

Society Fire Protection Engineers

Hazardous Substances and New
Organisms Act 1996

Fire Engineering Perspectives



HSNO Legislation

- HSNO Act 1996 (www.legislation.govt.nz)
- Regulations (www.legislation.govt.nz)
- Transfer Notices (www.ermanz.govt.nz)
- Group Standards (www.ermanz.govt.nz)

Relationship to Building Act

Building Code

- Most people use Acceptable Solutions C/AS1 clauses
These do not cover HSNO!
- Clause F3 covers flammable substances.
Calls up HSNO

What is Flammable?

- Under HSNO substances have a classification in accordance with their physical properties (may differ from transport).
- Hazardous Substances (Classification) Regulations 2001
 - Class 2 Flammable Gases
 - Class 3 Flammable Liquids
- Today will limit the discussion to flammables (gases and liquids)

Prevention vs Protection

- HSNO has two relevant pieces of legislation:
 - Regulations to prevent a fire
HS (Classes 1 to 5) Regs
 - A transfer notice to protect from a fire
(the worst has happened)
Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice
2004 (as amended)

Regulations

- Hazardous Substances (Classes 1 to 5 Controls) Regulations 2001
- Storing/handling flammables?
You probably need a location test certificate

Transfer Notices

- Approval of individual substances
- May vary the controls for individual substances
- Hazardous Substances (Dangerous Goods and Scheduled Toxic Substances) Transfer Notice 2004

Group Standards

- Approve groups of substances (mixtures)
- Responsibility on importer/manufacturer to classify
- Site and Storage Conditions
 - Summarise the regulations and transfer notice (nothing different)

Flammable Substances - Prevention

- Regulations require a location test certificate which covers:
 - Qualified trained people
 - Hazardous atmosphere zones
 - Ignition sources
 - Signage
 - Emergency plans
 - Separation distances (from the transfer notice)

Flammable Substances – Protection

Transfer Notice (Schedule 10) covers
Separation Distances

- Establishment of a Controlled Zone
- Extent depends on
 - Type of building
 - Type of substance
 - Quantities and size of containers
 - Adjacent usage

Building types for flammables

- Need to have:
 - A workroom for open containers
 - A store for closed containers
- The better the FRR of the building the shorter the separation required.

Workroom Types

1	Floor, walls, ceiling and doors - FRR 60/60/60 Self closing, outward opening doors Windows comply with NZS 4232.2:1988
2	Floor, walls, ceiling and doors - FRR 120/120/120 Self closing, outward opening doors Windows comply with NZS 4232.2:1988
3	Floor, walls, ceiling and doors - FRR 240/240/240 Self closing, outward opening doors Windows comply with NZS 4232.2:1988

Types of Stores (Depots)

A	No fire rating. No cladding. Roof (if any) to be non-combustible
B	No fire rating Non-combustible cladding
C	FRR of 120/120/120 walls Roof made of wood and iron or equivalent
D	240/240/240 walls and roof. Roof to be made of reinforced concrete.

Type of substance

- The more hazardous the greater the separation
 - 3.1A petrol 10 metres
 - 3.1D diesel Nil
 - 2.1.1A LPG 7 metres

Quantities

- Larger the pack size the greater the separation
 - Changes at 60 litres
- Larger the quantity the greater the separation
 - Usually a maximum

Adjacent Use

- High Intensity Land Use (HILU)
 - e.g. commercial premises
- Low Intensity Land Use (LILU)
 - e.g. parks and reserves

