

0434P LYSAGHT CLADDING - FACADE PANELS

Branded worksection

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Worksection abstract

This branded worksection *Template* is applicable to lightweight external wall cladding of LYSAGHT AZURE and HORIZON flat panel rainscreen facade products.

Background

The Australian profiled sheet steel industry is organised as follows:

- BlueScope manufactures COLORBOND® prepainted steel and ZINCALUME® steel coils.
- LYSAGHT use steel coils and proprietary machinery to shape steel into different profiles and cut sheets to length.
- Installers take off material quantities, order and install, often as subcontractors to the contractor.

How to use this worksection

Customise this worksection *Template* for each project. See [A guide to NATSPEC worksections \(www.natspec.com.au\)](http://www.natspec.com.au) for information on *Template* structure, word styles and completing a worksection.

Related material located elsewhere in NATSPEC

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

Related material may be found in other worksections, including:

- *0182 Fire-stopping.*
- *0331 Brick and block construction* for brick veneer.
- *0342 Light steel framing* for subframing.
- *0382 Light timber framing* for subframing.
- *0471 Thermal insulation and pliable membranes* for wall insulation, thermal break strips and vapour permeable membranes.
- *0511 Lining* for internal lightweight linings.
- *0530 Suspended ceilings - combined* for suspended soffits.
- *0671 Painting* for in situ paint finishes.
- *0672 Textured and membrane coatings* for in situ application of membrane and surface coatings.

Each of the following worksections contains a single cladding system and may be used if appropriate in addition to this worksection:

- *0432 Curtain walls.*
- *0433 Stone cladding.*
- *0435 Cladding - planks and weatherboards.*
- *0436 Cladding - profiled and seamed sheet metal.*
- *0437 Cladding - insulated panel systems.*

Related branded worksections include:

- *0341p LYSAGHT purlins and girts in structural steelwork.*
- *0423p LYSAGHT roofing - profiled sheet metal.*
- *0436p LYSAGHT wall cladding - profiled sheet metal.*

Documenting this and related work

You may document this and related work as follows:

- Check if your cladding is required to be non-combustible, refer to BCA (2022) Section C and *ABCB Fire performance of external walls and cladding advisory note (2020)*. Consider adding a requirement in **SUBMISSIONS** for evidence of conformance from the contractor. If using a performance solution for facade cladding, type testing to AS 5113 (2016) may be used as the verification method for external walls.
- Weatherproofing: Conform to BCA (2022) F3D5 for Class 2 to Class 9 buildings or BCA (2022) H1D7 for Class 1 and 10 buildings. Alternatively, document a performance solution. Consider adding a requirement for evidence of conformance from the contractor. Refer to NATSPEC TECHnote DES 044 for information on weatherproofing of external walls.

- Document the structural support system to your office documentation policy.
- Locate the extent of cladding types, accessories and finishes on drawings to your office documentation policy.
- Penetrations: Show on the drawings the location and extent of penetrations for services and structural elements including flashing details.
- Document the location of openings and penetrations to avoid waste and panel handling times.
- For flush jointed fibre cement soffit lining import the relevant material from *0511 Lining*.
- If required, state the minimum thermal resistance (R-Value) (m².K/W). See NATSPEC TECHnote DES 031 for information on specifying R-Values.
- In bushfire-prone areas, document bushfire protection requirements to AS 3959 (2018) and the NCC. See NATSPEC TECHnote DES 018 for information on bushfire protection.
- Check lead time for imported selections and consider adding a requirement, in **SUBMISSIONS**, for the contractor to confirm availability.

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

For example:

- Location of control joints.

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

- Guarantees and warranties.
- Site planning and design for bushfire.

Specifying ESD

The following may be specified by including additional text:

- Metal cladding manufactured from recycled metal and/or is recyclable.
- Metal cladding finished with low VOC or non-VOC finish.

Refer to NATSPEC TECHreport TR 01 on specifying ESD.

1 GENERAL

LYSAGHT has a proven track record supplying quality steel roofing, walling, rainwater, fencing, home improvement and structural products. Made from 100% Australian steel, our products are extensively performance-tested, come with a BlueScope warranty, and offer our customers confidence and peace of mind.

