

# InHouse-OutHouse Business Plan



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<b><u>EXECUTIVE SUMMARY</u></b>	<b><u>1</u></b>
<b><u>INTRODUCTION: OUR BUSINESS</u></b>	<b><u>2</u></b>
THE TEAM: A MIX OF BACKGROUNDS WITH A COMMON PASSION FOR DESIGN	2
THE OPPORTUNITY: AN URBAN HOUSING STOCK THAT'S CAPABLE OF DRIVING RENEWAL	2
THE PROTOTYPE: PROOF-OF-CONCEPT THAT THE OUTHOUSE WORKS	2
<b><u>OUR PRODUCT: THE INHOUSE-OUTHOUSE</u></b>	<b><u>3</u></b>
<b><u>MARKET OVERVIEW</u></b>	<b><u>4</u></b>
TARGET CUSTOMER: HOUSING AUTHORITIES IN CITIES WITH THE RIGHT HOUSING STOCKS	4
SALES STRATEGY AND CHANNEL: PRODUCE NEAR THE CUSTOMER AND SELL DIRECT	4
<b><u>OPERATIONS AND COST STRUCTURE</u></b>	<b><u>5</u></b>
FABRICATION PROCESS: PARALLEL TIMELINES ADD EFFICIENCY TO RENOVATIONS	5
VARIABLE COSTS	6
FIXED COSTS	7
<b><u>FINANCIAL ANALYSIS</u></b>	<b><u>8</u></b>
SALES FORECAST	8
START-UP COSTS	8
PROJECTED FINANCIALS AND RETURNS	9
<b><u>NEXT STEPS</u></b>	<b><u>11</u></b>
<b><u>APPENDIX</u></b>	<b><u>12</u></b>
REMODELING INDUSTRY ANALYSIS	12

## **EXECUTIVE SUMMARY**

**Product Description:** The InHouse OutHouse (in abbreviation, OutHouse) is a pre-fabricated residential core that consolidates major trade-dependent systems and finishes into a single deliverable unit. Inserting one provides a house with a complete kitchen, bathroom and essential services such as heating & air conditioning, a water heater, electrical meter & service panel and cable & internet.

Although a variety of similar approaches have been proposed in the past, they focused exclusively on new construction. OutHouse, by contrast, is designed with enough flexibility to be inserted into existing homes. More importantly, OutHouse swerves from these earlier approaches at the point where it pairs the technical and design issues at play with a greater social vision: revitalizing the existing residential fabric of urban centers.

**Market Opportunity:** The housing stock of many urban centers is reaching an age where the decision to demolish or renovate must be made. OutHouse favors the latter, leveraging the material and social fabric of existing homes and communities while contributing carefully designed modern amenities that improve the day-to-day living of its users. The design is universal enough to be implemented in a variety of settings, allowing the business model to be successfully repeated in cities across North America. This broadens the target market and creates a robust opportunity for selling the product.

**Operations:** The OutHouse was designed with fabrication in mind, allowing for large-scale production. Pre-fabrication brings factory efficiencies to the building process, creating a competitive advantage over on-site remodelers. We estimate significant cost savings that can be used to control margin and price as a result. Likewise, the design allows for the fabrication and building setup processes to run on parallel timelines, speeding up the renovation process. This makes the home more livable during the renovation as well, giving the OutHouse further advantages over a traditional on-site home renovation.

**Investment Thesis:** We expect to sell OutHouse's under contracts with city housing authorities, creating a high level of sales certainty controlling risk. Opening a single facility is expected to cost \$900K-\$1MM. In order to break even, at least 57 units must be sold per year. To clear an 18% return hurdle, the business needs to sell at least 92 units per year and sustain that profit level for 10 years. To give a sense of the market share needed to hit those targets, these sales levels would represent 1.1% and 1.8%, respectively, of the annual capital budget for the Chicago Housing Authority.

Using the 10-year projections that we calculated and are shown in the Financial Analysis section, the 10-year IRR for a single-facility business is 32% and the present value of the cash flows, assuming a terminal value with 5% growth, is \$3.0MM.

**Next Steps:** Our next steps are to prove the OutHouse's commercial viability and establish the start-to-finish process for purchasing, producing and installing the product. We expect this to require raising \$150,000 and will take two years before moving on to the next stage, at which point we will be fully ready to execute on the plans outlined in our financials.

