



BRANZ Appraised

Appraisal No. 501 [2017]

PUTZ TECHNIK SYSTEM 300 CAVITY SYSTEM

Appraisal No. 501 [2017]

This Appraisal replaces BRANZ
Appraisal No. 501 [2006]



BRANZ Appraisals

Technical Assessments of
products for building and
construction.



RHS (NZ) Ltd, Trading as Putz Technik

P O Box 11 040

Ellerslie

Auckland

Tel: 09 271 3504

Fax: 09 271 3505

Web: www.putz-technik.co.nz



BRANZ

BRANZ

1222 Moonshine Rd,

RD1, Porirua 5381

Private Bag 50 908

Porirua 5240,

New Zealand

Tel: 04 237 1170

branz.co.nz



Product

- 1.1 Putz Technik System 300 is a cavity-based Exterior Insulation and Finishing System (EIFS) wall cladding. It is an external wall cladding system for residential and light commercial type buildings where domestic construction techniques are used.
- 1.2 The system consists of expanded polystyrene (EPS) sheets fixed over polystyrene or timber battens to form the cavity. The coating system consists of 5-10 mm thickness of fibreglass mesh reinforced plaster, which is finished with a latex exterior paint system. The plaster finish can be textured to give different appearances, such as sponge, float, adobe or scratch (medium or coarse).
- 1.3 The system incorporates a primary and secondary means of weather resistance (first and second line of defence) against water penetration by separating the cladding from the external wall framing with a nominal 20 mm drained cavity.

Scope

- 2.1 Putz Technik System 300 has been appraised as an external wall cladding system for buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1; and,
 - constructed with timber framing complying with the NZBC; and,
 - with a risk score of 0-20, calculated in accordance with NZBC Acceptable Solution E2/AS1, Table 2; and,
 - situated in NZS 3604 Wind Zones up to, and including Extra High.
- 2.2 Putz Technik System 300 has also been appraised for weathertightness and structural wind loading when used as an external wall cladding system for buildings within the following scope:
 - the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
 - constructed with timber or steel framing subject to specific engineering design; and,
 - situated in specific design wind pressures up to a maximum design differential ultimate limit state (ULS) of 2.5 kPa.
- 2.3 Putz Technik System 300 must only be installed on vertical surfaces *[except for tops of parapets, sills and balustrades, which must have a minimum 10° slope and be waterproofed in accordance with the Technical Literature]*.
- 2.4 The system is appraised for use with aluminium window and door joinery that is installed with vertical jambs and horizontal heads and sills. *[The Appraisal of Putz Technik System 300 relies on the joinery meeting the requirements of NZS 4211 for the relevant Wind Zone or wind pressure.]*
- 2.5 Installation of components and accessories supplied by Putz Technik and approved applicators must be carried out only by Putz Technik approved applicators.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, the Putz Technik System 300 Cavity System if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet the following provisions of the NZBC:

Clause B1 STRUCTURE: Performance B1.3.1, B1.3.2 and B1.3.4. Putz Technik System 300 meets the requirements for loads arising from self-weight, wind, impact and creep [i.e. B1.3.3 (a), (h), (j) and (q)]. See Paragraphs 10.1 - 10.4.

Clause B2 DURABILITY: Performance B2.3.1 (b), 15 years and B2.3.1 (c), 5 years and B2.3.2. Putz Technik System 300 meets these requirements. See Paragraphs 11.1 - 11.3.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. Putz Technik System 300 meets this requirement. See Paragraphs 16.1 - 16.5.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Putz Technik System 300 meets this requirement and will not present a health hazard to people.

Technical Specification

4.1 System components and accessories supplied by Putz Technik are as follows:

Polystyrene

- **Cavity battens** are manufactured from high density (Class H) expanded polystyrene (EPS) with an approximate density of 24 kg/m³. The battens are 50 mm wide by 20 mm thick and are supplied in 2400 mm lengths.
- **EPS sheets** are 40, 50 or 60 mm thick Class S with an approximate density of 16 kg/m³, or Class H with an approximate density of 24 kg/m³. The sheets are supplied in lengths ranging from 2.4 to 3.6 m x 1.2 m wide and are manufactured to meet the requirements of AS 1366 Part 3.

