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Hydrogen Refueling Station Buyer's Guide

If you are exploring the purchase or installation of a hydrogen refueling station (HRS), this page provides guidance and information on important considerations when talking with station manufacturers and hydrogen fuel supplier(s).

This guidance was specifically created for an HRS that dispenses pressurized, gaseous hydrogen to light-duty vehicles (passenger cars) that are manufactured by a major automotive company.

It is important to understand both the technical requirements and financial investment over the lifetime of the station. An HRS includes high pressure and flammable gas and requires attention to maintenance. Please first consider if the publicly available stations—open or planned—will meet your needs. These can be found on our station map.

There are many considerations related to the design, installation and commissioning of an HRS, including adherence to the appropriate codes and standards. This page provides a high-level list of example codes and standards and serves as a starting point to familiarize you with the applicable requirements.

Your contractor should be knowledgeable about these important considerations, and additionally should be experienced working with high pressure, flammable gases. They should also be familiar with the accredited third-party review and testing companies[1] that can help determine if the station/equipment you are considering meets these standards. Third party testing may be required to confirm compliance.

You are encouraged to learn more. Please visit h2tools.org and the Hydrogen Permitting Guidebook for more detailed information.
This fact sheet may be a key resource when you consult with potential contractors and suppliers.

[1] Such as Intertek and UL

Codes & standards for a hydrogen refueling station

The following is an example list of the key codes and standards to be met in the development and operation of a hydrogen refueling station.

Standard	Description
Station Element: Design	
Local and state fire and building codes	Fundamental laws that your station will need to meet in order to be properly permitted to operate by your local government.
NFPA 2 Hydrogen Technologies Code	This standard contains requirements for all things hydrogen
NFPA 70 National Electrical Code NFPA 79 Electrical Standard for Industrial Machinery	Basic electrical requirements are included in these two standards.
ASME B31 Pressure Piping ASME Boiler & Pressure Vessel Code	Requirements for high pressure equipment and hydrogen storage tanks.
CSA/ANSI HGV 4.X standards for HRS components	Standards for hydrogen components, like hoses, valves, compressors, etc.
Station Element: Fueling Protocol	
SAE J2601 (2020) Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles CSA HGV 4.3 Test methods for hydrogen fueling parameter evaluation SAE J2601/4 Ambient Temperature Fixed Orifice Fueling**	These standards ensure your station fuels a (light duty passenger) vehicle properly.
Station Element: Hydrogen Quality	
SAE J2719 Hydrogen Fuel Quality for Fuel Cell Vehicles ISO 14687 Hydrogen fuel quality — Product specification ISO 19880-8 Gaseous hydrogen — Fueling stations — Part 8: Fuel quality control	Fuel quality is important to ensure your station does not contaminate your vehicle. We recommend testing the fuel quality of your station when it is installed, periodically, and after any major repair.
Station Element: Other	
Operation and Maintenance*	Your station should come with a manual that includes a maintenance schedule. Consider hiring an experienced maintenance/service contractor.
Warranty*	Check the warranty on the station and its components.
ISO 9001 Quality Management Systems*	Companies that are certified to this commonly used standard have a plan in place to ensure their product meets customer and regulatory requirements.
* Recommended, but not required **Work in progress	