



# Single Family Dwelling Guidelines

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## INTENT-

Below is a brief summary and clarification of guidelines from relevant code that are applicable to single family dwellings constructed under the IRC. The attached sections are guidelines, and final approval is at the discretion of the fire code official. All references below are to be dealt with beginning at the property line of the lot being built upon.

Fire Flow and Access for developments platted prior to 1980, see Pre-Existing Subdivisions Guideline.

# Emergency Vehicle Access

In order to verify emergency vehicle access for single-family dwelling in the event of an emergency and given the difficulties in accessing a structure due to terrain/topography the following shall apply to private driveways and shared driveways serving up to 3 single family dwellings. This information is not designed to be all encompassing for every situation.

## When Required

Any structure that:

- exceeds a hose lay distance of 150'. (See appendix, exhibit A.)
- **Driveway access grade exceeding 10%** would inhibit/delay access.

The driveway shall be considered as part of the Emergency Vehicle Access (EVA) road.

- Other determining factors such as significant grade from main access, retaining walls etc.

## Definitions

**All weather surface (AW)**- A road surface made up of approved materials compacted to 95% and capable of supporting vehicles in excess of 75,000-pound G.V.W. under any weather condition. A.W. approved materials – Asphalt, Concrete,  $\frac{3}{4}$  to 3 Inch Minus Gravel, Roto Mill, Recycled Concrete.

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

**Driveway**- Vehicular ingress/egress that does not exceed 10% grade, serves only one (1) single family dwelling, and home does not exceed the 150' hose lay.

### Emergency Vehicle Access (EVA)

- Vehicular ingress/egress access route that serves no more than three (3) dwelling units, not including accessory structures, and that exceeds the distance and elevation limits. Emergency Vehicle Access shall provide a minimum unobstructed width of 20 feet and a minimum unobstructed height of 13 feet 6 inches. Driveways in excess of 150 feet in length shall be provided with turnarounds.
- The Vehicular ingress/egress access route that serves no more than five (5) dwelling units, not including accessory structures, and that exceed the distance and elevation limits A. Emergency Vehicle Access shall provide a minimum unobstructed width of 26 feet and a minimum unobstructed height of 13 feet 6 inches. Driveways in excess of 150 feet in length shall be provided with turnarounds.

**Driveway Length**- Measured along the center line of the driveway from the main access to the front door/garage.

**Driveway Width**- Must be a minimum of 20 feet. Must be of All Weather Surface, if asphalt/concrete is utilized a minimum of 16 feet of hard surface with 2-foot gravel shoulders provided on both sides (2-16-2)

**Setback Distance**- Measured along the distance a fire apparatus may deploy a hose line.

**Hose Lay**- The extension of a handheld fire hose, as it is extended around the perimeter of the structure. If the hose lay is more than 150 feet from the fire apparatus access road to all portions of the exterior an Emergency Vehicle Access Road is required. See appendix, Exhibit A. Hose lay measurements to be approved by the fire code official, taking into consideration proximity to structure, impediments to access (slope/walls etc.) See appendix, page 11.

**Turn-out**- An area for an emergency vehicle to pull over when another vehicle is passing in the opposite or same direction. This turn-out shall add 10 feet to the access width and extend 30 feet in length, minimum with a minimum 25-foot taper on each end. When applicable and approved by the Fire Marshal or designee.

**Turn-a-round**- An area for an emergency vehicle to turn-a-round. It is required when a structure is more than 150 feet from the fire apparatus access road. This can be accomplished with a circle drive Cul-de-sac, or AS APPROVED, a "T"-type hammer head, or a variation thereof or others as approved by the Fire District. See attached Apparatus Specifications.

**NFPA 13D A6.2(c)**- Valving requirements if NFPA 13D is used for exceptions to minimum fire code. See appendix, page 13.

**Modified NFPA 13D** is a residential fire sprinkler system that shall include sprinklers in vehicle garage

# EVA REQUIREMENTS

- **Width**
  - The minimum width shall be 20 feet of all-weather drivable surface.
  - Driveways in excess of 200 feet, and located in the Wildland Urban Interface Area, shall provide 5 FOOT fuel reduction zone on both sides of the emergency vehicle access where Conifer Trees/ Tall Brush are present (Pines, juniper, oak brush etc.)
  - Width may be reduced to 1-14-1 if:
    - Fire suppression system NFPA 13D A6.2(c).
    - Heated driveway / Snowmelt.
    - Turnout may be required if the length of driveway exceeds 200 feet or turns impede view of vehicles accessing/egressing.
- **Surface**
  - Must be “all weather driving capable” as approved by Wasatch Fire District.
  - If asphalt/concrete is used, a minimum of 16 feet of hard surface must be provided with two-foot rock shoulders on each side for a total unobstructed width of 20 feet. 2-16-2 (Landscaping cannot be installed in shoulders)
  - If serving up to 5 units, hard surface shall be 22 feet with two-foot shoulders (2-22-2)
  - Aerial Apparatus Access roads shall be rated for 75,000 pounds (HL-93 or equal).
- **Turning Radius**
  - **Turning Radius must show inside, outside, and radius to wall/vertical obstruction.**
  - **Access must be designed for Apparatus Access if structure is 10,000 gross square feet or more inclusive of all floors, garages, decks etc.**
  - Ambulance access length must be less than 150 feet measured along the centerline of the driveway from the main access road to the front door and gross square feet (all levels, garages and porches/decks) be less than 10,000 square feet. See Appendix Exhibit.

