Clark-Cowlitz FIRE RESCUE	Fire Code Standard Fire Department Access	
	Date: 02-10-2025	**Number: 5-4**

Fire Department Access

The effectiveness of emergency response is directly related to the proper installation and maintenance of fire department access. The following information details the installation and maintenance of fire department access for emergency vehicles and personnel.

Definitions

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, driveway and access roadway.

Traffic Calming Devices - Design elements of fire apparatus access roads such as street alignment, installation of barriers, and other physical measures intended to reduce traffic and cut-through volumes, and slow vehicle speeds.

Fire Apparatus Access Plan Review

Fire department access plan review begins with development review and continues through building permit review, most commonly reviewed during submittal of project site plans. This includes the review of public infrastructure and private utility plans. When necessary, please provide the following for review of fire apparatus access:

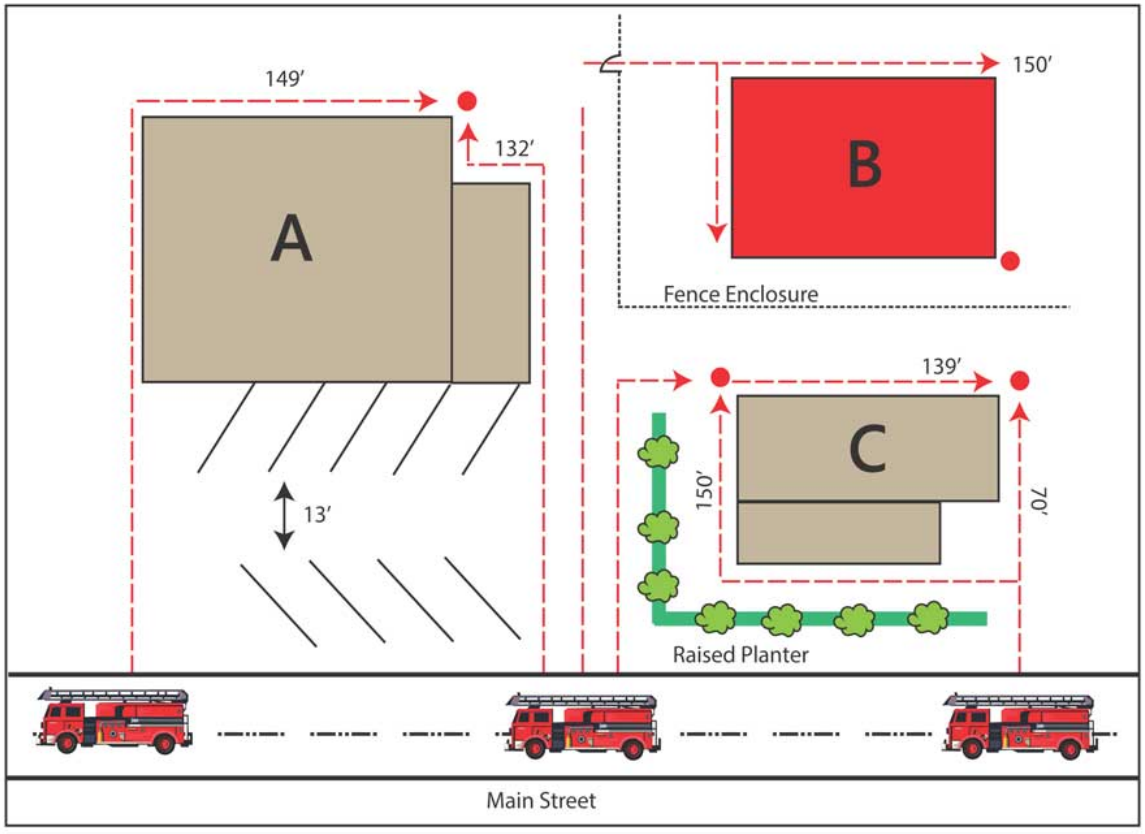
- Fire apparatus access road
- Demonstration that road turning radii are adequate for fire apparatus
- Access pathways
- Gates (manual/electric) and barriers
- Knox products
- Building address and illumination
- No parking signs (public and private)
- Fire lane curb painting
- Fire hydrants (public and private)
- Fire department connection (FDC)
- Post indicator valve (PIV)
- Other fire protection equipment

