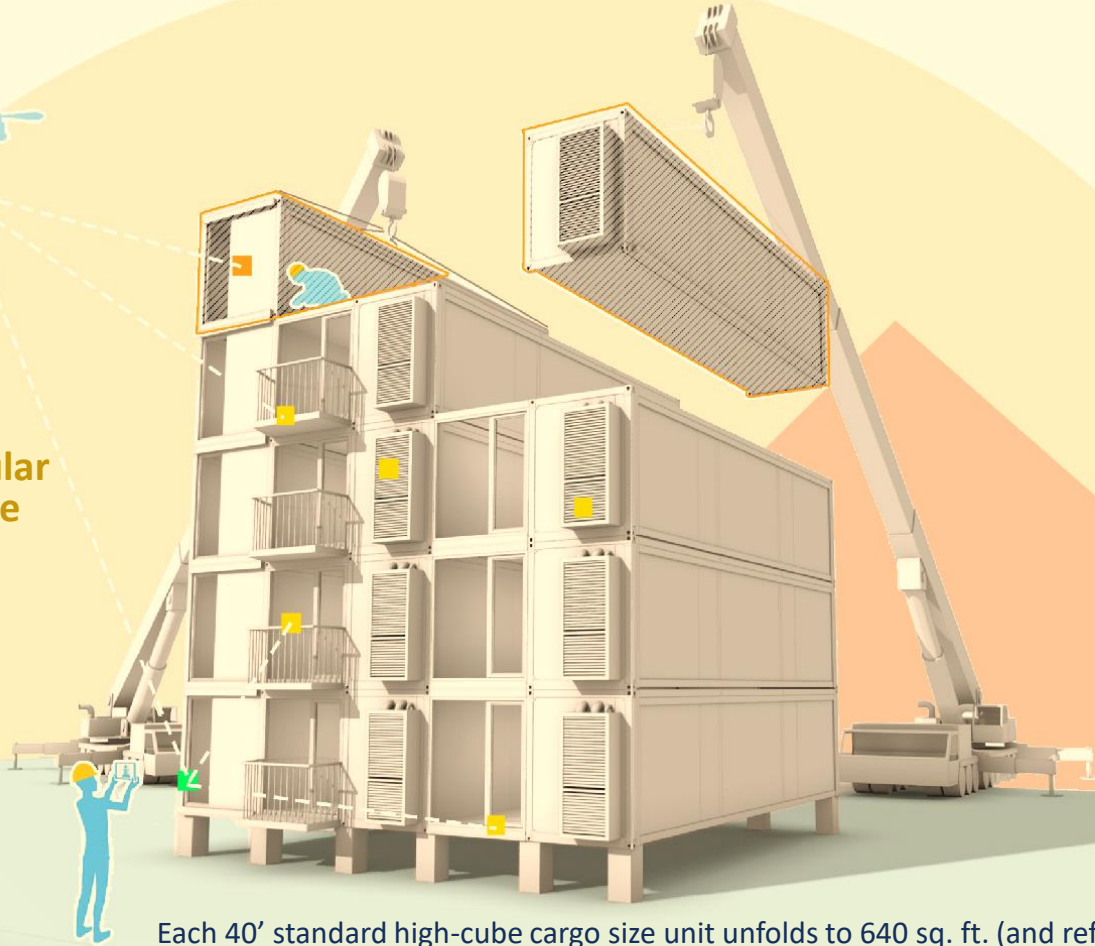




BROAD Holon Building:

The New Era in modular
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 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

