

Appraisal Report for
Building Product Accreditation
For the
Ultratex Grey Board™
Exterior Insulating and Finishing System
(an external wall cladding system for Class 1a & 10 buildings)

Report prepared by
SKIP Consulting Pty Ltd
For

ULTRATEX WALL CLADDING AND COATING PTY LTD
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* For and on behalf of SKIP Consulting Pty Ltd.

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1 Introduction and scope of the appraisal

1.1 The client

SKIP Consulting Pty Ltd has been appointed by Ultratex Cladding and Coating Pty Ltd (Ultratex), the developers of the external wall cladding system known as the *ULTRATEX external insulation and finishing system* (the *ULTRATEX Cladding System*).

1.2 The scope of this submission

This submission is an application to the Building Regulations Advisory Committee (the 'BRAC') in accordance with Part 14 of the Building Regulations 2006 (the 'regulations') for accreditation of a building system.

As there are no relevant deemed-to-satisfy provisions in the Building Code of Australia (BCA) for the weatherproofing requirements for this system it is able to be assessed and appraised against the relevant performance requirements of the BCA and, if considered by the BRAC as suitable, issued with a certificate of accreditation by the BRAC.

The purpose of the accreditation certificate is to provide certainty for the system manufacturer and consumer. This is provided by Section 15(2) of the Building Act (the 'Act') which states;

Section 15(2)

The relevant building surveyor must not refuse to approve building work on the ground that any building product, construction method, design, component or system connected with the building work is unsatisfactory if the product, method, design, component or system is accredited by the Building Regulations Advisory Committee or a prescribed person or body and it complies with that accreditation.

1.3 Description of the building system

The *ULTRATEX Cladding System* includes building panels made of Grade S expanded polystyrene. The standard panel size is 2500mm x 1200mm, in nominal standard thicknesses of 50mm, 75mm and 100mm. This report relates to the 50 mm thick *ULTRATEX Cavity Cladding System* and 75 mm thick *ULTRATEX Direct fix Cladding System* only.

1.4 BCA Performance Requirements applicable to Accreditation

The relevant BCA Performance Requirements applicable to accreditation, for which there are no DtS Provisions for this system, are; P2.1 & P2.2.2. A detailed description of all BCA Performance Requirements and the method of compliance is included in Table 2.1 of this report.

1.5 Limits of the assessment and appraisal of the building system

This submission assesses and appraises the building system against the relevant Performance Requirement of the BCA 2013. It does not include inspection of manufacturing processes, quality assurance programs or schemes, or specific site installations methods or techniques.

This appraisal report does not warrant that the system is suitable for any specific purpose, installation or location. In appraising the system the reports, tests and other details provided by the developer, Ultratex, have been relied upon in good faith, without further consideration.

2 Compliance with the BCA Performance requirements

The following table indicates each BCA Volume 2 performance requirement and the method of compliance for the ULTRATEX Cladding System.

