

0423P KINGSPAN INSULATED PANEL ROOFING SYSTEMS

Branded worksection

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Worksection abstract

This branded worksection *Template* is applicable to the provision of roof coverings using Kingspan insulated panel roofing systems and roof plumbing.

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.

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:

- 0193 *Building access safety systems*.
- 0411 *Waterproofing – external and tanking* for membrane roofs.
- 0423 *Roofing – profiled sheet metal*.
- 0424 *Roofing – seamed sheet metal*.
- 0434p *KINGSPAN insulated panel cladding systems*.
- 0471p *KINGSPAN in thermal insulation and pliable membranes*.
- 0802 *Hydraulic design and install* for stormwater and rainwater storage systems.
- 0933 *Power generation – photovoltaic* for integrated rooftop solar PV panels. Contact Kingspan to make sure the roofing system is suitable for PV integration.

Material not provided by Kingspan

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

- Some roof plumbing products.
- Roof hatches.
- Roof windows.
- Roof ventilators.

Documenting this and related work

You may document this and related work as follows:

- Locate the extent of roofing types, accessories, and finishes on drawings to your office documentation policy.
- Show on the drawings the arrangement of the rainwater plumbing system, including the type and size of the main components (gutters, downpipes, sumps, rainheads, etc.) and the size and spacing of supports and fixings.
- Check lead time for imported selections and consider adding a requirement, in **SUBMISSIONS**, for the builder to verify availability.
- Document bushfire protection to conform to AS 3959 and the BCA. See NATSPEC TECHnote DES 018 for information on bushfire protection.
- For guidelines on the design of roofs in snow areas, see AS/NZS 1170.3 and SAA HB 106.
- For information on air moisture and condensation, see NATSPEC TECHnote DES 004.

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

Search acumen.architecture.com.au, the Australian Institute of Architects' practice advisory subscription service, for notes on the following:

- Guarantees and warranties.

Specifying ESD

Green Star: Kingspan insulated panels may contribute to the overall Green Star rating for a building in categories such as Energy, Material, and Emissions.

Life Cycle Assessment: Kingspan products are environmentally assessed for impact on the environment, and environment product declarations are available on request. Kingspan is a manufacturer that has:

- Regular global reporting on sustainability performance.
- Low environmental impact for all products.
- Environmental product declaration's (EPD) for all products.

The following may be specified by retaining default text:

- Roof windows.

The following may be specified using included options:

- Recycled material content.
- Rainwater tanks. See NATSPEC TECHnote DES 011 on rainwater harvesting.

The following may be specified by including additional text:

- High performance roofing systems to extend building service life.

Refer to the NATSPEC TECHreport TR 01 on specifying ESD.

1 GENERAL

Kingspan Insulated Panels is the global leader in the design, development and delivery of advanced building envelopes. Its wide range of products includes insulated roof panels, BENCHMARK high end roof systems and standing seam systems. Kingspan Insulated Panels is widely recognised in the industry for the high quality and performance of its products as well as its commitment to excellent customer services and technical support.

1.1 RESPONSIBILITIES

General

Requirement: Provide KINGSPAN insulated panel roofing systems and associated work, as documented.

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

The responsibility of the designer is to make sure the roofing system and associated work is as follows:

- Appropriate for the roof application.
- Designed in conformance with the Kingspan construction details.
- Deals with vapour pressure, condensation, corrosion and thermal movement.
- Remains intact and weathertight under the local or regional ambient climatic conditions.
- Protects people, property and the environment from the adverse effects of stormwater.
- Supports the documented imposed loads and types of roof access without impairment of performance.

If required, state the minimum added thermal resistance (R-Value) (m² K/W).

See NATSPEC TECHnote DES 031 for information on specifying R-Values.

Ambient climatic conditions

Design rainfall intensity (mm/h) to AS/NZS 3500.3: [complete/delete]

See AS/NZS 3500.3 Table E1 or refer to the Hydrometeorological Advisory Services of the Bureau of Meteorology (HASBM). SAA/SNZ HB 114 provides worked examples of roof drainage calculations.

Location exposure severity

Exposure severity determines the grade of COLORBOND® steel. Refer to BlueScope TB-01A guide on selecting steel roofing products.

Exposure severity category: [complete/delete]

Select from the following exposure severity category:

- Benign: > 1000 m from breaking surf/exposed marine or > 1000 m from calm marine.
- Moderate: 401 to 1000 m from breaking surf/exposed marine or 201 to 1000 m from calm marine.
- Marine: 201 to 400 m from breaking surf/exposed marine or 101 to 200 m from calm marine.
- Severe marine: 101 to 200 m from breaking surf/exposed marine or 0 to 100 m from calm marine.

- Very severe marine: 0 to 100 m from breaking surf/exposed marine.

For organic coating used in sheet steel, there are additional corrosivity categories. Add, if appropriate. They are:

- Tropical inland - North Queensland, Northern Territory, North-West Western Australia, Papua New Guinea and the Pacific Islands, except where affected by salinity, and
- Very high - offshore and beach front locations and aggressive industrial environments where pH may be less than 5.

Refer to 0171 *General requirements* for the designation of the Exterior atmospheric corrosivity category of the project.

Roof access

Type: [complete/delete]

e.g. Trafficable for short term roof maintenance access. When installed to Kingspan's recommendations and the span is within the safe spanning capability of the panel, Kingspan panels are suitable for short term maintenance access loading of up to 1.4 kN concentrated load or 0.25 kPa distributed load to AS/NZS 1170.1.

1.2 COMPANY CONTACTS

Kingspan technical contacts

Website: www.kingspanpanels.com.au/Contact.

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 MANUFACTURER'S DOCUMENTS

Technical manuals

Roofing panel and system product range: www.kingspanpanels.com.au/Products.

Resource centre: www.kingspanpanels.com.au/Resource-Centre.

Technical services: www.kingspanpanels.com.au/Technical.

1.5 INTERPRETATION

Abbreviations

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

- DLTR: Day-Lite Trapezoidal rooflight.
- FB: Foilback.
- KD: K-Dek.
- RL: BENCHMARK Roofliner.
- RW: Trapezoidal Roof Panel.

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

1.6 TOLERANCES

Permitted deviations

Requirement: To Kingspan's recommendations.

Structural steelwork for Kingspan roofing system: ± 5 mm between bearing planes of adjacent supports.

1.7 SUBMISSIONS

Edit the **SUBMISSIONS** clause to suit project requirements.