## Apparatus Access

<b>Inside Radius</b>	<b>25'</b>
<b>Outside Radius</b>	<b>38.25</b>
<b>Radius to Wall</b>	<b>42.5</b>

## Ambulance Access

<b>Inside Radius</b>	<b>18.5'</b>
<b>Outside Radius</b>	<b>31.5'</b>
<b>Radius to Wall</b>	<b>33.5'</b>

- **Turn Around**
  - Show overall distance of access measured along the centerline of the access path.
  - Turn-rounds shall be approved by Wasatch Fire if access exceeds 150 feet. See Emergency Vehicle Design Access Specifications on Wasatchfire.org.
    - If 10,000 gross square feet or more, apparatus turn around is needed
    - If less than 10,000 gross square feet, ambulance turn around is needed.
- **Clearance**
  - Vertical clearance obstruction clearance must be at least 13'6" unless approved.
- **Bridges/Elevated Surfaces**
  - Must be designed and stamped by a professional structural/civil engineer licensed in Utah and verified capacity of 75,000 pounds. (HS-20/HL-93)
- **Intersecting Driveway/Main Access**
  - Intersection should be between 70-degrees and 110-degrees unless approved. The angle must be in the direction of access as approved.
- **Security Gates**
  - Security gates must be equipped with an approved means of operation. See appendix.

## SITE PLAN DETAILS AT PERMIT

- Unless otherwise approved, the grade in the first 20 feet from the main access road shall be 5% or less (at driveway centerline) and the driveway edge does not exceed 10%.
- The maximum running grade shall be less than 12%, unless approved. Grades must be measured along the driveway centerline and **NOT** an average along the length of the driveway.
- If any portion of driveway grade is 10% or more the following information must be shown-
  - Proposed garage floor elevation and house elevation
  - Show and label both existing and proposed contours
  - Show existing elevations along the main access road where the EVA will connect (centerline and both edges)
  - Driveways under 150' in length need to show spot elevation at the edges of the driveway, at all curve beginnings, endings, midpoints, and intersection points of lines. Slopes between these spot elevations shall be labeled. See example plan in appendix, exhibit C.
  - Driveways over 150' in length can be designed using the same labeling described above for driveways under 150' in length, or by using a plan and profile (see example plan in appendix). The plan and profile must include:
    - Centerline slope clearly labeled in the profile view
    - Centerline elevations along the driveway shall be shown at an interval not exceeding every 50'
    - Centerline stationing labels to indicate driveway length
    - A typical cross section of the driveway
  - Driveway designs shall be labeled as follows at a minimum:
    - Driveways designed with a plan and profile - the profile view must clearly show slope percentages at centerline, and a cross section of the driveway shall be included.
    - Driveways designed without a plan and profile - spot elevations must be included at the edges of the driveway at all curve beginnings, endings, midpoints, and intersection points of lines. Slopes between these spot elevations shall be labeled.
  - Cross Slope shall be no greater than 3% except within 10 feet of where the driveway connects to the main access road.
  - Show radius labels for curves along driveways to ensure turning radius is being met. (Inside, Outside, Vertical Obstruction)
  - Proposed Turn around, if required (150-foot access measured along centerline)
- Grades of 12%-14% must be approved by the Fire Marshal / Fire Chief.
- If grade is 14% or greater and cannot be reduced the following may be required:
  - Hard surface (asphalt/concrete).
  - Fire suppression system per NFPA 13D A6.2(c).
  - Heated driveway / Snowmelt.

## **Emergency Vehicle Access 12% or greater**

- **If design is approved as submitted:**

- A permit will be granted to allow excavation of home and construction of EVA.
- Hold will be placed on inspections (footing inspection) with Building Department
- In order to release hold and schedule inspections with the building department after permit, a licensed surveyor must provide:
  - Approval letter that the EVA is installed as submitted and approved at permit and confirming elevation of main access road and home.
  - Provide an updated Site Plan of the existing access grade to verify compliance with the approved plans. Upload to permit for review.

**\*\*\*\*\*EMERGENCY VEHICLE ACCESS ROADS MUST BE INSTALLED AS PER APPROVED PLANS AT FINAL INSPECTION\*\*\*\*\***

**New Developments-** Roads in new developments must be accepted and approved by the local engineer prior to permit approval.

