0437P DELTA PANELS INSULATED CLADDING SYSTEMS

Branded worksection

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Worksection abstract

This branded worksection Template is applicable to lightweight external cladding and facades using DELTA PANELS insulated cladding system. The system comprises prefinished composite panels with roll-formed steel skins factory-bonded to an insulating core.

***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 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:

- *0342 Light steel framing* for subframing.
- *0382 Light timber framing* for subframing.
- *0428p DELTA PANELS insulated roofing systems.*
- *0432 Curtain walls* for embedded anchors.
- *0471 Thermal insulation and pliable membranes* for wall insulation, thermal break strips and vapour permeable membranes
- *0762p DELTA PANELS in cool rooms.*

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 Section C and ABCB Advisory Note 3. DELTA Panels are not suitable for use where non-combustible cladding is required.
- 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.
- If required, state the minimum thermal resistance (R-Value) (m^2.K/W). See NATSPEC TECHnote DES 031 for information on specifying R-Values.
- Document bushfire protection requirements to conform to AS 3959 and the NCC. See NATSPEC TECHnote DES 018 for information on bushfire protection.
- This worksection *Template* contains text that may be adapted for use in Design and Construct projects.

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.

Specifying ESD

The following may be specified by retaining default text:

- Energy efficient wall cladding.

- Durable and low maintenance wall cladding.
- Anti-bacterial finish that inhibits growth of bacteria.

Refer to the NATSPEC TECHreport TR 01 on specifying ESD.

1 GENERAL

DELTA PANELS is a 100% Australian owned and operated manufacturer of insulated panels. Its range of products includes roof, wall and patio systems, plus a wide range of accessories. The range of panels, in various styles and colours, has been engineered for enhanced performance in Australia's harsh environment.

1.1 RESPONSIBILITIES

General

Requirement: Provide DELTA PANELS insulated cladding system and associated work, as documented.

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

Atmospheric corrosivity

Atmospheric corrosivity category: To *0171 General requirements*.

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

Distance from marine influence: [complete/delete]

Where the corrosive factor is a marine influence, the distance from marine influence determines the finish and grade of steel required.

1.2 COMPANY CONTACTS

DELTA PANELS technical contacts

Website: www.deltapanels.com.au/contact

1.3 CROSS REFERENCES

General

Requirement: Conform to the following:

- *0171 General requirements*.

0171 General requirements contains umbrella requirements for all building and services worksections.

List the worksections cross referenced by this worksection. *0171 General requirements* references the *018 Common requirements* subgroup of worksections. It is not necessary to repeat them here. However, you may also wish to direct the contractor to other worksections where there may be work that is closely associated with this work.

NATSPEC uses generic worksection titles, whether or not there are branded equivalents. If you use a branded worksection, change the cross reference here.

1.4 MANUFACTURER'S DOCUMENTS

Technical manuals

Cladding system product range: www.deltapanels.com.au/deltacool

1.5 INTERPRETATION

Abbreviations

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

- MW: Mineral wool.
- PIR: Polyisocyanurate.
- EPS: Expanded polystyrene.

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

1.6 TOLERANCES

Permitted deviations

Requirement: To DELTA PANELS' recommendations.

Structural steelwork for DELTA PANELS insulated cladding systems: ± 5 mm between bearing planes of adjacent supports.

1.7 SUBMISSIONS

Fire performance

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

Fire-resistance level: Submit evidence of conformity to PRODUCTS, **FIRE PERFORMANCE**, **Fire-resistance of building elements**.

Operation and maintenance manuals

Requirement: Submit a manual of recommendations from DELTA PANELS for annual maintenance of the cladding system, including recommended methods of access, inspection, cleaning, repair and replacement.

Products and materials

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

- Air infiltration test to AS/NZS 4284 clause 8.4 for test pressures of ± 150 Pa or ± 300 Pa, as documented.
- Water penetration test by static pressure to AS/NZS 4284 clause 8.5 at test pressure of 300 Pa.
- Water penetration test by cyclic pressure to AS/NZS 4284 clause 8.6 at test pressure of 600 Pa.

