

0424P FIELDERS ROOFING – SPECIALISED SHEET METAL

Branded worksection

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Worksection abstract

This branded worksection *Template* is applicable to the provision of FIELDERS roof coverings of seamed sheet non-ferrous metal and Colorbond® pre-painted steel 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.*
- *0423p FIELDERS roofing - profiled sheet metal.*
- *0436p FIELDERS cladding - profiled sheet metal.*
- *0437p FIELDERS cladding - specialised panels*
- *0802 Hydraulic design and install* for stormwater and rainwater storage systems.

Material not included in NATSPEC

Some projects may include items not covered by NATSPEC. For these you may need to create new text or modify this text or a suitable worksection.

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.
- If documenting stormwater disposal, rainwater tank and related products, use *0802 Hydraulic design and install*.

If required, state the minimum added thermal resistance (R-Value) (m² K/W). See NATSPEC TECHnote DES 031 for information on specifying R-Values.

- Document bushfire protection requirements 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

The following may be specified by including additional text:

- High performance roofing systems to extend building service life.
- Rainwater tanks. See NATSPEC TECHnote DES 011 on rainwater harvesting.
- Recycled material content.
- Recycled plastic roofing materials.

- Skylights, roof windows.

Refer to the NATSPEC TECHreport TR 01 on specifying ESD.

1 GENERAL

Fielders manufacture a comprehensive range of mainly roll-formed products which are supplied to commercial, industrial and domestic building contractors. The main manufacturing sites are at Mile End in South Australia, Wangara and Osborne Park in Western Australia, Campbellfield in Victoria, and Minchinbury in New South Wales. Branches are located at Marion and Noarlunga in South Australia, O'Conner, Bunbury and Geraldton in Western Australia, and Darwin in the Northern Territory. Products include roofing and cladding in a range of profiles and gauges, fencing systems, rainwater goods, gutters, flashings, sheet metal fabrication, fascia, purlins, door frames, KingFlor® structural decking, carports and sheds.

1.1 RESPONSIBILITIES

General

Requirement: Provide a FIELDERS specialised sheet metal roofing system and associated work, as documented.

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

Wind pressure

Design wind pressure (Pa): [complete/delete]

Nominate the design wind pressure for the project to AS/NZS 1170.2 or AS 4055.

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 the 0171 General requirements worksection for the designation of the Exterior atmospheric corrosivity category of the project.

Roof access

Type: Normal roof maintenance.

1.2 COMPANY CONTACTS

Fielders technical contacts

Website: www.fielders.com.au/aspx/contact.aspx

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: Visit www.fielders.com.au/asp/technical_manuals.aspx to order or download free technical manuals.

1.5 SUBMISSIONS

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

Operation and maintenance manuals

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

Refer to *Specifying Fielders Roofing and Walling Manual, Maintenance and Care*.

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 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: Roofing 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**.

Recycled material content: Submit documentation from the roofing material manufacturer showing the following:

- Post-consumer recycled content: [complete/delete]
- Pre-consumer recycled content: [complete/delete]

e.g. BlueScope, on average, produces steel that contains 17 to 20% scrap material. Of this, the post-consumer material content is estimated to be 3 to 3.5% and the pre-consumer material content is less than 1%.

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, showing the range of variation available:

- Custom profiled flashings and cappings.
- Sealants.
- Sheet metal finishes showing the range of variation available.
- 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

Installer experience: Submit evidence of accreditation from Fielders Steel Roofing.

Tests

The 0171 *General requirements* worksection 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

Requirement: Submit the following:

- [complete/delete]

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

Roofing materials: Submit the manufacturer's published product warranties.

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

Product substitution

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

The 0171 *General requirements* worksection 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.

2.2 SUBSTRATE

Plywood sheeting

Exterior use: To AS/NZS 2271.

