


b-panel®
ENERGY-EFFICIENT & QUAKE-RESISTANT
BUILDING SYSTEM

-b-foam®
EPS Foam Construction Technologies

FULL CATALOGUE

Energy-Efficient & Quake-Resistant Building System
Rapid-Build Prefab Homes
High-Performance Thermal Insulation
Ultralight Architectural Facades
Infrastructure-Grade Floating Structures
EPS Geofoam Solutions

 **b.home®**
ENERGY-EFFICIENT & QUAKE-RESISTANT HOMES

b.deck®
THERMALLY-INSULATED FLOOR & ROOF DECK



About Us

PT. Beton Elemenindo Putra was established on 2006. We are a division from Beton Works, one of Indonesia's largest and most trusted concrete-based construction material manufacturing federation. Our main product is b-panel®/b-deck® modular wall and floor system, which allow rapid construction of earthquake-resistant, intensively-insulated buildings.

As Fire-Retardant Expanded Polystyrene (EPS) was chosen to be the insulation layer within b-panel®/b-deck®, PT. Beton Elemenindo Putra is the only EPS manufacturer in Indonesia with a core focus in building technology instead of packaging and decoration. As such, we strives to develop next-generation applications for our b-foam® EPS beyond its traditional usages, such as ultralight architectural facades, geotechnical solution, and floating structures.

PT. Beton Elemenindo Putra is a grand experiment in socially and ecologically responsible business in Indonesia – that growing a business does not have to be at the expense of the environment, or be an accessory to socially-menacing industries.

We recycle 100% of our post production waste, and as much municipal post-consumer polystyrene waste as we can absorb. Our factory boiler runs exclusively on biofuel since 2010. We choose not to serve coal mining operation and tobacco-related projects, and in every project that employ our stuffs, a significant and permanent carbon footprint reduction – either through reduced thermal leakage, enhanced structural efficiency, reduced embodied energy, or all of the above.

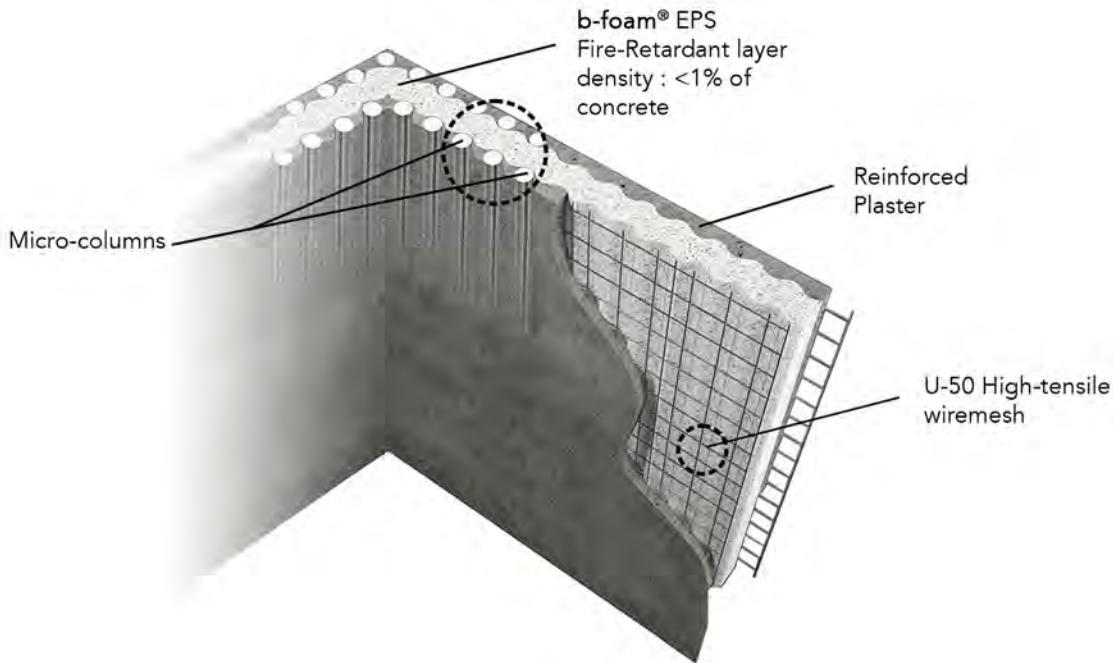


History and Achievements

2007	PT. Beton Elemenindo Putra begun operations
2009	First export of b-panel® (To India and Malaysia) One week after a major earthquake which killed approximately 1000, b-panel® technology was featured at Kompas newspaper frontpage, and subsequently was included in Kompas' top 50 most prominent innovations
2010	Integrated EPS recycling system Started real estate new product development with the largest property developer in Bandung
2011	Conversion to fully biomass-fired boiler
2012	Launched 2nd-generation b-panel® and carbon-graphite EPS b-panel Neo® First b-foam Geofoam-Grade® project Won 2012 Singapore Environmental Achievement Award – Regional (ASEAN) Category Merit Award
2013	b-panel® was included in Green Building Council Indonesia's Green Listing for sustainable building material. With a total of 14 qualifying aspects, higher than any other products listed First b-foam® Floating Structure project First b-foam® Ultralight Façade project Won 2103 Sustainable Business Award Indonesia, for best SME Category
2014	Improved b-deck®: without need of formwork or vertical shotcreting Introduced b-panel® Mortar Mix
2015	b-foam® Floating Structures won 2015 Archinesia Building Material Awards, Innovations Category Largest b-foam Geofoam-Grade® installation to date, at Cikampek-Palimanan (Cipali) tol road project (overpass abutment fills)
2016	Largest b-foam® Floating Structure installation to date, 300m-long water purification floating facility in Batam First b-panel®/b-deck® project in Brunei Darussalam and the Philippines First overseas b-foam® floating structure project, a two-story floating restaurant in Mines lake, Kuala Lumpur The first floating bridge in Indonesia, erected utilizing b-foam® Floating Structure technology
2017	b-foam® floating project in Brunei Darussalam - Bandar Seri Begawan Jetty First shipment of b-panel® to Africa (Burkina Faso)

What is b-panel® ?

b-panel® is a concrete sandwich panel building system, insulated with b-foam® fire-retardant Expanded Polystyrene (EPS) layer. It offers excellent thermal & acoustic insulation, and exceptional typhoon & earthquake resistance



b-panel® has excellent strength-to-weight ratio, due to hundreds of continuously-linked micro-columns within its concrete layers, whereas its ultra-light EPS layer is less than 1/100 density of concrete.

