0423P ASKIN® XFLAM PERFORMANCE PANEL ROOFING

Branded worksection

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Worksection abstract

This branded worksection *Template* is applicable to an insulated composite roofing and ceiling panel system by **ASKIN®** and roof plumbing. ASKIN® XFLAM Performance Panel roofing comprises prefinished composite panels of metal faces bonded to each side of an insulating ASKIN® XFLAM core. It is a fully insulated ceiling and roof all-in-one which is fast to install, weather tight and extremely thermally efficient. Applications include:

- Corporate office centres.
- Data facilities.
- Sports arenas.
- Shopping centres.
- Residential.
- Medical centres.
- School/University facilities.
- Hospitals.
- Aquatic centres.

***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*.
- *0343 Tensioned membrane structures* for suspended fabric roofing.
- *0411 Waterproofing – external and tanking* for membrane roofs.
- *0424 Roofing – seamed sheet metal*.
- *0425 Roofing – shingles and shakes*.
- *0426 Roofing – slate*.
- *0427 Roofing – tiles*.
- *0434p ASKIN XFLAM performance panel cladding*.
- *0461 Glazing* for glass roofing and skylights.
- *0528p ASKIN XFLAM performance panel partition system*.
- *0531p ASKIN® XFLAM performance panel ceilings*.
- *0762p ASKIN XFLAM performance panels in cool rooms*.
- *0802 Hydraulic design and install* for stormwater and rainwater storage systems.

Material not provided by ASKIN®

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

- Sheet metal roofing other than ASKIN® XFLAM Performance Panels.
- Roof plumbing.
- Roof hatches.
- 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.
- Roof plumbing: Show on the drawings the arrangement of the rainwater system including the type and size of the main components (gutters, downpipes, sumps, rainheads, etc.) and the size and spacing of supports and fixings.
- If documenting stormwater disposal, rainwater tank and related products, use the *0802 Hydraulic design and install* worksection.

If required, state the minimum added thermal resistance (R-Value) (m^2 K/W). See NATSPEC TECHnote DES 031 for information on specifying R-Values.

- Check lead time for imported selections and consider adding a requirement, in **SUBMISSIONS**, for the builder to verify availability.
- Bushfire protection: Depending on the level of construction to AS 3959, the roofing should satisfy the construction requirements of 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.

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

- Guarantees and warranties.

Specifying ESD

ASKIN XFLAM Performance Panels consists of the following sustainable product attributes:

- Insulated panels for thermal and acoustic performance.
- Easy to seal slip joint facilitating efficient hermetically sealed construction to allow controlled air flow and heating and cooling of the internal environment.
- Recycled material. ASKIN XFLAM Performance Panels are 100% recyclable and may incorporate a proportion of granulated offcuts. The steel skins are recovered and recycled into new steel.
- Include measures to minimise condensation leading to greater equipment life and limiting risk of microbial growth.
- Prohibition on use of CFCs and HCFCs as blowing agents.
- Durable components, particularly for corrosion resistance.
- Provision to reduce transmitted noise and vibration.
- The ASKIN XFLAM matrix is pH neutral, inert and resistant to water ingress.
- An ASKIN XFLAM production plant has an extremely low carbon footprint, nil water use and has minimal atmospheric or other emissions.
- During its lifetime, ASKIN XFLAM insulating material will save many times more energy through reduction of heating and cooling requirements than the energy or resources required to manufacture it.

The following may be specified by retaining default text:

- Skylights, roof windows.

The following may be specified using included options:

- 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.
- Recycled plastic roofing materials.

Refer to the NATSPEC TECHreport TR 01 on specifying ESD.

1 GENERAL

ASKIN is a leading manufacturer and installer of insulated architectural facade systems, roofing systems and temperature controlled facilities in Australasia. We embrace a customer first approach in delivering sustainable, lifetime value. With a network of 12 sites throughout Australia and New Zealand, ASKIN's vast experience has been built upon a strong foundation dating back to 1964. ASKIN's culture of customer first, constant improvement, quality and safety assurance is supported with our technical expertise and ISO 9001 and ISO 14001 accreditation.

