City of Phoenix

FIRE DEPARTMENT

FIRE PREVENTION SECTION

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Explanatory Policy Manual

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Purpose of Explanatory Policies

The Fire Marshal is authorized to enforce the regulations outlined in the fire code. The Fire Marshal has the jurisdiction to interpret and provide clarifications on its provisions. Additionally, the fire code official may establish policies, procedures, rules, and regulations to ensure the proper application of the code's intent and purpose. However, it's important to note that such policies, procedures, rules, and regulations must not waive any requirements explicitly stated in this code.

Explanatory policies serve to provide additional clarity and guidance on the interpretation and application of regulations outlined in codes or laws. They aim to help individuals understand how specific provisions should be implemented in practical scenarios. These policies may include examples, case studies, or detailed explanations to illustrate the intended meaning behind certain regulations. Explanatory policies are valuable tools for ensuring consistent enforcement and compliance with regulations while also promoting understanding among stakeholders such as government agencies, businesses, and the public.

Approved explanatory materials by the Fire Marshal are designed to clarify the interpretation of the fire code. These materials are identified in the fire code by a diamond symbol (◆) in the margin.

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5&6 Points Letter Policy

Explanatory Policy – Design Documents & 5 Points Letter

SUBJECT: Design Documents & 5 Points Letter Requirements	**EFFECTIVE DATE:** October 2022
REFERENCES: The Phoenix Fire Code (2018 Edition) Section 903.3	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The following explanatory policy applies to the requirements for design documents and supplemental submittal information to include with all fire sprinkler and fire alarm system plan reviews requiring a Registered Design Professional seal.

Requirements:
Where Items 1 through 5 or 1 through 6 listed below are identified and detailed in a narrative or single page sealed by a registrant, the remaining fire sprinkler or fire alarm shop drawings may be prepared and sealed by a NICET 3 or 4. The requirement to have shop drawings and hydraulic calculations sealed by a NICET 3 or 4 applies only when the 5 points narrative or single page is submit with the design drawings as a supplemental document. Without the sealed 5 points narrative or single page the design and hydraulic calculations are required to be sealed by a registrant in their entirety.

*****Automatic Fire Sprinkler System Design*****

For fire sprinkler systems, the following are considered to be Registered Design Professional activities in accordance with the requirements of the Arizona Board of Technical Registration.

1. Consider the range of hazards of the project.
    1.1. Automatic sprinkler system design shall be based on the hazard classification of the building or area in accordance with NFPA 13.
    1.2. Automatic sprinkler system designs for high- piled storage shall be in accordance with Chapter 32, High-piled Combustible Storage, and Chapter 57, Flammable and Combustible Liquids.
2. Prepare hazard analysis; identify the hazard classification of the intended occupancy, including any special hazards.
3. Determine the applicable codes and standards and appropriate engineering practices.
4. Ascertain the availability and adequacy of the water supply for the project.

5. Determine the appropriate design density and area of operation for each hazard area.

One exception this requirement is for automatic sprinkler systems installed in accordance with NFPA 13D.

*****Automatic Fire Alarm System Design*****

For fire alarm systems, the following are considered to be Registered Design Professional activities in accordance with the requirements of the Arizona Board of Technical Registration:

1. Determine the system type.
2. Determine the applicable codes and standards and appropriate engineering practices.
3. Determine device types and locations.
4. Prepare generalized riser diagram.
5. Coordinate and interface with other systems.
6. Develop system specifications.

Permit:
Automatic fire sprinkler and fire alarm permits are required to be obtained prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per NFPA 25 & 72 and manufactures specifications.

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Alternative Surface Access Roads

Explanatory Policy – Alternative Surface Fire Apparatus Access Roads

SUBJECT: Alternative Fire Apparatus Access Road Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 503.2.10	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The following explanatory policy applies to the application for alternative fire apparatus access roads regulated by section 503.2.10 of the Phoenix Fire Code.

Requirements:
Alternative surface fire lanes shall meet the requirements of fire apparatus access roads and the following:

- **Engineering report.** An engineer registered by the State of Arizona shall prepare and seal a soil compaction report, ensuring the road will support the imposed live load, drainage, stabilization and curbing. The report shall be submitted for review by the fire code official.

- **Stabilization.** Stabilization of the fire apparatus access road surface shall be addressed in the alternative surface fire apparatus access road report and may be accomplished by curbing.
  At a minimum, the surface of fire apparatus access roads shall be as follows:
  - Minimum 6 inches of native soil compacted to 95 percent of standard proctor density (ASTM D698), and
  - Minimum 4 inches of aggregate base compacted to 100 percent of standard proctor density (ASTM D698).
    The surface of fire apparatus access roads may differ from the above requirements if it is shown that the surface provided is sufficient to support an imposed live load of 70,000 pounds with a maximum axle load of 28,000 pounds.

- **Curbs.** A rolled curb shall be installed at the entrances to fire apparatus access roads.

- **Marking.** The curb shall be painted red or red reflectors shall be installed to define the width of alternative surface fire apparatus access roads. The reflectors shall be imbedded into bordering curbing at intervals not exceeding 25 feet.

- **Special inspections.** An Arizona-registered professional engineer shall conduct a special inspection prior to final approvals being issued for the alternative surface fire apparatus access road. The inspection shall confirm the following:

    - Subgrade soil compaction report.
    - Base material quality, thickness and compaction.
    - Concrete depth and compressive strength, when applicable.
    - An evaluation of the installation in accordance with design drawings and manufacturer specifications.
    - Crown and drainage requirements.
    - Stabilization.

    The report shall be submitted for review by the fire code official.

Permits:
A Fire Apparatus Alternative Surface Access Road permit is required prior to the start of construction. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Fire apparatus access roads shall be maintained as approved, by the owner, at all times.

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Appeal to the Fire Marshal Policy

Explanatory Policy – Appeals to the Fire Marshal	
SUBJECT: Appeal to the Fire Marshal Requirements	**EFFECTIVE DATE:** December 2021
REFERENCES: The Phoenix Fire Code (2018 Edition) Section 104.6.4	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The following explanatory policy applies to the general authority and responsibilities of the fire code official to approve or deny applications for modification, alternative methods or materials and the means of recording the final decision through the appeals process.

Requirements:
Projects seeking to apply for an appeal to the Fire Marshal for modification, alternative methods or materials shall be made in writing and shall be officially recorded in the permanent records of the fire code official through an appeal to the Fire Marshal. Projects seeking an appeal without proposed alternatives will not be reviewed as the fire code does not allow the Fire Marshal to approve the omission of fire code requirements but does allow the applicant to propose alternatives, that are equivalent or superior to prescriptive code solutions, supported by research-based evidence and submitted under the seal and approval of a Professional Registrant Engineer.

Permit:
The application for an Appeal to the Fire Marshal can be found on the City of Phoenix Fire Preventions website. The application must be filled out entirely and signed by appellant and building owner. If the building owner is not available for signature, a notarized letter is required stating the owner is aware of the appeal and has no objections to it. The application should be accompanied by supplemental documents including but not limited to the following:

- Site Plan
- Floor Plan
- Letter answering 6 questions from application
- Certified Engineering Report
- Certified Third Party Test Reports
- Additional supporting documentation as necessary or where required

Appeal stipulations are verified to be complete through one of the following methods:

- General Inspection
- Site visit by Engineer
- Through plan review and permit application of associated scopes of work

Inspection Test & Maintenance:
As per the National Standard applicable to the appeal as outlined in the appeal stipulations in addition to manufactures specifications.

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Asphalt Kettles Policy

Explanatory Policy – Asphalt Kettles	
SUBJECT: Asphalt Kettle Addition Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 303	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The following explanatory policy applies to the requirement for asphalt kettles used within the City of Phoenix.

Requirements:

- **Transportation.** All kettle doors shall be tightly closed and latched when in transit.
- **Unattended fuel containers.** Fuel containers left in place at the end of a workday shall be secured to prevent unauthorized access to and tampering with the fuel containers.
- **Temperature gauge.** Asphalt kettles shall be provided with an operational temperature gauge.
- **Supports.** A noncombustible support leg shall be utilized to adequately support the weight of the asphalt kettle and contents. The support leg shall ensure that the kettle is level.
- **Doors.** All asphalt kettles shall have doors permanently attached.
- **Door installation.** Asphalt kettles shall have doors and shall be provided with handles that allow them to be opened without the operator having to stand in hazard zone.

- **Vehicular and pedestrian barrier protection.** Vehicular and pedestrian barrier protection shall be installed when asphalt kettles are placed in a street or roadway. The barrier protection shall be installed as follows:
    - Barriers shall be at least 3 feet high to be visible to vehicular and pedestrian traffic.
    - The barrier shall surround the kettle and fuel containers.
    - Barriers shall clearly identify that the area is restricted to authorized persons only.
    - Barriers shall be installed to provide at least 30 feet between the asphalt kettle operations and occupied Groups A, E, or I occupancies.

Permits:
N/A

Inspection Test & Maintenance:
N/A

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Audibility Levels Policy

Explanatory Policy – Audibility Levels, Voice Messages and Strobe Substitution

SUBJECT: Acceptable Decibel Ratios for Fire Alarm Testing, Visual Notification Substitution and Messaging Requirements	**EFFECTIVE DATE:** **May 1, 2021** Original July 19, 2019 and previous to 2012
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 907.5.2.1.1 2019 NFPA 72	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy covers Sections 907.5.2.1.1 and 907.8.1 of the 2018 IFC, and Section 18.4.4.1 of the 2019 edition of NFPA 72 require audible alarm notification appliances provide and maintain a sound pressure level of 15 decibels (dBA) above ambient sound levels or 5 dBA above the maximum sound level having duration of at least 60 seconds in public mode and 10dBA above ambient in private mode in accordance with section 18.4.5.1. Private mode is only available to "I" occupancies by Appeal to the Fire Marshal. Private mode annunciation of 10 dBA differential is subject to appeal to the Fire Marshal supported by a sound study in accordance with 3.3.29 Average Ambient Sound Level.

Requirements:
When average ambient is measured at 90 dBA or above in an area, strobe coverage in accordance with visible requirements of section 18.4.4.2 of 2019 NFPA 72 is allowed without an appeal. In this high noise situations strobe only coverage is allowed.

In common areas that require visual notification, the visible notification helps augment the sound requirements. In these areas a minimum 15 dBA differential will be acceptable. The most common issue is offices without notification devices. For readings taken in an individual office with no device; the meter should be pointed at the entry door into the office from a central point in the office.

This is the code accepted minimum for alerting normal to moderately hearing-impaired occupants that the fire alarm is activated. Using this guideline in most occupied structures, a 15-dBA differential will be acceptable.

Most occupied structures are tested before or after business hours to avoid business interruption. Allowances shall be made for the expected differential between business operation noise and ambient conditions when the building is not in use.

The differential during non-business hours shall be 20 dBA to account for the expected increase in ambient noise levels during regular operations. This gives an acoustically significant safety margin of a factor of 3.1 times when 5 dBA over the required 15 dBA code minimum is present, due to the nature of sound pressure increase in ratio with audible acoustic intensity.

NFPA 72 18.4.6.1 requires a minimum 75 dBA at the pillow level of all sleeping areas including residential or staff sleeping rooms in hospitals but **not** in patient rooms where nursing care is provided. With no furnishings in the room this may be assessed at 80 dBA to account for the dampening effect of bedding and furnishings. Audibility is not required in patient or prisoner rooms with trained staff response.

Buildings under construction seeking a new or renewed Certificate of Occupancy shall have the doors, floor finishes, and ceiling arrangements in place prior to sound level testing. The acoustic characteristics that will absorb the sound will not be present without these in place.

Sound level differentials are to be measured at approximately 3 to 5 feet above the ground using a meter with an A-weighted scale, for readings taken in an individual office with no device; the meter should be pointed at the entry door into the office from a central point in the office.

The preliminary notes to the NFPA 72 Table A.18.4.3 Average Ambient Sound Level According to Location, indicate that if you can establish actual ambient sound level during times of operation the 70 dBA should not be used. Sound differential measurement shall use the 15 dBA above existing actual ambient. Occupied offices doing tenant improvements should use ambient sound levels, not levels in Table A.18.4.4.

In areas that are not occupied, ambient sound levels cannot be established. NFPA 72 Table A.18.4.3 has various ambient sound conditions for specific occupancies. Therefore, if you added the required 15 dBA above ambient 70 dBA would be a target level for offices, 65 dBA for institutional, 55 dBA in mercantile, 50 dBA in residential (other than the sleeping areas) etc.

Table A.18.4.4 Average Ambient Sound Level According to Location

Location	**Average Ambient Sound Level (dBA)**
Business occupancies	54
Educational occupancies	45
Industrial occupancies	*88*
Institutional occupancies	50
Mercantile occupancies	40
Mechanical rooms	**91**
Piers and water-surrounded structures	40
Places of assembly	55
Residential occupancies	35
Storage occupancies	30
Thoroughfares, high-density urban	70
Thoroughfares, medium-density urban	55
Thoroughfares, rural and suburban	40
Tower occupancies	35
Underground structures and windowless buildings	40
Vehicles and vessels	50

In areas with ambient noise over 90 dBA visuals devices shall be used in accordance with NFPA 72 without need for an appeal.

Differentials greater than 25 dBA should be avoided by designers as a sudden increase of 30 dBA over 0.5 seconds is considered to cause sudden and potentially dangerous fright. The exception is sleeping areas.

Audible levels over 105 dBA shall be avoided as 5 minutes at the 105 dBA sound level can cause permanent hearing damage and is painful to most occupants.

The voice instructions (live or prerecorded) need not meet the 15 dBA differential criteria but should be preceded by a tone of adequate audibility to get attention and prepare the target audience for voice instructions. The actual voice message (live or pre-recorded) should be delivered in a well-enunciated, clear, calm, and deliberate manner, using respectful language.

These provisions are available without an Appeal.

18.4.3.2 Where approved by the authority having jurisdiction or other governing codes or standards, the requirements for audible signaling shall be permitted to be reduced or eliminated when visible signaling is provided in accordance with Section 18.5.

18.4.3.4 If approved by the authority having jurisdiction, audible alarm notification appliances installed in restrooms shall be permitted to use the audibility criteria for private mode appliances detailed in 18.4.4.1.

Permit:
Fire alarm permits are required to be obtained prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per NFPA 72 and the manufactures specifications.

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Blasting Policy

Explanatory Policy – Blasting	
SUBJECT: Blasting in congested areas requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 5607.3	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy covers 5706.3 Blasting in congested areas. When blasting is done in a congested area or in close proximity to a structure, railway or highway, or any other installation, precautions shall be taken to minimize earth vibrations and air blast effects. Blasting mats or other protective means shall be used to prevent fragments from being thrown.

Requirements:
No blasting shall be allowed in congested areas or close proximity to structures without a written report, plan or technical analysis stamped and sealed by a Professional Engineer knowledgeable in blasting and mining. The plan must ensure that no materials will leave the blast site and reach any structure. The report, plan or opinion must be reviewed, approved, and accepted by the Fire Marshal.

Permit:

A blasting permit is required and obtain through Fire Prevention

Inspection Test & Maintenance:

Explosives shall be maintained in safe condition in accordance with the fire code and manufacture specifications.

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Business Certificate Contractors Policy

Explanatory Policy – Business Certificate Qualified Contractor

SUBJECT: Business Certificate Qualified Contractor Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 105.9 – 105.10.2	**REVIEW DATE:** July, 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy covers The Fire Code Official shall issue a business certificate to ensure persons or entities that install, modify, alter, add to, test, repair, provide required inspections or service any *fire alarm system*, sprinkler system, standpipe system, fire main, fire pump or any other fire-extinguishing or detection system, device or appliance are qualified contractors.

Requirements:
The following are required, in addition to the application and fee, to obtain a Business Certificate.

1. An Arizona Registrar of Contractors license
2. State of Arizona privilege tax license

The following conditions shall be met to become a qualified contractor:

1. **Employment.** The qualified contractor shall be employed by the company to which the permit is issued. Employment verification may be required.

2. **Nationally recognized standards.** The qualified contractor applicant knows and understands the requirements of applicable standards and the code requirements appropriate for the business certificate being issued. This knowledge and understanding shall be determined by one of the following methods:

2.1. The *fire code official* may accept a National Institute of Certifying Engineering Technicians (NICET) Level 3 or 4 certification in lieu of an examination by a recognized testing agency in the following fire protection equipment categories: *automatic sprinkler systems*; underground fire mains and hydrants; *fire alarm systems*; and special extinguishing systems, all fire protection (hoods).

2.2. The business certificate qualified contractor applicant shall submit and maintain proof to the *fire code official* that his or her NICET certification is current in the proper fire protection equipment field for which they are applying.

2.2.1. The maintenance of the NICET certification shall be a condition of the business certificate qualified contractor. Failure to maintain the required certification shall void business certificate qualified contractor status.

2.3. The *fire code official* may accept a valid Arizona Board-certified professional engineer. Required

certificates must be maintained for the permit to be valid for qualified contractor status.

2.4. The *fire code official* may accept a successful completion of an exam by a recognized testing agency.

Contractor license. The qualified contractor shall be responsible for submitting a current Arizona Registrar of Contractors license to the *fire code official*.

Responsibilities. business certificate holder-qualified contractor shall be responsible for:

1. Ensuring that all installations, modifications, maintenance, and testing performed by the company comply with the applicable codes and standards, and
2. Ensuring that the plans submitted for a permit meet minimum requirements of the codes and standards that apply to the particular fire system permit, and
3. Ensuring that the installation is done correctly and completely, and
4. Ensuring that permits are inspected, and green tagged by the Phoenix Fire Department, and
5. Notifying the Fire Prevention office when an employee designated as a competent party is no longer employed by the company.

Qualified contractor expiration. Contractor qualifications shall be renewed every three years from the date of issuance. When a contractor's qualifications have expired, all work authorized shall stop until updated qualifications have been submitted to Fire Prevention. Renewal shall take place prior to expiration.

Renewal after expiration. Applications for renewal shall be filed in the same manner as an application for a qualified contractor.

Facility self-inspection. Testing, repairing, or servicing of fire protection equipment, devices or appliances may be conducted by facility employees or employees of qualified contractor.

Employment. The competent party or qualified contractors shall be employed by the company to which the permit is issued.

Examinations. The qualified contractor shall successfully pass a prescheduled examination *approved* by the *fire code official*.

Change of address. The qualified contractor shall notify the Division of Fire Prevention in writing of any address change within 10 calendar days after such change. Failure of the individual to give such notification of a change of address is grounds for revocation of business certificate.

Producing credentials. The qualified contractor shall, upon request, produce and show proper identification business certificate to anyone for whom that individual seeks to render services or to the *fire code official*.

Suspending a qualified contractor business certificate. The following conditions may result in the suspension of a qualified contractor certificate:

1. A single instance of performing work or an activity without a permit within a two-year period.
2. Three or more documented instances in a two-year period of two or more significant code violations at one construction project, or the completion or covering of work without inspections.

This list of conditions is not all-inclusive.

Revocation of a business certificate. The *fire code official* may revoke a business certificate-qualified contractor status and require reexamination for due cause including:

1. Three or more instances of performing work or an activity without a permit within a two-year period.
2. The performance of any fraudulent installation including but not limited to installation of sprinklers without connection to a piping system or installation of fire alarm devices without being connected to a *fire alarm control panel*.
3. Suspended or revoked Arizona Registrar of Contractors license.

This list of conditions is not all-inclusive.

Suspension, revocation, or confiscation procedures. No suspension, revocation or confiscation of a certificate is lawful unless, prior to the action, the fire department provides the individual or business with notice and an opportunity for a hearing in accordance with this section. If the fire department finds that the public health, safety or welfare imperatively requires emergency action and incorporates a finding to that effect in its order, summary suspension of a permit or certificate may be ordered pending proceedings for revocation or other action. These proceedings shall be promptly instituted and determined.

Serving notice for suspension or revocation. All parties shall be afforded an opportunity for a hearing after reasonable notice. Unless otherwise provided by law, the notice shall be given at least 15 business days prior to the date set for the hearing.

Minimum notice requirements. The notice shall include:

1. A statement of the time, place, and nature of the hearing.
2. A statement that the hearing is authorized in accordance with this section.
3. A reference to the section involved.
4. A short and plain statement of the matters asserted.

If the fire department is unable to state the matters in detail at the time the notice is served, the initial notice may be limited to a statement of the issues involved. Thereafter upon application a more definite and detailed statement shall be furnished.

Evidence and arguments. Opportunity shall be afforded all parties to respond and present evidence and argument on all issues involved.

Informal depositions. Unless precluded by law, informal depositions may be made of any contested case by stipulation, agreed settlement, or default.

Notification. Revocation, suspension, or confiscation shall be effective when is notified by the *fire code official*.

Permits:
A Business Certificate Qualified Contractor permit is required and obtain through Fire Prevention. This permit is required to be maintained on an annual basis to ensure qualifications are maintained.

Inspection Test & Maintenance:
Business Certification shall be maintained current to submit plans and to do business in the City of Phoenix.

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Certificate of Occupancy – Existing Buildings Policy

Explanatory Policy – Certificate of Occupancy and Occupant Loads

SUBJECT: Existing Building Certificate of Occupancy Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 105.3.3	**REVIEW DATE:** July 2024
APPROVED: 	
John Mertens, Fire Marshal	

Scope:
This policy covers Certificate of Occupancy. Occupancy in a new or existing building is prohibited prior to obtaining a Certificate of Occupancy (C of O). The C of O is issued to the building, not the business or tenant. The designated occupant load of a space may need to be posted, dependent on the use.

Requirements:
New Buildings
Facilities, buildings or structures shall not be occupied prior to the Building Official issuing a Certificate of Occupancy Permit and conducting associated inspections indicating the applicable provisions of this code have been met.

Existing Buildings
When an existing building use changes that is different from the current Certificate of Occupancy a new C of O must be obtained. Customer will request either an Inspection Only Permit (INSP) for a retroactive C of O or an updated occupant load for an existing C of O from the Planning & Development Department located on the 2nd Floor, Commercial Services Counter, at 200 W Washington.

The following are needed to:

Establish a Retroactive C of O

- Site / Floor plan drawn to scale or with drawn in dimensions
- If >3000 sq. ft. it must be stamped and sealed by a design professional
- Historical documents showing it has been used as the same for as far as is possible to document. The Records Department may have historical documents, permits and C of Os.
- Maricopa County Tax documents for site

Occupant Load update for existing C of O

- Site / Floor plan drawn to scale or with drawn in dimensions

- Occupant load calculations
- If >3000 sq. ft. it must be stamped and sealed by a design professional

The 2018 Phoenix Fire Code retroactively requires all Assembly (Group A-2) Occupancies with an Occupant Load 300 persons or greater with a Liquor License to install an Automatic Fire Extinguishing System.

Permits:
Varies based on specific operation.

Inspection Test & Maintenance:
N/A

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Competent Party Certificates Policy

Explanatory Policy – Competent Party Certificates	
SUBJECT: Competent Party Certificates Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 105.10	**REVIEW DATE:** July 2024
APPROVED: 	
John Mertens, Fire Marshal	

Scope:
This policy covers At least one competent party shall remain on-site during installation, modifications, maintenance, and testing performed on fire protection systems. The competent party responsibilities include:

Requirements:

1. **Employment.** The competent party shall be employed by, or under contract with a company that is a qualified contractor. Verification may be required.

2. **Nationally recognized standards.** The competent party shall be knowledgeable with and comply with the requirements of applicable standards and the code requirements appropriate for the permit(s) issued. This knowledge and understanding shall be demonstrated by one of the following methods:

   2.1 Successfully passing an examination provided by a recognized testing agency in the category for which they are performing the work. (i.e. CSA 2 or 4 in the appropriate field of work.)

   2.2 The fire code official shall accept a current Arizona Registered Engineer or National Institute of Certifying Engineering Technicians (NICET) Level 2 or 1 certification or higher in lieu of the required examination in the following fire protection equipment categories: water-based system layouts, fire alarm systems, and special extinguishing systems.

      2.2.1 The applicant shall submit and maintain proof to the fire code official that his or her NICET certification is current, in the proper fire protection equipment category and at the appropriate level within that category.

      2.2.2 When the fire code official accepts NICET certification in lieu of the required written exam, the maintenance of the NICET certification shall remain current for the certificate to remain valid.

   2.3 Fire alarm installation may be performed by a factory-trained and certified installer in accordance with NFPA 72.

   2.4 Sprinkler installers current trade certification for installation and design.

3. **Maintenance.** Failure to maintain the required certification shall void the competent party certificate. Competent party certificate holders may not use their cards when expired. It is the responsibility of the individual to maintain their certifications.

4. **NFPA 72 2019 10.5.3.3 Service Personnel.** Service personnel shall have knowledge and experience of the maintenance and servicing requirements contained in this Code, of the equipment being serviced or maintained, and of the servicing or maintenance methods. That knowledge and experience shall be acceptable to the authority having jurisdiction or meet the requirement of 10.5.3.4.

5. **10.5.3.4 Means of Qualification**. Qualified personnel shall include, but not be limited to, one or more of the following:
   - Personnel who are factory trained and certified for the specific type and brand of system being serviced
   - Personnel who are certified by a nationally recognized certification organization acceptable to the authority having jurisdiction (NICET, CSA, Specific system training)
   - Personnel, either individually or through their affiliation with an organization that is registered, licensed, or certified by a state or local authority to perform service on systems addressed within the scope of this Code (Union or Trade organizations)
   - Personnel who are employed and qualified by an organization listed by a nationally recognized testing laboratory for the servicing of systems within the scope of this Code (UL, FM, EST, etc.)

Permits:
N/A

Inspection Test & Maintenance:
Maintenance of certification is required.

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Construction Document Submittals Policy

Explanatory Policy – Construction Document Submittals	
SUBJECT: Construction Documents Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 105.4	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy covers construction documents requirements.

Requirements: 105.4.1 Submittals. Construction documents and supporting data shall be submitted in two or more sets with each application for a permit and in such form and detail as required by the fire code official. The construction documents shall be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

Exception:
The *fire code official* is authorized to waive the submission of construction documents and supporting data not required to be prepared by a registered design professional if it is found that the nature of the work applied for is such that review of construction documents is not necessary to obtain compliance with this code.

105.4.2 Information on construction documents. Construction documents shall be drawn to scale on suitable material. Electronic media documents are allowed to be submitted where approved by the fire code official. Construction documents shall be of sufficient clarity to indicate the location, nature and extent of the work proposed and show in detail that it will conform to the provisions of this code and relevant laws, ordinances, rules and regulations as determined by the fire code official. Two sets of accurate and legible fire protection system component plans shall be submitted to the fire code official for approval, in the following scale:

Site Plans, or where otherwise requested by the plan reviewer 1” = 50’

Fire Protection Systems, or where otherwise requested by the plan reviewer ⅛” = 1’

Other scales may be used with prior approval from the fire code official or with a bar graph representation.

Permit:

N/A

Inspection Test & Maintenance:

N/A

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Controlled Access at Electrical Substations Policy

Explanatory Policy – Controlled Access at Electrical Substations

SUBJECT: Controlled Access at Electrical Substations Requirements	**EFFECTIVE DATE:** January 10, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 512	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy covers the Fire Code requirements for controlled access gates and security barriers at electrical substations.

Requirements:
Where the installation of controlled access/security gates or barriers across a fire apparatus access road that leads into an unoccupied electrical substation, those barriers shall be exempt from the requirements to provide fire department access devices including associated permits.

Except in extraordinary circumstances, the Fire Department will not make entry into electrical substations until the utility representative has verified that the electrical equipment has been de- energized. In addition, fire suppression activities will only occur with close coordination with the utility company. When responding to fire incidents at electrical sub-stations, the Fire Department will clear the area and protect exposures.

