



## **STACKED DECKER**

Tocci Building Corporation is a local builder offering creative models to provoke the building industry to adopt innovative solutions. For years, Tocci has been recruiting architects and designers to join our team, knowing that projects thrive when design and construction professionals work together. The “architecture squad” at Tocci has put together this Future-Decker proposal, utilizing offsite construction to root a healthy and sustainable concept into an affordable financial model.

### **THE TEAM:**

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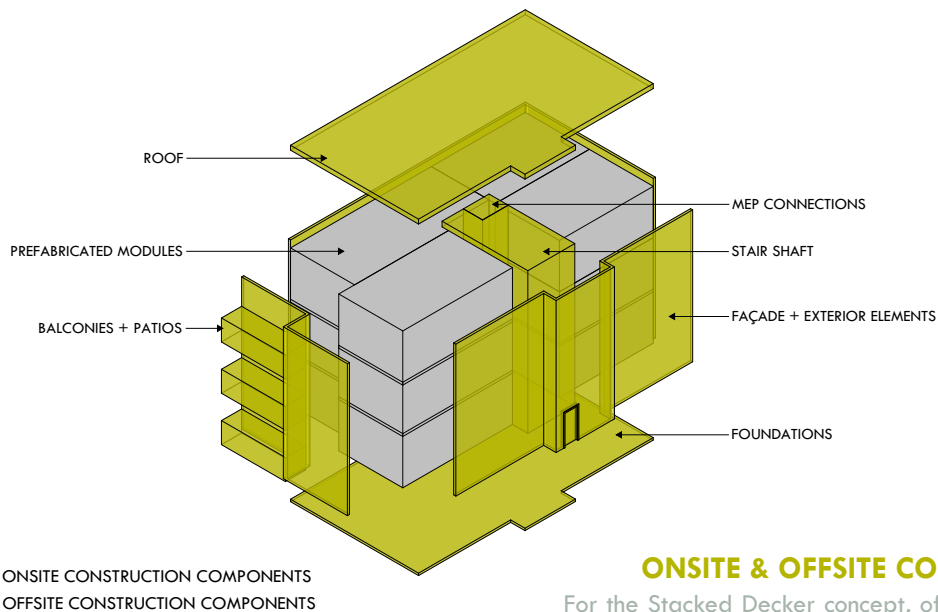
## PROJECT NARRATIVE

Triple Deckers have long proved to be a valuable part of the Boston housing market, and for good reason. The human scale makes Triple Deckers approachable and allows for connection to the street and neighborhood. But many Triple Deckers are in poor shape, with regard to health and safety as well as sustainability.

The Stacked Decker concept seeks to preserve the best parts of the triple decker -- scale and context -- while utilizing modern design and sustainable building techniques. By dividing the space into 5 dwelling units instead of the traditional 3, the Stacked Decker allows for more density and housing type variety. Each unit remains fully autonomous, with individual MEP's, laundry, and outdoor space. A shared stairwell and back patio allow for natural social touchpoints as well as more community interaction.

Affordability is the top priority for those seeking housing security, but developers still need to make a profit for their investors. By using accurate take-offs and pricing information, the financial model for the Stacked Decker is both affordable and profitable. The pro forma is based on two Affordable units and three market-rate units, making 40% of these units Affordable.

As the affordable housing crisis continues, the Stacked Decker uses innovative construction techniques to increase speed to market. With modular construction, the project schedule is decreased by two months. Modular components fabricated in a factory setting offer benefits including high quality details, improved weatherization, third party regulation, and less waste and rework. The neighborhood impact is also lessened, with offsite components placed in 1-2 days rather than several months of disturbance (parking and noise).



## ONSITE & OFFSITE CONSTRUCTION

For the Stacked Decker concept, offsite construction would be balanced with onsite components to provide work for the local labor force. Foundations, stairwell construction, MEP connections, siding, roofing, and exterior balconies and patios would all be constructed onsite.