Plasters

- **PT300 Base Coat** is a Portland cement-based adhesive render comprising a fine or very fine sand, cement and mineral additives. It is trowel or machine applied as the bonding and meshing coat in a 2-3 mm thickness, followed by the embedment of fibreglass mesh reinforcement in the outer surface. PT300 is supplied in 25 kg plastic lined paper bags.
- **PT350 Skim or Levelling Coat** is a Portland cement-based plaster comprising a fine or very fine sand, cement and mineral additives. It is trowel or machine applied as a levelling coat in a 1-5 mm layer over the mesh coat. PT350 is supplied in 25 kg plastic lined paper bags.
- **PT100 Adobe or Undulating** is a dry mix plaster which has been specifically formulated for a fine sponge finish, and is ideally suited where an adobe or undulating finish is required. It may be trowel or machine applied to a thickness of 1-5 mm, and is supplied in 25 kg bags.
- **PT101 Float/Sponge/Texture** is a dry mix plaster which has been specifically formulated for finishing by plastic trowel or sponged with water. This plaster may also be sprayed through a hopper gun at a thickness of 2 mm to achieve a fine to medium textured finish. It is supplied in 25 kg bags.
- **PT103 Scratch/Drag** is a coarse sand dry mix plaster of approximately 3 mm thickness which has been specifically formulated as a medium texture (drag or random scratch coat) for finishing with a plastic trowel. It is supplied in 25 kg bags.
- **PT104 Scratch/Drag** is similar to PT103 except it contains slightly more coarse sands for a coarse scratch or drag finish of approximately 4 mm thickness. It is supplied in 25 kg bags.

Accessories

- **Reinforcing mesh** - alkali-resistant fibreglass mesh with a nominal mesh size of approximately 4 mm square and a weight of 160 g/m² for use in domestic and light commercial situations.
 - **uPVC components** - sill flashing, jamb flashing, corner moulding, base moulding, control joint mouldings and cavity vent strip.
 - **Washers** - 40 mm diameter PVC.
- 4.2 Accessories used with the system which are supplied by the Putz Technik approved applicator are:
- **Waterproof membrane tapes** - tapes covered by a valid BRANZ Appraisal for use as waterproof membranes over the tops of plastered parapets, balustrades, fixing blocks and the like.
 - **Flexible sealant** - sealant complying with NZBC Acceptable Solution E2/AS1, or sealant covered by a valid BRANZ Appraisal for use as a weather sealing sealant for exterior use.
 - **Adhesive** - EPS compatible adhesive for adhering uPVC components to the EPS sheets as and where required.
 - **Timber cavity battens** - nominal 50 mm wide by 25 mm thick (minimum finished size of 45 mm wide by 18 mm thick) timber treated to Hazard Class H3.1.
 - **Cavity batten fixings (timber frame)** - 30 x 2.5 mm hot-dip galvanised steel flat head nails.
 - **Polystyrene sheet and board fixings (timber frame)** - 90 x 3.55 mm (for 40 mm thickness) and 110 x 3.80 mm (for 50 and 60 mm thickness) hot-dip galvanised steel flat head nails with 40 mm diameter washers. *[Note: Hot-dip galvanising must comply with AS/NZS 4680.]*
 - **Cavity batten and polystyrene sheet fixings (steel frame)** - Self-drilling AS 3566 Corrosion Class 4, 6-gauge screws in Corrosion Zones B, C and D, with 40 mm diameter washers. The screw length must allow a 10 mm minimum penetration through the steel framing.
- 4.3 Accessories used with the system which are supplied by the building contractor are:
- **Flexible wall underlay** - building paper complying with NZBC Acceptable Solution E2/AS1, Table 23, or breather-type membranes covered by a valid BRANZ Appraisal for use as wall underlays.
 - **Flexible wall underlay support** - polypropylene strap, 75 mm galvanised mesh, galvanised wire, or additional vertical battens for securing the flexible wall underlay in place and preventing bulging of the bulk insulation into the drainage cavity. *[Note: mesh and wire galvanising must comply with AS/NZS 4534.]*
 - **Rigid wall underlay** - Plywood or fibre cement sheet complying with NZBC Acceptable Solution E2/AS1, Table 23, or rigid sheathing covered by a valid BRANZ Appraisal for use as rigid air barrier systems.
 - **Flexible sill and jamb tapes** - flexible flashing tapes complying with NZBC Acceptable Solution E2/AS1, Paragraph 4.3.11, or flexible flashing tapes covered by a valid BRANZ Appraisal for use around window and door joinery openings.
 - **Joinery head flashings** - as supplied by the joinery manufacturer or contractor.
 - **Window and door trim cavity air seal** - air seals complying with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.6, or self expanding, moisture cure polyurethane foam air seals covered by a valid BRANZ Appraisal for use around window, door and other wall penetration openings.

