

Self-Certification Program 2018 Fire Code

Karen Roberts – Fire Prevention Specialist II



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Fire Code Self Certification Guide

Overview of Fire Code Requirements for Self Certification Professionals

- Fire Site Plan Requirements
- Fire Systems Plans Review Requirements



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<https://www.phoenix.gov/fire/prevention/fire-code>

Fire Code Self Certification Guide

Overview of Fire Code Requirements for Self Certification Professionals

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<https://www.phoenix.gov/fire/prevention/fire-code>

Fire Code Self Certification Guide

General Information

Fire Site Plan Review Process

- Pre-Application Site Plan (PAPP)
- Preliminary Site Plan (PRLM)
- Final Site Plan (SCMJ)

NOTE: All new Self Certification building plans will not be accepted without Final Site Plan Approval.



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Fire Code Self Certification Guide

GUIDE TO:
SUCCESSFUL PLAN REVIEW



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Fire Systems Plans Review Process

- 1st Plan Review Submittal
- 2nd Plan Review Submittal
(Denial)

Fire Code Self Certification Guide



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2018 Phoenix Fire Code Chapter 1 Administration

Administration

2018 Phoenix Fire Code

Section 105 Applicant responsibility.

It shall be the responsibility of the applicant to ensure that the *construction documents* include all fire protection requirements, and the shop drawings are complete and in compliance with the applicable codes and standards.



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Administration

2018 Phoenix Fire Code

Section 105 Approved Documents.

Construction documents approved by the fire code official are approved with the intent that such construction documents comply in all respects with this code. Review and approval by the fire code official shall not relieve the applicant of the responsibility of compliance with this code.



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Administration

Section 105 Permits

- Access gates, *Automatic and Manual* (F157)
- Access, Emergency (F481)
- Address directories (F482)
- Automatic fire-extinguishing system (F100, F105, F159)
- CO2 Beverage Dispensing System (F238)
- Fire alarm and detection systems and related equipment (F122, F129, F175)
- Fire Pumps and related equipment (F117)
- Private fire hydrants (F112, F115)
- Special extinguishing system (F132, F134, F238)
- Standpipe systems (See Automatic sprinklers)
- Underground fire lines (F112, F115)

NOTE: Over-the-counter permits may also be obtained.



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Administration

Self-Certification Projects

- All Fire protection for schools shall be submitted to the Arizona State Fire Marshal.
- Marijuana Extraction Facilities shall separate the extraction portion and submit separately.

Exception: School Emergency Access and Gates shall be submitted to City of Phoenix PDD for permits.



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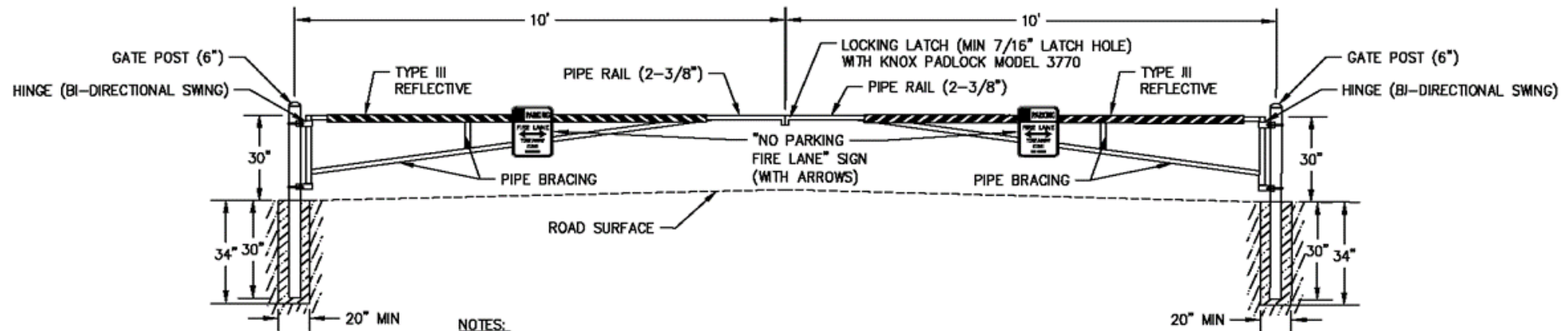
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Fire Service Features

