

CCMC 13450-R

CCMC Canadian code compliance evaluation

CCMC number:	13450-R
Status:	Active
Issue date:	2011-06-13
Modified date:	2023-09-07
Evaluation holder:	<p>Palram Americas, Inc. Arcadia West Industrial Park 9735 Commerce Circle Kutztown PA 19530 United States Website: www.palramamericas.com Telephone: 610-285-9918</p>
Product names:	<ul style="list-style-type: none"> • PALOPAQUE™ (polyvinyl chloride panels) • PALRUF® (polyvinyl chloride panels) • PALSUN® (polycarbonate panels) • SUNLITE® (polycarbonate panels) • SUNTOP® (polycarbonate panels) • SUNTUF® (polycarbonate panels)
Compliance:	NBC 2015, OBC
Criteria:	CCMC-TG-074333-15 "CCMC Technical Guide for Plastic Wall and Roof Panels"

In most jurisdictions this document is sufficient evidence for approval by Canadian authorities.

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Compliance opinion

It is the opinion of the Canadian Construction Materials Centre that the evaluated products, when used as a canopy covering in accordance with the conditions and limitations stated in this evaluation, comply with the following code:

National Building Code of Canada 2015

Code provision	Solution type
9.23.16. Roof Sheathing	<u>Alternative</u>

Ontario Building Code

Ruling No. 12-09-279 (13450-R) authorizing the use of this product in Ontario, subject to the terms and conditions contained in the Ruling, was made by the Minister of Municipal Affairs and Housing on 2012-06-21 pursuant to s.29 of the Building Code Act, 1992 (see Ruling for terms and conditions). This Ruling is subject to periodic revisions and updates.

The above opinion(s) is/are based on the evaluation by the CCMC of technical evidence provided by the evaluation holder, and is bound by the stated conditions and limitations. For the benefit of the user, a summary of the technical information that forms the basis of this evaluation has been included.

Product information

Product names

- PALOPAQUE™ (polyvinyl chloride panels)
- PALRUF® (polyvinyl chloride panels)
- PALSUN® (polycarbonate panels)
- SUNLITE® (polycarbonate panels)
- SUNTOP® (polycarbonate panels)
- SUNTUF® (polycarbonate panels)

Product description

PALRUF

is a corrugated polyvinyl chloride (PVC) panel. PALOPAQUE™ is a flat, corrugated PVC panel. SUNLITE

is a multiwalled polycarbonate panel. PALSUN

is a flat, extruded polycarbonate panel. SUNTUF

is a corrugated polycarbonate panel. SUNTOP

is a corrugated, foamed polycarbonate panel. All panels are available in various profiles (all manufactured), widths and lengths.

Manufacturing plant

This evaluation is valid only for products produced at the following plant:

Product names	Manufacturing plant
	Kutztown, PA, US
PALOPAQUE™ (polyvinyl chloride panels)	☑
PALRUF® (polyvinyl chloride panels)	☑
PALSUN® (polycarbonate panels)	☑
SUNLITE® (polycarbonate panels)	☑
SUNTOP® (polycarbonate panels)	☑
SUNTUF® (polycarbonate panels)	☑

☑ Indicates that the product from this manufacturing facility has been evaluated by the CCMC

Conditions and limitations

The CCMC's compliance opinion is bound by this product being used in accordance with the conditions and limitations set out below.

- The products are polycarbonate or PVC corrugated panels intended for use as roof panels for canopies or carports. They are not intended for use as skylights. They must not be subjected to any traffic, maintenance or other loads with the exception of uniform loads from snow, rain and wind.
- The supporting structure, which is not part of this evaluation, must be designed by a professional engineer who is skilled in such design and licensed to practice under the appropriate provincial or territorial legislation. The supporting structure must comply with the requirements of Part 9 of Division B of the NBC 2015 and to meet the load and deflection resistance requirements specified in Subsections 9.4.2., Specified Loads, and 9.4.3., Deflections, of Division B of the NBC 2015. The polycarbonate or PVC corrugated roof panels must be able to transfer the appropriate loads to the supporting structure.
- The flashing detail at the wall junction must be installed in accordance with Subsection 9.26.4., Flashing at Intersections, of Division B of the NBC 2015.
- The spacing of the supporting roof joists must not be greater than 600 mm on centre (o.c.).
- The products must be installed in accordance with manufacturer's instructions and installation manual.
- The products must be identified with the phrase "CCMC 13450-R."

