



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



## High Rise Buildings and PRVs

Goal: To identify the floor(s) to install the PRVs go up to and the pressures they are set at by the sprinkler company.

### Definitions:

1. PRVs: Pressure reducing valves
  2. Design Professional: can be a Registered Architect, Professional Engineer, or NICET level III sprinkler designer. (204.3.5.1 NC Administrative Code)
  3. Shop Drawings: set of plans designed and submitted by the sub-contractor to layout sprinkler heads and piping, size the pipes and riser and install a designed and approved fire protection system.
- I. Design Professional shall take the 48-hour hydrant test (conducted by the CFD water supply officer) and use the “Low” pressure for the following purposes:
1. Sprinkler hydraulic calculations
  2. Sizing of a proposed fire pump
  3. Setting the Pressure Reducing Valves (PRVs)
- II. Design Professional shall take the “High” pressure from the 48-hour test to determine the floors that require the installation of the PRVs.
- 48hr High (Hydrant Test) + churn pressure of fire pump = System Pressure  
System Pressure over 175psi PRVs are required.*
- III. For ANY buildings that has a fire pump(s), the sprinkler calculations should show the 5% degradation for the fire pump performance as allowed by NFPA 25. (This is for ANY building that has a fire pump installed.)
- For buildings with PRV's there is to be a “Node” reference point within the calculations and on the plans to show the pressure “set” at the node within the hydraulic calculations. The hydraulics “Node” shall provide the pressures on the system side and on the discharge side of the PRV.
- IV. The flows and pressures information required for CFD apparatus to pump the standpipes through the PRVs shall be provided on a sign or non-corroding metal plate located at the FDC.