## **Fire Hydrant**

- Must be located within 600 feet of the structure, measured along the centerline of the main access road and driveway to the structure.

**Exception:**

Installation of an approved automatic fire sprinkler system throughout the structure per NFPA 13 D, valving per NFPA 13D A6.2(c) Distance may be increased to 1,000 feet.

- Hydrant must be no closer than 50 feet to the structure and in an approved location.
- If a public water system is within 600 feet, a hydrant must be installed.
- Minimum supply piping shall be capable of supplying a minimum of 1,000 GPM.

**Exceptions:** 500 GPM when equipped with fire suppression per NFPA 13D if less than 10,000 gross square feet.  
750 GPM when equipped with fire suppression per NFPA 13D if over 10,000 gross square feet.

**New Developments-** Fire Hydrants and Fire Flow in new developments must be accepted and approved by the local engineer prior to permit approval.

## **Address Requirements**

### **Address must be-**

- Minimum of 4 inches in height.
- Contrasting to the background (light on black/ black on light).
- Located in an approved location that is visible from the street or road fronting the property.
- Address to generally be located at the main entry door or garage door area.
- Where access is by means of a private emergency vehicle access and/or the building address cannot be viewed from the public way, a monument, pole or other sign or means shall be used to identify the structure. Visibility of address to be determined by the fire code official.
  - Monument, pole or sign must be weather resistant material (rock/treated lumber). The address attached to pole must be a minimum of 48" from ground level.

# Propane Permit

## IF APPLICABLE

- Show tanks setback distances to Lot Line, Roadway, Driveway, Structure, Vegetation.
  - Generally, 10-foot setback for a single 1,000-gallon tank. Multiple tanks require 3-foot separation up to 5 tanks. (See IFC 61 / NFPA 58 for requirements)
  - Multiple above ground tanks require separation of 25'.
- Installation Inspections Per NFPA 58 / IFC 61
  - Proposed buried tanks **CANNOT** be covered prior to inspection and approval.
  - Damaged paint/protectant on tank must be reapplied with coating approved by the manufacturer. Documentation must be provided of manufacturer approval.
  - Line pressure test to be documented by installing contractor and provided at inspection or uploaded to permit.
  - If second stage regulator is installed under a sloped roof/eve area where snow/ice may impact and cannot be relocated, protection is required per NFPA 58
  - Tank Marking for areas with snow accumulation must as per guidelines below or approved by inspector. See Propane Guidelines on [wasatchfire.org](http://wasatchfire.org)
    - 4x4 Weather resistant post
    - Installed 6 feet above ground level
    - Reflective yellow tape at top of post
    - Must be installed opposite the line supplying home.
- Multiple tanks exceeding 5,000 gallons (5,001+) require approval and inspection by the Utah State Fire Marshals Office.

# Wildland Urban Interface

IF APPLICABLE

## Landscape Final Inspection

Landscaping must be installed as per the submitted/reviewed/approved Landscape Plan prior to requesting Final Occupancy Inspection.

- **No trees allowed within 10 feet of structure** (limbs to walls, eves, decks, chimneys)
- Trees within the required defensible to a minimum of 30 feet (or lot line) may need to be trimmed to 6 feet off ground. If technical difficulties arise due to young tree height, contact the Fire District to discuss.
- Thinning of trees/vegetation outside of the 10 feet may be required depending on the Fire Hazard Severity Form and existing conditions.
- Defensible Space must be to 30 feet or property line. If the property line does not allow for entire 30 feet, surveyor must provide marking showing property line location.

See appendix, Page 14

## Final Inspection During Winter Months

- **Wasatch Fire inspects the location of TREES only**
- **Landscaping must be installed prior to weather prohibiting installation, frozen ground.**
- **Alterations to the approved landscaping plan must be resubmitted and approved, with documentation, by the local reviewing committee.**
- If landscaping is not able to be installed due to weather, frozen ground, in order allow Final Inspection of the Landscaping Plan as submitted and approved, the Enforcement Policy has been implemented to allow for **TEMPORARY OCCUPANCY APPROVAL**. Allowance of Final Inspection during winter months is at the sole discretion of the Fire District depending on current weather, generally from October through March, when freezing weather prohibits planting of trees.
- **Compliance Alternative Correction Agreement**
  - **Pre-Approval Inspection**- Verify structure is in compliance with Wildland Urban Interface Code with existing trees and vegetation. No trees within 10 feet, see page 14, and vegetation thinning as needed to 30 feet minimum.
  - **Emergency Vehicle Access**- may be given a partial pass under the correction agreement at the discretion of the inspector. Access must meet the minimum required widths and grades. Compacted material as approved by the inspector must meet the required width for the entire access length. Compacted material must be level with top back of curb, valve, boxes etc.
  - **Address**- installed in an approved location.
  - **Violation Penalty**- As per Wildland-Urban Interface Code – Enforcement Policy and the Correction Agreement. Upon compliance/approval, if within Correction Agreement date, penalty will be waived. If correction agreement is not satisfied, additional enforcement steps may be pursued per Wildland Urban Interface Enforcement Policy / Correction Agreement.
  - **Compliance Approval Inspection**- Upon installation of landscaping per approved plans and completion of the EVA, if needed, Fire District must be scheduled to perform the Final Landscape/Access Inspection.

