



LODESTAR STRUCTURES Inc.



A BETTER WAY TO BUILD



www.LodestarStructures.com

Info@LodestarStructures.com

833.LODESTAR (563.3782)

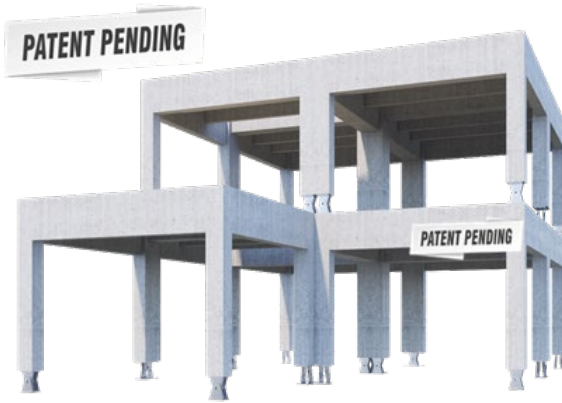


L O D E S T A R S T R U C T U R E S I N C .

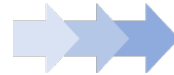
✓ **Modular Connectivity** ✓ **Non-Combustible Building Material** ✓ **Weather Resistant Exterior & Roof** ✓ **Integrated Support Columns**

A BETTER WAY TO BUILD

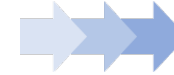
HOW TO INSTALL LODESTAR STRUCTURES



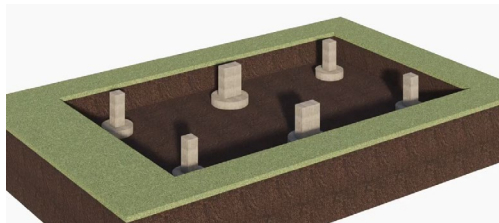
Install the modules



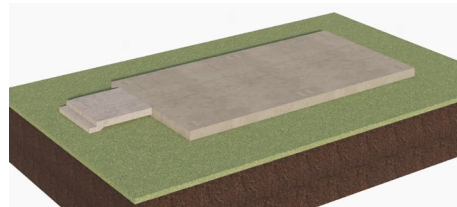
Enclose the structure



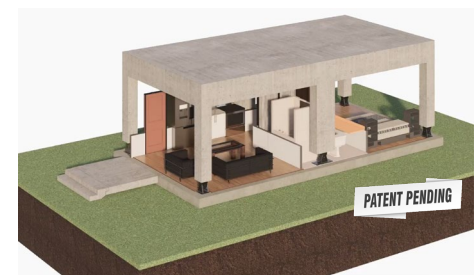
Complete the building



Prepare the foundation



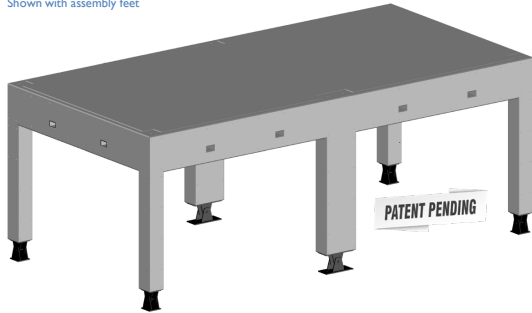
Install the modules



Enclose and complete the structure

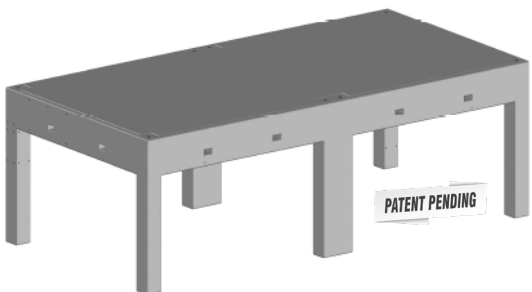


MBU-436-6 6 Column, 436 Sq ft
Shown with assembly feet

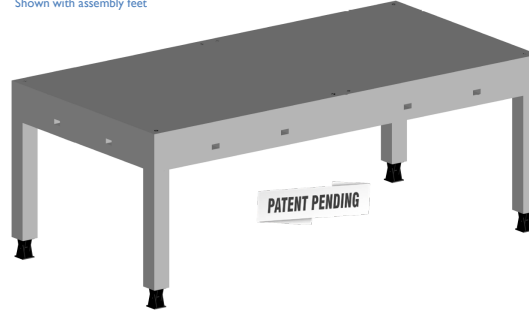


MBU-436-6 6 column	Imperial	Metric
Footprint	436 square feet	40.5 square meters
Length	29' 6"	9,000mm
Width	14' 9"	4,500mm
Height from lower surface to top of slab	11' 4" with feet 10' without feet	3,450mm with feet 3,066mm without feet
Clearance column base to bottom of perimeter beam	8' 10" with feet 7' 7" without feet	2,700mm with feet 2,316mm without feet
Concrete	34.72 US Ton	31,500kg
Reinforcing	3.417 US Ton	3,100kg
Module gross weight	38.14 US Ton	34,600kg

MBU-436-6 6 Column, 436 Sq ft
Shown without assembly feet

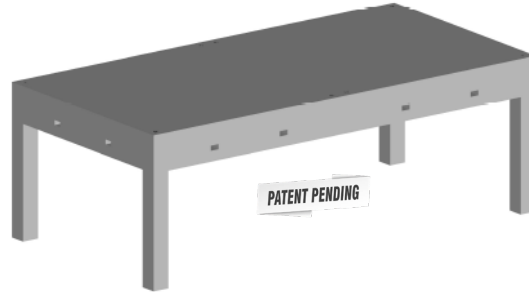


MBU-436-4 4 Column, 436 Sq ft
Shown with assembly feet

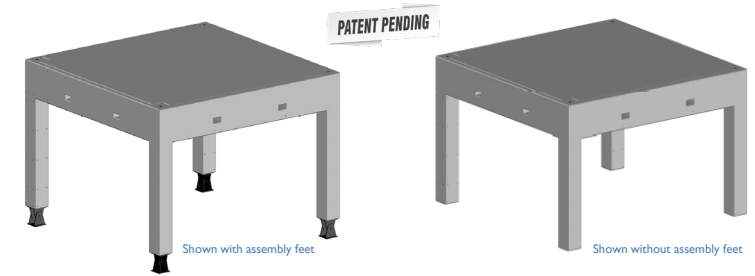


MBU-436-4 4 column	Imperial	Metric
Footprint	436 square feet	40.5 square meters
Length	29' 6"	9,000mm
Width	14' 9"	4,500mm
Height from lower surface to top of slab	11' 4" with feet 10' without feet	3,450mm with feet 3,066mm without feet
Clearance column base to bottom of perimeter beam	8' 10" with feet 7' 7" without feet	2,700mm with feet 2,316mm without feet
Concrete	31.97 US Ton	29,000kg
Reinforcing	2.97 US Ton	2,700kg
Module gross weight	34.94 US Ton	31,700kg

MBU-436-4 4 Column, 436 Sq ft
Shown without assembly feet



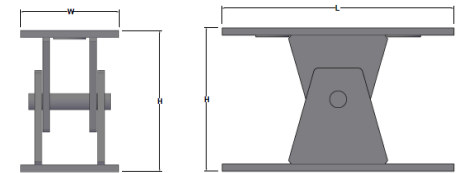
MBU-218-4 4 Column, 218 Sq ft



MBU-218-4 4 column	Imperial	Metric
Footprint	218 square feet	20.25 square meters
Length	14' 9"	4,500mm
Width	14' 9"	4,500mm
Height from lower surface to top of slab	11' 4" with feet 10' without feet	3,450mm with feet 3,066mm without feet
Clearance column base to bottom of perimeter beam	8' 10" with feet 7' 7" without feet	2,700mm with feet 2,316mm without feet
Concrete	18.19 US Ton	16,500kg
Reinforcing	1.65 US Ton	1,500kg
Module gross weight	19.84 US Ton	18,000kg

ASSEMBLY FEET

PATENT PENDING



Assembly feet	Imperial	Metric
Corner column foot	W 10.63" H 15.12" L 10.63"	W 270mm H 384mm L 270mm
Centre column foot	W 10.63" H 15.12" L 24.40"	W 270mm H 384mm L 620mm





L O D E S T A R S T R U C T U R E S I N C .