Paint System Specification

- A latex exterior paint system complying with any of Parts 7, 8, 9 or 10 of AS 3730 must be used over the finishing plasters to make the system weathertight and give the desired finish colour to exterior walls. Paint colours must have a light reflectance value [LRV] of 40% minimum regardless of gloss value. Proprietary paint systems have not been assessed, and are outside the scope of this Appraisal.

Handling and Storage

- 5.1 Handling and storage of all materials supplied by Putz Technik or the approved applicator, whether on or off site, are under the control of Putz Technik approved applicators. Dry storage must be provided on site for the fibreglass mesh and bags of plaster. EPS sheets and battens, uPVC flashings and profiles must be protected from direct sunlight and physical damage, and should be stored flat and under cover. Liquid components must be stored in frost-free conditions.
- 5.2 Handling and storage of all materials supplied by the building contractor, whether on or off site, are under the control of the building contractor. Materials must be handled and stored in accordance with the relevant manufacturer's instructions.

Technical Literature

- 6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Putz Technik System 300. The Technical Literature must be read in conjunction with this Appraisal. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Appraisal must be followed.

Design Information

Framing

Timber Treatment

- 7.1 Timber wall framing behind Putz Technik System 300 must be treated as required by NZBC Acceptable Solution B2/AS1.

Timber Framing

- 7.2 Timber framing must comply with NZS 3604 for buildings or parts of buildings within the scope limitations of NZS 3604. Buildings or parts of buildings outside the scope of NZS 3604 must be to a specific design in accordance with NZS 3603 and AS/NZS 1170. Where specific design is required, the framing must be of at least equivalent stiffness to the framing provisions of NZS 3604. In all cases, studs must be at maximum 600 mm centres for buildings designed to NZS 3604 in Wind Zones up to and including Very High, and at maximum 400 mm centres for buildings situated in NZS 3604 Wind Zone Extra High and specifically designed buildings situated in wind zones above NZS 3604 Extra High. Dwargs must be fitted flush between the studs at maximum 800 mm centres.
- 7.3 Timber framing must have a maximum moisture content of 24% at the time of the cladding application. *[Note: If EPS sheets are fixed to framing with a moisture content of greater than 24% problems may occur at a later date due to excessive timber shrinkage.]*

Steel Framing

- 7.4 Steel framing must be to a specific design meeting the requirements of the NZBC.
- 7.5 The minimum framing specification is 'C' section studs and nogs of overall section size of 75 mm web and 32 mm flange. Steel thickness must be minimum 0.55 mm.
- 7.6 For steel framed buildings situated in NZS 3604 defined Wind Zones up to and including Very High, studs must be at maximum 600 mm centres. For all other buildings, studs must be at maximum 400 mm centres. Dwargs must be fitted flush between the studs at maximum 800 mm centres.

EPS Sheet Setout

- 7.7 All vertical EPS sheet edges must be supported and fixed through the cavity battens to the framing. Horizontal sheet edges must be supported at fixing locations with cavity spacers 100 mm long maximum in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.2 (f). At the base of the wall, the EPS sheets must hang 50 mm below the supporting framing.
- 7.8 Additional framing will be required at soffits, internal and external corners and window and door openings for the support and fixing of sheet edges.

General

- 8.1 Punchings in the cavity vent strip provide a minimum ventilation opening area of 1000 mm² per lineal metre of wall in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.8.3 [b].
- 8.2 The ground clearance to finished floor levels as set out in NZS 3604 must be adhered to at all times. At ground level paved surfaces, such as footpaths, must be kept clear of the bottom edge of the cladding system by a minimum of 100 mm, and unpaved surfaces by 175 mm in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Table 18.
- 8.3 At balcony, deck or roof/wall junctions, the bottom edge of the Putz Technik System 300 system must be kept clear of any adjacent surface, or above the top surface of any adjacent roof flashing by a minimum of 35 mm in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.
- 8.4 All external walls of buildings must have barriers to airflow in the form of interior linings with all joints stopped for wind zones up to and including Very High. Unlined gables and walls must incorporate a rigid sheathing or an air barrier which meets the requirements of NZBC Acceptable Solution E2/AS1, Table 23. For attached garages, wall underlays must be selected in accordance with NZBC Acceptable Solution E2/AS1, Paragraph 9.1.3.4. Where rigid underlays are used, the fixing lengths must be increased by a minimum of the thickness of the underlay.
- 8.5 Where the system abuts other cladding systems, designers must detail the junction to meet their own requirements and the performance requirements of the NZBC. Details not included within the Technical Literature have not been assessed and are outside the scope of this Appraisal.

