

State of California  
Department of Housing and Community Development



**DRAFT  
ENVIRONMENTAL IMPACT REPORT**

**Adoption of Regulations Permitting Statewide Residential Use of  
Chlorinated Polyvinyl Chloride (CPVC) Plastic Plumbing Pipe without  
First Making a Finding of Potential Premature Metallic Pipe Failure  
Due to Local Water or Soil Conditions**

**Arnold Schwarzenegger, Governor**

**Lynn Jacobs, Director**  
Department of Housing and Community Development

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## H. CPVC Express Terms to the Proposed Regulation Change

**CPVC RELATED EXPRESS TERMS FOR PROPOSED BUILDING STANDARDS OF THE DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT REGARDING THE ADOPTION BY REFERENCE OF THE 2006 EDITION OF THE UNIFORM PLUMBING CODE (UPC) WITH PROPOSED AMENDMENTS INTO THE 2007 CALIFORNIA PLUMBING CODE (CPC) CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 5**

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### LEGEND FOR EXPRESS TERMS:

Existing California amendments or code language being modified: All such language appears in *italics*; modified language is underlined or shown in ~~strikeout~~.

New UPC language with new California amendments: UPC language shown in normal Arial 11 point; California amendments to UPC text shown *underlined and in italics*.

3. Repealed text: All such language appears in ~~strikeout~~.

4. Notation: Authority and Reference citations are provided at the end of each chapter.

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### AMENDMENTS:

#### CHAPTER 2

#### DEFINITIONS

Adopt entire Chapter 2 as amended.

#### 215.0

*Low-VOC Cement: Cement with a volatile organic compound (VOC) content of less than or equal to 490 g/L for CPVC Cement, 510 g/L for PVC Cement, and 325 g/L for ABS Cement, as determined by the South Coast Air Quality Management District's Laboratory Methods of Analysis for Enforcement Samples, Method 316A.*

*Low-VOC Primer: Primer with a volatile organic compound (VOC) content of less than or equal to 550 g/L, as determined by the South Coast Air Quality*

Management District's Laboratory Methods of Analysis for Enforcement  
Samples, Method 316A.

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CHAPTER 3  
GENERAL REGULATIONS

**316.1.6 Solvent Cement Plastic Pipe Joints.** Plastic pipe and fittings designed to be joined by solvent cementing shall comply with appropriate IAPMO Installation Standards.

ABS pipe and fittings shall be cleaned and then joined with solvent cement(s). CPVC pipe and fittings shall be cleaned and then joined with listed primer(s) and solvent cement(s).

Exception: Listed solvent cements that do not require the use of primer shall be permitted for use with CPVC pipe and fittings, manufactured in accordance with ASTM D2846, 1/2 inch through 2 inches in diameter.

PVC pipe and fittings shall be cleaned and joined with primer(s) and solvent cement(s). A solvent cement transition joint between ABS and PVC building drain or building sewer shall be made using a listed transition solvent cement.

For applications listed in 108.2.1 through 108.2.1.3 regulated by the Department of Housing and Community Development, plastic pipe and fittings joined with solvent cement shall utilize Low-VOC primer(s), if a primer is required, and Low-VOC solvent cement(s) as defined in Section 215.

~~**316.1.6.1 [For HCD 1 & HCD 2] Solvent Cement Plastic Pipe Joints.** Plastic pipe and fittings designed to be joined by solvent cementing shall comply with Section 310.4 of this code and an approved nationally-recognized installation standard listed in Table 14-1.~~

~~ABS pipe and fittings shall be cleaned and then joined with listed solvent cement(s).~~

~~CPVC and PVC pipe and fittings shall be cleaned and joined with listed primer(s) and solvent cement(s).~~

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CHAPTER 6  
Water Supply and Distribution

~~604.1.1 [For HCD 1 & HCD 2] Water distribution pipe, building supply water pipe and fittings shall be of brass, copper, cast iron, galvanized malleable iron, galvanized wrought iron, galvanized steel, or other approved materials. Asbestos cement, CPVC, PE or PVC, water pipe manufactured to recognized standards may be used for cold water distribution systems outside a building except as provided for CPVC use pursuant to Section 604.1.2. All materials used in the water supply system, except valves and similar devices shall be of a like material, except where other wise approved by the Administrative Authority.~~

**Section 604.1.12 [HCD-1] Local Authority to Approve CPVC Pipe Within Residential Buildings Under Specified Conditions**

~~For applications listed in 108.2.1.1 through 108.2.1.3 regulated by the Department of Housing and Community Development,  $\mp$  the local responsible building official of any city, county, or city and county, in accordance with the procedures set forth in Chapter 3, (with the exception of Section 301.2.7) may shall authorize by permit the use of CPVC for hot and cold water distribution systems within the interior of residential buildings provided all of the following conditions are satisfied:~~

~~(a) **Finding Required.** The building official shall first make a determination that there is or will be the premature failure of metallic pipe if installed in such residential buildings due to existing water or soil conditions.~~

**(a)(b) Permit Conditions.** Any building permit issued pursuant to ~~this~~ Section 604.1.1 shall be conditioned on compliance with the mitigation measures set forth in this Section.

