

**APPLICATION PACKET
FOR**

**ABOVEGROUND STORAGE TANK
INSTALLATION
In the CITY OF OAKLAND**

**OAKLAND FIRE DEPARTMENT
FIRE PREVENTION BUREAU
Hazardous Materials Program
250 Frank H. Ogawa Plaza, Suite 3341
Oakland, CA 94612**

**Phone (510) 238-3927
Fax (510) 238-6739**

Project Contact & Phone #		
Facility Name		Phone#
Address		
Cross Street		
Owner/Operator		Phone #
Contractor Name		Phone #
Contractor Address	CA License #	Class
Hazardous Waste Certified: (Qualifying license category _____) Yes <input type="checkbox"/> No <input type="checkbox"/>		Workers Comp#

This Checklist must be Completed by the Applicant. It will Serve as a Reminder for the Applicant of the items and Review for the Installation of an Aboveground Storage Tank.

TANK COMPOSITION

10. Tank Information Table. Please fill in the information for each tank.

TANK#	#	#	#	#	#
CAPACITY					
MANUFACTURER					
COMPOSITION					
MODEL					
PRODUCT					
CORROSION PROTECTION					
U.L. LISTED					
COMPATIBILITY WITH 100% METHANOL					

I. General Information

These guidelines are applicable to the installation of aboveground tanks using combustible liquids as fuel. They apply to both temporary as well as permanent tank installations. These guidelines are a supplement to other requirement and/or guidelines, and are not all-inclusive.

II. Permits and Plans

- Installation permit is required from the Fire Prevention Bureau.
- Provide two (2) set of shop quality plans.
- A new or modified Business Plan (HMMP) is required before placing the tank(s) in service;
- Notification of the electric utility is required;
- Permits may also be required from the Bay Area Quality Management District.

III. Definitions

For the purposes of these guidelines, tanks that meet the following requirements are considered temporary:

- On site for no longer than 1 year

A. Tanks Installation plans shall provide the following details and check the appropriate box..

1. **Listing:** Each tank shall be designed and constructed in accordance with nationally recognized standards (UL 142/2244 or equivalent. UL 2085 is the listing of protected tanks). If it is not UL listed, provide documentation showing it has been designed and constructed to that standard. (CFC §7902.1.8.1.1, CFC 7902.1.8.2.1) **Yes** **No**

2. **Separation Distances:** Each tank shall be separated from property lines, important buildings, public ways, and other tanks in accordance with CFC, Table 7902.2.-F, below: **Yes** **No**

Reference Table for Use in CFC Tables 7902.2-B and 7902.2-D

Tank	Minimum distance from property line of Property which is or can be built upon, including the opposite side of a public way (feet)	Minimum distance from nearest side of any Public way of from nearest important building on the same property (feet)
275 or less	5*	5**
276 to 750	10*	5**
751 to 12,000	15	5
12,001 to 30,000	20	5

3. **Seismic Protection:** Seismic protection for the tank shall be provided in accordance with the Uniform Building Code. (CBC § 1634.4) **Yes** **No**

For Temporary tanks, wheels may be chocked in lieu of providing seismic protection.

4. **Vehicle Impact Protection:** Guard posts or other approved means shall be provide to protect tanks subject to vehicular damage. **Yes** **No**

When installed, posts shall be:

(CFC § 7902.2.9)

- a. Constructed of steel not less than 4 inches in diameter and concrete filled;
- b. Spaced not more than 4 feet between posts on center;
- c. Set not less than 3 feet deep a concrete footing of not less than 15 inches in diameter;
- d. Set with the top of the posts not less than 3 feet aboveground;
- e. Located not less than 5 feet from the tank.

For temporary tanks, K-rails or other substantial protection may be installed in lieu of guard posts.

5. **Secondary Containment:** Tanks shall be provided with secondary containment. (i.e. containment external to and separate from primary containment). Secondary containment shall be constructed of materials of sufficient thickness, density, and composition so as not to be structurally weakened as a result of contact with the fuel stored and capable of containing discharged fuel for a period of time equal to or longer than the maximum anticipated time sufficient to allow recovery of discharged fuel. It shall be capable of containing 110% of the volume of the primary tank if a single tank is used, or in the case of multiple tanks, 150% of the largest tank or 10% of the aggregate, whichever is larger. If the secondary containment is open to rainfall or sprinkler flow, contact the Hazardous Materials Management Program for appropriate calculations.

