



**Fires in houses spread quickly and are deadly. Treating curtains with a Fire Retardant will slow the progress of flame upwards and may even cause the flame to extinguish.**

Sources of flame vary from lighter (kids playing), to electric blankets to lithium batteries found in many of today's devices and cell phones.

Many curtain materials are flammable. Many contain natural and synthetic fibres which can and do burn. You can protect yourself and your family by applying a flame retardant.

A flame-retardant solution makes the material resistant to burning when it encounters a low-energy ignition source, such as a cigarette lighter or a candle.

The 2016 Building regulations now require curtains in any public space (such as a restaurant, school, hall) to have fire retardant curtains.

We provide a 5-year Certificate of Compliance for buildings that require fire retardant curtains to obtain Compliance.

There are three types of materials, Fire resistant fabrics that are manufactured and can be made into curtains, naturally fire retardant materials such as wool and non-retardant materials.

Curtain Clean can now apply a fire retardant to those curtains that are not flame retardant. This can be done on new or older curtains.

It is recommended that older curtains are cleaned before application of the retardant and the retardant is then applied as part of the cleaning process.

Have your curtains treated while they are here for cleaning.

Curtains can also be treated in SITU.

*For more information, please call us on 0800 579 0501.*

# Inspecta-Shield™ Fire Retardant Spray

Inspecta-Shield™ is a versatile, broad spectrum, odourless, colourless, multi-use, penetrating, class 'A' fire retardant (for interior use only). Inspecta-Shield is non-toxic, non-allergenic and offers superior fire-retardant protection.

Inspecta-Shield Plus is a durable, non-toxic, penetrating, fire retardant. When properly applied, Inspecta-Shield meets or exceeds the criteria for a "Class A" rating on most materials.

## Inspecta-Shield™ Fire Retardant Spray

- Treats both natural and synthetic materials.
- Meets or exceeds governmental criteria for a Class A Fire Retardant on most materials.
- Is durable – it will not wear off, dry clean out, or bleach out by humidity and it allows fibres to breathe
- Has a sun-shield with a U.V. stabilizer. This drastically reduces sun fading and sun rot and increases decorating options and fabric life.
- Is visible only under long wave UV light.
- Is odourless and colourless.
- Leaves no uncomfortable residue or unsightly salt rings after treatment.
- Is non-corrosive to metal when dry.
- UL (USA), classified Inspecta-Shield assures a quality controlled, invisible fire retardant ideally suited for economical commercial treatments of:
  - Natural and synthetic fibres.
  - Upholstery, draperies and carpeting.
  - Decorative products, displays, paper and cardboard.
  - Stage curtains, mattresses and much more.



*For more information, please call us on 0800 579 0501.*

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## **NZ Standard for flame retardant fabrics**

AS 1530 Part 2 - This is the Australian & NZ Standard for flame-retardant fabrics for use in curtains and drapes.

### **Flammability Codes**

**NDFR** - Non Durably Flame-Retardant - These fabrics are chemically treated with a water solution and if wetted in any way should be retreated to meet flammability requirements.

**DFR** - Durably Flame-Retardant - These fabrics are chemically treated to withstand a number of cleanings.

**IFR** - Inherently Flame-Retardant - These fabrics are woven from fibres that have high flame retardancy, and in some cases an additional chemical treatment is added as an extra safeguard.

**Not FR** - Not Flame-Retardant - These fabrics have not had any flame-retardant treatment.

# New Zealand's Flammability Codes

Governmental building codes all have clauses pertaining to the flame retardant properties of flexible fabrics and materials when used in areas of assembly or egress. Fabric flammability is an important issue, especially for stage drapery and curtains that are used in public spaces such as theatres, cinemas, event venues, halls and sports centres, etc.

View the New Zealand Government's [Building Code Compliance Documents online](#).

## Effects of Cleaning Drapes

When a fabric is designated as 'permanently fire-retardant', the flame retardant treatment lasts for the life of the fabric. In the case of fabrics designed as 'fire retardant' the flame retardant in the fabric will dissipate over time, especially with repeated cleaning.

