



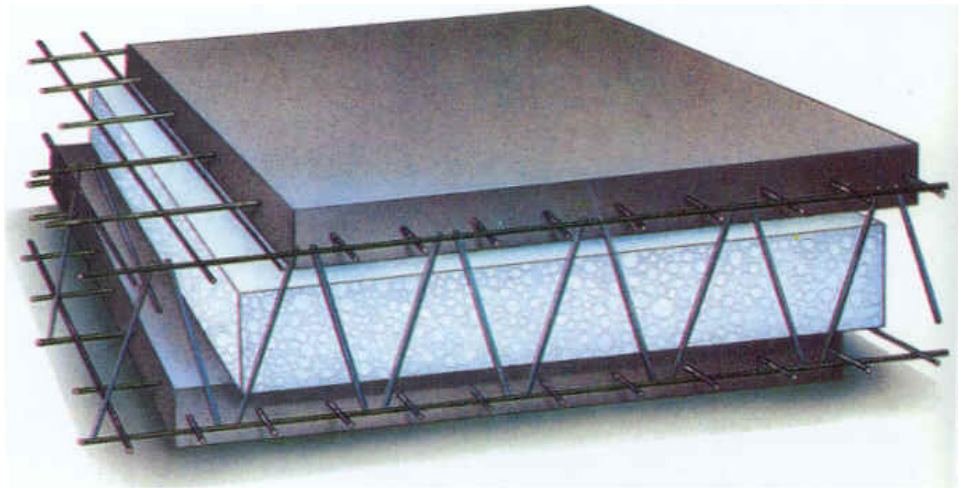
BRANZ Appraised

Appraisal No. 750 [2023]

EVG 3D BUILDING SYSTEM

Appraisal No. 750 [2023]

This Appraisal replaces BRANZ Appraisal No. 750 [2011]



BRANZ Appraisals

Technical Assessments of products for building and construction.



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Product

- 1.1 The EVG 3D Building System is based on panels of expanded polystyrene [EPS] insulation and steel reinforcement which are site-applied with concrete. The system is suitable for the walls and floors of housing and commercial buildings.
- 1.2 The EVG 3D panels consist of a layer of mesh on either side of an EPS core, welded together by steel diagonals [trusses] which penetrate through the EPS core. The panels are joined in the desired configuration on-site and sprayed both sides with concrete to form a sandwich type construction. The exterior of the panels are finished with a weatherproof coating such as render while the interior surfaces [walls and ceilings] can either be plastered or lined with conventional lining materials such as plasterboard systems.

Scope

- 2.1 The EVG 3D Building System has been appraised for use as a structural wall and floor system for specifically designed buildings within the following scope:
 - with a maximum building height from the ground to eaves of 10 m; and,
 - with a floor plan area limited only by seismic and structural control joints; and,
 - situated in non-cyclonic wind zones up to, and including, N6 or situated in cyclonic wind zones up to, and including C4.
- 2.2 The structural and weathertightness design for each specific structure is the responsibility of the building designer.
- 2.3 The system is appraised for use with framed window and door joinery that is installed with vertical jambs and horizontal heads and sills. *[Note: The Appraisal of the EVG 3D Building System relies on the joinery meeting the requirements of AS 2047 for the relevant wind zone.]*

Building Regulations

National Construction Code (NCC)

- 3.1 In the opinion of BRANZ, EVG 3D Building System, if designed, used, installed and maintained in accordance with the statements and conditions of this Appraisal, will meet or contribute to meeting the following provisions of the NCC:

NCC 2022 Volume One - Building Code of Australia

Part B1 STRUCTURAL PROVISIONS: Performance B1P1. The EVG 3D Building System meets the requirements for actions arising from the following imposed actions: permanent actions (dead loads), imposed actions (live loads), wind action, earthquake action, differential movement, creep and shrinkage and thermal effects [i.e. B1P1 (2)(a), (b), (c), (d), (j), (k), and (l)]. See Paragraphs 8.1-8.4.