## **INTRODUCTION: OUR BUSINESS**

### **THE TEAM: A MIX OF BACKGROUNDS WITH A COMMON PASSION FOR DESIGN**

The IHOH team came together at the Rice University School of Architecture in Houston, TX. The members come from different backgrounds, different areas of the country and different undergraduate institutions, forging a team with diverse skills and attributes. Their professional work began at the Rice Building Workshop (RBW) under Co-Directors Danny Samuels and Nonya Grenader. It was here that the team built on previous RBW research into consolidated kitchen and bathroom “cores”, introducing pre-fabrication and the potential for both new construction and renovation, and thus the OutHouse was born. Seeing its great potential, they set out to see it come to life, harnessing their mutual passion for the built world and the didactic nature of architecture.

### **THE OPPORTUNITY: AN URBAN HOUSING STOCK THAT’S CAPABLE OF DRIVING RENEWAL**

OutHouse was conceptualized as a renewal project. Its social ambition is apparent in the presence that its facade establishes for the residence in which it is inserted, acting as a symbol that asserts the residence’s contribution to local urban renewal. In addition, by using an existing structure and existing urban infrastructure, OutHouse exhibits “urban sustainability” through the re-use and re-densification/re-habitation of once established neighborhood communities. While one OutHouse only produces an anomaly in a neighborhood, one OutHouse in every house creates a visible wave of changing sentiment in how we inhabit maturing cities.

Extensive deployment of OutHouse as a strategy for renewal within a neighborhood would demonstrate broader social goals that aim to improve the quality of life in a city’s existing communities. By re-imagining an architectural system and process, OutHouse can be deployed as a solution to both a private necessity and a public vision.

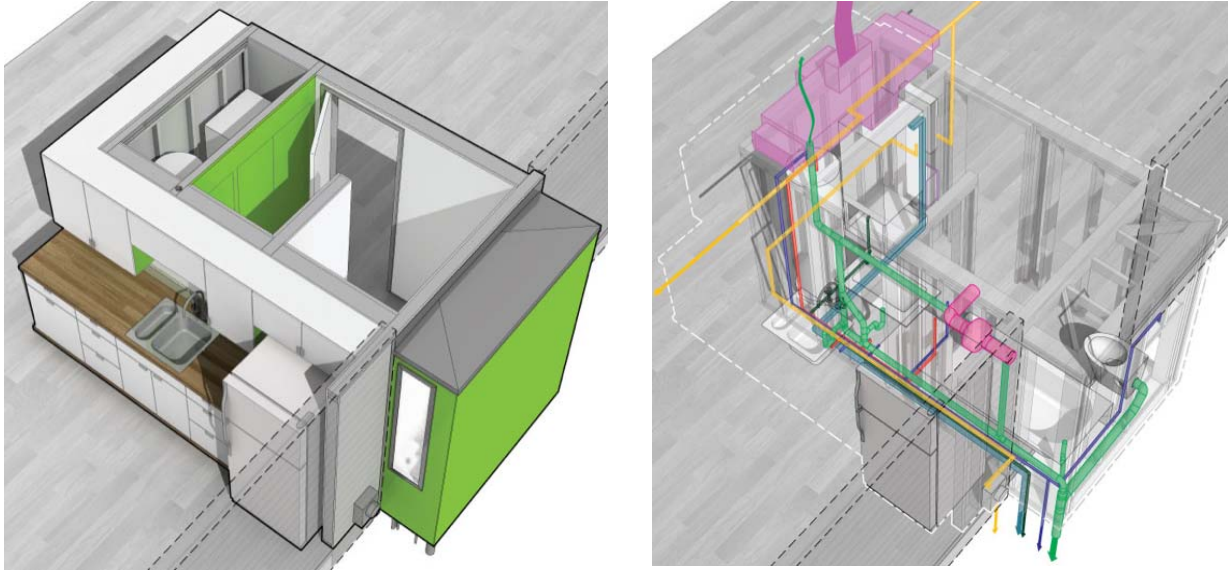
While the inspiration for the OutHouse came from Houston’s Third Ward neighborhood, the design concept can work in any major city. Several other US cities possess similar housing stocks that offer a substantial market for the product. Once sales commence in the starting location, the business blueprint can be easily replicated elsewhere.

### **THE PROTOTYPE: PROOF-OF-CONCEPT THAT THE OUTHOUSE WORKS**

The company has inserted its prototype into a historic house owned by Project Row Houses (PRH) in Houston’s Third Ward. Prior to installation, the house lacked all modern services and was unlivable; the OutHouse now serves as the fulcrum for its rehabilitation.

The prototype and insertion demonstrate OutHouse’s promise as an alternative to new construction and traditional renovation methods. Now that the prototype has been installed, we can see that the IHOH does in fact provide new life to an otherwise lost house.

