

CSA B149.6-20 Code for digester gas, landfill gas, and biogas generation and utilization

The CSA B149.6 Code for digester gas, landfill gas, and biogas generation and utilization applies to the installation of systems for the production, storage, and utilization of digester gas, landfill gas, and biogas. These systems are growing in demand, not only as a basis to produce renewable natural gas, but a key component in meeting both federal and provincial mandates for reducing greenhouse gas emissions and the climate impact of carbon-based fuels.

Technical Safety BC plans to recommend adopting the 2020 edition of the CSA B149.6, with no variations. An additional directive clarifying biomethane gas facility or site requirements has been drafted for industry comment.

Section or clause	Revisions	Impacts
General	Removal of bold and italicized text and symbols indicating revisions to improve accessibility by allowing for digital readers.	All code users: The codes are now accessible on electronic reading devices.
Scope	The scope was amended to clarify code coverage and exclusions.	All code users: Revisions to the scope and updated definitions clarify the application and content of this code, as well as align with industry practices.
Definitions	Several definitions were added, e.g., qualified personnel, relief device, safe location (for venting of gas), and valve proving system (VPS).	

Section or clause	Revisions	Impacts
Definitions	Several definitions were clarified, e.g., biogas (removed the heating content reference), hazardous area (harmonized with applicable codes), sludge holding tank, stand-alone membrane gasholder, tank-mounted membrane gasholders, and test firing (firing valve). Expansion of definition of hazardous areas now includes rooms containing odour control equipment, gas sampling and gas metering, equipment, components, and non-vented regulating equipment where flammable gases, flammable vapor, or combustible atmospheres are likely to be present.	All code users: Revisions to updated definitions clarify the application and content of this code, as well as align with industry practices. The addition of a definition for hazardous areas, and expansion of the application of hazardous area classifications may change construction requirements, and aligns with other recognized standards of construction and provides an additional level of safety within these types of facilities.
Scope	Compliance with the requirements of this code for the installation at landfills upstream of the main inlet valve on the vacuum side of the blower has been removed from the scope of this code.	Landfill gas system installers: Clarifies that the scope of the code does not include the gas collection system upstream of the main control valve on the vacuum side of the blower.
Clause 8.2.3 / 18.2.3 / 27.2.3	Flexible metallic hose now allowed to be used to connect piping to systems other than appliances, allowing for greater flexibility on installations of gas systems covered by this code.	All code users: Can now use flexible metallic hose in more applications in gas systems covered by this code.
Previously 8.14.2, 18.14.2, and 27.14.2	The requirement for a lock-up positive shut-off pressure regulator upstream of an appliance valve train was removed from this code, allowing for greater flexibility.	All code users: Can now use other types of pressure regulators upstream of an appliance valve train.

Section or clause	Revisions	Impacts
Clauses 9.8.3.1.2 and 28.8.3.1.2	The requirement for a flame arrester upstream of the relief valve on a gas storage container that is designed to store gas at a pressure above 100 kPag (14.5 psig) has been removed. Removes redundant requirements which did not provide any additional level of safety.	All code users: New cost savings, due to no longer needing to install flame arresters in specific applications where no additional safety level is achieved by installing flame arrestors.
Clauses 10.3, 19.3, and 29.3	Examples of hazardous areas were expanded to include odour control, equipment, components open-type gas compressors, and blowers.	Installers and operators: The added definitions of a hazardous area, and prescribed hazardous areas, within this type of facility promotes alignment with other codes and adds to safety of installers and operational personnel.
Clause 16.1.3	Requirement of having an automatic safety shut-off valve certified to ANSI Z21.21/CSA 6.5 and marked C/I to shut-off the landfill gas supply to a waste gas burner that is not equipped with safety shut-off valve(s) was added to the code.	Owners and operators of landfill gas operations, and the public: Increased operational safety of waste gas burners. Designers and installers of landfill gas facilities: Must now design for / install automatic safety shut-off valves for gas supply.
Formerly Clause 18.1.2	Landfill pipe slope percentage was removed from the code, allowing for greater flexibility in the installations of these types of systems.	Installers: No longer need to follow a specific landfill pipe slope percentage grade when accommodating for condensate removal.
Clauses 9.10 and 28.10	Testing method for membrane gasholders used in biogas installation has been modified.	Installers: Provides a more viable and simplified way of meeting the intended outcome of proving a gas holder is “gas tight.”
Annexes	Annexes include revised requirements for pressure test point (Clause D.2.8), manual shutoff valves (Clause D.2.11.1), and valve proving system (Clause D.2.16), as well as clarifying requirements when a test firing valve (Clause D.2.11.9) or a check valve (Clause D.3.4) might not be required, etc.	All code users: Clarifies the intended application of the body of the code. Better understanding of the code by its intended users increases overall safety of the installation of technical systems and equipment.

Section or clause	Revisions	Impacts
Draft directive	Draft directive supporting CSA B149.6 is available for comment, outlining the registration, and permitting process for landfill gas, digester gas, and biogas systems.	Designers and installers: Clarifies requirements for design registration and installation permits.