SMOKE AND HEAT REMOVAL

[F] 910.1 General. Where required by this code, smoke and heat vents or mechanical smoke removal systems shall conform to the requirements of this section.

[F] 910.2 Where required. Smoke and heat vents or a mechanical smoke removal system shall be installed as required by Sections 910.2.1 and 910.2.2.

Exceptions:

1. Frozen food warehouses used solely for storage of Class I and II commodities where protected by an *approved automatic sprinkler system*.
2. Smoke and heat removal shall not be required in areas of buildings equipped with early suppression fast-response (ESFR) sprinklers.

3. Smoke and heat removal shall not be required in areas of buildings equipped with control mode special application sprinklers with a response time index of 50 (m · s)^{1/2} or less that are listed to control a fire in stored commodities with 12 or fewer sprinklers.

910.2.1 Group F-1 or S-1. Smoke and heat vents installed in accordance with Section 910.3 or a mechanical smoke removal system installed in accordance with Section 910.4 shall be installed in buildings and portions thereof used as a Group F-1 or S-1 occupancy having more than 50,000 square feet (4645 m²) of undivided area. In occupied portions of a building equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1 where the upper surface of the story is not a roof assembly, a mechanical smoke removal system in accordance with Section 910.4 shall be installed.

Exception: Group S-1 aircraft repair hangars.

[F] 910.2.2 High-piled combustible storage. Smoke and heat removal required by Table 3206.2 of the *International Fire Code* for buildings and portions thereof containing high-piled combustible storage shall be installed in accordance with Section 910.3 in unsprinklered buildings. In buildings and portions thereof containing high-piled combustible storage equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, a smoke and heat removal system shall be installed in accordance with Section 910.3 or 910.4. In occupied portions of a building equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1, where the upper surface of the story is not a roof assembly, a mechanical smoke removal system in accordance with Section 910.4 shall be installed.

[F] 910.3 Smoke and heat vents. The design and installation of smoke and heat vents shall be in accordance with Sections 910.3.1 through 910.3.3.

[F] 910.3.1 Listing and labeling. Smoke and heat vents shall be *listed* and labeled to indicate compliance with UL 793 or FM 4430.

[F] 910.3.2 Smoke and heat vent locations. Smoke and heat vents shall be located 20 feet (6096 mm) or more from adjacent *lot lines* and *fire walls* and 10 feet (3048 mm) or more from *fire barriers*. Vents shall be uniformly located within the roof in the areas of the building where the vents are required to be installed by Section 910.2 with consideration given to roof pitch, sprinkler location and structural members.

910.3.3 Smoke and heat vents area. The required aggregate area of smoke and heat vents shall be calculated as follows:

For buildings equipped throughout with an *automatic sprinkler system* in accordance with Section 903.3.1.1:

$$A_{VR} = V/9000 \quad \text{(Equation 9-4)}$$

where:

A_{VR} = The required aggregate vent area (ft²).

V = Volume (ft³) of the area that requires smoke removal.

For unsprinklered buildings:

$$A_{VR} = A_{FA}/50 \quad \text{(Equation 9-5)}$$

where:

A_{VR} = The required aggregate vent area (ft²).

A_{FA} = The area of the floor in the area that requires smoke removal.

[F] 910.4 Mechanical smoke removal systems. Mechanical smoke removal systems shall be designed and installed in accordance with Sections 910.4.1 through 910.4.7.

910.4.1 Automatic sprinklers required. The building shall be equipped throughout with an *approved automatic sprinkler system* in accordance with Section 903.3.1.1.

910.4.2 Exhaust fan construction. Exhaust fans that are part of a mechanical smoke removal system shall be rated for operation at 221°F (105°C). Exhaust fan motors shall be located outside of the exhaust fan air stream.

910.4.3 System design criteria. The mechanical smoke removal system shall be sized to exhaust the building at a minimum rate of two air changes per hour based upon the volume of the building or portion thereof without contents. The capacity of each exhaust fan shall not exceed 30,000 cubic feet per minute (14.2 m³/sec).

910.4.3.1 Makeup air. Makeup air openings shall be provided within 6 feet (1829 mm) of the floor level. Operation of makeup air openings shall be manual or automatic. The minimum gross area of makeup air inlets shall be 8 square feet per 1,000 cubic feet per minute (0.74 m² per 0.4719 m³/s) of smoke exhaust.

910.4.4 Activation. The mechanical smoke removal system shall be activated by manual controls only.

910.4.5 Manual control location. Manual controls shall be located so as to be accessible to the fire service from an exterior door of the building and protected against interior fire exposure by not less than 1-hour *fire barriers* constructed in accordance with Section 707 or *horizontal assemblies* constructed in accordance with Section 711, or both.

[F] 910.4.6 Control wiring. Wiring for operation and control of mechanical smoke removal systems shall be connected ahead of the main disconnect in accordance with Section 701.12E of NFPA 70 and be protected against interior fire exposure to temperatures in excess of 1,000°F (538°C) for a period of not less than 15 minutes.

[F] 910.4.7 Controls. Where building air-handling and mechanical smoke removal systems are combined or where independent building air-handling systems are provided, fans shall automatically shut down in accordance with the *International Mechanical Code*. The manual controls provided for the smoke removal system shall have the capability to override the automatic shutdown of fans that are part of the smoke removal system.

910.5 Maintenance. Smoke and heat vents and mechanical smoke removal systems shall be maintained in accordance with the *International Fire Code*.