Timing of Installation

When fire apparatus access roads are required to be installed, such protection shall be installed and made serviceable prior to and during the time of combustible construction except when alternative methods of protection are approved by the fire code official. Refer to Standard 5-3, *Access and Fire Protection During Construction.*

Fire Apparatus Access Road Requirements

Fire apparatus access roads shall be provided for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction when any portion of an exterior wall of the first story of the building is located more than 150 feet from fire apparatus access as measured by an approved route around the exterior of the building. Fire department access within 150 feet, commonly referred to as hose pull distance, is measured along a path that simulates the route a firefighter may take to access all portions of the exterior of a structure from the nearest fire access road. All obstructions such as fences, planters, vegetation, topography and other structures must be considered when determining whether the building is accessible from a particular location on the fire access road.



Denotes the furthest point on the exterior of the building as measured along the path of firefighter travel around the exterior of the building.

For this diagram, assume the parking lot is not accessible to fire apparatus due to the turning radius and fire lane widths begin less than the required minimums:

1. All portions of building “A” are within 150 feet of the public road as measured along the path of firefighter travel.
2. Building “B” is not accessible. The presence of a fenced enclosure forces firefighters to backtrack once they pass through the gate, increasing their travel distance beyond 150 feet. On-site fire apparatus access roads or a change in the location of the gate would be necessary to provide access to Building “B”
3. Building “C” is also accessible despite the obstruction posed by the raised planter.

Fire Apparatus Access
The minimum width of a fire apparatus access is 20 feet.

- Dead-end fire apparatus access roads in excess of 500 feet in length shall have a driving surface width of not less than 26 feet.
- Fire access roads where a fire hydrant is located shall have a driving surface width of 26 feet for a length of 20 feet.
- If a center median is included, the required width shall be provided on both sides of the median.
- No parking is permitted on streets narrower than 26 feet in width.
- Parking on one side is permitted on fire access roads that are at least 26 feet but less than 32 feet in width.
- Parking on two sides is permitted on fire access roads 32 feet or more in width.

  Exception:
  When the fire apparatus access road serves not more than two single-family dwellings or small congregate residences (Group R-3) or accessory or miscellaneous structures (Group U), the minimum pavement width can be reduced to 15 feet with 2 feet 6 inches of gravel on each side. A clear and unobstructed width of 20 feet shall be maintained.

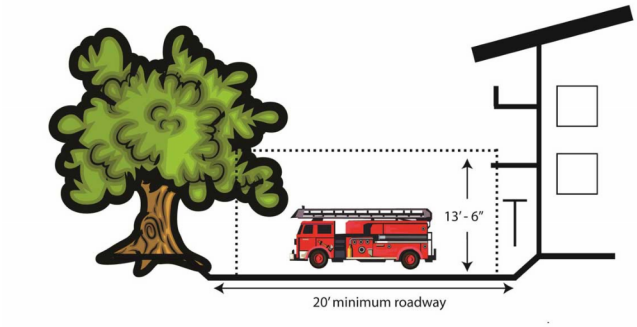
Aerial Apparatus Access
Buildings or facilities where the vertical distance between the grade plane and highest roof surface exceeds 30 feet, shall have fire apparatus access constructed for use by aerial apparatus. The highest roof surface shall be determined by measurement to the eave of a pitched roof, the intersection of the roof to the exterior wall, or the top of parapet walls, whichever is greater. Grade plane represents the average of finished ground level adjoining the building at exterior walls and where the finished ground level slopes away from the exterior walls, the reference plane shall be established by the lowest points within the area between the building and the lot line or, where the lot line is more than 6 feet from the building, between the building and a point 6 feet from the building.