1.1 RESPONSIBILITIES

General

Requirement: Provide an ASKIN XFLAM Performance Panel fully insulated roofing system and associated work, as documented.

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

The ASKIN® XFLAM Performance Panel roofing system is a fully insulated ceiling and roof all-in-one. It is fast to install, weather tight and exceeds the thermal requirements of BCA Section J. The prefinished internal ceiling and superior spanning capability reduces installation cost. With key supply partners, ASKIN® offer a range of skylights, trafficable access walkways and safety systems to complement our roofing systems.

It can be used in place of traditional built-up layered roofs and offers the following advantages:

- Reduced installation costs: Modular and prefinished requiring fewer purlins and no underlays, foils, mesh or additional insulation.
- Prefinished ceiling.
- Improved levels of air tightness: External continuous uniform end lap with an internal slip joint.
- No risk of condensation or cold bridging.
- Reduced thickness suitable for residential applications.
- Hygienic and low maintenance finish suitable for food processing, food preparation and cool storage facilities.

The responsibility of the designer is to provide a roofing system and associated work which is as follows:

- Appropriate for the suspended ceiling type.
- Is designed in conformance with the *ASKIN® Design Guide.*
- Resistant to impacts expected in use.
- Free of irregularities.

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 and Zincalume® 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. Normal roof maintenance, Access to plant rooms (if by restricted paths show on the drawings).

1.2 COMPANY CONTACTS

ASKIN® contacts

Website: www.askin.net.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

Website: For more technical information:

- General: www.askin.net.au
- Roofing: www.askin.net.au/downloads-roofing

1.5 SUBMISSIONS

Fire hazard properties

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

Operation and maintenance manuals

On completion: Submit ASKIN® *Warranty and maintenance* for care and maintenance of ASKIN® XFLAM Performance Panels including frequency of inspection and recommended methods of access, cleaning, repair and replacement.

Products and materials

Type tests: Submit results, as follows:

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**.

ASKIN® can provide these reports, as required. ASKIN® products listed within this worksection meet the requirements listed below.

ASKIN® can provide BRANZ, FM and CSIRO tests reports on request.

The FM Approvals certification mark is intended to verify that the products described meet FM Approvals' stated conditions of performance, safety and quality useful to the ends of property conservation. Visit www.fmglobal.com for further information.

- Metal roofing generally: Roof sheeting and fastenings to AS 1562.1 clause 5.4 for resistance to concentrated load and 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.
- High-Low test Report C120602 RP R1 to R10.

Cyclonic load test to AS 4040. AS 4040 is a Normative document referenced in AS/NZS 1170.2.

- Impact test Report AZT0335.12.

Samples

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

Requirement: Submit samples, photos or standard installation details of the following:

- Sheet metal finishes.
- Custom profiled flashings and cappings.

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 performance criteria specified. If this is not the case, delete **Shop drawings.**

General: Submit shop drawings, or standard details and panel installation layouts to a scale that best describes the detail, showing the following:

- [complete/delete]

e.g. Methods of fixing, required end and side laps, sound 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 details of proposed ASKIN® approved installers.

Contact ASKIN® for details of ASKIN® approved installers appropriate to construction in your area.

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

General: Submit evidence of warranties for all proposed materials and components clearly defining the warranty period and any conditions.

Subject to maintenance conforming to the *ASKIN® General guide to panel care*, ASKIN® standard warranty for corrosion or blistering of the skin material is 10 years for general application subject to location and can be up to 30 years depending on the substrate used and the application of it.

1.6 INSPECTION

Notice

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

- Roof supports.
- The parts of the roofing, sarking, vapour barrier, insulation and roof plumbing installation before covering up or concealing.

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

Hold points, if required, should be inserted here.

2 PRODUCTS

2.1 GENERAL

Fire hazard properties

ASKIN® can provide Branz, FM and CSIRO tests reports on request.

The FM Approvals certification mark is intended to verify that the products described meet FM Approvals' stated conditions of performance, safety and quality useful to the ends of property conservation. Visit www.fmglobal.com for further information.

Group number: To BCA Spec C1.10 and AS 5637.1.

