BROAD HOLON BLDG
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BAH BROAD AVID HOME

BAH PREFAB HOUSING

Building Type Selections (EN)

2026.10 EN

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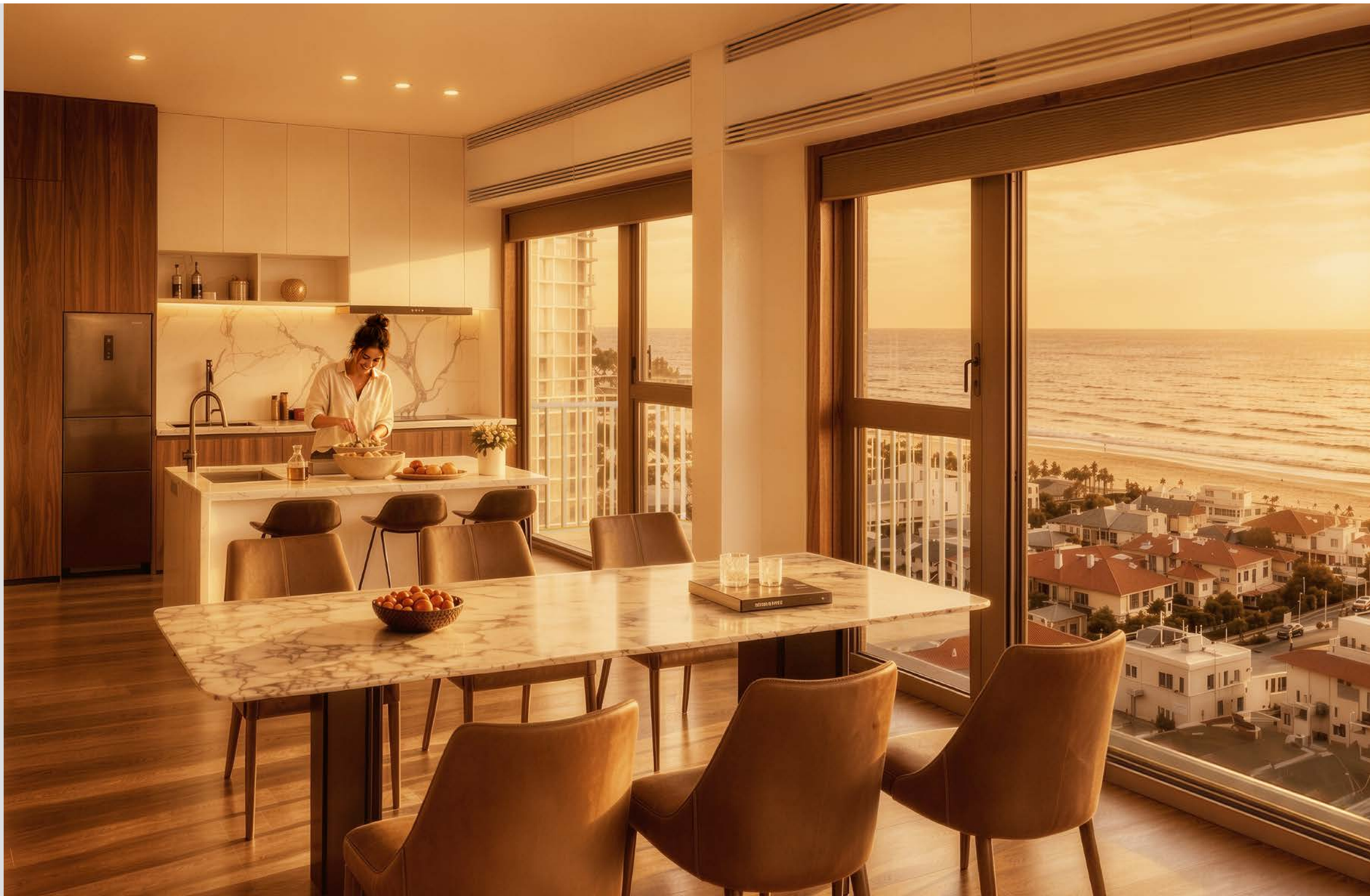


1. PRODUCT OVERVIEW

BAH is one of BROAD Group's four prefab building product lines. It primarily serves the global market for mid- and high-rise housing, with additional applications in hotels, townhouses and mobile homes. BROAD began with prefab buildings in 2009 and has received multiple international awards, including the Innovation Award from the Council on Tall Buildings and Urban Habitat (CTBUH) and First Place in the Multifamily Category from the Modular Building Institute (MBI). Through disruptive innovations, BROAD aims to meet people's housing needs. By using recyclable materials and ultra-low-energy consumption technologies, BROAD seeks to reduce building wastes by 80% and carbon emissions by 90% worldwide.

BAH Product Specification Sheet

No.	Item	Specification	Remarks
1	Building use	Residences, apartments and hotels	Live load: 0.2 t/m²
2	Scope of delivery	Fully fitted interiors, including air conditioning, fresh air, hot water and sanitary fixtures; excluding foundation	Turnkey delivery
3	Clear internal height	2.94 m; floor-to-floor height: 3.3 m	Approximately 0.4 m higher than conventional housing
4	Clear internal width	3.13 / 6.43 / 9.73 m	40 m² per module
5	Clear internal length	5.1–11.7 m	
6	Number of Storeys	1–130 storeys	Economical range: 12–20 storeys
7	Structural system	Dense-Column Steel Frame	Column Density: 5 m²/column
8	Structural materials	Columns: S460N; other members: S355N	Ductility ≥20%
9	Project design method	Combination of standard modules	Fundamentally different from conventional building design and construction
10	Construction method	100% factory prefabrication; modules bolted together on site, with plug-in utility connections	
11	Construction rate	3 storeys /day	
12	Module lifting and transport weight	≤17 t	Includes the extension room stowed inside the module
13	Shipping dimensions	12.19 m(L) × 3.3 m(W) × 3.3 m(H)	Corner fittings conform to 40ft container sizes
14	Transport method	Corner fittings positioned to the 40-foot container standard for road and rail transport; two container slots required on container vessel	Disadvantage: higher sea freight cost
15	Building standards	Statutory standards of the project country	Conventional building approval process
16	Fire safety standards	Statutory standards of the project country	Additional external escape stairs provided
17	Indoor air standard	99% PM2.5 filtration; 100% fresh air	Fresh air 50 m³/h/ person
18	Energy performance standard	International Passive House standard, Passive House Institute, Germany	The world's highest green building standard
19	Design Service life	100 years	Can be extended with corrosion protection
20	Warranty	Structure: 50 years, waterproofing: 20 years, MEP and finishes: 2 years	Life-long paid service available

THE PHILOSOPHY OF HOUSING

UTILITARIANISM

A home shelters fragile human life and deserves the most rigorous attention on this planet. Yet today's housing design and construction market is dominated by utilitarianism—competition lies in appearance and pricing rather than technology.

PERFECTIONISM

Utilitarianism is a defining characteristic of business. But homes determine our daily happiness and lifelong safety. There is no reason to compromise. We should use every available advance in modern technology to pursue perfection: satisfy residents in everything they can see, and achieve perfection in everything they cannot.

COMFORT

Not merely spacious rooms, but freedom from obstruction.
Not merely attractive interiors, but freedom from visual distractions.
Not merely sound insulation, but freedom from noise.
Not merely a constant temperature, but a constant temperature achieved with exceptionally low energy consumption.

HEALTH

Not merely materials within toxicity limits, but materials free of toxicity.
Not merely fresh air, but fresh air with 99% PM2.5 filtration, without mixed return air.

SAFETY

Not merely compliance with fire regulations, but safe evacuation during a fire, supported by additional external escape stairs.
Not merely compliance with seismic codes, but resistance to collapse even in an extreme earthquake: high-ductility steel with ductility ≥20%, no concrete, one quarter of the self-weight and one quarter of the destructive seismic force.

DESIGN AND CONSTRUCTION

Not an improvised team of designers, small contractors, and unskilled laborers. It requires a multidisciplinary team of inventors, mechanical engineers, architects, and skilled technicians, supported by billions in long-term research and development—much like the automotive industry.
Only through sustained innovation, rigorous engineering, and modern industrialized processes can a truly exceptional home be designed and built.

2. BAH DESIGN PRINCIPLES

1. Product Design Principles

1.1 Deliver world-leading living experience, space utilization, building energy consumption, safety and health at prices affordable to urban residents.

1.2 Achieve 100% factory prefabrication: all work possible in the factory must be completed. Common workers are capable to install modules after short training.

1.3 Each module must withstand transport by standard container truck, train or vessel without damage.

1.4 Every project design must comply with local building regulations and receive approval from the relevant local authorities.

2. Module Standardization Principles

2.1 Each module's architecture, structure, fire safety and building services must meet mandatory standards in EU, UK, US, CA, AU, JP and KR. Apply the strictest requirement where standards differ.

2.2 Architects can readily combine 14 module types into homes of 18–241 m² for urban residents in most countries, and into building layouts suited to varied residential sites.

2.3 Structural connections, water and electrical interfaces must be identical across all modules.

2.4 If a project stops unexpectedly, its modules must be suitable for use on another nearby project.

3. Design Principles for Deliverable Projects

3.1 Project architects and engineers must study BAH product brochure and technical materials, especially the BAH Design Principles, to understand its features and constraints fully.

3.2 Project designers should use standard BAH modules and design the project in accordance with local building regulations.

3.3 If standard modules conflict with local regulations, BAH's R&D staff should work with the project designers to resolve conflicts.

4. Interior and Exterior Finishes Principles

4.1 Adopt a Nordic style: simple, timeless and carefully detailed. Use durable, non-toxic, fire-resistant materials.

4.2 Standard white exterior walls; skin-tone (C3 M14 Y32 K18) interior walls, doors and ceilings; medium-oak flooring.

4.3 Finish surfaces shall be flat and refined, with 0.2–0.4 mm joints between wall, door, window, floor, and ceiling panels. Wall and ceiling joints shall align within 2 mm. Door frames shall be concealed. All joints at walls, floors, ceilings, doors, windows, and sanitary fixtures shall be silicone-sealed for secure bonding, airtightness, and sound insulation, with no visible sealant.

4.4 Conceal LED strips in 15 mm ceiling and floor perimeter recesses; use anti-glare round ceiling lights. Specify efficient LEDs at 2800–3000 K with a color rendering index ≥90, and at least three separately switched lighting circuits per room.

5. Optional Selection Principles for Extension Room and Balconies

5.1 Extension rooms and balconies are a low-cost space expansion solution. They can be packed inside modules for transportation with at no additional freight cost; wider adoption is recommended.

5.2 Standard modules are equipped with bolt seats at both ends for mounting extension rooms and balconies, allowing easy installation. If not configured in the design phase, they can be retrofitted at a later time.

5.3 It is advised to reserve one module gap between balconies of adjacent households to protect privacy and enhance security.

6. Vertical Circulation Selection and Design Principles

6.1 Lift capacity must be sufficient to transport 10%–15% of the total resident population within five minutes. Lift speed: 2.5 m/s, except for buildings of 60 storeys or more.

6.2 External lifts and stairs are recommended to reduce wasted space and significantly lower the cost of fire safety installations.

6.3 Where internal stairs are used, additional external escape stairs should be equipped to substantially improve the success rate of safe evacuation during a fire.