Permit:
N/A

Inspection Test & Maintenance:
N/A

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Design Documents for Automatic Sprinkler System Installations Policy

Explanatory Policy – Design Documents for Automatic Sprinkler System Installations

SUBJECT: Required Professional Registrant Activities Requirements	**EFFECTIVE DATE:** May 1, 2020
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 903.3	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy covers the required Professional Registrant activities as it relates to automatic sprinkler plan submittals.

Requirements:
For fire sprinkler systems, the following are considered to be professional registrant activities in accordance with the requirements of the Arizona Board of Technical Registration:

1. Consider the range of hazards of the project;
    1.1 *Automatic sprinkler system* design shall be based on the hazard classification of the building or area in accordance with NFPA 13.
    1.2 *Automatic sprinkler system* designs for high-piled storage shall be in accordance with Chapter 32, High Piled Combustible Storage and Chapter 57 for Flammable and Combustible Liquids.
2. Prepare hazard analysis; identify the hazard classification of the intended occupancy, including any special hazards;
3. Determine the applicable codes and standards and appropriate engineering practices;
4. Ascertain the availability and adequacy of the water supply for the project;
5. Determine the appropriate design density and area of operation for each hazard area.

These activities shall be completed prior to development of construction documents to be submitted for permit.

Where sprinkler plans and associated hydraulic calculations are not sealed and signed by a Professional Registrant, the required activities shall be addressed in an attached narrative that is sealed and signed by a Professional Registrant in accordance with the requirements of the Arizona Board of Technical Registration. Plans will not be reviewed by the City of Phoenix Fire Prevention staff without the required seals and signatures.

If a Professional Registrant is sealing and signing sprinkler plans and hydraulic calculations, seals and signatures shall be provided on:

1. Each plan sheet
2. Each hydraulic calculation front summary sheet (NICET 3 or 4 is also acceptable on the front sheet)

Where required:
All new automatic sprinkler system installations for NFPA 13 and NFPA 13R systems.
Plans that require hydraulic calculations.
Plans that involve the change of occupancy or use.
Automatic sprinkler system plans requiring extra hazard protection or involving special hazards.
Automatic sprinkler system plans involving ESFR, in-racks, and higher density sprinkler heads.

***Not required:**
NFPA 13D systems
Tenant improvement projects that only involve the addition and/or relocation of sprinkler heads where mains or cross-mains are not adjusted or new supply lines added.

***Note:** The City of Phoenix Fire Code Official reserves the right to require sprinkler plans and associated hydraulic calculations to be sealed and signed by a Professional Registrant if deemed that the Non-Registrant designer is incapable of producing an adequate plan submittal.

Permits:
Automatic fire sprinkler permits are required to be obtained prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per NFPA 13 and manufactures specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Fire Service Access Elevators Policy

Explanatory Policy – Fire Service Access Elevator

SUBJECT: Fire Service Access Elevator	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: The Phoenix Fire Code (2018 Edition) Section 408	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
Fire service access elevator (fire service access elevator) are designed with strict and rigorous standards to provide a reasonable degree of safety for fire fighters operating the fire service access elevator to a location for staging firefighters and equipment in the event of an emergency. The requirements for fire service access elevator were developed by the U.S. General Services Administration (GSA) and the National Institute of Standards and Technology (NIST).

The purpose of this policy is to provide a guideline to the design team, installing contractors and building owners to provide the safeguards and fire safety features in high-rise buildings with occupied floor more than 120 feet such that the Fire Department has a more efficient and safe means for fighting fires and rescue occupants in high-rise buildings.

This policy applies to all new high-rise buildings with occupied floor more than 120 feet above the lowest level of fire department vehicle access.

2018 International Building Code (IBC) Section 403.6.1 of the requires that at least two fire service access elevators shall be provided in such buildings.

Requirements:
Every floor of the buildings shall be served by fire service access elevator and comply with IBC Sections 3007.1 through 3007.10.

Fire Service Access Elevator Cab Dimensions and Capacity:
Each fire service access elevator shall have a capacity not less than 3,500 lbs. The cab shall be provided with a minimum clear distance between walls and door excluding return panels not less than 80 inches by 54 inches and a minimum distance from wall to return panel not less than 51 inches with a 42-inch side slide door.

3007.2 Phase I Emergency Recall Operation:
Actuation of any building fire alarm-initiating device shall initiate Phase I emergency recall operation on all fire service access elevators in accordance with the requirements in ASME A17.1/CSA B44. All other elevators shall remain in normal service unless Phase I emergency recall operation is manually initiated by a separate, required three-position, key operated “Fire Recall” switch or automatically initiated by the associated elevator lobby, hoistway or elevator machine room smoke detectors. In addition, if the building also contains occupant evacuation elevators in accordance with Section

3008, an independent, three-position key-operated "Fire Recall" switch conforming to the applicable requirements in ASME A17.1/CSA B44 shall be provided at the designated level for each fire service access elevator.

3007.3 Automatic Sprinkler System:
The building shall be protected throughout with an *automatic sprinkler system* in accordance with IBC Section 903.3.1.1, except as otherwise permit by IBC Section 903.3.1.1.1 and as prohibited by Section 3007.3.1

3007.3.1 Prohibited locations.
Automatic sprinklers shall not be installed in elevator machine rooms, elevator machine spaces and elevator hoistways of fire service access elevators.

3007.3.2 Sprinkler system monitoring.
The sprinkler system shall have a sprinkler control valve supervisory with and water flow-initiating device provided for each floor that is monitored by the buildings fire alarm system.

3007.4 Water Protection.
An approved method to prevent water from infiltrating into the hoistway enclosure from the operation of *automatic sprinkler system* outside the enclosed fire service access elevator lobby shall be provided.

3007.5 Shunt Trip.
Means for elevator shutdown in accordance with IBC Section 3006.5 shall not be installed on elevator systems used for fire service access elevators.

3007.6 Hoistway Enclosures.
The fire service access elevator hoistway shall be in a *shaft enclosure* complying with IBC Section 708.

3007.6.1 Structural integrity of hoistway enclosures.
The fire service access elevator hoistway enclosure shall comply with IBC Sections 403.2.3.1 through 403.2.3.4.

3007.6.2 Hoistway lighting:
When firefighters' emergency operation is active, the entire height of the hoistway shall be illuminated at not less than 1 footcandle (11 lux) as measured from the top of the car of each fire service access elevator.

3007.7 Fire service access elevator lobby.
The fire service access elevator shall open into fire service access elevator lobby in accordance with IBC Sections 3007.7.1 through 3007.7.5

> **Exception:** Where a fire service access elevator has two entrances onto a floor, the second entrance shall be permitted to open into an elevator lobby in accordance with IBC Section 713.14.1.

3007.7.1 Access.
The fire service access elevator lobby shall have direct access to an enclosure for an interior exit stairway.

3007.7.2 Lobby enclosure.
The fire service access elevator lobby shall be enclosed with a *smoke barrier* having a fire-resistance rating of not less than 1 hour, except that lobby doorways shall comply with IBC Section 3007.7.3

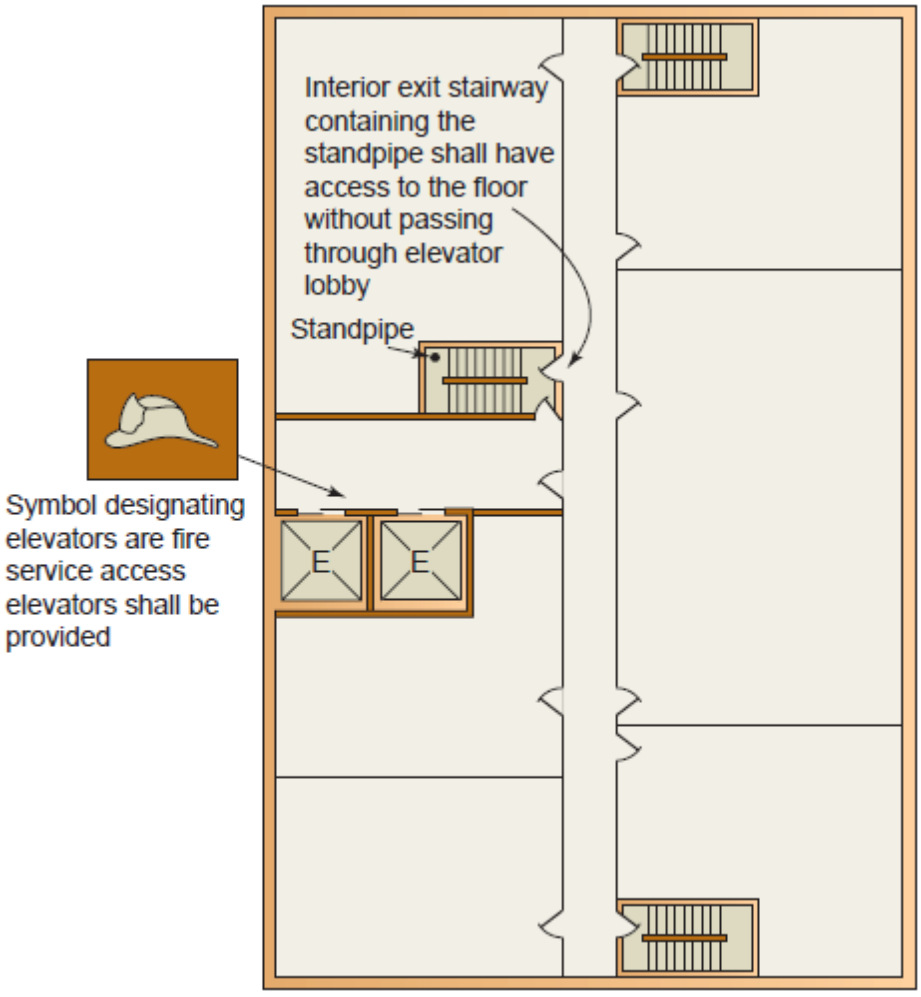
> **Exception:** Enclosed fire service access elevator lobbies are not required at the levels of exit discharge.

3007.7.3 Lobby doorways:
Other than the door to the hoistway, each doorway to a fire service access elevator lobby shall be provided with a ¾-hour *fire door assembly* complying with IBC Section 716.5. The *fire door* assembly shall also comply with the smoke a daft control door assembly requirements of IBC Section 716.5.3.1 with the UL 1784 test conducted without the artificial bottom seal.

3007.7.4 Lobby size.
Each enclosed fire service access elevator Lobby shall not less than 150 square feet (14 M^2) in area with a minimum dimension of 8 feet.

3007.7.5 Fire service access elevator symbol.
A pictorial symbol of a standardized design designating which elevators are fire service access elevators shall be installed on each side of the hoistway door frame on the portion of the frame at right angles to the fire service access elevator lobby. The fire service access elevator symbol shall be designed as shown in IBC Figure 3007.7.5 and shall comply with the following:

1. The fire service access elevator symbol shall be not less than 3 inches in height.
2. The vertical center line of the fire service access elevator symbol shall be centered on the hoistway door frame. Each symbol shall not be less than 78 inches, and not more than 84 inches above the finished floor at the threshold.



Fire service access elevator

3007.8 Elevator system monitoring.
The fire service access elevator shall be continuously monitored at the fire command center by a standard emergency service interface system in accordance with NFPA 72.

The conditions monitored and displayed shall include, but are not limited to, the following:

1. Availability of main and emergency power to operate the elevators, elevator controllers, and machine room ventilation (if provided)
2. Status of the elevators, including location within the hoistway, direction of travel, and whether they are occupied
3. Temperature and presence of smoke in associated lobbies and machine room (if provided)

Temperature Monitoring:
The continuous monitoring of smoke and temperature is to allow the responding firefighters to know when the tenability conditions at the floor elevator lobbies are changing. This shall be accomplished at a minimum by monitoring elevator lobbies, machine rooms, control rooms, machinery spaces, or control spaces smoke detector(s) for the presence of smoke and a minimum of three ranges of temperature in the elevator lobbies, machine rooms, machinery spaces, or control

rooms that provide full bodily access for firefighters, as follows:

1. (1) Normal ≤90°F (32°C)
2. (2) Monitoring (supervisory) between 90°F (32°C) and 135°F (57°C)
3. (3) Unsafe (alarm) above 135°F (57°C)

Exception:
Temperature monitoring is not required in areas or locations not accessible to firefighters, such as elevator control spaces and elevator machinery spaces located inside the elevator hoistway.

Video Monitoring:
The continuous monitoring of fire service access elevator is to allow the responding firefighters to know whether the elevator is occupied and manage the occupants rescue, deploy equipment and staging firefighters in the event of emergency.

This shall be accomplished at a minimum by providing a closed-circuit television (cctv) in the fire service access elevator to transmit a signal to the fire command center continuously. the image shall be colored and show clearly the entire fire service access elevator floor.

Elevator Controlling:
The continuous controlling of fire service access elevator is to allow the responding firefighters to operate the elevators from the fire command center and manage the occupants rescue and staging the firefighters more efficiently.

This shall be accomplished by elevator management system interconnection to the fire command center elevator control system. The location of elevator in hoistway and direction of elevator travel shall be displayed on the elevator control panel.

Status Panel:
The continuous display of temperature monitoring, indication of smoke in the lobby, water flow and smoke detection in every level, heat/smoke detection in elevator shafts and exit stair is allow the responding fire fighters to manage and operate the occupants rescue and staging the fire fighters more efficiently and quickly.

Status indicators shall be provided for all levels that served by fire service access elevator and by pilot-lamp type indicators as follows:

Temperature Monitoring:
1. Normal ≤90°F (32°C)---- **GREEN**
2. Monitoring (supervisory) between 90°F (32°C) and 135°F (57°C)----**AMBER/YELLOW**
3. Alarm messaging for unsafe----**RED**

Indication of Smoke:
1. No indication for normal
2. Alarm messaging or unsafe----**RED**

Indication of Water Flow:
1. No indication for normal
2. Alarm messaging or unsafe----**RED**

ON-AUTO-OFF control over the hoistway lights shall be provided on the panel.

3007.9 Electrical Power:
The following features serving each fire service access elevator shall be supplied by both normal power and Type 60/Class 2/Level 1 standby power.

1-Elevator equipment
2-Elevator hoistway lighting
3-Elevator machine room ventilation and cooling equipment
4-Elevator controller cooling equipment

3007.9.1 Protection of wiring and cables.
Wire**s** and cables outside the elevator hoistway and machine room that provide normal and standby power, control signals, communication with the car, lighting, heating, air conditioning, ventilation and fire-detecting systems to fire service access elevator shall be protected by construction having a *fire-resistance rating* of not less than 2 hours, or shall be circuit integrity cable having a *fire-resistance rating* of not less than 2 hours.

> **Exception:** Wiring and cables to control signals are not required to be protected provide that wiring and cables do not serve Phase II emergency in-car operations

3007.10 Standpipe hose connection.
A Class I standpipe hose connection in accordance with IBC Section 905 shall be provided in the *interior exit stairway* and ramp having direct access from the fire service access elevator lobby.

3007.10.1 Access.
The *exit* enclosure containing the standpipe shall have access to the floor without passing through the fire service access elevator lobby.

Permits:
N/A

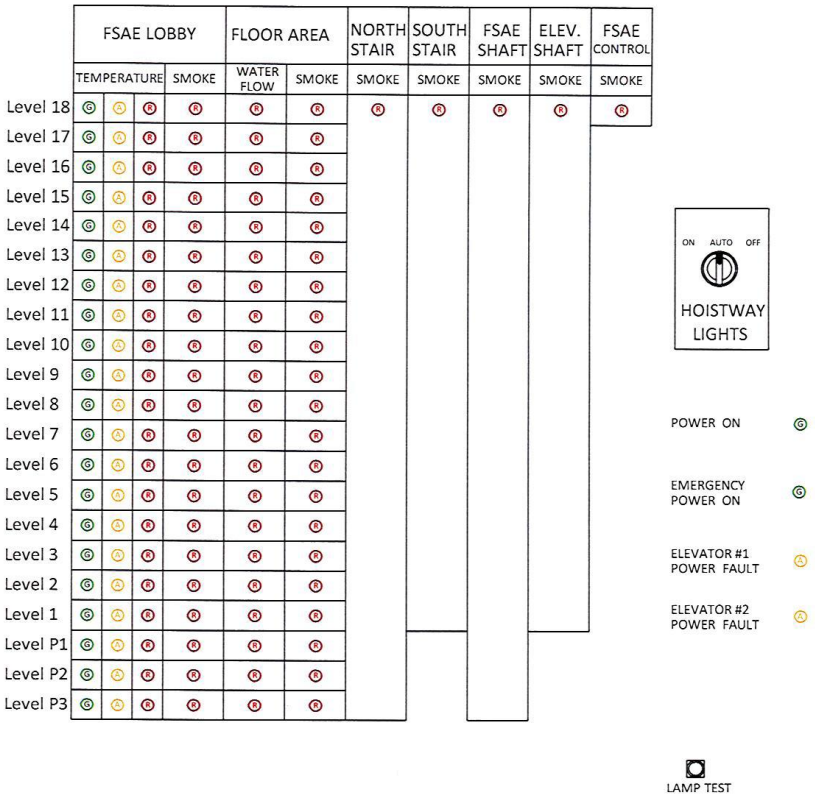
Inspection Test & Maintenance:
Fire Service Access Elevators shall be inspected and maintained in accordance with the requirement of the building Fire Life Safety Report (FLSR).

City of Phoenix

FIRE DEPARTMENT

FIRE PREVENTION SECTION

FIRE SERVICE ACCESS ELEVATOR (FSAE) STATUS PANEL



City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Emergency Responder Radio Coverage Policy

Explanatory Policy – Emergency Responder Radio Coverage

SUBJECT: Emergency Responder Radio Coverage Requirements	**EFFECTIVE DATE:** December 2021
REFERENCES: The Phoenix Fire Code (2018 Edition) Section 510 & 1103.2; NFPA 1225 (2022 Edition)	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy applies to all new and existing buildings that meet any of the following conditions:

- There are more than three stories above grade plane (as defined by the Building Code, Section 201).
- The total building area is greater than 50,000 square feet.
- Any building with a basement or underground level(s). ·
- Where required by the fire code official and radio coverage signal strength levels do not meet the minimum levels set forth in PFC Section 510.

When in-building radio signal strength fails to meet the minimum requirements of the Phoenix Fire Code, ERRCS shall be provided. These systems are also referred to as Bi-Directional Amplifier (BDA) and Distributed Antenna Systems (DAS).

ERRCS shall be designed, installed, maintained, and repaired by qualified personnel to ensure that they meet the coverage reliability requirements of the PFC and NFPA 1225. ERRCS shall not cause unintended harmful interference to the Phoenix radio system and other users of the Radio Frequencies (RF) spectrum licensed by the Federal Communication Commission (FCC).

Requirements:

Systems, components, and equipment required to provide the ERRCS shall comply with Sections 510.4.1 through 510.4.2.8 of the PFC.

Installation of ERRC shall be in accordance with NFPA 1225 and Sections 510.5.1 through 510.5.4 of the PFC. Per NFPA 1225 section 18.12.3.2 the mechanical protection of backbone cables, backbone cable components, and distribution antenna cables is required where they are subject to physical damage. Not all cables need to be in conduit, only cables in areas subject to physical damage.

It is the City of Phoenix Fire Prevention recommendation that for buildings with the potential need for an Emergency Responder Radio Communication system that conduit be utilized for the horizontal cable runs in basements where protection above ceiling is not provided, in areas where radio cabling is installed below 7’-0” and likely exposed to

potential physical damage, and in any installation application where the cabling is installed below ceiling.

Minimum Qualifications of Personnel:

The minimum qualifications of the system designer, lead installation personnel, and personnel conducting radio system tests shall include possession of both of the following:

- A valid FCC-issued general radio operators license; and
- Certification of in-building systems training issued by one of the following:
  - Associated Public Safety Communications Officials
  - National Association of Business Education Radio
  - Personal Communications Industry Association
  - The Manufacturer of the equipment being installed
  - The designer shall be certified in approved design/propagation software (for example, iBwave and Randplan)

All design documents and all tests shall be documented and signed by a person meeting the minimum qualifications noted in this section.

Testing and Compliance Procedure:

Technical criteria are provided to contractors on the Fire Prevention website. If contractors have questions they can contact Fire Prevention or the City of Phoenix Information Technology Department (602) 262-7034. The City of Phoenix recommends providing a ERCCS backbone for all new buildings for which this policy applies. Testing is not required on VHF systems because VHF enhancements are not required by Phoenix Fire Department at this time.

Testing for radio coverage compliance shall be conducted after the completion of the building envelope; this includes, but is not limited to all doors, windows, interior walls, and exterior openings. In buildings with significant internal signal impairments such as rack storage, wire mesh security screens or other interior or exterior features, all internal construction shall be completed prior to compliance testing.

If the test demonstrates compliance with the PFC, the Certificate of Radio Coverage Compliance shall be provided to the fire code official. If testing demonstrates non-compliance with the PFC, ERRCS shall be installed.

Certificate of Radio Coverage Compliance:

Prior to issuance of the building Certificate of Occupancy, a Certificate of Radio Coverage Compliance shall be submitted to the fire code official; on a case-by-case basis, a temporary Certificate of Occupancy may be issued. The Certificate of Radio Coverage Compliance shall be signed and sealed by a Professional Engineer licensed in the State of Arizona, knowledgeable in ERCCS. On a case-by-case basis, a Temporary Certificate of Occupancy (TCO) may be issued.

[A] 104.7.2 Technical assistance.

To determine the acceptability of technologies, processes, products, facilities, materials and uses attending the design, operation or use of a building or premises subject to inspection by the fire code official, the fire code official is authorized to require the owner or agent to provide, without charge to the jurisdiction, a technical opinion and report. The opinion and report shall be prepared by a qualified engineer, specialist, laboratory or fire safety specialty organization acceptable to the fire code official and shall analyze the fire safety properties of the design, operation or use of the building or premises and the facilities and appurtenances situated thereon, to recommend necessary changes. The fire code official is authorized to require design submittals to be prepared by, and bear the stamp of, a registered design professional.

Permit:

A permit is required to be obtained from Phoenix Fire Prevention for the installation or modification to an ERRCS and related equipment.

Inspection Test & Maintenance:

The ERRCS shall be maintained operational at all times in accordance with Section 510.6 of the PFC. ERRCS shall be tested annually by personnel meeting the minimum qualifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

CERTIFICATE OF RADIO COVERAGE COMPLIANCE

Project Name: _____

Project Address: _____

Design Professional/Engineer of Record: _____

Test Date & Time: _____

Testing for radio coverage shall be conducted after the completion of building envelope and all doors, windows, and exterior openings are closed. In buildings with significant internal signal impairments such as rack storage, wire mesh security screens or other interior features, all internal construction shall be completed prior to final testing for radio coverage.

I hereby affirm and certify that the building identified above was tested for emergency responder radio coverage and meets the requirements set forth in the Phoenix Fire Code (PFC) Section 510 Emergency Responder Radio Coverage. To the best of my knowledge, information and belief, the radio coverage levels for this building meet or exceed those required by the Phoenix Fire Code.

Professional Certification: I hereby certify that these documents were prepared or approved by me, and I am a duly licensed Professional Engineer under the laws of the State of Arizona.

Respectfully submitted,

License Number: _____ Expiration Date: _____

Signature and Seal of Design Professional Engineer of Record _____

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Energy Systems UL Requirements Policy

Explanatory Policy – UL 9540, UL 9540A, and the Hazard Mitigation Analysis

SUBJECT: UL 9540, UL 9540A, and the Hazard Mitigation Analysis Requirements	**EFFECTIVE DATE:** March 1, 2024
REFERENCES: The Phoenix Fire Code (2018 Edition) Section 1206.2.3	**REVIEW DATE:** March 1, 2027
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The following explanatory policy applies to Energy Storage Systems and the listing requirements, testing requirements and Hazard Mitigation Analysis from CH 12 Section 1206.2.3 and subsections of the Phoenix Fire Code.

Requirements:
The following explanatory policy addresses the installation of Energy Storage Systems (ESS) which necessitates compliance with UL 9540 listing as mandated by the 2018 Phoenix Fire Code (PFC) Section 1206.2.10.1. Achieving UL 9540 listing requires the conduction of a Failure Mode and Effects Analysis (FMEA) according to UL standards (UL 9540 Section 15.1). However, unlike the explicit detailing of failure modes in PFC Section 1206.2.3.1, UL 9540 does not provide such specific delineation. Therefore, even if the UL 9540 FMEA is conducted, it may not encompass all failure modes outlined in PFC Section 1206.2.3.1. This discrepancy is particularly evident concerning failure modes associated with auxiliary support systems not inherently integrated into the ESS, such as fire protection systems, as highlighted in UL 9540 Section 26.1.2. While UL 9540 does specify a variety of performance tests in Sections 29 through 44, it notably lacks tests designed to induce thermal runaway in batteries for the purpose of measurement and recording.

UL 9540A testing is indispensable for several crucial purposes:

1) Supporting deviations from battery capacity and separation distance limits
2) Facilitating the design of fire suppression systems, and
3) Aiding in the accurate design of explosion control systems

Reference to the scoping provision of UL 9540A, UL 9540A Annex A, and UL 9540A Section A3.2 explains these requirements. It's vital to note the distinction between UL 9540 performance testing and UL 9540A testing.
While UL 9540 testing focuses on overall system performance, UL 9540A testing is specifically geared towards:

1) Assessing a system's ability to undergo thermal runaway
2) Evaluating the fire and explosion hazard characteristics of systems prone to thermal runaway and,
3) Generating essential data for designing fire and explosion protection measures for system installations.

Furthermore, UL 9540A Section A3.2 outlines a comprehensive set of required documentation for an Energy Storage System (ESS), including the UL 9540 listing, UL 9540A test results, and a Hazardous Materials Assessment (HMA). It's

imperative to understand that these components are not interchangeable; rather, they collectively constitute the expected documentation according to UL standards. This requirement is reinforced by the 2023 edition of NFPA 855, specifically in Section 4.2.1.3, as well as NFPA 855 Section 4.4.2.1[2], and the most recent version of the International Fire Code (IFC), which explicitly mandates consideration of failure modes not covered by product listing FMEA.

The Hazardous Materials Assessment (HMA) serves the purpose of conducting a Failure Modes and Effects Analysis (FMEA) utilizing a specified set of failure modes outlined in PFC Section 1206.2.3.1. It ensures that the effects of each failure mode adhere to the prescribed criteria outlined in PFC Section 1206.2.3.2. In cases where additional protective measures beyond the prescribed requirements are necessary to meet these criteria, the HMA identifies and incorporates such features (IFC 1206.2.3.3). Reference to NFPA 855 Section A.4.4.1 further elaborates on this.

For instance, consider a scenario where a battery system is listed to UL 9540 and tested to UL 9540A. However, if a thermal runaway condition occurs, it can pose an explosion hazard unless adequately controlled through ventilation or explosion venting. The HMA would need to support the project-specific design of ventilation or explosion venting based on UL 9540A test data to fulfill the requirements of PFC Section 1206.2.3.2[5]. The UL 9540 listing and UL 9540A testing do not address this on a project-specific basis.

Similarly, in another scenario where a battery system is listed to UL 9540 and tested to UL 9540A, an electrical failure might release toxic gases exceeding Immediately Dangerous to Life or Health (IDLH) levels in the installation area. The HMA must specify additional protective features required to mitigate this hazard, in accordance with PFC Section 1206.2.3.1[4,5] and 1206.2.3.2[3]. Again, the UL 9540 listing and UL 9540A testing do not account for this on a project-specific basis.

Finally, if a battery system listed to UL 9540 and tested to UL 9540A releases hydrogen during charging, typically controlled by an always-active ventilation system, the HMA must address the contingency if this ventilation system fails. This is essential to meet the requirements of PFC Section 1206.2.3.1[3] and 1206.2.3.2[4]. Once more, the UL 9540 listing and UL 9540A testing do not address this scenario.