Electrical Cables

- 8.6 PVC sheathed electrical cables must be prevented from direct contact with the polystyrene. When cables must penetrate the EPS for exterior electrical connections, the cable must be directly supported by passing through an electrical conduit. The conduit must be sealed around the EPS sheet with a flexible sealant.

Control Joints

- 9.1 Control joints must be constructed in accordance with the Technical Literature, and be provided as follows:
 - **Horizontal control joints** - at maximum 6 m centres.
 - **Vertical control joints** - at maximum 20 m centres; aligned with any control joint in the structural framing; where the system abuts different cladding types, or where the system covers different structural materials.

[Note: Horizontal and vertical control joints must be located over structural supports. The design of vertical control joints where the system abuts different cladding types is outside the scope of this Appraisal and is the responsibility of the designer - see Paragraph 8.5.]

Inter-storey Junctions

- 9.2 Inter-storey junctions must be constructed in accordance with the Technical Literature. Inter-storey joints must be provided to limit continuous cavities to the lesser of 2-storeys or 7 metres in height, in accordance with the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 9.1.9.4 [b].

[Note: Refer to Paragraph 14.2 for the requirements for barriers to vertical fire spread at inter-storey junctions for buildings of three or more floors.]

Structure

Mass

- 10.1 The mass of Putz Technik System 300 is approximately 9 kg/m², therefore it is considered a light wall cladding in terms of NZS 3604.

Impact Resistance

10.2 The system has adequate resistance to impact loads likely to be encountered in normal residential use. The likelihood of impact damage to the system when used in light commercial situations should be considered at the design stage, and appropriate protection such as the installation of bollards and barriers should be considered for vulnerable areas.

Wind Zones

10.3 Putz Technik System 300 is suitable for use in all Wind Zones of NZS 3604, up to, and including Extra High where buildings are designed to meet the requirements of NZBC Acceptable Solution E2/AS1, Paragraph 1.1, or up to design differential 2.5 kPa ULS wind pressure when the buildings are specifically designed.

Polystyrene Sheet Fixing

10.4 EPS sheets must be fixed through the cavity battens and cavity spacers to the wall framing at maximum centres specified in Table 1 and Table 2.

Table 1: EPS Sheet Fixing Centres for Edges and Intermediate Studs

NZS 3604 Wind Zone	Fixing Centres (mm)
Low	300 ¹
Medium	300 ¹
High	300 ¹
Very High	200 ²

1. One fixing is required into each dwang and top and bottom plates at mid-dwang length.
2. Fixings are also required into each dwang at 200 mm centres and top and bottom plates at mid-dwang length.

Table 2: EPS Sheet Fixing Centres for Edges and Intermediate Studs - NZS 3604 Wind Zone Extra High and Specific Design Wind Zones

NZS 3604 Wind Zone Extra High and specifically designed buildings up to 2.5 kPa ULS wind pressure with studs at maximum 400 mm centres		
Maximum vertical fixing centres (mm) along studs	Maximum horizontal fixing centres (mm) along top and bottom plates	Maximum horizontal fixing centres (mm) along dwangs at maximum 800 mm centres
150	200	150

Durability

11.1 Putz Technik System 300 meets the performance requirements of NZBC Clause B2.3.1 (b), 15 years for the cavity system and plaster finish, and the performance requirements of NZBC Clause B2.3.1 (c), 5 years for the exterior paint system.

Serviceable Life

11.2 Putz Technik System 300 is expected to have a serviceable life of at least 30 years provided the system is maintained in accordance with this Appraisal, and the EPS sheets, fixings and plaster are continuously protected by a weathertight coating and remain dry in service.

11.3 Microclimatic conditions, including geothermal hot spots, industrial contamination and corrosive atmospheres, and contamination from agricultural chemicals or fertilisers can convert mildly corrosive atmosphere into aggressive environments for fasteners. The fixing of EPS sheets in areas subject to microclimatic conditions requires specific design in accordance with NZS 3604, Paragraph 4.2.4, and is outside the scope of this Appraisal.

