



BROAD 5D LIVING BUILDING

The New Era in
Buildings with Flexible
Modularity

Each 40' standard high-cube cargo size unit unfolds to 640 sq. ft. (and refolds)
Low cost, efficient multimodal transport



The BROAD Group

The BROAD Group is a world leader in sustainable high capacity non-electric HVAC systems along with ventilation, filtration and air purification solutions. Founded in 1988, our products have been sold and serviced in over 80 countries, and deployed across a wide spectrum of industrial, commercial, educational, and institutional applications. BROAD's commitment to innovation and the highest caliber of service has earned the company a prestigious reputation worldwide.

BROAD Group wholly owns the following subsidiaries, providing integrated building solutions for our clients:

- **BROAD Air Conditioning Co., Ltd.**
- **BROAD Clean Air Technology Co., Ltd.**
- **BROAD Energy Service Co., Ltd.**
- **BROAD Sustainable Building Co., Ltd.**



BROAD's air conditioning, air purification, and filtration systems are used worldwide



International Recognition

[Champion of the Earth](#) United Nations (2011)

[World's Top 25 Eco-Innovators](#) Fortune (2014)

[40 Most Exciting Innovations of the Year](#) Business Insider (2015)



80+

Countries we have served



60

Prefabricated buildings



3000+

Global employees



80%

Energy saving in our systems and practices



90%

Carbon emission reduction in life cycle



95%

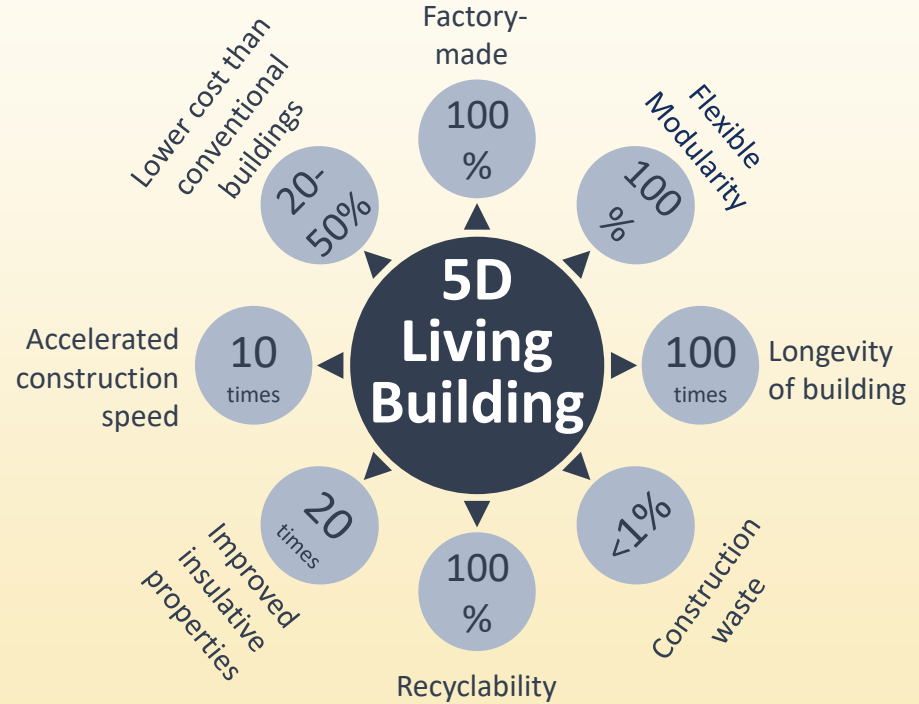
Construction waste reduction rate



The definition of a “Living Building”

Why do we call the 5D B-CORE Building a “Living Building?”

- B-CORE is the most environmentally friendly construction material.
- B-CORE is extremely durable and earthquake resistant, and it has unprecedented longevity. It is everlasting.
- Incorporating the BROAD Clean Fresh Air Machine provides 100% fresh air, eliminates cross infection and filters PM2.5 by 99.9% to protect life.
- The building type, floor layout, room type and number of floors can be changed after construction is completed: Flexible modularity.





BROAD 5D is based on B-CORE

B-CORE: The Ultimate Sustainable Structural material

What makes B-CORE *sustainable*?