All three components—UL 9540 listing, UL 9540A testing, and the Hazardous Materials Assessment (HMA)—fulfill distinct yet interconnected roles. A thorough examination of UL 9540A and PFC Section 1206.2.3 reveals that there is not complete overlap between UL 9540A testing and the topics addressed in the HMA. Therefore, it is prudent for project teams to assume that an HMA is necessary for an Energy Storage System (ESS) project, unless it can be convincingly demonstrated that the UL 9540 listing and UL 9540A testing comprehensively cover all aspects encompassed by the HMA. However, such a scenario is unlikely.

Permits:
Permits are required for Energy Storage Systems. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per the manufactures specifications

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Energy Systems Policy

Explanatory Policy – Energy Systems	
SUBJECT: Energy Systems - Solar Photovoltaic and Battery Energy Storage Requirements	**EFFECTIVE DATE:** Revised June 19, 2021, previous issue November 20, 2019,
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Sections 105.7.2 & 105.7.21	**REVIEW DATE:** July 2024
APPROVED:  John Mertens, Fire Marshal	

Scope:
This policy covers the construction permit process and the solar photovoltaic alternating current nameplate rating (A/C) and battery energy storage capacity thresholds for Energy Systems. This permit process is designed to provide efficiency without compromising the safety of the public and emergency responders including firefighters. This policy includes the following Energy Systems: solar photovoltaic and battery energy storage system installations that are regulated by Chapter 12 of the 2018 Phoenix Fire Code. This policy establishes an Over-the-Counter Permit (OTC) process for the installation of Residential Solar Photovoltaic and Battery Energy Storage Systems installed in the city of Phoenix. This over-the-counter permit process establishes the solar photovoltaic A/C nameplate rating threshold and battery capacity that allows the customer to be issued a fire construction permit to install an Energy System without a plan submittal.

Requirements:
The customer/permit holder will be responsible to schedule a fire inspection once the installation is complete, and before connecting to the utility grid. The inspection must be completed by a Phoenix Fire Department Fire Inspector. Energy Systems over the established A/C nameplate rating thresholds or energy storage capacities will require a plan submittal in accordance with the 2018 Phoenix Fire Code; and a construction permit will only be issued once the plans are reviewed and approved. The over-the-counter A/C nameplate rating thresholds and energy capacities are as follows:

Residential Solar Photovoltaic Systems
3 kW - 15 kW alternating current nameplate rating ..... Over-the-Counter Permit
In excess of 15 kW alternating current nameplate rating. ..... Plans submittal required
30 kWh or less system size water heater ..... Over-the-Counter Permit
In excess of 30 kWh system size water heater ..... Plans submittal required

Residential Battery Energy Storage Systems
3 kWh - 27 kWh capacity ..... Over-the-Counter Permit
Capacity in excess of 27 kWh ..... Plans submittal required

An Energy System containing both a solar photovoltaic and a battery energy storage system will be considered an over-the-counter construction permit as long as both systems do not exceed the over-the-counter threshold or capacity. If either energy system is more than the over-the-counter threshold or capacity, a plan submittal is required for that system.

Permit:
A residential or commercial solar permit is required. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per manufacture's specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Explosives Storage & Use Policy

Explanatory Policy – Explosives Storage & Use	
SUBJECT: Explosives Storage & Use Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 5601.2	**REVIEW DATE:** July 2024
APPROVED: 	
John Mertens, Fire Marshal	

Scope:
The *fire code official* is authorized to limit the net weight of *explosives*, *explosive materials* or fireworks permitted at a given location.

Requirements:
When applying for a permit to use explosive materials, the contractor shall submit the following documentation to the fire code official:

1. A copy of a valid certificate of fitness issued by the fire code official.
2. A copy of a valid federal explosives user's permit or federal explosives license.
3. An application provided by the fire code official for each use permit applied for.
4. A copy of the blasting contractor's license issued by the State of Arizona Registrar of Contractors for the type of operations proposed to be conducted.
5. The blasting contractor may be required to furnish, at his own expense, such additional information as may be required to evaluate the permit application. This may include the submission of a report prepared by a licensed professional engineer registered in the State of Arizona.
6. Financial responsibility.

Permit:

For the manufacture, storage, handling, sale or use of any quantity of explosives, or explosive materials. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:

Explosives shall be maintained in a safe condition per the Fire Code and manufactures specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Fire Alarm Monitoring Policy

Explanatory Policy – Fire Alarm Monitoring

SUBJECT: Fire Alarm Monitoring Requirements	**EFFECTIVE DATE:** July 2012, Original July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Sections 903.4.1, 907.1.1, 907.1.2 & 907.5.2.1	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:

This policy offers guidelines for minimum Fire Alarm Monitoring requirements and auxiliary alarm monitoring of systems and items required by other sections of the fire code.

If a hazardous material, power system, communication system, gas detection or other special extinguishing is required to be monitored and there is alarm monitoring of sprinkler or fire alarm then the requirements for required monitoring signals shall be sent to the monitoring off-site or approved on site location.

Code:

903.4.1 Monitoring. Alarm, supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an approved supervising station or, where approved by the fire code official, shall sound an audible signal at a constantly attended location.

Requirements:

1. Underground key or hub valves in roadway boxes provided by the municipality or public utility are not required to be monitored.
2. Backflow prevention device test valves located in limited area sprinkler system supply piping shall be locked in the open position.
3. In building occupancies in Group A-2 that do not exceed 5,000 square feet (465 m^2).
4. Group H and E shall be monitored at 0 square feet.
5. All other building occupancies, that do not exceed 12,000 square feet (1115 m^2)

903.4.3.5 Monitoring.

Where a building fire alarm system is installed, automatic fire extinguishing systems shall be monitored by the building fire alarm system in accordance with NFPA 72.

For self-monitoring by on premises security personnel, instead of using a listed fire alarm monitoring off site location, an Appeal to the Fire Marshal is required with supporting documentation or all items being met in IFC 903.4.4. this allows for self-monitoring with equivalency to a listed monitoring station.

903.4.4 Monitoring at a constantly attended location.
When monitoring of sprinkler system is required per section 903.4.1 the facilities owner may request to monitor the system(s) at the facility site using facility personnel. Where the alarm monitoring station does not strictly comply with the NFPA 72 requirements for a proprietary supervising station, the following minimum provisions shall be met and approved by the fire code official.

1. The policies and procedures for monitoring the sprinkler system shall be written and submitted to the fire code official for approval prior to occupancy or terminating central station service or remote service. A copy of the approved fire alarm policies and procedures shall be maintained at the constantly attended location.
2. The alarm monitoring station shall be constantly attended by competent trained personnel. At least one person shall monitor the fire alarm panel at all times. Provisions shall be made to relieve the alarm monitor prior to shift changes, during breaks, or performance of other assigned duties outside of the alarm monitoring room.
3. A list of trained personnel qualified to monitor the sprinkler system shall be maintained at the alarm monitoring station. Documentation of the alarm monitoring training shall be approved by the fire code official and maintained at the alarm monitoring station and made available to the fire code official on request.
4. The policies and procedures shall address the dispensation of the various fire alarm signals. The fire department shall be immediately notified upon the activation of a fire alarm signal (smoke or heat detector, sprinkler water flow, manual pull station, special extinguishing system, etc.). Any investigation by the facility staff shall occur after or concurrent to notification of the fire department. If the investigation by facility staff determines that there is no emergency condition at the facility, the fire department shall be immediately notified to allow them to modify their response.
5. The fire department shall not be summoned for emergency response upon receipt of a supervisory or trouble signal, but procedures shall address dispensation of those signals by facility personnel.
6. A log shall be maintained at the monitoring station that note all of the signals received and the dispensation of those signals. The log sheet shall be made available to the Phoenix Fire Department on request.

903.4.4.1 Location.
In buildings greater than one story or 22,500 square feet, the fire alarm panel or a fire alarm annunciator panel shall be installed in a location that is visible from the lobby or area adjacent to the primary fire department response entrance. It shall be permissible to locate the fire alarm panel in a room immediately adjacent to this lobby provided the door to this room is accessible to the fire department, visible from the lobby and is provided with a permanent, visible placard noting the location of the fire alarm control panel.

Kitchen hood systems.

When kitchen hood systems are installed in buildings equipped with a fire alarm system designed to notify the building occupants, actuation of the hood system shall initiate the fire alarm system.
These activities need to be completed prior to the development of construction documents to be submitted for permit.

907.1.1 Design documents.
For fire alarm and other code regulated alarm systems, the following are considered to be professional registrant activities in accordance with the requirements of the Arizona Board of Technical Registration:

1. Determine the system type;
2. Determine the applicable codes and standards and appropriate engineering practices;
3. Determine device types and locations;
4. Prepare generalized riser diagram;

5. Coordinate and interface with other systems;
6. Develop system specifications

Exception:
Where the modification of fire protection systems does not require mathematical calculations or hazard analysis.

Shop drawings shall be designed to the required determination of 907.1.1 for the proper code requirements for size and occupancy and include all pertinent information of 907.1.2.

907.1.2 Fire alarm shop drawings.
Shop drawings for fire alarm systems shall be submitted for review and approval prior to system installation, and shall include, but not be limited to, all of the following:

1. A floor plan that indicates the use of all rooms.
2. Locations of alarm-initiating devices.
3. Locations of alarm notification appliances, including candela ratings for visible alarm notification appliances.
4. Location of fire alarm control unit, transponders and notification power supplies.
5. Annunciators.
6. Power connection.
7. Battery calculations.
8. Conductor type and sizes.
9. Voltage drop calculations.

Fine Print Note:

The two predominant methods of voltage drop calculation are point to point and end of line lump sum. Center loading of the circuits is also an acceptable method.

1. Manufacturers' data sheets indicating model numbers and listing information for equipment, devices and materials.
2. Details of ceiling height and construction.
3. The interface of fire safety control functions.
4. Classification of the supervising station.

901.9 Termination of monitoring service.

For fire alarm systems required to be monitored by this code, notice shall be made to the fire code official whenever alarm monitoring services are terminated. Notice shall be made in writing, by the provider of the monitoring service provider being terminated.

907.3.1 Duct smoke detectors.

In facilities that are required to be monitored by a supervising station, duct smoke detectors shall report only as a supervisory signal and not as a fire alarm. They shall not be used as a substitute for required open area detection.

907.6.3 Initiating device identification.

The fire alarm system shall identify the specific initiating device address, location, device type, floor level where applicable and status including indication of normal, alarm, trouble and supervisory status, as appropriate.

1103.1 Required construction.

Existing buildings shall comply with not less than the minimum provisions specified in Table 1103.1 and as further enumerated in Sections 1103.2 through 1103.10.

Permits:
A monitoring permit is required and obtained prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:

As required per NFPA 72 and per the manufactures specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Fire Alarm Systems in Existing Buildings Policy

Explanatory Policy – Fire Alarm Systems in Existing Buildings

SUBJECT: Fire Alarm Systems in Existing Buildings Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 1103.7	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy covers fire alarm systems in existing buildings.

Requirements:
Fire alarms where required—retroactive in existing buildings and structures. An approved manual, automatic or manual and automatic fire alarm system shall be installed in existing buildings and structures in accordance with Sections 907.2 through 907.2.23. Where automatic sprinkler protection is provided in accordance with Section 903.3.1.1 or 903.3.1.2 and connected to the building fire alarm system, automatic heat detection required by this section shall not be required. When an existing building is required to install a fire alarm system based on a change of occupancy classification, use or retroactive requirements per the building or fire code, fire alarm devices shall be installed throughout the area.

A minimum of 2 hours in nonautomatic sprinkler protected or 1 hour in automatic sprinkler-protected fire-resistance-rated fire barriers or horizontal assemblies shall separate the fire alarm protected and nonprotected areas.

An approved automatic fire detection system shall be installed in accordance with the provisions of this code and NFPA 72. Devices, combinations of devices, appliances and equipment shall be approved. The automatic fire detectors shall be smoke detectors, except an approved alternative type of detector shall be installed in spaces such as boiler rooms where, during normal operation, products of combustion are present in sufficient quantity to actuate a smoke detector.

Permit:
A permit is required to be obtained prior to any work being done as a modification to an existing fire alarm system.

Inspection Test & Maintenance:
Per NFPA 72 and the manufactures specifications

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Fire Apparatus Access Policy

Explanatory Policy – The Timothy J. Hale Fire Apparatus Access Policy

SUBJECT: Fire Apparatus Access Requirements	**EFFECTIVE DATE:** December 2021
REFERENCES: The Phoenix Fire Code (2018 Edition) Chapter 5	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The following explanatory policy applies to the general authority and responsibilities of the fire code official to require and approve the posting of signs or other notices or markings that include the words NO PARKING—FIRE LANE for fire apparatus access roads to identify such roads or prohibit the obstruction of the access road for use by first responders. This policy is in dedication to Timothy J. Hale who was struck and killed by a vehicle while on duty February 12th 1994.

Requirements:
Where required by section 503.1 of the Phoenix Fire Code, a fire apparatus access road shall be appropriately identified based on the requirements outlined in sections 503.3 through section 503.3.3.6 of the Phoenix Fire Code.

Additionally, the fire code official shall make the final determination and the interpretation of the requirements for marking and identifying a fire apparatus access road, as defined in chapter 2 of the Phoenix Fire Code.

FIRE APPARATUS ACCESS ROAD. A road that provides fire apparatus access from a fire station to a facility, building or portion thereof. This is a general term inclusive of all other terms such as fire lane, public street, private street, parking lot lane and access roadway.

The requirements for fire apparatus access also includes the need for identification of curbs associated with Fire Protection Equipment and Utility Equipment Identification and Access, and as such where a hydrant, fire department connection, fire command center, fire riser room, rescue air exterior fill station, gas shutoff valves, electric meters, service switches and other utility equipment are identified as points where fire apparatus access is needed in a response event, the curb shall be identified in accordance with section 503.3.3 and requires stenciling for a maximum length of 100 LF in accordance with section 503.2.2 of the Fire Code.

Permit:
Emergency access permits are required to be obtained prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771. Site plan approval for High-Rise buildings should be coordinated with Fire Prevention prior to issuance of permit.

Inspection Test & Maintenance:
Maintenance of the fire apparatus access road is required from the time it is established.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Fire Command Center Policy

Explanatory Policy – Fire Command Center Policy

SUBJECT: Fire Command Center Access Requirements	**EFFECTIVE DATE:** May 2023
REFERENCES: The Phoenix Fire Code (2018 Edition) Section 508	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The following explanatory policy applies to the requirement to *receive prior approval* for the location and access to the fire command center and the approval of the layout of the fire command center by the fire code official regulated by section 508.1.1 of the Phoenix Fire Code.

Requirements:
The following explanatory policy addresses location and accessibility in addition to the layout of the fire command center as interpreted by the Phoenix Fire Department.

Access to the Fire Command Center is critical for the fire department's operations. It should be located on the ground level, near the primary building entrance (*preferably within fifty feet travel distance*) and having direct access to the outside. The preferred location is adjacent to the main lobby with access to the fire access elevators. The Fire Command Center location should be approved by the fire department before submitting the fire and life safety report and building plans.

The fire command center shall be identified by a permanent, easily visible sign noting “Fire Department Command Center” located on the door to the fire command center, (see Appendix D).

The Fire Command Center serves as the primary command center for fire department operations during major incidents and events. It allows the fire department to monitor the status of all fire protection and life safety systems, such as sprinklers, fire pumps, fire alarms, smoke control, post-fire smoke removal, elevators, and generators. The Fire Command Center requires access to control these systems to facilitate response and operational continuity.

To communicate with building occupants and first responders, the fire department uses the emergency voice alarm communication system and two-way wired communication systems.
The Fire Command Center should have an independent ventilation or air-conditioning system. It should be separated from the rest of the building by a 2-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.

The Fire Command Center must comply with Section 508 of the Phoenix Fire Code, unless otherwise stated.

508.1.4 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.*

508.1.1 Location and access.
The location and accessibility of the fire command center *shall be approved by the fire code official.* The fire command center shall be identified by a permanent, easily visible sign noting "Fire Department Command Center" located on the door to the fire command center (see Appendix D).

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 water-flow detector display, can be integrated with smoke control or FSAE panel.
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. *[Provided through annunciator dedicated to the fire pump]*
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, fire alarm and sprinkler contractor, security system contractor, and elevator contractor 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, interior exit 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. Worktable.

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 B44.
18. Elevator emergency or standby power selector switch(es), where emergency or standby power is provided.
19. A key box shall be permanently installed near the door to the fire command center. The key box shall be located 4 to 5 - 1/2 feet above grade in a clearly visible location, with not fewer than six or more than eight sets of keys, unless additional keys are required by the fire code official.

Permits:
The following permits are required for the approval of the fire command center location.
Fire Life Safety Report – FLSR
Emergency Access - F481

Inspection Test & Maintenance:
Integrated testing required per section 901.6.2 of the Phoenix Fire Code.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Fire Flow Policy

Explanatory Policy – FIRE FLOW	
SUBJECT: Fire Flow & Flow Test Requirements	**EFFECTIVE DATE:** April 30, 2021
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section(s) 507, 903, 3206 & Appendix B	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The scope of this explanatory policy is to specify when fire flow verification is required, when a flow test should be provided, and clarify how to apply fire flow and flow tests. *Meeting minimum flow requirements noted in IFC Appendix B apply* to new *commercial buildings*, *new construction of subdivisions and existing buildings either adding 10,000 sq ft or more, residential buildings in accordance with the Tarver Ordinance and buildings undergoing a change of occupancy to a higher hazard in accordance with IFC Table 903.1.5. Minimum Flow requirements are not intended to apply retroactively to existing single family homes on hillside lots or undergoing renovation.*
Requirements:

Requirements:
PFC Section 507 Fire Protection Water Supplies.
Fire Flow required by this code shall be provided in accordance with Section 507.3, where exterior storage includes combustibles or hazardous materials, the required fire flow shall be determined through an engineering analysis; if the analysis determines the exterior storage fire flow demand is greater than the fire flow required for onsite structures/buildings, the greater fire flow demand shall be use.

PFC 507.3.2
The minimum requirements for water supply within the City of Phoenix shall be maintained in accordance with Appendix B, where the flow rate, pressure or duration of the available water supply does not meet the minimum requirements the owner shall be responsible for installing all the infrastructure required to meet the fire flow, pressure, and duration requirements.

Water supply tests conducted within City of Phoenix fall into two categories:

Private:
Water supply tests are conduct on private property from privately owned hydrants, tests are conducted by a third-party contractor and witnessed by a City of Phoenix Fire Protection Engineer, reports are verified by the Fire Protection Engineer prior to issuing the permit back to the customer. *The private contractor is responsible for supplying all required equipment and gauges.*

Public:
Water supply tests are conduct on public or private property from publicly owned hydrants, tests are conducted by the City Water Department and permits & reports are produced as a deliverable to the customer by the City Water Department.
Water Supply Testing Fire Flow:
Fire flow from Chapter 2 & Appendix B of the PFC is the flow rate of a water supply, measured at 20 pounds per square inch (psi) residual pressure, that is available for firefighting. While both a fire flow test and flow test evaluate available water supply, application with respect to the plan review process is different. *In new construction and sprinkler design calculations adjustment to the static pressure when the static is over 80 psi shall be made in accordance with IFC 903.3.5.5.*

Water Supply Testing Flow Test:
It is important to note that the flow test is different from the fire flow test. A flow test is used to design automatic sprinkler systems and standpipe systems based on a system demand found in NFPA 13 or 14. Fire flow is used to determine the amount of water required by Appendix B of PFC for manual firefighting in conjunction with fire hydrants.
Where Required:
Fire Flow is required for all new buildings and for existing buildings that have been at minimum demolished back to the concrete pad. Section 511 of the PFC for Hillside Development also includes the requirement for verifying a reliable water supply is available for new buildings that meet the criteria of a Hillside Development.

A flow test shall be provided within 1 year of fire plans submittal to ensure the recorded accuracy of the available water supply is maintained.

For high pile storage and from CH 32 of PFC a City of Phoenix Water Supply Flow & Pressure Test Report shall be provide and conducted within 90 days of the plan submittal.

Modeling of flow to private on-site hydrants may use 1,000 gpm per hydrant and off-site public hydrants to show adequate fire flow in accordance with IFC Appendix C.

Permits:
F481 – A flow test permit is required and obtain through Fire Prevention.
Permit requirements for fire hydrant are as follows:

- The installation of a fire hydrant, as new or maintenance, will require a construction permit.

Inspection Test & Maintenance:
The testing requirement for fire hydrants are as follows.

1. Private fire hydrants of all types: Inspection annually and after each operation; flow test and maintenance annually.
2. Fire service main piping: Inspection of exposed, annually; flow test every 5 years.
3. Fire service main piping strainers: Inspection and maintenance after each use.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Flame Performers Policy

Explanatory Policy – Flame Performers	
SUBJECT: Flame Performers	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 308.3.2	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
Flame Performers shall be issued an open flame/candle permit for each performance or event.

Requirements:
Plans. Two sets of plans shall be submitted to the fire code official at the time of permit application.

The plans shall identify the following:

1. Address.
2. Name of occupancy or resident name.
3. Dates and times of the open-flame device use.
4. Specific location on the property where the open-flame device will be used, including details of performance area.
5. Distance to proximate audience.
6. Means employed to keep audience away from open flame.
7. Distance from the flame to combustible materials, if applicable.
8. Height of ceiling or structure member, if applicable.
9. Maximum horizontal and vertical distances the devices will be thrown, if applicable.
10. Device used in performance.
11. Fuel details, including method of containment.
12. Fire retardancy documentation on backdrops and costumes.

Demonstration. Prior to permit issuance, the fire code official may require a demonstration of the use of the open-flame devices. When approved, the fire code official shall issue a permit.

Fire extinguishers.
A minimum of two 2½ gallon (9.5 L) approved pressurized water and one 2:A10:B-C fire extinguisher shall be provided within a 30-foot travel distance. The extinguishers shall be visible and accessible.

Distance.
A minimum distance of 10 feet shall be maintained between the flame and the audience or spectators.

Combustible materials.
A minimum distance of 15 feet shall be maintained between the flame and combustible materials, including ceilings and structure members.

Permits:
Open Burning Fire Performers are required to obtain a permit. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
N/A

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Group A-2 Sprinkler Retrofit Policy

Explanatory Policy – Group A-2 Occupancy Sprinkler Retrofit

SUBJECT: Group A-2 Occupancy Sprinkler Retrofit Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Sections 1103.5.1, 1103.5.5	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
Due to pandemic shutdowns that date for beginning this process has been reevaluated to allow for an additional year to begin the process. All Group A-2 occupancies having an occupant load of 300 or more, where alcoholic beverages are consumed, shall be equipped with an automatic sprinkler system in accordance with 903.3.1.1 no later than July 19, 2024. Plans shall be submitted for review for sprinkler and any required fire underground installation, permits will be valid for two years and installation may be done in phases. Coordination with City Streets Department paving plans are encouraged. Automatic sprinkler protection may be required earlier than this date if the occupancy or business has a change of ownership or undergoes renovation or alteration which requires permitting or falls under previously adopted Tarver Ordinance requirements, expands its footprint or changes occupancy.

Requirements:
This requirement is to come into compliance with:

Section 1103.5.1
Where alcoholic beverages are consumed in a Group A-2 occupancy having an occupant load of 300 or more, the fire area containing the Group A-2 occupancy shall be equipped with an automatic sprinkler system in accordance with Section 903.3.1.1.

- A fire area is a fire-rated compartment that separates one area of the building from another. Sprinkler protection is required throughout the entirety of the occupancy up to a 2-hour separation if the occupancy changes. All associated auxiliary areas where alcohol is not being consumed, such as the bathroom and kitchen area, shall be sprinkler protected within the 2-hour fire barriers. If the floor and ceiling of the area of alcohol consumption is fire-rated with 2-hour fire barrier horizontal assemblies with no living quarters above the other spaces may be exempted outside of the 2-hour envelope.

- A fire area with assembly occupant loads of 300 or more can be as large as 4,500 sq. ft. (tables and chairs: 15 sq/ft net) or as low as 1,500 sq. ft. (standing room only: 5 sq/ft net).

- Where there are fire areas that separate the areas where alcohol is being consumed versus the non-consumption areas, the fire sprinkler system may be installed, in accordance with NFPA 13, in the fire area where alcohol is being consumed.

This occupancy count applies only where alcohol is consumed within the two-hour containment to fire areas adjacent to and above and below. If a neighborhood bar has a basement used only for storage or a second-floor existing apartment that push the occupancy numbers over 300 and the alcohol consumption area is less than 300 occupants per fire area, sprinklers would not be required.

A full fire sprinkler system provides life-safety, lower insurance premiums and a shorter business interruption when a fire occurs. With the current tax reform changes, small business owners can now fully expense the cost of retrofitting the fire sprinkler system up to $1 million per year.

Permits:
Permits are required for the installation of automatic fire sprinkler systems and underground fire lines.

Inspection Test & Maintenance:
Per NFPA 13 & 25 and manufactures specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Hazard / Occupancy Type Comparison Table Policy

Explanatory Policy – Hazard / Occupancy Type Comparison Table

SUBJECT: Hazard / Occupancy Type Historical Reference Requirements	**EFFECTIVE DATE:** July 19, 2019; Updated June 30, 2021
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 903.1.5 & 1103.5.5.5	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy covers hazard and occupancy types.

Requirements:
Occupancies have been expanded and renamed several times since Tarver Ordinance adoption in 2003, this historical list of occupancies is presented for ease of comparison. It is to be noted that any change within the highest hazard level one, triggers the requirement for fire sprinklers. (i.e. A2 to A3; R1 to R2; S3 to H etc.)

Change of Occupancy Section 903.1.7 - The intent of this section is to require fire sprinklers to be installed in buildings less than 2,500 that undergo a change in occupancy when the hazard level is increased per the table shown below. As building use and occupancy classifications have changed historically over time this historical reference was created.

Historical Reference

HAZARD LEVEL	1997 UBC OCCUPANCY TYPE	2006 IFC OCCUPANCY TYPE[1]	2012 IFC OCCUPANCY TYPE[1]	2018 IFC OCCUPANCY TYPE
1 (highest)	H, I, A, R-1, R-2	H, I, A, R-1, R-2, R-4, S-3, B-AGCF[1]	H, I, A, R-1, R-2, R-4, S-3, B-ACF[1]	H, I, A, R-1, R-2, R-4, S-3, B
2	S-1, S-5, F-1	S-1, F-1	S-1, F-1	S-1, F-1
3	E, F-2, S-2, S-3, S-4	E, F-2, S-2	E, F-2, S-2	E, F-2, S-2
4 (lowest)	B, M, U, R-3	B, M, U, R-3	B, M, U, R-3	B, M, U, R-3

1. Business, Ambulatory Care Facility

Permits:
Where required the installation of automatic fire sprinkler systems shall obtain a permit.

Inspection Test & Maintenance:
N/A

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Hazardous Material Assessment Fee Permits Policy

Explanatory Policy – Hazardous Material Assessment Fee Permits Policy	
SUBJECT: Hazardous Material Assessment Fee Permits	**EFFECTIVE DATE:** March 1, 2024
REFERENCES: The Phoenix Fire Code (2018 Edition) Section 106.1 & 106.9	**REVIEW DATE:** March 1, 2027
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The following explanatory policy applies to the issuance of hazardous material operational permits covered by hazardous material annual group facility assessment fees. This policy aims to facilitate efficient compliance with the Phoenix Fire Code, particularly for hazardous material operational permits, while ensuring transparency and effective communication with our valued customers. Although the inspection and code compliance processes typically unfold within a comparable timeframe, it is noteworthy that the assessment invoicing phase, on occasion, introduces substantial delays, impeding our customers' operational capabilities.

Requirements:
The following explanatory policy addresses Section 106.1 of the Phoenix Fire Code (2018 ed.) which outlines the prerequisites for obtaining a permit, emphasizing the necessity of fee payment before permit issuance. This statement also extends to permit amendments, where additional fees must be settled prior to permit issuance.