Marine plywood to AS/NZS 2272 has the internal veneers laid up without gaps or knots, and is bonded with the same grade of adhesive as waterproof ply for external use. The cost difference is substantial, but could be justified for extreme applications.

This **SUBSTRATE** clause is required for NeoRoman, Standing Seam and Nailstrip profiles only. Delete where not required.

Surface grade: DD to AS/NZS 2269.0, Bond Type A.

AS/NZS 2269.0 defines five veneer qualities A, S, B, C and D, the lowest Grade.

Thickness: 19 mm.

Certification: Brand panels under the authority of a recognised certification program applicable to the product. Locate the brand on faces or edges which will be concealed in the works.

Certification programs: Plywood Association of Australia (PAA) Quality Control and Product Certification Scheme.

Plywood certified formaldehyde emission level to AS/NZS 2271: [complete/delete]

Select E₀ (0.5 ppm) or E₁ (1.0 ppm). E₀ class may be available at additional cost and lead time. If required, consult the manufacturer. A formaldehyde emission level of E₁ or less can improve air quality.

Separation layer

Material: A single layer of non-abrasive breathable membrane.

2.3 COMPONENTS

Self-drilling screws

Material: Stainless steel.

Structural frame: [complete/delete]

Refer to project details. Fielders offer guidance with Titanium Zinc typical detail drawings available at www.fielders.com.au.

Screw fixed fastening clips

Fasteners: Provide starter clips, fixing clips and fastenings, as recommended by Fielders.

Screw pull out strength: 500 N.

Screws: [complete/delete]

Profiled fillers

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

Locate profiled fillers under flashings to:

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

Add locations as required.

Safety mesh

Standard: To AS/NZS 4389.

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

Accessories

Solder (tin/lead): 40/60 soft solder.

Flux: Z-04-S.

Sealant: 100% natural cure non-acid based silicone rubber to match roofing.

2.4 SPECIALISED ROOFING PANELS

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

Type

NeoRoman, Standing Seam and Nailstrip profiles: Profiled interlocking roofing panels of sheet metal roll-formed into pan profiles and laid over a separation layer on flush finished continuous plywood sheeting.

Product: [complete/delete]

Select from:

- Fielders Neo-Roman.
- Fielders Nailstrip.
- Fielders Shadowline 305.
- Shadowline WA.
- Freeform.
- Millennium.

Panel joint: [complete/delete]

Select from: All in one panel or panel with Stand Alone Rib for Neo-Roman.

Material: [complete/delete]

Select from: Copper, stainless steel, Zinalume®, Colorbond®, Colorbond® Ultra, Colorbond® Metallic, Colorbond® Coolmax.

Minimum base metal thickness (BMT) (mm): [complete/delete]

Select from:

- Stainless steel: 0.55 BMT.
- Zinalume®: 0.55 BMT.
- Colorbond®: 0.55 BMT.
- Colorbond® Ultra: 0.55 BMT.
- Colorbond® Metallic: 0.55 BMT.

Width between ribs: [complete/delete]

Select from:

- Neo-Roman: 275 mm or 475 mm.
- Nailstrip: 265 mm or 465 mm.
- Millennium: 325 mm or 525 mm. Custom widths are also available. Contact Fielders for details.

2.5 SEAMED SHEET ROOFING

Roofing product

Roofing product

Profile: Fielders Millennium.

Material: [complete/delete]

Select aluminium or steel.

Alloy: [complete/delete]

Applicable only to aluminium option. Select Alloy 5005 or Temper H34.

Thickness: [complete/delete]

Select from:

- Steel: 0.55 mm or 0.7 mm.
- Aluminium: 0.90 mm or 1.00 mm.

Colour: [complete/delete]

Select colour. See www.fielders.com.au.

Roofing seams

Jointing: [complete/delete]

Select from:

- Double lock standing seam, double lock standing seam will offer water tightness to the roof.
- Single lock standing seam.

Rib centres: [complete/delete]

Select 325 mm or 525 mm. Custom widths are also available. Contact Fielders for details.

