October 31, 2016

**Attn:** Architects, professional engineers

**Re:** Design of hazardous areas

The design of hazardous areas requirements in the Building Code apply to the indoor storage, handling, use and processing of dangerous goods, products, whether raw or waste materials, goods in process, or finished goods.

Building permit applications for all occupancies that will contain hazardous substances or dangerous goods shall indicate so on the Ontario Building Code Analysis form. (attached) Common occupancy types that may contain dangerous goods or hazardous substances include, but are not limited to, industrial occupancies (including warehouses), laboratories, doctors/dentists offices, medical supply stores, hospitals, nursing homes, schools, repair garages, and construction rental stores.

The attached Design of Hazardous Areas Manual outlines the process required to verify compliance with the Building Code. **Effective January 1, 2017,** all building permit applications for occupancy types that may include the indoor storage of dangerous goods or hazardous substances shall include the following information from the manual:

- Figure 1 – Questionnaire *(page 4)*
- Applicable Data Sheets *(pages 5, 8, 16)*

The requirements contained within Subsection 3.3.6. reflect some, but not all design requirements contained in Division B of the Fire Code as it relates to the design of hazardous areas. Design professionals should refer to the Fire Code for additional requirements that may apply to their circumstances.

For additional information, please contact the undersigned.

Regards,

**Jeremy Laur, CBCO | Program Manager of Permit Services**

Building Services

**City of Guelph**

519-837-5615 extension 2379

[jeremy.laur@guelph.ca](mailto:jeremy.laur@guelph.ca)

This Building Services Notice should be shared with anyone involved in the design or construction of buildings containing the indoor storage of dangerous goods or hazardous substances.
<table>
<thead>
<tr>
<th>Item</th>
<th>Project Location:</th>
<th>OBC Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Project Description</strong></td>
<td>□ New □ Alteration □ Addition □ Change of Use</td>
</tr>
<tr>
<td>2</td>
<td><strong>Major Occupancy</strong></td>
<td>Group Division</td>
</tr>
<tr>
<td>3</td>
<td><strong>Building Area (m²)</strong></td>
<td>Existing New Total</td>
</tr>
<tr>
<td>4</td>
<td><strong>Mezzanine Area (m²)</strong></td>
<td>Existing New Total</td>
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<tr>
<td>5</td>
<td><strong>Gross Area (m²)</strong></td>
<td>Existing New Total</td>
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<tr>
<td>6</td>
<td><strong>Number of Storeys</strong></td>
<td>Above Grade Below Grade</td>
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<tr>
<td>7</td>
<td><strong>Height of Building (m)</strong></td>
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<tr>
<td>8</td>
<td><strong>Number of Streets/Access Routes</strong></td>
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<tr>
<td>9</td>
<td><strong>Building Classification</strong></td>
<td>3.2.2. (if applicable)</td>
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<tr>
<td>10</td>
<td><strong>Sprinkler System</strong></td>
<td>Existing: □ Yes □ No Proposed: □ Yes □ No</td>
</tr>
<tr>
<td>11</td>
<td><strong>Standpipe</strong></td>
<td>Existing: □ Yes □ No Proposed: □ Yes □ No</td>
</tr>
<tr>
<td>12</td>
<td><strong>Fire Alarm</strong></td>
<td>Existing: □ Yes □ No Proposed: □ Yes □ No</td>
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<tr>
<td>13</td>
<td><strong>Water Service/Supply is Adequate</strong></td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>14</td>
<td><strong>High Building (3.2.6)</strong></td>
<td>□ Yes □ No</td>
</tr>
<tr>
<td>15</td>
<td><strong>Type of Construction</strong></td>
<td>□ Combustible □ Noncombustible □ Both</td>
</tr>
<tr>
<td>16</td>
<td><strong>Occupant Load</strong></td>
<td>Existing: New: Total: □ m²/person □ design</td>
</tr>
<tr>
<td>17</td>
<td><strong>Washroom Facilities (# of Water Closets)</strong></td>
<td>Existing: Men Women Proposed: Men Women</td>
</tr>
<tr>
<td>18</td>
<td><strong>Barrier Free Design</strong></td>
<td>□ Yes □ No (Explain)</td>
</tr>
<tr>
<td>19</td>
<td><strong>Hazardous Substances, Equipment, Processes and Dangerous Goods</strong></td>
<td>□ Yes (Refer to Design of Hazardous Areas Manual) □ No</td>
</tr>
<tr>
<td>20</td>
<td><strong>Required Fire Resistance Ratings (FRR)</strong></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td><strong>Spatial Separations – Construction of Exterior Walls</strong></td>
<td></td>
</tr>
<tr>
<td>Completed By:</td>
<td>Phone:</td>
<td>Email:</td>
</tr>
</tbody>
</table>
Design of Hazardous Areas Manual