8 Benefits of b-panel®

1. Superior insulation against heat and humidity
2. Acoustic barrier (STC 42 minimum, b-coustic+: STC 45)
3. Light-weight : 95 - 145 Kg/m².
4. Rigid - monolithic structure (all walls act as one unit), highly resistant against break-ins, earthquake, and typhoon.
5. Safe during fire - fire test at National Building Material Testing Center, Cileunyi: b-panel® 120 minutes @1000°C (BS 476 Part 22 Equivalent) b-deck® 160/180/160 minutes @1000°C w/loading.
6. Cost savings :
 - Modular cutting list, eliminates waste at sites
 - Reduced A/C consumption up to 40%.
7. Rapid and material-efficient installation with modular cutting list system
8. Environmentally responsible :
 - Reduced CO₂ emission from A/C consumption
 - Mindful production process

Technical Specifications

Panel sizes :

- Modular cutting list (panels delivered cut to size and shape according to your drawings).
- Can be ordered in typical modules 1.2 x 3.0 m up to 6.0 m length.

b-foam® Expanded Polystyrene (EPS) :

- Fire-Retardant (FR)
- Density : 15 Kg/m³ (b-panel Neo® ; 15 Kg/m³ carbon-graphite EPS blend)

Wiremesh :

- Non-galvanized Ø3mm vertical, galvanized Ø2.5mm horizontal, U-50 minimum,
- Connector: galvanized Ø3mm
- Spacing: 7.5 x 8 cm

Plaster thickness and concrete strength :

- Structural applications: K-225; 3 cm x 2
- Non-structural / partition applications : K-150; 2 cm x 2

In our effort to continuously improve our products, specifications may change from time to time.

Why choose b-panel® / b-deck® ?

Home is the most significant and longest-term investment in our life. What we desire in a dwelling is a place which insulates us from ambient heat and humidity, sun intensity, shields us from outside noise, and for earthquake and typhoon-prone areas; protects us during these natural disasters.



We constantly test and prove what we claim



b-panel® thermal testing facility Batujajar



b-panel® earthquake test at PUSLITBANGKIM Cileunyi (Indonesia earthquake zone-6 simulation)

A new way of constructing - rapid, efficient, and superior end product

- No need for heavy equipment
- Smaller teams, faster completion
- Minimized material waste with cutting list modules

Installation Philosophy

b-panel®

1 Rebar & panel installation

Install rebar on foundation beams, floor slabs, columns and beams, where the panels are to be installed. For steel structures, the rebar are welded onto the steel beams and columns. Tie the panel onto the rebar using tie wire.



2 Wiremesh reinforcement installation

Install cross braces on each corners of door and window openings. Mount U-mesh around the perimeter of door and window openings, and L-mesh for wall corner.



3 Support braces and M/E installation

Install supports, and perform alignment for the panels, so they are installed straight and each plane is perpendicular to each other. Installation of M/E lines by melting part of EPS using heat gun.



4 Plastering

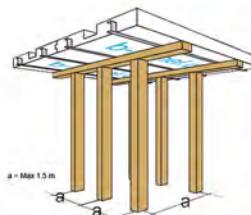
Apply plastering of concrete on both side of the panels using shotcrete method. Afterwards, install guidance and then continue to layer 2 and finishing by skim coat.



b-deck®

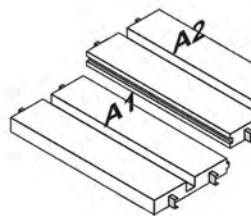
1 Support installation

Install the support using wood rafters, bamboo, scaffolding, or hollow pipe along transverse direction of joist (minor beam) every 1 – 1.5 m.



2 Module installation

Set up b-deck® module according to cutting list drawing.



3 Joist rebar installation

Install the rebar (refer to b-deck® load table) using b-deck® joist spacer. Ensure rebar protrude through main beam at 40D depth.



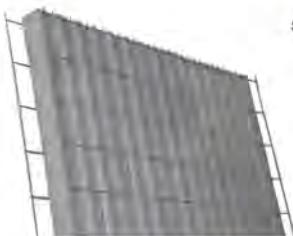
4 Concrete Casting

Set up b-deck® spacer every 1 m, and place the wire-mesh top of the spacer. Install additional formwork to ensure main beams are cast properly.



Panel Products

WALL APPLICATIONS



b-panel®
ENERGY-EFFICIENT & QUAKE-RESISTANT
BUILDING SYSTEM



b-panel Neo®
ENERGY-EFFICIENT & QUAKE-RESISTANT
PERFORMANCE BUILDING SYSTEM



b-coustic+®
PERFORMANCE THERMO-ACOUSTIC BUILDING SYSTEM

Versatile - for load bearing wall, partition wall with high hang load requirement, exterior wall

- Thermal insulation: Fire-Retarding (FR) b-foam® EPS 0.037 W/M.K (b-panel Neo® carbon-graphite EPS 0.035 W/M.K)
- Maximum span up to 6 meters without additional columns
- Hang load capacity: approx. 60 Kg per point
- Approx. 145 kg/m² finished, for ANY wall thickness (10-30 cm)
- b-coustic+: additional acoustic 8 db improvements between 500-1000 Hz layer for maximum quietness

EL



Lightweight EPS foam concrete wall panel with fiber cement boards on both sides.
Can be used for exterior walls or room partitions

- Lighter than lightweight bricks and red bricks
- Ready to paint no need for plastering and skimcoat: competitive cost & rapid installation
- Hollow cores ready for electrical/plumbing installation (type 100)
- Panel dimension (cm): 60 x 240, 60 x 300; Thickness: 60 mm (EL-60); 75 mm (EL-75); 100 mm (EL-100)
- Weight : 52 Kg/m² (EL-60); 61 Kg/m² (EL-75); 75 Kg/m² (EL-100); Surface finish : FCB 4.5 mm



**Insulated economic wall solution for non-structural application,
suitable for room partition and rapid-build prefab homes**

- Thickness: 60 mm; Insulation: b-foam® Fire Retardant (FR) EPS
- Reinforcement: Lightweight steel U36 and U60; Hanging Load: 40 Kg on reinforcement;
- Weight: < 20 Kg/m²; Finish: 2 x Fiber Cement ready to paint; Details: tongue and groove

SPECIAL APPLICATIONS



Double Panel

Applications: Main structures, retaining wall, lot boundary/party walls.

Available final thickness : 20, 22, 24 cm

- Especially designed for high-load main structures, basement wall, and high security wall
- Total thickness starts at 20 cm



THERMALLY-INSULATED FLOOR & ROOF DECK

Available thickness: 10,15, & 20 cm

- Shield againts sunlight and ambient outside temperature
- Complete thermal insulation, no thermal bridges
- Rapid installation without formwork
- Weight: 125-220 kg/m²
- Maximum span : 8 metres (FP-20)



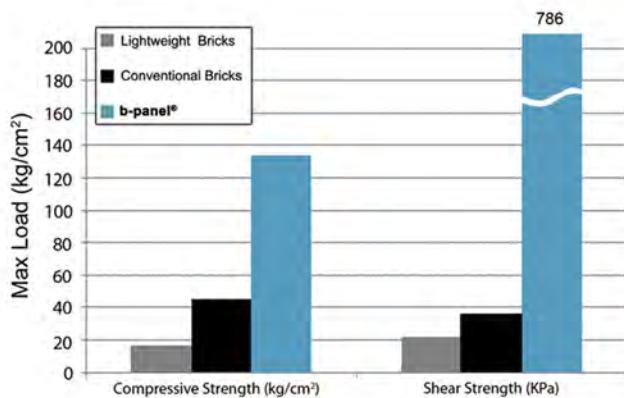
Stair Module

- Maximum span : 6 metres.
- Can be customized according to angle, number and size of steps according to your design

