



# **Overview of the US Hydrogen Codes and Standards Activities**

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# Hydrogen Codes and Standards Matrix

HYDROGEN CODES, STANDARDS AND REGULATIONS MATRIX (June)					
Gregoire		hydrogen_C&S_Matrix_Master_Gregoire_27Jun03.xls		6/27/2003	
<b>1.0 STATIONARY APPLICATIONS Residential, Commercial and Government Buildings and Utility Applications)</b>					
<b>1.1 Fuel Cells</b>			<b>DESCRIPTION</b>	<b>TECHNICAL CONTACTS</b>	
	<b>1.1.1 Fuel Cell Hardware</b>				
		ANSI Z21.83-1998: Fuel Cell Power Plants	The standard applies to packaged, self-contained or factory matched packages of integrated systems of fuel cell power plants for use with natural gas or LP gas and having a maximum output voltage of 600 VAC and power output of 1000 kW	Steven E. Kasubski CSA International (216) 524-4990 X8303	The standard is being revised to more adequately more types of fuel cells and the fuels to be utilized and will become CSA FC 1
		CSA FC 1: Fuel Cell Power Plants (Planned Replacement for ANSI Z21.83-1998)	The document applies to fuel cell systems for stationary applications having maximum output voltage of 600 V and power output up to 10 MW. CSA America Fuel Cell Technical Advisory Committee proposes CSA FC 1 to be the revised, enhanced version of ANSI Z21.83	Steven E. Kasubski CSA International (216) 524-4990 X8303	Draft of CSA FC 1 released for review after the April 2002 meeting of the Committee
		CSA FC 4: Fuel Cell Modules	This is a proposed future new standard for fuel cell modules.	Steven E. Kasubski CSA International (216) 524-4990 X8303	Proposed future effort of the CSA Fuel Cell Technical Advisory Committee.
		UL 2265: Replacement Fuel Cell Power Units for Appliances	This standard will cover stand-alone fuel cell power systems that may be connected within the enclosure of an appliance by a flexible cord and plug or other arrangement (auxiliary power supply)	Harry Jones Underwriters Laboratories (847) 664-2948	Underwriter Laboratories is working to develop this standard.
		IEC TC105 Working Group 1: Terminology	The document provides uniform terminology in the form of diagrams, definitions and equations related to fuel cell technologies for all applications. It is intended to be a resource for the other IEC TC 105 working groups.	Kelvin Hecht UTC Fuel Cells (860) 673-9181	Revised draft of the technical report is in the review process.
		IEC TC105 Working Group 2: Fuel Cell Modules	The Working Group is developing a standard that addresses the safety and performance of fuel cell modules.	Kelvin Hecht UTC Fuel Cells (860) 673-9181	The draft standard was completed in January and was in the review process from 2 Feb 02 - 10 May 02. The WG will meet in June 2002 to address review comments.
		IEC TC105 Working Group 3: Safety of Stationary Fuel Cell Power Plants	The Working Group is developing a standard that addresses safety requirements (design and performance) for packaged stationary fuel cell power plants. The standard will parallel ANSI Z21.83 and similar standards in Canada, Japan and Germany.	Kelvin Hecht UTC Fuel Cells (860) 673-9181	The Working group is in the process of developing the initial draft. This is expected to be completed by October 2002.
		CSA U.S. Requirements No. 1.01: Residential Fuel Cell Power Generators	This document supplements the provisions in ANSI Z21.83-1998. It applies to packaged, self-contained fuel cell systems for single-family and two-family dwellings installed outdoors rated at no greater than 50 kW. Plans call for replacing it with CSA FC 2	Todd Strothers CSA International (704) 552-5125	The document has been published and is available for sale.
	<b>1.1.2 Installation</b>				
		NFPA 853: Standard for the Installation of Stationary Fuel Cell Power Plants	The standard covers siting requirements, fuel storage arrangements, exhaust requirements and fire protection requirements for stationary fuel cell plants exceeding 50 kW for	Richard P. Bielen NFPA International (617) 770-3000	The standard is in the process of being revised to include small fuel cell applications for residences

# United States Hydrogen Standards, Codes, and Regulations

## Vehicles

**Controlling Authority:**  
**NHTSA (Crashworthiness)**  
**EPA (Emissions)**  
Fuel Cell Vehicle Systems: SAE  
Fuel Delivery Systems: SAE  
Containers: CSA  
Reformers: SAE  
Emissions: SAE  
Recycling: SAE  
Service/Repair: SAE

## Fuel Delivery, Storage

**Controlling Authority: RSPA**  
**Over-road Transport**  
**Pipeline Safety**  
Composite Containers: ASME, CSA, CGA, NFPA  
Pipelines: ASME, API, CGA, AGA  
Equipment: ASME, API, CGA, AGA  
Fuel Transfer: NFPA, API

## Fueling, Service, Parking Facility

**Controlling Authority:**  
**State, Local Govt.**  
**Zoning, Building Permits**  
Storage Tanks: ASME, CSA, CGA, NFPA, API  
Piping: ASME, CSA, CGA, NFPA  
Dispensers: CSA, UL, NFPA  
On-site H2 Production: CSA, UL, CGA, API  
Codes for the Built Environment: ICC, NFPA

Fuel Specs: SAE, ASTM, API  
Wts/Measures: NIST, API, ASME  
Fueling/Defueling: SAE  
Sensors/Detectors: UL, NFPA, SAE, CSA  
Connectors: SAE, API, CSA  
Communications: SAE, UL, CSA, API, IEEE

Lead SDO underlined

# International Code Changes

- International Fire Code
- International Mechanical Code
- International Fuel Gas Code