7. Structure Design Principles

7.1 Structural design shall comply with the applicable codes of the project country and be cross-verified using at least two structural analysis software packages approved by the reviewing authority.

7.2 Use high-quality carbon steel: S460N for columns and S355N for other members; ductility ≥20%; yield-to-tensile strength ratio ≤0.85.

7.3 Select column and beam wall thicknesses according to storey count, building Aspect Ratio, site wind loads and seismic action intensity.

7.4 The nominal axial compression ratio of columns ≤0.33, providing a threefold safety reserve for fire and preventing collapse if four adjacent columns fail.

8. Seismic Design Principle

8.1 Lightweight module design limits self-weight to 0.3 t/m², less than one quarter that of reinforced-concrete buildings, substantially reducing seismic forces.

8.2 Module structures must provide sufficient strength and ductility for the main structure to remain essentially undamaged under seismic intensity 9 (PGA 0.4g), and to avoid collapse under a rare earthquake with PGA 0.62g.

9. Wind Resistance Design Principle

9.1 Set the basic wind speed under local codes and verify the structure's wind resistance. Inter-storey drift must be ≤1/250. If it exceeds this limit, add diagonal bracing or thicken existing bracing during prefabrication.

9.2 Design for occupant comfort under wind vibration, limiting acceleration at the building top to ≤0.15 m/s².

9.3 Standard exterior walls, windows, extension rooms, balconies, roofs and other envelope components are designed for a basic wind speed of 28 m/s. Designers proposing exterior changes must review load paths and strength with BAH designers.

10. Fire Resistance Design Principles

10.1 Design per residential fire codes in EU, US, UK, CA, AU, JP and KR, applying the strictest requirement where codes differ.

10.2 Protect module steelwork with fire-resistant coatings; use rock wool in floors and mainly Class A or B finishes, with limited Class C finishes.

10.3 Add open external escape stairs to all buildings of 6 storeys or more, and at least 2 to buildings of 60 storeys or more.

10.4 Dense-column design so the main structure remains standing if four adjacent columns soften and fail in a fire.

11. Waterproofing Design Principles

11.1 Leave 2–5 mm gaps at roof and exterior wall joints, pipe penetrations, balcony and extension room interfaces, and other possible rainwater entry points. Apply at least two continuous beads of weather-resistant silicone sealant in each gap. Ensure sealant service life ≥100 years.

11.2 Pressure-test internal water supply pipes at 1.5 MPa after fabrication and installation. Test drainage pipes and shower trays for water retention.

11.3 Slope shower trays, roofs and balconies at 1.5%. Install rainwater pipes on site, sized for a once-in-50-year rainstorm.

12. Acoustic Insulation Design Principles

12.1 Research and test acoustic performance from module design and material selection through factory fabrication and site installation. Target residential ratings (dB): floors between storeys 52 (impact sound 58); party walls 50; internal walls 40; exterior walls 52; external doors and windows 42; dwelling entrance doors 32; bedroom doors 25.

12.2 Use a 12-layer assembly between storeys: steel sheets of 2 mm and 1 mm, one each, plus four at 0.2 mm; rock wool at 200 mm and 100 mm, one layer each; composite flooring at 15 mm and 7 mm, one layer each; a 20 mm composite ceiling; and an air layer.

12.3 Fit three-stage seals to dwelling entrance doors and windows, two-stage seals to internal doors, and automatic drop seals to the bottoms of both door types.

12.4 Continuously seal all potential sound paths with silicone, including wall perimeters, pipe and main-cable floor penetrations, wiring openings between rooms and structural bolt holes. Photograph, sign off, and archive records of concealed works.

13. Water Supply and Drainage Design Principles

13.1 Use S316L stainless steel for water supply pipes, PVC-U for drainage pipes, and PP polypropylene for kitchen drainage pipes.

13.2 Connections for mains water, domestic hot water and fire water must use O-ring face seals (ORFS): a grooved O-ring with metal-to-metal contact.

13.3 Water supply and drainage pipes, fittings, and valves shall be smooth inside; each drainage line shall have a water seal ≥60 mm; no floor drains in kitchens or bathrooms.

13.4 Provide a 100 L water heater in each bathroom to supply the bathroom and kitchen. Position temperature controls and control panels conveniently, and provide labels explaining temperature adjustment and off-peak electricity use.

13.5 Piping systems shall allow easy maintenance and repair; access panels for concealed works shall be discreetly labeled and visually unobtrusive.

14. Air Conditioning and Fresh Air Design Principles

14.1 Two air conditioning units, each with 2.6 kW heating/cooling capacity, and two fresh air units, each rated at 100 m^3/h, per module.

14.2 Design indoor temperatures: ≤24°C in summer and ≥22°C in winter, with resident-adjustable controls. Air-conditioning COP must be ≥3.8.

14.3 Use BROAD FRESH PURIFY units with two-stage filtration at 99% efficiency and total heat recovery at 70% efficiency.

14.4 Locate AC and fresh air units for easy filter cleaning and replacement, with clear maintenance labels.

15. Energy Efficiency Design Principles

15.1 Energy efficiency was BROAD's original reason for developing prefabricated buildings. Maximize thermal insulation, equipment efficiency and intelligent controls, meeting or exceeding every indicator of the international Passive House Standard.

15.2 Provide 140–260 mm rock-wool insulation in exterior walls and roofs; 3/4 - paned windows; external solar shading & internal heat isolation shading; rooftop solar energy; off-peak water heating; and an off-peak air-conditioning program that raises room temperature to the acceptable upper limit.

15.3 Install occupancy sensors in every room. During prolonged absence, air conditioning and fresh air automatically enter an unoccupied energy-saving mode.

15.4 Meter water and electricity for each dwelling, displaying energy costs, consumption and carbon reduction on the central control.

15.5 Display the Building Energy Efficiency and Air Quality Management Recommendations prominently in each building to encourage energy-saving behavior.

16. Power System Design Principles

16.1 Configure circuits for the voltage and frequency of the project country. Before dispatch, label voltage and frequency both inside and outside each module. Power and low-current systems must be accessible for maintenance and repair; discreetly label access panels for concealed services.

16.2 Provide dual vertical power feeds to each module and separate metering for each dwelling. Minimize the space occupied by cable risers and in-dwelling electrical systems.

17. ELV System Design Principles

17.1 Study residents' living experience closely and maximise intelligent electrical controls to make daily life exceptionally convenient.

17.2 Prefabricate all intelligent, fire safety and energy-saving controls in the factory. For items requiring site installation, attach instructions at the relevant module locations before dispatch.

18. Foundation Design Principles

18.1 Foundation design shall follow conventional building standards. As BAH is approximately 4 times lighter than conventional buildings, foundation design loads are correspondingly reduced.

18.2 The foundation shall project at least 100 mm above ground level, with perimeter waterproofing and thermal insulation. Buildings of 3 storeys or less may be installed directly on a conventional concrete slab.

18.3 The top surfaces of all connection seats shall be level. Permissible level deviation: ≤0.2 mm between two columns and ≤0.5 mm over 20 m.

18.4 Foundation pedestals connecting to the building structure shall have a strength at least 30% greater than that of the columns, with ductility ≥20%.

BAH

3. STRUCTURE CONFIGURATION

BAH features BROAD's proprietary dense-column steel structural system, characterized by:

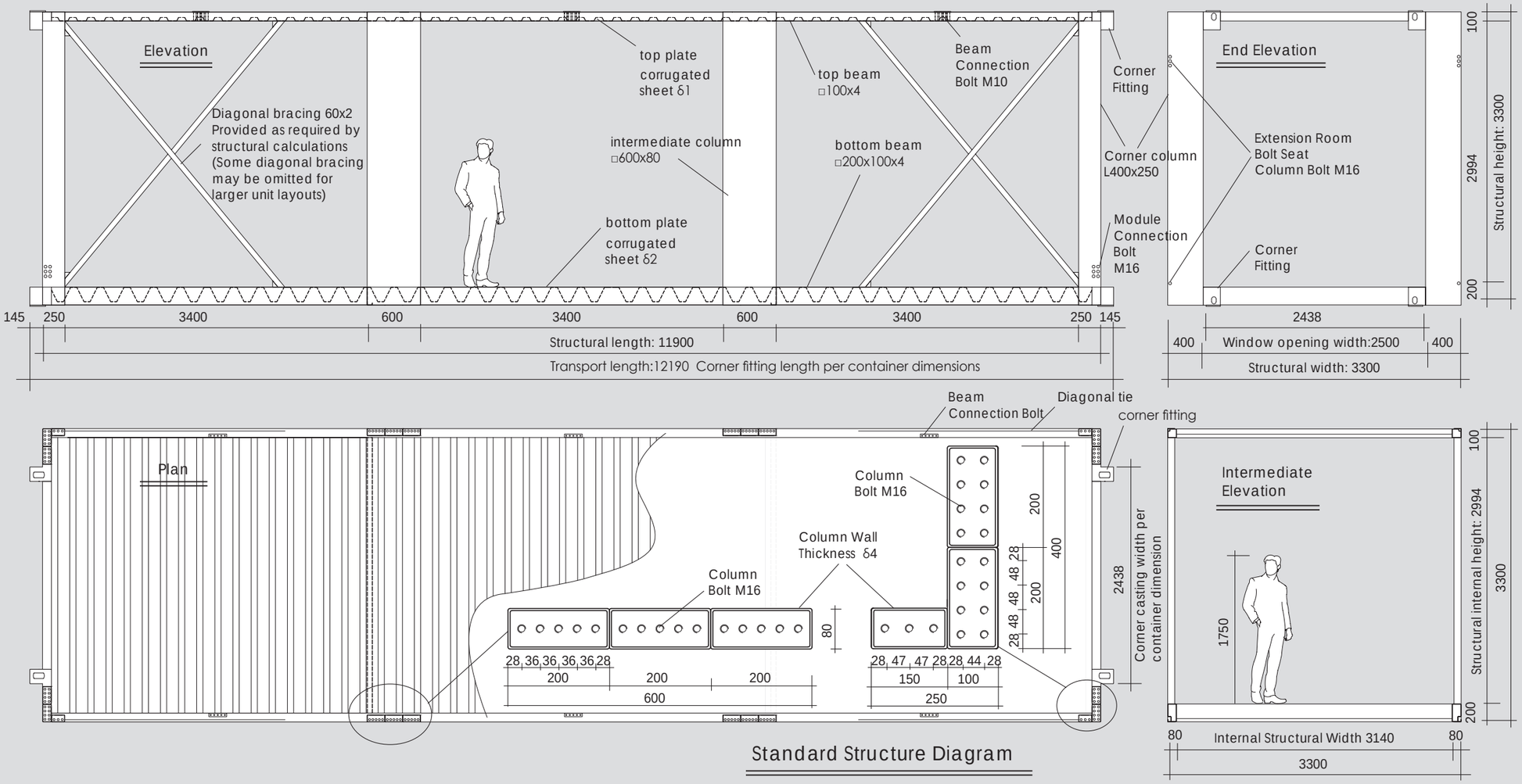
1. Wide, slender columns; multiple columns; even distribution; balanced load-bearing; thin, strong floor and ceiling systems; increased clear ceiling height.
2. Selected modules incorporate diagonal bracing to suit high-rise and supertall buildings and resist strong wind loads.
3. Columns are designed to match wall thickness, minimizing interference with interior layouts.
4. Modules are supported through corner fittings during factory transportation, in compliance with international container transport standards, minimizing the risk of damage during transport and lifting.
5. On-site installation requires only bolted connections, simplifying construction and reducing quality risks.