Technical Information

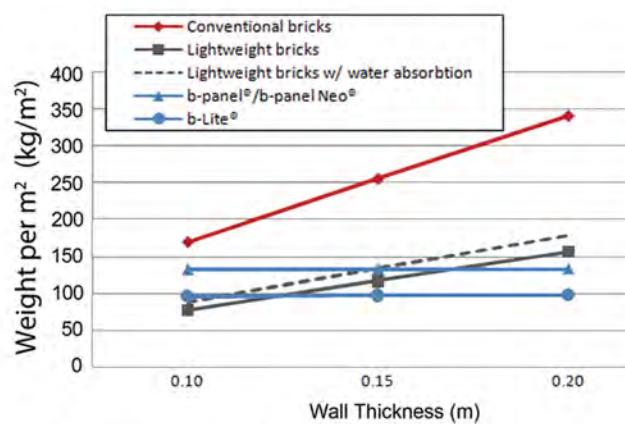
	Speed of Construction	Building Load Reduction	Construction Waste Reduction	Earthquake/Typhoon Safety	Thermal Insulation/Energy Savings A/C	Acoustic Performance
b-panel®	😊😊😊	😊😊😊	😊😊😊	😊😊😊😊	😊😊😊	😊😊😊
b-panel Neo®	😊😊😊	😊😊😊	😊😊😊	😊😊😊😊	😊😊😊	😊😊😊
b-coustic+®	😊😊😊	😊😊😊	😊😊😊	😊😊😊😊	😊😊😊	😊😊😊
b-lite®	😊😊😊	😊😊😊	😊😊😊	😊😊😊	😊😊😊	😊😊😊
Red Brick	😢	😢	😢	😢	😢	😢😢
Light Brick/AAC	😐😐	😊😊😊	😢	😐😐	😐😐	😢

COMPRESSIVE AND SHEAR STRENGTH COMPARISON



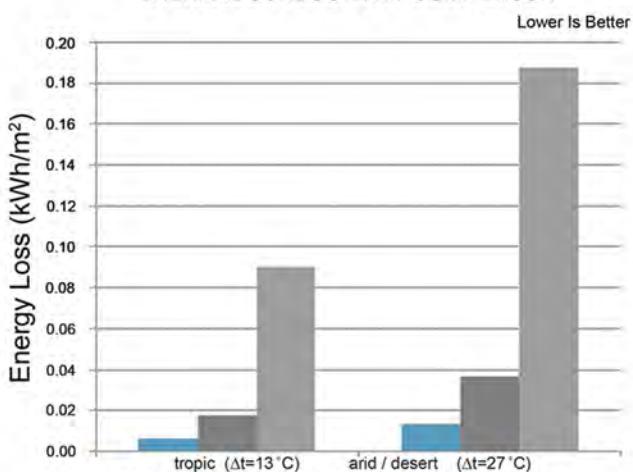
Sources : PT. Beton Elemenindo Putra R&D, ITB Civil Engineering Lab
M. Z. Kabir and M. H. Nasab "Mechanical Properties of 3D Wall Panels Under Shear and Flexural Loading"

WEIGHT COMPARISON



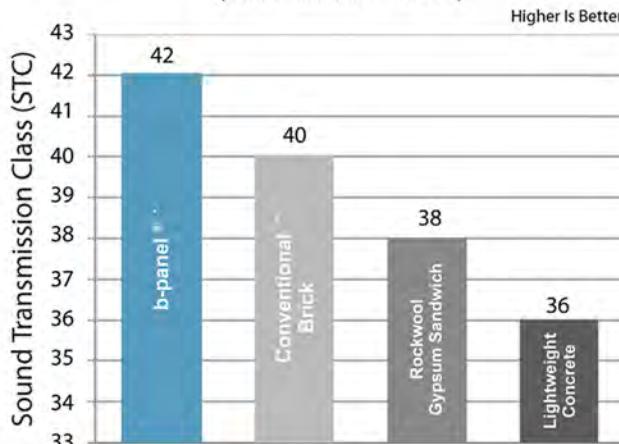
Sources : PT. Beton Elemenindo Putra R&D

THERMAL CONDUCTIVITY COMPARISON



Sources : PT. Beton Elemenindo Putra R&D, AAC :
A Lime-Based Technology (Ronald E. Barnett, P.E., 2005),
plastics.org.nz

ACOUSTIC PERFORMANCE COMPARISON
(Wall Thickness = 10 cm)



Sources : PT. Beton Elemenindo Putra R&D, ITB Physics Lab,
MHE International (ASTM E90 Test),
Diracdelta.co.uk Science & Engineering Encyclopedia