ASKIN® XFLAM Performance Panel is a Group 1 Material conforming to BCA Spec C1.10.

Group number: Refer to BCA Spec C1.10 Table 3 which has *group number* requirements for wall and ceiling linings. Materials used as a finish, surface, lining, or attachment to a wall or ceiling must be a Group 1, 2 or 3 material used in conformance with BCA Spec C1.10 Table 3.

Non-sprinklered buildings: Wall and ceiling linings must either have an *average specific extinction area* less than 250 m^2/kg or a *smoke growth rate index* not more than 100 as determined by AS 5637.1.

Refer to NATSPEC TECHnote DES 020 for information on fire hazard properties.

Fire-resistance level: Test to AS 1530.4.

Refer to NATSPEC TECHnote DES 020 for information on fire-resistance levels.

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

- Spread-of-Flame Index: ≤ 0.

Spread-of-Flame Index:

- ASKIN® AZ150/AM100: 0.
- ASKIN® Z275: 0.
- ASKIN® PVDF: 0.

- Smoke-Developed Index: ≤ 3.

Smoke-Developed Index:

- ASKIN® AZ150/AM100: 3.

- ASKIN® Z275: 3.
- ASKIN® PVDF: 3.

Facing materials Flammability Index tested to AS 1530.2: ≤ 5.

AS/NZS 1530.3 is a mandatory standard in the BCA. Smoke-Developed Index and Spread-of-Flame Index are determined under AS/NZS 1530.3. Flammability Index is determined under AS 1530.2. See BCA C1.10. The requirements above are consistent with the BCA.

This list does not include combustibility. That is, in keeping with the BCA, this clause does not prohibit the use of combustible insulation materials provided they meet the other fire properties.

Materials with reflective facing: Test to AS/NZS 1530.3 clause A6.

AS/NZS 1530.3 clause A6, recommends that reflective surfaces (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.

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: Store metal roofing materials away from uncured concrete and masonry, on a level base. Do not store materials in contact with other materials which may cause staining, denting or other surface damage.

Handling: Handle roofing materials as follows:

- Use gloves when handling precoated metal roofing material.
- Use soft soled shoes when fixing or working on roofs.
- Protect edges and surfaces from damage. Do not drag sheets across each other or over other materials.

Marking

Identification: 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.

Sealants

Materials: One-component compounds with a neutral curing mechanism, vulcanising at room temperature. Provide sealants that:

- Do not foster microbial growth.

The requirement that sealants not foster microbial growth is consistent with AS/NZS 3666.1. Sealants that support mould growth (e.g. some grades of silicone) and are unsuitable for use in food preparation areas, laboratories, heath facilities and the like.

- Maintain their sealing performance for the life of the partition.
- Bond to the surface of application without primers.
- Are resistant to oils, food acids and water after curing.
- Are non-toxic.
- After curing retain their elastomeric properties over the range of room operating temperatures.
- Are suitable for application by gun or hand tools.
- Are ASKIN® approved for the application.

2.2 ASKIN® XFLAM PERFORMANCE PANELS

General

Description: Proprietary panel roofing system comprising manufactured, prefinished structural composite panels with metal faces bonded to each side of an insulating, ASKIN® XFLAM core.

ASKIN® XFLAM Panel insulation core

Material: Syntactic foam sheet with Factory Mutual certification to FM 4471 and FM 4880.

Prohibited materials: Do not provide materials:

- Which use CFC or HCFC as blowing agents in the manufacturing process.
- Which use a blowing agent with a global warming potential ≥ 140.

ASKIN® XFLAM is a market leading, insurer endorsed, innovative product. It is a syntactic foam with excellent mechanical properties, superior insulation values, low toxicity and is completely recyclable. ASKIN® XFLAM achieves a high insulation rating to easily achieve BCA Section J compliance (R-Values of 1.5 to 8.10 m²K/W). The high insulation value reduces the energy costs required for maintaining a comfortable and efficient environment within the building. ASKIN® XFLAM Performance Panels were the first in Australasia to achieve FM accreditation in all three relevant certifications for Insulated Panel Systems – FM 4471, FM 4880 and FM 4881. These Approvals cover full scale fire, severe hail, and hurricane conditions.

