Difference Between Prescriptive and Performance Based in Regards to Plumbing Codes

Prescriptive Based Code Definition: A code that specifically details the method(s) one may utilize, as well as methods not permitted in the installation a particular (plumbing; mechanical; etc.) system. Such codes are "objective" in nature.

This term is used to describe how the Uniform Plumbing Code (UPC) is designed. If plumbing systems are installed to the UPC standard and then future modifications are made to the system, if those modifications continue to meet the UPC installation standards in the book, then the hiring of engineers for the design of the system will be unnecessary.

Scenario: Plumber shows up to add a sink to a tenant improvement project for an existing building. The waste line and water lines capacities are based on fixture units described in the UPC. The plumber needs only to see the main sizes of the existing piping and tie into those systems based on the fixture units listed in the tables. If those specifications are met, and the installation is done accordingly, no further design costs are incurred for the customer.

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Performance Based Code Definition: A code that provides desired outcomes (end results), however does not specify how those results may be achieved, nor methods that shall not be employed in installation. This is then often cited as being "more flexible" however, is also inherently quite "subjective" in nature for both installer (engineer, etc.) and inspector.

This term is used by the International Code Council to describe their standard for installations. The terminology itself is a bit misleading. This term really describes the engineering of a system and it looks at every system as a design issue standing on its own. There are a few inherent problems with this view of plumbing systems. First, as long as the original system designs for a building system are documented and updated as changes are made, additions to the system can be engineered into the new system. Many times however, the documentation and the documentation of any engineered upgrades are not available or good records are not kept. So if the systems are engineered individually (as done in the IPC) in their original state, modifications to the systems could be problematic if they are not engineered. For a contractor and the plumber in the field, this just creates more time, energy and money spent on things other than the actual installation of the system.

Scenario: Plumber shows up to add a sink to a tenant improvement project for an existing building. The building system document will need to be accessed and depending on what the contractor discovers, an engineer will need to look at the system requirements and determine what will need to be done by the plumber to complete the project to satisfy the engineering requirements that make the whole system work.