Fixing components

Fixed clips: 300 series stainless steel.

Expansion clips: 300 series stainless steel.

2.6 ROOF PLUMBING

Refer to NATSPEC TECHnote DES 011 for more information on rainwater harvesting.

General

Standard: To AS/NZS 3500.3.

Requirement: Provide the flashings, cappings, gutters, rainwater heads, outlets and downpipes required to complete the roof system.

Proprietary 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: Fielders Steel Roofing.

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. Flashing and capping types are available for all abutments and edge conditions. Refer to the *Specifying Fielders Roofing and Walling Manual*.

Proprietary ridge and barge cappings

Product: Fielders Steel Roofing.

Material and colour: Match roof sheeting.

Capping types: [complete/delete]

Ridge capping: Select from Fielders 350 mm Ridge Cap Roll Top or Low Profile Ridge.

Barges: Select from Fielders Barge Roll, Steel Fascia, Barge Capping, Curved Flashings or Edge Roll.

Hips: Select from Ridge capping.

Non-standard cappings: Refer to details. Custom folded flashings, cappings and gutters are available.

Gutters – seamed aluminium

Product: Fielders Steel Roofing.

Material: Stainless steel.

Stainless steel finish:

- Type 316: 2B.
- Type 304: 2B.

Eaves gutters: [complete/delete]

Select from Fielders Gutters – D, Gutter – Hi-Front, Gutter – Fascia, Gutter – Ainsworth O.G., Gutter – Half Round, Gutter – Half line Gutter. See www.fielders.com.au/asp/guttering.aspx. You can use the Gutter Capacity tool to calculate eaves gutter capacity and determine the number of downpipes required.

<http://steelselect.com/guttertool/selection.php>

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.

Valley gutters: Fielders proprietary valley gutter.

Refer CAD files on www.fielders.com.au

Box gutters: [complete/delete]

Cross section dimensions: [complete/delete]

Sump size: [complete/delete]

Material and BMT: [complete/delete]

Select 0.55 mm stainless steel or copper. Refer CAD files on www.fielders.com.au

Overflow spouts: [complete/delete]

Gutters – roofing panels

Product: Fielders Steel Roofing.

Material: Match roof sheeting.

Select from: Copper, Stainless steel, Colorbond®, Colorbond® Ultra, Colorbond® Metallic, Colorbond® Coolmax.

See www.fielders.com.au/asp/guttering.aspx

Colour: [complete/delete]

Select from Colorbond® and colour charts.

Eaves gutters: [complete/delete]

Select from:

- 115 HiTen OG
- 115 Quad

- 125 D Gutter
- 150 Half Round
- 150 Halfline®
- 150 Hi Front Quad
- Ainsworth O.G.
- Longline
- Wide Bases Ovolo
- Urbis
- D Gutter
- Fascia Gutter
- Halfline®
- Hi-Front Quad

You can use the Gutter Capacity tool to calculate eaves gutter capacity and determine the number of downpipes required.

<http://steelselect.com/guttertool/selection.php>

Check availability in your state.

Valley gutters: Fielders proprietary valley gutter.

Box gutters: [complete/delete]

Cross section dimensions: [complete/delete]

Sump size: [complete/delete]

Material and BMT: [complete/delete]

If different to gutters generally e.g. stainless steel. Select 0.55 mm stainless steel or copper. Refer CAD files on www.fielders.com.au

- Overflow spouts: [complete/delete]

External downpipes

If not shown on the drawings, document requirements here.

Product: Fielders Steel Roofing.

Material: [complete/delete]

Select from the following to match roof: Copper, stainless steel, galvanized, Zinalume® and Colorbond®.

Colour: [complete/delete]

Match roofing or select from the Colorbond® roofing colour charts.