* 23 EPS Density

** With 12.5mm plaster on both sides

b-panel® / b-deck® Projects



Sport Jabar Laga Satria Stadium
Bandung



Oceanic Research Center
Negara, Bali



Maja House Gallery
Bandung



Hotel Sinkenken
Legian, Bali



Sri Utama International School
Kuala Lumpur



Malayang Apartments
Manado, North Sulawesi



Sunway Iskandar Marketing Office
Johor, Malaysia



Hotel Aston
Jember, East Java



Sky Diving Center
Batuajaar Bandung



Hotel Santika
Kuta, Bali



Panakukang Town Center
Makassar, South Sulawesi



National Narcotics Board (BNN)
Sukabumi, West Java



Dogiyai Regency Civil Service
Papua



Ruko Excellent
Nabire, Papua



Nurul Fikri Grand Mosque
Lembang



Warehouse (Chocolate)
Denpasar, Bali



Performing Art Center
Soreang, Bandung Regency



Shelter MCS INDOSAT
Jatiluhur, West Java



Chocolate Factory
Cikupa, Tangerang



As-Sidqi Mosque
Subang, West Java



Office Tower
Semarang



Bintaro Fresh Market
Jakarta



Café Setiabudi
Bandung



Hotel Mawar
Bandung



Wine Processing Plant
Pelaga, Bali



Pension House
Palawan, The Philippines



Eco Camp Tahura
Dago, Bandung



Escape Shopping Complex
Delhi, India



Hotel Miyania
Medan, North Sumatra



Stella Hotel
Johor, Malaysia



Informa Shopping Plaza
Bogor



Bandung Alliance Int'l School
Kota Baru Parahyangan



Ultra Jaya Factory
Bandung



KutaBEX Hotel
Bali



Annimah Middle School
Bandung



Luxury Villa
Bangsar, Kuala Lumpur



Dormitory
Riau



Dormitory
Atambua - West Timor



Dewi Sri Apartments
Bali



Luxury Villa
Canggu, Bali



2-story homes
Batununggal Indah, Bandung



Luxury Residence
Cakra, Lombok



T36 Pilot Unit
Agung Podomoro Land, Karawang



3-story home
Graha Citra Raya, Tangerang



3-story villa "Rumah Manis"
Tianyar, Bali



Finance Minister Residence
Dili, Timor Leste



2-story home
Setra Duta, Bandung



Calistha Dago Residence
Bandung



2-story residence
Villa Duta, Bandung



Pool Vilas
Ubud, Bali



2-story homes
Sleman, Yogyakarta



3-Story Home
Istana Regency, Bandung



2-Story Residence
Pantai Indah Kapuk, Jakarta



Luxury Home
Menteng, Jakarta



The Farm Hostel
Canggu, Bali



Salim Ivomas Palm Oil Plantation
Housing - South Sumatra



Riverside Villa
Lombok



3-story home (b-façade precast)
Setra Duta - Bandung



2-story residence
Kota Baru Parahyangan, Bandung



2-story home - Vermont BSD
Tangerang



Budget Housing (25+ units)
Gempol Asri Estate, Bandung



Home Office Gardenia Graha
Citra Raya, Tangerang



2-Story Residence
Bengkulu, Sumatra



2-story residence
Geger Kalong, Bandung



2-story residence
Canggu, Bali



Shop House
Batuaja, Bandung



2-Story Home
Provence Parkland BSD, Tangerang



3-Story Residence
Tebet, Jakarta



2-story homes
Batununggal Asri, Bandung



Dipan Villas
Seminyak, Bali



4-Story Residence
De Latinos BSD, Tangerang



Housing Project, Kampong Kiarong
Brunei Darussalam



Housing Project
Banjarmasin, South Borneo

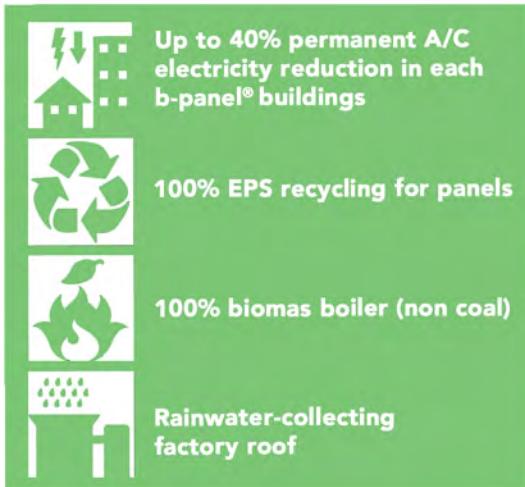


Kartika Sari Uber
Bandung

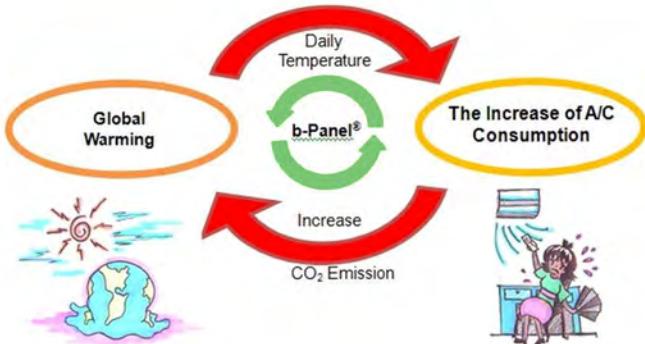


PPR Housing Project (88 Units)
Perak, Malaysia

Commitment to Environment



In our genuine quest to be a significant contributor in solving climate change, we take pride in ensuring an end-to-end, environmentally responsible production process for b-panel®/b-deck®



AWARDS



Greenship Assessment

Using b-panel®/b-deck® to support Greenship Environmentally-Friendly Building assesment by Green Building Council Indonesia

The use of b-panel®/b-deck®, when holistically combined with other design elements and building material selections, (such as: not building on vegetation area, using thermally insulated window glass, solar water heating, and systematic waste water treatment system), will ensure a commendable Greenship rating. The following are some of the criteria and details on how b-panel® fulfills these criteria:

EEC 1/EEC P2: Energy-Efficiency Measures

The use of b-panel® will reduce the thermal leak and air-conditioning load, and therefore improve the Overall Thermal Transfer Value (OTTV) of the building. Rating potential: Max. 5-20 points

MRC 2: Environment Friendly Materials

b-foam® EPS utilized for b-panel® has at least 15% recycled content from processing waste of previous projects. Rating potential: 3 points

MRC 5: Prefab Material

The use of b-panel® enables total prefabrication method and thus significantly reducing project waste. Rating potential: 3 points

IHC 6: Thermal Comfort

Thermal insulation layer of b-panel® help reduce heat intrusion to the interior of building, while the low moisture absorption of b-foam® EPS ensures stable humidity level of the building. Rating potential: 1 point

IHC 7: Acoustic Level

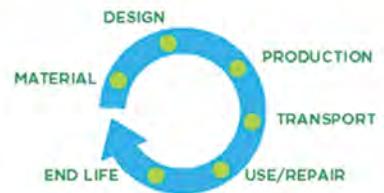
"Mass and damper" sandwich construction of b-panel® offers lower sound intrusion while keeping the wall weight in check. Rating potential: 1 point

MRC 6: Regional Material

All raw materials for b-panel® manufacturing are sourced within Indonesian territory*, and within 1000 km from the factory.

Rating potential: 2 points

(*Exception is carbon-graphite EPS used in b-panel Neo®)



APPLICABLE GREENSHIP CREDITS

NB EEC P2, EEC 1, MRC 2,

MRC5, MRC 6, IHC6, IHC7

EB ASD 5, EEC1, MRC 2, IHC7

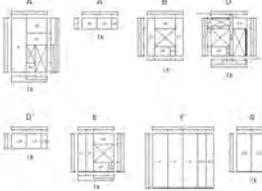
IS MRC 4, IHC 8, IHC 9

Modular Cutting List Service at No Extra Charge

1. Drawings received from client



2. Cutting list generation



3. Panel Production



6. Panel Installation



5. Panel arrival & Storage



4. Panel Shipping



b-panel® Partner - Installer Program



Why becoming a b-panel® Partner Installer?

- A building system with many advantages
- Large specific segments:
 - Hot and/or noisy areas
 - Earthquake-prone regions
- As a pioneer of this system, competition is limited
- As a b-panel® Partner-Installer, you get special prices on the panels, which means double margins for you (material and installation)
- Profitable business



Supporting Material and Tools

b-mesh®

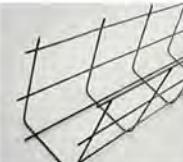
Superior Prefabricated Wiremesh



WM-S



WM-L

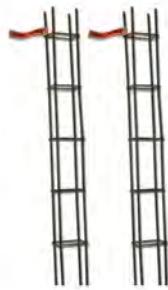


WM-U

Overall specifications:

- U-50 minimum tensile strength
- 6 m max length, 1.2m wide, also special size order

QUIK - BONE®



Instant reinforcements for minor columns and joist beams

- Factory-assembled and welded with state-of-the-art machinery.
- Better assurance compared to manual assembly, consistent dimensional accuracy.
- Save time in assembling reinforcements.
- Pre-bent stirrup ends allow easier connection with other structural members.
- Competitive pricing.
- Available in many popular minor column.

