

Hydrogen Fueling Station Installation Worksheet  
 – *for local California Officials* –

Overview of Key State of California Hydrogen Station Requirements

Major California Regulations	What they apply to...	What they're based on...	Who writes them...	Who enforces them...	Notes
California Weights & Measure Requirements	Metering and fuel specifications for <u>retail stations only</u> .	NIST Handbook 44; SAE/ISO/ASTM for quality	Dept. of Food & Ag, Weights & Measures	Typically certified county officials	Currently no retail hydrogen stations; Hydrogen Quality Reg. currently at OAL, dispenser certification underway with NIST
California OSHA Requirements	Pressure vessels, piping, and overall siting.	1970's NFPA (esp. 50 A/B) requirements	Department of Occupational Safety & Health	CalOSHA, DOSH Pressure Vessel Unit	DOSH requirements supersede local authority but are not permitted; ASME compliance required for tanks
California HazMat Reporting & Release Prevention	Almost all installations storing hazardous materials (inc. hydrogen)	California specific requirements for reporting	California EPA, Unified Program Section	Local CUPA's, often the local AQMD	Hazardous materials business plan, etc.
CEQA Requirements	Almost all projects, esp. those which release gas or other materials	California specific requirements above and beyond the federal Clean Air Act	Resources Agency	Typically the local AQMD	Most hydrogen stations, to date, received a categorical exemption or approval for negative declaration
California Building, Mechanical, Electrical and Fire Code*	The built environment, specifically fuel dispensing stations	<ul style="list-style-type: none"> <li>– 1997 Uniform Building Code</li> <li>– 2000 Uniform Mechanical Code</li> <li>– 1999 National Electric Code</li> <li>– 2000 Uniform Fire Code</li> </ul>	California Building Commission (inc. State Fire Marshal)	Locally enforced by fire chiefs, fire marshals, and building & planning departments	Very few if any hydrogen vehicle fueling station specific regulations. Locals in California have almost overwhelmingly applied or referenced NFPA standards.

Please refer to the CaFCP prepared document *Current California Laws and Regulations That May Apply to Hydrogen Fueling Stations* for further detail on all of the above as well as additional regulations.

\*NOTE: The California Building Commission has adopted and applied California specific amendments to the 2006 International Building and Fire Codes.

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Recently Published, Domestic Codes & Standards for Hydrogen Fueling Stations

Model Code Developer	Document	What it covers...	Other standards it references...	Notes
NFPA	52 – Vehicular Fuel Systems Code  (esp. Chapters 5, 7, 9, 13, & 14)	Items including: container design and construction, pressure relief devices, venting, pressure gauges, vehicle fueling connection, non-OEM/ conversion hydrogen fueled vehicle requirements, notification requirements, gaseous and liquid storage and piping, site security and protection, equipment location and setbacks, indoor installations, fast-fill dispensers, electrical equipment, system operation, signage, fueling appliances, liquid dispensing, vaporizers, liquid to gas systems, bonding and grounding, maintenance.	NFPA 30A, 37, <u>55</u> , 59A, 70, 101, 496, 704, 5000;  ANSI/ISA NGV2, NGV4.4;  ASME B31.3, BPV;  CGA C-6, G-5.5, S-1.1, S-1.3;  DOT: FMVSS, 29 CFR 1910  SAE J2578, J2600	Recently published version has expanded scope to include hydrogen stations. NFPA 2 is currently being developed to include all things hydrogen.
	55 – Storage, Use and Handling of Compressed Gases and Cryogenic Fluids	Hydrogen use in portable and stationary containers, cylinders and tanks.	Referenced by NFPA 52 above.	Scope now includes items formerly published under NFPA 50 A/B.
ICC	2006 Fire Code  (esp. Chapter 22: Section 2209-Hydrogen Motor Fuel-Dispensing and Generation Facilities. Also Chapter 30-Compressed Gases, Chapter 32-Cryogenic Fluids and Chapter 35-Flammable Gases)	Items including: equipment location and setbacks, setback reducing barriers, indoor installations, gaseous and liquid storage, canopy top equipment and gaseous storage, dispensing operations, protection from vehicles, E-stops, venting, pressure relief devices, signage, fire suppression, detectors, vent pipe separation distances, and underground liquid storage.	NFPA 30A, 55;  ASME B31.3, BPV;  CGA S-1.1, S-1.2, S-1.3;  ICC Building, Electrical, Fuel Gas, and Mechanical Codes & additional sections of the ICC Fire Code	

**LOOKING FOR “LISTED” EQUIPMENT – THINGS TO CONSIDER**

- UL, CSA, and other standards development organizations have published some test and design standards for hydrogen station components
- Published test and design standards for assembled equipment are still being developed. As a result, local officials may notice a lack of or very few listed components and assemblies at pre-retail hydrogen stations
- Some alternatives include:
  - o review of station HAZOPs, FMEAs, Hazard Analyses, Design Specifications, and other safety engineering documentation, as available
  - o field certifications, where applicable

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Typical, Simplified List of Hydrogen Station Permits & Approvals

Document/Permit/Approval or Process Step	Typical Local Party Involved	Notes
Early notification, preliminary review of station implementation plans	Relevant city officials including planning, building, and fire	Early meetings giving a long lead time for planned implementation have been shown to be advantageous for projects in California. Typically involve high-level presentations and general hydrogen, FCV, emergency response, and other appropriate educational materials.  Extensive and ongoing outreach to the general public (esp. schools and residents) in the local area has been shown to be advantageous for California projects.
Site identification and zoning	City/county planning department AND/OR City/county building department	“Zoning Land Use” application or other documents typically used.
California Environmental Quality Act (CEQA) applicability	City/county community redevelopment agency or other appropriate party	“Environmental Information” form or other applications typically used.
Initial design review	City/county planning department AND/OR city/county building department AND/OR city/county fire department/fire marshal	“Design Review Application” or other documents typically used.  NOTE: California OSHA requirements and application not typically addressed in local reviews or permits. Proactive contact with appropriate DOSH personnel recommended.
Building permit application	City/county building department	
Field evaluation / Electrical review	Appropriate city/county representative or city/county selected/recommended contractor	
Operating / Fuel dispensing permit	City/county fire department/fire marshal	

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Available Siting & Permitting Guidance & Other Hydrogen Station Implementation Resources

**National Hydrogen Association**

[www.hydrogenandfuelcellsafety.info](http://www.hydrogenandfuelcellsafety.info)

**ANSI H<sub>2</sub> Codes & Standards Portal** [www.hcsp.ansi.org](http://www.hcsp.ansi.org)

**DOE Station Permitter's Guide**

[www.pnl.gov/fuelcells/permit\\_guide.stm](http://www.pnl.gov/fuelcells/permit_guide.stm)

**California Energy Commission** [www.energy.ca.gov](http://www.energy.ca.gov)

**CA Hydrogen Highway Network**

[www.hydrogenhighway.ca.gov](http://www.hydrogenhighway.ca.gov)

**Codes & Standards Matrix** [www.fuelcellstandards.com](http://www.fuelcellstandards.com)

**CDFA DMS**

<http://www.cdfa.ca.gov/dms/hydrogenfuel/hydrogenfuel.html>