



**Case Study – The Polyclinic
Northgate Plaza, Seattle, WA**
Building Strategically

MECHANICAL CONTRACTOR:
MacDonald-Miller, Pacific Northwest

EXECUTIVE SUMMARY

The Polyclinic, a physician-owned, multi-specialty medical group serving the greater Seattle area, have committed themselves to delivering personalized healthcare. With that mission in mind, they identified a building perfectly located to provide care to the population they intended to serve. It was near a mall, restaurants and a transportation hub which would offer convenience and accessibility.

While the location was ideal, the building's plumbing infrastructure was not. An older office building, it had only the core plumbing necessary to handle the bathrooms near the elevators. The clinic would require sinks in every exam room and bathrooms throughout the building with no means to drain them.

On the upside, the building was available at a much lower lease rate. Being physician-owned and multi-specialty also means an ongoing need for regular but costly reconfiguration of their facilities as doctors' requests and needs change, making the lower monthly lease rate particularly attractive.

The single most challenging element was the plumbing. Even with modular furniture and walls, the renovation required and minor future changes would be time-consuming and expensive. Floor cutting and plumbing work would not only disrupt the clinic, but also the space and operation of the tenant below.



AcornVac® was the chosen solution because the vacuum system:

- Made the ideal location viable - a well situated office building with insufficient plumbing, but optimum lease rates.
- Prevented disruption to other tenants during construction, expedited the construction process, and required no invasive floor cuts or core drilling.
- Provided the option to make future changes to the layout of the clinic quickly and inexpensively.

BACKGROUND

The Polyclinic is a physician owned, multi-specialty medical group with 17 clinics located in and around the Seattle area. The Polyclinic takes a strategic approach when selecting locations for its clinics. Company administrators first select an area that has a need they can fill and then they find the most accessible location for their patients. For its newest clinic, located in Northgate, The Polyclinic identified a standard office building located near a mall and a busy transit center—a convenient location that wouldn't require patients to go out of their way for healthcare services.

CHALLENGES

Office buildings are designed to accommodate cubicles and rooms that contain desks, computers and copiers. When it comes to plumbing a multi-story building, restrooms and sometimes small kitchen areas or break rooms are typically located in a centralized core area, often close to elevator shafts and not distributed across each level of the building.

The Polyclinic was faced with having to upgrade 65,000 square feet of standard office space to meet its healthcare specific requirements. That space would include approximately 130 exam room sinks, 25 clinical and staff use sinks, 14 lavatories, 14 toilets and at least two staff showers. To accomplish this, they would have to build an entire plumbing infrastructure where one did not previously exist.

The Polyclinic also needs its clinics to be flexible. In a combined 450,000 square feet across all clinics, The Polyclinic had already made changes to 72 percent of its space. At the time of this writing, The Polyclinic expects to grow by another 150,000 square feet over the next few years and the expectation is that the need for flexibility will remain constant. Considering that nearly every change they make involves plumbing, a cost-effective and flexible solution is crucial.

ALTERNATIVE SOLUTIONS

The typical design approach for drainage is gravity. With a structural slab, however, costs go up considerably: X-rays are required to identify where the structural steel is located; then, core drilling through the slab must occur at each point where drainage is required.

Gravity drainage runs below slab and requires slope, sometimes necessitating pumps to send waste to the sanitary sewer connection. All this consumes time, comes with risks and is expensive.

In the face of these challenges, engineers that use gravity plumbing systems cite that their preference is due to the higher cost of vacuum plumbing. However, it is time for renewed consideration from the industry because vacuum plumbing systems often cost less.

ACHIEVING THE SEEMINGLY IMPOSSIBLE

Randal Brand, Director of Facilities and Support Services at The Polyclinic, takes a strategic approach when choosing a location and designing a facility. He liked the Northgate location because of its accessibility. The fact that it was a Class B office building meant lease rates would be significantly lower than a Class A medical building.

Medical improvement costs come at a premium. They can be double, sometimes triple, that of standard office improvements. The investment required for these improvements creates the expectation that, for the cost, the new infrastructure should have at least a twenty to twenty-five year life span. That inevitably creates a flexibility problem, preventing additional change from occurring until an improvement has exceeded its expected life span. Brand did not want to adopt that mentality; he didn't want to see The Polyclinic at Northgate become obsolete as the industry grew and changed around them.



Brand explained, "What we're doing with the movable wall system... let's not build a 25-year facility and never change it. Let's build a facility where, if we want to change it, it's not that hard."

Only the plumbing stood in the way of achieving Brand's vision.

A gravity plumbing solution not only came with upfront time and expense, but it would also leave The Polyclinic inflexible to change and vulnerable to costly future renovations. Coring holes through the concrete, working in the ceiling space of floor below or under-ground, floor cutting, trenching and disrupting other tenants could be acceptable if, in the end, flexibility was achieved. However, making future changes to the floor plan as desired would be just as costly and disruptive every time a change was needed. It just didn't make sense.