Module Structural Parameters

No.	Item	Specification and description
1	Structural system	dense-column steel frame structure
2	Column material	S460N
3	Other structural material	S355N
4	Steel ductility	≥20%
5	Total structural weight	3752 kg per module
6	Structural weight/m²	93.35 kg/m²
7	Corrosion protection	Cold galvanizing
8	Design service life	100 years
9	Technical standards	Statutory standards of the project country

Note: Column and beam wall thickness, and the quantity and wall thickness of diagonal bracing, shall be determined by project-specific structural design. The structural weights shown in the table apply only to the standard structure(≤20F).

Unit: mm



Standard Structure Diagram

4. STRUCTURE SELECTIONS AND DESIGNS

BAH uses a single module size to create different building types. Based on building height, aspect ratio, and wind speed, project designers select columns, beams, and diagonal bracing of appropriate strength and wall thickness. Important: BAH has an extremely low self-weight and high seismic redundancy. Structural strength is therefore governed by wind loads rather than seismic loads.

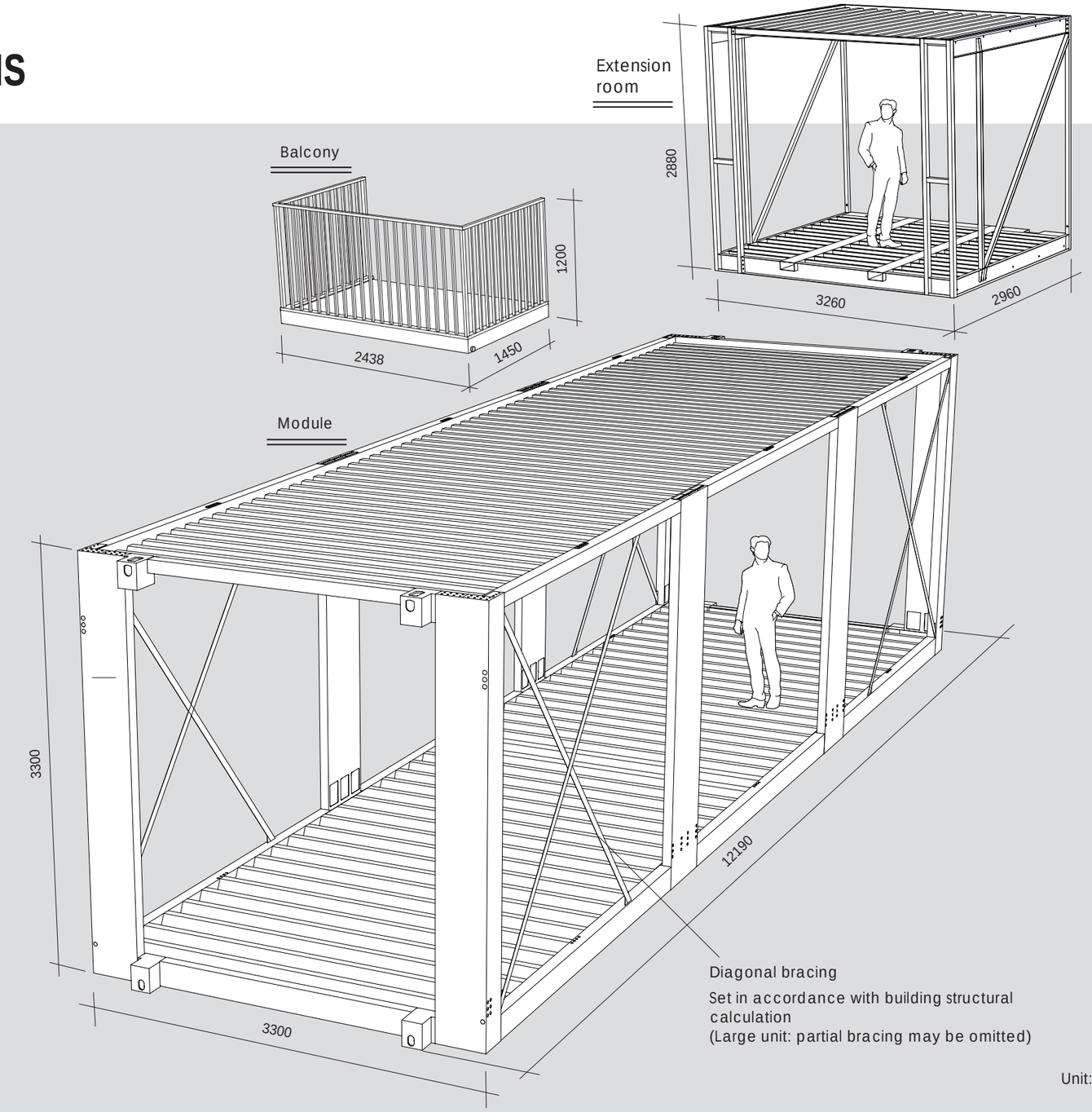
Key factors affecting BAH structural selection:

1. Building height: The taller the building, the greater the required column wall thickness.
2. Aspect ratio: A higher ratio requires thicker columns and stronger beams and diagonal bracing.
3. Local wind speed: Higher wind speeds require thicker columns and stronger beams and diagonal bracing.

Structural Selection Quick Reference Table

Basic wind speed	Module code	Column thickness mm	Beam and diagonal brace grade	Module Types by Building Type and No. of Storeys				
				Slab type	L type	T type	H type	X type
23m/s	S4A	4	A	12F	16F	20F	24F	48F
	S4B	4	B	20F	24F	28F	32F	64F
	S6B	6	B		32F	36F	40F	84F
	S6C	6	C				50F	100F
	S8C	8	C					115F
	S8D	8	D					130F
28m/s	S4A	4	A	10F	14F	16F	20F	32F
	S4B	4	B	16F	20F	24F	28F	38F
	S6B	6	B	20F	26F	30F	34F	48F
	S6C	6	C		32F	36F	40F	64F
	S8C	8	C				50F	84F
	S8D	8	D					100F
	S8E	8	E					115F
	S8F	8	F					130F

Note: This table is for preliminary reference only. Final structural selection shall be based on project-specific calculations by structural designers.

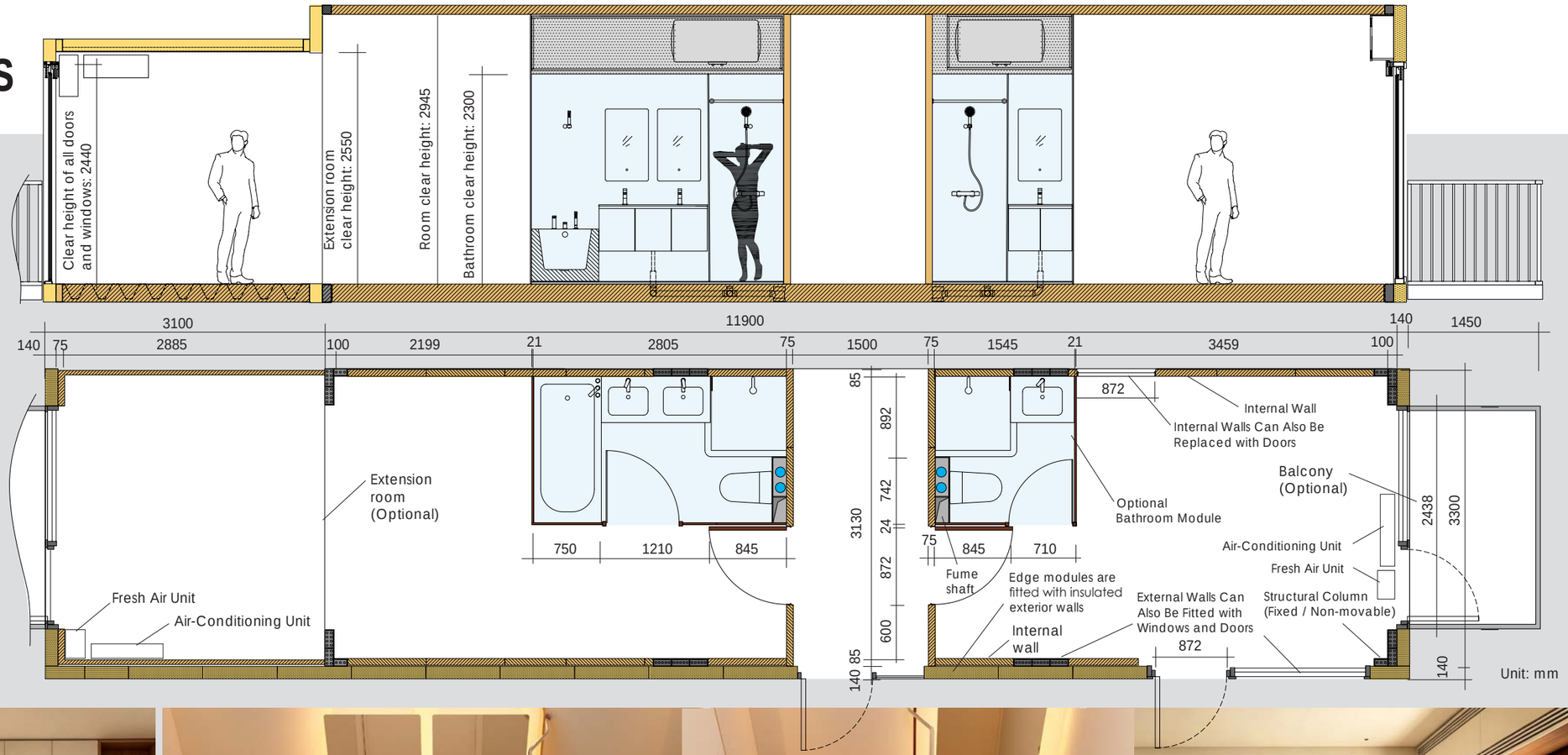


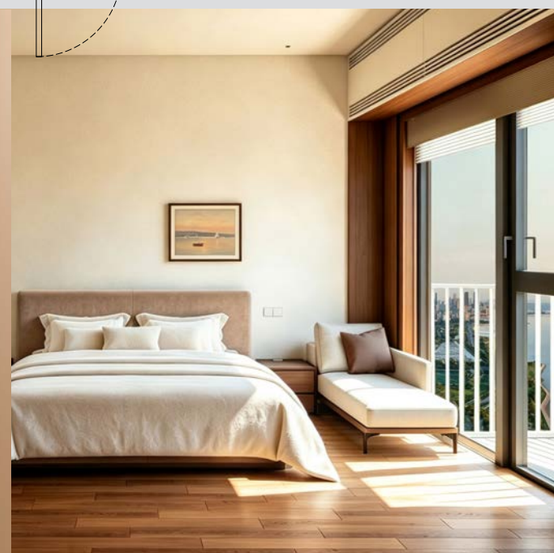
Unit: mm

5. MODULE SELECTIONS

This diagram shows a typical module incorporating the key features of BAH. Project design should begin only after reviewing this diagram together with the Building Type Design Overview on the next page and Principle 2 of the BAH Design Principles on the previous page. Key characteristics of BAH modules include:

1. All components use fixed dimensions and are standardized across all modules. A limited component range ensures maximum reliability, lowest cost, and shortest delivery time.
2. The interior design system is based on BROAD's global experience in prefabricated buildings since 2009. See the Interior Design Principles on the previous page and the 4 diagrams below. If clients require a different interior style, secondary fit-out by the client is recommended, as customization within BAH would result in higher costs.
3. All electrical, plumbing, drainage, air conditioning, and fresh air systems are fully manufactured, inspected, and commissioned in the factory. Interior finishes are also 100% factory-completed.
4. On-site installation requires only bolted connections and plug-in service connections, enabling a true turnkey delivery.