Our quality products are only part of our unique offer - our commitment to genuine, helpful customer service, and unmatched technical support and expertise has helped us become the trusted experience in steel.

1.1 RESPONSIBILITIES

General

Requirement: Provide LYSAGHT external wall cladding and associated work, as documented.

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

Corrosion resistance

Material: To the manufacturer's recommendations for distance from marine influence.

Distance from marine influence: [complete/delete]

The distance from marine influence can be used as a guide to determine the finish and grade of steel required, however other factors may also need consideration. For information on determining corrosivity categories in relation to environmental influences, see AS 2312.1 (2014) Table 2.1, AS 4312 (2019) Table 2.1 and Table 4.1. Refer to **CORROSION RESISTANCE, Atmospheric corrosivity category** in *0171 General requirements*, for the project corrosivity categories to AS 4312 (2019). Refer also to BlueScope Technical bulletins BlueScope TB-01A (2023) and BlueScope TB-01B (2022), which discuss the selection of steel roofing and walling products, and the correlation of distance to marine influence to the corrosion categories defined in AS 4312 (2019).

1.2 COMPANY CONTACTS

LYSAGHT technical contacts

Website: lysaght.com/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 STANDARDS

General

Standard: To AS 1562.1 (2018).

1.5 INTERPRETATION

Definitions

General: For the purposes of this worksection, the definitions given in AS 1562.1 (2018) apply.

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

1.6 MANUFACTURER'S DOCUMENTS

Technical manuals

Website: lysaght.com/support-technical/downloads

1.7 TOLERANCES

Permitted deviations

Requirement: To AS 1562.1 (2018) clause 4.2.3 and LYSAGHT recommendations.

1.8 SUBMISSIONS

Fire performance

Fire hazard properties: Submit evidence of conformity to **FIRE PERFORMANCE, Fire hazard properties**.

Operation and maintenance manuals

Requirement: Submit manual to **COMPLETION, Operation and maintenance manuals**.

Products and materials

Type tests: Submit test results for the following:

- Facade: To PRODUCTS, **GENERAL, Tests**.

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 PRODUCTS.

Evidence of delivery: Submit delivery docket as evidence of delivery of the following:

- [complete/delete]

If evidence of delivery to site is required for particular products, consider including this *Optional* style text by changing to *Normal* style.

Environmental Product Declaration (EPD): Submit an EPD to ISO 14025 (2006) with a Product Category Rule (PCR), used to calculate environmental impact indicators, to EN 15804 (2012) or ISO 21930 (2017).

Nominate which products are required to have an EPD either here or in PRODUCTS.

An EPD is an independently verified and registered document that quantifies environmental information on the life cycle of a product to enable comparisons between products fulfilling the same function. EPDs can support carbon emission reduction by allowing a fair and equitable comparison of the impacts of different materials and products within specific product categories.

Samples

Requirement: Submit samples to PRODUCTS, **GENERAL, Samples**.

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, thermal insulation, vapour barrier, control joint treatment, isolation of incompatible metals, access for maintenance.

Subcontractors

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

Evidence of experience: [complete/delete]

e.g. Check conditions of warranty for panels selected. Delete if supplier/installer details are not required.

Substrate acceptance

Requirement: Submit evidence of installer's acceptance of the wall substrate or framing before starting installation.

Warranties

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

1.9 INSPECTION**Notice**

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

- Framing, pliable membranes and insulation before covering up or concealing.

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

Hold points, if required, should be inserted here.

2 PRODUCTS**2.1 GENERAL****Product substitution**

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

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

Product identification

General: Marked to show the following:

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

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

Samples

Approved samples that define the acceptable limits of colour and texture variations are retained on site. If particular or additional samples are required, list them here.

Requirement: Provide samples of the following, showing the range of variation available:

- Cladding material.
- Trim and accessories with a colour finish.
- Custom profiled flashings and cappings.
- Profiled sheet metal cladding:
 - . Profiled sheet metal cladding finishes.

- . Sealants.