Part C1 FIRE RESISTANCE: Performance C1P1 and C1P2. The EVG 3D Building System can be used to meet these requirements. See Paragraphs 10.1-10.6.

Part F3 ROOF AND WALL CLADDING: Performance F3P1. The EVG 3D Building System meets this requirement. See Paragraphs 12.1-12.6.

Part F7 SOUND TRANSMISSION AND INSULATION: Performance F7P1 and F7P2. The EVG 3D Building System can be used to meet these requirements. See Paragraph 13.1.

Part G5 CONSTRUCTION IN BUSHFIRE PRONE AREAS: Performance G5P1. The EVG 3D Building System can be used to meet this requirement. See Paragraphs 11.1-11.3.

Part J1 ENERGY EFFICIENCY PERFORMANCE REQUIREMENTS: Performance J1P1. EVG 3D Building System contributes to meeting this requirement. See Paragraphs 14.1-14.4.

NCC 2022 Volume Two - Building Code of Australia

Part H1 STRUCTURE: Performance H1P1 (2) The EVG 3D Building System meets the requirements for actions arising from the following imposed actions: permanent actions (dead loads), imposed actions (live loads), wind action, earthquake action, differential movement, creep and shrinkage and thermal effects [i.e. H1P1 (2)(a), (b), (c), (d), (j), (k), and (l)]. See Paragraphs 8.1-8.4.

Part H2 DAMP AND WEATHERPROOFING: Performance H2P2. The EVG 3D Building System meets this requirement. See Paragraphs 12.1-12.6.

Part H3 FIRE SAFETY: Performance H3P1. See Paragraphs 10.1-10.6.

Part H4 HEALTH AND SAFETY: Performance H4P6. The EVG 3D Building System can be used to meet this requirement. See Paragraph 13.1.

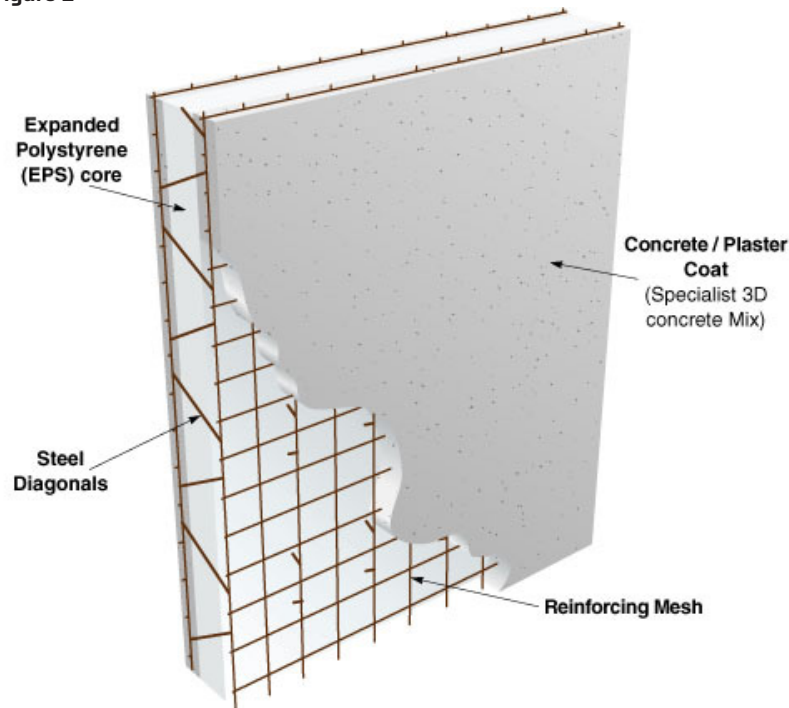
Part H6 ENERGY EFFICIENCY: Performance H6P1. The EVG 3D Building System contributes to meeting these requirements. See Paragraphs 14.1-14.4.