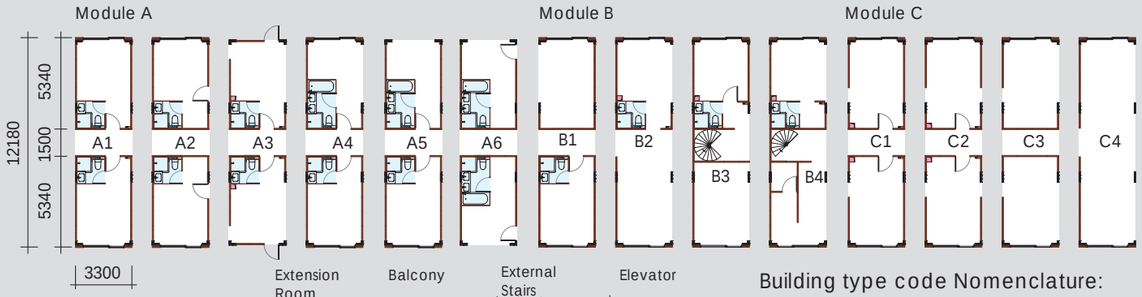
6. BUILDING TYPE DESIGN OVERVIEW

BAH OFFERS HIGHLY FLEXIBLE BUILDING TYPES SUITABLE FOR BUILDINGS FROM 1-130 STOREYS.

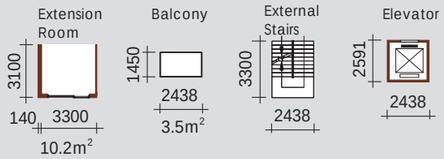
Before developing the building type or unit layout, please carefully review and understand Item 2 of the BAH Design Principles

1. Standard Modules Summary

BAH includes 14 standard module types, together with one type each of extension room, balcony, elevator, and staircase. Building and unit layouts should be developed around these 18 standardized components.



Standard accessories



Building type code Nomenclature:

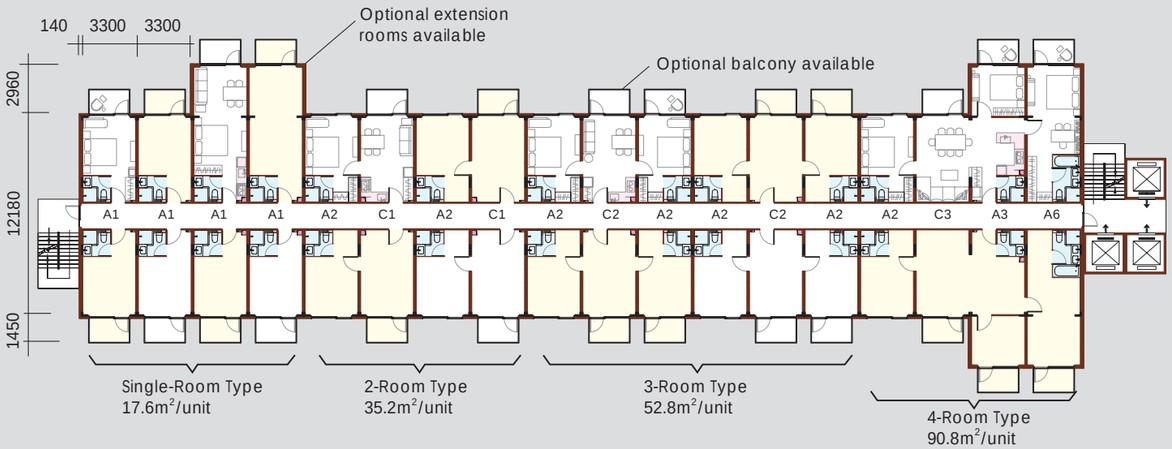
W 18 F20 ABD

- Building type
- No. of single-storey modules
- No. of floors
- Unit type (Letters denote different unit types)

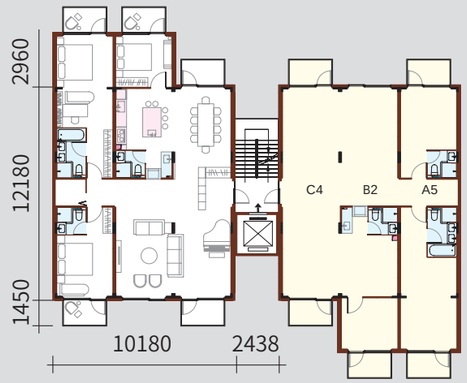
2. Low- and Mid-Rise Buildings 1-20F

We prioritize 12–20-storey slab blocks, balancing middle-income housing demand with efficient land use in medium and large cities worldwide.

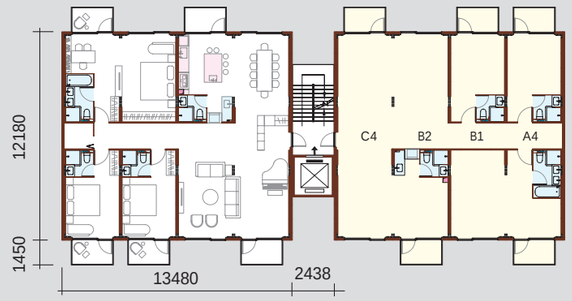
Central-corridor building W18F20



Large unit (LU) W6F20 Int. area 144m²/unit



Deluxe unit (DU) W8F20 Int. area 164.2m²/unit

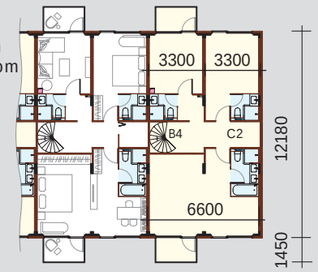


3 Deluxe units combination W8F20-3

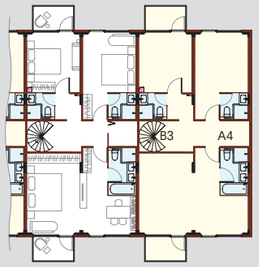
3 Large units combination W6F20-3

Townhouse N3F3 Int. area 241m²/unit 2-10 units/bldg.

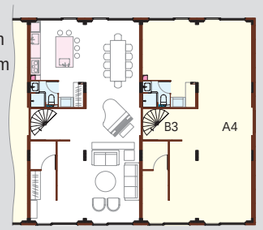
3F
Bedroom
Living room



2F
Bedroom



1F
Living room
Dining room

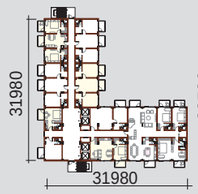


3. Ultra-High-rises 32-130F

Non-Rectangular building forms are particularly suitable for ultra-high-rises. In major cities, ultra-high-rises can significantly increase usable urban living space and support greater urban economic activity.

BAH also offers a significant cost advantage for ultra-high residential buildings: for every additional 10 storeys, unit cost increases by only approximately 5%–8%.

L15F32



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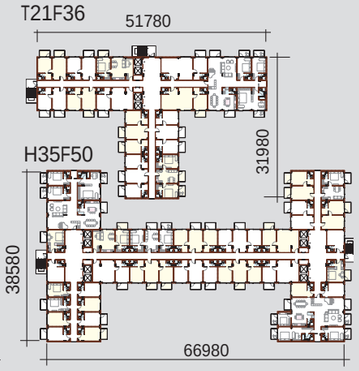

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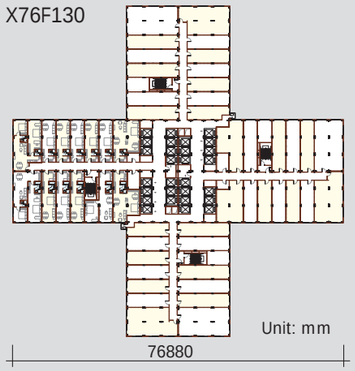
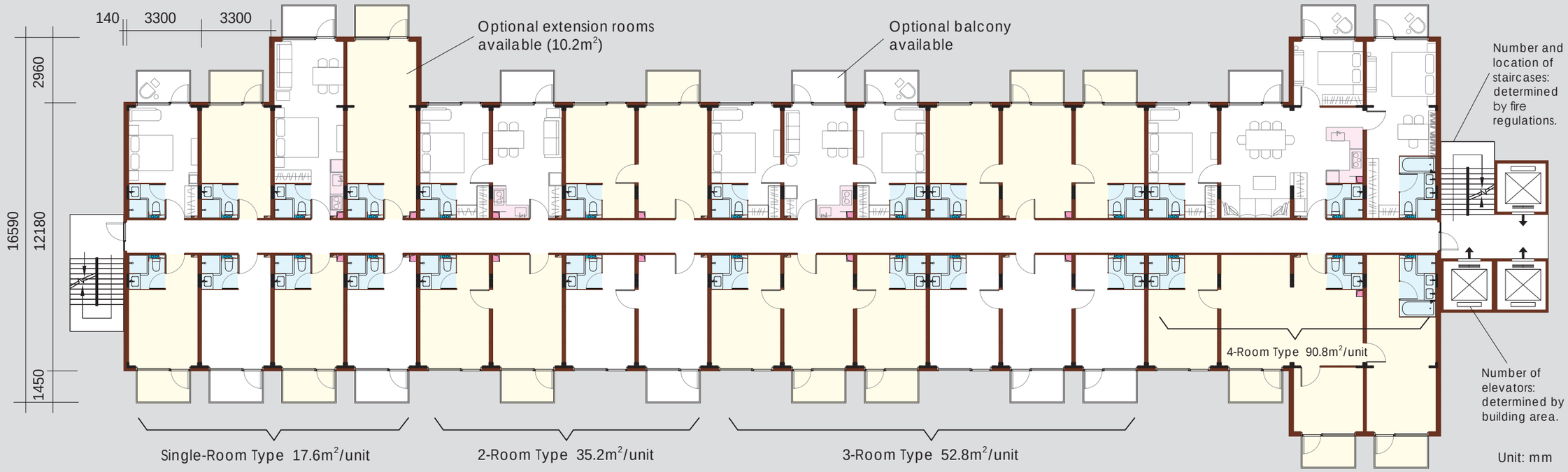