Although all fabrics will burn, some are naturally more resistant to fire than others. Those that are more flammable can have their fire resistance drastically improved by treatment with fire retardant chemicals such as Inspecta-Shield◆.

## On-Going Care of Flame Retardant Items including Drapes

Any flame retardant or resistant item that has had its fire resistant coating removed or has had a flammable coating (including but not limited to airborne dust and flammable paints) applied or adhered to its surface, will have negated its flammability rating and at that point it will no longer comply to its original flame retardant standard.

Over time flammable dust will accumulate on these items and this coating of dust must be removed. During this removal, there is no guarantee of how much flame retardant is also removed from the item. The material must then be retreated again to meet code standard.

## Certification of Flame Proofing

Fire-Shield, a division of John Herber Ltd, supplies certificates of flame proofing for items that have been treated by one of our certified applicators showing the date, applicator, product used and the relevant standard that it has been treated to. These certificates are valid for a period of 5 years. At which time the product will need to be cleaned and re-treated. A service is offered for treatment either in-house (suitable for most clients) or at the John Herber Ltd site. (The Inspecta-Shield◆ product has an AS1530 pt2 and pt3 certification on draperies).

## Flame Retardant Sprays & Service Enquiries

For protective sprays, consultation and application services, call us on 0800 No Flame We offer advice on every project to get it done right.

## Fire Rating – Curtains

The term '*fire rating*' is used in New Zealand Building Code Compliance Document Fire Safety C/AS1 to mean '*fire resistance rating*'. However *Fire rating* is a misleading term as all organic products are 'combustible' or 'flammable' to some degree. Fabric flammability is an important textile issue, especially for stage drapery that will be used in a public space such as a school, theatre or special event venue. Although all fabrics will burn, some are naturally more resistant to fire than others. Those that are more flammable can have their fire resistance drastically improved by treatment with fire retardant chemicals.

### Fire retardant treatment:

The flammability of fabric can be drastically reduced through the use of *fire retardants*. Many natural fibers, including cotton, can be topically treated with a chemical that reduces the fabric's flammability to the extent that it becomes nearly non-combustible. During a fire, the chemical reacts with the gases and tars generated naturally by the fabric, converting the gases and tars to carbon char, thus drastically slowing the fabric's burning rate. Some polyester fabrics are considered *permanently fire retardant*. This is because fire retardant properties are built directly into the molecular structure of the fibers. Other synthetic fabrics can also be topically treated with chemicals after the manufacturing process.

There are companies that specialise in applying *fire retardant* coating to drapes, particularly those used in a commercial setting. It is recommended that fabrics should be tested for flammability, colour fastness (dye running), shrinkage and appearance (i.e. a shiny fabric could be dulled) before application. Ideally all tests should be carried out on a scrap of fabric or in an inconspicuous area on an existing drape.

### Durability and cleaning of drapes:

When a fabric is designated as *permanently fire retardant* the flame retardant treatment will last for the life of the fabric. The drapery can be laundered or dry-cleaned as recommended by the drapery manufacturer. In the case of fabrics that are designated as *fire retardant*, that have been topically treated with chemicals, the flame retardant in the fabric will dissipate over time, particularly with repeated cleaning. Fabrics must be dry-cleaned with a non-liquid cleaning agent, as specified by manufacturer of the coating and in some cases the coating will have to be reapplied. Usually manufacturers of the coating will certify the treatment for up to five years – but this will vary depending on the product and method of application.

We recommend that if someone is wanting to prepare a quotation for any private or commercial job that has rooms for use by the general public, including halls, theatres, schools etc it is essential that they check with the fire department first.

**Note:** The information above is provided for educational purposes only, please refer to suppliers of fire retardant services and/or fabrics for more detailed and up to date technical details relating to fabrics, treatments and applications.