Part H7 ANCILLARY PROVISIONS AND ADDITIONAL CONSTRUCTION REQUIREMENTS: Performance H7P5. The EVG 3D Building System meets this requirement. See Paragraphs 11.1-11.3.

Technical Specification

- 4.1 The EVG 3D Building System consists of panels manufactured to form a three-dimensional truss-type welded-wire space frame integrated with an S grade fire retardant EPS core. The panels are placed in position, and wythes of concrete from 40-80 mm thick are applied to both sides (see Figure 1).

Figure 1



- 4.2 Panels are butt-jointed, with extra layers of welded-wire fabric spliced over the joints, around openings and at internal and external corners. Reinforcing ties and bars are used at building element junctions to add strength to joints.
- 4.3 The panels are produced in a standard width of 1,200 mm, with lengths supplied as required up to 6,000 mm. The panels weigh approximately 6 kg/m², and may be site-cut to size and shape. The standard EPS core thicknesses are 50, 80, 100 and 150 mm. The welded-wire fabric has a standard size of 50 x 50 mm mesh x 2.5 to 3 mm wire diameter, which is connected by steel diagonals [trusses] 3.5 to 3.8 mm in diameter. The wires may be either galvanised steel or stainless steel. The panels are available with three truss spacings for different applications. The trusses are spaced with either 67 [D60], 100 [D100] or 200 [D200] truss wires per square metre.

Handling and Storage

- 5.1 If it is necessary to store panels on-site by stacking, care must be taken to ensure they are stacked flat, and that they are kept clean and undamaged. The panels may need to be weighted or tied down during storage in windy conditions.
- 5.2 Long-term storage of the panels must be carried out in a covered, protected, dry environment, so that corrosion of the reinforcing does not occur and the panels do not get damaged.
- 5.3 The panels must not be left exposed to sunlight for longer than 3 months, either in storage or during construction, to protect the EPS from degradation.

Technical Literature

- 6.1 This Appraisal must be read in conjunction with:
- EVG 3D Building System Technical Manual, July 2011.
- 6.2 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

General

- 7.1 The EVG 3D Building System is used in buildings that have been specifically designed in accordance with AS 3600 and AS 4100 using the design guidelines.
- 7.2 The EVG 3D Building System must be designed to provide the required building bracing resistance for earthquake and wind loads.
- 7.3 Foundations are to a specific design in accordance with AS 3600 using the design guidelines. Ground floors are typically concrete slab-on-ground.
- 7.4 Roof framing and interior partitions may be constructed using conventional details as set out in AS 1684, or may be to a specific engineering design. Steel framing, or pre-cast concrete units such as beams or panels may also be used, but must be to a specific engineering design. Roof trusses, if used, must comply with AS 1684. Roof coverings can be conventional and must meet the requirements of the NCC.
- 7.5 The exterior concrete must be finished with a weatherproof coating system. This can be either paint, painted cement-based render or an external render finishing system suitable for concrete covered by a valid BRANZ Appraisal. Render must be in accordance with ACI 524R Guide to Portland Cement-Based Plaster. At least two coats of an exterior grade latex acrylic paint complying with any of Parts 7, 8, 9 or 10 of AS 3730 must be applied. Paint colours must have a light reflectance value of 40% minimum regardless of gloss value.
- 7.6 Other render finishing systems recognized for use over concrete may be used but are outside the scope of this Appraisal.
- 7.7 Interior finishing is carried out by either applying a coat of interior plaster or fixing a lining system to the concrete.

Structure

- 8.1 The EVG 3D Building System panel receives its out-of-plane strength and rigidity by truss action where the concrete wythes are the chord members and the diagonal cross-wires are the web members.
- 8.2 The design of the EVG 3D Building System follows the requirements of AS 3600. Concrete strength must be a minimum of 25 MPa. Wire reinforcement strength must be a minimum of 500 MPa. Design guidelines and requirements are set out in the Technical Literature, and must be followed. The design guidelines cover loading, design requirements and material properties, durability, flexure, axial load, in-plane shear, and standard details.