Unit: mm

7. CENTRAL-CORRIDOR BUILDING ≤20F

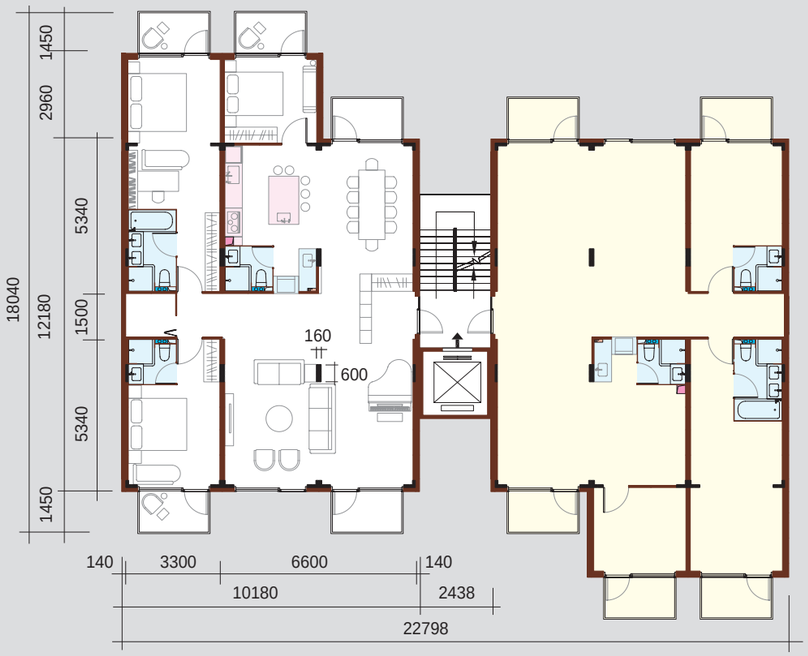
(ONE BUILDING MAY ACCOMMODATE ONE OR MULTIPLE UNIT TYPES)

1. Particularly suited to rental apartments, with easy subdivision, leasing, and property management. With a little design consideration, project designers will find that unit layouts can be changed simply by relocating one or two doors.
2. Elevators and staircases shall be arranged in accordance with local fire regulations.
3. Five typical unit types are shown. We recommend no more than two unit types per building to reduce factory production and operational costs.
4. Where site conditions and unit requirements permit, extension rooms are recommended to increase usable space with only a limited cost increase.



8. LARGE UNIT ≤20F INTERNAL AREA: 144 m²/UNIT

1. A spacious, highly efficient residence with a 42 m² living room interrupted by only one slender column, plus a 37 m² open dining and kitchen area. Suitable for 4–6 residents and entertaining guests.
2. In some countries, a single-stair building is limited to 10 storeys. For taller buildings, two units may be separated to allow an additional staircase beside the elevator.
3. For larger families needing another bedroom, a partition wall can be added within the living room with minimal impact on overall living quality.



Unit: mm

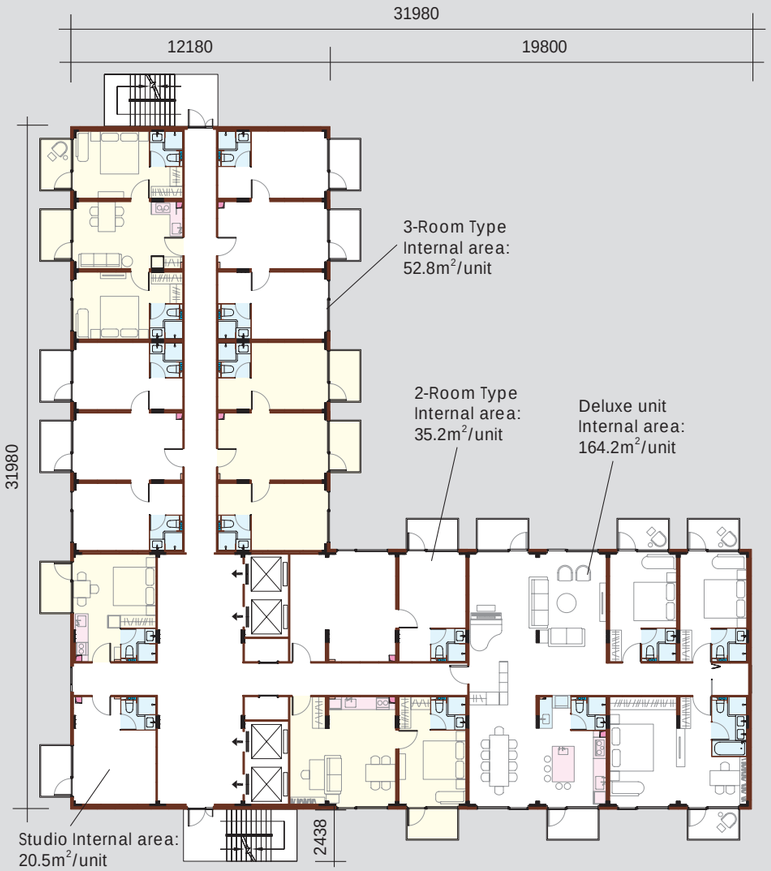
9. DELUXE UNIT ≤20F INTERNAL AREA: 164.2 m²/UNIT

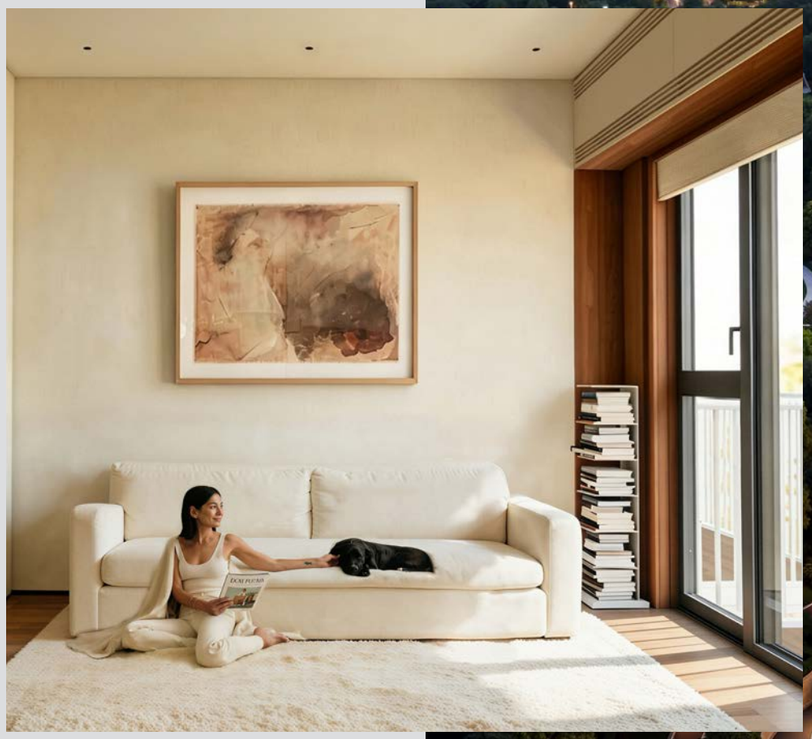
10. L-SHAPED BUILDING ≤32F

(ONE BUILDING MAY ACCOMMODATE ONE OR MULTIPLE UNIT TYPES)

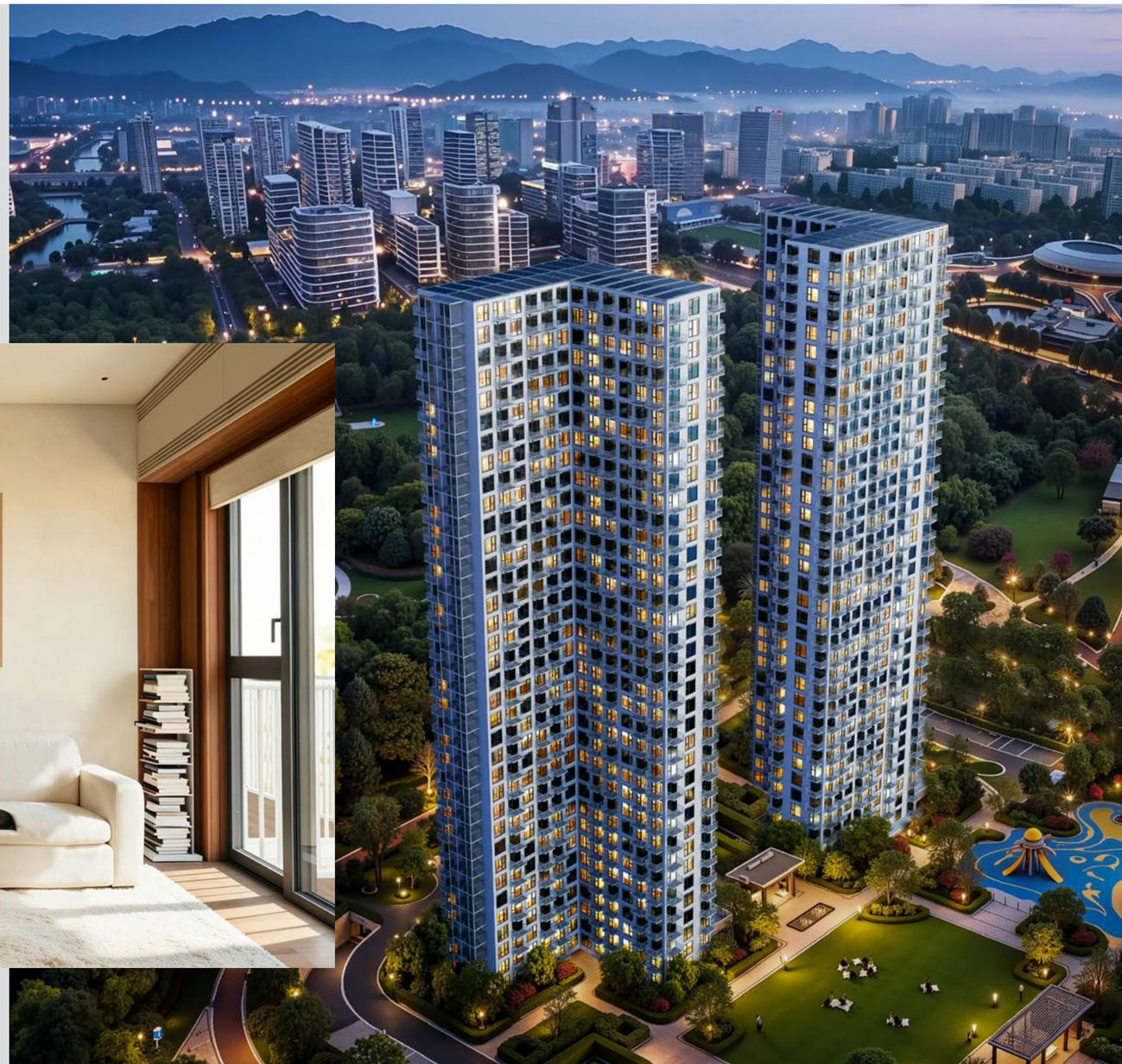
Guidance for Non-standard Building Types

1. L-, T-, H-, and X-shaped buildings have wider footprints and can therefore reach greater heights than slab blocks. For taller schemes, stepped setbacks may be used by reducing the number of modules at upper levels, as shown in the X-shaped example on the following pages.
2. This scheme has a floor area of 630 m²/F. The length and width of the non-standard building types shown here and on the following pages may be adjusted according to project demands (only adding or removing modules) The maximum number of storeys shall be reverified by structural calculations.
3. The unit layouts shown are for reference only. Designers may select suitable unit types according to client requirements.
4. The number and location of staircases shall be determined by fire regulations.





