WHY IS MY BEDROOM SO COLD?

BAHIA B MARKS

DANIELS FACULTY OF ARCHITECTURE, LANDSCAPE AND DESIGN
ADVISOR: KELLY ALVAREZ DORAN
APRIL 2022

St. James Town

19 buildings

Medallion Corporation

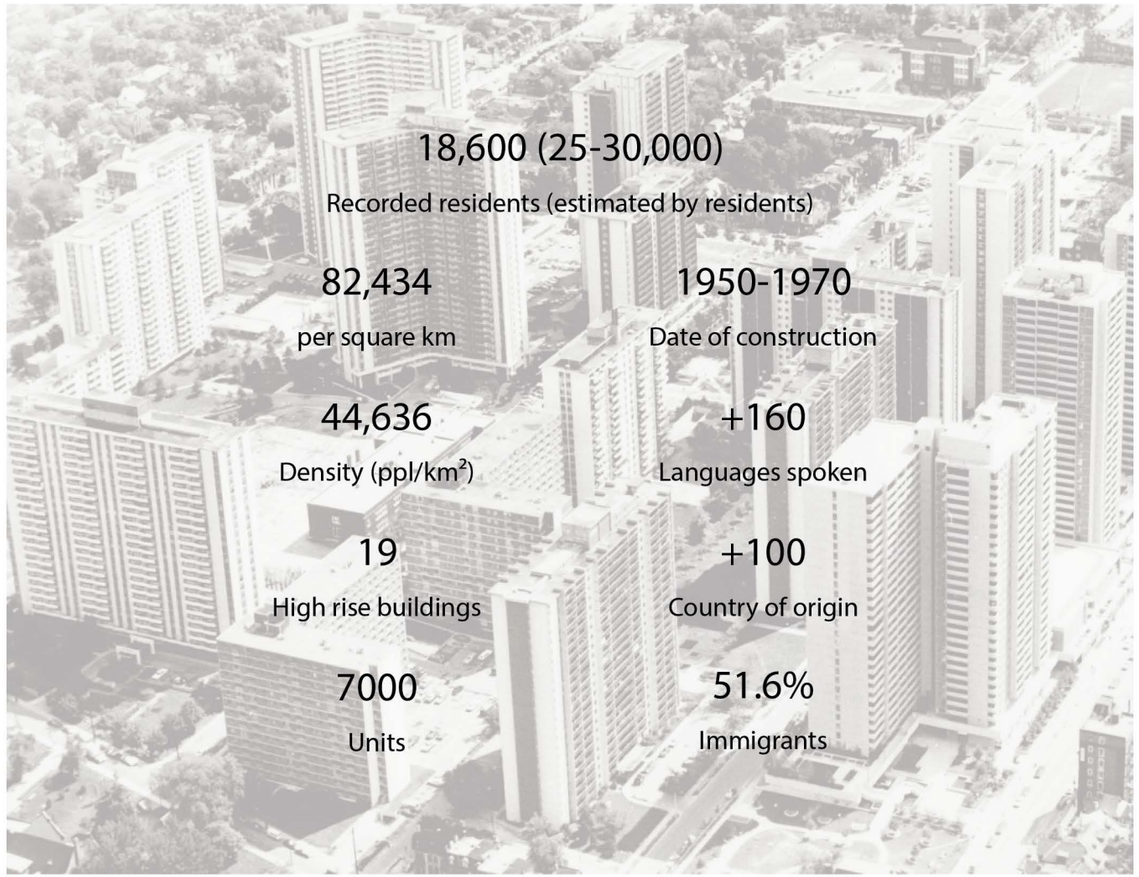
8 buildings

Ranee Management

2 buildings

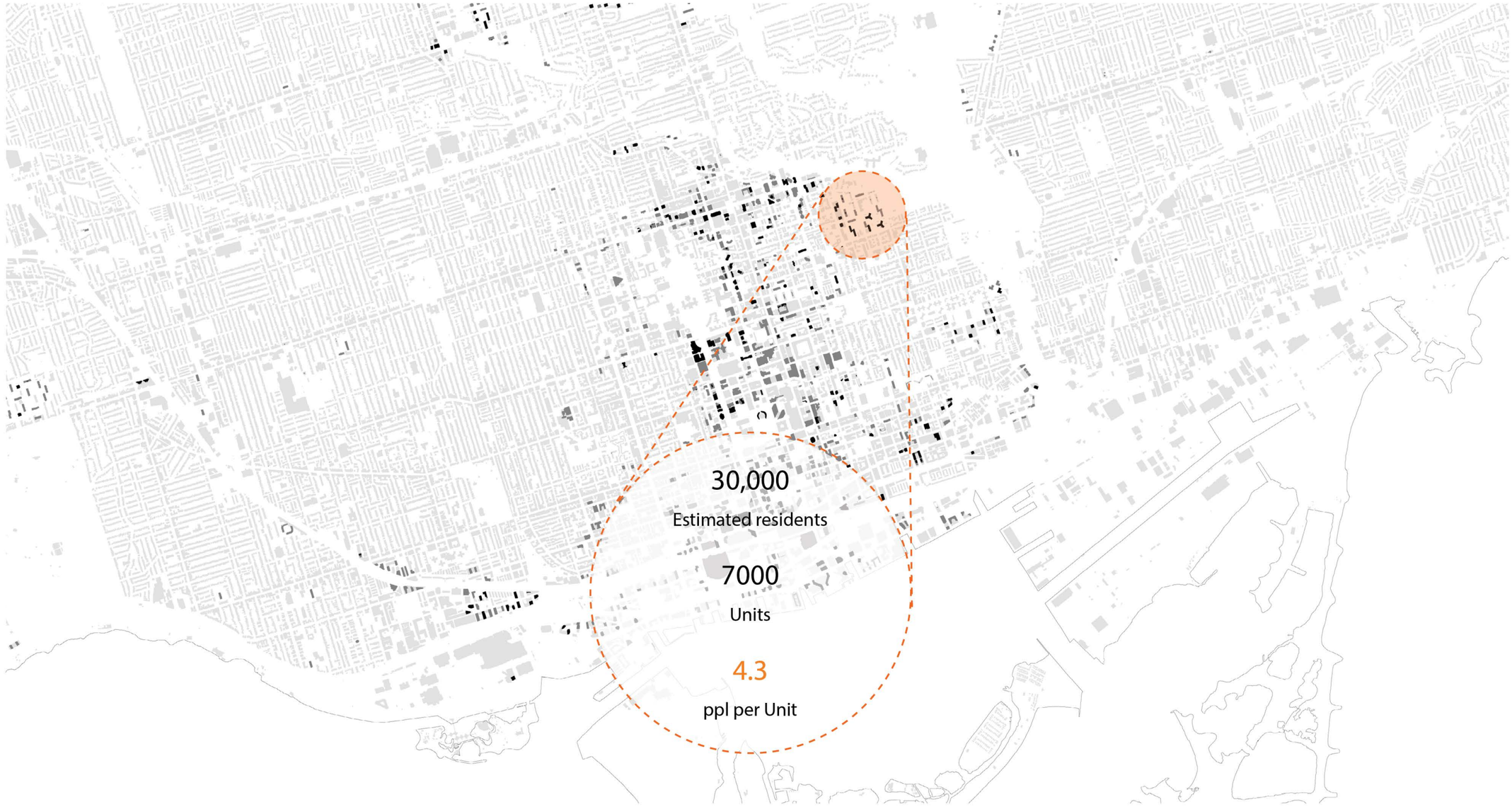
Toronto Community Housing Corporation

5 buildings



St. James Town

Demographics


30,000
Estimated residents
7000
Units
4.3
ppl per Unit


“a mine rich in gems of
inestimable value...”

facilitator preperation

youth group

youth training

bake sale service project

children's class festival

inviting youth to camps

investigating plant life

bball

studying with junior youth group

socializing

junior youth group

In Toronto Centre's North St. James Town, housing issues run high — but faith in federal fixes runs low

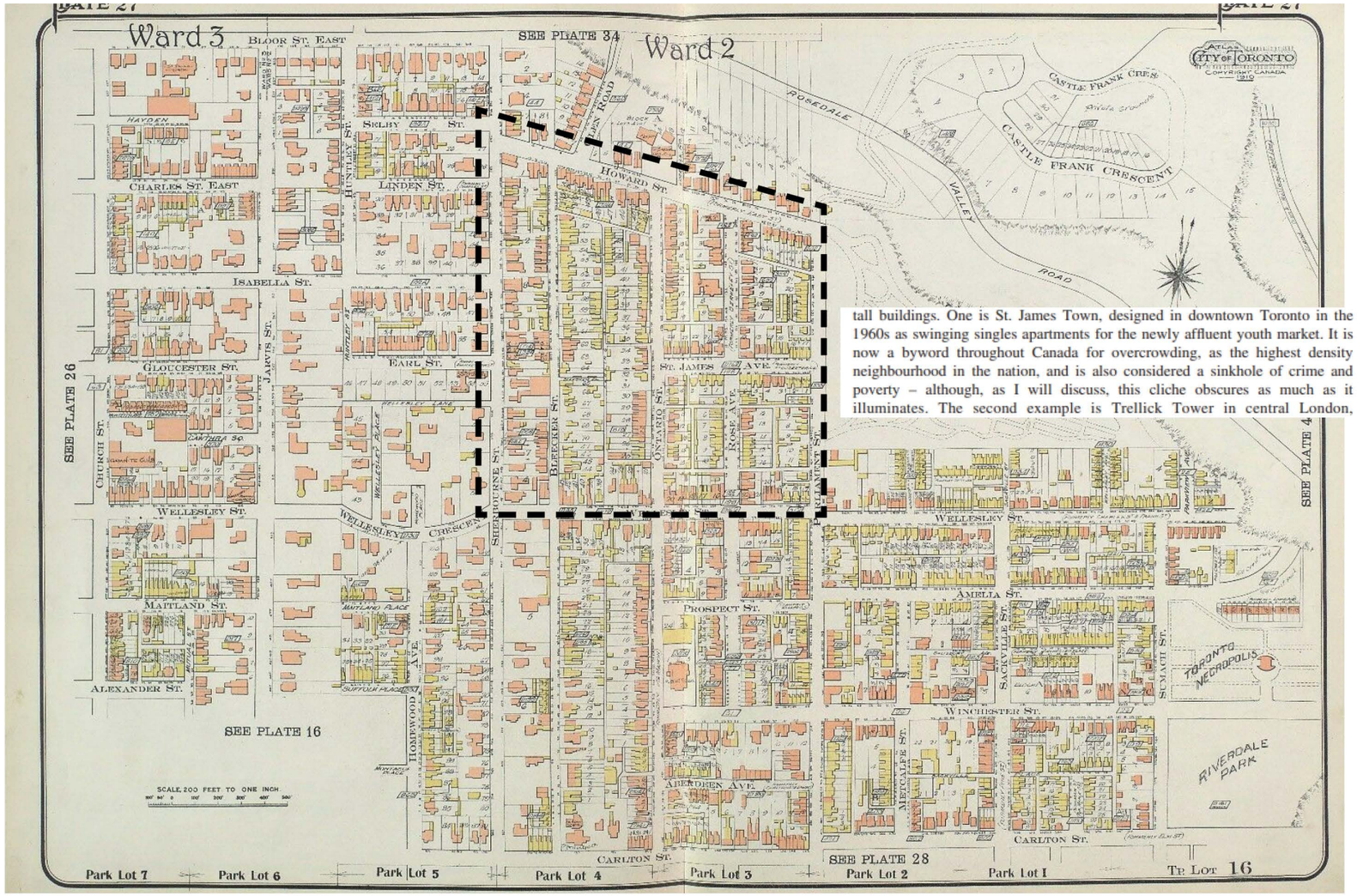
By Victoria Gibson Affordable Housing Reporter
Thu., Sept. 9, 2021 | 5 min. read

READ THE CONVERSATION (4)

We are all affected by the neglected maintenance of our housing.

At a North St. James Town community hub one recent afternoon, locals were swapping tales of broken elevators — recalling lines for the remaining lifts that snaked down hallways and trickled into parking lots, or that added 30 minutes to a work commute just to get downstairs.

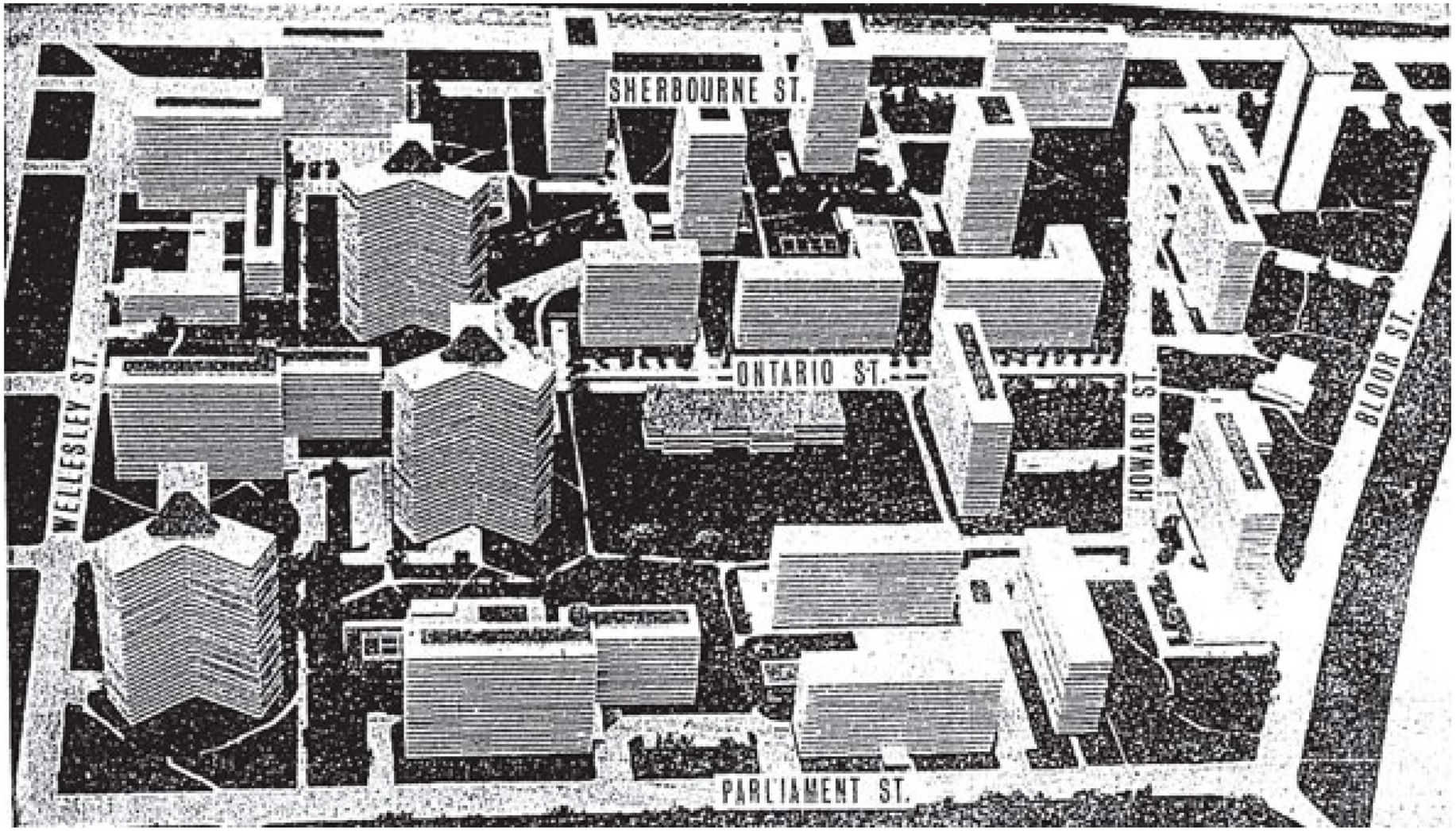
Can Tower Renewal simultaneously address social and ecological issues?



tall buildings. One is St. James Town, designed in downtown Toronto in the 1960s as swinging singles apartments for the newly affluent youth market. It is now a byword throughout Canada for overcrowding, as the highest density neighbourhood in the nation, and is also considered a sinkhole of crime and poverty – although, as I will discuss, this cliche obscures as much as it illuminates. The second example is Trellick Tower in central London,

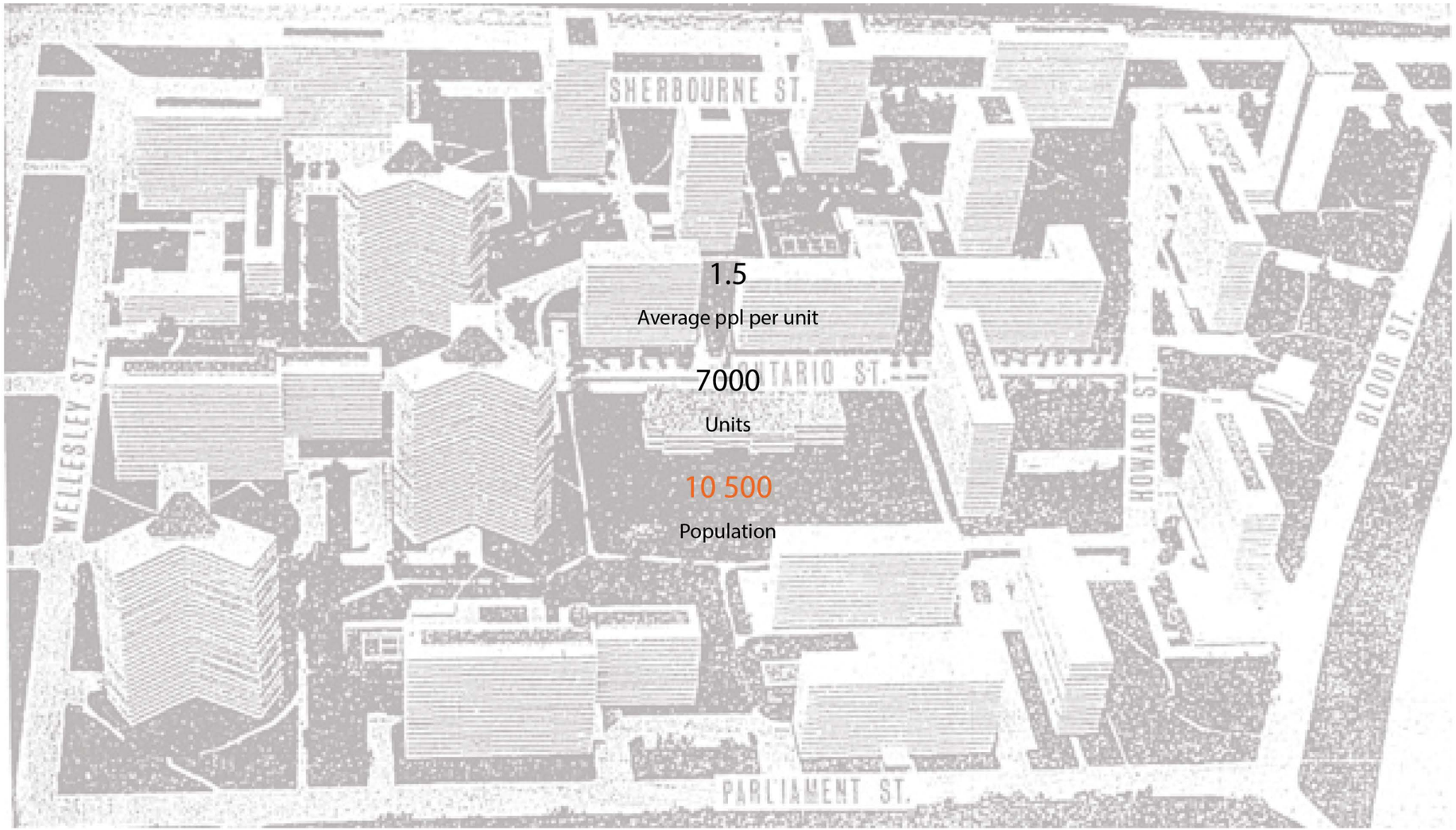
St. James Town

1910



St. James Town

1960's Tower Proposal



1.5

Average ppl per unit

7000

Units

10 500

Population

St. James Town

1960's Tower Proposal

Toronto Daily Star 3 METRO NEWS

SECTION 3—PAGES 33 TO 38 TUESDAY, APRIL 13, 1971 REACH FOR A STAR, MOST PEOPLE DO

Teachers plan to work to rule in North York

North York's 2,000 secondary school teachers say they will begin a work-to-rule campaign Monday to back demands for higher pay.

Bruce Bone, chairman of the 36-man board of education and a North York trustee, said the work-to-rule tactic will merely alienate the public and won't force his board to increase its offer of a pay raise for Metro's high school teachers that he says would total 7 per cent when regular annual increments are added on.

The teachers dispute this arithmetic. They say an increment is not part of the negotiations and the actual offer would mean a raise of 4 per cent or so.

Vote results released two weeks ago showed that 67 per cent of Metro teachers oppose accepting the board's offer and are demanding better maximum levels.

By working to rule, the teachers would work their scheduled classroom day but not accept extracurricular activities, such as coaching athletic teams or directing school plays.

The work-to-rule strategy is likely to promote more hostility toward the teachers among "the substantial body of public opinion that thinks we've gone too far with the offer we've already made," Bone predicted.

The rejected offer would give teachers a raise averaging $700 to $800, he said.

Bone said the work-to-rule routine shouldn't affect the quality of academic instruction in the borough's high schools.

Staff shortage ending court plans to resume treatment of juveniles

York County Family Court Clinic for juvenile offenders, forced since January to refer children elsewhere for help because of a staff shortage, will resume treating and diagnosing them Sept. 1.

Dr. Clive Chamberlain, 35, new director of the Jarvis St. clinic, says he hopes to have a "minimally operative" staff by that time to treat children referred from the court here been treated through emergency services provided by the Clarke Institute of Psychiatry.

Chamberlain said present staff of three full-time psychologists, one part-time psychiatrist and himself is not enough to treat the 80 children normally referred each month by the court.

By September, he hopes to

Woman gives up her fight, home to the developers

By MICHAEL COREN
Star staff writer

On both sides of Mrs. Pizanis Berghofer's home on Sherbourne St. there are fields of rubble and dust and mud.

The site—St. James Town West—is ready for the bulldozers, which will move in if City Council approves the Meridian Group's controversial plans for three more high-rise apartment buildings.

Mrs. Berghofer's house, with its 12 handsome rooms, its finely carved wooden mantelpieces and the brass fireplace set that she has polished for years, is the last building left standing on the block south of Howard St. almost to Wellesley St.

The 68-year-old grandmother moves out at the end of the month to a smaller house she has bought.

The land assemblers have bought and demolished 30 houses—including one owned by Mayor William Dennison.

'They started 2 years ago'

"They started two years ago, these real estate people, knocking on the door day after day wanting me to sell," she said.

"I talked to my neighbor and we agreed we wouldn't give in. Then one day she told me she'd sold. She cried to me, said she shouldn't have done it, said she should have listened to me.

"I gave up. It was no use arguing any longer."

Mrs. Berghofer came to Canada from Germany with her husband Henry in 1928 and in 1942 bought a house.

They had been living on Maitland Pl., and when that house was expropriated by the Board of Education, they bought their own place on Sherbourne St.

In the late 1950s they sold it, under threat of expropriation, to the Ontario Cancer Institute.

In 1959 they moved into their new home.

'I loved the place'

"It was in terrible shape," said Mrs. Berghofer. "We fixed the floors and the ceiling and the walls and the heating—my Lord, we must have spent $10,000.

"In November, when I decided to sell so they could knock it down, I stopped worrying. I loved the place, loved seeing it look good. But what was the use?"

Mrs. Berghofer is alone in the big house for the first time. Her husband who has had a series of strokes, has been in the Fudger House nursing home

10 500

1960

↑ 17 500

1996

↑ 18 570

2001

↓ 17 111

2006

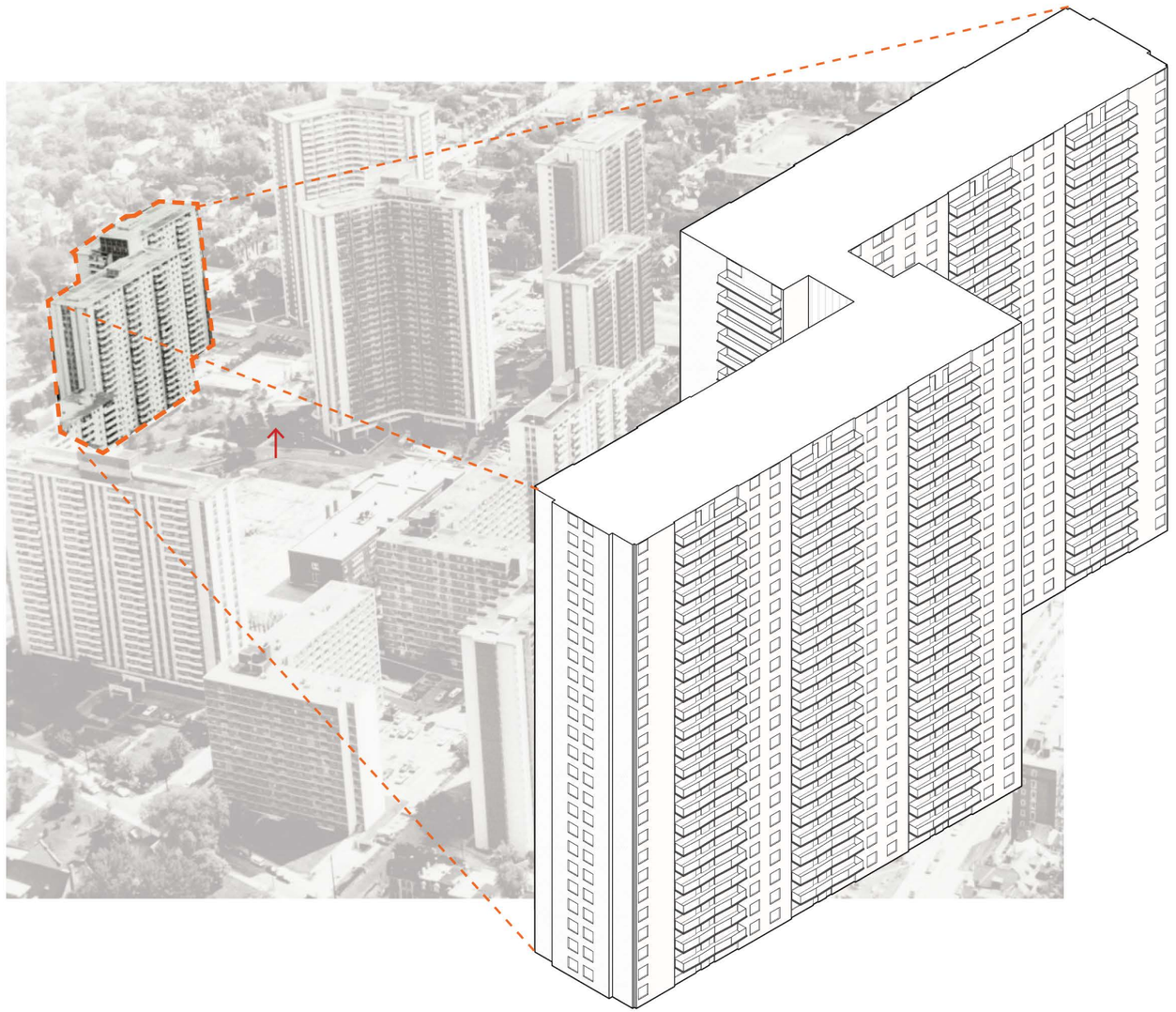
↑ 17 832

2011

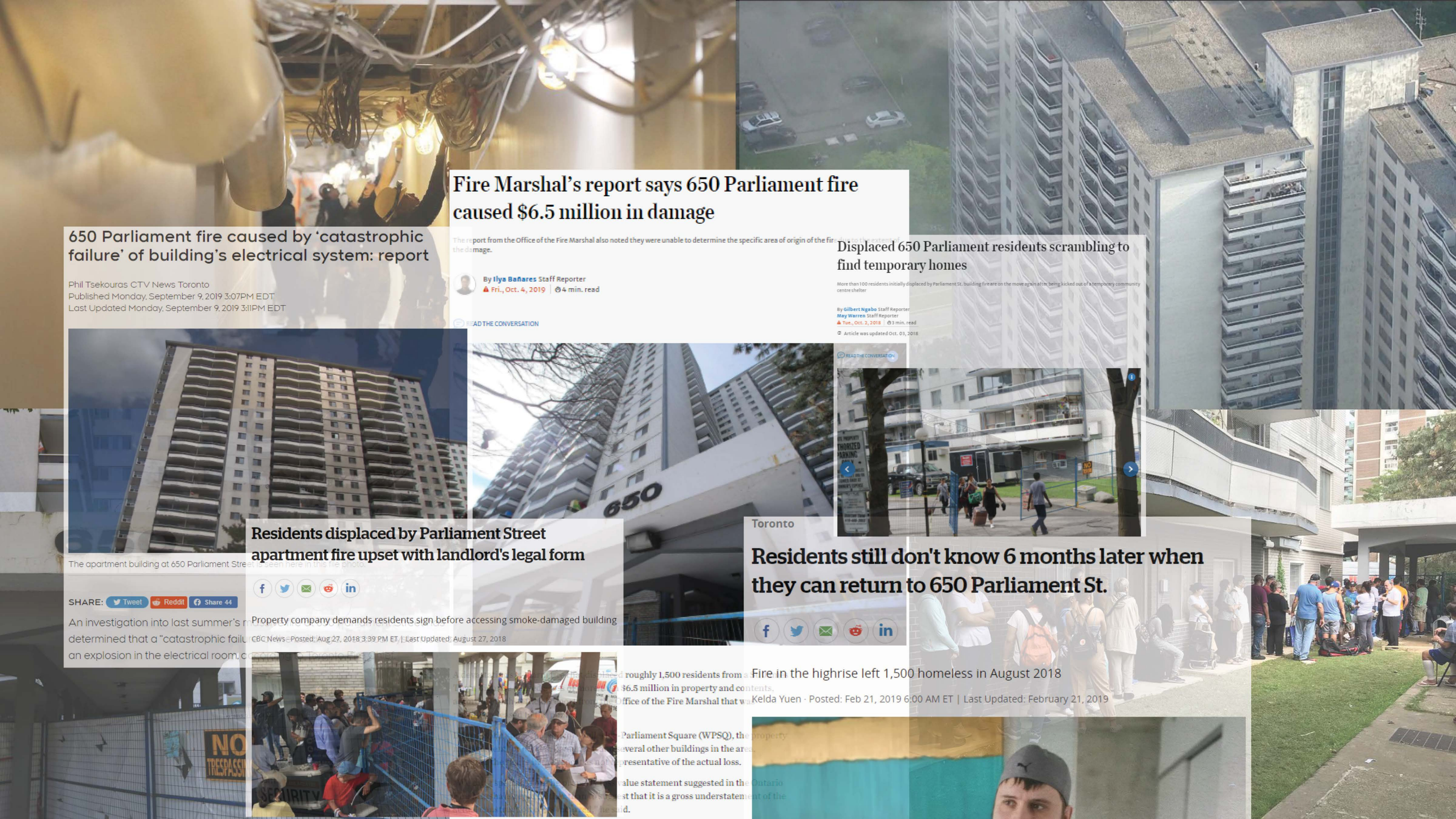
↑ 18 615

2016

Recorded Population



650 Parliament Street



650 Parliament fire caused by 'catastrophic failure' of building's electrical system: report

Phil Tsekouras CTV News Toronto
Published Monday, September 9, 2019 3:07PM EDT
Last Updated Monday, September 9, 2019 3:11PM EDT

Fire Marshal's report says 650 Parliament fire caused $6.5 million in damage

The report from the Office of the Fire Marshal also noted they were unable to determine the specific area of origin of the fire [illegible] the damage.

