

0436P LYSAGHT CLADDING - PROFILED SHEET METAL

Branded worksection

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Worksection abstract

This branded worksection *Template* is applicable to lightweight external wall cladding of LYSAGHT profiled sheet metal products.

How to use this worksection

Customise this worksection *Template* for each project. See A guide to NATSPEC worksections (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. See for example:

- 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.
- 0531 *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*.
- 0434 *Cladding - flat sheets and panels*.
- 0435 *Cladding - planks and weatherboards*.
- 0437 *Cladding - insulated panel systems*.

Related branded worksections include:

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

Material not provided by LYSAGHT

This branded worksection includes generic material which may not be provided by the Product Partner, including seamed sheet metal cladding.

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 builder 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: professionals.lysaght.com/contact-us

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: professionals.lysaght.com/resources/manuals

1.5 TOLERANCES

Permitted deviations

Profiled metal sheet cladding: To AS 1562.1 (2018) clause 4.2.3.

Structural steelwork for wall cladding: ± 5 mm between bearing planes of adjacent supports.

Length: ± 7 mm.

Width: ± 4 mm.

1.6 SUBMISSIONS

Products and materials

Type tests: As appropriate for the project, submit results of facade testing as follows:

- Resistance to wind pressure:
 - . For non-cyclone regions to AS 4040.2 (1992).
 - . For cyclone regions to AS 4040.3 (2018).

BCA (2022) F3P1 requires that external walls prevent the penetration of water so that internal conditions do not become unhealthy or dangerous.

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, when there are no SELECTIONS.

Evidence of delivery: Submit delivery docket as evidence of delivery of [complete/delete]

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

Samples

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

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.

Seamed sheet metal cladding: Submit evidence of experience with non-ferrous cladding installation.

Check conditions of warranty.

Warranties

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

1.7 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.

Coordinate with requirements for prototypes or delete.

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.

Sample

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 cladding materials

Storage and handling

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

- Protect materials including edges and surfaces from damage.
- Do not drag sheets across each other or over other materials.
- 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 precoated metal cladding material.

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.

Components

Flashings: To AS/NZS 2904 (1995).

Coordinate with 0423p LYSAGHT roofing - profiled sheet metal.

LYSAGHT fasteners:

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

Refer to LYSAGHT® Roofing and walling installation manual and BlueScope TB-16 (2023) guide on selecting fasteners for roofing and walling.

Permalite fasteners:

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

Refer to Permalite® Aluminium Roofing Solutions manual. Aluminium formed washers must be used unless evidence is produced to prove they are not required.

2.2 LYSAGHT PROFILED SHEET METAL

General

Proprietary steel cladding: LYSAGHT steel cladding.

Proprietary aluminium cladding: Permalite aluminium cladding.

Design and installation: To AS 1562.1 (2018).

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: Check that the underlay or insulation is restrained.

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

Installation

Standard: To AS 1562.1 (2018).

Requirement: Install cladding as follows:

- Fix sheeting firmly against framing to the manufacturer's recommendations.

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

- 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.

Expansion and contraction of the components needs to be provided for. Temperature change due to climatic conditions must not cause harmful buckling, opening of joints, undue stress on fastening and anchors, noise of any kind or other defects.

Cladding layout: Cut/fabricate and install cladding to suit the layout as documented.

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

Protection: Protect surfaces and finishes, including the retention of protective coatings during installation.

Accessories and trim

Requirement: Provide accessories and trim required to complete the installation, or as documented.

Corner flashing for profiled and seamed metal sheets: Finish off at corners with purpose-made folded flashing strips.

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 fixings: Do not use.

Horizontal cladding

Horizontal cladding surface:

- Minimum slope: 1:15.
- Staining: Slope away from visible vertical facade areas to prevent staining.

Defective and damaged parts

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

Damaged parts: Remove and replace damaged parts during installation.

3.2 PROFILED SHEET METAL CLADDING**General**

LYSAGHT steel roofing: To the manufacturer's recommendations.

Refer to the LYSAGHT Roofing and walling installation manual.

Permalite aluminium roofing: To the manufacturer's recommendations.

Refer to the Permalite Aluminium roofing solutions manual.

Ground clearance: Maintain documented clearance.

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

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

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]

As a minimum, expansion joints should be provided every 35 m in sheet length for walls with concealed fixings and 24 m in sheet length for walls with exposed fixings. Refer to manufacturer's recommendation.

For Permalite roof sheeting in excess of 6m, provide expansion fixing to the manufacturer's recommendations.

3.3 COMPLETION**Fasteners**

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

Reinstatement

Extent: Repair or replace damage to the cladding. If the work cannot be repaired satisfactorily, replace the whole area affected.

Damage to prepainted finish: Replace panels with scratches in the prepainted finish.

Cleaning

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

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

Protection: Remove protective coatings 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.

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: As offered by the manufacturer and the installer.