Maintenance

- 12.1 Regular maintenance is essential to ensure the performance requirements of the NZBC are continually met and to ensure the maximum serviceability of the system.
- 12.2 Regular cleaning [at least annually] of the paint coating is required to remove grime, dirt and organic growth and to maximise the life and appearance of the coating. Grime may be removed by brushing with a soft brush, warm water and detergent. Paint systems must be recoated at approximately 5-10 yearly intervals in accordance with the paint manufacturer's instructions.
- 12.3 Annual inspections must be made to ensure that all aspects of the cladding system, including the coating system, plaster, flashings and any sealed joints remain in a weatherproof condition. Any cracks, damaged areas or areas showing signs of deterioration which would allow water ingress, must be repaired immediately. Sealant, coatings and the like must be repaired in accordance with the instructions of Putz Technik.
- 12.4 Minimum ground clearances as set out in this Appraisal and the Technical Literature must be maintained at all times during the life of the system. *[Note: Failure to adhere to the minimum ground clearances given in this Appraisal and the Technical Literature will adversely affect the long term durability of Putz Technik System 300.]*

Control of Internal Fire and Smoke Spread

- 13.1 Polystyrene used with the system must meet the flame propagation criteria of AS 1366 as specified in NZBC Acceptable Solution C/AS1, Paragraph 4.2.2 or NZBC Acceptable Solutions C/AS2 to C/AS6, Paragraph 4.17.2. The completed wall system, including the surface lining product enclosing the polystyrene sheet from the adjacent occupied space, must achieve the Group Number for internal surface finish requirements as specified in the relevant NZBC Acceptable Solutions C/AS1 to C/AS6.

Control of External Fire Spread

- 14.1 Putz Technik System 300 using any surface finish is suitable for use on buildings with an SH Risk Group classification, a building height of ≤ 10 m and at a distance of ≥ 1.0 m to the relevant boundary. Refer to NZBC Acceptable Solutions C/AS2 – C/AS6, Paragraph 5.8.1 for the specific exterior surface finishes requirements for other building Risk Groups.
[Note: The scope of this Appraisal limits building heights to 10 m in accordance with the limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1[a]. The building heights referenced in Paragraph 12.1 above are as defined in the Definitions Sections of NZBC Clauses C1 – C6 Protection from Fire.]
- 14.2 When buildings in all Risk Groups, apart from SH and VP, are of the three storeys maximum permitted by NZBC Acceptable Solution E2/AS1, Paragraph 1.1 [a], and when the cladding system extends to cover the walls of all three floors, the requirements for barriers to vertical fire spread in accordance with NZBC Acceptable Solutions C/AS2 to C/AS6, Paragraph 5.7.17 must be met. NZBC Acceptable Solution C/AS2 – C/AS6, Figure 5.8 gives an acceptable detail for barriers, however these do not consider NZBC Clause E2 requirements. Design of the barrier joint must be specifically detailed by the designer to meet the NZBC, including blocking of the cladding cavity and wall framing cavity, and installation of flashing and sealing systems to collect and direct any moisture to the outside of the cladding system at this point. These joints are not covered by the Technical Literature, and therefore are outside the scope of this Appraisal.

Prevention of Fire Occurring

- 15.1 Separation or protection must be provided to Putz Technik System 300 from heat sources such as fire places, heating appliances, flues and chimneys. Part 7 of NZBC Acceptable Solutions C/AS1 – C/AS6 and NZBC Verification Method C/VM1 provide methods for separation and protection of combustible materials from heat sources.

External Moisture

- 16.1 Putz Technik System 300, when installed in accordance with this Appraisal and the Technical Literature, prevents the penetration of moisture that could cause undue dampness or damage to building elements.
- 16.2 The cavity must be sealed off from the roof and sub-floor space to meet the performance requirements of Clause E2.3.5.
- 16.3 Putz Technik System 300 allows excess moisture present at the completion of construction to be dissipated without permanent damage to building elements to meet the performance requirements of Clause E2.3.6.
- 16.4 The details given in the Technical Literature for weather sealing are based on the design principle of having a first and second line of defence against moisture entry for all joints, penetrations and junctions. The ingress of moisture must be excluded by detailing joinery and wall interfaces as shown in the Technical Literature. Weathertightness details that are developed by the designer are outside the scope of this Appraisal and are the responsibility of the designer for compliance with the NZBC.
- 16.5 The use of Putz Technik System 300 where there is a designed cavity drainage path for moisture that penetrates the cladding, does not reduce the requirement for junctions, penetrations, etc to remain weather resistant.