**Modular
Connectivity**



**Non-Combustible
Building Material**



**Weather Resistant
Exterior & Roof**

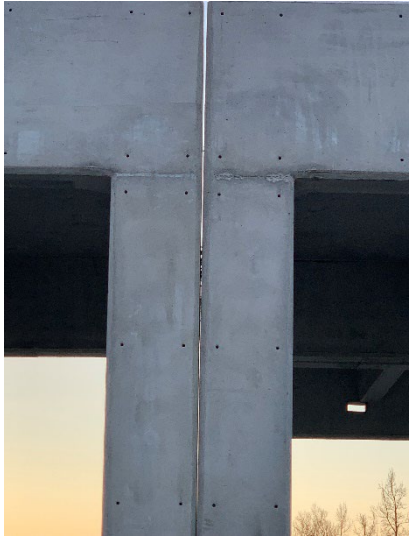


**Integrated
Support Columns**

A BETTER WAY TO BUILD

PRECISION PRECAST

PATENT PENDING



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**Modular
Connectivity**



**Non-Combustible
Building Material**



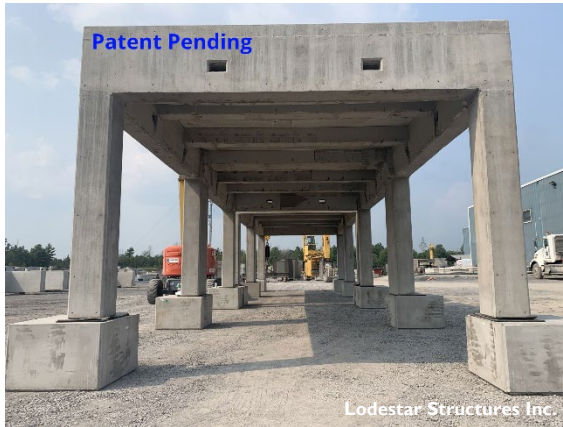
**Weather Resistant
Exterior & Roof**



**Integrated
Support Columns**

A BETTER WAY TO BUILD

STACKABLE AND CONNECTABLE TO CREATE YOUR IDEAL SPACE



Roof

Roof to upper level

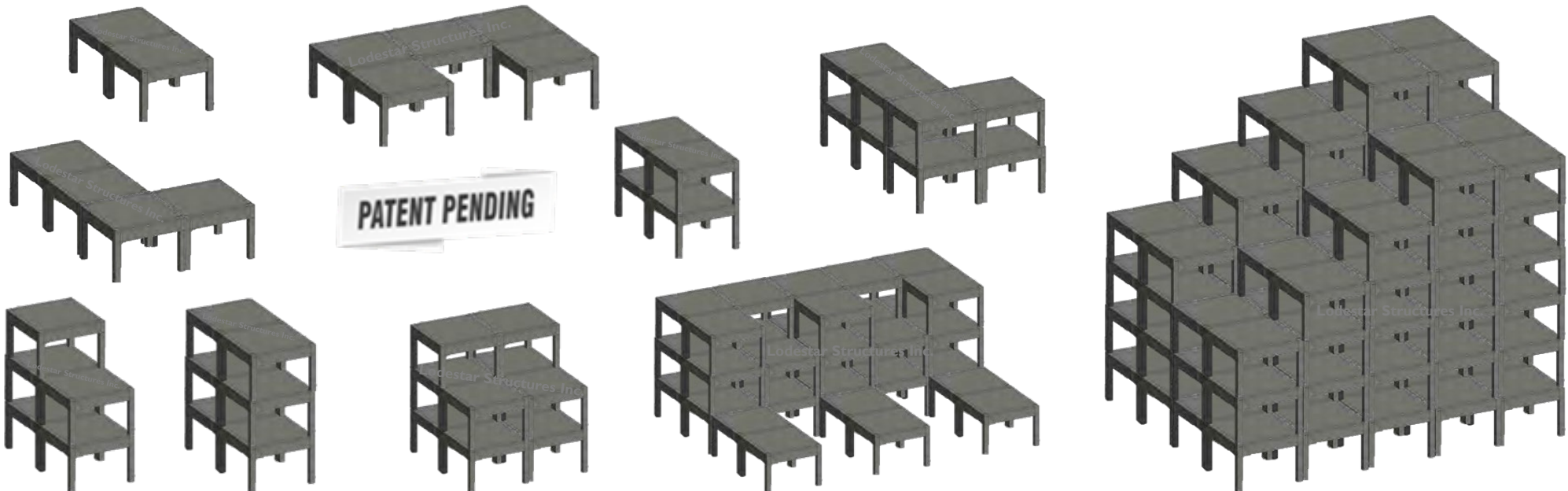


Roof & Floor

The roof of the lower level is
the floor of the upper level

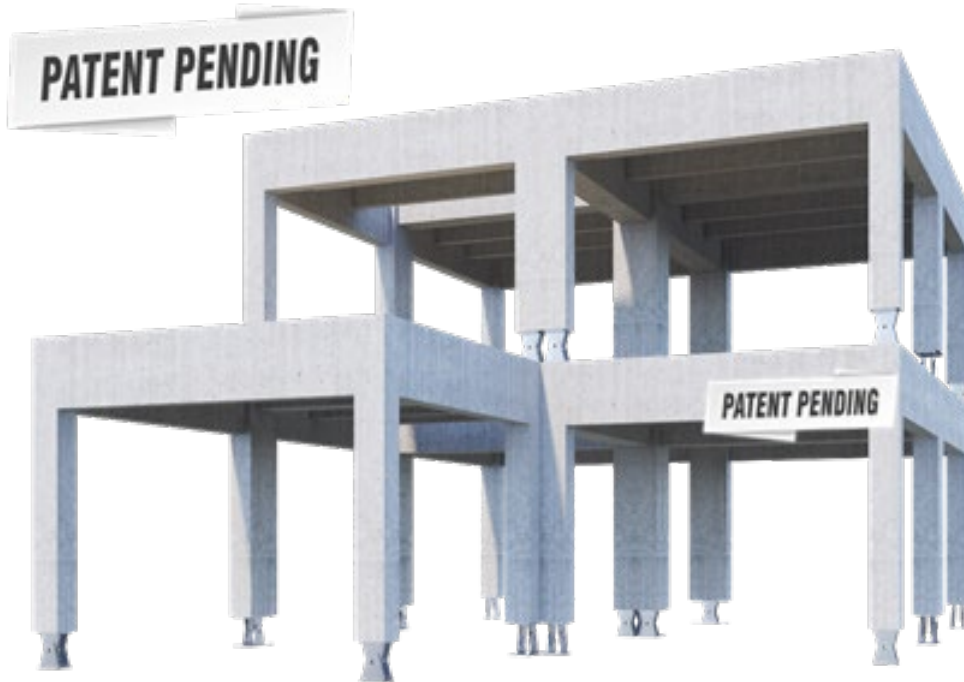


Integrated Columns
Engineered to support
multiple levels.