*Information supplied courtesy of Mollers, 2011.*



Department of  
Building and Housing  
*Te Tari Kaupapa Whare*

## **Extract from the New Zealand Building Code:**

Clauses C1-C6 Protection from Fire

Clause A3 Building Importance Levels



This document contains extracts of the New Zealand Building Code Clauses C1–C6 Protection from Fire and A3 Building Importance Levels. The full Building Code is contained in Schedule 1 of the Building Regulations 1992. These regulations can be downloaded from [www.legislation.govt.nz](http://www.legislation.govt.nz)

People using this document should check on a regular basis whether new versions have been published. The current version can be downloaded from [www.dbh.govt.nz/compliance-documents](http://www.dbh.govt.nz/compliance-documents)  
Users should make themselves familiar with the preface to the New Zealand Building Code Handbook, which describes the building controls system in New Zealand and the Building Code.

Defined words (italicised in the text) are explained in the Building Code Clause A2 Interpretation.

Enquiries about the content of this document should be directed to:



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**Regulations are available from [www.legislation.govt.nz](http://www.legislation.govt.nz)**

**New Zealand Government**

**C1—OBJECTIVES OF CLAUSES C2 TO C6 (PROTECTION FROM FIRE)**

**Provisions**

The objectives of clauses C2 to C6 are to:

- (a) safeguard people from an unacceptable risk of injury or illness caused by *fire*,
- (b) protect *other property* from damage caused by *fire*, and
- (c) facilitate firefighting and rescue operations.

**Limit on application**

## C2—PREVENTION OF FIRE OCCURRING

### Provisions

#### FUNCTIONAL REQUIREMENT

**C2.1** Fixed appliances using controlled combustion and other fixed equipment must be designed, constructed, and installed in *buildings* in a way that reduces the likelihood of illness or injury due to *fire* occurring.

#### PERFORMANCE

**C2.2** The maximum surface temperature of *combustible building materials* close to fixed appliances using controlled combustion and other fixed equipment when operating at their design level must not exceed 90°C.

**C2.3** Fixed appliances using controlled combustion and other fixed equipment must be designed, constructed and installed so that there is a low probability of explosive or hazardous conditions occurring within any spaces in or around the *building* that contains the appliances.

### Limit on application



**C3—FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE**

**Provisions**

**FUNCTIONAL REQUIREMENT**

**C3.1** *Buildings* must be designed and constructed so that there is a low probability of injury or illness to persons not in close proximity to a *fire source*.

**C3.2** *Buildings* with a *building height* greater than 10 m where upper floors contain sleeping uses or *other property* must be designed and constructed so that there is a low probability of external vertical fire spread to upper floors in the *building*.

**C3.3** *Buildings* must be designed and constructed so that there is a low probability of *fire* spread to *other property* vertically or horizontally across a *relevant boundary*.

**Limit on application**

Clause C3.2 does not apply to importance level 1 *buildings*.

**C3—FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE** (continued)**Provisions****Limit on application****PERFORMANCE**

**C3.4** (a) materials used as internal surface linings in the following areas of *buildings* must meet the performance criteria specified below:

Clause C3.4 does not apply to *detached dwellings*, within *household units* in *multi-unit dwellings*, or *outbuildings* and *ancillary buildings*.

Area of <i>building</i>	Performance determined under conditions described in ISO 9705: 1993	
	<i>Buildings not protected with an automatic fire sprinkler system</i>	<i>Buildings protected with an automatic fire sprinkler system</i>
Wall/ceiling materials in sleeping areas where care or detention is provided	Material Group Number 1-S	Material Group Number 1 or 2
Wall/ceiling materials in exitways	Material Group Number 1-S	Material Group Number 1 or 2
Wall/ceiling materials in all <i>occupied spaces</i> in importance level 4 <i>buildings</i>	Material Group Number 1-S	Material Group Number 1 or 2
Internal surfaces of ducts for <i>HVAC systems</i>	Material Group Number 1-S	Material Group Number 1 or 2
Ceiling materials in crowd and sleeping uses except <i>household units</i> and where care or detention is provided	Material Group Number 1-S or 2-S	Material Group Number 1 or 2
Wall materials in crowd and sleeping uses except <i>household units</i> and where care or detention is provided	Material Group Number 1-S or 2-S	Material Group Number 1, 2, or 3
Wall/ceiling materials in occupied spaces in all other locations in <i>buildings</i> , including <i>household units</i>	Material Group Number 1, 2, or 3	Material Group Number 1, 2, or 3
External surfaces of ducts for <i>HVAC systems</i>	Material Group Number 1, 2, or 3	Material Group Number 1, 2, or 3
Acoustic treatment and pipe insulation within airhandling plenums in sleeping uses	Material Group Number 1, 2, or 3	Material Group Number 1, 2, or 3