The minimum width of an aerial apparatus access road is 26 feet in the immediate vicinity of the building. No parking is permitted on streets narrower than 32 feet in width. Parking on one side is permitted when the road is at least 32 feet but less than 38 feet in width. Parking on both sides is permitted when the road is 38 feet or more in width.

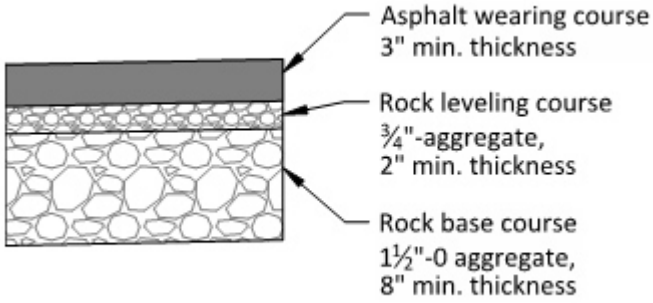
Buildings or facilities exceeding 30 feet or three stories in height shall have at least two means of fire apparatus access for each structure. At least one of the required access routes meeting this condition shall be located within a minimum of 15 feet and a maximum of 30 feet from the building and shall be positioned parallel to one entire side of the building.

Overhead utility and power lines shall not be located over aerial apparatus access roads or between the aerial access road and the building or facility. Other obstructions shall be permitted to be placed with the approval of the fire code official.

Vertical Clearance
Fire access roads shall have an unobstructed vertical clearance of not less than 13 feet 6 inches. Aerial apparatus access roads may require additional vertical clearance as determined by the fire code official.



Surface
Fire access roads shall be designed and maintained to support the imposed load of fire apparatus with a gross vehicle weight of 75,000 pounds and shall be surfaced with asphalt, concrete or other approved driving surface to provide all-weather driving capabilities. Documentation from a registered engineer may be requested by the fire code official if the standard fire access section is not constructed. For public City streets, refer to the City public street standards.



Grade
The grade for fire access roads shall not exceed 10 percent to facilitate fire ground operations and meet the recommendations of NFPA 1901, Standard for Automotive Fire Apparatus. The grade may be increased to a maximum of 15 percent, for lengths approved by the fire code official, when all of the structures served by the access road are protected by automatic fire sprinkler systems with the approval of the fire code official.

Turnouts
When a fire apparatus access road exceeds 400 feet in length, turnouts 10 feet wide and 30 feet long shall be provided in addition to the required road width and shall be placed no more than 400 feet apart, unless otherwise approved by the fire code official. These distances may be adjusted based on visibility and sight distances.

Turning Radii
The inside turning radius for an access road shall be 28 feet or greater. The outside turning radius for an access road shall be 48 feet or greater.

Angles of approach and departure

The angles of approach and departure for fire apparatus access roads shall be within the limits established by the Fire Marshal based on the fire department's apparatus.

Bridges & Elevated Surfaces
Where a bridge or elevated surface is part of a fire apparatus access road, the bridge shall be constructed and maintained in accordance with AASHTO HB-17. Bridge and elevated surfaces that serve as part of fire apparatus access roads shall be designed for a live load sufficient to carry the imposed load of a fire apparatus weighing 75,000 pounds gross vehicle weight. Vehicle load limits shall be posted on both entrances to the bridge when required by the fire code official. Maintenance of the bridge shall be the responsibility of the party(ies) that use(s) the bridge for access to their property(ies). At any time, for due cause, Clark-Cowlitz Fire Rescue may ask that a registered engineer inspect the bridge for structural stability and soundness at the expense of the property owner(s) the bridge serves.

Traffic Calming Devices
Traffic calming devices are prohibited on any designated fire access road unless approved by the fire code official, which includes speed bumps, humps, dots, round-a-bouts, bollards, etc.