Table No. 2.1

Relevant BCA Volume 2 Part or Performance Requirement	Summary of requirement and test method or compliance standard
BCA VOLUME 2, SECTION 2 PERFORMANCE PROVISIONS	
PART 2.1 Structure	
Performance Requirement P2.1 Structural stability and resistance to actions	<p>No specific Deemed-to-Satisfy Provisions (called Acceptable Construction Practice or Manuals in the BCA Volume 2).</p> <p>The 50 mm thick <i>ULTRATEX Cavity Cladding System</i> and 75 mm thick <i>ULTRATEX Direct fix Cladding System</i> have been tested for concentrated load resistance (AS 4040.1: 1992), sandbag impact resistance (AS 4040.5: 1996) and non-cyclonic wind loads (AS 4040.2: 1992. Reports No. 30B-13-0093-TRP-341303-1 & 30B-13-0093-TRP-342062-1, dated 7th August 2014 by Vipac Engineers and Scientists Ltd apply.</p> <p>Based on the above test results the relevant <i>ULTRATEX Cladding System</i> is suitable for use in non-cyclonic wind region N5 (or lesser) as follows;</p> <ul style="list-style-type: none"> ○ Not less than 20 mm fastener offset from the sheet edge, ○ Maximum 300 mm centres fastener to fastener on structure, and ○ Building height to eaves or ridge < 10.00 m. <p>Note: For fixing of windows in external walls, these must satisfy BCA Volume 2 DtS provision 3.6.0 & AS 2047—1999; <i>Windows in buildings— Selection and installation.</i></p>
PART 2.2 Damp And Weatherproofing	
Performance Requirement P2.2.1 Surface water	Ground surface water issues not applicable to external wall cladding.
Performance Requirement P2.2.2 Weatherproofing	<p>The 50 mm thick <i>ULTRATEX Cavity Cladding System</i> and 75 mm thick <i>ULTRATEX Direct fix Cladding System</i> have been tested for water penetration (static and dynamic AS/NZS 4284:2008). Reports No. 30B-13-0093-TRP-341303-1 & 30B-13-0093-TRP-342062-1, dated 7th August 2014 by Vipac Engineers and Scientists Ltd apply.</p> <p>Eaves and soffit linings must satisfy BCA Volume 2 DtS provision 3.5.3.5</p> <p>Flashings to wall openings must satisfy BCA Volume 2 DtS provision 3.5.3.6</p> <p>Windows must satisfy BCA Volume 2 DtS provision 3.6.0 & AS 2047—1999; <i>Windows in buildings— Selection and installation.</i></p>

Relevant BCA Volume 2 Part or Performance Requirement	Summary of requirement and test method or compliance standard
Performance Requirement P2.2.3 Dampness	The sub-floor space between a suspended floor of a building and the ground must satisfy BCA Volume 2 DtS provision 3.4.1.2. The system must be located clear of adjoining ground levels as shown in ULTRATEX external insulation and finishing system installation and technical manual (Version No. 2C1, dated 2 October, 2014).
Performance Requirement P2.2.4 , Drainage from swimming pools	Drainage from swimming pools is not applicable to external wall cladding.
PART 2.3 Fire Safety	
Performance Requirement P2.3.1 Protection from the spread of fire	The <i>ULTRATEX Cladding System</i> is combustible as defined in the BCA and AS1530.1 and must be located >900 mm from boundaries, as described in the BCA Part 3.7.1.
Performance Requirement P2.3.2 Fire detection and early warning	Fire safety issues not applicable to external wall cladding.
Performance Requirement P2.3.3 Heating appliances	Fire safety issues not applicable to external wall cladding.
Performance Requirement P2.3.4 Bushfire areas	Satisfies the BCA Deemed-to-Satisfy Provisions only for external walls on sites up to BAL-19 and as described in AS3959-2009 (combustible external walls).
Performance Requirement P2.3.5 Alpine areas	Fire safety issues not applicable to external wall cladding.
PART 2.4 Health And Amenity	
Performance Requirement P2.4.1 Wet areas	Internal wet area issues not applicable to external wall cladding.
Performance Requirement P2.4.2 Room heights	Internal room height issues not applicable to external wall cladding.
Performance Requirement P2.4.3 Facilities	Internal facilities issues not applicable to external wall cladding.
Performance Requirement P2.4.4 Light	Internal light issues not applicable to external wall cladding.
Performance Requirement P2.4.5 Ventilation	Internal ventilation issues not applicable to external wall cladding.
Performance Requirement P2.4.6 Sound insulation	Internal sound insulation issues not applicable to external wall cladding.
PART 2.5 Safe Movement And Access	
Performance Requirement P2.5.1 Stairways and ramps	Internal stairway issues not applicable to external wall cladding.
Performance Requirement P2.5.2 Barriers	Internal barrier issues not applicable to external wall cladding.
Performance Requirement P2.5.3 Swimming pool access	Swimming pool access issues not applicable to external wall cladding.