Ontario Building Code
Division B, Subsection 3.3.6.

DEFINITIONS

Defined terms – OBC, Division A, 1.4.1.2. 2

OBC ANALYSIS

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SECTION 2 – Flammable Liquids and Combustible Liquids

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Flow Chart 2b – Mercantile 10
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Flow Chart 2d – Industrial 12
Flow Chart 2e – Storage Rooms 13
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Data Sheet 16
Flow Chart 3a 17

Disclaimer: The information provided herewith is not guaranteed to be correct. Reference should always be made to the Building Code and Fire Code, as amended, which are the authoritative sources for information on the construction and use of buildings. Reference should also be made to all other applicable reference documents. This publication should not be relied upon as a substitute for legal or design advice.
DEFINITIONS

Defined terms – OBC, Division A, 1.4.1.2.

**Combustible liquid**

*Combustible liquid* means any liquid having a flash point at or above 37.8°C and below 93.3°C.

- **Class II combustible liquids** have a flash point greater than or equal to 37.8°C and below 60°C.
- **Class IIIA combustible liquids** have a flash point greater than or equal to 60°C and below 93.3°C.
- **Class IIIB combustible liquids** have a flash point greater than or equal to 93.3°C.

**Compressed gas**

*Compressed gas* means any contained mixture or material with either an absolute pressure exceeding 275.8 kPa at 21°C or an absolute pressure exceeding 717 kPa at 54°C, or both, or any liquid having an absolute vapour pressure exceeding 275.8 kPa at 37.8°C.

**Dangerous goods**

*Dangerous goods* mean those products or substances that are regulated by the *Transportation of Dangerous Goods Regulations* made under the *Transportation of Dangerous Goods Act, 1992* (Canada).

**Flammable liquid**

*Flammable liquid* means a liquid having a flash point below 37.8°C and having a vapour pressure not more than 275.8 kPa (absolute) at 37.8°C as determined by ASTM D 323, “Vapor Pressure of Petroleum Products (Reid Method)”.

- **Class IA flammable liquids** have a flash point below 22.8 °C (the upper end of the common range of room temperature) and a boiling point below 37.8 °C.
- **Class IB flammable liquids** have a flash point below 22.8 °C and a boiling point greater than or equal to 37.8 °C.
- **Class IC flammable liquids** have a flash point greater than or equal to 22.8°C and below 37.8°C.

**Process plant**

*Process plant* means an *industrial occupancy* where materials, including *flammable liquids*, *combustible liquids* or gases, are produced or used in a process.

**Unstable liquid**

*Unstable liquid* means a liquid, including *flammable liquids* and *combustible liquids*, that is chemically reactive to the extent that it will vigorously react or decompose at or near normal temperature and pressure conditions or that is chemically unstable when subjected to impact.
OBC ANALYSIS

Summary

The design of hazardous areas requirements in the Building Code apply to the storage, handling, use and processing of dangerous goods, products, whether raw or waste materials, goods in process, or finished goods.

Common occupancy types that may contain dangerous goods or hazardous substances, include, but are not limited to, industrial occupancies (including warehouses), laboratories, doctors/dentists offices, medical supply stores, hospitals, nursing homes, schools, repair garages, and construction rental stores.

