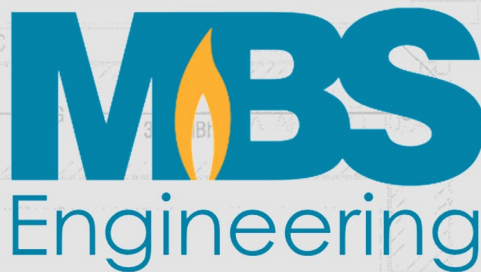


Natural Gas And School Safety



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Natural Gas And School Safety: The Balance Between Mission- Critical Utilities And Student Safety

What Are The Special Safety Concerns Schools Have?

The expectation of safety exists for most schools and school districts in California. This is as much hard-wired in us as members of our society as it is codified in law. Accidents that happen at schools galvanize political will and steal the attention of the community and often the nation.

When it comes to mission-critical utilities, utilities that heat or even power (microturbines) schools, which can sometimes pose a threat if they are not properly maintained – the solution is always precaution and prevention vs. responding to an accident after it happens.

Schools house teachers, doing the good work of educating the next generation, administrators and staffers, and the children themselves – the most vulnerable members of society.

Half-measures are simply unacceptable when it comes to school safety. MBS Engineering has put together a guide to keeping your school safe from natural gas accidents, whether from human activity or from unpredictable seismic events, like earthquakes.

Do Public Schools Have Liability For Gas Accidents On Campus

'Sovereign immunity' does not protect public schools in every instance. The short answer is: yes, schools can be found liable and sued (in either order), if they can be shown to have been grossly negligent or willfully misconducted themselves. The means, literally, to have shown no care. It has happened before.

What Are Some Funding Options For Schools?

We'll start by saying – this is more important than most people realize. Still, there are the realities of budgeting. And gas infrastructure upgrades

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don't always capture the school board's or facilities management's imagination. Some ways to pay for gas leak surveys and improvements include:

- Self-funding by the District from available budget
- Deferred Maintenance Funds
- Emergency Funds (if immediate issues are identified)
- 3rd Party Financing available on projects over \$50,000.00
- Example- One district has qualified for funding for \$1,200,000.00 at 1.975 % over 3 years and 2.969 % for funding up to 7 years.
- Potential Insurance Discounts

Natural Gas Technology Has Improved – But Likely Your School's Infrastructure Is Out-Of-Date

According to the California School Boards Association, most schools in California are more than 50 years old. This means old, iron piping, in some cases – piping that is rigid and which doesn't fare well in earthquakes, which California *also* has. It means they don't have seismic valves. It means some may have failing excess flow valves. It means many may not have flex piping. It means corrosion. It means gas leaks – literally – everywhere. It means wasted money and greenhouse emissions for unused fuel. It means your students are in danger – and you wouldn't even know.

We use lasers, infrared, and traditional detection methods to find leaks our clients didn't even know were there.