Technical information

This evaluation is based on demonstrated conformance with the following criteria:

Criteria number	Criteria name
CCMC-TG-074333-15	CCMC Technical Guide for Plastic Wall and Roof Panels

The evaluation holder has submitted technical documentation for the CCMC's evaluation. Testing was conducted at laboratories recognized by the CCMC. The corresponding technical evidence for this product is summarized below.

Table 1. Results of testing of material requirements of the products

Property	Product	Unit	Requirement	Result
Flame-spread rating ⁽¹⁾	SUNTUF®	-	Report value	55
Smoke development ⁽¹⁾	SUNTUF®	-	Report value	355
Water absorption resistance ⁽²⁾	PALRUF®	g	< 1 g	0
Water absorption resistance ⁽²⁾	SUNTUF®	g	< 1 g	0
Water absorption resistance ⁽²⁾	PALSUN®	g	< 1 g	0
Watertightness prior to aging ⁽³⁾	PALRUF®	-	No water penetration	No leakage
Watertightness prior to aging ⁽³⁾	SUNTUF®	-	No water penetration	No leakage
Watertightness prior to aging ⁽³⁾	PALOPAQUE™	-	No water penetration	No leakage
Watertightness prior to aging ⁽³⁾	PALSUN®	-	No water penetration	No leakage
Watertightness after accelerated aging ⁽³⁾	PALRUF®	-	No water penetration	No leakage
Watertightness after accelerated aging ⁽³⁾	SUNTUF®	-	No water penetration	No leakage
Watertightness after accelerated aging ⁽³⁾	PALOPAQUE™	-	No water penetration	No leakage
Watertightness after accelerated aging ⁽³⁾	PALSUN®	-	No water penetration	No leakage
Watertightness after heat aging ⁽³⁾	PALRUF®	-	No water penetration	No leakage
Watertightness after heat aging ⁽³⁾	SUNTUF®	-	No water penetration	No leakage
Watertightness after heat aging ⁽³⁾	PALOPAQUE™	-	No water penetration	No leakage
Watertightness after heat aging ⁽³⁾	PALSUN®	-	No water penetration	No leakage
Watertightness after freeze/thaw ⁽³⁾	PALRUF®	-	No water penetration	No leakage
Watertightness after freeze/thaw ⁽³⁾	SUNTUF®	-	No water penetration	No leakage
Watertightness after freeze/thaw ⁽³⁾	PALOPAQUE™	-	No water penetration	No leakage
Watertightness after freeze/thaw ⁽³⁾	PALSUN®	-	No water penetration	No leakage

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Notes

- 1 The SUNTUF® Greca profile was used for testing. The profile used for testing is not considered to affect the results of this testing.
- 2 The PALRUF® Iron, SUNTOP® Greca and Flat PALSUN® profiles were used for testing. This panel profile did not affect the results of this testing
- 3 The PALRUF® Iron, SUNTUF® Greca, PALOPAQUE™ and Flat PALSUN® profiles were used for testing. These panels were considered to be the worst-case scenario.

Table 2. Results of testing of design requirements of the products

Property	Product	Thickness	Unit	Requirement	Result
Uniform load resistance ⁽¹⁾ (spacing of supports 600 mm on centre)	PALRUF®	0.8 mm	kPa	As reported	27.1
Uniform load resistance ⁽¹⁾ (spacing of supports 600 mm on centre)	SUNTUF®	0.8 mm	kPa	As reported	21.6
Uniform load resistance ⁽¹⁾ (spacing of supports 600 mm on centre)	SUNLITE®	8.0 mm	kPa	As reported	11.4
Uniform load resistance ⁽¹⁾ (spacing of supports 600 mm on centre)	PALSUN®	3.0 mm	kPa	As reported	13.3

Note

- 1 The PALRUF® Greca, the SUNTUF® Iron, the SUNLITE® 8 mm and the Flat PALSUN® profiles were used for testing. These panels were considered to be the worst-case thicknesses and profiles by which the remainder of the profiles can be deemed to be acceptable.