- Hazardous Material Operational Permits

For permits related to hazardous material storage, use, and handling, covered by the hazardous material annual group facility assessment fee, no specific "permit fee" applies. The costs associated with these permits are included in the customer annual assessment based on their assigned fee group.

- Application Process

To obtain the aforementioned operational permits, customers must submit their hazardous materials assessment fee application along with supporting documentation (e.g., HMIS, SDS). Following the processing of these submissions by Fire Prevention staff and the creation or update of an SAP account by the City Finance Department, billing and invoices are generated for customer payment. This comprehensive process may take up to, and occasionally exceed, 90 days.

- Operational Permit Issuance

Upon the payment of invoices and verification of code compliance by Fire Prevention staff, operational permits are issued.

However, due to the invoice system for assessment fees, delays can occur, affecting and delaying code-compliant customer operations.

- Delay Mitigation Measures

To assist customers awaiting City invoice processing for hazardous material annual group facility assessment fees, a 180-day operational permit may be issued upon submission of a complete assessment application packet, staff fee group assignment, and verification of the code compliance for operation(s). The expiration dates of these permits will be updated to reflect the 180-day timeframe. If the customer has not paid the invoice by the end of this period, the relevant permit(s) will be voided.

All assessment paid operational permits must have payment shown using the correlating kiva payment code below based on their group number;

*FIRE GRP 1**,** FIRE GRP 2, FIRE GRP 3, FIRE GRP 4, or FIRE GRP 5*

- Monitoring and Resolution

The Phoenix Fire Department will keep the FPSR/FSHI (1,2,3,4,5) status open in addition to conducting regular research to verify fee payment status. Upon invoice settlement, the Phoenix Fire Department will adjust the permit expiration date to the correct permit timeframe per the fire code and this Policy.

- Communication and Record-Keeping

Copies of permits with updated expiration dates will be provided to customers for their records upon receipt of payment.

Permits:
Based on the information provided in the HMIS operating permits for the storage, handling and use of hazardous materials in accordance with the 2018 Phoenix Fire Code Section 105.6.

Inspection Test & Maintenance:
Fire sprinkler and suppression systems or fire alarm and other life safety systems installed at facilities who store, handle or use hazardous materials are required to be maintained in accordance with the corresponding national standard. Inspection, test, and maintenance reports are required to be uploaded to The Compliance Engine for review by the Phoenix Fire Department.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

HMIS Policy

Explanatory Policy – Hazardous Material Inventory Statement

SUBJECT: Requirements for reports hazardous materials to the Phoenix Fire Department, Fire Prevention.	**EFFECTIVE DATE:** March 1, 2024
REFERENCES: The Phoenix Fire Code (2018 Edition) Section 5001.5.2	**REVIEW DATE:** March 1, 2027
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The following explanatory policy applies to the 2018 Phoenix Fire Code Section 5001.5.2; Hazardous Materials Inventory Statement (HMIS). Section 5001.5.2 sets the requirements for reporting hazardous materials within the City of Phoenix. "Hazardous Materials Inventory Statement (HMIS). Where required by the fire code official, an application for a permit shall include a Globally Harmonized System of Classification and Labeling of Chemicals (GHS) or an HMIS, Superfund Amendments and Reauthorization Act of 1986 (SARA) Title III, Tier II Report, or other approved statement.".

Requirements:
The following explanatory policy addresses the submittal requirements for Hazardous Materials Inventory Statement (HMIS). All premises that store, handling, or use of hazardous materials are required to provide the Phoenix Fire Department's, Fire Prevention Section with a copy of the Hazardous Materials Inventory Statement (HMIS) when requested by the fire code official or when the premise has had a significate change in material quantities, or when a change of ownership occurs. Hazardous Materials Inventory Statement (HMIS) does not take the place of a Tier II or Tier III required to be submitted to the state.

Permits:
The chemical inventory report shall be submitted to Phoenix Fire Department Fire Prevention Section utilizing the Hazardous Materials Inventory Statement (HMIS) found https://www.phoenix.gov/firesite/Pages/specialhazards.aspx via email to HMIS.XXXXXXX@phoenix.gov. HMIS's provided to the Fire Prevention Section through any other format will not be considered fulfillment of the submittal requirements of Phoenix Fire Code, Section 5001.5.2. Based on the information provided in the report there may be operating permits for the storage, handling and use of hazardous materials in accordance with the 2018 Phoenix Fire Code Section 105.6.

Inspection Test & Maintenance:
Fire sprinkler and suppression systems or fire alarm and other life safety systems installed at facilities who store, handle or use hazardous materials are required to be maintained in accordance with the corresponding national standard. Inspection, test, and maintenance reports are required to be uploaded to The Compliance Engine for review by the Phoenix Fire Department.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Hot Work Programs Policy

Explanatory Policy – Hot Work Permit Program

SUBJECT: Hot Work Permit Program Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 3503.3	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The requirements to conduct a Hot Work Permit Program and a review of other Fire Code requirements for open torches and other hot work operations.

Requirements:
Hazards of Hot Work Operations
Hot work includes welding, cutting, Thermit welding, brazing, soldering, grinding, thermal spraying, any operation involving open flame torches or any other similar activity. The primary hazard associated with hot work is the creation of ignition sources such as sparks, hot slag, radiant heat, or convective heat which can ignite nearby combustible material. A secondary hazard is the storage/use and handling of compressed gas cylinders such as acetylene, oxygen, argon and carbon dioxide.

Commonly Used Hazardous Materials

Chemical Name	CAS No.	PFC Classification	704 H	704 F	704 R
Acetylene	74-86-2	Flammable Compressed Gas	0	4	2
Argon	7740-37-1	Non-Flam Compressed Gas	0	0	0
Butane	106-97-8	Flammable Liquid Gas	0	4	0
Carbon Dioxide	124-3809	Non-Flam. Compressed Gas	0	0	0
Nitrogen	7727-37-9	Non-Flam. Compressed Gas	0	0	0
Oxygen	7782-44-7	Oxidizer Compressed Gas	0	0	0

Permits:
Overview of Hot Work Program Permits
When a business has more than two employees who are trained to conduct hot work operations, they must obtain a Hot Work Program Permit to manage their own hot work program Phoenix Fire Code Section 3503.3. This is a permitted program, carried out by an approved facility-designated person, called the "Hot Work Permit Issuer," that allows him/her to oversee and issue permits for hot work conducted at their facility. The intent is to have a trained, on-site, responsible person to ensure that required hot work safety measures are taken to prevent fires and fire spread. A Hot Work Program Permit must be reviewed and approved by the Fire Department. The purpose of this guide is to assist you in creating your own Hot Work Program.

Creating a Hot Work Permit Program

When approved, the fire code official shall issue a permit to carry out a Hot Work Program. This program allows approved personnel to oversee and issue internal permits for hot work conducted by their personnel or at their facility.

The Hot Work Program is administered by a Hot Work Program Manager. The Hot Work Program Manager, employees and contractors, shall be trained in the fire safety aspects denoted in Chapter 35 of the Phoenix Fire Code. A Hot Work Program must include the issuance of an internal hot work permit.

The Hot Work Program submittal should include the following information (where applicable):

- ❑ Purpose and Scope
- ❑ Personnel Responsibilities
  - ✓ Individual performing hot work
  - ✓ Manager/Supervisor
  - ✓ Hot Work Permit Issuer Responsibilities
  - ✓ Management
- ❑ Contact Information
  - ✓ Name/contact information for the Hot Work Program Manager
  - ✓ Name/contact information for the facility-designated person (FDP) who will issue Hot Work Permits
- ❑ Type of Work Performed
  - ✓ Welding, cutting, braising
  - ✓ Electric Arc
  - ✓ Calcium Carbide
  - ✓ Acetylene Generators
- ❑ Hot Work Permit Procedures
  - ✓ Sample of the Hot Work Permit tag
  - ✓ Pre-work check completed by FDP prior to hot work
  - ✓ Length of time hot work permit is valid
- ❑ Recordkeeping Management
  - ✓ Fire Watch Procedures
  - ✓ Employee Training
    - ▪ Safe Operation of Equipment
    - ▪ Fire Extinguisher Training
    - ▪ Pre-Work Checklist
    - ▪ Emergency Procedures Taken During a Fire
- ❑ Maps Showing Location of:
  - ✓ Permissible areas designated for hot work
  - ✓ Areas not approved for hot work
  - ✓ Storage of compressed gas cylinders

If the quantity of hazardous materials in storage/use/handling exceed the permit quantity listed in Phoenix Fire Code Table 5003.1.1 an operational permit is required. The permit quantity for common welding gases is as follows:

Flammable gases (ex., acetylene)	200 cu. ft.
Oxidizer gases (ex., oxygen)	504 cu. ft.
Non-flammable gases (ex., argon, carbon dioxide, nitrogen)	200 cu. ft.

City of Phoenix

FIRE DEPARTMENT

FIRE PREVENTION SECTION

Sample Program

1.0 INTRODUCTION

The following procedure details the Hot Work Program utilized by ABC Welding & Supply Company.

1.1 Purpose—The purpose of the Hot Work Permit program is to ensure that proper safeguards and procedures are followed before commencing any hot work and necessary safeguards are taken to minimize the potential for unintentional fires.

1.1.1 For the purpose of this policy, "hot work" is defined as *welding, cutting, Thermit welding, brazing, soldering, grinding, thermal spraying, any operation involving open flame torches or any other similar activity.*

1.1.2 The primary hazard associated with hot work is the creation of ignition sources such as sparks, hot slag, radiant heat, or convective heat which can ignite nearby combustible material.

1.1.3 A secondary hazard is the storage/use and handling of compressed gas cylinders such as acetylene, oxygen, argon and carbon dioxide.

1.2 Scope—This procedure applies to all employees, supervisors, managers and contractors working at ABC Welding and Supply at 123 N. Central Ave., Phoenix, AZ.

2.0 RESPONSIBILITIES

All personnel listed below shall follow the requirements of this section:

2.1 Individuals Performing Hot Work—Employees and contractors are responsible for complying with this safety procedure. Individual performing hot work shall:

2.1.1 Perform only task in locations assigned, maintain, handle and store equipment according to instructions.

2.1.2 Not perform any welding and cutting operations that are not deemed safe or where the conditions for cutting or welding are not safe.

2.1.3 Perform only the operations for which they are thoroughly trained.

2.1.4 Utilize appropriate protective safety equipment.

2.1.5 Contact their supervisor if they have questions regarding safety.

2.1.6 Have a fire extinguisher readily available before/during/after conducting hot work.

2.1.7 Know how to complete a Hot Work Permit.

2.1.8 Know the address of the facility and how to report a fire.

2.1.9 Inspect equipment prior to each use and remove from service any equipment found defective or which poses a safety hazard.

2.1.10 Maintain a Fire Watch for a minimum of 30 minutes following any hot work.

2.2 Supervisors—Managers and supervisors shall ensure that the contents of this procedure is clearly communicated to all affected employees and contractors, and are responsible for administering and implementing this procedure. Supervisors shall:

2.2.1 Ensure that their individuals working under their direction receive periodic training to verify that they are using the proper techniques and safety precautions when performing hot work.

2.2.2 Ensure that their employees have the proper personal protective equipment.

2.2.3 Ensure that pre-inspection check has been done and a hot work permit completed.

2.2.4 Ensure that employees/contractors are thoroughly trained to perform their assigned tasks.

2.2.5 Ensure that all the requirements of this Hot Work Program are fulfilled before work is performed.

2.3 Hot Work Permit Issuer— The facility-designated personnel assigned as the "Hot Work Permit Issuer" shall to oversee and issue permits for hot work conducted at the facility and shall ensure that hot work safety measures are taken to prevent fires and fire spread. The Hot Work Permit Issuer shall:

2.3.1 Ensure that pre-inspection check list has been completed.
2.3.2 Review/approve the hot work permit prior to work beginning.
2.3.3 Ensure that a Fire Watch has been established for a minimum of 30 minutes following hot work.
2.3.4 Sign-Off Hot Work Permit at completion of work and forward for record-keeping.

2.4 Hot Work Program Manager—The Hot Work Program Manager shall be responsible for monitoring the implementation of the Hot Work Program and ensure that it is being effectively administered. The Hot Work Program Manager shall:

2.4.1 Designate one or more personnel as the "Hot Work Permit Issuer" who will be responsible to issue hot work permits.
2.4.2 Coordinate safety training for all employees, supervisors and designated personnel regarding hot work.
2.4.3 Maintain records of all employee safety training related to hot work.
2.4.4 Maintain records of all Hot Work Permits issued within the previous 12 months.
2.4.5 Conduct periodic audits to ensure that employees are utilizing approved equipment, materials, and work methods, and records are properly maintained.

2.5 Management—Management shall ensure continued compliance with all elements of this Hot Work Program. Management shall:

2.5.1 Establish this policy to strictly enforce a permit system, which ensures that any hot work operations are not initiated until fire safety considerations have been addressed.
2.5.2 Designate one person to function as Hot Work Program Manager.

3.0 CONTACT INFORMATION

3.1 Personnel approved to perform hot work include:

1. *Name*
2. *Name*
3. *Name*
4. *Name*

3.2 Personnel authorized to issue hot work permits and designated as a "Hot Work Permit Issuer" include:

1. *Name*
2. Na*me*

3.3 The Hot Work Program Manager is: *Name* _____.

4.0 HOT WORK PROCEDURES

The following procedures shall apply when conducting hot work operations.

4.1 Pre-Hot Work Inspection—Prior to conducting any hot work the individual performing hot work shall conduct an inspection that includes the following:

- **4.1.1** Hot work equipment is in satisfactory operating condition.
- **4.1.2** Hot work site is clear of combustibles materials (at least 35 feet), or such materials are protected.
- **4.1.3** Combustible material within 35 feet shall be removed or provided with appropriate shielding to prevent sparks, slag or heat from igniting exposed combustibles.
- **4.1.4** Combustibles on the other side of walls are removed or otherwise protected.
- **4.1.5** Openings within 35 feet are protected or covered.
- **4.1.6** Floors are kept clean.
- **4.1.7** Flammable liquids, dust, lint and oil deposits are removed.
- **4.1.8** Approved actions have been taken to prevent accidental activation of fire detection/suppression equipment.
- **4.1.9** Fire extinguishers and fire hoses (where provided) are operable and available.

4.2 Hot Work Permit— Once the Pre-Work Inspection has been completed, the person performing hot work will consult with the Hot Work Issuer. The Hot Work Issuer will review the proposed hot work, and once approved, will fill out the Hot Work Permit.

4.3 Prohibited Areas —Hot work shall **NOT** be conducted in the following locations

- **4.3.1** Hot work shall Not be conducted in a building with an automatic fire sprinkler system that is impaired, or in areas where flammable or combustible liquids or vapors are present or in areas where lint, dust, or combustible storage is at risk of being ignited by sparks or hot metal.

4.4 Fire Watch—A person shall be assigned during all hot work activities and continue for a minimum of 30 minutes after the conclusion of the work. This person shall:

- **5.1.1** Have ready access (within 30') to a portable fire extinguisher with a rating of at least 2A:20BC.
- **5.1.2** Be trained in the use of the fire extinguisher and hose lines (where provided).
- **5.1.3** Shall be responsible to FIRST call 9-1-1 to notify the Fire Department, and then extinguish spot fires.
- **5.1.4** The Fire Watch shall include the entire hot work area with additional personnel assigned when there are fire exposures that are not observable by a single individual.

5.0 OTHER SAFETY PRECAUTIONS

Compressed Gas — Storage, handling and use of compressed gas cylinders shall be as follows:

- **5.1.5** Portable cylinders/tanks are secured.
- **5.1.6** Caps or other valve protection is in place.
- **5.1.7** Valve protection caps shall NOT be used to lift cylinders.
- **5.1.8** Cylinder shall be secured in an upright position at all times.
- **5.1.9** Each cylinder must bear the proper DOT label to identify the contents.
- **5.1.10** Vehicle impact protection (traffic bollards) in place where needed.
- **5.1.11** Flammable gases (ex., acetylene) shall are incompatible with oxidizer gases (ex. Oxygen) and shall be stored by a partition wall or by at least a 20' line of site separation.
- **5.1.12** Signs shall be prominently identify the gases stored (ex., NON-FLAMMABLE GAS ONLY and FLAMMABLE GAS ONLY).
- **5.1.13** Equipment located inside of buildings shall be stored in a well ventilated dry location at least 20 feet from combustible materials, elevators, stairs or means of egress.

5.1.14 Cylinder, valves, regulators, hose, and other apparatus and fittings for oxygen, shall be kept free from oil or grease. They shall not be handled with oily hands, gloves, or greasy tools or equipment.

5.1.15 Cylinder, piping, and equipment used for acetylene gas shall be approved. Gas pressure, including piping, hosing and manifolds shall not exceed 15 pounds per square inch.

5.1.16 The acetylene line on an oxy/acetylene cart shall have a back flow check valve. Each torch shall have a back flash arrestor.

5.1.17 When changing out a cylinder, ensure that the cap is secure, avoid dragging or sliding cylinders and use proper lifting techniques.

5.1.18 Fuel gas hose shall have contrasting color (red for acetylene, green for oxygen).

5.2 **Electric Arc Hot Work—** The following safety precautions shall be taken for arc welding:

5.2.1 Welding equipment shall be maintained in good operating condition.

5.2.2 Cables shall be kept dry and free of oil and suspended when possible.

5.2.3 Cables shall be protected if exposed to falling sparks.

5.2.4 Electrode holders shall be fully insulated and in good condition.

5.2.5 Operator shall make certain all electrical connections are secure made prior to starting.

5.2.6 Operator shall maintain a dry working area.

5.2.7 Operator shall wear rubber-soled shoes to provide resistance to electrical flow.

5.2.8 Electrical welding equipment is properly grounded and a disconnecting switch supplied if the equipment does not have one.

5.2.9 A switch or circuit breaker shall be provided so that fixed electric welder and control equipment can be disconnected from the supply circuit and marked EMERGENCY DISCONNECT.

5.2.10 If other employees in the vicinity of the welding operations, it must be screened so that employees cannot see the arc.

5.3 **Other**

5.3.1 Hot work shall NOT be performed on containers or equipment that contains or has contained flammable liquids, gases or solid until the container and equipment have been thoroughly cleaned, inerted or purged.

5.3.2 Cylinders shall be keep far enough away from the actual welding or cutting operation so that sparks, hot slag or flame, will not reach them.

6.0 PERSONNEL PROTECTIVE EQUIPMENT

The following protective equipment will be utilized when conducting hot work:

6.1 **Eye Protection**—When performing hot work, the eye is exposed to sparks, slag, fumes and the flash, all of which can severely damage the eye. All employees performing hot work shall wear eye protection appropriated for that type of hot work.

6.2 **Clothing**—Employees are responsible for wearing the protective clothing that they feel is necessary. This may include cotton work gloves, a long sleeve heavy wool or cotton shirt or welding jacket.

6.3 **Respirator**—When welding or cutting for 15 minutes or more within an 8 hour time frame, a respirator may be required.

6.4 **Helmet**—When required, a welding helmet or shield will be worn during welding operations.

7.0 TRAINING

Employees who perform hot work shall be trained to conduct hot work in a safe fashion.

7.1 Employees who perform hot work shall understand the following:

7.1.1 The steps required to perform welding, cutting, brazing and other hot work.

7.1.2 How to properly ground an arc welder.

7.1.3 How to properly transport compressed gas cylinders.

7.1.4 Proper storage of electrode holders to prevent electrical contact with people, conducting objects, fuels or compressed gas cylinders.

7.1.5 How to prevent electrical shock including splicing requirement and the safe handling of welding electrode cables.

7.1.6 Personal protective equipment required when performing the different types of hot work.

7.1.7 Health hazards associated with hot work.

7.1.8 How and when to perform inspection of hot work equipment.

City of Phoenix

FIRE DEPARTMENT

FIRE PREVENTION SECTION

SAMPLE—HOT WORK PROGRAM

APPENDIX A--SAMPLE

HOT WORK PERMIT

BEFORE BEGINNING HOT WORK MAKE SURE ALL PRECAUTIONS ARE IN PLACE!

This hot work permit is needed for any welding, cutting, Thermit welding, brazing, soldering, grinding, thermal spraying, any operation involving open flame torches, or any other similar activity.

SUPERVISOR INSTRUCTIONS

1. Verify Pre-Work Inspection Checklist has been completed (or do NOT proceed with work).
2. Complete and retain this permit.

DATE	**JOB NO.**
NAME OF PERSON DOING HOT WORK	
WORK TO BE DONE	
LOCATION/FLOOR	
SPECIAL PRECAUTIONS NEEDED	
IS A FIRE WATCH REQUIRED? ☐ Yes ☐ No	
FIRE WATCH SIGN-OFF I verify that the above location has been inspection, the Pre-Work Inspection Checklist has been completed and the Special Precautions indicated have been taken. SIGNED:	
FINAL CHECKUP Work area was monitored for a reasonable amount of time following hot work and found safe. SIGNED: Time:	
THIS PERMIT IS GOOD FOR ONE DAY ONLY!	

PRE-WORK INSPECTION CHECKLIST

- ☐ Available sprinklers and hose streams are in service and operable.
- ☐ Hot work equipment is in good repair.
- ☐ Hot work site is clear or protected by at least 35 feet.
- ☐ Combustibles on the other side of walls are removed.
- ☐ Openings within 35 feet are protected or covered.
- ☐ Floors are swept clean.
- ☐ Flammable liquids, dust, lint and oil deposits are removed.
- ☐ Fire alarm company has been notified.
- ☐ Fire extinguishers available and readily accessible.

FIRE WATCH REQUIREMENTS

- ☐ Fire Watch is provided with a suitable extinguisher and/or a charged hose line.
- ☐ Fire Watch shall continue for a minimum of 30 minutes after hot work completed.
- ☐ If fire occurs, Fire Watch shall confirm that 9-1-1 has been called.
- ☐ Fire Watch is trained in the use of equipment and shall be responsible to extinguish spot fires.

OTHER PRECAUTIONS TAKEN:

_____

_____

_____

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

In-fill Development Policy

Explanatory Policy – In-Fill Development	
SUBJECT: In-Fill Development Policy Requirements	**EFFECTIVE DATE:** August 15, 2013 July 19, 2019; Update 06-30-2021
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Chapters 5, 10 & 11	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
In-fill projects as defined by the Planning & Development Department.

Requirements:

- All buildings shall be protected by an automatic fire sprinkler system per NFPA 13.
- All stairways greater than 25 feet from the lowest fire department access level shall be provide with a wet standpipe system per NFPA 14.
    - 2 ½ inch fire standpipe outlets shall be provided on each intermediate floor level and on the grade level.
    - 2 ½ inch fire standpipe outlet shall be provided across both sides of all horizontal exit doorways no matter the distance from a stairway, exits or other standpipe outlets.
- The distance from a fire department access road to the front entrance of all buildings or facilities shall not exceed 150 feet. The fire department access road shall have an unobstructed width of not less than 16 feet and a vertical clearance of not less than 14 feet.
- Fire apparatus access roads shall have a minimum 45-foot centerline radius [37-foot inside radius, 53-foot outside radius] on curves.
- Dead-end fire apparatus access roads in excess of 150 feet in length shall terminate in an approved turnaround at the end of the fire apparatus access road.
- Fire apparatus access roads signage and striping shall comply with the Phoenix Fire Code.
- Gates along fire apparatus access roads shall comply with the Phoenix Fire Code.
- 2-hour rated fire wall shall be provided to separate non-sprinklered sections from sprinkler protected sections.

Permits:
N/A

Inspection Test & Maintenance:
N/A

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Key Box Requirements Policy

Explanatory Policy – Key Box Requirements	
SUBJECT: Fire Department Access Key Box Requirements	**EFFECTIVE DATE:** August 2021
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 506	**REVIEW DATE:** July 2024
APPROVED: 	
John Mertens, Fire Marshal	

Scope:
This policy explains the Fire Code requirements for fire and emergency response access provided through keys located in fire department approved key boxes.

Requirements:
Where building, suite, or facility access is restricted by either an electronic or mechanical locking systems, the fire code official is authorized to require key box(s) to be installed in an approved location with an approved means for fire and emergency response to gain access.

The key box shall contain one of the following means providing access:

- Keys
  - Each key shall be color-coded to identify its function as follows:
    - Green for access gates.
    - Yellow for elevators.
    - Red for the Fire Command Center.
    - Blue for keys related to water access (e.g., gates to swimming pools).
    - White for master keys.
- Electronic toggle switch – provided within the key box for use by fire and emergency response

Request through an Appeal to the Fire Marshal to use other devices to gain necessary access.

Where applicable all keys shall be full sets and provide access to all doors. Not fewer than three sets of keys for access shall be provided. Buildings with stairways shall provide an additional three sets per stairway. Buildings with elevators shall provide an additional three sets per fire service designated elevator.

Permits:
Access permits are required.

Inspection Test & Maintenance:
Per the manufactures specifications. It is the owner's responsibility to maintain all key boxes, and keys within, current.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Kitchen Hood Maintenance and Protection in E, I-4, I-1, I-2 and R-2 College Residency Policy

Explanatory Policy – Kitchen Hood Maintenance - Commercial and Domestic

SUBJECT: Domestic and Commercial Kitchen Hood Maintenance and Protection in Group E, I-4, I-1, I-2 and R-2 College Residency Occupancies	**EFFECTIVE DATE:** November 2018 July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Sections 607.2, 607.3 & 903.14	**REVIEW DATE:** July 2024
APPROVED: 	
John Mertens, Fire Marshal	

Scope:
This policy is address protection and maintenance of Type I and Type II kitchen hoods in State licensed facilities and R-2 occupancies used for college campus housing.

Requirements:
Type I Hoods:
Type I hoods installed to control the hazard of appliances that may produce grease or smoke as a result of the cooking process shall be maintained with the level of fire suppression protection that is required by the International Mechanical Code (IMC) Section 509.1, and inspection schedule as required by Phoenix Fire Code (PFC) Table 607.3.3.1 every 6 months for normal use and annually for light use facilities (religious facilities and senior centers).

If maintenance of the Type I hood is considered by the operator to be unneeded because there is no grease producing cooking under the hood or on the premises, the hood and suppression system is still required to be maintained or removed.

Type II Hoods:
Type II hoods are installed where appliances are installed that create heat or moisture (dishwashers, ovens, steam tables) but do not produce grease or smoke as a result of the cooking process International Mechanical Code (IMC) 507.3. Type II hoods, when appropriate activities are conducted beneath them, do not require a suppression system and should not develop noticeable grease buildup.

Determining when a Type I hood is required in licensed facilities:
When a facility (Group E & I) is following the Child and Adult Care Food Program (CACFP) and preparation includes no open preparation of meat or meat substitutes with raw of semi-cooked ingredients (eggs, bacon, browning meat, etc.) then the

facility is considered to produce limited grease laden vapors and meet the except ion of IFC 507.2. Warming in an oven or over a steam dish is acceptable.

If grease build up is noticeable, then the facility may be required to install a Type I hood. This can be verified through third party verification and testing using criteria found in the IMC Section 507.2 exception for effluent testing. If the effluent exceeds restrictions, then IMC 507.2, "Type I hood shall be installed where cooking appliance produce grease or smoke as a result of the cooking process" shall apply and a Type 1 hood shall be installed.

Inspections shall be completed by qualified individuals. Daycare and educational facilities shall be inspected every 6-months.

International Building Code (IBC) 2018 Domestic Kitchen Hoods in new construction, Group R-2 college housing and Group I-1 & Group I-2 hospitals and nursing homes shall be protected with a suppression system in new construction if they fall within the use and arrangements found in the IBC. No fryers are allowed under domestic hoods. Domestic hoods are limited to ranges, ovens, microwaves, coffee makers, cooktops and warmers.

