

F229-06/07

IFGC [F] 706.4 (New)

Proponent: John C. Dean, The National Association of State Fire Marshals

Add new text as follows:

[F] 706.4 Indoor storage of hydrogen. Storage of hydrogen in quantities not exceeding 3,500 scf at 10,000 psig shall be permitted in systems compliant with ASME boiler and pressure vessel code and listed by a nationally recognized testing Lab. The residential fueling facility shall be allowed to store hydrogen either indoors or outdoors. Indoor storage of hydrogen shall be in a Class 1, Division 2 room and not exceed 3,500 scf at 7,700 psig provided that indoor storage is ventilated in accordance with Section 706.4.1, or storage shall be in a separate sealed enclosure ventilated directly to outdoors.

[F] 706.4.1 Room ventilation. The ventilation shall be at least 1 cfm per square foot of room area, but not less than 1 1 cfm per 6 cubic foot of room volume. Ventilation shall include spaces above suspended ceilings.

[F] 706.4.1.1 Mechanical ventilation. Ventilation shall be by a continuous mechanical ventilation system or by a mechanical ventilation system activated by a continuously monitoring hydrogen detection system where a gas concentration of not more than 25% of the lower flammable limit is present.

[F] 706.4.1.2 Gas detection. Where installed, a gas detection system shall be equipped to sound an alarm and visually indicate when a maximum of 25% of the lower flammable limit (LFL) is reached. The gas detection system shall function during ventilation system maintenance operations. The LFL of hydrogen shall be defined as 4% hydrogen in air.

[F] 706.4.1.3 System failure. Any failure of the ventilation system shall immediately shut down the fueling system. Reactivation of the fueling system shall be by manual restart and shall be conducted by trained personnel.

[F] 706.4.1.4 Adjacent ventilation systems. A ventilation system for a room within or attached to another building shall be designed such that all areas served by the ventilation system comply with this section during the normal operating conditions and during alarm conditions.

Reason: This differs from anything in existing code in that it stipulates pressure limits, not just quantities of hydrogen gas. Ventilation and alarms are required so that should there be a gas leak, it is detected and there is no chance of asphyxiation. The IEC and NFPA 55 have established 25% of the LFL as the alarm point, and this seems to be consistent with good engineering practice.¹

¹ Proposed changes are based on findings from NASFM's Ad Hoc committee consisting of emergency responders, federal and state authorities, and industry experts all having experience with and/or code enforcement authority over residential and consumer hydrogen facilities.

Cost Impact: The code change proposal will not increase the cost of construction.

Public Hearing:	Committee:	AS	AM	D
	Assembly:	ASF	AMF	DF