**(b)(c) Approved Materials.** Only CPVC plumbing material listed as an approved material ~~in~~, and installed in accordance with this code may be used.

**(c)(d) Installation and Use.** Any installation and use of CPVC plumbing material pursuant to this Section shall comply with all applicable requirements of this code and Section 1.2 of Appendix I of this code, Installation Standard for CPVC Solvent Cemented Hot and Cold Water Distributions Systems, IAPMO ~~IS-20-98~~ IS 20-2005.

**(d)(e) Certification of Compliance.** Prior to issuing a building permit pursuant to ~~this~~ Section 604.1.1, the building official shall require as part of the permitting process that the contractor, or the appropriate plumbing subcontractors, provide written certification: (1) that is required in subdivision (e)(f); and (2) that he or she will comply with the flushing procedures and worker safety measures set forth in Section 1.2 of Appendix I of this code, Installation Standard for CPVC Solvent Cemented Hot and Cold Water Distribution Systems, IAPMO ~~IS-20-98~~ IS 20-2005.

**(e)(f) Worker Safety.** Any contractor applying for a building permit that includes the use of CPVC plumbing materials authorized pursuant to this Section shall include in the permit application a signed written certification stating that:;

- (1) They are aware of the health and safety hazards associated with CPVC plumbing installations.
- (2) They have included in their Illness and Injury Prevention Plan the hazards associated with CPVC plumbing pipe installations; and
- (3) The worker safety training elements of their Injury and Illness Prevention Plan meets the Department of Industrial Relations' guidelines.

**~~(f)~~(g) Findings of Compliance.** *The building official shall not give final permit approval of any CPVC plumbing materials installed pursuant to this Section 604.1.1 unless he or she finds that the material has been installed in compliance with the requirements of this code and that the installer has complied with the requirements in Section ~~304-0.4~~ 1.2.1, of Appendix I of this code, Installation Standards for CPVC Solvent Cemented Hot and Cold Water Distribution Systems, IAPMO ~~IS-20-98~~ IS 20-2005.*

**~~(g)~~(h) Penalties.** *Any contractor or subcontractor found to have failed to comply with the ventilation, glove or flushing requirements of Section ~~304-0~~ 1.2.2 of Appendix I of this code, Installation Standards for CPVC Solvent Cemented Hot and Cold Water Distribution Systems, IAPMO ~~IS-20-98~~ IS 20-2005 shall be subject to the penalties in Health and Safety Code, Division 13, Part 1.5, Chapter 6 (Section 17995 et seq.). In addition, if during the conduct of any building inspection the building official finds that the ventilation and glove requirements of Section ~~304-0~~ 1.2.2 of Appendix I of this code, "Special Requirements for CPVC Installation within Residential Buildings", are being violated, such buildings officials shall cite the contractor or subcontractor for that violation.*

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APPENDIX I  
INSTALLATION STANDARDS

Adopt entire Appendix I as amended.

INSTALLATION STANDARD  
FOR  
CPVC SOLVENT CEMENTED HOT AND COLD WATER DISTRIBUTION  
SYSTEMS  
IAPMO IS 20-2003 2005

~~Section 301.0 Special Requirements for CPVC Installation Within Residential Buildings Only. [HCD 1]~~

**1.2 Special Requirements for CPVC Installation within Residential Structures.**

*In addition to the other requirements in the California Plumbing Code and this Appendix for the ~~Installation Standards for~~ installation of CPVC Solvent Cemented Hot and Cold Water Distributions Systems, all installations of CPVC pipe within residential structures shall meet the following:*

**301.0.1 1.2.1 Flushing Procedures.** ~~301.0.1.1~~ *All installations of CPVC pipe within residential structures shall be flushed twice over a period of at least one (1) week. The pipe system shall be first flushed for at least 10 minutes and then filled and allowed to stand for no less than 1 week, after which all the branches of the pipe system must be flushed long enough to fully empty the contained volume. At the time of the fill, each fixture shall have a removable tag applied stating:*