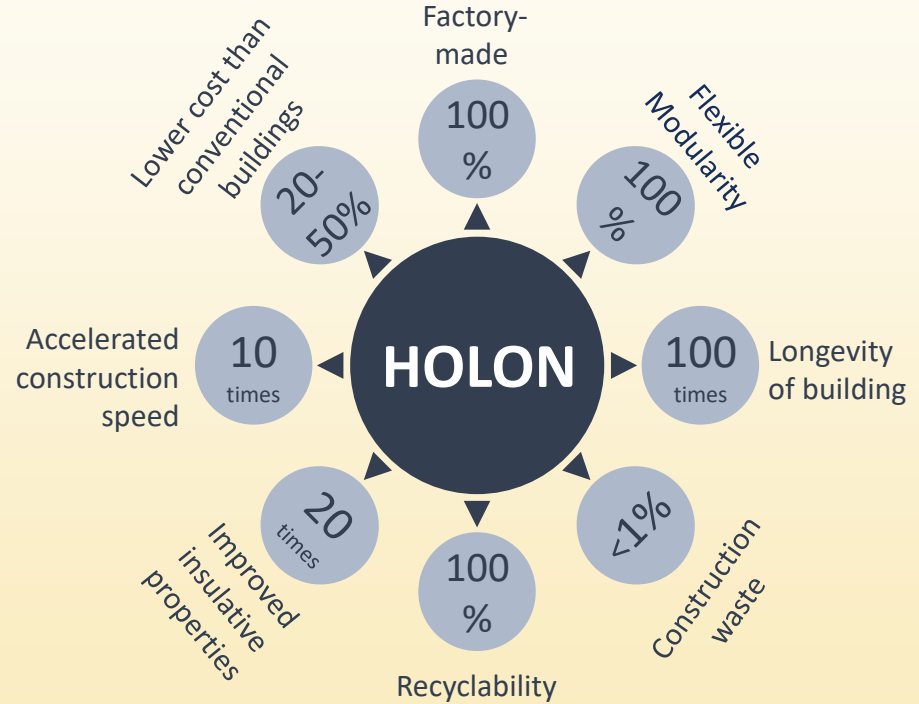


95%

Construction waste reduction rate

Why do we call the HOLON 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’s unique Fresh Air Machine, an ERV with HEPA filtration, 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.



B-CORE: The Ultimate Sustainable Structural material

What makes B-CORE *sustainable*?

- **Durability = Sustainability.** B-CORE Stainless steel is over 30 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*



BROAD's architectural milestones

BROAD has rich industrial experience in the field of sustainable buildings. Numerous projects have been completed by BROAD 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 *all stainless steel* building

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

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”:

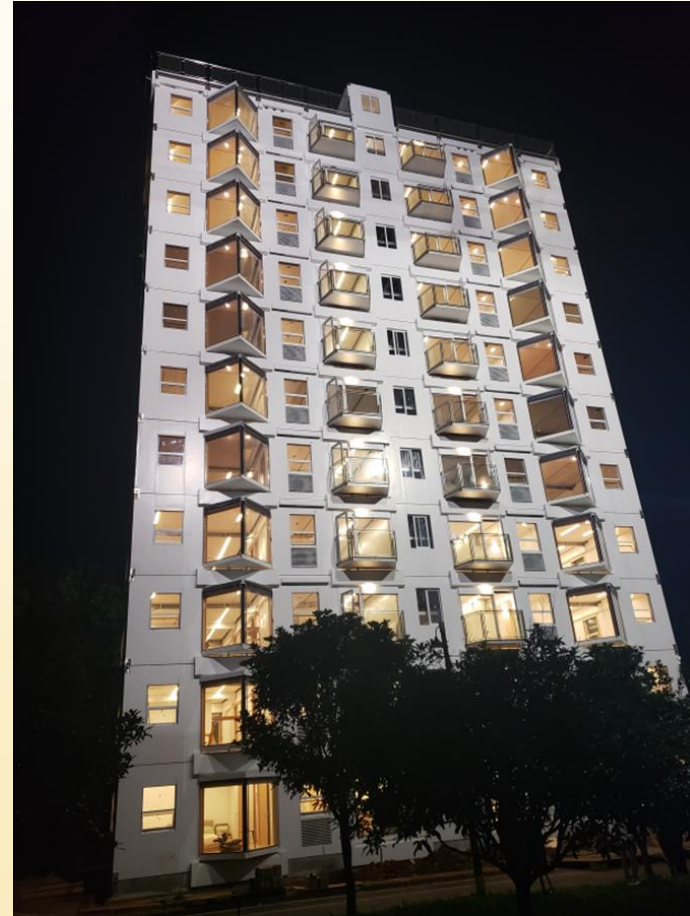
16 stories, 43 days to build

6 month cycle: design, expert review, prefab, installation, occupancy

Introducing Garden A-1, born on June 5, 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>

