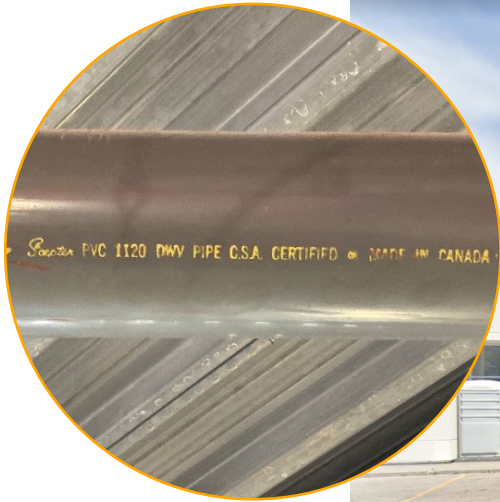


# The Mechanical Pipeline

## PVC DWV Stands the Test of Time



Piping from a stand-alone commercial building in a west-end Toronto strip mall, that utilized Scepter piping system estimated to be at minimum 35 years old.

### Drain, Waste & Vent

Consider IPEX's Complete System of DWV Products

- Meets all code requirements for noncombustible buildings
- Provides rugged reliability with the added benefits of PVC
- Offers ease of installation and handling relative to metal counterparts
- Are extremely durable, corrosion-resistant and requires little or no maintenance
- Provides optimum long-term value



Ignazio Liuzzi of Complete Mechanical Contractors in Bolton was retrofitting a stand-alone building in a west-end Toronto strip mall to accommodate new tenants. When opening the ceiling, Ignazio found something unique and interesting: a 4-inch diameter section of PVC DWV pipe labeled "Scepter® Mfg.", "I've been in this trade for over 30 years", he recalls thinking "and I've never seen or even heard of this product before. Let me call someone who's going to know what this is. I called Mike Mercurio."

Mike Mercurio, a veteran Mechanical Technical Representative with IPEX, explained that what Ignazio had found was an early IPEX product, estimated to be at least 35 years old. According to Ignazio, everything about the old pipe "was good inside and out." He added, "If that had been cast iron for that period of time, I'm sure it wouldn't have been in as good a condition as that plastic. It would have deteriorated quite a bit." Despite the fact that the pipe was in excellent condition, the product needed to be replaced because today's Ontario Building Code restrictions for return air plenums have changed since it was originally installed.

Ignazio was surprised by what Mike requested next. He wanted to retrieve all the Scepter pipe that Ignazio was replacing, as this was a unique opportunity to test this old pipe for longevity and durability. Pipe sections were collected and delivered to the IPEX Research and Development facility in Mississauga, Ontario where testing could be done to see if this old pipe would match today's PVC standards.

"If that had been cast iron for that period of time, I'm sure it wouldn't have been in as good a condition as that plastic. It would have deteriorated quite a bit."

**Ignazio Liuzzi**

Complete Mechanical Contractors Ltd.

The basis for most of the testing was the CSA B181.2 standard for PVC DWV, the 1975 edition, Interestingly, most test requirements of today's CSA standard are the same as the 1975 version, In addition, the pipe stiffness test was conducted and was derived from ASTM D2665. The adjacent table presents the summary of the performed tests along with their results:

For any DWV system to perform reliably for a period of 36 years is impressive, especially given the stress from continual operation that the pipeline undergoes. These factors include fluctuating temperatures, unknown flow contents, and mechanical stresses. For the Scepter pipe to demonstrate equivalent properties to a new pipe today is outstanding.

Louis Daigneault, Ph.D., P. Eng., Manager of R&D at IPEX summarized the findings as follows: *"When put to use within their design space of temperature, pressure and fluid transport chemistry, thermoplastics such as PVC will provide a lifetime of reliable service in their field of application."*

The existing Scepter pipes were replaced with System XFR®, a PVC DWV system by IPEX rated for high buildings and air plenums. IPEX expects System XFR will also demonstrate excellent longevity and provide many decades of reliable, corrosion-free performance in DWV applications such as this one. System XFR possesses superior flame and smoke-retardant capabilities when tested to the CAN/ULC S102.2 standard. System 15 and System XFR piping systems won't corrode and will ensure there is no deterioration in flow characteristics over the life of the installation,

#### Results of Physical Testing Performed on Vintage Scepter Pipe

Physical Test	Standard Reference	Requirement	'Scepter' PVC DWV Test Result
Tensile Strength	CSA B181.2	7,000 psi	Pass
Dimensions	CSA B181.2	Outer diameter, Out-of-Roundness, Wall	Pass
Appearance	N/A		Smooth, free of defects
Izod Impact Strength	CSA B181.2	0.65 ft.-lb./ in. of notch	Pass
Flattening	CSA B181.2	60% without splitting or cracking	Pass
Extrusion Quality	CSA B181.2	< 50% attack after solvent immersion	Pass
Ambient Temperature Drop Impact	CSA B181.2	175 ft-lb at 23°C	110 ft-lb
Cold Weather Drop Impact	CSA B181.2	135 ft-lb. at 0°C	74 ft-lb
Pipe Stiffness	ASTM D2665	2,140 kPa min.	Pass

which reduce maintenance costs and lengthen performance life.. System XFR also sweats less than metal pipe due to its excellent insulating properties. As a result, System XFR can reduce the need for insulation.

Should longevity be a key consideration in the selection of DWV piping? Absolutely, and IPEX DWV products such as System 15 and System XFR have raised the bar in the industry, offering building owners decades of durability and reliable performance from one reliable source.

#### THE LEADERS IN THERMOPLASTIC PIPING SYSTEMS

As the leader in thermoplastic piping systems, IPEX designs and manufactures the largest, most recognized, and diverse range of integrated piping products—everything professionals need to manage the full spectrum of today's municipal, industrial, commercial, and residential challenges.

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