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 or permalite.com.au/tools/warranty-estimation for aluminium 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
Combustibility			
Fire hazard property: Group number			
Fire hazard property: Spread-of-Flame Index			
Fire hazard property: Smoke-Developed Index			
Fire-resistance level (FRL)			
R-Value (m ² .K/W)			
Acoustic characteristic			
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.

Combustibility: e.g. Non-combustible.

Fire hazard property: Group Number: Refer to BCA (2022) Spec 7.

Fire hazard property: Spread-of-Flame Index: e.g. 0.

Fire hazard property: Smoke-Developed Index: e.g. 3.

Fire-resistance level (FRL): If required, nominate the FRL to AS 1530.4 (2014). See NATSPEC TECHnote DES 020 on fire behaviour of building materials and assemblies.

R-Value (m².K/W): Select from manufacturer's range. AS/NZS 4859.1 (2018) requires that R-Value is declared at 23°C for insulation products sold in Australia.

Acoustic characteristic: Consult manufacturer. Schedule values if required.

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 profiled steel cladding schedule

	A	B	C
Profile			
Fixing system			
Material type			
Thickness (mm)			

	A	B	C
Colour			
Trim			
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.

Profile: Select from the following for concealed fixed cladding:

- LYSAGHT Klip-Lok® 406.
- LYSAGHT Klip-Lok® 700 Hi-strength.
- LYSAGHT Klip-Lok® Classic 700.
- LYSAGHT Longline 305®.
- LYSAGHT Easyclad®.

Select from the following for screw crest fixed cladding:

- LYSAGHT Custom Orb®.
- LYSAGHT Custom Orb Blue®.
- LYSAGHT Custom Orb Accent® 21.
- LYSAGHT Custom Orb Accent® 35.
- LYSAGHT Integrity® 820.
- LYSAGHT Spandek®.
- LYSAGHT Spanrib®.
- LYSAGHT Trimdek®.

Select from the following for screw pan/valley fixed cladding:

- LYSAGHT Mini Orb®.
- LYSAGHT Multiclad®.
- LYSAGHT Panelrib®.
- LYSAGHT Trimwall®.
- LYSAGHT Wallclad®.

Fixing system: e.g. waterproof direct fix, top hat framing, ventilated cavity/rainscreen.

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

- COLORBOND® steel.
- COLORBOND® Coolmax steel.
- COLORBOND® Metallic steel.
- COLORBOND® Ultra steel.
- COLORBOND® Stainless steel.
- ZINCALUME® steel.

Thickness (mm): Refer to LYSAGHT product brochures. Select from the following:

- Generally: 0.42 or 0.48.
- Custom Orb Blue®: 0.60 or 0.80.
- Klip-Lok® 700 Hi-strength: 0.42, 0.48 or 0.60.
- Longline 305®: 0.70.
- Multiclad® and Panelrib®: 0.35 or 0.42.
- Trimwall® and Wallclad®: 0.35.

Colour: Consult the BlueScope COLORBOND® Colour Chart.

Trim: e.g. Proprietary accessories for sills, reveals or corner returns.

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

Fasteners: e.g. Concealed or Pierced: Crest or Valley.

Permalite profiled aluminium cladding schedule

	A	B	C
Profile			
Fixing system			
Thickness (mm)			
Finish			
Colour			
Trim			
Control joints			
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.

Profile: Select from the following:

- Permalite V-rib®.
- Permalite Alspan®.
- Permalite Waveline®.
- Permalite LT7®.

Fixing system: e.g. waterproof direct fix, top hat framing, ventilated cavity/rainscreen.

Thickness (mm): Refer to Permalite product brochures. Select from the following:

- Generally: 0.70, 0.90 or 1.20.
- Waveline®: 0.70 or 0.90.

Finish: Refer to Permalite product brochures. Select from the following:

- Mill finish.
- Stucco finish (0.90 mm BMT only).
- Paint finish.

Colour: Consult the Permalite Colour Chart.

Trim: e.g. Proprietary accessories for sills, reveals or corner returns.

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

Fasteners: e.g. Pierced: Crest or Valley.

REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

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 4040		Methods of testing sheet roof and wall cladding
AS 4040.2	1992	Resistance to wind pressures for non-cyclone regions
AS 4040.3	2018	Resistance to wind pressures for cyclone regions

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

AS 1530		Methods for fire tests on building materials, components and structures
AS 1530.4	2014	Fire-resistance tests for elements of construction
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 corrosivity zones in Australia
AS/NZS 4859		Thermal insulation materials for buildings
AS/NZS 4859.1	2018	General criteria and technical provisions
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 F3D5	2022	Health and amenity - Roof and wall cladding - Wall cladding
BCA F3P1	2022	Health and amenity - Roof and wall cladding - Weatherproofing
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
BCA Spec 7	2022	Fire resistance - Fire hazard properties
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-16	2023	Fasteners for roofing, walling and accessory product - selection guide
NATSPEC DES 018		Bushfire protection
NATSPEC DES 020		Fire behaviour of building materials and assemblies
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