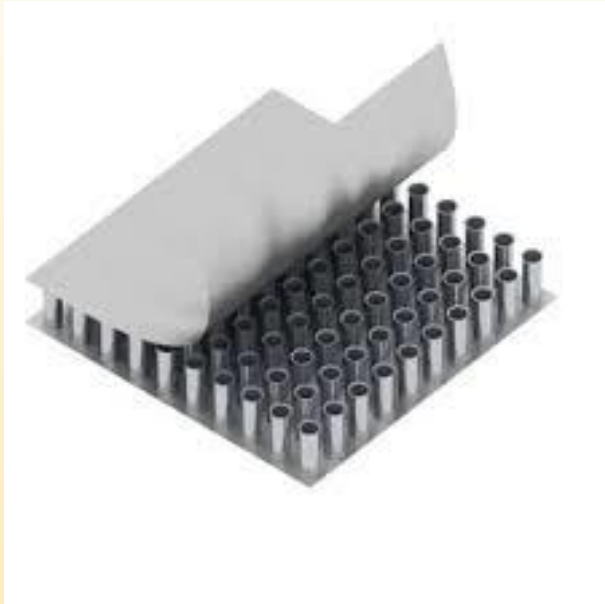


Stacked in under 29 hours

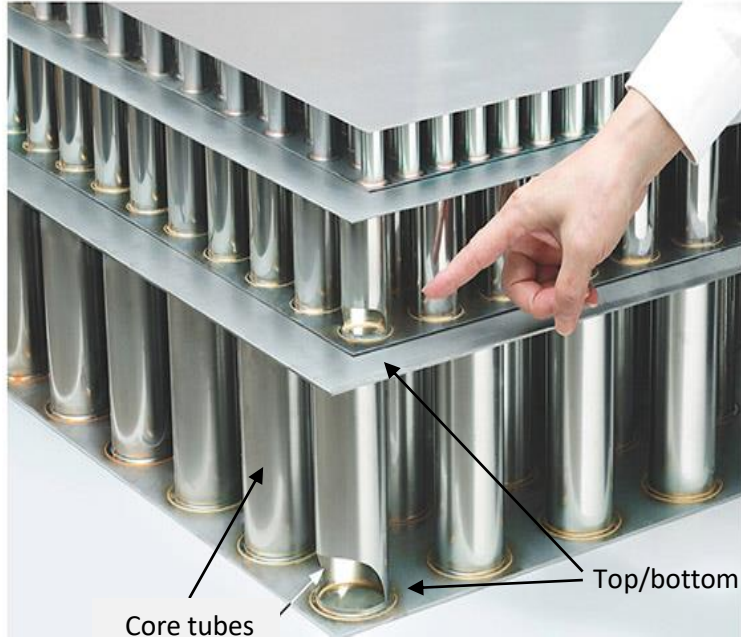
HOLON Building is delivered move in ready