By Ilya Bañares Staff Reporter
Fri., Oct. 4, 2019 | 4 min. read

READ THE CONVERSATION

Displaced 650 Parliament residents scrambling to find temporary homes

More than 100 residents initially displaced by Parliament St. building fire are on the move again after being kicked out of a temporary community centre shelter

By Gilbert Ngabo Staff Reporter
May Warren Staff Reporter
Tue., Oct. 2, 2018 | 3 min. read
Article was updated Oct. 03, 2018

READ THE CONVERSATION

The apartment building at 650 Parliament Street [illegible] seen here in this file photo.

SHARE: Tweet Reddit Share 44

An investigation into last summer's [illegible] determined that a "catastrophic failu[illegible] an explosion in the electrical room, c[illegible]

Residents displaced by Parliament Street apartment fire upset with landlord's legal form

Property company demands residents sign before accessing smoke-damaged building

CBC News · Posted: Aug 27, 2018 3:39 PM ET | Last Updated: August 27, 2018

Toronto

Residents still don't know 6 months later when they can return to 650 Parliament St.

Fire in the highrise left 1,500 homeless in August 2018

Kelda Yuen · Posted: Feb 21, 2019 6:00 AM ET | Last Updated: February 21, 2019

[illegible] roughly 1,500 residents from [illegible] $6.5 million in property and co[illegible] ntents.
[illegible] ffice of the Fire Marshal that w[illegible]

[illegible] Parliament Square (WPSQ), th[illegible] property
[illegible] everal other buildings in the are[illegible]
[illegible] presentative of the actual loss.

[illegible] alue statement suggested in th[illegible] Ontario
[illegible] st that it is a gross understaten[illegible] nt of the
[illegible] d.

Bachelor

28

Area (m^2)

88

Units

Bachelor w Balcony

31.2

Area (m^2)

44

Units

Single Bed

44.5

Area (m^2)

321

Units

Double Bed

68

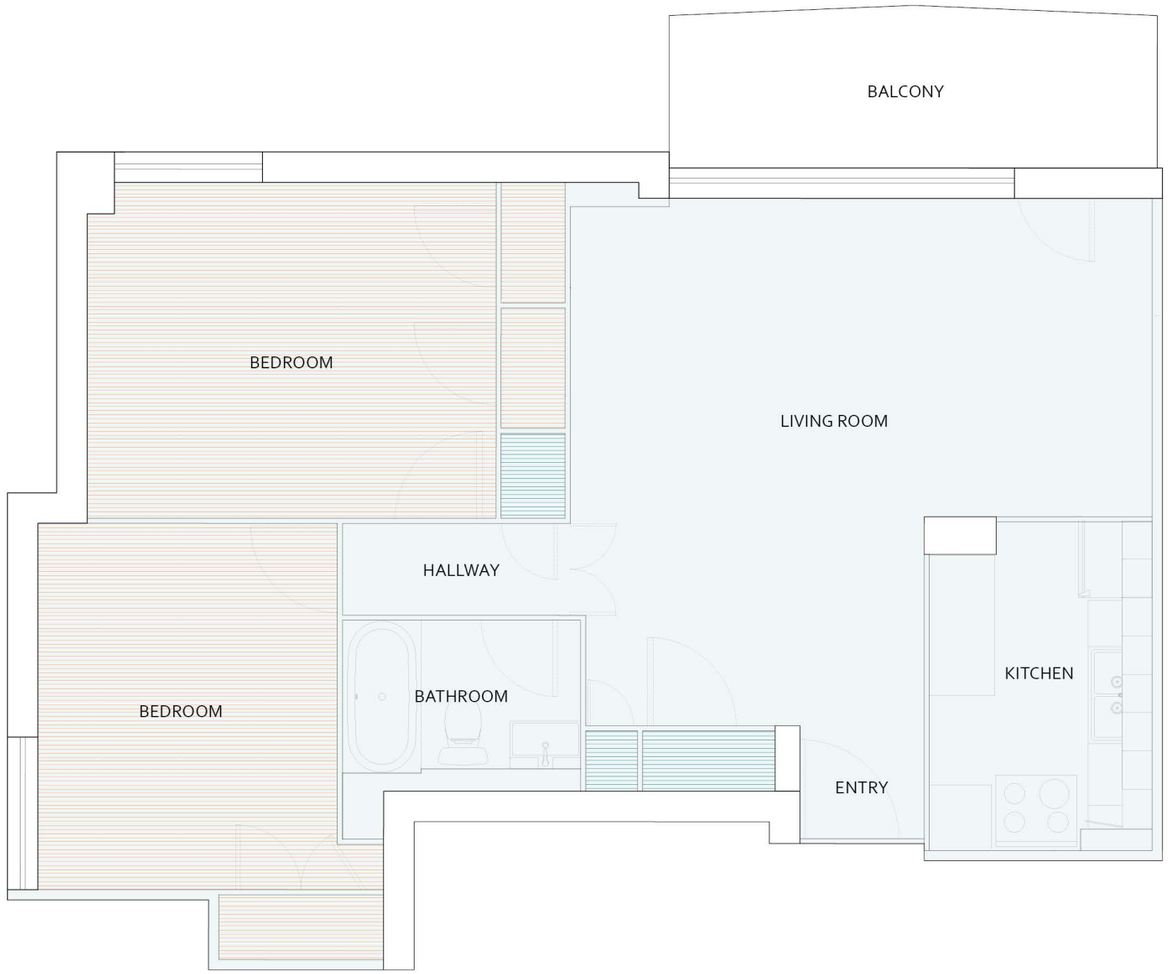
Area (m^2)

135

Units

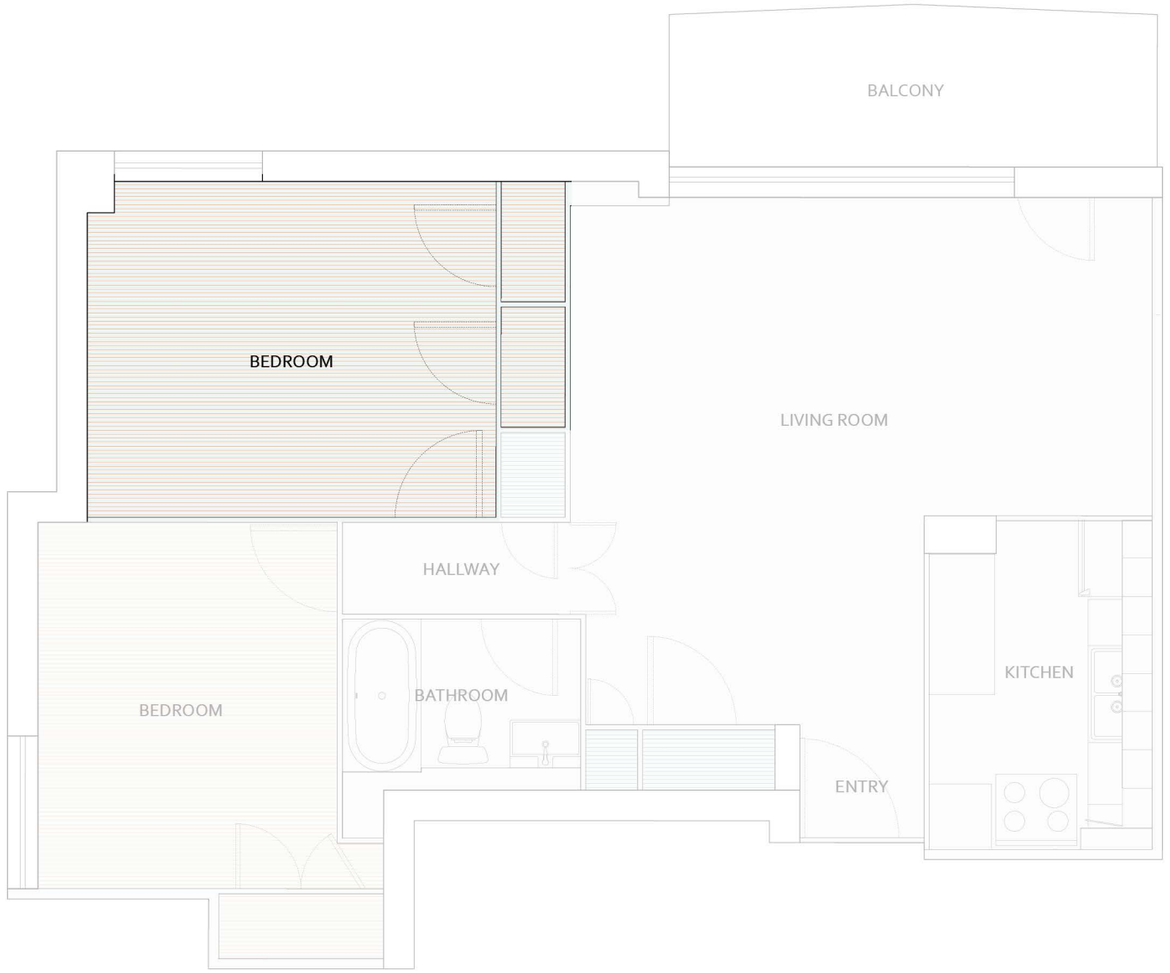
Floorplan Layout

594 Units



My Apartment

Unit 1926 - 2 Bed



My Apartment

Unit 1926 - 2 Bed

Desk (D)

Window (W)

Temperature Study

DATE		MORN			AFTERNOON			EVE		
		O	W	D	O	W	D	O	W	D
JAN	10									
	11	-18	6.9	13						
	12	-2	13.6	16.5						
	13		11.6		-2	16	18.2	-1	14	18.4
	14	-7	12	16.4	-9	11.6	18.2	-17	9.5	16.6
	15	-19	8.3	15.7	-16	10.8		-14	11.7	15.8
	16							0	13.5	16
	17	-5	10.9	15.5	-3	11.5	15.2	-3	12.6	16.2
	18	-8	13.2	16.3	-6	13.6	17.1	1	14.3	17.3
	19	4	14.3	17.6	-1			-6	13.8	17.8
	20	-16	15.4		-14			-14	15.3	17.1
	21	-17			-3			-13		
	22	-11	12.4	17.5	-6	15.4	17.5	-4	13.7	16.2
	23	-6	11.4	17.4	-12			-17		
	24	-7	11	17.3	-6	14.1	17.3	-4	13.8	17
	25	-9			-8			-10		
	26	-14	11.2	16.6	-12	12.2	16.1	-12		
	27	-6	14.5	17.1	-3	14.4	17.2	-4	13.9	17.4
	28	-16	8.8	17.1				-16	-9	16.5
	29	-18	8.1	16	-14	12	16	-12	12.1	15.6
	30	-9	11.8	15.6				-5	13.8	16.6
	31	-9	13.5	17				-1	14.3	17.4
FEB	1	-2	13	17.2						
	2	3	15.4	18.1				-9	11.8	16.1
	3	2	15	18.2				-5	13	17.6
	4	-11	10.5	15.7						
	5				-10	12.8	19.7			
	6		14.8	17						
	7									

Desk (D)

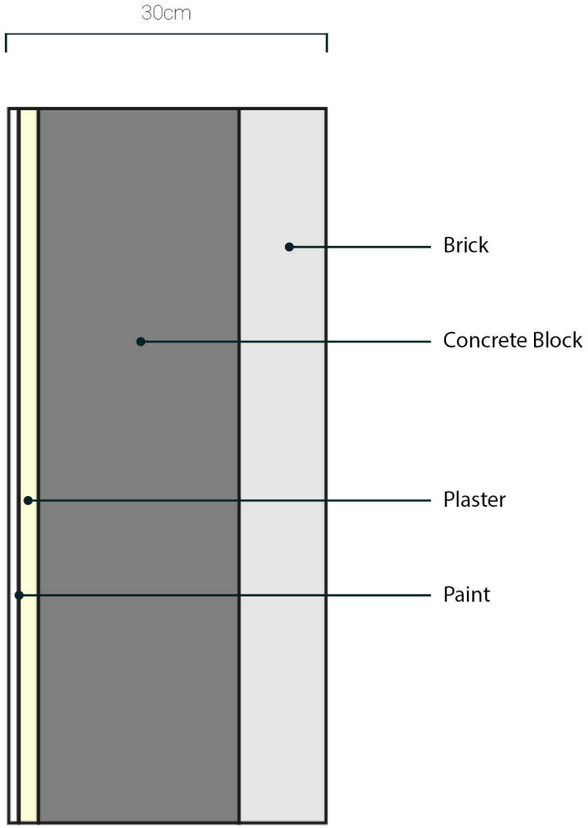
Window (W)

Temperature Study

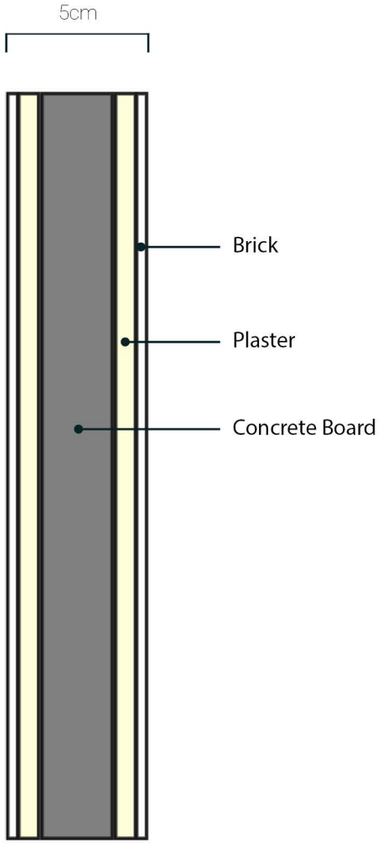
Window average: 7.2 °C
Desk average: 15.5 °C

DATE		MORN			AFTERNOON			EVE		
		O	W	D	O	W	D	O	W	D
JAN	10									
	11	-18	6.9	13						
	12	-2	13.6	16.5						
	13		11.6		-2	16	18.2	-1	14	18.4
	14	-7	12	16.4	-9	11.6	18.2	-17	9.5	16.6
	15	-19	8.3	15.7	-16	10.8		-14	11.7	15.8
	16							0	13.5	16
	17	-5	10.9	15.5	-3	11.5	15.2	-3	12.6	16.2
	18	-8	13.2	16.3	-6	13.6	17.1	1	14.3	17.3
	19	4	14.3	17.6	-1			-6	13.8	17.8
	20	-16	15.4		-14			-14	15.3	17.1
	21	-17			-3			-13		
	22	-11	12.4	17.5	-6	15.4	17.5	-4	13.7	16.2
	23	-6	11.4	17.4	-12			-17		
	24	-7	11	17.3	-6	14.1	17.3	-4	13.8	17
	25	-9			-8			-10		
	26	-14	11.2	16.6	-12	12.2	16.1	-12		
	27	-6	14.5	17.1	-3	14.4	17.2	-4	13.9	17.4
	28	-16	8.8	17.1				-16	-9	16.5
	29	-18	8.1	16	-14	12	16	-12	12.1	15.6
	30	-9	11.8	15.6				-5	13.8	16.6
	31	-9	13.5	17				-1	14.3	17.4
FEB	1	-2	13	17.2						
	2	3	15.4	18.1				-9	11.8	16.1
	3	2	15	18.2				-5	13	17.6
	4	-11	10.5	15.7						
	5				-10	12.8	19.7			
	6		14.8	17						
	7									

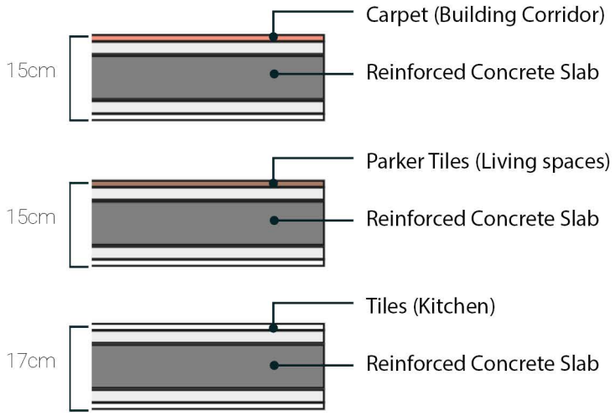
Coldest Days



Exterior Wall



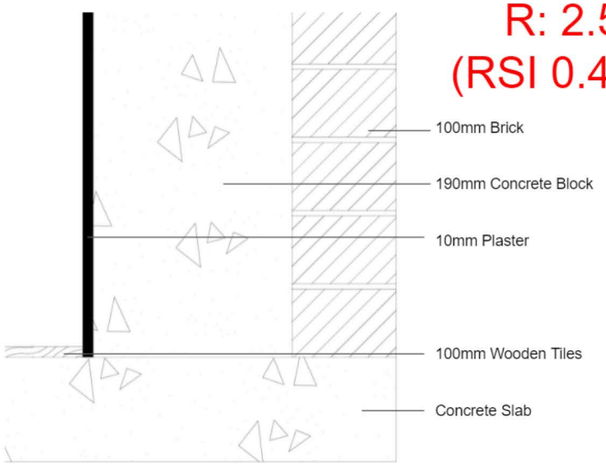
Interior Wall



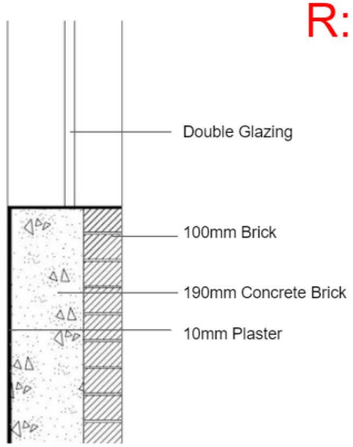
Flooring System

Building Materials of 650 Parliament Street

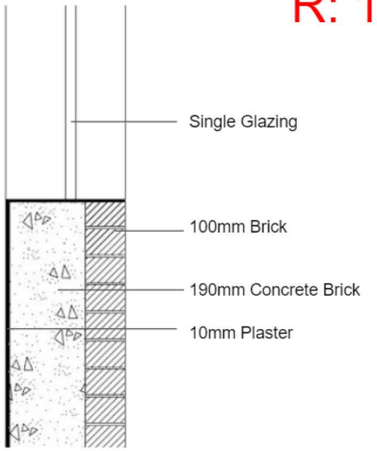
R-Value
R: 2.5 - 3.0
(RSI 0.44 - 0.53)



