

Operation & Maintenance Manual

Fire Doors and Fire-Rated Windows — Reynaers CS77-FP System

For compliance with NZ Building Code clauses C1–C6 and NZS 4520:2010 & NZS 4232 (as applicable)
(Applies to CS77-FP fire-rated aluminium doors and fixed fire-rated windows installed in New Zealand)

1. Introduction

1.1 Purpose

This Manual provides procedures for the **operation, inspection, maintenance, testing and record-keeping** of fire doors and fire-rated windows installed as part of a passive fire protection system in buildings.

It supports compliance with:

- New Zealand Building Code — **Protection from Fire (Clauses C1–C6)**
- **NZS 4520:2010 Fire-resistant doorsets** (inspection, maintenance and reporting requirements)
- **NZS 4232.2:1988 Performance criteria for fire-resisting glazing systems** (windows where applicable)
- Compliance Schedule and Building Warrant of Fitness (BWoF) obligations

1.2 Scope

Applies to:

- **CS77-FP fire-rated doors** (egress and compartmentation)
- **CS77-FP fire-rated windows** (fixed)
- Fire and smoke control doors and windows forming part of a passive fire separation

2. System Description

2.1 Reynaers CS77-FP Fire Rated System

The CS77-FP system is an aluminium joinery product designed and tested for fire-resistance (-/30/30, -/60/60 rating) and smoke control performance. It must be installed by Reynaers-approved fabricators (e.g. ACMF).

Key attributes:

- Tested and certified fire-resistance performance
- Fixed or door configurations based on specific fire ratings
- Compliance with applicable EN and NZ Standards
- Must use approved glass, seals, hardware and installation methods as tested

2.2 Fire Door / Window Components

Typical components include:

- Frame and leaf (door/window sash)
- Intumescent seals and smoke seals

- Vision panels (fire-rated glass with matching FRR)
- Hinges, closer, latch/lock hardware
- Thresholds (doors)

3. Normal Use

3.1 Operating Principles

- **Fire doors** must remain closed or be held open only on approved hold-open devices that release on fire alarm activation. **Wedging fire doors open is prohibited.**
- **Fire-rated windows** (fixed) do not actuate but form part of the fire separation.

3.2 User Responsibilities

Users must not:

- Modify or damage seals, hardware or vision panels
- Affect clearances or structural integrity
- Install unapproved hardware that alters fire performance

Unauthorized alterations may compromise compliance and fire performance.

4. Inspection

4.1 Inspection Frequency

Inspections should be documented and scheduled as follows (adapt based on building use and compliance schedule requirements):

Frequency Inspection Type

Daily Check doors are not wedged, blocked or locked in open positions (for doors used on escape routes).

Monthly Visual inspection of doors/windows, hardware, seals and closers.

Annually More detailed inspection by a competent person; includes testing of closers, intumescent seals, vision panels and FRR markings. Records must be retained for at least two years.

4.2 Inspection Checklist

Inspectors should check:

- Door/window **label/tags** present and legible
- Door leaf alignment, ease of closing and latching
- Intumescent and smoke seals intact
- Closer operation and closing forces (may need measurement per NZBC requirements)
- Hardware secure and appropriate (no unauthorized locks)
- No damage to glass or frame

- No obstruction or misuse

5. Maintenance

5.1 Routine Maintenance

Maintenance should be based on condition and frequency. Typical activities:

5.1.1 Hardware Maintenance

- Clean and lubricate hinges, closers, locks
- Adjust closer to maintain proper closing and latching force

5.1.2 Seals and Weatherstrips

- Replace cracked, missing or compressed intumescent or smoke seals
- Ensure continuous contact where required

5.1.3 Glass and Vision Panels

- Wash glazing with neutral detergent and water
- Inspect for cracks or delamination

5.1.4 Frames and Thresholds

- Inspect frame fixings
- Repair damage immediately

5.1.5 Labels and Tags

- Ensure fire rating labels remain visible

Any maintenance or repairs must not degrade the fire rating. Manufacturer guidance must be followed; unauthorized modifications are not allowed.

6. Testing Procedures

Tests ensure equipment operates correctly:

6.1 Functional Tests

- **Door self-close and latch test:** door must close from 90° to latch without hesitation
- **Closer adjustment test:** closing force complies with NZBC acceptable solution specified limits (self-closing, self-latching and opening forces like 67N / 133 N as applicable)

6.2 Smoke Seals

Inspect seals for continuous contact; replace if gaps are present.

6.3 Vision Panel Integrity

Confirm glass has no cracks and labels correspond to rated system.

Document all tests and results.

7. Record Keeping

Maintain a permanent log of:

- Inspection dates and results
- Maintenance works carried out
- Test results
- Any defects and corrective action taken
- Name and qualification of inspector/maintenance personnel

Records should be kept for a minimum of **two years** in accordance with compliance schedule requirements.

8. Training and Competency

Personnel performing inspections, maintenance or adjustments should:

- Be trained on fire safety systems
- Understand fire door/window operation and NZBC requirements
- Be familiar with manufacturer instructions
- Know when specialist intervention is required (major repairs, hardware replacement, system upgrades)

9. Safety and Compliance Obligations

9.1 Legal Requirements

Fire doors and windows are often classified as **specified systems** under the Building Act 2004. Owners must:

- Include the system in the compliance schedule if required
- Complete periodic inspections and maintenance in line with the compliance schedule
- Rectify defects promptly

Failure to maintain specified systems may lead to non-compliance or obligations under the Building Act.