*Figure 1* contains a series of questions related to materials and substances identified in Article 3.3.1.2. and Subsection 3.3.6. of the Building Code and Division B of the Fire Code. *Figure 1* shall be completed by the owner, or their authorized agent, based on the proposed use of the building. All questions are required to be answered, and subsequent Sections completed, in order to verify compliance with the Building Code, applicable sections of the Fire Code, and other applicable law.

General Notes:

1. This document does **not** reflect all design requirements found in the Fire Code. Refer to the Fire Code for additional requirements that may be applicable, or contact the Guelph Fire Prevention bureau directly.
2. A professional engineer’s report may also be required in order to verify compliance with applicable Building Code and Fire Code requirements.
3. A letter of use may be required to be submitted.
# OBC ANALYSIS

## Figure 1 – Questionnaire

### Project Location:

<table>
<thead>
<tr>
<th></th>
<th>Will there be storage of any <strong>explosives</strong>, blasting agents, detonators, propellant explosives, fireworks, pyrotechnics or ammunition?</th>
</tr>
</thead>
</table>
| 1 | - If yes, submit professional engineer’s report verifying design compliance with the *Explosives Act* (Canada), the *Explosives Regulations* made under that act, and the Corporation of the City of Guelph by-law number (1993)-14362, *Fireworks By-law*.  
   *Note:* Up to 1,000kgs of consumer fireworks (Type F.1) and 225kgs of small arms cartridge ammunition (Type C.) may be stored for sale without an explosives licence from NRC. | □ Yes □ No |

<table>
<thead>
<tr>
<th></th>
<th>Will there be storage of any <strong>compressed gas</strong>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>- If yes, professional engineer to complete Section 1 below.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Will there be storage or dispensing of any <strong>flammable liquids</strong> or combustible liquids?</th>
</tr>
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<tbody>
<tr>
<td>3</td>
<td>- If yes, professional engineer to complete Section 2 below.</td>
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</table>

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<thead>
<tr>
<th></th>
<th>Will there be indoor storage of <strong>tires</strong>?</th>
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</thead>
</table>
| 4 | - If yes, provide volume of intended tire storage area. ________ m³  
   *Notes:* If more than 375m³, tires shall be in a 2 hour fire compartment. (Ref.: OBC, 3.3.6.5.)  
   If more than 425m³, refer to Subsection 3.3.1. of the Fire Code. | □ Yes □ No |

<table>
<thead>
<tr>
<th></th>
<th>Will there be storage of <strong>ammonium nitrate</strong>?</th>
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<tbody>
<tr>
<td>5</td>
<td>- If yes, professional engineer to complete Section 3 below.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Will any areas of the building be used as a <strong>process plant</strong> where unstable liquids are handled or small scale unit chemical processes occur?</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>- If yes, identify room name(s) or number(s).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Will there be any type of <strong>dust producing processes</strong>?</th>
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</thead>
<tbody>
<tr>
<td>7</td>
<td>- If yes, submit professional engineer’s verification (i.e.: report and/or drawing) that the building has been designed in accordance with Section 5.10 of the Fire Code and NFPA 68, “Explosion Protection by Deflagration Venting”. (Ref.: OBC, 6.2.2.5.)</td>
</tr>
</tbody>
</table>

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<thead>
<tr>
<th></th>
<th>Will there be any type of <strong>spray application</strong>?</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>- If yes, submit professional engineer’s verification (i.e.: report and/or drawing) that the building has been designed in accordance with Section 5.12 of the Fire Code and NFPA 33, “Standard for Spray Application Using Flammable or Combustible Materials”. (Ref.: OBC, 6.2.2.5.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Will there be any type of special spray processes such as dry powder finishing or automobile undercoating?</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>- If yes, submit professional engineer’s verification (i.e.: report and/or drawing) that the building has been designed in accordance with the applicable subsections &amp; reference standards of 5.14 the Fire Code. (Ref.: OBC, 6.2.2.5.)</td>
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<th></th>
<th>Will there be any type of drying oven or bake oven?</th>
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<td>10</td>
<td>- If yes, submit professional engineer’s verification (i.e.: report and/or drawing) that the building has been designed in accordance with Section 5.18 of the Fire Code and NFPA 86, “Standard for Ovens and Furnaces”. (Ref.: OBC, 6.2.2.5.)</td>
</tr>
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</table>

