



VACUUM PLUMBING SYSTEMS

Case studies are often completed just after a project is completed—when the client is still in the honeymoon phase, but wouldn't you like to know how the client is faring after several years?

We decided to go back to Amherst Country Adult Detention Center and check in on how their AcornVac system has been working for them over the past six years.

We caught up with a few employees who were there when the Center was being built, as well as some maintenance crew members who came on board relatively recently to find out how the system is holding up.

If I were going to build a new facility, I would use AcornVac. Vacuum is so much easier to put in... Inmates can't sabotage it and flood the facilities. You have full control over all the devices... When it comes to detention facilities, it's probably one of the best options you can go with.

James Marstin



Case Study: Amherst County Adult Detention Center Checking in after six years in operation

ACORNVAC - FIRST IMPRESSIONS

James Marstin who has worked in corrections for fifteen years and was hired on as the construction coordinator back in 2010 said the fact the AcornVac system could keep toilets and drains from stopping up and protect them from inmate sabotage were valuable benefits that gave them the confidence to choose the system even though they had limited prior knowledge with it.

Despite the confidence in their decision, just about everyone we talked to at Amherst said that once installed; their first impression was that the equipment looked complicated and they felt a bit overwhelmed. However, it did not take long for everyone to see the advantages and get up to speed quickly.

Wayne Rudy, the Amherst Facilities Manager had never seen a system like AcornVac's before going to work at Amherst. "It was intimidating at first but wasn't all that hard to learn. As far as being efficient I think it's a good system, very reliable, fairly easy to work on, and easy to troubleshoot."

Chris Young, one of Rudy's maintenance assistants, felt that despite the complexity of the system, figuring out how everything worked was very easy.



ACORNVAC -EASE OF MAINTENANCE

One of the first things you will notice when you walk into this 380-bed facility is that it does not smell like your typical correctional facility. That is because they do not have to deal with common problems such as overflowing toilets and sinks, clogged drains, and leaking pipes.

It is a difference that Kenneth Floyd - Maintenance Director, Blue Ridge Regional Jail Authority, notices when comparing Amherst to their other facilities that operate on traditional gravity plumbing. Mainline backups are a big problem for correctional facilities, but Amherst has not experienced a single one since they started operation. Where other facilities with traditional gravity plumbing consistently experience a myriad of maintenance issues due to small leaks here and there, which can cause a deterioration of the building's infrastructure over time, that has not been a problem at Amherst. Even if there were a hole in the piping, they won't experience a waste leak because

If I were going to make a recommendation on which system to use, it would definitely be the AcornVac system. There is no comparison as far as maintenance and security and ease of working on it.

Wayne Rudy -
Facilities Manager



the system is under constant vacuum pressure. The system dynamics make it easy to pinpoint where the break occurred and maintenance can take fix it immediately.

"We've had this plumbing system and the facility going on six years. ...I believe it will add to the durability and longevity of your building, and overall I think it's a great product," said Tim Trenton - Administrator for Blue Ridge Regional Jail Authority and responsible for daily operation of all five of the Authority's facilities.

Another common problem in correctional facilities are waste line blockages generally due to inmates flushing sheets, towels, pillow cases and the like. With a traditional gravity system that means, not only an issue in the cell where it originated, but throughout a section, or multiple sections of the facility. The AcornVac system eliminates this problem. With vacuum plumbing, debris that would typically cause a back-up in gravity piping is caught at the toilet extraction valve. Maintenance crews can pinpoint exactly where the blockage originated,

access the extraction valve through the chase, and charge the inmate who created the problem. Word quickly spreads through the population, and inmates stop attempting to flush contraband or sheets down the toilet. They know they will get caught and lose privileges such as visitation or commissary rights.

Overall, Amherst staff found the vacuum system much easier to work on than a traditional gravity system. The vacuum system has more access points making it easier to troubleshoot where the problem is. With a traditional gravity system, it can take hours or even days to locate the source of a problem.

One maintenance assistant said that despite the complexity of the system, it is reliable and very simple to work on. So reliable that the AcornVac system at Amherst requires 50 percent less maintenance effort than traditional systems at other Authority facilities. It is so clean and easy to work on that maintenance techs prefer working in the Amherst building rather than other buildings.



ACORNVAC - SECURITY

While a cleaner system has obvious benefits for the maintenance crew, the features that make it easier to maintain also provide added security for the staff and prisoners.

Amherst can shut down any fixture, a complete section of the prison, or the entire facility. That means, when it is time for a shake-down, with the push of a button they can have the water cut off in seconds. Inmates quickly learned they could not flush contraband down the toilets.

A favorite trick of inmates is to flush blankets and sheets down their toilet to stop up the waste lines. With traditional plumbing systems, it is hard to pinpoint where the blockage is, let alone who created it.

With the vacuum plumbing system, the toilet's extraction valve closes and does not allow the

contraband or material to reach the main line. When the debris is caught, the material is removed in minutes without mess or fuss, and without the need to even enter the cell. In the event something is small enough to slip past the extraction valve, it will simply make its way to grinders at the vacuum center.

Other added bonuses are the fact that inmates can no longer use the plumbing system as a communication device; so planning trouble is more difficult. A timing feature also gives you control over how many times, or how often over a specified period an inmate can flush their toilet.

If I were looking to build a new facility, with the experience I've had with vacuum plumbing, I would use vacuum plumbing vs. gravity plumbing. If you're going to build a new jail this day and time, I think it's very important to consider the control that you have with vacuum plumbing. When you have that control over your plumbing system I think you have better control over the security of your facility."

Tim Trenton -
Administrator for Blue Ridge
Regional Jail Authority.

ACORNVAC - COST SAVINGS

Trenton is responsible for the prison system budget and said that one way he looks to save costs is through energy conservation. The fact that the toilets operate on just one-half gallon of water, and that they have control over the flushing, meaning Amherst uses far less water which ended up saving him money in the long run.

There is also a cost saving in housekeeping. Because they do not have to deal with inmates flooding their cells and stopping up the toilets, Amherst only needs to have one maintenance person on site during daytime hours. Other sites require two people who primarily deal with plumbing issues.

ACORNVAC - SUPPORT

AcornVac's support started during the initial design phase. The system was designed with the assistance of the AcornVac

If I were involved in building a new correctional facility, I would without a doubt go with AcornVac plumbing system vs. traditional gravity plumbing.

Kenneth Floyd, Maintenance Director,
Blue Ridge Regional Jail Authority

engineering team. AcornVac technical support staff trained the installing contractor and made several visits to the site during construction to educate the contractors and help them provide assistance with questions regarding waste pipe installation.

Once construction was complete, the AcornVac team returned to oversee system commissioning, ensuring everything ran smoothly and trained all the staff members. "You have a large mechanical system. [AcornVac] were very careful when they set them up

to make sure they worked," said Marstin. He added that once the system was up and running if he had any questions, he had no trouble getting AcornVac's support team on the phone to ensure everything was running smoothly.

Over the years, as new staff members came on board, AcornVac was back on site to train them as well, and provided the same support for questions as they came up.



AcornVac, Inc.
Vacuum Plumbing Systems

13818 Oaks Avenue, Chino, CA 91710
Tel. 800-591-9920 • Tel. 909-902-1141 • Fax: 909-902-5041
E-mail: info@acornvac.com
www.acornvac.com



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