2018 Phoenix Fire Code Chapter 5 Fire Service Features



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NOTES:

1. ALL MATERIALS SHALL BE SCHEDULE 40, GALVANIZED STEEL PIPE.
2. PROTECTIVE FINISH SHALL BE HOT-DIPPED, GALVANIZED GRAY.
3. CONTRACTOR TO INSTALL NO PARKING, FIRE LANE SIGN ON EACH SIDE OF GATE MEETING THE REQUIREMENTS OF OFC D103.6 AS AMENDED BY CITY OF HILLSBORO HMC 11.28.010.
4. CONTRACTOR TO INSTALL TYPE III REFLECTIVE STRIPING ON BOTH SIDES OF GATE. STRIPING SHALL BE ALTERNATING RED/WHITE STRIPES, 6" WIDE & AT 45° ANGLE.
5. CONCRETE SHALL BE 3,000 PSI.
6. COORDINATE INSTALLATION OF KNOX PADLOCK WITH CITY OF HILLSBORO FIRE DEPARTMENT.

Fire Service Features

- **Section 507** Water supplies for manual fire suppression and fire hydrants shall be in accordance with Appendix B.
- **Appendix B** Buildings other than one- and two-family dwellings. The minimum fire-flow and flow duration for buildings other than one- and two-family dwellings shall be specified in Appendix B105.1.
- Exception: A reduction in required fire-flow of up to 50%, as approved, is allowed when the building is provided with an approved NFPA 13 automatic sprinkler system. The resulting fire-flow shall not be less than 1,500 gallons per minute for the prescribed duration as specified in Table 105.1. No reductions are allowed for NFPA 13D or 13R systems other than Group R-3 single family homes.

APPENDIX B

**TABLE B105.1
MINIMUM REQUIRED FIRE-FLOW AND FLOW DURATION FOR BUILDINGS**

FIRE-FLOW CALCULATION AREA (square feet)

| Type IA and IB ^a | Type IIA and IIA ^a | Type IV and V-4 ^a | Type III and III ^a | Type V-3 ^a | FIRE-FLOW (gallons per minute) ^b | FLOW DURATION (hours) |
|-----------------------------|-------------------------------|------------------------------|-------------------------------|-----------------------|---|-----------------------|
| 0-22,700 | 0-12,700 | 0-8,200 | 0-5,900 | 0-3,600 | 1,500 | 2 |
| 22,701-30,200 | 12,701-17,000 | 8,201-10,900 | 5,901-7,900 | 3,601-4,800 | 1,750 | |
| 30,201-38,700 | 17,001-21,800 | 10,901-12,900 | 7,901-9,800 | 4,801-6,200 | 2,000 | |
| 38,701-48,300 | 21,801-24,200 | 12,901-17,000 | 9,801-12,600 | 6,201-7,700 | 2,250 | |
| 48,301-59,000 | 24,201-33,200 | 17,001-21,300 | 12,601-15,400 | 7,701-9,400 | 2,500 | |
| 59,001-70,900 | 33,201-39,700 | 21,301-25,900 | 15,401-18,400 | 9,401-11,300 | 2,750 | |
| 70,901-83,700 | 39,701-47,000 | 25,901-30,000 | 18,401-21,800 | 11,301-13,600 | 3,000 | |
| 83,701-97,700 | 47,001-54,900 | 30,001-35,200 | 21,801-25,900 | 13,601-15,600 | 3,250 | |
| 97,701-112,700 | 54,901-63,600 | 35,201-40,600 | 25,901-29,300 | 15,601-18,000 | 3,500 | |
| 112,701-128,700 | 63,601-72,600 | 40,601-46,400 | 29,301-33,500 | 18,001-20,600 | 3,750 | |
| 128,701-145,900 | 72,601-82,000 | 46,401-52,500 | 33,501-37,900 | 20,601-23,300 | 4,000 | 3 |
| 145,901-164,200 | 82,001-92,400 | 52,501-59,000 | 37,901-42,700 | 23,301-26,300 | 4,250 | |
| 164,201-183,600 | 92,401-103,800 | 59,001-66,600 | 42,701-47,700 | 26,301-29,300 | 4,500 | |
| 183,601-203,700 | 103,801-114,600 | 66,601-75,300 | 47,701-53,000 | 29,301-32,600 | 4,750 | |
| 203,701-225,200 | 114,601-126,700 | 75,301-81,300 | 53,001-58,600 | 32,601-36,000 | 5,000 | |
| 225,201-247,700 | 126,701-139,400 | 81,301-89,200 | 58,601-65,600 | 36,001-39,600 | 5,250 | |
| 247,701-271,200 | 139,401-152,600 | 89,201-97,700 | 65,601-70,000 | 39,601-43,400 | 5,500 | |
| 271,201-295,900 | 152,601-166,500 | 97,701-106,500 | 70,001-77,000 | 43,401-47,400 | 5,750 | |
| 295,901-Greater | 166,501-Greater | 106,501-115,800 | 77,001-83,700 | 47,401-51,700 | 6,000 | |
| --- | --- | 115,801-125,500 | 83,701-90,600 | 51,701-55,700 | 6,250 | |
| --- | --- | 125,501-135,500 | 90,601-97,000 | 55,701-60,200 | 6,500 | |
| --- | --- | 135,501-145,800 | 97,001-106,800 | 60,201-64,800 | 6,750 | |
| --- | --- | 145,801-156,700 | 106,801-113,200 | 64,801-69,600 | 7,000 | |
| --- | --- | 156,701-167,900 | 113,201-121,300 | 69,601-74,600 | 7,250 | |
| --- | --- | 167,901-179,400 | 121,301-129,600 | 74,601-79,800 | 7,500 | |
| --- | --- | 179,401-191,400 | 129,601-138,500 | 79,801-85,000 | 7,750 | |
| --- | --- | 191,401-Greater | 138,501-Greater | 85,001-Greater | 8,000 | |