Application: Recommended for general commercial construction, specifically coolstores, supermarkets, municipal facilities, schools hospitals, food and drug manufacture, storage, distribution and cold chain.

Internal and external skins

Document requirements in the **ASKIN®XFLAM Performance Panel schedule**. If there is only one type, delete alternatives.

Skin material and thickness: As documented.

The standard external skin material is 0.5 mm AM100 colour coated steel. The standard internal skin is 0.4 mm Z275 color coated steel. AS150, PVDF or HPS200 are available for alternate performance. All Colorbond® colours or Printech® (PVDF) steel are available. The available skin thicknesses are 0.4, 0.5 or 0.6 mm depending on requirements for structural performance and fire resistance.

Factory pre-coating: Polyester to a dry film thickness of 25 microns.

Colorbond® Surfmist® is standard. All Colorbond® or Printech® (PVDF) colours are available.

Profile: Panels with profiles as documented:

- Metric.
- Econodeck.
- Unideck.
- Flat.

Standard interior liner profile is flat. Other profiles are available on request. Various secondary profiling available on request e.g. silkline ribs mesa, essentially a flat panel with a skin impression as opposed to a deep profile, like metric.

Dimensions

ASKIN® XFLAM Performance Panels are available in lengths up to 25 m.

Panel thickness: As documented.

Document thickness in the **ASKIN® XFLAM Performance Panel schedule**. ASKIN® XFLAM Performance Panels are available in thicknesses from 50-250 mm in 25 mm increments. Thickness is dictated by insulation, structural capacity and fire performance required. Contact ASKIN® to discuss your project requirements.

Panel width:

- Econodeck module width: 1150 mm.
- Unideck module width: 1200 mm.
- Metric module width: 1000 mm.
- Flat module: 1200 mm.

2.3 SUNDRY COMPONENTS

This includes components not documented in other clauses e.g. cowlings, fixings, brackets.

Corrosion protection

Ferrous metals: Aluminium, stainless steel or protected from corrosion by hot-dip galvanizing, metallic coating, powder coating or anodizing.

Fastenings: Stainless steel, non-ferrous only or galvanized minimum Class 4 fastenings only.

Fastenings

Rivets: ASKIN® approved expanding solid end type 4.8 mm diameter.

Fasteners

Lapp screws: 16 x 22 wafer head SD 10 C3 screws.

Fixing screws: 14 gauge self drilling Class 4 or 5 tek screw with bonded washer secured through purlin.

Finish: Prefinish exposed fasteners with an oven baked polymer coating to match the roofing material.

Profiled fillers

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

Location: Profiled fillers under flashings to the following:

- Ridges.
- Eaves.
- Lapped joints in roof sheeting.
- Gutter flashings.

Add locations as required.

2.4 SHEET METAL ROOFING

If there are a number of profiled sheet metal roofing types repeat this clause.

See SAA HB 39 Section 2 and SAA HB 39 Section 7 for general advice on material selection for steel sheet roofing.

Standards

Design and installation: To AS 1562.1.

Prepainted and organic film/metal laminate products: To AS/NZS 2728.

Roofing product

Product brand: [complete/delete]

Nominate the selected Rollformer or Distributor.

Profile: [complete/delete]

Select from the profiles offered by the nominated Rollformer or Distributor.

Product material type: [complete/delete]

Select the product material recommended by the Rollformer or Distributor with reference to the **Atmospheric corrosivity category** nominated for the project in *0171 General requirements*. Refer also to NATSPEC TECHnote DES 010.

Thickness (base metal) (mm): [complete/delete]

Consult the nominated Rollformer or Distributor.

Colour: [complete/delete]

Consult the BlueScope Colorbond® Colour Chart.

Location: [complete/delete]

2.5 ROOF PLUMBING

General

Standard: To AS/NZS 3500.3.

Requirement: Provide the flashings, cappings, gutters, rainwater heads, outlets and downpipes required 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.

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 rainwater goods and accessories: To AS/NZS 3500.3.