Overall specifications:

- Main reinforcement: U-48 tensile strength.
- Stirrup: U-50 tensile strength.
- Stirrup ends: +3 cm bend for easier connection.

b-panel® MIX



More efficient b-panel® wall construction and better quality control. 50 Kg packs consist of Portland cement, quality sand, and fiber additive.

Available in M-225 type for structural plastering and partition wall plastering, as well as B-300 type for casting minor columns and floor joists.

- Convenient: just add water and mix.
- Economical: prevent purchasing too much of mix material (standardized dosage and spread capacity).
- Safeguard quality of installation: plaster material composition is precisely packed according to b-panel®'s standard operating procedure.
- Better project cost control: since the plaster mix has been prepacked, material cost can be monitored more readily.

Portable Mortar Sprayer



Lightweight yet durable. Connect to air compressor (min. 3 hp for one unit, 5-7 hp for 2 units). Suitable for small projects. Higher productivity vs manual hand plastering.

Mini Render Machines



Portable, yet productive investment for ensuring highly efficient plastering of b-panel® due to continuous spraying capability. For medium to large-size projects. Connect to 220 V electricity .

Reinforcements Installation



Consists of cartridge ring pliers and twister tools, these kits are essential for faster and more productive installations. Consumables are economical metal rings and twisted wires.

b-panel® / b-deck® Load Table

Wind resistance load table (b-panel®, b-panel Neo®)

Desired wall thickness	Panel Thickness	Wall height (m) and max. load (kg/m ²) (Structural Application)															
		2.00	2.20	2.40	2.60	2.80	3.00	3.20	3.40	3.60	3.80	4.00	4.20	4.40	4.60	4.80	5.00
10 cm	4 cm	508	419	350	297	255	252	194	171	152	136	122	110	100	91	83	76
12 cm	6 cm	613	505	423	358	308	267	234	206	183	164	147	133	121	110	101	92
14 cm	8 cm	718	591	495	420	365	313	274	242	215	192	173	156	141	129	118	108

Max axial force: 4 ton per linear meter

Load Table - Floor Panel

b-deck FP-10/FP-10x

Live Load kg/m ²	Hf mm	Ht mm	H mm	Ø1 mm	Span (m) dan Longitudinal Reinforcement (Ø2)										
					<1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	
100	100	50	150	1D8	None	2D10	2D10	2D13	3D13						
250	100	50	150	1D8	None	2D10	2D13	3D13	3D16						

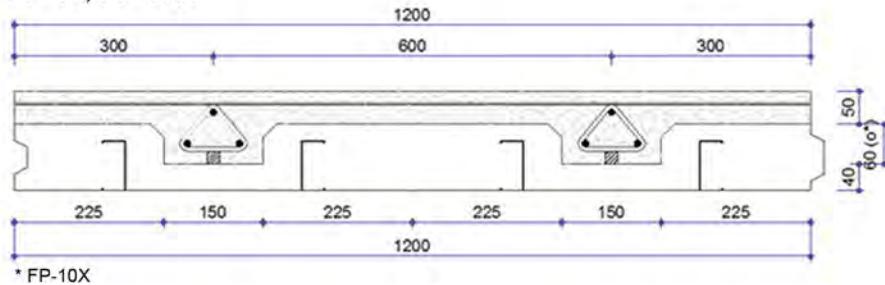
b-deck FP-15

Live Load kg/m ²	Hf mm	Ht mm	H mm	Ø1 mm	Span (m) dan Longitudinal Reinforcement (Ø2)									
					<1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
100	150	50	200	2D8		2D8	2D8	3D8	2D10	3D10	2D13	3D13	2D19	2D22
250	150	50	200	2D8		2D8	2D8	3D8	3D10	2D13	3D13	2D16	3D19	

b-deck FP-20

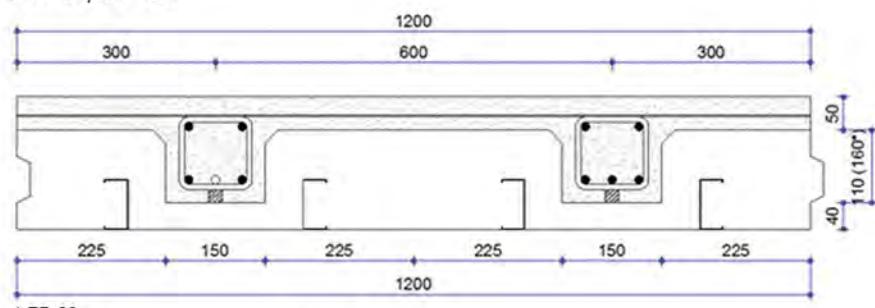
Live Load kg/m ²	Hf mm	Ht mm	H mm	Ø1 mm	Span (m) dan Longitudinal Reinforcement (Ø2)										
					3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	
100	200	50	250	2D10	2D8	2D10	2D10	2D13	2D13	2D16	2D16	2D16	2D16	3D16	3D16
250	200	50	250	2D10	2D10	2D13	2D13	2D16	2D16	2D16	2D16	2D19	2D19	3D19	3D19
400	200	50	250	2D10	2D13	2D13	2D16	3D16	2D19	2D19	2D19				

FP-10, FP-10X



* FP-10X

FP-15, FP-20



* FP-20

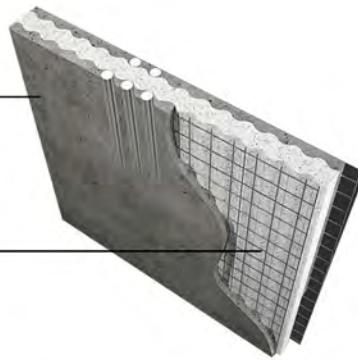
CROSS SECTION

Lightweight Insulated Precast Facades

b.facade®
INSULATED LIGHTWEIGHT PRECAST FACADE

Reinforced concrete K-350

b-foam® EPS foam insulation

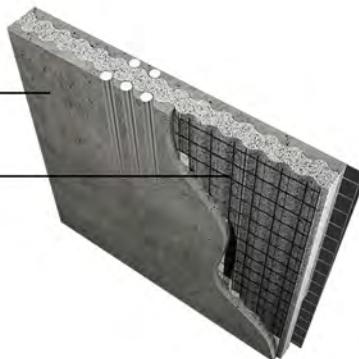


b.facade Neo®

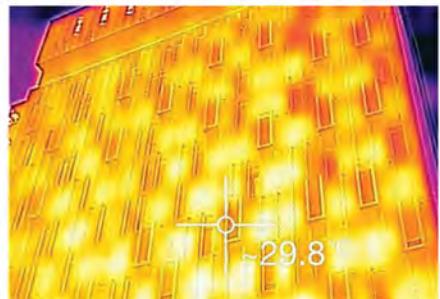
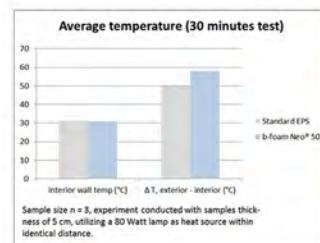
HIGH-PERFORMANCE INSULATED FACADE