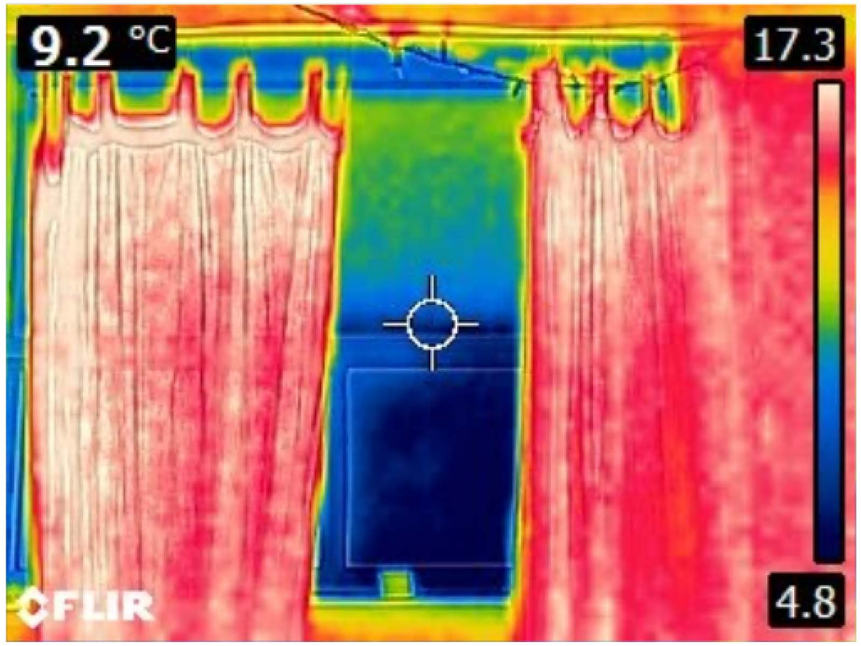
R-Value
R: 2.0-2.2

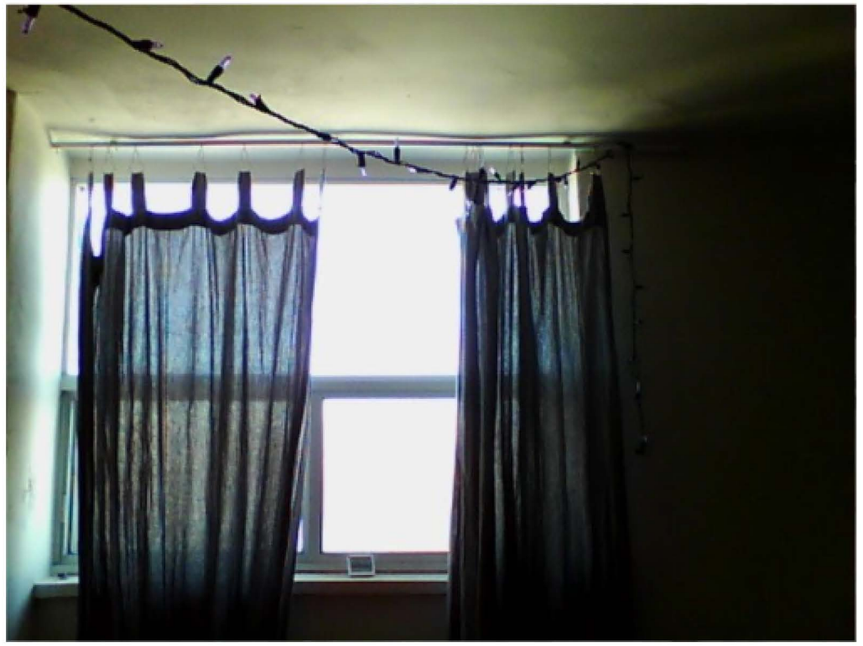


R-Value
R: 1.7 to 2.0



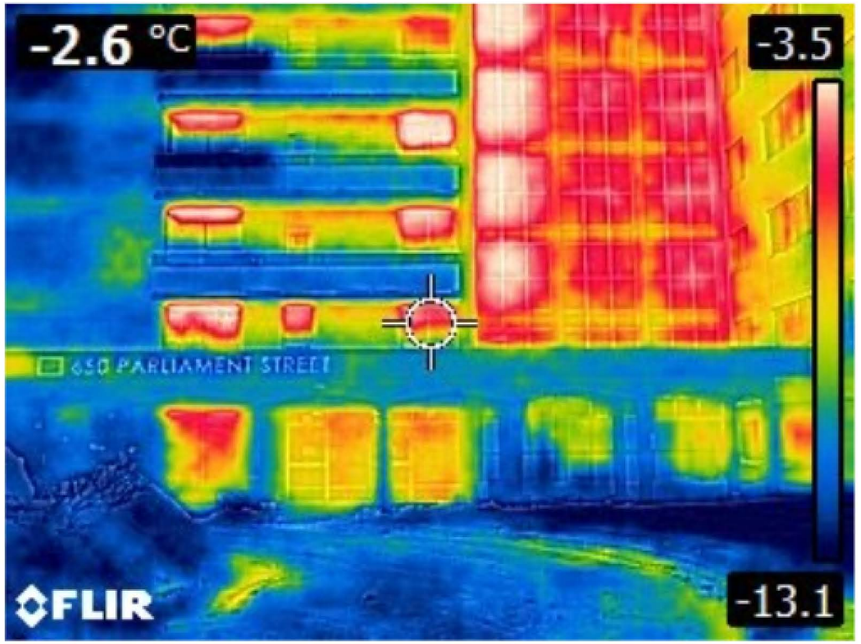
R-Value of 650 Parliament Street



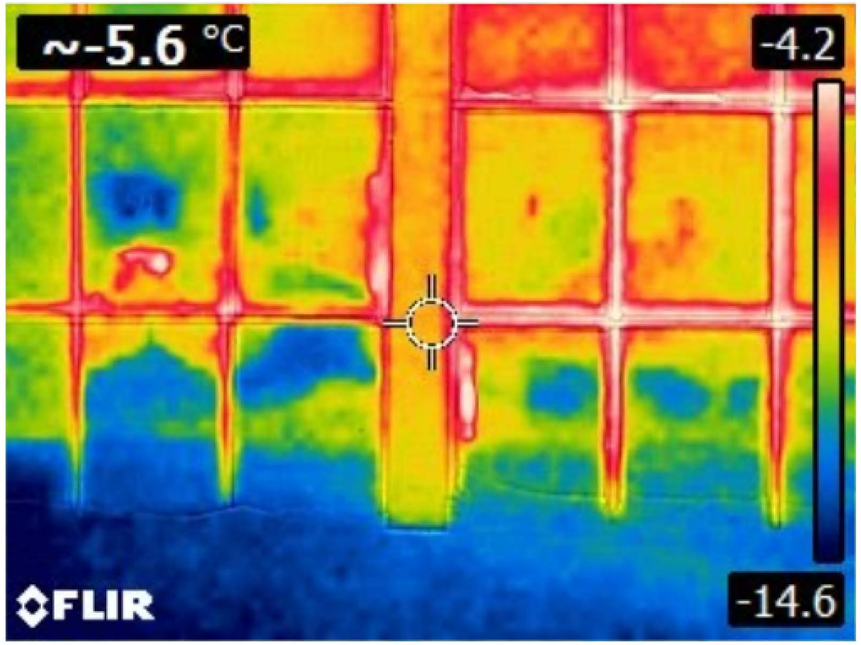


Bedroom Window

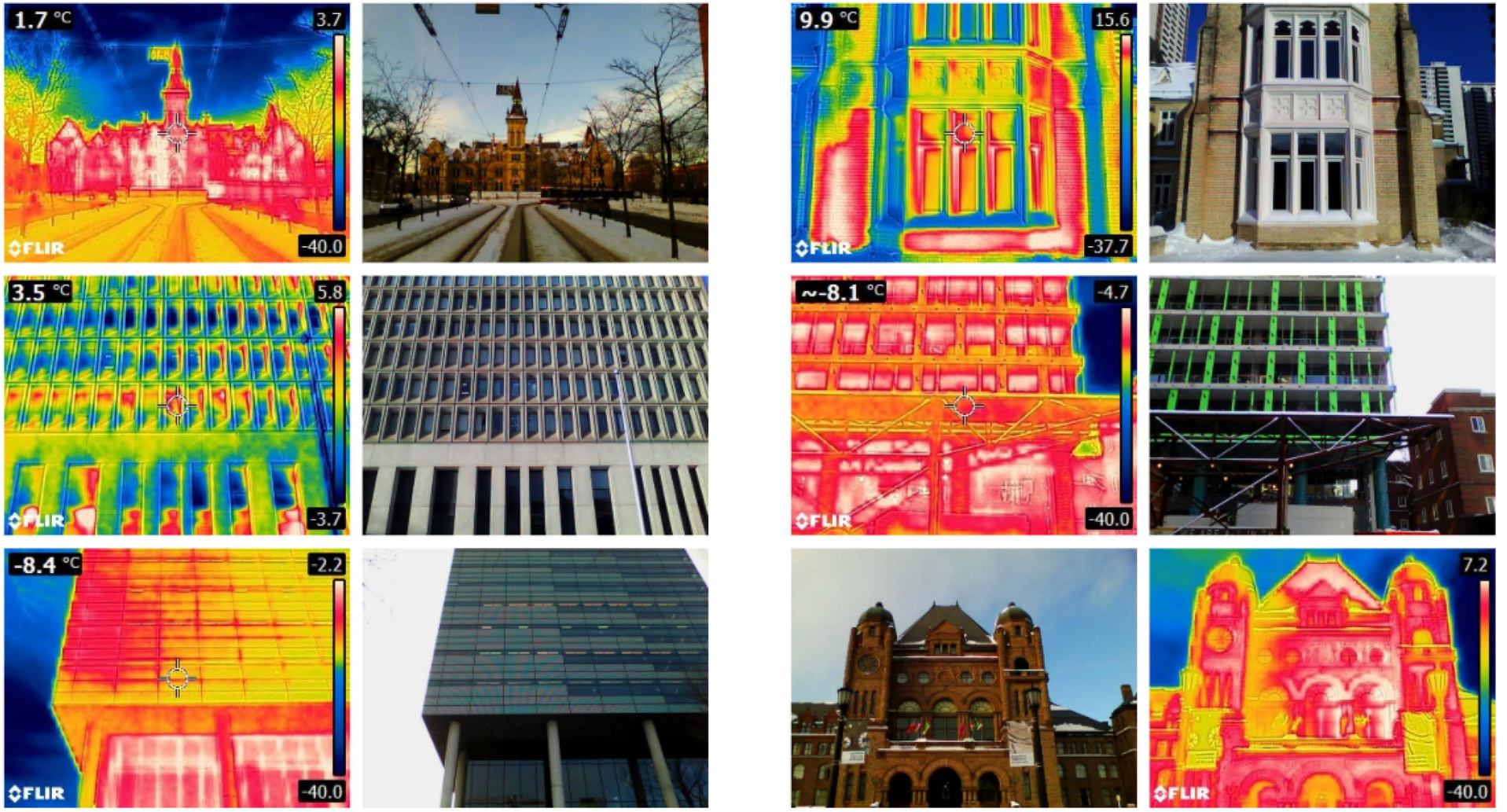
Bedroom Window



650 Parliament Street Exterior

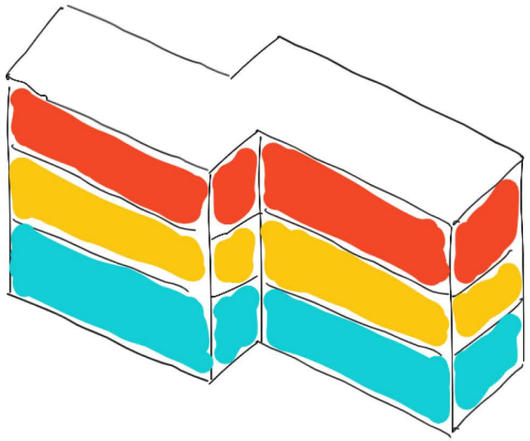


650 Parliament Street Exterior

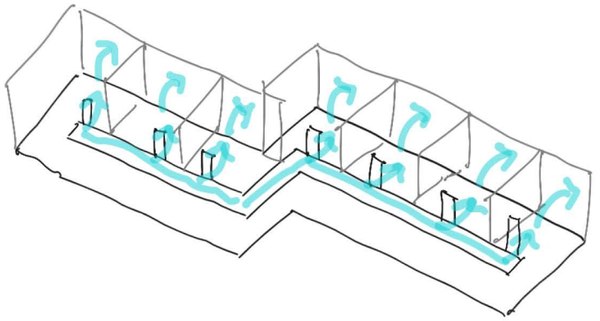


Thermal Temperature of Toronto's Facades

Operational issues sit within a larger set of issues



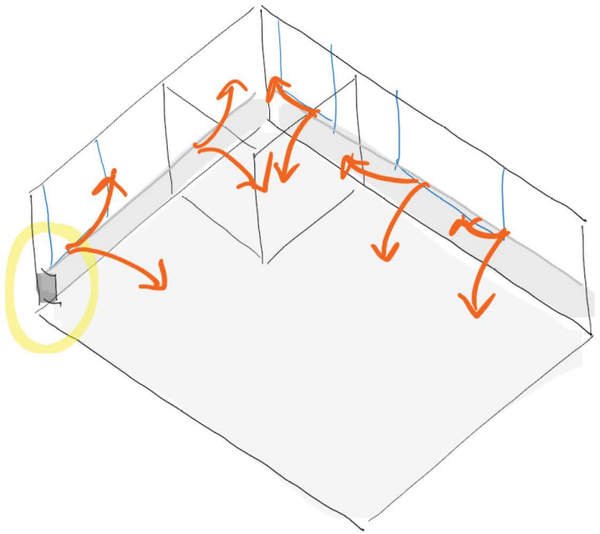
Stack Effect



Ventilation

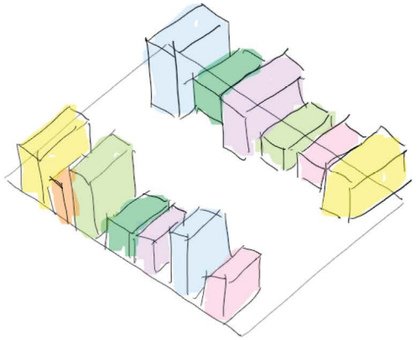
Orientation

Building Design

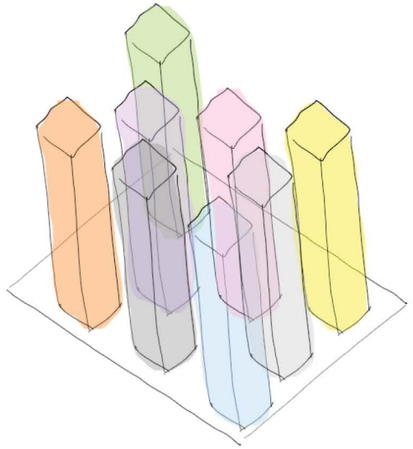


Building Maintenance

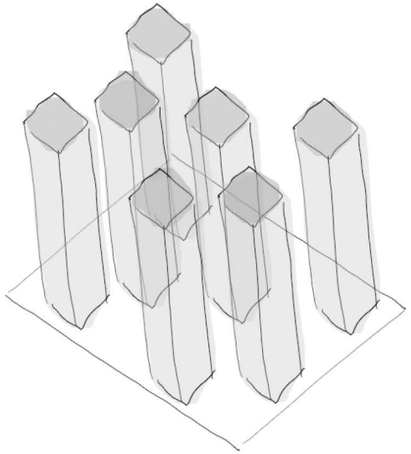
New Unit Heating System



Residential Housing

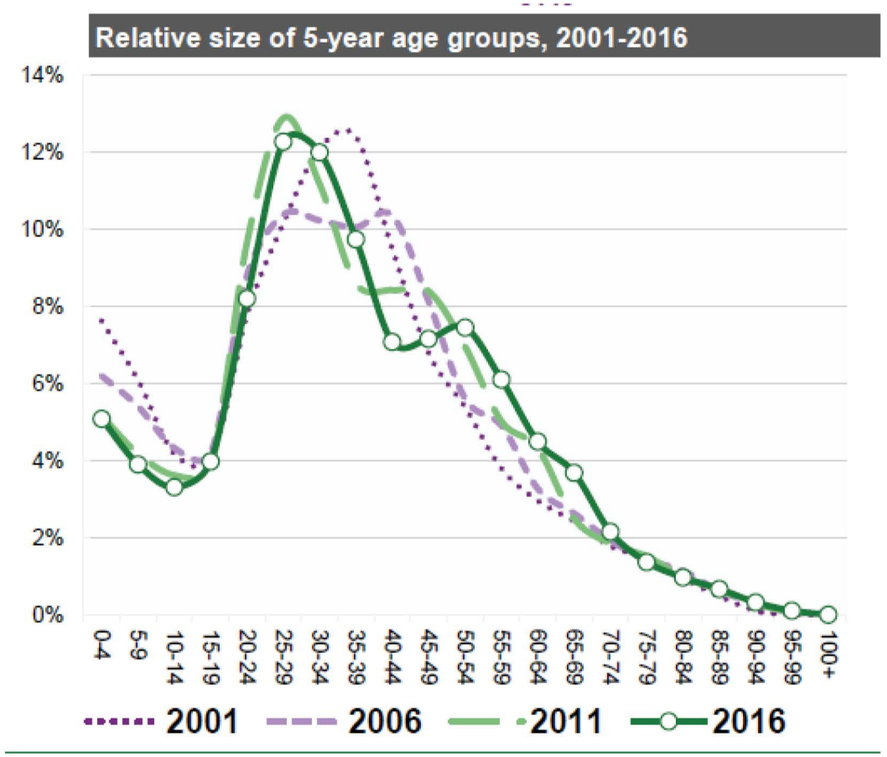


Rise of Towers



Commodification of Housing

Housing as a System



Role of Tenants

Young couples / new families

Bylaw enforcement - low heat - no heat - air conditioning - air conditioner units - residential properties

Back Feedback

Air conditioning (maximum temperatures)

Air Conditioning should go on, if provided/supplied by the property owner, from June 2nd to Sept. 14th to maintain an indoor temperature of not more than 26 degrees Celsius. Municipal Licensing & Standards is unable to take any action outside of these dates.

If an air conditioner is broken, a landlord is required to either fix it or replace it. There is no requirement for a landlord to install an air conditioner. For issues regarding request from landlord to tenant to remove an a/c unit, tenant should check lease agreement to see if any restrictions exist. This issue doesn't fall under Property Standards bylaw.

If you have concerns about air conditioning in your rental unit, please speak to your landlord, superintendent, the property manager and/or the proper owner in writing. You should make your request in writing to the landlord by completing a work order or a Standard Maintenance Request.

Note: No building permit is required to install a window air conditioner in a rental unit or privately owned home, but tenants should consult their lease agreement to determine if they are permitted in their units.

Important note: If the issue is not addressed within a reasonable amount of time, you can contact 311 to file a complaint. A service request will be submitted for investigation by Municipal Licensing & Standards.

No or Low Heat

No heat/low heat complaints for commercial properties are covered under the municipal regulations. Refer to the Ministry of Labour for heat complaints in commercial properties. The bylaw ONLY applies to residential properties.

Read additional information about low or no heat/other vital services in rental units.

Heating (Minimum temperatures)

A landlord is responsible for providing heat to a residential dwelling at a minimum of 21 degrees Celsius between September 15 and June 1 of each year. There are time periods during this stretch of time when the weather can be a bit warmer (September 15 to October 15 and May to June 1), which can cause the temperature indoors to be above 21 degrees Celsius, resulting in uncomfortable living conditions for tenants.

If the weather outside means that apartment units are 21 degrees Celsius without heat, property owners and landlords can turn the heat off.

If the heating/ventilation system is out of service and currently being repaired/maintained, this is NOT a violation and no investigation is required.

If you have concerns about the heating or cooling in your rental unit, you should inform the superintendent, the property manager and/or the proper owner in writing.

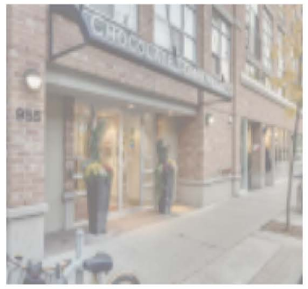
Important note: If the issue is not addressed within a reasonable amount of time, you can contact 311 to file a complaint. A service request will be submitted for investigation by Municipal Licensing & Standards.

Note: The Heating By-law does not apply to common areas (hallways, stairwells, building entrances, etc). The By-law only applies to the dwelling unit. If there is heating equipment in common areas, so long as the equipment is in good working order (Property Standards By-law requirement), there is no minimum temperature that applies to these areas.

Indoor Temperature By-Law

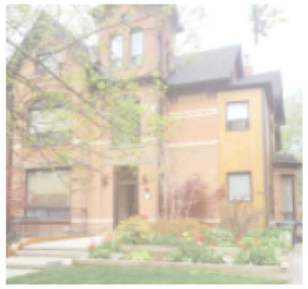
MEDALLION CAPITAL GROUP

Gorgeous 2 Bedroom Townhouse Condo (Church & Gerrard)

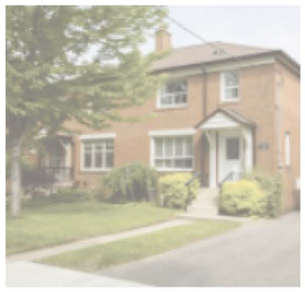


Furnished Bachelor Suite – Chocolate Lofts (Queen St West)

Beautiful Four Bedroom Home (St. Clair & Bathurst)

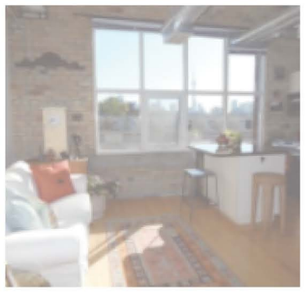


Gorgeous Three Bedroom Apartment – Jameson and King



Beautiful Three Bedroom Home Near Bloor West Village

Brand New Two Bedroom Ground Floor Condo – Milton



Bachelor Condo in Beautiful Chocolate Co. Lofts Next to Trinity

1 Bedroom Basement Apartment – Bathurst & St. Clair

3 Bedroom Semi in Bloor West Village (Annette & Runnymede)

Beautiful Three Bedroom Home – Bedford Park – Utilities Included (Lawrence & Avenue)

3 Storey Townhouse in Scarborough (Danforth & Warden)

Spacious, and bright two-storey unit at Dunn Ave and King St, Toronto

2 Bedroom 2 Bath Condo at Kipling Station! (Dundas & Bloor)

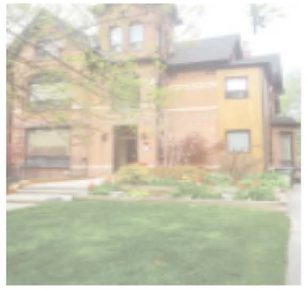
Renovated Two Bedroom in Mississauga! (Hurontario/Burnhamthorpe)

2 Bedroom Condo – Beautiful View (Square One)

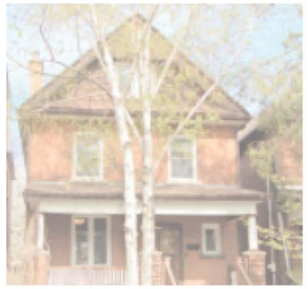
2 Bedroom, 2 Bathroom Condo in Iconic Marilyn Monroe Tower

One Bedroom Basement Apartment (Avenue & Lawrence)

Two Bedroom Condo – Bathurst and St. Clair



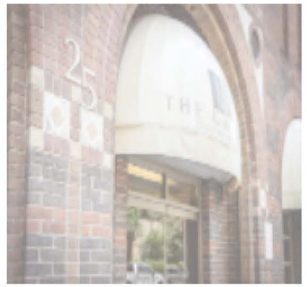
Beautiful 2 Bedroom Loft in Parkdale



Beautiful 2.5 Storey Home in High Park North (Annette & Runnymede)

1 + 1 Bedroom Condo – Junction

Commercial Space – Greektown (Danforth & Jones)



Gorgeous 1 bedroom condo in The Gallery Condos (Bay/College)

Beautiful One Bedroom Plus Den – Yonge and Bloor

No landlord incentive.

...any additional services if needed (if necessary add additional pages):

The following utilities are the responsibility of:

Electricity	☐ Landlord	☑ Tenant
Heat	☑ Landlord	☐ Tenant
Water	☑ Landlord	☐ Tenant

If the tenant is responsible for any utilities, provide details of the arrangement, e.g. tenant sets up account with and pays the utility provider, tenant pays a portion of the utility costs (if necessary add additional pages):

Note: If the tenant will be responsible for paying for electricity measured by a meter or suite meter, the landlord must give the prospective tenant available information about the electricity usage in the rental unit over the last twelve months using the appropriate Landlord and Tenant Board form.

7. Rent Discounts

No tenant incentive.

Select one:

☑ There is no rent discount.

or

☐ The lawful rent will be discounted as follows:

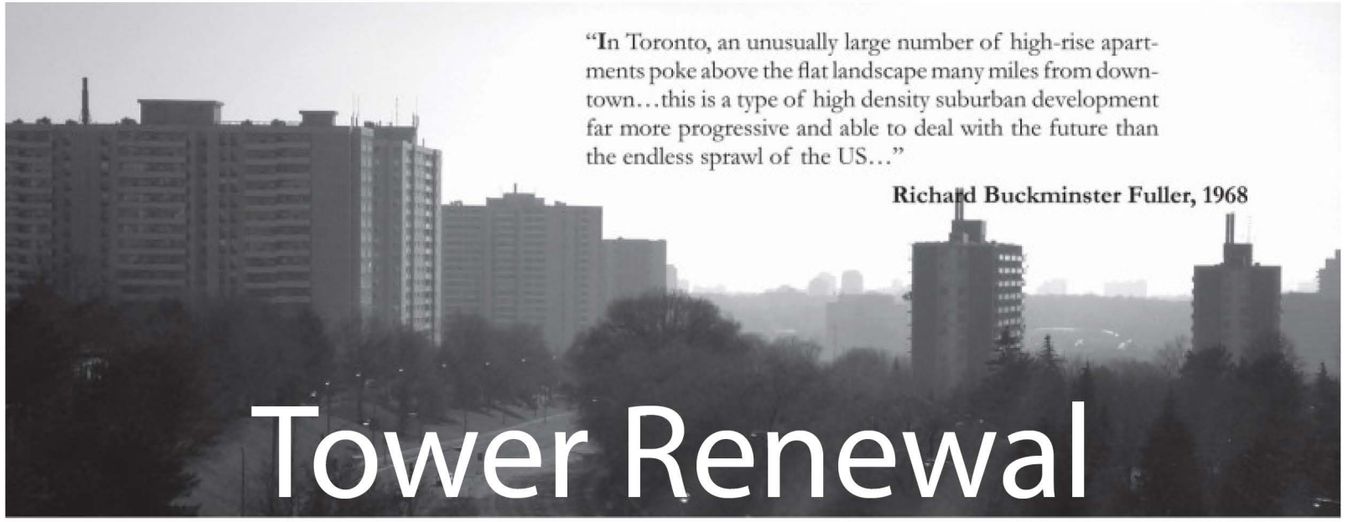
Provide description of rent discount (if necessary add additional pages):

Note: See Part G in General Information for what types of discounts are allowed.

8. Rent Deposit

Select one:

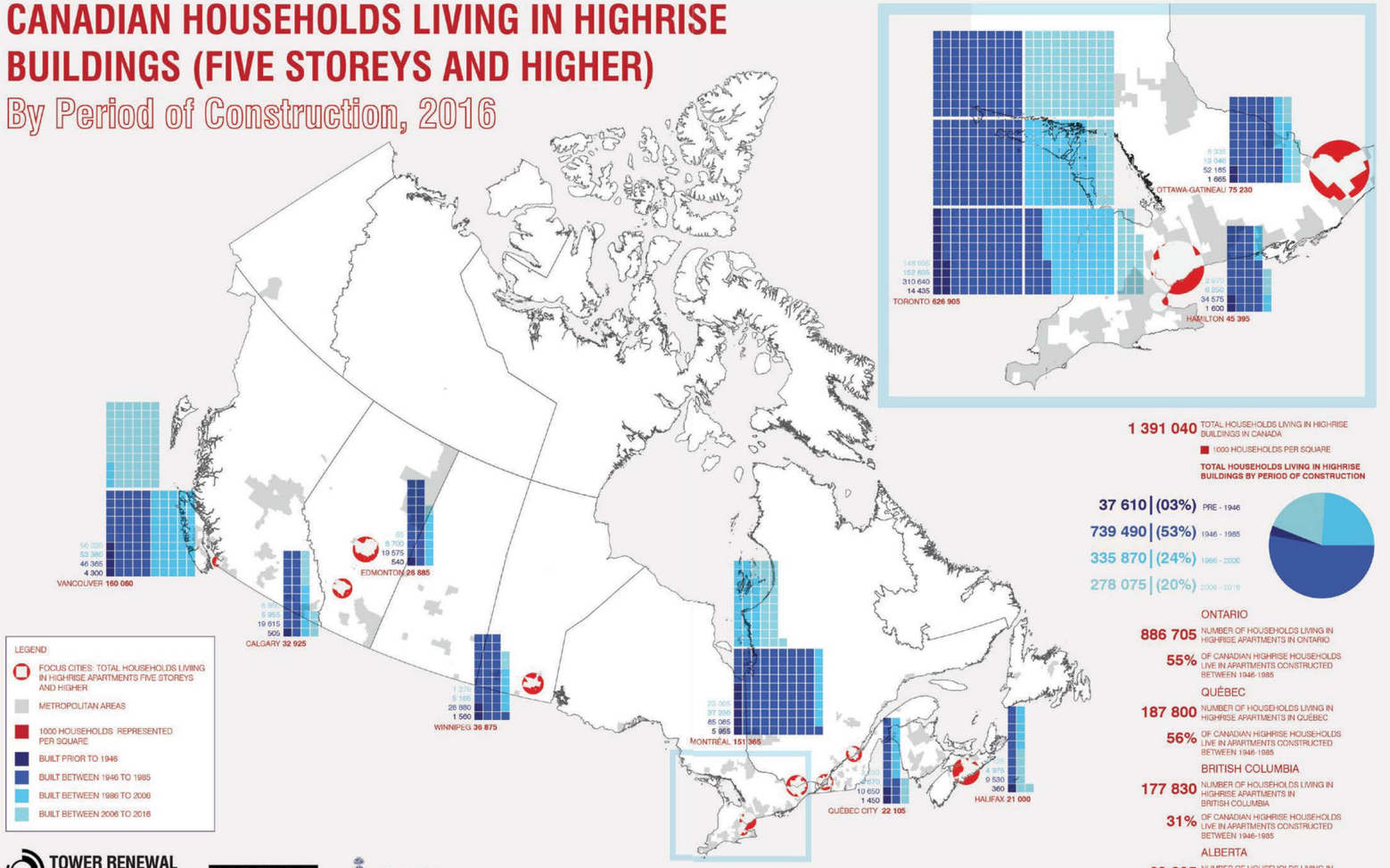

city?
landlord?
building manager?
tenant?
Who is responsible?



Tower Renewal

CANADIAN HOUSEHOLDS LIVING IN HIGHRISE BUILDINGS (FIVE STOREYS AND HIGHER)

By Period of Construction, 2016



1 391 040 TOTAL HOUSEHOLDS LIVING IN HIGHRISE BUILDINGS IN CANADA

■ 1000 HOUSEHOLDS PER SQUARE

TOTAL HOUSEHOLDS LIVING IN HIGHRISE BUILDINGS BY PERIOD OF CONSTRUCTION

37 610 | (03%) PRE - 1946

739 490 | (53%) 1946 - 1985

335 870 | (24%) 1986 - 2006

278 075 | (20%) 2006 - 2016

ONTARIO

886 705 NUMBER OF HOUSEHOLDS LIVING IN HIGHRISE APARTMENTS IN ONTARIO

55% OF CANADIAN HIGHRISE HOUSEHOLDS LIVE IN APARTMENTS CONSTRUCTED BETWEEN 1946-1985

QUÉBEC

187 800 NUMBER OF HOUSEHOLDS LIVING IN HIGHRISE APARTMENTS IN QUÉBEC

56% OF CANADIAN HIGHRISE HOUSEHOLDS LIVE IN APARTMENTS CONSTRUCTED BETWEEN 1946-1985

BRITISH COLUMBIA

177 830 NUMBER OF HOUSEHOLDS LIVING IN HIGHRISE APARTMENTS IN BRITISH COLUMBIA

31% OF CANADIAN HIGHRISE HOUSEHOLDS LIVE IN APARTMENTS CONSTRUCTED BETWEEN 1946-1985

ALBERTA

62 395 NUMBER OF HOUSEHOLDS LIVING IN HIGHRISE APARTMENTS IN ALBERTA

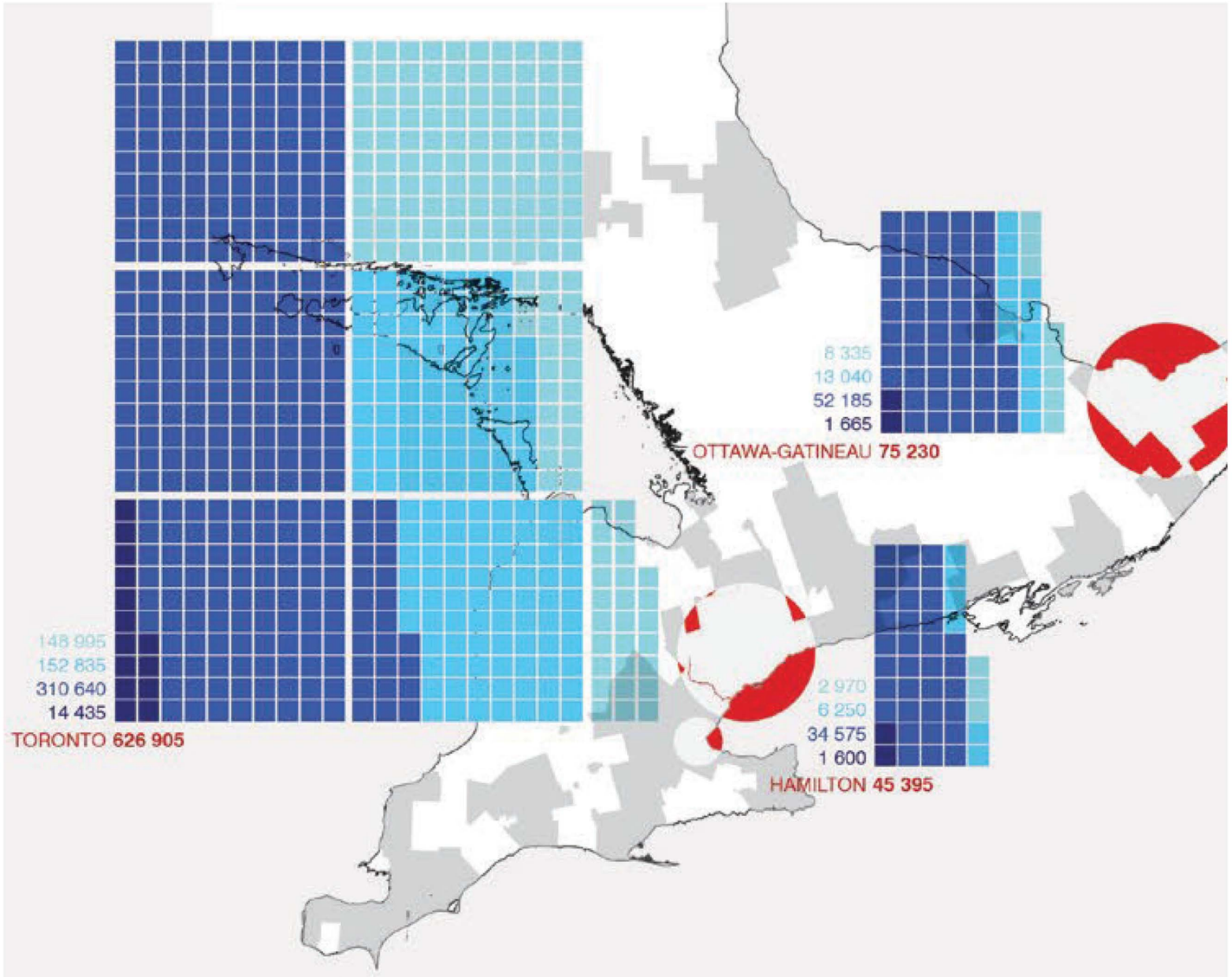
66% OF CANADIAN HIGHRISE HOUSEHOLDS LIVE IN APARTMENTS CONSTRUCTED BETWEEN 1946-1985

TOWER RENEWAL PARTNERSHIP

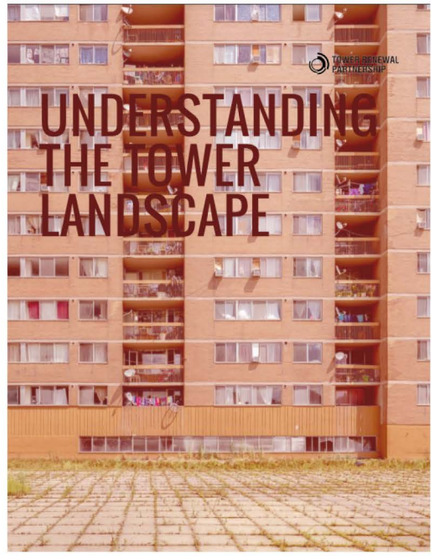
NEIGHBOURHOOD CHANGE

UNIVERSITY OF TORONTO

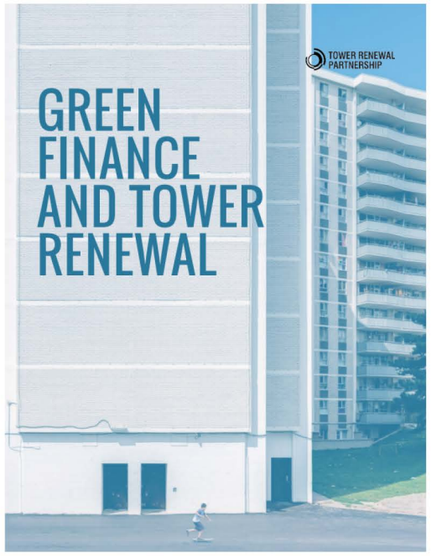
SOURCE: STATISTICS CANADA, CMA DATA, CENSUS 2006/2016



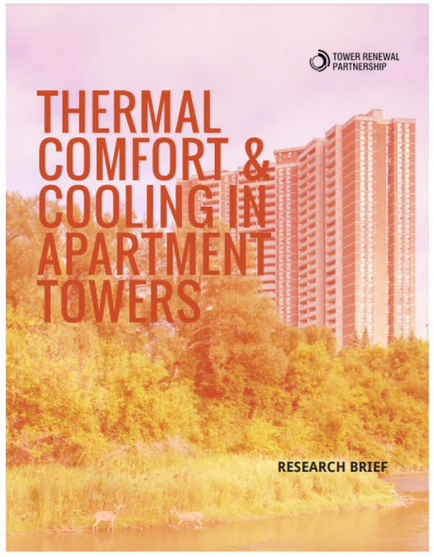
1/2 of Toronto Towers Built between 1960 to 1980



2016

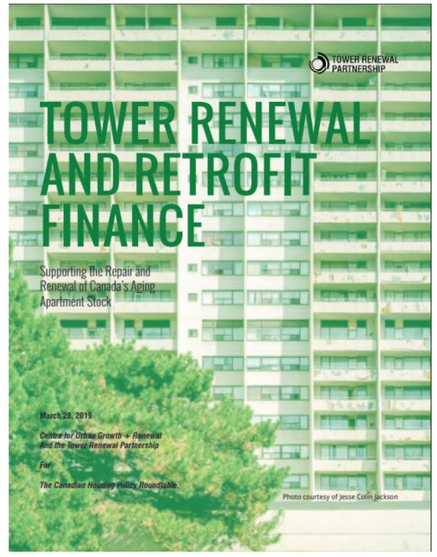


2016

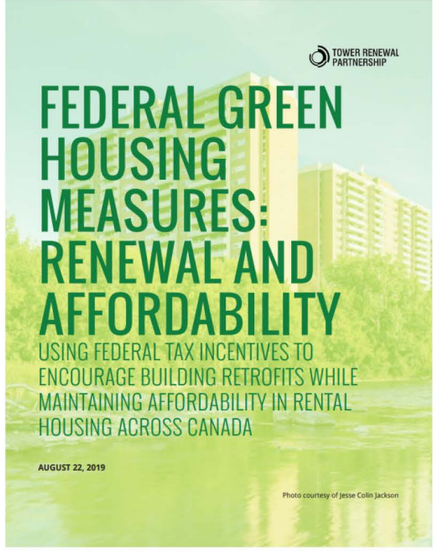


2017

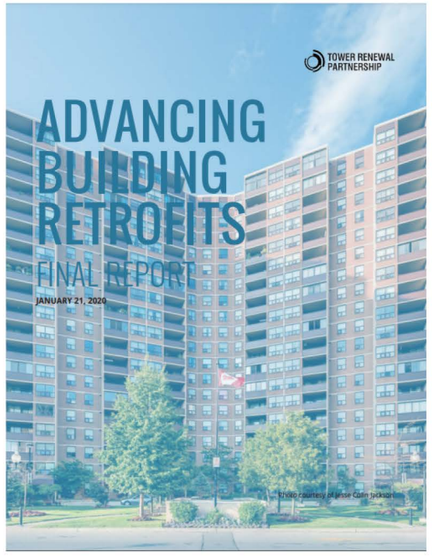
2018



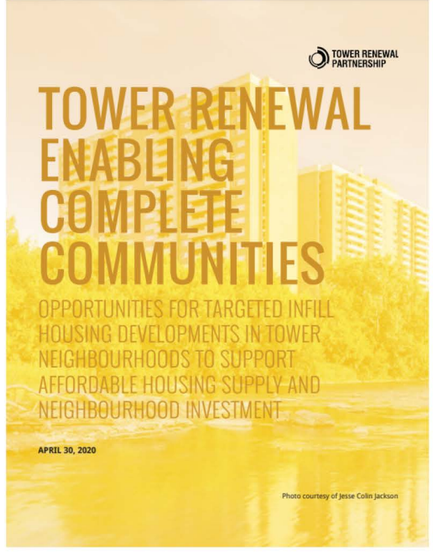
2019



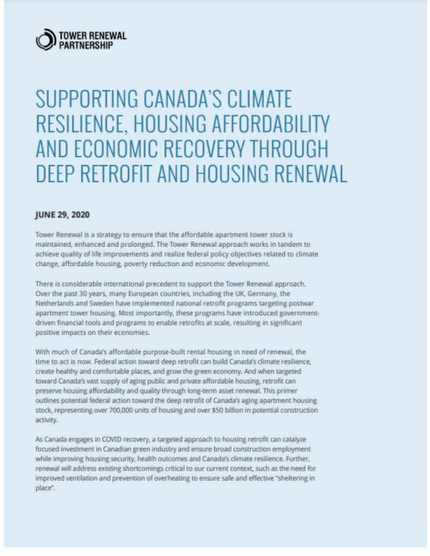
2019



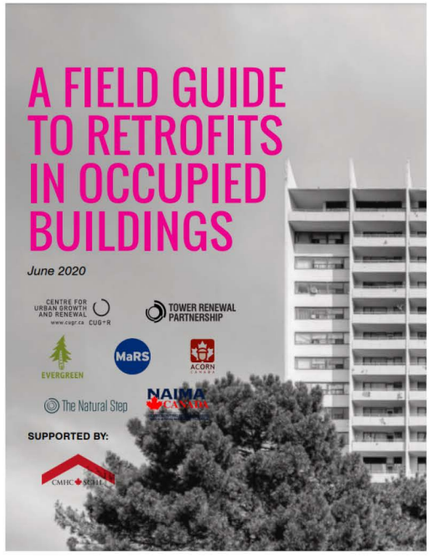
2020



2020

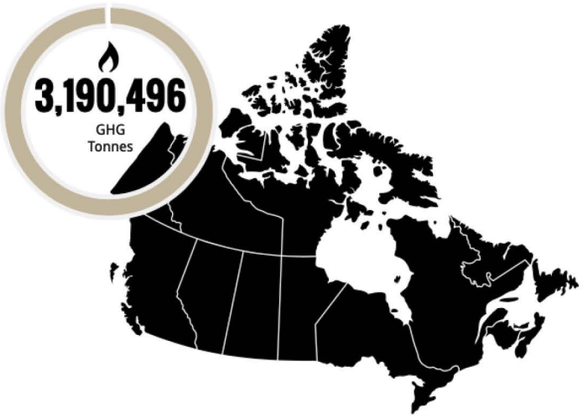


2020



2020

Tower Renewal Partnership Learning Documents



4.11 GHG/Unit

IN CANADA THERE ARE 777,100 HOUSEHOLDS LIVING IN AGING POST-WAR HIGHRISES.
EACH HOUSEDHOLD EMITS 4.11 TONNES GHG/YR*.