Storage and handling

Requirement: Store and handle materials to the manufacturer's recommendations and the following:

- Protect materials including edges and surfaces from damage.
- Keep clean, dry and unexposed to weather.
- Do not drag panels across each other or over other materials.
- Sheeting: Stack flat and off the ground on at least 3 evenly placed bearers.
- Store metal materials away from uncured concrete and masonry on a level base.
- Do not store metal materials in contact with other materials that may cause staining, denting or other surface damage.
- Use gloves when handling metal cladding material.

Tests

0171 General requirements defines different tests in **INTERPRETATION, Definitions**.

Resistance to wind pressures:

- Non-cyclonic wind regions: To AS 1562.1 (2018) clause 5.5.
- Cyclonic wind regions: To AS 1562.1 (2018) clause 5.6.

2.2 FIRE PERFORMANCE

Fire hazard properties

See BCA (2022) C2D10 for non-combustible building element requirements. BCA (2022) C2D10(6)(e) notes that pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and if the Spread-of-Flame Index of the product is not more than 0 may be used wherever a non-combustible material is required.

Cladding: Spread-of-Flame Index of 0 when tested to AS/NZS 1530.3 (1999).

Pliable membranes: Flammability Index no more than 5 when tested to AS 1530.2 (1993).

Flammability Index is determined under AS 1530.2 (1993).

Pliable membranes are tested to AS 1530.2 (1993) as they are not suitable for testing to AS/NZS 1530.3 (1999).

2.3 RAINSCREEN SUBSTRATES

Steel battens

Standard: To AS/NZS 4600 (2018) and LYSAGHT recommendations.

Steel battens are an alternative substrate to plywood sheeting. Delete if plywood sheeting is used.

Pliable membranes

If pliable membranes are specified in 0471 Thermal insulation and pliable membranes, delete this subclause. Do not repeat requirements here.

Standard: To AS 4200.1 (2017).

Product: Vapour permeable membranes, tapes and fastenings to manufacturer's and LYSAGHT recommendations.

AS 4200.1 (2017) Table 4 categorises vapour control membranes (VCMs) as vapour barriers when classified Class 1 or Class 2, and vapour permeable membranes when classified Class 3 or Class 4.

2.4 LYSAGHT FACADE PANEL METAL CLADDING

General

Proprietary facade panel cladding: LYSAGHT AZURE or LYSAGHT HORIZON series facade cladding.

Design and installation: To AS 1562.1 (2018).

Selection: To the **LYSAGHT facade panel metal cladding schedule**.

2.5 COMPONENTS

Fastenings

Type, size, corrosion resistance class and spacing: To LYSAGHT recommendations.

Refer to LYSAGHT AZURE or HORIZON installation manuals and BlueScope TB-16 (2023) guide on selecting fasteners for cladding installation.

Finish for exposed fasteners on coloured cladding: Prefinish exposed fasteners with an oven baked polymer coating to match the cladding material.

LYSAGHT flashings and cappings

Requirement: To AS 1562.1 (2018) and AS/NZS 2904 (1995).

Coordinate with 0423p LYSAGHT roofing - profiled sheet metal.

3 EXECUTION

3.1 GENERAL

Preparation

Substrates or framing: Before fixing cladding, check the alignment of substrates or framing and adjust if required.

Flexible underlay/membranes: Check that the underlay/membranes or insulation is restrained and undamaged.

Cladding: Make sure the cladding is clean and free of dust and loose particles.

Steel battens

Requirement: Provide battens suitable for span, spacing and proposed roofing material, as documented.

Pliable membranes

Installation: To AS 4200.2 (2017) and LYSAGHT recommendations.

Refer to AS 4200.2 (2017) Table 2.6 for duty classification and allowable usage for the application and level of support. Refer to the *ABCB Condensation in buildings handbook (2023)* for information on condensation and use of vapour barriers, vapour permeable membranes and sarking.

Make sure wall cavities are also drained and ventilated in conformance with LYSAGHT recommendations.

Installation

Document a ventilated cavity/rainscreen construction to conform to the manufacturer's recommendations. Document a certified system or a project based performance solution.

Facade panel installation: To AS 1562.1 (2018).

Requirement: To LYSAGHT recommendations and the following:

- Fix panels firmly against framing to the manufacturer's recommendations.
- Plumb, level, straight and to documented tolerances.
- Fixed or anchored to the building structure in conformance with the wind action loading recommendations.
- Isolated from any building loads, including loads caused by structural deflection or shortening.
- Allow for thermal movement.
- Provide documented ventilation and drainage pathways.