# **Security Gate Access**

IF APPLICABLE

If gate is equipped with automated operation, the following is needed

**Single Family Dwellings are encouraged to install both the SOS Silent and Knox Key for rapid access.**  
**A minimum required is the Knox Key for continual access.**

In order to provide more rapid and reliable access to the locations in the response area of Wasatch Fire District, the approved means of emergency operation to the S.O.S. Silent.

The S.O.S. Silent is equipped with an RFID that activates the operation of the gate as emergency responders (fire, law enforcement and emergency medical services) approach and does not require operation of the vehicle siren.

To provide redundant access for emergency personnel a Knox Key Switch will also be required. Emergency apparatus is equipped with a key that controls access.

Wasatch Fire will continue to require keypad code access *if* keypad is provided at the gate.

See the attached documents of the equipment description and information.

**S.O.S. System** <https://www.sosgate.com/products/main>

**Knox Access** <https://www.knoxbox.com/Products/Gate-Key-Switches-and-Padlocks>

Search - Wasatch Co Fire Dist

Single Key Switch Only

International Fire Code Section 503 requires any fire apparatus access road that is obstructed by security gate be provided with an approved means of operation. All gates must be provided with an approved means of emergency operation.

**503.4 Obstruction of fire apparatus access roads.** Fire apparatus access roads shall not be obstructed in any manner, including the parking of vehicles. The minimum widths and clearances established in Sections 503.2.1 and 503.2.2 shall be maintained at all times.

**503.6 Security gates.** The installation of security gates across a fire apparatus access road shall be *approved* by the *fire code official*. Where security gates are installed, they shall have an approved means of emergency operation. The security gates and the emergency operation shall be maintained operational at all times. Electric gate operators, where provided, shall be *listed* in accordance with UL 325. Gates intended for automatic operation shall be designed, constructed, and installed to comply with the requirements of ASTM F2200.

Please contact the Wasatch Fire District to schedule a test of the RFID activation and test of the key access system. The Fire District offices can be reached at 435-940-9636.

The Original



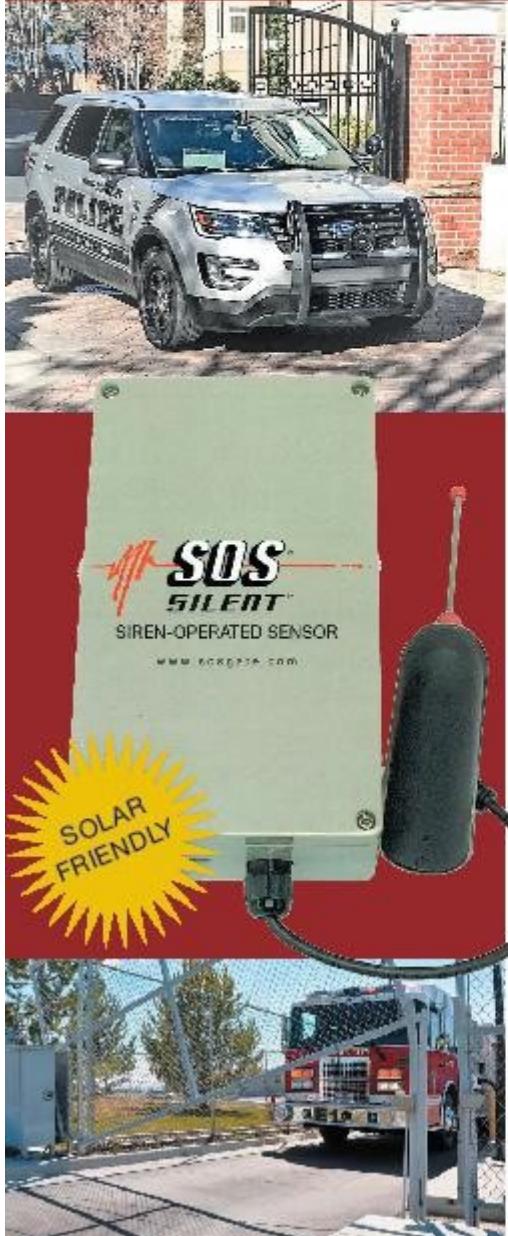
**SOS**<sup>®</sup>

Siren-Operated Sensor

Access Control and Emergency Access

1-800-SOS-GATE (800-767-4283)      [www.sosgate.com](http://www.sosgate.com)

