

# 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 stations that dispense pressurized, gaseous hydrogen to light-duty ([passenger vehicles](#)), and may also dispense to medium-duty (utility) trucks, or stations that dispense to heavy-duty (class 8) [trucks](#). All vehicles are manufactured by major automotive companies.

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 publicly available stations—open or planned—will meet your needs. These can be found on the H2FCP [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 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<sup>1</sup> 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](https://h2tools.org) and the [Hydrogen Permitting Guidebook](#) for more detailed information. The Compressed Gas Association's [Hydrogen Safe Project](#) is another helpful resource.

This fact sheet may be a key resource when you consult with potential contractors and suppliers.

## 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.

---

<sup>1</sup> Such as Intertek and UL

| Standard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Description                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Station Element: Design</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                |
| Local and State Fire and Building Codes                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Fundamental laws that your station will need to meet to be properly permitted to operate by your local government.                                                                                             |
| <a href="#">NFPA 2 Hydrogen Technologies Code</a>                                                                                                                                                                                                                                                                                                                                                                                                                                        | This standard contains the requirements for all things hydrogen.                                                                                                                                               |
| <a href="#">NFPA 70 National Electrical Code</a><br><a href="#">NFPA 79 Electrical Standard for Industrial Machinery</a>                                                                                                                                                                                                                                                                                                                                                                 | Basic electrical requirements are included in these two standards.                                                                                                                                             |
| ASME B31 Pressure Piping<br>ASME Boiler & Pressure Vessel Code<br><a href="https://www.asme.org/resources/b31piping">https://www.asme.org/resources/b31piping</a>                                                                                                                                                                                                                                                                                                                        | Requirements for high pressure equipment and hydrogen storage tanks.                                                                                                                                           |
| CSA/ANSI HGV 4.X standards for HRS components<br><a href="https://www.csagroup.org/standards/areas-of-focus/fuels-transportation/">https://www.csagroup.org/standards/areas-of-focus/fuels-transportation/</a>                                                                                                                                                                                                                                                                           | Standards for hydrogen components, like hoses, valves, breakaways, compressors, etc.                                                                                                                           |
| <b>Station Element: Fueling Protocol</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                |
| <a href="#">SAE J2601</a> Fueling Protocols for Light Duty Gaseous Hydrogen Surface Vehicles<br><br><a href="#">CSA-ANSI HGV 4.3</a> Test methods for hydrogen fueling parameter evaluation<br><br><a href="#">SAE J2601-4</a> Ambient Temperature Variable and Fixed-Orifice Fueling Protocols for Light-Duty Gaseous Hydrogen Surface Vehicles<br><br><a href="#">SAE J2601-5</a> High-Flow Prescriptive Fueling Protocols for Gaseous Hydrogen Powered Medium and Heavy-Duty Vehicles | For LD passenger vehicles, includes Category D for vehicle fuel storage systems over 10kg (70MPa only)<br><br><br><br><br><br><br><br><br><br>These standards ensure your station fuels the vehicles properly. |

|                                                                               |                                                                                                                                                                                                                |
|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Station Element: Hydrogen Quality</b>                                      |                                                                                                                                                                                                                |
| <a href="#"><u>SAE J2719</u></a> Hydrogen Fuel Quality for Fuel Cell Vehicles | Fuel quality is important to ensure your station does not contaminate your vehicle. It is recommended to test the fuel quality of your station when it is installed, periodically, and after any major repair. |
| <b>Station Element: Other</b>                                                 |                                                                                                                                                                                                                |
| 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                                               |                                                                                                                                                                                                                |

The data and information provided in the Hydrogen Refueling Station Buyer's Guide (the Guide) is provided for research purposes only. The Hydrogen Fuel Cell Partnership, its officers, directors, employees (collectively "H2FCP"), its partners and suppliers, make no representation or warranty, express or implied, including without limitation, any warranties of merchantability or fitness for a particular purpose or warranties as to the identity or ownership of the data and/or information in the Guide (the Data), the quality, accuracy, or completeness of the Data, or that the use of the Data will not infringe any patent, intellectual property or proprietary rights of any party. The user of the Guide expressly acknowledges that the Data may contain some nonconformities, defects, or errors. H2FCP does not warrant that the Data will meet the user's needs or expectations, that the use of the Data will be uninterrupted, or that all the nonconformities, defects, or errors can or will be corrected. H2FCP is not inviting reliance on the Data, and the user should always verify the actual data. The Data and related materials are provided "As Is", without warranty of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability, fitness for a particular purpose, noninterference, system integration, or noninfringement. The entire risk of the use of the Data shall be with the user.

## Annex A: Learning from California experience

California has led the way in retail HRS development in the United States, working with experienced contractors, architects, engineers, etc. doing business in California. Hydrogen equipment & component manufacturers are around the world, and most are just an internet search away.

