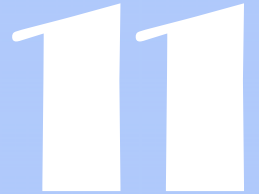


Chapter 11

FIRE



This chapter describes how the building code, fire code, infrastructure system and site design policies are integrated into an effective fire protection design. It lists links to applicable code and trade organizations and to other chapters describing related design topics.



DEPARTMENT RESOURCE INFORMATION

Aviation/Airport	15000 N. Airport Dr.	480-312-2321
Advance Planning Services	7506 E. Indian School Rd.	480-312-7990
Capital Project Management	7447 E. Indian School Rd., Suite 205	480-312-7250
Current Planning	7447 E. Indian School Rd., Suite 105	480-312-7000
Customer Service	7447 E. Indian School Rd., Suite 100	480-312-7800
Downtown Group	4248 N. Craftsman Ct.	480-312-7750
Facilities Management	9191 E. San Salvador Dr.	480-312-5999
Fire & Life Safety/ Inspections	8401 E. Indian School Rd.	480-312-1855
Fire Plan Review	7447 E. Indian School Rd., Suite 125	480-312-7080
Inspections & Land Survey	9191 E. San Salvador Dr.	480-312-5750
Parks Department	7340 Scottsdale Mall	480-312-2915
One Stop Shop/Permit Services	7447 E. Indian School Rd., Suite 100	480-312-2500
Plan Review	7447 E. Indian School Rd., Suite 125	480-312-7080
Records Division	7447 E. Indian School Rd., Suite 100	480-312-2356
Solid Wastewater Management	9191 E. San Salvador Dr.	480-312-5600
Stormwater Management	7447 E. Indian School Rd., Suite 205	480-312-7250
Street Operations	9191 E. San Salvador Dr.	480-312-5626
Transportation	7447 E. Indian School Rd., Suite 205	480-312-7696
Water Resources	9388 E. San Salvador Dr.	480-312-5685
City of Scottsdale	www.scottsdaleaz.gov	

FIRE

11-1

GENERAL INFORMATION

11-1.000

This section provides Fire & Life Safety information, guidelines and references specific to site planning and development. For updated information see the Fire & Life Safety website, www.ScottsdaleAZ.gov/departments/ or call Fire Plan Review at 480-312-7080.

The following websites provide safety codes, standards and general information:

- American Fire Sprinkler Association www.sprinklernet.org
- Arizona Automatic Fire Alarm Association www.azafaa.org
- Home Fire Sprinkler Coalition www.homefiresprinkler.org
- International Code Council www.iccsafe.org
- National Fire Protection Association www.nfpa.org
- National Fire Sprinkler Association www.nfsa.org
- Occupational Safety and Health Administration www.osha.gov
- Society of Fire Protection Engineers www.sfpe.org

OVERVIEW OF FIRE PROTECTION

11-1.100

1. Adequate fire protection design must coordinate compliance with building and fire codes, site design policies and public infrastructure needs. The principal considerations for fire protection are addressed online in Codes, Ordinances and Regulatory Documents at www.ScottsdaleAZ.gov/codes.

Examples of principal considerations for building design are:

- a. Fuel load.
 - b. Building structure size.
 - c. Structure construction methods.
 - d. Built-in fire protection such as: fire sprinklers, fire alarms, hose valves, etc.
 - e. Number of occupants.
 - f. Hazard level of the use of the structure.
2. Site planning considerations include:
 - a. Building access by fire trucks.
 - b. Site access from adjacent streets.
 - c. Water supply in terms of system pressure and volume capacity.
 3. Examples of how these considerations work together:
 - a. The required number of access points depends on the volume of the fuel load (number of structures, square footage of structures and/or hazard level).
 - b. Topography (Hillside, ESLO, washes, etc.).
 - c. Available water volume influences on fire protection planning (gallons per minute (GPM), pressure and hydrant systems, built in fire protection and operations).

- d. Remediation of site challenges to provide appropriate access, adequate water supply, or overcoming difficult topography may be accomplished by increasing the protection level of construction methods and materials.
- e. Remediation may also be accomplished using built-in fire protection such as increasing the protection level of fire sprinklers, hose valves, fire alarms, etc.
- f. Many remediation methods are available in the City Code, may require staff approval, or may require a variance. Consideration of remediation methods and consequences should start during or immediately following Pre-Application and should be concluded as much as possible prior to case approval. This will facilitate a successful and timely review and approval of building plans, improvement plans and deferred shop drawings.

11-1.200

CASE APPLICATION

Review of applications for site development is a coordinated effort by Fire Plan Review and Planning and Development staff. Applications include: Pre-application, Zoning, Development Review, Preliminary Plat, Abandonment and Conditional Use Permits.