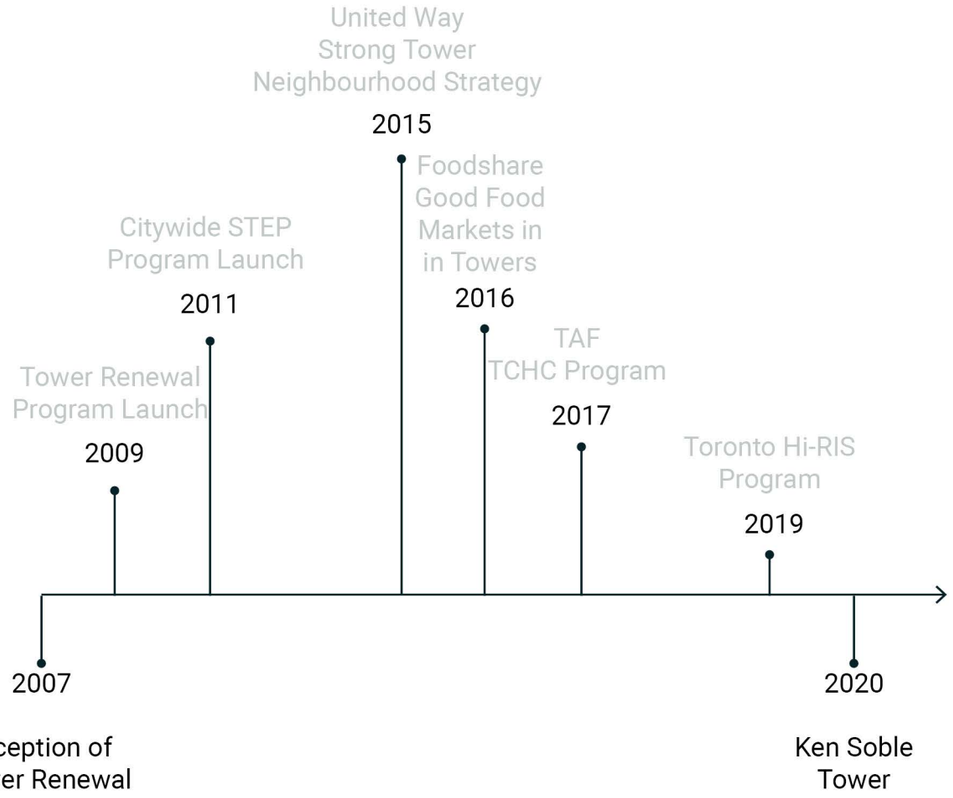
0.41 GHG/Unit

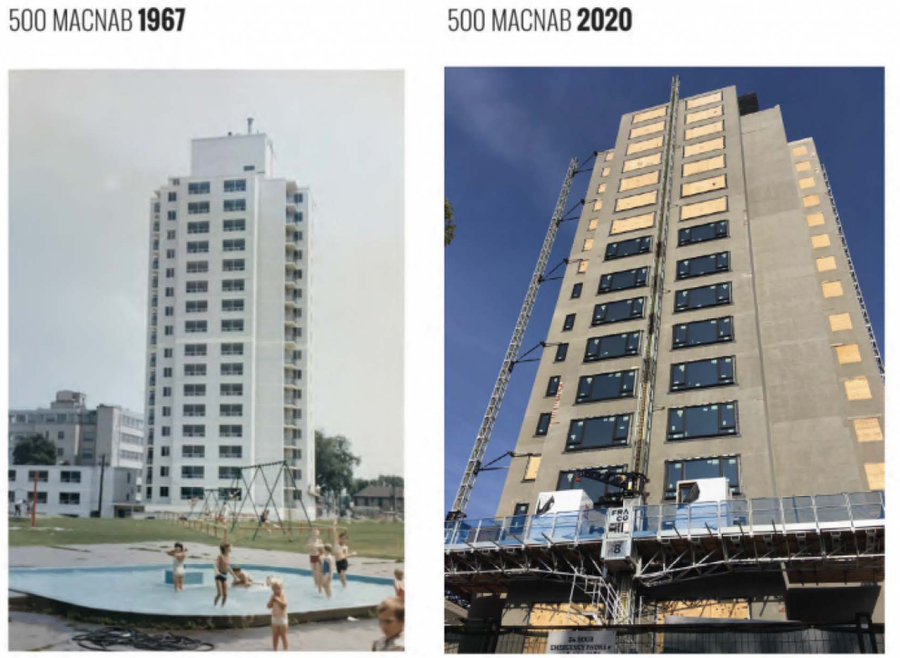
FOLLOWING RETROFIT GHG REDUCTION OF 90%

EACH HOUSEHOLD*

** The average based on typical building condition per city of Toronto 2016*

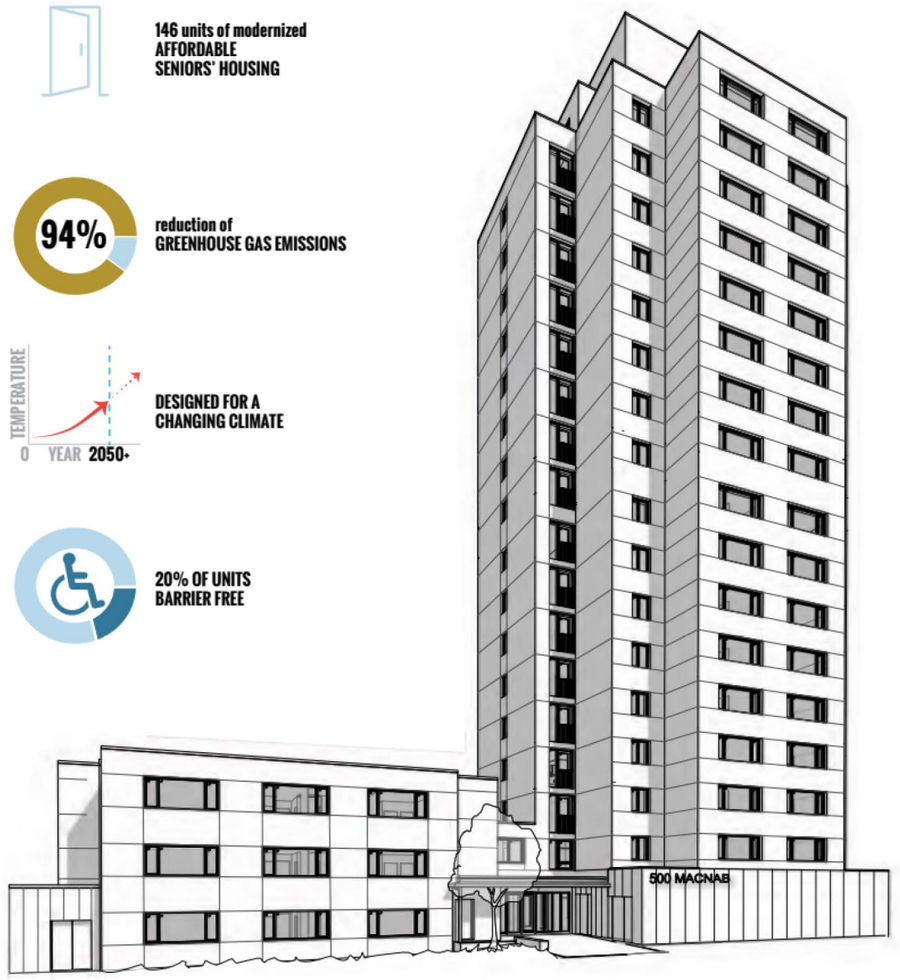
National Carbon Impact

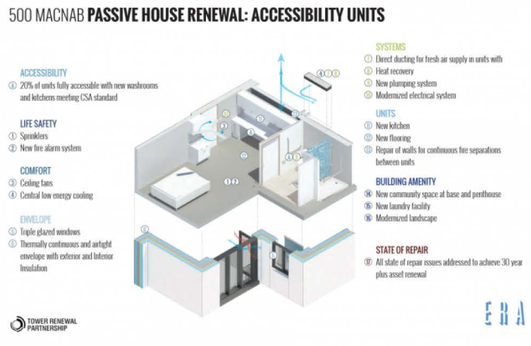


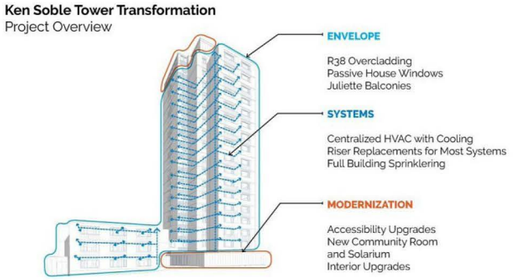


Ken Soble Tower

Timelines of Tower Renwal Retrofit Projects

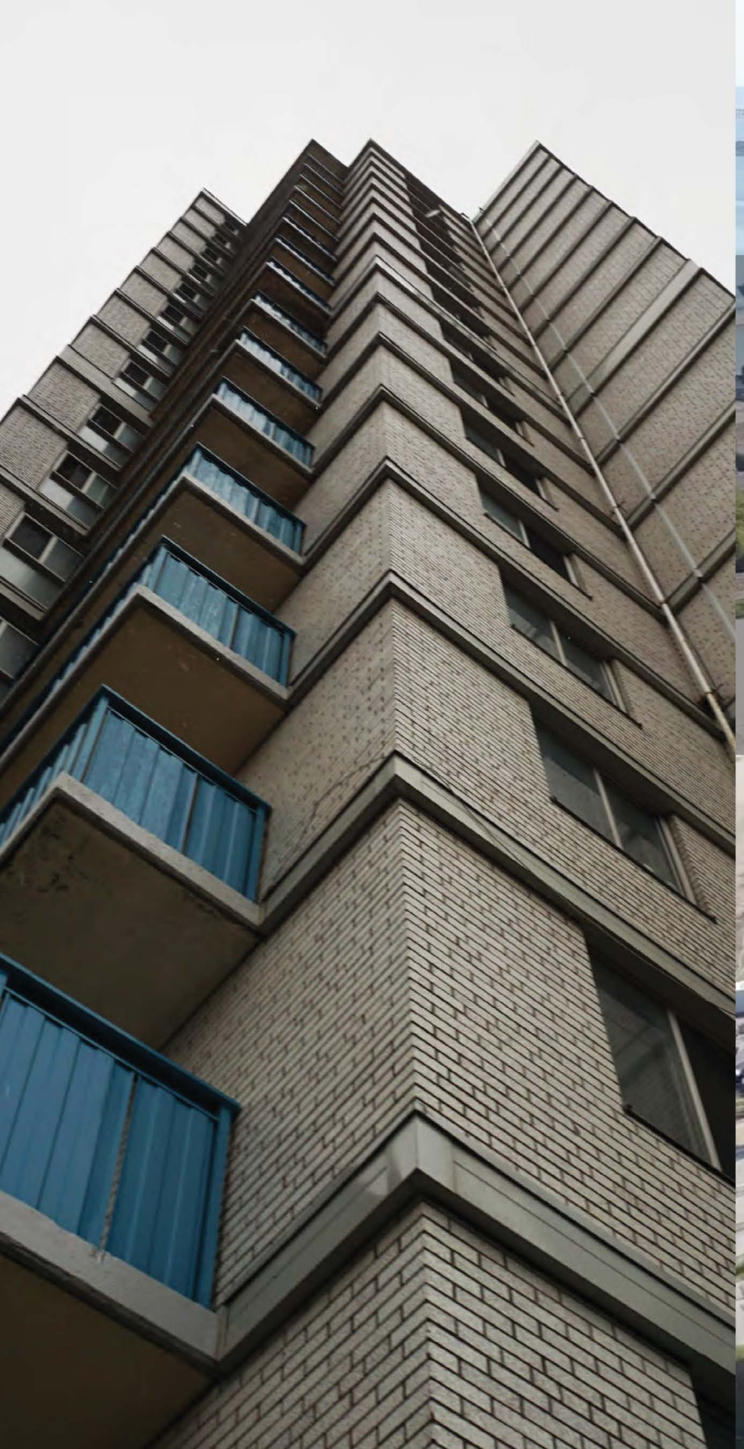






Ken Soble Tower Retrofit

Hamilton, Ontario - CityHousing Hamilton



CITY HOUSING HAMILTON

CMHC SCHL

TOWER RENEWAL PARTNERSHIP

KEN SOBLE TOWER TRANSFORMATION

A CASE STUDY IN DEEP RETROFIT AND HOUSING RENEWAL

09. LESSONS LEARNED

Retain specialized expertise and develop standards

In order to successfully carry out the Ken Soble project, CityHousing Hamilton hired a development lead with urban development experience as well as internally putting together a team with development expertise. With the expertise in place, CityHousing Hamilton could figure out how to project manage, procure, and manage real estate transactions. CityHousing Hamilton brought on Project Management services through the City of Hamilton for the execution of the Ken Soble project, which allowed them to draw on the City's experience with complex construction. CityHousing Hamilton also introduced design guidelines for architects and designers to reference: for organizations undertaking many complex retrofits or new construction, developing design standards for things like HVAC, IT, and even finishes, can help to streamline maintenance and operations, while simplifying the design process.

Treat retrofits differently than new construction

Destructive and comprehensive investigations are critical, as well as having an allowance for the unforeseen. This helps to understand the elements that are issues and may present additional costs or additional work, and are better identified within or as close to feasibility as possible. Look carefully at the extent of the renovation and undertake robust investigations, especially at those extents, to minimize the impact of unforeseen conditions. Use mock-ups to help identify problem areas. And be sure to carry appropriate contingencies throughout the project lifecycle: for retrofits, 15% contingency should typically be carried, which is different from new construction.

Find champions for the right deep retrofit project

For housing providers considering deep retrofits, doing retrofits across a number of buildings will likely happen more frequently than "one off" projects like the Ken Soble Tower, which was an opportunity which resulted in large part due to the high financial requirement for capital repair. However, when significant envelope deficiencies exist, there is a significant opportunity to target Passive House performance. It is also important to consider the unique political, financial and internal vision of housing providers or municipalities as this will determine if deep retrofit projects are in alignment. A project of this magnitude needs champions and supporters within the organization.

Anticipate organizational efforts required to secure funding

When pitching proposals to potential funders, it is useful to access seed funding to complete feasibility work including establishing project costs as early as possible. For this project, CityHousing Hamilton used a stacked funding model, leveraging several different funders. Considerable staff time was taken applying for and once secured, aligning funding agreements from FCM, CMHC and the City of Hamilton. Funder requirements also proved resource intensive as funders required multiple different submissions to ensure funding requirements were met.

Design the delivery model to suit the needs of the project

Both the Construction Management and General Contractor routes have benefits. The CM model allows for a collaborative approach between the Contractor, Consultant and Owner from the design phase onward. This approach can allow for more flexible and transparent procurement, faster start-up, and reduce risk to the Owner due to site discoveries. On the other hand, the GC model can provide more cost certainty. At the Ken Soble project, the conversion of the CM contract to a Stipulated Sum after tendering was complete provided some of the benefits of both models.

Prepare for educating users and tenants as part of the occupancy period

CityHousing Hamilton will need to conduct an educational program for residents - in the form of something like a "welcome kit" or guide - to assist with residents' adjustments to their new unit and low-energy features. Further training and onboarding will also be required for in-house CHH maintenance staff and property managers. The post-occupancy study planned for the Ken Soble Tower will be part of this process, allowing for observations made during data collection and interviews to be converted into educational material.

Design projects understanding user behaviours

At the beginning of the project, determine how wasted energy and water caused by inefficient tenant behaviour will be addressed. This should drive some of the key decisions that need to be made about the mechanical system design, controls and metering equipment. Consider control equipment that restricts the available energy and water resources such that higher-than-average levels of occupant energy and water consumption, regardless of behaviour, are restricted. If evenue submetering is an option, consider purchase & install vs. a submetering contract and the associated capital vs. operational costs. This approach addresses wasted energy and water by incentivising tenants to save money through efficient behaviour.

The Ontario supply chain has gaps in high-performance retrofit products

A number of technologies that are standard and affordable in European countries are not yet widely available in the Canadian market, requiring alternative approaches to achieving the Passive house targets. These included: external moveable shading, high efficiency elevators and appliances, standard thick external insulation systems, high performance Passive House certified high-rise windows, affordable decentralized ventilation units, affordable low-capacity hydronic or heat pump based in-suite heating and cooling units, and domestic hot water generation options outside of high-efficiency centralized condensing boilers. As a result, a more North American approach was taken in the centralized ventilation, heating, cooling and hot water systems, and by incorporating heat losses from North American building components, such as code-required back-up generator block heaters, garbage chutes, recirculating centralized domestic hot water, and standard elevator machines. As Passive House and high performance retrofit become more standard in the Canadian market, those market gaps will be filled as manufacturers begin to compete.

The overcladding approach met all project objectives but is not commonly used in our market

The existing 1960s structure was made up of composite masonry walls with limited interior insulation and vapour control layers, as well as thermal bridging at exposed slab edges. The cladding upgrade was designed to minimize intervention to the existing masonry, for thermal and structural reasons, and to limit combustibility and embodied carbon: resulting in a selection of 150mm of mineral wool-based insulation as part of an EIFS system. This type of assembly is not commonly used in our market, and training, typically provided by the mineral wool manufacturer, can help to improve trade familiarity with the assembly as its application begins to scale up. By familiarizing the construction industry with the unique requirements of Passive House buildings, it will be possible to successfully execute projects in an increasingly affordable, efficient, and low-risk manner. In part, this will require the 'demystification' of the standard, which is deliberately low-tech and relies largely on standard construction methods.

Reduction of Embodied Material Carbon

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For housing providers considering deep retrofits, doing retrofits across a number of buildings will likely happen more frequently than "one off" projects like the Ken Soble Tower, which was an opportunity which resulted in large part due to the high financial requirement for capital repair. However, when significant envelope deficiencies exist, there is a significant opportunity to target Passive House performance. It is also important to consider the unique political, financial and internal vision of housing providers or municipalities as this will determine if deep retrofit projects are in alignment. A project of this magnitude needs champions and supporters within the organization.

Anticipate organizational efforts required to secure funding

When pitching proposals to potential funders, it is useful to access seed funding to complete feasibility work including establishing project costs as early as possible. For this project, CityHousing Hamilton used a stacked funding model, leveraging several different funders. Considerable staff time was taken applying for and once secured, aligning funding agreements from FCM, CMHC and the City of Hamilton. Funder requirements also proved resource intensive as funders required multiple different submissions to ensure funding requirements were met.

Design the delivery model to suit the needs of the project

Both the Construction Management and General Contractor routes have benefits. The CM model allows for collaborative approach between the Contractor, Consultant and Owner from the design phase onward. This approach can allow for more flexible and transparent procurement, fast start-up, and reduced risk to the Owner due to site discoveries. On the other hand, the GC model can provide more cost certainty. At the Ken Soble project, the conversion of the CM contract to a Stipulated Sum after tendering was complete provided some of the benefits of both models.

Prepare for educating users and tenants as part of the occupancy period

CityHousing Hamilton will need to conduct education programs for residents and staff, including a welcome kit or guide to assist with resident adjustments to the new unit and low-energy features. Further training and onboarding will also be required for in-house CHH maintenance staff and property managers. The post-occupancy study planned for the Ken Soble Tower will be part of this process, allowing for observations made during data collection and interviews to be converted into educational material.

Design projects understanding user behaviours

At the beginning of the project, determine how wasted energy and water caused by inefficient tenant behaviour will be addressed. This should drive some of the key decisions that need to be made about the mechanical system design, controls and metering equipment. Consider control equipment that restricts the available energy and water resources such that higher-than-average levels of occupant energy and water consumption, regardless of behaviour, are restricted. If evenue submetering is an option, consider purchase & install vs. a submetering contract and the associated capital vs. operational costs. This approach addresses wasted energy and water by incentivising tenants to save money through efficient behaviour.

The Ontario supply chain has gaps in high-performance retrofit products

A number of technologies that are standard and affordable in European countries are not yet widely available in the Canadian market, requiring alternative approaches to achieving the Passive house targets. These included: external moveable shading, high efficiency elevators and appliances, standard thick external insulation systems, high performance Passive House certified high-rise windows, affordable decentralized ventilation units, affordable low-capacity hydronic or heat pump based in-suite heating and cooling units, and domestic hot water generation options outside of high-efficiency centralized condensing boilers. As a result, a more North American approach was taken in the centralized ventilation, heating, cooling and hot water systems, and by including additional heat losses from North American suburban components such as code-required back-to general wall heaters, garbage chutes, recirculating centralized domestic hot water, and standard exterior machinery. As Passive House and high performance retrofit become more standard in the Canadian market, those market gaps will be filled as manufacturers begin to compete.

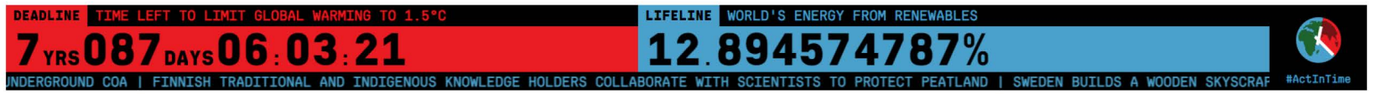
The overcladding approach met all project objectives but is not commonly used in our market

The existing 1960s structure was made up of composite masonry walls with limited interior insulation and poor concrete balcony edges. The cladding trade was designed to minimize intervention to the existing masonry, for thermal and structural reasons, and to limit combustibility and embodied carbon: resulting in a selection of 150mm of mineral wool-based insulation as part of an EIFS system. This type of assembly is not commonly used in our market, and training, typically provided by the mineral wool manufacturer, can help to improve trade familiarity with the assembly as its application begins to scale up. By familiarizing the construction industry with the unique requirements of Passive House buildings, it will be possible to successfully execute projects in an increasingly affordable, efficient, and low-risk manner. In part, this will require the 'demystification' of the standard, which is deliberately low-tech and relies largely on standard construction methods.

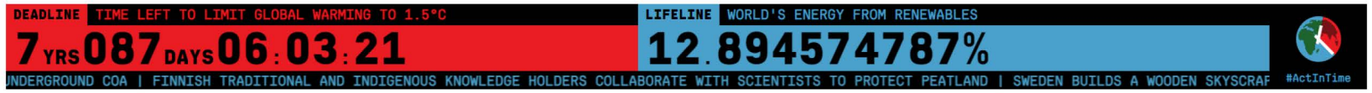
Reduction of Embodied Material Carbon

Incorporating Tenant Perspectives

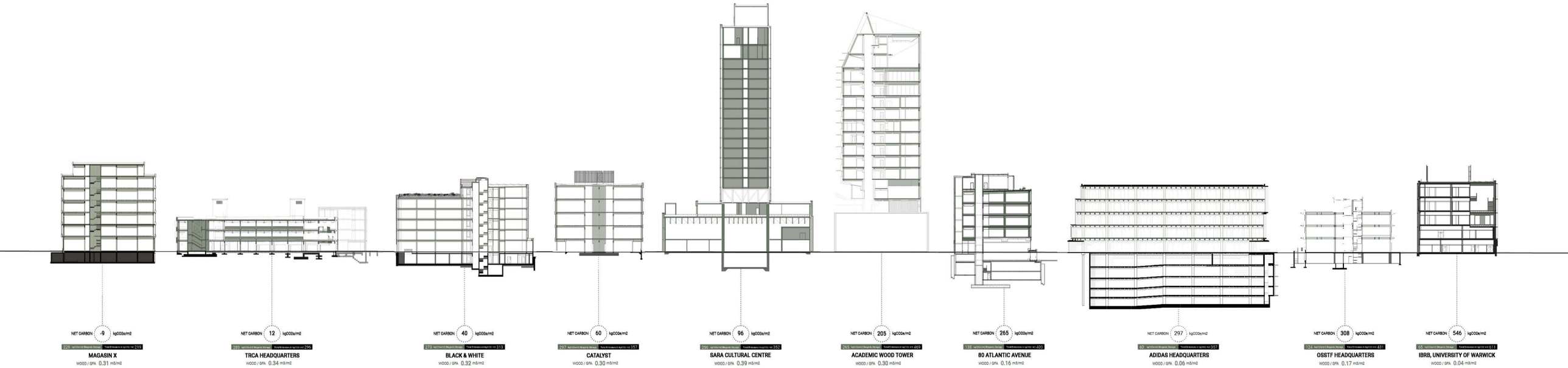
Material Carbon Study

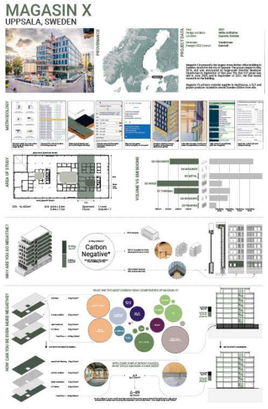


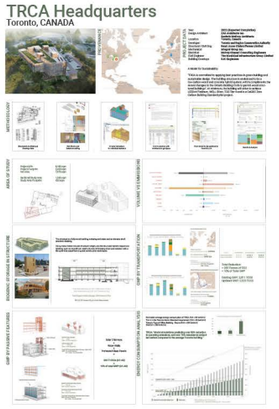
MATERIAL CARBON STUDY = An investigation of the amount of carbon emitted throughout the process of extration to construction of materials.