FIG. 105.1 square feet = 0.0929 m²; 1 gallon per minute = 3.785 L/min; 1 pound per square inch = 6.895 kPa.

a. Types of construction are based on the International Building Code.

b. Measured at 20 psi residual pressure.



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Fire Service Features

Permits Required:

- Premises Identification (Address numbers)
 - Emergency Access Permit
 - Address Directory
- Fire Protection Water Supplies
 - Underground Fire lines
 - Offsite/Onsite Combination Plans
 - Onsite Only
 - AFP Plans (Customer will be sent to 438 N. Adams)
- Fire Protection, Equipment Identification (Signage)
 - Automatic Gates
 - Manual Gates



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Automatic Sprinklers

2018 Phoenix Fire Code

Chapter 9 Fire Protection Systems



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Automatic Sprinklers

903: Automatic Sprinkler System

903.1 Bret Tarver Sprinkler Ordinance. An approved automatic sprinkler system shall be installed throughout all levels of all new Group A, B, E, F, H, I, M, R-1, R-2, R-4, and S occupancies of more than zero square feet and throughout all Group R-3 occupancies built under the International Residential Code and Group U occupancies of more than 5,000 square feet.

Provide the type of sprinkler systems (NFPA 13D/NFPA 13R/NFPA13)

NFPA 13D: Standard for the installation of sprinkler systems for one and two family dwellings and manufactured homes

NFPA 13R: Standard for the installation of sprinkler systems in low-rise residential occupancies

NFPA 13: Standard for the installation of sprinkler systems



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Automatic Sprinklers

903: Sprinkler systems—Partially Sprinklered Buildings

When existing non-sprinklered buildings of mixed occupancy are required to install sprinklers based on a change of occupancy classification, sprinklers shall be installed throughout the fire area that includes the new occupancy. *Fire barriers or horizontal assemblies* separating sprinklered and non-sprinklered *fire areas* shall have a fire-resistance rating of not less than 2 hours. Fire department connection signage shall be in accordance with Section 912.4



Automatic Sprinklers

903.4.1 Monitoring

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

Exceptions:

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. Building occupancies in Group A-2 that do not exceed 5,000 square feet.
4. Group E and H shall be monitored at 0 square feet.
5. All other buildings occupancies, that do not exceed 12,000 square feet.