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<thead>
<tr>
<th></th>
<th>Will there be any additional hazardous gases, dusts, or liquids that require ventilation in conformance with the Ontario Fire Code, National Fire Code and/or good engineering practice as described in NFPA publications.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>(Ref.: OBC, 6.2.2.5. and 6.2.13.)</td>
</tr>
</tbody>
</table>

---

**Completed by:**

**Signature:**

**Phone:**

**Email:**
**SECTION 1 – Compressed Gas**

**Data Sheet**

Complete the following chart by describing all compressed gasses that will be stored inside the building.

<table>
<thead>
<tr>
<th>Type of compressed gas</th>
<th>Flammable (yes/no)</th>
<th>Poisonous or corrosive (yes/no)</th>
<th>Quantity - # of cylinders - weight (kgs)</th>
<th>Lighter or heavier than air?</th>
<th>Will the compressed gas react with any other compressed gases in the building? If yes, specify.</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

Has this building been designed in accordance with all applicable Building Code and Fire Code requirements related to the indoor storage of compressed gas?

☐ Yes  ☐ No

Completed By: ___________________________

Signature: ___________________________

Notes: ________________________________________________________________

____________________________________________________________

____________________________________________________________

____________________________________________________________

____________________________________________________________

____________________________________________________________

____________________________________________________________

____________________________________________________________

Professional Seal:

---

5

Design of Hazardous Areas
**SECTION 1 – Compressed Gas**

**Flow Chart 1a**

The following flow chart indicated the construction requirements for protecting **flammable** compressed gas storage areas from adjacent areas within the building.

Spaces that contain hazardous gases, dusts, or liquids shall be ventilated in conformance with the Ontario Fire Code, National Fire Code and/or good engineering practices as described in NFPA publications. (Ref.: OBC, 6.2.2.5. and 6.2.13.)

Note: The Fire Code addresses the following items. Contact Fire Prevention for additional information.
- The indoor storage of non-flammable compressed gas where the amount exceeds 150kg.
- The outdoor storage of all compressed gas.
- The dispensing, filling and distributing of compressed gas.

---

**Protecting compressed gas storage areas from adjacent areas within the building**

- **Non-Poisonous, Non-Corrosive**
  - **Quantity:**
    - Aggregate capacity of cylinders not more than 25kgs.
  - Fire Code does not apply
    - OFC, 5.6.1.1.(4)

- **Poisonous or Corrosive**
  - **OFC, 5.6.1.1.(5)**
  - **Quantity:**
    - All others.

---

- **ANY Quantity**
  - **Quantity:**
    - Aggregate capacity of cylinders not more than 100kgs.
  - - 45 minute gas-tight fire separation
    - located at or above grade
    - natural or mechanical ventilation
    - OFC, 3.3.6.3.(3) & 6.2.2.5.
  - - 2 hour gas-tight fire separation
    - located on an exterior wall
    - can be entered from the exterior
    - natural or mechanical ventilation
    - explosion venting
    - room does not contain fuel-fired equipment or high temperature heating elements
    - room intended for no other purpose
    - OFC, 3.3.6.3.(1) & 6.2.2.5
    - OFC, 5.6.2.4.(1)
Flow Chart 1b

The following flow chart indicates the construction requirements for protecting flammable and/or non-flammable compressed gas storage areas from other compressed gases that may react with one another.