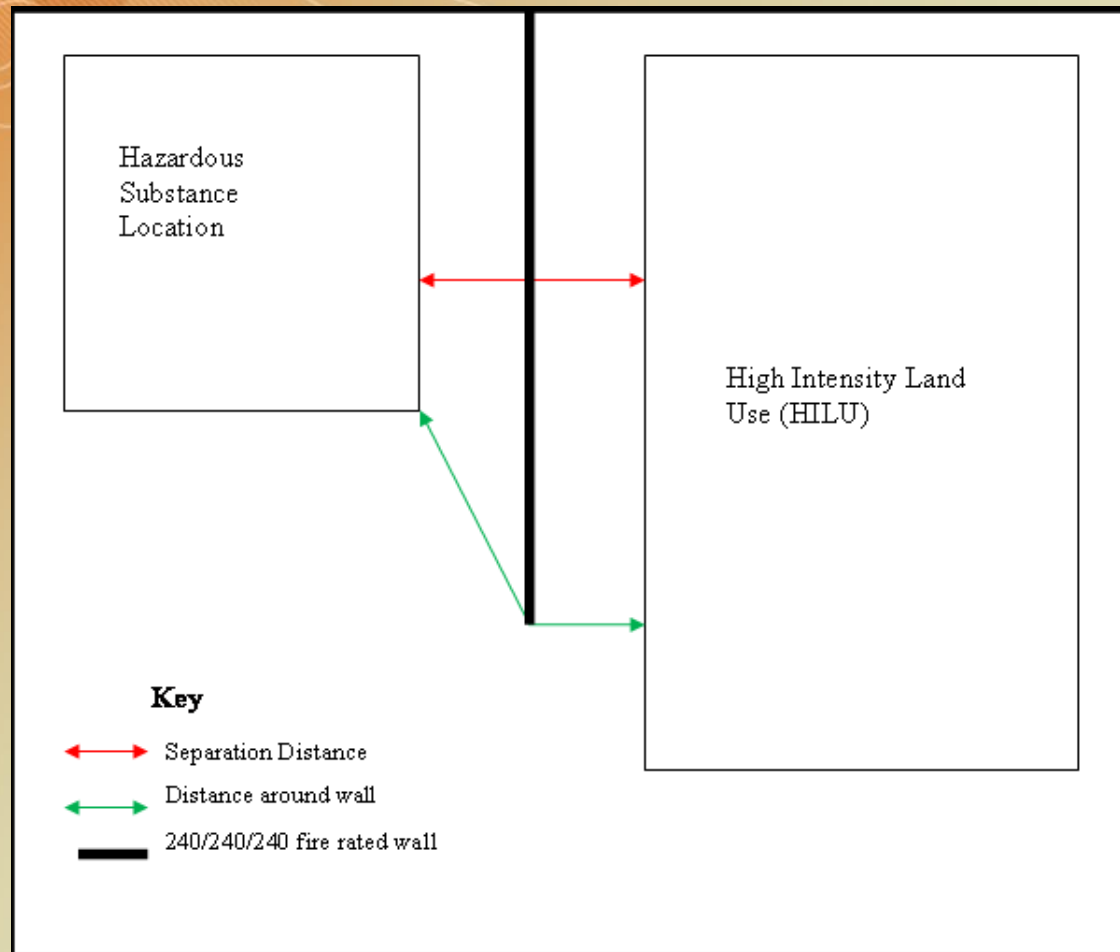
Process to Follow

- Is it a flammable substance?
- A workroom or store?
- Building type
- What is adjacent use
- Quantities and pack sizes
- Applicable clause in transfer notice
- Calculate separation using appropriate table