- Yes** **No**

6. **Spill Protection:** Spill containers, when required, shall be provided on top-filling and/or top-withdrawal connections. Spill containers shall be non-combustible and shall be fixed to the tank. (Local Ordinance).

- Yes** **No**

7. **Overfill Protection:** The tank shall be provided with equipment to prevent overfilling of the tank as per the following table.

Tank Size	Physical Situation	Approved Overfill Methods	Reference
< or= 500 Gallons	Level of liquid in tank is within Sight of the operator and filling device IS within immediate Control of operator	Visual observation	CFC
< or = 500 Gallons	Level of liquid in tank is NOT within sight of the operator and/or filling device in NOT within immediate control of operator	High level (90%) alarm (with posted sign explaining alarm condition) Or Other liquid level limit control*	CFC
>500 Gallons	Any	Liquid level limit control	CFC 8001.4.8

*A liquid level limit control is a mechanical or electronic device which physically limits the level of liquid in the tank. Examples: ball/flapper device in the fill line, dispenser nozzle shutoff, etc. Yes No

Piping Systems

1. **Support:** Piping systems shall be substantially supported and protected against physical damage and excessive stresses arising from settlement, vibration, expansion or contraction, or exposure to fire. (CFC §7901.11.6)
2. **Seismic Protection:** Seismic protection for piping, tank supports and connections shall be provided in accordance with the Uniform Building Code. (CFC §7902.1.10)

Not normally required for temporary tanks.

3. **Low Melting Point Materials:** For primary piping, low melting point materials such as aluminum, copper, and brass, materials which soften on fire exposure such as non-metallic materials; or non-ductile materials such as cast iron, shall be within their pressure and temperature limitations. When such materials are used, they shall be either: (CFC §7901.11.1.2)
 - a. suitable protected against fire exposure; or
 - b. Located where leakage resulting from failure would not unduly expose person, buildings, or structures; or
 - c. Located where leakage can readily be controlled by operation of remotely-located valves.
4. **Vehicle Impact Protection:** Guard posts of other approved means shall be provided to protect piping, valves or fittings subject to vehicular damage. When installed, posts shall be:

(CFC §7901.11.2)

- a. Constructed of steel not less than 4 inches in diameter and concrete filled;
- b. Spaced not more than 4 feet between posts on center;
- c. Set not less than 3 feet deep in a concrete footing of not less than 15 inches in diameter;
- d. Set with the top of the posts not less than 3 feet aboveground;
- e. Located not less than 5 feet from the tank.

For temporary tanks, K-rails or other substantial protection may be installed in lieu of guard posts.

5. **Secondary Containment:** Supply and return piping shall be provided with secondary containment (i.e. containment external to and separate from primary containment). Secondary containment shall be constructed of materials of sufficient thickness, density, and composition so as not to be structurally weakened as a result of contact with the fuel stored, and capable of containing discharged fuel for a period of time equal to or longer than the maximum anticipated time sufficient to allow recovery of discharged fuel. (Local Ordinance)

Potentially acceptable methods of containment include:

- Double-contained piping;
 - Metal pan;
 - Concrete berm;
 - "Portable" berm (made of diesel-compatible materials);
 - Containment enclosure.
6. **Connections:** Connections to a tank located below normal liquid level shall be provided with internal or external control valves located as close as practical to the shell of the tank. When external, such valves, and their connections to the tank, shall be of steel. (CFC §7901.11.5)
 7. **Fill Pipe length:** For tanks with a top-fill connection, metallic fill pipes shall terminate within 6 inches of the tank bottom to minimize static electricity. (CFC §7902.2.7.2)
 8. **Filling/Withdrawal Connections:** Filling and withdrawal connections which are made and broken shall be located outside of buildings and not less than 5 feet from building openings. (CFC §7902.2.7.2)
 9. **Normal Venting:** Normal venting shall be provided for the primary tank as follows:
 - a. The diameter of the normal vent opening shall be equal to the size of the fill/withdrawal opening, or at a minimum, 1-¼ inch, whichever is greater. (CFC §7902.1.11.8.1)
 - b. Vapors shall be directed to discharge upward or horizontally away from closely adjacent walls, and the top of the vent shall be a minimum of 12 feet above adjacent ground level. (CFC §7902.1.11.4) The vent opening shall be at least 5 feet from any building opening and/or property line. (CFC §7902.1.11.4)
 10. **Normal Vent Piping:** Vent pipes shall be installed such that they will drain toward the tank without sags or traps in which liquid can collect. Vent pipes shall be installed such that they are not subject to physical damage or vibration. (CFC §7902.1.11.5)
 11. **Emergency Venting:** Emergency venting shall be supplied as follows:
 - a. The tank shall be equipped with adequate additional venting that will relieve excessive internal pressure caused by exposure to fires. (CFC §7902.2.6.1)
 - b. The pressure relief device shall not discharge inside a building. (CFC §7902.2.6.5.1) (Note: for the purposes of emergency venting requirements, enclosures which can be occupied are considered buildings whereas enclosures which cannot be occupied are not considered buildings).

C. Additional Requirements

1. **Security:** Storage, dispensing, use, and handling areas shall be secured against unauthorized entry and safeguarded with such protective facilities as public safety requires. (CFC §8001.11.2)

2. **Electrical:** Electrical wiring and equipment shall be in accordance with the Electrical Code. (CFC §8001.11.4)

3. **Monitoring:** Tank and piping secondary containment systems shall be monitored wither visually or electronically. Monitoring shall occur at the low point of each secondary containment system. If electronic monitoring is used, it shall be connected to an attention-getting visual and audible alarms.

Note: If responsible to monitoring alarms is hampered due to absence of site response personnel or there is a history of problems with alarm response at the site, the local jurisdiction may require shutdown of the generator during alarm activation.

4. **Testing*:** Prior to being placed in service, the tank and associated piping shall be field tested in accordance with the following: (CFC §7901.11.10 & 7902.1.8.2.5)

	Field Test	Duration
Primary Tank Test	5 psi	30 minutes
Secondary Tank Test	3 psi	30 minutes
Primary Piping Test	Hydrostatically @ 150% of anticipated pressure Or Pneumatically @ 110% of anticipated pressure	30 minutes
Secondary Piping Test	5 psi	30 minutes

***Note:** if manufacturer's specifications do not support the above testing procedure, follow the manufacturer's recommended procedure.

5. **Hazardous Materials Signage and Labeling:** Warning and identification signs shall be posted to clearly identify hazards. All piping shall be labeled. The design of signs and labeling of piping shall be in accordance with the "Marking Requirements and Guidelines for Hazardous Materials and Hazardous Wastes" (available on the Internet @ www.unidocs.org), and other applicable codes and standards (e.g. ANSI A13.1 Scheme for the Identification of Piping Systems, etc.). (CFO7901.9, CFC §7902.1.3.2)
6. **Additional Signage:** A sign shall be placed at the main electrical shut-off box identifying type and location of all normal and emergency power sources connected at that location. (CEC §702-8a).
7. **Fire Protection:** At least one 40:BC portable fire extinguisher shall be provide near and within sight of the equipment. (UFC Standard 10-1)
8. **Access:** The required width of a fire apparatus access road (20') shall not be obstructed in any manner, including the siting of generator/tank assemblies. (CFC §902.2.4)

9. **Spill Prevention Control and Countermeasure (SPCC) Plan:** The owner or operator of any facility that stores more than 1,320 gallons of petroleum aboveground, or stores petroleum in an aboveground tank larger than 1320 gallons in capacity, must prepare an SPCC Plan in accordance with guidelines contained in Part 112 of Title 40 of the Code of Federal Regulations. Information regarding SPCC Plan preparation and submittal requirements is available on the Internet @ www.swrcb.ca.gov/~cwphome/agt/index.htm. (H&SC §2527005©)

(Exception: Tank facilities located on a farm, nursery, logging site, or construction site are not required to prepare an SPCC Plan if not tank exceeds 20,000 gallons and cumulative storage capacity does not exceed 100,000 gallons.)

