

## 0194P RAVEN DOOR SEALS AND WINDOW SEALS

### Branded worksection

This branded worksection *Template* has been developed by NATSPEC in conjunction with **RAVEN PRODUCTS PTY LTD AUSTRALIA** and may be used whilst the Product Partner is licensed to distribute it. The copyright remains with NATSPEC. As with all NATSPEC worksections, it is the responsibility of the user to make sure it is completed appropriately for the project. The user should also review its applicability for local conditions and regulations. Check [www.natspec.com.au](http://www.natspec.com.au) for the latest updated version.

### Worksection abstract

This branded worksection *Template* is applicable for sealing doors and windows against a combination of leakages and intrusions without impeding normal use, using RAVEN products. It should be read in conjunction with a separate door-by-door hardware schedule.

### Background

Refer to NATSPEC TECHnote GEN 012 for more information about door hardware scheduling.

### Guidance text

All text within these boxes is provided as guidance for developing this worksection and should not form part of the final specification. This *Guidance* text may be hidden or deleted from the document using the NATSPEC Toolbar or the hidden text *Hide* and *Delete* functions of your word processing system. For additional information visit FAQs at [www.natspec.com.au](http://www.natspec.com.au).

### Optional style text

Text in this font (blue with a grey background) covers items specified less frequently. It is provided for incorporation into *Normal* style text where it is applicable to a project.

### 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:

- *0451 Windows and glazed doors.*
- *0453 Doors and access panels* for door types.
- *0454 Overhead doors* for door types.
- *0455 Door hardware.*
- *0461 Glazing.*
- *0472 Acoustic insulation.*
- *0527 Room dividers* for operable walls and folding doors.

### Documenting this and related work

You may document this and related work as follows:

- The door-by-door hardware schedule may be prepared for the project to your office documentation policy or provided by a nominated architectural door hardware supplier.
- Proprietary systems such as aluminium doors or windows, room dividers and overhead doors often come supplied with their own standard proprietary hardware and in many instances, such as timber joinery doors and windows, there are no seals at all. In some proprietary systems the seals installed have little or no adjustability or are made from lesser performing materials. In these situations BCA compliance may be compromised particularly in the area of weather and energy door bottom sealing or fire/smoke door sealing.
- Selected RAVEN seals should be specified here and listed in the SELECTIONS section in the appropriate worksection for the proprietary system. Check that the manufacturer of the proprietary system will install the selected RAVEN seals where applicable.
- Coordinate with electronic security, automatic door closers and related hardware items.
- Raven support and supply all leading architectural door hardware suppliers in Australia. Raven is the leading support member of ADHA (Architectural Door Hardware Association) for door and window sealing in Australia. Raven is a draft committee contributor to Australian Standards for door and window sealing.

The *Normal* style text of this worksection may refer to items as being documented elsewhere in the contract documentation. Make sure they are documented.

### Specifying ESD

Raven seals are designed to meet the weatherproofing and energy efficiency requirements of the BCA.

The following may be specified by retaining default text:

- UV inhibitors.

The following may be specified using included options:

- Thermal performance required to reduce heating/cooling load.

Refer to the NATSPEC TECHreport TR 01 on specifying ESD.

## 1 GENERAL

Raven is one of the most trusted brands in the building hardware industry providing innovative, tested and certified door and window sealing systems.

Raven's door and window sealing systems have become synonymous with quality, value and reliability backed by service excellence which is why it is the brand that architects, specifiers and builders can rely on.

Raven's world class testing facility means that we are constantly developing new ways to respond to the rapid advances in the building industry. Every design and invention is rigorously tested and approved to comply with international building regulations and codes.

Established in 1950, Raven is an Australian family owned and operated company producing a range of acoustic, fire and smoke and weather and energy sealing systems.

Always specify Raven products by name avoiding substitution of inferior products as you can be sure our systems are:

- Quality certified to ISO 9001.
- Ecospecifier Global certified.
- Tested to Australian and New Zealand standards.

### 1.1 RESPONSIBILITIES

#### General

Requirement: Provide RAVEN door seals and window seals, as documented.

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

#### Performance

Handing: Before supply, verify on site, the correct handing of hardware items.

Operation: Make sure working parts are accurately fitted to smooth close bearings, without binding or sticking, free from rattle or excessive play, lubricated where appropriate.