- For development process guidelines, see [Section 1-1.100](#).
- For preliminary site review minimum requirements, see [Section 1-1.200](#).

Site planning issues to be addressed are typically communicated to the applicant by Planning and Development Services staff or by Fire Plan Review staff. Appropriate fire apparatus access, turning radius, and fire hydrant placement are necessary considerations for site planning. A preliminary site plan review must include:

1. Turning radius templates
2. Building construction type
3. Square footage of each floor level
4. Identification of hazardous conditions and use/occupancy classifications

A new process is being formulated that will incorporate a Preliminary Fire Review Worksheet. This will be provided to the applicant at Pre-application, and will be completed as much as possible and returned with the formal application. This Worksheet is simple and should be considered a living document to progress in completion and complexity as the project moves through the planning process. Ultimately the information will be completed and provided in the Project Data/Code Summary in the building plan construction document plan set.

The applicant will receive a 30 day case review letter from the planning coordinator with a list of Fire Ordinance Requirements which become stipulations to the application. The requirements are based on the plans submitted with the application and are intended as a guide for the applicant's design team. These requirements are to be noted on the construction documents under a general Fire Department note block.

A marked-up site plan will accompany the requirements provided to the applicant which will identify the fire lanes, fire hydrants, Fire Department connection locations, etc. The applicant's design team shall utilize this information to prepare improvement plans.

For more information see the Master List of Construction Document Requirements, visit www.ScottsdaleAZ.gov/bldgresources.

11-1.300

PLAN REVIEW & PERMITTING

The Fire Plan Review staff participates in plan review & permitting for the built environment. For information about plan review & permitting see [Section 1-1.400](#) and [Section 1-2.100](#).

1. The Plan Review department is located at One Civic Center, 7447 E. Indian School Road, Suite 125, Scottsdale, AZ 85251.
2. For Permit Services visit the One Stop Shop in Suite 100 of the same building; or see www.ScottsdaleAZ.gov/bldgresources/counterresources/.
3. For more information see Fire & Life Safety, see www.ScottsdaleAZ.gov/departments/ or call Fire Plan Review at 480-312-7080.
4. For specific information about Plan Review & Permit requirements:
 - a. Plan Review & Permitting [Section 1-1.400](#)
 - b. Construction Plan Submittals [Section 1-1.403](#)
 - c. Improvement Plan Review Requirements [Section 1-2.100](#)
 - d. Digital Plan Submittals [Section 1-2.200](#)
 - e. Fire Protection Design [Section 6-1.500](#) through [Section 6-1.508](#)
 - f. Final Improvement Plans Preparation [Section 6-1.600](#)
 - g. Fire Code www.ScottsdaleFD.com
 - h. Forms, Checklists & Submittal Guides, select F for Fire. www.ScottsdaleAZ.gov/bldgresources/forms
 - i. Permit Services - One Stop Shop www.ScottsdaleAZ.gov/bldgresources/counterresources/

Fire & Life Safety also conducts Plan Review & Permitting for Special Events. For a Special Event application packet see www.ScottsdaleFD.com.

For more information see Fire & Life Safety at www.ScottsdaleAZ.gov/departments/ or call 480-312-1855.

FIRE INSPECTIONS AND CERTIFICATE OF OCCUPANCY

11-1.301

1. For guidelines on these topics see [Section 1-1.500](#) and [Section 1-1.600](#).
2. For an Inspections Request form, www.ScottsdaleFD.com.
3. For further information call Fire Inspections at 480-312-1855.

EMERGENCY ACCESS & FIRE LANES

11-1.400

Technical information applicable to emergency access in commercial and residential development is referenced below. Considerations for commercial and residential site planning may include: appropriate access to structures including temporary construction access, fire lane position and widths, or fire apparatus turning radius.

Emergency access is required in accordance with the Fire Code, as amended, www.ScottsdaleAZ.gov/codes/fireord.

Fire Ordinance Requirements and a Fire Civil Submittal Checklist is located under Forms, Checklists & Submittal Guides at www.ScottsdaleAZ.gov/bldgresources/forms.