For plastic rainwater goods use 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.

Product: [complete/delete]

Material and colour: Match roof sheeting.

Rib notching: Match roof sheeting.

Flashing and capping types: [complete/delete]

List here or delete and refer to details.

Ridge and barge cappings

Product: [complete/delete]

Material and colour: Match roof sheeting.

Capping types: [complete/delete]

List here or delete and refer to details.

Eaves 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.

To ASKIN® RS-XMR standard detail drawings.

Material and colour: Match roof sheeting.

Valley gutters

Product: [complete/delete]

Size: [complete/delete]

Material: [complete/delete]

Box gutters

Specify here requirements not shown on the drawings. If there is more than one size of gutter list them separately against the designation used on the drawing. Internal box gutters are usually difficult to clean and replace.

Add requirements for siphonic systems separately, as appropriate.

Product: ASKIN® Insulated Box gutter to ASKIN® RS- XMR standard detail drawing.

Cross section dimensions: [complete/delete]

Sump size: [complete/delete]

Material and base metal thickness: [complete/delete]

Plain zinc-coated steel is not recommended for internal box gutters, Welded stainless steel is recommended.

Overflow spouts: [complete/delete]

External downpipes

Product: [complete/delete]

Material: [complete/delete]

Colour: [complete/delete]

Profile: [complete/delete]

Size: [complete/delete]

Internal downpipes

Mainly multi-storey applications. Sound insulation will not be required where downpipes are built into sound rated ducts.

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

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

Requirement: 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.

2.6 SKYLIGHTS

Standard

General: To AS 4285.

Description

Product: ASKIN® clear profiled insulated skylight strip ASKIN® EEFAS conforming to ASKIN® RS-XMR standard detail drawing including framing, fixing, trim, accessories and flashings.

Description: [complete/delete]

e.g. Domed, Barrel, Flat.

Product: [complete/delete]

Size (mm): [complete/delete]

Ceiling diffuser: [complete/delete]

Product or description.

Solar heat gain coefficient (SHGC): [complete/delete]

U-Value: [complete/delete]

Add SHGC and U-Value if required in BCA 3.12.1.3 or BCA J1.4.

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.

2.7 ROOF HATCHES

Description

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

Product: [complete/delete]

Size (mm): [complete/delete]

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, 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.

2.9 ROOF PLANT ACCESS

Walkways

Product: Roofsafe Industrial Safety Proprietary Roof walkway system.

Refer www.rissafety.com

Size: [complete/delete]

Material: [complete/delete]

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: If it is necessary to touch up minor damage to prepainted metal roofing, do not overspray onto undamaged surfaces.

Thermal movement

Requirement: Allow for thermal movement in the roof installation and the structure, including movement in joints and fastenings.

Metal separation

Make sure of compatibility or detail separation.

See AS 1562.1 Table 3.2 for guidance on the compatibility of metals. See also SAA HB 39 Section 2 on material selection. It is primarily a design responsibility that incompatible metals are not documented or shown to be in contact. Preferably show the separation method on the drawings.

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, separate green hardwood from aluminium and coated steel.

Typical methods for metal separation include:

- Applying an anti-corrosion, low moisture transmission coating such as zinc or barium chromate primer or aluminium pigmented bituminous paint to contact surfaces.
- Inserting a separation layer such as polyethylene film, adhesive tape or bituminous felt.

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

- Applying an anti-corrosion, low moisture transmission coating to contact surfaces.
- Inserting a separation layer.

Tolerances table

Property	**Tolerance criteria; Permitted deviation (mm)**
Spacing of supporting members	± 5 mm on the nominated support member spacing
Vertical or horizontal misalignment at the abutting ends of sheets	≤ 2 mm
Tops of supporting members in plane parallel to the nominated roof slope	≤ 7 mm smooth deviation per metre length of supporting member

3.2 BUILDING ELEMENTS

Ridges and eaves

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

Treat ends of sheets as follows:

- Project sheets 50 mm into gutters.
- Close off ribs at bottom of sheets using mechanical means or with purpose-made fillers or end caps.
- Turn pans of sheets up at tops and down into gutters by mechanical means.
- Provide pre-cut notched eaves flashing and birdproofing if required.
- Close off ridges with purpose-made ridge fillers of closed cell polyethylene foam.