*It is the designer's responsibility to select and the door seals and window seals as appropriate for the application and to coordinate the seals with other hardware items.*

### 1.2 PERFORMANCE

#### Bushfire prone areas

**Bushfire Attack Level (BAL) to AS 3959: [complete/delete]**

*Specify the Bushfire Attack Level (BAL) Construction in AS 3959 is based on the site's level of exposure. There are six categories: BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40 and BAL-FZ. State variations apply.*

*See the Weather and Energy section in RAVEN's product catalogue # 115 for information on Ember attack and BAL Ratings.*

### 1.3 COMPANY CONTACTS

#### RAVEN technical contacts

Website: [www.raven.com.au](http://www.raven.com.au).

### 1.4 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.*

## 1.5 STANDARDS

### Seals general

Quality management for manufacture: To ISO 9001.

Acoustic applications: Tested to AS 1191 or EN ISO 10140-2 and rated to AS/NZS ISO 717.1.

The BCA cites ISO 717-1:1996 and AS/NZS 1276.1 for testing of construction required to have a certain  $R_w$  rating.

Fire door assemblies: To AS 1530.4 and AS 1905.1.

Smoke door assemblies: To BCA Spec C3.4, tested to AS 1530.7 and rated to AS 6905, and tested to EN 1634-3.

Combined fire and smoke door assemblies: To BCA Spec C3.4, AS 1530.4, AS 1905.1, AS 1530.7 and AS 3959 for weather seals providing BAL FZ.

Buildings in bushfire prone areas: To AS 3959:

- BAL-40: Flame retardant silicon, PVC-U and TPE weather seals with a Flammability Index not more than 5 when tested to AS 1530.2.
- BAL-FZ: Approved door seals for use with fire doorsets tested to AS 1530.4.

Weather and energy saving seals for proprietary windows and door assemblies: To AS/NZS 4420.1 clause 5 and clause 6, and AS 2047.

Door bottom and perimeter seals for glazed external doors: To AS 2047.

Threshold plates: To AS 1428.1.

For more information on standards and authorities [click here](#).

Non-proprietary doors and windows are not required by the BCA to comply with AS/NZS 4420.1 at this stage.

## 1.6 MANUFACTURER'S DOCUMENTS

### Technical manuals

Website: [www.raven.com.au/catalogue](http://www.raven.com.au/catalogue).

Click on the link to access RAVEN architectural door and window product catalogue # 115 and CAD file downloads including product fitting instructions.

## 1.7 INTERPRETATION

### Abbreviations and definitions

General: For the purposes of this worksection the following abbreviations and definitions apply:

Ordering abbreviations:

- C/A: Clear anodised (15  $\mu\text{m}$  for perimeter seals. 25  $\mu\text{m}$  for threshold plates).
- B/A: Bronze anodised. (15  $\mu\text{m}$  for perimeter seals. 25  $\mu\text{m}$  for threshold plates).
- EPDM: Ethylene Propylene Diene Monomer.
- PE: Painted Polyester Enamel finish (special order and extra cost).
- TPE: Thermo Plastic Elastomer.

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

For more detail on materials [click here](#).

## 1.8 SUBMISSIONS

### Samples

Particular samples required: [complete/delete]

Nominate any items required for approval by the contract administrator.

## 2 PRODUCTS

### 2.1 GENERAL

#### Product substitution

Other products: Conform to PRODUCTS, **GENERAL**, **Substitutions** in 0171 General requirements.

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

**Product identification**

General: Marked to show the following:

- Manufacturer's identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.

Edit the list to suit the project or delete if not required.

**2.2 MATERIALS****Aluminium extrusions**

Material: Commercial grade alloy B6060 T5 or T6 hardness.

Finish to visible extrusions:

- Satin clear or medium bronze anodised, or as documented.
- Anodising thickness:
  - . Perimeter seal extrusions: Minimum 15 µm.
  - . Threshold plates and threshold plate seals: Minimum 25 µm.

RAVEN polyester enamel (P.E. paint) colour matched finish options are available at an extra cost and an additional lead time.

**PVC-U**

RAVEN proprietary grade PVC-U extrusions:

- Highest quality available.
- Added UV inhibitors where exposed to sunlight.
- Self-extinguishing grade.
- Service temperature - 5°C to + 70°C.

RAVEN polyester enamel (P.E. paint) colour matched finish options are available at an extra cost and an additional lead time.

**Silicon rubber**

RAVEN proprietary grade silicon rubber extrusions:

- Are unique and where designated (SE) are self-extinguishing.
- Added UV inhibitors.
- Service temperature - 60°C to + 230°C.