Profile: [complete/delete]

Select round or rectangular. All materials available in the same profiles as Colorbond®. Visit www.fielders.com.au/asp/Downpipes.aspx

Size: [complete/delete]

Select from Fielders Price List Manual. You can use the Gutter Capacity tool to determine the size and number of downpipes required. <http://steelselect.com/guttertool/selection.php>

Internal downpipes

Mainly for 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 the *0471 Thermal insulation and pliable membranes* worksection or show on drawings.

Material: [complete/delete]

e.g. Cast iron to AS 1631 (may be bitumen-, epoxy-, or cement-coated if required), Copper to Type D AS 1432, Stainless steel 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: Fielders Steel Roofing.

Material: [complete/delete]

Select from the following to match roof: Copper, stainless steel, galvanized, Zinalume®, Colorbond® Ultra, Colorbond® Metallic and Colorbond® Coolmax.

Colour: [complete/delete]

Match roofing or select from the Colorbond® roofing colour charts.

Pattern: [complete/delete]

Select from the following types: Ned Kelly, Half cylinder, Conical, Tapered, U-shaped, and Quarter round. See www.fielders.com.au/asp/rainheads.aspx

Vents

Product: Fielders Steel Roofing.

Material: [complete/delete]

Select from the following to match roof: Copper, stainless steel, galvanized, Zinalume®, Colorbond® Ultra, Colorbond® Metallic and Colorbond®.

Colour: [complete/delete]

Match roofing or select from the Colorbond roofing colour charts.

Pattern: [complete/delete]

Select from:

- Gable vents: Circular, Half round, Quarter round, Circular louvred, Ornate, Round top rectangular, Rectangular landscape, Rectangular portrait, Triangular.
- Roof vents: Cupola, Commercial ridge vents, Cowles, Flue caps and Vent pipe canopy.

See www.fielders.com.au/asp/vents.aspx

Hail guards

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

Material: To match 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 are 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.

2.7 GLAZED ROOFING

Description

General: Sloped overhead glazing fixed to glazing bars or directly to the roof framing with the required trim, flashings and sealants.

Pane size tolerance: To AS/NZS 2208.

See AS/NZS 2208, Table 2.2 for specific tolerance limit requirements for glass of standard nominal thickness.

Certification: Required.

Certification provider: An organisation accredited by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ).

To verify this, search for AS/NZS 2208 in the JAZ-ANZ directory at www.jas-anz.com.au/our-directory/certified-organisations.

Glass selection and installation: To AS 1288.

Material: [complete/delete]

Type: [complete/delete]

e.g. Toughened and laminated.

Thickness (mm): [complete/delete]

Nominate thickness for each lamination.

Surface film: [complete/delete]

Supports: [complete/delete]

Proprietary framing or patch fitting system.

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

U-Value (W/m².K): [complete/delete]

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

2.8 PLASTIC SHEET ROOFING

Materials

Unplasticised polyvinyl chloride (PVC-U) sheet: To AS 4256.2.

Glass fibre reinforced polyester (GRP) sheet: To AS 4256.3.

Polycarbonate: To AS 4256.5.

Select either extruded PVC-U, GRP or specify the material required. BCA cites AS/NZS 4256.2:1994, AS/NZS 4256.3:1994 and AS/NZS 4256.5:1996.

Class or grade: [complete/delete]

e.g. For PVC-U, D (domestic), I (industrial); or for GRP, GP (general purpose), FR (fire retardant) or CR (chemical resistant); or for polycarbonate, Grade S (solid flat sheet), P (profiled sheet) or M (multi-layered) as noted in AS 4256.2, AS 4256.3 and AS 4256.5.

Type: [complete/delete]

e.g. For PVC-U, ST (surface treated), GP (general purpose); or for GRP, CT (surface tissue present), ST/SX (surface treated); or for polycarbonate, ST (surface treated), GP (general purpose); as noted in AS 4256.

Profile: [complete/delete]

Describe the profile or, if required to match adjacent roofing, use the proprietary name.

