Code Technology Committee

Meeting #33

March 29-30, 2016

CTC Group B Elevator/Elevator Lobby Code Changes (Agenda Item 7.1)

This report includes the matrix of Elevator/Elevator Lobby related code changes that the Code Technology Committee has proposed or will monitor as related issues.

G27-16

IBC: [F] 403.4.8.3, [F] 403.4.8.4.

Proponent : Stephen DiGiovanni, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

THIS CODE CHANGE WIILL BE HEARD BY THE IFC COMMITTEE. SEE THE HEARING ORDER FOR THIS COMMITTEE.

2015 International Building Code

Revise as follows:

[F] 403.4.8.3 Standby power loads. The following are classified as standby power loads:

1. ~~Power and lighting for the *fire command center* required by Section 403.4.6.~~
2. *Ventilation* and automatic fire detection equipment for *smokeproof enclosures*.
3. Elevators.
4. Where elevators are provided in a *high-rise building* for *accessible means of egress*, fire service access or occupant self-evacuation, the standby power system shall also comply with Sections 1009.4, 3007 or 3008, as applicable.

[F] 403.4.8.4 Emergency power loads. The following are classified as emergency power loads:

1. Exit signs and *means of egress*illumination required by Chapter 10.
2. Elevator car lighting.
3. *Emergency voice/alarm communications systems*.
4. Automatic fire detection systems.
5. *Fire alarm*systems.
6. Electrically powered fire pumps.
7. Power and lighting for the *fire command center* required by Section 403.4.6.

Reason: Given the importance of the fire command center in an emergency event it is imperative that the room be fully illuminated and powered to function properly during an emergency. This proposal attempts to ensure that all power and lighting in the fire command center is provided as quickly as possible to ensure continuity of operations in the fire command center should power be lost during an event.

Cost Impact: Will increase the cost of construction
This proposal will require improvements to the emergency power supply system for high-rise buildings.

**G27-16 : [F] 403.4.8.3-
DIGIOVANNI3818**

G38-16

IBC: [F] 3003.1; IFC: 607.2.

Proponent : Bryan Romney, representing self (bryan.romney@fm.utah.edu)

2015 International Building Code

Revise as follows:

[F] 3003.1 Standby power. In buildings and structures where standby power is required or furnished to operate an elevator, the operation shall be in accordance with Sections 3003.1.1 through 3003.1.4.
In addition, upon loss of normal power, each elevator shall be provided with standby power to allow elevator to return to the designated floor level established in accordance with Section 3003.1.2, to stop at that floor level and open the cab door.

2015 International Fire Code

607.2 Standby power. In buildings and structures where standby power is required or furnished to operate an elevator, standby power shall be provided in accordance with Section 604. Operation of the system shall be in accordance with Sections 607.2.1 through 607.2.4.

In addition, upon loss of normal power, each elevator shall be provided with standby power to allow elevator to return to the designated floor level established in accordance with Section 607.2.2, to stop at that floor level and open the cab door.

Reason: Emergency Operation requirements for elevators and conveying systems are regulated in IBC Section 3003.1. This IBC section stipulates that standby power is required only for those elevators identified by other sections of the code or where voluntarily furnished. The IBC identifies the elevators required to have standby power in Sections 403.4.8, 3003, 3007, 3008, 2702.2.2, 1009.4 and 1009.5. These elevators are primarily used in high rise buildings and to provide accessible routes or accessible means of egress. Generally, elevators operate using the building's primary power source under normal conditions. Under emergency conditions when the primary power source is unavailable, the elevators identified in these code sections automatically receive power from a standby power source for continued functionality.
However, elevators not required to have standby power cease to operate once the primary power source is unavailable. At times elevators can malfunction even without loss of the building's primary power source and cease to operate. The result of the loss of primary power for these elevators is that passengers are stranded inside the elevator cab until the resumption of the building's primary power, repair of the elevator system, or rescue by emergency personnel. In any case, it is unacceptable to strand people in elevators for any reason. It goes counter to the intent of IBC Chapter 10 to provide an unrestricted means of egress by stranding people in elevators. The IBC is quite diligent about not allowing obstructions in a means of egress and even prescribing door controls that will allow unrestricted exit access and even requires redundant features if one feature fails to operate properly. The IFC also is quite diligent about maintaining means of egress components. The code, however, does not address getting stuck in elevators. Getting stuck in elevators is quite a common issue and does have serious potential life safety risks. There are many documented and undocumented stories of people getting stuck in elevators when power failures occur or elevator operation malfunctions. The highest risk of elevator operation failure is due to mechanical malfunctions even though elevators are routinely inspected and certified as being maintained properly. The risk of being trapped in an elevator of due to loss of power, either from the building's primary power source or power to an individual elevator, appears to be very low. Because there is no code requirement to provide standby power to all elevators, this feature is provided only as an owner's option. Currently, there is no reliable source of information available to document the number of incidents where people have been stuck in elevators due to primary power failures or maintenance issues. However, based on media coverage and articles of such incidents,