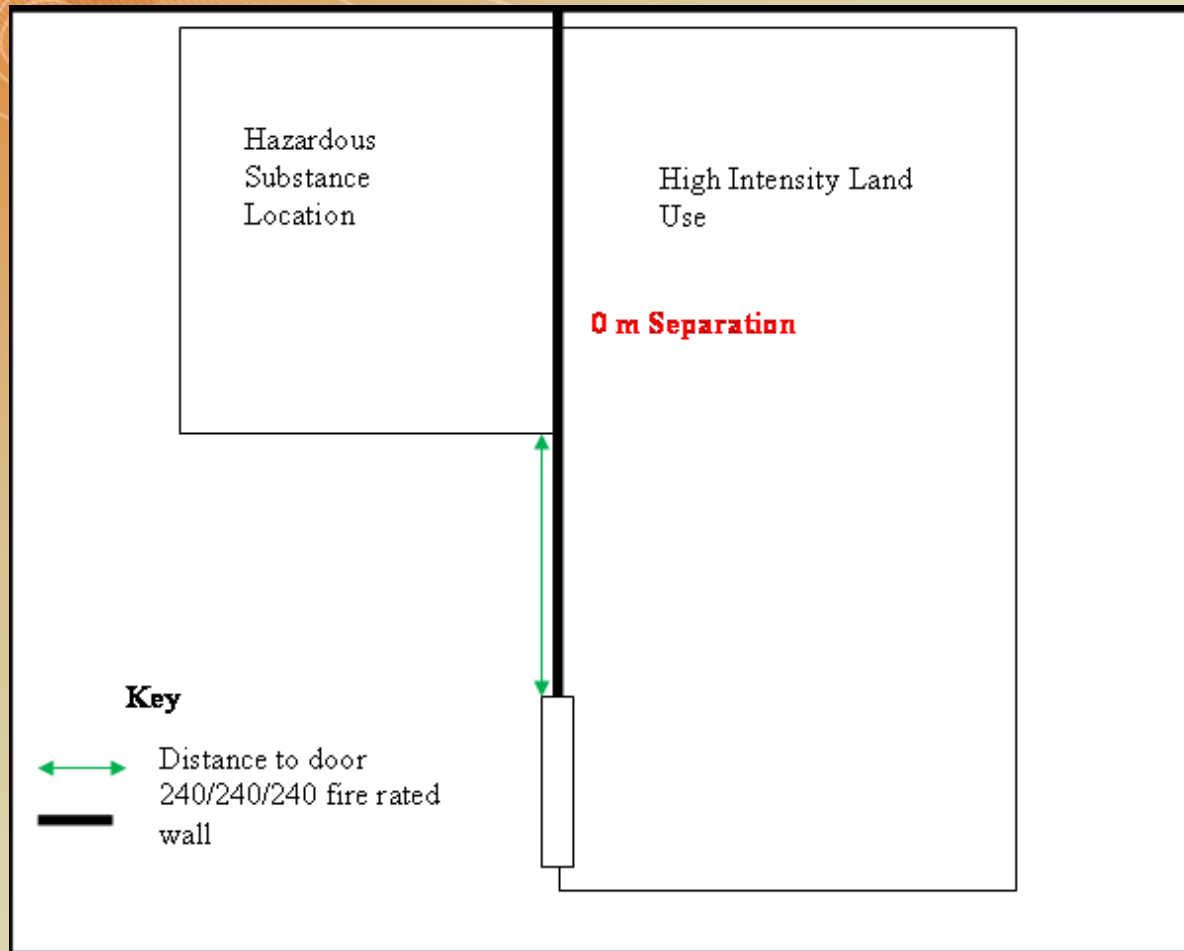
Tanks

- Are not buildings
- Have their own separation requirements.
- But - if put a tank in a building you consider it as a building.

Separation distance measurement



Separation distance measurement



Separation distance not enough?

- Can apply for a waiver
- Up to 50% reduction
 - FRR wall 240/240/240
 - Vapour tight
 - Maintains the required separation around the wall
 - Sufficiently large to protect HILU or LILU

Closer than 50%?

- Need the wall, plus additional mitigation:
 - Fire protection systems
 - Exceeding regulatory requirements; e.g.
 - Ventilation
 - Vapour detection
 - Ignition sources
 - Other specific site related provisions

Fire Resistance Rating?

- What is a 240/240/240 rated wall?
- Tilt slab construction
- Parapets
- Fire doors

Vapour tight?

- Allowed for up to 50% reduction
- Must be fire resistant
- Vapour path equals separation distance

Other Standards

- AS 1940
 - Minor storage provisions not accepted
 - Joint standard proposal

- NFPA 11
 - Applicability?

- Others?

Controlled Zone crosses boundary?

- Need neighbours permission (clause 32)
- Does not prevent change of use by neighbour – but this will invalidate any approval.

Example

- Warehouse holding 20,000 litres of 3.1B
- Walls tilt slab to no specific FRR
- Roof iron
- Offices at one end of the building separated by a 60/60/60 wall with normal doors
- External wall on the boundary
- Neighbour is a service station

Example answers

- Use table 30(z)
- Separation required from HILU is xxxx metres
- Actual separation zero
- Walls to be confirmed or upgraded to 240/240/240
- Fire protection needed – in rack sprinklers
- Fire doors to be installed

Questions

- What other mitigating factors should be considered?
- What concession does a sprinkler system provide?
- What is permissible for radiant heat?
- Can standards be developed for these other criteria ?

Other parties

- MIFE
- BOINZ
- FPA
- NZ Construction Industry Council