Ethanol Vehicle and Infrastructure Codes and Standards Citations

This document lists codes and standards typically used for U.S. ethanol vehicle and infrastructure projects. To determine which codes and standards apply to a specific project, identify the codes and standards currently in effect within the jurisdiction where the project will be located. Some jurisdictions also have unique ordinances or regulations that could apply.

Learn about codes and standards basics at www.afdc.energy.gov/afdc/codes_standards_basics.html.

Find ethanol vehicle and infrastructure codes and standards in these categories:

- **Definition and Classification of Liquids**
- **Fire Prevention and Fire Risk Control**
- **Building Construction Requirements**
- **Electrical Systems**
- **Storage of Liquids**
- **Storage of Liquids in Containers**
  - **Industrial Occupancies**
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  - **Detached, Unprotected Buildings**
- **Outdoor Storage**
- **Automatic Fire Protection for Inside Liquid Storage Areas**
- **Storage of Liquids in Tanks**
  - **Requirements for All Tanks**
  - **Aboveground Storage Tanks**
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  - **Storage Tank Buildings**
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- **Processing Facilities**
- **Dispensing, Handling, Transfer, and Use of Liquids**
- **Operational Requirements**
- **Piping for Liquids**
- **Vapor Processing and Vapor Recovery Systems for Liquid Motor Fuels**
- **Farms and Remote Sites**
- **Vehicle**

### Definition and Classification of Liquids

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- NFPA 10, 11, 12, 12A, 14, 15, 16, 17, 2001

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- NFPA 30, Flammable and Combustible Liquids Code, 6.9
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Requirements for Dispensing Devices
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 6.3

Requirements for Remote/Submersible Pumps
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 6.4

Requirements for Dispensing Hose
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 6.5

Requirements for Fuel Delivery Nozzles
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 6.6
• UL 842, Standard for Valves for Flammable Fluids

Emergency Electrical Disconnects
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 6.7

Vapor Recovery Systems
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 6.8

Dispensing, Handling, Transfer, and Use of Liquids
• NFPA 30, Flammable and Combustible Liquids Code, 18.3

Incidental Operations
• NFPA 30, Flammable and Combustible Liquids Code, 18.4
• NFPA 91, Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids

Ventilation for Dispensing Areas
• NFPA 30, Flammable and Combustible Liquids Code, 18.5
• NFPA 91, Standard for Exhaust Systems for Air Conveying of Vapors, Gases, Mists, and Noncombustible Particulate Solids

Component Standards
• ANSI/UL 25, Meters for Flammable and Combustible Liquids
• ANSI/UL 79, Flammable and Combustible Liquid Pumps for dispensing
• UL 87, Power-Operated Dispensing Devices for Petroleum Products
• UL 330, Hose and Hose Assemblies for Dispensing Flammable Liquids
• ANSI/UL 331, Strainers for Flammable Fluids and Anhydrous Ammonia
• UL 429, Electrical Valves, for use in control of dispensing equipment
• ANSI/UL 567, Emergency Breakaway Fittings, Swivel Connectors and Pipe-Connection Fittings for Petroleum Products and LP-Gas
• ANSI/UL 842, Valves for Flammable Fluids
• UL 860, Pipe Unions for Flammable and Combustible Fluids and Fire-Protection Service

Operational Requirements

Scope
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 9.1

Basic Requirements
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 9.2
• NFPA 385, Standard for Tank Vehicles for Flammable and Combustible Liquids
• NFPA 10, Standard for Portable Fire Extinguishers

Operating Requirements for Full-Service Motor Fuel Dispensing Facilities
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 9.3

Operating Requirements for Attended Self-Service Motor Fuel Dispensing Facilities
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 9.4

Operating Requirement for Unattended Self-Service Motor Fuel Dispensing Facilities
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 9.5

Refueling from Tank Vehicles
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 9.6
• NFPA 385, Standard for Tank Vehicles for Flammable and Combustible Liquids

Repair Areas
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 9.7
• NFPA 51B, Standard for Fire Prevention During Welding, Cutting, and Other Hot Work
• NFPA 51, Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes
• NFPA 33, Standards for Spray Applications Using Flammable or Combustible Materials
• NFPA 326, Standard for the Safeguarding of Tanks and Containers for Entry, Cleaning, or Repair
• NFPA 31, Standards for the Installation of Oil-Burning Equipment
• NFPA 54, National Fuel Gas Code
• NFPA 85, Boiler and Combustion Systems Hazards Code
• NFPA 55, Compressed Gases and Cryogenic Fluids Code