SECTION 911 FIRE COMMAND CENTER

[F] 911.1 General. Where required by other sections of this code and in buildings classified as high-rise buildings by this code, a fire command center for fire department operations shall be provided and shall comply with Sections 911.1.1 through 911.1.6.

[F] 911.1.1 Location and access. The location and accessibility of the fire command center shall be *approved* by the fire chief.

[F] 911.1.2 Separation. The fire command center shall be separated from the remainder of the building by not less than a 1-hour *fire barrier* constructed in accordance with Section 707 or *horizontal assembly* constructed in accordance with Section 711, or both.

[F] 911.1.3 Size. The room shall be not less than 200 square feet (19 m²) with a minimum dimension of 10 feet (3048 mm).

[F] 911.1.4 Layout approval. A layout of the fire command center and all features required by this section to be contained therein shall be submitted for approval prior to installation.

[F] 911.1.5 Storage. Storage unrelated to operation of the fire command center shall be prohibited.

[F] 911.1.6 Required features. The fire command center shall comply with NFPA 72 and shall contain all of the following features:

1. The emergency voice/alarm communication system control unit.
2. The fire department communications system.
3. Fire detection and alarm system annunciator.
4. Annunciator unit visually indicating the location of the elevators and whether they are operational.
5. Status indicators and controls for air distribution systems.
6. The fire fighter's control panel required by Section 909.16 for smoke control systems installed in the building.
7. Controls for unlocking *interior exit stairway* doors simultaneously.
8. Sprinkler valve and waterflow detector display panels.
9. Emergency and standby power status indicators.
10. A telephone for fire department use with controlled access to the public telephone system.
11. Fire pump status indicators.
12. Schematic building plans indicating the typical floor plan and detailing the building core, *means*

Building Code Consistency

399.03 Design, installation, and alteration of conveyances.—

(7) Each elevator installed in an existing building shall comply with the edition of the Florida Building Code and ~~or~~ Elevator Safety Code that was in effect at the time of receipt of application for the elevator construction permit issued by the division for the elevator. Each elevator installed in a newly constructed building shall comply with the edition of the Florida Building Code and Elevator Safety Code that applies to the building permit issued by the local building authority.

(8) Each alteration to, or relocation of, an elevator shall comply with the edition of the Florida Building Code and ~~or~~ Elevator Safety Code that was in effect at the time of receipt of the application for the construction permit for the alteration or relocation.

(9) When any change is made in the classification of an elevator, the elevator shall comply with all of the requirements of the version of the Florida Building Code and ~~or~~ Elevator Safety Code that were in effect at the time of receipt of the application for the construction permit for the change in classification.

Proposed Effective Date: January 1, 2017

Stretcher Size – Require elevators to accommodate 84" x 24" ambulance stretcher.

Attachment G – Temporary Operating Permits

Florida Statute

399.01 Definitions.—As used in this chapter, the term:

(11) “Temporary operation inspection” means an inspection performed by a certified elevator inspector, the successful passage of which permits the temporary use of a noncompliant vertical conveyance as provided by rule.

399.03 Design, installation, and alteration of conveyances.—

(10)(a) The temporary use of an elevator during installation or alteration is authorized for a period of 30 days after the completion of a satisfactory temporary operation inspection. An additional 30-day period of temporary use is authorized from the date of completion of each additional satisfactory temporary operation inspection.

A satisfactory temporary operation inspection must satisfy the following criteria:

- the elevator is tested under contract load;
- the hoistway is fully enclosed;
- the hoistway doors and interlocks are installed;
- the car is completely enclosed, including door or gate and top;
- all electrical safety devices are installed and properly functioning; and
- terminal stopping equipment is in place for a safe runby and proper clearance.

When a car is provided with a temporary enclosure, the operating means must be by constant pressure push-button or lever-type switch. The car may not exceed the minimum safe operating speed of the elevator, and the governor tripping speed must be set in accordance with the operating speed of the elevator.

(b) Temporary use is authorized only when a satisfactory temporary operation inspection report, completed within the last 30 days, by a certified elevator inspector, and a notice prescribed by the department, bearing a statement that the elevator has not been finally approved by a certified elevator inspector, are conspicuously posted in the elevator.

Florida Administrative Code

No specific rules, but Temporary Operating Permit has been adopted by rule 61C-5.006, F.A.C.



State of Florida
 Department of Business and
 Professional Regulation
Division of Hotels and Restaurants
Bureau of Elevator Safety
 www.MyFloridaLicense.com/dbpr/hr/

NOTICE

TEMPORARY OPERATING PERMIT

This elevator is approved for temporary use for:
(Inspector must check box and sign)

Construction personnel, tools and materials only

EXPIRES: _____ (not to exceed 30 days from inspection date)

I attest that on this date, all tests required by Section 399.03(10)(a), Florida Statutes, were completed and witnessed by me and that all safety devices, doorlocks, door circuit and safety circuits are installed and properly functioning. In addition, all requirements of Section 5.10, A.S.M.E. A17.1 have been met.

Certified Elevator Inspector	CEI Number
Certified Elevator Inspector Phone #	CEI Expiration Date
Date of Inspection	Elevator License Number

This temporary operating permit is valid for 30 days from the date above. Operating this conveyance after 30 days without a new inspection is a violation of Chapter 399, Florida Statutes, punishable by a fine of up to \$1,000 per violation.

NOTE TO INSPECTOR:

All tests, door locks, door circuit and safety circuits must be checked and safety device checks must be repeated for each temporary operation permit issued.