there is an apparent plethora of cases where people are stranded in elevators for various reasons. The usage of elevators for fire fighters and emergency personnel in order to save time in an emergency situation has been endorsed by the IFC in Sections 607.1 and 1103.3.
These sections are shown below:
607.1 Emergency operation.
Existing elevators with a travel distance of 25 feet (7620 mm) or more shall comply with the requirements in Chapter 11. New elevators shall be provided with Phase I emergency recall operation and Phase II emergency in-car operation in accordance with ASME A17.1.
1103.3 Elevator operation.
Existing elevators with a travel distance of 25 feet (7620 mm) or more above or below the main floor or other level of a building and intended to serve the needs of emergency personnel for firefighting or rescue purposes shall be provided with emergency operation in accordance with ASME A17.3. Even though the IFC has required new elevators and existing elevators, under certain provisions, to be provided with Phase I emergency recall operation and Phase II emergency in-car operation features, the IFC does not require standby power for these elevators. The potential of power failure for these elevators under emergency operating conditions while fire fighters and emergency personnel are in the elevators may be an issue which needs to be addressed.
This code change proposal will at least require sufficient standby power to get people to a floor level and open the elevator door so that people can access an exit. It does not require full elevator operation; it simply allows people to not get stuck in an elevator due to primary power loss. To require standby power to allow this function for all elevators does not present an undue burden to the owners and operators. There certainly is an initial cost impact to provide this feature, however, it is insignificant when compared to dealing with potential litigation or physical harm caused by getting stuck in an elevator.

Bibliography: http://www.theshorthorn.com/news/campus/about-reports-made-of-people-trapped-in-elevators/article_194a978e-128f-11e2-913f-001a4bcf6878.html
https://www.psychologytoday.com/blog/fighting-fear/201205/stuck-in-elevator

Cost Impact: Will increase the cost of construction
Cost Impact: Will increase the cost of construction
There are basically two types of elevators: hydraulic; and traction elevators. Each type of elevator has significantly different design features which could address this code change proposal. I've listed only a few possible design solutions; however, other options may exist. Industry can offer alternate design solutions which may be proprietary and still meet the intent of this code change proposal. One very real possibility is that an auxiliary power generator can be provided to supply the standby power for these elevators without significant costs. Most buildings, regardless of size, which have elevators installed will already be providing an auxiliary power generator to address other issues such as egress lighting, supplemental power supply for equipment and fixed furnishings, door controls, HVAC backup power, fire alarm and detection, automatic sprinkler systems, etc.; and to add an additional load to this generator for the elevator standby power would be negligible in cost. This cost would not be possible to determine as it depends on the building requirements aside from the elevator loads.
HYRDAULIC ELEVATORS: Battery lowering is already an option for hydraulic elevators which can be added for up to approximately $5,000 per elevator. With this feature the elevators could be lowered to a floor level and exiting be obtained through the opened elevator doors.
TRACTION ELEVATORS: Traction elevators, as opposed to hydraulic elevators, depend on a counterweighted mechanism operated with an electric motor drive. Traction elevators are not limited in lift height and more costly than hydraulic elevators in initial cost. As such, the standby power requirements are much greater than hydraulic elevators. There are currently two options for providing standby power: either by an auxiliary generator; or an "Emergency Rescue Unit" (ERU) type system. See comment above regarding auxiliary power generators for other building requirements. However, if a stand-alone power generator is used for the elevator automatic evacuation function, a single generator can cost at a minimum of $5,000 to $10,000. Some elevator manufacturers can provide the ERU which will provide enough standby power to allow the elevator to stop at the nearest floor and open the doors. The estimated cost for the ERU is in the $10,000 to $20,000 range per elevator. There seems to be a current industry limitation on

these ERU's for the elevator motors not exceeding 50 horse power and not allowing DC motors. However, in those cases, an auxiliary power generator may need to be installed.

G38-16 : [F] 3003.1-ROMNEY12636

F31-16
IFC: 404.2.

Proponent : Michael O'Brian representing the Fire Code Action Committee (FCAC@iccsafe.org)

2015 International Fire Code

Revise as follows:

404.2 Contents. Fire safety, evacuation and ~~evacuation~~ lockdown plan contents shall be in accordance with Sections 404.2.1 ~~and 404.2.2~~ through 404.2.3.3.