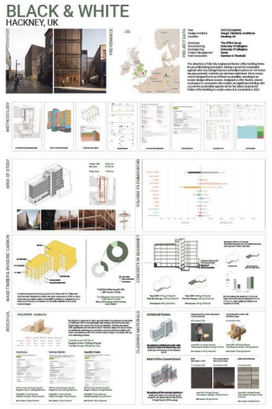


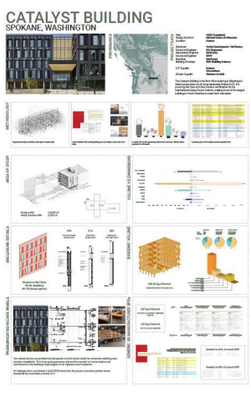
TOOLS = Analyze the carbon life cycle of materials | One Click LCA

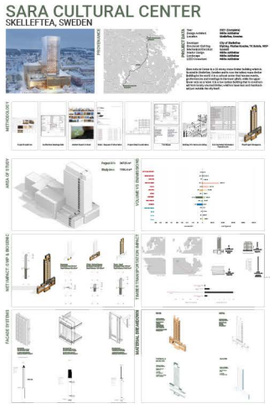


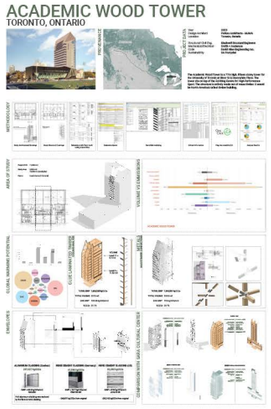


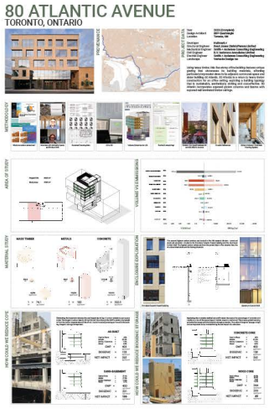


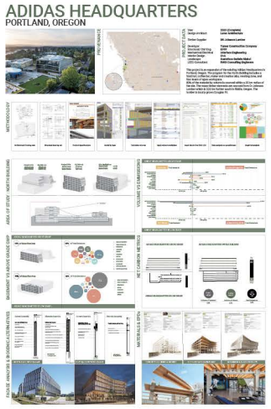


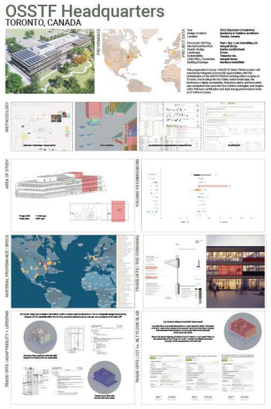






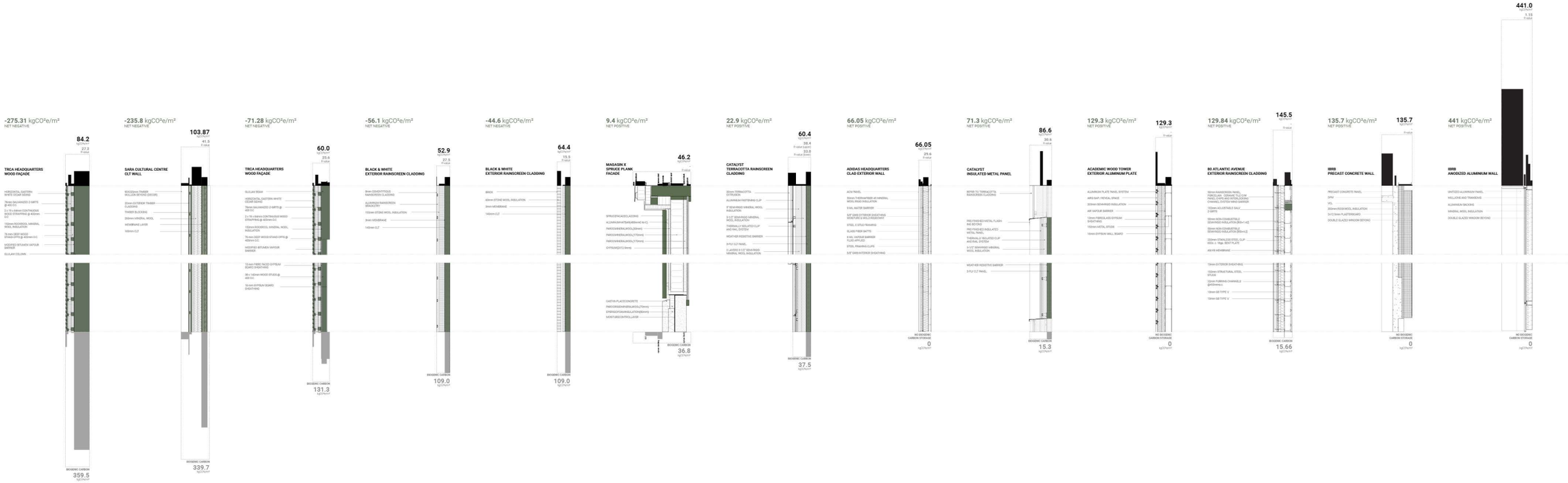






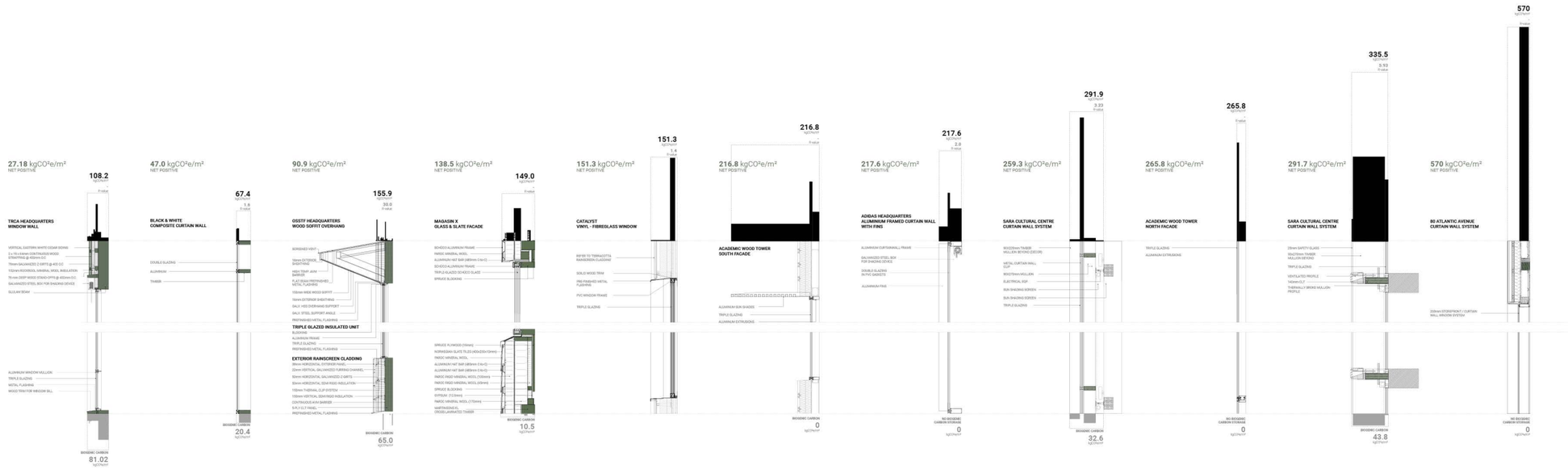
Life Cycle Assessment Studies of 10 Timber Buildings

Conducted by Half Studio | Fall 2021



Enclosure Assembly Study | Cladding System

Conducted by Half Studio | Fall 2021

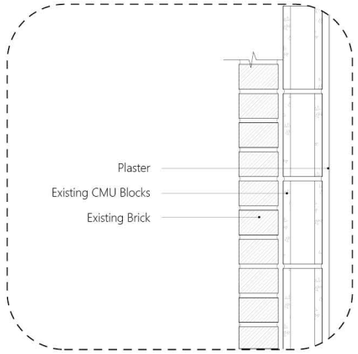


Enclosure Assembly Study | Glazing System

Conducted by Half Studio | Fall 2021

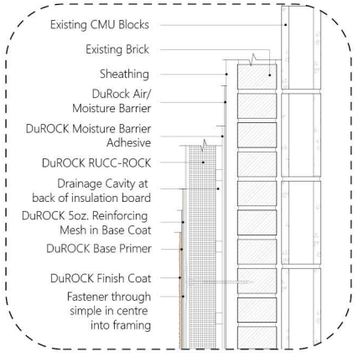
650 Parliament St.

Existing Wall Assembly



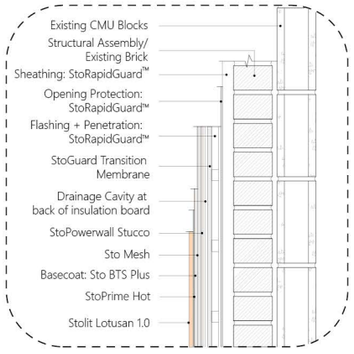
Ken Soble Tower

Exterior Insulation Facade System



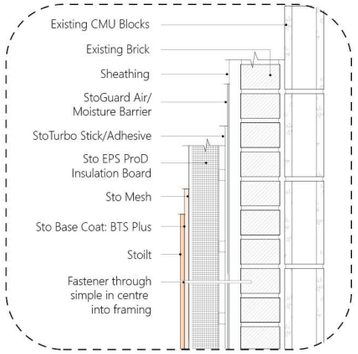
Sto PowerWall

Exterior Insulation Facade System



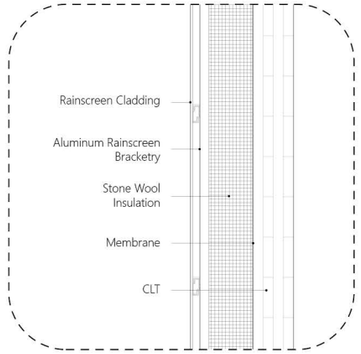
Sto Therm

Exterior Insulation Facade System



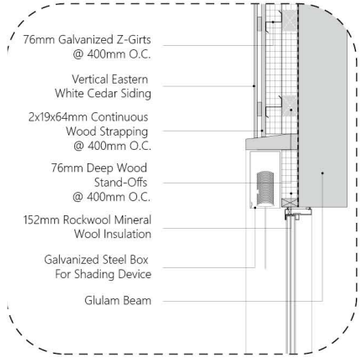
Black+White

Cladding Assembly



TRCA

Glazing Assembly

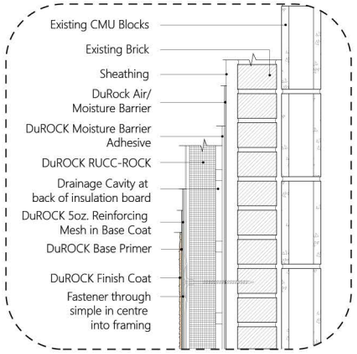


Material Carbon Study | Wall Assemblies

Wall Assemblies

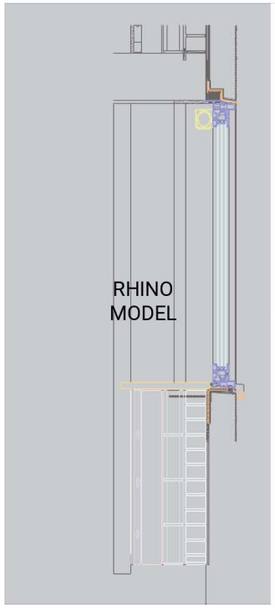
Ken Soble Tower

Exterior Insulation
Facade System



??

kgCO²e/m²



RHINO
MODEL

SPECS

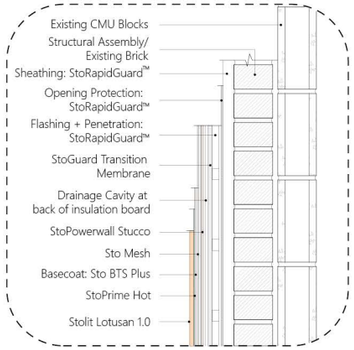
LCA

~~EPD~~

Lack of Environmental Protection Document (EPD) made it impossible to calculate kgCO²e/m²

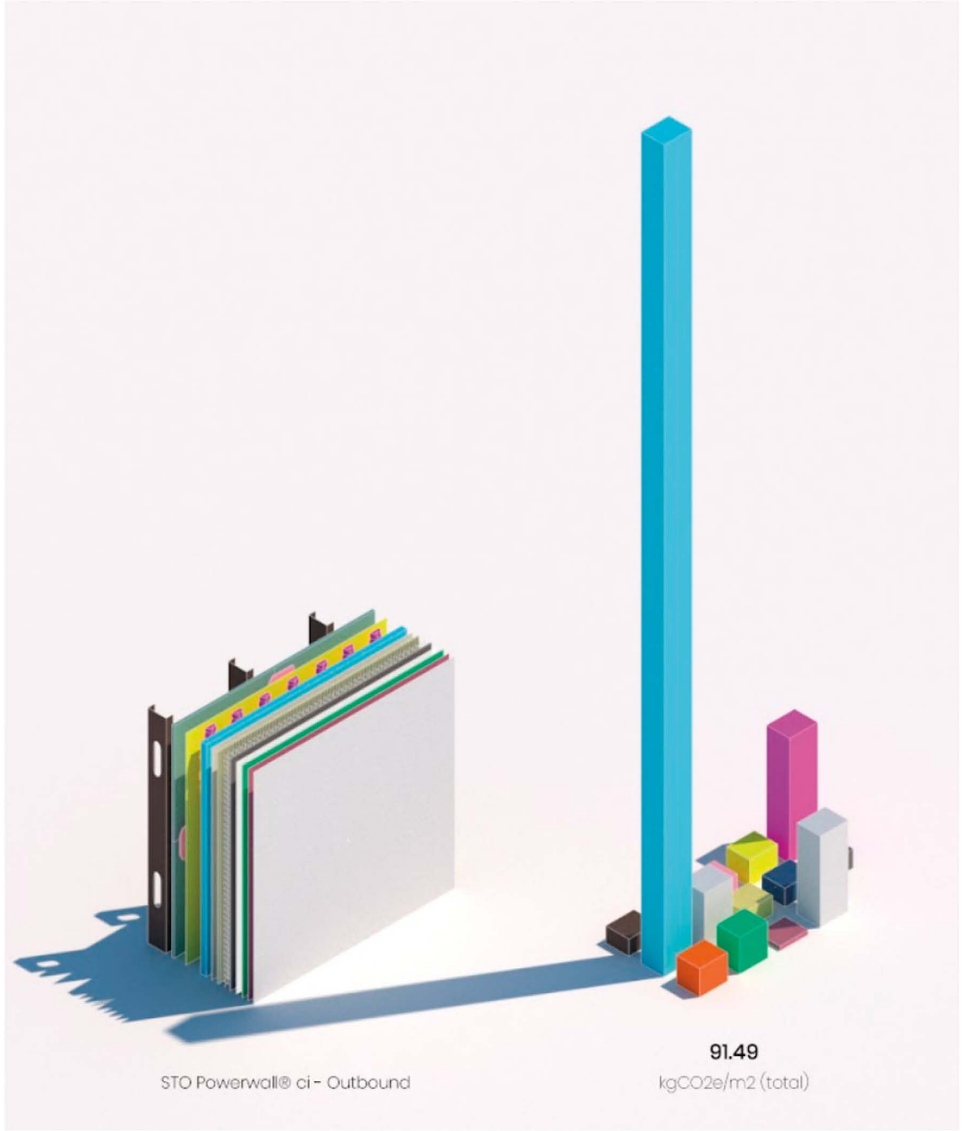
Sto PowerWall

Exterior Insulation Facade System



91.49

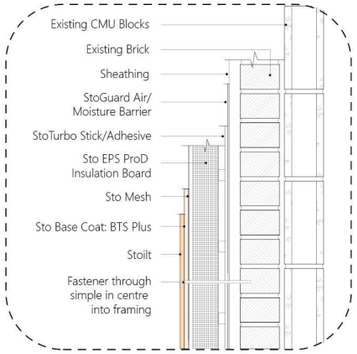
$kgCO^2e/m^2$



Study by Ryan Bruer
Half Studio 2020-2021

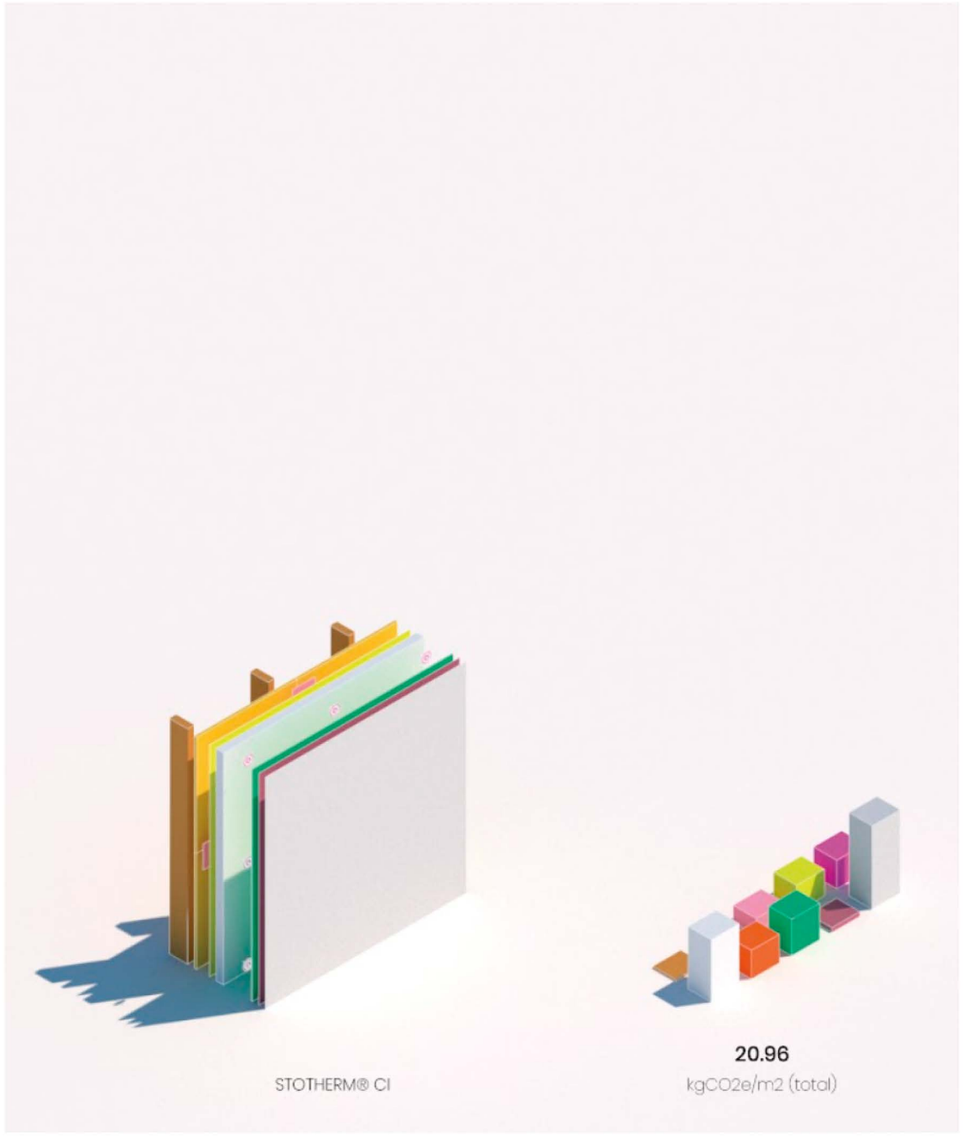
Sto Therm

Exterior Insulation Facade System



20.96

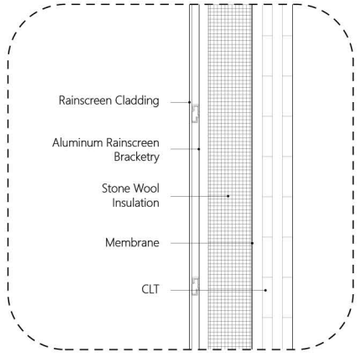
$kgCO^2e/m^2$



Study by Ryan Bruer
Half Studio 2020-2021

Black+White

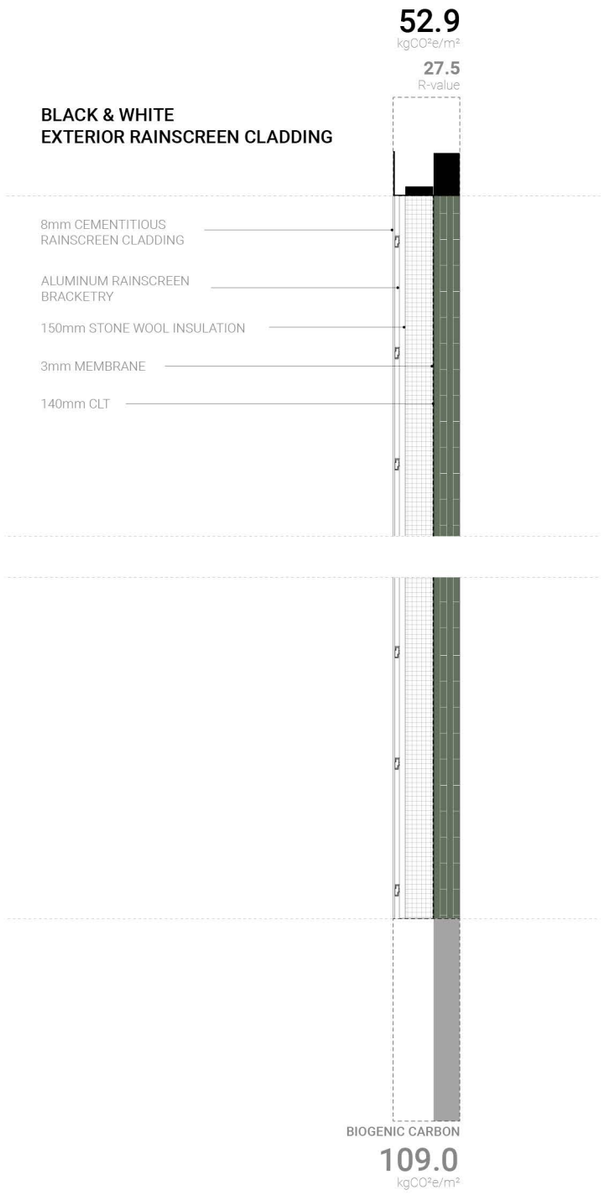
Cladding Assembly



-56.1

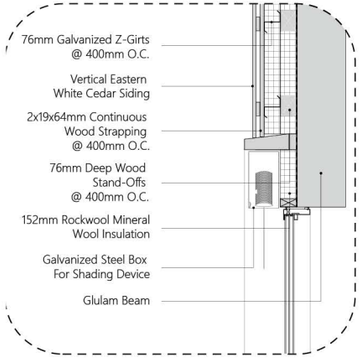
kgCO²e/m²

-56.1 kgCO²e/m²
NET NEGATIVE



TRCA

Glazing Assembly



27.18

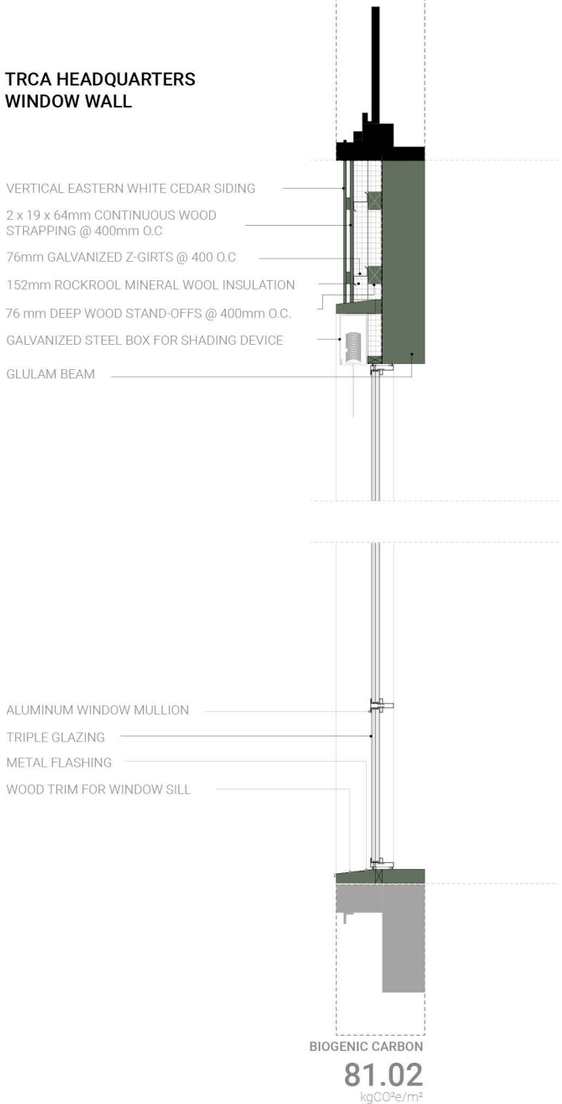
kgCO²e/m²

27.18 kgCO²e/m²
NET POSITIVE

108.2
kgCO²e/m²

R-value

TRCA HEADQUARTERS
WINDOW WALL



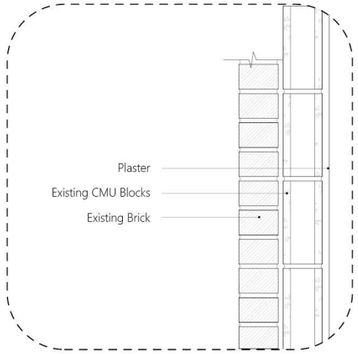
BIOGENIC CARBON

81.02
kgCO²e/m²

Exisiting

650 Parliament St.

Existing Wall Assembly



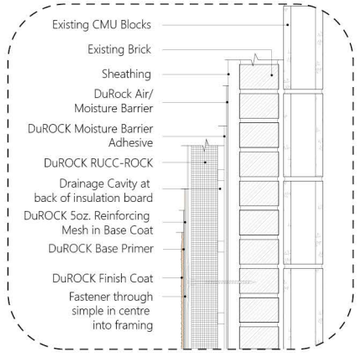
XX

kgCO²e/m²

Retrofit

Ken Soble Tower

Exterior Insulation Facade Assembly

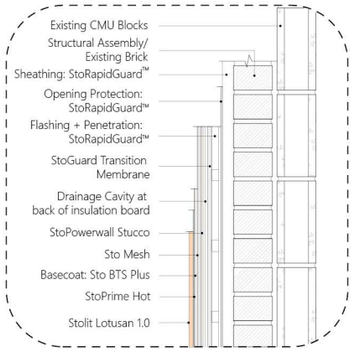


??

kgCO²e/m²

Sto PowerWall

Exterior Insulation Facade Assembly

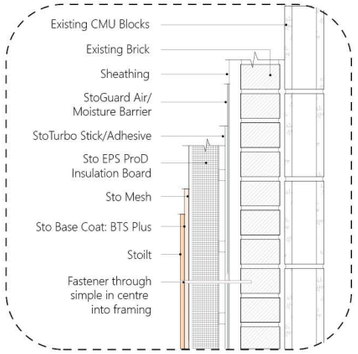


91.49

kgCO²e/m²

Sto Therm

Exterior Insulation Facade Assembly



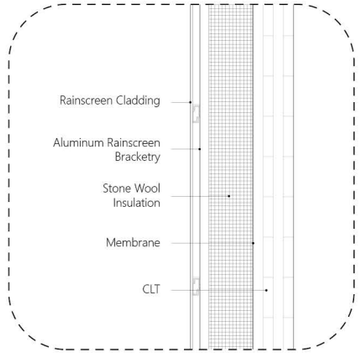
20.96

kgCO²e/m²

New Enclosure

Black+White

Cladding Assembly

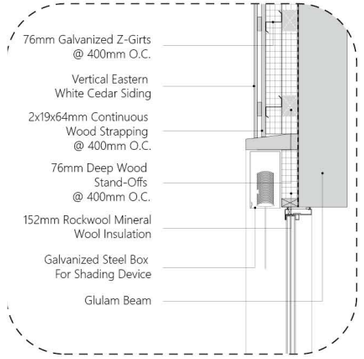


-56.1

kgCO²e/m²

TRCA

Glazing Assembly



27.18

kgCO²e/m²

Material Carbon Study | Wall Assemblies

Wall Assemblies

Exisiting

Retrofit

New Enclosure

650 Parliament St.

Existing Wall Assembly

Ken Soble Tower

Exterior Insulation
Facade Assembly

Exterior Insulation
Facade Assembly

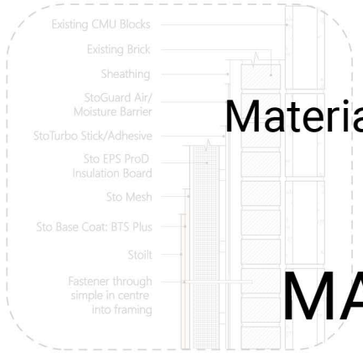
Exterior Insulation
Facade Assembly

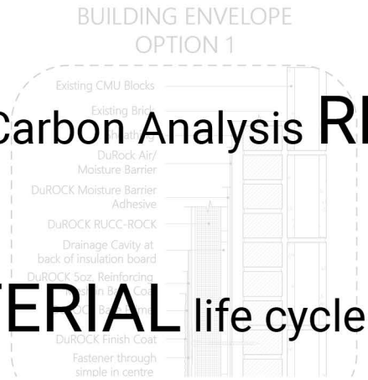
Black+White

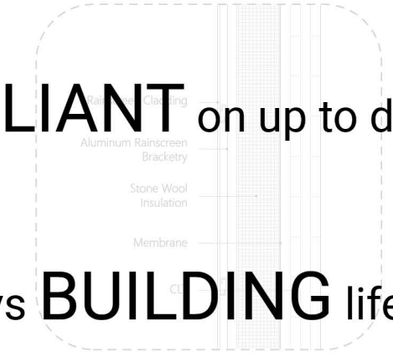
Cladding Assembly

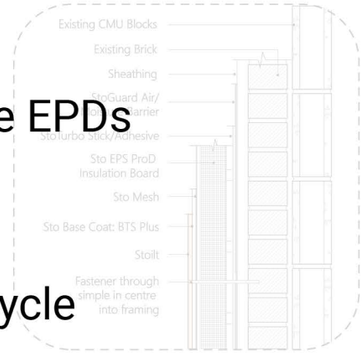
TRCA

Glazing Assembly









TAKE AWAYS

Material Carbon Analysis **RELIANT** on up to date EPDs

MATERIAL life cycle vs **BUILDING** life cycle

UNDERSTANDING MATERIALS **IMPROVES** DESIGN THINKING

XX

kgCO²e/m²

??

kgCO²e/m²

91.49

kgCO²e/m²

20.96

kgCO²e/m²

52.9

kgCO²e/m²

27.18

kgCO²e/m²

Who Are My Neighbours?