Fire hazard properties

General: Submit evidence of conformance to PRODUCTS, **GENERAL**, Fire hazard properties.

Fire hazard properties may be documented in **PRODUCTS** and/or **EXECUTION**.

Operation and maintenance manuals

On completion: Submit a manual of recommendations from Kingspan for annual maintenance of the roofing system, including recommended methods of access, inspection, cleaning, repair and replacement.

Products and materials

Type tests: As appropriate for the project, submit evidence of conformance to the following:

- Metal roofing generally: Roof sheeting and fastenings to AS 1562.1 clause 5.4 for resistance to concentrated load and AS 1562.1 clause 5.5 for resistance to wind pressure.
- Metal roofing in cyclonic regions to AS/NZS 1170.2: Roof sheeting and fastenings to AS 1562.1 clause 5.6.
- Plastic sheet roofing: Roof sheeting and fastenings to AS 1562.3 Section 5 for resistance to wind forces and resistance to impact.

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

Approved samples which define acceptable limits of colour and texture variations are retained on site. If particular or additional samples are required, e.g. samples for testing, list them here.

Requirement: Submit samples of the following:

- Custom profiled flashings and cappings.
- Sheet metal finishes showing the range of variation available.
- Sealants.
- Trims and accessories with a colour finish.

Shop drawings

Shop drawings are necessary if some or all of the system is to be designed by the contractor or a specialist subcontractor to meet the performance criteria specified. If this is not the case, delete **Shop drawings**.

General: Submit shop drawings to a scale that best describes the detail, showing the following: [complete/delete]

e.g. Methods of fixing, required end and side laps, acoustic insulation, suppression of impact noise, provisions for thermal movement, birdproofing, flashing, ridge cappings, roof water disposal, thermal insulation, vapour barrier, control joint treatment, isolation of incompatible metals, access for maintenance, provision for traffic.

Subcontractors

General: Submit names and contact details of proposed Kingspan approved installer.

Evidence of experience: [complete/delete]

Delete if supplier/installer details are not required. Check the conditions of warranty for the panels selected and contact your local Kingspan sales representative for a list of trained and recommended installers or for information about its free comprehensive installation training program. The sales representative for your area can be found on the website under Contacts, Find a Sales Rep Map.

Tests

0171 General requirements covers tests in **Definitions** and calls for an inspection and testing plan under **SUBMISSIONS, Tests**.

Site tests: Submit results as follows:

- Internal downpipe hydrostatic testing: [complete/delete]

Detail the tests required in **PRODUCTS** or **EXECUTION**, as appropriate, and list the submissions required here.

Warranties

Roofing materials: Submit the manufacturer's product warranties.

Workmanship: Submit a warranty on the installation of the roofing system.

Describe the requirement of warranties in **PRODUCTS** or **EXECUTION**, as appropriate, and list the submissions required here.

1.8 INSPECTION

Notice

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

- Roof supports.
- The parts of the roof plumbing installation before covering up or concealing.

Amend to suit the project, adding critical stage inspections agreed in advance with Kingspan, as required.

Hold points, if required, should be inserted here.

2 PRODUCTS

2.1 GENERAL

Fire hazard properties

Insulation fire hazard indices: Conform to the following for all materials, tested to AS/NZS 1530.3:

See NATSPEC TECHnote DES 003 for more information on the fire hazard properties of insulation materials and NATSPEC TECHnote DES 020 on fire behaviour of building materials and assemblies. See also BCA Spec C1.10 Table 4.

Refer to CSIRO's certificate of test report No. FNE8218 for the fire hazard properties of KS1200CS, with a nominal thickness of 150 mm tested to AS/NZS 1530.3:

- Ignitability index: 0.
- Spread-of-Flame Index: 0.
- Heat Evolved Index: 0.
- Smoke Developed Index: 2.

- Spread-of-Flame Index: ≤ 9 .
- Smoke-Developed Index: ≤ 8 if Spread-of-Flame Index > 5 .
- Materials with reflective facing: Test to AS/NZS 1530.3 clause 4.12(b) and the recommendations of Appendix A6.

AS/NZS 1530.3 Informative Appendix clause A6 recommends that reflective surfaces of test specimens (which would otherwise generally pass this test) be blackened and diagonally scored in order to simulate soot deposition onto reflective surfaces in a real fire situation. Note that AS/NZS 1530.3 clause 4.12.2(c) requires insulation materials faced with reflective surface materials to incorporate a representative vertical joint in three test specimens.

Non-combustible construction required: [complete/delete]

List any parts of the project that the BCA requires to be non-combustible. Delete if none. Construction required to be non-combustible by the BCA (e.g. fire walls and spandrels with a specific FRL) must be constructed wholly of materials that are not deemed combustible. In other situations, the BCA does not prohibit the use of combustible insulation materials, provided they meet the other fire properties.

Contact Kingspan for relevant testing of fire hazard properties as well as supporting evidence and documentation to assist a fire engineer prepare a performance solution for Type A and Type B construction.

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.

Storage and handling

Storage and handling: To the manufacturer's recommendations and the following:

- Sealed, unopened packaging on a slightly sloped surface to prevent ponding on panel faces.
- Keep dry and unexposed to weather, including direct sunlight.
- Protect materials including edges and surfaces from damage.
- Do not drag metal sheets or panels across each other or over other materials.

Storage area conditions: Allocate a safe and free trade area.

2.2 KINGSPAN ANCILLIARIES

Contact Kingspan Technical services for the number of fixings required at each location as these are project specific and determined by the project specific wind loads.

To conform to local and cyclonic wind load requirements, and those of FM Approvals certification, it may be necessary to provide additional fasteners in areas of high local suction.

For fastener recommendations for cyclonic applications, contact Kingspan Technical Services for advice and testing documentation. Recommended fasteners are available from recognized distributors, please contact technical team for further information.

Trapezoidal (KS1000 RW) and Foilback (KS1000 FB)

Sealant tape: 6 mm x 4 mm butyl rubber.

Neoprene foam tape: 4.8 mm x 60 mm wide neoprene, for high humidity applications.

RW profile filler: 1000 mm x 35 mm x 35 mm.

Neutral cure gun grade silicone sealant: As required.

Sealant not supplied by Kingspan. Refer to Kingspan's technical drawings for sealant locations.

Flashing: 0.5 mm minimum thickness, metallic-coated steel.

