
FG48-02 707

Proposed Change as Submitted:

Proponent: Guy Tomberlin, Chair, ICC Ad Hoc Committee for Hydrogen Gas

Add new text as follows:

**CHAPTER 8 (IFGC)
DESIGN OF LIQUIFIED HYDROGEN SYSTEMS
ASSOCIATED WITH HYDROGEN VAPORIZATION
OPERATIONS**

801.1 General. The design of liquefied hydrogen systems shall comply with Chapter 32 of the *International Fire Code*.

Proponent's Reason:

Introduction. Hydrogen energy safety is based on three primary elements: regulatory requirements, capability of safety technology and the systemic application of equipment and procedures to minimize risks. Groups involved in the industrial scale production of hydrogen (producers) currently implement many successful proprietary methodologies for safely generating and handling large amounts of hydrogen. Hydrogen users (e.g., NASA) depend on cryo-hydrogen as a fuel and have effectively proven the safety of large scale ground and vehicle systems which support the Space Shuttle Program.

The efforts of the International Code Council Ad Hoc Committee for Hydrogen Gas (AHC) intend to address how future building codes can safely cover hydrogen applications in fuel cell vehicles and hydrogen gas motor-vehicle fuel dispensing and generation stations. The AHC consists of a balanced membership of user, producer and regulatory interests working together with a diverse group of technical and advisory interests to propose changes as necessary to the ICC International Codes. This, and other, related proposals is a summation of their work.

IFGC Section 801.1. It is anticipated that large consumers of hydrogen as a fuel gas will ultimately utilize liquid hydrogen storage as the supply. While the storage, handling and vaporization of liquid hydrogen is no more technically sophisticated than the storage, handling and vaporization of liquefied petroleum gas (LPG) which the IFGC allows now, the design requirements for liquid storage, handling, and vaporizers are different from what is addressed in the AHC's related proposal to Chapter 7. Therefore, the AHC believes that until the technology for bulk-commercial liquefied hydrogen refueling systems matures, the current edition of NFPA-50B will prove an effective resource for design guidance. It is envisioned that when such equipment is eventually provided for commercial or residential occupancies, it will be in the form of listed packages similar to LPG.

In Summary. The AHC has developed these changes through the consultation of a diverse group of technical and advisory parties from various parties in the hydrogen community, inclusive of industry, professional associations, testing laboratories, agencies of government, academic and research institutions and believes it important to provide a template for thorough coverage in the International Codes of equipment, appliances and vehicles that will utilize hydrogen as a fuel such that regulators have a sound technical basis on which to verify installation and to uphold the standard of health and safety for the citizens of their jurisdictions.

Industry is ready to commercialize hydrogen energy systems. The

AHC urges your APPROVAL of this proposal "as submitted"

Committee Action:

Disapproved

Committee Reason: Bulk storage coverage belongs in the IFC or a separate hydrogen code. FG2-02 did not include liquid hydrogen within its proposed text. There is no need for a Section 801.1 since the IFC contains all of the coverage. FG2-02 was disapproved therefore, the IFGC does not address liquid hydrogen. Refrigerated liquid hydrogen is beyond the scope of the IFGC.

Assembly Action:

Approved as Submitted

Individual Consideration Agenda

This item is on the agenda for individual consideration because a public comment was submitted and an assembly action was successful.

Public Comment 1:

ICC Ad Hoc Committee for Hydrogen gas requests Approved as Modified by this comment.

Modify proposal as follows:

**CHAPTER 8 SECTION 708 (IFGC)
DESIGN OF LIQUIFIED HYDROGEN SYSTEMS ASSOCIATED
WITH HYDROGEN VAPORIZATION OPERATIONS**

801.4 708.1 General. The design of liquefied hydrogen systems shall comply with Chapter 32 of the *International Fire Code*.

Commenter's Reason: The AHC has addressed and resolved the technical issues identified by the Code Development Committee directly as modified by this and other coordinated public comments to all hydrogen-related proposals (F176, M7, FG2, FG15, FG41 & FG48). The supporting Reason to FG2-02 provides a brief explanation of each solution.

The ICC AHC for Hydrogen Gas requests your Approval as Modified by this Public Comment (AMPC).

Public Comment 2:

Jim Ranfone, American Gas Association, requests Disapproved.

Commenter's Reason: Coverage of liquefied hydrogen and liquefied hydrogen systems is clearly outside the scope of the IFGC as written and as proposed for modification under FG02-02. Since the proposed text refers to the IFC, these requirements would be more appropriately proposed to that code. AGA supports the development of sound code or standards coverage of hydrogen and hydrogen systems under the ICC. AGA advocates the expeditious development of a separate, stand-alone code or standard for hydrogen systems. In order to maintain the integrity of ICC documents as model codes, proponents of code coverage for hydrogen and hydrogen systems need to address deficiencies identified in the current proposals.