Table 3. Results of testing of performance requirements of the products

Property	Product	Thickness	Unit	Requirement	Result
Tensile strength prior to aging ⁽¹⁾	PALRUF®	0.8 mm	kPa	As reported	45 576
Tensile strength prior to aging ⁽¹⁾	SUNTUF®	0.8 mm	kPa	As reported	51 915
Tensile strength prior to aging ⁽¹⁾	PALOPAQUE™	3.0 mm	kPa	As reported	46 061
Tensile strength prior to aging ⁽¹⁾	PALSUN®	3.0 mm	kPa	As reported	57 311
Tensile strength after freeze/thaw ⁽¹⁾	PALRUF®	0.8 mm	kPa	As reported	50 048
Tensile strength after freeze/thaw ⁽¹⁾	SUNTUF®	0.8 mm	kPa	As reported	50 320

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Tensile strength after freeze/thaw ⁽¹⁾	PALOPAQUE™	3.0 mm	kPa	As reported	45 542
Tensile strength after freeze/thaw ⁽¹⁾	PALSUN®	3.0 mm	kPa	As reported	55 025
Falling ball impact ⁽²⁾	PALRUF®	0.8 mm	-	As reported	No sign of any damage
Falling ball impact ⁽²⁾	SUNTUF®	3.0 mm	-	As reported	No sign of any damage
Falling ball impact ⁽²⁾	PALSUN®	3.0 mm	-	As reported	No sign of any damage
Wind uplift resistance ⁽²⁾	PALRUF®	0.8 mm	kPa	As reported	-2.9
Wind uplift resistance ⁽²⁾	SUNTUF®	3.0 mm	kPa	As reported	-3.0
Wind uplift resistance ⁽²⁾	PALSUN®	3.0 mm	kPa	As reported	+1.0
Resistance to accelerated aging ⁽²⁾	PALRUF®	0.8 mm	-	No water penetration	No cracking
Resistance to accelerated aging ⁽²⁾	SUNTUF®	3.0 mm	-	No water penetration	No cracking
Resistance to accelerated aging ⁽²⁾	PALSUN®	3.0 mm	-	No water penetration	No cracking
Resistance to heat aging ⁽²⁾	PALRUF®	0.8 mm	-	No cracking or deterioration	No cracking or deterioration
Resistance to heat aging ⁽²⁾	SUNTUF®	0.8 mm	-	No cracking or deterioration	No cracking or deterioration
Resistance to heat aging ⁽²⁾	PALOPAQUE™	3.0 mm	-	No cracking or deterioration	No cracking or deterioration
Resistance to heat aging ⁽²⁾	PALSUN®	3.0 mm	-	No cracking or deterioration	No cracking or deterioration
Freeze/thaw resistance ⁽¹⁾	PALRUF®	0.8 mm	-	No visible damage and mass loss ≤ 1%	No damage/0%
Freeze/thaw resistance ⁽¹⁾	SUNTUF®	0.8 mm	-	No visible damage and mass loss ≤ 1%	No damage/0%
Freeze/thaw resistance ⁽¹⁾	PALOPAQUE™	3.0 mm	-	No visible damage and mass loss ≤ 1%	No damage/0%
Freeze/thaw resistance ⁽¹⁾	PALSUN®	3.0 mm	-	No visible damage and mass loss ≤ 1%	No damage/0%
Fastener pull-through ⁽³⁾	PALRUF®	0.8 mm	N	As reported	531
Fastener pull-through ⁽³⁾	SUNTUF®	0.8 mm	N	As reported	153
Fastener pull-through ⁽³⁾	PALSUN®	3.0 mm	N	As reported	246

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Notes

- 1 The PALRUF® Iron, the SUNTUF® Greca, the PALOPAQUE™ and the Flat PALSUN® profiles were used for testing. These panels were considered to be the worst-case thickness and profile.
 - 2 The PALRUF® Iron, the SUNTUF® Greca and the Flat PALSUN® profiles were used for testing. These panels were considered to be the worst-case thickness and profile.
 - 3 The PALRUF® Iron, the SUNTUF® Greca and the Flat SUNLITE® profiles were used for testing. These panels were considered to be the worst-case thickness and profile.
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Administrative information

Use of Canadian Construction Materials Centre (CCMC) assessments

This assessment must be read in the context of the entire [CCMC Registry of Product Assessments](#), any applicable building code or by-law requirements, and/or any other regulatory requirements (for example, the [Canada Consumer Product Safety Act](#), the [Canadian Environmental Protection Act](#), etc.).