BCA FP1.4 requires that cladding prevent the penetration of water so that internal conditions do not become unhealthy or dangerous. DELTA PANELS can provide an engineers report on request.

Type tests are carried out before the contract. 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.

Prototypes

General: Erect a prototype of each panel type, including at least one example of each component in the system to verify selections submitted as samples, to demonstrate aesthetic effects, to set quality standards for materials and execution.

Inclusions:

- Typical components, attachments to building structure and methods of installation.
- Window opening with cladding panel, trim and returns.
- Sealant filled joint, where required.

Type: [complete/delete]

Extent: [complete/delete]

Not less than 1800 mm long x 1200 mm high or Not less than 4.5 m long x 3 m high.

Location: [complete/delete]

The following *Optional* style text maybe included by changing to *Normal* style text.

Incorporation: Subject to approval, incorporate the prototype in the completed works.

Preferably show on the drawings the location and extent of the prototype and the number and type of components to be included. Delete if the size of the project does not justify a prototype.

Samples

Approved samples are retained on site and define the acceptable limits of colour and texture variation.

Finish: Submit samples of the cladding material showing the typical colour and finish.

Sample size: [complete/delete]

Sample sizes are generally 300 x 300 mm or 600 x 600 mm.

Shop drawings

General: Submit shop drawings to a scale that best describes the detail, showing the following:

- Dimensioned elevations of all elements.
- Details of construction, connections and all support systems.
- Dimensions of all typical elements and of any special sizes and shapes.
- Provision for the exclusion and/or drainage of moisture.
- Jointing details and method of fixing between individual elements and between this installation and adjacent work, including provision for adjustment.
- Sealant types and full-size sections of all sealant-filled joints and backing rods.

- Provision for thermal movement.
- Provision for movement under seismic and wind loads.
- Sequence of installation.
- Co-ordination requirements with other work.
- Schedule of materials, finishes, componentry, hardware and fittings.

Subcontractors

General: Submit names and contact details of proposed installers.

Evidence of experience: [complete/delete]

Contact DELTA PANELS for details of DELTA PANELS recommended installers appropriate to construction in your area.

Warranties

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

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

1.8 INSPECTION

Notice

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

- Workshop assemblies before delivery to the site.
- Framing, sarking, vapour barrier and insulation before covering up or concealing.
- Completion of a prototype.

Amend 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 PRODUCTS, **GENERAL**, **Substitutions** in *0171 General requirements*.

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

Storage and handling

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

- Protect materials including edges and surfaces from damage.
- Keep dry and unexposed to weather.
- Do not drag metal sheets or panels across each other or over other materials.
- Store off the ground.

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.

2.2 FIRE PERFORMANCE

See DELTA PANELS website for fire performance test reports.

Fire hazard properties

See NATSPEC TECHnote DES 003 for more information on the fire hazard properties of insulation materials and NATSPEC TECHnote DES 020 on fire behaviour of building materials and assemblies.

Group number: To AS 5637.1.

DeltaCool-EPS-FR tested to AS ISO 9705: Group number 1.

DeltaSecretFix-EPS-FR tested to AS ISO 9705: Group number 1.

DeltaCool-PIR tested to AS ISO 9705: Group number 1.

DeltaSecretFix-PIR tested to AS ISO 9705: Group number 1.

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

Insulation materials: Tested to AS/NZS 1530.3. Fire hazard indices as follows:

See also BCA Spec C1.10 Table 4.

- Spread-of-Flame Index: ≤ 9.

- DeltaCool-EPS-FR and DeltaSecretFix-EPS-FR: Spread-of-Flame Index: 0.
- DeltaCool-PIR and DeltaSecretFix-PIR: Spread-of-Flame Index: 0.
- DeltaCool-MW:Spread-of-Flame Index: 0.

- Smoke-Developed Index: ≤ 8 if Spread-of-Flame Index > 5.