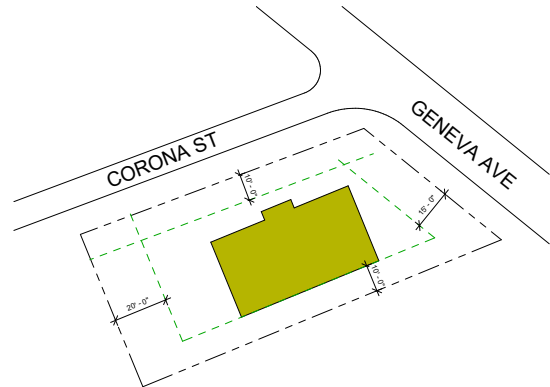
## SITE SELECTION

Tocci Building Co. has been completing projects utilizing offsite construction techniques for over 20 years, so we have a firm grasp of the benefits and constraints associated with offsite construction. Particularly with volumetric modular construction, sites must be able to accommodate crane placement and swing radius. Many infill sites are great candidates for modular construction, but there are few qualities to look for:

- Corner lots are ideal for swing radius.
- Wide lots or multiple lots side by side also work well with swing radius.
- Power lines and trees cannot be located at property edges.

Five of the thirteen proposed sites are ideal for modular construction: Geneva Ave, River St, and the Washington St sites. The cluster of sites at Dyer Ct and Capen St would also be good candidates, but may benefit from a unified site design for the cluster.

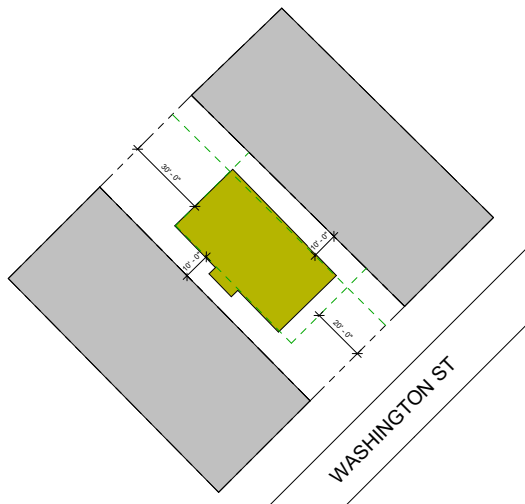
The Stacked Decker concept can be replicated on many sites, and even duplicated and mirrored to form a middle-scale housing cluster (see 2775 & 2777 Washington St).



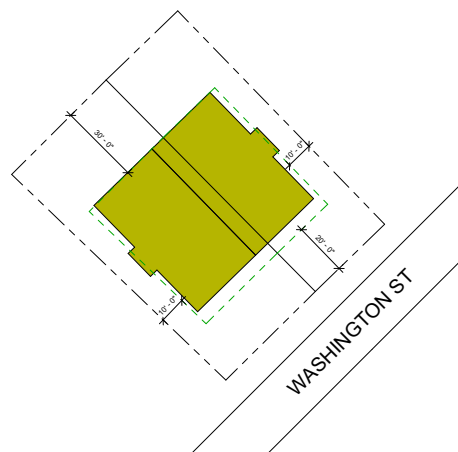
**379 GENEVA AVE**  
DORCHESTER



**569 RIVER ST**  
MATTAPAN



**2751 WASHINGTON ST**  
ROXBURY



**2775 & 2777 WASHINGTON ST**  
ROXBURY



## PROJECT CONCEPT

The Stacked Decker concept is inclusive to many different housing needs, including singles, students, roommates, families, elderly persons and disabled persons. Unit types include:

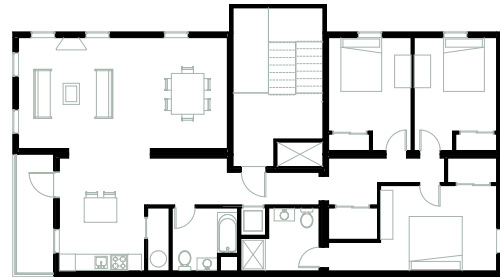
- Level 1:
  - 1 Bed/1 Bath - Affordable & Accessible
  - 2 Bed/1 Bath - Accessible
- Level 2:
  - 1 Bed/1 Bath - Affordable
  - 2 Bed/1 Bath
- Level 3:
  - 3 Bed/2 Bath

The entry to each unit is through a common stairwell at the side of the building. Traditional triple deckers typically have two common stairwells at the front and back of the building, but designating two areas for vertical circulation cuts into usable floor area. By centralizing the stairwell, each unit has adequate access without compromising space. Each unit includes a private patio, as well as access to a shared backyard and deck.