A. General

1. Knox Applications, call 480-312-7080 or 480-312-1855.
2. Access During Construction [Section 1-1.405](#)
3. Temporary Construction Fire Lane [Section 1-1.405](#)
4. Construction Access Sign [Section 1-1.405](#) and [Figure 11.1-1](#)
5. Vertical Curbs, Emergency Vehicles [Section 5-3.113](#)
6. Median Crossing for Emergency Vehicles [Section 5-3.113](#)
7. Traffic Signal Emergency Vehicle Pre-emption [Section 5-4.106](#)

B. Commercial Site Planning

1. International Fire Code (IFC) Ordinance, COS Standard Detail No.2365, www.ScottsdaleAZ.gov/design/COSMAGSupp.
2. Fire Lane Dimensions [Figure 2.1-1](#)
3. Commercial On-Site Fire Access Turn-Arounds [Figure 2.1-2](#)
4. Emergency Access Provisions [Section 2-1.503](#)
5. Fire Lanes and Fire Lane Signage [Section 2-1.802](#)

C. Residential Site Planning

1. General Residential On-Site Fire Access Turn-Arounds [Figure 2.1-2](#).
1. Residential Gated Entrances [Section 2-1.900](#) and [Figure 2.1-4](#)
2. Residential Driveways greater than 300 feet [Section 2-2.308](#)
3. Hillside Residential Development [Section 2-2.308](#)
4. Hillside Residential Driveways [Figure 2.2-4](#)
5. Operations Platform [Section 2-2.308](#) and [Figure 2.2-5](#)
6. Fire Turn-out for Extended Driveways [Section 2-2.308](#) and [Figure 2.2-6](#)
7. Dead End Streets, Cul-de-sacs [Section 5-3.1100](#)
8. Neighborhood Traffic Management [Section 5-9.000](#)

11-1.500**WATER SUPPLY**

References below are specific to water supply requirements for fire operations and fire hydrant layouts in residential and commercial developments.

1. Fire Hydrant Flow Test Permit www.ScottsdaleAZ.gov/bldgresources/forms
2. Fire Hydrant Flow Test Summary www.ScottsdaleAZ.gov/bldgresources/forms
3. Dead-End Lines [Section 6-1.403](#)
4. Thrust Restraint [Section 6-1.411](#)
5. Pipe Cover [Section 6-1.413](#)
6. Backflow Prevention & Cross Connection Control; General [Section 6-1.417](#)
7. Fire Hydrant locations, including layout, placement and number [Section 6-1.502](#)
8. Fire Lines [Section 6-1.504](#)
 - a. 1-1/2 - 2 inches fire line connection; MAG Standard Detail No. 2362-1*
 - b. 3 inches and larger fire line connection; MAG Standard Detail No. 2362-2
*www.ScottsdaleAZ.gov/design/COSMAGSupp

11-1.600**FIRE PROTECTION**

References below are specific to Fire Protection and Water Supply.

1. General, Ordinance Requirements, Design Policy [Section 6-1.500](#)
2. Fire Flow Requirements [Section 6-1.501](#)
3. Hydrant Locations [Section 6-1.502](#)
4. Pavement Markers [Section 6-1.503](#)
5. Fire Sprinklers [Section 6-1.505](#)
6. Sprinkler System Design [Section 6-1.506](#)
 - a. Fire Sprinkler Riser Detail - Vertical Installation #1; MAG Standard Detail No. 2368*
 - b. Fire Sprinkler Riser Detail - Vertical Installation #2; MAG Standard Detail No. 2369*

7. Remote Fire Department Connection [Section 6-1.507](#)
 - a. Remote Siamese Connection Detail, MAG Standard Detail No. 2367*
8. Auxiliary Storage Tanks [Section 6-1.508](#)
9. Fire Department Permit Applications, such as tents and other (bonfires, LPG exchange, special events, fireworks displays, etc) www.ScottsdaleFD.com
10. Fire Alarms www.ScottsdaleAZ.gov/codes/fireord/
11. Fire Hydrant Flow Test Summary www.ScottsdaleAZ.gov/bldgresources/forms

SIGNAGE

11-1.700

References below are specific to the signage requirements for the Fire Department. See MAG Standard Detail 2300 Series - Water Information *www.ScottsdaleAZ.gov/design/COSMAGSupp.

1. Pavement Markers For Fire Hydrants; MAG Standard Detail No. 2363*
2. Fire and Emergency Access and Delineation; MAG Standard Detail No. 2364*
3. Fire Lane Sign; MAG Standard Detail No. 2365*
4. Construction Access Sign [Section 1-1.405](#) and [Figure 11.1-1](#)