10 Ways To Protect Your Students From Gas Accidents On Campus

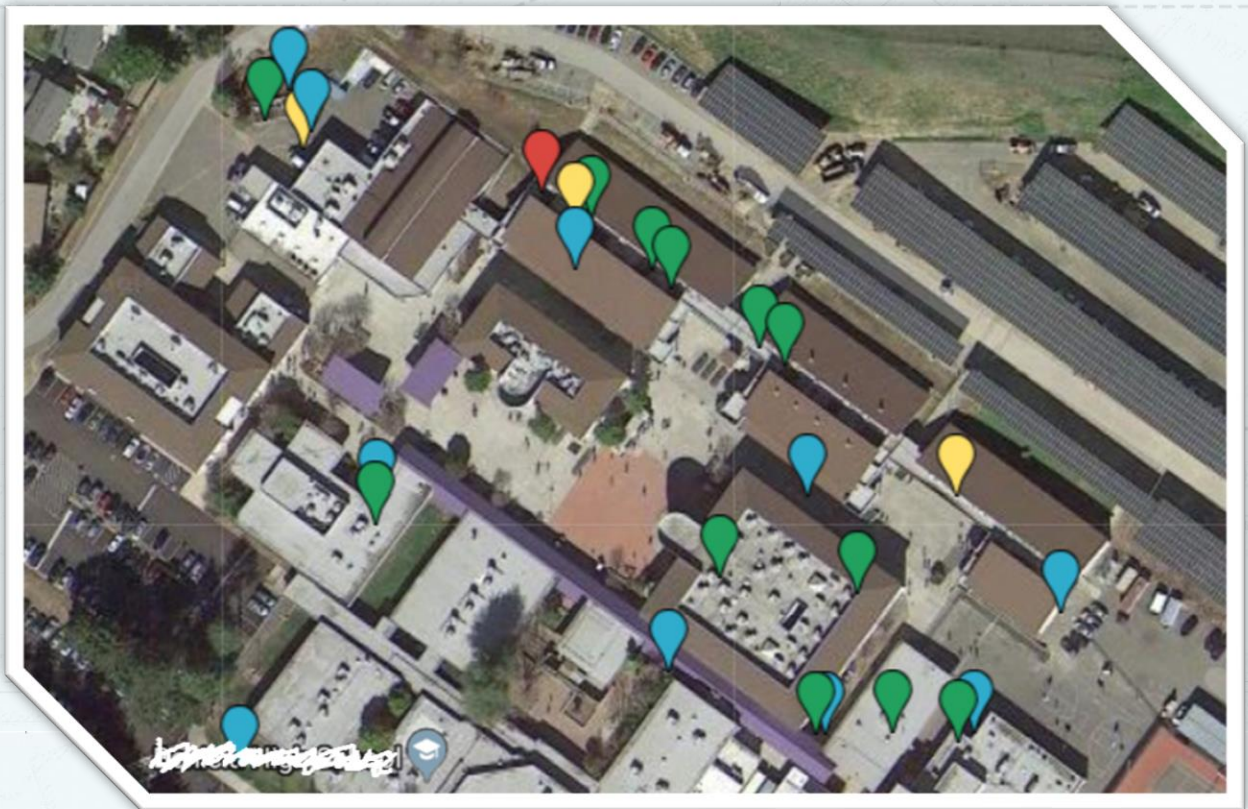
1) Have the campus inspected for gas leaks immediately.

This may sound like we're promoting our own services.

Frankly, even if you don't hire us (despite being well-recommended natural gas experts), we advise a 'natural gas survey' (leak inspection) on your campus. These are not very expensive and often end up saving money. Why? A) Because leaks are almost always found, and they can be repaired, and B) because you can prevent an accident in the future.

At a recent conference we attended, MBS learned that most schools have unresolved gas leaks on their campuses.

*Below is an overhead photo of a school we surveyed for gas leaks. Everywhere there is a pin in the Google Map, we found a gas leak. They are of varying speeds and degrees of severity. Here's the thing: **they didn't know they had any gas leaks. This is a common occurrence.***



2) Deal with any issues discovered during the leak survey.

Relatively straightforward. Even if it is costly, it's far less costly than the risk or toll to human life, if it's not dealt with.

Corrosion can happen inside or outside a pipe. We've documented it extensively on our 'resources' page. We recommend you check out all there is to know about ways piping can literally dissolve.

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Finally, as alluded-to earlier, gas piping technologies eventually grow out-of-date.

3)



Have seismic shut-off valves installed.

Again, relatively straightforward. These cost between \$1,000 and a few thousand dollars per valve (on gas feed lines) and they will shut off in the event of an emergency. They are also relatively easy to reset.

4) 'Exercise' your shut-off valves.

Yes, valves can stick. Effectively, they corrode and freeze in-place (in the 'on' position) if they are not turned $\frac{1}{4}$ turn closed for a time, and then re-opened. It will scarcely affect gas flow but will enable the valves (ball or plug – which comprise most shut-off valves) to be closed when you need them.

5) Plan for and drill for a natural gas emergency – either power loss or fire.

Loss of heat or power generated by natural gas microturbines can greatly impact the operations at a school. Prepare your faculty, staff, and students for such emergencies.

6) Install flexible connectors, along with seismic shut-off valves, in earthquake-prone areas.

These simply help in the event of an earthquake; they prevent pipes from rupturing.

7) Potholing or daylighting.

This involves exposing the physical condition of the gas utility pipes. This is typically done when searching for a gas leak, but it can also reveal the condition of the piping.

8) Replace underground piping with polyethylene.

Polyethylene is flexible and doesn't corrode. It fares better during seismic events and won't rust.

9) Replace rooftop piping with galvanized steel.

Polyethylene gets broken down by UV rays. Galvanized steel is the only piping that will not rust.

10) Check pipe fittings for wear from seismic activity.

If The Power Utility Discovers Gas Leaks At Your School, They Can And Will Shut Down The Gas Feed To Your Campus, To Limit Their Liability Exposure – So Get Ahead Of The Gas Leaks You Very Likely Already Have!

MBS Engineering is a gas safety company. We care about children's safety. If you don't contract with us, please have a specialist come out and inspect your natural gas lines.