Reinforced concrete K-350

b-foam Neo® carbon-graphite EPS foam insulation



- 25-35% lighter than conventional concrete facade panel
- Structural and foundation savings
- Better quake resistance
- Lower tower crane load capacity requirement
- Manufactured using state-of-the-art tilting table system
- Extensive thermal insulation to save A/C cost and reduces building carbon foot-print
- Minimum R-value
b.facade® : 1.07 m².K/W
b.facade Neo® : 1.15 m².K/W
- b.facade Neo® uses German technology carbon-graphite EPS Foam



Prefab - Homes



- Advanced modular prefab home technologies
- Remarkably rapid installation 7 days/unit (b-home® Lite/Ultra-Lite)
- More rigid and earthquake-resistant than bricks (b-home®)
- b-home® Lite economical, suitable for low-cost housing projects with urgent schedule
- b-home® Ultra-Lite earthquake-resistant ultralight structure, reduces foundation requirement, also suitable for floating homes and on soft soil.
- Extensive thermal insulation, comfortably cool and saves A/C electricity
- Prefabricated modules with specific sizes and shapes, significantly reduce project waste



**Earthquake - Resistant
High Performance Solutions**



- b-panel® : structurally optimized exo-skeleton monocoque
- Earthquake, typhoon, and break-in resistant
- Rapid construction without formwork and structural columns, shell completion in 2 weeks (Type 36 & 56)
- Thermal insulation on all wall surface for up to 40% A/C energy savings (thermally-insulated roof with b-deck®)
- Modular set shipped complete, including all panels and steel mesh reinforcements-ready for delivery within 72 hours from ordering
- Available type 36, 56 and 108 (2 story design)

Construction options :

- Panels + steel reinforcements
- Panels + b-deck® insulated roof + steel reinforcement
- Any of the above + b-panel® mix mortar set

Technical specifications :

- Wall height : 3 m
- Wall thickness : 10 cm

Type 36

- 2 bed room/ 1 bathroom
- Living room/ Dining room+kitchen
- Carport

Type 56

- 2 bed room/ 1 bathroom
- Living room
- Dining room+kitchen
- Carport

Type 108

- 2-story design
- 3 bed room/ 2 bathroom
- Living room
- Dining room+kitchen
- Family room (2nd floor)
- Carport

Version 1.4 – Specification and design may change without notice



- Competitive alternative for low-cost housing with urgent schedule (b-home® Lite)
- Ultralight structure at under 100 Kg/m² floorplan, suitable for floating structure and remote locations (b-home® Ultra-Lite)
- Rigidity of wall comparable to bricks (b-home® Lite)
- Rapid construction within 1 week - no need for plaster or skimcoat

Specifications

- Wall : ecolite® panel 60 mm (b-home® Lite), b-wall 68 mm (b-home® Ultra-Lite)
- Structure : Integrated minor columns (b-home® Lite), Galvalume AZ-150t, G550 (C-75 & C-78 t : 0.7mm) SNI 07-4096-2007, ASTM-A 792(M)-99 (b-home® Ultra-Lite)
- Roof : Lite-deck® concrete insulated roof system
- Type : 36 and 45

	b-home®	b-home® Lite	b-home® Ultra-Lite	Conventional (Bricks)
Monolithic structure / earthquake resistance	✓✓	✓	✓✓	✗
Weight reduction	✓	✓	✓✓	✗
Full prefab / Semi prefab	✓	✓	✓✓	✗
Project waste reduction / elimination	✓✓	✓	✓✓	✗
Structural shell installation speed (1 team of 8 crew)	14 day/unit	7 day/unit	7 day/unit	25-30 day/unit
Wall weight	< 150 Kg/m ²	+/- 85 Kg/m ²	< 20 Kg/m ²	> 150 Kg/m ²
Building weight per m ² floorplan	+/- 200 Kg/m ²	+/- 150 Kg/m ²	< 100 Kg/m ²	+/- 350 Kg/m ²
Turnkey option	✓	✓	✓	?

Lightweight Precast Wall Panel

ecolite®

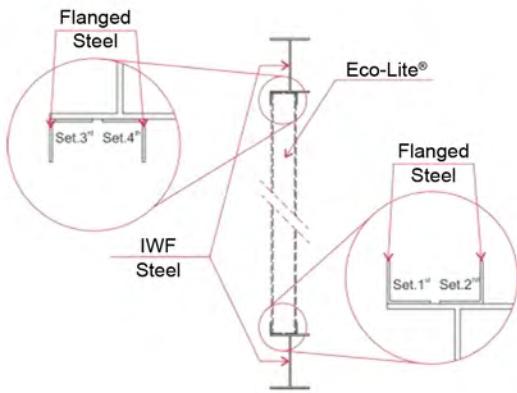
Eco-Lite® Panel is a lightweight EPS foam concrete wall panel with ready-to-paint, fiber cement boards on both sides. Can be used for exterior walls or interior partitions

- Lighter than bricks yet feel solid
- Ready to paint surface, no need for plastering and skimcoat
- Competitive cost
- Rapid installation
- Hollow cores ready for M/E installation (type EL-100)
- Passed fire test SNI 1741-2008 : 120 minute @1000°C (tested at National Building Material Testing Center, Cileunyi), (Type EL-100)
- Acoustic test : STC - 45 (Type EL-100)



COMPARING BRICKS VS LIGHTWEIGHT ECOLITE® PANEL

Category	Red Bricks	Light Bricks / AAC	Ecolite®
Installation materials	10 - 20 m ² / Day	20 - 30 m ² / Day	30 - 40 m ² / Day
Plastering	20 m ² / Day	> 30 m ² / Day	Not Required
Skimcoat	20 m ² / Day	> 30 m ² / Day	100 m ² / Day
Installation to plastering	2 - 3 Day	1 Day	Not Required
Plastering to skimcoat	2 - 3 Day	1 Day	Not Required
Skimcoat to painting	> 10 Day	> 10 Day	Not Required

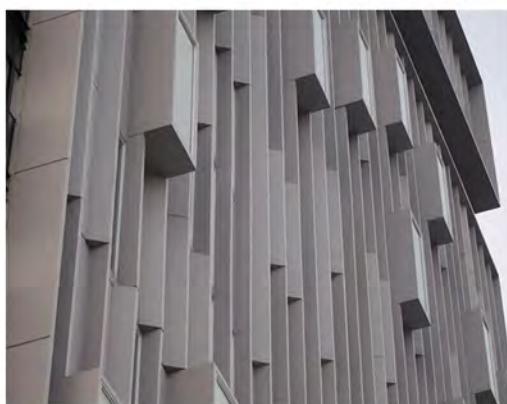
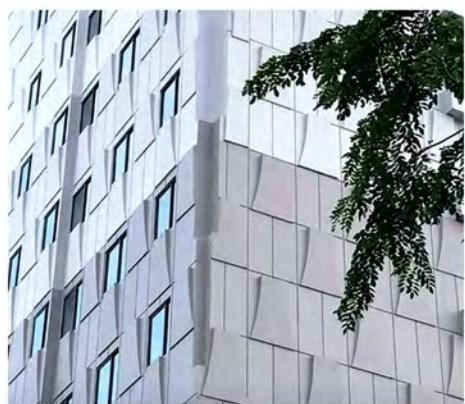