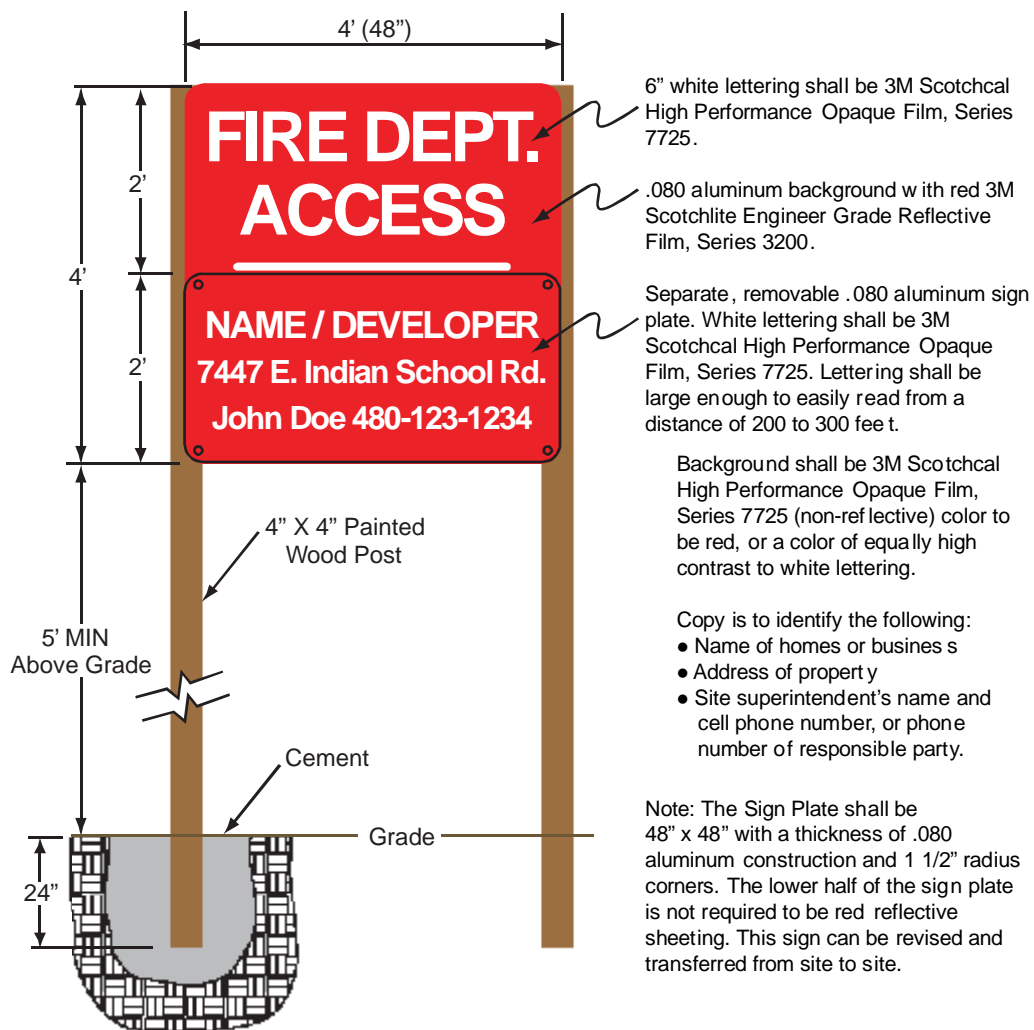


FIGURE 11.1-1 CONSTRUCTION ACCESS SIGN

11-1.800**WILDLAND BOUNDARY**

For information about Firebreaks see [Section 2-2.501](#) paragraph D.2. For Wildland Fire Prevention see www.ScottsdaleAZ.gov/fire/.

11-1.900**HIGH RISE CONSIDERATIONS**

For Fire Flow Requirements information see [Section 6-1.501](#). For project specific information call Fire Plan Review at 480-312-7080.

Radio amplification testing for emergency services is required in basements, buildings exceeding 35' above grade, and other buildings where construction materials may hinder emergency radio signaling. Testing shall be conducted to verify if adequate radio signal strength is, or is not, available. Adequate signal strength shall be determined at or before the time of completion of rough framing or rough electrical. City emergency services shall be contacted prior to that stage to assist the developer's contractor or specialist in testing the structures for signal strength. If it is determined that the signal strength as listed in Scottsdale amendment to NEC 810 is not adequate, the owner shall provide a system of a radio amplification to meet these radio frequency strength requirements. No certificate of occupancy will be issued until final approval of the testing and/or inspection of the system. Refer to City of Scottsdale, Planning & Development Services Department, Interpretations and Applications of the Building Codes & Regulations #98-5.

11-1.1000**DOWNTOWN**

Renovation and/or reclassification of existing R-3 and IRC single family residential occupancies to Group B office business occupancies may be equipped with a light hazard commercial sprinkler system utilizing a four head flow calculation. The intent is to result in smaller fire line taps, supply lines, and riser sizing. See Fire Code, Interpretation and Applications.

Residential fire sprinkler retrofits in existing single family R-3 or IRC residences may be evaluated, at owners request, for the opportunity to maintain existing supplies and meter sizes.

For project specific information call Fire Plan Review at 480-312-7080 or see www.ScottsdaleAZ.gov/codes/fireord.