



•History of Plumbing



Romans were first to use lead pipe to distribute water and remove waste water from buildings



Empires perish, but lead pipe lasts

THIS piece of lead pipe had been buried in the ground nearly 1,900 years when it was dug up by workmen excavating for a subcellar in Rome.

Vespasian was emperor when this pipe was made—the inscription tells that. When Vespasian laid water-pipes of lead in the streets of Rome, he followed the example of Julius Caesar, who sent plumbers with his legions into barbarian lands. Lead pipe laid by these Roman invaders has been dug from English soil.

For centuries lead's non-corrosive qualities have made it the favored metal for water-pipes. Lead gutters, pipe-heads, and leader pipes have been used for hundreds of years to carry off the rain from the roofs of buildings. Such lead work is often very beautiful and ornamental.

Often you see a steel skeleton, a bridge, a roof, a railing that has been painted a flaming orange-red. This brilliant coat is red-lead, an oxide of lead. "Save the surface and you save all" is an imperative maxim where exposed metal surfaces are concerned, and red-lead is the most reliable protection against rust that has yet been discovered.

You are surrounded by lead, in your home and on your travels. There is lead in the rubber heels of your shoes, in the tires of your automobile, in the bearings of the machinery that makes things for your use or transports you from place to place.

Civilization has found hundreds of uses for lead and its products, and of them all the use of white-lead in paint is undoubtedly the most important.

Paint is used to decorate and preserve almost everything that is built or made, and the principal factor in good paint is white-lead—made by corroding pure metallic lead and mixing it with linseed oil.

Most painters simply add more linseed oil to the white-lead, in order to make the paint they use. Paint manufacturers use white-lead, in varying quantities, in the paint they make. The quality of any paint is largely dependent on the amount of white-lead it contains, for it is the white-lead that gives to good paint its durability.

"Save the surface and you save all" means that paint prevents decay and ruin. The highest protective power is found in those paints which contain the most white-lead.

National Lead Company makes white-lead of the highest quality, and sells it, mixed with pure linseed oil, under the name and trademark of

Dutch Boy White-Lead

Write our nearest branch office, Dept. F, for a free copy of our "Wonder Book of Lead," which interestingly describes the hundred-and-one ways in which lead enters into the daily life of every one.

Save the surface and you save all.

NATIONAL LEAD COMPANY
New York Boston St. Louis San Francisco
Cleveland Buffalo Chicago Cincinnati
JOHN T. LEWIS & BROS., Philadelphia
NATIONAL LEAD & OIL CO., Pittsburgh



Some Products Made by National Lead Company	
Dutch Boy White-Lead	Game Lead
Dutch Boy Red-Lead	Electrotype Metal
Dutch Boy Linseed Oil	Lead Oxides
Dutch Boy Flattening Oil	Shot
Dutch Boy Rabbit Metals	Lead Wool
Dutch Boy Solders	Litharge
Basic Lead Sulphate—White and Blue	

The early Christians rejected most anything Roman, including the value of cleanliness. They considered it unsanitary to be clean, sinful to display material wealth



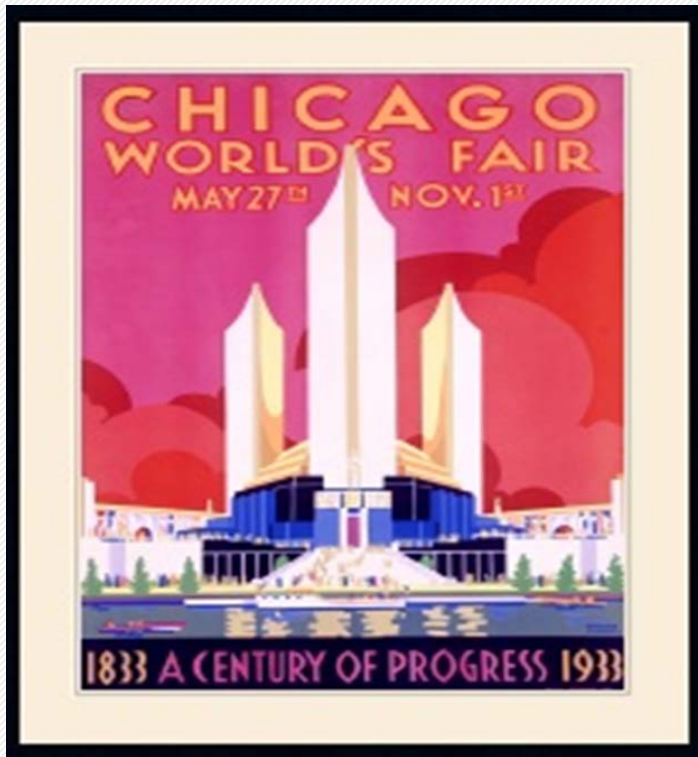
- Colonial bathing consisted of dips in ponds or streams. More typical was a quote from Elizabeth Drinker, the wife of a highly-placed Philadelphia Quaker. She had a shower (probably a bucket) put up in her backyard in 1799. She said, "I bore it better than I expected, not having been wet all over at once, for 28 years past."