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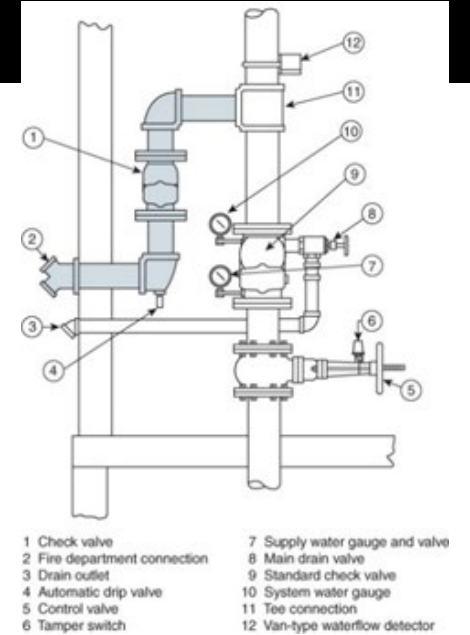
Fire Department Connections

PFC 912: Fire Department Connections

912.2 Location. The location of fire department connection shall be approved by the fire code official.

A site plan detail shall be submitted to the fire code official for approval as part of the construction documents.

912.2.1 Visible location. Fire department connections shall be located on the street side of buildings, fully visible and recognizable from the street or nearest point of fire department vehicle access.



907.1.2 Fire alarm shop drawings. Shop drawings for fire alarm systems shall be prepared in accordance with NFPA 72 and submitted for review and approval prior to system installation. (See fire code for required items.)



Fire Alarm and Detection Systems

907.2 Where Fire Alarms required – new buildings and structures. An approved fire alarm system shall be installed in accordance with fire code and NFPA 72.

(NOTE: Ensure Occupancy Group and Occupant load are shown on plans.)

907.5.2.1 Audible Alarms:

Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm. Group A, B, E, F, H, I, M, R, S and U occupancies shall meet Public Mode Audible Requirements of NFPA 72.



Fire Alarm and Detection Systems

Where required – new buildings and structures. An approved fire alarm system shall be installed in accordance with the provisions of the fire code and NFPA 72.

(NOTE: Also see AHJ Policy for NFPA 72 [City of Phoenix Fire Department - Fire Code](#))

907.5.2.3 Visual Alarm:

Visual alarm notification appliances shall be provided in accordance with Section 907.
(Coverage shall be provided in all public and common areas.)



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Existing Buildings

2018 Phoenix Fire Code

Chapter 11 Construction for Existing Buildings



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Existing Buildings

2018 Phoenix Fire Code

Scope. The provisions of this chapter shall apply to existing buildings constructed prior to the adoption of this code.

Intent. The intent of this chapter is to provide a minimum degree of fire and life safety to persons occupying existing buildings by providing minimum construction requirements where such existing buildings do not comply with the minimum requirements of the *International Building Code*.

See Table 1103.1 in 2018 Phoenix Fire Code.



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Existing Buildings

2018 Phoenix Fire Code

1103.5.5 Sprinkler systems.

All retro-active Brett Tarver Ordinance requirements may be found in Chapter 11 as well as Chapter 9.



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Existing Buildings

2018 Phoenix Fire Code

Fire Alarm & Detection Systems

1103.7 Fire Alarm Systems. An approved fire alarm system shall be installed in existing buildings and structures; unless other requirements are provided in other sections of the code.

Where a fire alarm system is required to be installed in an existing building, an approved fire detection system shall be installed.



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Fire Plan Review Staff

FIRE PLAN REVIEW PERSONNEL

| | |
|---------------------------------|---------------------|
| Greg Preston | 602-534-2639 |
| Karen Roberts | 602-495-5586 |
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| Christopher Wehrung | 602-262-4784 |
| Breelle Lugo | 602-534-7234 |
| Karen Mikus (contractor) | 602-326-9191 |



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Fire Code Self-Certification Guide

Construction Documents

- **Scope of Work/ Project Narrative**
- **Building Information/data (Occupancy classification, building area, type of construction, occupant load, etc.) Provide code summary chart / project data**
- **Applicable codes and standards (2018 Fire Code)**
 - **PFC Chapter 9 in lieu of IBC Chapter 9**
- **Automatic sprinkler system (NFPA 13,13R, ESFR)**
- **List of deferred submittals (Life safety permits)**
- **Hazardous Material Inventory Statement (HMIS)**
- **Fire Department Appeals or Building CMODs**



