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POLICY INTENT NOTICE

PIN: 2

SUBJECT

Installation of Underground Storage Tanks

Effective: 05/20/1994
Revised: 07/23/2025

PURPOSE

This Policy Intent Notice (PIN) provides a guideline for permitting underground storage tanks.

BACKGROUND

Underground tanks for storage of fuel, wastewater, domestic water supply, etc., frequently need to be installed as part of projects subject to review and approval by the Department of Health Care Access and Information (HCAI), Office of Statewide Hospital Planning and Development (OSHPD). The underground tank installation must be verified for buoyancy in accordance with the California Building Code (CBC), Section 1605A.1.1. In addition, the tank's structural integrity must be confirmed to ensure it can withstand other loading conditions, such as vehicular traffic or surcharge exerted from structures or components.

Additionally, permits for the operation and monitoring of underground fuel storage tanks are the jurisdiction of the local Certified Unified Program Agency (CUPA) as stipulated in the California Health and Safety Code, Division 20, Chapter 6.7, Underground Storage of Hazardous Substances.

POLICY

HCAI/OSHPD will review, permit, and inspect projects with underground storage tanks for the following:

1. **Buoyancy Stability:** All underground storage tanks will be reviewed for adequate buoyancy stability due to hydrostatic pressures. Corresponding drawings and calculations shall be stamped and signed in conformance with the California Administrative Code (CAC), Section 7-115.
    A. **Drawings** will be reviewed for the following:
        i. General notes indicating the design criteria followed (building code, information on surcharge loading where it occurs, geotechnical report with relevant information, such as historic high groundwater elevation and local soil hazards where applicable, groundwater elevation as assumed in the design, etc.).
        ii. Applicable tank listings (e.g. UL 1316 for fiberglass tanks, UL 58 and 1746 for steel tanks, etc.).

iii. Notes for material specification applicable to components of the buoyancy restraint assembly (steel types, concrete unit weight and f'c, strap material, etc.). Materials used shall be corrosion resistant.

iv. Site plan showing the location of the underground tank, including distance to immediately adjacent structures where these occur.

v. Plan view and elevations showing the tank overall shape and dimensions, as well as location of restraints. Immediately adjacent structures surcharging the tank, as well as any adjacent tanks shall be shown in as a section. Drawing details shall indicate the tank manufacturer name and model number.

vi. Information on backfill requirements at the tank excavation area (type of backfill material and level of compaction).

vii. Anchorage details fully describing all components of the buoyancy restraint assembly (straps, turnbuckles, anchors, reinforced concrete deadman, etc.). Concrete deadman details shall include all relevant information necessary for fabrication, such as overall dimensions, reinforcement location, and geometry of anchor slots.

B. **Calculations** will be reviewed for the following:

i. List of applicable standards followed (CBC, ACI 318, PEI RP100, etc.).

ii. Detailed manufacturer documentation reflecting the tank's material and construction, empty and full operating weight, overall dimensions, installation limitations (minimum/maximum burying depths, minimum spacing to adjacent underground elements, etc.), and manufacturer information on installation and recommended restraint methods and locations.

iii. Buoyancy stability calculations following established methodologies, such as what is set forth in PEI RP100 and using load combinations per the CBC.

iv. Calculations for design of the components part of the buoyancy restraining assembly (straps, turnbuckles, anchors, reinforced concrete deadman, etc.).

2. **Structural Integrity:** Tanks located such that they are subject to vehicular traffic loads or surcharge from immediately adjacent structures or components shall be shown to be adequate for such loading by any of the following.

A. **Listing by a Recognized Testing Agency:** Listing must be shown to cover the specific loading condition applicable to the project. Note that some tank listings such as UL 1316 for fiberglass tanks do not address surcharge loading and are thus insufficient.

B. **Manufacturer Certification:** A certification letter shall be stamped and signed by a registered engineer in California (PE or SE) experienced in the design or testing of such tanks (see Appendix for a manufacturer certification letter example). The certification letter must include:

i. Tank type description (fuel, wastewater, domestic water supply, etc.), manufacturer name, model number, and overall dimensions.

ii. Information on the tank's material characteristics (fiberglass, steel, etc.).

iii. Standards used for testing or design.

iv. Loading requirements applicable to the project (e.g. loading per CBC, Sections 1607A.8, 1607A.20, etc.).

v. Installation conditions including depth of soil above the tank, distance to immediately adjacent structures or tanks, description and thickness of driveway finish (reinforced concrete slab, asphalt paving, etc.), etc.

vi. A statement by the registered engineer certifying that the tank is suitable for the loading requirements and installation conditions indicated in the letter.

vii. A dimensioned figure showing the tank in elevation with relevant information noted.