FROM B-CORE SLAB TO 5D BUILDING



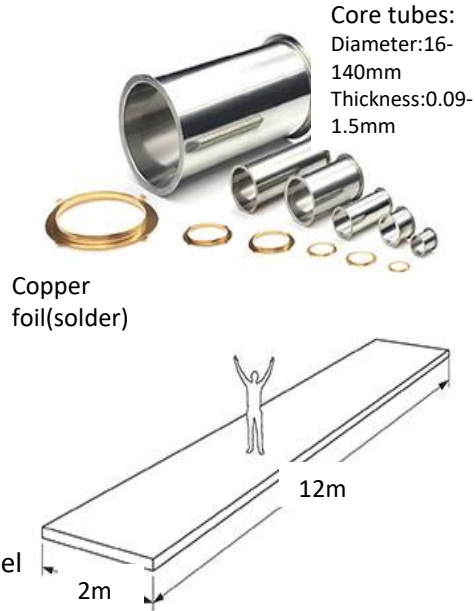
HOLON Building cornerstone: B-CORE Slab



Core tubes

Top/bottom panel

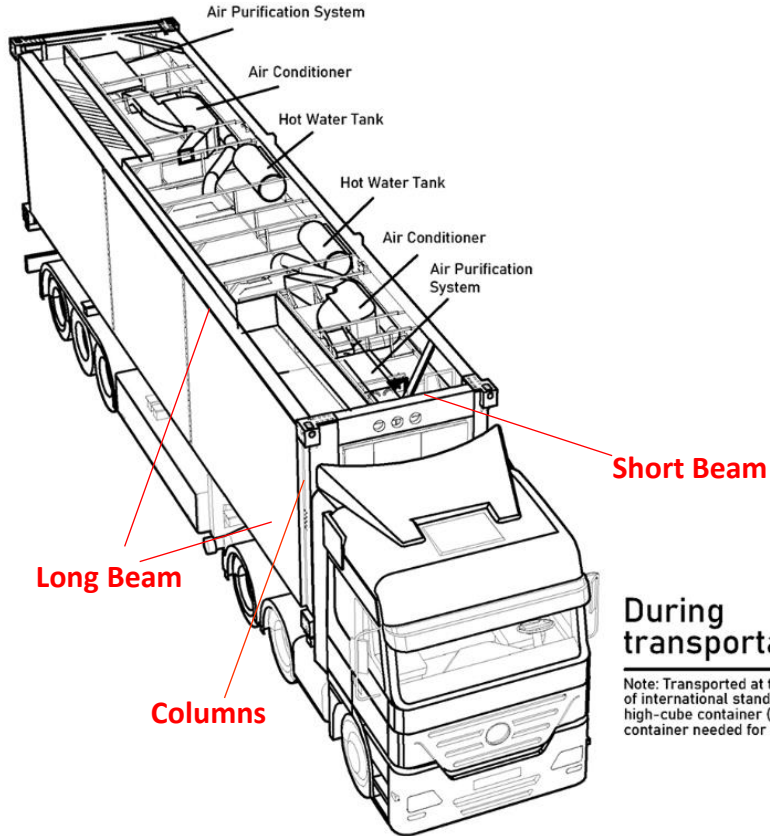
Panel Thickness: 1.5mm, 2.5mm, 4mm, 6mm
Slab Thickness: 100mm, 150mm



SS Material Option:
022Cr19Ni10; 06Cr19Ni10;
022Cr17Ni12Mo2; 05Cr19Mn6Ni4CuN

- Two panels with core tubes arrayed regularly.
- Security: Extend rate $\geq 40\%$
- Everlasting: Corrosion rate is 0.005
- Eco-friendly: Weight of steel is 1.25 times of the honeycomb panel

Living Buildings Illustrations



Room/Elevator Module Transport Dimensions

LxWxH: 12,190 x 2,438 x 3,000 mm
40' x 8' x 9'-10"

40'HQ oversea container size.

No additional container needed for shipping.

During transportation

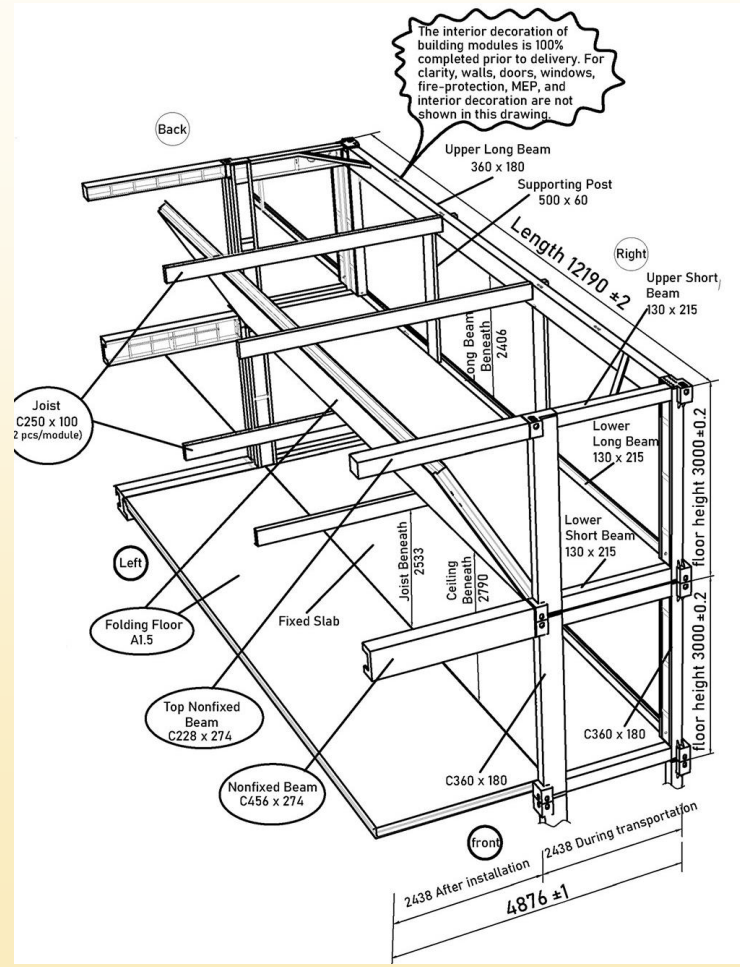
Note: Transported at the size of international standard 40 ft. high-cube container (no container needed for shipping)