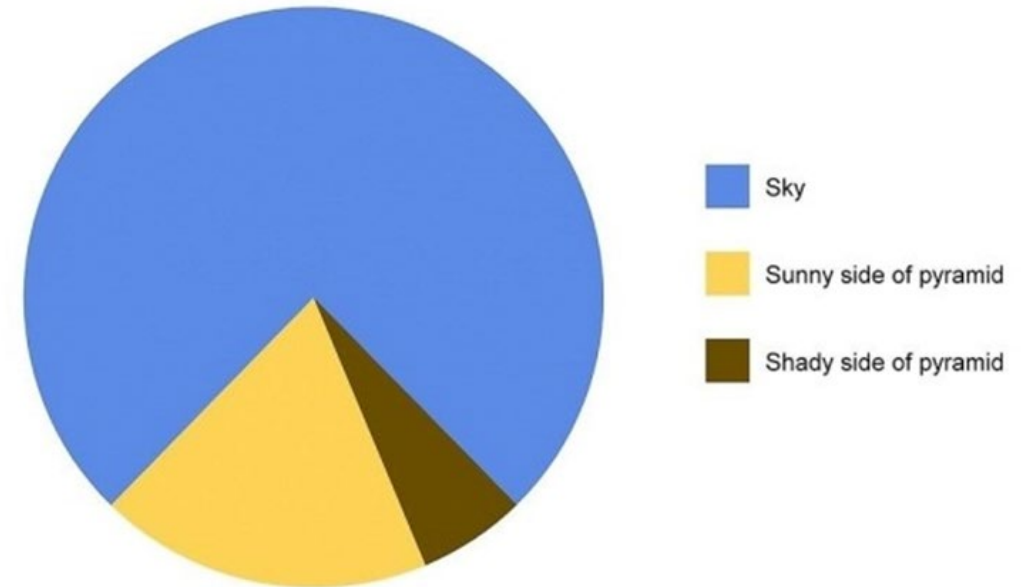
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PFC 903: Automatic Sprinkler System

NFPA 13 system is required:

- **Building area increase**
- **Reduction in fire resistance rating**
- **Travel distance increase**
- **Reduction in fire partitions rating**
- **Reduction in required fire flow**



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Access to Building Opening and Roof

- **Stairway access to roof is required four or more stories above grade plane. Exception, 33.3 % slope.**
- **Stairway access to the roof is to comply with Phoenix Fire Code 504.3. Stairway is to be in accordance with 1011.12. Please show and note on the construction documents which stairways are to be provided to conform. Please provide stair a detail.**



Fire Code Self-Certification Guide

Emergency Responder Radio Coverage

- **Four stories or greater**
- **Total building area greater than 50,000 square feet**
- **Any building with a basement or underground level(s)**
- **Where required by the fire code official**
- **PFC Section 1103- Emergency responder radio coverage in existing buildings**



Fire Code Self-Certification Guide

905: Class I standpipe systems shall be installed throughout buildings 30 feet above/below the fire department vehicle access.

Non-sprinklered Group A buildings having an *occupant load* exceeding 1,000 persons.

- **Covered and open mall buildings**
- **Stages greater than 1,000 square feet**
- **Underground buildings**
- **Helistops and heliports**
- **Marinas and boatyards**
- **Rooftop gardens and landscaped roofs**