The stairwell is adjacent to a common mechanical shaft. With modular construction, plumbing and mechanical piping between floors must be connected onsite. By coordinating the shaft next to the stairwell, these connections can be made with minimal disturbance to the unit interiors, which arrive completed from the modular factory.

For purposes of resiliency and maintenance, the foundation is designed as a slab-on-grade, with all mechanical equipment within the units or on the rooftop. This provides protection from flooding and less site disturbance. Generous closets have been carved into each floorplan, and outdoor storage can be incorporated into the siteplan.

The floorplans have been carefully considered with flexibility in mind. Since modular construction is best suited to repeatability, it's imperative that this design be adaptable to many different infill sites. The spaces can be expanded and contracted to accommodate sites of different widths and depths as needed.



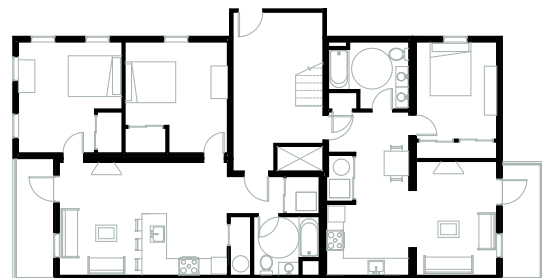
**FLOOR PLAN LEVEL 3**

3 BED / 2 BATH



**FLOOR PLAN LEVEL 2**

1 BED / 1 BATH  
2 BED / 1 BATH



**FLOOR PLAN LEVEL 1**

1 BED / 1 BATH (ACCESSIBLE)  
2 BED / 1 BATH (ACCESSIBLE)





## FINANCIAL MODEL

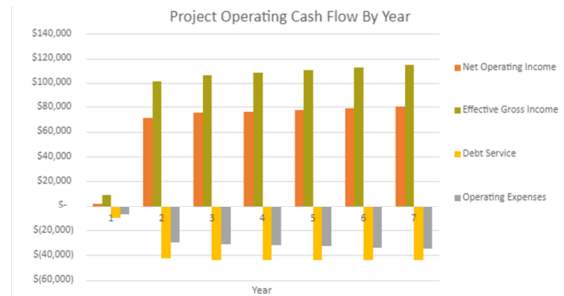
The Stacked Decker financial model is designed to engage private developers in affordable housing projects. Within this model, the developer constructs and stabilizes the building. After a holding period of 7 years, the project would be re-sold back to the City of Boston or an entity operating affordable housing. Exit assumptions do not include income generated from voucher programs or other operating subsidies that may be applicable to a buyer.

UNIT TYPE	UNIT SIZE	RENT/MO	RENT/YR
1 BED/1 BATH	657 SF	\$1,120	\$26,880
(AFFORDABLE)			
1 BED/1 BATH	657 SF	\$1,120	\$26,880
(AFFORDABLE)			
2 BED/1 BATH	789 SF	\$2,045	\$49,080
(MARKET RATE)			
2 BED/1 BATH	789 SF	\$2,045	\$49,080
(MARKET RATE)			
3 BED/2 BATH	1469 SF	\$2,554	\$30,650
(MARKET RATE)			
TOTAL			\$106,610

## OPERATING ASSUMPTIONS

Construction period 8 months  
 (Modular construction vs 10 months conventional)  
 Development period 10 months  
 Stabilization period 12 months  
 Total holding period 84 months  
 Land Value \$0.0  
 (assumes land is given to developer by City)

- 2 out of 5 units are Affordable (priced at 60% AMI rate per current Boston guideline)
- Market rate units priced by current market comps from Zillow
- Developer fee of 4% is included



## EXIT EVALUATION ASSUMPTIONS

Implied exit cap rate	5.13%
Blended exit valuation	\$1,584,343
Income Approach - weighting	20.00%
12 month forward NOI	\$81,276
Patel's Cap Rate	5.55%
Capitalized value	\$1,464,876
Capitalized value / GSF	\$292.98
Market Approach - weighting	80.00%
Current average area \$/GSF	\$262.50
HPA p.a.	3.00%
Forecast average area \$/GSF	\$322.84
Exit Evaluation per unit	\$316,868

