



Global-Mark Pty Ltd,
Suite 4.07, 32 Delhi
Road, North Ryde
NSW 2113, Australia

Tel: +61 (0)2 9886
0222 - www.Global-Mark.com.au

Certificate Holder:

Icynene Inc
6747 Campobello
Road, Mississauga,
Ontario L5N2I7,
Canada

Tel: + 1-905-363-4040

Web site:
www.icynene.com

Certificate of Conformity

Certificate number: CM 30009 Rev 1

THIS TO CERTIFY THAT

Icynene LD-C-50™

Type and/or use of product:

Thermal insulation system for walls, ceilings and floors.

Description of product:

Icynene LD-C-50™ is a polyurethane micro-cellular plastic foam insulation, which is sprayed onto a wall or into a wall cavity to form an insulation system.

COMPLIES WITH THE FOLLOWING BCA PROVISIONS AND STATE OR TERRITORY VARIATION(S)

BCA 2019

| | Volume One | | Volume Two | |
|---|---------------|---|--------------|-------------------------------------|
| Performance Requirement(s) | JP1 | Energy Use | P2.6.1 | Energy Efficiency – Building fabric |
| Deemed-to-Satisfy Provision(s): | | | | |
| State or territory variation(s): | NSW J(A)P1(a) | Thermal insulation | NSW Part 2.6 | Replaced by BASIX |
| | NT Section J | Replaced by Section J of BCA 2009 | NT Part 2.6 | Replaced by Part 2.6 of BCA 2009 |
| | Qld Section J | Replaced by Section J of BCA 2009 for Class 2 buildings | Vic P2.6.1 | Energy Efficiency - Building |

Scope of certification: The CodeMark Scheme is a building product certification scheme. The rules of the Scheme are available at the ABCB website www.abcb.gov.au. This Certificate of Conformity is to confirm that the relevant requirements of the Building Code of Australia (BCA) as claimed against have been met. The responsibility for the product performance and its fitness for the intended use remain with the certificate holder. The certification is not transferrable to a manufacturer not listed on Appendix A of this certificate.

Disclaimer: The Scheme Owner, Scheme Administrator and Scheme Accreditation Body do not make any representations, warranties or guarantees, and accept no legal liability whatsoever arising from or connected to, the accuracy, reliability, currency or completeness of any material contained within this certificate; and the Scheme Owner, Scheme Administrator and Scheme Accreditation Body disclaim to the extent permitted by law, all liability (including negligence) for claims of losses, expenses, damages and costs arising as a result of the use of the product(s) referred to in this certificate.

The purpose of Global-Mark **construction site audits** is to confirm the practicability of installing the product; and to confirm the appropriateness and accuracy of installation instructions. In placing the **CodeMark mark** on the product/system, the certificate holder makes a declaration of compliance with the certification standard(s) and confirms that the product is identical to the product certified herein. In issuing this Certificate of Approval Global-Mark has relied on the **expertise of external bodies** (laboratories, and technical experts).

Herve Michoux
Global-Mark Managing Director

Peter Gardner
Unrestricted Building Certifier

Date of issue: 27/08/2019

Date of expiry: 27/08/2022



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SUBJECT TO THE FOLLOWING LIMITATIONS AND CONDITIONS AND THE PRODUCT TECHNICAL DATA IN APPENDIX A AND EVALUATION STATEMENTS IN APPENDIX B

Limitations and conditions:

1. The product will contribute to compliance when installed in accordance with:
 - a. Volume One Clauses J1.2 (a) and (c), J1.3 (a), J 1.5 (a) and (d), and J1.6 (a); and,
 - b. Volume Two Clauses 3.12.1.1 (a) and (c), 3.12.1.2 (a) and (b), 3.12.1.4 (a), (b) and (c), and 3.12.1.5 (a).
2. The thermal resistances in Table 1 are of the Icynene semi-rigid polyurethane foam insulation alone (i.e. corresponding to “added insulation” as used in the BCA). The total thermal resistance of a wall, floor or ceiling system is the sum of values for the external air film (0.04), external cladding, air space or cavity (if applicable), Icynene insulation (from Table 1), internal cladding, and internal air space (0.12).
3. The calculated values do not account for thermal bridging at studs and the like.
4. The calculated values are based on the calculated upper 10 percentile characteristic value for thermal conductivity of 0.038 W/m.K.
5. The reported thermal resistances are based on a mean temperature of 24°C, and a temperature differential of 22°C.
6. This Certificate excludes compliance with:
 - a. BCA Volume One Section C: compliance for non-combustibility, fire hazard properties when used as a wall or ceiling lining, fire hazard properties when used as a composite member (e.g. insulation within a wall), fire hazard properties generally and regarding fire resistance or fire resistance level.
 - b. BCA Volume Two Part 3.7 for non-combustibility and regarding fire resistance or fire resistance level.
 - c. BCA Volume One Section Part G5 and BCA Volume Two P2.3.4 and P2.3.5 regarding bushfire areas.
 - d. Vermin proofing.
 - e. NCC Volume One Part F6 and NCC Volume Two Part 3.8.7 Condensation management
7. This Certification is valid for the determination of thermal resistance of walls in accordance with NCC2019 and in those States and Territories where there are variations to the NCC2019.

Building classification/s:

Unrestricted

APPENDIX A – PRODUCT TECHNICAL DATA

A1 Type and intended use of product

Refer to page 1.