## OUR PRODUCT: THE INHOUSE-OUTHOUSE



If the kitchen is the heart of a home, the insertion of an InHouse OutHouse is a heart transplant. It replaces the entire circulatory system of an existing house, and it does so in a short period of time. The OutHouse provides a full kitchen and full bathroom, along with new heating, cooling, electrical, and plumbing services with sufficient capacity for the entire house. Specifically included with the InHouse OutHouse:

### BATHROOM

- Full-sized tub with shower
- Wall-hung toilet
- Vanity sink
- Ample bathroom storage

### KITCHEN

- Full-sized refrigerator
- Two-bowl sink
- Cooking surface
- Ample kitchen storage

### OFFICE

- Work surface
- Cable TV + Internet
- Wireless router

### SERVICES

- Air-handler for heating and air-conditioning
- Water heater
- Electrical meter and service panel

OutHouse's innovative design allows it to be easily inserted into an existing home. Modernized systems and appliances offer not only more efficiency than those they replace, but make the home more livable for its occupants. A portion of the OutHouse overhangs the rest of the structure, accommodating plumbing for the tub and windows that bring natural light into the OutHouse. The exterior of this overhang could be clad with any material, including cementitious fiberboard, wood, steel, aluminum, or zinc. Likewise, it could also take on several applications, acting as a growing surface, a projection wall, or a backdrop for a porch. Inserting an IHOH addresses the full spectrum of the architect's anxieties: it offers a highly detailed, meticulously designed solution to a complex set technical of problems while it carefully considering ease of use and quality of life.

## **MARKET OVERVIEW**

### **TARGET CUSTOMER: HOUSING AUTHORITIES IN CITIES WITH THE RIGHT HOUSING STOCKS**

To select the right buyer, we evaluated our strategy & mission and searched for which potential customers best align with our business. Important elements include:

- **Bulk Purchases:** Necessary in order to realize the efficiencies that come from a factory-like setting for pre-fabrication
- **Access to Complements:** The buyer needs access to a sound housing stock available in order to ensure that installation yields long-term success
- **Adequate Funding:** While the IHOH saves money versus a conventional renovation, the upfront cost can be prohibitive
- **Social Mission:** Buyers that are interested in the IHOH's message of urban & residential renewal will get more value from the product

Considering these factors, the best clients are the housing authorities in the cities where we plan to sell. These organizations are generally well established and have clear access to funding and channels to reach end-users. In addition, the housing authorities have the best knowledge of which houses in their cities' housing stocks would be strong candidates for IHOH's, assuring positive results post-installation. Finally, the role of the housing authority within city governance fits with our theme, that providing smart, affordable housing can be done well and thereby made accessible to people of all income brackets.

### **SALES STRATEGY AND CHANNEL: PRODUCE NEAR THE CUSTOMER AND SELL DIRECT**

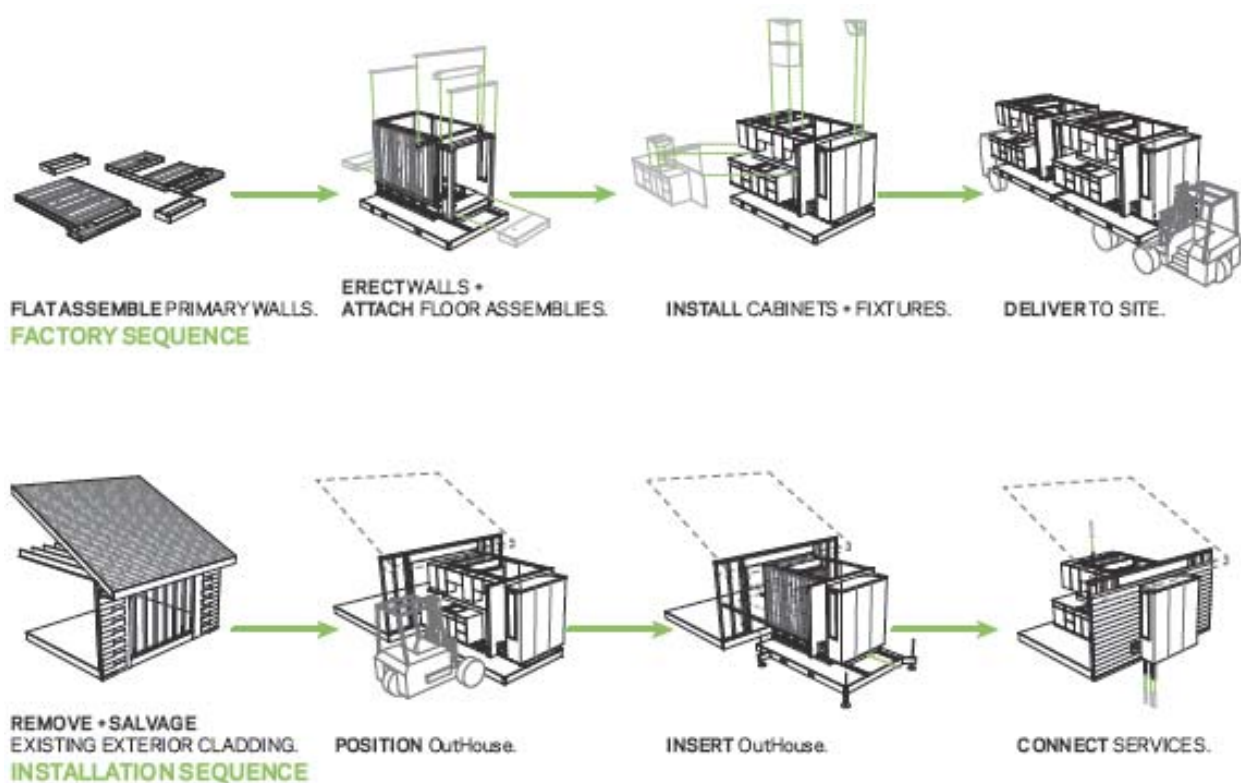
Having identified the customer, the best sales strategy is to reach out directly to the housing authorities to sell the product. Key selling points include the savings realized with an IHOH, the solid function & aesthetics demonstrated by the prototype and the social gain generated by the use of the product. A list of prioritized target cities is in production, with Houston serving as a logical starting point given the team's knowledge of the city and the location of the prototype.

