

Gas Information Sheet 65

Isolation for gas installations in educational institutions



Overview

On 30 September 2022, AS/NZS 5601.1 Gas Installations Part 1: General installations was re-published. The new edition of AS/NZS 5601.1 includes new requirements for gas installations in schools and universities where there may be a number of appliances without flame safeguard systems. These are commonly found in science laboratories where gas turrets are installed for use with Bunsen burners.

Main components

There are four main components that need to be included when meeting the requirements of AS/NZS 5601.1:2022 clause 5.2.9.1. These apply to each individual classroom (any associated preparation area adjacent to a classroom is deemed to be part of the classroom).

1. Isolation valve

A quarter turn manual isolation valve is to be installed prior to the pipework for the science classroom.

2. Solenoid valve

A pressure proving solenoid valve is to be installed downstream of the quarter turn isolation valve. It must be controlled by a timing device set for the duration of the class.

Note: Specialist gas suppliers sell proprietary systems that help meet the requirements for this component of the installation.

3. E-stop

An e-stop button with a key operated reset function is to be installed in an accessible location.

4. Signage and operating instructions

A sign is required next to the e-stop, identifying its purpose and operating instructions (which must be held by the school staff) explaining how to use the system.

School laboratory isolation

The following details are provided to help explain the above-mentioned components:

1. **A quarter-turn manual isolation valve is required at the inlet of the gas installation of the school laboratory.**
The valve is to be readily accessible, meaning it should be accessed without hazard, undue difficulty or use of a tool.
For example, a quarter-turn manual isolation valve located in the teacher's desk cupboard (with no lock) would be an acceptable location.
2. **An electronically operated solenoid valve is to be installed on the gas supply to the classroom.** This can be installed downstream of the quarter-turn manual isolation valve as required in item 1 above.

This valve will need to be controlled by a timing device that is set for the duration the class it is expected to operate for.

To determine this time, consult with the school / university staff to understand how long a usual class runs. For example, if a school period is 45 minutes, then the timer should be set to close the solenoid valve at 45 mins. The reason for this timer is to ensure gas supply will be isolated to the classroom after a school period, preventing a scenario where the staff may have forgotten to isolate the gas supply, and a gas turret has been accidentally left on allowing gas to fill the classroom while it is unoccupied.

3. **An e-stop button connected to the electronically operated solenoid valve**, installed with a key-operated reset function, will ensure gas cannot flow to the installation after restoration of power following a power failure.
The e-stop should be located in the classroom where it is easily accessed by the staff.
4. **A sign is required next to the e-stop in the classroom.** The sign should read:
“GAS ISOLATION: Turn off when gas is not in use or in the case of emergency. Before turning on, ensure all appliances (e.g. Bunsen burners) are turned off.”

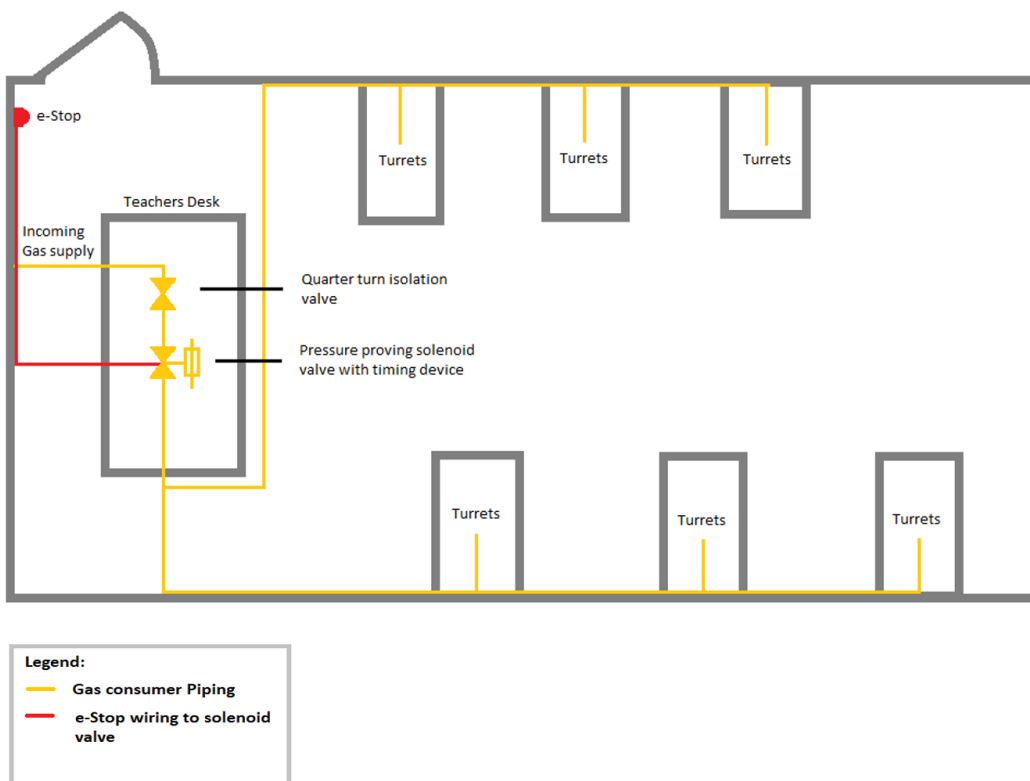
Operating instructions for the e-stop button are to be provided to the school staff. This will assist staff to know how to operate the system once the gasfitter has completed the installation.

The system will require pressure proving downstream of the solenoid valve prior to restoration of the gas supply.

This will ensure the system will not operate if there is an open end that may have been missed or left on accidentally. For example, a gas turret accidentally left in the open position.

Proprietary systems are available for purchase from gas supply specialists that are able to meet the above requirements for school and university science laboratories. These proprietary systems contain a class 1 solenoid valve with pressure proving and timing device incorporated and a key reset e-stop, along with instructions for use.

Typical example



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