Kingspan manufacture flashings to order to the specification of the external and internal sheet respectively.

Primary fasteners (Non Cyclonic): Self-tapping, self-drilling screws, manufactured from carbon steel, anti-corrosion coated, and fitted with a 19 mm or 25 mm diameter embossed stainless steel (or aluminium) washer.

Colour matched heads or caps can also be used.

K-Dek (KS1000 KD)

Sealant tape: 6 mm x 4 mm butyl rubber.

Neoprene foam tape: 4.8 mm x 60 mm wide.

Double sided acrylic tape: KDSLTAPE.

RW profile filler: 1000 mm x 35 mm x 35 mm.

Neutral cure gun grade silicone sealant: As required.

Sealant not supplied by Kingspan. Refer to Kingspan's technical drawings for sealant locations.

External flashing: Galvanized steel with membrane flashing overlay and membrane lined steel to Kingspan's recommendations.

Internal flashing: To match the internal liner sheet.

Primary fasteners: Self-coring carbon steel fasteners incorporating a 19 mm washer.

Secondary fasteners: For fixing flashing to panels:

- Flat head SFS IR2-C at 330 mm centres.
- Fastener length minimum: 120 mm for pan fixing and 155 mm for crown fixing.

BENCHMARK Roofliner (KS1100 RL)

Sealant tape: Butyl rubber:

- 6 mm x 4 mm.
- 50 mm x 1 mm.

Foam tape: 120 mm x 2 mm wide EPDM rubber tape.

Primary fasteners:

- Self-tapping, self-drilling screws, manufactured from carbon steel, anti-corrosion coated, and fitted with a 19 mm or 25 mm diameter embossed stainless steel (or aluminium) washer.

Colour matched heads or caps can also be used.

- For a flush finish:
 - . Recessed flat head fasteners complete with bearing plate with ultra-low profile finish.
 - . Type, size and drilling capacity: To the manufacturer's recommendations for type and thickness of supports, and thickness of cladding panels.

Secondary fasteners: For fixing flashing to panels:

- Steel rivets, or self-tapping screws at 300 mm centres (maximum).

Day-Lite Trapezoidal (KS1000 DLTR)

Sealant tape: 6 mm x 4 mm butyl rubber.

KS1000RW profile filler: 1000 mm x 35 mm x 35 mm.

PVC magnetic spacers: For 40 mm, 60 mm, 70 mm and 100 mm thick panels.

Primary fasteners:

- Self-tapping, self-drilling screws, manufactured from carbon steel, anti-corrosion coated, and fitted with a 19 mm diameter embossed stainless steel (or aluminium) washer bonded with EPDM and storm washers.
- Profiled aluminium storm washer: 1 mm thick x 50 mm long incorporating reinforcement ribs along back and sides, dimensions to match the crown of the sheet.
 - . Underside: Bonded closed cell EPDM backing, 2 mm thick to the full washer profile.
 - . Density of foam: 135 kg/m³.
 - . Resistance temperature: - 40°C to + 100°C.
 - . Colour: Poppy red.

Secondary fasteners: For fixing side laps:

- Carbon steel stitching screw, anti-corrosion coated, 6.3 mm x 28 mm complete with a 19 mm diameter embossed stainless steel (or aluminum) washer bonded with EPDM.

Highline gutter

Gutter brackets: Match roof profile.

Membrane lined insulated gutters

Membrane strip: 250 mm x 1.5 mm.

Foil tape: 100 mm wide.

Membrane outlet: To suit 100 mm or 150 mm downpipe.

Starter piece: Insulated and factory fitted, or as documented.

Stop ends: Site fitted, or as documented.

Outlets:

- Site fitted, or as documented.
- Polyethylene with sealing membrane.
- Standard diameters: 100 mm or 150 mm.

External pipe dimensions.

Sumps: Site assembled and fitted, or as documented.

Profiled fillers

Type: Purpose-made closed cell polyethylene foam profiled to match the roofing profile.

Location: Provide profiled fillers, under flashings and to close off corrugation cavities from the inside and outside of the building, to the following:

- Ridges.
- Eaves.
- Steps in roof sheeting.

Add locations as required.

Colour: Black

Safety mesh

Standard: To AS/NZS 4389.

Consider adding this *Optional* style text by changing it to *Normal* style text.

Coordinate with 0471 *Thermal insulation and pliable membranes*. Do not call up welded safety mesh in more than one spot.

2.3 KINGSPAN INSULATED PANEL ROOFING SYSTEMS

Standards

Design, installation and materials: To AS 1562.1.

AS 1562.1 requires steel conform to AS 1397 for continuously hot-dipped metallic coated sheet and strip or AS/NZS 2728 for prepainted and organic film/metal laminate products.

Polyisocyanurate (rigid cellular RC/PIR) core: To AS 1366.2.

Trapezoidal (KS1000 RW)

Compatible with Kingspan's daylighting systems and Kingspan insulated gutters, KS1000 RW is suitable for most new build and refurbishment building applications as a roofing element. A choice of exterior and interior finishes caters for a range of colours and coatings in standard and high humidity environments. Specifications for lower pitches are available on request from Kingspan Technical Services.

Description: A through fixed system of pre-painted, trapezoidal steel sheets with a PIR insulation core.
KS1000 RW: Codemark certificate No SAIG- CM20103.

Foilback (KS1000 FB)

KS1000 FB is designed for applications of 4 ° or more with suspended ceilings that require thermal regulation compliance (air conditioned space) and used in combination with additional insulation methods or for applications where a prefinished steel internal liner is not required. Not recommended for high humidity or applications or areas that are subject to wash down regimes. Specifications for lower pitches are available on request from Kingspan Technical Services.

Description: A through fixed system of pre-painted, trapezoidal external steel sheeting with a PIR insulation core and a choice of silver or white internal foil liner.

K-Dek (KS1000 KD)

KS1000KD is suitable for flat and pitched roofs above 1:80 (0.72°) after deflection. It can be used for all building applications except where there is a requirement for a low temperature controlled environment or a high humidity environment.

Description: A single component, factory pre-engineered roof deck, manufactured with a single ply membrane, with PIR insulation and a trapezoidal steel deck.

BENCHMARK Roofliner (KS1100 RL)

KS1100 RL is suitable for buildings with flat, pitched and curved roofs with a convex or concave radius of 20 m, when used on a frame-to-frame long spanning structure.

Description: A PIR insulated roof panel system.