Protecting Reactive Compressed Gas Storage Areas from One Another

Non-Reactive

Reactive

Combination of gases lighter & heavier than air:
- Shall be separated by a 1 hour fire separation.
  OR
- By at least 7.5m,
  OR
- By a 2.0m high masonry wall, with a 1.0m horizontal projection beyond the cylinders.

OBC, 3.3.6.3.(5)
OFC, 5.6.2.7.(1)

All gases lighter than air:
- Shall be separated by a 1 hour fire separation,
  OR
- By at least 7.5m,
  OR
- By a 2.0m high masonry wall, with a 1.0m horizontal projection beyond the cylinders.

OBC, 3.3.6.3.(6)
OFC, 5.6.2.7.(2)

All gases heavier than air:
- Shall be separated by a 1 hour fire separation,
  OR
- By at least 15m,
  OR
- By a 1.5m high masonry wall, with a 15m horizontal separation distance.

OBC, 3.3.6.3.(7)
OFC, 5.6.2.7.(3)
**SECTION 2 – Flammable Liquids and Combustible Liquids**

**Data Sheet**

Complete the follow chart by describing all flammable liquids and combustible liquids that will be stored inside the building.

<table>
<thead>
<tr>
<th>Type of liquid</th>
<th>Class</th>
<th>Quantity (L)</th>
<th>Density (L/m³)</th>
<th>Storage, dispensing, or both?</th>
<th>Open or closed containers?</th>
<th>Storage Method: (fire sep’d room, cert’d cabinet, incidental use)</th>
</tr>
</thead>
<tbody>
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</tbody>
</table>

Has this building been designed in accordance with all applicable Building Code and Fire Code requirements related to the indoor storage or dispensing of flammable and combustible liquids?

☐ Yes  ☐ No

Completed By: ____________________________  
Signature: ________________________________

Notes:  
________________________________________________________________________  
________________________________________________________________________  
________________________________________________________________________  
________________________________________________________________________  

Professional Seal:
SECTION 2 – Flammable and Combustible Liquids

The following flow charts identify the construction requirements for protecting flammable and combustible liquid storage areas from adjacent areas within building. (Ref.: OBC, 3.3.6.4.(1))

Spaces that contain hazardous gases, dusts, or liquids shall be ventilated in conformance with the Ontario Fire Code, National Fire Code and/or good engineering practices as described in NFPA publications. (Ref.: OBC, 6.2.2.5. and 6.2.13.)

A process plant intended as a location where Class I and Class II liquids are handled shall not contain a basement or a covered pit. (Ref.: OBC, 3.3.6.9.)

Refer to the Fire Code for additional requirements related to the indoor storage of flammable liquids and combustible liquids, including, but not limited to, spill control (4.1.6.) and ventilation (4.1.7.).

Flow Chart 2a – Assembly & Residential

| Single Class: |
| - 30L of Class I |
| - 150L of Class II |
| - 600L of Class IIIA |

OFC, 4.2.4.2.(2)

| Two or More Classes: |
| The following equation shall not exceed 1 |
| qI/30 + qII/150 + qIIIA/600 |

qI = quantity of Class I  
qII = quantity of Class II  
qIIIA = quantity of Class IIIA

OFC, 4.2.4.2.(3)

Notes:
- If these quantities are exceeded in building or fire compartment, go to Flowchart 2e for Storage Rooms or Flowchart 2f for Storage Cabinets.
- The dispensing of flammable and combustible liquids is not permitted in these occupancy types.
Flow Chart 2b – Mercantile

Mercantile
Maximum quantities
Note: Closed containers only! (OFC, 4.2.5.2.(1))

Non-Sprinklered Buildings
- Shall be the lesser of:
  (a) 8L for every m² of the suite, provided not more than 2L/m² is Class I, of which not more than 0.3L/m² is a combination of Class IA and IB.
  Note: Use a minimum floor area of 250m² as per 4.2.5.1.(4)
  OR
  (b) 8,000L, provided not more than 2,000L is Class I, of which not more than 300L is a combination of Class IA and IB.
  OFC, 4.2.5.1.(2)

