

## Aboveground Flammable & Combustible Liquid Storage Tanks (AST) Check Sheet and Information Required on Submitted Drawings

National Fire Code – 2019 Alberta Edition Division C 2.2.3.1.

Drawings can be submitted electronically or two (2) hardcopies submitted to:

Red Deer Emergency Services – Fire Prevention Bureau

Email: [prevention@reddeer.ca](mailto:prevention@reddeer.ca) Mail: PO Box 5008, Red Deer, Alberta T4N 3T4 Office: 403.346.5511

If the single storage tank is >8000L, the aggregate sum of all storage tanks is >20,000L or any piping is buried underground then drawings must be stamped and signed by an engineer licensed to practice in the Province of Alberta

Unless otherwise specified all references are to the National Fire Code – 2019 Alberta Edition (NFC) Division B

Please consult with The City of Red Deer Inspections & Licensing Department (IN&L)  
in regards to requirements for a Development Permit

Approval will not be granted until reviewed by IN&L Development Department

Email: [development@reddeer.ca](mailto:development@reddeer.ca) Business: 403.342.8190

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### The following should form part of the submitted drawings

- Code References - List of applicable codes and standards
- Site Classification - Card lock, self-serve, full serve
- Overall Site Plan - Site relative to adjacent streets and buildings, including distance to tanks, dispensers, buildings and property lines
- Site Finished Grades - indicating a spill is designed to stay on the property
- Mechanical Site Plan - showing underground drainage (catch basins, piping, oil/water separator if applicable)
- Electrical Site Plan - emergency shut down locations, horns, strobes, communication devices
- Piping System - underground layout, distances, dispensers and sumps and associated details
- Tank Sections & Details - distances, tank size and listing, product, supporting slab, collision protection, vent rack, spill containment, etc.

If engineered drawings are submitted ensure the below items are shown. If the application does not require drawings, use the check sheet as a guide for your application and installation.



### **Detail Check Sheet:**

- Drawings have an engineer signed stamp NFC- 2019 Alberta Edition Div. C 2.2.3.1.
- Listed standard the tanks are designed to meet NFC- 2019 Alberta Edition 4.3.1.2.
- 6m from propane cylinder or tank NFC- 2019 Alberta Edition 4.3.2.3.
- Min 1m spacing between storage tanks NFC- 2019 Alberta Edition 4.3.2.2.
- Secondary containment for single walled tanks NFC- 2019 Alberta Edition 4.3.7.
  - Made of non-combustible material
  - Can hold 110% of a single storage tank
  - Can hold the capacity of the largest storage tank in the contained space plus 10% of the greater of the largest tank or the aggregate capacity of all other storage tanks in the contained space.
  - Wall of containment no closer than 1.5m to tank shell
- Minimum Distances to a Building or Property Line <250,000 L: NFC- 2019 Alberta Edition 4.3.2.1.
  - Containing Class I liquids
    - 3m
  - Containing Class II or IIIA liquids NFC- 2019 Alberta Edition 4.3.2.1.(6)
    - 3m from a building > 80,000L
    - 1.5m from a building > 5000L and < 80,000L
    - .5m from a building > 2500L and < 5000L
    - Zero from a building < 2500L
    - Zero if the tank is CAN/ULC S655
- Protection Against Mechanical Damage: NFC- 2019 Alberta Edition 4.3.3.4
  - Concrete/steel posts 1m from tank shell and spaced 1500mm on centre or,
  - Jersey barriers not less than 750mm high and the width of base not less than the height, spaced 500mm from the tank shell.
- Location of Vent Pipe Outlets: NFC- 2019 Alberta Edition 4.3.5.2
  - Outside the building
  - Not less than 3.5m above adjacent ground level for Class I liquids
  - Not less than 2m above adjacent ground level for Class II or IIIA liquids
  - Not less than 1.5m from any building opening
- Tank Supports and Foundation NFC- 2019 Alberta Edition 4.3.3.1
  - On solid ground, steel, concrete or masonry (nothing combustible)
  - Where the clearance below the base of the tank exceeds 300 mm, drawings stamped by an engineer must be provided showing the base has a minimum 2 h fire-resistance rating