Type	Dimensions	Thickness	Weight / m ²	Weight / Panel	Cement Fiber Board
EL 60 - 240	2400 x 600 mm	60 mm	52 Kg ± 10%	75 Kg	4.5 mm
EL 60 - 300	3000 x 600 mm			94 Kg	
EL 75 - 240	2400 x 600 mm		61 Kg ± 10%	88 Kg	
EL 75 - 300	3000 x 600 mm			110 Kg	
EL 100 - 240	2400 x 600 mm	100 mm	75 Kg ± 10%	108 Kg	
EL 100 - 300	3000 x 600 mm			135 Kg	

Ultralight Architectural Facades



- Ultralight, less than 1/20 of conventional precast facades
- Reduces building loads and improves earthquake safety
- Computerized CNC cutting machine capable of forming unique designs
- Delivered pre-finished ready to paint
- Rapid installation without the need of heavy machineries.





Scalable Floating Structures Solutions

Commercial Space, Restaurant, Recreation Facilities, and Jetties



b-foam®
FLOATING STRUCTURES

Patent Pending

- Ultra-long life - does not decay/degrade, chemically and dimensionally stable. 30 year load rating waranty
- Superior safety factor - impossible to leak and sink
- High buoyancy (Max Load : 5 Ton/m²)
- Environmentally responsible production - recycled blend, CFC-free, factory pre-cut modules

Technical Specifications

Core : b-foam® Construction-grade expanded polystyrene (EPS)
Casing : high-tensile, marine-grade polymer

	Heavy-Duty (HD)	Light-Duty (LD)
Foam core	b-foam® Construction-Grade FR EPS (Expanded Polystyrene), density and blend according to imposed loads	b-foam® Construction-Grade FR EPS (Expanded Polystyrene), density and blend according to imposed loads
Water absorbtion	< 1% vol/vol after 30 months, < 5% after 15 years (Below grade)	
Dimensional stability	+/- < 2 % (ASTM Test Method D2126)	
Protective casing	High-tensile (20 Mpa) polymer, 1000 micron average on sides, 500 micron average on bottom	High-tensile (20 Mpa) polymer, 500 micron average on sides
Maximum live loads	up to 5 metric tons/m ²	up to 1 metric ton/m ²
Warranty policy	30 years for buoyancy load rating, 10 years for casing	10 years for buoyancy load rating, 1 years for casing
Environmental & chemical stability	Does not contain hazardous pollutants such as Mercury, Cadmium, Lead, and VOCs. Non-leaching to the surrounding waterways. Singapore Green Label certified.	





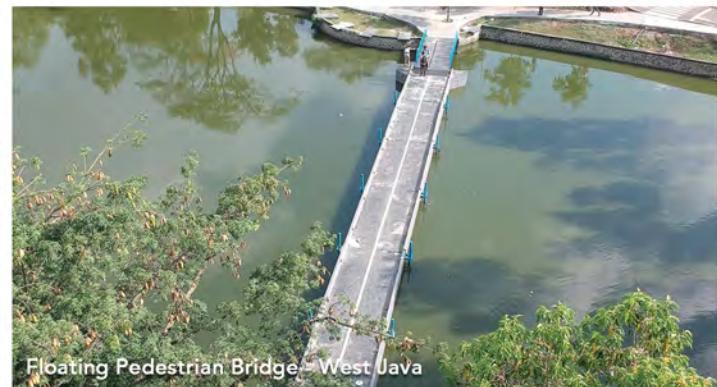
Jatiluhur Floating Restaurant - Purwakarta, West Java



Floating Jetty - Brunei Darussalam



Floating Jetty - Deiyai Residence, Papua



Floating Pedestrian Bridge - West Java



Floating Jetty, Palu Bay - Central Sulawesi



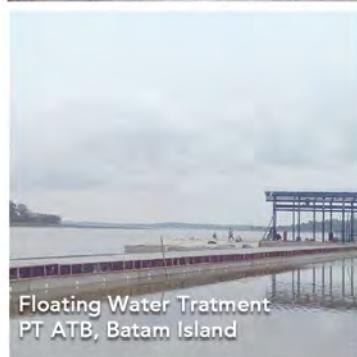
Floating Bridge, Cilacap - Central Java



Lembang Floating Market - Bandung



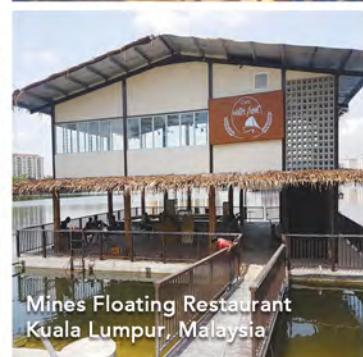
Kahayan Floating Cafe - Palangkaraya, Central Kalimantan



Floating Water Treatment
PT ATB, Batam Island



Floating Performing Art Stage
Aston Sentul Lake Resort, Bogor



Mines Floating Restaurant
Kuala Lumpur, Malaysia



Floating Library
Tambak Iorok - Semarang

Why select b-foam® Geofoam-Grade® EPS for your geotechnical problems?

- Produced at own plant, for strict control of raw material quality, production process, uniform density, and blocking dimensional accuracy.
- High production rate and buffer capacity, to cater large infrastructure project needs.
- Internal technical team with competent civil and geotechnical backgrounds, to help ensure the success of your project.
- Strict adherence to ASTM D6817-07 International EPS geofoam standard

Benefits :

- Very light (Specific mass is 1/50 or just 2% of soil), thus significantly reduces soil settlement and slope failures
- Very high compressive strength compared to its weight, thus can be used for heavy load application
- Super-long service life. Does not decay (non-biodegradable) and does not oxidize in air, water, and most other natural elements.
- Save time (save cost). Super-light EPS blocks reduces logistical challenges and increase equipment utilization.
- Precise dimension ensure ease of installation, and does not depend on weather as much.

