

# A FIELD GUIDE TO RETROFITS IN OCCUPIED BUILDINGS

*June 2020*

CENTRE FOR  
URBAN GROWTH  
AND RENEWAL  
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 TOWER RENEWAL  
PARTNERSHIP



**MARS**



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# INTRODUCTION

## WHO IS THIS GUIDE FOR & HOW DO I USE IT?

This Field Guide is designed to assist property owners, residents and the construction industry with conducting a retrofit efficiently and effectively while tenants are in the building. It provides an overview of a typical residential high-rise retrofit construction project with residents remaining in place, from first concepts to post-construction evaluation.

From a resident's perspective, retrofit construction projects are often extremely disruptive, confusing, and a source of instability or insecurity in the lives of tenants. For people more vulnerable to disruption - such as those with respiratory conditions, mental illness, or limited mobility - these issues are amplified. Retrofits in occupied buildings require a unique approach to minimize disruption; including measures such as rigorous and multi-faceted communication, more complex sequencing, and specialized training for contractors.

The Field Guide provides owners with an understanding of what a retrofit might entail, designing projects to mitigate disruption to tenants, special considerations for construction in occupied suites, and a number of innovative approaches that can help make these projects successful. For tenants, the Field Guide is a tool to help frame expectations and anticipate what may happen during construction. It will also help tenants understand their rights during construction, how they may be able to get involved to improve the outcomes for themselves and their communities, and how to understand the risk of renoviction. The guide is organized chronologically into five steps:

- 1. The Landlord Considers doing a Retrofit**
- 2. A Team is Hired to Plan and Design the Retrofit**
- 3. A Contractor is Selected to do the Work**
- 4. Construction Takes Place in Your Apartment Unit**
- 5. Residents Adjust to Post-Construction Apartment and Provide the Landlord with Feedback**

In each chapter, key stakeholders and their roles are highlighted -- with opportunities for improving the experience of all parties and links to additional resources. In some phases, case studies and interviews are included to highlight success stories from around the world.

We hope that you will find this guide helpful.



**The Landlord Considers  
doing a Retrofit**



**A Team is Hired to Plan and  
Design the Retrofit**



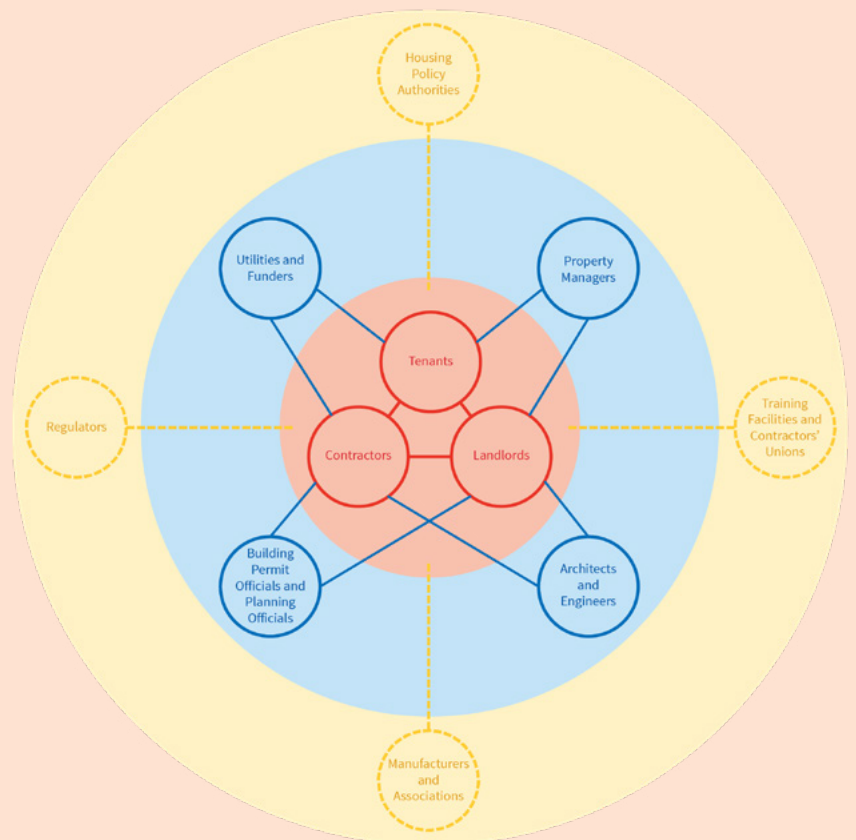
**A Contractor is Selected to  
do the Work**