Raised pedestrian crossings are permitted; however, all grade breaks shall be 4% or less.

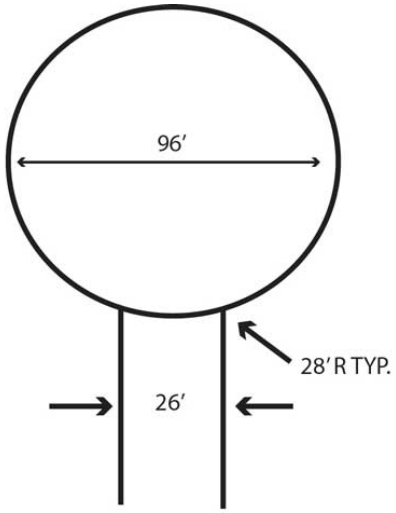
See Standard 5-5, *Traffic Calming Devices, for more information.*

Access During Construction or Demolition
Approved fire access shall be provided prior to all construction or demolition sites. The access shall be capable of supporting vehicle loading under all weather conditions. Temporary address signage shall also be provided during construction.

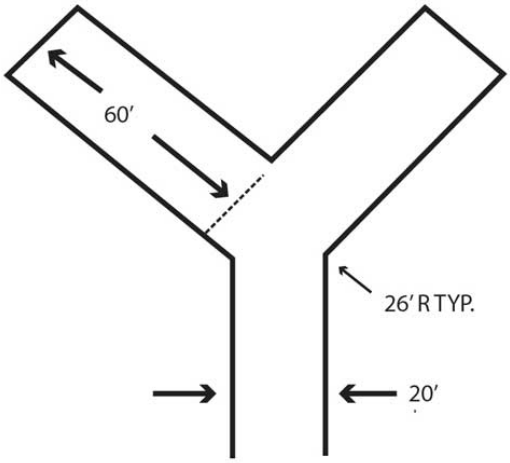
See Standard 5-3, *Access and Fire Protection During Construction*.

Dead-Ends

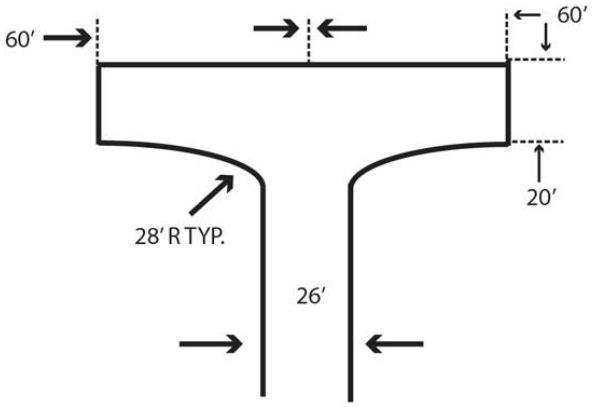
Dead-end fire apparatus access roads with a required length in excess of 150 feet in length (measured from the curb perpendicular to the road) shall be provided with approved provisions for the turning around of fire apparatus. All portions of the required turnaround shall be posted as no parking with signs as required in this standard.



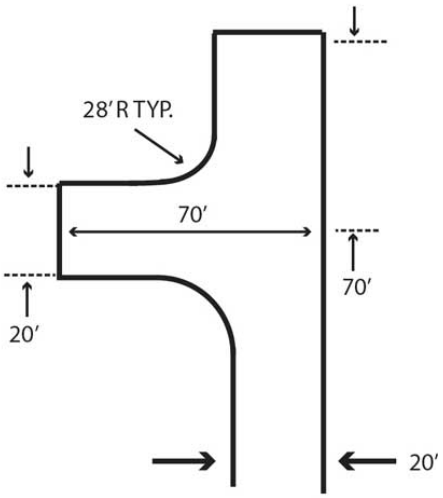
96′ Diameter Cul-De-Sac



60′ "Y"