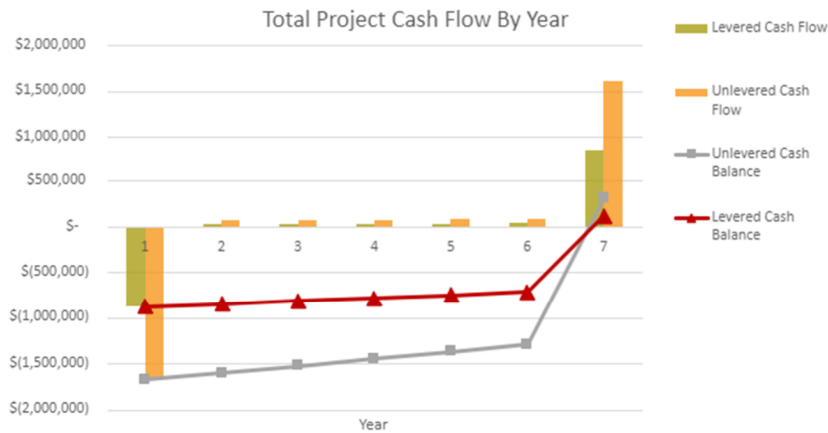
## CALCULATING CAP RATE

Amortization Period	30
Interest Rate	2.00%
Payments per year	12
Loan Constant	4.44%
LTV	80%
Weighted cost of debt	3.55%
Equity	20%
Cost of equity	10.00%
Weighted cost of equity	0.02
Cap Rate	5.55%

Valuation upon exit is calculated based on a weighted approach between income capitalization and market dollar/SF approach. Cap rate is calculated from perspective of prospective buyer. The market approach valuation was calculated by compounding the current dollar/GSF in the target area by a 3% housing price appreciation per year.



**FINANCIAL MODEL (CONT.)**



Sources

Land Acquisition Costs, total	-
Hard Costs, total	1,574,571
Soft Costs, total	26,250
Capitalized Reserves, Costs & Fees	84,023
<b>Total capital invested</b>	<b>1,684,844</b>

Uses

Equity	877,174
Debt	807,669

<b>Total capital invested</b>	<b>1,684,844</b>	<b>Total Costs</b>	<b>1,684,844</b>
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	Untrended	Trended	Sale
<b>Operating Income</b>			
Gross Rent	\$ 106,610	108,502	120,191
(less) loss to vacancy and credit collection	\$ -2,665	-2,713	-3,005
Effective Gross Income	\$ 103,945	105,789	117,186
Economic Occupancy	% 98%	98%	98%
<b>Operating Expenses</b>			
Repairs & maintenance	\$ -1,680	-1,735	-2,021
General & administrative	\$ -2,400	-2,478	-2,887
Legal & professional	\$ -1,090	-1,126	-1,312
Utilities	\$ -3,000	-3,098	-3,609
Contract services (Janitorial, HVAC, Cleaning)	\$ -600	-620	-722
Management fees	\$ -3,118	-3,174	-3,516
Insurance	\$ -3,370	-3,633	-4,233
Property tax	\$ -13,139	-13,567	-15,806
Capital reserves	\$ -1,500	-1,549	-1,805
<b>Total Operating Expenses</b>	<b>\$ -29,897</b>	<b>-30,978</b>	<b>-35,910</b>
	\$		
Net Operating Income	\$ 74,048	74,811	81,276
NOI Margin	% 71%	71%	69%
Cap Rate	% 5.50%	5.40%	5.10%
Capitalized value	\$ 1,346,324	1,384,591	1,584,343
<b>Proceeds from property sale, net</b>	<b>\$ 1,292,471</b>	<b>1,329,207</b>	<b>1,520,969</b>

Property-Level Returns	EM	ROI	IRR	Net Profit
Unlevered Cash Flow	1.19x	18.70%	0.00%	312,723
Levered Cash Flow	1.13x	12.70%	2.00%	111,282