A BETTER WAY TO BUILD



Module Configuration

4 MBU-436 Modules - 436 sq ft ea.

1 MBU-218 Module - 218 sq ft ea.

5 Modules

1 Day

Estimated time to assemble modules

Interior Space

1,744 sq ft interior-space

218 sq ft interior-space

1,962 sq ft interior-space

Rooftop Space

872 sq ft rooftop patio

218 sq ft rooftop patio

1,090 sq ft rooftop patio

**3,052 total
square foot usable space**

Scope of project:

The customer wanted a facility designed to minimize sight blockage, and to provide maximum usable space, while retaining the main features desired in a residential setting.

Lodestar structures provided:

- Patio & outdoor space on rooftop, eliminating the need to compromise ground space
- Single vehicle garage
- 3 Bedrooms
- Modern appearance, designed to fit into the community
- Expedited construction schedule

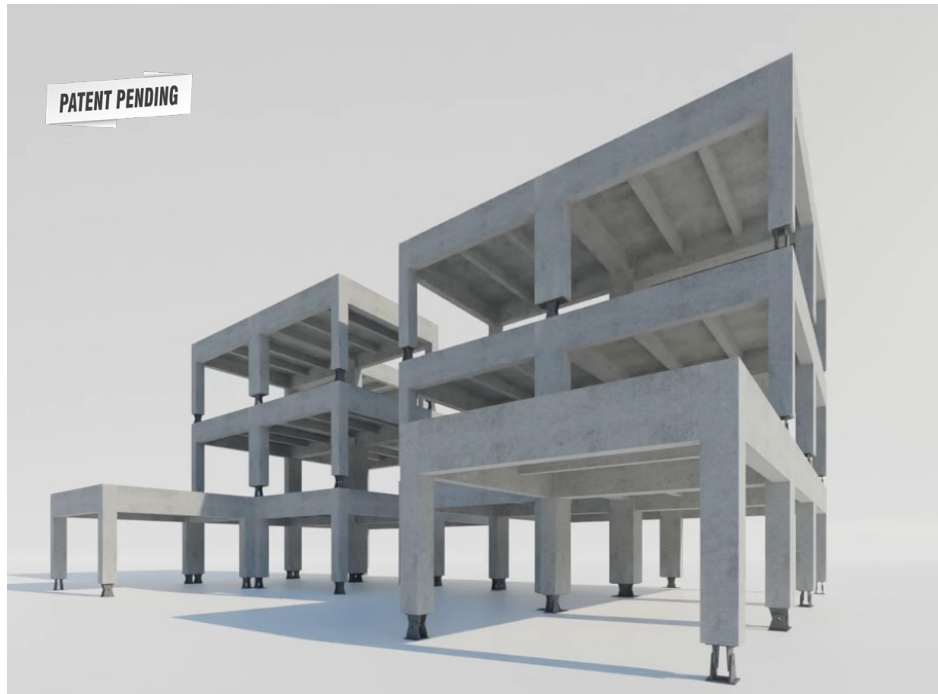




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A BETTER WAY TO BUILD



Scope of project:

The approval decision would be based on the ability to provide maximum usable space within a challenging footprint, between other buildings currently on the site plot.

Lodestar structure provided:

- Expanded interior room concept
- Maximum usable footprint
- Crane-in installation of frames for quick construction cycle
- Rooftop garden / patio space adding the bonus use of rooftop area
- Achieved Budgetary requirements
- A footprint that fit into the restrictive building lot
- Appealing design suitable for commercial, retail and residential use



Module Configuration

12 MBU-436 Modules - 436 sq ft ea.

2 MBU-218 Modules - 218 sq ft ea.

Interior Space

5,232 sq ft interior-space

436 sq ft interior-space

Rooftop Space

1,744 sq ft rooftop patio

436 sq ft rooftop patio

14 Modules

5,668 sq ft interior-space

2,180 sq ft rooftop patio

3 Days

Estimated time to assemble modules

7,848 total

square foot usable space

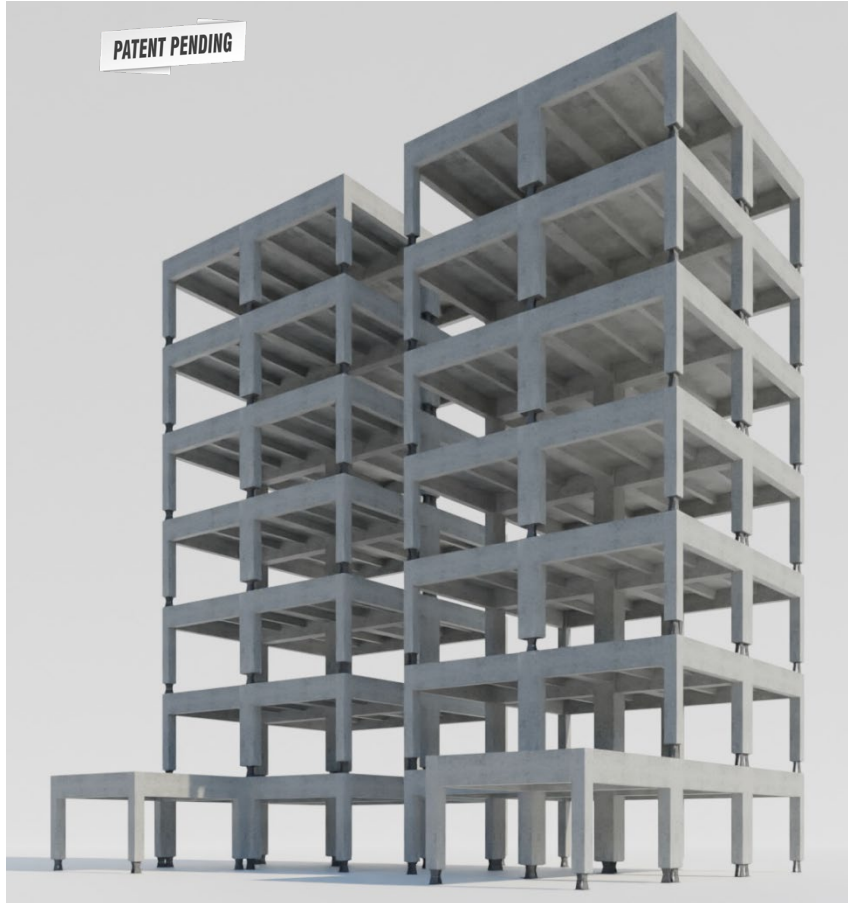




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A BETTER WAY TO BUILD



Module Configuration

28 MBU-436 Modules - 436 sq ft ea.

2 MBU-218 Modules - 218 sq ft ea.

Interior Space

12,208 sq ft interior-space

436 sq ft interior-space

Rooftop Space

1,744 sq ft rooftop patio

436 sq ft rooftop patio

30 Modules

12,644 sq ft interior-space

2,180 sq ft rooftop patio

5 Days

Estimated time to assemble modules

14,824 total

square foot usable space



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**Non-Combustible
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**Weather Resistant
Exterior & Roof**