Sprinklered Buildings
- Shall be the lesser of:
  (a) 24L for every m² of the suite, provided not more than 6L/m² is Class I, of which not more than 1L/m² is a combination of Class IA and IB.
  Note: Use a minimum floor area of 250m² as per 4.2.5.1.(4)
  OR
  (b) 24,000L, provided not more than 6,000L is Class I, of which not more than 1,000L is a combination of Class IA and IB.
  OFC, 4.2.5.1.(3)

Notes:
- If these quantities are exceeded, go to Flowchart 2d for storage areas, Flowchart 2e for Storage Rooms or Flowchart 2f for Storage Cabinets.
- The transfer of flammable and combustible liquids, in these occupancy types, from or into containers shall take place in a storage room. (Refer to Flowchart 2e for Storage Rooms)
**Flow Chart 2c – Groups B, D and Schools**

**Groups B, D and Schools**

Maximum quantities

*Note: Individual container capacities of more than 5L shall conform to ULC/ORD-C30, and shall be not more than a 25L capacity. (4.2.6.4.)*

**All occupancies except:**
- Automotive shops, and
- Industrial arts areas of educational facilities

(a) 10L, including not more than 5L of Class I in a single room.

OR

(b) 250L, including not more than 60L of Class II or 10L of Class I in a single 45 minute fire separation.

OFC, 4.2.6.3.(1)

**Automotive shops and industrial arts areas of educational facilities:**

Up to 75L maximum, including not more than 25L of Class I.

OFC, 4.2.6.3.(2)

**Notes:**
- *If these quantities are exceeded, go to Flowchart 2e for Storage Rooms or Flowchart 2f for Storage cabinets.*
- *The dispensing of flammable and combustible liquids is not permitted in these occupancy types.*
Flow Chart 2d – Industrial

Industrial
Maximum Quantities

Incidental Use:
OFC, 4.2.7.2.(1)(a)
Not the principal activity!

Storage Areas:
OFC, 4.2.7.2.(1)(d)
Principal Activity!
- This is where the storage, handling or use is the principal activity of the building/occupancy, or when the "incidental use" amounts are exceeded.
- With these buildings being quite rare and complex, the Plans Examiner shall review on an individual basis.

Closed Containers:
- 600L, of which not more than 100L of Class IA.
OFC, 4.2.8.2.(1)(a)

Storage Tanks:
- 5,000L, of Class IB, IC, II or IIIA.
OFC, 4.2.8.2.(1)(b)

General Storage Areas:
- Refer to 4.2.8.4.(1)-(6) for specific requirements.
OFC, 4.2.8.4.

Large Storage Tanks:
- Refer to 4.3.12.4.(2) for specific requirements.
OFC, 4.2.8.2.(3)

Notes:
- If these quantities are exceeded, go to Flowchart 2e for Storage Rooms or Flowchart 2f for Storage cabinets.
- The dispensing and transfer of flammable and combustible liquids, in these occupancy types, is permitted in a;
  - storage room in accordance with OFC, 4.2.9. (Refer to Flowchart 2e),
  - storage area in accordance with OFC, 4.2.7.5., or
  - in accordance with OFC, 4.2.8. for incidental uses.
Flow Chart 2e – Storage and Dispensing Rooms

Storage Rooms
Fire Separation Requirements (all occupancies)

Notes: No openings from storage room to public portion of building. (OFC, 4.2.4.2.(4)(b))
Storage room shall be on first storey. (OFC, 4.2.4.3.)

Storage Room Not Protected by Fire Suppression System
OFC, 4.2.9.1.(1)

Class I Liquids:
- 2 hour fire separation required.
- Refer to Table 4.2.7.A for maximum quantities.
OFC, 4.2.9.1.(3)

Storage Room Protected by Fire Suppression System
OFC, 4.2.9.1.(2)

All Other Class Liquids:
Max Quantity: 3,000L
Max Density: 200L/m²
= 1 hour fire separation
OFC, T.4.2.9.A. Doubled

Max Quantity: 20,000L
Max Density: 400L/m²
= 2 hour fire separation
OFC, T.4.2.9.A. Doubled

Maximum Quantity: 1,500L
Maximum Density: 100L/m²
= 1 hour fire separation
OFC, T.4.2.9.A.