**Construction Takes Place in  
Your Apartment Unit**



**Residents Adjust to Post-  
Construction Apartment and  
Provide the Landlord with  
Feedback**



**INFLUENCE THE RETROFIT  
DIRECTLY**

**INFLUENCE THE RETROFIT  
INDIRECTLY**

**ACTIVE DAY-TO-DAY IN  
THE RETROFIT**

*The following sections introduce the general phases of a tower retrofit. In each section, we break down the things that need to be taken into consideration with respect to landlords, tenants and industry experts. We know there are additional people and roles to take into consideration, but our focus is on these three groups of people given how critically important they each are for a successful tower retrofit.*





# WHAT IS TOWER RENEWAL?

Tower Renewal is a strategy to ensure that Canada's affordable apartment towers are healthy, safe and high-quality places to live. The Tower Renewal approach works in tandem to achieve quality of life improvements and realize objectives related to climate change resilience, long-term affordability, poverty reduction and economic development.

# ABOUT THE TOWER RENEWAL PARTNERSHIP

The Tower Renewal Partnership (TRP) is a multisectoral collaboration led by the Centre for Urban Growth and Renewal (CUG+R), working to establish a framework through which Tower Renewal can be scaled across Canada. We do this by supporting public and private stakeholder itineraries, conducting applied research, convening core stakeholders, and supporting demonstration projects. We also bring together best-in-class practices in energy retrofit, planning policy, green financing, and social entrepreneurship.

For more information: <http://towerrenewal.com/>





# THE LANDLORD CONSIDERS DOING A RETROFIT



## Landlord

A decision to take on a retrofit project is made, based on a number of factors:

- **What problem needs to be solved?** Reducing energy bills? Reducing leaks and drafts? Medium-term climate resilience? Failing building systems? Improving ventilation? Setting core objectives helps to determine which elements of the building will be upgraded as part of the retrofit.
- **How much can be spent on the retrofit, and how long will it take to complete?** Understanding the financial and logistical impacts of the retrofit help a landlord to plan.
- **Which incentive programs and financing supports are available?** There are a number of objective-driven programs available to offset retrofit costs. Most are geared to carbon reduction, utility savings and social sustainability.
- **How will residents be impacted?** The landlord will need to understand the type of provisions required to minimize disruption. This Field Guide can help.



## Tenants

For tenants, news of a retrofit project can cause significant concern:

- **Will my rent go up?** Will I need to find a new place to live, if my rent increases beyond what I can afford? First and foremost, legitimate concerns about housing insecurity must be addressed at the outset of a project. *For information on protecting tenants from displacement or “renoviction” please see Section 6.*
- **How will I be impacted negatively?** Retrofit construction can be extremely disruptive: noise, multiple suite entries and longer elevator wait times are just some of the ways that tenants can be impacted. Anticipating these concerns is the first step in creating an action plan to minimize negative impacts.
- **How will I be impacted positively?** It is important that positive impacts of the retrofit process are communicated with clarity and thoroughness toward gaining tenant buy-in in the retrofit process. Benefits to tenants might include improved comfort, air quality, odor reduction across units, or energy efficiencies that result in decreased utility cost etc. Providing this information helps tenants understand the eventual positive benefits of a retrofit, which will have tangible impacts on their well-being and quality of life.