**TPE**

RAVEN proprietary grade TPE extrusions:

- Highest quality available.
- Added UV inhibitors.
- Flammability Index less than 5 to AS 1530.2 where indicated for Bushfire prone areas.

Service temperature - 40°C to + 100°C.

**EPDM**

RAVEN proprietary grade closed cell EPDM rubber extrusions:

- Highest quality available as developed by the automotive industry.
- Added UV inhibitors.
- Classified SE/B self-extinguishing burn rate to SAE J 369, and ISO 3795.
- Service temperature - 40°C to + 70°C.

**3 EXECUTION****3.1 INSTALLATION****Handing**

Requirement: Match door seals to the handing of doors.

RAVEN automatic style door bottom seals are supplied for all standard door openings and are designed to operate in both left and right handed door openings. Seals can be easily handed to the door by the installer in the factory or retrofit installations to the fitting instruction. Perimeter frame seals are supplied ex-stock in single door sets and double door sets to suit most openings. Stock single lengths are also available for non-standard openings.

### Supply

Factory fit and retrofit: Deliver door seals for door perimeter seals and door bottom seals in complete sets for each door, ready for installation.

Identification: Mark packaging with relevant floor level and door location number.

Packaging: For rigid length seals, provide recyclable cartons and recyclable polythene with fixings and fitting instructions.

Off-site installation to proprietary window and door assemblies: Supply RAVEN TPE and silicon rubber weather stripping on bulk reels.

RAVEN silicon rubber weather stripping can be removed before painting or easily wiped clean where over painting occurs.

### Door assemblies

Modification: Rebate and groove door assemblies to suit the dimensions recommended by RAVEN.

Fitting instructions: Conform to RAVEN's fitting instructions, supplied with each product.

### Fixing

Fasteners:

- Unexposed applications: Zinc-plated self-tapping fasteners supplied by RAVEN with each product.
- External coastal exposure applications: Substitute the standard fasteners supplied with equivalent stainless steel fasteners.

Backset: Allow backset clearances as required for hinging, latching and automatic closers.

Proprietary aluminium door/window frames: Select the fixing options to suit the documented RAVEN perimeter/frame seals.

## 3.2 COMPLETION

### Warranties

Required: [complete/delete]

RAVEN Seals are guaranteed for 2 years against defects in materials and workmanship, provided seals are fitted in conformance with manufacturer's product specifications and fitting instructions.

## 4 SELECTIONS

**Schedules** are a way of documenting a selection of proprietary or generic products or systems by their properties. Indicate their locations here and/or on the drawings. Refer to NATSPEC TECHnote GEN 024 for guidance on using and editing schedules.

### 4.1 NOISE – ACOUSTIC

Consult the Noise - Acoustic section of the RAVEN Catalogue # 115. Coordinate the door details with the Door Schedule to your office documentation policy.

#### Applications - doors

Door identification: [complete/delete]

Note door numbers or describe the location. Repeat this subclause for groups of similar doors.

Door configuration: [complete/delete]

e.g. One only active leaf butt hinged, 2 active leaves butt hinged with rebated or plain meeting styles, Revolving, sliding, Bi-fold, Pivot hung single or double, Overhead door type, Room divider.

R<sub>w</sub> required: [complete/delete]

Select from 28, 30, 32, or 38. Consult RAVEN and the door supplier for higher values.

The possible R<sub>w</sub> depends on the leaf thickness, density, seal type and seal system application.

Door leaf thickness: [complete/delete]

Door leaf material: [complete/delete]

Door frame material: [complete/delete]

Duty level: [complete/delete]

For door bottom seals, sweep seals and perimeter frame seals select from the following:

- Light duty for residential.
- Medium duty for commercial.
- Heavy duty for commercial industrial.

Duty levels are a guide only to assist in the selection process to suit the level of pedestrian traffic anticipated or frequency of door or window use. For example, an infrequently used door in a commercial application may only require a light or medium duty seal.

Jambs: [complete/delete]

Head: [complete/delete]

Threshold: [complete/delete]

Threshold seal: [complete/delete]

Meeting styles: [complete/delete]

Specify the RAVEN products required at the prompts.

### Applications – windows

Window configuration: [complete/delete]

e.g. Casement, Hopper, Sliding or Double hung.