Maximum Quantity: 10,000L
Maximum Density: 200L/m²
= 2 hour fire separation
OFC, T.4.2.9.A.
Flow Chart 2f – Storage Cabinets

Storage Cabinets
Maximum Quantities (all occupancies)
Note: All cabinets shall meet ULC/ORD-C175, ULI 1275, FM Approved, or NFPA 30.

Industrial:
- Not more than 500L per cabinet, and
- Not more than 1,500L per fire compartment*, OR
- More than 1,500L per fire compartment* if groups of not more than 1,500L are at least 30m apart.

OFC, 4.2.10.3.(2)

Care, Treatment, and Detention:
- Not more than 500L per cabinet, and
- Not more than 500L per fire compartment*.

OFC, 4.2.10.3.(3)

All Other Occupancies:
- Not more than 500L per cabinet, and
- Not more than 1,500L per fire compartment*.

OFC, 4.2.10.3.(1)

* As per the definition of fire compartment in the Fire Code, a fire separation with a 0 hour required fire-resistance rating would meet this requirement.
Flow Chart 2g – Explosion Venting

The following flow chart indicates whether or not the building is required to be designed in accordance with NFPA 68, “Explosion Protection by Deflagration”.

![Flow Chart 2g – Explosion Venting](image)

Note:
- The explosion venting requirements found in 3.3.6.4.(4) of the Building Code and 4.2.9.6.(2) of the Fire Code are only applicable to Class I liquids.
### SECTION 3 – Ammonium Nitrate

**Data Sheet**

Complete the follow chart by describing all ammonium nitrate that will be stored inside the building.

<table>
<thead>
<tr>
<th>Form of ammonium nitrate (crystals, flakes, grains or prills, or any fertilizer grade/other mixture containing 60% or more ammonium nitrate by weight)</th>
<th>Quantity (kgs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Has this building been designed in accordance with all applicable Building Code and Fire Code requirements related to the indoor storage of ammonium nitrate?

☐ Yes  ☐ No

Completed By: ________________________________  Professional Seal:

Signature: ________________________________

Notes:

________________________________________

________________________________________

________________________________________

________________________________________

________________________________________
**Flow Chart 3a**

Construction requirements for protecting ammonium nitrate \((\text{NH}_4\text{NO}_3)\) storage areas from adjacent areas within the building.

Spaces that contain hazardous gases, dusts, or liquids shall be ventilated in conformance with the Ontario Fire Code, National Fire Code and/or good engineering practice as described in NFPA publications. (Ref.: OBC, 6.2.2.5. and 6.2.13.)

**Protecting ammonium nitrate storage areas from adjacent areas in the building**

<table>
<thead>
<tr>
<th>Quantity:</th>
<th>Not more than 1,000 kgs</th>
<th>More than 1,000 kgs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building &amp; Fire Codes</td>
<td>Don’t Apply</td>
<td>Building shall,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Be not more than 1 storey</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Not contain a basement or crawl space</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Not contain open floor drains, etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Have non-combustible flooring in storage area</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Be designed to prevent ammonium nitrate from coming into contact with certain building materials</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Have not less than 0.007(m^2) of vent area per (m^2) of storage area, or be provided with mechanical ventilation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OBC, 3.3.6.6.(1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OFC, 3.3.3.2.</td>
</tr>
</tbody>
</table>

Building shall be sprinklered in conformance with NFPA 13  
OBC, 3.3.5.2.  
OFC, 3.3.3.6.(1)

**Notes:**
- Refer to OBC Appendix-3.3.6.6.(1) for information on products stored with ammonium nitrate.  
- Refer to OFC 3.3.3.6.(6)-(10) for required clearance between ammonium nitrate storage building and property lines.