

## ENGINEERED DRAWINGS FOR PETROLEUM STORAGE TANKS

The following is intended to be used as a guideline for information required to appear on engineered drawings involving petroleum storage tank installations. All sections on Page 1 must be completed for each installation. Facility Design will reference a Section # in the column to the right and those sections must be completed for the type of facility being designed. **With the exception of facilities where the design criteria meets Section 2, all drawings must provide evidence for items listed in Section 8 relevant to the type of operations at the facility.**

<b>Facility Name:</b>		
<b>Facility Location:</b>		
<b>FACILITY DESIGN: (Check one or more of the following)</b>		<b>Sections Requiring Completion</b>
<input type="checkbox"/>	Aboveground Storage Tank(s) with no piping or dispensers; ie. used oil or API tanks or tanks with mounted pumps	<b>Section 2</b>
<input type="checkbox"/>	Aboveground Storage Tank(s) with aboveground piping and dispensers	<b>Section 3</b>
<input type="checkbox"/>	Aboveground Storage Tank(s) with underground piping and dispensers	<b>Section 4</b>
<input type="checkbox"/>	Aboveground Storage Tank(s) for indoor storage	<b>Section 5</b>
<input type="checkbox"/>	Underground Storage Tanks(s) with no piping and with or without dispensers	<b>Section 6</b>
<input type="checkbox"/>	Underground Storage Tanks(s) with underground piping and dispensers	<b>Section 7</b>
<b>TYPE OF FACILITY: (check all that apply)</b>		
<input type="checkbox"/>	Retail (Full Serve or Self Serve)	<b>Section 8</b>
<input type="checkbox"/>	Cardlock	<b>Section 8</b>
<input type="checkbox"/>	Bulk Plant	<b>Section 8</b>
<input type="checkbox"/>	Commercial	<b>Section 8</b>
<b>DECLARATION</b>		
Installation of tanks, lines, vents and equipment conforms to the current edition of the Alberta Fire Code and municipal bylaws		
<b>SECTION 1: General Information</b>		
Details must be provided for each of the following for all proposed installations.		
1.	Storage tank(s) ULC or API construction standard(s) must be stated on drawings	
2.	Fire extinguishers (rating, size and quantity) <b>Two 40-B:C extinguishers at a minimum are required</b>	
3.	Method/evidence of controlling spills at tank loading and/or vehicle fuelling	
4.	Capacity of each storage tank compartment and contents	

<b>SECTION 2: Aboveground Storage Tank(s) With No Piping</b>	
1.	Tank distance to buildings and property lines
2.	Tank contents
3.	Spacing between tanks
4.	Distance to any propane tanks onsite
5.	Support detail if tank is elevated >300mm (material, 2 hour fire rating)
6.	Valve detail (type and construction standards)
7.	Provision of collision protection (type and spacing)
8.	Type of secondary containment (dike or doublewall)
9.	Dike construction detail (ULC standard for liner/impermeability rating to be met)
10.	Dike construction detail (non-combustible materials; earth, steel, concrete, liner)
11.	Containment liner installed in accordance with Alberta Fire Code and manufacturer's specifications. Liner must conform to ULC/ORD 58.9 "Secondary containment liners for Underground & Aboveground Flammable and Combustible Liquid Tanks"
12.	Capacity of secondary containment (calculation for 110% containment must be provided for dikes)
13.	Distance of tank wall to dike wall
14.	Provision for removing liquid from secondary containment
15.	Statement instructing proper preparation of foundation to accept weight of loaded tank
16.	Applicable signage (emergency, no smoking, ignition off, tank contents)
17.	Used oil tanks have a fixed suction tube for product removal
18.	Vent location and height
19.	Evidence of bonding and grounding against static charges
20.	Tank with a mounted pump: Evidence that the fuel dispensing equipment conforms to CSA B346-M
21.	Delivery hose conforms to CAN/ULC-S612M
22.	Evidence of remote placement for emergency shutdown button (6m min./10m max.)

