



# AS3959-2009 Window and Door Compliance Requirements

## Overview

- In response to the recent Victorian Bushfires, the Victorian Government requested Standards Australia to publish the latest version of the Bushfire Code.
- The Code was published on 10Mar09 and subsequently enacted into the *Victorian Building Regulations 2006* on 11Mar09.
- It is now a legal requirement to comply with this Standard in Victoria.
- The Bushfire Code will be a National requirement once it is included in the BCA (Building Code of Australia), from 01May10.
- Under the new Code there are now 6 risk categories called Bushfire Attack Levels (BALs). In Victoria, all new projects will be required to have a nominated BAL level.
- Window specifications will now need to incorporate a BAL level, similar to the requirements for Windloading.

## BAL Categories

- **BAL - LOW**    **Very low risk**
  - *No special requirements for aluminium or timber windows.*
- **BAL - 12.5**    **Low risk**
  - *External Screening Option*

**OR**

  - *Special requirements for aluminium and timber windows with sills less than 400mm from ground, roof or deck structure*
  - *Doors to be glazed 4mm safety glass*
  - *Screens to sashes to be in corrosion-resistant steel, bronze or aluminium mesh (screens can be fitted internally or externally).*
- **BAL - 19**    **Moderate risk**
  - *External Screening Option*

**OR**

  - *Windows and doors to be glazed in 5mm toughened glass*
  - *Externally fitted hardware to be metal*
  - *Screens to sashes to be corrosion-resistant steel, bronze or aluminium mesh (screens can be fitted internally or externally).*



- **BAL - 29**      **High Risk**
  - Screening not a single option here
  - All windows, french doors and bi-fold doors to be glazed 5mm toughened, sliding doors 6mm toughened
  - All external hardware to be metal
  - Screens to sashes to be corrosion-resistant steel, bronze or aluminium mesh
  - Special screen requirements to windows and doors with sills within 400mm from ground, roof or deck structure
  - Screen to be external
  - Timber windows and doors to be Bushfire-Resisting timber (refer: Code Appendix F).
  
- **BAL - 40**      **Very High Risk**
  - Screening not a single option here
  - All windows glazed 5mm toughened
  - All doors glazed 6mm toughened
  - All hardware shall be metal with door hardware to have FRL -/30/-
  - Special seals required with flammability index no greater than 5 or made from silicone.
  - Windows, sliding doors and french doors require screening externally with corrosion resistant-steel or bronze mesh.
  - Bi-folds are not advised at this level
  - Timber windows and doors are not an option at this level.
  
- **BAL - FZ**      **Extreme Risk**
  - Windows and doors to be tested to AS1530.8.2
  - Bushfire shutters as nominated at this level in AS3959-2009 are advised
  - If shutters used there are no special requirements for windows or doors.

# AS3959 - Construction of Building in Bushfire Prone Areas

## Requirements for Aluminium Windows and Doors

Option A

Bushfire Attack Level	BAL – LOW	BAL – 12.5	BAL – 19	BAL – 29	BAL – 40	BAL – FZ
<b>External Screen</b>						
<b>External Screen</b>	No special requirements at this level	All windows and doors completely protected externally by screens with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium	All windows and doors completely protected externally by screens with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium	Screening externally to Windows is not a single option solution at this BAL, however it is for Doors	Screening externally is not a single option solution at this BAL	Screening externally is not a single option solution at this BAL
<b>OR</b>	<b>OR</b>	<b>OR</b>	<b>OR</b>	<b>OR</b>	<b>AND</b>	<b>AND</b>

Option B

<b>Aluminium Windows</b>						
<b>Framing</b>	No special requirements at this level	Aluminium	Aluminium	Aluminium	Aluminium	Windows not available at this BAL testing required. Use roller shutters.
<b>Glazing</b>	As above	Windows with sills less than 400mm from the ground, deck/verandah, roof or awning structure below shall be glazed in 4mm minimum safety glass	All windows glazed in 5mm minimum toughened glass	All windows glazed in 5mm minimum toughened glass	All windows glazed in 5mm minimum toughened glass	As above
<b>Hardware</b>	As above	Externally fitted hardware that supports the sash in opening and closing shall be metal	Externally fitted hardware that supports the sash in opening and closing shall be metal	Externally fitted hardware that supports the sash in opening and closing shall be metal	All hardware to be metal	As above
<b>Seals</b>	As above	Standard	Standard	Standard	Seals (Including glazing rubbers) to stiles, head and sills or thresholds shall be manufactured from materials having a flammability index no greater than 5	As above
<b>Screening</b>	As above	Sashes shall be screened internally or externally with mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium	Sashes shall be screened internally or externally with mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium	Sashes shall be screened internally or externally with mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium. AND Where glazing is less than 400mm from ground, deck/verandah, roof or awning structure then these glass panels will require screening with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium. Screen to be External	Both openable (sashes) and fixed panels of the window shall be screened with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel or bronze  (Not Aluminium)  Screens to be External	As above
<b>Aluminium Doors</b>						
<b>Framing</b>	No special requirements at this level	Aluminium	Aluminium	Aluminium	Aluminium	Doors not available at this BAL testing required. Use roller shutters.
<b>Glazing</b>	As above	4mm toughened glass as a minimum	5mm toughened glass as a minimum	5mm toughened glass as a minimum to Bi-Fold & French doors. 6mm as a minimum to Sliding doors	6mm toughened glass as a minimum	As above
<b>Hardware</b>	As above	Standard	Standard	Externally fitted hardware that supports the panel in its functions of opening and closing shall be metal	All hardware shall be metal - made with materials that have an FRL of at least -/30/-	As above
<b>Seals</b>	As above	Standard	Standard	Standard	Silicone	As above
<b>Screening</b>	As above	There is no bushfire requirement to screen to openable doors. However, if screened, the screens shall be a mesh made of corrosion-resistant steel, bronze or aluminium	There is no bushfire requirement to screen to openable doors. However, if screened, the screens shall be a mesh made of corrosion-resistant steel, bronze or aluminium	Where glazing is less than 400mm from ground, deck/verandah, roof or awning structure then that portion of the glass panels will require screening with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium  Screen to be External	For Hinged & Bi-Fold Doors where glazing is less than 400mm from ground, deck/verandah, roof or awning structure then that portion of the glass panels will require screening with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel or bronze. AND For Sliding Doors both the fixed and openable portions of doors are to be screened by a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel or bronze  Screen to be External	As above