**Integrated
Support Columns**

A BETTER WAY TO BUILD

SAFE, SECURE, RAPID, AND SUSTAINABLE RESIDENTIAL PROJECTS



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**Modular
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**Non-Combustible
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**Integrated
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A BETTER WAY TO BUILD

SAFE, SECURE, RAPID, AND SUSTAINABLE COMMERCIAL PROJECTS



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Connectivity**



**Non-Combustible
Building Material**



**Weather Resistant
Exterior & Roof**



**Integrated
Support Columns**

A BETTER WAY TO BUILD

SAFE, SECURE, RAPID, AND SUSTAINABLE GOVERNMENT AND AGENCY COMMUNITIES



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**Modular
Connectivity**



**Non-Combustible
Building Material**



**Weather Resistant
Exterior & Roof**



**Integrated
Support Columns**

A BETTER WAY TO BUILD

BRIGHT, OPEN, SPACIOUS INTERIOR SPACES



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L O D E S T A R S T R U C T U R E S I N C .



**Modular
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**Non-Combustible
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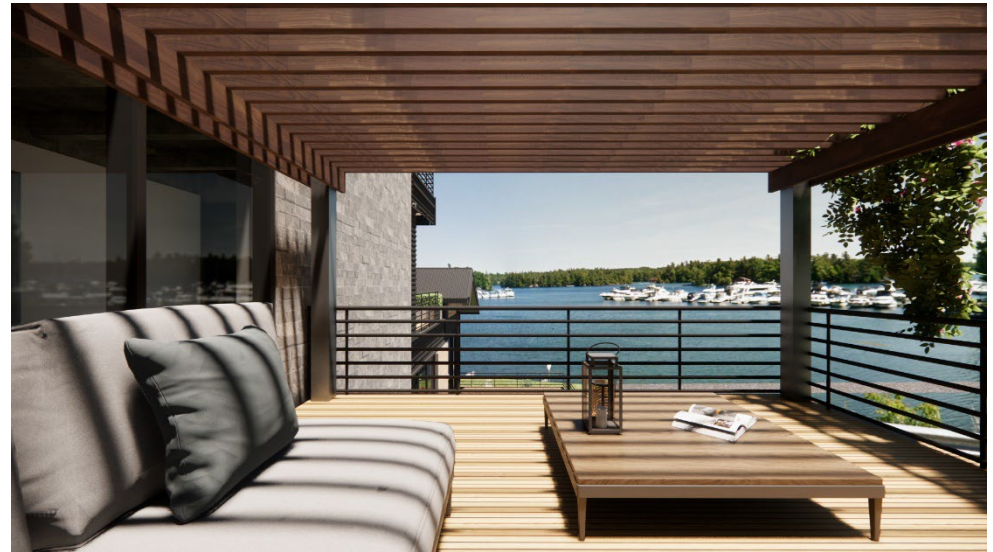
**Weather Resistant
Exterior & Roof**



**Integrated
Support Columns**

A BETTER WAY TO BUILD

GREEN ROOF, ROOFTOP GARDEN, ENJOYABLE ROOFTOP PATIO SPACES



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A BETTER WAY TO BUILD

Who is Lodestar Structures Inc.?

Who we are

3rd Generation family owned and operated precast concrete manufacturing based in Kingston Ontario Canada
Employing up to 175 staff

Customers

- Government
- Corporate
- Transportation
- Construction

Our History

Engineering Precision Precast Products

Innovating and creating products to support infrastructure construction

Specialized in:

- Precast concrete bridges
- Precast concrete culverts
- Precast concrete tanks
- Custom precast

Our Mission

Eliminate the Waste in Infrastructure

- Eliminate waste in time
- Eliminate waste in material
- Eliminate waste in resources
- Eliminate waste in efficiencies





The “Why?” behind “Lodestar Structures”

Construction industry challenges observed

Accommodation DEFICIT

Forecasted population growth will cause the deficit to increase
Demand outpacing supply

Accommodation AFFORDABILITY

Construction costs inflating; House and Rental prices increasing
Increased demand combined with the current deficit is pushing prices up

Climate and weather

Construction cycles aligned to weather seasons and events
Weather change is forcing construction practices to change, to a more durable and sustainable system
New and existing buildings experience damage from extreme weather, rebuilding or repairing partially consumes available resources

Skilled labour shortages

Construction cycles aligned to weather seasons and events

Factors influencing accommodation availability and affordability

- Material costs
- Material shortages
- Construction season limitation
- Skilled Trades shortage
- Skilled & general labour shortage
- Building permits and project approval
- Limited space on construction sites for supplies & equipment
- Demand for expanding existing buildings to accommodate the growing population
- Insurance rates for construction and ownership
- Weather & climate change factors
- Extreme weather events





The “Why?” behind “Lodestar Structures”

What are the challenges identified?

What products or tools will be required to overcome the challenges?

What is needed to overcome the challenges for the long-term?

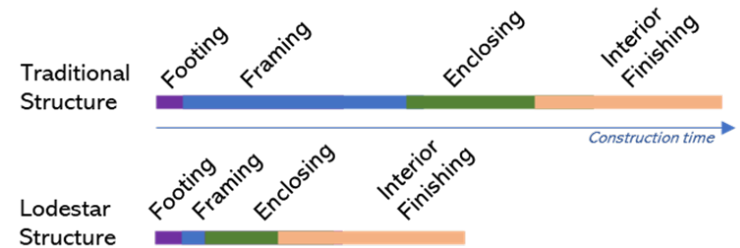
Challenge	Need	Solution
Construction backlog	Rapid construction using quality and sustainable material	Modular / Concrete
Skilled labor shortage	Reduced demand for labour & maximize labour use	Modular / Concrete
Insurance rates for construction	Non-combustible material, safe installation, pre-engineered material	Modular / Concrete
Soaring housing costs	Efficient construction, reduced building costs, and increase in supply	Modular / Concrete
Housing deficit	Rapid, affordable, attainable residential construction	Modular / Concrete
Increase in homelessness	Rapid, affordable, attainable residential construction	Modular / Concrete
Material costs and shortages	Cost control for time and major construction material	Modular / Concrete
Construction season	Rapid, affordable, attainable residential construction	Modular / Concrete
Construction costs	Efficient construction process, reduced waste and labour	Modular / Concrete
Repurpose or demolition	Ability to expand buildings over time or recycle if use changes	Modular / Concrete
Extreme weather events	Non-combustible material, safe installation, pre-engineered material	Concrete
Insurance rates for ownership	Non-combustible material, safe installation, pre-engineered material	Concrete
Weather and climate change	Resilient, durable, building material and components	Concrete
Examples of successful modular integration can be seen throughout the construction industry; offsite production of lumber, material, equipment, windows, etc. Every day modular components are brought together at construction sites to create structures.		