- **Durability = Sustainability.** B-CORE Stainless steel is over 50 x less corrosive than carbon steel. Longer lasting means less resources consumed
- **Standardized production:** Auto-streamlined production reduces material and labor costs
- 5 x more **energy efficient**
- **Recyclable:** Stainless steel is 100% recyclable and can be recycled many times without degradation in performance
- **Saves land space:** Highrise construction with a very small footprint
- <1% construction waste: **Landfill**
- **Speed of installation:** warp speed construction at 3F/day cuts labor costs and quickens the time a building can be put to productive use.
- **Adaptable**:** The number of floors, balconies, windows, exterior/interior walls can be easily added or removed, and building length/width can be easily shortened/increased.
Flexible modularity: Repurpose a building instead of tearing it down when the building owner's operations expand



*If buildings can be flexibly adapted to meet evolving needs,
this will help to break the cycle of waste associated with
demolishing and rebuilding*





B-CORE Technology

Hot air copper brazing at 2012 ° F to engineer the ultimate structural material

- Stainless Steel is one of the most environmentally friendly materials in use
- BROAD successfully developed the hot air copper brazing technology in April 2017, and later developed the equipment for hot air copper brazing and intelligent monitoring in October 2018.

Intelligent manufacturing system for B-CORE

The hot air copper brazing oven: 36 m³ of B-CORE slab/oven, yearly yield: 400 thousand to 2 million m² ; only one technician is needed for each shift.

Pre-brazing sheet metal processing line: 800 thousand m² /line; intelligent manufacturing; three technicians for each shift.



BROAD tested 5 different models of technology, developed 10 types of brazing ovens, researched and invented over 100 heat resistant materials and overcame more than 100 failures and losses.



Transportation:
B-CORE slab is transported by 40 feet containers, 500m²/40ft, for low cost global transportation



On June 5, 2018, the first B-CORE building in the world was built in just 1 day.



In August 2018, the first B-CORE bridge was built.

B-CORE Building: The “F” Tower



Notice the small footprint! The entire structure is supported by just four B-CORE pillars, 1 m wide each.

BROAD's New Administration Building: “F Building”:
16 stories, 43 days to build. 6 month cycle: design, expert review, government approval, prefab, installation, occupancy



BROAD's architectural milestones

BROAD has rich industrial experience in the field of sustainable buildings. Numerous projects have been completed by BSB in Mexico, Korea, and China.

Began in 2009

Six stories/day



More than 60 buildings have been built by BSB

Three stories/day



Built within one day



Since 2017

16 story "F" Tower (our corporate HQ)



81,000 sq. ft. total floor area on a mere 1615 sq. ft. footprint (50:1 FAR), with a cantilever area of 12,375 sq. ft.

First 5D emergency COVID hospital in Korea



Floor area of individual module is 646 sq. ft. with a height of 9.9 ft.

A demonstration of BROAD's capabilities



Negative Pressure Isolation Hospital Built in 48 Hours

<https://youtu.be/jLYp7YUE9DE>



Prefabrication of Korea NPI Hospital

<https://youtu.be/l3onLxBCpNg>



J57: 57-Story Building Start to Finish in 19 Days

<https://youtu.be/veNf-bz99cl>



Newark Hotel: 15 Stories in 48 Hours

<https://youtu.be/Ps0DSihggio>



“F” Tower: Upside Down Building

<https://youtu.be/7GHAKdHupgg>



Introducing Garden A-1, born in June 2021



- 11 storeys,
32,000 sf
- 56 modules
manufactured in
15 days
- Assembled onsite
in under 29 hours
- Includes all MEP
and interior
fixtures, ready to
move in



