0434P DANPALON TRANSLUCENT FACADE CLADDING

Branded worksection

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Worksection abstract

This branded worksection *Template* is applicable to Danpalon lightweight external wall cladding by Danpal Australia Pty Limited.

***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.

- *0342 Light steel framing* for subframing.
- *0382 Light timber framing* for subframing.
- *0432 Curtain walls.*
- *0433 Stone cladding*.
- *0428p DANPALON roof glazing* for translucent roofing.
- *0435 Cladding – planks and weatherboards*.
- *0436 Cladding – profiled and seamed sheet metal*.
- *0531 Suspended ceilings – combined*.

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:

- Check if your cladding is required to be non-combustible, refer to BCA Section C and the ABCB Advisory Note 3. Consider adding a requirement in **SUBMISSIONS** for evidence of conformance from the contractor.
- Document the structural support system to your office documentation policy.
- Document bushfire protection requirements to conform to AS 3959 and the BCA. See NATSPEC TECHnote DES 018 for information on bushfire protection.
- Locate the extent of cladding types, accessories, and finishes on drawings to your office documentation policy.
- Show on the drawings the location and extent of penetrations for services and structural elements including flashing details.
- Contact Danpalon for limits of panel length and span tables.

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

- Warranties and guarantees.

Specifying ESD

The following may be specified by including additional text:

- Design for disassembly. Danpalon panels can be dismantled and reused elsewhere.
- High performance cladding systems to extend building service life.
- High thermal performance to reduce heating/cooling load.
- Recycled material content.
- Recycling of construction scrap materials. Polycarbonate is 100% recyclable.

Refer to the NATSPEC TECHreport TR 01 on specifying ESD.

1 GENERAL

Danpalon is a patented glazing snap-connection system with concealed fasteners that provides for 100% watertightness; free structural and thermal movement within a flexible system; structural properties that allow for a significantly reduced substructure; quick and easy installation; the elimination of gaskets and sealants; the elimination of fixing penetrations through the sheet and 99.9% UV protection with the protection coating co-extruded with the sheeting, eliminating any chance of delamination.

1.1 RESPONSIBILITIES

General

Requirement: Provide the Danpalon polycarbonate cladding system, as documented.

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

1.2 COMPANY CONTACTS

Danpalon technical contacts

Website: danpalon.com.au/contact-us

Warranties: danpalon.com.au/warranty

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

Design and installation: To AS 1562.3.

The BCA cites AS/NZS 1562.3:1996 for BCA deemed-to-satisfy.

Polycarbonate: To AS 4256.5.

The BCA cites AS/NZS 4256.5:1996 for structural sufficiency of roof construction and weatherproofing of roofing.

1.5 MANUFACTURERS DOCUMENTS

Technical manuals

Brochures: www.danpalon.com.au/brochures

Design details: www.danpalon.com.au/details

Colour properties: www.danpalon.com.au/colour

Warranties: www.danpalon.com.au/warranty

Further information and sample orders: www.danpalon.com.au/new-member-registration

1.6 INTERPRETATION

Abbreviations

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

- LT%: The percentage of visible light transmission (400 to 700 mm).
- SHGC: Solar heat gain coefficient.
- SR%: The percentage of total solar reflection (300 to 2800 mm).
- ST%: The percentage of total solar radiation transmission (300 to 2800 mm).

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

1.7 TOLERANCES

Permitted deviations
Requirement: To Danpalon's recommendations.

1.8 SUBMISSIONS

Fire hazard properties
Requirement: Submit evidence of conformance to **TRANSLUCENT PANEL SYSTEMS GENERALLY**, **Fire hazard properties**.

Fire hazard properties may be documented in **PRODUCTS** and/or **EXECUTION**.

Operation and maintenance manuals
General: Submit Danpalon's published use, care and maintenance requirements.

Products and materials
Type tests: As appropriate for the project, submit evidence of conformance to the following:

- Plastic cladding: Cladding and fastenings to AS 1562.3 Section 5 for resistance to wind forces and resistance to impact.

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**. Refer to AS 1562.3 clause 5.3 for resistance of metal cladding to wind pressures for cyclone regions.

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 and to verify performance, including wind loading.

Inclusions:

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

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]

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 range of variation available.

Sample size: [complete/delete]

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

Shop drawings
Composite panels: 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 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.

Warranties
Translucent panel systems: Submit Danpalon's published product warranties.

1.9 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 Danpalon's recommendations and the following:
- Protect materials, including edges and surfaces from damage.
- Keep dry and unexposed to weather.
- Do not drag sheets across each other or over other materials.
- Sheeting: Stack flat and off the ground on at least 3 evenly placed bearers.

Marking
Identification: Marked to show the following:
- Manufacturer's identification.
- Product brand name.
- Product type.
- Quantity.
- Product reference code and batch number.
- Date of manufacture.

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

Components
Fasteners and ties: To the cladding manufacturer's recommendations.

Flashings: To AS/NZS 2904.

2.2 TRANSLUCENT PANEL SYSTEMS GENERALLY

Danpalon systems
Description: Proprietary polycarbonate glazing system comprising polycarbonate panels, associated aluminium or polycarbonate connecting profiles and other framing accessories.