Impact Resistance

- 8.3 The EVG 3D Building System provides a robust system that has a high resistance to hard and soft body impacts likely to be associated with normal residential use situations.

Wind Uplift

- 8.4 The design of roof to wall connections must be to a specific engineering design to ensure the roof structure is properly restrained against wind uplift. AS 1684 provides uplift capacity of various tie-down connections for timber framed roofs, which may be used in conjunction with details provided in Technical Literature.

Durability

- 9.1 AS 3600 Section 4 specifies exposure zones, concrete strengths and cover requirements for the Australian environment. As the EVG 3D Building System is intended for use throughout Australia, a number of situations will apply.
- 9.2 The design guidelines set out the durability requirements that must be met for the EVG 3D Building System, and summarises the requirements of Tables 4.3 and 4.10.3.2 of AS 3600 for exposure zones, minimum cover and concrete strengths that apply to this system [see Table 1 of this Appraisal].
- 9.3 External applied coatings must be applied to provide additional protection to the reinforcing against corrosion. See Paragraph 7.5.

Serviceable Life

9.4 The EVG 3D Building System will remain durable and serviceable for at least 50 years.

Maintenance

9.5 Annual checks of the building exterior must be made to ensure the entire building envelope remains weatherproof in accordance with the performance provisions of the NCC. Moisture must not penetrate the structure which would cause corrosion of the reinforcement.

9.6 Recoating of the finishing system will be necessary. The interval between recoats depends on the finish colour, orientation and quality of the application, and will be at approximately 5-10 yearly intervals in accordance with the paint manufacturer's instructions.

Table 1: Minimum Concrete Cover Requirements

Exposure Classification		Minimum Required Cover (mm) for Various Concrete Strengths, f'c		
		25 MPa	30 MPa	40 MPa
A1	Above ground exterior surfaces in inland areas (non-industrial and arid climatic zones). Interior surfaces (residential). Surfaces in ground contact protected by a damp proof membrane or residential footings in non-aggressive soils.	20	20	20
A2	Above ground exterior surfaces in inland areas (non-industrial and temperate climatic zones). Surfaces (except residential footings) in ground contact in non-aggressive soils. Interior surfaces (non-residential).	30	25	20
B1	Above ground exterior surfaces in inland areas (non-industrial and tropical climatic zones, or industrial in any climatic zone). Interior surfaces subjected to repeated wetting and drying. Exterior surfaces in near-coastal areas.	[60]	40	30
B2	Exterior surfaces in coastal areas	n/a	[65]	45

Notes to Table 1:

1. Inland environments are defined in AS 3600 as being more than 50 km from the coastline.
2. Near-coastal environments are defined in AS 3600 as being from 1 km to 50 km from the coastline, in any Climatic Zone.
3. Figure 4.3 of AS 3600 shows the Climatic Zones.
4. The Coastal zone [B2] is defined typically as within 1 km of the shoreline of large expanses of saltwater. Where there are strong prevailing winds or vigorous surf, the distance should be increased beyond 1 km and higher levels of protection should be considered.
5. For bracketed figures, refer to concession in AS 3600 Clause 4.3.2.

Fire Resistance and Fire Safety

NCC Volume One

Structural Stability Required During Fire

10.1 NCC Volume One Deemed-to-Satisfy Provision C2D1 provides details for the required fire-resisting construction required for various building elements and Building Classes. The provision provides details on the required FRLs of elements supporting loads and other building elements.

Fire Resistance Levels (FRLs)

10.2 The EVG 3D Building System can be used for load-bearing and non-load bearing walls to provide passive fire and smoke protection. Fire Resistance Levels (FRLs) of up to 120/120/120 can be achieved with the system, refer to Table 2. Construction details are contained in the Technical Literature and must be strictly followed to obtain the required FRL. These FRLs can be used to contribute to meeting the Performance Requirement C1P2.