Roof sheeting/membrane for use over KINGSPAN Roofliner (KS1100 RL): [complete/delete].

This product requires installation of an additional fully sealed roof covering: either membrane or sheet metal. e.g. To 0423 Roofing – profiled sheet metal, To 0424 Roofing – seamed sheet metal or To 0411 Waterproofing – external and tanking. Document the roof sheeting/membrane to be used with BENCHMARK Roofliner (KS1100 RL) insulated panel roofing system in the appropriate worksection or import relevant information.

2.4 ROOF PLUMBING

General

Standard: To AS/NZS 3500.3.

Requirement: Flashings, cappings, gutters, rainwater heads, outlets and downpipes necessary to complete the roof system.

Materials

Metal rainwater goods: To AS/NZS 2179.1.

Metal: [complete/delete]

e.g. Same material as the roof sheeting facing.

Minimum coating class, thickness and grade for commonly used materials are given in AS/NZS 2179.1 (for gutters, downpipes, rainheads) and AS/NZS 2904 (for flashings). See AS 1397 Appendix D for information and guidance on the selection of steel grades and coating classes.

PVC-U rainwater goods and accessories: To AS/NZS 3500.3.

For plastic rainwater goods, document by proprietary brand names.

Flashings and cappings

See SAA HB 39 Section 8 for recommended practice for metal flashing and cappings. Flashing materials include metallic-coated steel, soft zinc, lead, copper, aluminium annealed sheet, bitumen (or polyethylene) coated aluminium, stainless steel, PVC, butyl rubber and neoprene rubber. Lead is not compatible with aluminium or aluminium/zinc coated steel. For malleable flashings, consider soft zinc or plastic sheet. Document proprietary profiles as proprietary items and special profiles on drawings. If sizes are not shown on the drawings document here.

Standard: To AS/NZS 2904.

Flashing and capping types: Kingspan external prefabricated flashings to match insulated panel coating.

Minimum 0.5 mm coated steel to AS 1397 to match external coating thickness of the insulated panel.

Material and colour: Match roof sheeting.

Ridge and barge cappings

Capping types: Kingspan external prefabricated cappings to match insulated panel coating.

Colourbond steel flashings and cappings are made to order. Contact Kingspan.

Material and colour: Match roof sheeting.

Kingspan gutters

See SAA HB 39 Section 5 for recommended practice for metal rainwater drainage. See AS/NZS 3500.3 Section 3 for method of sizing gutters and downpipes and SAA/SNZ HB 114 for worked examples. See AS/NZS 3500.3 clause 4.9 for support systems of roof drainage systems. Show particular requirements, if any, on the drawings. Show on the drawings the location of gutters, box gutters, overflows, valley gutters, rainwater heads and sumps. In high wind areas consider the degree of exposure of gutters and downpipes to wind actions and the need to provide additional fixings.

Eaves gutter: Highline gutter.

Lightweight pre-coated steel guttering, available in lengths up to 6 m and supplied in a corrosion-resistant range of finishes.

- Finish: [complete/delete]

e.g. Standard coating, High performance, Metallic or Bespoke colour.

- Colour: Match roof sheeting

Valley and parapet gutters: To the **Kingspan membrane lined insulated gutter schedule**.

Membrane lined insulated gutters, available for manufacture to customers' requirements up to and including 6 m long, making it fast to install.

Kingspan insulated parapet gutter and valley gutter are laid flat for use with symphonic drainage systems. External membrane thickness: 0.6 mm. Finish/colour: 0.6 mm IKO Armourplan PVC membrane.

Box gutters laid to falls: To the **Kingspan membrane lined insulated gutter schedule**.

Kingspan insulated box gutters are laid to falls. External facing thickness: 0.6 mm. Finish/colour: 0.6 mm IKO Armourplan PVC membrane.

External downpipes

If not shown on the drawings, document requirements here.

Product: [complete/delete]

Material: [complete/delete]

Colour: [complete/delete]

Profile: [complete/delete]

Size: [complete/delete]

Internal downpipes

Mainly multi-storey applications. Acoustic insulation will not be required where downpipes are built into sound rated ducts. Where insulation is required, document selection in **SELECTIONS** of 0471 *Thermal insulation and pliable membranes* or show on drawings.

Material: [complete/delete]

e.g. Cast iron to AS 1631 (may be bitumen-, epoxy-, or cement-coated if required), Copper Type D to AS 1432, Stainless steel type 304, PVC-U to AS/NZS 1260. PVC-U may not be acceptable for fire-resistance rating.

Size (mm): [complete/delete]

Document the nominal size if not shown on the drawings.

Rainheads

Product: [complete/delete]

Proprietary item or delete and refer to details.

Material: [complete/delete]

Colour: [complete/delete]

Pattern: [complete/delete]

Vents

Proprietary item or delete and refer to details.

Product: [complete/delete]

Material: [complete/delete]

Colour: [complete/delete]

Pattern: [complete/delete]

Hail guards

Box gutters: Provide grating over the whole of the profile.

Material: To match the gutter.

Mesh: [complete/delete]

Fixing: [complete/delete]

Describe or refer to drawings.

Gratings

Gratings: Provide removable gratings over rainwater heads and sumps.

-Type: [complete/delete]

e.g. Wire netting ball or Hemispherical wire mesh dome. Document the metal and coating. Check if leaf screens in the following subclause is required.

Leaf screens

Product: [complete/delete]

Material: [complete/delete]

Plastic leaf guards are not permitted for bushfire-prone areas.

Profile: [complete/delete]

Size: [complete/delete]

Location: All outlets.

2.5 KINGSPAN DAY-LITE SYSTEM**General**

Day-Lite Trapezoidal (KS1000 DLTR) is only suitable for integration with the Trapezoidal (KS1000 RW and KS1000 FB) roofing panel system and a minimum pitch of 4° after deflection. Specifications for lower pitches are available from Kingspan on request from Kingspan Technical Services.

The system is designed to allow high levels of natural light into buildings. This range of translucent polycarbonate system provides superior resistance to UV degradation, resulting in excellent long-term light transmission, thermal and structural performance. The system is suitable for all building applications (except where the occupants or processes add significant quantities of water to the air, or where there are internal environments with low temperatures).

Standard lengths available from 1.8 m to 6 m (including 150 mm end lap). Longer lengths available on request. Extended lead times and additional cost may apply.

Colour availability: Clear/ Opal/ Opal 3.4.

Contact Kingspan for further advice and availability of additional colours/SHGC.