IBC 407.2.6 for nursing homes Group I-2 with domestic hoods being used for cooking facilities or smoke compartmentation for 30 or greater souls or having more than one domestic hood within the smoke compartment require suppression systems. Many other restrictions and requirements apply.

IBC 420.8 Hospitals Group I-2 with domestic hoods using some of the same guidelines of 30 or greater souls served or in a smoke compartment or more than one hood also require suppressions systems along with other restrictions and requirements.

IBC 420.10.1 and 420.10.2 Group R-2 College dormitories shall have hoods over any cooking device,
protected by a suppression system, limited to the devices listed above and approved locations with no cooking devices allowed in sleeping areas.

E Occupancy - Educational Group E.
Educational Group E occupancy includes, among others, the use of a building or structure, or a portion thereof, by six or more persons at any one time for educational purposes through the 12th grade, to include day care facilities occupied by more than 5 children older than 2 years of age.

Institutional Group 1-1
This occupancy shall include buildings, structures or parts thereof, for more than 16 persons who reside on a 24-hour basis in a supervised environment and receive custodial care. The persons receiving care are capable of self-preservation. This group shall include, but not be limited to, the following:

- Alcohol and drug centers
- Assisted living facilities
- Congregate care facilities
- Convalescent facilities
- Group homes
- Half-way houses
- Residential board and custodial care facilities
- Social rehabilitation facilities

Institutional Group 1-2.
This occupancy shall include buildings and structures used for medical care on a 24- hour basis for more than five persons who are not capable of self-preservation. This group shall include, but not be limited to, the following:

- Foster care facilities
- Detoxification facilities
- Hospitals
- Nursing homes
- Psychiatric hospitals

Residential Group R-2.
Residential occupancies containing *sleeping units* or more than two *dwelling units* where the occupants are primarily permanent in nature, including:

- Apartment houses
- *Boarding houses* (non-transient) with more than 16 occupants Congregate living facilities (non-transient) with more than 16 occupants
- Convents
- Dormitories
- Fraternities and sororities

Permits:
Any installation or modification to a kitchen hood system requires a permit prior to beginning work.

Inspection Test & Maintenance
Per NFPA 17 & 17A, and the manufactures specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Life Safety Reports Policy

Explanatory Policy – Fire & Life Safety Report	
SUBJECT: Fire & Life Safety Report	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: The Phoenix Fire Code (2018 Edition) Section 105.4.2.2	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The Fire Code Official is authorized to require fire & life safety reports. Fire & Life Safety Reports shall be submitted for review and be subject to fees in accordance with Chapter 81 of the Phoenix Fire Code. Prior to submitting construction drawings for high-rise buildings, covered mall buildings, buildings containing atriums, and other structures as determined by the *fire code official* or *building official*, a Fire & Life Safety Report shall be submitted containing a description of the fire protection systems in the building.

The description shall include the coordination of those systems. Upon completion of the project, a copy of the approved documentation shall be maintained at the site and by the Fire Department until demolition of the building.

This description shall include the basic concepts used for:

Basis of Design		
1.	Building Description/Introduction	• Project Address/ Cross Streets • Intended use and occupancy groups • Construction type(s) • Building height • Number of floors above/below grade • Area per floor (s.f.) • Total area (s.f.) • Seismic design/ Risk category
2.	Codes, Standards, Laws and Regulations/ Testing Criteria	• See current list of adopted codes PFC Ch 80
3.	Designer Responsibility Fire Protection and Life Safety Commissioning Team	• Project design professional in charge

4.	Design and Construction Methodology	• Demolition • Phased construction • Occupancy plan
5.	Special Consideration & Description	• Historic Preservation • Greater than 420 ft in height • Institutional occupancy • Essential facility structure (natural disaster shelter)
6.	Infrastructure (supporting building fire protection and life-safety systems)	• Available fire flow (PFC Appendix B) • Fire main and hydrants (municipal, private) • Electrical service (Transformer size, Oil filled, Location/method of protection) • Standby/ Emergency Power Connections (Distinguish what is connected NEC 700, 701, 702) • Other Utilities: Information tech., natural gas, etc. • Water tank
7.	Special Design	• Alternative methods and materials (Include Code Modification(s)/ Appeal(s) in Appendix)
Passive, Active Fire Protection and Life Safety Equipment and Systems		
8.	Critical Process and Systems	• Energy management systems (see integrated testing requirements) • Hazardous materials and processes (temperature control etc.) • Mechanical refrigeration machine room Research Labs
9.	Emergency Response	• Two-way communication (Type) • Emergency responder radio coverage • Fire command center • Firefighter Breathing Air • Access control doors • Fire emergency access • Fire Service Access Elevator (Design method to prevent water infiltration, # of elevators, etc.) • EMS Access Elevator • Ambulance stretcher designated • Fire fighter's emergency operation (Phase I and II) • Firefighter Sequence of Operation (Smoke Control, etc.)
10.	Hazardous Materials/Operations	• Type of material and physical state (HMIS-Provide in Appendix) • Maximum allowable quantities • Control areas • Type of hazard and method of protection • Management Plan (HMMP)
11.	Fixed Fire Suppression Systems	• Automatic fire suppression system (Wet, Dry, 13, 13R, etc.)

		• Standpipe system (Class I, II, III) • Fire pump (Electric, Diesel- Include fuel capacity analysis) • Commercial cooking (Hood Type, Suppressant) • Special systems (pre-action, water mist, etc.)
12.	Fire Alarm Systems	• System Design (full vs partial evacuation, Class A, etc.) • Sequence of operation (Cause/ Effect Matrix) • Notification requirements (ADA, special design) • Voice evacuation • Emergency alarms (H Occupancy) • CO/ CO2 Detectors
13.	Smoke Control and Management Systems	• Post fire smoke removal method and design • Stair pressurization • Elevator hoistway pressurization • Atrium smoke exhaust system • Smoke compartmentation • Fire fighter's smoke control panel • Diagram and controls • System acceptance
14.	Means of Egress Systems and Components	• Number of exits and/or stairways • Exit access components (fire/smoke resistant corridors) • Horizontal exits • Occupant evacuation elevators • Access to the public way or staging • Access controlled egress doors • Luminous egress markings
15.	Fire-resistant and Smoke-resistant Assemblies	• Method of protection (i.e. spray fire proofing, tested assemblies, etc.) • Fire and smoke dampers • Fire and smoke doors • Through penetration fire stops • Smoke vents (including elevator hoistway venting) • Smoke and fire rated assemblies
16.	Explosion Prevention and Control Systems	• Complying with PFC CH 9
Commissioning and Integrated Testing		
17.	Delivery of Operation and Maintenance Documentation	• Smoke control • Active systems (WON doors, smoke guard, magnetically hold open) • Inspection Intervals (Smoke control, Alarm, Sprinkler System, etc.) • Manufacturer's installation instructions and specifications

18.	Occupant Overview of Life Safety Systems	• Training owner/ employees, staff on maintaining/ operating/ performance of systems • To be done prior to Certificate of Occupancy
Appendix		
A.	Smoke Control/ Modeling Summaries/ Rational Analysis Report	• Consider ASHRAE Temperatures • Wind speed and direction analysis
B.	Timed Egress Analysis Report	• Where applicable to project
C.	Fire flow test	• PFC Appendix B
D.	Appeals/Code Modifications/FCC Location Approval	• Where applicable to project
E.	Commissioning/ Final Inspection/ Integrated Testing for all fire life safety systems documentation	• To be provided prior to Certificate of Occupancy • Accuracy of Diagrams of System Interconnection and Device Location • Installation in Accordance with Manufacturer's published Instructions • Performance in accordance with applicable codes and standards • Third party testing and special inspections • Fire command center • Fire alarm system • Energy management system • Emergency power system • Emergency responder radio coverage • Elevator systems • Equipment and Tools (Door Fan Test, Smoke Control Pressurization, etc.) • Special inspection / observation certificate
F.	Hazardous Material (HMIS)	• If applicable to project • IFC Chapter 50 • IBC Section 414 • (MAQ) Maximum Allowable Quantity Evaluation
G.	Floor Plans 11X17	• Provide site civil fire line with hydrant locations, fire alarm, fire sprinkler, fire pump, standpipe, smoke & heat removal system, elevator, rescue air, MEP and architectural with site plan.

Permits:
FLSR is required to be obtained prior to submitting for building permits.

Inspection Test & Maintenance:
Per NFPA 4, the intent of the FLSR is to be a living document. It should reflect current use, changes when they occur, and disposition of building systems.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Listed and Approved Policy

Explanatory Policy – Listings and Approvals

SUBJECT: Listings and Approvals	**EFFECTIVE DATE:** October 2022
REFERENCES: The Phoenix Fire Code (2018 Edition) Sections 104.7 and 202	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This explanatory policy describes how Phoenix Fire Prevention enforces code provisions requiring listings, approvals, or both.

Requirements:
The 2018 Phoenix Fire Code (PFC) contains many provisions requiring "*approved*" or "*listed*" products, methods, or systems. These terms are defined in PFC Section 202 as follows:

- ***Approved* –** Acceptable to the fire code official.

- ***Listed* –** Equipment, materials, products or services included in a list published by an organization acceptable to the fire code official and concerned with evaluation of products or services that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services and whose listing states either that the equipment, material, product or service meets identified standards or has been tested and found suitable for a specified purpose.

In general, where the PFC uses the term *approved*, approval shall be obtained through the plan review and inspection process (see PFC Sections 105.4.4 and 107.4). Approval is subject to the discretion of the person(s) conducting the plan review/inspection. In some cases, the plan reviewer or inspector may require the customer to obtain approval of a particular product, method, or system through the Appeal to the Fire Marshal process (PFC Section 104.9).

Where the PFC uses the term *listed*, the product, method, or system must be *listed* as that term is defined above. Both the organization issuing the listing and the standard applicable to the listing must be *approved*, subject to the discretion of the individual conducting the plan review/inspection. The PFC occasionally prescribes the listing organization and the listing standard (as in PFC Section 608.2), but not always (as in PFC Section 903.4).

Sometimes the PFC will require that a product, method, or system is *approved* or *listed* (as in PFC Section 5003.2.3). The fire code official conducting the plan review/inspection has discretion in these cases to issue an approval for non-*listed* equipment through an engineering interpretation using a third party, since there are types of products on the market for which listings do not exist. However, where appropriate listings do exist, the fire code official may limit their approval to the use of a *listed* option, versus a non-*listed* option. The "*approved* or *listed*" code language does not force the fire code

official to accept a non-*listed* option.

Sometimes the PFC will require that a product, method, or system is *approved* and *listed* (as in PFC Section 907.1.3). In these cases, only appropriately *listed* equipment will be *approved* by Phoenix Fire Prevention.

Example:

Window Sprinklers

Listings are only valid for specific use cases (as in PFC Section 903.3.2, also see the definition of *listed*). Where a code section requires a *listed* component, the listing must be specific to the intended use of the product. As an example, PFC Section 903.4 requires the use of a *listed* fire alarm control unit. A piece of equipment with a listing to UL 61010-1 would not be considered as meeting this requirement, even though it is *listed*, because the listing is not specific to use as a fire alarm control unit. A listing to UL 864 would be accepted, because the listing is specific to the use case.

The same logic applies to *approved* equipment. Approval is only valid for the specific use case for which the approval was issued.

Permits:
Obtaining approval of a product, system, or method is done through the permitting process (plan review and inspection). However, issuing a permit or completing an inspection shall not be construed to be an approval of a code violation, and does not prevent Phoenix Fire Prevention from requiring correction of errors (PFC Sections 105.3.8 and 107.4).

Inspection Test & Maintenance:
All *approved* and/or *listed* products, methods, and systems shall be continually maintained in accordance with the terms and conditions of their approval and/or listing.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Luminous Egress Path Markings Policy

Explanatory Policy – Luminous Egress Path Markings

SUBJECT: Requirements for Luminous Egress Path Markings	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Sections 1024.2 & 1104.25	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy covers the Phoenix Fire Code requirements for luminous path markings in high-rise buildings. This includes the requirements for newly constructed high-rise buildings and existing buildings.

Requirements:
New Construction:
All newly constructed high-rise buildings (Group A, B, E, I-1, M or R-1 occupancies) shall have luminous egress path markings installed in accordance with the 2018 Phoenix Fire Code Section 1025. This will be a condition of the issuance of a final Certificate of Occupancy by the Planning and Development Department.

Existing Buildings:
All existing high-rise buildings (Group A, B, E, I-1, M or R-1 occupancies) shall have luminous egress path markings installed in accordance with the 2018 International Fire Code Section 1104.25. It shall be up to owners to install egress path markings. In the event of a power outage any liability for injury would fall upon the owner. This requirement is retroactive and therefore compliance shall be completed by January 1, 2023. A permit is required for this installation from the Planning and Development Department, or Annual Facilities Program Fire Inspectors.

The following illustrations reference the 2012 PFC. The requirements are the same in the 2018.

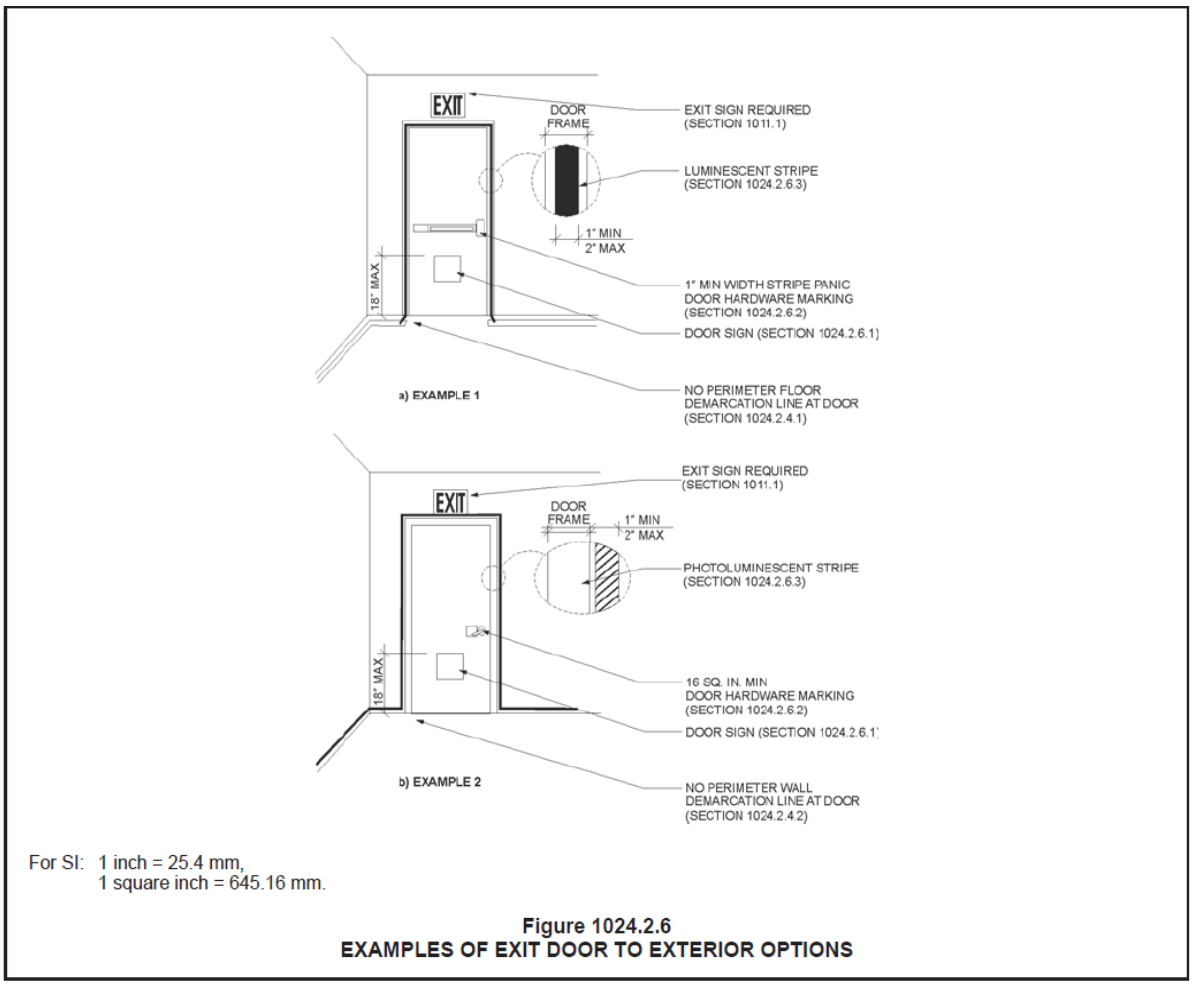


Figure 1024.2.6
EXAMPLES OF EXIT DOOR TO EXTERIOR OPTIONS

Code revisions to 2018 PFC from 2012 PFC illustrations for exit door to exterior options:

- Exit sign requirement: Section 1013.1
- Door hardware markings: Section 1025.2.6.2
- Panic hardware on exit door marking
- Door hardware marking (minimum 16 square inches)
- Door frame markings: Section 1025.2.6.3
- Luminescent stripe
- Photoluminescent stripe
- Emergency exit symbol required on bottom middle of exit door: Section 1025.2.6.1
- No perimeter floor demarcation line at door: Section 1025.2.4.1
- No perimeter wall demarcation line at door: Section 1025.2.4.2

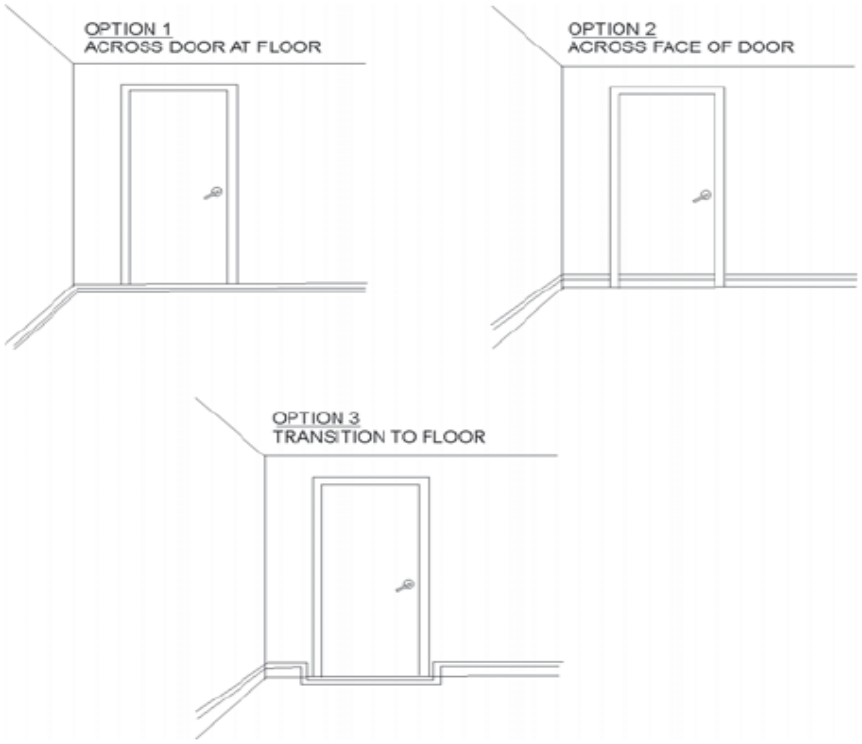


Figure 1024.2.4.3
PERIMETER DEMARCATION LINES—
OPTIONS AT DOORS INTO EXIT ENCLOSURES

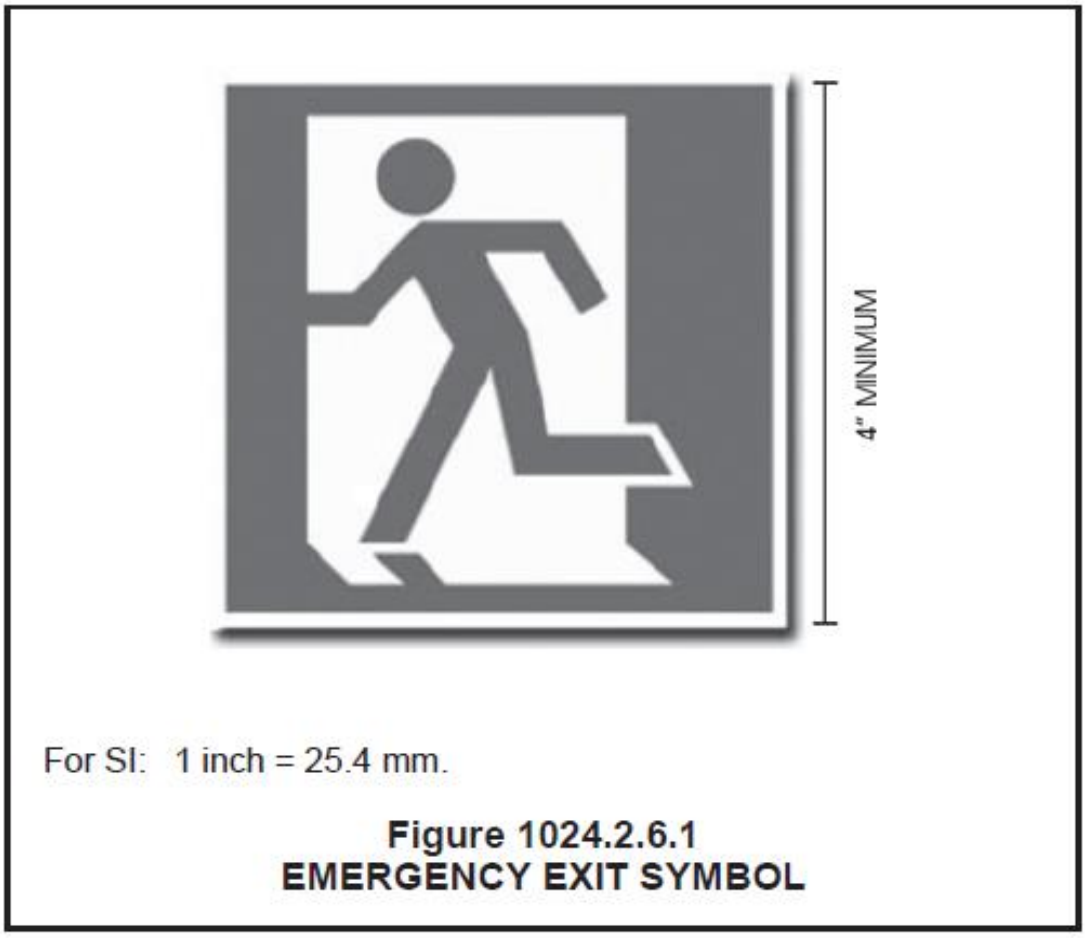
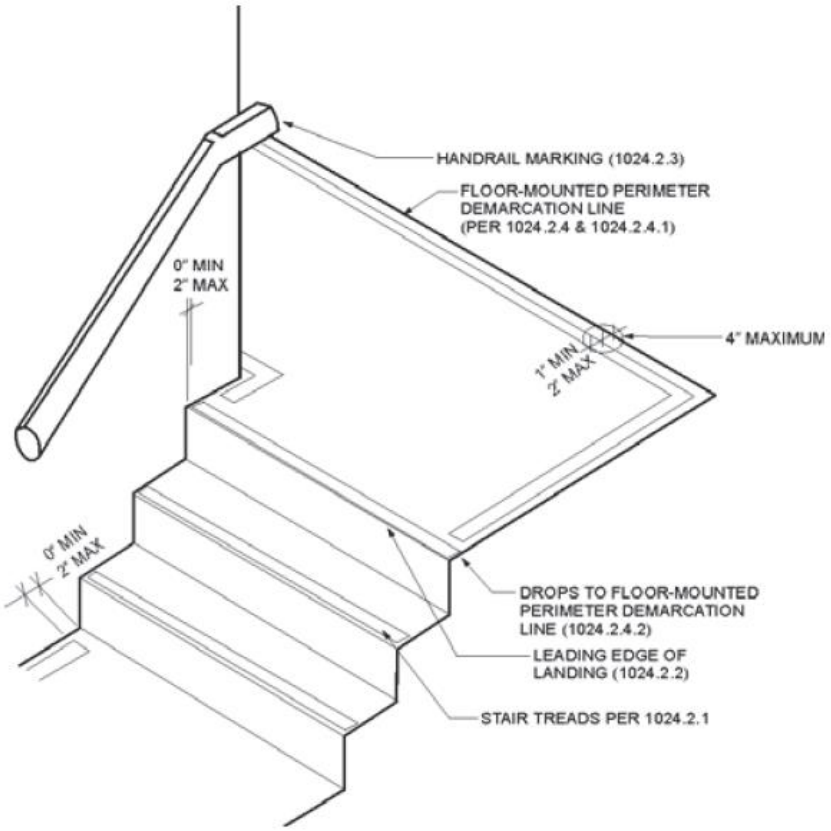


Figure 1024.2.6.1
EMERGENCY EXIT SYMBOL

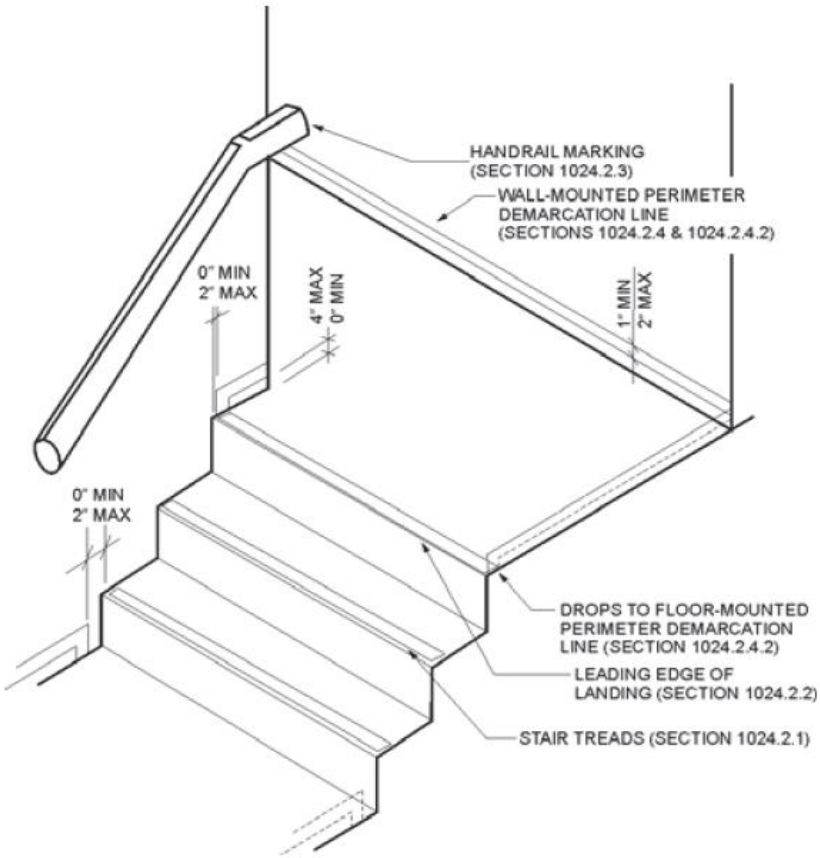
Emergency Exit Symbol: Section 1025.2.6.1 (2018 PFC):

- Luminous emergency exit symbol shall comply with NFPA 170.
- The exit symbol shall be not less than 4” in height and shall be mounted on the door.
- The exit symbol shall be centered horizontally
- The top of the symbol shall not be higher than 18” above the finished floor.



For SI: 1 inch = 25.4 mm.