Window frame and sash material: [complete/delete]

R<sub>w</sub> required: [complete/delete]

Consult RAVEN and the window fabricator.

Casement or hopper sash styles: [complete/delete]

Casement or hopper sash head: [complete/delete]

Casement or hopper sash sills: [complete/delete]

Sliding sash styles: [complete/delete]

Sliding sash head: [complete/delete]

Sliding sash sills: [complete/delete]

Meeting styles: [complete/delete]

Specify the RAVEN products required at the prompts.

## 4.2 SMOKE DOORS

Medium temperature smoke. 200°C for 30 minutes (BCA Spec C3.4). Consult the Fire and Smoke section of the RAVEN catalogue #115 for selection guidance.

### Applications – doors

Door identification: [complete/delete]

Note door numbers or describe the location. Repeat this subclause for groups of similar doors.

Door configuration: [complete/delete]

e.g. One only active leaf butt hinged, 2 active leaves butt hinged with rebated or plain meeting styles, Revolving, Sliding, Bi-fold, Pivot hung single or double, Overhead door type, Room divider.

Door leaf thickness: [complete/delete]

Door leaf material: [complete/delete]

Door frame material: [complete/delete]

Duty level: [complete/delete]

For door bottom seals, sweep seals and perimeter frame seals, select from the following:

- Light duty for residential.
- Medium duty for commercial.
- Heavy duty for commercial industrial.

Duty levels are a guide only to assist in the selection process to suit the level of pedestrian traffic anticipated or frequency of door or window use. For example, an infrequently used door in a commercial application may only require a light or medium duty seal.

Jambs: [complete/delete]

Head: [complete/delete]

Threshold: [complete/delete]

Threshold seal: [complete/delete]

Meeting styles: [complete/delete]

Specify the RAVEN products required at the prompts.

### 4.3 FIRE DOORS

Intumescent seals for developed fires above 600°C and hot smoke above 200°C (AS 1530.4). Consult the Fire and Smoke section of the RAVEN Catalogue # 115.

#### Applications – doors

Door identification: [complete/delete]

Note door numbers or describe the location. Repeat this subclause for groups of similar doors.

Door configuration: [complete/delete]

e.g. One only active leaf butt hinged, 2 active leaves butt hinged with rebated or plain meeting styles, Revolving, Sliding, Bi-fold, Pivot hung single or double, Overhead door type, Room divider.

Door FRL: [complete/delete]

Door leaf thickness: [complete/delete]

Door leaf material: [complete/delete]

Door frame material: [complete/delete]

Duty level: [complete/delete]

For door bottom seals, sweep seals and perimeter frame seals, select from the following:

- Light duty for residential.
- Medium duty for commercial.
- Heavy duty for commercial industrial.

Duty levels are a guide only to assist in the selection process to suit the level of pedestrian traffic anticipated or frequency of door or window use. For example, an infrequently used door in a commercial application may only require a light or medium duty seal.

Jambs: [complete/delete]

Head: [complete/delete]

Threshold: [complete/delete]

Threshold seal: [complete/delete]

Meeting styles: [complete/delete]

Specify the RAVEN products required at the prompts.

### 4.4 BUSHFIRE PRONE AREAS

Consult Bushfire – Sealing systems in the RAVEN Catalogue # 115 for selection guidance.

#### Applications - doors

Door identification: [complete/delete]

Note door numbers or describe the location. Repeat this subclause for groups of similar doors.

Door configuration: [complete/delete]

e.g. One only active leaf butt hinged, 2 active leaves butt hinged with rebated or plain meeting stiles, Bi-fold.

Door leaf thickness: [complete/delete]

Door leaf material: [complete/delete]

Door frame material: [complete/delete]

BAL: [complete/delete]

Jambs: [complete/delete]

Head: [complete/delete]

Threshold: [complete/delete]

Threshold seal: [complete/delete]

Meeting styles: [complete/delete]

Specify RAVEN products indicated for the nominated BAL at the prompts.

### Applications - roller garage doors

Door identification: [complete/delete]

Note door numbers or describe the location. Repeat this subclause for groups of similar doors.

BAL: [complete/delete]

Jambs: [complete/delete]

Head: [complete/delete]

Threshold: [complete/delete]

Threshold seal: [complete/delete]

Specify RAVEN products indicated for the nominated BAL at the prompts.

## 4.5 WEATHER AND ENERGY

Protection from draughts and dust, insects, vermin and light. Added benefits include energy wise design, improved health and hygiene. Consult the Weather and Energy section of the RAVEN Catalogue # 115 for selection guidance.