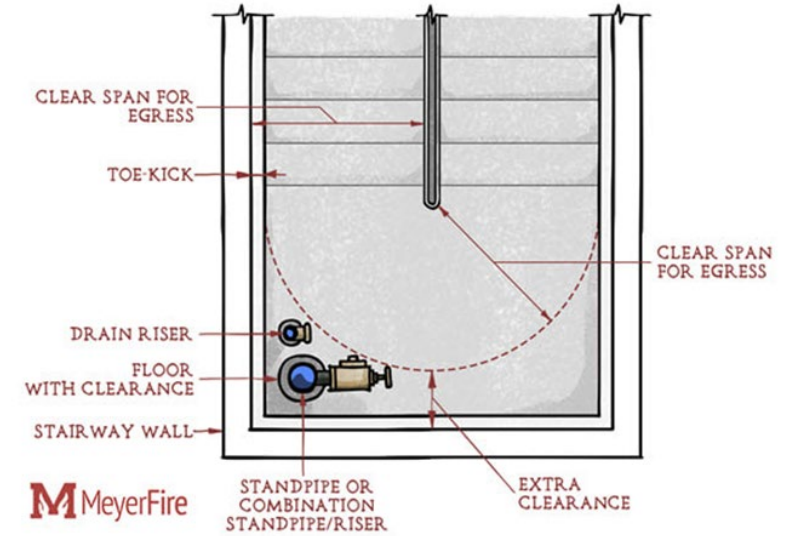
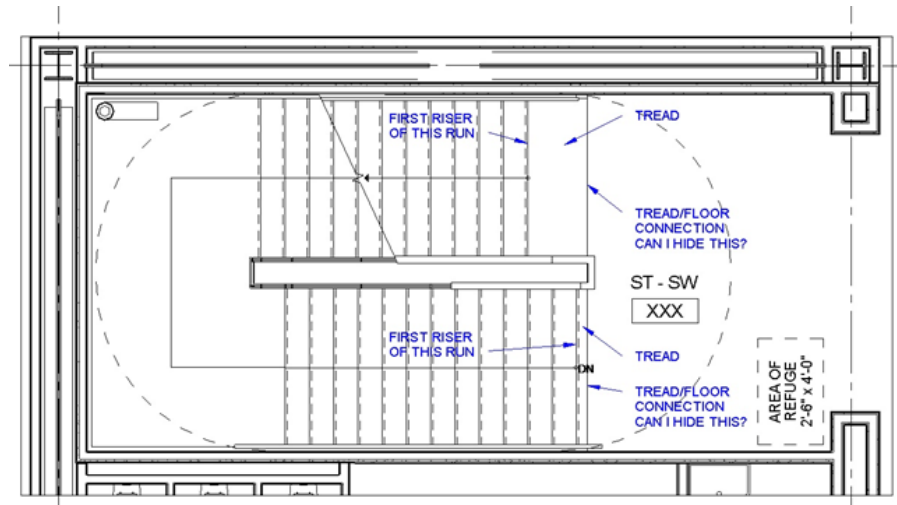
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905: Standpipe Systems

- Show proposed location on drawings
- Main Floor landing



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High-piled Storage

▪PFC 910: Smoke and Heat Removal

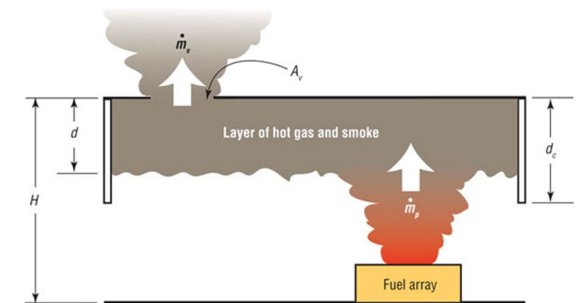
- **Group F-1 or S-1 more than 50,000 square feet (4645 m²) of undivided area**
- **PFC 3206.4.1.3- Speculative warehouses**
- **Table 3206.2- Smoke and heat removal required at 2,501 for High-pile storage**

▪If **ESFR** exception is to be utilized, show on drawings in code analysis, listed in deferred submittal, etc.

- **Evaluate the need for Fire Pump**
 - **1 hour Fire Separation**

▪A separate **FPPD** submittal is required to **PDD** for **High-Pile Storage – F102 (Construction Permit)**

▪A separate **FPPR** submittal is required to the **Fire Department** for **High-Pile Storage – F303 (Operational Permit)**



Fire Code Self-Certification Guide

PFC 32: High-Piled Combustible Storage

- **3206 Number of doors required.**
 - Fire department access doors shall be distributed a lineal distance to not exceed 125 feet (center to center)
 - **PBC 1017.2.2 Groups F-1 and S-1 amendment has 4 conditions which must be met to increase travel distance to 400 feet. Condition #4 defers to PFC 3206.6**
 - **Applicable to shell buildings**
 - **Speculative Warehouses PFC 3206.4.1.3.**
- **3206.8 Smoke and heat removal.**



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PFC 913: Fire Pumps

- **Indicate type of pump (Electric vs Diesel)**
 - **Diesel, evaluate MAQ, show fuel tank capacity calculations on construction documents NFPA 20 (11.4.1.2)**
 - **Electric: Generator fuel capacity (if applicable) NFPA 20 (9.6.2.3)**
- **Protection of fire pump rooms. Fire pumps shall be located in rooms that are separated from all other areas of the building by 2-hour *fire barriers* (1-hour fire barrier in other than high-rise building with automatic sprinkler system).**