Internal Moisture

- 17.1 Buildings must be constructed with an adequate combination of thermal resistance and ventilation, and space temperature must be provided to all habitable spaces, bathrooms, laundries and other spaces where moisture may be generated or may accumulate.
- 17.2 The EPS cavity battens will act as a thermal break to steel framing in accordance with NZBC Acceptable Solution E3/AS1.

Water Vapour

- 17.3 Putz Technik System 300 is not a barrier to the passage of water vapour, and when correctly installed will not create or increase the risk of moisture damage resulting from condensation.

Energy Efficiency

Building Thermal Envelope

- 18.1 NZBC Acceptable Solution H1/AS1 or NZBC Verification Method H1/VM1 can be used for housing, communal residential, communal non-residential and commercial buildings.

Determining Thermal Resistance

- 18.2 The thermal resistance [R-values] of building elements may be verified by using NZS 4214. The BRANZ 'House Insulation Guide' provides thermal resistances of common building elements and is based on calculations from NZS 4214.
- 18.3 Calculations in accordance with NZS 4214 require that the ventilated air gap and the thermal resistance of each layer between the ventilated air gap and outside air be de-rated by a factor of 0.45. Therefore, in this system, unless better information is available for a specific design case, the R-value of the EPS sheet must be taken as set out in Table 3.

Table 3: Board R-values (including 0.45 de-rating)

Polystyrene Type	Thickness		
	40 mm	50 mm	60 mm
EPS Class S ¹	R0.54	R0.67	R0.8
EPS Class H ²	R0.57	R0.73	R0.87

1. Based on a thermal conductivity k value of 0.041 W/m°C.
2. Based on a thermal conductivity k value of 0.038 W/m°C.

Installation Information

Installation Skill Level Requirements

- 19.1 Installation and finishing of components and accessories supplied by Putz Technik and its approved applicators must be completed by trained applicators, approved by Putz Technik.
- 19.2 Installation of the accessories supplied by the building contractor must be carried out in accordance with the Putz Technik System 300 Technical Literature and this Appraisal by, or under the supervision of a Licensed Building Practitioner [LBP] with the relevant Licence Class.

System Installation

Wall Underlay and Flexible Sill and Jamb Tape Installation

- 20.1 The selected wall underlay and flexible sill and jamb tape system must be installed by the building contractor in accordance with the underlay and tape manufacturer's instructions prior to the installation of the cavity battens and the rest of the Putz Technik System 300 Cavity System. Flexible wall underlay must be installed horizontally and be continuous around corners. Underlay must be lapped 75 mm minimum at horizontal joints and 150 mm minimum over studs at vertical joints. Generic rigid sheathing materials must be installed in accordance with NZBC Acceptable Solution E2/AS1 and be overlaid with a flexible wall underlay. Proprietary systems must be installed in accordance with the manufacturer's instructions. Particular attention must be paid to the installation of the wall underlay and sill and jamb tapes around window and door openings to ensure a continuous seal is achieved and all exposed wall framing in the opening is protected.
- 20.2 Where studs are at greater than 450 mm centres and a flexible wall underlay is being used, a wall underlay support must be installed over the underlay at maximum 300 mm centres horizontally.

Aluminium Joinery Installation

- 20.3 Aluminium joinery and associated head flashings must be installed by the building contractor in accordance with the Technical Literature. A 7.5-10 mm nominal gap must be left between the joinery reveal and the wall framing so a PEF rod and air seal can be installed after the joinery has been secured in place.

Putz Technik System 300

- 20.4 The system must be installed in accordance with the Technical Literature by Putz Technik approved applicators.
- 20.5 The Putz Technik System 300 plaster system must only be applied when the air and substrate temperature is within the range of +5°C to +30°C.

Finishing

- 20.6 The paint manufacturers' instructions must be followed at all times for application of the paint finish. The plaster must be cured for a minimum of 7 days and must be dry before commencing painting.

Inspections

- 20.7 The Technical Literature must be referred to during the inspection of Putz Technik System 300 installations.