Colour: [complete/delete]

If applicable, use the manufacturer's name.

Fire performance: [complete/delete]

e.g. BCA Fire hazard properties – general if GRP (FR) is nominated.

Sealants: Neutral curing silicone or modified silane (MS) polymer based sealant to the roofing manufacturer's recommendations.

2.9 SKYLIGHTS

Standard

General: To AS 4285.

Description

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

Description: [complete/delete]

e.g. Domed, Barrel, Flat.

Product: [complete/delete]

Size (mm): [complete/delete]

Light shaft: [complete/delete]

Required/Not required or Refer to details.

Ceiling diffuser: [complete/delete]

Product or description.

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 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.

2.10 ROOF HATCHES

Description

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

Product: [complete/delete]

Contact Fielders for their recommended proprietary item.

Size (mm): [complete/delete]

2.11 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.

2.12 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]

Contact Fielders for their recommended proprietary item.

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.

2.13 ROOF PLANT ACCESS

Description

General: A complete proprietary roof walkway system including fixings.

Product: Fielders Expa-tread aluminium concealed fixed walkway system.

Size: [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.

Copper has a thermal expansion coefficient of 1.8 mm/m per 100°C of temperature variation. Stainless steel has a thermal expansion coefficient of 2.4 mm per 100°C of temperature variation. Sliding clips have a moving component, which is 0.4 mm thick, and a 70 mm long slot to allow a free movement of the panel under expansion and contraction.

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

Requirement: To AS 1562.1 clause 4.2.

3.2 ACCREDITATION

Seamed and panel roofing installation

Generally: To the Fielders published installation details.

See www.fielders.com.au

Installer: As accredited by Fielders Steel Roofing.

3.3 SUBSTRATE

Ensure the detailing allows for 40 mm minimum air gap allowing air movement under the plywood substrate.
This **SUBSTRATE** clause is required for NeoRoman, Standing Seam and Nailstrip profiles only. Delete where not required.

Plywood sheeting

Installation: Lay the length of the sheets at right angles to the supports. Stagger the end joints and locate centrally over framing members. If panels are not tongue and grooved provide noggings or trimmer joists to support the edges.

Fixing: 300 mm centres to each support:

- Timber: Adhesive and nail.
- Steel: Metal coated self-drilling/tapping screws with the heads finishing below the surface.

Control joints: 12 mm gap at abutting building elements.

3.4 SPECIALISED ROOFING PANELS

Roof panel installation

Laying start location: [complete/delete]

Note the elevation that will enable laying to proceed from leeward to the windward of prevailing wind.

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

Expansion joints: [complete/delete]

Expansion laps should be provided every 13 m in sheet length for roofs.

Fixing

Clip spacing: [complete/delete]

Contact Fielders for guidance on the number of fixing clips per sheet of aluminium or copper with respect to weather and site conditions, and exposure to wind of various parts of the roof.

3.5 SEAMED SHEET ROOFING

Fabrication

Requirement: Factory fabricate roofing trays.

Minimum bending radius: 1.75 mm.

Fixing

Method: Fix pans to the deck with concealed clips.

Clip spacing:

Contact Fielders Head Office phone 1800 18 22 55 for guidance on the number of fixing clips per sheet of aluminium or copper with respect to weather and site conditions, and exposure to wind of various parts of the roof.

Seams

Roof pitch < 25°: Double standing seam.

Walls and roof pitches > 25°: Roll cap seam.

Method: Mechanically form and welt seal in situ using a seaming tool, to stand 25 mm high on completion. Dress seams flat at gutters, ridges and hips, and fold both pan and seam down into gutters and up to form stop ends at ridges and hips.

Ridge and hip capping

Installation: Lock welt to the upturn of the roofing.