Reaching an agreement with a housing authority, the team would create a contract for a set number of units to be delivered on a certain date at a specified price. Following that, a location would be selected for pre-fabrication and the production process would begin.

The flexibility in location is key to the IHOH's competitive advantage. While remodelers tend to be anchored to the site where the remodeling takes place, we can select where pre-fabrication takes place within a greater-metro area. This means much greater options in choosing suppliers, leading to cost advantages over competitors on raw materials. Combined with the factory setting and time savings from producing off-site, the IHOH results in substantial overall savings versus other remodeling options.

## OPERATIONS AND COST STRUCTURE

### FABRICATION PROCESS: PARALLEL TIMELINES ADD EFFICIENCY TO RENOVATIONS



Instead of the typical linear progression of a renovation, the InHouse OutHouse is realized in two parallel timelines: one off-site and one on-site. By relocating framing and the work of the major mechanical, electrical, and plumbing trades off-site, OutHouse capitalizes on the efficiency of a factory setting to reduce material resource consumption. In the factory, material and physical efficiency are heightened through mechanical precision, the reuse of materials, and waste monitoring and reduction. These savings are put back into the OutHouse in the form of higher quality design, finishes, appliances, and construction.

As the OutHouse is being pre-fabricated off-site, the house is readied for its arrival. The IHOH is sized within USDOT limitations so as to not require any special delivery permits, making truck delivery and economical choice. Once on-site, the OutHouse is easily inserted and the entire structure quickly weatherproofed. The electrical, mechanical and plumbing systems are then coupled to on-site services and modest interior finish work takes place to complete the insertion.

What the OutHouse offers that traditional site-built renovation cannot is substantial time-savings as well as general livability during the renovation process. Where a traditional renovation could take months, leaving homeowners without kitchen and bathroom facilities, OutHouse allows the usage of existing facilities until the OutHouse is ready to be

deployed. Once this takes place, it is only a matter of weeks before the entire house is reborn.

## VARIABLE COSTS

To produce the prototype, the following costs were incurred:

<u>ITEM</u>	<u>PRICE</u>	<u>NOTES</u>
<b><u>Materials</u></b>		
Plywood	684	Structural System + Skin
Siding	91	Hardie Panel
Drywall + Trim	407	
Doors + Windows	337	RAM, Hollow Core Slab
Tile	1,125	Installation + Materials
Cabinets	1,196	IKEA
Countertops	1,163	Butcherblock (Includes Shipping)
Clerestory	449	Lexan + Steel Angle
Delivery Tray System	2,500	Steel, Welding, + Mechanisms
Foundation	3,000	(2) Additional structural footings
<b><u>Fixtures</u></b>		
Water Heater	450	
Toilet	780	Wall-Hung Toilet + In-Wall Tank
Bathtub	525	Bathtub + Fixtures
Bathroom Sink	320	Sink + Fixtures
Kitchen Sink	295	Sink + Fixtures
Refrigerator	350	
Oven	480	Oven + Hood
Lighting	400	Cabinet, Sconce, Bathtub
<b><u>Systems</u></b>		
HVAC	5,000	Air Handler, Materials + Labor
Plumbing	2,000	Materials + Labor
Electrical (Core)	2,500	Materials + Labor
Electrical (House)	2,500	Materials + Labor
<b><u>Labor</u></b>		
5-6 weeks fulltime	10,000	3 People @ \$16/hr for 625 hours
8 week parttime	2,000	1 Person @ \$12.50/hr for 160 hours
<b>TOTAL</b>	<b>38,552</b>	

Keep in mind, these were the costs for a single unit. We anticipate being able to drive down the cost of materials by a substantial amount when purchasing for large orders. The



estimates we use for financial modeling are 20% savings for materials, 15% for fixtures and 10% for systems (savings shrink as the products move from commodity to specialized).