Polycarbonate: To AS 4256.5.

The BCA cites AS/NZS 4256.5:1996.

Material: Co-extruded, multi-wall polycarbonate rigid thermoplastic sheeting.

External profile depth: 35 mm, overall polycarbonate depth 55 mm.

2.6 ROOF HATCHES**Description**

General: A proprietary roof hatch system including framing, fixing, trim, seals, accessories and flashings.

Product: [complete/delete]

Size (mm): [complete/delete]

2.7 ROOF WINDOWS**Type**

General: A proprietary window system designed for non-vertical installation in roofs pitched between 15° and 85°, consisting of the following:

- Timber frame and sash, shop clear primed or prefinished.
- External anodised aluminium protective profiles.
- Sealed double glazing.
- Horizontally pivoted sash, 180° reversible, on patent friction hinges.

- Opening and locking by patent control bar.
- Ventilation flap.

Features: [complete/delete]

Features may include internal roller blind or venetian blind, internal removable insect screen, external awning blind, remote control of opening and locking, and remote control of internal blinds.

Total system solar heat gain coefficient (SHGC): [complete/delete]

Total system U-Value (W/m²K): [complete/delete]

Add Total system SHGC and Total system U-Value where called for in BCA J1.4 or BCA 3.12.1.3.

WERS for Skylights energy rating % heating: [complete/delete]

WERS for Skylights energy rating % cooling: [complete/delete]

The % heating and % cooling refers to the percentage improvement in performance of the window compared with using a base-case Generic Window 1 (3 mm clear glazing in a standard aluminium frame).

Contact Window Energy Rating Scheme operated by the Australian Window Association www.wers.net.

2.8 ROOF VENTILATORS

For electric fan powered ventilators, document the necessary electrical connection in the electrical services worksection. Document any particular requirements, material, type (e.g. static, wind driven, electric fan powered), size, etc. if not shown on the drawings. For roof mounted heat exhaust vents, see AS 2427. For design of smoke/heat venting systems, see AS 2665.

Description

General: A proprietary roof ventilator system including framing, fixing, trim, seals, accessories and flashings.

Product: [complete/delete]

Size: [complete/delete]

Material: [complete/delete]

Throat diameter: [complete/delete]

Capacity: [complete/delete]

Options: [complete/delete]

e.g. Electrically controlled dampers.

Finish: Match adjacent roofing.

3 EXECUTION

3.1 INSTALLATION

Protection

General: Keep the roofing and rainwater system free of debris and loose material during construction, and leave them clean and unobstructed on completion. Repair damage to the roofing and rainwater system.

Touch up: To Kingspan's recommendations.

Contact Kingspan for any further recommendations.

Metal separation

The designer should make sure of compatibility or detail separation on the drawings.

See AS 1562.1 Table 3.2 for guidance on the compatibility of metals. See also SAA HB 39 Section 2 on material selection.

Corrosion can result from water run-off between incompatible surfaces. See AS 1562.1 clause 3.7 and AS 1562.1 Table 3.3. There are two conditions to be avoided:

- Run-off from copper and copper alloys onto aluminium, zinc, galvanized, or aluminium/zinc-coated surfaces.
- Run-off from inert catchment surfaces such as glazed terracotta, prepainted steel, aluminium and aluminium/zinc onto galvanized surfaces.

In marine or high humidity environments, green hardwood should also be separated from aluminium and coated steel.

Requirement: Prevent direct contact between incompatible metals, and between green hardwood or chemically treated timber and aluminium or coated steel, by either of the following methods:

- Applying an anti-corrosion, low moisture transmission coating to contact surfaces.

- Inserting a separation layer.

Tolerances

Requirement: To AS 1562.1 clause 4.2.

3.2 KINGSPAN INSULATED PANEL ROOFING SYSTEM

Installation

Requirement: To Kingspan's recommendations using Kingspan approved installers for installation, including the following:

- Fasteners, laps, sealants and fillers: Install, as documented.
- Site cut panels:
 - . Provide accurate, true lines with no distortion.
 - . Cut with a suitable metal cutting circular type saw and treat exposed edges with a suitable edge protection lacquer.
 - . Cut openings to the minimum size necessary.
 - . Penetrations larger than 300 mm x 250 mm: Provide additional structural support.

Refer to *Kingspan Method Statement* for information regarding cut panels.

It is not recommended that penetrations intersect the crown of a panel. For further advice, contact Kingspan's Technical Services.

Installation of roof sheeting/membrane over KINGSPAN Roofliner (KS1100 RL):

e.g. To *0423 Roofing – profiled sheet metal*, To *0424 Roofing – seamed sheet metal* or To *0411 Waterproofing – external and tanking*. Document the roof sheeting/membrane to be used with BENCHMARK Roofliner (KS1100 RL) insulated panel roofing system in the appropriate worksection or import relevant information.

Swarf: Remove swarf and other debris as soon as it is deposited.

Accessories: Provide material with the same finish as roofing sheets.

3.3 BUILDING ELEMENTS

Ridges and eaves

See AIA EDG DES 56, for information on birds and buildings.

Sheet ends: Treat as follows:

- Project panel ends with a 75 mm cut back at the eaves.
- Close off ridges with purpose-made ridge fillers of closed cell polyethylene foam.

Refer to Kingspan's standard construction details.

Ridges and barge

Capping: Finish off along ridge and verge lines with purpose-made ridge capping or barge rolls.

Refer to Kingspan's standard construction details.

Sprung curved ridge

General: Lay the roofing sheets in single lengths from eaves to eaves by naturally curving the sheets over the ridge.

Ridge: Seal side laps at the ridge and extend the sealant to the point where the roof pitch equals the recommended pitch of the roofing profile.

This is possible only with certain sheeting profiles and roof slopes. Consult the manufacturer about recommended purlin spacings at the ridge to achieve the required curvature. Show the purlin locations on the drawings.

Laps, sealants and fillers

Trapezoidal (KS1000 RW):

- Side laps: Factory applied weather seal (FAWS).

Continuous weather seal applied under controlled factory conditions to ensure a more efficient seal between individual panels.

- External end laps: Lap sheeting 150 mm and weather seal using three unbroken runs of sealant tape.

Trapezoidal (KS1000 RW): High humidity applications:

- Side laps: Seal internal joint with an unbroken run of sealant tape.

- External end laps: Lap sheeting 150 mm and weather seal using three unbroken runs of sealant tape. Seal along purlins using two unbroken runs of sealant tape or neoprene foam tape.