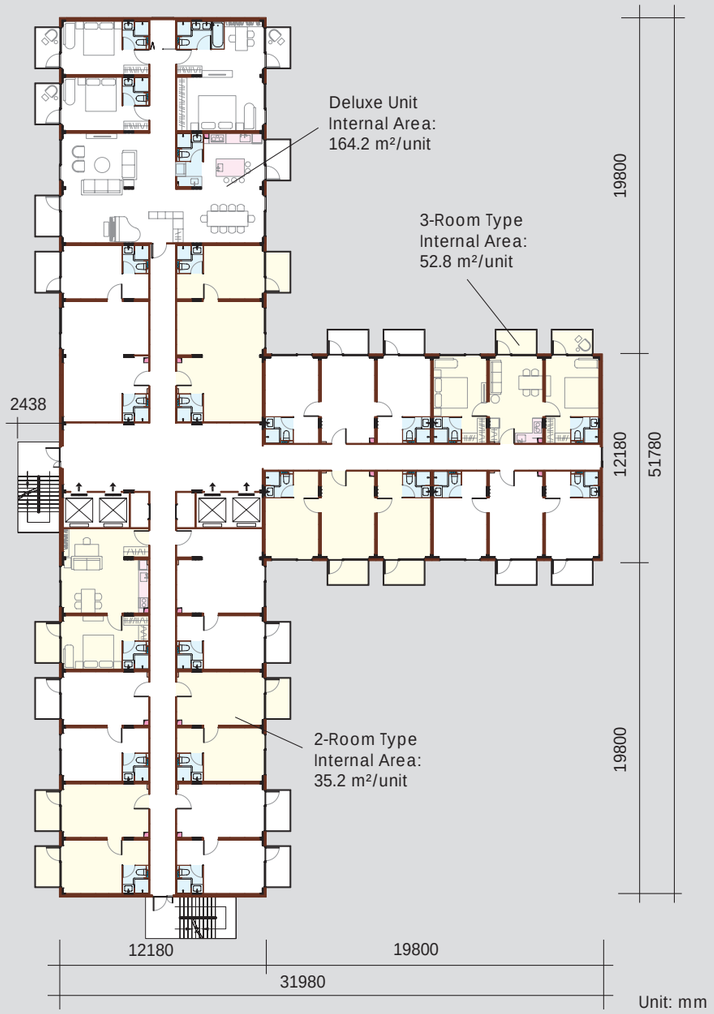
Unit: mm



11. T-SHAPED BUILDING ≤36F

(ONE BUILDING MAY ACCOMMODATE ONE OR MULTIPLE UNIT TYPES)

Floor area: 872 m²/F. The length and width of each building type may be adjusted according to site dimensions and total building area. For ultra-high-rises, the projection of each wing should not exceed twice the wing width, otherwise overall structural stability may be reduced.

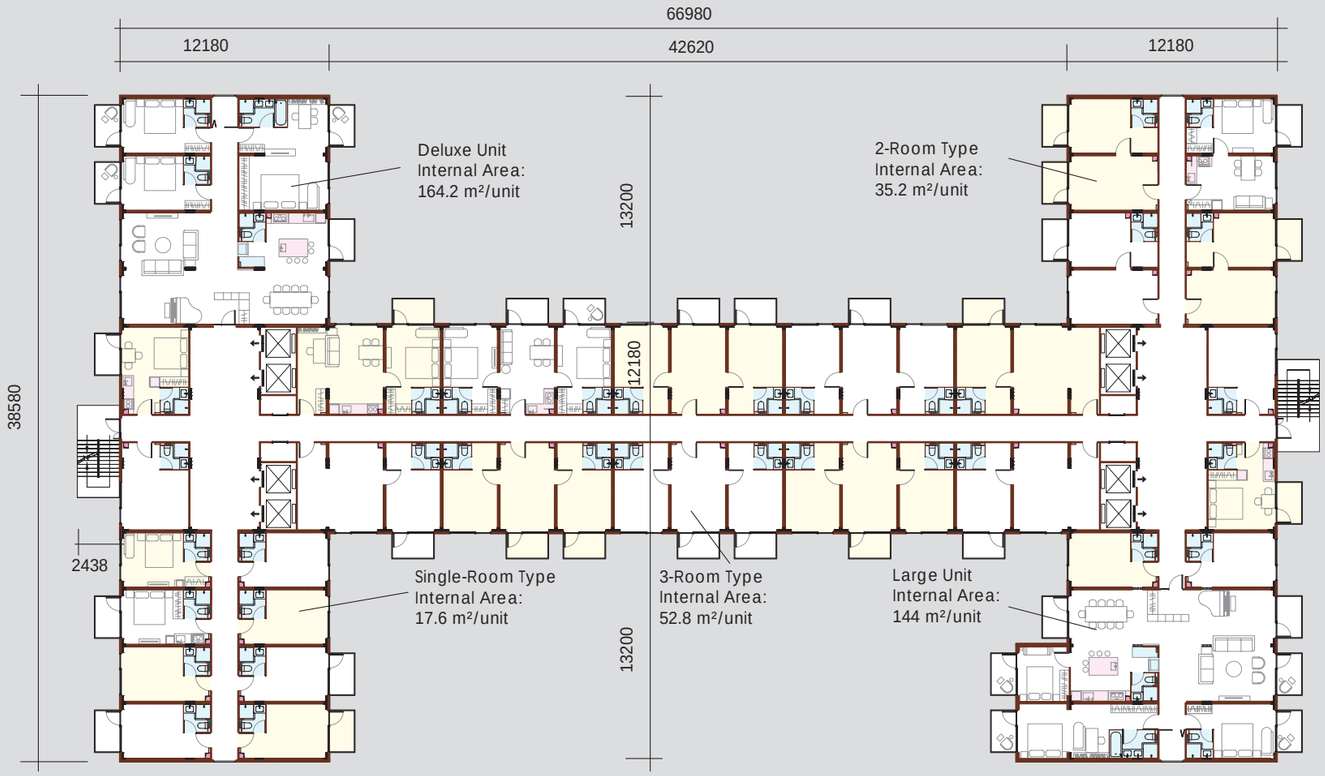


12. H-SHAPED BUILDING ≤50F

(ONE BUILDING MAY ACCOMMODATE ONE OR MULTIPLE UNIT TYPES)

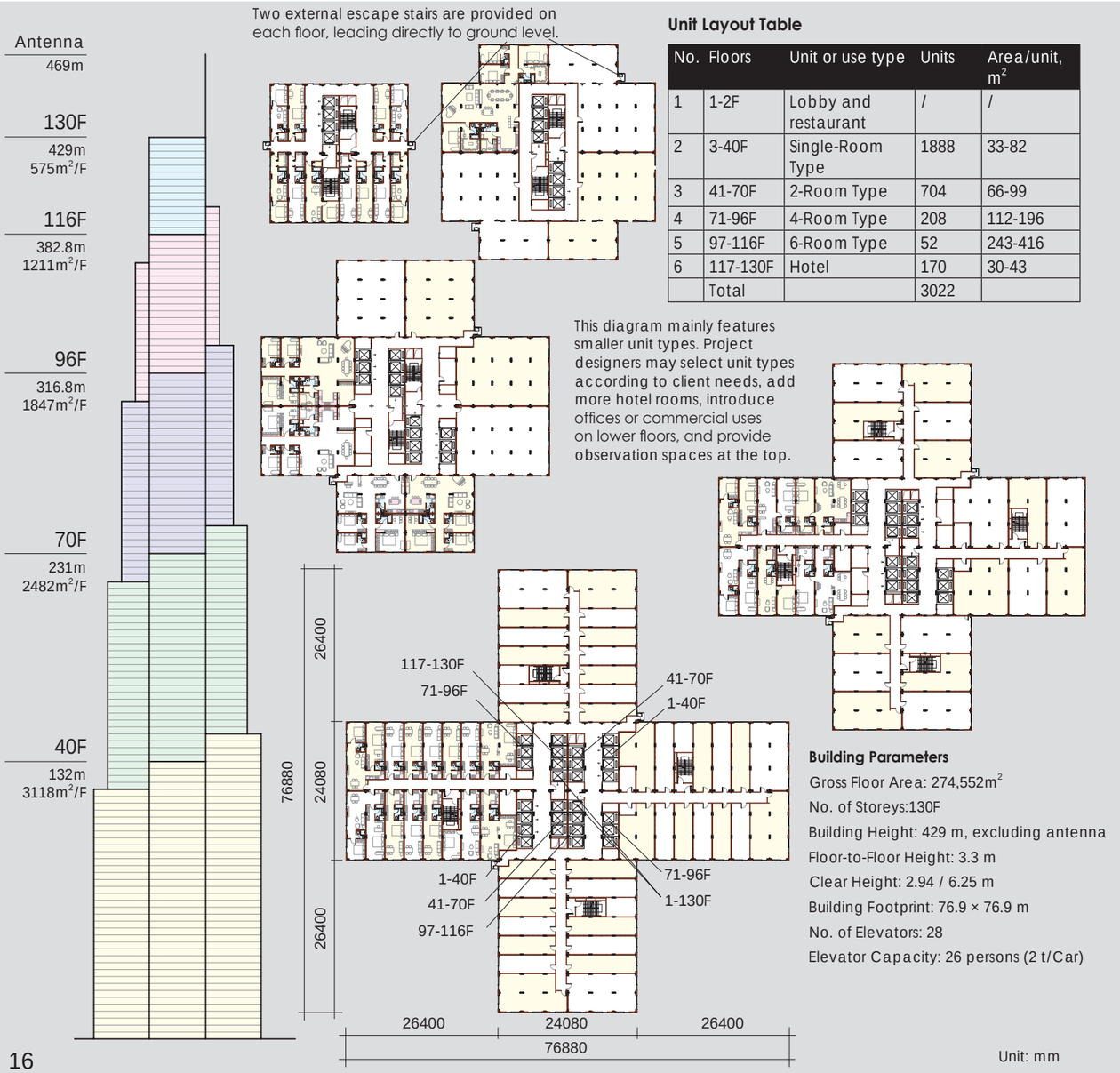
Floor area: 1,479 m²/F. The plan may be adjusted according to site dimensions and total building area. For supertall H-shaped buildings, if the central section exceeds 6 times its width, additional projecting wings are recommended. Wing projections should not exceed twice the wing width, otherwise structural stability may be reduced.

The number of elevators should be determined by occupancy. Centralized elevator cores are recommended where possible to improve efficiency. However, H-shaped buildings contain two large internal zones with limited daylight, so designers should balance centralized and distributed elevator layouts.



Unit: mm

13. SKY HOME X-shaped 130F, GFA: 274,552 m²



Unit Layout Table

No.	Floors	Unit or use type	Units	Area/unit, m²
1	1-2F	Lobby and restaurant	/	/
2	3-40F	Single-Room Type	1888	33-82
3	41-70F	2-Room Type	704	66-99
4	71-96F	4-Room Type	208	112-196
5	97-116F	6-Room Type	52	243-416
6	117-130F	Hotel	170	30-43
	Total		3022	

This diagram mainly features smaller unit types. Project designers may select unit types according to client needs, add more hotel rooms, introduce offices or commercial uses on lower floors, and provide observation spaces at the top.