Likewise, the amount of labor per unit would fall as scaled up volumes allow for a factory setup and line efficiencies from mass production. We estimate reducing the total hours needed to create an OutHouse by 30%. Taking these factors into account, the variable cost per unit is \$31,000.

**FIXED COSTS**

Fixed costs relate to production facilities, sales and management. Below is our estimate:

<u>ITEM</u>	<u>COST</u>	<u>NOTES</u>
<b><u>Facility Costs (per facility)</u></b>		
Rent	160,000	Assumes \$2MM facility at 8% cap rate
Utilities	10,000	Estimate for electrical, heat & other
Maintenance	2,000	Tool maintenance and cleaning
<b><u>Sales Costs</u></b>		
Sales Staff	20,000	Base Salary (Commission is variable)
Sales Related Costs	20,000	Includes travel, trade show fees, etc.
Marketing Materials	2,000	Printed materials and online presence
<b><u>Management Costs</u></b>		
Manager Salary	100,000	Salary for Project Manager(s)
Business Insurance	150,000	Property, Liability & Worker's Comp
<b>TOTAL</b>	<b>464,000</b>	Assumes one facility

Given the contract nature of our sales, we would insist on renting our facilities. This also provides flexibility for locating near customers and suppliers as needed. Maintenance should be limited as well, as any facility issues would be pushed back on the landlord. Employee expenses (sales and management) are subject to negotiation and could highly fluctuate, especially as the business grows.

## **FINANCIAL ANALYSIS**

Our Financial Analysis covers the stage where the company has opened a facility and has entered full-scale production. To reach this point, an intermediate stage must first take place that proves the product's commercial viability. Details on the intermediate stage can be found in the following section, "Next Steps".

### **SALES FORECAST**

Sales is a function of (a) the delivery radius around the facility, (b) the volume of public spending on housing improvements within that radius and (c) the share that IHOH can capture in that market.

At the time, it's unclear how much market share IHOH can capture. The next stage of development will involve conversations with our target market to gauge their level of interest and determine how many OutHouse's can reasonably be sold and at what price. For now, our financial modeling assumes pricing that's comparable to an equivalent on-site renovation and shows financial performance at a variety of sales levels.

### **START-UP COSTS**

The table below shows the estimated startup costs for one facility. The numbers could fluctuate based on location but are generally conservative. Starting inventory is roughly the amount needed to build 10 OutHouses. Expense items like wages and insurance assume starting with enough cash to pay for one year's worth of expenses. Our cash flow statement shows this is sufficient to operate the business during the early phase of cash burn and provides a reasonable cushion against downside scenarios.

<b><u>Facility</u></b>		<b><u>Legal and Other Fees</u></b>	
Rent & Closing Fees	\$160,000	Licenses & Permits	5,000
Leasehold Improvements	10,000	Insurance	150,000
Utilities	10,000		
<b><u>Equipment</u></b>		<b><u>Marketing</u></b>	
Manufacturing Equipment	100,000	Sales Staff	60,000
Shop Equipment	50,000	Marketing Materials	5,000
Office Equipment	10,000		
Other Misc	10,000	<b><u>Human Resources</u></b>	
		Management	50,000
		Labor	100,000
<b><u>Inventory</u></b>			
Raw Materials	90,000	<b>TOTAL</b>	<b>940,000</b>
Fixtures	30,000		
Systems	100,000	<i>Beg Cash</i>	<i>530,000</i>

## PROJECTED FINANCIALS AND RETURNS

In our financial analysis, we look at projections for building OutHouses in a single facility. Due to transportation costs, this limits the radius of the company's market. Expanding to other cities would not only grow our market, it would likely add efficiencies in purchasing, marketing, management and other costs. However, to be conservative with our estimates, we leave those efficiencies out of our projections.

### Assumptions

- Opening sale price is \$40,000 per unit and increases 2% each year
- In addition to base salary, sales commission is \$500 per unit sold
- Fixed costs grow at 3% per annum, conservatively reflecting inflation
- Variable costs grow slower at 1% per unit each year as experience creates savings
- All purchased equipment depreciates over a 10-year period
- Early losses result in a deferred tax asset that's used to pay taxes in later periods
- Business tax rate is 35% and does not change

Using these assumptions, we create two analyses: one that takes a 1-year snapshot to determine what sales level that justifies the investment and another that projects cash flows over a 10-year period to determine the business' value and return.