**C3—FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE** (continued)

**Provisions**

(b) floor surface materials in the following areas of *buildings* must meet the performance criteria specified below:

**Limit on application**

Area of <i>building</i>	Minimum critical radiant flux when tested to ISO 9239-1: 2010	
	<i>Buildings not protected with an automatic fire sprinkler system</i>	<i>Buildings protected with an automatic fire sprinkler system</i>
Sleeping areas and exitways in <i>buildings</i> where care or detention is provided	4.5 kW/m <sup>2</sup>	2.2 kW/m <sup>2</sup>
Exitways in all other <i>buildings</i>	2.2 kW/m <sup>2</sup>	2.2 kW/m <sup>2</sup>
<i>Firecells</i> accommodating more than 50 persons	2.2 kW/m <sup>2</sup>	1.2 kW/m <sup>2</sup>
All other occupied spaces except <i>household units</i>	1.2 kW/m <sup>2</sup>	1.2 kW/m <sup>2</sup>

(c) suspended flexible fabrics and membrane structures used in the construction of *buildings* must have properties resulting in a low probability of injury or illness to persons not in close proximity to a *fire source*.

**C3.5** *Buildings* must be designed and constructed so that fire does not spread more than 3.5 m vertically from the *fire source* over the external cladding of multi-level *buildings*.

**C3.6** *Buildings* must be designed and constructed so that in the event of *fire* in the building the received radiation at the *relevant boundary* of the property does not exceed 30 kW/m<sup>2</sup> and at a distance of 1 m beyond the *relevant boundary* of the property does not exceed 16 kW/m<sup>2</sup>.

**C3—FIRE AFFECTING AREAS BEYOND THE FIRE SOURCE** (continued)**Provisions**

**C3.7** External walls of *buildings* that are located closer than 1 m to the *relevant boundary* of the property on which the *building* stands must either:

- (a) be constructed from materials which are not *combustible building materials*, or
- (b) for *buildings* in importance levels 3 and 4, be constructed from materials that, when subjected to a radiant flux of 30 kW/m<sup>2</sup>, do not ignite for 30 minutes, or
- (c) for *buildings* in Importance Levels 1 and 2, be constructed from materials that, when subjected to a radiant flux of 30 kW/m<sup>2</sup>, do not ignite for 15 minutes.

**C3.8** *Firecells* located within 15 m of a *relevant boundary* that are not protected by an automatic *fire* sprinkler system, and that contain a *fire load* greater than 20 TJ or that have a floor area greater than 5,000 m<sup>2</sup> must be designed and constructed so that at the time that firefighters first apply water to the *fire*, the maximum radiation flux at 1.5 m above the floor is no greater than 4.5 kW/m<sup>2</sup> and the smoke layer is not less than 2 m above the floor.

**C3.9** *Buildings* must be designed and constructed with regard to the likelihood and consequence of failure of any *fire safety* system intended to control *fire* spread.

**Limit on application**

**C4—MOVEMENT TO PLACE OF SAFETY**

**Provisions**

**Limit on application**

**FUNCTIONAL REQUIREMENT**

**C4.1** *Buildings* must be provided with:

- (a) effective means of giving warning of *fire*, and
- (b) visibility in *escape routes* complying with clause F6.

**C4.2** *Buildings* must be provided with means of escape to ensure that there is a low probability of occupants of those buildings being unreasonably delayed or impeded from moving to a *place of safety* and that those occupants will not suffer injury or illness as a result.

**PERFORMANCE**

**C4.3** The *evacuation time* must allow occupants of a building to move to a *place of safety* in the event of a fire so that occupants are not exposed to any of the following:

- (a) a *fractional effective dose* of carbon monoxide greater than 0.3:
- (b) a *fractional effective dose* of thermal effects greater than 0.3:
- (c) conditions where, due to smoke obscuration, visibility is less than 10 m except in rooms of less than 100 m<sup>2</sup> where visibility may fall to 5 m.