Reason: This proposal is editorial in nature and does not make a change to the code requirements.
Section 404 includes Fire Safety Plans, Evacuation Plans and Lockdown Plans. Subsections of 404.2 specify the contents for Evacuation Plans (404.2.1), Fire Safety Plans (404.2.2), and Lockdown Plans (404.2.3). But 404.2.3 is not included in the referenced sections in Section 404.2.

This proposal corrects the references in Section 404.2 and includes the subsection addressing lockdown plans.

This proposal is submitted by the ICC Fire Code Action Committee (FCAC). The FCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes with regard to fire safety and hazardous materials in new and existing buildings and facilities and the protection of life and property in wildland urban interface areas. In 2014 and 2015 the Fire-CAC has held 5 open meetings. In addition, there were numerous conference calls, Regional Work Group and Task Group meetings for the current code development cycle, which included members of the committees as well as any interested parties, to discuss and debate the proposed changes. Related documentation and reports are posted on the FCAC website at: FCAC

Cost Impact: Will not increase the cost of construction
This is editorial in nature and correlates the code requirements.

F31-16 : 404.2-O'BRIAN11007

F32-16

404.2.2, 408 (New), 508.1.6, IBC [F] 911.1.6

Proponent : Jack Murphy, representing FSDA (FMJack1948@gmail.com)

2015 International Fire Code

404.2.2 Fire safety plans. Fire safety plans shall include the following:

1. The procedure for reporting a fire or other emergency.
2. The life safety strategy including the following:
    - 2.1. Procedures for notifying occupants, including areas with a private mode alarm system.
    - 2.2. Procedures for occupants under a defend-in-place response.
    - 2.3. Procedures for evacuating occupants, including those who need evacuation assistance.
3. Site plans indicating the following:
    - 3.1. The occupancy assembly point.
    - 3.2. The locations of fire hydrants.
    - 3.3. The normal routes of fire department vehicle access.
4. Floor plans identifying the locations of the following:
    - 4.1. Exits.
    - 4.2. Primary evacuation routes.
    - 4.3. Secondary evacuation routes.
    - 4.4. Accessible egress routes.
        - 4.4.1. Areas of refuge.
        - 4.4.2. Exterior areas for assisted rescue.
    - 4.5. Refuge areas associated with *smoke barriers* and *horizontal exits*.
    - 4.6. Manual fire alarm boxes.
    - 4.7. Portable fire extinguishers.
    - 4.8. Occupant-use hose stations.
    - 4.9. Fire alarm annunciators and controls.
5. A list of major fire hazards associated with the normal use and occupancy of the premises, including maintenance and housekeeping procedures.
6. Identification and assignment of personnel responsible for maintenance of systems and equipment installed to prevent or control fires.
7. Identification and assignment of personnel responsible for maintenance, housekeeping and controlling fuel hazard sources.
8. A Building Information Card in accordance with Section 408.

SECTION 408 BUILDING INFORMATION CARD

408.1 General. Where required by Section 404.2.2 and Section 508.1.6, a Building Information Card shall comply with this section. The Building Information Card shall be maintained on premises and made available to first responders in an approved location.

408.1.1 Format. The Building Information Card shall be provided as an actual card or in electronic format where approved by the fire code official.

408.2 Content. An approved Building Information Card shall include, but not limited to, all of the following:

1. General building information that includes: property name, address, the number of floors in the building above and below grade, use and occupancy classification (for mixed uses, identify the different types of occupancies on each floor) and the estimated building population during the day, night and weekend;
2. Building emergency contact information that includes: a list of building's emergency contacts including but not limited to building manager, building engineer and their respective work phone number, cell phone number and e-mail address;
3. Building construction information that includes: the type of building construction including but not limited to floors, walls, columns and roof assembly;
4. Exit access stairway and exit stairway information that includes: number of exit access stairways and exit stairways in building; each exit access stairway and exit stairway designation and floors served; location where each exit access stairway and exit stairway discharges, interior exit stairways that are pressurized; exit stairways provided with emergency lighting; each exit stairway that allows reentry; exit stairways providing roof and below grade access; elevator information that includes: number of elevator banks, elevator bank designation, elevator car numbers and respective floors that they serve; location of elevator machine rooms, control rooms and control spaces; location of sky lobby; and location of freight elevator banks;
5. Building services and system information that includes: location of mechanical rooms, location of building management system, location and capacity of all fuel oil tanks, location of emergency generator, location of natural gas services, location of public utility company main isolation breakers and valves, photovoltaic [PV) solar power systems, energy storage systems and other alternative power sources;
6. Fire protection system information that includes: location of standpipes, locations of fire pump room, location of fire department connections, floors protected by automatic sprinklers and location of different types of automatic sprinkler systems installed including but not limited to dry, wet or pre-action; location of the fire alarm control panel and location of fire extinguishing systems;
7. Hazardous material information that includes: location and quantity of hazardous materials;
8. Temporary building conditions information that includes: fire protection system impairments that are out-of-service and construction alteration/renovation projects. Temporary conditions shall include the type of condition, emergency contact information.
9. Building Schematic building plans including typical floor plan and detailing the building core, means of egress, fire protection systems, fire-fighter air replenishment systems, fire-fighting equipment, and fire department access, and the location of fire walls, fire barriers, fire partitions, smoke barriers and smoke partitions.

