



**CHARLOTTE FIRE DEPARTMENT  
FIRE MARSHAL'S OFFICE  
500 DALTON AVE  
CHARLOTTE, NC 28206**



## Design Criteria for High Rise Buildings

*The design team shall include a sprinkler NICET level III Sprinkler designer that is registered and licensed under the laws of this state. Or a professional engineer with a background in fire protection on the design team during the plan submittal phase of construction.*

The “Design Professional” shall include the following information on the permit set of plans:

1. Provide the design criteria of each sprinkler system and standpipe system.
2. Provide the design criteria for the fire pump(s)
3. Show the location of the fire dept. conn. and size the FDC based upon the number of standpipes up to a maximum of 1000 gpm for the standpipe demand.
4. Show the location of the fire pump room
5. Show the location of the riser room
6. Provide the information on the fire protection systems in the fire command center
7. Show the location of the FDC as it relates to the fire hydrants. (See IFC 507)
8. Standpipe hose valves shall be located on the fire floor and shall be located as described in IFC 905.4
9. Provide the information to provide a secondary water supply when the building is in a seismic category C, D, E, or F per IFC 914.3.2
10. For very tall buildings 420’ and over show compliance as it relates to IFC 914.3.1.1 and 914.3.1.2.

Design criteria:

1. Provide an engineered analysis for the fire protection systems using the 48-hour hydrant flow test conducted by the water supply officer of CFD.
2. Define the approximate location of the high-pressure zones (>175 psi) of the sprinkler systems and standpipes for the use of pressure reducing valves (PRVs).
3. If HLWST are needed refer to the HLWST document for the requirements.
4. Determine if a double steamer connection fire hydrant is to be installed for the fire protection systems or provide a redundant FDC location on another street with an equally performing hydrant.
5. Address the method of design to protect the hoist ways for the “Fire Service Elevators to protect from water damage from the fire protection system. No shunt trip devices shall be used for protection of the fire service elevators.



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Fire Alarm System:

Design criteria can ONLY be provided by the professional engineer for the fire alarm system since the NC Administrative Code does not recognize a fire alarm technician with a NICET certification as a design professional.

1. Items shall include items 1-7 and 12-14 of IFC 907.
2. FACP shall monitor the fire service elevator per NFPA 72.21.5 and 18.11 (2013 ed. NFPA 72)
3. ERRS shall be noted and design criteria shall comply with IFC 510.
4. For buildings with carbon monoxide detection, the design professional shall show compliance as described in IFC 915