*Silent*



**Saving time.  
Saving lives.**



No keys, codes or radios needed to open gates. Gates will automatically open when the emergency responder is within range

- Redundant System - open two ways. Silently using RFID or with "Yelp" siren
- Vehicle mounted RFID Tags
- No keys, codes or frequencies to lose or track
- No delay in waiting for gates to open
- For emergency vehicles. With an adjustable range of up to 500 feet, gates will always be open when the emergency vehicle arrives at the gate
- RFID Transmits on Secure Format



**PUBLIC SAFETY  
WITHOUT PUBLIC FUNDS**

# KNOX GATE & KEY SWITCH™

Eliminate perimeter barriers that delay emergency response with the Knox Gate & Key Switch. Override electronic gates and lower voltage equipment to allow emergency access into communities, apartment complexes, parking garages, pedestrian gates, industrial receiving areas and much more.



Dual Gate & Key Switch  
on Mounting Plate  
Model #3503

Single Gate & Key Switch  
on Mounting Plate  
Model #3502

Single Gate &  
Key Switch  
Model #3501

## FEATURES

- ✓ One position, two position or momentary switch
- ✓ Face plate and lock cover ensure weather resistant operation
- ✓ Dual locks enable shared access with other agencies

## BENEFITS

- ✓ Gain rapid access through electronic gates without forced entry
- ✓ Overrides electronic gates, motorized doors, electrical switches
- ✓ Can share access with multiple agencies
- ✓ Utilizes Knox Master Key solution

## OPTIONS

- ✓ Single or dual key switch
- ✓ Fire, EMS, security or law enforcement identification labels

## ELECTRICAL DATA

- ✓ Switch: SPDT or DPDT
- ✓ 7 A resistive, 4 A inductive, (sea level), 28 VDC
- ✓ 7 A resistive, 2.5 A inductive, (50,000 ft.), 28 VDC
- ✓ 7 A resistive or inductive, 115 VAC, 60 Hz
- ✓ UL® and CSA listed: 7 A, 250 VAC
- ✓ Temperature tolerance up to +180° F

## ORDERING SPECIFICATIONS

To insure procurement and delivery of the Knox Gate & Key Switch, it is suggested that the following specification paragraph be used:

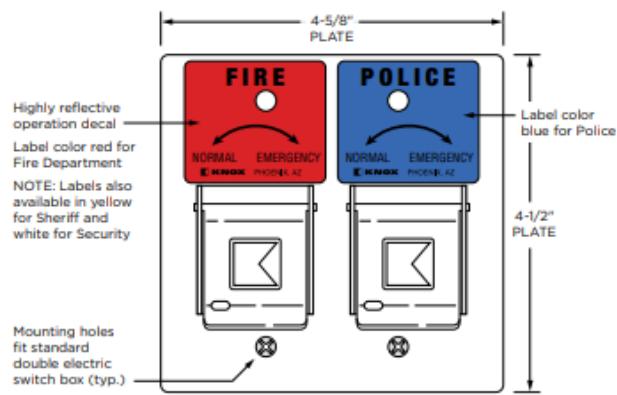
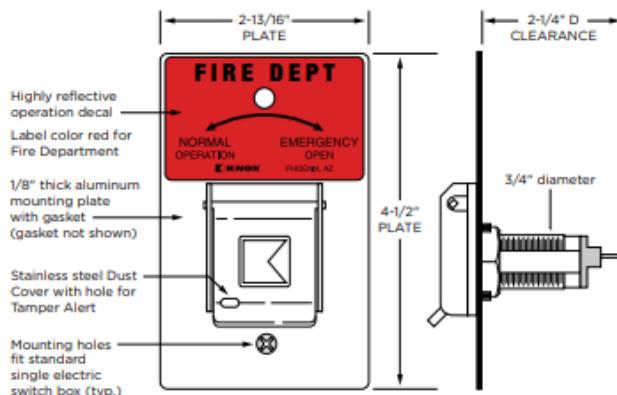
**Dimensions:** Requires 2 1/4" recessed depth x 3/4" diameter