**C4.4** Clause C4.3(b) and (c) do not apply where it is not possible to expose more than 1 000 occupants in a *firecell* protected with an automatic *fire* sprinkler system.

**C4.5** Means of escape to a *place of safety* in *buildings* must be designed and constructed with regard to the likelihood and consequence of failure of any *fire safety systems*.

## C5—ACCESS AND SAFETY FOR FIREFIGHTING OPERATIONS

### Provisions

#### FUNCTIONAL REQUIREMENT

**C5.1** *Buildings* must be designed and constructed so that there is a low probability of firefighters or other emergency services personnel being delayed in or impeded from assisting in rescue operations and performing firefighting operations.

**C5.2** *Buildings* must be designed and constructed so that there is a low probability of illness or injury to firefighters or other emergency services personnel during rescue and firefighting operations.

#### PERFORMANCE

**C5.3** *Buildings* must be provided with access for fire service vehicles to a hard-standing from which there is an unobstructed path to the *building* within 20 m of:

- (a) the firefighter access into the *building*, and
- (b) the inlets to automatic fire sprinkler systems or fire hydrant systems, where these are installed.

**C5.4** Access for fire service vehicles in accordance with clause C5.3 must be provided to more than 1 side of *firecells* greater than 5,000 m<sup>2</sup> in floor area that are not protected by an automatic fire sprinkler system.

**C5.5** *Buildings* must be provided with the means to deliver water for firefighting to all parts of the *building*.

**C5.6** *Buildings* must be designed and constructed in a manner that will allow firefighters, taking into account the firefighters' personal protective equipment and standard training, to:

- (a) reach the floor of fire origin,
- (b) search the general area of fire origin, and
- (c) protect their means of egress.

### Limit on application

Performance requirements in clauses C5.3 to C5.8 do not apply to *backcountry huts*, *detached dwellings*, within *household units* in *multi-unit dwellings*, or to *outbuildings*, and *ancillary buildings*.

**C5—ACCESS AND SAFETY FOR  
FIREFIGHTING OPERATIONS** (continued)

**Provisions**

**C5.7** *Buildings* must be provided with means of giving clear information to enable firefighters to:

- (a) establish the general location of the *fire*,
- (b) identify the *fire safety systems* available in the *building*, and
- (c) establish the presence of *hazardous substances* or process in the *building*.

**C5.8** Means to provide access for and safety of firefighters in *buildings* must be designed and constructed with regard to the likelihood and consequence of failure of any *fire safety systems*.

**Limit on application**

**C6—STRUCTURAL STABILITY****Provisions****Limit on application****FUNCTIONAL REQUIREMENT**

**C6.1** Structural systems in *buildings* must be constructed to maintain structural stability during *fire* so that there is:

- (a) a low probability of injury or illness to occupants,
- (b) a low probability of injury or illness to *fire* service personnel during rescue and firefighting operations, and
- (c) a low probability of direct or consequential damage to adjacent *household units* or *other property*.

**PERFORMANCE**

**C6.2** Structural systems in *buildings* that are necessary for structural stability in *fire* must be designed and constructed so that they remain stable during *fire* and after *fire* when required to protect *other property* taking into account:

- (a) the *fire* severity,
- (b) any automatic fire sprinkler systems within the *buildings*,
- (c) any other active *fire safety systems* that affect the *fire* severity and its impact on structural stability, and
- (d) the likelihood and consequence of failure of any *fire safety systems* that affect the *fire* severity and its impact on structural stability.

**C6.3** Structural systems in *buildings* that are necessary to provide firefighters with safe access to floors for the purpose of conducting firefighting and rescue operations must be designed and constructed so that they remain stable during and after *fire*.

**C6.4** Collapse of building elements that have lesser *fire* resistance must not cause the consequential collapse of elements that are required to have a higher *fire* resistance.