408.3 Maintenance. The contents of the building information card shall be reviewed and updated annually.

Add new text as follows:

508.1.6 (IBC [F] 911.1.6) Required features. The *fire command center* shall comply with NFPA 72 and shall contain 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 *stairway* doors simultaneously.
8. Sprinkler valve and water-flow 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 of egress*, *fire protection systems*, fire fighter air replenishment systems, fire fighting equipment and fire department access, and the location of *fire walls*, *fire barriers*, *fire partitions*, *smoke barriers* and smoke partitions.~~ Building Information Card in accordance with Section 408.
13. ~~An *approved* Building Information Card that includes, but is not limited to, all of the following information:~~
    - ~~13.1. General building information that includes: property name, address, the number of floors in the building above and below grade, use and occupancy classification (for mixed uses, identify the different types of occupancies on each floor) and the estimated building population during the day, night and weekend;~~
    - ~~13.2. Building emergency contact information that includes: a list of the building's emergency contacts including but not limited to building manager, building engineer and their respective work phone number, cell phone number and e-mail address;~~
    - ~~13.3. Building construction information that includes: the type of building construction including but not limited to floors, walls, columns and roof assembly;~~
    - ~~13.4. *Exit access stairway* and *exit stairway* information that includes: number of *exit access stairways* and *exit stairways* in building; each *exit access stairway* and *exit stairway* designation and floors served; location where each *exit access stairway* and *exit stairway* discharges, *interiorexit stairways* that are pressurized; *exit stairways* provided with emergency lighting; each *exit stairway* that allows reentry; *exit stairways* providing roof access; elevator information that includes: number of elevator banks, elevator bank designation, elevator car numbers and respective floors that they serve; location of elevator machine rooms, control rooms and control spaces; location of sky lobby; and location of freight elevator banks;~~
    - ~~13.5. Building services and system information that includes: location of mechanical rooms, location of building management system, location and capacity of all fuel oil tanks, location of emergency generator and location of natural gas service;~~
    - ~~13.6. *Fire protection system* information that includes: location of standpipes, location of fire pump room, location of fire department connections, floors protected by automatic sprinklers and location of different types of *automatic sprinkler systems* installed including but not limited to dry, wet and pre-action;~~
    - ~~13.7. Hazardous material information that includes: location and quantity of hazardous material.~~

14. Work table.
15. Generator supervision devices, manual start and transfer features.
16. Public address system, where specifically required by other sections of this code.
17. Elevator fire recall switch in accordance with ASME A17.1/CSA B4.
18. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

Reason: The building information card is more than just a FC508 and BC911 sections as a high-rise fire command center requirement. The present BC/FC sections limit the potential value of a building information card for First Responders as expressed in:
1. NFPA1620 Standard for Pre-Incident Planning (2015 Edition). The purpose ofd the standard shall be to develop pre-incident plans to assist responding persnnnel in effectively managing emregencies for the protection of occupants, responding personnel, property and the environment....

- The pre-incident plan shall be coordinated with an incident management system.
- The pre-incident plan shall be available to the incident commander or communications center at the time of an incident

2. Insurance Services Office (ISO) (2013 Edition) which provides insurance ratings for a community, incorporated into the Fire Suppression Rating System that building familiarization for pre-planning would be a component of the fire department assessment this major revision reflects current trends in fire prevention and protection. A Building Familiarization Pre-Planning Program has been included into the municipality insurance cost rating system. This Fire Suppression Schedule Rating System helps provide the insurance industry with informationon community's ability to suppress and limit fire losses. section 580 Training, (H). Building Familiarization for Pre-Planning....

3. OSHA Fire Service Features of Buildings and Fire Protection Systems (2015 Edition). Chapter-7 Hazards for Firefighter Emergency Responders must determine the appropriate tactical considerations... Fire codes list information to be provided on a Building Information Card... More detail information can be placed in a locked cabinet or in the fire command center.... Fire codes can list informatiom to be provided on a Building Information Card. This can be an actual card or in an electronic format. The later make information very easy to access and read.

The Building Information Card hs more occupancy related emergency preparedness planning applications that will further assist the fire service and other first responders with building information for emergency response for appropriate tactical considerations.

