

ANALYSIS AND OPINIONS

On The

OFFICE OF STATEWIDE HEALTH PLANNING AND
DEVELOPMENT'S PROPOSED CHANGES TO
SECTIONS 604.1 & 701.1.2.1 OF THE CALIFORNIA
PLUMBING CODE

October 12, 2015

BY

JAMES F. MCMULLEN, FORENSIC FIRE/LIFE SAFETY EXPERT
THE MCMULLEN COMPANY, INC
1250 LAKE BOULEVARD, SUITE 226
DAVIS, CALIFORNIA 95616-5668

PREFACE

The following is my analysis and opinions regarding the proposed changes by the Office of Statewide Health Planning and Development (OSHPD) to the California Plumbing Code (CPC), Sections 604.1 and 701.1.2.1 that are based on my 45 plus years of fire/life safety experience, education and my qualifications as a fire forensic expert. As outlined in the attached Curriculum Vitae, my experience includes over four decades of involvement in the code development process including code promulgation and my service as the California State Fire Marshal. The State of California has a long historical record of being a leader in the promulgation of fire and life safety laws and regulations over and above the minimum requirements of the various model codes for the protection of its citizens and visitors. There are multiple examples of the increased fire and life safety requirements throughout in the California Health and Safety Code and Titles 19, 24 and 25 of the California Code of Regulations.

ISSUES

For more than a decade, the CBSC has determined that the use of various types of plastic piping for drains, water supply and vent piping has a limited scope of application throughout the State of California based on specific identified hazards associated with these types of materials. However, OSHPD is currently in the process of proposing to overturn and remove these restrictions. Under their proposal, they are seeking regulatory changes on the use of Chlorinated Poly-Vinyl Chloride (CPVC) drinking water pipe and polyvinyl chloride (PVC) and acrylonitrile butadiene styrene (ABS) drainage piping in buildings and facilities that fall under their scope of authority. The facilities in question are identified by law as OSHPD 1, 2, 3, and 4 facilities, which are defined as general acute care hospitals, skilled nursing facilities, acute psychiatric hospitals, licensed and outpatient clinics and correctional treatment centers.

According to OSHPD, they have identified the following as the factors or “project objectives” for their proposed changes to the California Plumbing Code:

- 1) Align California’s Building Code with the national model code, which contains no prohibitions on the use of plastic pipe for plumbing.

- 2) Increase consistency within California's Building Standards Code, for which no prohibitions on the use of plastic pipe for plumbing exist except for OSHPD 1, 2, 3, & 4 facilities.
- 3) Possibly reduce the cost and improve the ease of installation of plumbing materials.
- 4) Reduce the potential for corrosion of plumbing pipes from hospital wastes and/or corrosive soil types.
- 5) Reduce the potential for infection and/or disease transmissions (e.g., galvanized water lines can form bio films and
- 6) Allow use of nationally used and proven products at OSHPD 1, 2, 3, & 4 facilities.

ANALYSIS

In response to the factors or 'project objectives' as described above by OSHPD, the following reflects my analysis of some of their statements as they relate to fire and life safety issues.

- 1) In terms of attempting to align the California Building Code (CBC) with the model code language, it is apparent that for over a decade, the findings by the CBSC have not found the model code language to be adequate for the protection of the citizens of California. In contrast, the amendments prohibiting or limiting the use of various types of plastic piping have continued through multiple California adoptions of different editions of the CBC, CPC and the CMC.
- 2) OSHPD's statement that the CBSC has not adopted restrictions on the use of plastic pipe for plumbing in other than OSHPD 1, 2, 3, & 4 facilities is incorrect. In fact, these same prohibitions are in effect in all residential buildings more than 2 stories in height as a result of the findings of the Housing and Community Development Department as per Section 701.1 (2)(a) of the CPC. Furthermore,

the California Mechanical Code restricts the use of plastic piping to underground installations in Section 1311.1.7.

- 3) As to the proposed changes being based on the reduction in cost and ease of installation as an objective, the fire and life safety provisions adopted by the CBSC to my knowledge have never been based on the ease of installation.
- 4) In regards to the objective of possibly reducing the potential for corrosion of plumbing pipes from hospital wastes and or corrosive soil types, it is my understanding if corrosion is an issue, there are multiple manufacturers of corrosion resistant lined piping that would not contribute to the addition of combustible loading in OSHPD regulated facilities. In addition, the applicable codes already address the issues with corrosive soil types as there is no issue with the use of plastic piping as part of the underground building services. The inclusion of this type of reasoning relating to corrosive soil conditions is clearly outside of the scope of this proposal.
- 5) As to the potential for infection and/or disease transmission due to the development of bio films in water lines using galvanized piping, this is another interesting issue as galvanized piping is not generally used for water supply piping in any mode of the current construction industry throughout the country.
- 6) With regards to the objective to allow use of nationally used and proven products at OSHPD facilities, this position ignores the fact that the model code represents a minimum and again I would point out that there are multiple examples of California amendments to all of the model codes. Concurrence with the model codes should not be cited as a reason or basis to support a reduction in terms of the fire and life safety provisions by the CBSC.