- DeltaCool-EPS-FR and DeltaSecretFix-EPS-FR: Smoke Developed Index: 2.
- DeltaCool-PIR and DeltaSecretFix-PIR: Smoke Developed Index: 3
- DeltaCool-MW: Smoke Developed Index: 2.

Fire-resistance of building elements

Fire-resistance level: Tested to AS 1530.4.

DeltaCool-MW panels tested to AS 1530.4. Refer to product specifications for fire-resistance level (FRL).

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

Bushfire resistance

Bushfire Attack Level (BAL): Tested to AS 3959.

DeltaCool-EPS-FR wall system is -BAL 29.

2.3 DELTA PANELS INSULATED CLADDING SYSTEMS

DELTA PANELS DeltaCool insulated panels comprise a roll-formed metal skin on two sides, factory bonded to a choice of core-Expanded Polystyrene Fire Retardant (EPS-FR), Polyisocyanurate (PIR) or Mineral Wool (MW). Skins are coated with an anti-bacterial paint that inhibits the growth of bacteria. All DeltaCool panels are 1200 mm wide and can be rolled to the required length.

DeltaCool-EPS-FR

Description: An insulated wall panel system comprising panels of two pre-painted, roll form steel skins, bonded to an insulating core of fire retardant grade expanded polystyrene rigid cellular foam.

Joining system: Interlocking tongue and groove.

Strong, lightweight panels suitable for cold stores, commercial kitchens, food processing areas, portable buildings, home extensions, spray booths, wineries commercial buildings, residential buildings and growing rooms.

DeltaSecretFix-EPS-FR

Description: An insulated wall panel system comprising panels of two pre-painted, roll form steel skins, bonded to an insulating core of fire retardant grade expanded polystyrene rigid cellular foam.

Joining system: Interlocking tongue and groove with concealed fixings.

Strong, lightweight panels suitable for architectural structures, curtain walling, clean rooms, feature walls, commercial buildings, residential buildings.

DeltaCool-PIR

Description: An insulated wall panel system comprising panels of two pre-painted, roll form steel skins, bonded to an insulating core of polyisocyanurate rigid cellular foam.

Joining system: Interlocking tongue and groove.

With higher thermal efficiency than EPS-FR, PIR panels are suitable for cold stores, commercial kitchens, food processing areas, portable buildings, home extensions, spray booths, wineries commercial buildings, residential buildings and growing rooms.

DeltaSecretFix-PIR

Description: An insulated wall panel system comprising panels of two pre-painted, roll form steel skins, bonded to an insulating core of polyisocyanurate rigid cellular foam.

Joining system: Interlocking tongue and groove with concealed fixings.

With higher thermal efficiency than EPS-FR, PIR panels are suitable architectural structures, curtain walling, clean rooms, feature walls, commercial buildings, residential buildings.

DeltaCool-MW

Description: An insulated wall panel system comprising panels of two pre-painted, roll form steel skins, bonded to an insulating core of non-combustible mineral wool.

Joining system: Interlocking tongue and groove.

Mineral wool panels offer a high fire resistance coupled with high thermal performance and energy efficiency and are suitable where certified fire-resistance level is required, such as public access areas, sporting arenas, stadiums and halls, shopping complexes, data storage areas and clean rooms.

Insulation core

Standard: To AS/NZS 4859.1.

AS/NZS 4859.1 categorizes insulation as follows: Formed shapes, Formed in situ, Compressible, Loose fill, IR reflective and Vacuum panels.

Insulation blowing agents

Restricted agents: Conform to **MATERIALS AND COMPONENTS**, **Prohibited materials** in *0171 General requirements*.

Internal and external skins

Skin material and thickness: As documented.

The available skin thickness are 0.4 mm and 0.6 mm.

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

Finish: As documented.

Panel profile: As documented.

Dimensions

Panel thickness: As documented.

Panel width:

- Standard module width: 1200 mm.

2.4 COMPONENTS

General

Cladding support: Conform to the **Cladding support schedule**.

If using anchors or attachments cast in the concrete structure, refer to information on embedded anchors in *0432 Curtain walls* and document requirements in the selected concrete worksections.