120′ Hammerhead



Acceptable Alternative
120′ Hammerhead

Multiple Access Points

- **Commercial Development**
  Buildings or facilities having a gross building area of more than 62,000 square feet shall be provided with two separate and approved fire apparatus access roads. Where all of the buildings are equipped throughout with approved automatic sprinkler systems, two separate access roads are not required until the gross building area exceeds 124,000 square feet. Buildings or facilities exceeding 30 feet or three stories in height shall have at least two means of fire apparatus access for each structure.
- **Residential Development**

    - One- or Two-Family Dwelling Residential Development. Developments of one-or two-family dwellings where the number of dwelling units exceeds 30 where there is only one approved fire apparatus access road, shall be provided with the following approved fire access and fire protection requirements:
        - 31 to 60 dwelling units shall be provided with a minimum of one approved fire apparatus access road and shall be equipped throughout with an approved automatic fire sprinkler system in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3, access from two directions shall not be required.

        - 61 to 99 dwelling units shall be provided with a minimum of one approved fire apparatus access road, one emergency access road meeting section D103.5 (Gates) and D107.2 (Remoteness), and shall be equipped throughout with an approved automatic fire sprinkler system in accordance with Section 903.3.1.1, 903.3.1.2 or 903.3.1.3

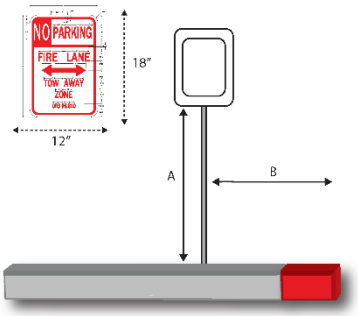
        - 100 or more dwelling units shall have two approved fire apparatus access roads meeting all requirements of Appendix D and shall meet section D107.2 (Remoteness).

    - Multiple-family residential projects, equipped throughout with an approved automatic sprinkler system, having more than 200 dwelling units shall be provided with not less than two approved fire apparatus access roads.

- **Separation**
  Where two access roads are required, they shall be placed a distance apart equal to not less than one half of the length of the maximum overall diagonal dimension of the lot or area to be served, measured in a straight line between accesses.

Exceptions

- **Automatic Sprinkler System**
  Exceptions may be approved when the building or project is equipped throughout with an approved automatic sprinkler system.
- **Practical Difficulties**
  Exceptions may be approved where apparatus access roads cannot be installed because of location on property, topography, waterways, nonnegotiable grades or other similar conditions. The fire code official may also require additional fire access roads based on the potential for impairment of a single road by vehicle congestion, the condition of terrain, climate conditions or other factors that could limit access.
- **Group R-3 or Group U Occupancies**
  Exceptions may be approved when there are not more than two Group R-3 (single family and



small congregate residences) or Group U (unoccupied accessory/miscellaneous structures) occupancies.

