



City of Asheville, North Carolina

Fire Department
Office of the Assistant Fire Chief
Technical Services Branch

News from the Asheville Fire Department November 2014

In-Fill Development Issues and the NC Fire Code

As sites the easiest to develop become less common, other more challenging building sites are being considered. This memo explains two NC State Fire Code requirements that need careful consideration in the design phase, before they become a stumbling block during your construction phase. In all cases, read the actual Fire Code for the exact language of the named code section.

1. Presence of High voltage Transmission Lines – 66 Kilovolts or higher

This section, 316.5, contains code provisions which address the requirements for the construction of structures and the storage of materials beneath high voltage transmission lines. The importance of such regulations and their impact on fire-fighter safety cannot be overstated. Among the various hazards fire fighters face in the course of duty are electrical hazards during fire suppression or rescue activities. Performing fire-ground operations near power lines may expose fire fighters to electric shock hazards through the following means, among others:

- Dense smoke can obscure energized electrical lines or equipment.
- Smoke and hot gases from a large fire can create a conductive path for electricity. When a fire is burning under a high-voltage transmission line, electricity could arc from the conductor to the ground, endangering people and objects near the arc.
- Making accidental contact with power lines that are still energized.
- Overhead power lines that fall onto and energize conductive equipment and materials located on the fire ground.
- Electrical currents that flow through the ground and extend several feet (ground gradient).
- Solid-stream water applications on or around energized or downed power lines or equipment.

The regulations in Section 316.5.1 are intended to minimize the noted exposures by prohibiting buildings, structures and storage from being constructed or maintained beneath high-voltage transmission lines except under the strictest of conditions and only with the fire code official's approval.

Structure fires underneath high-voltage transmission lines could cause arcing and shock hazard. Fire-fighting operations can involve the use of elevated platforms or aerial ladder apparatus and other emergency equipment, personnel above ground and hose streams that may come in close proximity to high-voltage transmission lines. According to nationally recognized utility companies, manual de-energization of lines may take 20 minutes or longer to accomplish. There are

exceptions to recognize that certain ancillary structures, such as restroom buildings and telecommunications structures, do not generally present a significant exposure threat to overhead power lines.

Section 316.5.2 also regulates the fire load that can be allowed to exist beneath overhead high-voltage transmission lines by restricting outdoor storage within the easement to only noncombustible materials. The exception recognizes that, in certain instances, combustible materials may need to be stored within the easement, such as for utility work on the power lines. Such materials storage must be strictly regulated through a plans submittal and review process and approval by the fire code official. This section also makes it clear that under no circumstances are hazardous materials allowed to be stored beneath the power lines.

2. High-rise and Mid-rise building fire department access for ladder trucks.

Section D105 states that buildings or portions of buildings exceeding 55 ft. in height above the lowest level of fire department vehicle access shall be provided with *approved* fire apparatus access roads capable of accommodating fire department aerial apparatus.

Overhead utility and power lines shall not be located within the aerial fire apparatus access areas. When building height exceeds 30 feet above the lowest level of fire department vehicle access, the use of aerial fire apparatus becomes more necessary. The requirement for clear overhead space prevents interference with the aerial apparatus and avoids the possibility of personnel injury and equipment damage from electrical shock. These factors must be included in site design to make certain the fire department has the needed access to the buildings. Typically, relocation of the utility lines is required or the building height must be reduced.

Also note that the NC State Fire Code uses 30 feet as the building height standard, while the City of Asheville was approved in 2011 to use 55 feet as the threshold, based on our fire department's best practices.

Chief Fire Code Official Named

The City of Asheville Fire Marshal's position is currently vacant. In order to maintain code application consistency until that position is filled, a Chief Fire Code Official was needed. Deputy Fire Marshal Jeff Payne has been selected by the Asheville Fire Department to fill that role.

Jeff has the highest levels of inspection certifications that are issued in North Carolina and in all five of the regulated trades; Fire, Building, Electrical, Plumbing, and Mechanical inspections. Jeff's office is at 100 Court Plaza and he can be reached at 828-259-5441.