



# Buncombe County Government

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## Emergency Services

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The North Carolina Fire Prevention Code, Appendix D addresses road construction widths and slopes to allow for optimum response from fire and EMS. The requirement is for 20 foot wide roads which open to 26 feet at fire hydrants and a grade no greater than 15 percent. The Appendix does allow for the local authority to modify these requirements based on configuration of roads and access.

It is understood that cost factors determine many aspects of steep slope development, but the need for emergency services must be considered in any well planned development. The developers must constantly consider the future ramifications if emergency services cannot be provided to their development as a result of improper planning or designs that were not approved prior to construction.

### **Road Construction:**

Roads should be a minimum of 20 feet wide to allow for safe passage of fire apparatus. The newer fire engines are constructed on chassis that are eight feet six inches wide and when mirrors are added, the truck width grows to nine feet six inches. In order to permit water shuttle operations, the 20 foot width is absolutely necessary. The roads are to be constructed of all-weather materials that will support 75,000 pounds. Shoulders should not be considered in the width as they usually do not meet the weight requirements.

Road grades should not exceed 15 percent. There are some instances where a steeper grade may be approved if the length of the run is restricted, usually no more that 150 feet.

North Carolina Department of Transportation specifications vary from these standards, but it is important to remember that their standards are for the flow of traffic, while the fire standards are written for performing fire suppression activity at any point on the road.

Access into private driveways should be configured to allow for emergency vehicles to safely turn into the drive without additional backing maneuvers. A minimum area of 20 feet at the point where the driveway intersects with the road should be level to provide for fire operations for the residence on that drive.

Road widths may be reduced for one way loops if they are not long. This will reduce environmental impact and still provide for emergency operations. The width may be reduced to between 13 and 14 feet in areas where the Authority Having Jurisdiction (Buncombe County Fire Marshal) permits.

Roads that are dead end should be constructed with adequate turn around areas. Dead ends lengths should be limited. The recommendation for loop roads or roads connected to other through roads is strongly urged. Once again this may allow for a reduction in widths.

During construction of structures, the roads must remain open. If the road in question is the only access to other structures, it may not be entirely blocked at any time. During construction, the condition of the roads must be monitored to insure safe passage for residents and emergency services.

Access to a development must be carefully considered. The recommendation for any development is to provide at least two points of access to all areas in the event that one road is completely compromised.

Gated communities should be required to provide gate access approved by the Authority Having Jurisdiction. Gate access should be configured to allow all emergency vehicles access. It is recommended that a SOS (Siren Operated Sensors) system be installed on all gates. This system permits emergency vehicle operators to open the gate by use of the siren on the vehicle.

#### **Water Sources:**

Adequate water supply can allow for the reduction of road widths. If the development is connected to a public water system capable of providing a water flow of 500 gallons per minute for a minimum of 30 minutes plus a 10 percent safety factor, road widths may be adjusted.

On a private system, this would require a storage tank with a minimum of 20,000 gallons. The road widths where a private storage tank is in place will not allow for a large reduction of road width, as water shuttle operations may still be required.

Another alternative for water supply would be residential sprinkler systems installed to NFPA 13 R specifications. This would allow for a reduced road width in many instances. The residential sprinklers would require a storage capacity of 440 gallons per residence.