Relevant BCA Volume 2 Part or Performance Requirement	Summary of requirement and test method or compliance standard
Performance Requirement P2.5.4 Swimming pool water recirculation systems	Internal sound insulation issues not applicable to external wall cladding.
PART 2.6 Energy Efficiency	
Performance Requirement P2.6.1 Building	<p>The <i>ULTRATEX Cladding System</i> energy efficiency properties are based on resistance values calculated in accordance with methods stipulated within BCA Volume One Clause J1.2. These results are; 50 mm panels R1.32, 75 mm panels R1.95, 100 mm panels R2.63 (m².K/W).</p> <p>This material property is not subject to accreditation as <i>AS/NZS 4859.1:2002; Materials for the thermal insulation of buildings, Part 1: General criteria and technical provisions</i> applies, and is adopted in the BCA as a DtS Provision.</p>
Performance Requirement P2.6.2 Services	Internal sound insulation issues not applicable to external wall cladding.

3 Design & construction and other details

3.1 Design & construction details

Design and construction details are included in the ULTRATEX external insulation and finishing system installation and technical manual (Version No. 2D, dated 2 December, 2014, 41 pages).

3.2 Other details

Nil.

4 Results of the appraisal

Based on the documents contained within this report it is considered that the *ULTRATEX Cladding System* (50 mm thick *ULTRATEX Cavity Cladding System* and 75 mm thick *ULTRATEX Direct fix Cladding System*) satisfies performance requirements P2.1 & P2.2.2 of the BCA, to the extent that those Clauses refer to the structural stability of a cladding system with regard to resistance to wind action and rainwater action, and weatherproofing of the product.

The *ULTRATEX Cladding System* is therefore a suitable material and fit for the purpose for which it is intended (an external wall cladding system) in accordance with BCA Volume 2, Clause 1.2.1.

4.1 Conditions of this appraisal

The *ULTRATEX Cladding System* (50 mm thick *ULTRATEX Cavity Cladding System* and 75 mm thick *ULTRATEX Direct fix Cladding System*) must be used in accordance with the following conditions and limitations;

- 4.1.1. The system must be installed in accordance with the *ULTRATEX* external insulation and finishing system installation and technical manual (Version No. 2D, dated 2 December, 2014, 41 pages), including;
 - a. maximum 600 mm stud spacing,
 - b. a minimum 20 mm fastener offset must be maintained from the edge of the sheet and 300 mm centres fastener to fastener on structure, and
 - c. only on building heights <10 m, and built in non-cyclonic wind region N5 (or lesser).
- 4.1.2. The *ULTRATEX Cladding System* is combustible as defined in the BCA and AS1530.1 and must be located more than 900 mm from allotment boundaries, as described in the BCA Part 3.7.1.
- 4.1.3. The system must only be used with a breathable sarking behind the panels.
- 4.1.4. The system has been appraised only for BCA Class 1 and Class 10 buildings.
- 4.1.5. The sub-floor space between a suspended floor of a building and the ground must satisfy BCA Volume 2 DtS provision 3.4.1.2.
- 4.1.6. The system is only to be installed on 90 x 35 mm timber framework and the supporting frame structure must be constructed of timber in accordance with the relevant structural provisions of the Building Code of Australia (BCA) described in Clause 3.4.3.0 and the relevant Australian Standards, including *AS 1684.2-2010* or *AS 1684.4-2010*.
- 4.1.7. Eaves and soffit linings must satisfy BCA Volume 2 DtS provision 3.5.3.5.
- 4.1.8. Flashings to wall openings must satisfy BCA Volume 2 DtS provision 3.5.3.6.
- 4.1.9. Flashings to, and in relation to, roofs must be undertaken by a licensed plumber and be installed in accordance with the requirements of the relevant plumbing regulations.
- 4.1.10. Windows must satisfy BCA Volume 2 DtS provision 3.6.0 & *AS 2047—1999; Windows in buildings— Selection and installation (up to and including amendment 2)*.
- 4.1.11. Whilst the *ULTRATEX Cladding System* is allowable by the BCA DtS bushfire provisions for external walls on sites up to BAL-19 as described in *AS3959-2009 (up to and including amendment 3)* (combustible external walls >400mm above ground) it should not be used on buildings on sites subject to bushfire attack, or in a Bushfire or Wildfire Management Overlay or sites in a designated bushfire prone area without the specific consideration and approval of a registered fire safety engineer.