Benefits building with Lodestar Structures

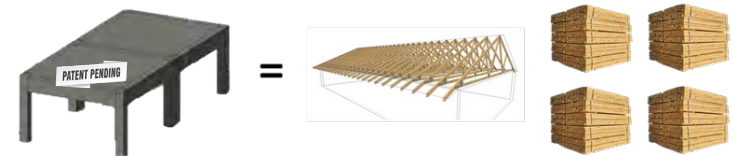
Construction time

- Rapid assembly of the structure, in as little as 24 hours
- Rapid enclosing, and completion of the construction process
- Maximize usable space in building designs, interior and exterior



Material costs

- Remove the uncertainty of a large portion of material costs
- Reduce material waste & material loss (theft)
- Lodestar Modules arrive pre-engineered and ready to install
- Remove unnecessary components from the building process



Project management

- Control costs by reducing risks of cost overrun
- Less laborer's to manage and train
- Reduced material requirements
- Quicker building process
- Standardized "Modular" building material
- Simplified building process



Skilled labour & trades

- Maximize skilled labor & trades, with time available to focus on essential tasks
- Minimize the demand for framing & roofing labor (and material), quickly advancing to other construction tasks





A BETTER WAY TO BUILD

Benefits building with Lodestar Structures

Complete more projects in less time

- schedule delivery of LODESTAR modules to complete framing on schedule, with less risk of delay, with less material waste, and less demand on labor resources

Rapid-quality-construction

- Produce high quality, sustainable structures in less time

Non-combustible building material

- constructed to provide a 2-hour fire rating, allowing for mixed-use applications. Reduce cost exposure and build units to achieve commercial and residential needs

Reduced risk of weather delays

- framing is completed in less time reducing exposure to weather and reducing risk of weather related delays
- expand the construction season with minimal weather risks

Reduced demand for skilled labor

- assembling modules accomplishes large sections of the construction process, reducing the demand for trades to complete these tasks.
- the elimination of unnecessary building components reduced the demand for those trades, material, and time
- reduced labor translates to cost savings, time savings, and less demand on supervisors to manage large volumes of staff or trades

Modular connectivity

- the patent-pending design has been constructed to meet commercial, residential, mixed-use, and many more applications, with few limitations

Infill

- low impact on neighbors, installing framing of structures in 75% less time with less noise, waste, and equipment

Optimal use of space

- achieve optimal use of space, taking advantage of rooftop gardens, patios, without the need to design around traditional building features





A BETTER WAY TO BUILD

Benefits building with Lodestar Structures

CONSTRUCTION BENEFITS

- Structural integrity
- Non-combustible building material
- Rapid installation and enclosure
- Standardizing building materials
- Maximum use of occupiable space
- Eliminate the need for unnecessary building materials (roofing)
- Eliminate the need for unnecessary building attributes (peaks)
- Stage inventory offsite – or onsite for scheduled installation
- Ontime completion - scheduled installation of major frame component

BENEFITS TO DEVELOPERS & CONTRACTORS

- Complete more projects, on budget
- Complete more projects, on schedule
- Complete more projects, with reduced weather related delays
- Complete more projects, year-round
- Complete more projects, with reduced labor resources
- Complete more projects, while producing less waste
- Complete more projects, with less impact on green space





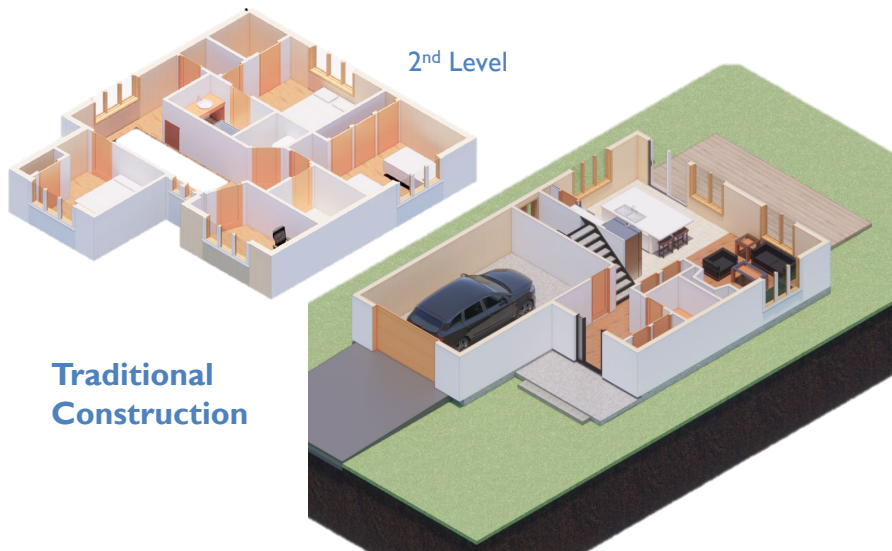
A BETTER WAY TO BUILD

Maximize usable lot space; get more usable interior and exterior space



	Traditional
Interior main level	1,090 sq ft
Interior second level	764 sq ft
Interior total usable space	1,854 sq ft
Green space ground level	2,131 sq ft
Green space rooftop level	0 sq ft
Green space - TOTAL usable	2,131 sq ft

TOTAL USABLE SPACE 3,985 sq ft



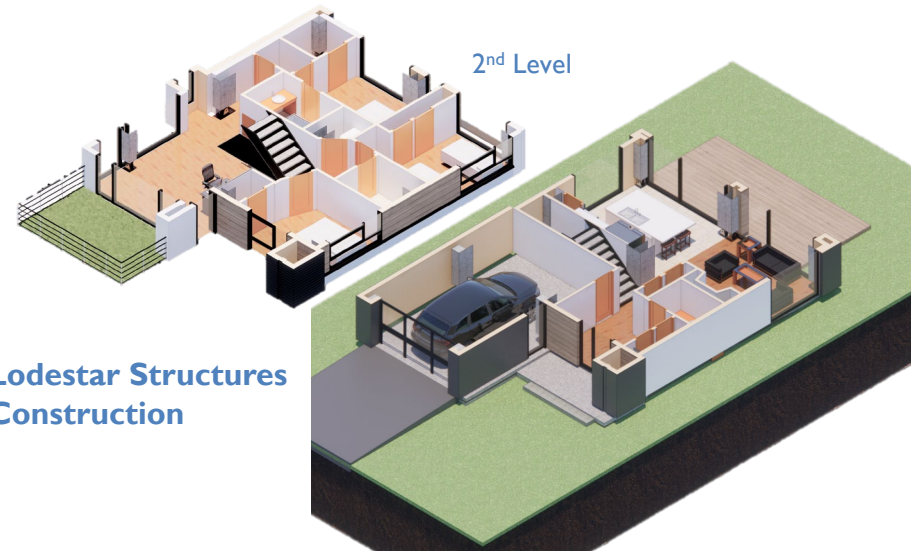
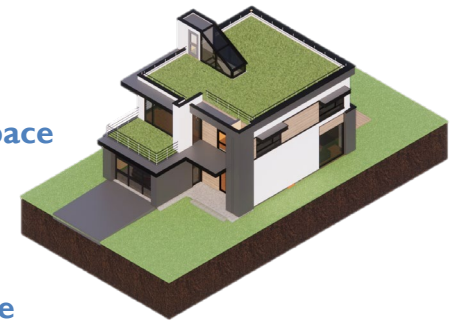
Traditional Construction

2nd Level

Lodestar Structures

Interior main level	1,090 sq ft
872 sq ft	
1,962 sq ft	
108 sq ft additional interior space	
Green space ground level	2,131 sq ft
1,019 sq ft	
3,150 sq ft	
1,019 sq ft additional green space	

