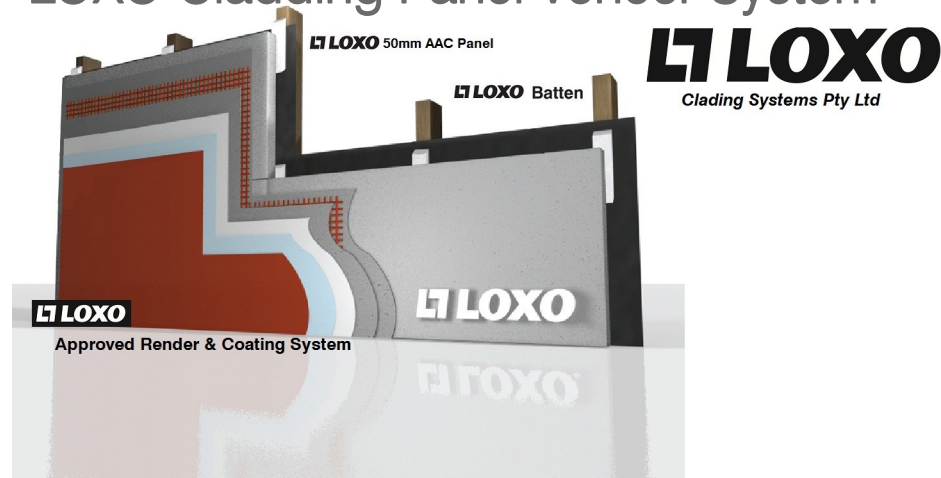




# BEAL Appraisal Certificate



## LOXO Cladding Panel Veneer System



### Product

1.1 The LOXO Cladding Panel Veneer System is a drainable non-ventilated cavity system, comprising Autoclaved Aerated Concrete (AAC) wall cladding panels with a meshed base render, texture coated finish. It is designed to be used as an external wall cladding system for residential and light commercial type buildings where domestic construction techniques are used.

1.2 The system consists of Autoclaved Aerated Concrete (AAC) panels (LOXO Cladding Panels) fixed over a batten system that has been fixed to a timber or metal wall frame. There is a choice of two batten types; (i) high density polystyrene, and (ii) H3 treated pine timber. The battens can form a cavity from 20mm to 40mm, depending on the requirements of the project.

1.3 A LOXO approved coating system must comply with the following:

1.3.1 A minimum of a 3mm thick Base Coat render reinforced with fibreglass mesh;

1.3.2 A Primer/Sealer (Optional - dependent on coating manufacturers recommendations);

1.3.3 A minimum of a 1.0mm thick Texture Coat (Wet Texture or Dry Texture material);

The Wet Textures may be coloured through (tinted) and may not require the application of a paint system (dependent on coating manufacturers recommendations)

The Dry Textures will require the application of a 100% acrylic based exterior paint system.

1.4 The system incorporates a primary and secondary means of weather resistance. The primary being the aesthetic coating system applied over the LOXO AAC Panels, but in the event that water was to find its way through the coated wall cladding layer, the cavity acts as the secondary means of weather resistance. The non-ventilated cavity system allows the water to drain to the base of the wall and exit via the (non sealed) perimeter flashing (DPC) which acts as a continual drain (weep hole) at the base of the wall, regardless if the wall is resting on or overhanging the slab or floor system.

### Building Regulations

2.1 In the opinion of BEAL, the LOXO Cladding Panel Veneer System, if designed, installed and maintained in accordance with the statements and conditions of this Appraisal Certificate, will meet or contribute to meeting the following provisions of the Building Code of Australia:

BCA 2011 Volume 2 Class 1 and class 10 buildings (Houses, sheds, carports etc.)

**Part 2.1 - Structure:** Performance requirement P2.1 (see Paragraphs 9.1 to 9.6)

**Part 2.2 - Damp and Weatherproofing:** Performance requirement P2.2.2 Weatherproofing (see Paragraphs 12.1 to 12.7)

**Part 2.3 - Fire Safety:** Performance requirement P2.3.1 (see Paragraph 11.1)

Applicant:



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The most up to date version of this BEAL Appraisal Certificate can be viewed at [www.beal.co.nz](http://www.beal.co.nz)

**Part 2.6 – Energy Efficiency:** Performance requirement P2.6.1 Building (see Paragraph 13.1 to 13.3)  
 2.2 The LOXO Cladding Panel Veneer System has been appraised as an **Alternative Solution** in terms of compliance with the Building Code of Australia.

## Scope and Limitations

3.1 The LOXO Cladding Panel Veneer System has been appraised for use as an external wall cladding system for buildings within the following scope:

On class 1 and class 10 type buildings; and,  
 Constructed with timber framing complying with AS1684 Parts 2 and 4; or,  
 Constructed with steel framing complying with AS/NZS4600 and NASH Standard 2005 Part 1; and,  
 situated in non cyclonic wind zones up to, and including N3.

3.2 The LOXO Cladding Panel Veneer System must only be installed on vertical surfaces (except for tops of parapets, sills and balustrades, which must have a minimum 5° slope and be weatherproofed in accordance with the Technical Literature).

3.3 The system is appraised for use with aluminum window and door joinery that is installed with vertical jambs and horizontal heads and sills. (The Appraisal of the LOXO Cladding Panel Veneer System relies on joinery meeting the requirements of AS2047 for the relevant building wind zone or being specifically designed for use in specifically designed buildings).

3.4 Installation of components and accessories supplied by LOXO must be carried out only by personnel trained and certified by LOXO.

## Technical Literature

4.1 Refer to the LOXO Cladding Panel Veneer System Technical Manual Edition Dec 2011. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained within the Technical Literature and scope of this Appraisal Certificate must be followed.

4.2 For a copy of this Technical Literature and any subsequent updates please refer to:

[www.loxo.com.au](http://www.loxo.com.au)

## Technical Specification

### System Components and Accessories:

#### 5.1 LOXO Cavity Battens:

Cavity battens are 20mm to 40mm thick and 250mm long, manufactured from either:

- (i) Very High Density (Class VH) EPS with a density of no less than 28kg/m<sup>3</sup> or
- (ii) H3 treated pine timber

#### 5.2 LOXO Cavity Batten Fixing:

- (i) 50mm hot dipped galvanised steel flat head nail for use with the 20mm battens to timber frames;
- (ii) 75mm hot dipped galvanised steel flat head nail for use with the 40mm battens to timber frames;
- (iii) 40mm galvanized drill point countersunk

screws for use with the 20mm battens to steel frames

- (iv) 60mm galvanized drill point countersunk screws for use with the 40mm battens to steel frames;
- (v) Construction Adhesive such as Maxbond, Liquid Nails or similar may be used to temporarily fix the battens to the frame or building wrap;

#### 5.3 Vermin Control Strips, or Cavity Closer Strips:

Metal:

Metal Vermin Control Strips or Cavity Closer Strips are continuous metal top hats used to close the gap between the bottom plate and the back of the panel. Mitre cut top hats at corners to maintain vermin proofing. The top hats are fixed to the bottom plate using:

- 12-11 x 25mm Hex Head Type 17 screws for timber frames
- 10-16 x 16mm Hex Head Tek screws for steel frames

#### 5.4 Vermin Control Strips, or Cavity Closer Strips:

Timber:

Timber Vermin Control Strips, or Cavity Closer Strips are continuous timber LOXO Cavity Battens used to close the gap between the bottom plate and the back of the panel. Mitre cut or butt timber battens at corners to maintain vermin proofing, the timber strips are installed to the bottom plate with 75mm hot dipped galvanised steel flat head nail.

#### 5.5 LOXO Cladding Panels:

LOXO Cladding Panels are manufactured from autoclaved aerated concrete with an approximate density of 560kg/m<sup>3</sup>. LOXO Cladding Panels are supplied in lengths of 2200mm long by 600mm wide, and are available in the following thicknesses:

- 50mm and weigh approx 37kg per panel
- 75mm and weigh approx 56kg per panel

#### 5.6 LOXO Cladding Panel Fasteners:

- 14-10 x 75mm MP Bugle Head Type 17 screw is used to fix panels to timber battens.
- 14-10 x 100mm MP Bugle Head Type 17 screw must be used with EPS battens up to a maximum cavity thickness of 20mm to ensure a minimum of 25mm of the screw is embedded into the timber frame. These screws are also used in steel frames with EPS battens up to a maximum cavity thickness of 40mm.
- 14-10 x 125mm MP Bugle Head Type 17 screw must be used with EPS battens up to a maximum cavity thickness of 40mm to ensure a minimum of 25mm of the screw is embedded into the timber frame.

NOTE: A minimum of Class 3 fasteners must be used with the LOXO Cladding Panel Veneer System. AS3566 corrosion class 3 or 4 fasteners must be used in BCA defined corrosion zones 1,2,3, and 4. Grade 304 stainless steel in the sea spray zone.

#### 5.7 LOXO Panel Adhesive:

LOXO Panel Adhesive is a polymer modified cement based material supplied in 20kg bags. The adhesive is used for bonding the panel joints during construction and must be applied to both vertical and horizontal panel joints.

- 5.8 LOXO Anti-Corrosion Protective Paint:  
LOXO Anti-Corrosion Protection Paint is used to treat any exposed reinforcing steel to prevent corrosion occurring. It is supplied in 500ml containers. The instructions for use are on the container.
- 5.9 Aluminium External Corner Angles:  
Aluminium External Corner Angles - 32mm x 32mm are used on all AAC corner edges to provide clean straight edges that are strong and durable.
- 5.10 LOXO PVC Vents:  
LOXO PVC Vents are not required with a non-ventilated system, however if specified by the project engineer, they can be used to create visible drain vents and therefore create a ventilated cavity wall system. If the LOXO PVC Vents are to be used, it is advisable that sarking is used as good building practice.
- 5.11 Damp Proof Course (DPC):  
DPC is used to prevent rising damp from concrete footings, slabs or paths wetting the base of the panels.
- 5.12 Sarking:  
Sarking is required with EPS battens to prevent trapped moisture between the batten and the frame.
- 5.13 Construction Adhesive:  
Construction Adhesive such as Maxbond, Liquid Nails or similar used for adhering accessories such as Aluminium External Corner angles to LOXO Cladding Panels, or temporarily fixing EPS Cavity Battens prior to the installation of the Panel Fasteners.
- 5.14 Flexible-sealant:  
An external grade flexible sealant such as Bostik Seal 'N' Flex or equivalent can be used as a weather proofing sealant around windows, doors and penetrations through the LOXO Cladding Panels, to prevent or reduce the amount of water ingress into the cavity as good building practice.

## LOXO Approved Render (Coating System)

**All Render and Paint components used for the coating of the LOXO Cladding Panels are to be approved by LOXO and must conform to the following criteria:**

- 6.1 Base Coat Render:  
The base coat render must be fully meshed. It must be a polymer-modified, Portland cement-based render; it is mixed on site with clean drinking water. It is applied as a base coat, either over or encapsulating a high quality alkali resistant fibre glass mesh reinforcement. Ensure there is a minimum of 2mm thickness over the mesh. The total meshed base coat should have a minimum thickness of 3mm.
- 6.2 The Reinforcing Mesh:  
The Reinforcing Mesh must be a high quality alkali resistant fiberglass mesh with a nominal size of approx. 4mm – 5mm square and a weight of 150g/m<sup>2</sup> for use in domestic and light commercial situations.
- 6.3 Primer Coat (Optional):

A water based primer/sealer to enhance adhesion. (Refer to coating manufacturer's specification)

### 6.4 Texture Coat:

Two specifications for the Texture Coat material are available:

#### 6.4.1 Dry Texture: (Cement based polymer modified dry powder)

A high build cement based polymer modified coating applied with a trowel or float over the basecoat. The texture must have a minimum thickness of 1.0mm. **It is mandatory** to overcoat the dry texture with a LOXO approved paint system.

#### 6.4.2 Wet Texture: (A pre-mixed full acrylic texture)

A high build full acrylic coating applied with a trowel or float over the basecoat. The texture must have a minimum thickness of 1.0mm. The Wet Textures may be coloured through (tinted) and may not require the application of a paint system (dependent on coating manufacturers recommendations). In the case where a paint system is not required, the application of the wet texture forms the primary means of weather resistance.

### 6.5 Paint System:

The paint system (membrane coating) must comprise a minimum of two coats of a 100% acrylic-based exterior paint. The paint / membrane must be applied to a minimum dry film thickness of 150µm per coat and must have a crack bridging capability of five (5) times the total dry film thickness. The application of the paint system forms the primary means of weather resistance.