**Switch:** SPDT or DPDT; 7 A resistive, 4 A inductive, key removable two position

**Mounting:** Key switch is designed to be recess mounted

**P/N:** 3500 Series Knox Gate & Key Switch (mfr's cat. ID)

**Mfr's Name:** KNOX COMPANY



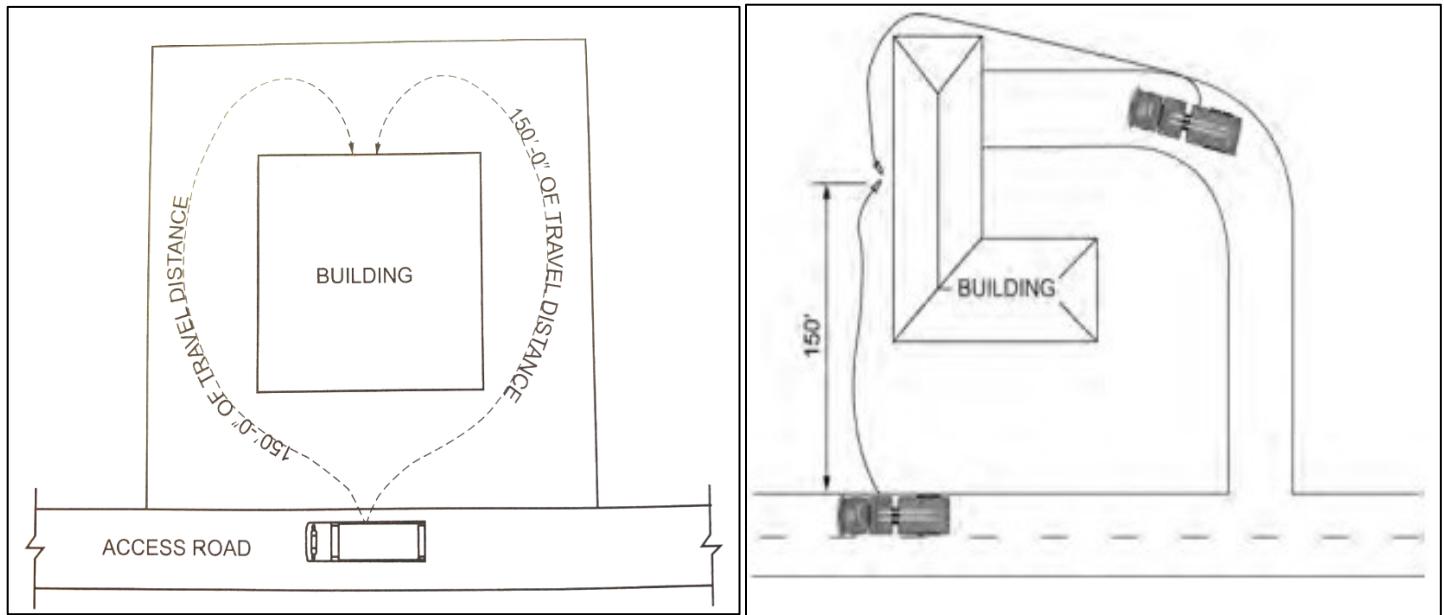
## ABOUT KNOX COMPANY

Over forty years ago, a unique concept in rapid access for emergency response was born. The KnoxBox®, a high-security key lock box, was designed to provide rapid access for emergency responders to reduce response times, minimize injuries and protect property from forced entry.

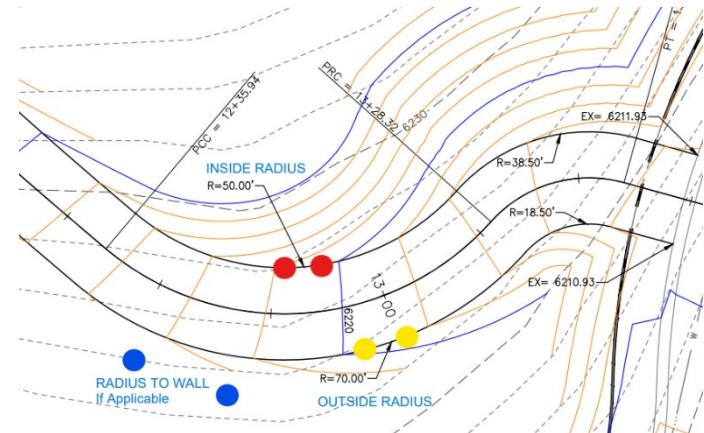
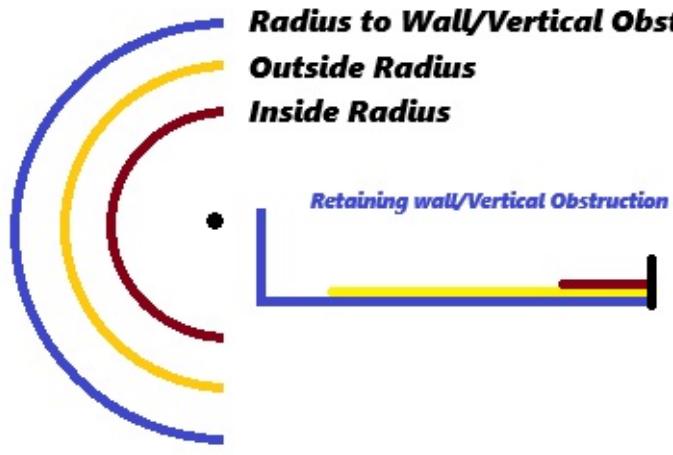
Today, one revolutionary lock box has grown into a complete system providing rapid access for public safety agencies, industries, military, and property owners across the world. The Knox Company is trusted by over 14,000 fire departments, law enforcement agencies, and governmental entities.