5,112 sq ft total usable space
1,127 ADDITIONAL USABLE SPACE



Lodestar Structures Construction

2nd Level





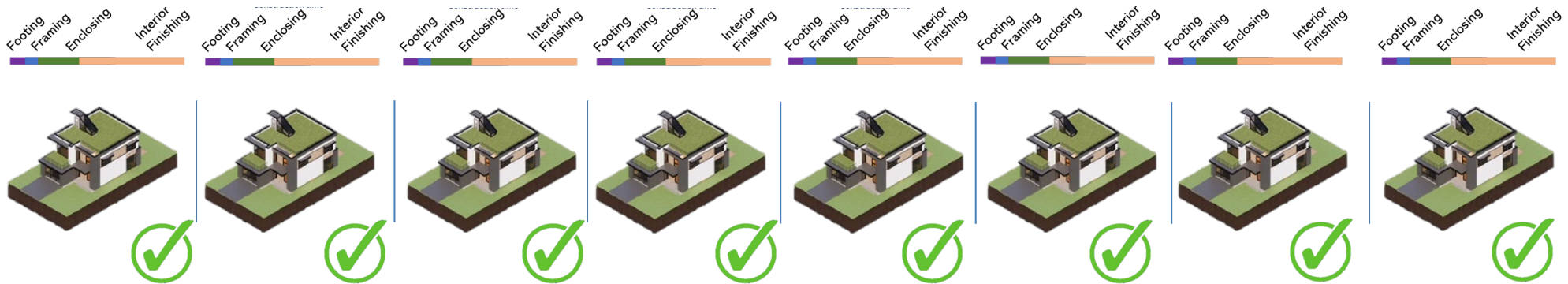
L O D E S T A R S T R U C T U R E S I N C .

✓ **Modular Connectivity** ✓ **Non-Combustible Building Material** ✓ **Weather Resistant Exterior & Roof** ✓ **Integrated Support Columns**

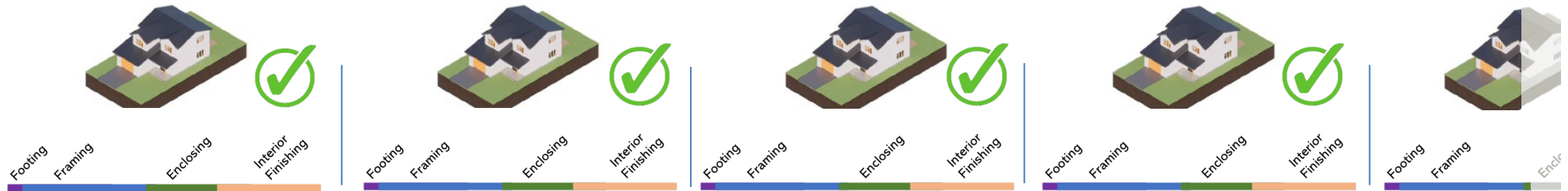
A BETTER WAY TO BUILD

Complete more projects.

Lodestar Structures construction



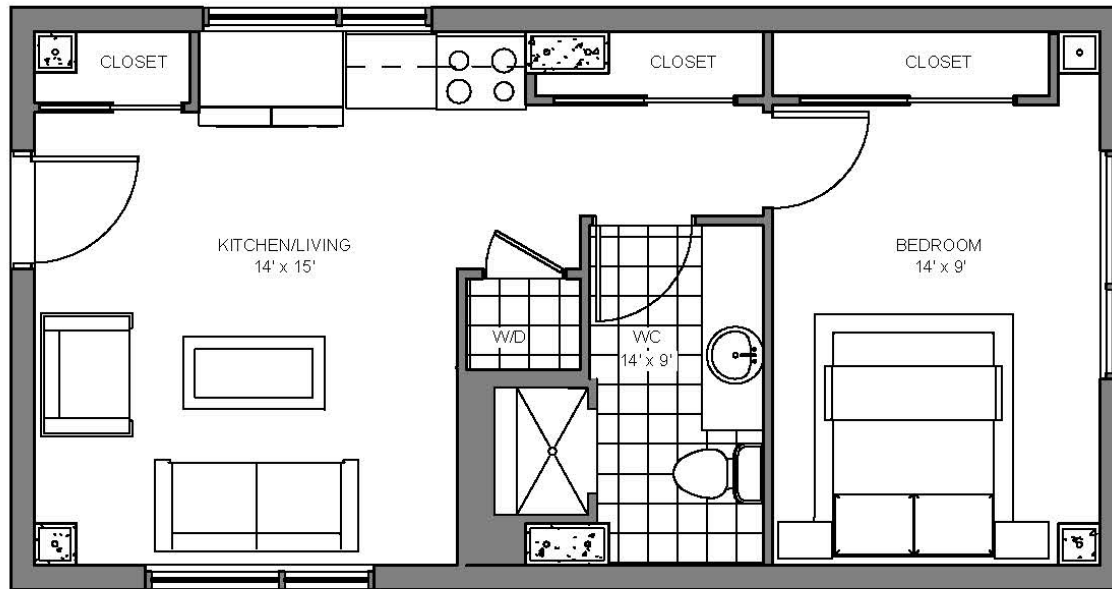
Traditional construction



Efficient and **rapid** construction of **quality** structures will allow the construction industry to overcome the housing deficit and keep up with the continuously growing population.