- 4.1.12. All fastenings must be protected against corrosion as set out in Part 4 and Appendix C of *AS4773.1-2010 Masonry in small buildings Part 1: Design* and particularly;
- a. for areas less than 1 km from breaking surf; or less than 100 m from salt water not subject to breaking surf; or within industrial areas (severe environments); R4 durability classification connectors and accessories shall be used (typically corrosion grade 316 or 316L stainless steel or engineered polymer),
 - b. for areas 1 km or more but less than 10 km from breaking surf or 100 m or more but less than 1 km from salt water not subject to breaking surf (marine environments), R3 durability classification connectors and accessories shall be used (typically connectors and accessories galvanised after manufacture — 470g/m² on each side or galvanised fasteners — 470g/m² coating mass)
- 4.1.13. All fixtures and features attached to the wall must be secured into the wall framing and be designed in accordance with engineering principles.
- 4.1.14. Horizontal and vertical construction joints must be provided as per the installation manual (not more than 5.0 m vertically apart and at each floor level, but not more than 3.0 m horizontally).

Appendix A: Qualifications and experience of the author

Statement of Qualifications and Experience

Stephen Kip

Director, SKIP Consulting Pty Ltd

<p>Academic & Trade qualifications</p>	<ul style="list-style-type: none"> ▪ Master of Engineering (Victoria University, 1996) ▪ Graduate Diploma of Building Fire Safety & Risk Engineering (Victoria University, 1993) ▪ Graduate Diploma of Engineering in Building Project Management (Footscray Institute of Technology, now Victoria University, 1989) ▪ Bachelor of Building (Deakin University, 1991) ▪ Certificate of Technology, Building Surveying (Footscray TAFE, 1986) ▪ Certificate of Proficiency in Carpentry (Industrial Training [Apprenticeship] Commission (Vic), 1981)
<p>Professional qualifications & memberships</p>	<ul style="list-style-type: none"> ▪ Victorian registered building practitioner, <i>Fire Safety Engineer</i> ▪ Victorian registered building practitioner, <i>Building Inspector</i> ▪ Victorian registered building practitioner, <i>Building Surveyor</i> ▪ Victorian registered building practitioner, (currently voluntarily lapsed), <i>Domestic Builder (unlimited)</i> ▪ <i>Fellow</i> of the Institution of Engineers (Australia) ▪ <i>Immediate Past National President</i> of the Society of Fire Safety of Engineers Australia ▪ <i>Honorary Fellow</i> of the academic staff of the University of Melbourne, Faculty of Architecture, Building and Planning ▪ <i>Associate</i> of the academic staff of the Victoria University Centre for Environmental Safety and Risk Engineering ▪ Former <i>Member</i> of the Victorian Building Appeals Board (2007-2014)
<p>Principal experience</p>	<ul style="list-style-type: none"> ▪ April 2007 - present, Director SKIP Consulting Pty Ltd (Fire Safety Engineering & Building Regulatory Consultancy) ▪ December 2002 - March 2007, Senior Fire Safety Engineer, Warrington Fire Research (Aust) P/L ▪ November 2000 - November 2002, Senior Fire Safety Engineer, Building Research Association of New Zealand (BRANZ) ▪ January 1999 - October 2000, Deputy to the Building Commissioner, Building Control Commission, Victoria ▪ December 1995 - January 1999, Principal Research & Development Officer, Building Control Commission, Victoria ▪ April 1988 - November 1995, Building Surveyor, Gardner Group P/L (Building Surveyors) ▪ January 1988 - April 1990, Principal of building company, KB Constructions ▪ November 1984 - December 1987, Building Surveyor, City of Geelong
<p>Other related experience</p>	<ul style="list-style-type: none"> ▪ 1987 to present, part time lecturing positions in building and fire safety engineering related subjects at several universities including; the University of Melbourne, Victoria University, Deakin University and RMIT University.

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