<b>SECTION 3: Aboveground Storage Tank(s) with Aboveground Piping and Dispensers</b>	
1.	Tank distance to buildings and property lines
2.	Tank contents
3.	Spacing between tanks
4.	Distance to any propane tanks onsite
5.	Support detail if tank is elevated >300mm (material, 2 hour fire rating)
6.	Valve detail (type and construction standards)
7.	Provision of collision protection (type and spacing)
8.	Type of secondary containment (dike or doublewall)
9.	Dike construction detail (non-combustible materials; earth, steel, concrete, liner)
10.	Dike construction detail (ULC standard for liner/impermeability rating to be met)
11.	Containment liner installed in accordance with Alberta Fire Code and manufacturer's specifications. Liner must conform to ULC/ORD 58.9 "Secondary containment liners for Underground & Aboveground Flammable and Combustible Liquid Tanks"
12.	Capacity of secondary containment (calculation for 110% containment must be provided for dikes)
13.	Distance of tank wall to dike wall
14.	Provision for removing liquid from secondary containment
15.	Evidence of bonding and grounding against static charges
16.	Statement instructing proper preparation of foundation to accept weight of loaded tank
17.	Applicable signage (emergency, no smoking, ignition off, tank contents)
18.	Used oil tanks have a fixed suction tube for product removal
19.	Vent location and height
20.	Identify the standard the metallic piping conforms to API, ASTM, or CSA (must be stated)
21.	Drawing to show schematic for piping layout
	<b>If the operation is to be constructed with dispensers the following details are required:</b>
22.	Evidence of anti-syphon provision
23.	Pumping system (suction or pressure)
24.	Under dispenser sump ULC standards (ULC #)
25.	Evidence of dispensers fitted with shear valves
26.	Island height and/or type of dispenser collision protection (Island height>100mm)
27.	Dispenser distance to property lines, right-of-ways, building openings, natural gas dispensers, propane dispensers, manhole or sewer openings

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<b>SECTION 4: Aboveground Storage Tank(s) with Underground Piping and Dispensers</b>	
1.	Tank distance to buildings and property lines
2.	Tank contents
3.	Spacing between tanks
4.	Distance to any propane tanks onsite
5.	Support detail if tank is elevated >300mm (material, 2 hour fire rating)
6.	Valve detail (type and construction standards)
7.	Provision of collision protection (type and spacing)
8.	Type of secondary containment (dike or doublewall)
9.	Dike construction detail (ULC standard for liner/impermeability rating to be met)
10.	Dike construction detail (non-combustible materials; earth, steel, concrete, liner)
10.	Containment liner installed in accordance with Alberta Fire Code and manufacturer's specifications. Liner must conform to ULC/ORD 58.9 "Secondary containment liners for Underground & Aboveground Flammable and Combustible Liquid Tanks"
11.	Capacity of secondary containment (calculation for 110% containment must be provided for dikes)
12.	Distance of tank wall to dike wall
13.	Provision for removing liquid from secondary containment
14.	Statement instructing proper preparation of foundation to accept weight of loaded tank
15.	Applicable signage (emergency, no smoking, ignition off, tank contents)
16.	Used oil tanks have a fixed suction tube for product removal
17.	Vent location and height
18.	Evidence of bonding and grounding against static charges
19.	Underground piping material (metallic, fibreglass, thermoplastic)
20.	Underground piping construction standard (ULC/API/ASTM) (must be stated)
21.	Drawing to show schematic for piping layout
22.	Transition sump construction standard (ULC #)
23.	Pumping system (suction or pressure)
24.	Line leak detection method(s)
25.	Under dispenser sump ULC standards (ULC #)
26.	Island height and/or type of dispenser collision protection
27.	Evidence of dispensers fitted with shear valves
28.	Dispenser distance to property lines, right-of-ways, building openings, natural gas dispensers, propane dispensers, manhole or sewer openings

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<b>SECTION 5: Aboveground Storage Tank for Indoor Storage</b>	
1.	Type of secondary containment (doublewall, dike or room)
2.	Dike construction detail (non-combustible materials; earth, steel, concrete, liner)
3.	Capacity of secondary containment (calculation for 110% containment must be provided for dikes)
4.	Tank contents
5.	Spacing between tanks
6.	Support detail if tank elevated >300mm (material, 2 hour fire rating)
7.	Valve detail (type and construction standards)
8.	Applicable signage (emergency, no smoking, ignition off, tank contents)
9.	Used oil tanks have a fixed suction tube for product removal
10.	Description of filling/venting (interior/exterior)
11.	Connections to oil burning equipment to comply with CSA-B139-04 "Installation Code for Oil-Burning Equipment"
12.	Evidence of bonding and grounding against static charges
<b>SECTION 6: Underground Storage Tank(s) with No Piping</b>	
1.	Tank distance to property line and building foundation
2.	Tank contents
3.	Spacing between tanks
4.	Containment liner is installed in accordance with Alberta Fire Code and manufacturer's specifications (if applicable)
5.	Applicable signage (emergency, no smoking, ignition off, etc)
6.	Used oil tanks have a fixed suction tube for product removal
7.	Vent location and height
8.	Corrosion protection type (if steel on external wall of tank)
9.	Evidence of overfill device
10.	Evidence of spill containment on fill tube
11.	Method of site leak detection
12.	Statement that tank is to be installed in accordance with manufacturer's instructions
13.	Island height and/or type of dispenser collision protection