Figure 1024.2.4.1
PERIMETER DEMARCATION LINES—
FLOOR-MOUNTED OPTION

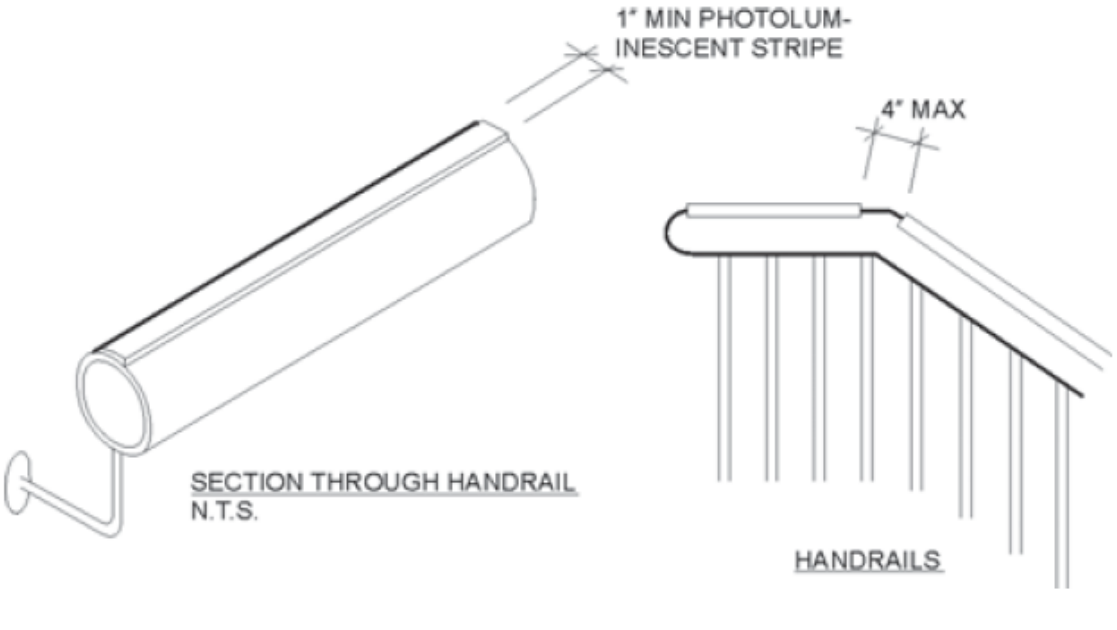


For SI: 1 inch = 25.4 mm.

Figure 1024.2.4.2
PERIMETER DEMARCATION LINES—
WALL-MOUNTED OPTION

Perimeter Demarcation Lines – Wall and Floor – Mounted Options:

Sections for the 2018 PFC are the same by substituting 1024 for 1025



For SI: 1 inch = 25.4 mm.

Figure 1024.2.3
HANDRAIL MARKINGS

Handrail Markings: Section 1025.2.3 (2018 PFC)

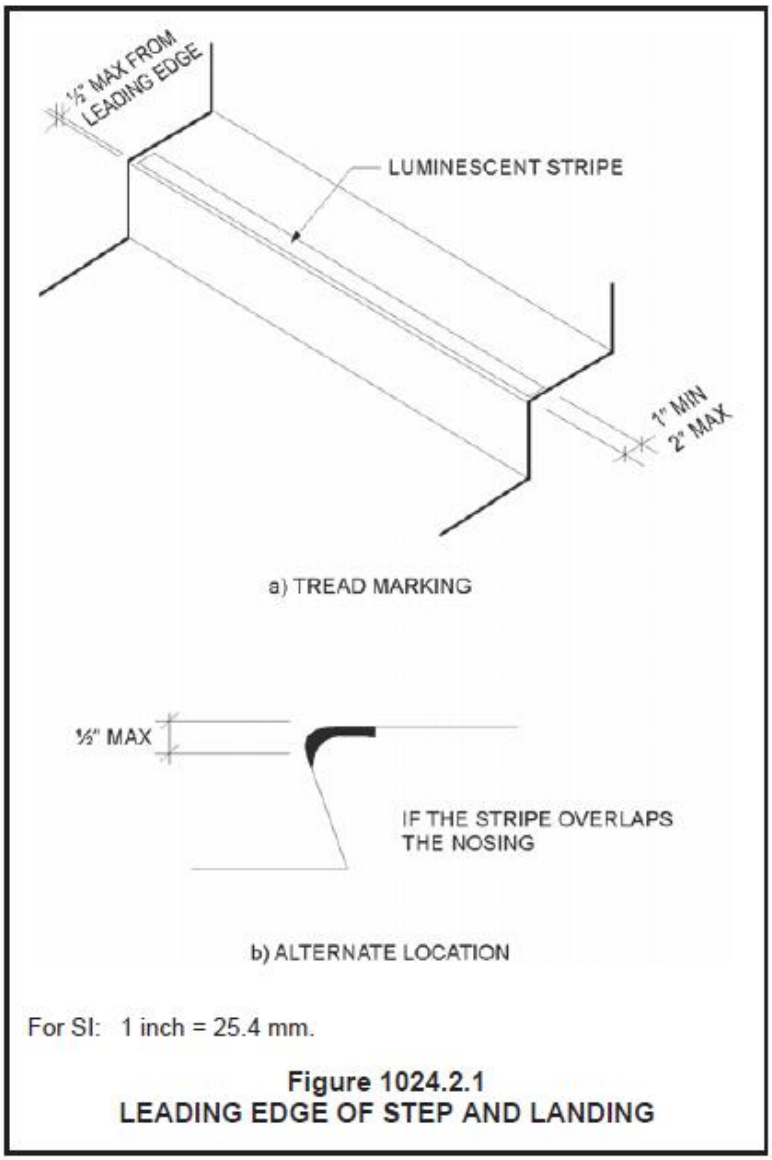
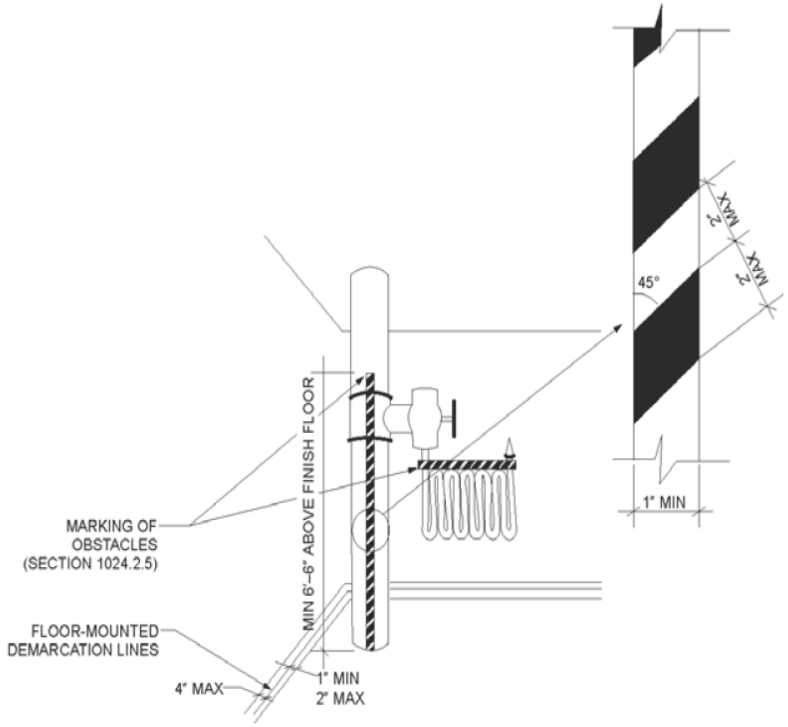


Figure 1024.2.1
LEADING EDGE OF STEP AND LANDING

Leading Edge of Step/Landing Markings: Sections 1025.2.1 and 1025.2.2 (2018 PFC)



For SI: 1 foot = 304.8 mm, 1 inch= 25.4 mm;
1 degree = rad 0.01745.

Figure 1024.2.5
OBSTACLE MARKINGS

Obstacle Markings: Section 1025.2.5 (2018 PFC)

General Requirements:

- Luminous egress path markings shall not be required on the level of exit discharge in lobbies that serve as a part of the exit path in accordance with Section 1028.1, Exception 1 (Section 1025.1, 2018 PFC).

- Luminous egress path markings shall be permitted to be made of any material, including paint, provided that an electrical charge is not required to maintain the required luminance. Such materials shall include, but not limited to, self-luminous materials and photoluminescent materials. Materials shall comply with either of the following standards (Section 1025.4, 2018 PFC):

    - UL 1994
    - ASTM E2072, except that the charging source shall be 1 footcandle (11 lux) of fluorescent illumination for 60 minutes, and the minimum luminance shall be 30 millicandelas per square meter at 10 minutes and 5 millicandelas per square meter after 90 minutes.

- Where photoluminescent exit path markings are installed, they shall be provided with not less than 1 footcandle (11 lux) of illumination for not less than 60 minutes prior to periods when the building is occupied and continuously during the building occupancy (Section 1025.5, 2018 PFC).

- Placement and dimensions of markings shall be consistent and uniform throughout the same enclosure (Section 1025.3, 2018 PFC).

- For floor and wall mounted demarcation lines (Sections 1025.2.4.1 and 1025.2.4.2, 2018 PFC), lines shall not extend in front of exit discharge doors that lead out of an exit and through which occupants must travel to complete the exit path.

- For steps, handrails, perimeter demarcation lines, and obstacles, the following exception applies (Sections 1025.2.1, 1025.2.3, 1025.2.4, and 1025.2.5, 2018 PFC): the minimum width of 1" shall not apply to markings listed in accordance with UL 1994.

Permits:
Permits are required to be obtained prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per the manufactures specifications. See NFPA 170 for additional information.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

NFPA 72 Authority Having Jurisdiction Policy

Explanatory Policy – NFPA 72 Applicable Requirements Acceptable to the AHJ

SUBJECT: NFPA 72 & Phoenix Code Requirements	**EFFECTIVE DATE:** July 19, 2019; June 30, 2021
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 907.2	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The 2019 edition of the NFPA 72 included many technical updates, in addition to the changes from the 2016 edition. The italicized *N* represents new or changed sections of the NFPA 72 National Fire Alarm and Signaling Code. The Δ delta symbol indicates revision to either section or entire chapter.

I.E. N 1.3.5 The requirements of Chapters 7, 10, 12, 14, 17, 18, 21, 23, 24, 26, and 27 shall apply unless otherwise noted in the specific chapter. Chapter 29 is designed to stand alone unless it specifically references an earlier chapter.
•*N* 10.1.2 The requirements of this chapter shall apply to systems, equipment, and components addressed in Chapters 12, 14, 17, 18, 21, 23, 24, 26, and 27.

This document provides guidance for all requirements for code compliance in the city of Phoenix jurisdiction. If the section references language that implies optional requirements, such as “unless, if or where required by the authority having jurisdiction” unless specified as exempt or clarified in this document, the section is considered enforceable in the City of Phoenix in accordance with this policy.

Requirements:
Requirements for inspection, testing, and service personnel qualifications were updated to better reflect the level of qualification needed for each type of activity. These coincide with the guidelines found in the by the Phoenix Fire Code, as adopted IFC 2018.

Changes were made in Chapter 26, “Supervising Station Alarm Systems,” to address alarm signal verification, alarm signal content, and restoration of signals. Those changes were made in part to help emergency responders better manage issues related to unwanted alarms.

Chapter 11 and Change of Occupancy are the primary requirements for retroactivity.

1.4 Retroactivity.
1.4.2 In those cases where it is determined by the authority having jurisdiction that the existing situation involves a distinct hazard to life or property, retroactive application of the provisions of this document shall be permitted.

10.14.10.7
Unless otherwise permitted by the authority having jurisdiction (not permitted to permanently silence), trouble notification appliances at the protected premises of a supervising station fire alarm system arranged in accordance with Chapter 26, that have been silenced at the protected premises shall automatically re-actuate every 24 hours or less until fault conditions are restored to normal.

14.3 Inspection.
14.3.1* Unless otherwise permitted by 14.3.2, visual inspections shall be performed in accordance with the schedules in Table 14.3.1 or more often if required by the authority having jurisdiction. (PFD will allow on a case-by-case basis, with prior approval).

14.6 Records.
14.6.1* Permanent Records.
14.6.1.3 The system owner shall be responsible for maintaining these records for the life of the system for examination by any authority having jurisdiction. Paper or electronic media shall be permitted.

17.3* Performance-Based Design.
17.3.2 The authority having jurisdiction shall determine whether such identified performance objectives are appropriate and have been met. (An Engineering interpretation or Appeal to the Fire Marshal is required).

18.4.2 Distinctive Evacuation Signal.
18.4.2.1* To meet the requirements of Section 10.10, the alarm audible signal pattern used to notify building occupants of the need to evacuate (leave the building) or relocate (from one area to another) shall be the standard alarm evacuation signal consisting of a three-pulse temporal pattern.
Exception: Where approved by the authority having jurisdiction, continued use of the existing consistent evacuation signaling scheme shall be permitted. (Will be changed on alarm panel replacement and should be consistent sound within a space).

21.3* Elevator Phase I Emergency Recall Operation.
21.3.12 Where approved by the authority having jurisdiction, the detectors used to initiate elevator recall shall be permitted to initiate a supervisory signal in lieu of an alarm signal. **(Not allowed by PFD).**

23.8 System Requirements.
23.8.1.1* Pre-signal Feature.
23.8.1.1.1 Systems that have a pre-signal feature complying with 23.8.1.1 shall be permitted if approved by the authority having jurisdiction. (An Appeal to the Fire Marshal is required).

23.8.1.2 Positive Alarm Sequence.
23.8.1.2.1 Systems that have positive alarm features complying with 23.8.1.2 shall be permitted if approved by the authority having jurisdiction. (An Appeal to the Fire Marshal is required).

23.8.2.10 Remote resetting and silencing of a fire alarm control unit from other than the protected premises shall be permitted with the approval of the authority having jurisdiction. (Requires Appeal to the Fire Marshal or Engineering Interpretation).

24.3.1 Intelligible Voice Messages.
24.4.1.2 If acceptable to the authority having jurisdiction, the system shall permit the application of an automatic

evacuation signal to one or more signaling zones and, at the same time, shall permit manual voice paging to the other signaling zones selectively or in any combination. (Acceptable to Phoenix Fire Department Fire Prevention).

24.5.4 Loudspeaker Circuits.
24.5.4.1* Loudspeaker circuits used for mass notification that are not fire alarm circuits shall be exempt from the monitoring requirements of this Code, provided that alternate methods of achieving comparable reliability are accepted by the authority having jurisdiction. (Requires Appeal to the Fire Marshal or Engineering Interpretation).

24.8.15 If telephone jacks are provided, two or more portable handsets, as determined by the authority having jurisdiction, shall be stored at each control center for use by emergency responders. (Two-way hard-wired communications or telephone jacks are required in high-rise buildings.)

26.2.2* Alarm Signal Verification. (An Appeal to the Fire Marshal is required).

26.3.8 Disposition of Signals.

26.4.6.6.3 Supervisory Signals. Upon receipt of sprinkler system and other supervisory signals, the proprietary supervising station operator shall initiate action to perform the following, if required:

(1) Communicate immediately with the designated person(s) to ascertain the reason for the signal
(2) Dispatch personnel to arrive within 2 hours to investigate, unless supervisory conditions are promptly restored
(3) Notify the fire department if required by the authority having jurisdiction [Not required by Phoenix Fire Department Fire Prevention]
(4) Notify the authority having jurisdiction when sprinkler systems are wholly or partially out of service for 8 hours or more [Required by Phoenix Fire Department Fire Prevention].
(5) *Provide written notice to the authority having jurisdiction as to the nature of the signal, time of occurrence, and restoration of service when equipment has been out of service for 8 hours or more [Required by Phoenix Fire Department Fire Prevention].

26.4.6.6.4 Trouble Signals.
Upon receipt of trouble signals or other signals pertaining solely to matters of equipment maintenance of the alarm system, the proprietary supervising station operator shall initiate action to perform the following, if required:

(1) Communicate immediately with the designated person(s) to ascertain reason for the signal
(2) Dispatch personnel to arrive within 4 hours to initiate maintenance, if necessary
(3) Notify the fire department if required by the authority having jurisdiction, [Not required by Phoenix Fire Department Fire Prevention].
(4) Notify the authority having jurisdiction when interruption of service exists for 4 hours or more
(5) When equipment has been out of service for 8 hours or more, provide written notice to the authority having jurisdiction as to the nature of the signal, time of occurrence, and restoration of service [Required by Phoenix Fire Department Fire Prevention].

26.5.6 Disposition of Signals.
Upon receipt of an alarm, supervisory, or trouble signal by the remote supervising station, the operator on duty shall be responsible for immediately notifying the owner or the owner's designated representative and, where required, by the authority having jurisdiction, [not required for supervisory or trouble signals]..

26.6.3.13* Secondary Power.

26.6.3.13.1 Premises Equipment.

The secondary power capacity for all transmitters and shared equipment necessary for the transmission of alarm, supervisory, trouble, and other signals located at the protected premises shall be a minimum of 24 hours or as permitted by 10.6.7.3.1(2).

Exception: Secondary power capacity for shared equipment shall be permitted to have a capacity of 8 hours where acceptable to the authority having jurisdiction and where a risk analysis is performed to ensure acceptable availability is provided, [Not currently accepted by Phoenix Fire Prevention].

Permit:

Automatic fire sprinkler and fire alarm permits are required to be obtained prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:

Per NFPA 72 and the manufactures specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Notification Appliances in Parking Structures Policy

Explanatory Policy – Notification Appliances in Parking Structures	
SUBJECT: Notification Appliance Spacing in Parking Structures Requirements	**EFFECTIVE DATE:** Original July 19, 2019 June 30, 2021
REFERENCES: IFC with Phoenix Amendments (2018 Edition) NFPA 72 (2019 Edition) The National Fire Alarm and Signaling Code– Chapter 18	**REVIEW DATE:** July 2024
APPROVED: 	
John Mertens, Fire Marshal	

Scope:
This policy covers the fire alarm notification appliance spacing in parking structures.

Requirements:
Parking spaces shall be omitted from the area of coverage when determining notification appliance spacing in parking structures. These spaces are normally unoccupied as occupants will only use the space when entering or exiting a vehicle. The duration of time is very short and the behavior of occupants in a parking structure is transient in nature and resembles more corridors use more than stationary use. The parked automobiles and light trucks could also obscure fire alarm strobes from sight if located within the parking slots.

The drive aisles shall be treated as corridors regarding notification appliance spacing per Section 18.5.5.6 (2019 NFPA 72). Maximum of 100 feet between devices and acceptable to be on aisles side of the drive path. Notification appliances shall also be required within 15 feet of all elevators and stairways on all floors.

In occupancies where voice systems are required the use of horn strobes in the parking area is permissible, provided the enclosed elevator lobbies, if provided, have speakers provided. The garage driving, and parking areas are not considered an acoustically distinguishable spaces (ADS) for the purpose of intelligibility.

Permits:
Permits are required to be obtained prior to the installation of fire alarm systems. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per NFPA 72 and the manufactures specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Open Burning Policy

Explanatory Policy – Open Burning	
SUBJECT: Open Burning – Commercial and Household Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 307.2.1	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
When open burning is conducted on public property or the property of someone other than the permit applicant, the permit applicant shall demonstrate that permission has been obtained by the appropriate government agency, the owner, or the owner's authorized agent. Maricopa County AZ Air Quality website: https://www.maricopa.gov/1244/Air-Quality

Requirements:
When limits for atmospheric conditions or hours restrict burning, such limits shall be designated in the permit restrictions.

Household Waste & Yard Waste
Burning household waste creates dangerous air pollution and is strictly prohibited by Maricopa County. Burning yard waste (such as tree trimmings) is also prohibited.

Permits:
An open burning permit is required and obtain through Fire Prevention. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Areas used for open burning shall be maintained in a safe manner.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Operating Permit Expiration Times Policy

Explanatory Policy – Operating Permit Expiration Times

SUBJECT: Operating Permit Expiration Times Requirements	**EFFECTIVE DATE:** June 15, 2021
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 105.3.1	**REVIEW DATE:** June 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The 2018 Phoenix Fire Code states that operational permits shall remain in effect until reissued, renewed or revoked, or for such a period of time as specified in the permit. This policy provides the specific period of time that each operating permit will remain in effect.

Requirements:
In accordance with the Phoenix Fire Code Section 105.3.1, this policy will define the expiration times for each operating permit. The specific period of time before expiration will either be in years or the permit will only be valid for the duration of the activity. Any permits omitted from this policy shall expire 3 years after issuance.

Permits:
Operating permits may have their expiration time extended in accordance with Phoenix Fire Code Section 105.3.2.

Operating permits are not transferrable and any change in occupancy, operation, use, hazard, tenancy or ownership shall require that a new permit be issued.

Permit Type	Permit #	Permit Description	Expiration (in years)
Operating	F222	Aerosols	1
Operating	F448	Amusement buildings	For duration of activity
Operating	F422	Assisted living facilities	1
Operating	F360	Aviation facility	1
Operating	F421	Behavioral health care facilities, Group I-1	1
Operating	F183	Bonfire or open burning	For duration of activity
Operating	F238	Carbon dioxide liquid beverage systems	3
Operating	F145	Cellulose nitrate film	3
Operating	F312	Combustible dust producing operation	1
Operating	F313	Combustible fiber producing operation	1
Operating	F233	Compressed gas	3

Permit Type	Permit #	Permit Description	Expiration (in years)
Operating	F419	Correctional facilities.	1
Operating	F444	Covered and open mall buildings	3
Operating	F205	Cryogenic fluids	3
Operating	F420	Daycare facilities, commercial 1-50	1
Operating	F420	Daycare facilities, commercial 51+	1
Operating	F424	Developmentally disabled group care homes Group I-1	1
Operating	F261	Dry cleaning	3
Operating	F440	Exhibits and trade shows up to 4,500 sq ft	For duration of activity
Operating	F440	Exhibits and trade shows greater than 4,500 sq ft	For duration of activity
Operating	F211	Explosives	3
Operating	F711	Explosives, blasting	For duration of activity
Operating	F714	Fireworks (Indoor)	For duration of activity
Operating	F704	Fireworks (outdoor)	For duration of activity
Operating	F706	Firework Sales (Indoor)	For duration of activity
Operating	F713	Firework Sales (Outdoor)	For duration of activity
Operating	F707	Firework Sales (Wholesale)	1
Operating	F174	Flammable/combustible liquids, Class IIIB	3
Operating	F173	Flammable/combustible liquids	3
Operating	F196	Flammable/combustible finish operations	1
Operating	F191	Floor finishing	3
Operating	F147	Fruit and crop ripening	3
Operating	F197	Fumigation and insecticidal fogging	3
Operating	F212	HPM facilities	3
Operating	F303	High-piled combustible storage	3
Operating	F418	Hospital / Nursing Home	1
Operating	F418	Nursing homes	1
Operating	F200	Hot work operations	3
Operating	F201	Hot work program	3
Operating	F187	Indoor public assembly, special event	For duration of activity
Operating	F221	Industrial ovens	3
Operating	F423	Juvenile group home	1
Operating	F314	Lumber yards and woodworking facilities	1
Operating	F188	Liquid-, gas-fueled or electric vehicles or equipment in buildings	For duration of activity
Operating	F224	Liquefied petroleum gas (LP-Gas)	3
Operating	F199	Magnesium	3
Operating	F184	Miscellaneous combustible storage	1
Operating	F461	Mobile food preparation vehicles	3
Operating	F203	Motor fuel-dispensing facilities	3

Permit Type	Permit #	Permit Description	Expiration (in years)
Operating	F182	Open burning	For duration of activity
Operating	F183	Open burning, bonfire	For duration of activity
Operating	F190	Open burning, fire performers	For duration of activity
Operating	F189	Open flames or candles	1
Operating	F182	Open flames and torches	1
Operating	F313	Organic coatings	3
Operating	F400	Outdoor assembly events	For duration of activity
Operating	F162	Places of assembly	1
Operating	F280	Plant extraction systems	1
Operating	F192	Private fire hydrants	3
Operating	F220	Pyroxylin plastics	3
Operating	F237	Refrigeration equipment	3
Operating	F204	Repair garages	3
Operating	F300	Rooftop heliports	1
Operating	F135	Spraying, dipping or powder coating operations	1
Operating	F450	Temporary membrane structures and tents	For duration of activity
Operating	F198	Tire rebuilding plant	**1**
Operating	F185	Tires, storage	1
Operating	F186	Waste handling or recycling operations, commercial	1
Operating	F286	Wrecking yard, salvage or junkyard operations	1
Operating	F315	Wood products	1
Operating	F178	Liquefied petroleum gas, Flare off	For duration of activity
Operating	F215	Hazardous materials tank, temporarily close, OTC	For duration of activity
Operating	F217	Hazardous materials tank, abandon, remove, or close, OTC	For duration of activity
Operating	F217	Hazardous materials tank, place out of service OTC	For duration of activity
Operating	F260	Carbon dioxide liquid systems	For duration of activity
Operating	F456	Flammable/combustible liquids, tank removal, OTC	For duration of activity
Operating	F460	Flammable/combustible liquids, defuel/pump-out, OTC	For duration of activity
Operating	F462	Flammable /combustible liquid, tanks modification, OTC	For duration of activity
Operating	F463	Flammable/combustible liquids tank, slurry fill, OTC	For duration of activity
Operating	F464	Flammable/combustible liquids tank, abandon, OTC	For duration of activity
Operating	F464	Flammable/combustible liquids tank, place out of service, OTC	For duration of activity

Code Reference

105.3.1 Expiration.

An operational permit shall remain in effect until reissued, renewed or revoked, or for such a period of time as specified in the permit.

Construction permits shall automatically become invalid unless the work authorized by such permit is commenced within 180 days after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of 180 days

after the time the work is commenced. Before such work recommences, a new permit shall be first obtained and the fee to recommence work, if any, shall be one-half the amount required for a new permit for such work, provided that changes have not been made and will not be made in the original construction documents for such work, and provided further that such suspension or abandonment has not exceeded one year. Permits are not transferable and any change in occupancy, operation, use, hazard, tenancy or ownership shall require that a new permit be issued.

105.3.2 Extensions.
A permittee holding an unexpired permit shall have the right to apply for an extension of the time within which the permittee will commence work under that permit where work is unable to be commenced within the time required by this section for good and satisfactory reasons. The fire code official is authorized to grant, in writing, one or more extensions of the time period of a permit for periods of not more than 180 days each. Such extensions shall be requested by the permit holder in writing and justifiable cause demonstrated

Permits:
As shown above.

Inspection Test & Inspection:
Per the National Standard where applicable based on the specific system and manufactures specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Outdoor Assembly Fire Lane Access Policy

Explanatory Policy – Outdoor Assembly Fire Lane Access

SUBJECT: Outdoor Assembly Fire Lane Access Requirements	**EFFECTIVE DATE:** May 1, 2020
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 503.2.1	**REVIEW DATE:** July 2024
APPROVED:	**APPROVED:**
Michael Molitor, Deputy Chief	John Mertens, Fire Marshal

Scope:
The purpose of this policy is to provide direction for outdoor assembly fire lanes, emergency vehicle access and hostile vehicle mitigation. This policy will describe the alternative means to protect occupants at outdoor assembly special events. These alternative means must meet the requirements set by the Phoenix Fire Department, 2018 IFC with Phoenix Amendments, and the Phoenix Police Department.

Background:
Outdoor assembly's and special events are becoming more prevalent in the City of Phoenix. These events, based on the design and layout, may operate in required fire lanes that access the structures ingress and egress, life safety systems and connections, or the event area public right of way. The Phoenix Fire Code section 503.2.1 requires a minimum unobstructed width of 20 ft. for fire lanes and emergency vehicle access. At times, hostile vehicle mitigation barriers will be required by law enforcement to protect the occupants of these outdoor assembly events when they occur in the public right of way. Barriers used to protect event occupants from hostile vehicles cannot obstruct required fire lanes and emergency access paths. Phoenix Fire Code section 511.1.3 requires all barriers in the path of a fire lane to comply with the minimum unobstructed width of 20 ft. requirement. At no time can the required fire lanes and emergency access paths be obstructed unless approved by the Fire Code Official.