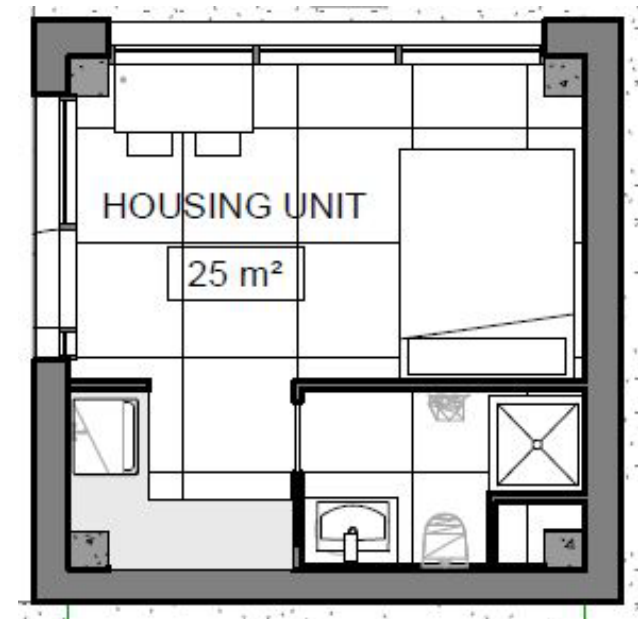


Design catalogue, floorplan designs

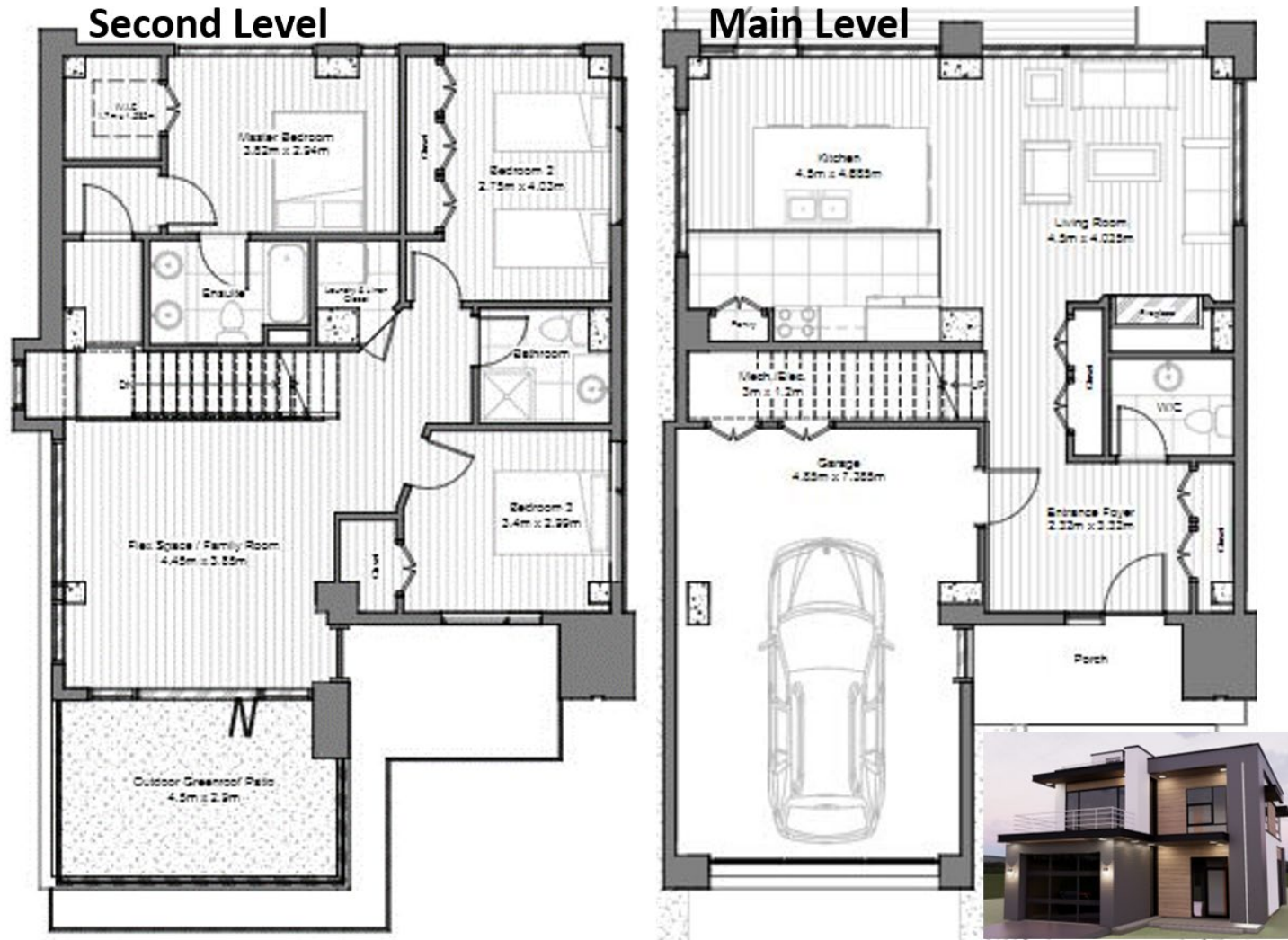


436 square foot suite with private bedroom, kitchen, washroom, and in-suite laundry

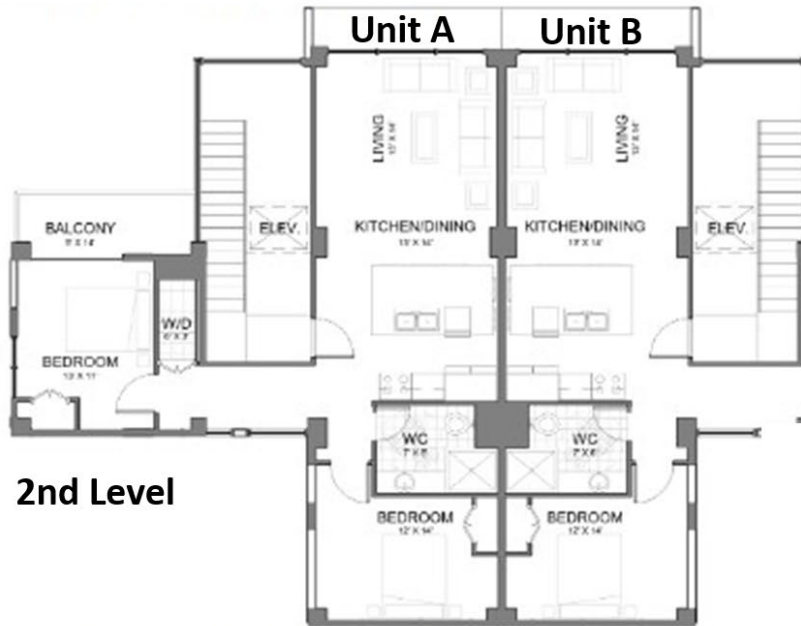
218 square foot hospitality suite with kitchenette