Fire hazard properties
Requirement: Conform to the following, tested to AS/NZS 1530.3:
- Ignitability Index: 0.
- Spread-of-Flame Index: 0.

- Heat evolved Index: 0.
- Smoke-Developed Index: Maximum 5.

Test results for Ignitability, Spread-of-flame, Heat evolved and Smoke-Developed Indices are available in the **Technical manuals.**

Group number to BCA Spec C1.10: 3.

If Danpalon is used as an internal partition, check BCA Spec C1.10 Table 2 for permissible locations.

2.3 SOLID TRANSPARENT PANELS (OVER SUBFRAME)

Detail the subframe to your office documentation policy. It is not provided by Danpalon.

General

Panel product: Danpalon 4 mm compact polycarbonate.

System description: Proprietary polycarbonate glazing system comprising solid polycarbonate panels, associated aluminium/polycarbonate connecting profiles and other framing accessories.

2.4 MULTIWALL TRANSLUCENT PANELS (OVER SUBFRAME)

Detail the subframe to your office documentation policy. It is not provided by Danpalon.

General

Panel product: Danpalon Honeycomb and Multicell polycarbonate (various thicknesses).

System description: Proprietary polycarbonate glazing system comprising multiwall polycarbonate panels, associated aluminium/polycarbonate connecting profiles and other framing accessories.

2.5 SEAMLESS FACADE SYSTEM

Detail the flashings and fixings of the Danpalon head, sill and jamb extrusions to your office documentation policy.

General

Panel product: Danpalon Honeycomb or Multicell polycarbonate.

Panel lengths: Up to 11 980 mm.

System description: Proprietary cladding system comprising polycarbonate panels and structural aluminium connectors which provides a clear span between the top and bottom framing.

Panel joint : Standing seam comprising a full mullion connector system of extruded aluminium exposed internally which provides a clear span between the top and bottom fixings.

3 EXECUTION

3.1 PREPARATION

Substrates or framing

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

Substrate tolerance

Industry standards: [complete/delete]

Light steel framing: To NASH-1 Appendix D and NASH-2 Appendix A.

Structural steel: To AS/NZS 5131 Section 12 and Appendix F.

Concrete: To AS 3610.1.

3.2 INSTALLATION

Danpalon requirements

Cutting and assembly: To the Danpalon installation specification.

3.3 COMPLETION

Cleaning

General: To the Danpalon installation specification.

Warranties

Type: Limited 15 year warranty.

Conditions: Refer to Danpalon’s published product warranties.

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.

Complete or delete the following subclauses as appropriate for the project.

4.1 SOLID TRANSLUCENT PANELS

Danpalon polycarbonate panels generally

Finish: [complete/delete]

Select from the following:

- Gloss: All standard stock.
- Softlite: Matt finish for reducing transmitted and reflected glare. Optional for all multiwall panels.
- Abrasion resistant: For high traffic areas. Optional for 10 mm or 16 mm panels.

Softlite and Abrasion resistant finishes are subject to minimum quantities and lead times.

Solid transparent panels (over subframe)

Support system: [complete/delete]

Describe the support system or detail the subframe to your office documentation policy. It is not provided by Danpalon.

Panel lengths: Up to 12 000 mm.

Longer lengths panels available to order, subject to lead time.

Installed module width: 600 mm.

U-Value: 5.36 W/m^2.K.

Colour: [complete/delete]

Select from the following stocked colours:

- Reflective Grey.
- Grey.
- Clear.

Other colours are available to order, subject to lead time. Refer to Danpalon for the optical and solar properties, including the LT%, ST%, SR% and SHGC for each colour.

4.2 MULTIWALL TRANSLUCENT PANELS (OVER SUBFRAME)

General

Support system: [complete/delete]

Describe the support system or detail the subframe to your office documentation policy. It is not provided by Danpalon.

8 mm Honeycomb panels

Panel lengths: Up to 12 000 mm.

Longer lengths are panels are available to order, subject to lead time.

Installed module width:

- Without fasteners: 600 mm.
- With fasteners: 602 mm.

U-Value: 2.46 W/m^2.K.

Colour: [complete/delete]

Select from the following stocked colours:

- Reflective Grey.
- Reflective Ice.
- Opal.
- Grey.
- Clear.

Other colours are available to order, subject to lead time. Refer to Danpalon for the optical and solar properties, including the LT%, ST%, SR% and SHGC for each colour.

10 mm Honeycomb panels

Panel lengths: Up to 12 000 mm.

Longer lengths panels are available to order, subject to lead time.

Installed module width:

- Without fasteners: 600 mm.
- With fasteners: 602 mm.

U-Value: 2.11 W/m^2.K.

Colour: [complete/delete]

Select from the following colours:

- Reflective Grey.
- Reflective Ice.
- Opal.
- Bronze.
- Grey.
- Ice.
- Blue.
- Green.
- Clear.
- Gold.
- Purple.
- Red.
- Yellow.
- Dark Opal.