Requirements:
The Phoenix Fire Department will allow alternative means to provide hostile vehicle mitigation barriers across fire lanes and emergency access paths. The Phoenix Fire Department will require a minimum 16 ft. wide access point between non-movable barriers. This 16 ft. wide access point may be closed by a vehicle that complies with Phoenix Police Department requirements. This vehicle shall meet the following requirements as well as those required by the Phoenix Police Department:

1. The vehicle shall be in good working condition.
2. The vehicle must be capable of operation without special knowledge or training.
3. The vehicle shall be staffed by security or responsible person/driver capable of operating it.
4. Operating the vehicle must be the security or responsible person/drivers only responsibility.
5. The staffed security or responsible person/driver and vehicle keys must be within 30 ft of the vehicle at all times.

6. The vehicle shall be easily moved and not attached to any fixed object or equipment.
7. The vehicle shall not require more than 30 seconds to move out of the fire or emergency access lane.

Serpentine type hostile vehicle mitigation using immovable barriers will require approval from the Phoenix Fire Department's Operations Section, and field testing with fire department's largest apparatus will be required. This alternative means must be approved by the Fire Code Official.

Water type vehicle barriers will not be permitted by the Phoenix Fire Department across emergency access paths and fire lanes.

The Phoenix Fire Department will, under certain circumstances that are approved by the Fire Code Official and the Phoenix Fire Department's Operations Division, allow chain link fencing to cross emergency vehicle and fire lane access. The Phoenix Fire Department will require a minimum 16 ft. wide access point between the chain link fence attached ends. The chain link fencing must meet the following Requirements:

1. Fencing must be panel type 8 ft sections.
2. Must be attached on one end to allow to swing open.
3. Must be moveable by a single person.
4. Individual must be physically capable of opening the gate or fence sections without assistance.
5. Must be manned by security or responsible person at all times.
6. Opening the gate must be security or responsible persons only responsibility.
7. Opening cannot be locked, tied, zip tied or closed with anything that cannot be easily undone without the use of tools or a cutting tool.

Code Requirements:
503.2.1 Dimensions.
Fire apparatus access roads shall have an unobstructed width of not less than 20 feet, exclusive of shoulders, except for approved security gates in accordance with Section 503.6 and an unobstructed vertical clearance of not less than 14 feet.

511.1.3 Requirements:
Fire apparatus access / security gates or barriers shall be designed and installed such that they do not obstruct the egress or departure of emergency vehicles.

Permits:
An operational permit is required to conduct an Outdoor assembly event where planned attendance exceeds 500 persons, or when 50 or more persons are in a confined area.

Inspection Test & Maintenance:
Permit requirements shall be maintained for the duration of the event.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Outdoor Combustible Storage Policy

Explanatory Policy – Outdoor Combustible Storage	
SUBJECT: Outside Combustible Storage on any premise Requirements	**EFFECTIVE DATE:** July 7, 2021
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 105.6.6, 105.6.29, 105.6.49, 105.6.50, 105.6.51.1 and 105.6.51.15 2019 NFPA 13 20.4	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy provides specific requirements for miscellaneous combustible storage that poses a fire hazard in its natural or processed state when stored. This standard applies to new and/or existing storage sites. This policy also includes the placement requirements of fire hydrant coverage to areas within prescribed distance of all areas of properties that have outside combustible storage.

Requirements:
Waste handling and recycling operations, inside or outside a structure, are required to have an operational permit that renews annually. Additional outside storage permits may be required when outside combustible storage exceeds the thresholds below.

The threshold for requiring an operational permit for the storage and processing of mulch, wood chips, hogged materials, fines, compost, solid biomass feedstock and raw product produced from yard waste, debris and agro-industrial and recycling facilities is more than 200 cubic feet. All other combustible material has a threshold of 2,500 cubic feet.

Example:
200 Cubic feet can be a combination of product that covers a total of 10 feet by 10 feet by 2 feet high.
2500 cubic foot storage can be configured in variety of ways. Outside storage with dimensions of roughly 20 feet by 20 feet by 6 feet high. Pallets at 8 feet height by 18 x18 feet would exceed the threshold. Any larger accumulation greater than the aggregate of 5 feet high by 10 feet wide by 50 feet long would also require permits. Any aggregate combination over 2,500 cubic feet for outside combustible storage in a single or multiple pile location requires a permit.

Other combustible materials include facilities storing, selling or processing wood and forest products, including solid biomass, sawdust, wood chips, shavings, bark mulch, shorts, finished planks, sheets, posts, poles, timber and raw logs, recycling materials of a combustible nature (paper, plastic, electronics, automobiles, appliances etc.), combustible dust, fibers or metals, furniture or any other product classified as a Class II or higher commodity by NFPA 13.20.4 definitions.

Code References:

105.6.6 Combustible dust-producing operations. An operational permit is required to operate a grain elevator, flour starch mill, feed mill, or a plant pulverizing aluminum, coal, cocoa, magnesium, spices or sugar, or other operations producing combustible dusts as defined in Chapter 2.

105.6.29 Miscellaneous combustible storage. An operational permit is required to store in any building or on any premises in excess of 2,500 cubic feet (71m^3) gross volume of combustible empty packing cases, boxes, barrels or similar containers, combustible pallets, rubber tires, rubber, cork or similar combustible material.

105.6.46 Storage of used or scrap tires and tire byproducts. An operational permit is required to establish, conduct or maintain storage of used or scrap tires and tire byproducts that exceeds 2,500 cubic feet (71 m^3) of total volume of scrap tires, and for indoor storage of tires and tire byproducts

105.6.49 Waste handling and recycling operations. An operational permit is required for the operation of wrecking yards, junk yards, waste material-handling facilities and recycling operations.

105.6.50 Wood products. An operational permit is required to store chips, hogged material, lumber or plywood in excess of 200 cubic feet (6 m^3).

105.6.51.1 Agro-industrial and solid biomass facilities. An operational permit is required to store agro-industrial products, chips, hogged material, lumber or plywood in excess of 2,500 cubic feet (71m^3).

105.6.51.15 Junk yard, salvage and wrecking operations. An operating permit is required for the operation of wrecking yards, salvage, and junk yards.

The placement of hydrants in respect to buildings on properties that primary business requires permittable amounts of outside combustible storage shall meet the requirements for 400 feet along apparatus access ways found in IFC 507.7.1.

As outside combustible storage can take many forms and can move about, a property's hydrants put deep into a property, where storage is fluid may get covered, damaged or shut off. Therefore, on site hydrants placement shall be along an established access way.
Hydrant coverage for the outside combustible storage shall meet the same requirements as a parking lot of 600 feet along an access way. This may be accomplished by a public hydrant at the street or main entrance if the property is less than 600 feet deep as much of outside combustible storage resembles activities close to parking lot arrangements (507.5.1.2.8).

Properties more than 600 feet deep shall need to establish a water supply from hydrants positioned along established, maintained accessways. All appropriate permits and code requirements for water supply shall be obtained.

507.5.1 Where required. Where a portion of the facility or building hereafter constructed or moved into or within the jurisdiction is more than 400 feet from a hydrant on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the fire code official.

507.5.1.2.8 Parking areas. In open-air, on-grade parking areas, at least one fire hydrant shall be located within 600 feet of all areas.

Permits:
Permits are required for outside combustible storage as outlined above.

Inspection Test & Maintenance:
Outside combustible storage configurations as well as hydrant coverage where provided shall always be maintained.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Post Fire Smoke Removal Policy

Explanatory Policy – High-Rise Smoke Removal Systems

SUBJECT: HIGH-RISE SMOKE REMOVAL SYSTEMS	**EFFECTIVE DATE:** October 2022
REFERENCES: The Phoenix Fire Code (2018 Edition) Section 919	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This policy applies to all new high-rise buildings, and all high-rise buildings built prior to engineered smoke management requirements. The City of Phoenix Fire Department does not allow the breaking of windows for post fire smoke removal.

Requirements:
This explanatory policy requires all high-rise buildings, that meet the criteria outlined in the scope above, to use dedicated equipment or other openings to manage the removal of smoke in a post fire event. The post fire smoke removal system shall have the capability to exhaust smoke from all spaces to the exterior of the building. The smoke removal method may be by either mechanical or natural ventilation and shall be capable of removing smoke and combustion gases. Smoke removed from a space must be discharged to a safe location outside the building and shall not recirculate smoke into the building, exit stairs, and elevator shafts in accordance with one of the following:

1. Easily identifiable, manually operable windows or panels shall be distributed around the perimeter of each floor at not more than 50-foot intervals.
The area of operable windows or panels shall be not less than 40-square feet per 50-linear feet of perimeter.

Exception: In Group R-1 occupancies, each sleeping unit or suite having an exterior wall is permitted provide 2-square feet of venting area in lieu of the area specified in Item 1.

2. Mechanical air-handling equipment providing one exhaust air change every 15 minutes for the area involved. Return and exhaust air shall be moved directly to the outside without recirculation to any other portions of the building.

3. Any other alternative engineering design system that will produce equivalent results with rational analysis and calculations approved by the fire code official, through the appeals process prior to issuance of building permit. Where an alternative is proposed a test plan shall also be provided to justify and prove the alternative design. ***Planning and Development and Building Official do not allow the use of exit stairs as a means of exhausting smoke.***

Permits:
The following permits are required for installation of smoke removal system. If unsure about the submittal and review process, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
The building owner shall maintain smoke removal system in good operational condition in accordance with manufacture specifications and shall follow preventative maintenance schedules accordingly. Records of testing shall be maintained on the premises for review during inspection by Fire Department personnel.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Quick-Response Sprinkler Head Replacement Policy

Explanatory Policy – Quick-Response Sprinkler Head Replacement	
SUBJECT: Replacement of Quick Response Sprinkler Heads Requirements	**EFFECTIVE DATE:** May 1, 2021 Original November 14, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition Section 1103.5.7	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:

1103.5.7 Installation of quick-response sprinkler heads in existing light hazard occupancy sprinkler systems being modified. Where existing occupancies and sprinkler systems are being remodeled or renovated, existing standard-response sprinkler heads shall be replaced with quick-response sprinkler heads as follows:

1. Where any tenant improvement, system repair or replacement is made to an existing fire area, existing standard-response sprinkler heads shall be replaced with quick-response sprinkler heads.
2. Where an existing system with standard-response sprinklers is being modified, the standard-response sprinkler heads shall be replaced with quick-response sprinkler heads throughout the tenant space, floor or suite. Where 50% of the floor sprinkler heads are replaced, all sprinkler heads on the entire floor shall be replaced with quick-response sprinkler heads.

Requirements:

The conversion of sprinklers from standard to quick response sprinklers, with the same orifice size, decreases the expected number of sprinklers and area of operation, therefore is a less hydraulically demanding. No hydraulic calculation is necessary in this case. When over 20 heads are replaced a reflected ceiling plan with head legend is required with the notation that no change of piping size or arrangement occurred during this change out.

The use of the guidelines in NFPA 13 2019 Edition for compartmentalization 13.3.3.38 is to be considered for coverage of ordinary hazard areas adjacent to the light hazard areas when considering the 50% of the floor threshold and interpreting installation of quick response sprinkler heads throughout the entire floor. The areas that qualify for ordinary hazard on a floor that meet the requirements for a compartment may remain with standard response sprinkler heads and do not need to be converted to quick response to meet the intent of IFC 1103.5.7.

The Phoenix Fire Department recognizes the benefits of quick response sprinkler heads in light hazard areas for life safety, property conservation and response times. The Fire Prevention Division recognizes that the latest version of NFPA 13 does not require this change out for work in a standard response served area. The requirements in IFC 1103.5.7 address the issues of changing requirements and installations through the historical code cycle and to improve the overall protection levels for the facility.

We do not require a mercantile to change out ordinary to quick response sprinkler heads on the sales floor when doing an office improvement, we do not ask for the mechanical and electrical rooms with separation space meeting the definition of a compartment that is an ordinary hazard use in accordance with the guidelines of 13.(A) 5.3.1 and (A) 5.3.2, to be changed to quick response.

9.4.3.5 In other than light hazard occupancies, where a sprinkler carries a listing for both standard-response protection and quick-response protection at different coverage areas, that sprinkler shall be permitted to be installed within a compartment at the spacing for both the quick-response and standard response listings without any separation between the areas so covered.

9.4.3.6 When existing light hazard systems are converted to 3.3.38 Compartment. A space completely enclosed by walls and a ceiling. Each wall in the compartment is permitted to have openings to an adjoining space if the openings have a minimum lintel depth of 8 inches from the ceiling and the total width of the openings in each wall does not exceed 8 feet. A single opening of 36 inches, or less in width without a lintel is permitted when there are no other openings to adjoining spaces.

9.4.3.6 When existing light hazard systems are converted to use quick-response or residential sprinklers, all sprinklers in a compartment shall be changed.

29.3.3 Where modifications or additions are made to existing light hazard systems equipped with standard response sprinklers, new standard response sprinklers shall be permitted to be used.

29.3.5 Where existing light hazard systems are converted to use quick-response or residential sprinklers, all sprinklers in a compartment shall be changed

Permits:
The installation of fire sprinklers requires a permit prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per NFPA 25 and the manufactures specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

The Complaince Engine Recordkeeping Policy

Explanatory Policy – Recordkeeping

SUBJECT: Records created from periodic inspection, testing, and servicing of fire and life safety systems Requirements	**EFFECTIVE DATE:** April 21, 2020; Update June 30, 2021
REFERENCES: IFC with Phoenix Amendments (2018 Edition Section 108.3	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The purpose of this policy is to expound on the requirements set forth in 2018 Phoenix Fire Code Section 108.3 Recordkeeping. Section 108.3 sets the requirements for records created from periodic inspection, testing, and servicing of fire and life safety systems. It stipulates that "The fire code official is authorized to require that certain required records be filed with the fire code official".

Requirements:
This policy establishes the submittal requirements for fire and life safety system periodic inspection, testing, and servicing reports. All contractors conducting these types of inspections shall provide the Phoenix Fire Department's Fire Prevention Section with a copy of the inspection report within 30 days of the inspection completion regardless of the compliant or non-compliant (deficient) nature of the outcome. Correction reports for non-compliant (deficient) systems shall also be submitted to the compliance engine (TCE) within 30 days of completion.
Procedure: The reports shall be submitted to Phoenix Fire Department Fire Prevention Section via www.thecomplianceengine.com. Reports or corrections provided to the Fire Prevention Section through any other format will not be considered fulfillment of the submittal requirements of this policy. Deficiencies that require permitting shall be submitted through the FITM permit process with Fire Department Fire Prevention. FITM permit placeholder is automatically created through the deficiency review process.

Permits:
As required for the applicable life safety system.

Inspection Test & Maintenance:
Per the applicable NFPA standard based on the specific life safety system.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Removal & Demolition Policy

Explanatory Policy – Removal & Demolition Permits

SUBJECT: Removal & Demolition Permits Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition Section 105.8.9	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
Maintenance of all installed life safety systems is required, see Section 901.6.

Requirements:
Removal permit. A removal permit (F900) is required for the removal of fire protection systems and equipment. Where returning to a grey shell condition required fire protection systems shall be maintained operational in accordance with Sections 1103.5, 1103.7 and 3313.2.

Removal of a fire alarm system in a Group R-4 requires compliance with the 2018 Fire Code and shall require a renewal of the Certificate of Occupancy. State licensing requirements for state licensed facilities have fire alarm requirements.

Demolition. When an entire building is demolished under a Planning & Development demolition permit no specific fire protection system demolition permit is required.

Permit for the removal or demolition of a life safety system shall be required contingent on code requirements. Removal permits shall only be issued to current qualified contractors.

Permit:
A demo permit is required to be obtained prior to the removal of any life safety system.

Inspection Test & Maintenance:
Existing remaining systems shall be maintained for the life of the system and per the manufactures specifications and occupancy requirements.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Resolving Code Porvision Conflicts Policy

Explanatory Policy – Resolving Code Provision Conflicts	
SUBJECT: Resolving Code Provision Conflicts	**EFFECTIVE DATE:** October 2022
REFERENCES: The Phoenix Fire Code (2018 Edition) Sections 102.7, 102.8, and 102.10	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This explanatory policy describes the methodology that Phoenix Fire Prevention uses to resolve code provision conflicts.

Requirements:
The 2018 Phoenix Fire Code (PFC) is a collection of fire safety requirements originating from three sources:

- The International Code Council (ICC), which publishes the base International Fire Code (IFC).
- Phoenix Fire Prevention, which modifies provisions of the base IFC with amendments specific to the City of Phoenix.
- Organizations that publish the referenced standards incorporated into Chapter 80 of the Phoenix-amended IFC. This includes, but is not limited to, the National Fire Protection Association (NFPA).

Compiling these provisions from different sources into one document can create conflicts. This explanatory policy describes how Phoenix Fire Prevention resolves the following types of conflicts:

1) PFC provision vs. PFC provision.
2) PFC provision vs. PFC provision, related to fire protection systems.
3) PFC provision vs. referenced standard provision.
4) PFC provision vs. referenced standard provision, related to fire protection systems.

PFC Provision vs. PFC Provision

Some code provisions are applicable in specific circumstances, while others are generally applicable. Where general and specific requirements differ, the most specific requirement governs. As one example:

- PFC Section 5003.12 – Applicable to outdoor control areas containing hazardous materials. Outdoor area to have a minimum clearance of 15-feet from weeds, debris, and combustibles. (General)

- PFC Section 6107.3 – Applicable to outdoor storage of LP-gas, which is a type of hazardous material. Outdoor area to have a minimum clearance of 10-feet from weeds, debris, and combustibles. (Specific)

In this example, compliance with the specific provision results in non-compliance with the general provision. Where this type of conflict occurs, the specific provision takes precedence (PFC Section 102.10).

PFC Provision vs. PFC Provision, Related to Fire Protection Systems

The previous example involved subject matter not related to a fire protection system, as defined by the PFC. Where a conflict occurs within PFC provisions that are related to fire protection systems, the most restrictive requirement takes precedence (PFC Section 102.7.3). As an example:

- PFC Section 903.1 – Applicable to many types of new occupancies, including new Group A of any size. New Group A of any size to be equipped throughout with an automatic fire sprinkler system. (More Restrictive)

- PFC Section 903.2.1.3 – Applicable to Group A-3 exceeding certain size limits, occupant loads, and in certain locations. Group A-3 not required to be equipped with an automatic fire sprinkler system where those conditions do not apply. (Less Restrictive)

In this type of conflict, because the subject matter involves a fire protection system, the more restrictive provision takes precedence.

PFC Provision vs. Referenced Standard Provision

The PFC incorporates the provisions of other codes and standards by reference. Where this occurs and results in a conflict, the PFC provision takes precedence (PFC Sections 102.7.1 and 102.7.2). As an example:

- The 2016 edition of NFPA 55 is incorporated by reference in PFC Section 5301.1. NFPA 55 Section 13.10.4 requires carbon dioxide beverage systems to be provided with either a ventilation system, or a gas detection system.

- PFC Sections 5307.2 requires carbon dioxide beverage systems to be provided with both a ventilation and a gas detection system.

In this type of conflict, the PFC provision takes precedence.

PFC Provision vs. Referenced Standard Provision, Related to Fire Protection Systems

The previous example involved subject matter not related to a fire protection system, as defined by the PFC. Where a conflict occurs between a PFC provision and a referenced standard provision, and the subject matter involves a fire protection system, the most restrictive requirement takes precedence (PFC Section 102.7.3). As an example:

- The 2019 edition of NFPA 14 is incorporated by reference in PFC Section 905.2. NFPA 14 Section 7.2.3.2 requires outlet pressure on 2 ½" standpipe hose connections to be limited to 175-psi. (Less restrictive)

- PFC Section 905.2.1.3 requires outlet pressure on 2 ½" standpipe hose connections to be limited to 170-psi. (More restrictive)

In this type of conflict, the more restrictive requirement takes precedence.

Permits:
N/A

Inspection Test & Maintenance:
N/A

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Shade Structures Over Playground Equipment Policy

Explanatory Policy – Shade Structures Over Playground Equipment

SUBJECT: Shade Structures Over Playground Equipment Requirements	**EFFECTIVE DATE:** March 25, 2016 July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition Sections 903.1, 903.3.1.1.5, 1103.5.5	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The exception found in the Bret Tarver Sprinkler Ordinance may be applied to detached shade structures provided over playground equipment, playing surfaces and other similar uses associated with schools, parks, and outside recreational facilities.

Shade structures over play areas and associated with parks, are not required to be protected by automatic sprinkler protection, provided:

1. No other Occupancy Classification is assigned to the space by the Building Department.
2. They are constructed from the limited or non-combustible materials noted in exceptions of 903.3.1.1.5.
3. They are less than 5,000 sq. ft. in size, and
4. They are more than 5 feet detached from the nearest structures.
5. Guide wires attached to adjacent structures are acceptable if no structure is within a 5-foot radius.

Requirements:
Play area shade structures are subject to the same requirements as gasoline dispensing canopies are subject to. The protection requirement exceptions for Group U occupancies under 5,000 sq. ft.

Shade structures of any construction material are not required to be protected, provided:

1. They are 30 feet away from any structure
2. No other Occupancy Classification assigned to the space by the Building Department.
3. They are less than 5,000 sq. ft. in size

This follows fire separation requirements of Table 602 of the Building Code and requirements of not sprinklered parking canopies under 5,000 sq. ft. in area.

Combustible construction within 30’ of a building is subject to the separation requirements of Table 602 of the Phoenix Building Code.

Structures over 5,000 sq. ft. which receive an occupancy classification, by the Building Department, are subject to the sprinkler requirements of the Bret Tarver Ordinance.

Permits:
As required for fire sprinkler systems prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per NFPA 25 and the manufactures specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Solar Photovoltaic and Battery Energy Storage Marking Policy

Explanatory Policy – Solar Photovoltaic and Battery Energy Storage Marking

SUBJECT: Solar Photovoltaic and Battery Energy Storage Marking Requirements	**EFFECTIVE DATE:** April 8, 2020
REFERENCES: IFC with Phoenix Amendments (2018 Edition	**REVIEW DATE:** July 2024
APPROVED:  John Mertens, Fire Marshal	

Scope:
The purpose of this policy is to provide the signage requirements for Energy Systems including Solar Photovoltaic (PV) and Battery Energy Storage Systems (BESS) regulated by Chapter 12 of the 2018 Phoenix Fire Code (2018 PFC). This policy will provide guidance and specifications for the necessary signage, materials, verbiage and size requirements. The inspection and compliance of these energy systems is critical for the safety of firefighters and the residents of Phoenix. The signage requirements for Solar Photovoltaic and Battery Energy Storage Systems will assist in reducing the risks associated with these alternative energy systems.

Requirements:
This policy establishes consistent expectations for the signage, materials, verbiage, and size used for Solar Photovoltaic and Battery Energy Storage Systems installed in the City of Phoenix. This signage shall meet the specifications established in the attached detail. This signage requirement must be installed prior to the inspection and being approved ("green-tagged") or commissioning of the energy system. The inspection must be completed by a Phoenix Fire Department Fire Inspector. Rapid shut down signage shall comply with 2018 PFC Section 1204.5.

Code References:
1204.1.2 Marking. Marking is required on interior and exterior direct-current (DC) conduit, enclosures, race- ways, cable assemblies, junction boxes, combiner boxes and disconnects.

1204.1.2.1 Materials. The materials used for marking shall be reflective, weather resistant and suitable for the environment. Marking as required in Sections 1204.1.2 through 1204.1.6 shall have all letters capitalized with a minimum height of 3/8 inch white on red background.

1204.1.2.2 Marking Content. The marking shall contain the words "WARNING: PHOTOVOLTAIC POWER SOURCE."

1204.1.2.3 Main Service Disconnect. The marking shall be placed adjacent to the main service disconnect in a location clearly visible from the location where the disconnect is operated.

1204.1.3 Location of Marking. Marking shall be placed on interior and exterior DC conduit, raceways, enclosures and cable assemblies every 10 feet, within 1 foot of turns or bends and within 1 foot above and below penetrations of roof/ceiling assemblies, walls or barriers.

1204.5 Buildings with rapid shutdown. Buildings with rapid shutdown solar photovoltaic systems shall have permanent labels in accordance with Section 1204.5.1 through 1204.5.3

1**206.2 Stationary storage battery systems**. Stationary storage battery systems having capacities exceeding the values shown in Table 1206.2 shall comply with Section 1206.2.1 through 1206.2.13.6, as applicable.

Note: *Approved signage is required for all installations.*

Permits:
As required dependent on the energy storage system being installed. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per the manufactures specification.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Solar Roof Tile and Glass Systems Policy

Explanatory Policy – Solar Roof Tiles or Glass Systems in R-3 & R-4 Occupancies

SUBJECT: Solar Roof Tile or Glass Systems Requirements	**EFFECTIVE DATE:** September 1, 2020
REFERENCES: IFC with Phoenix Amendments (2018 Edition Section 1204.2.1., 1204.2.1.2, and 1204.2.1.5	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
To provide clarification on the requirements of pathways and separation distances for Solar Photovoltaic Systems installed on R-3 and R-4 occupancies that are a solar roof tile or glass system.

Requirements:
Due to the hazard associated with firefighters traversing up a solar roof tile or glass system, the 3-foot pathways from the eave to the ridge from 1204.2.1 will not be required. In addition, the clear space between roof hips and valleys on residential buildings with roof hips from 1204.2.1.2 will also not be required.
The 3-foot separation between the top of the solar panel and the ridge will be required in accordance with 1204.2.1.5.

Permits:
As required dependent on the energy storage system being installed. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per the manufactures specification.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Special Event Outdoor Assembly Permit for Parades, Marathons, Marches, or Run Events Policy

Explanatory Policy – Special Event Outdoor Assembly Permit for Parades, Marathons, Marches Or Run Events

SUBJECT: Special Event Outdoor Assembly Permit for Parades, Marathons, Marches or Run Events	**EFFECTIVE DATE:** April 6, 2022
REFERENCES: The Phoenix Fire Code (2018 Edition) Section 105.6.36	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This directive will provide guidance to Fire Prevention staff on criteria for requiring a Special Event Outdoor Assembly Permit for parades, marathons, marches, or run events.

Requirements:
The following explanatory policy where parades, marathons, marches, or run events not confining 50 or more occupants via fencing or barriers and event setups do not affect required emergency access via hard closures; an outdoor assembly permit will not be required. Other applicable permits and code requirements shall apply.

Permit:
Special event permits are required for event that fall outside of the scope of this policy prior to the date of expected event.

Inspection Test & Maintenance:
N/A

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Sprinkler Coverage for Balconies in NFPA 13 Policy

Explanatory Policy – Sprinkler Coverage for Balconies	
SUBJECT: Sprinkler coverage for balconies in NFPA 13 Design Systems Requirements	**EFFECTIVE DATE:** April 15, 2016 July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition Section 903.3.1.1	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
Sprinklers Protection for Balconies with NFPA 13 design protection in all residential Group R Building of any construction type.

Requirements:
PFC Section 903.3.1.1. Where the provisions of this code require that a building or portion thereof be equipped throughout with an automatic sprinkler system in accordance with this section, sprinklers shall be installed throughout in accordance with NFPA 13.

NFPA 13, 2019 9.2.3.5 Sprinklers shall be installed under all exterior projections greater than 2 ft where combustibles are stored.

Additional Information:
The commentary in the Fire Sprinkler Handbook appendix has two criteria for sprinkler protection and leaves the judgement to the Authority Having Jurisdiction which criteria to emphasize for protection levels. The first is: The presence of combustible furniture on balconies for occupant use should not require sprinkler protection.