Apt	Tenants	Rooms	Duration	Temp	Actions	Contact?	Other	History	Date
[redacted]	[redacted]40-50) [redacted](70-80)	Bachelor Two beds	6 years	Overheated throughout the winter,	Open the window (right window) throughout the day.		Cockroach issues	[redacted] lived in SJT for the last 6 years. Before the fire the mortar under the window has withered away and the breeze was really bad. They spent a while fixing up a variety of bricks around the façade of the whole structure. The new condo on the north edge of SJT replaced a park and maple trees that were really old. Not a fan of the addition. SJT is home to many newcomers.	3/3/2022
[redacted]	3 [redacted](27) [redacted]32) [redacted](2)	1 Bed	1 year	During the colder nights the temperature is extremely cold. Living room is colder than the bedroom which gets really hot at night			Cockroach issues		2/3/2022
[redacted]	[redacted](24) [redacted]	1 Bed	3 months	Bedroom is really over heated. Living room is colder	Opens bedroom window for an hour in the morning, otherwise they're really hot.	Contact BLGMNT frequently about the cockroaches. Didn't think to contact about the heating. They're from Spain where they're used to heat and thought overheating was a normal thing.	Cockroaches (few times throughout the month)	Working and studying. Started first week of work this week in[redacted]	3/3/2022
[redacted]	[redacted] (25-30) [redacted]	1 Bed	New					Come back!	Return Sunday
[redacted]	[redacted](68)	1 Bed	21 Years	Moderate temperature for the last 2 years. Depends on the wind direction.	Doesn't like the location of the main control in bedroom, gets in the way of drapes			Before the fire the heating system had thermostat in bedroom and living room. the way it was designed heated the above units. The new system is much better. The old style of windows are bad for retaining heat. Insurance policy - premium rate changed due to the building being old and electrical. the issues from the fire were drastic. groups of tenants got together and took the landlord to court. "I don't feel like, as residents, we should be published for something the landlord neglected to do." the ndp leader started a petition - St James Town Act.	3/3/2022
[redacted]	[redacted]23-30)								Survey under the door

Interviewed my neighbours

Apt	Tenants	Rooms	Duration	Temp	Actions	Contact?	Other	History	Date
[redacted]	[redacted]40-50) [redacted](70-80)	Bachelor Two beds	6 years	Overheated throughout the winter.	Open the window (right window) throughout the day.		Cockroach issues	[redacted] lived in SJT for the last 6 years. Before the fire the mortar under the window has withered away and the breeze was really bad. They spent a while fixing up a variety of bricks around the façade of the whole structure. The new condo on the north edge of SJT replaced a park and maple trees that were really old. Not a fan of the addition. SJT is home to many newcomers.	3/3/2022
[redacted]	3 [redacted](27) [redacted]32) [redacted](2)	1 Bed	1 year	During the colder nights the temperature is extremely cold. Living room is colder than the bedroom which gets really hot at night			Cockroach issues		2/3/2022
[redacted]	[redacted](24) [redacted]	1 Bed	3 months	Bedroom is really over heated. Living room is colder	Opens bedroom window for an hour in the morning, otherwise they're really hot.	Contact BLGMNT frequently about the cockroaches. Didn't think to contact about the heating. They're from Spain where they're used to heat and thought overheating was a normal thing.	Cockroaches (few times throughout the month)	Working and studying. Started first week of work this week in [redacted]	3/3/2022
[redacted]	[redacted] (25-30) [redacted]	1 Bed	New					Come back!	Return Sunday
[redacted]	[redacted]68)	1 Bed	21 Years	Moderate temperature for the last 2 years. Depends on the wind direction.	Doesn't like the location of the main control in the [redacted] gets in the way of drapes			Before the fire the heating system had thermostat in bedroom and living room. the way it was designed heated the above units. The new system is much better. The old style of windows are bad for retaining heat. Insurance policy - premium rate changed due to the building being old and electrical. the issues from the fire were drastic. groups of tenants got together and took the landlord to court. "I don't feel like, as residents, we should be published for something the landlord neglected to do." the ndp leader started a petition - St James Town Act.	3/3/2022
[redacted]	[redacted]23-30)								Survey under the door

12

Units

32

Tenants

7

Families

3

Singles

2

Friends

2

Bachelor

7

1 Bed

3

2 Bed

Heating System

Before + After 2018 Fire

Energy Loss

Open Windows in WInter

Insurance Policy

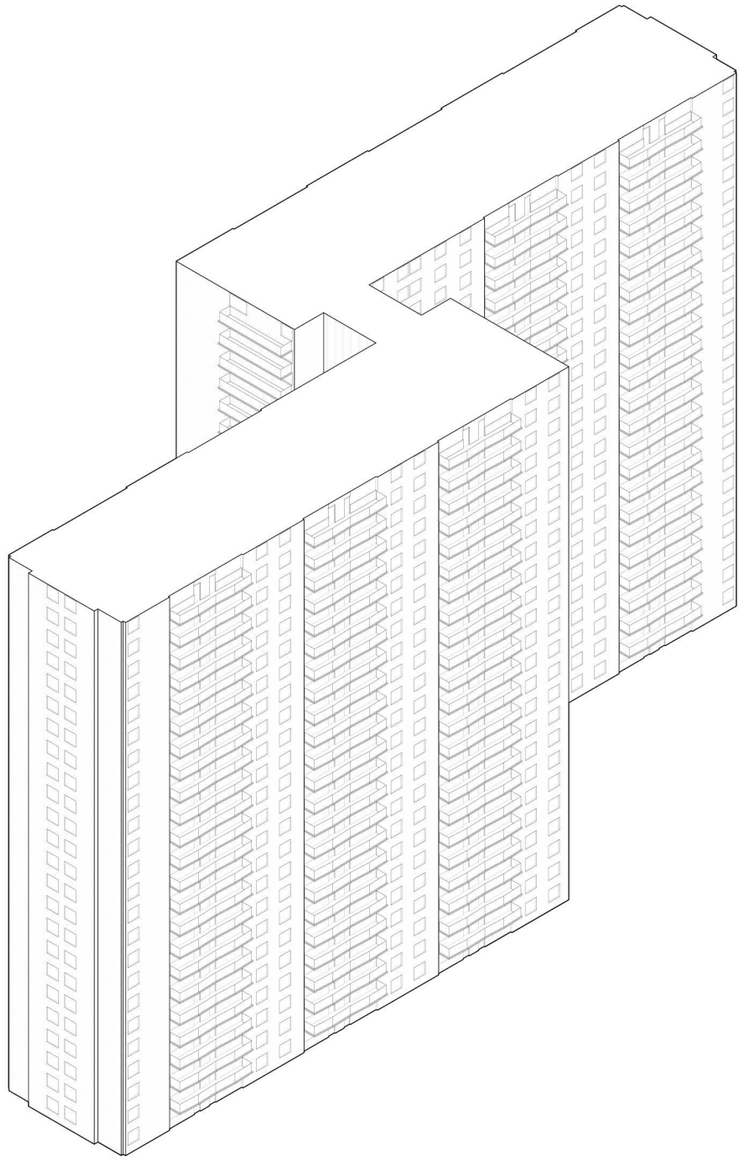
Changes for Older Buildings

St James Town Act

Attempt to hold people responsible

“Didn’t know I could do anything about this”

Lack of feeling like they can do anything to change situation



1 BUILDING MANAGER

594 UNITS

2400 TENANTS

= 15 people

TAKE AWAYS

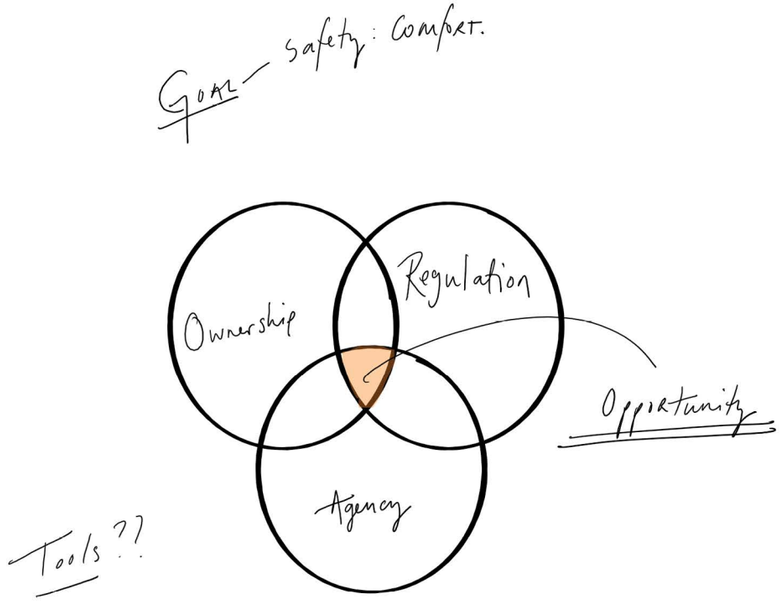
Tenants don’t feel like they have a ~~voice~~.

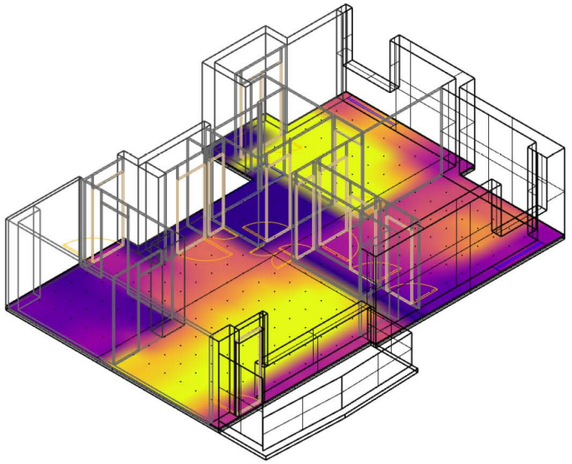
Collective feeling to LEAVE

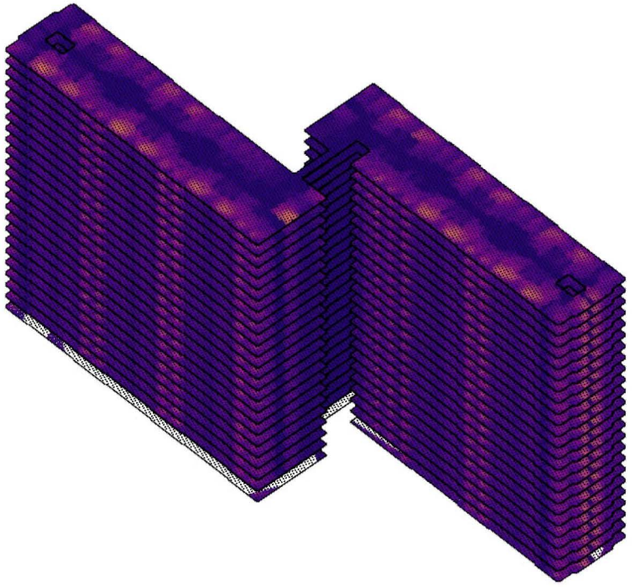
Resilient housing ~ resilient community building

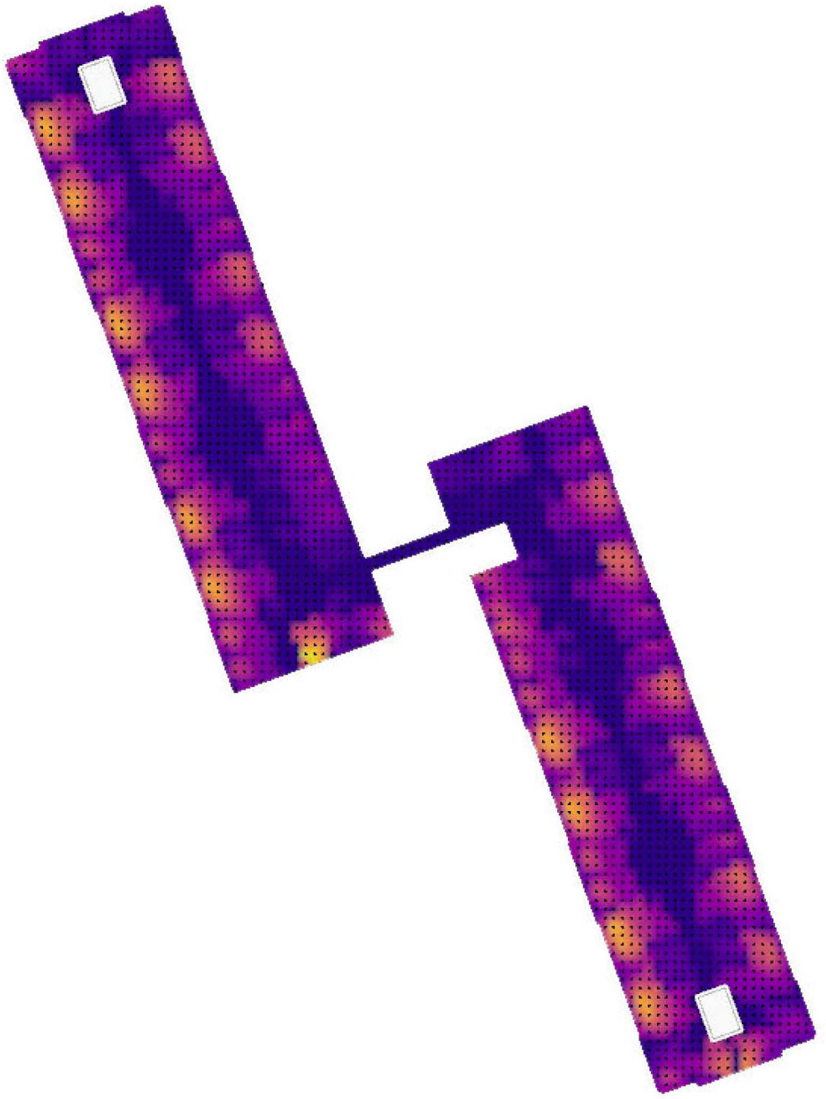
Why would you want to CONTRIBUTE to the betterment of your neighbourhood if you don’t have a VISION to stay in it?

OK, NOW WHAT?


Goal – safety : comfort.
Ownership
Regulation
Agency
Opportunity
Tools??

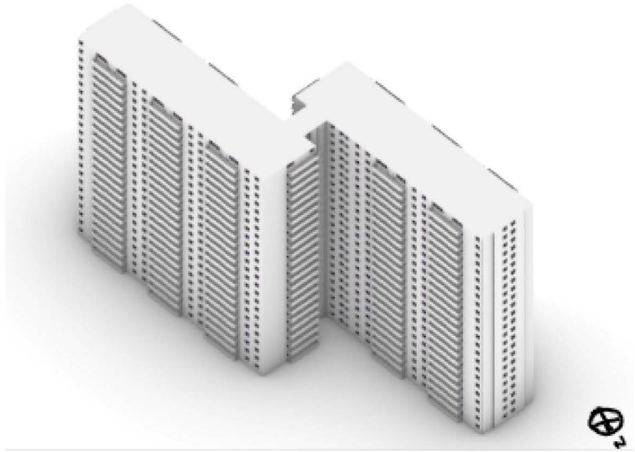


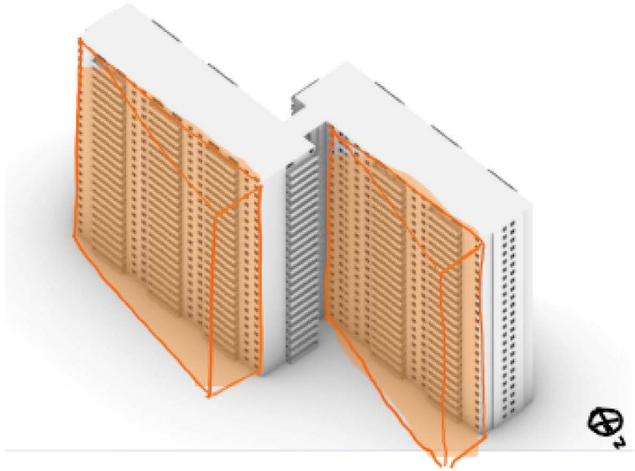




Solar Radiation Study

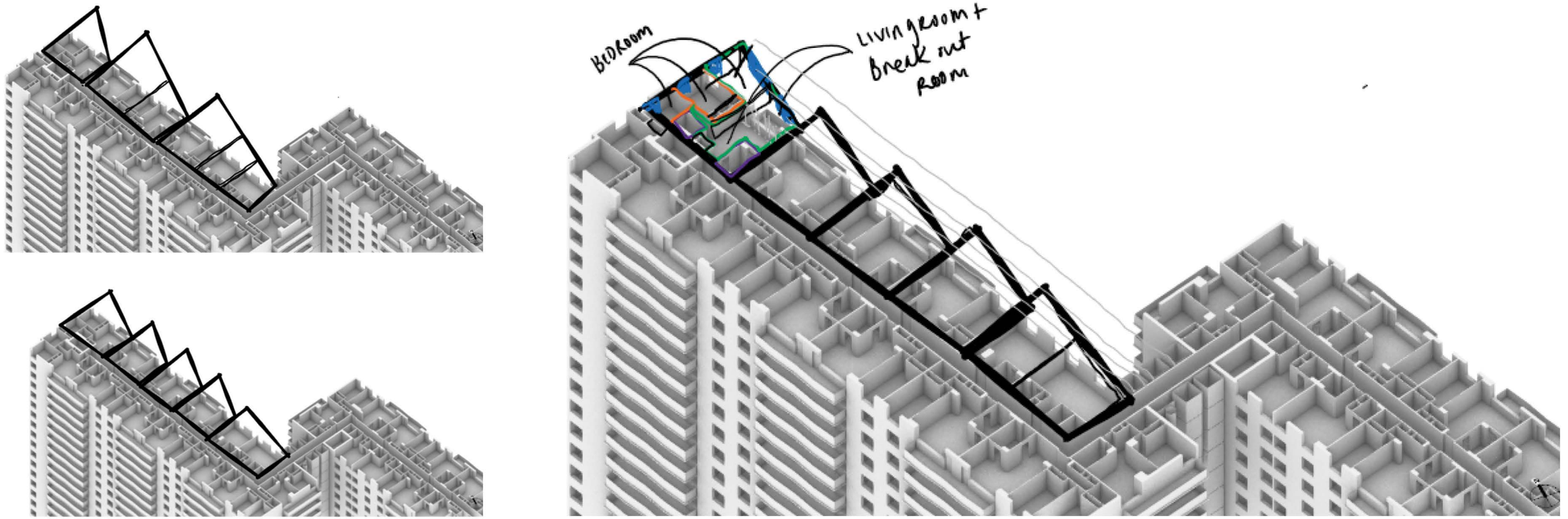
Total hours throughout the year | kWh/m^2





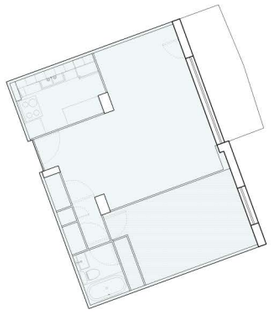
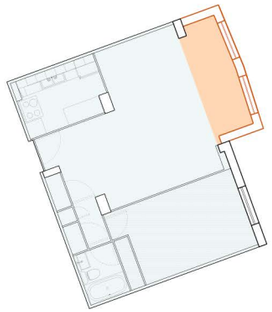
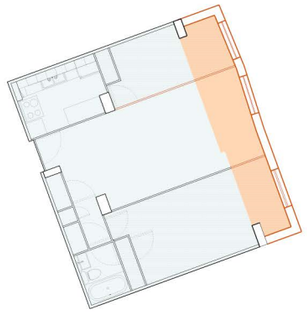
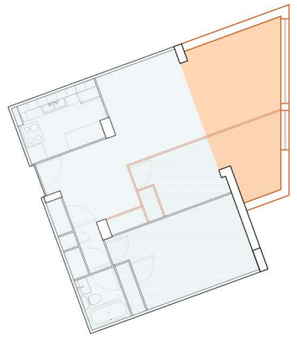
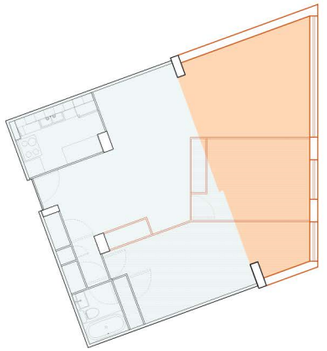
North East Facade

Orient to direct north for optimal sunlight



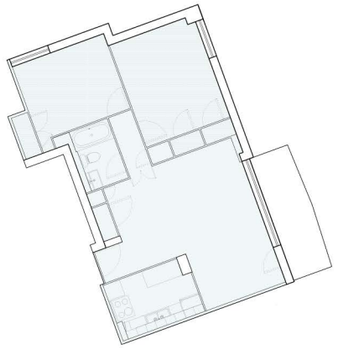
North East Facade

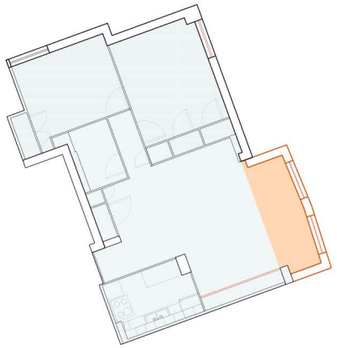
Unit breakdown

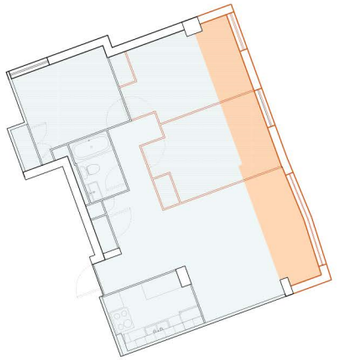






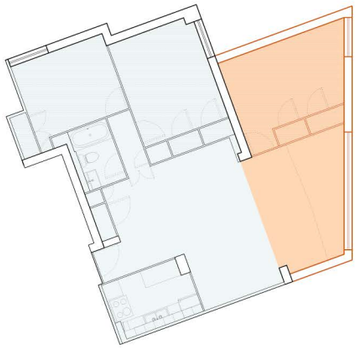
North East Facade

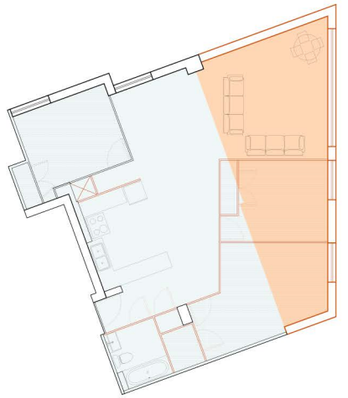
Unit breakdown: One Bedroom





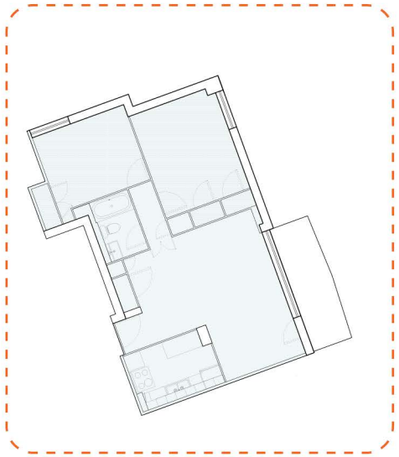


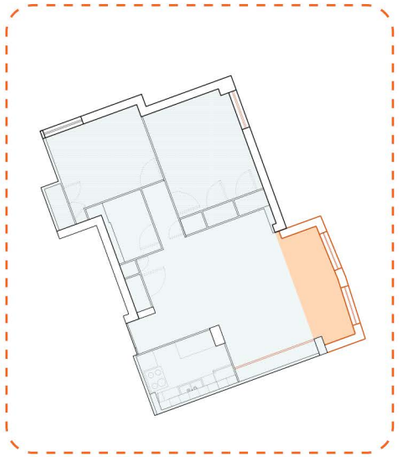


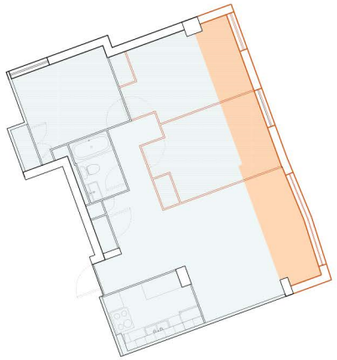


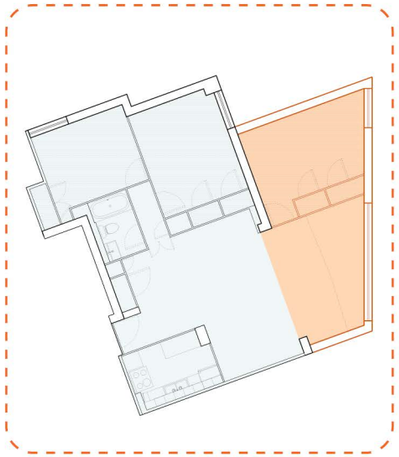
North East Facade

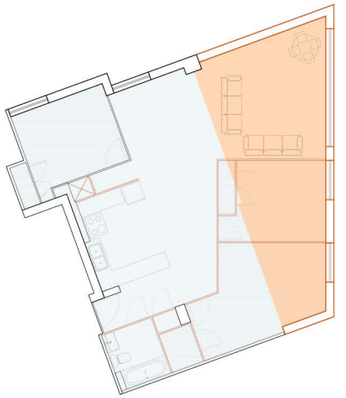
Unit breakdown: Two Bedroom







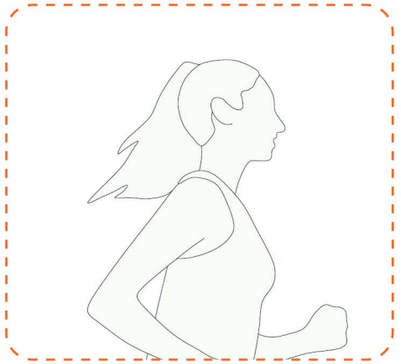


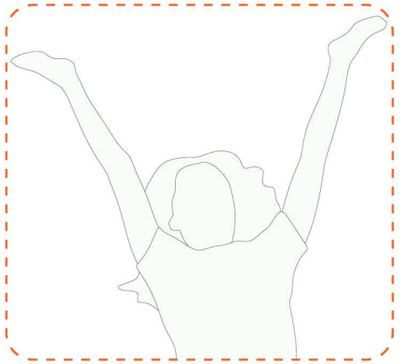


North East Facade

Unit breakdown

Unit 1926





Sasha

22
Graduating Undergrad
Entering Nursing School

Athlete, artist, mentor,
musician, the GOAT.

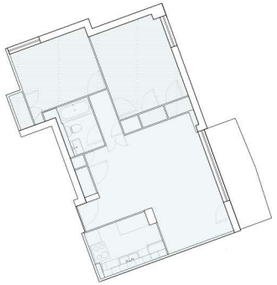
Bahia

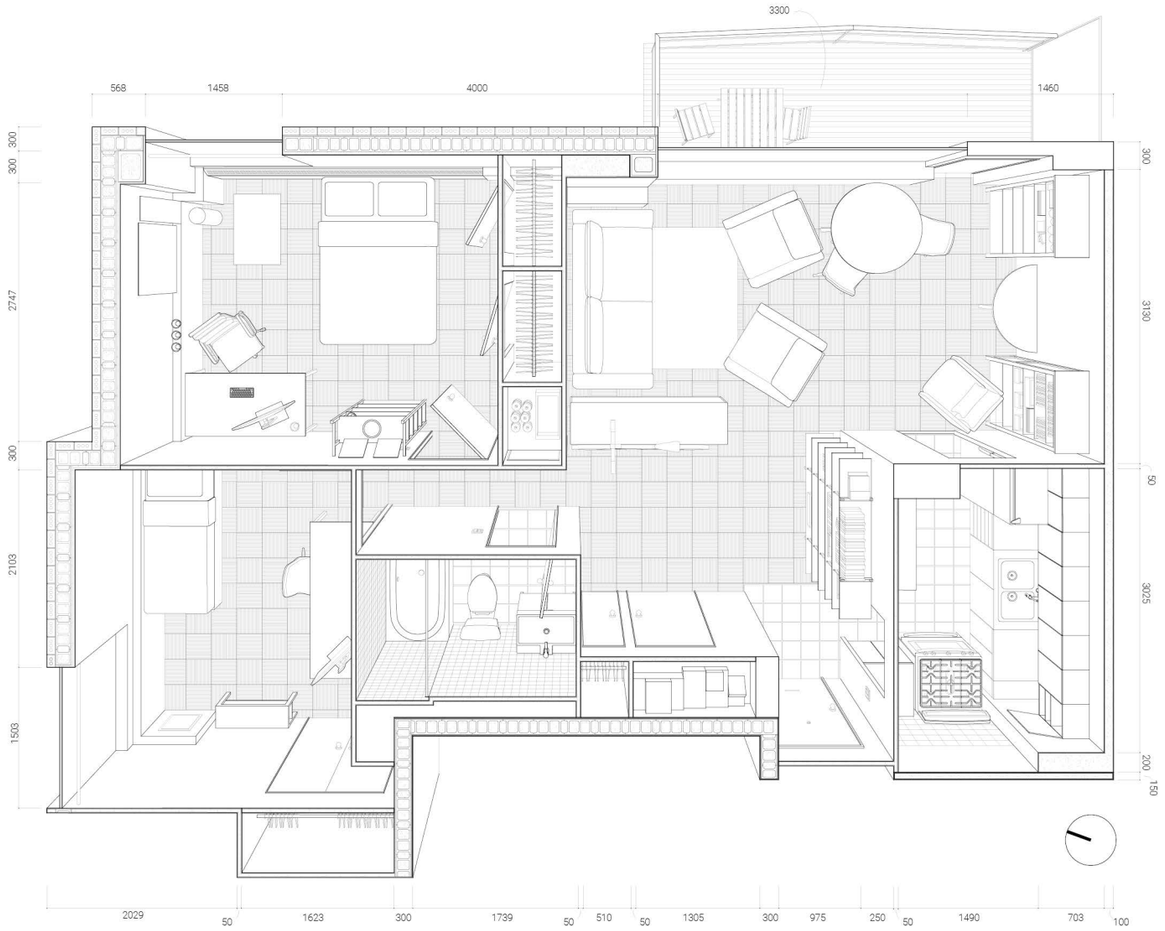
30
Graduating M.Arch
Entering work force

Loves humans, passionate
about most things,
excited to sleep.