### Entitlement of an HRS

The hydrogen industry has worked to streamline the process for entitlement; the initial, broader approval for a project. This has been accomplished through solid design, engineering and safety, and has made understanding the process of hydrogen refueling agreeable to most AHJ's, specifically fire authorities. Today almost every county and many city municipalities in the State of California have been introduced to or are familiar with retail hydrogen fueling. Some of the most reputable firms in the state, with over 65 years of experience building gasoline stations, agree that if gasoline was a new product or concept, compared to hydrogen, it would never pass entitlement by today's standards.

Below are examples of companies with hydrogen experience. These were provided by hydrogen fueling station developers/operators/builders and can help in various aspects of a hydrogen project.<sup>2</sup> Further resources may be found [here](#).

### Potential Contractors:

- E-Tech: <https://www.etech-inc.net/hydrogen-fuel-stations>
- Fastech: <https://www.fastechus.com/>
- Gray-Birch: <https://graybirchconstruction.com/services/>
- Nikkiso: <https://www.nikkiso.com/>
- Salvatore Electric: <https://salvatoreelectric.com/>
- TLM One, Inc.: <https://tlmone.com/>

---

<sup>2</sup> The H2FCP does not specifically endorse or promote any business, entity, or individual. The examples shown are for reference only and do not constitute endorsement or guarantee.

## Architects:

- Fiedler Group: <https://www.fiedlergroup.com/>
- Kimley Horn: <https://www.kimley-horn.com/>
- Stantec: <https://www.stantec.com/en/markets/energy/hydrogen-solutions>

## Construction Managers:

- H&K Construction Experts, Inc.: <https://hkceexperts.com/>
- I&D Consulting: <https://idconsulting.us/development-services/>
- CBRE: <https://www.cbre.com/services/design-and-build/project-and-program-management>

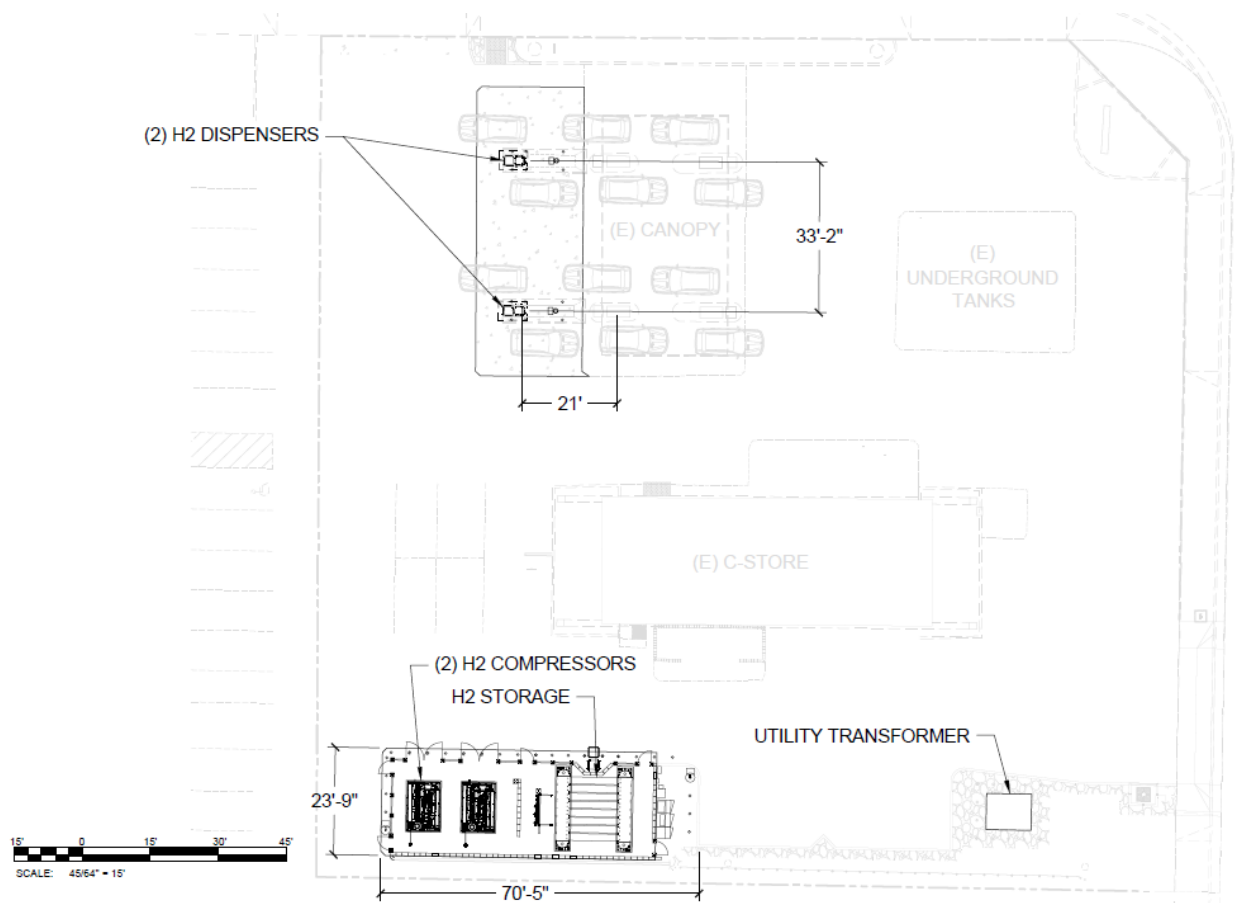
## Fire Safety Consultants:

- Quest Consultants: <https://www.questconsult.com/services/fire-protection/>
- Jensen Hughes: <https://www.jensenhughes.com/>
- WHA International: <https://wha-international.com/hydrogensafety/>
- Baker Risk: <https://www.bakerrisk.com/services/risk-management-for-hydrogen-and-carriers-services/>

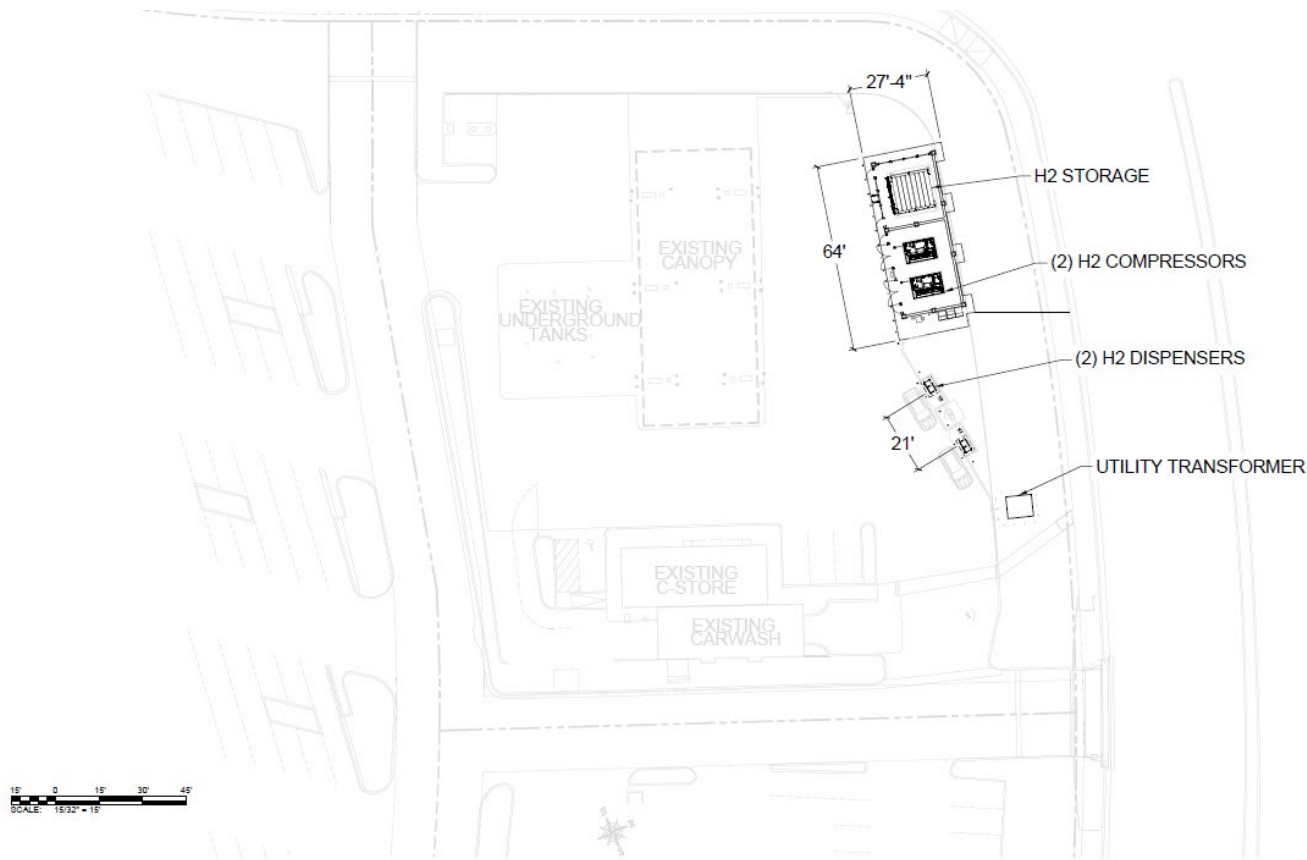
Revision: July 2025

# Sample Station Layouts

Layout 1:



Layout 2:



Revision: July 2025

Layout 3:

