

0454P GRIFCO IN OVERHEAD DOORS

Branded worksection

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Worksection abstract

This branded worksection *Template* is applicable to GRIFCO operators for sectional overhead doors, and rolling curtain and shutter doors (including fire-resistant roller shutters) for commercial and industrial applications. Manual and motorised operation are covered.

How to use this worksection

This worksection *Template* must be customised for each project. See A guide to NATSPEC worksections (www.natspec.com.au) for information on *Template* structure, word styles, and completing a worksection.

Related material located elsewhere in NATSPEC

If a listed worksection is not part of your subscription package and you wish to purchase it, contact NATSPEC.

Related material may be found in other worksections. See for example:

- *0455 Door hardware* for manufacturers' non-standard hardware.

Material not provided by GRIFCO

This branded worksection *Template* includes generic material which may not be provided by the Product Partner including:

- Sectional and rigid (tilting) overhead doors.
- Rolling curtain and shutter doors (including fire-resistant shutters).

Documenting this and related work

You may document this and related work as follows:

- If documenting manufacturer's standard and non-standard hardware in *0455 Door hardware*, list the hardware requirements for each overhead door in a door and hardware schedule.
- In bushfire-prone areas, document bushfire protection requirements to AS 3959 and the NCC. If documenting bushfire shutters here, see AS 3959 clause 3.7 and *0457 External screens*.

Specifying ESD

The following may be specified by including additional text:

- Improved corrosion resistance for low maintenance and to extend door service life, e.g. steel frames with galvanic protection under paint coating, Class I anodic coatings.
- Heavy duty weatherstripping including vinyl or wool pile weatherstrips along jambs, neoprene bulb wiper strips at the front of curtains, and neoprene baffles at the top of coils to improve air penetration resistance.

Refer to NATSPEC TECHreport TR 01 on specifying ESD.

1 GENERAL

GRIFCO is part of Chamberlain Group International, the world's largest manufacturer of commercial and residential door operators. With over 100 years of Australian manufacturing, Grifco recently won the Hunter Valley Hunter Manufacturing Awards 2019 Manufacturer of the Year and 2020 Excellence in Sustainable Operations.

Grifco, commercial door operators conform to Australian and New Zealand standards. They are easily integrated into Building, Dock or Fire Management Systems, coupled with a range of access control solutions, including myQ[®] smart technology, safety and warning systems to suit any application.

1.1 RESPONSIBILITIES

General

Requirement: Provide overhead shutters and doors with GRIFCO operators, as documented.

Documented is defined in *0171 General requirements* as meaning contained in the contract documents.

1.2 COMPANY CONTACTS

Grifco technical contacts

Website: www.grifco.com.au/contact-us/

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- 0171 General requirements.

0171 General requirements contains umbrella requirements for all building and services worksections.

List the worksections cross referenced by this worksection. 0171 General requirements references the 018 Common requirements subgroup of worksections. It is not necessary to repeat them here. However, you may also wish to direct the contractor to other worksections where there may be work that is closely associated with this work.

NATSPEC uses generic worksection titles, whether or not there are branded equivalents. If you use a branded worksection, change the cross reference here.

1.4 STANDARDS

General

Garage doors and other large access doors: To AS/NZS 4505.

Fire-resistant roller shutters: To AS 1905.2.

Design wind pressure: To AS/NZS 1170.2.

The NCC cites AS/NZS 1170.2:2011.

1.5 MANUFACTURER'S DOCUMENTS

Technical manuals

Website: www.grifco.com.au/downloads/

1.6 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions in AS/NZS 4505 and AS 1905.2, and the following apply:

See AS/NZS 4505 for the following definitions:

- Sectional overhead door.
- Rigid overhead door.
- Rolling curtain door.
- Rolling shutter door.

See AS 1905.2 for the definition of fire-resistant roller shutters.

- Wicket: Door side-hung on the vertical guide and interlocking with the closed curtain.

Edit the **Definitions** subclause to suit the project or delete if not required. List alphabetically.

1.7 SUBMISSIONS

Certification

Fire-resistant roller shutters: Submit evidence of compliance of installation to AS 1905.2.

Drivers for openers: Submit evidence of compliance and suitability to AS/NZS 60335.1 and AS/NZS 60335.2.103.

Certificates of compliance or suitability are available from Grifco online or on request.

Operation and maintenance manual

General: Submit the manufacturer's published instructions for operation, care and maintenance.

Products and materials

Type tests: Submit the following:

- Fire-resistance level: Verification from an Accredited Testing Laboratory of fire-resistance level.
- Acoustic performance: Verification from an Accredited Testing Laboratory of weighted sound reduction index (R_w).
- Wind-borne debris impact: Verification from an Accredited Testing Laboratory of wind-borne debris impact rating.

A wind-borne debris impact rating is an optional rating which may be applicable to design in cyclonic areas. Where wind-borne debris impact ratings are marked on a door, AS/NZS 4505 calls for verification by type testing to AS/NZS 4505 Appendix B.

Type tests are carried out off-site. However, submission of evidence of a successful type test may be called up here for requirements specified in SELECTIONS or PRODUCTS, if there are no SELECTIONS.

Samples

General: Submit 2 samples of each of the following where applicable:

- Sections proposed for frames, louvres and slats.
- Joints made, using proposed techniques.
- Finishes to prepared surfaces.
- Colour samples from prefinished production material (e.g. anodised or organic coated extrusions and sheet) showing the limits of the range of variation, if any, for each component documented.
- Door manufacturer's standard hardware items.

Shop drawings

General: Submit shop drawings showing details of each assembly, component and connection, and information relevant to fabrication, surface treatment and installation.

Motorised overhead doors: Submit shop drawings showing location of motor, wiring, power requirements, location and type of safety devices, location of manual operation switch, and other electronic components.

Subcontractors

General: Submit names and contact details for proposed suppliers and installers.

Conditions of tendering may require tenderers to state which approved firm they intend to use, in which case the firm proposed by the successful tenderer will be the approved subcontractor.

Delete if installer/supplier details are not required.

Warranties

Requirement: Submit warranties to **COMPLETION, Warranties.**

1.8 INSPECTION

Notice

Inspection: Give notice so that inspection may be made of the following:

- Framing or structure to receive tracks and motor.
- Tracks and guides installed before doors or shutters are hung.

Amend to suit the project, adding critical stage inspections required.

Hold points, if required, should be inserted here.

2 PRODUCTS

2.1 GENERAL

Product substitution

Other products: Conform to **SUBSTITUTIONS** in *0171 General requirements*.

SUBSTITUTIONS in *0171 General requirements* sets out the submissions required if the contractor proposes alternative products. Refer also to NATSPEC TECHnote GEN 006 for more information on proprietary specification.

Door assembly

Requirement: Proprietary system complete with hardware and accessories, including operator by Grifco.

Marking and labelling

Garage doors and other large access doors: To AS/NZS 4505 Section 8.

Fire-resistant roller shutters: To AS 1905.2 Section 6.

Motorised operation

General: If a motorised door operating system is documented, incorporate the following:

If products are selected in SELECTIONS, delete text here.

- An electric motor with limit switches, and of adequate capacity to operate the specified door smoothly and without strain.
- Overload cutout.
- Photocell or IR beam safety device.

Generally delete for single dwelling projects. If products are selected in SELECTIONS, delete text here.

- Manual disengagement device or automatic chain engage mechanism in the event of a power failure.
- Operation by battery-powered radio remote controller, supplied as part of the system.
- Additional operation by push-button or key switch, located 1500 mm above floor level.

2.2 SECTIONAL OVERHEAD DOORS

There are a variety of door panel types available in residential, commercial, and industrial grades. The doors are custom-made to fit the openings. Residential types are available in widths up to 7.4 m and commercial types for heights up to 5.0 m. The required overhead clearance varies. Consult the manufacturer. The **Sectional overhead door schedule** provides options for documenting particular types, and non-standard hardware and accessories, if required.

Panels

Requirement: Materials and finishes, as documented.

Bottom panel: Adapted for sloping floors or threshold and fitted with a compressible PVC or neoprene seal strip.

Side tracks

Material: Roll formed galvanized steel.

Reinforcing: If required to carry door loads without distortion, reinforce horizontal track sections with a galvanized rolled steel channel.

Counterbalancing

General: Counterbalance the door by an adjustable torsion spring system connected to the door by cables of galvanized steel multi-strand wire rope, or by an equivalent system.

2.3 ROLLING CURTAIN AND ROLLING SHUTTER DOORS

General

Requirement: Materials and finishes, as documented.

Curtain

There are a wide variety of types available. Consult manufacturers. The **Rolling curtain and rolling shutter door schedule** provide options for specifying particular types, and non-standard hardware and accessory items, if required.

Rolling curtain: Continuous roll formed profiled steel.

Rolling shutter: Individual horizontal interlocking slats with interlocking hinges.

Rolling grille: Articulated curtain formed of horizontal members spaced apart and connected by vertical links.

Fire-resistant roller shutter: Roll formed galvanized interlocking steel slats, each slat fitted with steel end caps and tested to a fire-resistance level.

Bottom rail

Requirement: Provide a stiffening member as follows:

- Interlocking with the bottom edge or lowest part of the curtain.
- Extending between the inner faces of the vertical guides.
- Formed or adapted as required for sloping floors or threshold.
- Adapted to house a locking device, if required.

Wind locks

General: Provide wind lock end clips and guides to retain the curtain in wide openings or under extreme wind conditions.

Drum

Springs: Helical torsion springs housed in the drum and arranged to counterbalance the curtain weight without exceeding the safe working stress of the spring material.

Wickets

General: Provide doors with metal frame and facings to match the curtain, and manufacturer's standard lockset and furniture.

Motorised: If a wicket is fitted to the shutter, provide a limit switch device to prevent motor operation until wicket and the frame are hinged clear of the curtain.

2.4 GRIFCO OPERATORS

Manual operators

General: Provide a GRIFCO hoist to operate the door manually.

Requirement: As documented in the SELECTIONS, **PRODUCTS**.

Hoists:

- Fire Shutter Manual Hoist: For fire shutters and light commercial roller shutters and doors.
- Manual hoists: For light commercial roller doors and shutters.

Contact GRIFCO for the range of hoists for manual operation of roller shutters and doors.

If manual hoists are selected in SELECTIONS, delete text here.

Motorised operators

Contact GRIFCO for a wide range of operators and accessories.

General: Provide a GRIFCO motorised door operating system.

Requirement: As documented in the **SELECTIONS, PRODUCTS**.

Motors:

- E-Drive: For commercial roller shutters and doors, spring balanced.
- M-Drive: For commercial roller shutters and doors, spring balanced.
- LR-Drive: For light commercial roller doors, spring balanced.
- S-Drive: For commercial sectional doors.
- LS-Drive. For light commercial sectional doors.

If motors are selected in SELECTIONS, delete text here.

Accessories

General: Incorporate the following GRIFCO controls and accessories, as documented:

- Photocell or IR beam safety device and edge.
- Light fixture, automatically switched on when opener is activated, and switched off by timer.
- Manual release handle, to disengage door from drive mechanism in the event of a power failure.
- Battery-powered radio remote transmitter.
- Push-button or key switch.
- Internet connectivity.
- Obstruction detection – for motor reversal.
- Reversing starters.
- Warning systems – speakers, flashing lights or traffic lights.
- Wall controls.
- Uninterrupted Power Supply (UPS).
- Switches and timers.

If accessories are selected in SELECTIONS, delete text here.

Refer to the Grifco website www.grifco.com.au/commercial-door-automation-accessories for commercial door operator accessories.

3 EXECUTION

3.1 INSTALLATION

General

Requirement: Install overhead doors in conformance with the manufacturer's recommendations and as documented.

Preparation

Substrate: Before start of installation, check the alignment of substrates or framing and adjust if required.

Manual operation

General: Install so that the force required to operate the door manually does not exceed 220 N.

Requirement: Install a GRIFCO manual operator in conformance with the manufacturer's recommendations, and as documented.

Motorised operators

Requirement: Install a GRIFCO motorised operator in conformance with the manufacturer's recommendations, and as documented.

Installation instructions are available from GRIFCO, along with a range of wall brackets, mounting plates, braking angles and mounting hardware kits. Refer to the Grifco website www.grifco.com.au/downloads/ for operator installation instructions.

Frames, guides and tracks

Requirement: Install frames, guides and tracks as follows:

- Plumb, level, straight, true, and within tolerances and clearances recommended by the manufacturer.
- Fixed or anchored to the building structure using mechanical fixings suitable for the substrate and the imposed loads.
- Isolated from any building loads, including loads caused by structural deflection or shortening.

3.2 COMPLETION

Operation

General: Make sure moving parts operate freely and smoothly, without binding or sticking, at correct tensions or operating forces and that they are lubricated where appropriate.

Safety: Make sure all safety features are operating.

Remote control devices: Make sure devices are programmed and operating.

Protection

Temporary coating: On or before the date for practical completion of the works, or before joining up to other surfaces, remove all traces of temporary coatings used for protection.

Warranties

General: Submit the door manufacturer and GRIFCO's published product warranties.

Use only where warranties extending beyond the defects liability period are available for the particular system. Insert the required warranty period and terms, which should be negotiated beforehand. If the warranty is in the form of separate material and installation warranties, require the signatures of both manufacturer's and installer. If specifying warranties, include the following:

- Warranty
- Minimum period.
- Form of warranty.
- Powder coating.
- Hardware

The form(s) required should be provided as part of the contract documentation.

GRIFCO provides the following warranty periods:

Operators:

- 24 months or,
- Nominated cycle-count.

Accessories:

- 1 year.

4 SELECTIONS

Schedules are a tool to specify properties required for products or systems. If the principal permits documentation of the product or system by proprietary name, some of the properties may be unnecessary and can be deleted. Document the product or system's location or application here and/or on the drawings with a matching project code. Refer to NATSPEC TECHnote GEN 024 for guidance on using and editing schedules.

4.1 PERFORMANCE

Overhead door schedule

	A	B	C

	A	B	C
Classification to AS/NZS 4505			
Ultimate wind pressure rating			
Wind-borne debris impact rating			
Airborne sound insulation			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Classification to AS/NZS 4505: Select from Domestic, General purpose – low cycle, General purpose – medium cycle and General purpose – high cycle. A Domestic door is suitable for garage doors for NCC Class 1 and 10 buildings. General purpose doors are suitable for Classes 1 to 10 buildings and with the sub-classifications depending on opening frequency. See AS/NZS 4505 Section 5 on duty cycles and typical applications.

Ultimate wind pressure rating:

- Domestic: See AS/NZS 4505 Table 5.2.
- General purpose: To AS/NZS 1170.2. See AS/NZS 4505 clause 5.2.2.3.

Wind-borne debris impact rating: Required or Not required.

Airborne sound insulation: State the required rating to AS/NZS ISO 717.1 for either the weighted sound reduction index (R_w) or weighted sound reduction index with spectrum adaptation ($R_w + C_{tr}$). This rating is for a building system e.g. partition wall, of which the building element is only one component. It may be better to provide the rating in the appropriate system schedule. It is advisable to obtain the advice of an acoustic consultant on the selection of an R_w or $R_w + C_{tr}$ rating for airborne sound transmission reduction. Refer to NATSPEC TECHnote DES 032 for information.

4.2 PRODUCT

Sectional overhead door schedule

	SO1	SO2	SO3
Product			
Action			
Panels: Size (mm)			
Panels: Material			
Panels: Finish			
Panels: Colour			
Panels: Frame			
Panels: Thickness (mm)			
Panels: Perforations			
Panels: Windows			
Side tracks: Thickness (mm)			
Side tracks: Wheel hangers and hinges			
Side tracks: Wheel rollers			
Vertical guides: Material			
Vertical guides: Size			
Vertical guides: Finish			
Operation method			
Motorised operation: Motor type			
Accessories			

	SO1	SO2	SO3
Hardware: Item			
Hardware: Material			
Hardware: Finish			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Product: Nominate the brand name and model or delete. Amend the schedule as appropriate.

Action: i.e. the position of the retracted door. The manufacturer's terms for sectional doors are Vertical lift, High lift, Follow the roof, etc. The action may be shown on the drawings.

Panels:

- Panel material and finish: e.g. Steel sheets (Colorbond® or powder coat finish), Timber (presealed, oiled or raw), Clear acrylic, Roll formed steel (galvanized or prepainted), Aluminium (anodised or powder coated), other cladding options (e.g. steel bars, perforated sheets or mesh in steel or aluminium, profiled or flat steel sheets with Colorbond® or powder coat finish).
- Frame: e.g. Extruded aluminium sections. Some panels (e.g. acrylic, mesh), require a surround frame. Delete if not required.
- Perforations: e.g. Louvred openings in steel panels are available as an option. Delete if not required.
- Windows: Available as an option.

Side tracks:

- Thickness: e.g. 1.6 mm.

Wheel hangers and hinges: e.g. Fabricated from 1.6 or 2.0 mm galvanized steel.

Wheel rollers: e.g. Nylon or Ball bearing steel.

Operation method: e.g. Manual (Pull rope or Handle), or Motorised.

Motorised operation: See GRIFCO for options. Select from the following:

- Motor type: S-Drive; LS-Drive

Accessories: See GRIFCO for options. Select from the following:

- Photocell or IR beam.
- Light fixture.
- Manual release handle.
- Battery-powered radio remote transmitter.
- Push-button or key switch.
- Internet connectivity.
- Obstruction detection.
- Reversing starters.
- Warning systems – speakers, flashing lights or traffic lights.
- Wall controls.
- Uninterrupted Power Supply (UPS).
- Switches.
- Times.

Hardware: e.g. Handles, bolts, locks. The hardware is an integral part of the installation. Consult the manufacturers. The description may be cross referred to non-standard items documented in detail in *0455 Door hardware*. Locking options available include the following:

- Keyed: Inside, outside or both.
- Manual: Shoot bolts.
- Motorised: Push-button (standard) or Key switch (internally or externally).

Rolling curtain and rolling shutter door schedule

These schedules refer to the selections of the door by its properties, but does not locate it within the project. For this you should prepare a separate document, e.g. a Door schedule to locate them by reference to a designation code.

	RO1	RO2	RO3
Type			

	RO1	RO2	RO3
Product			
Curtain: Type			
Curtain: Material			
Curtain: BMT (mm)			
Curtain: Finish			
Curtain: End material			
Curtain: Slat size			
Perforations: Size			
Perforations: Pattern			
Bottom rail: Form			
Bottom rail: Material			
Bottom rail: Size			
Bottom rail: Finish			
Vertical guides: Material			
Vertical guides: Size (mm)			
Vertical guides: Finish			
Vertical guides: Fixing method			
Mullions: Type			
Mullions: Method of removal			
Drum: Material			
Drum: Size (mm)			
Drum brackets: Materials			
Drum brackets: Finish			
Drum brackets: Fixing			
Operation method			
Manual: Hoist type			
Motorised operation: Motor type			
Safety features			
Hardware: Item			
Hardware: Material			
Hardware: Finish			
Accessories			
Wicket: Size of opening (mm)			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

Specification by proprietary item (manufacturer's standard door suite), will automatically cover most of the prescriptive items in this schedule. If products are selected in PRODUCTS, delete text here.

Type: e.g. Rolling curtain, Rolling shutter or Roller grille.

Product: Nominate the brand name and model or delete. Amend the schedule as appropriate.

Curtain type, material and finish: e.g.:

- Rolling curtain: Prepainted or Colorbond® finished steel.

- Rolling shutters: Roll formed galvanized steel (Colorbond® or powder coat finish), Extruded aluminium (anodised or powder coated), Timber (presealed, oiled or raw), Clear polycarbonate panels with aluminium members (Clear anodised or powder coat finish).
- Roller grilles: Aluminium (anodised or powder coated). Some heavy duty roller grilles consist of galvanized steel tubes sleeved with aluminium tubes.
- Thickness: e.g. 0.50 mm.
- End material: Usually nylon low friction wear pad. Special windlock end pieces locking into vertical guides are available with some types. Obtain manufacturer's recommendations.
- Slat size: Slat width and material thickness.

Perforations: If required, state size and pattern, or refer to manufacturer's standard pattern, or As shown on the drawings. Steel and aluminium slats may be slotted or perforated.

Bottom rail:

- Form: e.g. Box section, Tee section, Paired angles. Specify special requirements, e.g. housing shoot bolts or locksets.
- Material: Usually extruded aluminium or rolled metallic-coated steel.
- Finish: Usually the same as the curtain.

Vertical guides:

- Material: Extruded aluminium or rolled steel. Some have PVC strip inserts. Special deep high wind guides available with some types.
- Finish: Usually as for curtain or grille.
- Fixing method: Some types have concealed fixings.

Mullions: Delete if not required.

- Method of removal: e.g. Lift out, Hinge up, Sliding, Winch operated.

Drum:

- Material: Usually steel or aluminium. PVC-U available with some roller door types.
- Size: State diameter and thickness of tube.
- Finish: Steel may be galvanized and/or prime painted.

Drum brackets:

- Material: e.g. Fabricated from mild steel sections or plate, or from pressed steel sheet, or Cast iron.
- Finish: May be galvanized and/or prime painted.
- Fixing: e.g. Not less than two M 10 bolts galvanized to AS/NZS 1214, passing through (or embedded in) the wall or (in timber framing), or Three 10 mm diameter coach screws galvanized to AS/NZS 1214.

Operation method: e.g. Manual (Hoist), or Motorised.

Manual operation: See GRIFCO for options. Select from the following:

- Hoist type: Heavy duty or Extra heavy duty manual hoist.

Motorised operation: See GRIFCO for options. Select from the following:

- Motor type: E-Drive; M-Drive; LR-Drive; E-Drive RKML.

Accessories: See GRIFCO for options. Select from the following:

- Photocell or IR beam.
- Light fixture.
- Manual release handle.
- Battery-powered radio remote transmitter.
- Push-button or key switch.
- Internet connectivity.
- Obstruction detection.
- Reversing starters.
- Warning systems – speakers, flashing lights or traffic lights.
- Wall controls.
- Uninterrupted Power Supply (UPS).
- Switches.
- Timers.

Hardware: e.g. Handles, bolts, locks. The hardware is an integral part of the installation. Consult the manufacturers. The description may be cross referred to items specified in detail in *0455 Door hardware*. List non-standard hardware here. Locking options available include the following:

- Keyed: Inside, outside or both.
- Lock: Fitted in bottom rail or mid-rail.
- Manual: Shoot bolts.
- Motorised: Push-button (standard) or Key switch (internally or externally).