Refer to Kingspan's standard construction details.

- Intermediate supports: Seal along purlins using two unbroken runs of sealant tape or neoprene foam tape.

Foilback (KS1000 FB):

- Side laps: Factory applied weather seal (FAWS).
- External end laps: Lap sheeting 150 mm and weather seal using three unbroken runs of sealant tape.

Refer to Kingspan's standard construction details.

K-Dek (KS1000 KD):

- End laps: 200 mm membrane strip welded at lap. Nominal weld 40 mm to each panel.
- Side laps: Apply KDSLTAPE to side lap before welding. Overlap membrane welded to membrane of adjacent panel at side laps, nominally 40 mm.

Refer to Kingspan's standard construction details.

BENCHMARK Roofliner (KS1100 RL):

- Panel end joints: Seal using continuous adhesive 50 mm butyl mastic tape on the external face. Before panels are laid, apply EPDM 120 x 2 mm self-adhesive sealing tape to purlin/supporting steelwork.
- Fire resistant panel end joints: If required, fill panel to panel end joints with a fire resisting gun applied canister urethane insulation, and over flash to Kingspan's recommendations.

Flashings (non cyclonic)

Fixing: Fix at maximum 450 mm centres.

Overlapping: Overlap 150 mm at joints.

Sealing: Seal laps with two unbroken runs of sealant tape. Air seal along the length with an unbroken run of sealant tape.

K-Dek (KS1000 KD):

- Membrane lined steel flashings: Seal at laps with a minimum 125 mm welded membrane strip.

For cyclonic applications, contact Kingspan Technical Services for fixing recommendations and testing documentation.

Profiled fillers

Sealing: Seal the top, bottom and sides of each profile filler with a single line of non-setting gun-grade sealant.

Fixing: Provide a tight fit, without gaps.

Fasteners

KS1000 RW and KS1000 FB:

- Standard applications: Locate fasteners through every crown of the profile.
- Additional fixings: Locate in the valley of the panel.

To conform to local and cyclonic wind load requirements, and those of Factory Mutual, it may be necessary to provide additional fasteners in areas of high local suction.

- Side laps and flashings: Stitch at 450 mm centres (maximum) with carbon steel stitching screws complete with and EPDM seal.
- End laps: Tail stitch with 2 fasteners in each valley and one per crown.

K-Dek (KS1000 KD):

- Panel ends: Minimum of 3 fasteners.
- Intermediate supports: Minimum of 1 fastener.

The number of fasteners required depends on the project wind loads. See K-Dek load/span table for further information. Cover intermediate fasteners with a 90 mm welded membrane patch.

Day-Lite Trapezoidal (KS1000 DLTR) fasteners:

- Primary: Locate on the crown of the profile.
- Secondary: Side laps:

- . Stitch at max. 300 mm centres, provide poppy red heads or caps.
- Fastener heads: Provide poppy red fastener heads.

End Laps: Refer to KS1000 DLTR construction details for latest end lap recommendations.

3.4 ROOF PLUMBING

Kingspan membrane lined insulated gutters

Document the material, profile and size on the drawings or in a schedule. In high wind areas consider the degree of exposure of gutters and downpipes to wind actions and the need to provide additional fasteners.

General: Prefabricate gutters. Form stop ends, downpipe nozzles, bends and returns. Dress downpipe nozzles into outlets. Provide overflows to prevent back-flooding.

Gutter and sump support: Provide framing and lining to support valley gutters, box gutters and sumps. Line the whole area under the gutters and sumps.

Support: [complete/delete]

e.g. Proprietary metallic-coated adjustable strap and channel system.

External and internal laps: 50 mm.

Fixing laps:

- One line of rivets at 75 mm maximum centres, 25 mm from the edge, using stainless steel rivets of 3.2 mm diameter x 8 mm long.
- Lay 100 mm wide silver foil tape centrally over joint.
- Heat seal the membrane over the joint using 1.5 x 250 mm PVC strip.

Insulated box gutters (laid to falls): Provide Jonda brackets, installed at maximum 600 mm centres.

Refer to Kingspan's Insulated gutter details or contact Kingspan Technical Services,

External downpipes

Document the material, profile and size on the drawings or in a schedule. In high wind areas consider the degree of exposure of gutters and downpipes to wind actions and the need for additional fixings.

General: Prefabricate downpipes to the required section and shape where possible. Connect heads to gutter outlets and, if applicable, connect feet to rainwater drains.

Access cover: Provide a removable watertight access cover at the foot of each downpipe stack.

Downpipe support: Provide supports and fixings for downpipes.

Internal downpipes

Jointing method: [complete/delete]

e.g. Sealant joint (or bolted gland joint) to AS 1631, Screwed fittings to AS 1589 (copper), Solvent cement jointing (PVC-U), etc.

Access: Provide access openings as follows:

- At each junction and bend.
- At the foot of each stack.
- At every second floor level.

Modify locations to suit the project.

Type of access opening: [complete/delete]

e.g. Cast iron inspection openings to AS 1631 (or AS/NZS 1260 for PVC-U, AS 1589 for copper).

Acoustic insulation: Mineral fibre pipe insulation 50 mm thick, spirally bound on with 1.5 mm wire at 150 mm pitch.

Delete if not required.

Building in: If pipes are built into masonry or concrete, spiral wrap the pipe (and insulation, if any) with building paper.

Rainwater disposal

System: [complete/delete]

If not shown on the drawings, document method of disposal. Alternatives include Connection to stormwater drains, Discharge to rainwater tanks or Discharge to soakage pits.

3.5 KINGSPAN DAY-LITE SYSTEM

Installation

Requirement: To Kingspan's recommendations, using Kingspan approved installers for installation.

Standard: To AS 1562.3.

AS 1562.3 covers the installation of plastic cladding materials. See also SAA HB 39 Section 9. The BCA cites AS/NZS 1562.3:1996.

External side laps: Weather seal along the length with an unbroken run of 6 mm x 4 mm sealant tape.

External end laps: Lap sheeting 150 mm and weather seal across the width using three unbroken runs of 6 mm x 4 mm sealant tape.

End lap cut back: 150 mm.

Refer to KS1000 DLTR construction details for lap recommendations and standard construction details.

Bearing width:

- End lap: Minimum 60 mm.
- Intermediate supports: Minimum 60 mm.