CFC, Appendix 2F

Flame Arresters: Approved flame arresters shall be installed in normal vents. (CFC Appendix 11-F, §4.4.3)

Projectile Protection: When a projectile test is required by the chief, the protected tank shall be tested in accordance with the requirements for bullet resistance. (CFC Appendix 11-F, §5.1.1)

Separation Distances: Protected aboveground tanks shall be separated from property lines, important buildings, public ways, and other tanks in accordance with the following: (CFC Appendix 11-F, §4.5)

TABLE A-11-F-1

Tank Capacity (gallons)	Minimum distance from Property line of property which is or can be built upon, including the opposite side of a public way (feet)	Minimum distance from nearest side of any public way or from nearest important building on the same property (feet)	Minimum distance between tanks (feet)
Less than or Equal to 6,000	15	5	3
Greater than 6,000	25	15	3

Aggregate Capacity: Protected aboveground tank installations having the maximum allowable aggregate capacity shall be separated from other installations of protected aboveground tanks by not less than 100 feet. (CFC Appendix 11-F, §5.2)

Overfill Prevention: An overfill prevention system shall be provided for each tank as follows:

Physical Situation	Approved Overfill Methods	Reference
85% of Tank Capacity	Audible or visual signal to notify tank filler; Tank level gage marked at 85%	CFC Appendix 11-f, §5.4
	Or	
	Other approved means.	
90% of Tank Capacity	Mechanical Shutoff Device	CFC Appendix 11-F, §5.4

INDICATE THE RESPONSIBLE PARTY TO BE BILLED FOR ADDITIONAL FSA/OES STAFF TIME EXPENDED BEYOND THE HOURS COVERED BY THE INITIAL DEPOSIT AMOUNT. THE PARTY MUST ACKNOWLEDGE THIS RESPONSIBILITY FOR THE ADDITIONAL BILLING BY SIGNATURE AND DATE BELOW.

NAME _____

MAILING ADDRESS _____
STREET CITY, STATE, ZIP

DAY PHONE NUMBER _____
area code phone #

SIGNATURE _____

DATE _____

Filling Signage: A permanent sign shall be provided at the fill port documenting the filling procedure and tank calibration chart. The filling procedure shall require the person filling the tank to determine the gallonage required to fill it to 90% of capacity before commencing the fill operation. (CFC Appendix 11-F, §5.4)

Spill Containment: A spill container of not less than 5 gallons shall be provided for each fill connection. For tanks with a remote fill connection, a portable spill container shall be provided.

(CFC Appendix 11-F, §5.6)

Anti-siphon Devices: Approved anti-siphon devices shall be installed in each external pipe connected to the tank when the pipe below the level of the top of the tank. (CFC Appendix 11-F, §6.4)

The owner or operator must acknowledge this responsibility for workplan submittal by signature and date below:

Name _____

Title _____ Date _____

	City of Oakland Business Tax License #	Permit #
P L A N	<input type="checkbox"/> APPROVED <input type="checkbox"/> APPROVED WITH CONDITION(S) <input type="checkbox"/> DISAPPROVED	
	PLAN REVIEWER=S SIGNATURE _____	DATE OF APPROVAL _____
<p>APPLICANT MUST PERFORM ALL WORK IN ACCORDANCE WITH CITY OF OAKLAND ORDINANCES, STATE LAWS, AND RULES AND REGULATIONS OF THE CITY OF OAKLAND FIRE SERVICES AGENCY. OWNER OR LICENSED AGENT SIGNATURE CERTIFIES THE FOLLOWING: I CERTIFY THAT IN THE PERFORMANCE OF THE WORK FOR WHICH THIS INSTALLATION PLAN IS ISSUED, I SHALL NOT EMPLOY ANY PERSON IN SUCH A MANNER AS TO BECOME SUBJECT TO WORKERS COMPENSATION LAWS OF CALIFORNIA. CONTRACTORS HIRING OR SUBCONTRACTING SIGNATURE CERTIFIES THE FOLLOWING: I CERTIFY THAT IN THE PERFORMANCE OF THE WORK FOR WHICH THIS INSTALLATION PLAN IS ISSUED, I SHALL EMPLOY PERSONS SUBJECT TO WORKERS COMPENSATION LAWS OF CALIFORNIA.</p>		
APPLICANTS SIGNATURE _____ TITLE: _____ DATE: _____		