Fire Lane Identification

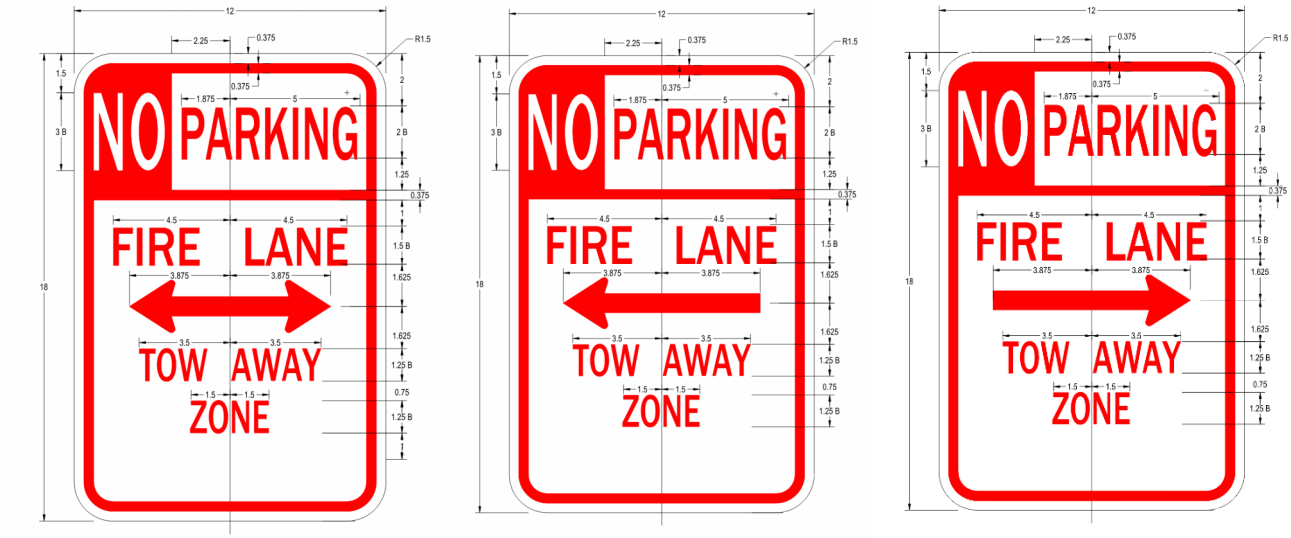
When required by the fire code official, Fire Apparatus Access Roads shall be marked as follows:

- Permanent NO PARKING – FIRE LANE TOW AWAY ZONE signs complying with Figure A and the Manual of Uniform Traffic Control Devices. Signs shall have a minimum dimension of 12 inches wide by 18 inches high and have red letters on a white reflective background. The word “NO” shall be presented in a reverse color arrangement in the upper left-hand corner. Signs shall be posted on one or both sides of the fire apparatus road as required at a **spacing of not more than 100 feet between signs**.

A – Seven feet in height from sidewalk or pedestrian area

B – 18-inches from standard curb to post; 24-inches from rolled curb to post

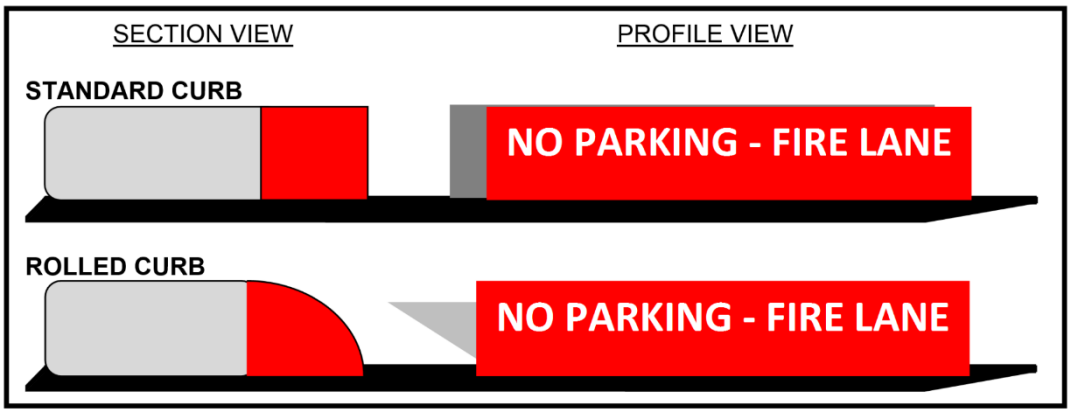
Signs shall be mounted so the face of the sign is oriented parrellel to the street/curb. Signs may be mounted on existing posts or light poles.



- Raised curbs on private property shall be painted bright red with white letters. The stroke shall be 1 inch with letters 6 inches high to read: NO PARKING – FIRE LANE. Curb heights

less than 6 inches may have reduced letter sizes for the vertical signage on the curb but shall not be less than 4 inches. Lettering shall be painted at an **interval of every 25 feet**.