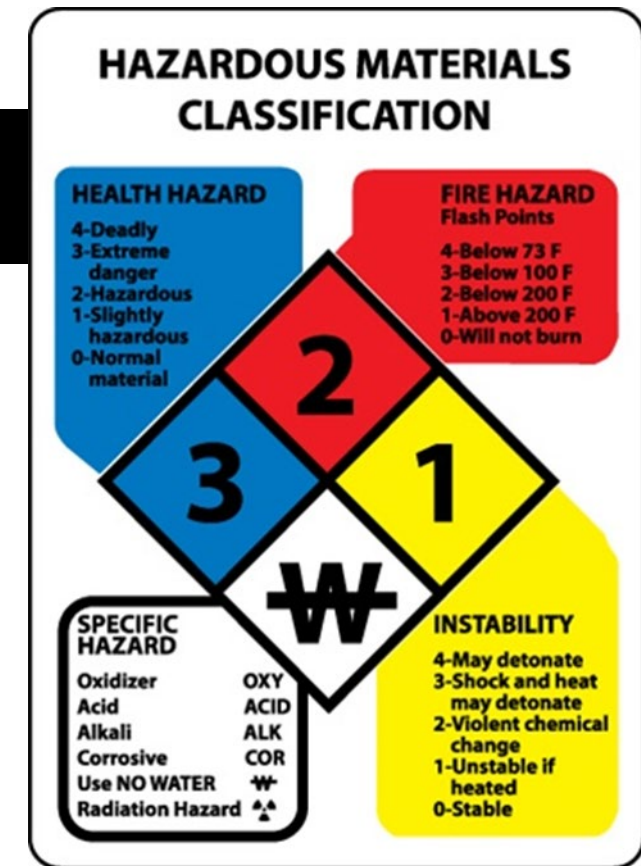


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PFC 50: Hazardous Materials

- **Hazardous Materials Inventory Statement (HMIS).** Where required by the *fire code official*, an application for a permit shall include an HMIS or a Globally Harmonized System (GHS).
- **To be coordinated with Phoenix Fire Department Special Hazards Unit (SHU)**
 - <https://www.phoenix.gov/fire/prevention/specialhazards>



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PFC 50: Hazardous Materials Inventory Statement

- **Indoor/ Outdoor**
- **Chemical Trade name**
- **Concentration**
- **CAS number**
- **Hazard Classification**
- **Physical State (Solid, Liquid, Gas)**
- **Total Amount (Pounds, Cubic Feet, Gallons)**
- **NFPA 704 Rating**
- **Number of Tanks Above Ground**



Fire Code Self-Certification Guide

Fire Life Safety Reports (FLSRs) Requirements PFC Section 105

Applicable TRT documents:

- ✓ **Document Number 00836 (FLSR Policy)**
- ✓ **Document Number 00837 (FLSR Report Checklist)**

- **High-Rise Buildings**
- **Covered Mall Buildings**
- **Buildings containing atriums**
- **Hospitals**
- **Building storage height over 40 feet**
- **Group F and S occupancies over 500,000 square feet**
- **Any structure determined by the Fire or Building Code Official**



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Common Audit Comments

- **Hose Valve Connection Locations(stairs/horizontal exits, etc.)**
- **Fire Alarm System Requirements**
- **Automatic Sprinkler System Requirements (NFPA 13/NFPA 13R)**
- **Fire Department Access Doors in High-Piled Combustible Storage**
- **Hazardous Materials Requirements**
- **Atrium or Smoke Control System modifications**
- **Extraction Rooms and Facilities**
- **Battery Storage Rooms/ Facilities**
- **Hazardous Occupancies/
*Processes***



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Not Eligible for Self-Certification

- **Paint Booth**
- **Energy Storage System/ PV Solar System**
- **Dust Collector**
- **Paint Dipping Operation**
- **Grow Facility WITH Carbon Dioxide**
- **Plant Extraction**
- **Industrial Oven (400,000 Btu)**
- **Processes with descriptions which include the terms “combustible, flammable, hazardous and/or hazardous material”**
- **General: If an item has its own Chapter in the Fire Code**
 - **Sections 1205 & 1206 and Chapters 20, 22, 24, 25, 26, 27, 28, 29, 30, 32, 34, 38, 50 & 56**



Questions?



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