## Industry

Typically, engineers, architects and contractors are not engaged at this stage. However, contractors or energy auditors may be asked to provide a feasibility or building audit to identify the areas requiring retrofit.



# TOWER RENEWAL: A FIELD GUIDE TO RETROFITS IN OCCUPIED BUILDINGS

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# SOLUTIONS: FIELD GUIDE

## Field Guide to Retrofits with Residents in Place

Most multi-unit residential owners are accustomed to undertaking as-needed capital repairs, structured as small, like-for-like improvement projects. For most owners, this will be the first complex retrofit undertaken at their property. The Field Guide provides owners with an understanding of what a retrofit might entail, designing projects to mitigate disruption to tenants, special considerations for construction in occupied suites, and a number of innovative approaches that can help make these projects successful. For tenants, the Field Guide is a tool to help frame expectations and anticipate what may happen during construction. It will also help tenants understand their rights during construction, how they may be able to get involved to improve the outcomes for themselves and their communities, and how to understand the risk of renoviction.

## How is it Used?

The Field Guide is a publicly distributed document that can be accessed by anyone involved in a retrofit, at any stage. Ideally, the Field Guide can be distributed widely to those undertaking retrofits by program managers, funding bodies, local governments, and even building authorities

## What are the Next Steps?

The Field Guide developed here is intended to be a first iteration of this tool. It has been peer reviewed by an advisory board made up of national experts on retrofit processes. As a next step, the Field Guide should be circulated widely to owners with experience undertaking complex retrofits and tenant advocacy groups working on renovictions and other issues surrounding renovation. The input of this secondary group of stakeholders can help to further expand the Field Guide and ensure it is both (a) current and (b) adequately addressing the key challenges faced by stakeholders.



## A TEAM IS HIRED TO PLAN AND DESIGN THE RETROFIT

Once the objectives of a retrofit project are determined, the landlord is ready to engage engineers or architects to plan and design the retrofit.



### Landlord

As the design team is brought on, the landlord has an opportunity to begin considering tenant impacts:

- **Bring tenants into the decision-making process:** A tenant stakeholder group can be assembled to weigh in on the design as it evolves. In some cases, tenants will have the opportunity to help select designers and/or provide feedback on designs.
- **Including tenant engagement in the design team's Terms of Reference:** Intermittent consultations or communications may take place throughout the design. This requirement is most effective when built into the design team's scope of work.
- **Including the minimization of tenant disruption in the design team Terms of Reference:** In some cases, design dictates whether residents will need to leave their apartments temporarily during the retrofit, or dictates how frequently an

apartment must be entered by construction workers during installation. Tasking the design team with this imperative frames it as a core design objective from the outset, and not a ‘nice-to-have.’

- **Plan for swing space:** During the future construction project, the landlord may want to provide short-term spaces of respite for those who prefer not to be in their units during daytime hours of construction. For more invasive works, the landlord may opt to move tenants into swing spaces for a few days at a time while more significant work is underway. This requires early planning: as apartments turn over, perhaps they are left empty to be used as swing space.



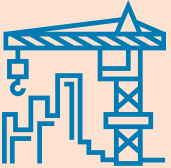
## Tenants

At this stage, tenants may not yet be aware of a future retrofit project. But if they are, there are opportunities for early involvement:

- **Creating a tenant stakeholder group:** If a tenant group is invited to participate in the design process, a committed group can be created through an understanding of potential benefits to tenants, developing a clear set of roles and responsibilities for the group, and the inclusion of committed and connected tenants who are willing to spread the word as the design develops.
- **Dealing with distrust:** In some cases, there are long-standing barriers to tenant participation including historic lack of engagement or an antagonistic relationship between a landlord and tenants:
  - Lack of trust, with residents fearing that any request they make of their landlord will lead to an above guideline rent increase. *For information on protecting tenants from displacement or “renoviction” please see Section 5.*
  - Some residents have had experience of (or suspect) unauthorized entry into their apartment by their landlord; others have witnessed or experienced harassment and intimidation of tenants.
  - Some residents have experienced urgent repairs not getting completed, with repeated requests for repairs unaddressed.