- **Step 1: Bolting & Riveting**

Once the modules are delivered on site. They will be bolted or riveted on the base column pier.

- **Step 2: Unfolding**

Unfold the flexible floor and balcony part.



HOLON Building installation On Site

- **Step 3: Install Nonfixed Beam, Joist.**

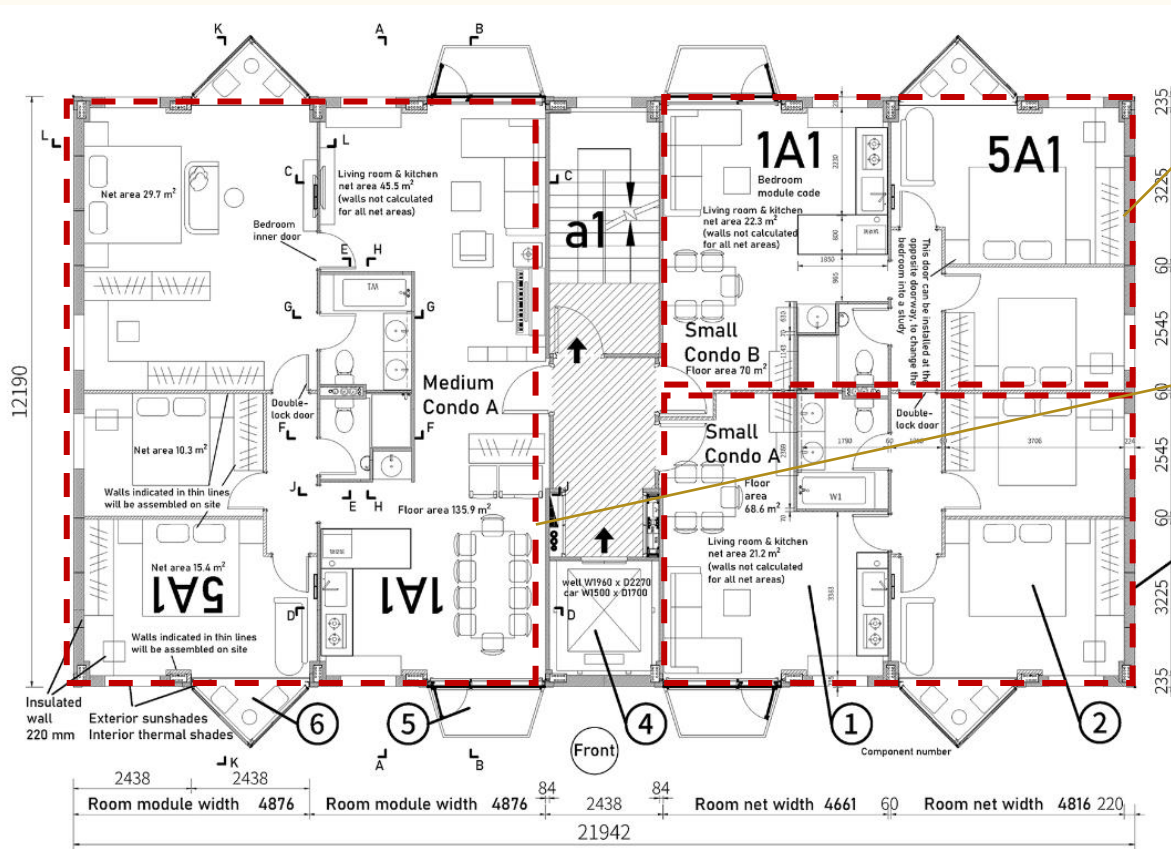
No additional columns in the module.
Joists will be installed every 4~6m for supporting loads

- **Step 4: Welding & Sealing**

Intermittent welding the floor panels and sealing with structural adhesive.