System accessories

Requirement: DELTA PANELS insulated cladding system accessories colour matched to panels, as documented.

DELTA insulated panel cladding systems has a range of aluminium extrusions including angles, channels and coving in a range of sizes and finishes,

Flashings

Prefabricated flashings: Minimum 0.6 mm coated steel to AS 1397 manufactured to suit the selected external and internal sheet.

Fasteners (non-cyclonic)

Requirement: To DELTA PANELS *Handling and installation manual*.

Primary: Self-tapping, self-drilling screws manufactured from carbon steel, anti-corrosion coated and fitted with a 16 mm diameter bonded washer.

Cyclonic applications: Contact DELTA technical services for recommendations and testing documentation.

Sealants
Materials: Non-staining and to the manufacturer's recommendations.

3 EXECUTION

3.1 PREPARATION

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

3.2 INSTALLATION

DELTA PANELS insulated cladding installation
Requirement: Conform to DELTA PANELS' *Handling and installation manual* and standard construction drawings.

Detail control joints, flashing at windows and abutments, and penetrations. Consult DELTA for further information.

Installation: Install panels as follows:

- Plumb, level, straight and true within acceptable building 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.
- Allowing for thermal movement.

Allowance for expansion and contraction of the components is required. 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.

Site cut panels:

- Provide accurate, true lines with no distortion.
- Cut with a suitable metal cutting circular type saw and treat exposed edges with a proprietary edge protection lacquer.
- Cut openings to the minimum size necessary.

Penetrations larger than 300 x 300 mm: Provide additional structural support.

Swarf: Remove swarf and any foreign matter immediately from the external surface of panels.

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

Fasteners, laps, seals, and fillers: Install as documented.

Fixing method: To DELTA PANELS' recommendations.

Horizontal cladding surface:

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

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

Damaged parts: Remove and replace damaged members during installation.

Joints
Requirement: Rigidly secure joints other than movement and open joints. Reinforce as required and fix with hairline abutments or as documented.

Control joints:

- Location: To coincide with structural movement joints, as documented.
- Joint width: To match structural movement joint requirements.

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

Metal separation
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.

3.3 COMPLETION

Reinstatement

Requirement: Replace damaged cladding, including panels with scratches in the pre-painted finish greater than 2 mm in width and visible from the ground.

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.

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 oxidisation.

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 plasticizers.

Panels: Clean surfaces to the manufacturer's recommendations.

Warranties

General: Provide warranties for materials and workmanship from the supplier and the installer.

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

- Warranty for workmanship: 2 years.
- Warranty for materials: 20 years.

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.

4 SELECTIONS

Schedules are a way of documenting a selection of proprietary or generic products or systems by their properties. Indicate their locations here and/or on the drawings. Refer to NATSPEC TECHnote GEN 024 for guidance on using and editing schedules.

4.1 PERFORMANCE

Cladding fire performance schedule

Properties	**A**	**B**	**C**
Fire hazard property: Group number			
Fire hazard property: Spread-of-Flame Index			
Fire hazard property: Smoke-Developed Index			
Fire resistance level (FRL)			

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

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

Fire hazard property: See FIRE PERFORMANCE for DELTA Panels product values.

Fire hazard property: Group Number: Refer to BCA Spec C1.10.

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

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

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

4.2 DELTA PANELS INSULATED PANEL CLADDING SYSTEM

DELTA insulated panel schedule

Property	A	B	C
DELTA panel type			
Panel core			
Panel thickness (mm)			
Panel skin thickness (mm): External			
Panel skin thickness (mm): Internal			
Panel skin profile			
Panel finish and colour: External			
Panel finish and colour: Internal			
Joiner			
R-Value (m^2.K/W)			
Acoustic characteristic			
Trims			
Fasteners			

A, B, C: These designate each instance or type or location of the item scheduled. Edit codes in the **Schedule** to match those on drawings.

Contact DELTA to discuss your project requirements.

