



# **ANSI/ICC/CHS 1700 PROFESSIONAL QUALIFICATIONS STANDARD FOR HYDROGEN SYSTEMS**

Update on Progress, Direction, and  
Workforce Alignment

## Scope & Impact

### Scope:

BSR/ICC 1700-202x establishes qualification requirements for professionals engaged in the design, plan review, installation, inspection, auditing, operation, maintenance, and instruction of hydrogen systems in the built environment. It covers all hydrogen-related equipment, piping, appliances, and system components used for energy and heating within buildings.

### Impact:

- Supports rapid growth of hydrogen technologies by establishing consistent professional qualifications.
- Reduces reliance on alternative designs and one-off approvals, helping lower project costs and delays.

### Sectors Affected:

- Building and construction
- Energy and utilities
- Hydrogen production, distribution, and appliance manufacturing
- Government and regulatory agencies
- Academia and workforce development
- Insurance and risk management
- Inspection, plan review, and compliance services



## Standard Users & Adoption

### Standards Users

Authorities Having Jurisdiction, design professionals, engineers, contractors, installers, manufacturers, utilities, inspectors, plan reviewers, operators, consultants, and educators.

### Conformity Assessment

- Establishes a foundation for consistent training and certification programs.
- Helps authorities issue hydrogen permits with confidence in verified practitioner qualifications.
- Serves as a unified credentialing framework across disciplines.

### Adoption & Incorporation by Reference (IBR)

- Jurisdictions can reference the standard to ensure minimum competency.
- Designed for potential inclusion in codes, regulations, and certification pathways.



# Stakeholder Involvement

## Stakeholders Involved

- Engineers and design professionals
- Building owners and contractors
- Hydrogen system manufacturers and gas utilities
- Inspectors, auditors, regulators, and consultants
- Academia, training providers, and standards development organizations
- Operators, consumers, and users.

## Interest Categories

Manufacturer, Contractor, Standards Promulgator/Testing Laboratory, User, Utility, Consumer, Public Segment, Academia, Government Regulator, and Insurance.



# What's Ahead

## Topics Expected in the Coming Year

- Identifying knowledge domains for each professional role
- Aligning qualifications with existing hydrogen codes and standards
- Developing training and credentialing pathways
- Addressing safety, commissioning, and maintenance competencies
- Tracking hydrogen technologies such as blending, electrolyzers, storage, and distribution
- Identifying gaps in permitting due to limited hydrogen experience
- Integrating emerging hydrogen production and building-scale applications

## Ongoing Focus

Monitoring global hydrogen investment and evolving workforce needs.



# Standards Development Process

**The standard is being developed through ICC's ANSI-accredited consensus process, including:**

- Balanced stakeholder representation
- Open participation and public comment opportunities
- Formal review, balloting, and resolution of comments
- Iterative drafting guided by subject-matter experts

## **Outcome**

This ensures transparency, consensus, and alignment with national standards requirements.



# Opportunities for Participation

## Ways to Get Involved

- Joining the consensus committee or a relevant working group
- Submitting comments during public review stages
- Participating as a stakeholder in discussions, workshops, or hearings
- Providing technical expertise, case studies, or workforce insights
- Signaling interest through the ICC standards development portal or staff liaison

## Goal

Maintain balanced representation across all interest categories.



## Additional Context

- Global hydrogen investment is projected to exceed \$500B by the early 2030s.
- Hydrogen has long industrial use, but building-scale applications are new for many professionals.
- The 1700 series aims to reduce uncertainty, increase safety, and streamline approvals.
- Establishes people-based qualifications not covered by installation or equipment standards.





## ICC Guideline Development

### **Structured Development**

Guideline development follows ICC policies for accuracy, transparency, and stakeholder engagement.

### **Foundation for Standards**

Guidelines provide technical recommendations that shape future ICC standards.

### **Collaboration**

Encourages active involvement from industry experts and authorities.

### **Emerging Technologies**

Supports forward-looking guidance for technologies such as hydrogen systems.



## Role of ICC Guideline 8

### Foundation

Serves as the seed document for ANSI/ICC 1700, establishing core principles and scope.

### Competency Guidance

Outlines preliminary training and qualification considerations for hydrogen professionals.

### Inclusive Development

Developed through ICC's consensus-based policies.

### Support for Safe Integration

Provides early guidance for the safe deployment of hydrogen systems in building infrastructure.



## Hydrogen Codes & Safety Standards

### **Why Safety Standards Matter**

Provide essential guidance for the safe deployment of hydrogen as an energy carrier.

### **System Complexity**

Hydrogen requires expertise in materials compatibility, pressure control, and combustion safety.

### **Collaborative Development**

Federal agencies and industry groups work to harmonize national and international standards.

### **Alignment with Qualifications**

The ANSI/ICC 1700 framework aligns practitioner competencies with current hydrogen safety research.



## Summary & Path Forward

### **Standards Approach**

ICC's transparent and structured process supports credible, consistent hydrogen qualifications.

### **Guideline 8's Role**

Provides initial concepts guiding the development of the ANSI/ICC 1700 series.

### **Continued Collaboration**

Ongoing stakeholder participation ensures technical relevance and alignment with safety codes.

### **Workforce & Sustainability**

Supports the growth of a skilled workforce essential to hydrogen infrastructure and energy transition goals.