RAW SPACE TO STATE-OF-THE-ART MEDICAL CLINIC IN JUST THREE MONTHS

The Polyclinic turned to its mechanical contractor, MacDonald-Miller, to come up with a better solution. MacDonald-Miller knew of the AcornVac Vacuum Plumbing System and immediately recognized it was the solution.

With the vacuum plumbing system, The Polyclinic could easily renovate the space at a comparable cost in a much shorter timeline than a gravity system. Moreover, it eliminated disruption to other tenants in the building, because it would be entirely contained in The Polyclinic's space. Most importantly, it would provide Brand the flexibility he was looking for.

Steve Amann, project executive at MacDonald-Miller explained how much faster installation could go when the piping could be contained on the same floor that was being renovated. He noted that they could eliminate slab and trench work. In addition, they reduced overtime costs by eliminating the need to work around other tenant's schedules. When comparing installation of the vacuum plumbing system versus a gravity system, Steve said, "The rest of it, the trim, is about the same, but the rough-in goes much, much faster."

Another advantage of the AcornVac Vacuum Plumbing System is how well it works with the modular walls.

There was not enough clearance within those walls to run gravity waste piping. However, vacuum plumbing requires smaller diameter piping that fits well within the modular walls.

While ease of installation and flexibility were important to both The Polyclinic and MacDonald-Miller, just as important was the fact that the AcornVac toilets minimize the spread of bacteria.

When tested against gravity toilets, NSF International found that AcornVac's vacuum toilets produced no detectable levels of bacteria on the toilet or surrounding areas, whereas gravity flush toilets had detectable levels of bacteria on the toilet seat and the area surrounding the toilet.

Another aspect of vacuum plumbing that turned out to be a great benefit was the elimination of waste pipe leaks. In a gravity waste system, waste pipe leaks are unavoidable and are often in concealed locations where contamination and the damage created may go undetected for a period of time.

AcornVac's piping, on the other hand, prevents waste leaks and minimizes concerns about concealed contamination or damage to the building.



REDUCED RENOVATION COSTS

As should be expected, The Polyclinic wants to gain the most from its investment in the new facility, as well as to have the ability to make changes when needed at a cost-effective rate.

In the past, something as simple as moving a sink ten feet cost The Polyclinic as much as \$15,000. The costs were high because the job had to be done after hours, in a tight time frame, and the typical challenges in relocating drainage, even for such a small change on a traditional gravity plumbing system, were significant.

“Now, with the [AcornVac] system, if a physician needs a different setup, the plumbing system is such that moving a sink from one side of the room to the other is probably an evening job and maybe \$1,500,” said Brand.

Additionally, The Polyclinic will not lose its investment in the vacuum system should they ever decide to relocate to another building. All the walls, sinks, toilets and the vacuum drainage system can be dismantled and used in the new location.

WORKING WITH INSPECTORS

Thousands of facilities with vacuum drainage systems are in operation around the world and are accepted by most code authorities. In the US, vacuum systems are identified as an engineered system as noted in the latest edition of the IPC and UPC Codes. Many local and state plumbing codes have also accepted vacuum plumbing as an approved alternative for a variety of waste types.

Seattle’s Department of Construction and Inspections had some familiarity with AcornVac systems, but this was a new application for them. Early involvement, an open-minded inspection chief, and MacDonald-Miller’s excellent reputation helped eliminate unfamiliarity and alleviate concerns. AcornVac conducted a presentation in Seattle for the Plumbing Code Authority during which the system was explained and any lingering questions were answered. This meeting provided the technical information and support required for final approval and helped to establish an open line of communication for local inspectors. The relationship established early on helped to ensure that there were no construction delays due to inspection concerns or questions.

Brand said that during the final inspection, the city’s chief inspector and other city officials were onsite to see the unique application for themselves. As they were doing their walk-through, the inspector told Brand that construction could not have happened without having used the vacuum system.

“The AcornVac and Morris Group family of products and companies... they back what you’re doing. They make it happen. We could not have done this if it was a traditional manufacturer.”

- Randal Brand, Director of Facilities and Support Services at The Polyclinic



RESULTS:

Construction on Phase 1 of The Polyclinic Northgate Plaza began in March 2016 and was completed in June 2016. A remarkably short, three-month construction window before the facility was serving patients and earning revenue.

Phase 2 of the project is expected to begin in 2017, which includes a build-out of the remainder of the second-floor space, the entire third floor and some office space on the first floor. In total, The Polyclinic Northgate Plaza will have 65,000 square feet of space and 130 exam rooms.

"The AcornVac and Morris Group family of products and companies... they back what you're doing. They make it happen. We could not have done this if it was a traditional manufacturer," said Brand.

Amann said that The Polyclinic Northgate Plaza is an excellent economic case study for other healthcare providers. It demonstrates the ability to take advantage of standard office building lease rates, which are twenty to thirty percent lower than medical office buildings.

MacDonald-Miller said they also benefitted from the experience. Not only did the people on the job take pride in acquiring new skills, but the job also provided an enormous marketing and sales opportunity for MacDonald-Miller. Amann said they are already hearing from potential clients in life sciences and healthcare industries inquiring as to how they too can apply the AcornVac system in their projects.



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