### Applications – doors

Door identification: [complete/delete]

Note door numbers or describe the location. Repeat this subclause for groups of similar doors.

Door configuration: [complete/delete]

e.g. One only active leaf butt hinged, 2 active leaves butt hinged with rebated or plain meeting styles, Revolving, Sliding, Bi-fold, Pivot hung single or double, Overhead door type, Room divider.

Door leaf thickness: [complete/delete]

Door leaf material: [complete/delete]

Door frame material: [complete/delete]

Duty level: [complete/delete]

For door bottom seals, sweep seals and perimeter frame seals, select from the following:

- Light duty for residential.
- Medium duty for commercial.
- Heavy duty for commercial industrial.

Duty levels are a guide only to assist in the selection process to suit the level of pedestrian traffic anticipated or frequency of door or window use. For example an infrequently used door in a commercial application may only require a light or medium duty seal.

Jambs: [complete/delete]

Head: [complete/delete]

Threshold: [complete/delete]

Threshold seal: [complete/delete]

Meeting styles: [complete/delete]

Specify the RAVEN products required at the prompts.

### Applications - windows

Window configuration: [complete/delete]

e.g. Casement, Hopper, Sliding or Double hung.

Window frame and sash material: [complete/delete]

Casement or hopper sash styles: [complete/delete]

Casement or hopper sash head: [complete/delete]

Casement or hopper sash sills: [complete/delete]

Sliding sash styles: [complete/delete]

Sliding sash head: [complete/delete]

Sliding sash sills: [complete/delete]

Meeting styles: [complete/delete]



Specify the RAVEN products required at the prompts.

#### 4.6 ACCESS AND MOBILITY

Consult Threshold Plate Seals in the RAVEN Catalogue # 115 for selection guidance.

##### Application - thresholds at doorways

RAVEN threshold plates: [complete/delete]

Specify the RAVEN product required at the prompt.

##### REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

AS ISO 717		Acoustics - Rating of sound insulation in buildings and of building elements
AS/NZS ISO 717.1	2004	Airborne sound insulation
AS 1191	2002	Acoustics - Method for laboratory measurement of airborne sound transmission insulation of building elements
AS 1428		Design for access and mobility
AS 1428.1	2009	General requirements for access - New building work
AS 1530		Methods for fire tests on building materials, components and structures
AS 1530.2	1993	Test for flammability of materials
AS 1530.4	2014	Fire-resistance tests for elements of construction
AS 1530.7	2007	Smoke control assemblies - Ambient and medium temperature leakage test procedure
AS 1905		Components for the protection of openings in fire-resistant walls
AS 1905.1	2015	Fire-resistant doorsets
AS 2047	2014	Windows and external glazed doors in buildings
AS 3959	2009	Construction of buildings in bushfire prone areas
AS/NZS 4420	2016	Windows, external glazed, timber and composite doors - Methods of test
AS/NZS 4420.1	2016	Test sequence, sampling and test methods
AS 6905	2007	Smoke doors
BCA Spec C3.4	2016	Fire resistance - Fire doors, smoke doors, fire windows and shutters
SAE J 369	2013	Flammability of Polymeric Interior Materials - Horizontal Test Method
EN1634		Fire resistance and smoke control tests for door and shutter assemblies, openable windows and elements of building hardware.
EN 1634-3	2004	Smoke control test for door and shutter assemblies
EN ISO 10140		Acoustics - Laboratory Measurement of Sound Insulation of Building Elements
EN ISO 10140-2	2010	Measurement of Airborne Sound Insulation
ISO 3795	1989	Road vehicles, and tractors and machinery for agriculture and forestry - Determination of burning behaviour of interior materials
ISO 9001	2015	Quality management systems - Requirements

The following documents are mentioned only in the Guidance text:

AS/NZS 1276		Acoustics - Rating of sound insulation in buildings and of building element
AS/NZS 1276.1	1999	Airborne sound insulation
NATSPEC GEN 006	2007	Product specifying and substitution
NATSPEC GEN 012	2010	Door hardware scheduling
NATSPEC GEN 024	2015	Using NATSPEC selections schedules
NATSPEC TR 01	2017	Specifying ESD
ISO 717		Acoustics - Rating of sound insulation in buildings and of building elements
ISO 717-1	1996	Airborne sound insulation