For the 1-year snapshot, we show how first-year profits look with sales between 20 and 200 units per year. Then, we calculate the business' present value assuming that the Year 1 cash flow occurs for 10 consecutive periods, discounted at 18% per year (based on the startup nature of the business and partially offset by the asset class and collateral). The following table shows the results:

Price/Unit	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000
<u>Units Sold</u>	<u>20</u>	<u>40</u>	<u>60</u>	<u>80</u>	<u>100</u>	<u>120</u>	<u>140</u>	<u>160</u>	<u>180</u>	<u>200</u>
Revenue	\$800,000	\$1,600,000	\$2,400,000	\$3,200,000	\$4,000,000	\$4,800,000	\$5,600,000	\$6,400,000	\$7,200,000	\$8,000,000
Fixed Costs	464,000	464,000	464,000	464,000	464,000	464,000	464,000	464,000	464,000	464,000
Variable Costs	620,443	1,240,886	1,861,329	2,481,772	3,102,215	3,722,658	4,343,101	4,963,544	5,583,987	6,204,430
Comission	10,000	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000	100,000
Depreciation	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
Pre-tax Income	(\$312,443)	(\$142,886)	\$26,671	\$196,228	\$365,785	\$535,342	\$704,899	\$874,456	\$1,044,013	\$1,213,570
Taxes @ 35%	(\$109,355)	(\$50,010)	\$9,335	\$68,680	\$128,025	\$187,370	\$246,715	\$306,060	\$365,405	\$424,750
<b>Profit (Loss)</b>	<b>(\$203,088)</b>	<b>(\$92,876)</b>	<b>\$17,336</b>	<b>\$127,548</b>	<b>\$237,760</b>	<b>\$347,972</b>	<b>\$458,184</b>	<b>\$568,396</b>	<b>\$678,608</b>	<b>\$788,821</b>
<i>margin</i>	-25.4%	-5.8%	0.7%	4.0%	5.9%	7.2%	8.2%	8.9%	9.4%	9.9%
Present Value	<b>(\$831,801)</b>	<b>(\$336,499)</b>	\$158,804	\$654,106	\$1,149,409	\$1,644,711	\$2,140,014	\$2,635,316	\$3,130,618	\$3,625,921
Discount Rate	18%									
Years	10									

The analysis offers two main takeaways:

1. Under these assumptions, the business breaks even when it sells 57 units per year
2. To clear the 18% return hurdle, the business must sell at least 92 units per year

In a market like Chicago, this would imply market shares of 1.1% and 1.8%, based on the housing authority's annual budget for capital improvements. Moving forward, these numbers will serve as key sales targets to measure success.

Our 10-year projections assume the facility sells 50 units in Year 1 and the sales ramp-up and flat-line at 150 units per year. The following table shows our projections:

Units Sold	50	80	100	120	130	140	150	150	150	150
Price/Unit	\$40,000	40,800	41,616	42,448	43,297	44,163	45,046	45,947	46,866	47,804
	<u>YEAR 1</u>	<u>YEAR 2</u>	<u>YEAR 3</u>	<u>YEAR 4</u>	<u>YEAR 5</u>	<u>YEAR 6</u>	<u>YEAR 7</u>	<u>YEAR 8</u>	<u>YEAR 9</u>	<u>YEAR 10</u>
<b>Revenue</b>	<b>\$2,000,000</b>	<b>\$3,264,000</b>	<b>\$4,161,600</b>	<b>\$5,093,798</b>	<b>\$5,628,647</b>	<b>\$6,182,852</b>	<b>\$6,756,975</b>	<b>\$6,892,114</b>	<b>\$7,029,956</b>	<b>\$7,170,555</b>
Fixed Costs	464,000	477,920	492,258	507,025	522,236	537,903	554,040	570,661	587,781	605,415
Variable Costs	1,576,108	2,546,990	3,215,575	3,897,276	4,264,270	4,638,214	5,019,210	5,069,402	5,120,096	5,171,297
Depreciation	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000	18,000
Pre-tax Income	<b>(\$58,108)</b>	\$221,090	\$435,768	\$671,497	\$824,141	\$988,736	\$1,165,725	\$1,234,051	\$1,304,079	\$1,375,844
Taxes @ 35%	<b>(\$20,338)</b>	\$77,382	\$152,519	\$235,024	\$288,449	\$346,058	\$408,004	\$431,918	\$456,428	\$481,545
<b>Profit (Loss)</b>	<b>(\$37,770)</b>	<b>\$143,709</b>	<b>\$283,249</b>	<b>\$436,473</b>	<b>\$535,692</b>	<b>\$642,678</b>	<b>\$757,721</b>	<b>\$802,133</b>	<b>\$847,652</b>	<b>\$894,299</b>
<i>margin</i>	-1.9%	4.4%	6.8%	8.6%	9.5%	10.4%	11.2%	11.6%	12.1%	12.5%
<b>Free Cash Flow</b>	<b>(40,108)</b>	<b>182,046</b>	<b>301,249</b>	<b>454,473</b>	<b>553,692</b>	<b>660,678</b>	<b>775,721</b>	<b>820,133</b>	<b>865,652</b>	<b>912,299</b>
<b>10-Year IRR</b>	<b>32%</b>			<b>Present Value</b>		<b>\$3,025,565</b>		<b>Terminal Value</b>		<b>\$7,368,565</b>