Refer to Danpalon for the optical and solar properties, including the LT%, ST%, SR% and SHGC for each colour.

12 mm Honeycomb panels

Panel lengths: Up to 12 000 mm.

Installed module width:

- Without fasteners: 900 mm.
- With fasteners: 902 mm.

U-Value: 1.84 W/m^2.K.

Colour: [complete/delete]

Select from the following stocked colours:

- Reflective Grey.
- Ice.

16 mm Multicell panels

Panel lengths: Up to 12 000 mm.

Longer lengths panels are available to order, subject to lead time.

Width: [complete/delete]

Select from 600 mm or 1040 mm. 900 mm wide panels are available, subject to minimum quantities and lead time. Reflective Grey has a 1050 mm installed module because a 10 mm spacer is installed between the panels.

U-Value: 1.53 W/m^2.K.

Colour: [complete/delete]

Select from the following stocked colours:

- Reflective Grey.
- Ice.
- Opal.

Other colours are available to order, subject to lead time.

Refer to Danpalon for the optical and solar properties, including the LT%, ST%, SR% and SHGC for each colour.

22mm Multicell panels (3D Lite)

Panel lengths: All panels are made to order.

Subject to minimum quantities and lead time.

Width: 600 mm.

U-Value: 1.75 W/m^2.K.

Colour: [complete/delete]

All colours are available to order, subject to minimum quantities and lead time.

30 mm Honeycomb panels

Panel lengths: All panels are made to order.

Subject to minimum quantities and lead time.

Width: 900 mm.

U-Value: 1.51 W/m^2.K.

Colour: [complete/delete]

All colours are available to order, subject to minimum quantities and lead time.

System components

Support system: [complete/delete]

Refer to the Danpalon span table to determine subframe requirements as applicable.

Connectors: [complete/delete]

Polycarbonate:

- DPC: Standard connector. Available in lengths up to 12 000 mm.
- DPCW: Wide connector for 16 mm Reflective Grey 1040 mm wide panels. Available in lengths up to 12 000 mm.

Aluminium:

- DPC30: Standard connector. Available in lengths up to 7000 mm.
- DPC54: Heavy-duty connector. Available in lengths up to 7000 mm.
- DPCH: H connector for double glazed systems. Available in lengths up to 7000 mm.
- For other connector options, see **PROPRIETARY STRUCTURAL SYSTEM — SEAMLESS FACADE SYSTEM.**

Connector caps to seal off the ends of the connectors: [complete/delete]

Select from the following:

- DPECC: Polycarbonate connector end cap.
- DPCEC: Aluminium connector end cap.

Aluminium F sections to seal off the sides of the roof area: [complete/delete]

Select from the following:

- DPFS: 8 mm, 10 mm or 16 mm to suit panels.

Panel caps to seal off the ends of the panels: [complete/delete]

Select from the following:

- DPEC: Aluminium panel end cap, for high end of panels.
- DPPEC: Aluminium pivot panel end cap, for low end of panels.

Fastener fixing centres: [complete/delete]

Determine the fastener centres by the spanning capability of the panels and connectors specified, with reference to the Danpalon span table.

4.3 PROPRIETARY STRUCTURAL SYSTEM – SEAMLESS FACADE SYSTEM

Complete or delete this clause as appropriate for the project.

General

Application: All Danpalon Honeycomb or Multicell panels.

Connectors

Material: Aluminium.

Type: [complete/delete]

Select from:

- DPC40: 40 mm connector. Available in lengths up to 7000 mm.
- DPC50: 50 mm connector. Available in lengths up to 7000 mm.
- DPC60: 60 mm connector. Available in lengths up to 7000 mm.
- DPC70: 70 mm connector. Available in lengths up to 7000 mm.
- DPC80: 80 mm connector. Available in lengths up to 7000 mm.
- DPC100: 100 mm connector. Available in lengths up to 9000 mm.

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/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 1562.3	2006	Plastics
AS/NZS 2904	1995	Damp-proof courses and flashings
AS 4256		Plastic roof and wall cladding materials
AS 4256.5	2006	Polycarbonate
BCA Spec C1.10	2016	Fire resistance - Fire hazard properties

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

AS 1562		Design and installation of sheet roof and wall cladding
AS/NZS 1562.3	1996	Plastic
AS 3610	1995	Formwork for concrete
AS 3610.1	2010	Documentation and surface finish
AS 3959	2009	Construction of buildings in bushfire prone areas
AS 4256		Plastic roof and wall cladding materials
AS/NZS 4256.5	1996	Polycarbonate
AS/NZS 5131	2016	Structural steelwork - Fabrication and erection
ABCB Advisory Note 3	2016	Fire performance of external walls and cladding
BCA Section C	2016	Fire Resistance
NASH		NASH Standard Residential and Low-rise Steel Framing
NASH-1	2005	Design criteria
NASH-2	2014	Design solutions
NATSPEC DES 018	2008	Bushfire protection
NATSPEC GEN 006	2007	Product specifying and substitution
NATSPEC GEN 024	2015	Using NATSPEC selections schedules
NATSPEC TR 01	2016	Specifying ESD