Table 2: Fire Resistance Ratings to AS 1530.4:2014

EVG 3D Panel thickness (mm): Concrete/EPS/Concrete	Partition Type	FRL
38/50/38	Non-load bearing wall	-/90/90
75/80/75	Load bearing wall	120/120/120
40/50/40	Non-load bearing wall	-/90/90
50/50/50	Non-load bearing wall	120/120/120
50/100/60	Load bearing floor	120/120/120

Fire Hazard Properties of Materials

10.3 NCC Volume One Deemed-to-Satisfy Provision C2D11 does not apply to the EVG 3D System as the facings are made of concrete which is excluded by C2D11 [3][a]. Similarly the EVG 3D system finished with paint is excluded by Clause C2D11 [3][h]. However, other finish systems may require assessment of their fire hazard properties in accordance with Deemed-to-Satisfy Provision C2D11. These have not been assessed and are outside the scope of this Appraisal.

NCC Volume Two

Protection from the Spread of Fire

10.4 The EVG 3D Building System can be used to construct walls of fire rated construction. The FRLs are given in Table 2. Reference should be made to NCC Volume Two Deemed-to-Satisfy Provision H3D1 for specific requirements.

Heating Appliances

10.5 Separation distances from flues to the external concrete faces of the EVG 3D Building System are not required in accordance with the requirements of NCC Volume Two Performance H7P3 for the protection of the material. However, care must be taken to protect heat sensitive linings and finishing materials where they are used.

10.6 Where penetrations are made in the panels for flues and the like to pass, reference must be made to NCC Volume Two Deemed-to-Satisfy Provision H7D5 for the installation of flues. The EPS core material must be separated in accordance with these requirements.

NCC Bushfire Zones

Bushfire Prone Areas

11.1 The use of the EVG 3D Building System on buildings located within designated bush fire zones may be restricted by the requirements of AS 3959.

11.2 The building designer is responsible for determining the Bushfire Attack Level for the building in accordance with AS 3959, which will in turn determine whether the EVG 3D Building System is suitable for use.

11.3 The EVG 3D Building System is suitable for use in all Bushfire Prone Areas up to and including BAL-FZ, when designed, constructed and installed in accordance with the Technical Literature and the NCC.

Roof and Wall Cladding, Damp and Weatherproofing

- 12.1 A roof cladding system complying with the NCC must be installed and maintained. The exterior walls must be protected with a weatherproof coating system.
- 12.2 Concrete slab-on-ground floors must be protected by a damp-proof membrane.
- 12.3 Exterior joinery complying with the NCC must be installed to openings in exterior walls. Exterior moisture must be excluded by detailing joinery and wall joint interfaces as shown in the Technical Literature, or designers may produce their own details, for which they alone must accept responsibility for compliance with the Roof and Wall Cladding, and Damp and Weatherproofing requirements of the NCC. Weathertightness details that are developed by the designer are outside the scope of the Appraisal.
- 12.4 When using detailing as set out in the Technical Literature, designers must still check that the detail will meet their own design requirements and the Roof and Wall Cladding, and Damp and Weatherproofing requirements of the NCC when these details are incorporated into their particular design. Compliance with the Roof and Wall Cladding, and Damp and Weatherproofing requirements of the NCC is dependent on the correct incorporation of these details into the building design.
- 12.5 Roof cladding systems, exterior joinery, and exterior and interior finishes have not been assessed for compliance with the NCC and are outside the scope of this Appraisal, unless they have been BRANZ appraised as suitable for this particular use.
- 12.6 The EVG 3D Building System, 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.

Sound Transmission and Insulation

- 13.1 The EVG 3D Building System can be used for walls and floors that are common between occupancies. The NCC outlines the requirements for various elements. To meet this requirement, the walls must be constructed in accordance with the sound insulation details contained in the Technical Literature. See Table 3 for Sound Insulation Ratings.