# AS3959 - Construction of Building in Bushfire Prone Areas

## Requirements for Timber Windows and Doors

Bushfire Attack Level	BAL – LOW	BAL – 12.5	BAL – 19	BAL – 29	BAL – 40	BAL – FZ	
<b>Option A</b>	<b>External Screen</b>						
	<b>External Screen</b>	No special requirements at this level	All windows and doors completely protected externally by screens with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium	All windows and doors completely protected externally by screens with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium	Screening externally to Windows is not a single option solution at this BAL, however it is for Doors	Screening externally is not a single option solution at this BAL	Screening externally is not a single option solution at this BAL
	<b>OR</b>	<b>OR</b>	<b>OR</b>	<b>OR</b>	<b>AND</b>	<b>AND</b>	
<b>Option B</b>	<b>Timber Windows</b>						
	<b>Framing</b>	No special requirements at this level	Timber - Refer to timber species in Table E2 of Appendix E or Bushfire-resisting timber refer Appendix F	Timber - Refer to timber species in Table E2 of Appendix E or Bushfire-resisting timber refer Appendix F	Timber - Bushfire-resisting timber refer Appendix F	Timber - Not an option at this BAL. Use aluminium windows or roller shutters	Timber - Not an option at this BAL. Use roller shutters
	<b>Glazing</b>	As above	Windows with sills less than 400mm from the ground, deck/verandah, roof or awning structure below shall be glazed in 4mm minimum safety glass	All windows glazed in 5mm minimum toughened glass	All windows glazed in 5mm minimum toughened glass	As above	As above
	<b>Hardware</b>	As above	Externally fitted hardware that supports the sash in opening and closing shall be metal	Externally fitted hardware that supports the sash in opening and closing shall be metal	Externally fitted hardware that supports the sash in opening and closing shall be metal	As above	As above
	<b>Seals</b>	As above	Standard	Standard	Standard	As above	As above
	<b>Screening</b>	As above	Sashes shall be screened internally or externally with mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium	Sashes shall be screened internally or externally with mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium	Sashes shall be screened Internally or Externally with mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium. AND Where glazing is less than 400mm from ground, deck/verandah, roof or awning structure then these glass panels will require screening with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium. Screen to be External	As above	As above
	<b>Timber Doors</b>						
<b>Framing</b>	No special requirements at this level	Timber - Refer to timber species in Table E2 of Appendix E or Bushfire-resisting timber refer Appendix F	Timber - Bushfire-resisting timber refer Appendix F	Aluminium Timber - Bushfire-resisting timber refer Appendix F	Timber - Not an option at this BAL. Use aluminium doors or roller shutters	Timber - Not an option at this BAL. Use roller shutters	
<b>Glazing</b>	As above	4mm toughened glass as a minimum	5mm toughened glass as a minimum	5mm toughened glass as a minimum to Bi-Fold & French doors. 6mm as a minimum to Sliding doors	As above	As above	
<b>Hardware</b>	As above	Standard.	Standard.	Externally fitted hardware that supports the panel in its functions of opening and closing shall be metal	As above	As above	
<b>Seals</b>	As above	Standard	Standard	Standard	As above	As above	
<b>Screening</b>	As above	There is no bushfire requirement to screen to openable doors. However, if screened, the screens shall be a mesh made of corrosion-resistant steel, bronze or aluminium	There is no bushfire requirement to screen to openable doors. However, if screened, the screens shall be a mesh made of corrosion-resistant steel, bronze or aluminium	Sashes shall be screened internally or externally with mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium. AND Where glazing is less than 400mm from ground, deck/verandah, roof or awning structure then these glass panels will require screening with a mesh with a maximum aperture of 2mm, made of corrosion-resistant steel, bronze or aluminium.  Screen to be external	As above	As above	



## AS3959-2009 Window and Door Compliance Requirements

### **Disclaimer**

Please note that these recommendations are based on Dowell's interpretations and subsequent product offer recommendation on this interpretation of the requirements of Aluminium and Timber Windows and Doors under AS3959-2009.

In some instances, the wording and context of the Code can be ambiguous and seemingly contradictory and therefore you should refer to the Code for further clarification or should you be in any doubt refer your enquiry to your local assessor or Industry Association for a ruling on this.

Dowell does not warrant that compliance with the requirements of the Bushfire Code AS3959-2009 will make the overall construction project any safer from damage or destruction in a bushfire situation due to the unpredictable nature of bushfire attacks and extreme variations in radiant heat temperatures that can be experienced in these situations.