### ***Detail Check Sheet cont'd:***

- |   |   |
|---|---|
| <input type="checkbox"/> Product Identification on 2 sides of the tank                              | NFC- 2019 Alberta Edition 4.3.1.7                       |
| <input type="checkbox"/> Non-Combustible Piping   | NFC- 2019 Alberta Edition 4.5.2.1                       |
| <input type="checkbox"/> Piping Labelled with Product   | NFC- 2019 Alberta Edition 4.5.4.1                       |
| <input type="checkbox"/> Piping at Entrances to a Buildings - Interior and Exterior Shut Off Valves | NFC- 2019 Alberta Edition 4.5.6.8                       |
| <input type="checkbox"/> Overhead Piping - not < than 1.8m above the floor                          | NFC- 2019 Alberta Edition 4.5.6.11                      |
| <input type="checkbox"/> Protection of Pipe Risers  | NFC- 2019 Alberta Edition 4.5.6.13                      |
| <input type="checkbox"/> Spill Control and Drainage Systems   | NFC- 2019 Alberta Edition 4.1.6.1 and 4.3.7.1           |
| <input type="checkbox"/> Overfill Protection  | NFC- 2019 Alberta Edition 4.3.1.8. (1)                  |
| <input type="checkbox"/> Clearances - minimum 550mm between tank shell and wall of a room           | NFC- 2019 Alberta Edition 4.3.14.2                      |
| <input type="checkbox"/> Bonding and Grounding  | NFC- 2019 Alberta Edition 4.3.13.12 and NFPA 30 6.5.4.2 |
| <input type="checkbox"/> Placards   | NFC- 2019 Alberta Edition 4.3.14.5                      |
| <input type="checkbox"/> Fire Department access to within 60m of tank in outside storage area       | NFC- 2019 Alberta Edition 4.3.2.4                       |
| <input type="checkbox"/> Portable Fire Extinguisher (if dispensing see below)                       | NFC- 2019 Alberta Edition 2.1.5                         |

### ***If Dispensing:***

- |  |   |
|--|---|
| <input type="checkbox"/> Absorbent Material  | NFC- 2019 Alberta Edition 4.6.9.2         |
| <input type="checkbox"/> Anti-Siphon Valves  | NFC- 2019 Alberta Edition 4.7.3.2. (2)(a) |
| <input type="checkbox"/> Min Two – 40BC Rated Portable Fire Extinguishers  | NFC- 2019 Alberta Edition 4.6.9.1         |
| <input type="checkbox"/> Emergency Shut Off / 6 – 10m from Dispenser   | NFC- 2019 Alberta Edition 4.6.8.2(7)c     |
| <input type="checkbox"/> Dispenser and Spill Containment Sumps   | NFC- 2019 Alberta Edition 4.3.9           |
| <input type="checkbox"/> Protection against Collision Damage <ul style="list-style-type: none"><li>• Concrete island 100mm high or</li><li>• Posts or Bollards</li></ul> | NFC- 2019 Alberta Edition 4.6.3.4         |



**Detail Check Sheet cont'd:**

- |   |                                      |
|---|--------------------------------------|
| <input type="checkbox"/> Dispenser Location and Distances                       | NFC- 2019 Alberta Edition 4.6.3.3    |
| • 3m from right of way and property line  |                                      |
| • 3m from propane dispenser   |                                      |
| • 6m from propane cylinder or storage tank                                      |                                      |
| • 1.5m from natural gas dispenser   |                                      |
| • 6m from fixed source of ignition  |                                      |
| • 3m from building opening other than attendant shelter                         |                                      |
| • 6m from manhole or sewer opening  |                                      |
| <br>  |                                      |
| <input type="checkbox"/> Provisions for Signs (no smoking, turn off ignition)   | NFC- 2019 Alberta Edition 4.6.8.8    |
| <br>  |                                      |
| <input type="checkbox"/> Operating Instructions Posted                          | NFC- 2019 Alberta Edition 4.6.8.2(1) |
| <br>  |                                      |
| <input type="checkbox"/> Hose Nozzle Valves                                     | NFC- 2019 Alberta Edition 4.6.5.2    |
| <br>  |                                      |
| <input type="checkbox"/> Valve Details c/w Identification as per CPPI Standards | NFC- 2019 Alberta Edition 4.5.7.6    |

**If engineered drawings are required the application for permit will be reviewed once the electronic or hard copy drawings are received. If the application or drawings are incomplete an email requesting more information will be sent to the applicant. Once all supplied information is correct a permit will be issued and work on the installation can begin at that time.**

**Submit Drawings to:**

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**Mail: PO Box 5008, Red Deer, Alberta T4N 3T4**