*"This new plumbing system was first filled on (date) by (name). The California Department of Housing and Community Development requires that the system*

be flushed after standing at least one week after the fill date specified above. If the system is used earlier than one week after the fill date, the water must be allowed to run for at least two minutes prior to use for human consumption. This tag may not be removed prior to flushing, except by the homeowner." **301.0.2**

**1.2.2 Worker Safety Measures. 301.0.2.1** Mechanical ventilation sufficient to maintain exposures below the relevant exposure limits established by state regulations shall be provided in enclosed spaces. This ventilation shall be directed at the breathing zone of the worker installing the pipe. Where mechanical ventilation is not practical, respirators, suitable for organic vapors, shall be used. For the purpose of this subdivision, an enclosed space is defined as:

- (a) A space less than 100 square feet of floor area under a ceiling with a height of 10 feet or less, and which does not have openings (consisting of doors, windows, or unfinished walls) on at least two sides;
- (b) Crawl spaces having a height of less than three feet;
- (c) Enclosed attics that have a roof and ceiling; or
- (d) Trenches having a depth greater than ~~twenty-four~~ 24 inches.

**301.0.2.2** Installers of CPVC pipe within residential structures shall use non-latex thin gauge (4 millimeters) nitrile gloves, or other gloves providing an equivalent or better degree of protection during the installation of the CPVC plumbing system. Gloves shall be provided to all workers by the contractor, or plumbing subcontractor, and shall be replaced upon contamination by cements.

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The 2000 MND applied the Cal/OSHA exposure limits then in effect and found that the impacts on worker safety due to worker exposure to CPVC pipe adhesives when installations are performed pursuant to the mitigation measures were less than significant. However, since the MND was approved in 2000, Cal/OSHA has changed the PEL and STEL for acetone. In 2006, the PEL was lowered from 750 ppm to 500 ppm (1780 mg/m<sup>3</sup> to 1200 mg/m<sup>3</sup>), the STEL was lowered from 1000 ppm to 750 ppm (2400 mg/m<sup>3</sup> to 1780 mg/m<sup>3</sup>) and a ceiling limit of 3000 ppm was added. The exposure limits were reduced to conform to those established by the American Conference of Governmental Industrial Hygienists (ACGIH) and to protect employees from the irritant effect of high concentrations of acetone.<sup>43</sup>

### C. Discussion

Changes in the safety profiles of some CPVC products along with the introduction of new projects should result in reduced worker exposure to chemical contaminants. Since the 2000 MND was approved, the concentrations of most of the VOCs in CPVC adhesives have been reduced. One-step cements (no primer required) are available and approved for use in California. Reducing the amount of Adhesives needed to be used will reduce the quantities of chemicals the workers are exposed to.

The reduction in VOC content also has generally resulted in an increase in acetone concentrations. And as noted above, the PEL for acetone was reduced in 2006. However, the Lead Agency is unaware of any reported incidences of plumbers being exposed to acetone in concentrations that exceed the new PELs.

Some of California's air districts have issued rules limiting the VOC content of adhesives. These low-VOC regulations are not uniform throughout the state. Air quality districts with the worst air quality problems usually require more stringent reductions. However; this is not consistently true and there are many

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<sup>43</sup> Occupational Safety and Health Standards Board Initial Statement of Reasons for an amendment of 8 CCR 5155 which was adopted April 20, 2006. (Doc.222)

concentrations of non-carcinogenic toxic air contaminants would result in a hazard Index greater than 1 for the MEI.

#### **E. Worker Safety Impact Findings**

The Lead Agency has taken steps to minimize worker exposure to chemical contaminants during CPVC installation. As part of the proposed regulations, the Lead Agency will require the use of low-VOC CPVC cements and primers statewide. This may reduce worker exposure to VOCs. Although not required, use of one-step cement, would also reduce exposure.

Workers who do not follow product label and MSDS safe use instructions may occasionally experience solvent exposures that exceed permissible exposure levels. Intentional misuse or failure to follow safety instructions can render many things unsafe. The Lead Agency does not consider the potential for unsafe work conditions that could result from intentional misuse, or failure to follow instructions for safe use, to constitute a significant adverse impact within the context of CEQA.

The Mitigated Negative Declaration analyzed the health impacts of CPVC installation on pipe workers. The MND found that with certain mitigation measures, the impacts to pipe workers were less than significant.

Since the MND was approved, the Permissible Exposure Level (PEL) for acetone was reduced.

The Lead Agency is not aware of any regulatory reports of workers being exposed to acetone levels in excess of the new acetone PEL standard.

Methyl ethyl ketone has been removed from the federal toxic air contaminant list by the U.S. Environmental Protection Agency.

**Less than Significant:** The Lead Agency concludes, based on consideration of the whole record, that if the proposed regulations are approved, adverse impacts to workers will be less than significant.