DELTA panel type: Select from the following:

- DeltaCool-EP-FR.
- DeltaSecretFix-EPS-FR.
- DeltaCool-PIR.
- DeltaSecretFix-PIR.
- DeltaCool-MW.

Core: Select form the following:

- Expanded polystyrene.
- Polyisocyanurate.
- Mineral wool.

Panel thickness: Select from 50 mm, 75 mm, 100 mm, 150 mm.

Panel skin thickness (mm): Select from 0.4 mm, 0.6 mm.

Panel skin profile: Select from the following:

- Smooth.
- Ribbed.
- 5V.
- SatinLine.
- Mesa.
- Single V.

Panel finish and colour: External:

- 0.4 mm: Off-white.
- 0.6 mm: Select from standard Colorbond® range.

Panel finish and colour: Internal:

- 0.4 mm: Off-white.
- 0.6 mm: Select from standard Colorbond® range.

Joiner: Select from the following:

- Male-Female.
- Secret fix.
- Shadowline.

R-Value (m^2.K/W): AS/NZS 4859.1 requires that R-Value is declared at 23°C for products sold in Australia.

- DeltaCool-EPS-FR: R-Values range from 1.40 to 4.10.
- DeltaSecretFix-EPS-FR: R-Values range from 1.40 to 4.10.
- DeltaCool-PIR: R-Values range from 2.16 to 6.47.
- DeltaSecretFix-PIR: R-Values range from 2.16 to 6.47.
- DeltaCool-MW: R-Values range from 1.3 to 3.7.

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

Fasteners: See DELTA PANELS *Handling and installation manual*.

Cladding support schedule

Property	A	B	C
Product			
Material			
Vertical members			
Horizontal members			
Spacing: Vertical members			
Spacing: Horizontal members			

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

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

Product: Nominate proprietary items or describe the cladding support system and document the subframe to your office documentation policy. Fabricated panels are usually secret fixed to the structural support or the subframe. Cross reference *0342 Light steel framing* for the subframe or import the relevant clauses, if required.

Material: e.g. Galvanized steel, Anodized aluminium or Stainless steel appropriate to the project's location.

If using anchors or attachments cast in the concrete structure, refer to information on embedded anchors in *0432 Curtain walls* and document requirements in the selected concrete worksections.

REFERENCED DOCUMENTS

The following documents are incorporated into this worksection by reference:

AS 1397	2011	Continuous hot-dip metallic coated steel sheet and strip - Coatings of zinc and zinc alloyed with aluminium and magnesium
AS 1530		Methods for fire tests on building materials, components and structures
AS/NZS 1530.3	1999	Simultaneous determination of ignitability, flame propagation, heat release and smoke release
AS 1530.4	2014	Fire-resistance tests for elements of construction
AS 3959	2018	Construction of buildings in bushfire prone areas
AS/NZS 4284	2008	Testing of building facades
AS/NZS 4859		Thermal insulation of buildings
AS/NZS 4859.1	2018	General criteria and technical provisions
AS 5637		Determination of fire hazard properties
AS 5637.1	2015	Wall and ceiling linings

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

AS ISO 9705	2003	Fire tests - Full-scale room test for surface products
ABCB Advisory Note 3	2016	Fire performance of external walls and cladding
BCA Section C	2019	Fire Resistance
BCA Spec C1.10	2019	Fire resistance - Fire hazard properties
BCA FP1.4	2016	Health and amenity - Damp and weatherproofing - Performance requirements
BlueScope TB-02	2019	Overpainting and restoration of exterior BlueScope Steel products
NATSPEC DES 003	2018	Fire hazard properties of insulation and pliable membranes
NATSPEC DES 018	2019	Bushfire protection
NATSPEC DES 020	2018	Fire behaviour of building materials and assemblies
NATSPEC DES 031	2019	Specifying R-Values

NATSPEC GEN 006	2015	Product specifying and substitution
NATSPEC GEN 024	2015	Using NATSPEC selections schedules
NATSPEC TR 01	2019	Specifying ESD
NCC	2019	National Construction Code