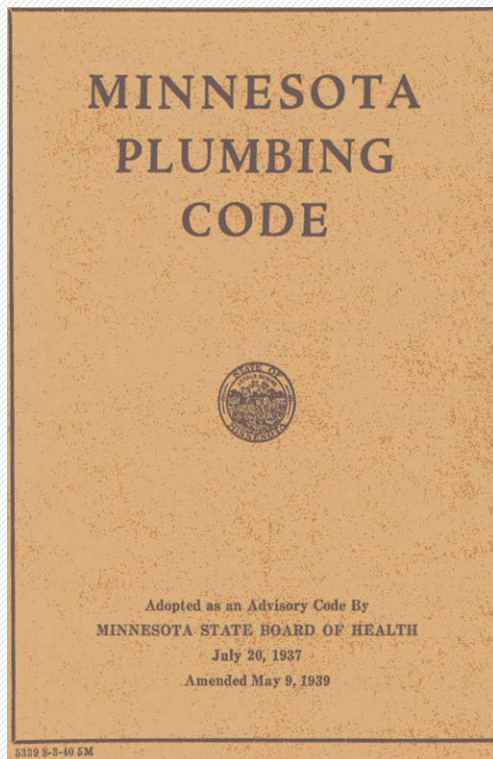
- This distaste for water goes back to the medieval notion that water caused the chills, and other sickness. The more likely reason was that the privy and the local well were too close together and spawned cholera and typhoid instead.



- Digging wells and cisterns to collect rainwater was the primary means of getting water throughout most settlements. Water was not a popular beverage during those days. A girl from Barbados boarding with her grandmother in 1714 while the eight-year-old attended school in Boston, complained to her father that grandmother was making her drink water. Dad wrote back and insisted that she get beer or wine as befitted her station.



An outbreak of amoebic dysentery in Chicago during the 1933 World's Fair was traced to faulty plumbing. Tragic results were 98 deaths and 1,409 official cases.



The Minnesota Plumbing code went into effect on October 27, 1933.

This code could be adopted by reference. Several hundred cities used this code.



- Minnesota Plumbing Code
- Minnesota Chapter 349, Laws of 1933, licensing of plumbers went into effect April 22, 1933, requiring plumbers in cities of over 5000 be licensed.
- By October 1933 there were:
 - 663 Master Plumbers
 - 1037 Journeyman Plumbers



- Effective date of the new Code.
- January 23, 2016

- The Code is available on line, download, and Printable @
- http://www.iapmo.org/PublishingImages/2015_MinnesotaPlumbing_lg.jpg



- • Scope: new, existing, altered, moved
What about “Ag” buildings? Do we permit and inspect the plumbing in the bathroom of a farm machine shed?



- What about “Ag” buildings?
- To qualify, the "agricultural building" must satisfy the conditions of this definition for how both the building and the land (273.13 subd. 23) are used.
- A) First, the uses of the building must be consistent with those described:
 - 1. It must be used primarily for housing farm implements (not a parking garage), livestock (which does include horses and the commercial boarding of horses – see 273.13 subd. 23 (e)(3), and those "agricultural products" enumerated in clause (e).



- What about “Ag” buildings?
- To qualify :
- 2. It should be noted that this "agricultural building" cannot be for use by the public such as for retail sales, mini-storage, riding lessons, livestock shows, etc



- What about “Ag” buildings?
- To qualify : 3. The building can serve as a place of employment for persons working with the agricultural products and those engaged in their pickup or delivery.
- B) Second, the building must be on agricultural land as defined in section 273.13, subdivision 23.



- What about “Ag” buildings?
- To qualify :
- To make this determination, the building official should rely on how the property is classified according to the records of the county assessor's office. After all, property classification is their jurisdiction and this is the statute they use to make their classification. This is probably the best method because it removes the building official from a subjective decision on a matter over which they have no knowledge or training.



- • Highlight basics of the new Plumbing Code



- • Highlight basics of the new Plumbing Code:
- Alternate engineered designs. Provisions for alternate engineered designs are prescribed in the 2015 code meaning alternate engineered systems must be reviewed in accordance with those provisions of the code and approvals are at the discretion of the administrative authority on a case-by-case basis



- • Highlight basics of the new Plumbing Code:
- Backflow preventers:
- Fire protection systems. Low-hazard systems must be provided with a listed double-check valve assembly. Single detector check valves are no longer acceptable. High-hazard systems must be provided a listed reduced pressure zone (RPZ) backflow assembly. Fire department Siamese connections with secondary nonpotable water sources must be provided with a rpz device.



- • Highlight basics of the new Plumbing Code:
- Backflow preventers:
- Testable devices. All testable backflow devices must be tested and inspected annually.
- ☐ Testable devices include RPZ backflow assemblies, pressure type vacuum breakers, spill-proof vacuum breakers and double check valve assemblies.



- • Highlight basics of the new Plumbing Code:
- Backflow preventers:
- Testable devices. ☐ Buildings served by a community public water supply system must provide notifications to the administrative authority and the public water supplier/purveyor of all testable devices within 30 days of installation. Please coordinate with the local administrative authority and the public water supplier to ensure compliance with this rule section.