Ridge and barge

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

End laps

General: If end laps are unavoidable, and the sheet profile is not suitable for interlocking or contact end laps, construct a stepped type lap.

Length of lap (mm): [complete/delete]

Document the laps required, if applicable.

3.3 ROOF PLUMBING

Jointing sheet metal rainwater goods

See AS/NZS 3500.3 clause 2.7 for information on joint materials and products.

Butt joints: Make joints over a backing strip of the same material.

Soldered joints: Do not solder aluminium or aluminium/zinc-coated steel.

Sealing: Seal fasteners and mechanically fastened joints. Fill the holes of blind rivets with silicone sealant.

Jointing system: [complete/delete]

e.g. Blind rivet and seal as follows:

- For COLORBOND® STAINLESS: Stainless steel blind rivets with stainless steel mandrels.
- For ZINCALUME® and COLORBOND®: Aluminium blind rivets.

Flashings

Installation: Flash roof junctions, upstands, abutments and projections through the roof. Preform to required shapes if possible. Notch, scribe, flute or dress down as necessary to follow the profile of adjacent surfaces. Mitre angles and lap joints 150 mm in running lengths. Provide matching expansion joints at 6 m maximum intervals.

6 m corresponds to the manufacturing length, but movement at these joints would be less than 1 mm so they perhaps do not all need to be fully-fledged expansion joints.

Upstands: Flash projections above or through the roof with two part flashings, consisting of a base flashing and a cover flashing, with at least 100 mm vertical overlap. Provide for independent movement between the roof and the projection.

Large penetrations: Extend the top flashing over the roofing ribs to the ridge to prevent ponding behind the penetrating element.

This situation often occurs with mechanical plant. Consider documenting it on the drawings.

Wall abutments: Provide overflashings where roofs abut walls, stepped to the roof slope in masonry and planked cladding, otherwise raking and as follows:

- In masonry: Build into the full width of the outer leaf. Turn up within cavity, sloping inward across the cavity and fixed to or built in to the inner leaf at least 75 mm above.
- In concrete: Turn 25 mm into joints or grooves, wedge at 200 mm centres with compatible material and point up.

Fixing to masonry or concrete: Step in courses to the roof slope. Interleave with damp proof course, if any.

Fixing to pipes: Solder, or seal with neutral cured silicone rubber and either of the following:

- Secure with a clamping ring.
- Provide a proprietary flexible clamping shoe with attached metal surround flashing.

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 fixings.

General: Prefabricate box 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.

Lining: [complete/delete]

e.g. Square corrugated profiled metal roof sheeting.

Valley gutters: Profile to suit the valley boarding. Turn back both edges 180 x 6 mm radius. Nail or screw to the valley boarding at the top end to prevent the gutter creeping downwards.

Expansion joints: Provide expansion joints in guttering longer than 30 m:

- Type: [complete/delete]

e.g. As detailed or Proprietary elastic expanding adhesive fixed type.

Box gutter: To ASKIN® recommendations.

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 or AS 1589 for copper).

Sound 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.

3.4 SKYLIGHTS

Installation

Fixing: [complete/delete]

Specify and detail to the recommendations of the skylight manufacturer.

3.5 ROOF HATCHES

Installation

Fixing: [complete/delete]

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

3.6 ROOF VENTILATORS

Installation

Fixing: [complete/delete]

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

3.7 ROOF PLANT ACCESS

Walkway

Product: [complete/delete]

Installation: [complete/delete]

For ladders, platforms and balustrades, cross reference the appropriate worksection, e.g. *0552 Metalwork – fabricated* and *0341 Structural steelwork*.

3.8 TESTING

The *0171 General requirements* worksection covers site test in **Definitions** and calls for an inspection and testing plan under **SUBMISSIONS, Tests**.

Site tests

Internal downpipes: Test each stack hydrostatically in stages 2 storeys high for two hours. Remedy defects and retest if necessary.