Fastener heads and caps: Provide fasteners with poppy red fastener heads and caps.

3.6 ROOF HATCHES

Installation

Fixing: [complete/delete]

Specify and detail to the recommendations of the roof hatch manufacturer.

3.7 ROOF WINDOWS

Installation

Fixing: [complete/delete]

Specify and detail to the recommendations of the roof window manufacturer.

3.8 ROOF VENTILATORS

Installation

Fixing: [complete/delete]

Specify and detail to the recommendations of the roof window manufacturer.

3.9 TESTING

0171 *General requirements* covers tests in **Definitions** and calls for an inspection and testing plan under **SUBMISSIONS, Tests**.

Site tests

Internal downpipes: Test each stack hydrostatically in stages, each test to run over two storeys high for two hours. Remedy defects and retest if necessary.

3.10 COMPLETION

Cleaning

Requirement: Remove excess debris, metal swarf, solder, sealants and unused materials.

Exposed metal surfaces: Clean surfaces of substances that interfere with uniform weathering or oxidation.

Replacement: Replace materials that have been damaged or deteriorated.

Protection: After completion, remove protective coatings using methods to the manufacturer's recommendations.

Protective film will withstand exposure to weather for a limited period of time before losing its peel-off characteristics and causing staining. The gloss coating changes when exposed to plasticizers.

Fasteners: Make sure weather tight and external panel facings are not distorted.

Kingspan panels: Clean surfaces to the manufacturer's recommendations.

Refer to Kingspan's technical bulletin *Annual Inspection and maintenance*.

Roof plumbing: Clean out spoutings, gutters and rainwater pipes after completion of roof installation.

Warranties

Requirement: Provide materials and workmanship warranties as follows:

- Roofing materials: The manufacturer's product warranty.
- Workmanship: Installer's warranty.

Form: Against failure of materials and execution under normal environment and use conditions.

Period: As offered by the supplier/manufacturer.

Use only if warranties extending beyond the defects liability period are available for the particular system. As the warranty is in the form of separate material and installation warranties, the signatures of both manufacturer and installer are required.

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

Kingspan standard warranties include paint systems and panel materials. All warranties are project specific and long term product performance can depend on many factors, including the project location, aspect to prevailing winds, proximity to bodies of water (marine or otherwise) and local site factors such as nearby industries or industrial processes.

Warranty periods: Provided the panels are installed to Kingspan's recommendations and installers are trained by Kingspan's field service manager, warranties periods are as follows:

- KS1000 RW: Up to 25 years covering structural, thermal and coating performance.
- KS1000 FB: Up to 25 years covering structural, thermal and coating performance.
- KS1000 KD and KS1100 RL: Up to 20 years structural and thermal warranty.

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 PRODUCT**Kingspan insulated panel roofing system schedule**

Property	A	B	C
Profile			
Roof pitch			
Internal environment			
Panel width (mm)			
Panel length (m)			
External sheet thickness (mm)			
External sheet: Colour range/finish			
External sheet: Colour			
Covering for use with KS1100 RL			
Core thickness (mm)			
Internal liner sheet thickness (mm)			
Internal liner sheet: Colour range/finish			
Internal liner sheet: Colour			
R-Value (m ² .K/W)			

A, B, C: These designate each instance or type or location of the item scheduled.

Edit codes in the **Schedule** to match those on drawings.

Profile: Select from:

- KS1000 RW (Trapezoidal).
- KS1000 FB (Foilback): Not suitable for use in a high humidity application.
- KS1000 KD (K-Dek): Not suitable for use in a high humidity application.
- KS1100 RL (BENCHMARK Roofliner).

Roof pitch: If required, document the roof pitch:

- KS1000 RW: 4° or above after deflection. Contact Kingspan for pitches less than 4°.
- KS1000 FB: 4° or above after deflection. Contact Kingspan for pitches less than 4°.
- KS1000 KD minimum pitch: 1:80 (0.72°) after deflection.
- KS1100 RL minimum pitch: To suit documented decking/membrane. Refer to the manufacturer's recommendations.

Internal environment for KS1000 RW and KS1100 RL: Select Low-humidity or High-humidity. Delete if not required.

Panel width (mm): Standard module:

- KS1000 RW/FB/KD: 1000.
- KS1100 RL: 1100.

Panel length (m): Standard lengths available from 2 to 13.7. Longer lengths can be supplied on request. For orders outside of Australia, maximum lengths are 11. 8. Maximum length for panels transported by rail is 12.

External sheet thickness (mm): Consult Kingspan when thicknesses required for the project differ from the following:

- KS1000 RW minimum: 0.5.
- KS1000 FB minimum: 0.5.
- KS1000 KD: For PVC, 1.5, 1.8 or 2.0. For TPO, contact Kingspan for available thicknesses.
- KS1100 RL minimum: 0.6.

External sheet colour range/finish: Select from:

- KS1000 RW: Select from Standard Range, High performance Range, Metallic Range or Custom Colour.
- KS1000 FB: Select from Standard Range, High performance Range, Metallic Range or Custom Colour.
- KS1000 KD: Select from PVC or TPO.
- KS1100 RL: Antibacterial white.

External sheet colour: Consult Kingspan for the colours available:

- KS1000 KD: White or Light grey.

Covering for use with KS1100 RL: Nominate the product or select from:

- Profiled sheet metal.
- Seamed sheet metal.
- Membrane.

Core thickness (mm): Select from:

- KS1000 RW: 40, 60, 70 or 100.
- KS1000 FB: 30.
- KS1000 KD: 100.
- KS1100 RL: 50, 75, 100, 125, 150 or 200.

Internal liner sheet thickness (mm): Consult Kingspan when thicknesses required for the project differ from the following:

- KS1000 RW minimum: 0.4.
- KS1000 FB minimum: 0.4.
- KS1000 KD minimum: 0.5.
- KS1100 RL minimum: 0.5.

Internal liner sheet colour range/finish: Select from:

- KS1000 RW: CLEANsafe15 (standard internal liner), External Standard Range, Metallic Range or Custom Colour.
- KS1000 RW high humidity internal environments: AQUAsafe 55 (swimming pools) or AQUAsafe.
- KS1000 FB: Aluminium foil or white foil.
- KS1000 KD: CLEANsafe15 (standard internal liner), External Standard Range, Metallic Range or Custom Colour.
- KS1100 RL: CLEANsafe15 (standard internal liner), External Standard Range, Metallic Range or Custom Colour.