Design catalogue, floorplan designs



Design catalogue, floorplan designs



TWO STORY multi-unit RESIDENTIAL

Each Unit

932 sq ft

Primary Bedroom

Spare Bedroom

Kitchen / Dining

Living / Family room

2 x 3-Piece Bathroom

Laundry

Balcony / Patio

Private Elevator & Stairs

Secondary Entrance



Design catalogue, floorplan designs

TWO STORY multi-unit RESIDENTIAL

Each Unit

932 sq ft

Primary Bedroom

Spare Bedroom

Kitchen / Dining

Living / Family room

3-Piece Bathroom

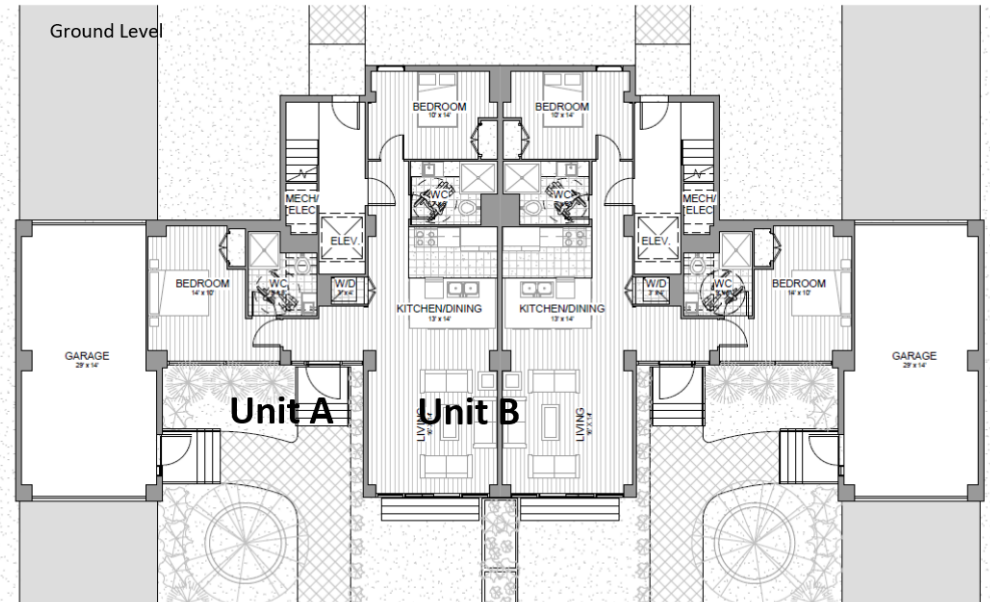
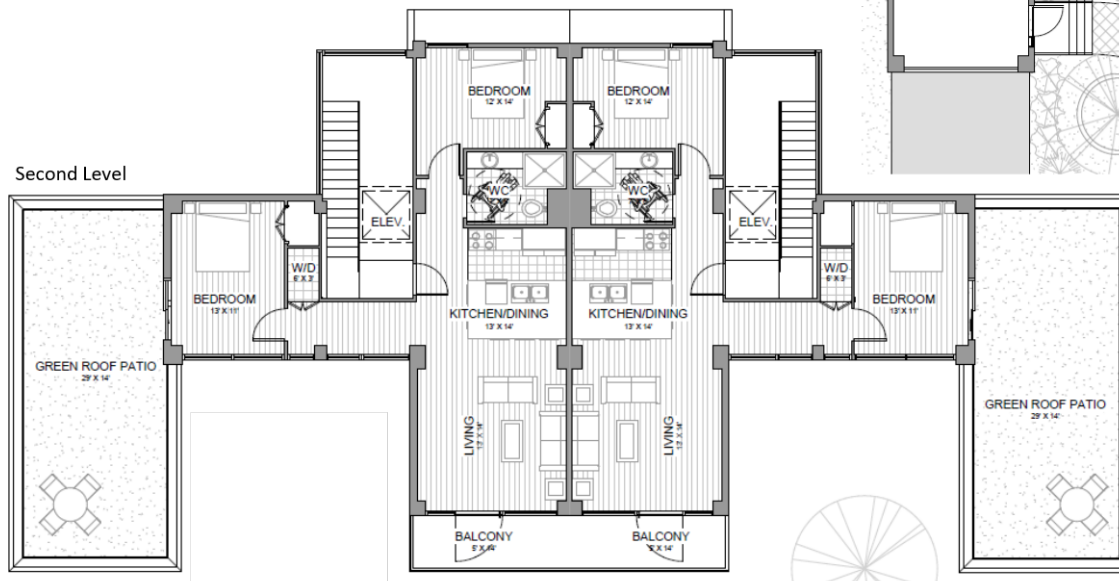
Laundry

Elevator & Stairs

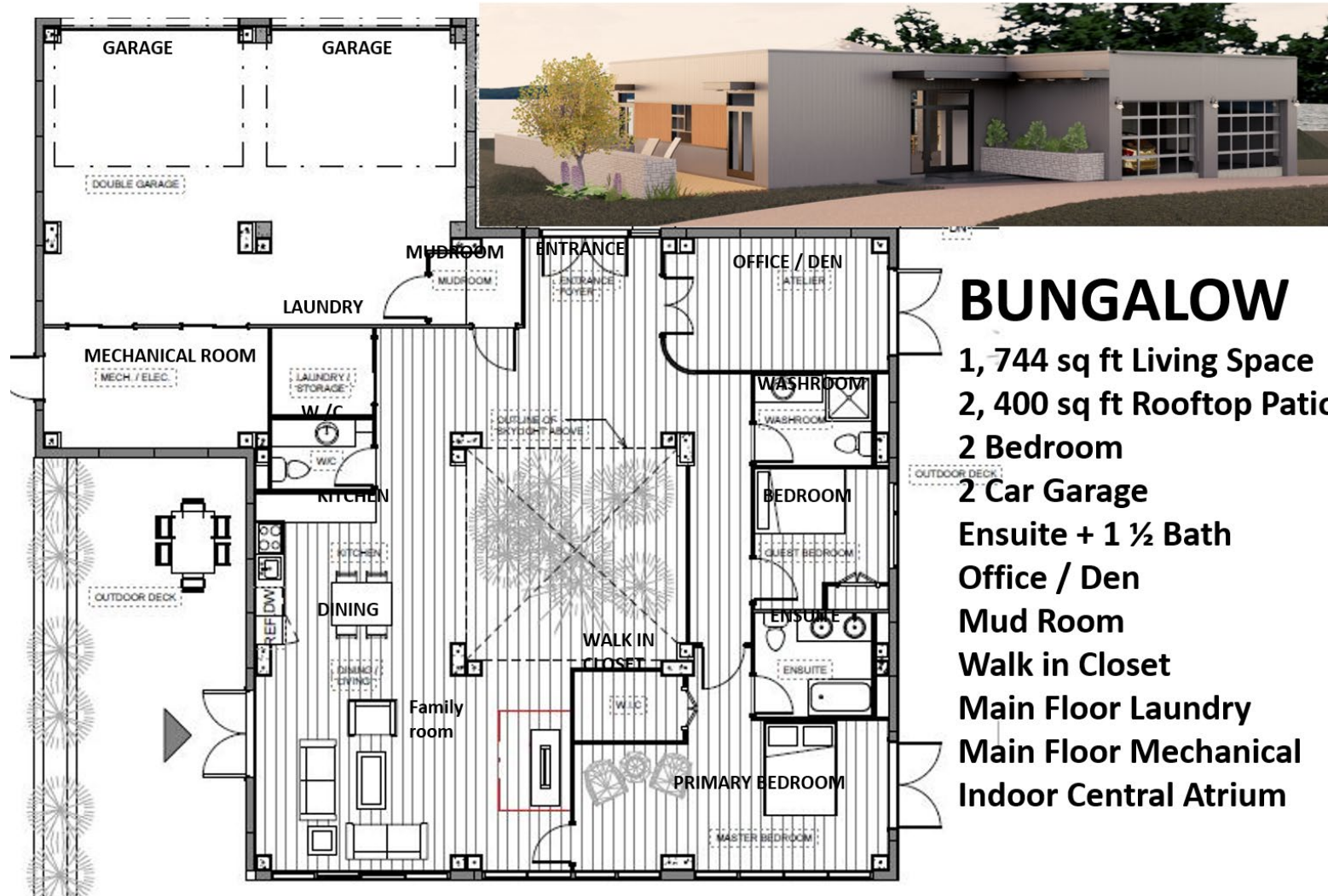
Secondary Entrance

2nd Level Balcony

1st Level Garage



Design catalogue, floorplan designs





L O D E S T A R S T R U C T U R E S I N C .

 **Modular Connectivity**  **Non-Combustible Building Material**  **Weather Resistant Exterior & Roof**  **Integrated Support Columns**

A BETTER WAY TO BUILD

Build better, build faster, build without compromise, with Lodestar Structures



Superior Quality



Built to last



Environmentally Sustainable



Rooftop garden & patio



Low impact on nature



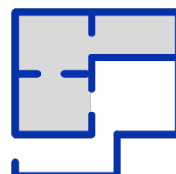
Versatile system



Reduced demand on labor & trades



Non-Combustible building material



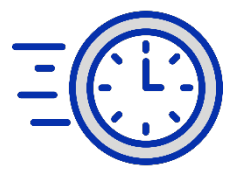
Endless layout configurations



Affordable cost certainty



Stackable & connectable



Rapid construction

Build secure, resilient, comfortable, durable, structures for



Commercial & office space



Retail & hospitality



Education & Learning



Healthcare



Residential





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A BETTER WAY TO BUILD

LODESTAR SYSTEM: CONFIGURATIONS

The structure is designed to the highest standards,
capable of supporting:

