



A Division of The Society of The Plastics Industry, Inc.

Roy T. Gottesman
Executive Director

August 31, 1989

TO: The VI Pipe Industry Task Force

RE: California Draft Environmental Impact Report

As per our discussion at the PRO meeting yesterday, enclosed please find the summary section of the California Draft Environmental Impact Report on Plastic Plumbing Pipe, as well as letters providing information on the location of the public hearings and the availability of the full report from the Department of Housing and Community Development.

Roy

RTG/pmb
enclosures

CTL027642

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

OFFICE OF THE DIRECTOR

P. O. BOX 952051

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August 21, 1989

William G. Holliman, Jr.
Holliman, Hackard & Taylor
1545 River Park Drive, #550
Sacramento, CA 95815

Dear Bill:

I am pleased to provide you with five copies of the Draft EIR on plastic plumbing pipe.

Please note we are providing an extended public comment period in excess of 60 days to assure an adequate time for review. Written comments will be received until October 23, 1989.

The Department has also scheduled two public meetings to receive oral comments on the adequacy of the DEIR. These are scheduled for September 26, 1989 at 107 South Broadway in Los Angeles and September 27, 1989 at 1111 Jackson Street in Oakland.

We welcome your comments on the documents. In accordance with CEQA, comments received during the public comment period will be addressed in the Final EIR. The Final EIR is expected to be released in March 1990.

Sincerely,


Julie Castelli Nauman
Acting Director

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August 23, 1989

Dear EIR Reviewer:

The Department of Housing and Community Development (HCD) is pleased to release this Draft Environmental Impact Report (EIR) on the proposed expanded uses of plastic plumbing pipe in residential construction. The Department has worked closely with other state agencies to collect and assess the latest information in areas of potential impact such as public health, worker health, and fire safety.

AVAILABILITY. A copy of this EIR has been sent to every county library and regional council of government in the state in an effort to make it readily available to all. Personal copies of the EIR may be purchased from the Department for \$20, postage and handling included. A copy of the EIR summary will be provided free upon request.

COMMENT PERIOD. Your written comments on the adequacy and completeness of the EIR are welcome. The Department is providing a 60-day comment period ending on October 23, 1989. Comments received after this date may not be addressed in the Final EIR.

PUBLIC HEARINGS. In addition to submitting written comments, oral testimony on the adequacy and completeness of the EIR may be made at two public hearings scheduled by the Department. The first hearing is on September 26, 1989, at 107 South Broadway in Los Angeles. The second hearing will be on September 27, 1989, at 1111 Jackson Street in Oakland.

If you have any questions on the EIR or the environmental review process the Department is undertaking, please contact our Division of Codes and Standards at (916) 445-9471.

Sincerely,

A handwritten signature in cursive script that reads "Julie C. Nauman".

Julie Castelli Nauman
Acting Director

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Draft Environmental Impact Report

PLASTIC PLUMBING PIPE

An assessment of potential public health, worker health, and fire safety impacts associated with allowing expanded use of plastic pipe for water supply and drain/waste lines in residential construction.

August 1989

Availability: A copy has been sent to every main county library in the state. Additional copies may be purchased from the Department of Housing and Community Development.

Public Hearings: September 26: 107 South Broadway, Los Angeles
September 27: 1111 Jackson Street, Oakland

Comment Period: Ends October 23, 1989



George Deukmejian, Governor
State of California

John K. Geoghegan, Secretary
Business, Transportation and Housing Agency

Julie C. Nauman, Acting Director
Department of Housing and Community Development

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Department of Housing and Community Development
1800 Third Street, Sacramento, CA 95814
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SUMMARY

The California Department of Housing and Community Development (HCD) is proposing to amend the state housing law to incorporate provisions of the 1988 Uniform Plumbing Code (UPC), which will allow additional uses of plastic plumbing pipe in residential construction. The principal changes are to allow the use of polybutylene (PB) and chlorinated polyvinyl chloride (CPVC) pipe in hot and cold potable water (PW) supply systems inside dwellings and acrylonitrile-butadiene-styrene (ABS), polyvinyl chloride (PVC), and CPVC pipe in drain, waste, and vent (DWV) applications in combustible construction. Currently, no plastic pipe is allowed for water supply inside a dwelling, and only PVC and polyethylene (PE) are allowed for cold water supply outside a dwelling; ABS and PVC are allowed for DWV, but only in structures two stories or less.

If adopted, this state-level action would stimulate similar changes in the plumbing codes of most local jurisdictions in California, and substantial use of the newly approved materials, especially PB for potable water and ABS for DWV in fire-rated buildings, would be expected. These materials would replace copper PW pipe, cast iron DWV pipe, smaller quantities of galvanized steel PW and DWV pipe, and/or copper DWV pipe, and minor quantities of the plastics currently allowed.

The principal areas of concern about plastic and metal piping systems are:

- o Impacts on public health of the chemicals entering drinking water from pipe, pipe-joining materials, or surrounding contaminated soils
- o Illness or injuries in plumbers that result from installing pipe
- o Danger from fires, as a result of either increased fire spread or smoke toxicity
- o Fiscal impacts on the price of housing and the employment of plumbers and pipe manufacturers
- o Other impacts such as energy consumption in pipe manufacture and use.

This report found that no unavoidable significant adverse effects in these areas would result from the proposed expanded use of plastic plumbing pipe.

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Public Health

Recent studies have found that a few chemicals leach from plastic pipe and solvent cements into drinking water. However, leachates from PB pipe are negligible, and cement solvents are the only leachates consistently found in measurable levels in CPVC pipe systems. None of the leachates was detected at levels that would pose a significant health risk to residents.

Two chemicals were detected at levels that could, under worst-case conditions, pose health risks to workers who drink large quantities of water from a plastic plumbing system that has not been thoroughly flushed. A moderately toxic chemical, methyl ethyl ketone (also known as 2-butanone), could leach in concentrations that somewhat exceed the lifetime (but not shorter term) health advisory levels. Chloroform, an animal and probably a human carcinogen, could be produced by the reaction of chlorinated water with the cement used on CPVC pipe at levels that would have about one chance in a million of causing cancer during a worker's lifetime. However, these chemicals are unlikely to pose significant long-term health risks under more realistic conditions of exposure.

Available information indicates that lead leachate from copper and galvanized steel pipe poses a significant public health risk if solders having a high lead content are used. However, the State of California has prohibited the use of lead solder containing more than 0.2% lead.

Permeation of buried CPVC water pipe by contaminants in the soil would be insignificant, except under conditions of extremely high concentrations of organic solvents in the soil. In contrast, PB pipe is much more susceptible to permeation by organic chemicals, but high concentrations of chemicals in the environment would be required to produce appreciable permeation levels. The necessary conditions are unlikely except near underground gasoline storage tanks and dump sites.

Worker Health and Safety

The net effect of increased use of plastic pipe on safety is unclear. It could lead to a decrease in the risk of accidental injury because strains and contusions incurred in lifting heavy metal pipe as well as burns from soldering copper pipe would presumably be less. On the other hand, the ease of handling and installing plastic pipe could lead to hurried work by less trained individuals and possibly to more accidents.

Increased plastic pipe use would lead to increased exposure to solvents among the plumbers installing that pipe, and installation using current procedures may cause short-term exposure limits to be exceeded one or more times on a substantial fraction of work days. The two solvents most likely to exceed their respective short-term and

full-shift exposure limits are tetrahydrofuran and methyl ethyl ketone (MEK). However, the established exposure limits for both substances are designed to prevent eye, nose, and throat irritation and are much lower than the levels needed to induce acute central nervous system effects. Conclusions about health impacts are limited by the scarcity of chronic toxicity information.

The occasionally excessive short-term exposures as well as total biological uptake could be reduced by instituting reasonable control measures that are not now widely used.

Fire Safety

Plastic pipe is more susceptible to fire damage than is metal pipe. If installed as a direct substitute for metal pipe, plastic will allow faster fire spread by burning or slumping at wall penetrations.

ABS and PVC already are used in 95% of the DWV systems installed in new nonfire-rated construction in California, and there is no evidence that they have caused unusual fire hazards. Permitting the use of CPVC would have a very small additional effect. On the other hand, permitting PB and CPVC for hot and cold water supply would be a new use. However, the additional quantities would be small relative to DWV plastics, and the effect on fire spread would not be significant.

The proposed action would allow the use of plastic plumbing pipe in fire-rated construction as long as the fire rating is preserved. If techniques for preserving the rating are implemented--such as the use of metal sleeves or fire closures at wall penetrations--plastic pipe will, by definition, be acceptable in this regard. To maintain the rating, fire-stopping materials and techniques that meet suitable fire performance tests must be used. Further, special care would be required in installation and inspection to ensure that the necessary level of protection is achieved.

The combustion of all plastic pipes gives off toxic products. Although some toxic smoke is generated from pipe-joining compounds in metal systems, the amounts are insignificant. Given the currently available data and the expected amount of use of these materials in residences, none of the plastics under consideration is likely to pose a significant threat to residents. Fire fighters are intermittently exposed to a variety of smoke toxicants and thus are more subject to long-term illness, but the breathing equipment provided them would prevent harmful exposure.

Economics

The life-cycle cost of plastic pipe is slightly less than that of metal pipe in typical residences, but the difference is not sufficient

to cause a significant increase in residential construction or to induce significant growth in California's population through lowered housing cost.

Small decreases in employment would occur in metal pipe industries, and small increases in employment would occur in plastic pipe industries. The work (in terms of labor hours) available to plumbers would decrease slightly--(1) because it is easier for them to install plastic pipe (thereby raising their productivity) and (2) because it is also easier for homeowners to install, replace, and repair their own plastic plumbing rather than employing plumbers to do so.

Other Issues

A very small decrease in total energy consumption and a very small increase in petroleum consumption would occur if the use of plastic pipe becomes more widespread. Plastic DWV is reportedly noticeably noisier than cast iron in otherwise identical installations, and that additional noise may be annoying in multifamily residences affected by the code changes. Neither these nor other potential impacts would be significant.

Conclusion

Wider use of plastic plumbing pipe would not increase public health hazards significantly. Worker on-the-job safety may or may not be improved. Worker exposures to solvents would increase, but could be limited to minor levels by the use of protective measures. Similarly, by restricting their intake of preoccupancy water, workers could minimize their exposure to MEK, which may appear in concentrations approaching hazardous levels and to chloroform, which is a potential carcinogen.

Unlike metal pipe, plastic pipe burns or decomposes thermally, but if effective fire-stopping techniques are used when it is installed, plastic plumbing pipe will not diminish fire safety. Although the risk of toxic smoke from plastics is greater than that for metal plumbing systems, smoke from burning plastic pipe does not pose a significant health threat to residents or, if they use breathing apparatus, to fire fighters. Finally, the economic impacts of greater use of plastic pipe would be small, involving slight shifts in employment between industrial sectors and a small decrease in plumbing work.

Overall, no significant environmental impacts are associated with more widespread use of plastic plumbing pipe. The modified-action alternatives considered cannot be differentiated on the basis of significant environmental impacts. They do offer ways to reduce certain small though finite risks to lower levels. Furthermore, the various environmental implications of the two types of plumbing systems, although differing, indicate no clear environmental preference for plastic or for metal pipe.