- These relatively common but serious issues can be addressed through questions submitted in writing to the landlord related to the upcoming project. If the questions are submitted by the tenant stakeholder group, they are anonymized -- which may be preferred by some tenants.



## Industry

Engineers and Architects have an unparalleled opportunity to impact tenant disruption through design:

- **Consulting the experts:** Tenants live in the building every day, and most often have unique expertise in the most pressing recurring issues within the building. Engaging a tenant stakeholder group during the design phase can often uncover problems which might be easily solved through a retrofit, can identify opportunities to streamline process efficiencies, or point to solutions that might otherwise get overlooked. Consulting with building managers and repair crews will also prove critical.
- **Designing for minimal disruption:** The retrofit design presents many opportunities to ensure disruption to tenants is minimized. This could include designing the retrofit to maximize the use of prefabrication as well as the selection of products or assemblies installed from outside the unit or installed during a single unit entry by a single trade.
- **Learn from success stories:** Referring to case studies can help to identify retrofit-ready solutions, products, or assemblies that are demonstrated in their success elsewhere. This Field Guide provides several examples; larger repositories of international case studies are available elsewhere.







# SOLUTIONS: TENANT ENGAGEMENT STRATEGY

## Tenant Engagement Strategy

Tenant communication and engagement before, during and after a retrofit has been identified as uneven across retrofit projects, with many tenants unhappy with low levels of engagement and consultation at all stages.

Requiring a “Tenant Engagement Strategy” with some standardized components will ensure that certain engagement activities -- and the corresponding funding for those activities -- are included within all retrofit projects.

Landlords may opt to carry out these activities themselves, or may decide to include these activities within the design team’s Terms of Reference. In some cases, they may engage a third party organization or community group with experience in such consultation.

While required elements of a Strategy may be standardized, the plan itself must be geared to the specific communities within the building -- taking into account language barriers, cultural differences, demographics, varying modes of communication and other local factors.

## How does it become a requirement?

In cases where public funding is being put towards a retrofit project, a tenant engagement strategy (with associated budget) can be required by the funder as a condition of eligibility. As nearly all deep retrofit projects in Canada are currently relying on some form of utility rebate or public financing, this would be an effective way to ensure that tenants are being consulted during the project lifecycle.

## What are the Next Steps?

Standardized Tenant Engagement Strategy elements, and the associated reporting requirements would need to be developed. Relative costs for these required activities would need to be assigned.

Funders could then include a requirement for a Tenant Engagement Strategy in their conditions for eligibility, with associated dollars tied to this requirement.

## Where can I find an example?

At the Oxford City Council Estates retrofit in Oxford, UK, an independent resident group was established to scrutinize the process and provide a third-party review of the retrofit. Residents also participated in selecting the building contractor, using contractors' track records from their past similar projects. Residents visited the contractor's previous projects and spoke to the residents.

Once selected, the contractor was contractually required to provide a "high degree of customer care" and opted to provide a tenant liaison on-site to meet this requirement.





# SOLUTIONS: DESIGN ASSIST PROGRAM FOR RETROFITS WITH RESIDENTS IN PLACE

## **Design Assist Program for Retrofits with Residents in Place**

Since complex housing retrofits are still relatively uncommon in Canada, many architects, engineers and other design team members are unfamiliar with specific considerations for designing a retrofit with residents in place.

A “Design Assist” program is a peer review of a retrofit design by other experts in the field. This program would provide assessments and recommendations of designs which are mid-stream, allowing adequate time for adjustments to be made by the design team as a result. This review can offer suggestions meant to reduce disruption to tenants and may include advice around single-day installation, panelization, exterior installation, retrofit-ready products, etc.