Based on the \$940,000 upfront investment needed to start, the business projects to generate a 32% Internal Rate of Return. To calculate the business' value, we assume a terminal value of \$7.4MM after year 10. This is based on 5.0% annual growth for each subsequent period, which is slightly below the growth in the previous period. Keeping with the 18% discount rate, our projections result in a \$3.0MM Enterprise Value and a \$2.1MM Net Present Value when taking the upfront investment into account.

## NEXT STEPS

With the successful installation of the prototype, the company has completed its first major stage of development. The second stage is to prove the product's commercial viability and create plans to build it using the methods described in the Operations section. These steps will set the business up for success in the third stage described in the Financial Analysis section. In order to accomplish this, the team will complete the following tasks:

- *Public Partnership*: find a public housing authority that will champion this project. Based on the business' roots, Houston is a natural place to start. However, if conversations stall, we could look at other cities as well
- *Market Research*: meet with potential customers to gauge interest, market demand and direction on pricing. This would tie in with our housing authority partnership but would incorporate broader research pool as well
- *Design Refinement*: continue analyzing and refining the design to optimize characteristics for the target market. Aside from aesthetics and features, changes could be made to ease the fabrication and installation processes
- *Proof-of-Livability*: Build and install another prototype for someone to live in long enough so the quality of life provided by the IHOH is demonstrated to buyers. A case study here could serve as the linchpin for our sales effort
- *Production Process*: Establish the process for off-site fabrication, including plant layout, machine requirements and process mapping
- *Supplier Network*: Research suppliers and rank based on options, service and price. Negotiate terms to determine who we choose for the next stage

The execution of this plan requires an additional round of fundraising. Potential sources for these funds include:

- The housing authorities with whom we partner
- Grants, startup business contests and accelerator programs
- Investments from angel and other early-stage investors
- Crowdfunding and other online resources for raising capital
- Personal funds

We anticipate needing to raise \$150,000 to properly execute the plans described above. This covers the initial cash needed for additional prototyping as well as expenses occurred to complete these tasks. The full process is likely to take two years, as the proof-of-concept needs time to play out. We can use that time to take carefully execute on the other steps that make up Stage 2, ensuring the business is ready for a successful, full-scale production launch in Stage 3.

## APPENDIX

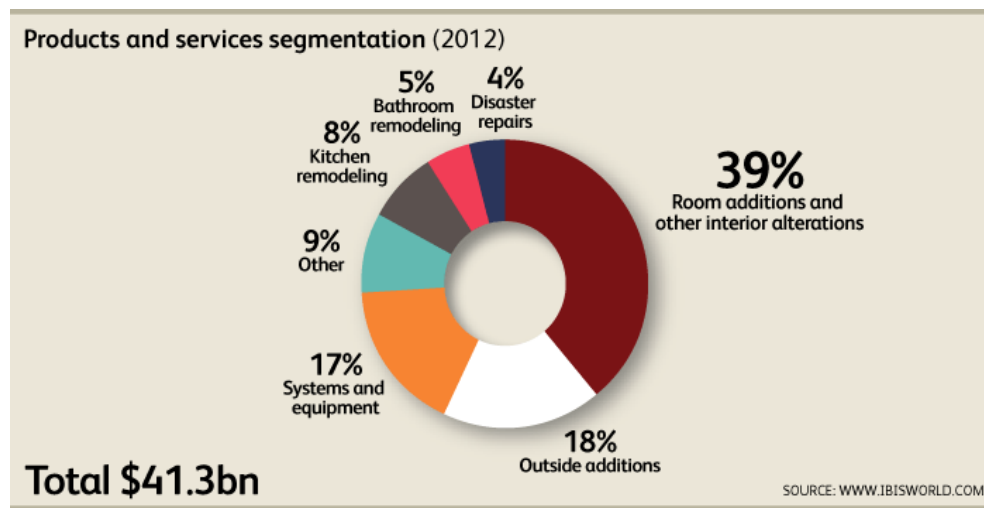
### REMODELING INDUSTRY ANALYSIS

#### *Introduction*

The InHouse OutHouse competes in the Home Remodeling Industry. We use IBISWorld's definition to define the industry: Primarily engaged in remodeling construction for residential buildings. Remodeling construction includes additions, alterations, reconstruction, maintenance and repair work. This industry is composed of general contractors, operative remodelers, remodeling design-build firms and remodeling project construction management firms. This industry does not include commercial remodeling.