The second is: ***however, judgment is needed, sprinklers may be justified where the balcony contains combustible loading such as patio furniture and where barbeque grills are allowed, or other ignition sources are present, such as a furnace located off of, and accessed from, the balcony.***

The City of Phoenix community experiences ideal weather patterns that allow residents to enjoy their outside patios and balconies year-around. Patios and balconies are often covered with a number of combustible materials that include patio furniture, heaters and barbeques.
In most cases, side mounted sprinkler heads can be used where the piping is not exposed and is supplied from the inside system without an experienced danger of freezing in metallic pipe.

Regulation:
Patios and balconies for all construction types for Group R structures are required to comply with the City of Phoenix Fire Code and install an automatic fire sprinkler system throughout, including the patio and balcony.

Permits:
N/A

Inspection Test & Maintenance:
N/A

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Sprinklers in Industrial Ovens Policy

Explanatory Policy – Sprinklers in Industrial Ovens

SUBJECT: Sprinklers in Industrial Ovens Requirements	**EFFECTIVE DATE:**
REFERENCES: IFC with Phoenix Amendments (2018 Edition Section 3006) NFPA 86: 2015, Standards for Ovens and Furnaces.	**REVIEW DATE:**
APPROVED:  John Mertens, Fire Marshal	

Scope:
This policy covers the requirements for fire protection and permits regarding industrial oven and furnaces that utilize combustible materials.

Requirements:
Phoenix Fire Department's interpretation of the industrial oven/furnace includes NFPA 86, 1.1.7:

a. Coal or other solid fuel–firing system
b. Listed equipment with a heating system(s) that supplies a total input not exceeding 150,000 Btu/hr (44 kW)
c. Fired heaters in petroleum refineries and petrochemical facilities that are designed and installed in accordance with API STD 560, *Fired Heaters for General Refinery Services*, 2007; API RP 556, *Instrumentation and Control Systems for Fired Heaters and Steam Generators*, 1997; and API RP 2001, *Fire Protection in Refineries*, 2005.
d. Fluid heaters as defined in NFPA 87, *Recommended Practice for Fluid Heaters*
e. Electric arc furnaces and submerged arc furnaces

Phoenix Fire Department requires permits for all industrial oven/furnaces with listed equipment with a heating system(s) that supplies a total input not exceeding 150,000 Btu/hr. (44 kW).

Where an oven is place in a non-sprinklered occupancy, the oven shall be required to be protected by an approved automatic fire suppression system. Fully enclosed ovens, having the appropriate listing, as stand-alone appliances without suppression required, which contain process combustible materials, shall be relieved from the requirement of providing fire suppression systems within the oven itself. The ovens are fully enclosed, any fire shall be confined to the oven itself. The oven shall have safety interlock devices that, in the event of a fire, shall shutdown the oven and secure the door.

Installing a fire suppression system within a listed stand-alone, fully enclosed oven can damage the structural integrity of the oven, voiding the listing and the manufacturer's warranty. The Fire Marshal will be responsible for evaluating technical reports determining whether this policy is applicable to the product in question.

In a fully sprinkler protected facility with an open flow through process oven, which meets the criteria of obstruction to

overhead protection (over 4-feet wide), then protection shall be extended into the oven.

Permits:
Permits are required to be obtained prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Fire sprinkler and suppression systems or fire alarm and other life safety systems installed at facilities with industrial ovens are required to be maintained in accordance with the corresponding national standard. Inspection, test, and maintenance reports are required to be uploaded to The Compliance Engine for review by the Phoenix Fire Department.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Standpipe Testing Policy

Explanatory Policy – Standpipe Testing	
SUBJECT: Standpipe Testing Requirements	**EFFECTIVE DATE:**
REFERENCES: The Phoenix Fire Code (2018 Edition) Section NFPA 14 (2019 Edition)	**REVIEW DATE:**
APPROVED:	
John Mertens, Fire Marshal	

Scope:
The following explanatory policy applies to standpipe testing.

Requirements:
The following explanatory policy addresses standpipe testing and what is expected from the subcontractor and the City of Phoenix Fire Department.

See NFPA 14 2019 section A.7.10.1.2.1.1 and the associated figure that immediately follows. The figure shows two risers that terminate at level 15 and two risers that terminate at level 10. In this example there are a total of four standpipe risers. The Phoenix Fire Department will test that 100 psi is available at all hose valve locations with a total of 750 gpm at A, B and C points. The second scenario will require 100 psi at all hose valve location with a total of 1000 gpm at D, E, F and G points. All hose valves should be able to provide a minimum of 100 psi at all connection. This is the minimum requirement that the Phoenix Fire Department is requiring which will allow handheld fire hoses to perform efficiently.

It is highly recommended that the subcontractor gets in contact with the inspector a week prior to inspection to discuss the following:

- When will the 50 + psi hydrostatic pressure test start and end?
- Which stair(s) and hose valves are we testing?
- What equipment are we going to use for this test?

Discussion a head of time will ensure that both subcontractor and Fire Department are aligned to make the testing process as smooth as possible.

Permits:
Permits are required to be obtained prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
NFPA 25 for Inspection Testing and Maintenance

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Manual Wet Standpipe Design Policy

Explanatory Policy – Manual Wet Standpipe Design	
SUBJECT: Standpipe Pressure(s) Requirements	**EFFECTIVE DATE:** July 19, 2019; Update June 30 2021
REFERENCES: IFC with Phoenix Amendments (2018 Edition Section 905.1	**REVIEW DATE:** July 2024
APPROVED: 	
John Mertens, Fire Marshal	

Scope:
The following explanatory policy applies to manual wet standpipe design criteria to be used when calculating design flow and pressures available from the Phoenix Fire Department fire pumper trucks.

Requirements:
The minimum residual pressures as defined by NFPA 14 (100 PSI @ the most hydraulically remote outlet) are required in buildings qualifying as high-rise. By definition, buildings 75 feet to the highest occupiable floor are classified as high-rise.

The residual pressure(s) as noted in NFPA 14 are not required to be maintained in buildings less than 75 feet in height which are equipped throughout with an *approved automatic* fire suppression system and a manual standpipe system is installed in accordance with NFPA 13.

The system shall be designed to accommodate the outlet pressures and water flows in accordance with NFPA 14 and inlet pressures consistent with Phoenix Fire Department equipment, delivering 150 psi at 1000 gpm.

Premise alert. When locking standpipe outlet caps are installed in accordance with Section 905.11 a premise alert shall be created (by Fire Prevention Staff) to notify emergency operations.

Permits:
Permits are required for the installation of standpipe systems prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
Per NFPA 25 and manufacture specifications.

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Temporary Fire Pump Policy

Explanatory Policy – TEMPORARY FIRE PUMP	
SUBJECT: Preplanned and Emergency Impairment of Fire Pump Requirements	**EFFECTIVE DATE:** April 15, 2021
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section(s) 901.7.4 – 901.7.6	**REVIEW DATE:** July 2024
APPROVED: 	
John Mertens, Fire Marshal	

Scope:
Identify temporary fire pump requirements and accompanying submittal document requirements for when a fire pump becomes impaired. When a temporary pump is not a properly listed for fire or cannot be monitored for all appropriate pump signals, then an Appeal to the Fire Marshal and fire watch for the duration of the temporary pump installation is required in accordance with the following guidelines.

Requirements:
901.7.4 Preplanned Impairment
Preplanned impairments shall be authorized by the impairment coordinator. Before authorization is given, a designated individual shall be responsible for verifying that all of the following procedures have been implemented:

1. The extent and expected duration of the impairment have been determined.
2. The areas or buildings involved have been inspected and the increased risks determined.
3. Recommendations have been submitted to management or the building owner/manager.
4. The Phoenix Fire Department at 602-495-5555 has been notified.
5. The insurance carrier, the alarm company, the building owner/manager and other authorities having jurisdiction have been notified.
6. Occupants in the areas to be affected have been notified.
7. A tag impairment system has been implemented.
8. Necessary tools and materials have been assembled on the impairment site.

901.7.5 Emergency Impairments
Where unplanned impairments occur, appropriate emergency action shall be taken to minimize potential injury and damage. The impairment coordinator shall implement the steps outlined in Section 901.7.4.

***The use of a temporary fire pump shall only be granted in an emergency situation where the sprinkler and/or standpipe system is impaired and prior Fire Marshal approval is granted by way of an Appeal to the Fire Marshal. ***

901.7.6 Restoring systems to service.
Where impairment equipment is restored to normal working order, the coordinator shall verify that all of the following procedures have been implemented:

1. Necessary inspections and tests have been conducted to verify that affected systems are operational.
2. Occupants in the areas affected have been advised that protection is restored.
3. The Phoenix Fire Department Alarm Room 602-495- 5555 has been advised that protection is restored.
4. The building owner/manager, insurance carrier, alarm company and other involved parties have been advised that protection is restored.
5. The impairment tag has been removed.

Submittal Requirements:
The following outlines the required submittal documentation necessary for the temporary fire pump and the Appeal to the Fire Marshal.

Required Items:

1. Emergency temporary fire pump permit. (F317)
2. Formal appeal application submittal with documentation. (FPAP)

1. EMERGENCY TEMPORARY FIRE PUMP PERMIT

The following information is required to be on a signed letter from the owner:

❒ The manufacture specifications (spec sheets) and pump curve of proposed temporary fire pump.
❒ The manufacture specifications (spec sheets) and pump curve for existing permanent fire pump.
❒ Fire watch shall be provided in accordance with Section 115 of the 2018 Phoenix Fire Code.
❒ Provide a detailed scope of work to include the reason the temporary fire pump is required.

Note: An acceptance test date and time shall be confirmed with a City of Phoenix Fire Prevention Fire Protection Engineer prior to processing permit approval.

2. APPEAL
An appeal shall be **applied for within two business days** from the date when the temporary fire pump permit is issued.

Required Items:

Two sets of scaled site plans shall be provided and shall include the following information.

❒ Include the following on the plans, identification, and location of the following:

- Building site map
- Existing permanent fire pump location
- Proposed location of temporary fire pump location
- Fire line location(s) including size.
- Fire sprinkler riser(s) information including system capabilities for the most hydraulically demanding system. (Standpipe, Fire Sprinkler System, or Fire Flow)

- Isolation valves for fire line and fire sprinkler system.

❒ The manufacture specifications (spec sheets) and pump curve of proposed temporary fire pump.

❒ The manufacture specifications (spec sheets) and pump curve for existing permanent fire pump.

Owner's letter shall include the following:

1. Provide a detailed scope of work to include the reason the temporary fire pump is required.

2. Outline of fire watch procedures including details for whom is preforming fire watch and the scope of the fire watch for the site.

3. Provide a timeline for plan submittal to the city including turnover dates for the temporary fire pump and permanent fire pump.

4. Identify temporary fire pump testing requirement to include weekly run testing for 30 minutes in addition to being visually inspected to verify fuel level are maintained above 2/3 capacity.

5. A 3-foot minimum area shall be maintained around the temporary fire pump and kept clear of combustibles and vegetation.

Note: Additional information may be requested by the *fire code official.*

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Vehicle Impact Protection Requirements Policy

Explanatory Policy – Vehicle Impact Protection

SUBJECT: Vehicle Impact Protection Requirements	**EFFECTIVE DATE:** July 19, 2019
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section 312	**REVIEW DATE:** July 2024
APPROVED: 	
John Mertens, Fire Marshal	

Scope:
Identify vehicle impact protection requirements and accompanying submittal document requirements.

Requirements:
PFC Section 312.1 General.
Vehicle impact protection required by this code shall be provided by posts that comply with Section 312.2 or by other approved physical barriers that comply with Section 312.3.

PFC Section 312.2 Posts.
Guard posts shall comply with all of the following Requirements:

1. Constructed of steel not less than 4 inches in diameter and concrete filled.
2. Spaced not more than 4 feet between posts on center.
3. Set not less than 3 feet deep in a concrete footing of not less than a 15-inch diameter.
4. Set with the top of the posts not less than 3 feet above ground.
5. Located not less than 3 feet from the protected object.

PFC Section 312.3 Other barriers.
Barriers, other than posts specified in Section 312.2 that are designed to resist, deflect or visually deter vehicular impact commensurate with an anticipated impact scenario shall permit where approved.

Submittal Requirements:
Posts and other barriers used for impact protection require a detail of the impact protection option used, either post or other barrier, to be stamped by a structural engineer and provided with the submittal documents. In addition, the expected impact scenario being safeguarded against shall be identified on the impact protection detail. (See attached detail)

Where Required:

- Where installed within 10 feet of vehicle traffic, LP-gas storage containers, pumps and dispensers shall be protected in accordance with Section 2307.5, Item 2.

- Section 2307.5 – (2) - LP gas Dispensing devices installed within 10 feet of where vehicle traffic occurs shall be protected against physical damage by mounting on a concrete island 6 inches or more in height or shall be protected in accordance with Section 312.

- Where flammable liquid above-ground tanks, piping, electrical conduit or dispensers are subject to vehicular impact, they shall be protected therefrom, either by having the impact protection incorporated into the system design in compliance with the impact test protocol of UL 2085, or by meeting the provisions of Section 312, or where necessary, a combination of both. Where guard posts or there approved barriers are provided, they shall be independent of each above-ground tank.

- Vaults shall be resistant to damage from the impact of a motor vehicle, or vehicle impact protection shall be provided in accordance with Section 312.

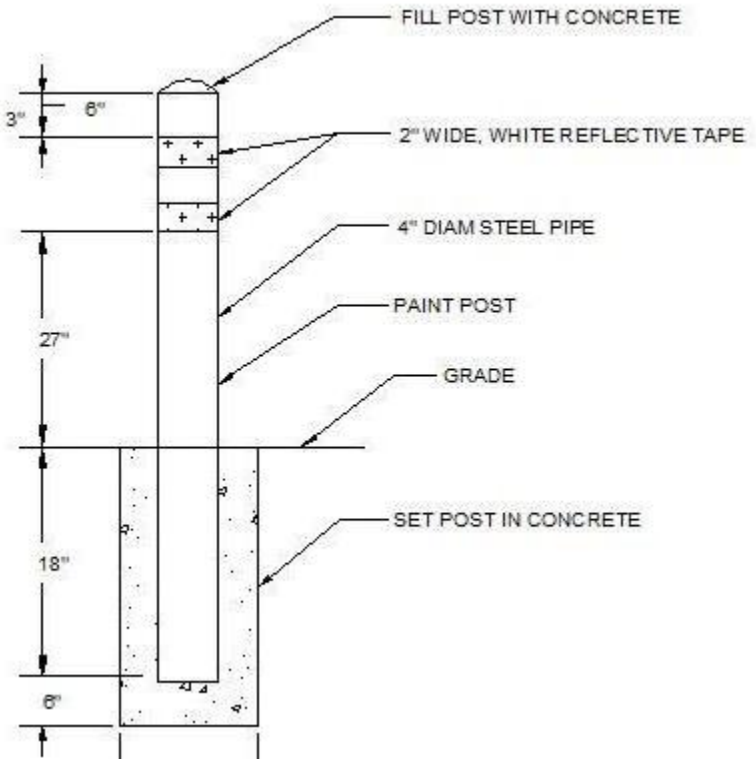
- Where stationary storage battery systems are subject to impact by a motor vehicle, including fork lifts, vehicle impact protection shall be provided in accordance with Section 312.

- Where stationary fuel cell power systems are subject to impact by a motor vehicle, vehicle impact protection shall be provided in accordance with Section 312.

- Where the fire-fighter air system panel is located in an area subject to vehicle traffic, impact protection shall be provided in accordance with Section 312.

- Where fire department connections are subject to impact by a motor vehicle, vehicle impact protection shall be provided in accordance with Section 312.

EXAMPLE DETAIL



Registered Professional Engineer (Discipline Here)
CERTIFICATE NO.
12345
YOUR NAME HERE
Date Signed
ARIZONA, U.S.A.
Expires 12/31/2018

IMPACT SCENARIO: The expected vehicle traffic for (Facility Name) is (Light-Duty; Medium-Duty; Heavy-Duty), for which the vehicle impact protection detail provides the required protection from impact for.

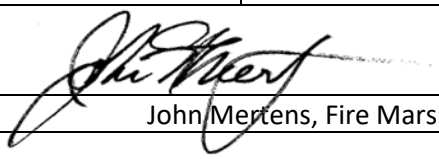
Permits:
N/A

Inspection Test & Maintenance:
N/A

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Voltage Drop Calculations Policy

Explanatory Policy – Voltage Drop Calculations

SUBJECT: Voltage Drop Calculations Requirements	**EFFECTIVE DATE:** June 19, 2021 Original May 18, 2020
REFERENCES: IFC with Phoenix Amendments (2018 Edition) Section Chapter 9 Section 907.1.2 #9 & 2019 NFPA 72 Chapter 10 Section 10.3.5	**REVIEW DATE:** July 2024
APPROVED: 	
John Mertens, Fire Marshal	

Scope:
This policy covers the City of Phoenix Fire Prevention Division's interpretation on how to submit complaint voltage drop calculations. These calculations are a requirement of the submitted Fire Alarm Shop Drawings outlined in Section 907.1.2 (2018 Phoenix Fire Code). Metrics for this calculation are provided in Section 10.3.5 (2016 NFPA 72).

Requirements:
2018 Phoenix Fire Code - Chapter 9 Section 907 - Fire Alarm and Detection - Voltage Drop Calculations. The two predominant methods of voltage drop calculations are point-to-point and end-of-line lump sum. Center loading of the circuits is also an acceptable method.

2019 NFPA 72 - Chapter 10 - Section 10.3.5 – Equipment.
Equipment shall be designed so that it is capable of performing its intended functions under the following conditions:

1. At 85 percent and at 110 percent of the nameplate primary (main) and secondary (standby) input voltage(s)
2. At ambient temperatures of 0°C (32°F) and 49°C (120°F)
3. At a relative humidity of 85 percent and an ambient temperature of 30°C (86°F)

Example:
Assume 100% input is 24V (typical). 85% of 24V would be 20.4V. The range of operation starts at 16V. The drop between 20.4V and 16V is 4.4V. So, the maximum voltage drop permitted for this circuit is 4.4V. This is the most conservative approach no matter what the input voltage is as long as it's above 20.4V. The voltage at the end of this circuit must never be less than 16V.
Note: This is an example of a typical circuit. Calculations may vary based on the range of operation for devices noted in the manufacturer's cutsheets.

Permits:
Fire alarm permits are required to be obtained prior to the start of work. When unsure if plan submittal is required, please contact Fire Prevention at 602-262-6771.

Inspection Test & Maintenance:
N/A

City of Phoenix
FIRE DEPARTMENT
FIRE PREVENTION SECTION

Warming-Cooking Fire Policy

Explanatory Policy – Recreational Warming Cooking Fires Limitations	
SUBJECT: Guidance for Enforcement Authority of Open Burning	**EFFECTIVE DATE:** April 2023
REFERENCES: The Phoenix Fire Code (2018 Edition) Sections 105, 302, 305, 307 & 308	**REVIEW DATE:** July 2024
APPROVED:	
John Mertens, Fire Marshal	

Scope:
This explanatory policy describes the parameters to determine a code compliant or non-compliant warming fire used for cooking in urban camping locations to be enforced by the authority having designated jurisdiction as law enforcement (Phoenix Police Department, Park Rangers, Neighborhood Services Inspectors, etc.). The Fire Code does not consider specifically urban camping, but simply the compliant or non-compliant use of open flame.

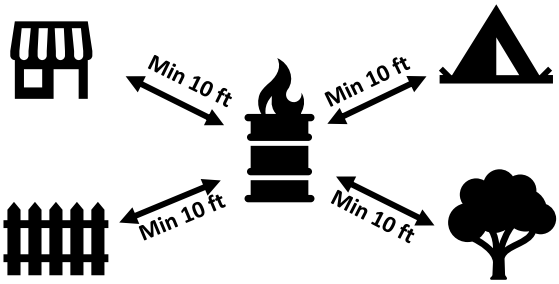
The use of a warming fire to also cook or be presented as cooking is often cited to allow for the 10' rules to apply (Phoenix Fire Code Section 308.1.4) rather than the 25- or 50-foot rules. Discretion is advised to allow for all small fires to fall under the "cooking" exception to avoid alternate interpretation or argument.

Requirements:
An attended open flame fire measuring less than a three-foot-wide circle, with flames no more than 2 feet high, using wood, gas or charcoal as fuel located 10 feet clear of any combustibles or structures. (International Fire Code Sections 307.4.2, 307.5, 308.1.4,

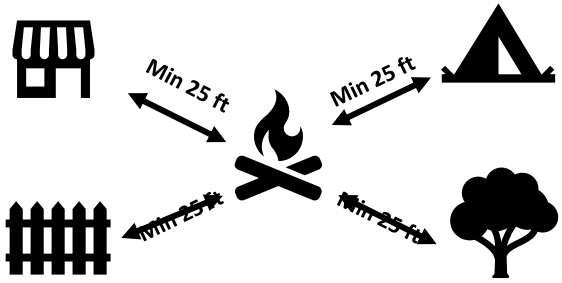
Non-compliant Fire Conditions
Non-compliant fires shall be extinguished under authority of Fire Code Section 307.3.

1. 305.1 Fire larger than three-foot diameter, higher than two-foot flames or closer than ten feet to combustibles or structures.
2. 305.4 Fire has caused damage or thermal change to surrounding objects such as charring, soot marks or melting.
3. 307.1.1 Burning rubbish or use on no burn days.
4. 307.3 In violation of size, proximity or is causing damage.
5. 308.1.2 Fire outside the recreational fire area.
6. 308.1.4 Using open flame within 10 feet of combustibles.

Cooking Fires Less than 3 Ft Wide and 2 Ft Tall **in** Approved Container or Device* – Minimum 10 Ft Shall be Maintained Between the Fire and Combustibles

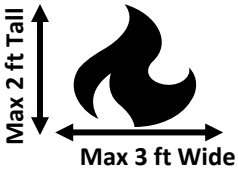


Cooking Fires Less than 3 Ft Wide and 2 Ft Tall **Not in** Approved Container or Device* – Minimum 25 Ft Shall be Maintained Between the Fire and Combustibles



**Approved container or devices are incinerator, outdoor fireplace, portable outdoor fireplace, barbeque grill, barbeque pit, or similar devices*

Fires Greater than 3 Ft Wide and 2 Ft Tall Require a Fire Department Operational Permit



Reference Code Sections:

305.1 Clearance from ignition sources.
Clearance between ignition sources, such as luminaires, heaters, flame-producing devices, and combustible materials, shall be maintained in an approved manner.

305.4 Deliberate or negligent burning.
It shall be unlawful to deliberately or through negligence set fire to or cause the burning of combustible material in such a manner as to endanger the safety of persons or property.
This may be cited if charring, bubbling or spalling is visible or can be documented on a fence or wall or other structure.

307.1 General.
A person shall not kindle or maintain or authorize to be kindled or maintained any open burning unless conducted and approved in accordance with Sections 307.1.1 through 307.5.

307.1.1 Prohibited open burning.
Open burning shall be prohibited when atmospheric conditions or local circumstances make such fires hazardous. *(No burn days)*

307.3 Extinguishment authority.
Where open burning creates or adds to a hazardous situation, or a required permit for open burning has not been obtained, the fire code official is authorized to order the extinguishment of the open burning operation. *(if in violation you can extinguish it)*

307.4 Location.
The location for open burning shall be not less than 50 feet from any structure, and provisions shall be made to prevent the fire from spreading to within 50 feet of any structure.

Exceptions:

1. Fires in *approved** containers that are not less than 15 feet from a structure.
2. The minimum required distance from a structure shall be 25 feet where the pile size is 3 feet or less in diameter and 2 feet or less in height.

307.4.1 Bonfires.
A bonfire shall not be conducted within 50 feet of a structure or combustible material unless the fire is contained in a barbecue pit. Conditions that could cause a fire to spread within 50 feet of a structure shall be eliminated prior to ignition.

307.4.2 Recreational fires.
Recreational fires shall not be conducted within 25 feet of a structure or combustible material. Conditions that could cause a fire to spread within 25 feet of a structure shall be eliminated prior to ignition.

308.1.2 Throwing or placing sources of ignition.
A person shall not throw or place, or cause to be thrown or placed, a lighted match, cigar, cigarette, matches, or other flaming or glowing substance or object on any surface or article where it can cause an unwanted fire.

308.1.4 Open-flame cooking devices.
Charcoal burners and other open-flame cooking devices shall not be operated on combustible balconies or within 10 feet of combustible construction.

Exceptions:

1. One- and two-family dwellings.
2. In other than Group R-1 & R-2 occupancies where buildings, balconies and decks are protected by an automatic sprinkler system.
3. LP-gas cooking devices having LP-gas container with a water capacity not greater than 21 /2 pounds [nominal 1 pound (0.454 kg) LP-gas capacity].
4. Approved electric barbecues and electric radiant heat devices used in accordance with the manufacturer's instructions.
5. Approved stationary fuel-fired barbecues complying with the following:
    a. Connected to plumbing approved by the Planning & Development Department.
    b. Listed for the fuel being utilized.
    c. Used in accordance with the manufacturer's instructions.

308.1.5 Location near combustibles.
Open flames such as from candles, lanterns, kerosene heaters and gas-fired heaters shall not be located on or near decorative material or similar combustible materials

Phoenix Fire Code Definitions

***APPROVED.** Acceptable to the fire code official. *For our purposes approved containers is something that is specifically designed to burn material and is being used for that purpose. (a BBQ grill with charcoal or gas briquets, a ceramic patio fireplace with wood & paper, etc.) Anything being used outside its listing is subject to the 10 foot or 25 foot clearance requirements.*

OPEN BURNING. The burning of materials wherein products of combustion are emitted directly into the ambient air without passing through a stack or chimney from an enclosed chamber. Open burning does not include road flares, smudge pots and similar devices associated with safety or occupational uses typically considered open flames, recreational fires or use of portable outdoor fireplaces. For the purpose of this definition, a chamber shall be regarded as enclosed when, during the time combustion occurs, only apertures, ducts, stacks, flues or chimneys necessary to provide combustion air and permit the escape of exhaust gas are open.

RECREATIONAL FIRE. An outdoor fire burning materials other than rubbish where the fuel being burned is not contained in an incinerator, outdoor fireplace, portable outdoor fireplace, barbeque grill or barbeque pit and has a total fuel area of 3 feet or less in diameter and 2 feet or less in height for pleasure, religious, ceremonial, cooking, warmth or similar purposes.

UNWANTED FIRE. A fire not used for cooking, heating or recreational purposes or one not incidental to the normal operations of the property.

RUBBISH (TRASH). Combustible and noncombustible waste materials, including residue from the burning of coal, wood, coke or other combustible material, paper, rags, cartons, tin cans, metals, mineral matter, glass crockery, dust, discarded refrigerators, and heating, cooking or incinerator type appliances

105.6.32 Open burning or bonfire.
An operational permit is required for the kindling or maintaining of an open fire or a fire on any public street, alley, road, or other public or private ground. Instructions and stipulations of the permit shall be adhered to.
Exception: Recreational fires. *(see definition above)*

308.1.4 Open-flame cooking devices.
Charcoal burners and other open-flame cooking devices shall not be operated on combustible balconies or within 10 feet of combustible construction.

Exceptions:

1. One- and two-family dwellings.
2. In other than Group R-1 & R-2 occupancies where buildings, balconies and decks are protected by an automatic sprinkler system.
3. LP-gas cooking devices having LP-gas container with a water capacity not greater than 21 /2 pounds [nominal 1 pound (0.454 kg) LP-gas capacity].
4. Approved electric barbecues and electric radiant heat devices used in accordance with the manufacturer's instructions.
5. Approved stationary fuel-fired barbecues complying with the following:
    a. Connected to plumbing approved by the Planning & Development Department.
    b. Listed for the fuel being utilized.
    c. Used in accordance with the manufacturer's instructions.

Permits:
Anything larger than the parameters of 3-foot diameter and 2 foot height of flames.

Inspection Test & Maintenance:
N/A