# APPENDIX

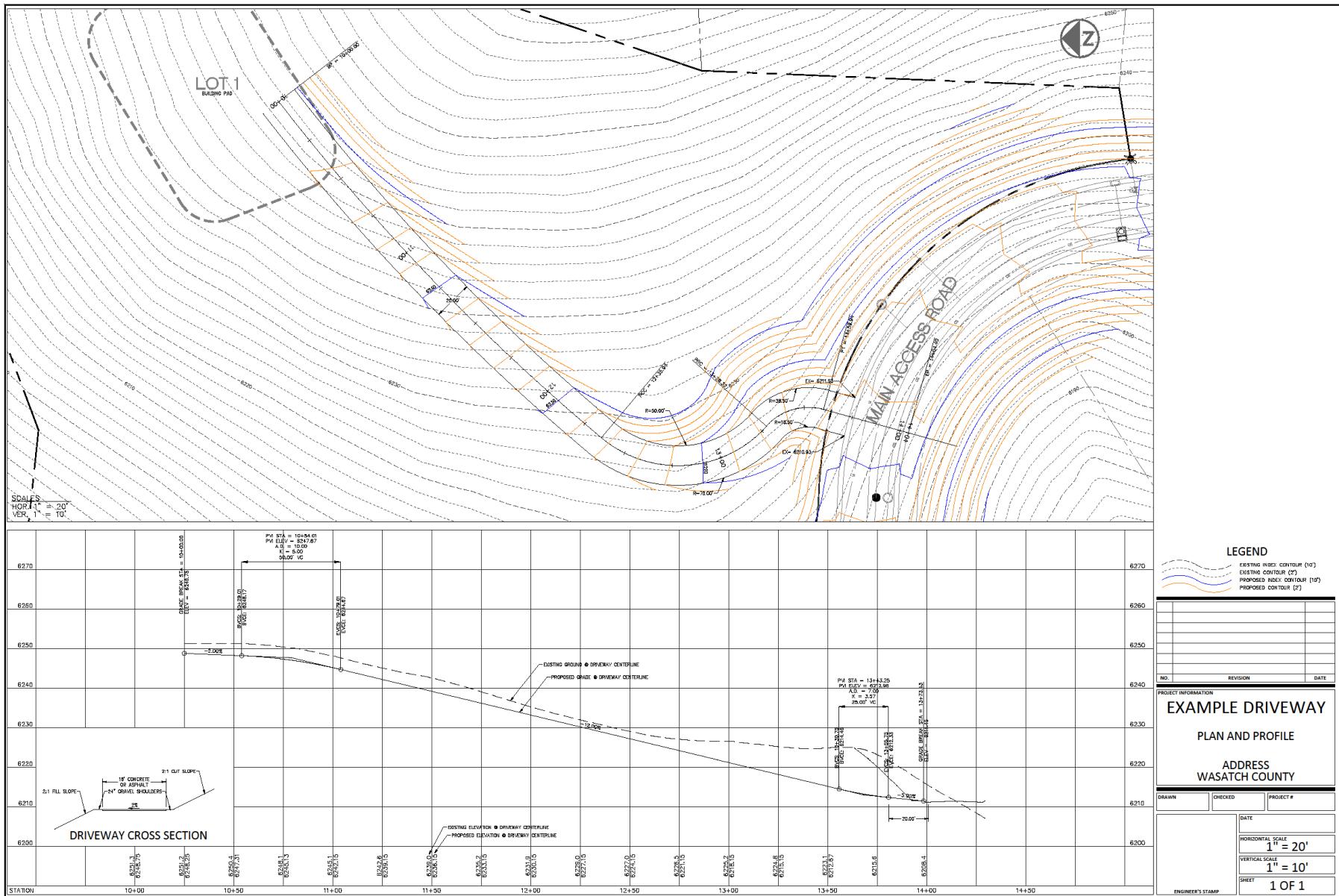
## EXHIBIT A HOSE LAY



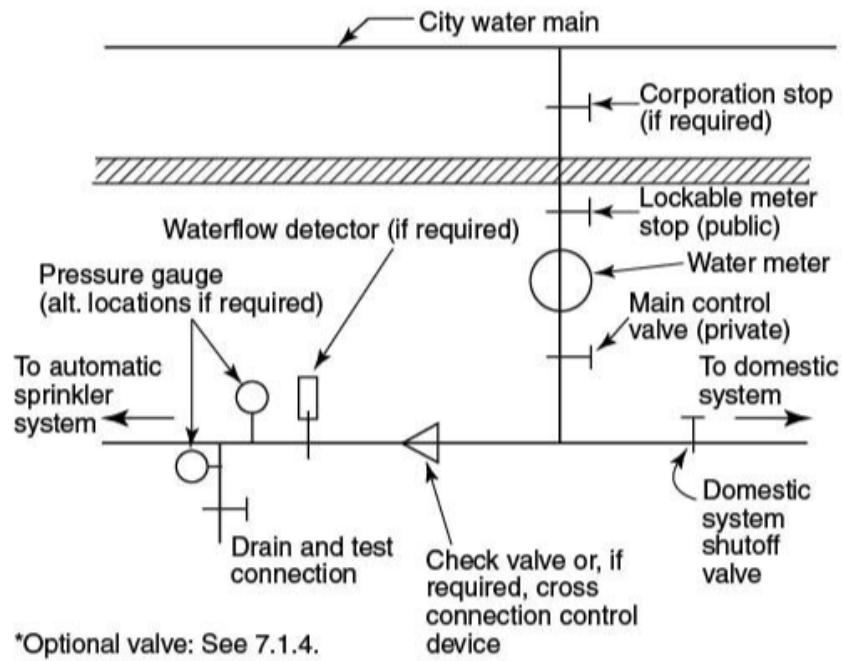
## EXHIBIT B



## EXHIBIT C