Bibliography: Jaci J. Murphy - Fire Marshal (Ret.)/Fmr. Deputy Chief and Deputy Fire Coodinator NJ Div. of Fire Safety (Bergen Region).
Currently serves on the:

- ICC Northeast Fire Code Group representing the IAFC
  NFPA 1602 Pre-Incident Planning Committee
- NFPA High-Rise Building Safety Advisory Committee
- Fire Safety Directors Association (NYC/High-Rise Bldg.)

Has served on the NYC/ICC Model Bulding & Fire Codes Committees for the 2008 & 2012 Editions

Cost Impact: Will not increase the cost of construction
The code change will not increase the cost of construction. The content text is being relocated from an existing Section 508.1.6 to a new Section 408 with some new building components being identified (e.g. stairs to below grade, alterative power sources, temporary building condition). A cost may arise if the local AHJ elects to implement an electronic building information card under the EXCEPTION Section 408.1.1.

F33-16

IFC: 404.2.3, 404.2.3.1, 404.2.3.2, 404.2.3.3.

Proponent : Michael O'Brian representing the Fire Code Action Committee (FCAC@iccsafe.org); Stephen DiGiovanni, Clark County Department of Building and Fire Prevention, representing Fire Code Action Committee

2015 International Fire Code

Delete and substitute as follows:

404.2.3 Lockdown plans. ~~Where facilities develop a lockdown plan, it shall be in accordance with Sections 404.2.3.1 through 404.2.3.3.~~
Lockdown plans shall only be permitted where such plans are approved by the *fire code official* and are in compliance with Sections 404.2.3.1 and 404.2.3.2.

404.2.3.1 Lockdown plan contents. ~~Lockdown plans shall be *approved* by the *fire code official* and shall include the following:~~

~~1. Initiation. The plan shall include instructions for reporting an emergency that requires a lockdown.~~
~~2. Accountability. The plan shall include accountability procedures for staff to report the presence or absence of occupants.~~
~~3. Recall. The plan shall include a prearranged signal for returning to normal activity.~~
~~4. Communication and coordination. The plan shall include an *approved* means of two-way communication between a central location and each secured area.~~

Lockdown plans shall include the following:

1. Identification of individuals authorized to issue a lockdown order.
2. Security measures used during normal operations, when the building is occupied, that could adversely affect egress or fire department operations.
3. A description of identified emergency and security threats addressed by the plan, including specific lockdown procedures to be implemented for each threat condition.
4. Means and methods of initiating a lockdown plan for each threat, including:
    4.1. The means of notifying occupants of a lockdown event, which shall be distinct from the fire alarm signal.
    4.2. Identification of each door or other access point that will be secured,
    4.3. A description of the means or methods used to secure doors and other access points.
    4.4. A description of how locking means and methods are in compliance with the requirements of this code for egress and accessibility.
5. Procedures for reporting to the fire department any lockdown condition affecting egress or fire department operations.
6. Procedures for determining and reporting the presence or absence of occupants to emergency response agencies during a lockdown.
7. Means for providing two-way communication between a central location and each area subject to being secured during a lockdown.
8. Identification of the prearranged signal for terminating the lockdown

9. Identification of individuals authorized to issue a lockdown termination order.
10. Procedures for unlocking doors and verifying that the means of egress has been returned to normal operations upon termination of the lockdown.
11. Training procedures and frequency of lockdown plan drills.

404.2.3.2 ~~Training frequency.~~ Drills ~~The training frequency shall be included in the lockdown plan. The lockdown drills shall not substitute for any of the fire and evacuation drills required in Section 405.2.~~

Lockdown plan drills shall be conducted in accordance with the approved plan. Such drills shall not be substituted for fire and evacuation drills required by Section 405.2.

Delete without substitution:

~~404.2.3.3 Lockdown notification.~~ ~~The method of notifying building occupants of a lockdown shall be included in the plan. The method of notification shall be separate and distinct from the fire alarm signal.~~

Reason: This proposal is intended to address the various security means and methods that have become prevalent due to various incidents throughout the country. Several such means and methods, while solving the security concerns, have unintended consequences in their effect on emergency egress and fire and life safety systems. While the code discusses the contents of a lockdown plan, there is a concern that the current code does not provide sufficient guidance to applicants that are seeking to institute a lockdown plan, to ensure that the plan covers the topics pertinent to the fire code official thoroughly.

This proposal adds some specific topics that need to be addressed in a lockdown plan. One issue that is being addressed is a need to identify the organizational structure in charge of making decisions during a lockdown. Wording is added to Item 1 and Item 3 to address the need to identify the authority that will both initiate and lift a lockdown order.

