Fuels

NFPA 30/30A – 2008

A uniform system of defining and classifying flammable and combustible liquids.

Fuels

11F-01: Plan Approval:

K.A.R. 22-7-7

Before the construction or modification of any installation for the storage, handling or use of flammable liquids is undertaken, drawings or blueprints made to scale shall be submitted to the state fire marshal with an application, for approval.

1) Each new installation of tanks containing flammable or combustible liquids in the following amounts:
2) Any state, county or local governmental unit installing tanks of 660 gallons or more capacity.
3) Any Industrial or Business company installing tanks of 660 gallons or more capacity.
4) Any agricultural farm installation of tanks of 1,100 gallons or more capacity and
5) Any tank installed for the retail sale of flammable or combustible product through dispenser devices
6) Any modifications to or replacements of tanks or piping at any establishment or facility meeting the requirements of (1) and
7) Any installation of new dispenser locations at any establishments or facility meeting the requirements of (1). This does not include the routine replacement of dispensers at existing sites.

11F-02: Approved Storage Tanks:

08-30A/3.3.15.1

A horizontal or vertical tank that is listed and intended for fixed installations, without backfill, above or below grade and is used within the scope of its approval or listing.

Note: Some existing tanks may not have a label and can be accepted for use provided they have proper atmospheric and emergency venting and a fire valve on the piping below the liquid level.

11F-03: Tank Location:

K.A.R. 22-7-8(a)(2)(A), 08-30/22.4.1

New installations, on or after February 4, 2011 shall have prior OSFM approval. Documentation should be available for inspector verification. Location of existing tanks to buildings, docks, or property lines is not deemed distinctly hazardous and can continue as determined by the inspector.

11F-04: Emergency Venting:

K.A.R. 22-7-8(a)(2)(B), 08-30/22.7.1, 22-7.1.1.3

Emergency relief venting in the form of construction or a device. Devices that will relieve excessive internal pressure caused by an exposure fire shall be provided for:

1) Any size AST used for retail refueling of vehicles; or
2) Any other AST of 660 gallons or more capacity; or
3) Any existing AST of 1,100 gallons or more used for storage of Class I and II liquids.

11F-05: Tank Gauging:

K.A.R. 22-7-8(B)(2)(C)

Tank gauging shall be provided for:

1) Any size AST used for retail refueling of vehicles; or
2) Any other tank of 660 gallons or more capacity, or
3) Any existing AST of 1,100 gallons or more shall have a liquid level gauge or provide a suitable means to prevent overfilling of the tank. “Sticking” of tank is permitted as long as conversion charts are available on-site.

11F-06: Containment Diking:

K.A.R. 22-7-8(B)(2)(D)

Containment diking shall be provided for:

1) Any size AST used for retail refueling of vehicle; or
2) Any other tank of 660 gallons or more capacity. Containment capacity shall be 110% of the volume of the largest tank.

For example: a 10,000 g tank shall have containment for 11,000 g. 1 gallon = 231 cubic inches and 1 cubic foot of storage = 7.48 gallons.

11F-07: Tank Foundation:

08-30/22.5.2

Tanks shall rest on the ground or on foundations made of concrete, masonry, or steel. Piling or steel supports with over 12 inches exposed shall have a fire resistance of not less than 2 hours. Existing supports may remain as is, if they do not constitute a distinct life safety hazard, i.e. close by populated areas or waterways.

11F-08: Max. Size AST to Connect to Dispenser:

K.A.R. 22-7-11

Above ground tanks of no more than 12,000 gallons may be connected to a dispenser used for refueling vehicles if installation complies with KSFM requirements or if the inspector determines that adequate safeguards and a reasonable degree of safety is maintained.

11F-09: Normal Venting:

8-30/21.4.3, 27.8.1.1

Vent pipes on all above ground and underground storage tanks shall be 12 feet above grade level and in a clear area away from eves or opening where vapors could accumulate.

11F-10: Corrosion Protection:

08-30/21.4.5, 27.6.4

Storage tanks shall be properly protected and maintained against corrosion.

11F-11: Tanks Liquid Tight:

08-30/21.8.4

Each storage tank shall be maintained liquid tight. Each storage tank that is leaking shall be emptied of liquid or repaired.

11F-12: Product Identification:

08-30/21.7.2

All above ground storage tanks shall have product or contents clearly marked and visible on each tank. Either NFPA 704 Hazardous Materials diamond marking or contents name are acceptable.