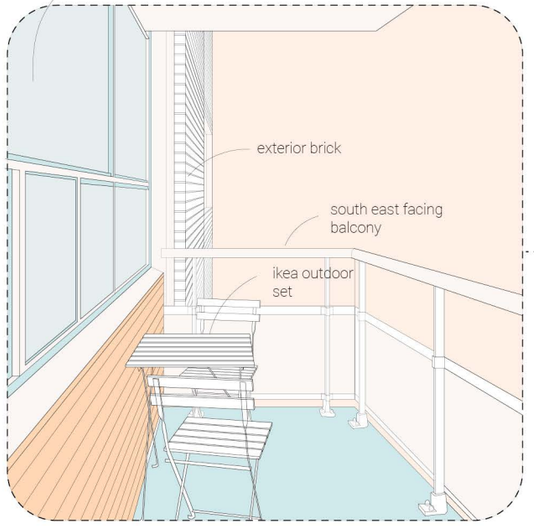
Unit Conditions 2 Adults, 2 Bedrooms

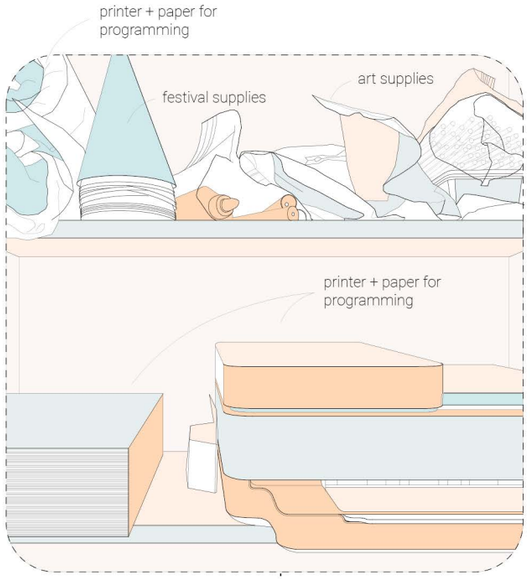
Purpose Apartment to serve as a Community Centre for classes for youth, junior youth and children

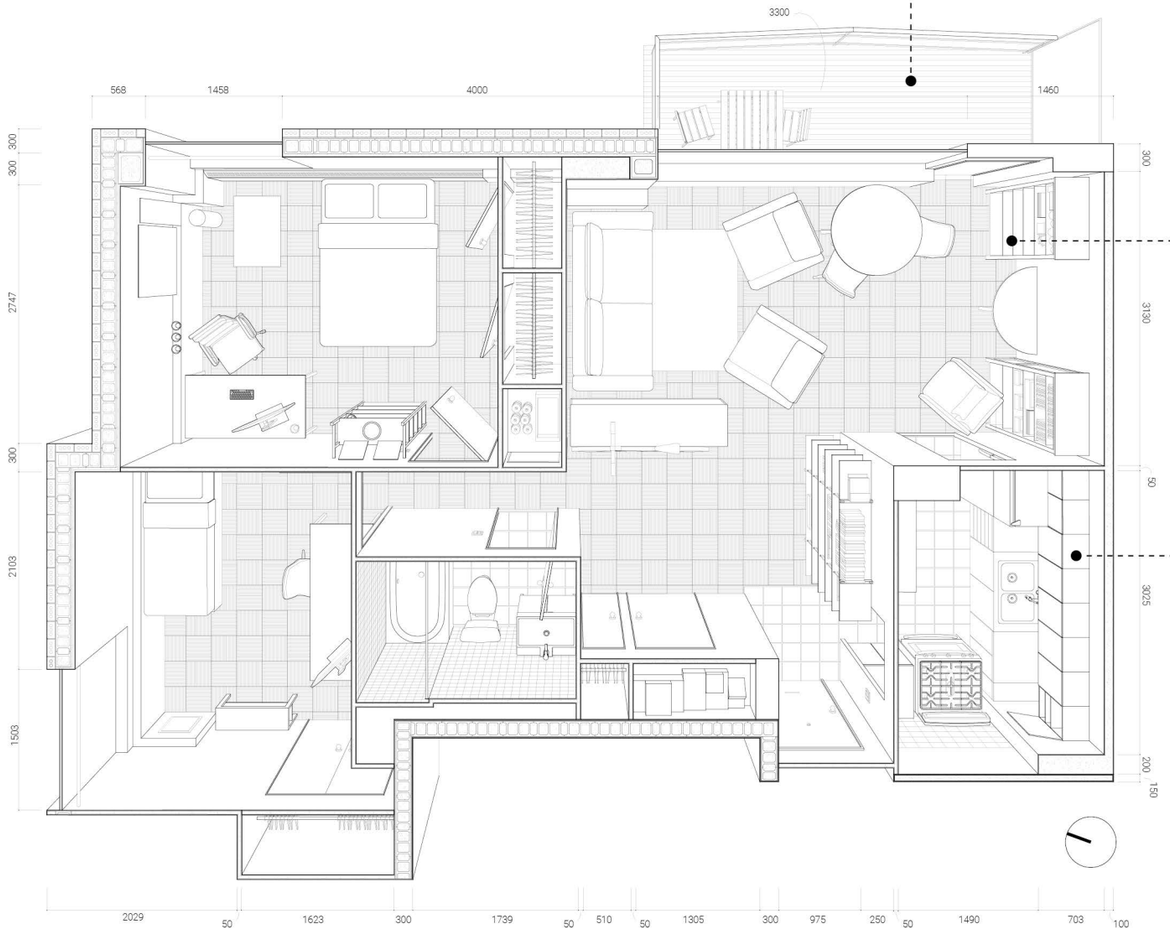


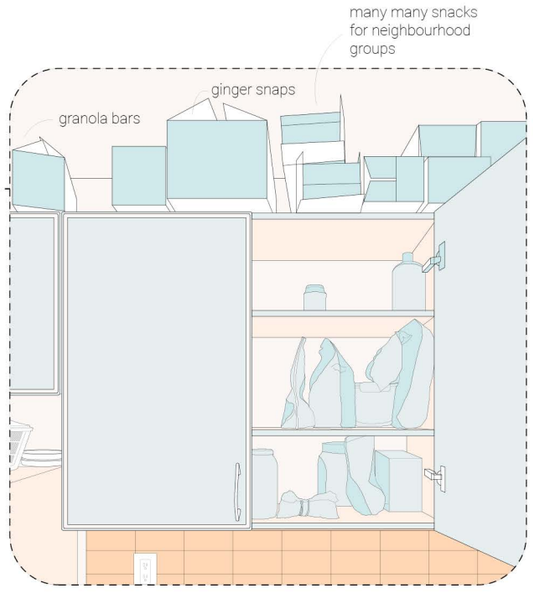


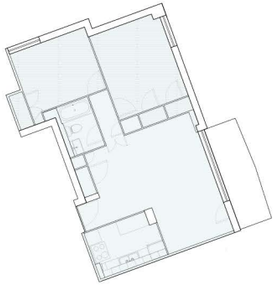
Original Layout











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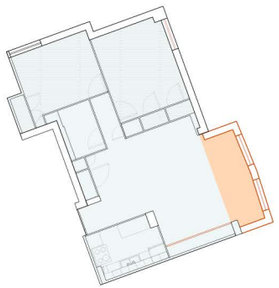
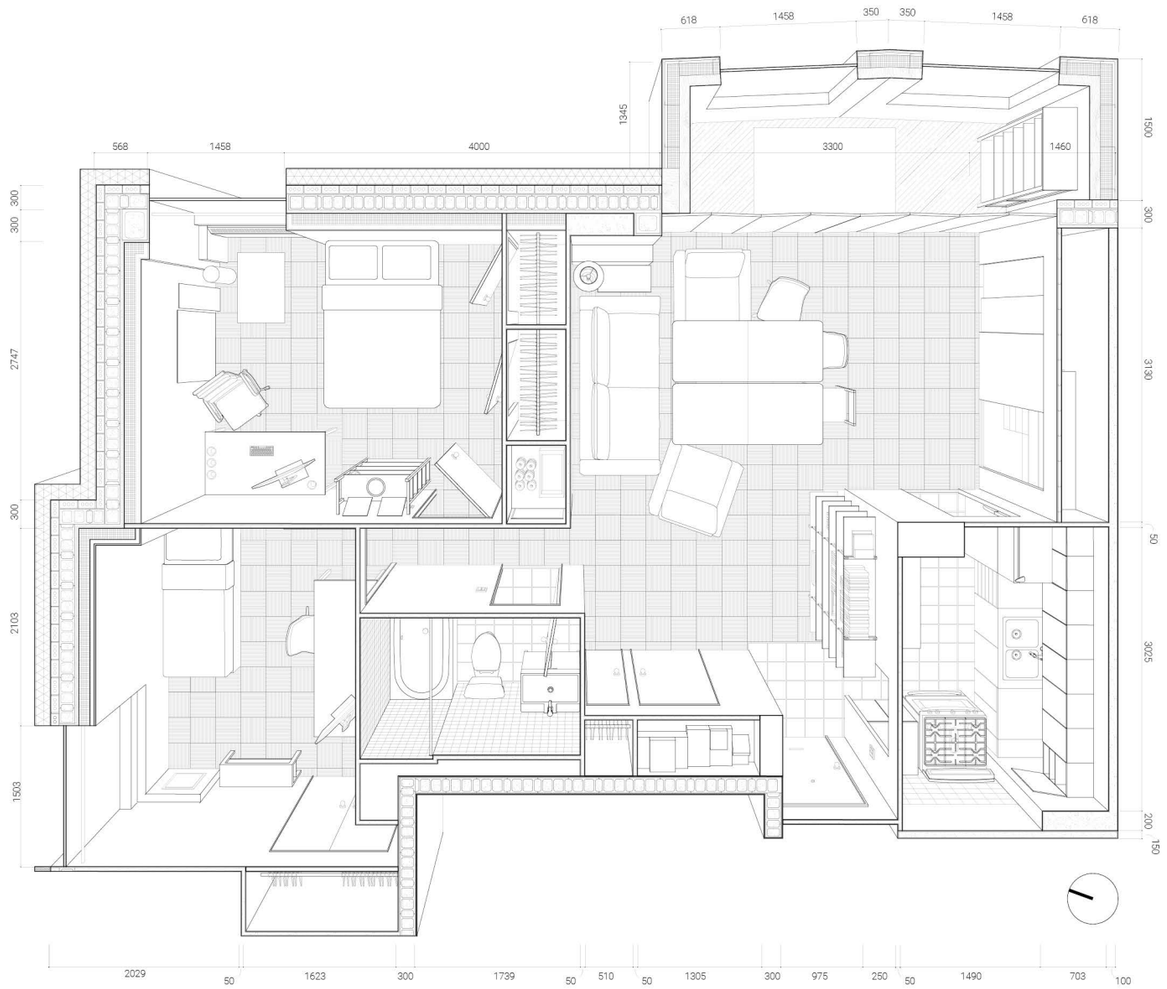
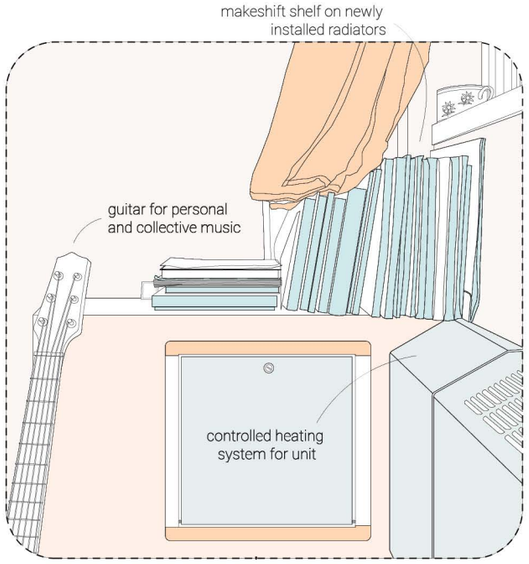
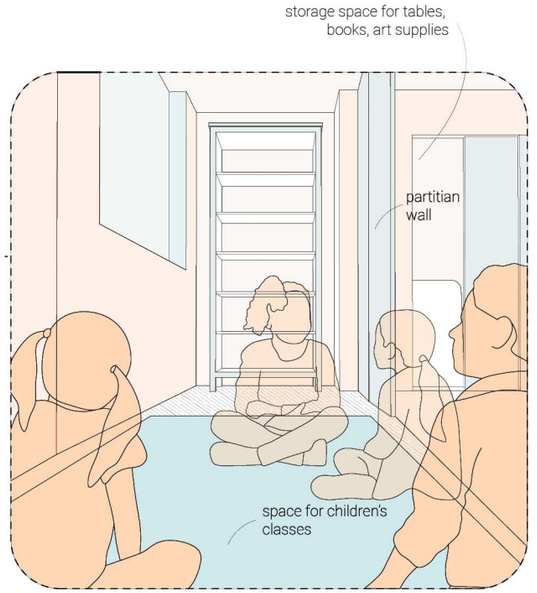
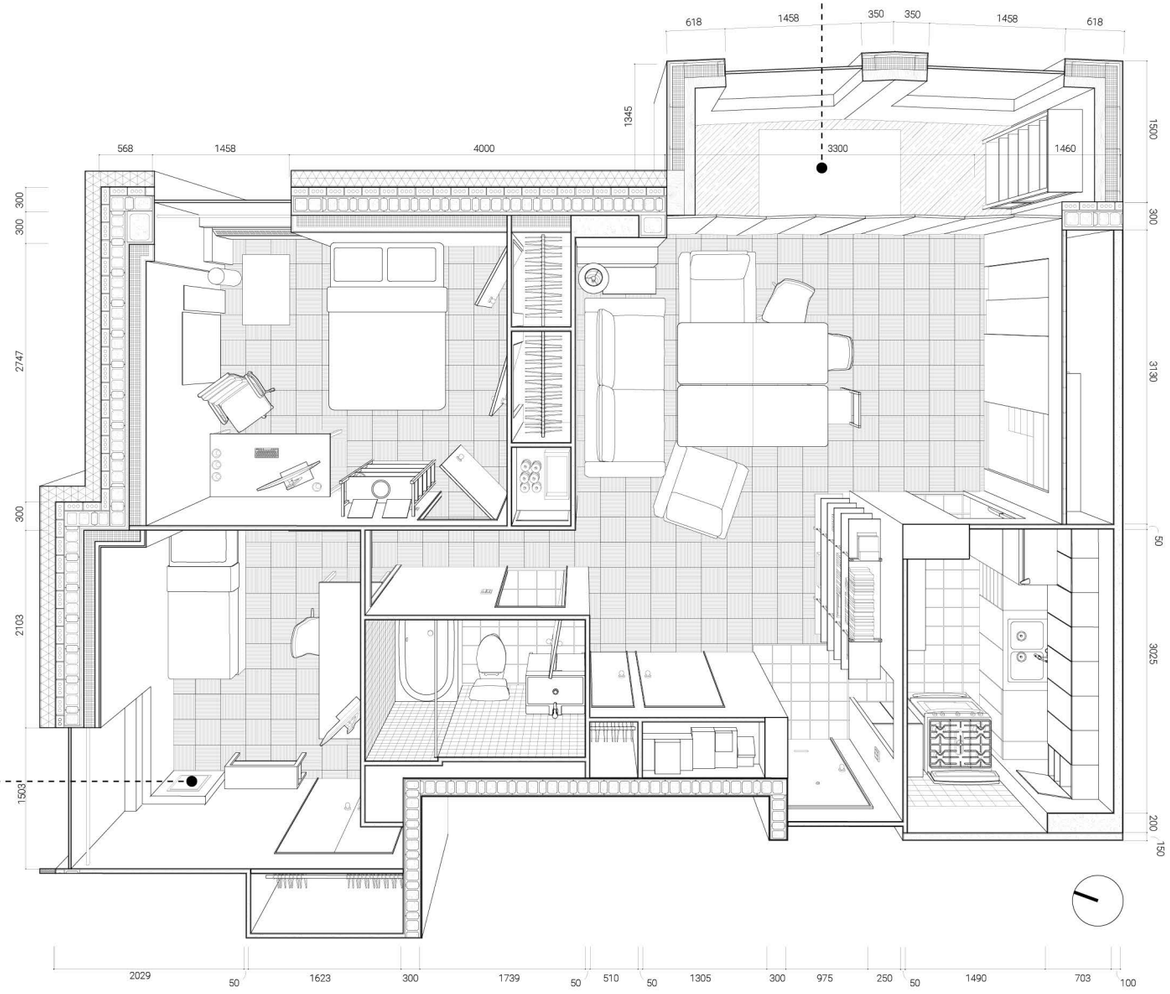


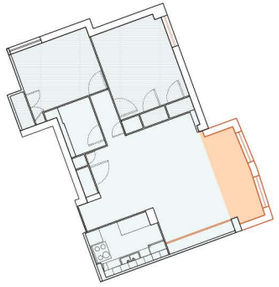


Iteration 1: Enclosed Balcony

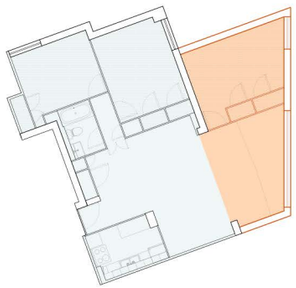


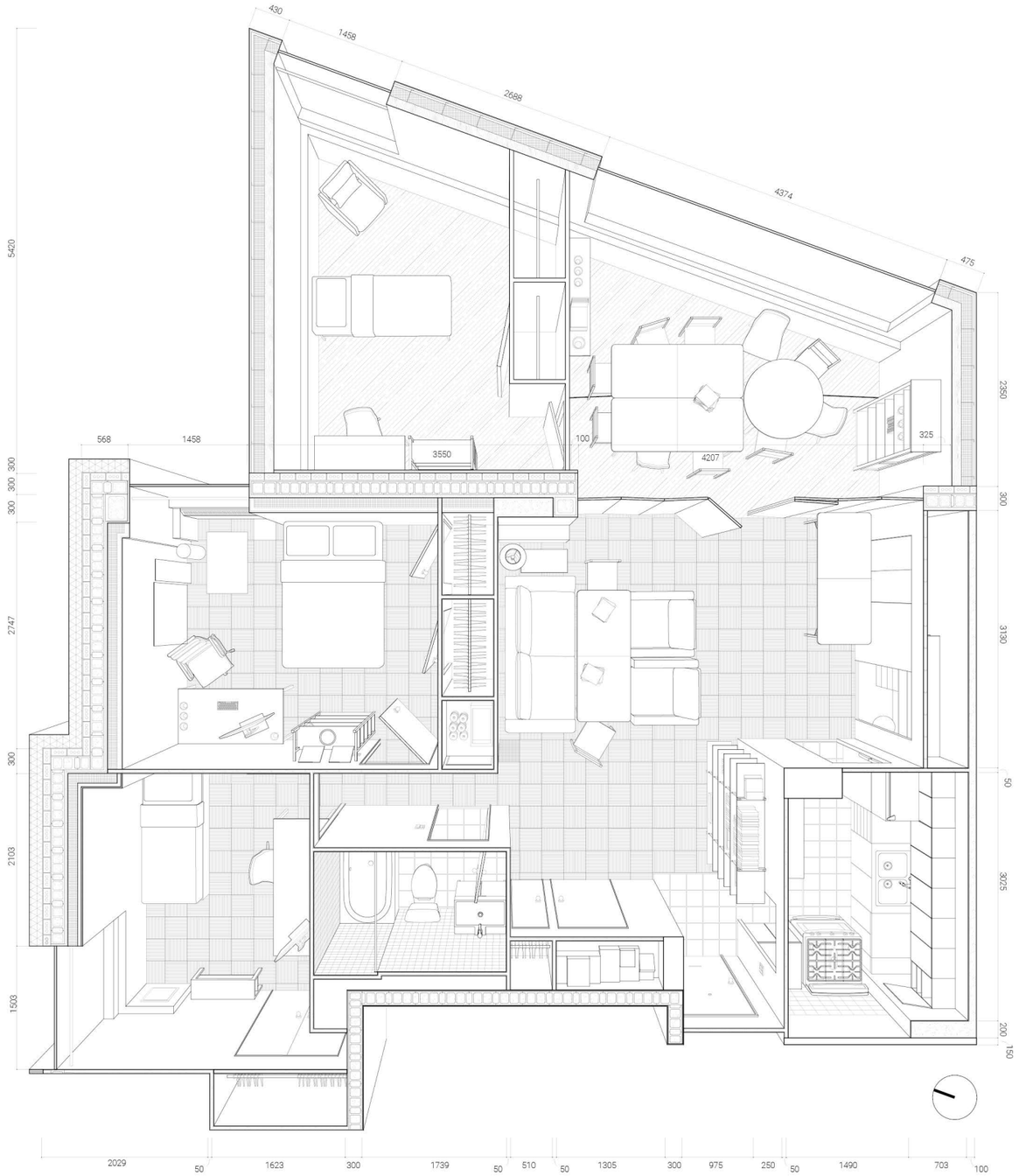




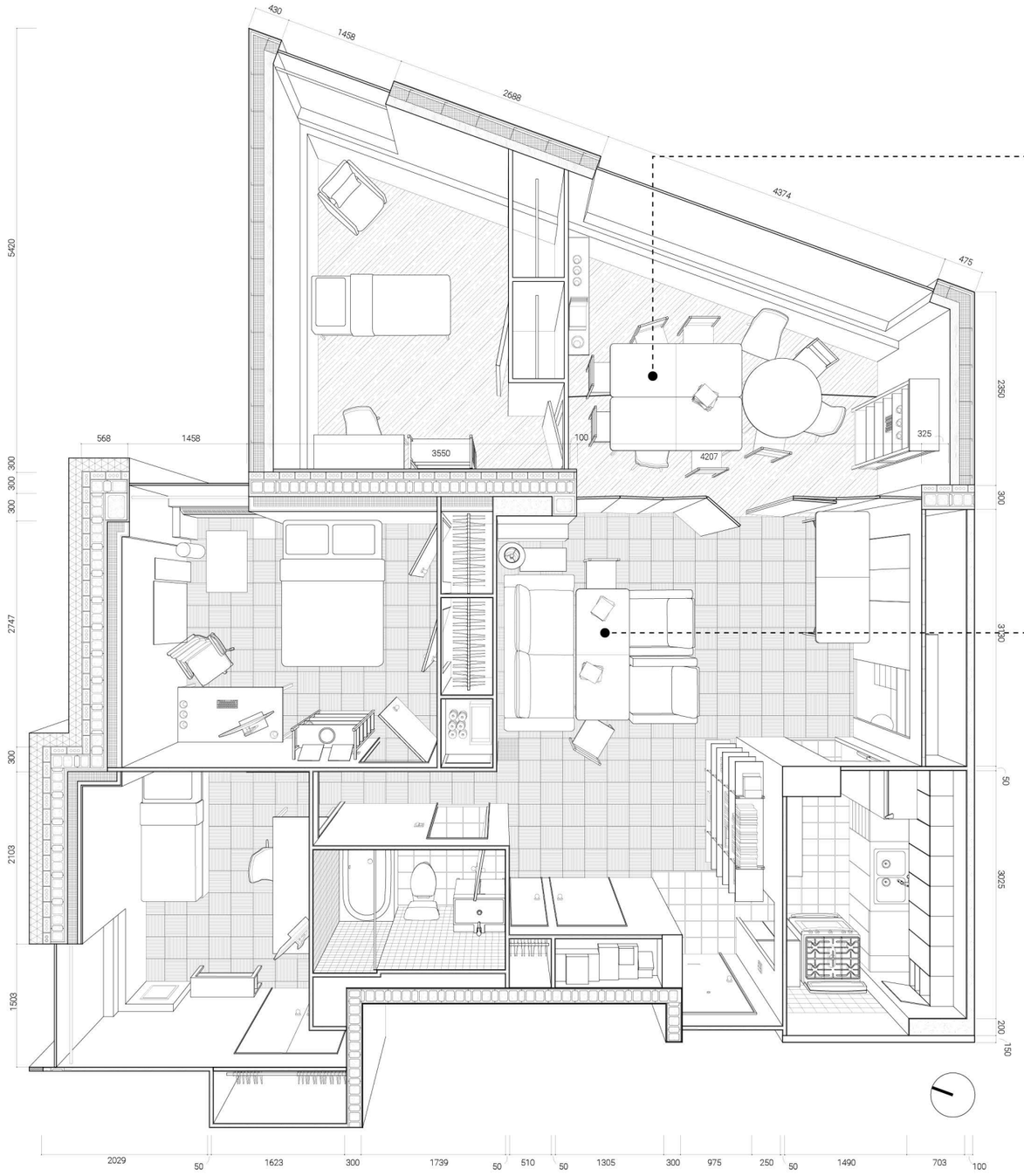


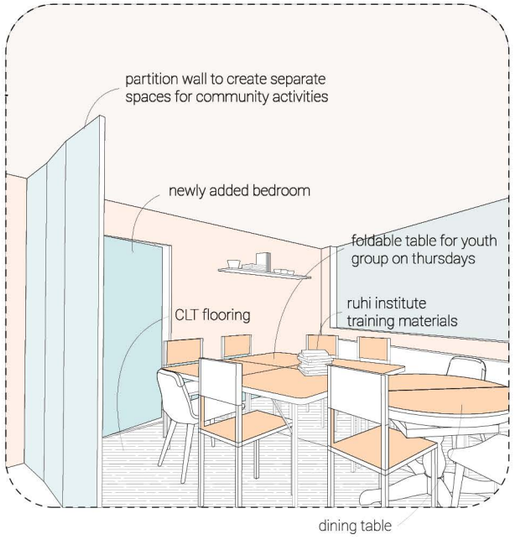
Iteration 1: Enclosed Balcony

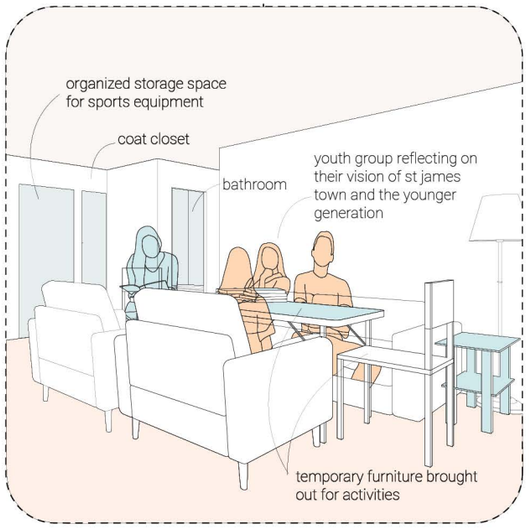




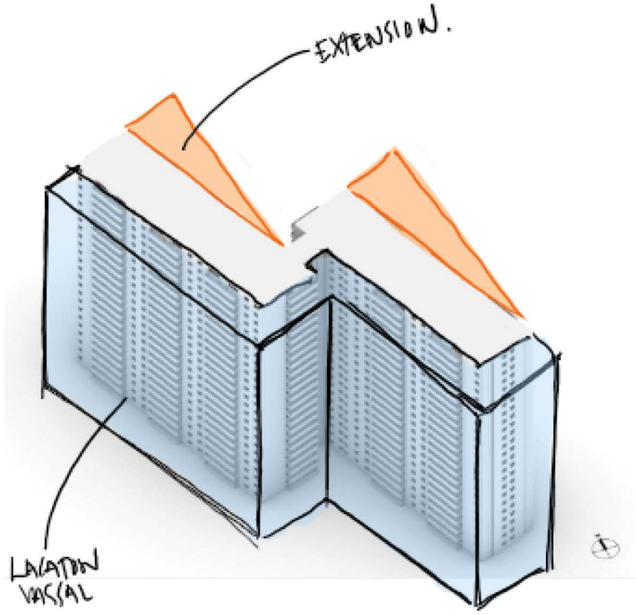
Iteration 2: Extended Pocket

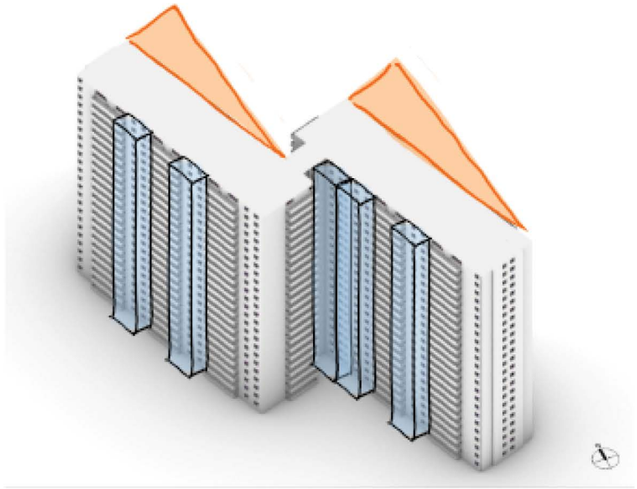






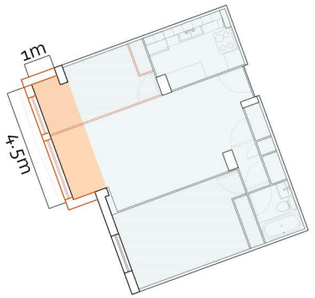
Iteration 2: Extended Pocket

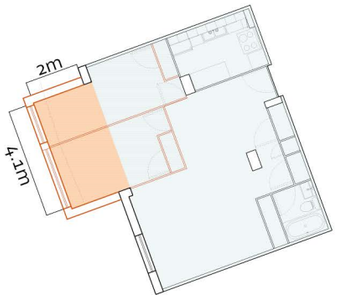


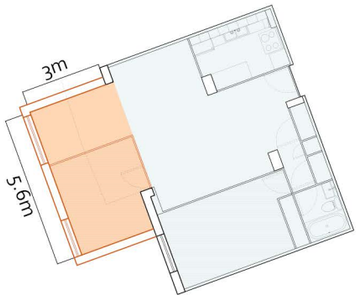


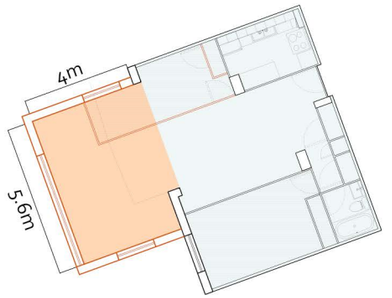
South West Facade

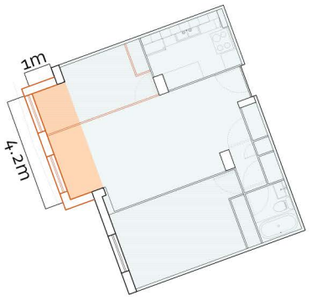
Enclosed Pockets to accommodate direct sunlight

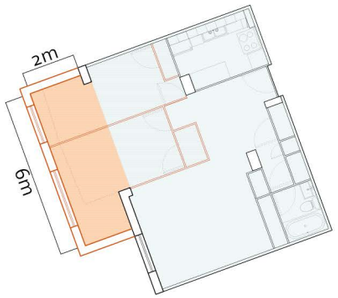


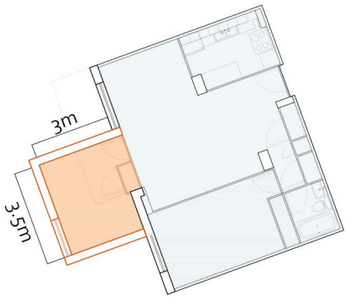


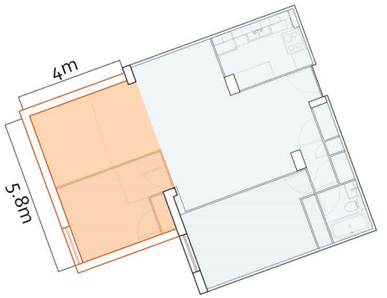








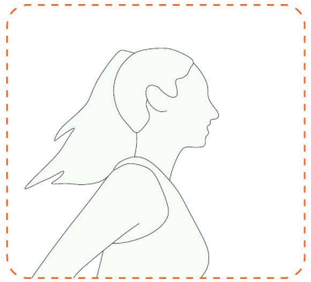




South West Facade

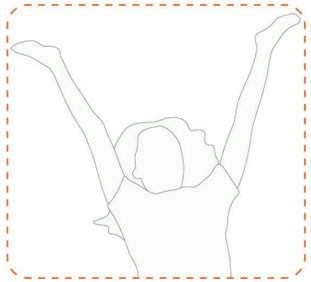
Unit breakdown

Unit 1926



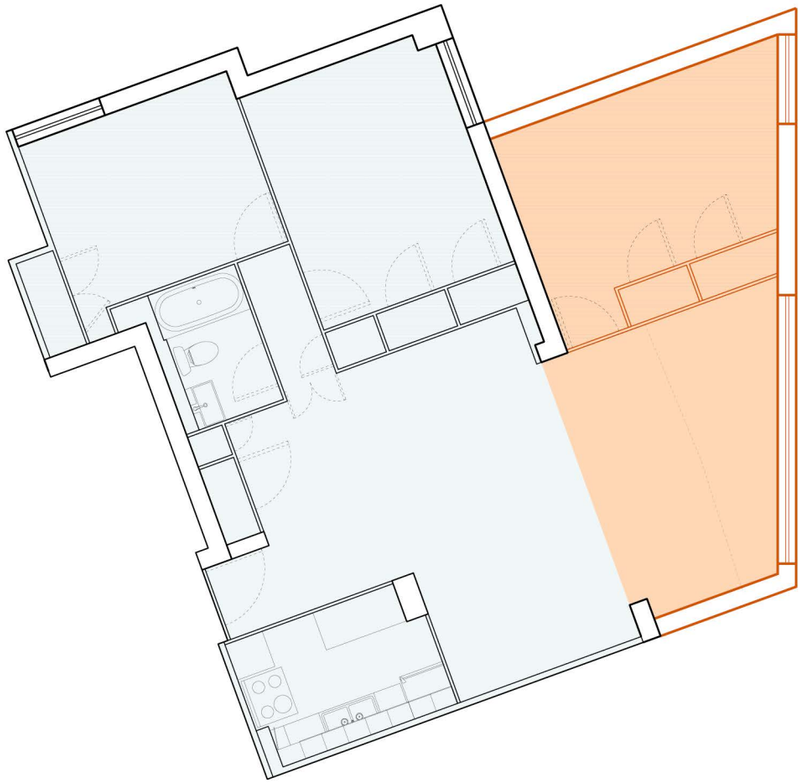
Sasha

22, likes to make art



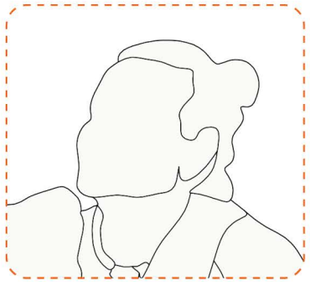
Bahia

30, likes to dance



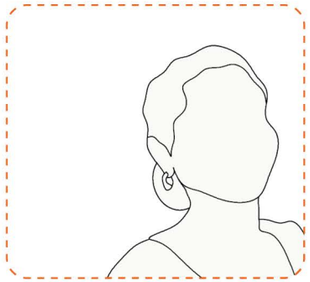
Unit Conditions	2 Adults, 2 Bedrooms
Purpose	Apartment to serve as a Community Centre for classes for youth, junior youth and children

Unit 1910



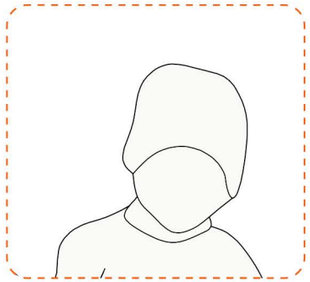
Mom

mid-40s



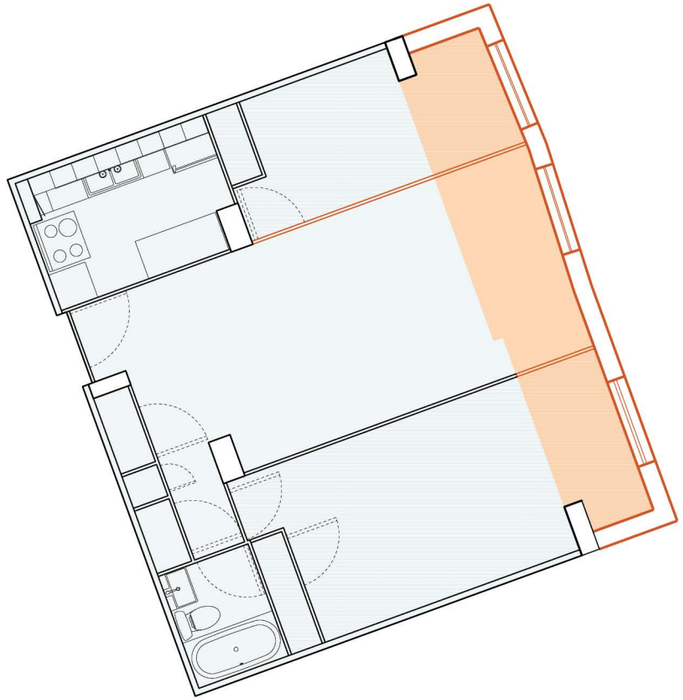
Daughter

14, highschooler



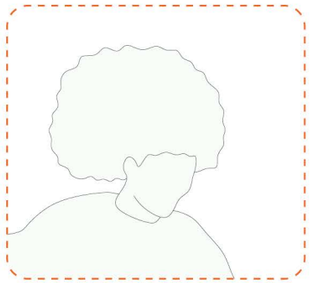
Son

10, middle schooler



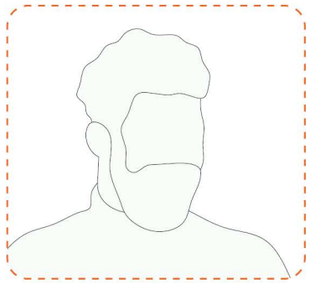
Unit Conditions	1 Adult, 1 Youth, 1 Child, 1 Bedroom
Purpose	Apartment is their home. Hoping to move to Scarborough in 3 years.