Internal liner sheet colour: Consult Kingspan for the colours available.

R-Value (m².K/W): Select from:

- KS1000 RW: 2.34, 3.36, 3.87, 5.35.

- KS1000 FB: 2.42.
- KS1000 KD: 5.27.
- KS1100 RL: 2.65, 3.90, 5.15, 6.40, 7.65, 10.15.

Kingspan membrane lined insulated gutter schedule

Property	A	B	C
Product			
Core thickness (mm)			
Internal coating options			
Length (mm)			
Box gutter size (mm)			
Girth (mm)			
Sump size(mm):			
Outlet (mm)			
R-Value (m ² .K/W)			

A, B, C: These designate each instance or type or location of the item scheduled.

Edit codes in the **Schedule** to match those on drawings.

Product: Select from the following:

- Kingspan Insulated valley gutter.
- Kingspan Insulated parapet gutter.
- Kingspan Insulated box gutter (laid to falls).

Add requirements for siphonic systems separately, as appropriate.

Core thickness (mm): 60 or 120.

Internal coating options: Select from CLEANsafe15 (standard internal liner), External Standard Range, Metallic Range, Kingspan AQUAsafe 55 (swimming pools), AQUAsafe or Antibacterial white.

Length (mm): Maximum 6000. Contact Kingspan for longer lengths.

Box gutter size (mm): 800 x 200 or 600 x 175 (laid to falls).

Girth (mm):

- Valley gutter: MG600, MG1000, MG1250 or MG1450 maximum.
- Box: Maximum MG1450 (laid to falls).
- Parapet gutter: MG600, MG1000, MG1250 or MG1450 maximum.

Contact Kingspan Technical Services for assistance with bespoke insulated gutter designs.

Outlet (mm) 100 or 150.

R-Value (m².K/W):

- 60 mm thick: 3.0.
- 120 mm thick: 6.0.

Kingspan Day-Lite system schedule

Property	A	B	C
Profile	KS1000 DLTR	KS1000 DLTR	KS1000 DLTR
Roof pitch			
Panel width (mm)	1000	1000	1000
Panel length (mm)			
Colour			
Fire performance			
Total system solar heat gain coefficient (SHGC)			

Property	A	B	C
R-Value (m ² .K/W)			
Total system U-Value (W/m ² K)			

A, B, C: These designate each instance or type or location of the item scheduled.

Edit codes in the **Schedule** to match those on drawings.

Roof pitch: 4° or above after deflection. Contact Kingspan for pitches less than 4°.

Panel length: Lengths are available from 1800 mm up to 6000 mm (including 150 mm end lap). Longer lengths available on request.

Colour: Select from the following:

- Clear.
- Opal.
- Opal 0.34.

Fire performance: Fire hazard properties as required by BCA.

Total system solar heat gain coefficient (SHGC): Select from the following:

- Clear: 0.65.
- Opal: 0.55.
- Opal 0.34: 0.34.

Total system U-Value (W/m²K): Add Total system SHGC and Total system U-Value if required in BCA 3.12.1.3 or BCA J1.4.

KS1000 DLTR U-Value (not the Total system U-Value): 1.58 W/m²K. Refer to Kingspan's product data sheets for colour and daylighting performances

REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

AS 1170		Structural design actions
AS/NZS 1170.2	2011	Wind actions
AS 1366		Rigid cellular plastics sheets for thermal insulation
AS 1366.2	1992	Rigid cellular polyisocyanurate (RC/PIR)
AS 1530		Methods for fire tests on building materials, components and structures
AS/NZS 1530.3	1999	Simultaneous determination of ignitability, flame propagation, heat release and smoke release
AS 1562		Design and installation of sheet roof and wall cladding
AS 1562.1	1992	Metal
AS 1562.3	2006	Plastics
AS/NZS 2179		Specifications for rainwater goods, accessories and fasteners
AS/NZS 2179.1	2014	Metal shape or sheet rainwater goods, and metal accessories and fasteners
AS/NZS 2904	1995	Damp-proof courses and flashings
AS/NZS 3500		Plumbing and drainage
AS/NZS 3500.3	2015	Stormwater drainage
AS 4256		Plastic roof and wall cladding materials
AS 4256.5	2006	Polycarbonate

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

AS 1170		Structural design actions
AS/NZS 1170.1	2002	Permanent, imposed and other actions
AS/NZS 1170.3	2003	Snow and ice actions
AS/NZS 1260	2009	PVC-U pipes and fittings for drain, waste and vent application
AS 1397	2011	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 1432	2004	Copper tubes for plumbing, gasfitting and drainage applications
AS 1562		Design and installation of sheet roof and wall cladding
AS/NZS 1562.3	1996	Plastic
AS 1589	2001	Copper and copper alloy waste fittings
AS 1631	1994	Cast grey and ductile iron non-pressure pipes and fittings
AS 2427	2004	Smoke/heat release vents
AS 2665	2001	Smoke/heat venting systems- Design, installation and commissioning
AS/NZS 2728	2013	Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements
AS 3959	2009	Construction of buildings in bushfire prone areas
AS 4256		Plastic roof and wall cladding materials
AS/NZS 4256.5	1996	Polycarbonate
AS/NZS 4389	2015	Safety mesh

SAA HB 39	2015	Installation code for metal roof and wall cladding
SAA HB 106	1998	Guidelines for design of structures in snow areas
SAA/SNZ HB 114	1998	Guidelines for design of eaves and box gutters
AIA EDG DES 56	2003	Environmental Design Guide - Birds and buildings
BCA 3.12.1.3	2016	Acceptable construction - Energy efficiency - Building fabric - Roof lights
BCA Spec C1.10	2016	Fire resistance - Fire hazard properties
BCA J1.4	2016	Energy efficiency - Building fabric - Roof lights
BlueScope TB-01A	2013	Steel roofing products - Selection guide
NATSPEC DES 003	2006	Fire hazard properties of insulation and pliable membranes
NATSPEC DES 004	2005	Air, moisture and condensation
NATSPEC DES 011	2007	Rainwater harvesting
NATSPEC DES 018	2008	Bushfire protection
NATSPEC DES 020	2011	Fire behaviour of building materials and assemblies
NATSPEC DES 031	2014	Specifying R-Values
NATSPEC GEN 006	2007	Product specifying and substitution
NATSPEC GEN 024	2015	Using NATSPEC selections schedules
NATSPEC TR 01	2016	Specifying ESD