This proposal also includes requirements for including the lockdown procedures in the plan. In viewing these procedures, it was apparent that different lockdown plans may be necessary for different threats. What might be a correct procedure during a chemical release incident may be different from the correct procedure during an active shooter incident. What might be correct procedure for an active shooter in the vicinity of a facility, may be different than the procedure for an active shooter on the site of the facility. It was recognized that a description of the normal status of security, a description of the various threats scenarios addressed by the lockdown plan, and the lockdown procedure for each such scenario, would be important information to include for review.

This proposal also includes an item to describe the means and methods of locking. There is concern about the proliferation of unlisted locking mechanisms, and their potential detrimental impact on the means of egress. This proposed item requires that all means and methods of locking for all access points be described, and that compliance with Chapter 10 requirements be demonstrated.

This proposal is submitted by the ICC Fire Code Action Committee (FCAC). The FCAC was established by the ICC Board of Directors to pursue opportunities to improve and enhance assigned International Codes with regard to fire safety and hazardous materials in new and existing buildings and facilities and the protection of life and property in wildland urban interface areas. In 2014 and 2015 the Fire-CAC has held 5 open meetings. In addition, there were numerous conference calls, Regional Work Group and Task Group meetings for the current code development cycle, which included members of the committees as well as any interested parties, to discuss and debate the proposed changes. Related documentation and reports are posted on the FCAC website at: FCAC

Cost Impact: Will increase the cost of construction
The cost of construction may be increased in terms of more man-hours to develop the lockdown plan to address the topics added by this proposal.

F40-16

508.1; IBC [F] 911.1

Proponent : Joe McElvaney, self, representing self (joemcelvaney@gmail.com)

2015 International Fire Code

Delete and substitute as follows:

508.1 (IBC [F] 911.1) General. ~~Where required by other sections of this code and in all buildings classified as high-rise buildings by the *International Building Code*, a *fire command center* for fire department operations shall be provided and shall comply with Sections 508.1.1 through 508.1.6.~~ A fire command center shall be provided in each of the following locations:

1. High-rise buildings.
2. Buildings with an atriums connecting more than two stories.
3. Buildings, other than Group E, provided with a required emergency voice/alarm communications system.
4. Buildings or areas provided with a mass notification system.
5. Buildings with smoke protected assembly seating
6. Covered mall buildings exceeding 100,000 square feet.

Fire command centers shall comply with Sections 508.1.1 through 508.1.6.

Reason: Currnetly fire command centers are only required in high rises, this new section will require them in other areas. These new locations will provide a center location for the fire department,

Cost Impact: Will increase the cost of construction
These new location will provide a fire ocmmand center location for the fire department use, Hence addtional sq ft will be loss. Most the equipemnt required in the fire command center wil be required do to the nature of the building.

F40-16 : 508.1-MCELVANEY10441

F41-16

508.1; IBC [F] 911.1

Proponent : Adria Reinertson, Riverside County Fire Department, representing California Fire Chiefs Association (adriar@moval.org)

2015 International Fire Code

Revise as follows:

508.1 (IBC [F] 911.1) General. Where required by other sections of this code ~~and~~ in all buildings classified as high-rise buildings by the *International Building Code* and in all buildings with a footprint of over 500,000 square feet, a *fire command center* for fire department operations shall be provided and shall comply with Sections 508.1.1 through 508.1.6.

Reason: Fire Operations at large, horizontal buildings in excess of 500,000 square feet can be just as challenging for firefighters as operating at high-rise buildings. Adding a fire control room to these types of buildings will allow the incident commander to see at a glance, in one protected location, where the fire is, the buidling layout, and any active fire protection to provide the best strategy possible to mitigate the problem and protect the lives of firefighters. The items required in the fire control room in Section 508.1.6 would be limited to those already in the building and would not require items otherwise not required by the construction of the building.

Cost Impact: Will increase the cost of construction
This proposal would require that a 200 sq. ft. rated room be added to the building, an estimated .06% increase to the cost of construction, utilizing 500,000 sq. ft. as the model. The applicable items listed in 508.1.6 will already be in the building so the cost to locate them in the fire control room rather than throughout the building will not increase costs.

F41-16 : 508.1-REINERTSON13208

F42-16

508.1.2, IBC [F] 911.1.2

Proponent : Ali Fattah, City of San Diego Development Services Department (afattah@sandiego.gov)

2015 International Fire Code

Revise as follows:

508.1.2 (IBC [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 of the *International Building Code* or *horizontal assembly* constructed in accordance with Section 711 of the *International Building Code*, or both. Where the fire command center is required by Section 403.4.6 of the *International Building Code*, it shall be separated from the remainder of the building by not less than a 2-hour *fire barrier* or *horizontal assembly*, or both.