Piping for Liquids

Scope
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 5.1
• NFPA 30, Flammable and Combustible Liquids Code, 27.1

Definitions
• NFPA 30, Flammable and Combustible Liquids Code, 27.2

General Requirements for All Piping Systems
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 5.2
• NFPA 30, Flammable and Combustible Liquids Code, 27.3
• ASME B31, Code for Pressure Piping
• API 607, Fire Test for Soft-Seated Quarter-Turn Valves
• ASTM Piping Standards

Materials of Construction for Piping Systems
• NFPA 30, Flammable and Combustible Liquids Code, 27.4

Pipe Joints
• NFPA 30, Flammable and Combustible Liquids Code, 27.5

Installation of Piping Systems
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 5.3
• NFPA 30, Flammable and Combustible Liquids Code, 27.6

Testing of Piping Systems
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 5.4
• NFPA 30, Flammable and Combustible Liquids Code, 27.7

Detector Maintenance
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 5.5

Vent Piping
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 5.6
• NFPA 30, Flammable and Combustible Liquids Code, 27.8

Vapor Recovery Piping
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 5.7

Bonding and Grounding
• NFPA 30, Flammable and Combustible Liquids Code, 27.9

Identification and Marking of Piping Systems
• NFPA 30, Flammable and Combustible Liquids Code, 27.10
Removal From Service of Piping Systems
• NFPA 30, Flammable and Combustible Liquids Code, 27.12

Vapor Processing and Vapor Recovery Systems for Liquid Motor Fuels

Vapor Processing Systems
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 10.1

Vapor Recovery Systems
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 10.2

Farms and Remote Sites

Scope
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 13.1
• NFPA 30, Flammable and Combustible Liquids Code

Approved Storage
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 13.2
• NFPA 30, Flammable and Combustible Liquids Code

Marking of Tanks and Containers
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 13.3

Fire Prevention and Control
• NFPA 30A, Code for Motor Fuel Dispensing and Repair Garages, 13.4

Vehicle

Fuels
• ASTM D4814-07, Standard Specification for Automotive Spark-Ignition Engine Fuel (E10)
• ASTM D5798-06, Standard Specification for Fuel Ethanol (ED75-Ed85) for Automotive Spark-Ignition Engines (E85)
• ASTM D4806-06c, Standard Specification for Denatured Fuel Ethanol for Blending with Gasolines for Use as Automotive Spark-Ignition Engine Fuel

Systems
• SAE J30, Fuel and Oil Hoses
• SAE J254, Instrumentation and Techniques for Exhaust Gas Emissions Measurement
• SAE J312, Automotive Gasolines
• SAE J313, Diesel Fuels
• SAE J607, Small Spark Ignition Engine Test Code
• SAE J905, Fuel Filter Test Methods
• SAE J1082, Fuel Economy Measurement-Road Test Procedure
• SAE J1088, Test Procedure for the Measurement of Exhaust Emissions from Small Utility Engines
• SAE J1094, Constant Volume Sampler System for Exhaust Emissions Measurement
• SAE J1130, Determination of Emission from Gas Turbine Powered light Duty Surface Vehicles
• SAE J1256, Fuel Economy Measurement- Road Test Procedure- Cold Start and Warm-up Fuel Economy
• SAE J1297, Alternative Automotive Fuels
• SAE J1312, Procedure for Mapping Engine Performance- Diesel and Spark Ignition Engines
• SAE J1349, Engine Power Test Code- Spark ignition and Diesel
• SAE J1350, Selection and Application Guidelines for Diesel, Gasoline, and Propane Fired Liquid Cooled Engine Pre-Heaters
• SAE J1376, Fuel Economy Measurement Test (Engineering Type) for Trucks and Buses
• SAE J1498, Heating Values of Fuels
• SAE J1829, Stoichiometric Air/Fuel Ratios of Automotive Fuels
• SAE J2785, Standardization of Color and Verbiage for Fuel Inlet Closures
• SAE J2793, Fuel Dispensing Filter Test Methods- Draft document