**CLAUSE A3—BUILDING IMPORTANCE LEVELS**

For the purposes of clause C, a *building* has one of the importance levels set out below:

Importance level	Description of building type	Specific structure
Importance level 1	<i>Buildings</i> posing low risk to human life or the environment, or a low economic cost, should the <i>building</i> fail. These are typically small non-habitable <i>buildings</i> , such as sheds, barns, and the like, that are not normally occupied, though they may have occupants from time to time.	<ul style="list-style-type: none"> <li>• Ancillary <i>buildings</i> not for human habitation</li> <li>• Minor storage facilities</li> <li>• Backcountry huts</li> </ul>
Importance level 2	<i>Buildings</i> posing normal risk to human life or the environment, or a normal economic cost, should the <i>building</i> fail. These are typical residential, commercial, and industrial <i>buildings</i> .	<ul style="list-style-type: none"> <li>• All <i>buildings</i> and facilities except those listed in importance levels 1, 3, 4, and 5</li> </ul>
Importance level 3	<i>Buildings</i> of a higher level of societal benefit or importance, or with higher levels of risk-significant factors to <i>building</i> occupants. These <i>buildings</i> have increased performance requirements because they may house large numbers of people, vulnerable populations, or occupants with other risk factors, or fulfil a role of increased importance to the local community or to society in general.	<ul style="list-style-type: none"> <li>• <i>Buildings</i> where more than 300 people congregate in 1 area</li> <li>• <i>Buildings</i> with primary school, secondary school, or daycare facilities with a capacity greater than 250</li> <li>• <i>Buildings</i> with tertiary or adult education facilities with a capacity greater than 500</li> <li>• Health care facilities with a capacity of 50 or more residents but not having surgery or emergency treatment facilities</li> <li>• Jails and detention facilities</li> <li>• Any other <i>building</i> with a capacity of 5 000 or more people</li> <li>• <i>Buildings</i> for power generating facilities, water treatment for potable water, wastewater treatment facilities, and other public utilities facilities not included in importance level 4</li> </ul>

**CLAUSE A3—BUILDING IMPORTANCE LEVELS** (continued)

Importance level	Description of building type	Specific structure
Importance level 3 (continued)		<ul style="list-style-type: none"> <li>• <i>Buildings</i> not included in importance level 4 or 5 containing sufficient quantities of highly toxic gas or explosive materials capable of causing acutely hazardous conditions that do not extend beyond property boundaries</li> </ul>
Importance level 4	<i>Buildings</i> that are essential to post-disaster recovery or associated with hazardous facilities.	<ul style="list-style-type: none"> <li>• Hospitals and other health care facilities having surgery or emergency treatment facilities</li> <li>• <i>Fire</i>, rescue, and police stations and emergency vehicle garages</li> <li>• <i>Buildings</i> intended to be used as emergency shelters</li> <li>• <i>Buildings</i> intended by the owner to contribute to emergency preparedness, or to be used for communication, and operation centres in an emergency, and other facilities required for emergency response</li> <li>• Power generating stations and other utilities required as emergency backup facilities for importance level 3 structures</li> <li>• <i>Buildings</i> housing highly toxic gas or explosive materials capable of causing acutely hazardous conditions that extend beyond property boundaries</li> <li>• Aviation control towers, air traffic control centres, and emergency aircraft hangars</li> <li>• <i>Buildings</i> having critical national defence functions</li> <li>• Water treatment facilities required to maintain water pressure for fire suppression</li> </ul>

**CLAUSE A3—BUILDING IMPORTANCE LEVELS** (continued)

Importance level	Description of building type	Specific structure
Importance level 4 (continued)		<ul style="list-style-type: none"> <li>• Ancillary <i>buildings</i> (including, but not limited to, communication towers, fuel storage tanks or other structures housing or supporting water or other <i>fire</i> suppression material or equipment) required for operation of importance level 4 structures during an emergency</li> </ul>
Importance level 5	<i>Buildings</i> whose failure poses catastrophic risk to a large area (eg, 100 km <sup>2</sup> ) or a large number of people (eg, 100 000).	<ul style="list-style-type: none"> <li>• Major dams</li> <li>• Extremely hazardous facilities</li> </ul>