Garden A-1 Construction



Bolting the exterior walls



The beginning...
the first module



← Assembling
the 3rd story

Assembling
the 4th story ↑



Garden A-1 Construction



Assembling the 4th Story



Garden A-1 Completed



The final module of the 11th Story

<https://bit.ly/3xrKIZ0>

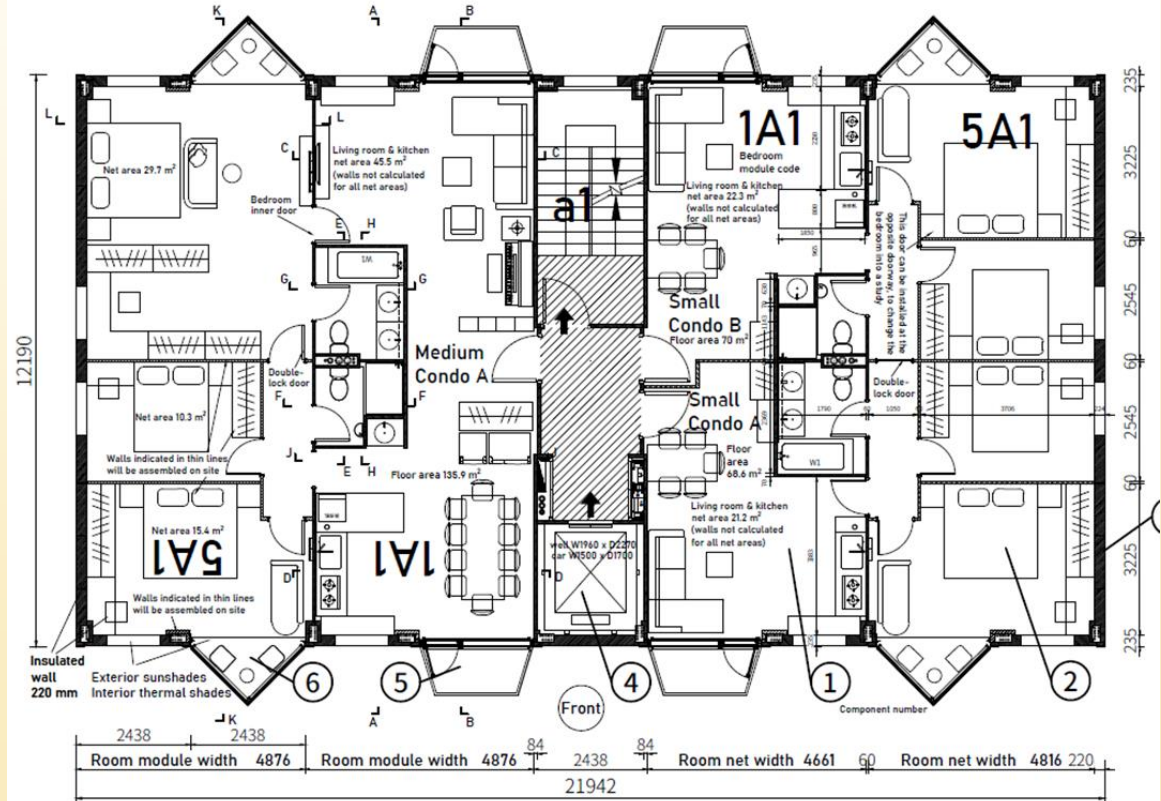


Completed in just 3 days

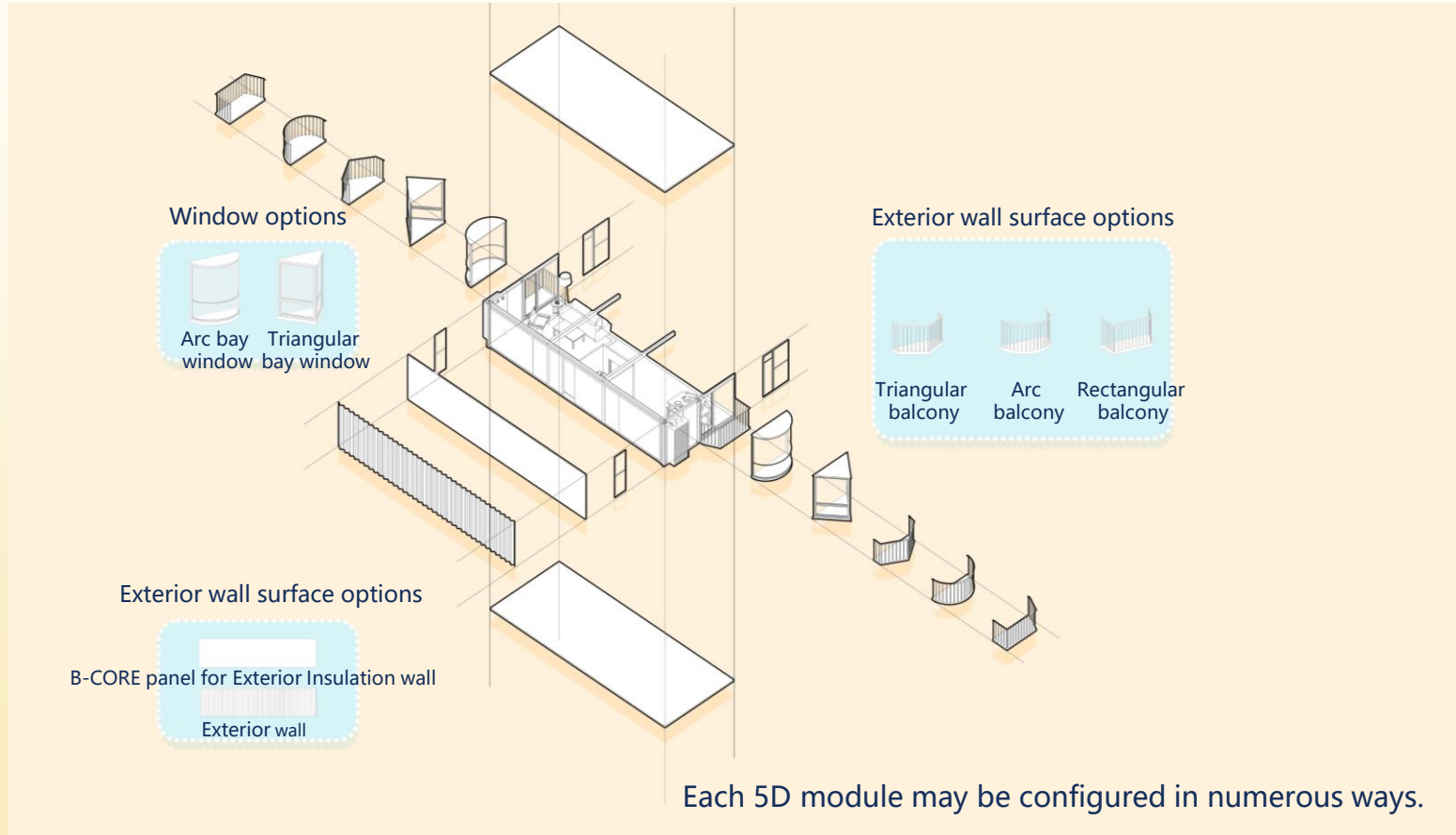
Garden A-1: Turnkey modular building



A4.5
 270 m²/F
 Utilization rate 89.5%



5D technology: Flexible Modularity





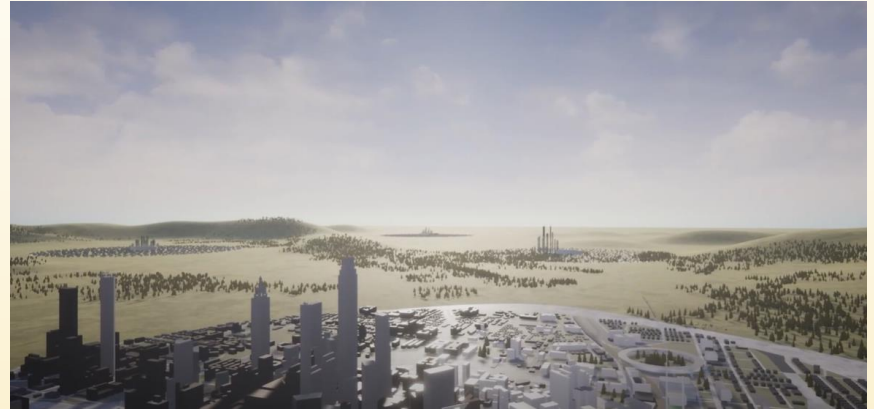
Standard delivery of 5D units

Item	Content
Main structure	Stainless-steel structural framing members (load-bearing columns and girders)
Exterior wall and floors	B-CORE stainless-steel panel packed with 8.5" of rockwool insulation
Exterior window	Exterior window system: Environmentally friendly high-strength framing; triple-layer window panes
Interior	Partition walls: Steel frame and B-CORE panel, insulated, surfaced with drywall to code
	Floor: Artificial or wood flooring
	Ceiling: Stainless-steel B-CORE ceiling, surfaced with drywall for code compliance
Standard fixtures (housing module)	Entryway closet, bedroom closets, kitchen cabinetry, storage cabinets, solid core interior doors
Standard fixtures (stair/lift module)	Code-compliant steel fire doors, fire hose with piping and extinguisher cabinet, wall and ceiling surfaced with drywall to code
Electrical	Lighting, switches, outlets, power panel, in-wall conduit compliant with local codes
Water supply and waste	In-wall piping for cold and hot water, water heater, DWV vertical, local standard fittings
HVAC	Air conditioning and heating unit
Fresh air	BROAD Air™ air-purification system



The Installation and Transportation Process of 5D Building

<https://youtu.be/OoiUELoLGIw>



5D My World

https://youtu.be/NA_PNin4Flo



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THANK YOU