Energy Efficiency

- 14.1 The EVG 3D Building System can be used to contribute to meeting the Energy Efficiency Provisions of the NCC. The R-values given in Table 4 can be used in the assessment of a particular building's compliance with the Energy Efficiency requirements of the NCC. The Technical Literature gives a calculation method to assess the R-value of varying EVG 3D wall constructions e.g. different EPS and concrete thicknesses.

NCC Volume One

- 14.2 The Energy Efficiency of a building design can be evaluated using the Verification Methods listed in Section J. Note should be made of relevant State and Territory variations.

NCC Volume Two

- 14.3 Contribution to the overall thermal performance and energy rating of houses needs to be considered. The individual thermal conductivity of the wall insulation contributes to the overall thermal energy rating but its thermal conductivity on its own cannot be used to determine the contribution to the overall energy rating and thermal efficiency of the house. The complete building needs to be considered when assessing the Energy Efficiency requirements of the NCC.

State and Territory Variations

- 14.4 Some States and Territories have different Energy Efficiency requirements. Designers should make reference to the NCC for details of these variations.



Table 3: Predicted Sound Insulation Ratings

EVG 3D Panel Thickness (mm): [concrete/EPS/ concrete]	Additional Requirements	Typical Application	Predicted Rw Rating	Predicted Rw+Ctr
40/100/40	None	Basic wall/floor	42	39
40/100/40	To each side of the wall: <ul style="list-style-type: none"> • 13 mm plasterboard • 28 mm metal furring channel with cavity infill of 25 mm insulation¹. 	Corridor wall	60	48
40/100/40	To one side of the wall: <ul style="list-style-type: none"> • 2 x 13 mm plasterboard • 28 mm metal furring channel with cavity infill of 25 mm insulation¹. To the other side of the wall: <ul style="list-style-type: none"> • 13 mm plasterboard • 28 mm metal furring channel with cavity infill of 25 mm insulation¹. 	Inter-tenancy wall: Continuous construction	62	51
40/100/40	To one side of the wall: <ul style="list-style-type: none"> • 13 mm plasterboard • 28 mm metal furring channel with cavity infill of 25 mm insulation¹. To the other side of the wall, with a clear gap of 20 mm with no connections: <ul style="list-style-type: none"> • Minimum 64 mm stud with cavity infill of 50 mm insulation¹ • 13 mm plasterboard. 	Inter-tenancy wall: Discontinuous construction	63	51
40/100/40	To under side of the floor: <ul style="list-style-type: none"> • Minimum 100 mm wire ceiling suspension system • 50 mm insulation • 13 mm plasterboard. 	Inter-tenancy floor	59	53

Note:

1. Glasswool or polyester insulation, density 9 kg/m³.

Table 4: EVG 3D Building System R-values

EVG 3D Panel Thickness (mm): [concrete/EPS/concrete]	Truss spacing	Approximate R-value with mild steel diagonals (m ² °C/W)	Approximate R-value with stainless steel diagonals (m ² °C/W)
40/50/40	D200	0.6	1.0
	D100	0.9	1.1
	D60	1.0	1.2
40/80/40	D200	0.9	1.4
	D100	1.2	1.7
	D60	1.4	1.8
40/100/40	D200	1.0	1.7
	D100	1.4	2.0
	D60	1.7	2.2
40/150/40	D200	1.4	2.4
	D100	2.0	2.9
	D60	2.3	3.2

Termites

- 15.1 Although EPS is not considered a food source for termites, appropriate protection measures in accordance with the NCC must be undertaken to protect the building from termite attack.

Installation Information

Installation Skill Level Requirement

- 16.1 All design and building work must be carried out in accordance with the EVG 3D Building System Technical Literature and this Appraisal. All building work must be undertaken by competent and experienced tradespersons conversant with the EVG 3D Building System.