#### *Industry Overview*

Remodeling in the US currently generates \$41.3Bn of annual revenue. While negative growth plagued the industry after 2006 until 2010, Ibis forecasts 13.5% annual growth for the next five years. However, profit margins have contracted from 21.0% in 2007 to 17.5% in 2012 as firms competed on price during the housing crisis and consumers have become accustomed to lower prices. The companies most affected by this are small ones whose work can be easily replicated through DIY projects.



Major influences on the industry include private spending on home improvements, homeownership rate, the national unemployment rate, per capita disposable income, 30-year conventional mortgage rates and the house price index. The chart below gives a high-level overview of factors that impact the industry's structure.

#### **Industry Structure**

Life Cycle Stage	Mature	Regulation Level	Medium
Revenue Volatility	High	Technology Change	Medium
Capital Intensity	Low	Barriers to Entry	Low
Industry Assistance	Low	Industry Globalization	Low
Concentration Level	Low	Competition Level	High

*Barriers to Entry: Low*

- Very little capital is needed for a company to get started
- Lack of large firms means nearly all players have equal access to distributions channels
- Little room exists for firms to develop supply side economies of scale
- Much of the required skill is universal, lowering switching costs between contractors

*Mitigants:*

- Prefabrication allows for factory-like assembly, adding supply side economies of scale
- All-in-one remodeling solution adds switching costs that capture a greater share of each customer's total remodeling spend
- Sophisticated building and installation process uses capabilities that extend beyond those of general contractors, creating technical advantages for the IHOH

*Power of Suppliers: High*

- Supplier concentration is fairly low, but it's still much more concentrated than the remodeling industry
- The need for supplier proximity limits the remodeling firms' flexibility to decide which suppliers they can choose
- Contract terms may impose switching costs
- Supplier differentiation can be high for certain inputs like appliances
- Many of the basic supplies like lumber have no suitable substitutes
- + Raw materials suppliers lack room for product differentiation and instead compete on price

*Mitigants*

- Off-site prefabrication provides an unmatched ability to select a location that optimizes IHOH's choices for suppliers
- The use of standard appliances and amenities limits the suppliers ability to differentiate and forces them to compete on price
- Factory volumes should heighten suppliers' dependency to IHOH beyond other customers

*Power of Buyers: Medium*

- Buyers have a wide range of options
- Buyers may replace smaller remodeling plans with DIY projects
- + Buyers are vast and none make up a large share of the industry's revenue
- + Switching costs for remodeling projects can be high once projects begin
- + Living spaces hold a very high personal significance and buyers are highly concerned about remodeling outcomes
- + Some contractors have successfully differentiated their services

#### *Mitigants*

- The IHOH addresses remodeling challenges that extend beyond the scope of DIY projects
- Buyers in underserved markets tend to have fewer options
- Prefab design allows IHOH to meet quality demands at a lower price

#### *Threat of Substitutes: Medium/Low*

- + New houses and condos are very expensive and typically represent a large portion of the buyer's income and net worth
- + Rental units do not offer consumers the decision-making power or emotional security of home ownership
- Rental units provide consumers with financial and living flexibility

#### *Mitigants*

- Final IHOH costs are well below that of a new house, meaning new houses alone don't replicate the consumer needs addressed by the IHOH
- Targeting urban renewal means cities can pool the variability of their consumer groups; different end-user needs gives buyers flexibility when spread over a large group

#### *Competition between Competitors: High*

- Prevalence of small operators and low barriers to entry forces price-based competition
- Weak new-housing starts have pushed many homebuilders into remodeling
- + Low exit barriers and labor intensity create the ability to scale, keeping the industry from getting super-saturated during difficult times

#### *Mitigants*

- The niche business segment captured by the IHOH reduces the level of direct competitors
- Scale from pre-fabrication allows IHOH to compete in price where smaller competitors can't

#### *Role of Complements: Positive*

- + US cities have a large quantity of structurally sound housing stock
- + Availability allows IHOH to offer a substantial value proposition to the end-user