C. **Calculations:** Detailed calculations covering the analysis and design of underground storage tanks subject to project-specific loading conditions shall be prepared in accordance with CBC, Section 1603A.3 and follow standards adopted by the CBC. Other standards may be used as alternate methods of compliance as permitted through the CAC, Section 7-104.

3. **Fire and Life Safety:** Verification for fire and life safety requirements will occur in accordance with the Flammable and Combustible Liquids Chapter of the applicable edition of the California Fire Code.

4. **Other:** Tank capacity, piping, and emergency power conformance will be reviewed with the applicable editions of the California Building Code (including but not limited to operational nonstructural performance level requirements), the California Electrical Code, the California Mechanical Code, and the California Plumbing Code.

5. **Certified Unified Program Agency Review:** Prior to issuing a building permit, HCAI/OSHPD will require documentation that the project has been submitted to the local Certified Unified Program Agency.

Original signed	07/23/2025
Chris Tokas, Deputy Director	Date

APPENDIX

Manufacturer Certification Letter Example

Manufacturer name
& address

Responsible EOR's stamp & signature + date on which the document was signed

FRP Underground Storage Tank Design Certification

BUILDING PROJECT SEOR'S REVIEW STAMP

Certification Date: XX/XX/XXXX

Project Name and Location

Project name and HCAI #

Submitted Site Plan Reference: List of Drawings

Tank Model: Tank model #

Tank Diameter: 12ft

Tank Capacity: 35,000 Gallons

Tank Contents: Fire Protection

Sewage Holding Tanks listed to IAPMO/ANSI Z1000

Potable Water Tanks Listed to NSF-61 or Lined With an NSF Listed Lining System

Non-Fuel Tanks Constructed consistent with UL 1316

Fuel Tanks listed to UL 1316

Tank Testing: **Tank will be subjected in the factory to the production tests (including all pressure and vacuum requirements) included in UL 1316**

Applicable Design Standards:

1. Fuel Tanks – Listed to UL 1316
2. Non-Fuel Tanks (e.g. Water and Septic Tanks) – Tank constructed consistent with UL 1316. UL 1316 does not cover water tanks or septic tanks.
3. Minimum Live Loads: CBC 2022 Section 1607A #30- Sidewalks, vehicular drive ways and yards, subject to trucking
4. Material Characteristics:

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a. ASTM D790 -Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials
b. ASTM D638 - Standard Test Method for Tensile Properties of Plastics
c. ASTM D2584 - Standard Test Method for Ignition Loss of Cured Reinforced Resins
d. ASTM D2412 - Standard Test Method for Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading
e. ASTM D2583 - Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor

Design Loads:

1. 6" thick concrete slab at grade
2. Tank buried 66" below grade
3. An H20 or HS20 traffic load applied at grade
4. From CBC 2022 1607A Table 1607A.1 Minimum Live Loads
   a. Occupancy or Use – 30 Sidewalks, vehicular drive ways and yards, subject to trucking
   b. Uniform Load – 250 psf
   c. Concentrated (lbs) – 8,000 lbs applied to an area 4.5" x 4.5"
5. Uniform surface load of 250 psf plus any grade slab plus soil load plus hydrostatic load with water surrounding the tank to grade
6. Uniform surface load of 250 psf plus any grade slab plus soil load plus concentrated surface load of 8,000 lbs applied to 4.5"x4.5" area with no water surrounding the tank. Also included H20 or HS20 traffic loading as an alternative to the CBC concentrated load condition.
7. Uniform surface load of 250 psf plus any grade slab plus soil load plus concentrated surface load of 8,000 lbs applied to 4.5"x4.5" area with water surrounding the tank to grade. Also included H20 or HS20 traffic loading as an alternative to the CBC concentrated load condition.

Structural Engineer Certification: The tank design is suitable for the included design loads