9.2 Compliance with Building Code

All work must ensure:

- Fire doors and windows retain their **fire resistance rating**
- No unauthorized modifications compromise performance
- System acts as intended in the event of a fire emergency

10. Surface Finish – Dulux Powder Coatings

10.1 System Description

All aluminium profiles within the Reynaers CS77-FP fire-rated door and window system are finished with **Dulux Powder Coatings** architectural-grade powder coating, applied in accordance with Dulux architectural specifications and AS 3715 requirements.

The powder coating system provides:

- Corrosion protection
- UV resistance
- Aesthetic finish
- Durability compliance with NZBC Clause B2 (Durability)

Coating classification (to be project specific):

- Duralloy
- Duratec
- Fluoraset
- Or project-specific system

The applied system must match the environmental classification of the site (e.g. C2, C3, C4 coastal environments).

10.2 NZ Building Code Compliance

Powder coating contributes to compliance with:

- **NZBC Clause B2 – Durability**
- Expected service life: 15 years minimum (or as specified in project documentation)
- Applied in accordance with AS 3715 – Metal Finishing – Thermoset powder coatings for architectural aluminium

10.3 Cleaning and Maintenance Requirements

Regular cleaning is essential to maintain warranty and performance.

10.3.1 Cleaning Frequency

Environment	Recommended Cleaning Frequency
Mild / Inland	Every 6 months
Moderate (Urban / Light Marine)	Every 3–4 months
Severe Marine / Industrial	Every 1–2 months

Site classification must align with project specification.

10.3.2 Cleaning Procedure

1. Rinse surface with clean water to remove loose dust.
2. Wash using:
 - Warm water
 - Mild pH-neutral detergent
 - Soft cloth or sponge
3. Rinse thoroughly with clean water.
4. Dry with soft cloth if required.

10.3.3 Prohibited Cleaning Methods

The following must NOT be used:

- Abrasive pads
- Solvents (thinners, acetone, MEK)
- Strong alkaline or acidic cleaners
- Pressure washing at close range
- Metal scrapers

Use of prohibited cleaning methods may void coating warranty.

10.4 Inspection

During routine fire door and window inspections, powder coating must be checked for:

- Chalking
- Fading
- Blistering
- Peeling
- Impact damage
- Corrosion (particularly at cut edges or fixings)

Damage exposing bare aluminium must be repaired promptly to prevent corrosion.

10.5 Repairs

Minor damage:

- Clean affected area
- Use approved touch-up paint supplied by Dulux (colour matched)
- Follow manufacturer's application instructions

Major damage:

- Consult Dulux or approved applicator
- In some cases, component replacement may be required

Field-applied coatings must not compromise fire-rating components or intumescent seals.

10.6 Warranty

Warranty is subject to:

- Correct system selection for environment
- Proper pre-treatment and application
- Documented cleaning maintenance schedule
- No unauthorized alterations

Building owners must retain:

- Powder coating warranty documentation
- Cleaning records
- Inspection records

Failure to maintain cleaning regime may void warranty.

11.7 Interaction with Fire Performance

The powder coating finish:

- Does not affect the fire resistance rating of the CS77-FP system
- Must not be removed, excessively sanded, or altered in a way that exposes structural aluminium
- Must not interfere with intumescent seals or glazing beads

Any refinishing work must preserve the tested fire-rated configuration.

11. Appendices (Templates)

Appendix A – Fire Door & Fire-Rated Window Inspection Checklist

System: Reynaers CS77-FP Fire Doors and Windows

Building Name: _____

Address: _____

Inspection Type: Monthly Annual IQP Other

Inspector Name: _____

Date: _____

A1. Identification & Certification

Item	Check	Pass	Fail	N/A	Comments
Fire rating label/tag present and legible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
FRR matches consent documentation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Door/window ID matches fire report drawings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No unauthorised modifications evident	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

A2. Door Leaf & Frame Condition (Fire Doors Only)

Item	Check	Pass	Fail	N/A	Comments
Door closes freely from 90°	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Door self-latches fully	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No warping, distortion or impact damage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Frame secure and not loose	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Clearances within acceptable tolerance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

A3. Hardware

Item	Check	Pass	Fail	N/A	Comments
Hinges secure and undamaged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Door closer operational	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hold-open device releases on alarm (if fitted)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Latch/lock functions correctly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Panic hardware operational (if installed)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

A4. Intumescent & Smoke Seals

Item	Check	Pass	Fail	N/A	Comments
Intumescent seals present and continuous	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Smoke seals intact and not damaged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No paint or obstruction on seals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

A5. Fire-Rated Glazing (Doors & Windows)

Item	Check	Pass	Fail	N/A	Comments
Glass free of cracks or chips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Glazing beads secure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Fire-rated glass marking visible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No unauthorised film applied	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

A6. Reynaers CS77-FP System Specific

Item	Check	Pass	Fail	N/A	Comments
Profiles undamaged	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
System components consistent with tested configuration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No penetrations or alterations to frame	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

A7. Powder Coating – Dulux Finish (NZBC B2 Durability)

Item	Check	Pass	Fail	N/A	Comments
Coating free of blistering or peeling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No exposed bare aluminium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No corrosion at cut edges or fixings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cleaning regime maintained per schedule	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

A8. Obstruction & Use

Item	Check	Pass	Fail	N/A	Comments
Door not wedged open	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No floor coverings obstructing closure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
No signage or attachments affecting operation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

A9. Defects Identified

Describe defects and corrective actions required:

Priority Level: Immediate 30 Days Monitor

Inspector Declaration

I confirm this inspection has been completed in accordance with:

- NZ Building Code Protection from Fire requirements
- NZS 4520 (where applicable)
- Project compliance schedule requirements

Signature: _____

Date: _____