3.9 COMPLETION

Warranty

Requirement: Cover materials and workmanship in the form of interlocking warranties from the supplier and installer.

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

- Warranty for workmanship: 2 years.
- Warranty for materials: 10 years.

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 ASKIN® ROOFING SYSTEM

ASKIN® XFLAM Performance Panel schedule

Property	A	B	C
Fire hazard properties: Group number			
Fire-resistance level (FRL)			
Panel thickness (mm)	50-250 mm		
Panel skin material: External	AM100		
Panel skin material: Internal	Z275		
Panel skin thickness: External (mm)	0.6 mm		
Panel skin thickness: Internal (mm)	0.6 mm		
Panel profile: External	Metric		
Panel profile: Internal	Flat		
Panel finish and colour: External	Colorbond® Surfmist®		
Panel finish and colour: Internal	Colorbond® Surfmist®		
R-Value			

A, B, C: These designate each instance or type or location of the item scheduled. Edit to align with the project's codes or tags.

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

Contact ASKIN® to discuss your project requirements.

Group number: Refer to BCA Spec C1.10.

Fire-resistance level (FRL): Refer to AS/NZS 2785 clause 3.5.

Panel thickness: Select from 50 to 250 mm in 25 mm increments.

Panel skin material:

- AM100 colour coated steel.
- AZ150 colour coated steel.
- Z275 colour coated steel.
- HPS200 colour coated steel.

Panel skin thickness: e.g. 0.4, 0.5, or 0.6 mm.

Panel roofing profile: e.g. Metric, Econodeck or Unideck.

Panel ceiling profile: e.g. Flat, Rib, or Mesa.

Panel finish - external: Select from Colorbond® or Printech® (PDVF) ranges.

Panel finish - internal: Select from Colorbond® or Printech® (PVDF) ranges.

R-Value: R-Values for ASKIN® XFLAM Performance Panels range from 1.5 to 8.0 for Flat profile and 1.8 to 8.10 for Metric profile.

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 1530		Methods for fire tests on building materials, components and structures
AS 1530.2	1993	Test for flammability of materials
AS/NZS 1530.3	1999	Simultaneous determination of ignitability, flame propagation, heat release and smoke release
AS 1530.4	2014	Fire-resistance test of elements of construction
AS 1562		Design and installation of sheet roof and wall cladding
AS 1562.1	1992	Metal
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 2728	2013	Prefinished/prepainted sheet metal products for interior/exterior building applications - Performance requirements
AS/NZS 2904	1995	Damp-proof courses and flashings
AS/NZS 3500		Plumbing and drainage
AS/NZS 3500.3	2015	Stormwater drainage
AS 4285	2007	Skylights
AS 5637		Determination of fire hazard properties
AS 5637.1	2015	Wall and ceiling linings
BCA Spec C1.10	2016	Fire resistance - Fire hazard properties
FM 4471	2010	Approval standard for Class 1 panel roofs
FM 4880	2015	Approval standard for Class 1 fire rating of insulated wall or wall and roof/ceiling panels, interior finish materials or coating sand exterior wall systems
The following documents are mentioned only in the *Guidance* text:		
AS 1170		Structural design 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 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 2785	2000	Suspended ceilings - Design and installation
AS/NZS 3666		Air-handling and water systems of buildings - Microbial control
AS/NZS 3666.1	2011	Design, installation and commissioning
AS 3959	2009	Construction of buildings in bushfire prone areas
AS 4040		Methods of testing sheet roof and wall cladding
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 C1.10	2016	Fire resistance - Fire resistance and stability - Fire hazard properties
BCA Section J	2016	Energy efficiency
BCA J1.4	2016	Energy efficiency - Building fabric - Roof lights
BlueScope TB-01A	2013	Steel roofing products - Selection guide
NATSPEC DES 004	2005	Air, moisture and condensation
NATSPEC DES 010	2009	Atmospheric corrosivity categories for ferrous products
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
FM 4881	2007	Approval standard for Class 1 exterior wall systems
ISO 9001	2015	Quality management systems - Requirements
ISO 14001	2015	Environmental management systems - Requirements with guidance for use