BUILDING PROJECT SEOR'S REVIEW STAMP

Responsible EOR's stamp & signature + date on which the document was signed

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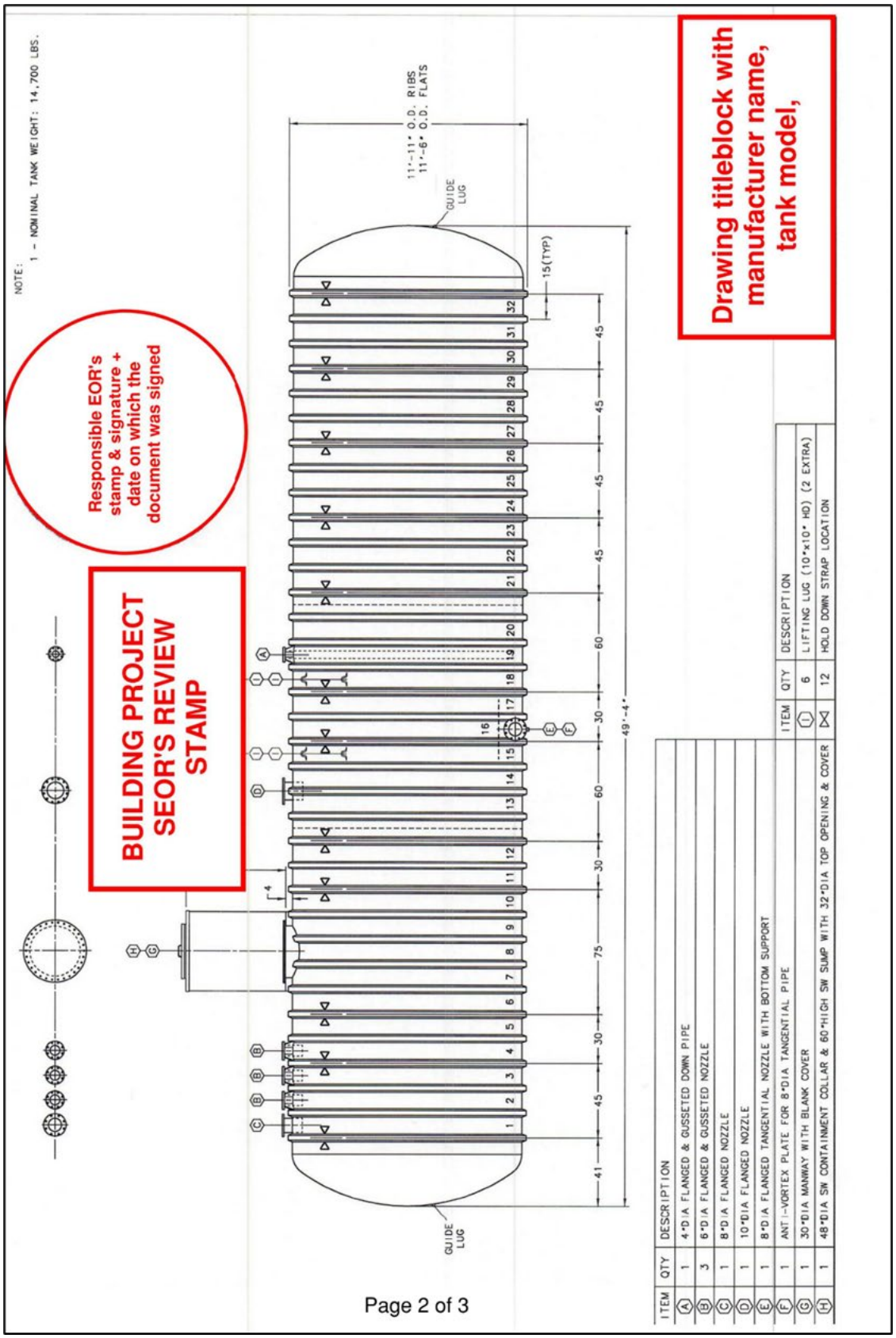
Drawing titleblock with manufacturer name, tank model,
Responsible EOR's stamp & signature + date on which the document was signed
BUILDING PROJECT SEOR'S REVIEW STAMP
NOTE:
1 - NOMINAL TANK WEIGHT: 14,700 LBS.
11'-11" O.D. RIBS
11'-6" O.D. FLATS
GUIDE LUG
15(TYP)
49'-4"
ITEM | QTY | DESCRIPTION
A | 1 | 4"DIA FLANGED & GUSSETED DOWN PIPE
B | 3 | 6"DIA FLANGED & GUSSETED NOZZLE
C | 1 | 8"DIA FLANGED NOZZLE
D | 1 | 10"DIA FLANGED NOZZLE
E | 1 | 8"DIA FLANGED TANGENTIAL NOZZLE WITH BOTTOM SUPPORT
F | 1 | ANTI-VORTEX PLATE FOR 8"DIA TANGENTIAL PIPE
G | 1 | 30"DIA MANWAY WITH BLANK COVER
H | 1 | 48"DIA SW CONTAINMENT COLLAR & 60"HIGH SW SUMP WITH 32"DIA TOP OPENING & COVER
ITEM | QTY | DESCRIPTION
1 | 6 | LIFTING LUG (10"x10" HD) (2 EXTRA)
2 | 12 | HOLD DOWN STRAP LOCATION

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REVISION HISTORY

07-23-2025	Second revision. Expanded application to all types of underground storage tanks.
04-18-2016	First Revision
05-20-1994	First Issued