11F-13: Weed/Combustibles:

08-30/6.9.4

All facilities shall be kept free of weeds, trash, and unnecessary combustibles. Combustible storage, weeds or grass, or empty or full drums are not permitted.

11F-14: Fire Valves:

08-30/22.13.1

Each connection to an above ground tank through which liquid can normally flow shall be provided with an internal or external valve located as close as practical to the shell of the tank.

11F-15: Piping Material Liquid Tight:

08-30/27.3.2

A piping system that is leaking constitutes a distinct hazard and shall be emptied of liquid or repaired in an acceptable manner.

11F-16: Piping Protected and Supported:

08-30/27.6.1

Piping systems shall be supported and protected against physical damage, including damage from stresses arising from settlement, vibrations, expansion, or contraction.

11F-17: Piping Corrosion Protection:

08-30/27.6.4

All exposed piping shall be protected against corrosion.

11F-18: Check Valves:

08-30/27.6.6.3, 27.6.7, 27.8.2.12.1

All transport unloading lines attached to any AST below the liquid level shall be equipped with a backflow check valve.

Note: If loading and unloading is done through a common pipe, a backflow check valve is not required provided they have an accessible block valve.

11F-19: Piping Identification:

08-30A/5.2.5

All fill lines shall be clearly marked or color coded for product identification.

11F-20: Dispensing Location:

08-30A/6.2.1

Dispensers shall be so located that all parts of the vehicle being fueled will be on the premises of the service station.

11F-21: Dispenser Emergency Shut-Off:

08-30A/6.7.2.1

> One or more clearly identified emergency shutoff devices or electrical disconnects shall be provided. Such devices or disconnects shall be located be installed in approved locations but not less than 20 feet or more than 100 feet from the dispensing devices they serve.

11F-22: Class I/II Liquid Accidental Discharge:

08-30A/6.3.1

> Class I and Class II liquids shall be transferred only through fixed pumps designed and equipped to allow control of flow and prevent leakage and accidental discharge.

11F-23: Dispenser Control:

08-30A/6.3.3

> A control shall be provided that will permit the pump to operate only when a dispensing nozzle is removed from its bracket or normal position. This control shall also stop the pump when nozzles are returned to their storage position.

11F-24: Dispenser Collision Protection:

K.A.R. 22-7-8(A)(2)(I)

> Dispensing devices shall be protected by substantial collision protection at the ends of the dispensing islands.

11F-25: Dispenser Anchored:

08-30A/6.3.4

> All dispensers shall be mounted on a concrete island and securely bolted in place.

11F-26: AST Service Station Solenoid Valve:

K.A.R. 22-7-8(A)(2)(G)

> If an AST is installed at an elevation which produces gravity head on a service station dispensing device used to refuel vehicles, it shall have an electric solenoid valve installed adjacent to and downstream from the fire valve.

11F-27: Dispenser Pressurized Piping System:

K.A.R. 22-7-8(A)(2)(F), 08-30A/6.3.9

> A rigidly anchored emergency shut-off valve, incorporating fusible link and designed to close automatically in case of severe impact or fire, shall be installed under all dispensers with pressurized piping systems (pump located at or in the storage tank).

11F-28: AST Supplied Dispenser Vacuum:

K.A.R. 22-7-8(A)(2)(H)

> A vacuum-actuated siphon valve shall be installed and rigidly anchored under all dispensers served by AST which creates a gravity head at the dispenser.

11F-29: Dispenser Hose Length:

08-30A/6.5.1

Dispenser hose length shall not exceed 18 feet in length and shall be listed.

11F-30: Dispenser-Breakaway Device:

08-30A/6.5.2-6.5.3

A listed emergency breakaway device shall be installed on all dispensing hoses. When equipped with a retriever, the breakaway device shall be between the retriever that attaches to the hose and the nozzle.

11F-31: Dispenser-Automatic Nozzles:

08-30A/6.6.1

All nozzles shall be the automatic closing type nozzle with or without a latch open device and shall be listed.

11F-32: Dispenser-Automatic Shut Off:

08-30A/6.7

A clearly identified and easily accessible switch or circuit breaker shall be provided at a location remote that will shut off the power to all dispensers in the event of an emergency.

