Creating Affordable Housing in Toronto

Executive Summary

The **Problem.**

Housing in Toronto is unaffordable for many parts of the population as a result of a limited supply of rental housing and soaring housing prices. Consequently, many residents are forced to move out of Toronto into more suburban areas.

The Solution.

In order to combat unaffordability, we propose creating compact. loft-sized 3D-printed capsules, similar to a proof of concept home created by ICON.

The Outcome.

These capsules greatly reduce construction costs, which would in turn lower housing prices. Furthermore. they allow for optimization of spaces, as they could accommodate more people in smaller spaces while maintaining a high quality of life.

Understanding the Problem

Current Problems with Toronto's Housing Market

Over the past few years, Toronto has faced major housing issues such as a lack of housing supply and sky-high rent prices which make housing unaffordable for many.

01

Shortage of Housing

02

Soaring Rent Prices

03

Expensive Construction Processes

Problems

Taking a Look at the Numbers

4300

purpose-built rental apartments were constructed from July 31, 2018 to July 31, 2019 (highest in 25 years), yet it's only 20% of what's required to sustain Toronto's population.

24.3%

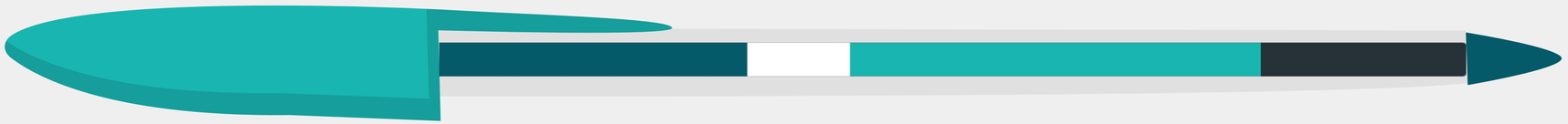
year-over-year increase in home sales was reported by the Toronto Real Estate Board.

$2,260

was the average cost of a 1-bedroom apartment at the end of 2018.

38%

of the average Canadians' income is spent on a 1-bedroom apartment.



With supply greatly exceeding demand, a shortage in the market arises, forcing many to move into unaffordable housing and suburban areas. In addition, with soaring rent prices, Torontonians spend large proportions of their income on housing.

Problems

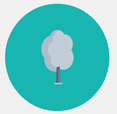
Current Construction Process

It costs on average **$630 per square foot** to build a 12-storey condominium in Toronto...

Total Cost per Square Foot = Land Costs (per square foot) + Hard Costs (per square foot) + Soft Costs (per square foot)

Total Cost per Square Foot = $200 + $280 + $150

Total Cost per Square Foot = $630



Land Costs

Cost of permanently purchasing land for construction.
$200 per square foot.

Hardware Costs

Cost of the physical construction of the project.
$280 per square foot.

Soft Costs

All remaining costs such as realtor commissions and legal costs.
$150 per square foot.

Meet Amy Bath

Bath, 34 currently lives in a condo with her partner, but worries she won't be able to find affordable housing is she wished to start a family.

"Condos used to be starter homes," says Bath. "Now, we can't even leave t*his particular condo* based on the realities of renting right now. People are giving up the dream of having a single family home."

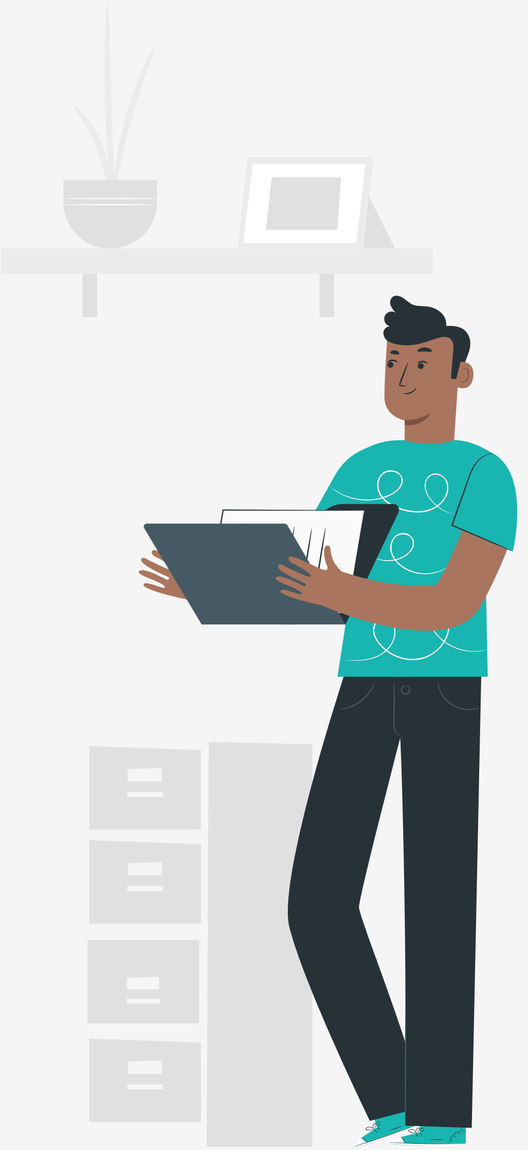
- **Amy Bath, 34**

Solution

3D-Printed Capsules

3D-Printing Cost-Effective, Loft-Sized Capsules

Using ICON's Vulcan II, we propose building compact, cost-effective housing capsules, ideal for 1-2 persons. These capsules will be owned by landlords and rented out to others. They can also be implemented in a variety of unused spaces such as backyards as well as existing buildings. Other benefits include:



Reduce Need for Labour

With a 3D-Printing machine, less manual labor is required during the construction process, greatly reducing labour costs,.