<b>SECTION 7: Underground Storage Tank(s) with Underground Piping and Dispensers</b>		
1.	Distance to property line and building foundation	
2.	Tank contents	
3.	Spacing between tanks	
4.	Containment liner is installed in accordance with Alberta Fire Code and manufacturer's specifications (if applicable)	
5.	Applicable signage (emergency, no smoking, ignition off, tank contents)	
6.	Used oil tanks have a fixed suction tube for product removal	
7.	Vent location and height	
8.	Corrosion protection type (if steel on external wall of tank)	
9.	Evidence of overfill device	
10.	Evidence of spill containment on fill tube	
11.	Method of site leak detection	
12.	Statement that tank is to be installed in accordance with manufacturer's instructions	
13.	Underground piping material (metallic, fibreglass, thermoplastic)	
14.	Underground piping construction standard (ULC, API/ASTM # must be stated)	
15.	Corrosion protection type on steel piping	
16.	Pumping system (suction or pressure)	
17.	Line leak detection method(s)	
18.	Tank containment sump and under dispenser sump construction specifications (ULC #)	
19.	Island height and/or type of dispenser collision protection	
20.	Evidence of dispensers fitted with shear valves	
21.	Drawing to show schematic for piping layout	
22.	Dispenser distance to property lines, right-of-ways, building openings, natural gas dispensers, propane dispensers, manhole or sewer openings	

<b>SECTION 8: APPLICATION SPECIFIC QUESTIONS</b>	
<b>RETAIL OPERATIONS</b>	
1.	If self-serve, evidence for provision for line-of-sight and distance to shut-off devices
2.	If self-serve, evidence for provision for two-way communication
3.	Evidence that delivery hose/nozzle conforms to requirements listed in Subsection 4.6.5 of the Code
4.	Evidence that the fuel dispensing equipment conforms to CSA-B346-M (Section 4.6.3 of the Code)
5.	Tank maximum capacity = 50,000L; aggregate capacity = 150,000L
<b>CARDLOCK OR COMMERCIAL OPERATIONS</b>	
1.	Location and signage for emergency shutdown of dispensers
2.	Evidence of remote placement for emergency shutdown button
3.	Signage for emergency contacts, operating instructions
4.	Location of telephone or other means to contact emergency personnel
5.	Evidence that delivery hose/nozzle conforms to requirements listed in Subsection 4.6.5 of the Code
6.	Evidence that the fuel dispensing equipment conforms to CSA-B346-M (Section 4.6.3 of the Code)
7.	Tank maximum capacity = 50,000L; aggregate capacity = 150,000L
<b>RETAIL SELF-SERVE (Unmanned Facility)</b>	
1.	Surveillance monitoring equipment
2.	Emergency shutdown switch activates audible alarm onsite/strobe light
3.	Dispenser cabinets/panels alarmed & monitored
4.	Electronic tank monitoring
5.	100L max. product dispensed
<b>BULK PLANT OPERATIONS</b>	
1.	Evidence of distances for loading fill stem to tanks, buildings and property line
2.	Layout and details for fencing requirements to separate dispensing area from the bulk storage operations area (fence height, gates, materials construction)
3.	Spill control at bulk loading/unloading area
4.	Minimum of two 40-B:C fire extinguishers
For facilities constructed near railway operations:	
5.	Minimum distances for tanks and loading structures to railway line conforms to General Order No. O-32 "Flammable Liquids Bulk Storage Regulations" published by Transport Canada
6.	For product transfers from/to railway tank cars, bonding/grounding in conformance with CTC 1982-8 RAIL "Railway Prevention of Electric Sparks Regulation" published by Transport Canada