- • Highlight basics of the new Plumbing Code
- Single-wall heat exchangers. These are permitted provided the installation meets the design criteria of the code.



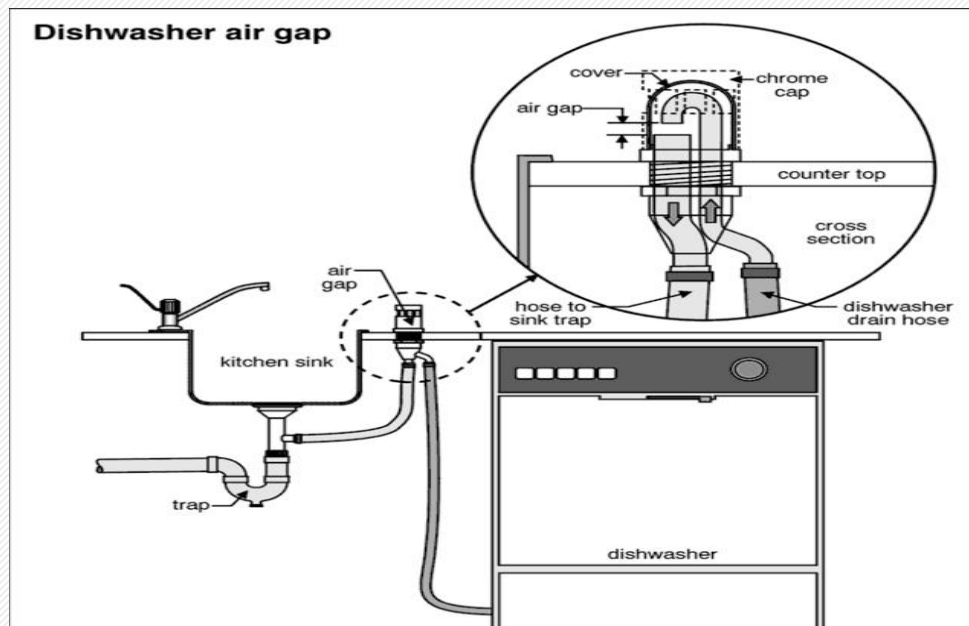
- • Highlight basics of the new Plumbing Code
- Fixtures
 - ◦ Floor drains are now required in public restrooms and public laundry rooms.
 - ◦ Shower waste outlet and tailpiece must be a minimum of two inches.
 - ◦ Domestic kitchen sink drains must be two inches.



- • Highlight basics of the new Plumbing Code
- Fixtures
- ◦ Domestic dishwashers may discharge indirectly by means of a waste receptor or wye branch fitting on the tailpiece of kitchen sink when an approved dishwasher air gap fitting is provided on the discharge side.



- • Highlight basics of the new Plumbing Code
- Fixtures
- ◦ Domestic dishwashers dishwasher air gap fitting





- • Highlight basics of the new Plumbing Code
- Hangers and supports. The 2015 code allows plastic pipe, solvent cemented Schedule 40 PVC and ABS drain-waste-vent (DWV) pipe to have hanger spacing of 4-foot intervals for all pipe sizes in horizontal installation, unless for expansion/contraction compensation support at every 30 feet with all conditions met for the use as allowed in Appendix I.



- • Highlight basics of the new Plumbing Code
- Materials
- ◦ The long-standing 35-foot rule limitation for plastic pipe used in DWV installation is removed. The 2015 code requires thermal expansion and contraction compensation of plastic pipe use in DWV be taken into consideration during design and installation as described in the installation standards of Appendix I



- • Highlight basics of the new Plumbing Code
- Materials
- Installation standards for plastic ABS and PVC allow the use of offsets, expansion joints, or restraints provided conditions of proper support and movement are met. Accordingly, aboveground horizontal and vertical plastic piping must be installed with restraint fittings or a minimum 24-inch, 45-degree offset every 30 feet.



- • What inspections are required?
- Requirements in 2015 code remain consistent with the 2012 Minnesota Plumbing code.
- Minnesota Rule 1300.0210
- Minnesota Rule 1300.0215
- Minnesota Rule 4714.712



- • When is the plumbing subject to a state review? How long does that review take? Who can design and/or submit plans to the state. Are there certification requirements for the plans?
- DLI reviews proposed plumbing projects to ensure compliance with the Minnesota Plumbing Code (Minnesota Rules Chapter 4714). Plumbing plans and a fee must be submitted for modification or installation of all plumbing systems that serve the public or that serve a considerable number of persons.



- • When is the plumbing subject to a state review? How long does that review take? Who can design and/or submit plans to the state. Are there certification requirements for the plans?
- This includes, but is not limited to, restaurants, grocery stores, department stores, offices, warehouses, churches, hospitals, nursing homes, assisted living facilities and housing with five units or more (excluding townhomes built to the International Residential Code (IRC) with individual water and sewer services to each dwelling unit). The fees for plan review are required by Minnesota Statutes 326B.49 Subd. 2.