3.6 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. Movement at these joints would be less than 1 mm so all may not 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 in low pitch roofs: Extend the base 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: Where a roof abuts a wall, provide overflashing as follows:

- In masonry walls, planked cladding or concrete: Step in courses to the roof slope. Interleave with damp proof course, if any.
- Raking in masonry: Build into the full width of the outer leaf. Turn up within cavity, slope inward across the cavity and fix to or build into the inner leaf at least 75 mm above the roofing line.
- Raking in concrete: Turn 25 mm into joints or grooves, wedge at 200 mm centres with compatible material and point up.

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: Proprietary metallic-coated adjustable strap and channel system.

Lining: [complete/delete]

e.g. Fielders Spanform® 0.42 or 0.48 BMT.

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.

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 to provide additional fixings. See

www.fielders.com.au/asp/Downpipes.aspx. You can use the Gutter Capacity tool to determine the size and number of downpipes required. www.steelselect.com/fielders/tools/index.php.

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.

3.7 GLAZED ROOFING

Installation

Fixing: [complete/delete]

Document and detail to the recommendations of the glazing bar manufacturer.

3.8 PLASTIC SHEET ROOFING

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.

Fixing: [complete/delete]

e.g. Roofing screws with neoprene washers in oversized holes. Consult the manufacturer.

Fixing to timber: 30 mm minimum penetration.

3.9 SKYLIGHTS

Installation

Fixing: [complete/delete]

Specify and detail to the recommendations of the skylight manufacturer.

3.10 ROOF HATCHES

Installation

Fixing: [complete/delete]

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

3.11 ROOF WINDOWS

Installation

Fixing: [complete/delete]

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

3.12 ROOF VENTILATORS

Installation

Fixing: [complete/delete]

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

3.13 ROOF PLANT ACCESS

Walkway

Product: [complete/delete]

Installation: [complete/delete]

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

3.14 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, each test to run over two storeys high for two hours. Remedy defects and retest if necessary.

3.15 COMPLETION

Cleaning

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

Clean off: Exposed metal surfaces that interfere with uniform weathering or oxidisation.

Replace: Materials that have been damaged or deteriorated.

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

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 1288	2006	Glass in buildings - Selection and installation
AS 1562		Design and installation of sheet roof and wall cladding
AS 1562.1	1992	Metal
AS 1562.3	2006	Plastics
AS/NZS 2208	1996	Safety glazing materials in buildings
AS/NZS 2269		Plywood - Structural
AS/NZS 2269.0	2012	Specifications
AS/NZS 2271	2004	Plywood and blockboard for exterior use
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 4256.2	2006	Unplasticized polyvinyl chloride (uPVC) building sheets
AS 4256.3	2006	Glass fibre reinforced polyester (GRP)
AS 4256.5	2006	Polycarbonate
AS 4285	2007	Skylights
AS/NZS 4389	2015	Safety mesh

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 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/NZS 2272	2006	Plywood - Marine
AS 2427	2004	Smoke/heat release vents
AS 2665	2001	Smoke/heat venting systems- Design, installation and commissioning
AS 3959	2009	Construction of buildings in bushfire prone areas
AS 4055	2012	Wind loads for housing
AS 4256		Plastic roof and wall cladding materials
AS/NZS 4256.2	1994	Unplasticized polyvinyl chloride (uPVC) building sheets
AS/NZS 4256.3	1994	Glass fibre reinforced polyester (GRP)
AS/NZS 4256.5	1996	Polycarbonate
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
BCA 3.12.1.3	2016	Acceptable construction - Energy efficiency - Building fabric - Roof lights
BCA J1.4	2016	Energy efficiency - Building fabric - Roof lights
NATSPEC DES 004	2005	Air, moisture and condensation
NATSPEC DES 011	2007	Rainwater harvesting

NATSPEC DES 018	2008	Bushfire protection
NATSPEC DES 031	2014	Specifying R-Values
NATSPEC GEN 006	2007	Product specifying and substitution
NATSPEC TR 01	2016	Specifying ESD