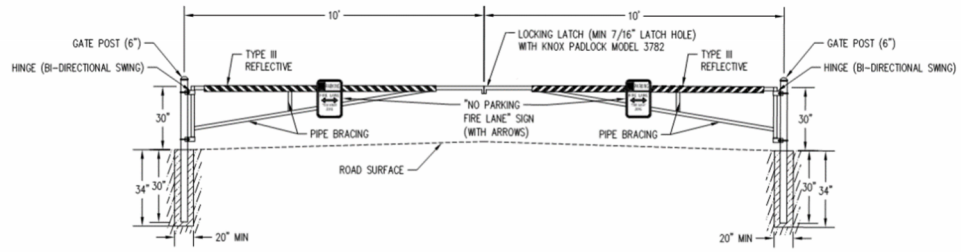
- Property owners shall not designate and/or identify any access road on their property as a fire lane without prior approval from the fire code official. All signs and curb markings are to be installed and maintained by the property owner.



Gates and Barriers

The City Building Department shall review plans for all new access gates and/or barriers that may impede emergency vehicle or personnel access to a structure or facility. To overcome obstructions such as gates or barriers, Clark-Cowlitz Fire Rescue requires all electric and manual gates to be equipped with a means of opening the gate for emergency access.

- **Construction**
  All gates shall be of the swinging or sliding type and allow operation by a single individual. Gates shall be bi-directional. Dual arm swinging gates and Single arm swinging gates are both allowed. Gates and barriers that are not the Standard Fire Access Gate shall be approved by the fire code official prior to construction.



NOTES:
1. ALL MATERIALS SHALL BE PROTECTED WITH CORROSION RESISTANT FINISH
2. CONTRACTOR TO INSTALL NO PARKING, FIRE LANE SIGN ON EACH SIDE OF THE GATE MEETING THE OF THE FIRE CODE AND CLARK-COWLITZ FIRE RESCUE STANDARD'S
3. CONTRACTOR TO INSTALL TYPE III REFLECTIVE STRIPING ON BOTH SIDES OF THE GATE. STRIPING SHALL BE ALTERNATING RED/WHITE STRIPES, 6" WIDE & AT 45° ANGLE.
4. CONCRETE SHALL BE A MINIMUM OF 3,000 PSI.
5. COORDINATE INSTALLATION OF THE KNOX PADLOCK WITH CLARK-COWLITZ FIRE RESCUE
6. IF MULTIPLE PADLOCKS ARE NEEDED; INSTALL A MULTI-ACCESS LOCKING DEVICE (e.g. gate keeper locking device)

- **Clear Width**
  Minimum gate width shall be 20 feet.

- **Setback**
  Gates shall be set back a minimum of 30 feet from the intersecting road or as approved by the fire code official.

- **Automatic Gates and Barriers**
  Automatic gates and barriers shall be provided with an Opticom Infrared System or Knox Key Switch, Model #3502 (see the Knox Systems Installation Standard for specific details). In the event of a power failure, the gate or barrier shall be provided with an emergency battery power supply or fail-safe, allowing the gate to be pushed open without the use of special knowledge or equipment. Upon activation of the key switch, the gate or barrier shall remain in the open position until the key switch is returned to normal position.
- **Manually Operated Gates and Barriers**
  Manual gates and barriers shall be provided with Knox Padlocks, Model #3770. Knox padlocks are used to secure manually operated gates or barriers and can be used in conjunction with the property owner's padlock to allow access for property owners and emergency responders. Multiple locks installed shall be provided with a multi-locking device (i.e., Gate Keeper Locks), so no lock is bypassed (locked out). This access control system requires an inspection by the Fire Marshal's Office prior to final approval of the project (see CCFR's Knox Systems Installation standard for detailed information). Additionally, the swing arm(s) shall be connected to a latch open device to hold the arm(s) in the open position.