## CONSTRUCTION METHOD

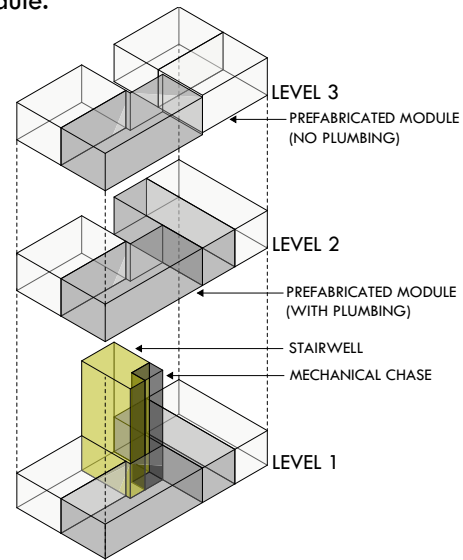
Tocci Building Co. has more modular construction experience than any other builder in the Boston area, including five multi-family projects, totaling over 400 units. This Stacked Decker concept has been influenced by decades of lessons learned and real world problem solving.

The layout is fully optimized to modular construction. It is composed of twelve modular boxes split into two types: those with plumbing and those without. Each plumbing box is adjacent to a central mechanical shaft, allowing easy onsite MEP connections. Boxes maintain maximum dimensions of 33' x 15' to comply with shipping and erection constraints. Modular factories increase in efficiency with replicated box types, so the layout has been duplicated on level 1 and 2. And since the Stacked Decker design is compatible with many infill sites, efficiency grows with each replicated project.

With any modular project, site logistics can be tricky, and infill lots are no exception. Corner lots are ideal, but even lots with frontage as little as 40 to 50 feet are potential candidates. Depending on the site, crane placement would block street access for 1-2 days while the boxes are set in place.

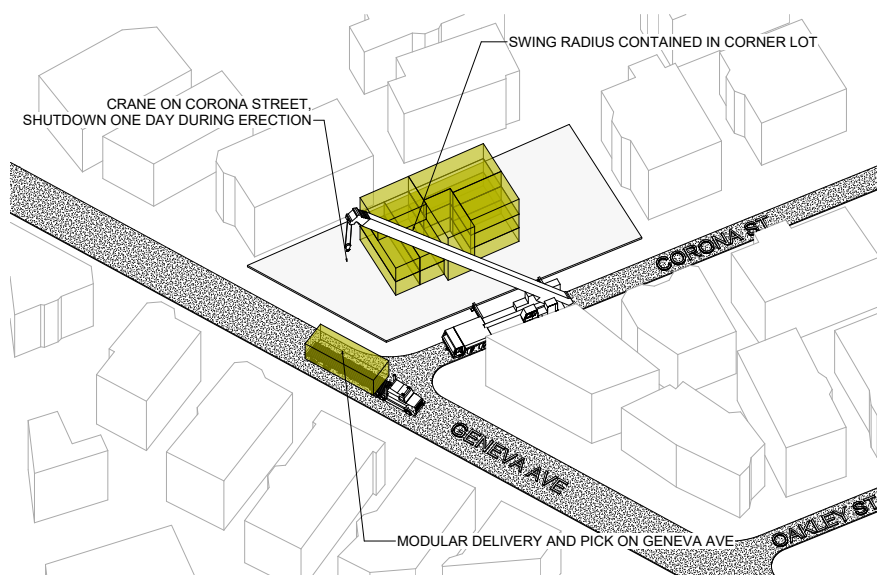
When compared with months of construction noise, debris, and parking impacts, modular construction is minimally invasive to the neighborhood.

While modular construction is not usually cheaper than convention construction, it is faster. The Stacked Decker is estimated to shave 2 months off a conventional triple decker schedule.



### MODULAR MASSING DIAGRAM

12 MODULAR BOXES PER TRIPLE DECKER



### MODULAR SITE LOGISTICS

## ZONING & PROJECT BARRIERS

The Stacked Decker design includes five dwelling units, as opposed to three units typical of traditional triple deckers. All of the proposed sites are currently zoned for two or three family buildings. Given the housing market landscape and extreme need for more housing, we are proposing zoning variances for increased density.



As the concept progresses, neighborhood engagement and collaboration will be imperative to project success. The Stacked Decker concept allows customization in expression of outdoor space as well as facade features. The scale is similar to existing buildings in each neighborhood, respecting the context and setbacks of each site.

## PERMISSIONS

Tocci Building Corporation permits use of this concept to be made public by the BSA and iLab as required.