Health and Safety

- 21.1 Safe use and handling procedures for the components that make up Putz Technik System 300 are provided in the relevant manufacturer's Technical Literature.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

- 22.1 The following testing has been completed by BRANZ:
- BRANZ expert opinion on NZBC E2 code compliance for the Putz Technik System 300 was based on testing and evaluation of all details within the scope and as stated within this Appraisal. Putz Technik System 300 was tested to E2/VM1 as contained within NZBC Clause E2. The testing assessed the performance of the foundation detail, window head, jamb and sill details, meter box head, jamb and sill details, vertical and horizontal control joints, internal and external corners and balustrade to wall junction with a plastered cap. In addition to the weathertightness test, the details contained within the Technical Literature have been reviewed, and an opinion has been given by BRANZ technical experts that the system will meet the performance levels of Acceptable Solution E2/AS1 for drained cavity claddings.
 - Wind face load and fastener pull through testing for EIFS cladding systems. BRANZ determined design wind suction pressures, and by comparing these pressures with the NZS 3604 design wind speeds and AS/NZS 1170 pressure coefficients, the fixing requirements were determined for timber and steel framed walls.
- 22.2 Testing has been undertaken by Opus International Consultants on the Putz Technik System 300 plaster for air entrainment, density, flexural strength, bond strength, compressive strength and direct tensile strength. The test methods and results have been reviewed by BRANZ and found to be satisfactory.

Other Investigations

- 23.1 Structural and durability opinions have been provided by BRANZ technical experts.
- 23.2 Site visits have been carried out by BRANZ to assess the practicability of installation, and to examine completed installations.
- 23.3 The Technical Literature for Putz Technik System 300 has been examined by BRANZ and found to be satisfactory.

Quality

- 24.1 The manufacture of the plasters has been examined by BRANZ, including methods adopted for quality control. Details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 24.2 The quality of materials, components and accessories supplied by Putz Technik is the responsibility of Putz Technik.
- 24.3 Quality on site is the responsibility of the Putz Technik approved applicators.
- 24.4 Designers are responsible for the building design, and building contractors are responsible for the quality of installation of framing systems and joinery, wall underlays, flashing tapes, air seals and joinery head flashings in accordance with the instructions of Putz Technik.
- 24.5 Building owners are responsible for the maintenance of Putz Technik System 300 installations in accordance with the instructions of Putz Technik.



Sources of Information

- AS 1366.3 - 1992 Rigid cellular plastic sheets for thermal insulation - Rigid cellular polystyrene - Moulded [RC/PS-M].
- AS 3566 - 2002 Self-drilling screws for the building and construction industries.
- AS 3730: 2006 Guide to the properties of paints for buildings.
- AS/NZS 1170: 2011 Structural design actions.
- NZS 3603: 1993 Timber Structures Standard.
- NZS 3604: 2011 Timber framed buildings.
- NZS 4211: 2008 Specification for performance of windows.
- NZS 4214: 2006 Methods of determining the total thermal resistance of parts of buildings.
- BRANZ House Insulation Guide, Fifth Edition, 2014.
- Acceptable Solutions and Verification Methods for New Zealand Building Code External Moisture Clause E2, Ministry of Business, Innovation and Employment, Third Edition July 2005 (Amendment 7, 01 January 2017).
- Ministry of Business, Innovation and Employment Record of Amendments for Compliance Documents and Handbooks.
- The Building Regulations 1992.



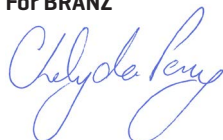
In the opinion of BRANZ, the **Putz Technik System 300 Cavity System** is fit for purpose and will comply with the Building Code to the extent specified in this Appraisal provided it is used, designed, installed and maintained as set out in this Appraisal.

The Appraisal is issued only to **RHS [NZ] Ltd, Trading as Putz Technik**, and is valid until further notice, subject to the Conditions of Appraisal.

Conditions of Appraisal

1. This Appraisal:
 - a) relates only to the product 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 BRANZ.
2. **RHS [NZ] Ltd, Trading as Putz Technik**:
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions.
 - d) Warrants that the product and the manufacturing process for the product are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ pursuant to BRANZ's Appraisal of the product.
3. BRANZ makes no representation or warranty 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 **RHS [NZ] Ltd, Trading as Putz Technik**.
4. Any reference in this Appraisal to any other publication shall be read as a reference to the version of the publication specified in this Appraisal.
5. BRANZ provides no certification, guarantee, indemnity or warranty, to **RHS [NZ] Ltd, Trading as Putz Technik** or any third party.

For BRANZ



Chelydra Percy

Chief Executive

Date of Issue:

16 June 2017