## Handling and Storage

- 7.1 Handling and storage of all the materials supplied by LOXO or the accredited contractor, both on and off site are under the control of LOXO accredited contractors.
- 7.2 Dry storage must be provided on site for the LOXO Cladding Panel, fiberglass mesh and bags of adhesive/render with the LOXO Cladding Panels stored flat and protected from physical damage. EPS and timber battens, flashing, mouldings etc. must be protected from direct sunlight, physical damage and stored flat and under cover out of the weather. All liquid components shall be stored in dry, frost free conditions.
- 7.3 Handling of LOXO Cladding Panels require care to prevent damage to corners or excessive flexing. Panels should always be carried on edge.
- 7.4 Handling and storage of all the materials supplied by the building contractor, both on and off site is the responsibility of the building contractor. Materials must be handled and stored in accordance with the manufacturer's instructions.



# Design Information

## Framing

### Timber Framing

- 8.1 Timber used in timber framing shall be treated as required by the relevant Part of AS1684.
- 8.2 Timber framing must comply with the relevant Part of AS1684 for both buildings or parts of buildings. Where buildings or parts of buildings are outside the scope of AS1684 then they must be to specific design in accordance with AS 1720. In all cases, studs must be at a maximum of 600mm centres.
- 8.3 Where the ground or sub-floor space is excessively damp or subject to frequent flooding, timber members shall be Class 1 or 2 or H3 preservative treated timber in accordance with AS1684 parts 2 or 4

### Steel Framing

- 8.4 Steel framing must comply with NASH Standard 2005, Part 1 Residential and low-rise steel framing. In all cases, studs must be at a maximum of 600mm centres. Noggins must be fitted flush with the stud.

### LOXO Cladding Panel Layout

- 8.5 LOXO Cladding Panels are installed horizontally in a stretcher-bond pattern. Vertical panel edges may be jointed on stud or off stud via back blocking. LOXO Cladding Panels must be supported at fixing locations with vertical cavity battens in accordance with the requirements of BCA. At the base of the wall the LOXO Cladding Panel can be either rested on a concrete rebate (a minimum of 30mm below the finished floor level) or hang 50mm below the finished floor level, but not below the external ground level.

### General

- 8.6 The LOXO Vents provide a minimum ventilation opening area of 1000mm<sup>2</sup> per lineal metre of wall, when fixed at 1000mm centres. If specified, then the specifier must detail the number of vents required to achieve the desired ventilation flow.
- 8.7 The ground clearance between the bottom of the finished panel and ground must be adhered to at all times. At ground level, paved surfaces must be kept clear from the bottom edge of the LOXO Cladding Panel Veneer System by a minimum of 10mm, and unpaved surfaces by 25mm with these areas having a minimum of 1 in 100mm fall away from the building.
- 8.8 At balcony, deck or roof to wall junctions, the bottom edge of the panel must be kept clear of any adjacent finished surface, or above the top surface of any adjacent roof flashing by a minimum of 10mm.
- 8.9 Where the LOXO Cladding Panel Veneer System abuts other cladding systems, designers must detail the junction to meet their own requirements whilst meeting the performance requirements of the BCA. The Technical Literature does provide some guidance. Details not included in the Technical Literature have not been assessed and are therefore outside the scope of this Appraisal.
- 8.10 For buildings that must have barriers to airflow, the use of plasterboard interior linings with all joints stopped should be installed, or where walls that are not lined, such as attic spaces at gable end, a rigid sheathing or air barrier, complying with BCA, must be fixed to framing prior to fixing cladding or cavity battens as per BCA or AS 1684.

- 8.11 PVC sheathed electrical cables must be prevented from direct contact with the LOXO EPS Cavity Battens. When cables must penetrate the EPS cavity battens for electrical connections, the cable must be encased within electrical conduit so that contact is prevented.

### Articulated Joints (Control Joints)

- 8.12 Control joints where LOXO Cladding Panels are used must be constructed in accordance with the Technical Literature and as follows;
- 8.13 Horizontal control joints - To be installed when intermediate floor joists are not seasoned and/or when the height of the wall exceeds 8.0m
- 8.14 Vertical Control Joints – are required at internal corners and at maximum of 6.0m centres; aligned with any control joint within the structural framing, or where the system abuts other cladding system.  
*(Note: Where possible control joints shall be located in line with window and door openings. Horizontal and vertical control joints must be located over structural supports. The Technical Literature provides some guidance for the design of vertical control joints where the system abuts different cladding types. Details not included within the Technical literature or those that are marked as 'Specific Design Only' are outside the scope of this Appraisal Certificate and are the responsibility of the designer.)*

### Inter-Storey Junction

- 8.15 Inter-storey drained joints are not required with the LOXO Cladding System.

## Structure - Clause P2.1

### Mass

- 9.1 The dry mass of the LOXO Cladding Panel is approximately 28kg/m<sup>2</sup> without coating and 30kg/m<sup>2</sup> to 32kg/m<sup>2</sup> with the applied coating.

### Impact Resistance

- 9.2 The system has adequate resistance to impact loads that the cladding system is likely to be subjected to when used in a residential situation.

### Wind Zone

- 9.3 The LOXO Cladding Panel Veneer System is suitable for use in all building wind zones as per AS 4055, up to, and including N3, or up to the ultimate limit state (ULS) wind pressure of 2500Pa when the building is subject to specific design.

- 9.3.1 Where a 20mm to 40mm cavity is produced the respective cavity battens are fixed to the wall framing at 600mm centres vertically. The LOXO Cladding Panel must then be fixed into or through the cavity batten with the appropriate screw at 500mm centres.

#### **500mm centres is applicable to both;**

- 9.3.2 N1 to N3 defined building wind zones with studs at maximum 600mm centres, and;

- 9.3.3 Specifically designed buildings up to design differential 2.5kPa ULS wind pressure with studs at maximum 600mm centres.

### Generally:

- 9.4 Fixings to be positioned minimum 50mm in from the edge of the panel giving an overall layout of 500mm

centres per panel.

9.5 Fixings are also required horizontally at 600mm centres and to a maximum of 900mm centres.

9.6 Bugle head screws must be embedded a minimum of 5mm into the LOXO Cladding Panel and a maximum of 10mm.

## Durability (suitability) Clause

### 1.2.1

10.1 The LOXO Cladding Panel Veneer System when used in accordance with this Appraisal Certificate and subjected to normal conditions of environment and use will meet the requirements of S1.2.1 of the BCA.

#### Maintenance:

10.2 Regular maintenance is essential to ensure the performance requirements of the BCA / NZBC are met and to ensure the maximum serviceability of the LOXO Cladding Panel Veneer System.

10.3 Regular cleaning (at least annually) of the paint coating is required to remove grime, dirt and organic growth as per the coating manufacturer's Technical Literature in order to maximize the life and appearance of the acrylic paint coating. Paint coatings must be reapplied every 10 years or in accordance with the paint manufacturers instructions. .

10.4 Regular inspections (annually) must be made on the system to ensure that all aspects of the LOXO Cladding Panel Veneer System including the coating system, renders, flashings and any sealed joints remain in a weatherproof condition. Any cracks, damaged areas or areas showing signs of deterioration that could allow water ingress, must be repaired immediately. The LOXO Cladding Panel Veneer System must be maintained and repaired in accordance with the instructions from LOXO.

10.5 Minimum ground clearance and adjacent clearances as set out in this Appraisal and Technical Literature must be maintained at all times during the life of the system to maintain the durability and weatherproofing of the system.

## External Fire spread - Clause P2.3.1

11.1 The LOXO Cladding Panel Veneer System meets the performance requirements of the BCA for use as a Load Bearing External Wall. The LOXO Cladding Panel Veneer System provides an FRL of 90/90/90. Tested in accordance with AS 1530.4.

## External Moisture - Clause P2.2.2

12.1 When installed in accordance with this Appraisal Certificate and Technical Literature, the LOXO Cladding Panel Veneer System will prevent the penetration of water that could cause undue dampness and/or damage to building elements and will therefore comply with Performance requirement P2.2.2 of the BCA.

12.2 The cavity must be sealed off from the roof and subfloor space.

12.3 The LOXO Cladding Panel Veneer System allows

excess moisture present within the cavity at the completion of construction to be dissipated without causing permanent damage to the building elements to meet the performance requirement of the BCA.