Floor Plan and Column Pier Layout

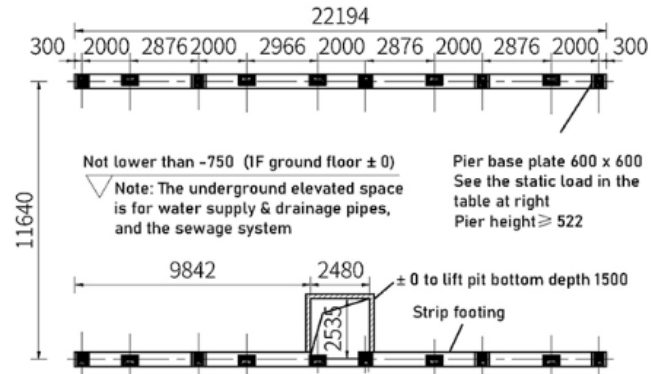


Garden A-1 Floor Plan

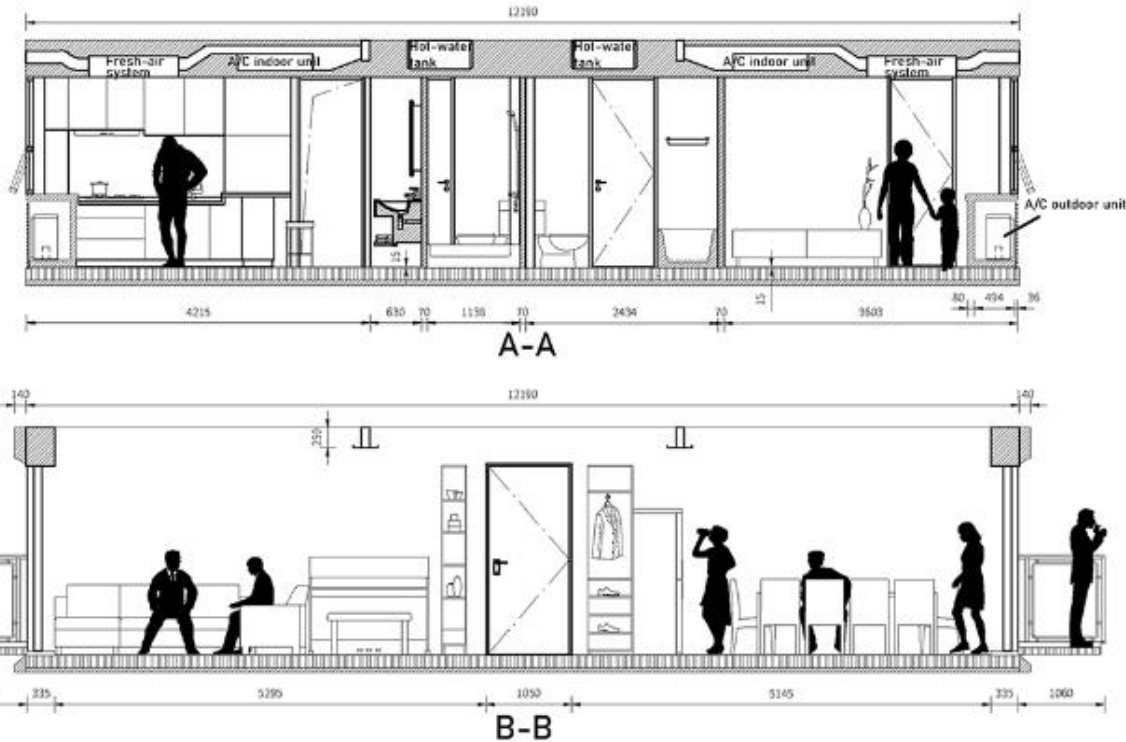
2B1B Condo

3B2B Condo

Column Pier Layout Example using A4.5

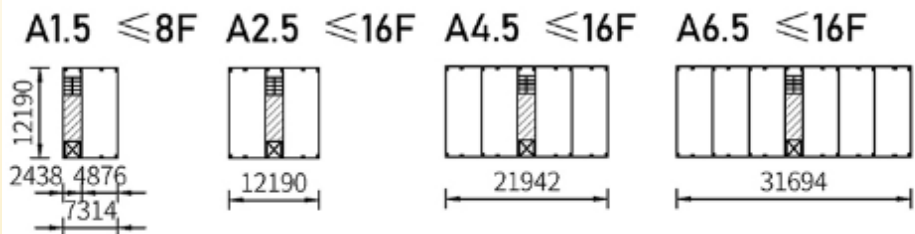


Room Façade Dimensions

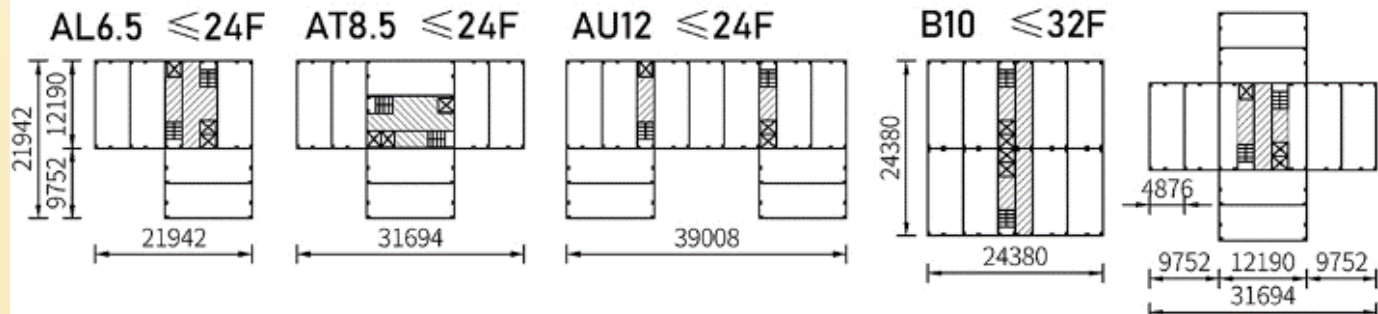


Floor to Floor height: 3,000mm / ~10ft
