CHICAGO
Department of Buildings

PVC Pipe in Mixed-Occupancy Buildings

CODE INTERPRETATION P7-2021-001

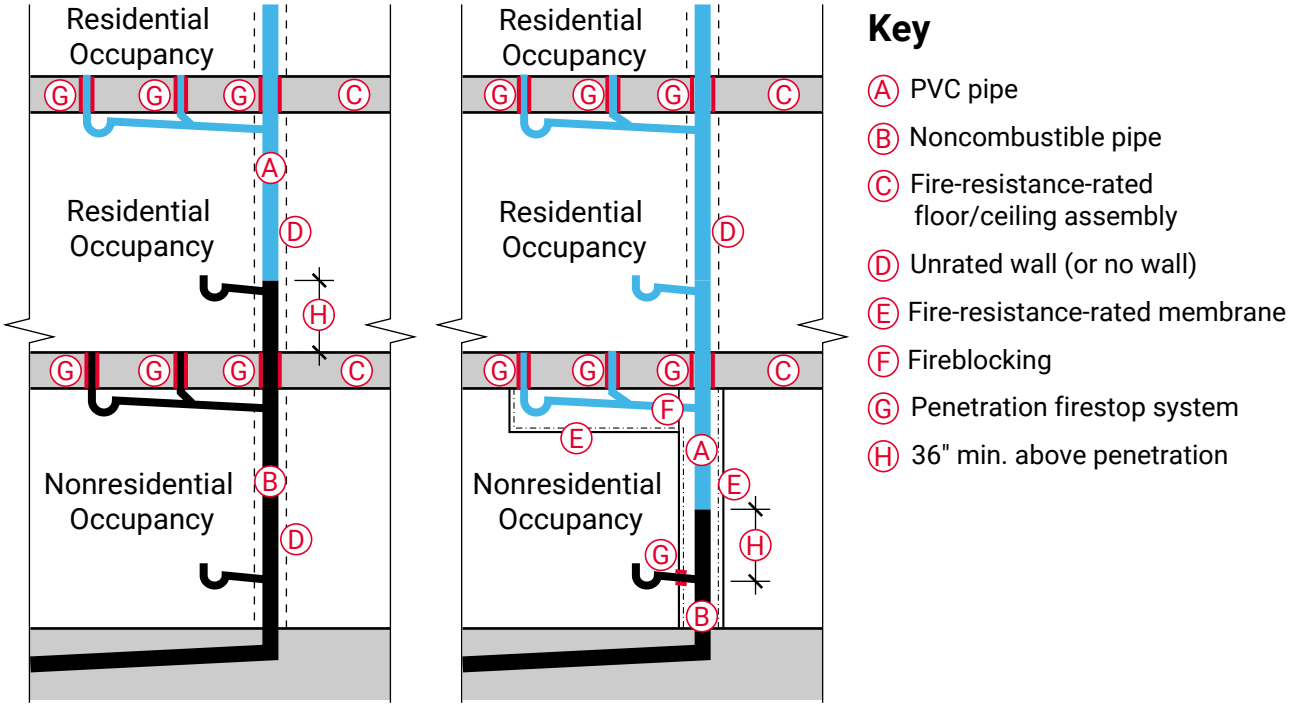
The *Chicago Plumbing Code* was recently amended to allow PVC to be used as drainage and vent pipe for areas of residential occupancy in mixed-occupancy buildings up to 60 feet in building height. The Plumbing Code requires a noncombustible pipe material to "extend at least 4 inches ... beyond the fire-resistance-rated assembly separating the residential occupancy from other areas of the building." The *Chicago Building Code* imposes additional requirements on materials penetrating fire-resistance-rated assemblies. This interpretation identifies two options for meeting these requirements.

Option 1: Only Noncombustible Pipe Penetrates the Occupancy Separation

In Option 1, only noncombustible (metallic) pipes penetrate the fire-resistance-rated floor/ceiling assembly separating the residential occupancy from the nonresidential occupancy. Noncombustible pipe also extends at least 36 inches beyond where the pipe penetrates the floor/ceiling assembly.

Option 2: Combustible Pipes Serving the Residential Occupancy Are Separated from the Nonresidential Occupancy by Fire-Resistance-Rated Construction

In Option 2, PVC pipes serving the residential occupancy penetrate the fire-resistance-rated floor/ceiling assembly separating the residential occupancy from the nonresidential occupancy but are separated from the nonresidential occupancy by fire-resistance-rated construction having the minimum fire-resistance rating required for occupancy separation in accordance with Table 14B-5-508.4 in the Building Code. If there are any connections to the drainage stack from the nonresidential occupancy, noncombustible pipe extends at least 36 inches beyond the penetration.



Option 1 **Option 2**

For this purpose, where a 1- or 2-hour separation is required, it is acceptable to use a gypsum membrane consistent with GA-610-02: *Fire Resistance Provided by Gypsum Board Membrane Protection* where the finished side faces the nonresidential occupancy. It is also acceptable for the PVC to be encased in a wall assembly having a fire-resistance rating no less than twice the minimum required for occupancy separation.

36-inch Transition Distance Beyond Fire-Resistance-Rated Assembly

While the Plumbing Code establishes a minimum distance of 4 inches for noncombustible pipe to extend beyond the fire-resistance-rated assembly separating residential and nonresidential occupancies, the tests used to evaluate penetration firestop systems in accordance with the Building Code, ASTM E814 and UL 1479, assume the penetrating material will continue at least 36 inches beyond the face of the assembly. The Building Code prohibits connections between combustible materials and noncombustible penetrating materials that will reduce the integrity of the fire-resistance-rated assembly.

Accordingly, where piping penetrates a fire-resistance-rated wall or floor/ceiling assembly, combustible piping may not connect to noncombustible piping within **36 inches** of the penetration firestop system without demonstration that the transition to PVC will not impair the performance of the fire-resistance-rated assembly. Projects seeking approval to reduce the transition distance may submit an engineering judgment or equivalent documentation through the Alternative Code Approval Request (ACAR) process.

Interpretation Number: P7-2021-001

Interpretation of Section(s): 18-29-702.1.1, 14B-7-703.3, 14B-7-714

Revision History: Issued October 25, 2021

This formal interpretation of the Chicago Construction Codes is adopted by the Building Commissioner pursuant to section 14A-10-1002 of the Chicago Construction Codes Administrative Provisions and has the same legal effect as the provisions of the Chicago Construction Codes. To confirm current version, please visit http://www.chicago.gov/buildings.