Provide for expansion and contraction of components. Temperature change due to climatic conditions must not cause harmful buckling, opening of joints, undue stress on fastening and anchors, noise or other defects.

Cladding layout: Install cladding to suit the layout as documented.

Document the location of openings and penetrations to avoid waste and minimise panel handling times.

Protection: Protect surfaces and finishes, and retain protective film during installation.

Accessories and trim

Requirement: Provide accessories, flashings and trim required to complete the installation.

Metal separation

Make sure of compatibility or detail separation.

See AS 1562.1 (2018) Appendix C Table C3 for guidance on the compatibility of metals. See also SA HB 39 (2015) 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 (2018) clause 3.4.3 and AS 1562.1 (2018) Appendix C Table C4. There are four conditions to be avoided:

- Run-off from copper and copper alloys onto aluminium, zinc, galvanized, or aluminium/zinc-coated surfaces.

- Run-off from glass onto stainless steel, zinc or galvanized surfaces.
- Run-off from plastic onto zinc or galvanized surfaces.
- Run-off from inert catchment surfaces such as glazed terracotta, prepainted steel, aluminium and aluminium/zinc onto zinc or 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 either of the following methods:

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

Incompatible metal fastenings: Do not use.

Defective and damaged parts

Defective components: Do not install component parts that are defective, including warped, bowed, dented, chipped, scratched, abraded or broken members.

3.2 LYSAGHT FACADE PANEL METAL CLADDING

Installation

Standard: To AS 1562.1 (2018).

LYSAGHT AZURE and HORIZON series facade cladding: Install to the manufacturer's recommendations.

Refer to LYSAGHT AZURE or HORIZON installation manuals and BlueScope TB-16 (2023) guide on selecting fasteners for cladding installation.

Ground clearance: Maintain documented clearance.

Cutting panels: Wherever possible, factory cut to length. Do not use an abrasion disc.

Accessories: Provide material with the same finish as cladding panels.

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

Fixing

Fixing start location: [complete/delete]

Note the elevation that will allow fixing to proceed from leeward to the windward of prevailing wind.

Joints

Expansion joints: [complete/delete]

Consult manufacturer for recommended maximum expansion joint spacing. Typical spacings are 35 m in sheet length for walls with concealed fastenings and 24 m in sheet length for walls with exposed fastenings.

3.3 COMPLETION

Fasteners

Requirement: Adjust for weathertightness without distortion of external panel face.

Reinstatement

Requirement: Replace damaged cladding, including cladding with scratches in the prepainted finish.

BlueScope does not recommend the use of touch-up paint to repair damage or scratches to the painted surface of COLORBOND® or ZINCALUME® steel. See BlueScope TB-02 (2022).

Cleaning

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

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

Protection: Remove protective film using methods required by the manufacturer after completion.

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 plasticisers.

Panels: Clean surfaces with soft, clean cloths and clean water to the manufacturer's recommendations.

Operation and maintenance manuals

Requirement: Prepare a manual that includes recommendations from LYSAGHT for the maintenance of the cladding system including frequency of inspection and recommended methods of access, inspection, cleaning, repair and replacement.

Refer to Maintenance and Care on LYSAGHT website.

Compliance with this subclause targets the Operations and Maintenance requirement within the Minimum Expectation level of the Verification and Handover credit in Green Star Buildings (2021).

Warranties

Requirement: Cover materials and workmanship in the terms of the warranty in the form of interlocking warranties from the manufacturer and the installer.

- Form: Against failure of materials and execution under normal environment and use conditions.
- Period: [complete/delete]

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

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

BlueScope has an internet based system Warranty Estimator and Management System that allows access to warranty advice for BlueScope building products and pre-approved warranties at www.bluescopesteel.com.au/warranties for steel products.

4 SELECTIONS

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

4.1 PERFORMANCE**Cladding performance schedule**

	A	B	C
Solar absorptance			
Light Reflectance Value (LRV)			

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

Solar absorptance: Select from manufacturer's range. Light (< 0.40), medium (0.40 to 0.60), dark (> 0.60). See BCA (2022) J3D8 for external walls to a Class 2 building or a Class 4 part of a building.

