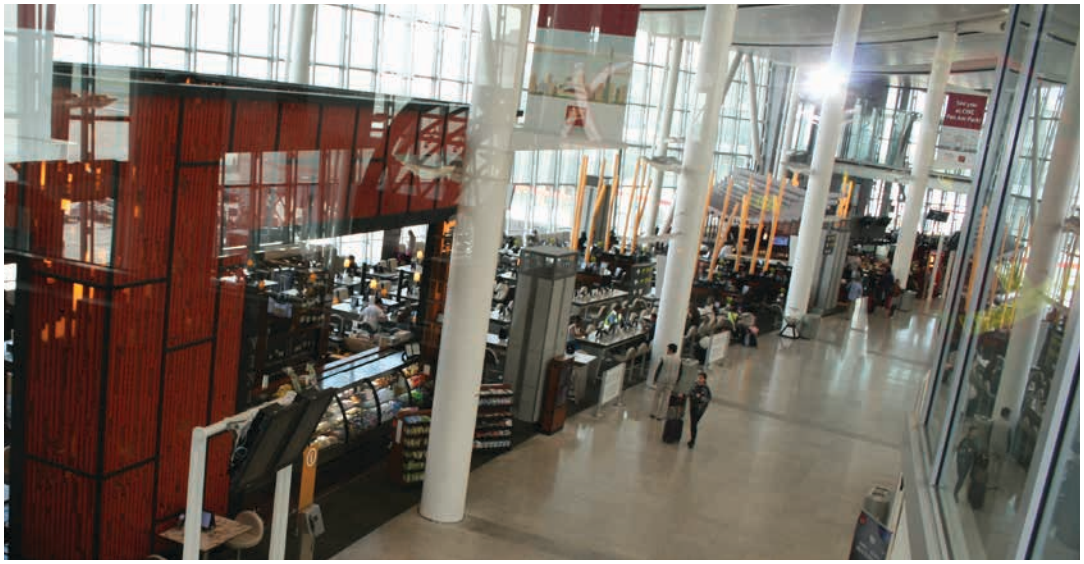
# System XFR® Replaces Cast Iron at the Toronto Pearson International Airport



Leaking pipes are no joke at anytime, but when the leaks might force the shut down of a busy restaurant or baggage handling site or security screening area of a large international airport, replacement pipe needs to be installed fast and the fix has to be long-lasting.

Cast iron pipe was used for drainage in the construction at both terminals 1 and 3 of Toronto Pearson International Airport. With increasing passenger growth over the years and the number of restaurants (currently 70) in both terminals catering to the increasing demands and diverse tastes of passengers, the plumbing infrastructure has seen a rise in the number of failures of the cast iron pipes. Many of the failures were from pipe that had been in service for only the last 12 to 14 years.

A root cause analysis was conducted, and it was found that, even though grease interceptors were present, fats, oils and organic waste still made their way down the drainage pipes. Over the years, this material accumulates on the inner walls of the pipes. When this build-up decomposes and hardens over time, it not only reduces the internal diameter of the pipes and causes blockages, but it is also extremely corrosive and eats through the cast iron.

**The airport needed to find a suitable alternative to cast iron, one that would not corrode and could stand up to the rigors of the airport and the heavily used drainage infrastructure**.
Mike Mercurio, Technical Representative with IPEX explains, "Accumulated grease accelerates the corrosion and failure of cast iron piping, and this is seen increasingly in the food and beverage establishments where build-up is evident."

System XFR® was the ideal choice because, it not only met the building code requirements, it was light weight and easy to handle. A key feature was the low coefficient of friction on its internal wall surfaces; fats and oils do not stick to it easily nor accumulate on the internal walls of these pipes.

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# SYSTEM XFR® DWV SYSTEM 15® DWV

- » Meets code requirements for noncombustible buildings
- » Significantly lighter than cast iron
- » Easier to install
- » Corrosion resistant
- » High impact resistance
- » Improved flow


Clarence Walters, Manager, Mechanical Systems at the Greater Toronto Airports Authority adds, "Based on the projected annual growth forecast of 7% to 8% at Toronto Pearson, we will be at approximately 64 million passengers by 2033. We can't afford to have failures that disrupt our operations and impede passenger flow. We have to improve the reliability of our drainage system and System XFR from IPEX is vital to our achieving our goal of minimizing downtime."

In conversation with the technical team at Toronto Pearson, they communicated to Mike that a key issue was gaining accessibility to the pipe cleanouts. Mike adds, "One of the sections was so badly blocked that, when they finally did get an opportunity to pressure jet the line, a joint came loose and caused extensive damage." Unfortunately it is not feasible to have all the cast iron piping replaced in one go, but it is being changed out gradually as opportunities arise.

Repairs can be challenging. Leaks spring up at the busiest of times and quite often from pipes that are tucked away high in the ceiling spaces of other businesses. "Sometimes," says Clarence, "we are able to isolate leaks and carry out repairs during non-peak hours, but at other times, we aren't as lucky, and operations are impacted by the failure—costing the GTAA and the tenants dearly. It was only a few years ago that, after carefully coordinating repairs around the number of flights and passengers transiting through our facilities, we had a 6 to 8 hour window to carry out repairs. Now, that window has shrunk to around 4 hours. "

Clarence and his engineering and maintenance team have initiated a few essential actions to help avoid future issues through changes to the Tenant Design Standards. One change is the use of modern grease interceptor technology where the collected oil is repurposed rather than ending up in landfill sites. Another is the use of System XFR for drainage with cleanouts terminating in tenant spaces, as opposed to ceiling spaces, making periodic line maintenance easy and interruption free. "All drainage is going to be System XFR — no cast iron," said Clarence.

Some of the plumbing staff was not familiar with use of System XFR and Clarence called Mike in for some sessions to demonstrate the product and share a few tricks of the trade. "We do a lot of training," said Mike, "at no cost to contractors or companies. Hands-on training gives people new to the product the chance to handle it and learn the best methods of installation."

"Mike gave our teams tips on using the products and demonstrated the proper method to solvent weld joints and to avoid joint separation," said Clarence. "They saw it was ten times lighter than cast iron and easier to work with. If we had any questions, Mike found us the answers. He also visited with our plumbers several times to ensure they were comfortable using the product."

The System XFR® product line used by the Greater Toronto Airports Authority is just one part of IPEX's complete DWV system. System XFR meets flame and smoke requirements of the building code and is suitable for high buildings and plenum use. For low-rise and light commercial locations, System 15® is a reliable and robust PVC solution. At sizes of 8 inches and above, IPEX Inc. also offers a fast and easy option to solvent welding with its MJ Grey™ Mechanical Couplings. When designing for use in areas where leaks would cause serious damage to irreplaceable building contents, such as in museums, high-tech facilities, labs, historic sites and galleries, engineers have the option to choose Drain-Guard™, IPEX's double containment system, designed to provide leak-free storm and waste drainage.

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