General

- 17.1 Installation must be carried out in accordance with the Technical Literature. It contains, in particular, details on the correct sequence for the erection of the panels.
- 17.2 Wall panels must be erected vertically and plumb, starting at corners and working along. Connections between the panels and the foundation or floor must be made by means of starter bars that have been cast or set into the foundation or floor and wired to the welded-wire fabric. Panels must be plumbed and temporarily supported as erection takes place. Final adjustment of supports for correct alignment can be carried out when all panels are erected.
- 17.3 Panels can be cut to shape and size, or openings formed in them by cutting with a power saw, or using bolt cutters on the welded-wire fabric and a sharp blade, hand saw or hot wire on the EPS.
- 17.4 All joints in the panels must be connected by means of a splice mesh to create a continuous reinforcing mesh over the wall. Splice mesh must also be fitted at external and internal corners. Splice is not required around openings at windows and door reveals unless required by specific engineering design. A 'butterfly' of mesh should also be placed on a 45° angle across the corner of all openings.
- 17.5 Once all ground floor wall panels have been erected and braced, floor slab panels (where applicable) are placed over the top of the walls. Temporary support must be provided to floor panels by means of beams and props. Connections can then be made between the floor and wall panels when final alignment of the wall panels has been completed. Reinforcing bars required to the floor panels should be fixed in place before the panels are lifted. Reinforcing bars and splice mesh must be fitted at joints and connections when required by the specific structural engineering design.
- 17.6 The upper wall panels (if applicable) must be installed as for the ground floor wall panels. Any built-in hold-down or fixing devices required must be attached in the correct positions before concreting commences.

Services

- 18.1 Services may be run concealed within the panels by installing them behind the welded-wire fabric. If insufficient space exists between the welded-wire fabric and the polystyrene, the polystyrene may be cut away sufficiently to form a chase for the service.
- 18.2 PVC sheathed electrical cables must not come into contact with the EPS and must, therefore, be contained within a conduit or be laid without conduits away from the EPS.
- 18.3 Where services penetrate external panels, the penetration must be made weathertight on the outside. Clearance for services movement must be made in accordance with the service element providers' specifications.

Concrete Installation

- 19.1 All concreting work must be carried out in accordance with AS 3600 with regard to workmanship and materials.
- 19.2 Concrete is sprayed onto walls and ceilings using a shotcrete pump, and is pumped in place for floor topping slabs. Upper level floor topping slabs are usually placed before internal walls and ceilings to upper levels, and allowed to cure, to give a working platform for spraying the interior.
- 19.3 Some supports may be removed from under slabs after 3 days, but critical supports, such as those at mid-span, must be left in place until the slab is fully cured. The structural engineering design must provide the appropriate details for supports and sequence and timing of removal of them.
- 19.4 Concrete must be of the correct strength and mix design as required by the structural engineering design.
- 19.5 The normal procedure is to apply the concrete in two layers, although the application may be carried out in one single coat. The first layer is applied to a thickness to just cover the welded-wire fabric, and the second layer to give the final required thickness. The first layer is usually left to cure for a few days to provide initial load transfer to the panels. Any supports or stiffeners that have been attached to the panels are removed before the second layer is sprayed, and the gaps left by the supports are in-filled with sprayed concrete.
- 19.6 The first layer of concrete is left 'rough' to give adequate key to the second layer. Correct concrete thickness must be measured as work proceeds. Screed points of concrete are used as gauges to give correct concrete thickness and lines. Hand trowel finishing of the second layer is required to give the appropriate finish and surface tolerances. The ability to provide concrete finishes to the tolerances required by the designer or AS 3600, is entirely dependent on the skill and workmanship of the concrete finishers.
- 19.7 Curing of the concrete must be carried out as set out in AS 3600, and requires a minimum curing period of 7 days for external concrete and 3 days for internal concrete. Generally, this will require the concrete to be kept damp by applying water to the surface. This may be carried out by means of a fine spray hose or wet scrims placed over the surface.
- 19.8 Conventional roof construction [where applicable] can be installed once all walls and floors have been erected and concrete work completed.