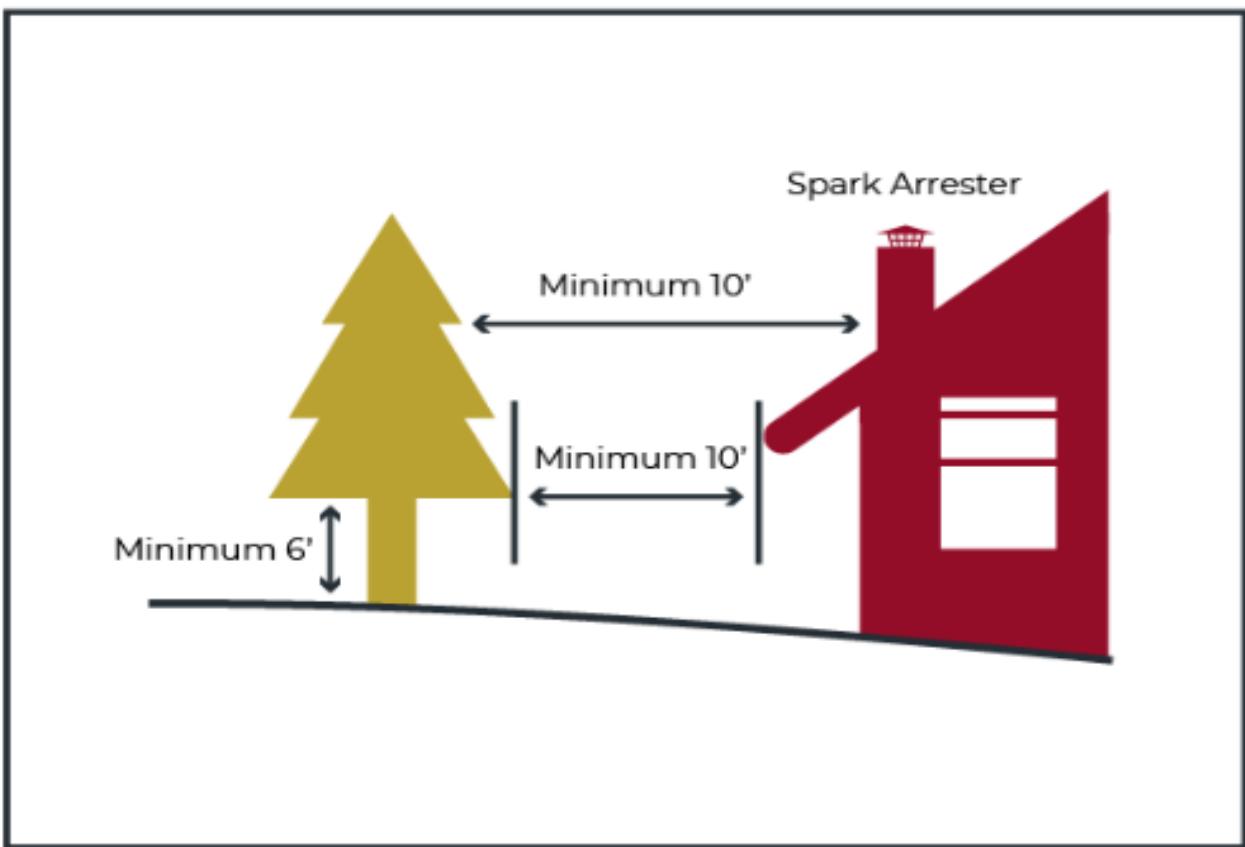


**EXHIBIT D**  
**NFPA 13D A6.2(c)**



\*Optional valve: See 7.1.4.

## Defensible Space



## IS MY DRIVEWAY AN EMERGENCY VEHICLE ACCESS