Light Reflectance Value (LRV): If required, nominate the light reflectance value. Some local authorities limit the light reflectance value for building exteriors. Refer to the relevant local authority for any requirements.

4.2 PRODUCT**LYSAGHT facade panel metal cladding schedule**

	A	B	C
Product			
Panel dimensions			
Fixing system			
Material			
Base metal thickness (BMT) (mm)			
Colour			
Flashings and cappings			
Fasteners			

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

Product:

- LYSAGHT AZURE 100.
- LYSAGHT HORIZON.

Panel dimensions:

- LYSAGHT AZURE 100: Manufactured to project specific widths and lengths with closed ends as standard. Document sizes here, or refer to design drawings.
- LYSAGHT HORIZON: Manufactured to project specific lengths with closed ends as standard. Available in 285 mm, 485 mm and 585 mm panel face widths.

Fixing system: e.g. Top hat framing, ventilated cavity/rainscreen.

Material: Refer to BlueScope TB-01B (2022) guide on selecting steel walling products. Select from the following:

- COLORBOND® steel.
- COLORBOND® Metallic steel.
- COLORBOND® Ultra steel.

Base metal thickness (BMT) (mm): Refer to LYSAGHT product brochures. Select from the following:

- LYSAGHT AZURE 100: 1.20.
- LYSAGHT HORIZON: 0.55, 0.70.

Colour: Consult the BlueScope COLORBOND® Colour Chart.

Flashings and cappings: e.g. Prefinished steel to match cladding colour. Coordinate with 0423p LYSAGHT roofing - profiled sheet metal.

Fasteners: e.g. Fasteners in perimeter recess using colour matched fasteners (for LYSAGHT AZURE 100 and LYSAGHT HORIZON).

REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

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 1562		Design and installation of sheet roof and wall cladding
AS 1562.1	2018	Metal
AS/NZS 2904	1995	Damp-proof courses and flashings
AS 4200		Pliable building membranes and underlays
AS 4200.1	2017	Materials
AS 4200.2	2017	Installation
AS/NZS 4600	2018	Cold-formed steel structures
EN 15804	2012	Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
ISO 14025	2006	Environmental labels and declarations - Type III environmental declarations - Principles and procedures
ISO 21930	2017	Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products and services

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

AS/NZS 2312		Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings
AS 2312.1	2014	Paint coatings
AS 3959	2018	Construction of buildings in bushfire-prone areas
AS 4312	2019	Atmospheric corrosion zones in Australia
AS 5113	2016	Classification of external walls of buildings based on reaction-to-fire performance
SA HB 39	2015	Installation code for metal roof and wall cladding
BCA C2D10	2022	Fire resistance - Fire resistance and stability - Non-combustible building elements
BCA F3D5	2022	Health and amenity - Roof and wall cladding - Wall cladding
BCA H1D7	2022	Class 1 and 10 buildings - Structure - Roof and wall cladding
BCA J3D8	2022	Energy efficiency - Elemental provisions for a sole-occupancy unit of a Class 2 building or a Class 4 part of a building - External walls of a sole-occupancy unit of a Class 2 building or a Class 4 part of a building
BCA Section C	2022	Fire resistance
ABCB Condensation	2023	Condensation in buildings handbook
ABCB Fire performance	2020	Fire performance of external walls and cladding advisory note
BlueScope TB-01A	2023	Steel roofing products - Selection guide
BlueScope TB-01B	2022	Steel walling products - Selection guide
BlueScope TB-02	2022	Overpainting and restoration of exterior BlueScope coated steel products
BlueScope TB-16	2023	Fasteners for roofing, walling and accessory product - Selection guide
GBCA Buildings	2021	Green Star Buildings
NATSPEC DES 018		Bushfire protection
NATSPEC DES 031		Specifying R-Values

NATSPEC DES 044	Weatherproofing of external walls
NATSPEC GEN 006	Product specifying and substitution
NATSPEC GEN 024	Using NATSPEC selections schedules
NATSPEC TR 01	Specifying ESD