 Clear Height: 2,772mm / 9ft

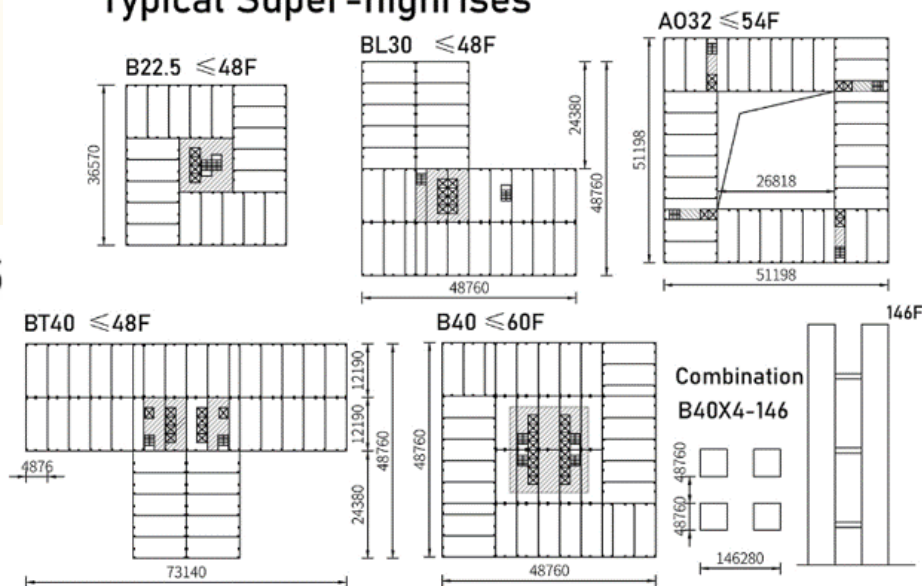
Typical Medium- and Lowrises



Typical Highrises



Typical Super-highrises



Standard delivery of HOLON Buildings

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



HOLON: The new era in modular construction

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THANK YOU