OPINIONS

Based on my analysis, the following reflects my opinions supporting my opposition to the proposed changes to Sections 604.1 and 701.1.2.1 of the California Plumbing Code as presented by OSHPD.

- A) In each and every one of the OSHPD regulated facilities, the patients are by all accounts some of the most vulnerable to exposure of fire and smoke conditions, compared to other types of occupancies. Their inability to recognize emergency conditions and to respond appropriately, due to their physical and/or mental conditions, is paramount to maintaining the highest levels of fire and life safety measures as part of the construction components of a building. The speed of fire spread, both between rooms and within a room, is particularly a concern in healthcare facilities with non-ambulatory patients or residents since it may take longer for them to be evacuated.
- B) This proposal by OSHPD clearly represents a reduction in the overall fire and life safety of those patients and employees in OSHPD facilities.
- C) Over the years, there has been an obvious reduction in the staffing levels of at the majority of OSHPD regulated facilities, which in turn has a direct correlation to the ability to provide timely and effective evacuation during a fire emergency. Any reduction in the fire and life safety construction methods in these types of facilities can and will subject the patients to additional and unwarranted increases in dangers to their well being.
- D) Further, it appears that OSHPD has ignored the findings of the Department of Housing and Community Development. HCD has recognized the potential dangers from exposing individuals to toxic gases, smoke and fire by restricting the use ABS and PVC in residential and hotel buildings more than 2 stories in height. Similar

to patients being unable to escape under their own power in medical facilities, the occupants of residential occupancies that are sleeping may also experience delays in evacuation during fire conditions especially in multi-story buildings HCD has recognized the potential hazards attributed to the development of smoke, toxic gases and the extension of fire associated with plastic piping and have acted accordingly.

- E) Wherein one of the most important roles of OSHPD is to provide for the fire and life safety of users of the healthcare facilities under their jurisdiction; however, this code change proposal does not include any references or support for the use of plastic piping that incorporates fire resistant characteristics.
- F) As a forensic fire/life safety expert, I have served as an expert witness in multiple construction defect cases. Firestopping requirements reduce, but do not eliminate, the increased risk of fire spread related to the penetration of walls with combustible materials. To date, each and every case I have provided expert testimony in have had multiple deficiencies in the construction of fire rated assemblies including a significant number of issues relating to firestopping materials; wherein, firestopping is either improperly installed or not installed at all. It is my opinion that for one reason or another, there is a significant problem with the installation of firestopping systems in buildings. Further, I have determined that there is a significant issue with the lack of proper and adequate inspections during construction creating an unreliable situation. It is also my opinion that the introduction of plastic piping into occupancies with a significant and critical dependence on the application of firestopping materials presents a potentially hazardous condition predicated on the known characteristics of plastic piping.
- G) It is my opinion that a substantial number of issues related to the toxic products emitted from various types of plastic piping materials

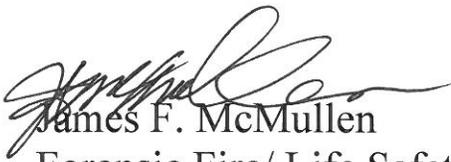
remain outstanding. Predicated on technical reports issued by NIST, it is evident that there is a need for additional scientific studies to clarify the toxicity issues during fire conditions but also the residual impacts under post fire conditions in terms of the long term health impacts from exposure to the products of combustion from plastics. Furthermore, there is no sense of urgency to support this proposed code change and this should not be pursued until adequate and unbiased studies have been completed.

- H) The impact of a particular building material on fire spread or fire-related injuries depends on where the fire starts. It must be further understood that the installation of combustible piping within a wall or floor/ceiling assembly is not protected by automatic fire sprinklers. In addition, any penetration or installation of combustible piping within a nurse's station or a patient's room adds to the fire loading of the facility and the introduction of smoke and toxic gases into the egress system of the facility.
- I) Further, it is my opinion that OSHPD, which has a basic responsibility for fire and life safety in their regulated facilities have erred significantly by suggesting that combustible piping would not impact fire spread any differently from that of metal piping. There is no supporting evidence to their claim especially when one considers the softening, melting, rupture and ignition temperatures of plastic piping compared to metal products.
- J) The introduction of plastic piping into buildings greatly increases the combustible loading especially in fire resistive structures.

In summary, it is my opinion that this proposal is premature until the proper studies by unbiased researchers are completed and the actual facts about the use of plastic materials in construction can be adequately evaluated on a non-bias scientific basis. There is no evidence provided by OSHPD that demonstrates any level of urgency in changing the existing

standards adopted by the CBSC and there is no actual justification for increasing the hazard level for the patients and staff in the OSHPD regulated facilities in terms of fire and life safety. I urge all of those individuals and interested parties concerned with the fire and life safety of those occupants in OSHPD regulated occupancies and in the interest of firefighter safety to oppose these proposed changes.

Respectfully submitted

A handwritten signature in black ink, appearing to read 'James F. McMullen', written in a cursive style.

James F. McMullen
Forensic Fire/ Life Safety Expert

Att -CV