Finishing

- 20.1 After joinery installation has been completed using the detailing as set out in the Technical Literature, the exterior and interior finishes can be applied to the concrete surfaces.
- 20.2 Interior surfaces [walls and ceilings] are finished with a thin coat interior plaster applied in accordance with the Technical Literature. Alternatively, any other suitable lining system may be used, providing it is installed in accordance with the lining manufacturers' instructions.
- 20.3 Exterior finishes may be any weatherproof coating system recommended by the coating manufacturer as suitable for use on concrete or cement-based render, or other BRANZ Appraised systems suitable for this purpose. Render finish coats in accordance with ACI 524R may also be used externally over the concrete, providing the weatherproof coating is also installed.
- 20.4 Exterior and interior finishing systems are not covered by this Appraisal, unless they have been BRANZ Appraised as suitable for this use.

Inspections

- 21.1 The Technical Literature must be referred to during the inspection of EVG 3D Building System.

Health and Safety

- 22.1 The EVG 3D Building System Technical Literature must be consulted for guidance for health and safety requirements such as personal protective clothing, protective glasses, hearing protection and installation hazard assessment.

Basis of Appraisal

The following is a summary of the technical investigations undertaken.

Tests

- 23.1 BRANZ has carried out thermal resistance testing of the EVG 3D Building System EPS in accordance with ASTM C518.
- 23.2 Fire resistance tests have been carried out in accordance with BS 476:Parts 21 and 22 on EVG 3D Building System panels. The results have been reviewed by BRANZ.
- 23.3 Sound insulation tests have been carried out on EVG 3D Building System panels. The results have been reviewed by an Acoustic Engineer.

Other Investigations

- 24.1 The manufacturer's Technical Literature has been reviewed by BRANZ and found to be satisfactory.
- 24.2 Site inspections were carried out by BRANZ to assess methods used for the installation of the EVG 3D Building System and to examine completed installations.
- 24.3 Assessments have been given by BRANZ technical experts covering structure, durability, fire resistance and fire safety, damp and weatherproofing, and thermal performance.

Quality

- 25.1 The manufacture of EVG 3D Building System panels has not been examined by BRANZ, but details regarding the quality and composition of the materials used were obtained by BRANZ and found to be satisfactory.
- 25.2 EVG [Entwicklungs-und Verwertungs-Gesellschaft] is responsible for the quality of the product supplied.
- 25.3 Specific design using the EVG 3D Building System is the responsibility of the designer with the instruction, supervision and approval of EVG [Entwicklungs-und Verwertungs-Gesellschaft].
- 25.4 Quality of installation of the system on-site is the responsibility of the tradesperson.
- 25.5 Quality of maintenance of the building is the responsibility of the building owner.

Sources of Information.

- ACI 524R:2016 Guide to Portland Cement-Based Plaster.
- AS 1684.2:2021 Residential timber-framed construction.
- AS 2047-2014 Windows and external glazed doors in buildings.
- AS 3600:2018 Concrete structures.
- AS 3730-2006 Guide to the properties of paints for buildings.
- AS 4100:2020 Steel Structures.
- AS/NZS 4859.1:2018 Thermal Insulation materials for buildings.
- BS 476: Part 21:1987 Methods for the determination of the fire resistance of loadbearing elements of construction.
- BS 476: Part 22:1987 Methods for the determination of the fire resistance of non-loadbearing elements of construction.
- National Construction Code Series 2022, Australian Building Codes Board.



BRANZ Appraised
Appraisal No. 750 [2023]

BRANZ Appraisal
Appraisal No. 750 [2023]
29 November 2023

EVG 3D BUILDING SYSTEM



In the opinion of BRANZ, **EVG 3D Building 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 **EVG Entwicklungs-und Verwertungs - Gesellschaft m.b.H.**, 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. **EVG Entwicklungs-und Verwertungs - Gesellschaft m.b.H.:**
 - 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 **EVG Entwicklungs-und Verwertungs - Gesellschaft m.b.H.**
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 **EVG Entwicklungs-und Verwertungs - Gesellschaft m.b.H.** or any third party.

For BRANZ

Claire Falck
Chief Executive
Date of Issue:
29 November 2023