12.4 The details provided within the Technical Literature for weatherproofing are based on the design principle of employing both a 1st and 2nd line of defence against moisture entry for joints, penetrations and junctions. Moisture ingress must be prevented by detailing any joinery or wall junctions as shown in the LOXO Cladding Panel Veneer System technical manual. Any weatherproofing details developed by a designer that are outside the scope of this Appraisal Certificate that are the responsibility of the designer .

12.5 The presence of a drained cavity does not reduce the requirement to ensure the cladding wall and all the relevant junctions, penetrations etc remain weather resistant.

#### Water Vapour

12.6 The LOXO Cladding Panel Veneer System is not a barrier to the passage of water vapour, and when correctly installed in accordance with both this Appraisal and Technical Literature will not create or increase the risk of moisture damage resulting from condensation. When installed over steel frame please refer to 12.7.

12.7 When the LOXO Cladding Panel Veneer System is installed over steel framing, 10mm (V.H) expanded polystyrene thermal break sheeting with a R value of at least 0.3, must be installed over the steel frame (stud, nog, top and bottom plate) to provide a thermal break in accordance with the requirements of the BCA. Building wrap is then dressed over the top of the sheeting followed by the installation of the cavity battens.

## Thermal Performance - Clause P2.6.1

13.1 The LOXO Cladding Panel has a thermal rating from the manufacturer for the 50mm thick AAC panel of R0.39.

13.2 A table has been developed from the use of 70mm and 90mm wide timber framing studs at 600mm centres, with noggins at 1350mm centres, using Envi-roseal Wall Wrap reflective foil wall wrap (sarking) with a R1.2 (summer) and R1.3 (winter), and insulation with a nominal R-Value of 2.0;

Refer to Thermal Performance Values shown on page 8.

## Acoustic Performance

14.1 The LOXO Cladding Panel has an acoustic STC rating of 33 from the manufacturer for the 50mm thick AAC panel. A table has been developed from the use of 90mm wide timber framing studs at 600mm centres, with noggins at 1350mm centres, insulation with a nominal R-Value of 2.0 and a nominal 10mm plasterboard;

Refer to Acoustic Performance Values shown on page 9.

## Installation Information

### Installation Skill Level Requirement

15.1 Installation and finishing of the components and accessories supplied by LOXO and the

accredited contractors must be completed by trained installers/applicators, certified by LOXO.

15.2 Installation of the accessories supplied by the building contractor must be completed by a tradesperson who has an understanding of cavity based cladding construction, in accordance with instructions given within the LOXO Cladding Panel Veneer System Technical Manual and this Appraisal Certificate.

## System Installation

16.1 The building wrap (if required) must be installed by the building contractor in accordance with the wrap manufacturer's instruction, prior to the installation of the cavity battens and the rest of the LOXO Cladding Panel Veneer System. The building wrap shall be run horizontally and be continuous around corners. The wrap must be lapped not less than 75mm at horizontal joints and not less than 150mm over studs at vertical Joints.

16.2 Window and Door joinery must be installed by the building contractor in accordance with the LOXO Technical Literature.

16.3 The Window and Door joinery must be spaced outside of the wall frame to suit the thickness of the cavity batten system.

### LOXO Cladding Panel Veneer System

16.4 Must be installed in accordance with the Technical Literature by LOXO accredited contractors.

16.5 The Technical Literature must be referred to during the inspection of the LOXO Cladding Panel Veneer System installations.

### Finishing System

16.6 The application of the LOXO approved coating system must be applied in accordance with the manufacturers instructions at all times.

## Health and Safety

17.1 When cutting, drilling or grinding the LOXO Cladding Panel, this must be carried out in an open air or well ventilated area, and a dust mask, eye protection and gloves must be worn.

17.2 All aspects of cutting, drilling or grinding must comply with the latest regulations of Worksafe Australia (Occupational Health and Safety).

17.3 Refer to the Technical Literature from the relevant manufacturer for the safe use and handling of the components that make up the LOXO Cladding Panel Veneer System.

## Basis of Appraisal

BEAL use the compliance verification procedure to demonstrate compliance with the relevant clauses of the BCA based on a risk analysis procedure. The following is a summary of the technical investigations carried out

### Tests

18.1 The following testing of the LOXO Cladding Panel Veneer System and its respective components has been undertaken by BEAL unless otherwise noted:

18.1.1 BEAL opinion on BCA compliance was based on the evaluation of all details within the scope of this Appraisal and testing of LOXO Cladding Panel

Veneer System to a weathertightness test method known as E2/VM1. The testing assessed the performance of the window head, jamb and sill details, meterbox head, jamb and sill details, vertical control joints, internal and external corners.

18.1.2 BEAL have also reviewed the details contained within the technical manual, and an opinion has been given by BEAL that the system will meet the performance requirements for a drained and non-ventilated cavity system.

18.1.3 Testing undertaken by OPUS laboratories in determining the compressive strength, dry bulk density and drying shrinkage of the LOXO Cladding Panel to verify durability of the system.

18.1.4 Corrosion protection of the steel wire reinforcement in the LOXO Cladding Panel was tested to verify durability and conducted by AZUMA design in Australia to AS2331.3.11 and ASTM B117.

## Other Investigations

19.1 Wind loadings, self weight, seismic loadings, shear force, panel capacity, fastener pull through testing and calculations for the LOXO Cladding Panel Veneer System were determined by an independent Chartered Engineer in respect to the requirements of Structure. Structural and durability opinions were provided.

19.2 Assessment of Fire resistance of the 50mm thick LOXO Cladding Panel was based on a comparison of test data from other manufacturers testing for spread of fire and fire resistance based on AS1530.4.

19.3 Thermal Performance testing and calculations for the LOXO Cladding Panel Veneer System were determined by an independent Chartered Professional Engineer in respect to the requirements of Performance Requirement P2.6.1

19.4 Assessment of Acoustic Performance for the LOXO Cladding Panel Veneer System was based on a comparison of test data from other manufacturers testing for Acoustic performance.

19.5 Ease of application has been assessed

19.6 The Technical Literature for the LOXO Cladding Panel Veneer System has been examined by BEAL and found to be satisfactory.

## Quality

20.1 The quality of materials, components and accessories supplied by LOXO is managed through the use of the Building Product Quality Plan.

20.2 The LOXO Building Product Quality Plan ensures continuous conformance with the quality requirements from purchase to supply of components.

20.3 LOXO Building Product Quality Plan is reviewed at least annually by BEAL.

20.4 Quality on site is the responsibility of the LOXO accredited contractors.

20.5 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems, and general construction detailing in accordance with the instructions of LOXO and this Appraisal Certificate.

20.6 For a copy of this Technical Literature and any subsequent updates please refer to: [www.loxo.com.au](http://www.loxo.com.au)



20.7 Building owners are responsible for the maintenance of the LOXO Panel Veneer Cladding System in accordance with instructions of LOXO and this Appraisal Certificate.

### Sources of Information

- AS 2331.3.1 Methods of test for metallic and related coatings -Corrosion and related property test
- AS 3566 Self drilling screws for the building and construction industries.
- AS 3730 Guide to the properties of paints for buildings
- AS/NZS 1170:2002 Structural design actions
- ASTM B117 Standard practice for operating salt spray apparatus
- ASTM C 297: Standard test method for flatwise tensile strength of sandwich constructions.
- ASTM C 1386: Standard specification for precast autoclaved aerated concrete (AAC)
- NASH 3405:2006 Steel framed buildings
- NZS 3602:2003 Timber and wood-based products for use in building.
- NZS 3603:1993 Timber structures standard
- NZS 3604:1999 Timber framed Buildings
- NZS 4211:1985 Specification for performance of windows
- The Building Code of Australia 2011 Class 1 and Class 10 Buildings,
- NZS 4211:1985 Specification for performance of windows
- AS4859.1:2002 and Amendment 1:2006
- New Zealand Building Code Handbook and Approved Documents, Building industry Authority, 1992.

### Concluding statement

21.1 In the opinion of BEAL, the LOXO Panel Veneer Cladding System is fit for purpose and will comply with the BCA to the extent specified provided that it is used, designed, installed and maintained as set out in this Appraisal Certificate.

The Appraisal Certificate is issued only to LOXO Cladding Systems (Pty) Ltd and is valid until further notification, subject to the conditions of this Appraisal.



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## Conditions of Appraisal

### 1. This Appraisal Certificate :

- A) Relates only to the LOXO Panel Veneer Cladding System as described herein;
- B) Must be read, considered and used in full together with the Technical Literature
- C) Does not address any legislation, regulations, codes or standards, not specifically named herein;
- D) Is copyright of BEAL

2. The Appraisal Certificate holder continues to meet the quality requirements of the LOXO Building Product Quality Plan and has the Appraisal Certificate revalidated by BEAL on an annual basis.

3. LOXO Cladding Systems (Pty) Ltd shall notify BEAL and obtain approval of any changes in product specification or quality assurance prior to product being marketed including any trade literature, web site info or the like.

### 4. BEAL makes no representation as to:

- A) The nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
- B) The presence or absence of any patent or similar rights subsisting in the product or any other product;
- C) Any guarantee or warranty offered by the Appraisal Certificate holder

5. BEAL's verification of the building product or system complying with one or more above-mentioned criteria is given on the basis that the criteria used were those that were appropriate to demonstrate compliance with the BCA at the date of this Appraisal Certificate. In the event that the criteria is withdrawn or amended at a later date, this Appraisal may no longer remain valid.

6. Any reference in this Appraisal Certificate to any other publication shall be read as a reference to the version of publication specified in this Appraisal Certificate.

Authorised Signatory



C R Prouse - Principal Building Scientist

# Thermal Performance Values

## THERMAL TABLES FOR 50mm LOXO WALL SYSTEMS

Confirmed by Fricker Report

LOXO System	System Details – 70mm Frames (The following Systems are all based on 50mm LOXO Panel, 70mm Frame Thickness, and 10mm Plasterboard internal linings)	Total R Value m2K/W	
		Winter	Summer
5070-01	Panel + 20mm Cavity + No Sarking + Frame + No Insulation + Plasterboard	0.80	0.78
5070-02	Panel + 20mm Cavity + Sarking + Frame + No Insulation + Plasterboard	1.52	1.39
5070-03	Panel + 20mm Cavity + Sarking + Frame + R2.0 Insulation + Plasterboard	2.90	2.69
5070-04	Panel + 20mm Cavity + No Sarking + Frame+R2.0 Insulation+ Plasterboard	2.90	2.69
5070-05	Panel + 40mm Cavity + No Sarking + Frame + No Insulation + Plasterboard	0.80	0.78

Note: Sarking used in tables is Single Sided Reflective Foil Type

LOXO System	System Details – 90mm Frames (The following Systems are all based on 50mm LOXO Panel, 90mm Frame Thickness, and 10mm Plasterboard internal linings)	Total R Value m2K/W	
		Winter	Summer
5090-01	Panel + 20mm Cavity + No Sarking + Frame + No Insulation + Plasterboard	0.80	0.78
5090-02	Panel + 20mm Cavity + Sarking + Frame + No Insulation + Plasterboard	1.56	1.40
5090-03	Panel + 20mm Cavity + Sarking + Frame + R2.0 Insulation + Plasterboard	2.90	2.69
5090-04	Panel + 20mm Cavity + No Sarking + Frame+R2.0 Insulation+ Plasterboard	2.90	2.69
5090-05	Panel + 40mm Cavity + No Sarking + Frame + No Insulation + Plasterboard	0.80	0.78
5090-07	Panel + 40mm Cavity + Sarking + Frame + R2.0 Insulation + Plasterboard	2.91	2.70

Note: Sarking used in tables is Single Sided Reflective Foil Type



# Acoustic Performance Values

## EXTERNAL WALL SYSTEM

LOXO System	System Details – 90mm Frames (The following Systems are all based on 50mm LOXO Panel, 90mm Frame Thickness, and 10mm Plasterboard internal linings)	Acoustic Rating	
		Rw	Rw + Ctr
5090-01A	Panel + 40mm Cavity + No Sarking + Frame + R2.0 Insulation + Plasterboard	47	41
5090-02A	Panel + 40mm Cavity + Sarking + Frame + R2.0 Insulation + Plasterboard	47	41
5090-03A	Panel + 40mm Cavity + Frame+R1.6 SoundScreen + Soundchek Plasterboard	60	50

## PARTY WALL SYSTEM

LOXO System	System Details – 90mm Frames The following PartyWall System is based on Discontinuous Construction using 50mm LOXO Panel and Standard 10mm Plasterboard	Acoustic Rating	
		Rw	Rw + Ctr
50PWS01	PlasterBoard + Frame + R2.0 Insulation + 10mm gap + Panel + 10mm gap + R2.0 Insulation + Frame + PlasterBoard	63	51