11F-33: Emergency Training:

K.A.R. 22-7-10

Each employee involved in fuel transfer into motor vehicles at a retail service station shall be trained in proper procedures in case of fire, overfill, or fuel spill situation. Training shall include handling improper transfer of fuel, types of improper and illegal containers, and instruction on the proper use of a fire extinguisher. Document the training and maintain records for inspection upon request. Retail service stations shall have emergency instructions covering fire, overfill, or fuel spill procedures posted and readily available in the vicinity of all control consoles or attendant locations.

11F-34: Flexible Hose:

08-30/18.3.7

Listed flexible hose may be used where vibration exists and at loading racks for fill liens. Hoses shall be free of cracks or damage.

11F-35: Loading/Unloading Location:

08-30/28.4.1

Tank vehicle loading and unloading facilities shall be separated from aboveground tanks, buildings and property lines by a distance of at least 25 feet for Class I liquids and 15 feet for Class II liquids measured from the nearest transfer connection.

11F-36: Transport Unloading:

K.A.R. 22-7-9

Any individual conducting the transfer of flammable or combustible liquids from a transport vehicle to a storage tank governed by the Kansas Fire Prevention Code shall verify the available capacity of the tank prior to starting transfer operations.

11F-37: Static Protection:

08-30/28.3.1.2

Provide proper bonding at all facilities where tank vehicles are loaded through open domes. Grounding cable must be attached to a solid ground, i.e. a grounding rod. Grounding to loading rack will not provide a sufficient ground.

11F-38: Connection to Static Bond:

08-30/28.11.2

Bonding connection shall be made to the tank vehicle before dome covers are raised and shall remain in place until filling is complete and all dome covers are closed and secured.

11F-39: Final Control Flow Valves:

08-30/28.11.1.6

During top loading a tank vehicle with Class I or Class II liquids, the final control valve shall be of the self-closing type and be manually help open except where automatic means are provided to prevent overfilling.

11F-40: Downspouts-Loading Rack:

08-30/28.11.1.5

When filling into open domes of tank vehicles, transfer shall be through a downspout which extends to near the bottom of the tank.

11F-41: Fire Extinguisher:

9.2.5.2; 07-10/T.6.3.1.1

Each service station shall provide at least 40 BC rated fire extinguisher.

Note: Convenience stores shall have at least one 2A:40BC rated fire extinguisher. Extinguisher shall be maintained annually by a licensed firm.

11F-42: Signage:

08/30A/9.2.5.4

Islands dispensing Class I liquids shall have warning signs with the following equivalent wording:

1) No smoking.
2) Stop engine.
3) It is unlawful and dangerous to dispense gasoline into unapproved containers. Island dispensing only Class II liquids shall have “No Smoking” signs.

11F-43: Electrical Equipment:

08-30A/8.3.5

Electrical equipment where Class I liquids are stores, handled, or dispensed shall be in an explosive-proof conduit with no exposed wiring or open boxes.

11F-44: Heating Equipment:

08-30A/7.6.5-7.6.6

Where an open flame or electrical arc located in an area where Class I liquids are dispensed or transferred shall have 1-hour fire-rated separation or be located at least 8 ft above floor level. In lubrication or service rooms where no Class I liquids are dispensed or transferred, heating equipment shall be located at least 18 inches above floor level and must be protected from physical damage.

11F-45: Attendant Present:

08-30A/6.7.1

All attended self-service stations shall have at least one attendant on duty while the station is open for business.

11F-46: Emergency Shutoff:

08-30A/6.7.1

At attended motor fuel dispensing facilities, the devices or disconnects shall be readily accessible to the attendant.

11F-47: Emergency Shutoff-Unattended Station:

08-30A-6.7.2

Emergency shut off at unattended motor fuel dispensing facilities, the devices or disconnects shall be readily accessible to patrons and at least one additional device or disconnect shall be readily accessible to each group of dispensing devices on an individual island.

11F-48: Emergency Instructions-Unattended Stations:

08-30A/9.5.3

Operating and emergency instructions shall be posted and visible in the dispensing area and shall include the following information:

1) Location of emergency shut-off (unless obvious), and
2) Location of fire extinguisher (unless obvious), and
3) Emergency instruction which incorporates the following or equivalent wording: Company name, in case of fire or spill, use emergency shut-off, report to: (company emergency telephone number) and (local fire department telephone number).

Fire Extinguisher-Unattended Station:

08-30A/9.2.5.2, 07-10/T.6.3.1.1

A minimum 40BC rated fire extinguisher shall be available for use within 100 ft of the dispenser site. Extinguishers shall be maintained annually by a licensed firm.