Near-Zero Waste

Using 3D-printing technology will greatly limit wasted materials, making it far more efficient than current construction processes..

Space-Efficient

These capsules allow for more people living in a smaller area, while maintaining a high quality of life.

Design Specifications and Costs

These capsules will be similar to the proof of concept project ICON created as seen in slide 8.

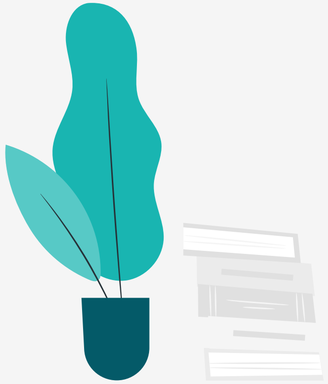
Sq ft: 350
Approximate Cost of building One capsule: $4000
Construction duration: 24hrs

With traditional construction processes. it costs approximately $85 per sq ft. to build a typical house. As a result, the total cost of a 350 sq ft. house would amount to $29,750, compared to the $4000 of a capsule. Not to mention, construction of typical homes can take several weeks, while a capsule can be constructed in a day.

Case Study: ICON's 3D-Printed Home in Austin, Texas

While ICON hasn't officially released prices for the 3D printer itself as it isn't officially being sold until early 2020. Currently, they're only taking pre-orders. However, the 350 sq ft. home, built in March 2018, serves as an excellent proof of concept. It took less than 48 hours to build, while only costing $10,000. ICON believes it would take only 24 hours and cost of $4000 for future projects as the printer wasn't printing at full speed.

Learn More About It!



Solution

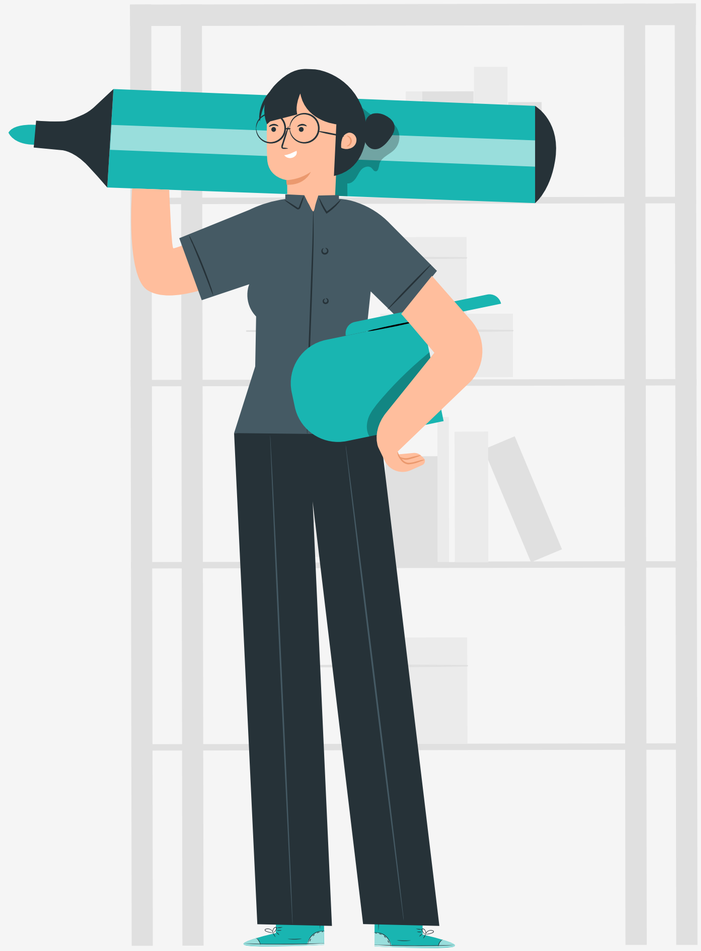
How It Tackles Current Housing Issues

Shortage of Housing

These capsules take up far less space than traditional houses, allowing for more capsules to be built and can accomodate more people in a given amount of space. In addition, they can be implemented in a variety of spaces unlike traditional housing.

Soaring Rent Prices and Expensive Construction Processes

Tackling both of these problems work hand in hand. With a huge reduction in labor and material costs, construction costs are greatly reduced, influencing landlords to charge lower rent prices for capsules.



Next Steps

Who to Contact

Alexander Le Roux

Co-Founder & Chief Technology Officer

Brannon Veal

Electrical Engineer

ICON General Contact

On a More Personal Note...

We'd like to personally thank you for giving us this wonderful opportunity. We've gained so many new skills and experiences while throughout the process of creating our proposal. Also, we understand most other people don't get opportunities like this and so we're thankful for that.

Hopefully, we were able to make a meaningful impact on Sidewalk Lab's goal to make housing in Toronto more affordable.

Lastly, feel free to reach out to us if you have any questions/concerns and if you'd like to work with us in the future.

Best Regards,

Aahil, Zaki, Jamil and Adam.

Aahil Samnani

Jamil Velji

Adam Jaffer

Zaki Rangwla

TKS x SIDEWALK LABS