

**National Plumbing Code of Canada 2010**  
**Section A-2.6.1.9.(1) - Water Hammer Prevention**  
**Interpretation / Comments**

National Plumbing Code of Canada Section A-2.6.1.9.(1)	Interpretation / Comments
<i>"Water Hammer is a buildup of pressure in a length of horizontal and vertical pipe that occurs ...</i>	Uncontrolled water hammer is a quick spike in pressure stemming from the inherent kinetic energy (momentum) in all flowing water, that starts at the culprit valve but also extends throughout the entire system.
<i>"... when a valve or faucet..."</i>	solenoid valves on dishwashers, icemakers, washing machines, sprinkler systems, flush valves. Manual flush valves. Single lever or quarter turn manual T/S valves and faucets over 2 gpm rating.
<i>"... is closed suddenly."</i>	Sudden closure is simply the normal closure for the valves and faucets described above.
<i>"The longer the pipe and the greater the water velocity, the greater the pressure exerted on the pipe, which can be many times the normal static water pressure ..."</i>	Water hammer is a physics factor of mass and velocity (speed). A common washing machine valve can create a pressure rise of 250 psig above the flow pressure. Other water hammer incidents can easily go up to 400 psig.
<i>" ... and be sufficient to damage the piping system."</i>	ALL pipe fittings, valves, appliances, safety devices, etc. will definitely be exposed to these high pressure surges, wearing them out prematurely, or even damaging them in a short period of time.
<i>"Since air chambers made from a piece of vertical pipe do not provide acceptable protection..."</i>	Contractor-made (or even factory-made) plain air chambers waterlog within weeks of installation because they have nothing to separate the air charge from the water.
<i>"Pre-manufactured water hammer arresters..."</i>	National Plumbing Code of Canada: 2.2.10.15 1) <i>Water Hammer Arresters shall conform to ASSE 1010.</i> Look for ASSE logo on arrester. ( <a href="http://www.asse-plumbing.org">www.asse-plumbing.org</a> )
<i>"...are required to address this potential problem."</i>	Installed per ASSE design and manufacturer's instructions. On the <u>SINGLE BRANCH LINE</u> serving that valve ... On <u>BOTH HOT and COLD</u> lines (where applicable) ... <u>WITHIN 6 FEET</u> of valve, the Point of Impact. <u>No access panels required.</u> <b>CODE APPLIES TO ALL PIPING MATERIALS, METAL AND PLASTIC ... NO EXCEPTIONS.</b>
<i>"Water hammer arresters need not be installed at every valve or faucet ..."</i>	No need for installation on 2.0 gpm or less lavs or toilets on new construction.
<i>"... nor in every piping system."</i>	This last phrase is totally undefined, but IF indeed there was a piping system with NO quick-closing valves at all, then there may not be a need for arresters, but virtually every system does have at least some quick closing valves.