Building Parameters

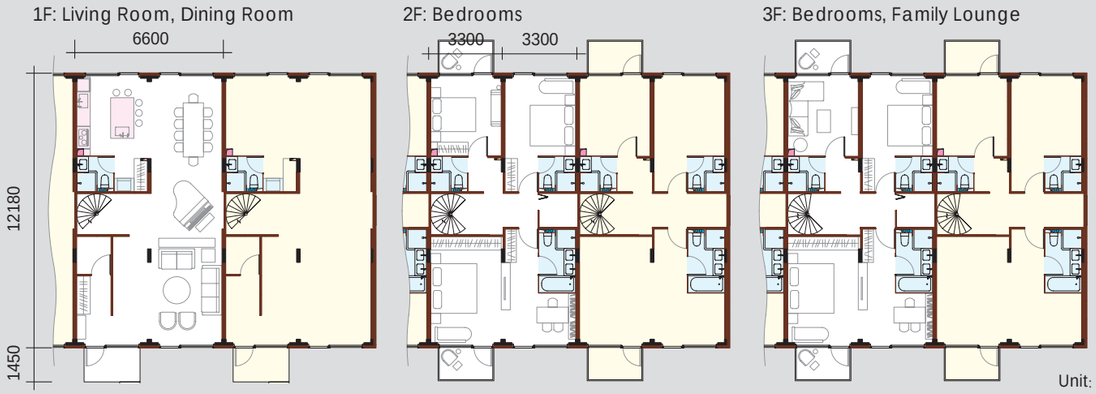
Gross Floor Area: 274,552m²
No. of Storeys:130F
Building Height: 429 m, excluding antenna
Floor-to-Floor Height: 3.3 m
Clear Height: 2.94 / 6.25 m
Building Footprint: 76.9 × 76.9 m
No. of Elevators: 28
Elevator Capacity: 26 persons (2 t/Car)

Unit: mm

14. TOWNHOUSE

2–4F PER UNIT, 2–10 UNITS PER BUILDING, INTERNAL AREA: 241 m²/UNIT

BAH offers clear advantages in high-rise applications due to its high structural strength. For townhouses and detached houses, its key advantages are high quality, short construction time, easy vertical expansion, and low-cost relocation. To control costs, BAH villas are offered in the single standard layout shown here.



15. MOBILE HOME CODE: BMH

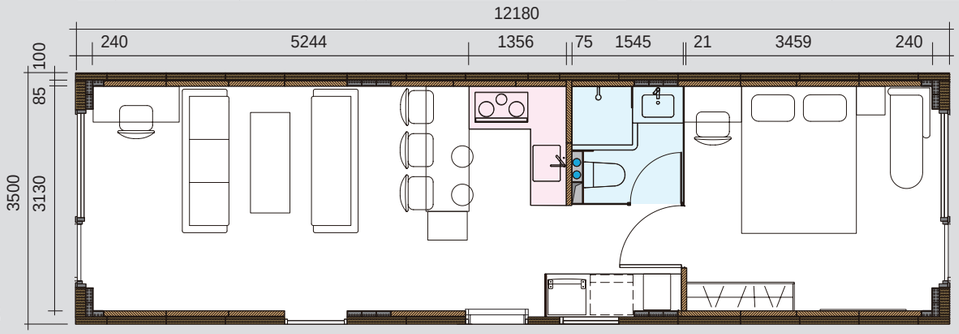
1. Can be used as a permanent residence or transported over long distances by container truck. During relocation, occupants can continue living comfortably, with water and power replenished only every 3–5 days (see table below).
2. Suitable for field crews, film production teams, or emergency accommodation in disaster areas. With bunk beds, it can accommodate 10–18 people.
3. Can also serve as a bar or restaurant in scenic or remote adventure locations.
4. Technical specifications are based on the BAH module, with the following differences:

(1) 140–260 mm phenolic foam insulation around the entire enclosure, providing thermal insulation equivalent to approximately 12–22 m of concrete.
(2) Equipped with ample energy and water storage, as well as complete household appliances and furniture.
(3) Fully sealed stainless-steel exterior for long-term exposure to harsh environments.
(4) Elevated on support stands for protection and easy loading and unloading by container truck.

BMH-A Complete Supply List (Residential)

No.	Item	Specifications	Notes
1	Transport Dimensions	12.19 x 3.5 x 3.48m	Corner fittings comply with container standards
2	Transport Weight	19 t	Including water storage and household supplies
3	Interior Clear Height	2.94m	2.3m/2.59m locally
4	Interior Floor Area	37m²	Building Area: 43m²
5	Bathroom	1	Complete sanitary fixtures included
6	Water Heater	200L x 2	
7	Air Conditioner	2600W x 1	Heat-pump cooling & heating
8	Fresh Air Unit	100m³/h x 2	BROAD FRESH PURIFY
9	Support Stands	2m high x 4	For easy truck loading and intrusion protection
10	Access Stair	0.7m(W)x2.6m(L)	Automatic retractable system

No.	Item	Specifications	Notes
11	Solar panel	7kW	Roof-mounted
12	Storage Battery	30kWh	500 x 380mm
13	Fresh Water Tank	620L	
14	Hot Water Tank	800L solar heating	Provides heating on cloudy days and night
15	Wastewater Tank	160L Approx. 40 toilet flushes	Integrated into floor structure
16	Kitchen Cabinetry	Includes induction hob, range hood, etc.	Cookware included
17	Refrigerator	200L	528x500x1658
18	Washing Machine	595x558x1710	Washer-dryer set included
19	Home Electronics	TV, audio system, surveillance, etc.	
20	Household Furniture	Table, chairs, cabinets, bed	Bedding included



Product Model:

B M H - A

BROAD
Mobile
Home
Function:
A Residential
B Restaurant
C Dormitory
D Others

Unit: mm

16. BAH INSTALLATION & SERVICE PRINCIPLES

1.Factory Packaging Principles

1.1 Any cargo or components loaded within the modules—including balconies, extension rooms, exterior wall panels, furniture, and tools—must be securely fastened to ensure that interior fit-outs and stowed items sustain zero damage under severe transport vibration conditions (Level 3).

1.2 All potential air and water leakage points on the module exterior must be sealed with tape (using residue-free tape).

1.3 Where large voids or openings are exposed, high-strength protective membranes capable of withstanding wind speeds up to 150 km/h must be applied for weatherproofing.

1.4 Project codes, module IDs, destination countries, and cities must be clearly labeled on module facade. Standardized shipping, rigging, and hoisting markings must be applied in accordance with international standards.

1.5 To minimize waste and promote environmental sustainability, packaging design must be thoroughly optimized to eliminate over-packaging, down to every single strip of tape.

2. Transportation, Storage & Hoisting Principles

2.1 Module transportation is strictly restricted to specialized flatbed trailers, railcars, and vessels designated for 40-foot containers; unauthorized transport equipment may cause severe structural damage to the modules.

2.2 For outdoor storage, modules must be elevated at least 100 mm off the ground to prevent water ingress. Outdoor storage duration shall not exceed 3 months; if exceeded, additional protection against corrosion, moisture, and intense sunlight exposure must be implemented. Adequate security measures must be taken to prevent theft of interior equipment and fixtures.

2.3 Hoisting/lifting equipment capacities must be rigorously calculated based on total module weight. Rigging attachments must utilize the four corner castings, with an included sling angle of ≤ 60°

2.4 Comprehensive, conspicuous, and intuitive warning labels must be affixed externally. Rough handling during transportation and hoisting is strictly prohibited to prevent scratches or damage. Anti-theft measures must be strictly maintained.

3. Building Erection & Structural Installation Principles

3.1 An Installation and Construction Plan must be prepared 1-3 months prior to site construction and submitted to BROAD Construction & Installation Co. for review, refinement, and formal approval.

3.2 For projects with a Gross Floor Area (GFA) ≥ 5,000 m², a complete construction management team must be established, comprising: Project Manager, Rigging/Hoisting Supervisor, Interior Fit-out Supervisor, and MEP Supervisor. All four key personnel must hold valid professional certifications/licenses, and all new workers must undergo safety and operational training prior to site commencement.

3.3 Comprehensive site risk contingency plans must be established prior to construction startup, covering fire protection, rain protection, hurricane resilience, fall prevention and falling object protection, electrical safety, and security.

3.4 Site erection primarily comprises module-to-module interconnections (structural joints, MEP utility hookups, and perimeter wall, floor, and ceiling joint sealing). Extension rooms, balconies, and side exterior wall panels must be assembled onto modules at ground level, sealed with weatherproof sealant, and hoisted as integrated assemblies. Personnel are strictly prohibited within a 3-meter safety radius of suspended loads.

3.5 Strict management regarding site safety, quality control, and environmental standards must be maintained throughout installation. Concealed works (hidden works) must be photographically documented, signed off by responsible personnel, and archived.

3.6 The entire installation process must undergo third-party quality and safety supervision in full compliance with statutory requirements, with comprehensive records maintained and retained.

4. MEP Installation & Commissioning Principles

4.1 Installation and commissioning of electrical systems, piping/plumbing, and elevators must strictly follow MEP installation drawings and the Construction Manual; empirical or unauthorized practices are strictly prohibited.

4.2 Elevator installation must be prioritized to reduce physical exertion for workers climbing stairs. Prior to passing third-party acceptance inspections, elevators must only be operated by certified and licensed operators.

4.3 Restroom/sanitary facilities must be made fully operational every 3 installed stories to ease worker fatigue; temporary or permanent power must be energized for lighting, air conditioning, and fresh air ventilation systems.

5. Structural Design Life & Durability Principles

5.1 Design Service Life: Structural frame: 100 years; Exterior walls, windows, and roof assembly: 60 years; Electrical systems, piping/plumbing, and interior fit-outs: 30 years.

5.2 Structural steel components shall be coated with heavy-duty cold-galvanizing paint. Balconies, gutters, and structural bolts susceptible to condensation must be made of stainless steel. Foundation anchor connectors shall utilize duplex stainless steel to resist condensation corrosion and stress corrosion cracking (SCC).

5.3 Internal voids of rectangular structural columns and beams are hermetically sealed; blind tapped holes are used for threaded sockets, and silicone sealant is applied to bolt holes and flange mating surfaces to achieve total oxygen isolation.

5.4 Coatings on all solar-exposed surfaces—including exterior wall cladding and exterior window insulation strips—as well as indoor and outdoor window blinds/shades, shall feature 60-year UV resistance.

6. After-Sales Service Principles

6.1 Provide clients with comprehensive warranty coverage. Warranty : Structural framework: 50 years; Waterproofing system: 20 years; MEP systems and interior finishes: 2 years. Upon warranty expiration, even if no paid service agreement is signed, spares shall be stocked for at least 10 years.

6.2 If the client undertakes self-maintenance, BAH will provide operation and maintenance (O&M) technical guidance to ensure proper and timely servicing.

6.3 Since building occupants may not readily perceive subtle changes in indoor air quality, BAH service engineers shall issue quarterly reminders to clients for timely cleaning and replacement of fresh air filter media.

7. Life Safety & Occupational Health Principles

7.1 Prior to project commencement, a complete set of site safety signage—including the Ten Dos and Ten Don'ts for Safe Construction—must be posted prominently, and daily safety briefings/recitations must be conducted for workers. Safety violations will be strictly penalized, and local statutory occupational health and safety (OHS) regulations must be strictly observed.

7.2 Factory manufacturing and site installation processes must strictly safeguard workers against hazardous air pollutants: manual sanding, abrasive wheel grinding, and open spray painting are prohibited. Where hazardous operations are unavoidable (e.g., arc welding, insulation stuffing), powered air-purifying respirators (PAPR, e.g., 'Mobile Air Cleaner') must be worn.