Unit 1921



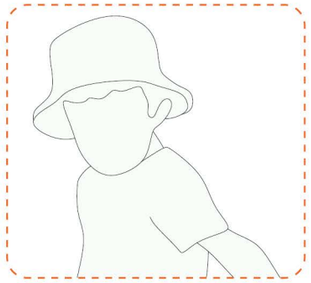
Mom

mid-50s



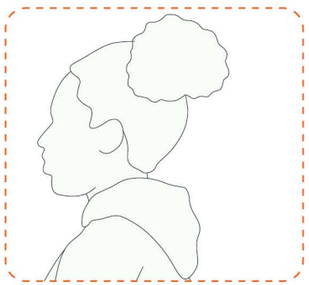
Dad

mid-50s



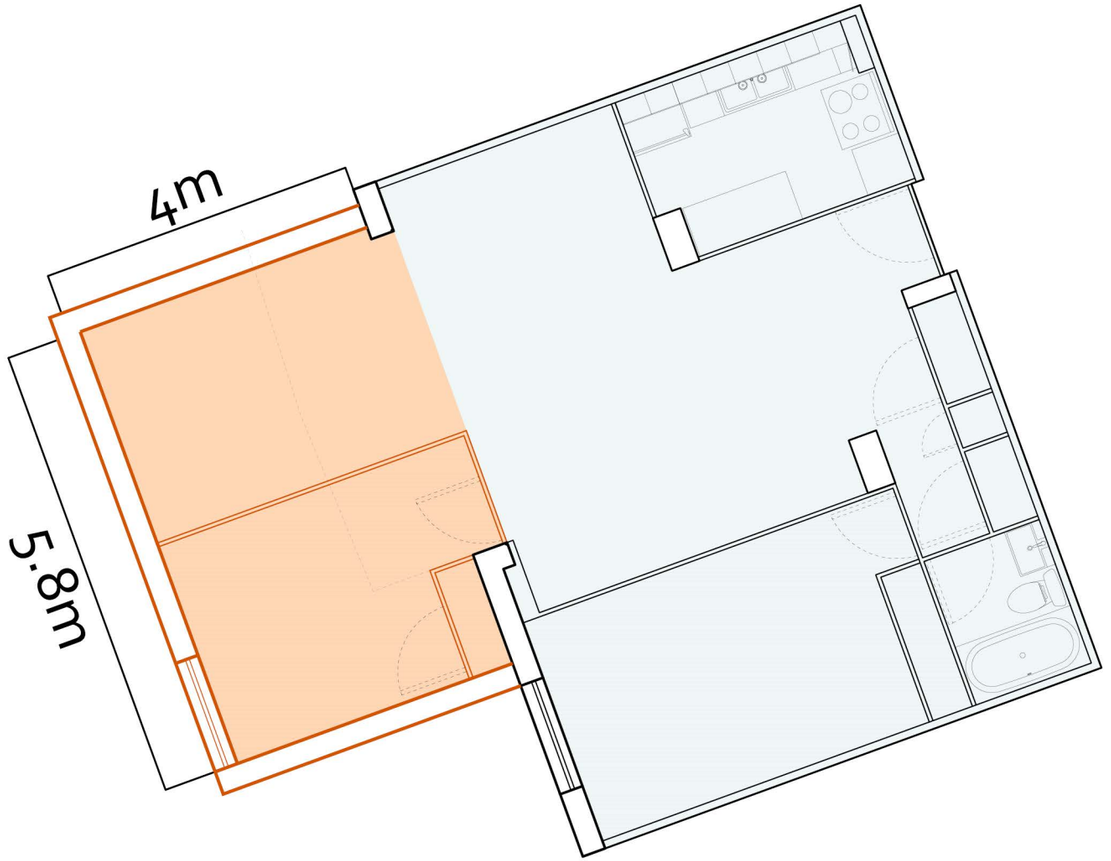
Son

4, kindergarten

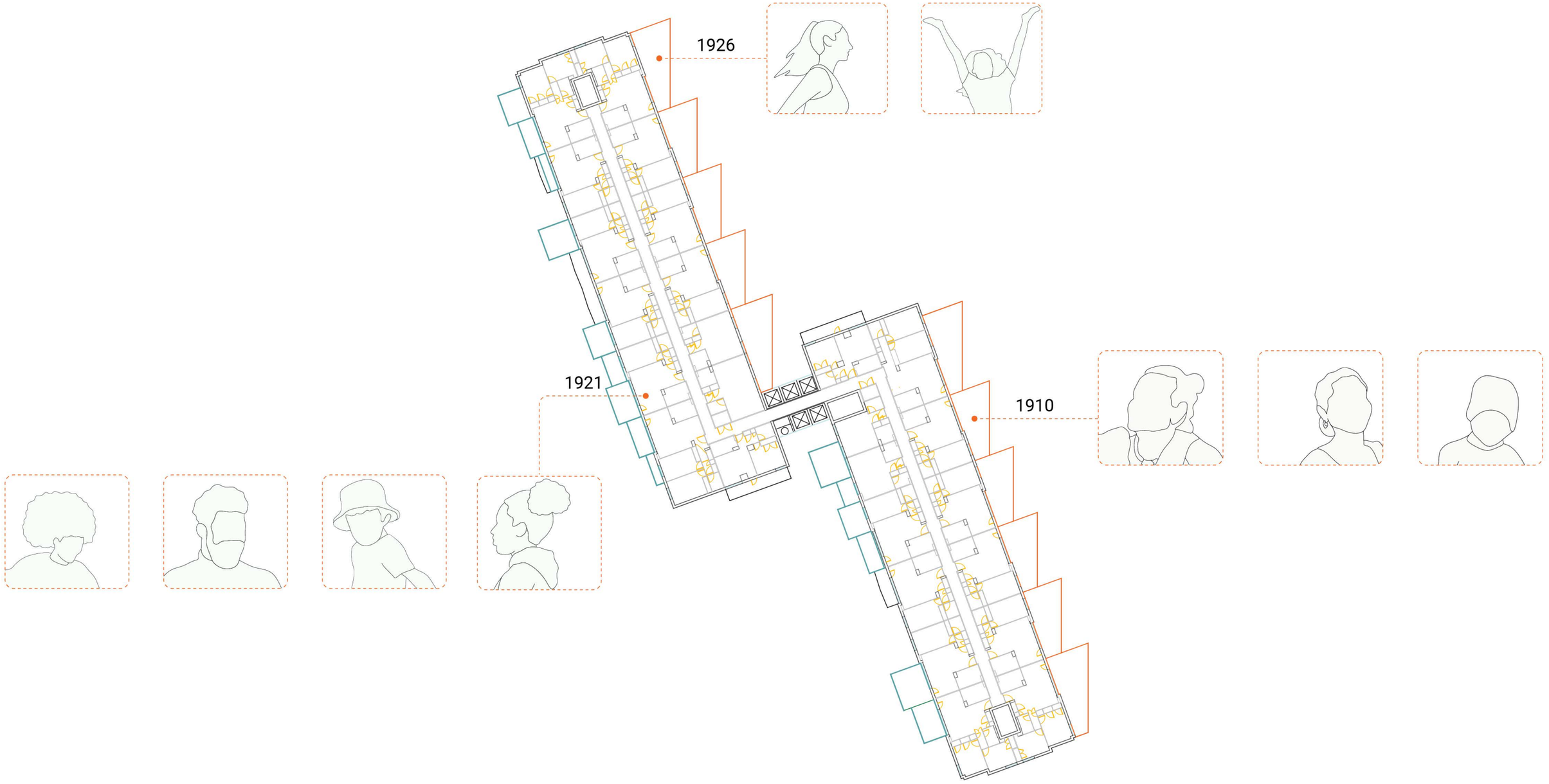


Daughter

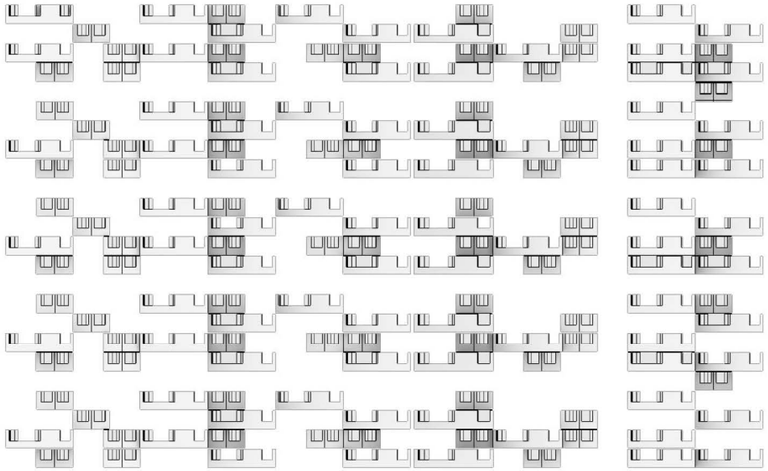
16, highschooler

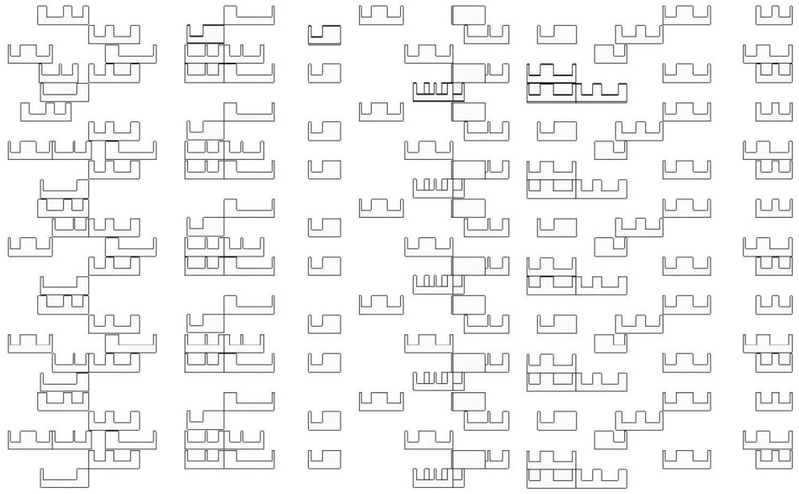


Unit Conditions	2 Adults 1 Youth, 1 Child, 1 Bedroom
Purpose	Apartment is home. Hope to live in SJT until their son graduates high school.

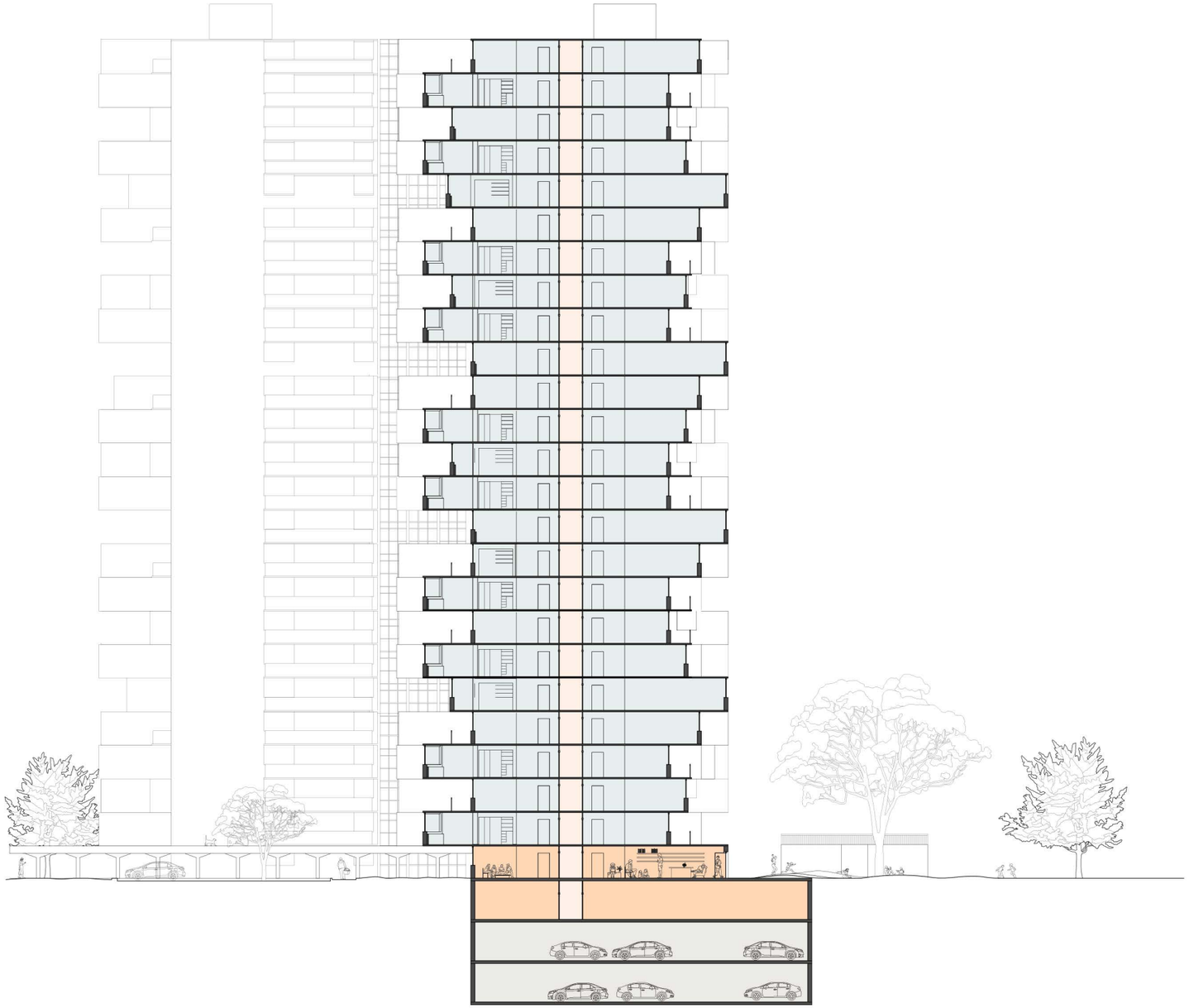


Proposed Plan for 19th Floor

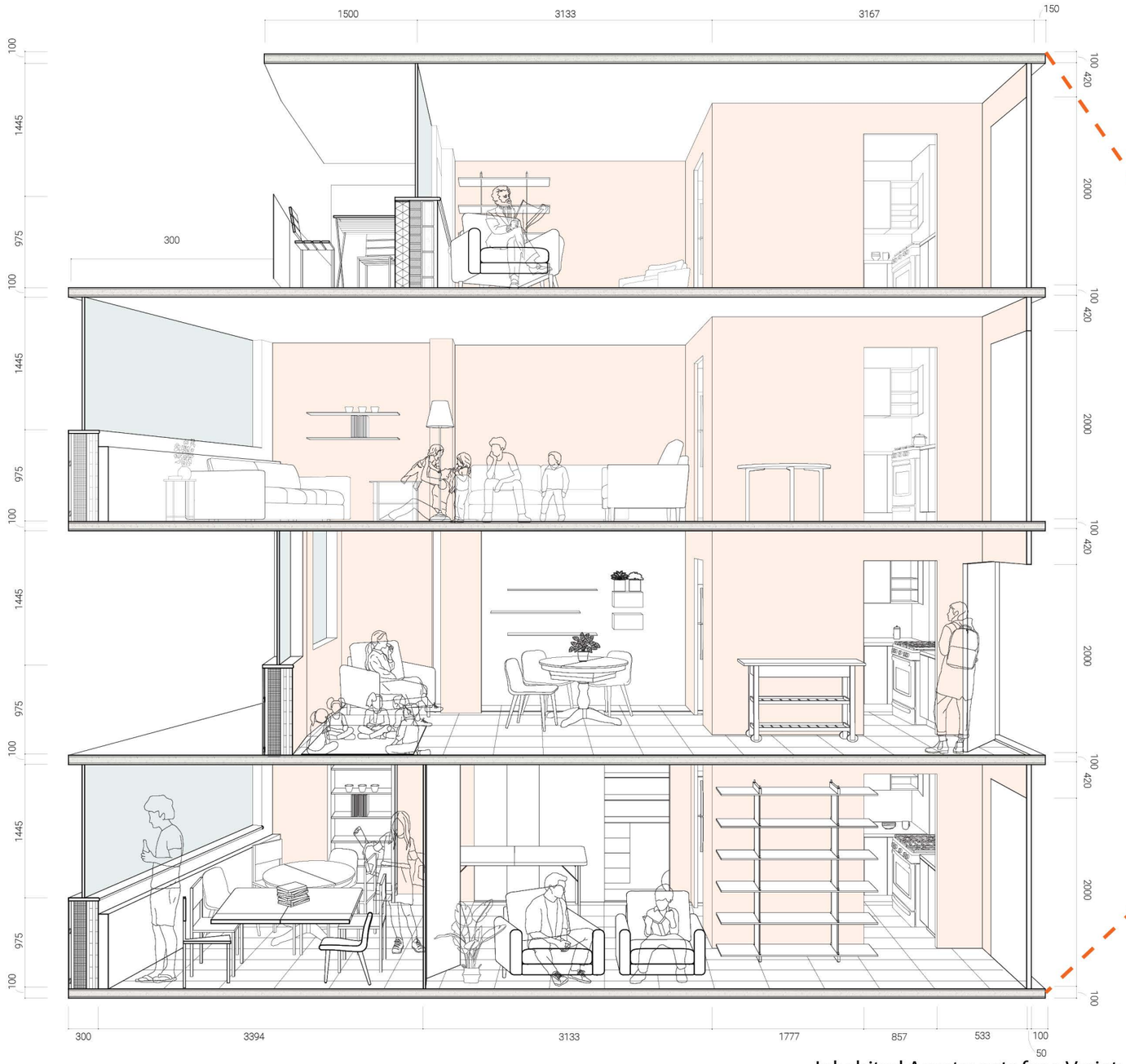


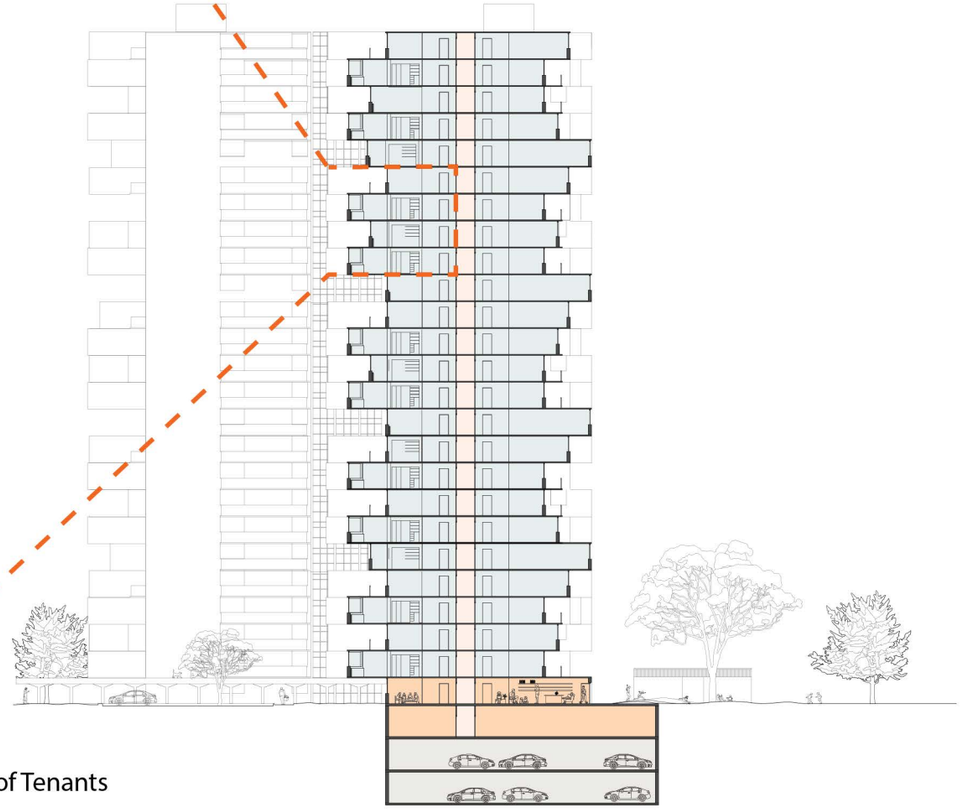


Proposed Facade

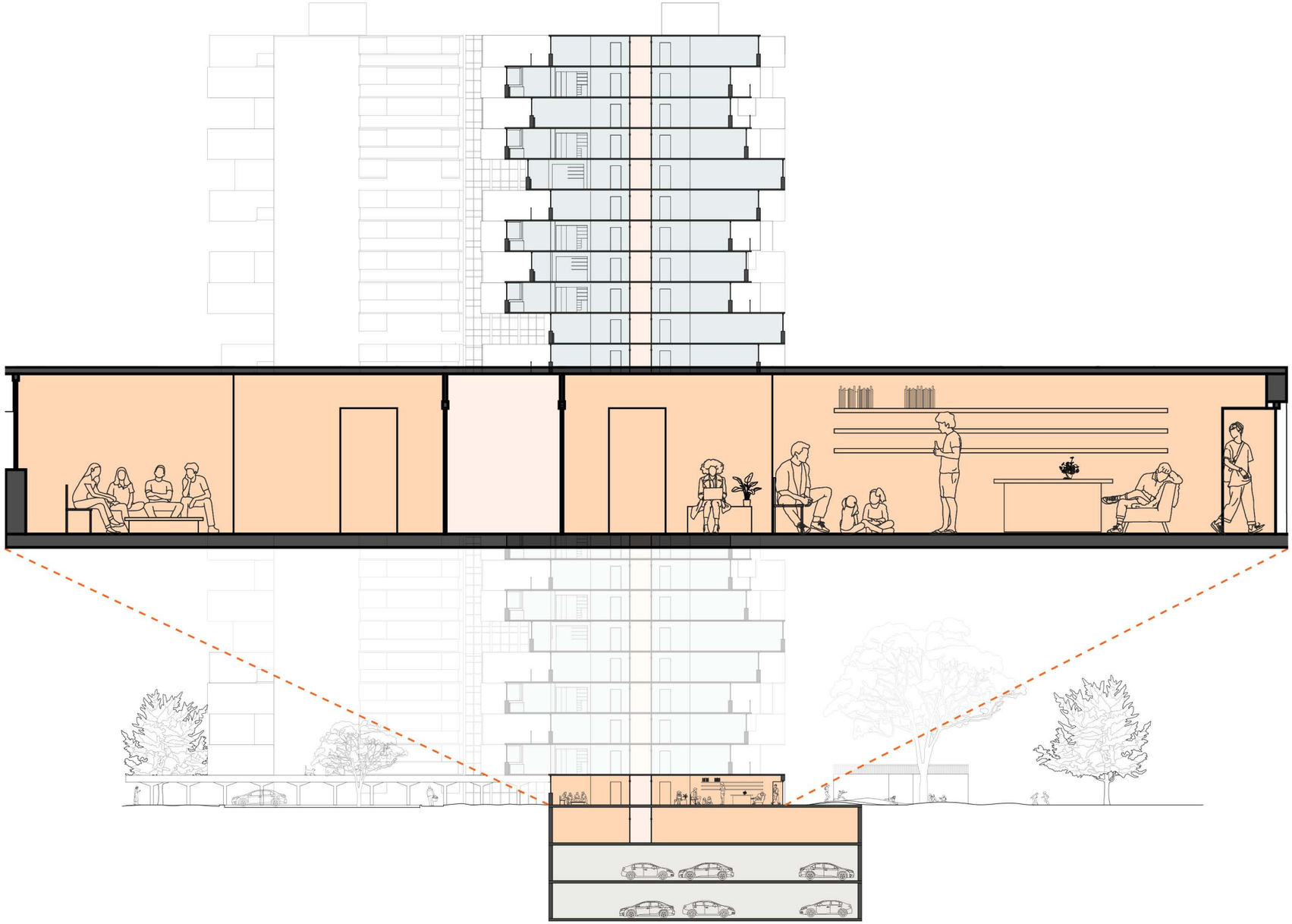


Proposed Section Highlighting Diversified Facade

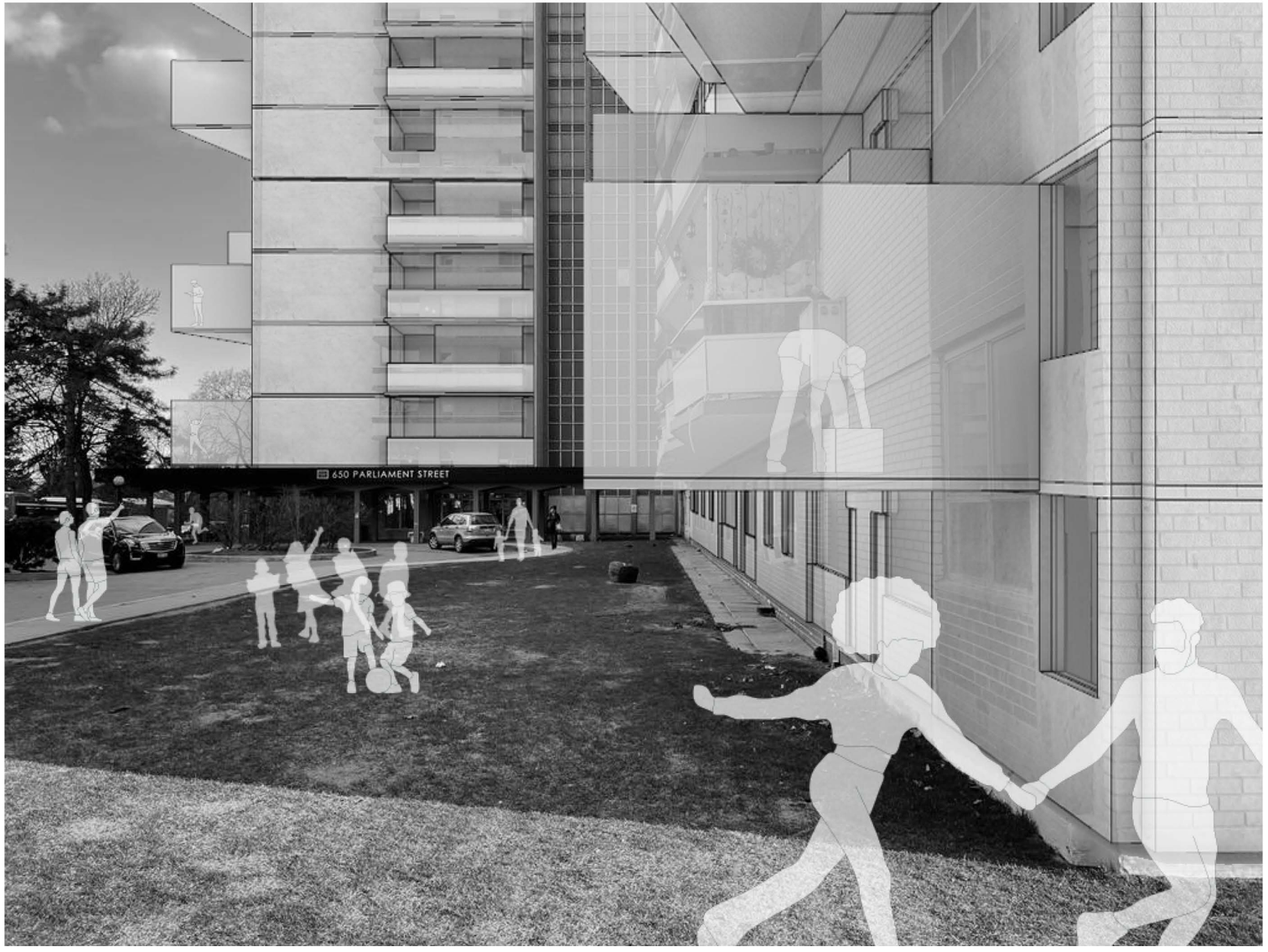




Inhabited Apartments for a Variety of Tenants



Proposed Community Centre on Ground Floor


650 PARLIAMENT STREET

We only have 7 years left to reach our carbon emission goals. Weq must revisit Tower Renewal to take into account tenant agency alongside material carbon reduction.