Technical Specifications:

- Fire Retardant (FR), b-foam® GG EPS (Expanded Polystyrene)
- Available types: GG 12, 15, 19, 22, and 29
(up to 75 kPa @ 1% strain)
- Adheres to ASTM D6817-07 (US standard)

Type	GG12	GG15	GG19	GG22	GG 29
Density, min. Kg/m3(lb/ft3)	11.2 (0.70)	14.4 (0.90)	18.4 (1.15)	21.6 (1.35)	28.8 (1.80)
Compressive Resistance, min. kPa (psi) at 1%	15 (2.2)	25 (3.6)	40 (5.8)	50 (7.3)	75 (10.9)
Compressive Resistance, min. kPa (psi) at 5%	35 (5.1)	55 (80)	90 (13.1)	115 (16.7)	170 (24.7)
Compressive Resistance, min. kPa (psi) at 10 %	40 (5.8)	70 (10.2)	110 (16.0)	135 (19.6)	200 (29.0)
Flexural Strength, min. kPa (psi)	69 (10.0)	172 (25.0)	207 (30.0)	276 (40.0)	345 (50.0)
CBR values* (%)	3.1	3.8	4.6	5.3	6.8

* Syracuse University EPS Geofoam Design Parameters research (Huang and Negussey)



Infrastructures

- Retaining walls
- Road construction / widening
- Overpass abutments / ramps

Building Construction

- Landscaping
- Tribune seats
- Raised floors





Pacific Century Tower
SCBD - Jakarta



Roof Garden
Paris Van Java - Bandung



Raised Floor
FX Sudirman - Jakarta



Bridge Abutment
Cikampek - Palimanan Tol Road



Lightweight Fill Wayang Windu
Star Energy Geothermal



Tribune Seats
Bandung Alliance Intercultural School
Kota Baru Parahyangan, Bandung



Tribune Seats, Sport Jabar
Arcamanik - Bandung



Samasta Summarecon Resort
Bali



Lightweight Backfill - Patuha
Takenaka Dobuku



Foundation
Universitas Pertahanan - Sentul



Raised Floor Ice Skating
AEON Mall - Cakung



Raised Floor NPJT 1
TJ Priok - Jakarta



Raised Planter Floor
Sommerset Apartments - Jakarta Selatan



Raised Floor
Tarakan Hospital, Jakarta



Raised Floor
Uber Indonesia Office



Lightweight Fill, Retaining Wall
Budi Asih Residence - Bandung



Raised Floor
Lexington Apartments, Jakarta



Raised Floor
IFC Building Sudirman - Jakarta

Other Innovations

ROAD BARRIER

Patent Pending



Benefits :

- For roadway use
- Lightweight (adjustable between 25 - 100kg), easy transportation & installation
- Appearance of solid concrete, deter breaching by motorists

b-foam® Ultralight Canopies & Profiles

Patent Pending



Type - A1



Type - A2



Type - A3



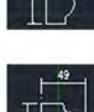
Type - A4



Type - B1



Type - B2



Type - B3

- Rapid installation, using high-strength mortar adhesive
- Shipped pre-finished ready to paint
- Ultralight saves structural requirement
- Water channel & preinstalled angled 2° top to ensure rain drainage

- Ultralightweight, easy to install
- Available in many designs

b-panel® Partner-Installer Location

Bandar Lampung

CV Krakatau Karya
JL Mataram No 12, Enggal
Bandar Lampung
Phone : 089 9540 5005/ 088 7710 2900
Email : info.lampung@b-panel.com

Bali

ecoSmart - Green Building Centre
Jl. Sunset Road II2X
Kuta, Bali 80361
Email : eco.bali@b-panel.com

Papua - Nabire and Vicinity

CV Surya Jaya Gemilang
Ir. Muhammad Said MS
Jl. Yos Sudarso No. 15 Nabire – Papua
Phone : 081 24 888 017
Email : info.nabire@b-panel.com

Malaysia - Peninsular

Buildscape Sdn Bhd
52-2, Jalan Awan Hijau
Taman Overseas Union Garden (OUG) 58200
Kuala Lumpur
Phone : +603 7971 6117
Email : info.malaysia@b-panel.com

Malaysia - East

Buildscape Sdn Bhd
No. 9 Lorong Perdana 8, Luyang Perdana
Jalan Penampang, 88300
Kota Kinabalu, Sabah
Phone : +601 2607 5085
Email : info.sabah@b-panel.com

Brunei Darussalam

Northstar Development Sdn Bhd
1st Floor, STP Building, Simpang 584, KM 7 Jalan
Tutong, Bandar Seri Begawan
BF1320 Brunei Darussalam
Phone : +673-8188718 / +673-2654814 / +673-2654800
Email : info.philippines@b-panel.com

The Phillipines

Northstar Development Sdn Bhd
1st Floor, STP Building, Simpang 584, KM 7 Jalan
Tutong, Bandar Seri Begawan
BF1320 Brunei Darussalam
Phone : +673-8188718 / +673-2654814 /
+673-2654800
Email : info.philippines@b-panel.com

Technical Consultants

Triaco
Jl Batursari No 99
Sanur, Bali
Phone : +62 361 285 476
Email : triacobali@indo.net.id

PT AMCK Engineering Consultant
Jl Situ Aksan 29
Bandung 40221
Phone : +62 22 600 3595 / +62 22 604 1685
Email: amck.nathan@gmail.com

PT BETON ELEMENINDO PUTRA

Factory, Headquarters & Showroom

Jl. Raya Batujajar KM 5 No. 8
Desa Giri Asih Cangkorah,
Kab. Bandung Barat
West Java, Indonesia 40561
Phone. +62 22 686 7077
Fax. +62 22 686 7076
Email. info@b-panel.com

Jakarta Representative Office

Jl. Meruya Ilir, Kompleks intercon Plaza
blok F/5 Taman Kebon Jeruk,
West Jakarta, Indonesia 11630
Phone. +62 21 2254 1560
Email. info@b-panel.com



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Why choose b-panel®?
Home is the most significant and longest-term investment in our life. What we desire in a dwelling is a place which...

What is b-panel®?

b-panel® building system consists of reinforced concrete sandwich panels with b-foam® Expanded Polystyrene (EPS) layer. This offers excellent thermal and acoustic insulation characteristics, superior earthquake & typhoon resistance, as well as other benefits.

more questions? [FAQ](#)

[Watch b-panel® video](#)

How does it work ?

Elegantly. The lightweight b-foam® EPS functions as formwork for the reinforced concrete during plastering, negating the needs for expensive and time-consuming formwork. As part of its [semi-dry installation](#) process, concrete is applied continuously, creating a complete, extremely light-weight shell. Permanently buried within the reinforced concrete sandwich, the b-foam® EPS layer forms an exceptional [insulating](#) and [acoustic](#) barrier.

Latest News

- b-panel® Wins Ensuring Highest-Quality Result for Your b-panel® Projects
- Geofoam-Grade® EPS Geofoam
- Urgent Call to Builders: Get Rid of All the Bricks
- More News...



About Product Applications Projects Our Concept Business & Tools



Team b-foam®
Always Ready
to Serve Your Needs



b-panel®/b-deck®
Energy Efficient, Lightweight,
Earthquake-Resistant Building System



b-foam®
FLOATING STRUCTURES
Unbreakable, High-Strength Cabanas;
Drinking Water Line



b-foam®
ROAD SOLUTIONS
Road, UltraLight Fil to Solve
Geotechnical Problems



b-foam®
ANTI-CORROSION FACADE
Anti-Corrosion Facade And
Corrosion Solutions



Innovation Category 2015



2013 Indonesia Winner - Best SME



Merit Winner - Regional (ASEAN) Category
2012 Singapore Environmental Achievement Award

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BETON WORKS