7.3 End-to-end design, manufacturing, and installation must guarantee total compartment isolation to prevent cross-contamination of bacteria or pest infiltration (ants, cockroaches, rodents) between adjacent modules horizontally and vertically.

7.4 All interior finishes materials—including surface cladding, core materials, coatings, and adhesives—must be completely free of chemical toxicity, heavy metals, and radioactive substances.

7.5 Occupants are recommended to equip units with BROAD Environmental Monitors to measure indoor air cleanliness, oxygen concentration, electromagnetic radiation levels, and UV intensity.

8. Statutory & Regulatory Compliance Principles

8.1 Project planning, design, review, permitting, prefabrication, transport, and installation shall fully comply with local regulations. A comprehensive compliance plan shall be completed before construction to ensure official completion approval and permits for sale and occupancy.

8.2 Should any conflict arise between BAH proprietary technology and host country building codes, or should discrepancies exist in plan approvals, all conflicts and differences must be fully resolved prior to production and shipping. Any dispute with site supervision engineers or consultants during construction must be resolved immediately.

8.3 Construction operations must be carried out lawfully, strictly adhering to rules and regulations issued by local safety inspection, municipal, transportation, environmental protection, and labor authorities.

8.4 Strict legal boundaries must be maintained, with zero tolerance for infringement on third-party intellectual property. BAH core technologies are original innovations of BROAD Group; unauthorized imitation or infringement will be prosecuted to the full extent of the law.

17. ORDERING & DELIVERY

1. Typical Project Operational Workflow:
(1) BAH modules are prefabricated building products; prior to customer delivery, the manufacturer shall complete all mandatory product certifications required by the destination country.
(2) Prior to site startup, the project designer and the client-appointed main contractor shall jointly complete planning approval and building permit applications.
(3) Following site erection, the installation contractor shall assist the main contractor in passing final statutory inspections and obtaining official occupancy/use permits.
2. Typical Ordering & Handover Process:
(1) The client submits an order intent to BAH sales representatives along with plot material.
(2) The BAH design team prepares a preliminary design to establish project feasibility.
(3) The client engages a professional architectural firm (or entrusts BAH) to complete schematic design (SD); design modifications are iterated based on client feedback until full approval is achieved.
(4) The client signs a Module Procurement Agreement with BAH while engaging the design firm to complete detailed construction drawings (CDs).
(5) BAH executes factory prefabrication in strict compliance with the approved construction drawings.
(6) The client, main contractor, or designated third-party quality inspection agency performs factory audits, witnessing, and inspections.
(7) Upon completion of fabrication and successful quality inspection sign-off, modules are dispatched and delivered to the destination.
3. Customization Notes:
(1) The specifications presented in this document represent BAH standard products—including unit layouts, architectural facades, interior fit-outs, MEP systems, and piping/plumbing. Clients are strongly advised to select standard configurations.
(2) If the client requests non-standard customizations for interior finishes, exterior cladding, or other elements, BAH will make reasonable efforts to accommodate them; however, this will incur additional manufacturing costs and holding risk costs. Furthermore, non-standard specifications carry inherent quality control risks.

BAH Standard Scope of Delivery

No.	Item	Deliverables
1	Structural Framework	Module structural, structural fireproofing
2	Building Enclosure	Exterior walls, exterior doors and windows
3	Interior Fit-Out & Finishes	Interior partition walls, unit entry doors, interior doors, flooring and ceiling
4	Bathroom	Includes vanity, water closet, shower tray, shower head, faucets, etc.
5	Plumbing & Drainage	water supply, drainage, and stormwater drainage
6	Electrical Systems	Power distribution, lighting fixtures, switches, power outlets, and extra-low voltage (ELV) systems
7	MEP Equipment	Fresh air units, air conditioning units, and electric water heaters
8	Options	Balconies, extension rooms, staircases, and elevators

Note: The actual scope of delivery shall be governed by the final commercial contract.

18. COMPARISONS OF BROAD'S 4 PREFAB BUILDINGS

No.	Comparison Item	BHB	BOB	BAH	BCH
1	Product Name	BROAD HOLON BLDG	BROAD OPEN BLDG	BROAD AVID HOME	BROAD CABIN HOME
2	Primary Use	Residential (4 standard unit types only)	Data Center, Office, Hospital, Exhibition Hall	Residential, Hotel, Dormitory	Affordable Housing, Dormitory
3	Secondary Use	Hotel, Dormitory	Multi-Storey Car Park, Warehouse, Cold Storage, Indoor Farm, General Factory, Heavy-Duty Factory	Office	Budget Hotel, Temporary Emergency Shelter
4	Economic Building Height	20-40F	20-40F	12-20F	6-10F
5	Maximum Building Height	120F (CONJOINED TOWERS)	230F	130F	20F
6	Floor-to-Floor / Clear Height m	3.3 / 2.83	(1)3.3/2.46 (2)4/3.16 (3)4.8/3.96 (4)6/5.16 (5)8/7.16	3.3 / 2.94	2.438 / 2.24
7	Column-Free Clear Span m	11.7 x 4.6	59 x 11.8	11.7 x 3.13	11.7 x 3.13
8	Structural System	Dense-Column Steel Frame System	Mega-Column Steel Frame System	Dense-Column Steel Frame System	Braced Steel Frame System
9	Structural Material	Columns & Beams: Duplex Stainless Steel S32001 Floor Slab: Austenitic Stainless Steel 1.4372 (QN1804L)	Columns: S550Q Beams & Floor Slabs: S460N	Columns: S460N Others: S355N	S355N
10	Floor System	Stainless Steel Core Slab	BROAD Core Slab	Corrugated Steel Plate	Corrugated Steel Plate
11	Column and Beam Type	Rectangular Hollow Section	Columns: Rectangular Hollow Sections, Beams: I -Sections	Thin Rectangular Hollow Sections	Channel Sections & Angle Sections
12	Column Density (Tributary Area per Column)	$12m^2$/Column	$140m^2$/ Column	$5m^2$/ Column	$10m^2$/ Column
13	Module Transport Dimensions (L × W × H) mm	12190 x 2438 x 3300 (Container-compatible dimensions)	12190 x 2438 x 2591 (Container-compatible dimensions)	12190 x 3300 x 3300 (Width exceeds standard container dimensions; occupies two container slots)	12190 x 2438 x 3300 (Module transported on its side; container-compatible dimensions)
14	Module Floor Area	$57m^2$	≈$240m^2$	$40m^2$	$40m^2$
15	Factory Prefabrication Rate	97%	≈80% (Columns, beams, floor slabs, walls, doors, windows, and MEP components prefabricated; assembled on site)	100%	100%
16	On-Site Workload (vs. Conventional Construction)	≈ 10%	≈30%	≈ 3%	≈ 3%
17	On-Site Construction Scope	Connect inter-module bolts, piping, and electrical systems; unfold the movable floor panels and install the walls and doors on them	Connect columns, beams, slabs, and bolts; install wall, door/window, piping, and electrical modules	Connect inter-module bolts, piping, and electrical systems	Connect inter-module bolts, piping, and electrical systems
18	On-Site Construction Speed 1day	Exterior: 3 floors / Interior: 0.5 floor	Exterior: 1 floor / Interior: 0.3 floor	Exterior: 3 floors / Interior: 2 floors	Exterior: 3 floors / Interior: 2 floors
19	Structural Design Life	1000 years	200 years	100 years	100 years
20	Summary	Premium Quality, Low Transport Cost	Vast Space, Wide Applications	Diverse Unit Types, Multiple Building Configurations	Low Cost

This table compares the key characteristics of BROAD's four prefabricated building systems. Despite their differences, all four share the same core principles: advanced decarbonization, durability, cleanliness, and safety, supporting the sustainable development of both society and the global environment. The four systems serve different markets:

BHB
Mid- and high-rise housing in developed countries
BOB
Public buildings worldwide
BAH
Residences, apartments, and hotels worldwide
BCH
Residences in less developed countries

This Product

Key Strength

Limitation

19. COMPANY PROFILE

Founded in 1988, BROAD Group has more than 3,000 employees and a 2.5 km² industrial campus. Through original innovation, it has developed a full range of central air-conditioning and clean fresh-air systems, and has led the global non-electric central air-conditioning industry for over 30 years, serving markets in more than 80 countries.

In 2009, BROAD founded its prefabricated building company, BROAD Holon Co., Ltd. Backed by over 1,000 professionals and more than RMB 10 billion in investment, it has developed four prefabricated building systems, now implemented in six countries and expanding globally.

Global Awards for BROAD Prefabricated Buildings

Modular Building Institute (MBI) **FIRST PLACE in Multifamily Category** (2022)
EXCELLENCE IN INNOVATION AWARD (2026)

Council on Tall Buildings and Urban Habitat (CTBUH) **INNOVATION AWARD** (2013, 2022)

BROAD Prefabricated Building R&D and Production Base

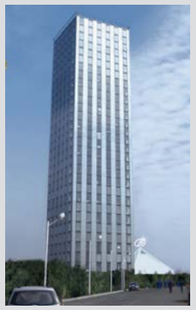
Located in Xiangyin, Hunan. It covers an area of 1.5 km², with 230,000m² workshops and 120,000m² offices and residential areas built in 2010

2010

Prefabricated Steel Structure Buildings, the 3rd Building of the 1st Generation: BROAD Pavilion at World Expo Shanghai

There were 13 corporate pavilions at the World Expo Shanghai, only BROAD Pavilion had been preserved for 15 years. In December 2024, it was relocated to Baoshan, Shanghai. This building was built in one day but has been life-time preserved for the green & technology heritage of the World Expo Shanghai for future generations

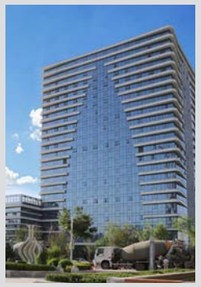
2011



The 4th Building of the 2nd Generation: T-30 Hotel (30-Floor)

Built in 15 days, YouTube video over 2 million clicks per day

2013



More than 30 Residential Buildings, Hotels and Office Buildings were Built with the 2nd Generation

Located in 7 provinces in China and Mexico, all in operation

2014

202 Floors / 838m Building Designed with the 3rd Generation

On May 4, 2014, it received approval from China's "National Super High-Rise Review Committee". Over three years, USD150 million was invested in design, testing, approvals, and foundation work. However, due to concerns about market demand, the project was not constructed

2015

The 2nd Building Of the 3rd Generation: 57 Floors, was built in Just 19 Days

YouTube over 5 million clicks

2020

HOLON V1.0 of the 6th Generation

From March to May 2020, two negative-pressure isolation hospitals were built in South Korea to combat COVID-19. This was the fourth HOLON building constructed using stainless steel Core Slabs

2021

HOLON V7.0 Residence

This building marks the maturity of HOLON residential building

2023

HOLON V15.0 Residential Building

More than 10 similar buildings of V12.0-15.0 have been built in China, South Korea Indonesia and Philippines

2025

HOLON V16.0 Residential Building

Built in UAE and named "Earth Tower" by developer of Burj Khalifa

2026

Steel-Structure Building Systems Alongside HOLON Building:

BAH Prefabricated Residential Buildings and BOB Prefabricated Public Buildings