Accessories: Manufacturer's standard or optional items, e.g. nylon running strips (for continuous curtain), sponge rubber or multi-fin weather strips on bottom curtain rail, draught excluding strips in vertical guides, resilient strips on bottom curtain rail.

Wicket: For rolling shutters, not available on all types. Consult manufacturer. Full-size outward opening exit doors are available with some types. Show location on drawings. Avoid placing it on the same side as the chain and electrical operating gear, where it may cause obstruction. Avoid using gates on windlocked shutters. Nominate left hand or right hand opening as viewed from the inside.

Size of opening: e.g. 1200 x 600 mm 1700 x 600 mm.

Fire shutter schedule

	FS1	FS2	FS3
Fire-resistance level (FRL)			
Product			
Slat thickness (BMT)			
Finish: Curtain slats			
Finish: Slat end pieces			
Finish: Vertical guides			
Finish: Bottom rail			
Finish: Barrel mechanism			
Finish: Hauling chains			
Normal operating mechanism			
Manual operation: Hoist type			
Motorised operation: Motor type			
Accessories			
Hardware: Item			
Hardware: Material			
Hardware: Finish			
Sensing device			

The codes in the header row of the schedule designate each application or location of the item scheduled. Edit the codes to match those in other contract documents.

AS 1905.2 sets out design and testing requirements for fire-resisting rolling shutters (also referred to as fire shutters).

Add other requirements if necessary to comply. The use of fire shutters in place of required fire doors may not be permitted in some instance. Not being insulated they can be a heat radiation hazard.

Specification by proprietary item (manufacturer's standard door suite), will automatically cover most of the prescriptive items in this schedule.

Fire-resistance level (FRL): State required level in minutes, e.g. 120/120/10.

Product: Nominate the brand name and model or delete. Amend the schedule as appropriate.

Slat thickness (BMT): e.g. 1.0 mm.

Finish: e.g.:

- Powder coating: There may be door size restrictions. Consult the manufacturer.
- Primed and painted.

Normal operating mechanism: Automatic operation in the event of fire is mandatory. Specify here the type of operation for normal service, e.g.:

- Hold open: Remains open except when automatic closing is activated.
- Hand operation.

Manual: Hoist type:

- Fire Shutter Manual Hoist

Motorised operation:

- Motor type: Select from GRIFCO Fire shutter operators.

Accessories: Select from the following:

- Fusible link.
- Holding magnet.

Hardware: e.g. Handles, bolts, locks. The hardware is an integral part of the certified installation. Consult the manufacturers. The description may be cross referred to items specified in detail in *0455 Door hardware*. List non-standard hardware here.

Sensing device: The operating system may be directly wired to a fire alarm system or smoke detectors, for activation to close, in addition to the fusible link.

REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

AS/NZS 1170		Structural design actions
AS/NZS 1170.2	2021	Wind actions
AS 1905		Components for the protection of openings in fire-resistant walls
AS 1905.2	2005	Fire-resistant roller shutters
AS/NZS 4505	2012	Garage doors and other large access doors
AS/NZS 60335		Household and similar electrical appliances - Safety
AS/NZS 60335.1	2020	General requirements (IEC 60335-1 Ed 5.2, MOD)
AS/NZS 60335.2.103	2016	Safety Particular requirements for drives for gates, doors and windows

The following documents are mentioned only in the **Guidance** text:

AS ISO 717		Acoustics - Rating of sound insulation in buildings and of building elements
AS/NZS ISO 717.1	2004	Airborne sound insulation
AS/NZS 1170		Structural design actions
AS/NZS 1170.2	2011	Wind actions
AS/NZS 1214	2016	Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series) (ISO 10684:2004, MOD)
AS 3959	2018	Construction of buildings in bushfire-prone areas
NATSPEC DES 032	2018	Airborne sound insulation
NATSPEC GEN 006	2015	Product specifying and substitution
NATSPEC GEN 024	2021	Using NATSPEC selections schedules
NATSPEC TR 01	2021	Specifying ESD