It is the responsibility of the user to confirm that the assessment they are using is current and has not been withdrawn or superseded by a later version on the [CCMC Registry of Product Assessments](#).

Disclaimer

The National Research Council of Canada (NRC) has evaluated only the characteristics of the specific product described herein. The information and opinions in this evaluation are directed to those who have the appropriate degree of experience to use and apply its contents (such as authorities having jurisdiction, design professionals and specifiers). This evaluation is valid when the product is used as part of permitted construction, respecting all conditions and limitations stated in the evaluation, and in accordance with applicable building codes and by-laws.

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Language

Une version française de ce document est disponible.

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CCMC recognition

The Canadian Construction Materials Centre (CCMC) assesses compliance with Canadian building, energy and safety codes. We are the only construction code compliance service supported and operated by the Government of Canada. Trusted by over 6,000 regulators across Canada.

Most Canadian authorities having jurisdiction (AHJs) consider CCMC product assessments acceptable as evidence for product approval.

CCMC assessments are recognized by construction authorities across Canada:

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(Alliance of Canadian Building Official Associations (ACBOA))

First Nations National Building Officers Association (FNNBOA)



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Canadian Home Builders' Association (CHBA)



(Canadian Home Builders' Association (CHBA))

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(Nova Scotia Building Officials Association (NSBOA))

The CCMC provides code compliance assessments to Canadian code requirements, consulting nationwide with construction regulators to elicit regional variations in code requirements as well as provincial and local interpretations. Users are advised to review the technical information presented in CCMC assessments when making approval decisions. [Learn more about how the CCMC provides a unique service for Canada.](#)

For more information, contact the CCMC by phone at (613) 993-6189 or by email at ccmc@nrc-cnrc.gc.ca

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Code compliance as an acceptable solution

Code Compliance via Acceptable Solutions

If a building design (e.g. material, component, assembly or system) can be shown to meet all provisions of the applicable **acceptable solutions** in Division B (e.g. it complies with the applicable provisions of a referenced standard), it is deemed to have satisfied the objectives and functional statements linked to those provisions and thus to have complied with that part of the Code.

— National Building Code of Canada, Sentence A-1.2.1.1.(1)(a)

The CCMC has determined that compliance with this provision of the Code has been demonstrated as an **Acceptable Solution**. The evaluation report provides a summary of the basis of CCMC's compliance opinion.

CCMC's code compliance opinions

All CCMC evaluation reports are opinions of code compliance established in accordance with the National Building Code of Canada, Subsection 1.2.1. "Compliance with this Code," which requires compliance to be achieved by:

- complying with the applicable acceptable solutions in Division B, or
- using an alternative solution that will achieve at least the minimum level of performance required by Division B in the areas defined by the objective and functional statements attributed to the applicable acceptable solutions.

The CCMC assesses compliance with Canadian building, energy and safety codes, and is trusted by over 6,000 regulators across Canada.

Code compliance as an alternative solution

Code Compliance via Alternative Solutions

Where a design differs from the acceptable solutions in Division B, then it should be treated as an **"alternative solution."** A proponent of an alternative solution must demonstrate that the alternative solution addresses the same issues as the applicable acceptable solutions in Division B and their attributed objectives and functional statements. However, because the objectives and functional statements are entirely qualitative, demonstrating compliance with them in isolation is not possible. Therefore, Clause 1.2.1.1.(1)(b) identifies the principle that Division B establishes the quantitative performance targets that alternative solutions must meet. In many cases, these targets are not defined very precisely by the acceptable solutions [...] Nevertheless, Clause 1.2.1.1.(1)(b) makes it clear that an effort must be made to demonstrate that an alternative solution will perform as well as a design that would satisfy the applicable acceptable solutions in Division B—not “well enough” but “as well as.”

— National Building Code of Canada, Sentence A-1.2.1.1.(1)(b)

The CCMC has determined that compliance with this provision of the Code has been demonstrated as an **Alternative Solution**. The evaluation report provides a summary of the basis of CCMC's compliance opinion.

CCMC's code compliance opinions

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