Reason: This code change is mainly editorial in nature and coordinates the IBC/IFC with the requirements in NFPA 72.
The majority of high rise buildings utilize zoned evacuation. NFPA 72 is a referenced standard and it requires that zoned (or partial) evacuation systems meet survivability requirements. This entails that the fire alarm riser and all equipment serving the main backbone of the system (prior to branching off on each floor) being protected as specified in NFPA 72.

Survivability is achieved via a 2-hour rated room or enclosure per 2013 NFPA 72 Section 24.4.2.8.5.6. Since IBC Section 911 .1.5 requires that the emergency voice/alarm communications system control unit be in the fire command center, this is equipment that is required to meet the survivability requirements of NFPA 72. Therefore, the room must be separated by at least 2-hour rated fire barriers per NFPA 72.

The intent of this change is to incorporate the referenced standard requirement from NFPA 72 into the IBC so that they are consistent and there is no confusion. The cost of this change is minimal as the fire command center is only 200 square feet in area so the added layer of drywall and an upgrade to a 90-minute rated door should not be cost restrictive.

Additionally, Section 913.2.1 requires that fire pump rooms be separated with two hour assemblies and Section 403.4.8.1 requires that the emergency or standby generator room also be separated with two hour assemblies it stands to reason that the fire command center that controls these systems should be similarly separated.

The proposed code change assumes that Group A code change G76-15 will be approved through public comment # 1 or 2 as a result the text of the proposed code change is reflective of that. In the even that G76-15 is not approved then we request that the code correlating committee revise the fire resistance rating to 2 hour in the first sentence of the unchanged Section and that the additional proposed text be omitted.

Cost Impact: Will increase the cost of construction
This requirement is a life safety related issue. The cost increase will not be significant since it involves the incremental cost of increased fire resistance on a very large project.

F42-16 : 508.1.2-FATTAH11509

F43-16

508.1.3; IBC 911.1.3

Proponent : Matthew Davy, Arup (matt.davy@arup.com)

2015 International Fire Code

Revise as follows:

508.1.3 (IBC [F] 911.1.3) Size. The *fire command center* shall be not less than 96 square feet (8.9 m^2) in area with a minimum dimension of 8 feet (2438 mm). In buildings more than 420 feet in *building height*, the *fire command center* shall be not less than 200 square feet (19 m^2) in area with a minimum dimension of 10 feet (3048 mm).

Reason: The 96 sqft size was typical for high-rise buildings in legacy editions with sufficient room for a work table; however, it was increased to 200 sqft during the 07/08 code development cycle stating "too small and confining." As noted in OSHA's *Fire Service Features of Buildings and Fire Protection Systems*, "[an] important consideration is the size of the [fire command center]. Space is needed to accommodate a table and to access all the equipment in the room. The table is intended to help incident commanders consult plans for the building and fire protection systems. If the center is used for other purposes (such as security), additional space should be provided beyond that required or needed for the fire protection features." This 'additional space' more appropriately aligns with self-supporting buildings over 420 feet, which should trigger a larger fire command center for incident management and control of building systems during lengthy or extended operations. It should be noted that the dimensions of the work table are not specified in the code, and the fire command center layout for any high-rise must be approved prior to installation for local fire department operational considerations.

Bibliography: Fire Service Features of Buildings and Fire Protection Systems, 3256-09R, OSHA, 2015, page 89, https://www.osha.gov/Publications/OSHA3256.pdf

Cost Impact: Will not increase the cost of construction
This proposal should reduce the cost of construction for high-rise buildings less than 420 feet in height.

F43-16 : 508.1.3-DAVY11977

F44-16

508.1.3, IBC [F] 911.1.3

Proponent : Stephen DiGiovanni, Clark County Building Department, representing Southern Nevada Chapter of ICC (sdigiovanni@clarkcountynv.gov)

2015 International Fire Code

508.1.3 (IBC [F] 911.1.3) Size. The *fire command center* shall be not less than ~~200~~ 0.015 percent of the total building area of the facility served or 96 square feet (~~19~~ 8.9 m^2) in area, whichever is greater, with a minimum dimension of ~~10~~ 0.7 times the square root of the room area, or 8 feet (~~3048~~ 2438 mm), whichever is greater.

Reason: From the 2006 IBC to the 2009 IBC, the Fire Command Center size increased from 96 sf to 200 sf, and the minimum dimension increased from 8 ft to 10 ft.

It is clear that one Fire Command Center size does not address all building scenarios. This issue may be better addressed by a Fire Command Center size that is variable. For smaller buildings, which are expected to have fewer panels for fire alarm, stair pressurization controls, HVAC controls, smoke removal, elevator status, etc., the size of 200 sf from the current code may be more than needed. It is probable that the original size requirement of 96 sf room was sufficient for many of the smaller buildings constructed. However, for larger complexes, having more building area to express on the various system control panels, larger Fire Command Centers may be necessary.

This proposal attempts to size the Fire Command Center in relation to the building size. The proposal returns to the original size of 96 sf as the base, but also can require much larger rooms, depending on the building served. The formula contained in this proposal returns the same Fire Command Center size for a building of 1,333,333 sf; smaller buildings will have smaller size requirements, while larger buildings will have larger size requirements. This table shows a sample of the varying sizes of the Fire Command Centers that would result from this proposal:

Size of Building (SF)	Size of Fire Command Center (SF)	Minimum Dimension of Fire Command Center (FT)
250,000	37.5 (would be 96 due to minimum)	4.3 (would be 8 due to minimum)
500,000	75 (would be 96 due to minimum)	6.06 (would be 8 due to minimum)
640,000	96	6.9 (would be 8 due to minimum)
750,000	112.5	7.4 (would be 8 due to minimum)
1,000,000	150	8.6
1,333,333	200	9.9
2,000,000	300	12.1
5,000,000	750	19.2
10,000,000	1,500	27.1

Cost Impact: Will increase the cost of construction
This amendment will have varying effects on construction (both increase and decrease), as some buildings (those

less than 1,333,333 sf in building area) would be able to use smaller Fire Command Centers than are currently required, while other buildings (those larger than 1,333,333 sf in building area) would be required to have larger Fire Command Centers than are currently required.

F44-16 : 508.1.3-
DIGIOVANNI3841

F45-16

508.1.6; IBC [F] 911.1.6

Proponent : Bill McHugh, The McHugh Company, representing National Fireproofing Contractors Association (billmchugh-jr@att.net)

2015 International Fire Code

Revise as follows:

508.1.6 (IBC [F] 911.1.6) Required features. The *fire command center* shall comply with NFPA 72 and shall contain 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 *stairway* doors simultaneously.
8. Sprinkler valve and water-flow 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 of egress*, *fire protection systems*, fire-fighter air-replenishment systems, fire-fighting equipment and fire department access, and the location of *fire walls*, *fire barriers*, *fire partitions*, *smoke barriers* and smoke partitions~~.~~ ,
13. An *approved* Building Information Card that includes, but is not limited to, all of the following information:
    - 13.1. General building information that includes: property name, address, the number of floors in the building above and below grade, use and occupancy classification (for mixed uses, identify the different types of occupancies on each floor) and the estimated building population during the day, night and weekend;
    - 13.2. Building emergency contact information that includes: a list of the building's emergency contacts including but not limited to building manager, building engineer and their respective work phone number, cell phone number and e-mail address;
    - 13.3. Building construction information that includes: the type of building construction including but not limited to floors, walls, columns and roof assembly~~;~~ , *spray fire-resistive materials and intumescent fire-resistive coatings* manufacturer.
    - 13.4. *Exitaccess stairway* and *exit stairway* information that includes: number of *exit access stairways* and *exit stairways* in building; each *exit access stairway* and *exit stairway* designation and floors served; location where each *exit access stairway* and *exit stairway* discharges, *interiorexit stairways* that are pressurized; *exit stairways* provided with emergency lighting; each *exit stairway* that allows reentry; *exit stairways* providing roof

access; elevator information that includes: number of elevator banks, elevator bank designation, elevator car numbers and respective floors that they serve; location of elevator machine rooms, control rooms and control spaces; location of sky lobby; and location of freight elevator banks;

13.5. Building services and system information that includes: location of mechanical rooms, location of building management system, location and capacity of all fuel oil tanks, location of emergency generator and location of natural gas service;

13.6. *Fire protection system* information that includes: location of standpipes, location of fire pump room, location of fire department connections, floors protected by automatic sprinklers and location of different types of *automatic sprinkler systems* installed including but not limited to dry, wet and pre-action;

13.7. Hazardous material information that includes: location and quantity of hazardous material.

14. Work table.
15. Generator supervision devices, manual start and transfer features.
16. Public address system, where specifically required by other sections of this code.
17. Elevator fire recall switch in accordance with ASME A17.1/CSA B4.
18. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.

Reason: Spray fire-resistive materials (SFRM) and intumescent fire resistive materials and coatings (IFRM) protect the structural frame. For post fire investigation, it is criticial to identify the manufacturer of the fireproofing system installed for protection. Without this information, the *fire code official* is left to guess what materials were in place for the investigation. Secondly, the primary structural frame is protected with SFRM and IFRM's. Without protection, the primary structural frame may not stay standing long enough to protect first responders fighting fire.

Cost Impact: Will increase the cost of construction
This will increase the cost of construction by the amount of a small sign in the fire command center.

F45-16 : 508.1.6-MCHUGH13431