A2 Description of product

Refer to page 1.

A3 Product specification

Thermal insulation for use in walls, ceiling or floors (assessed based on ASTM C518, referenced in AS/NZS 4859.1:2002) as per Table 1.

| Table 1: Thermal Resistance – Icynene LD-C-50™ | | |
|--|--|---------------------|
| Thickness (mm) | Thermal Resistance (m ² ·K/W) | Equivalent R-Rating |
| 25 | 0.65 | 0.65 |
| 50 | 1.30 | 1.30 |
| 75 | 1.95 | 1.95 |
| 100 | 2.60 | 2.60 |
| 125 | 3.15 | 3.15 |
| 150 | 3.90 | 3.90 |
| 175 | 4.55 | 4.55 |
| 200 | 5.20 | 5.20 |

The values in Table 1 may be used in conjunction with the thermal properties of other components to satisfy:

1. Performance requirement NCC Volume One JP1, using verification method JV3.
2. Performance requirement NCC Volume Two P2.6.1 using verification method V2.6.2.2.
3. Deemed-to-Satisfy provisions in NCC Volume One –
 - a. J1.3(a);
 - b. J1.5, using Table J1.5a; and,
 - c. J1.6, using Table J1.6.



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4. Deemed-to-Satisfy provisions in NCC Volume Two –
 - a. 3.12.1.2, using Tables 3.12.1.1a, 3.12.1.1b, 3.12.1.1c, 3.12.1.1d, 3.12.1.1e, 3.12.1.1f, and 3.12.1.1g;
 - b. 3.12.1.4; and,
 - c. 3.12.1.5, using Table 3.12.1.4.

A4 Manufacturer and manufacturing plant(s)

Icynene Inc, 6747 Campobello Road, Mississauga, Ontario L5N2I7, Canada

A5 Installation requirements

Product installation shall be carried out by a person trained and approved by Icynene as an Approved Installer, in accordance with the Icynene Installer Australia New Zealand review June 2016, and in accordance with AS 3999:2015.

Where Icynene LD-C-50™ is installed, electrical installations must comply with AS/NZS 3000:2018.

A6 Other relevant technical data

Any referenced documents within the technical literature identified in Appendix A, A3 and Appendix A, A5.

APPENDIX B – EVALUATION STATEMENTS

B1 Evaluation methods

The following assessment methods have been used to determine compliance with NCC 2019:

| Code Clause | Assessment Method(s) | Evidence of suitability | Evidence reference in B2 |
|-------------------|-----------------------|--|--------------------------|
| Volume One JP1 | Volume One A2.2(2)(a) | Volume One A5.2(1)(d) Report issued by an Accredited Testing Laboratory | Items 3 and 4 |
| | Volume One A2.2(2)(a) | Volume One A5.2(1)(e) Report issued by a professional engineer or other appropriately qualified person | Items 1, 2, 5, 6 and 7 |
| Volume Two P2.6.1 | Volume Two A2.2(2)(a) | Volume Two A5.2(1)(d) Report issued by an Accredited Testing Laboratory | Items 3 and 4 |
| | Volume Two A2.2(2)(a) | Volume Two A5.2(1)(e) Report issued by a professional engineer or other appropriately qualified person | Items 1, 2, 5, 6 and 7 |

B2 Reports

The following reports have been used as evidence to determine compliance with NCC 2019:

| Ref | Author | Reference | Date | Description | NATA Registration |
|-----|--|------------------------------------|------------|---|--|
| 1 | VTT Technical Research Centre of Finland | Research Report No. VTT-S-07108-07 | 21/08/2007 | Determination of dimensional stability under specified temperature and humidity conditions and determination of deformation under specified compressive load and temperature conditions of the semi-rigid polyurethane foam ICYNENE | Not applicable |
| 2 | VTT Technical Research Centre of Finland | Research Report No. VTT-S-08767-06 | 25/09/2006 | Determination of resistance of the semi-rigid polyurethane foam ICYNENE to mould fungi | Not applicable |
| 3 | VTT Technical Research Centre of Finland | Test Report No. VTT-S-11419-06 | 4/12/2006 | Determination of the air permeability of the semi-rigid polyurethane foam ICYNENE | Via. ilac-MRA – FINAS Accreditation No.: T018 |
| 4 | Bodycote Materials Testing Canada Inc. | Report No. 06-06-M007-B Revision 2 | 2/10/2006 | Evaluation of Icynene “GOLDSEAL 50” spray-in-place, open-cell polyurethane foam (OPF) thermal insulation system in accordance with CCMC Technical Guide 07216.4 | Via. ilac-MRA – Standards Council of Canada Accreditation No.: 1 |
| 5 | VTT Technical Research Centre of Finland | Test Report No. VTT-S-08465-06 | 3/10/2006 | Determination of metal corrosion developing capacity of semi-rigid polyurethane foam ICYNENE | Not applicable |
| 6 | VTT Technical Research Centre of Finland | Research Report No. VTT-S-04993-07 | 30/05/2007 | Determination of the declared thermal conductivity of the semi-rigid polyurethane foam ICYNENE | Not applicable |
| 7 | VTT Technical Research Centre of Finland | Statement No. VTT-S-01904-07 | 1/10/2006 | Statement of the tests made to semi-rigid polyurethane foam ICYNENE | Not applicable |