## How is it Implemented?

Design Assist programs already exist in several jurisdictions across Canada for energy savings or for design quality: these programs can be accessed by any design project, bringing a number of experts together to review designs over the course of a single-day charrette. Materials are provided in advance for expert review. Typically, these programs are funded by utilities or by landlords with large portfolios. In the case of a Design Assist program geared to minimizing disruption, this assessment could be integrated into the already-existing energy savings Design Assists provided by the utilities, or could be administered by government bodies.

Local experts in various jurisdictions would be assembled to provide input. Due to building code variations across provinces and territories, it is ideal for expert pools to be localized.

While participation in similar programs is currently voluntary, uptake tends to be driven by the promise of improvements to energy savings. In this case, uptake would most likely be driven by landlord interest in improving outcomes for tenants.

## What are the Next Steps?

A Design Assist program would need to be developed. A cross-section of willing design professionals with retrofit experience would need to be identified and convened. Commitments from professionals would need to be sorted and details established (paid/voluntary, time commitments, turn around time, etc.).

# GÜTERSTRASSE 30 PFORZHEIM, GERMANY

10 STOREYS

21,291 SQFT / 17 APARTMENTS

OWNED BY PFORZHEIMER BAU UND GRUND, A MUNICIPAL PUBLIC  
HOUSING PROVIDER

PASSIVE HOUSE CERTIFIED PROJECT





## Retrofit Overview

Güterstraße 30 was one of 15 projects funded by the German federal Zukunft Haus fund (Future House) to pilot net zero construction and renovation. The end result was a Passive House certified retrofit. Work was conducted with residents in place, and rents remained affordable for sitting tenants after the retrofit. The project included:

- Precast concrete, highly-insulated and airtight overcladding and new triple-glazed windows
- Extending the footprint of the building to include new thermally-broken balconies
- Energy recovery through ice storage in the basement, and solar water heating on the building facade
- Addition of a new floor of penthouses to cross-subsidize the project



### In conversation with Jochen Freivogel of Freivogel Mayer Architects (Prime Architect of Güterstraße 30)

*For Mr. Freivogel, minimizing disruption to tenants was critical and considered from the outset of the project. Therefore, he employed a “prefabricate as much as possible” approach to the design of the retrofit resulting in the use of many prefabricated technical components including ventilation, heating, elements of the facade and windows. Additionally, mitigating disruption was a focus of project scheduling with designers choosing to go room-by-room. This means once workers began construction in a unit, they would not move on until that room was complete. Each apartment took four weeks of work, with contractors ensuring that works were cleaned up by evening, allowing tenants to sleep in the unit during construction.*

*Mr. Freivogel remarked that due to the success of the project, the building owner is proceeding with similar retrofits in seven other similar apartment buildings. Though the project was generally a successful and replicable strategy, Mr. Freivogel will be refining the construction strategy and details including the addition of a monitoring program in the first year of operation to help optimize systems through the early stages of occupancy.*

## Retrofit with Residents in Place - Lessons Learned

- While the project is a landmark in Pforzheim, and one of only several Passive House retrofits in Europe, product availability and trade readiness for this retrofit was not perceived to be a challenge by the project team, due to a mature low-energy construction market.
- As part of the building envelope upgrade, new windows were designed to be installed outboard of the existing building. Importantly, this meant that no entry into apartments was required for the window install. It also allowed for the windows to be located within the insulation plane, and ensured easier continuity of the air-barrier.
- Existing balconies were thermal bridges, creating condensation inside suites. These were removed as part of the project, with new, more generously sized and thermally broken balconies installed in their place. This work did not require apartment access.
- The central ventilation system was replaced with small ERVs in each suite, providing more effective ventilation with minimal ductwork. This approach required limited entry into apartments. When workers had to enter suites, they ensured that they would be able to do the work during one work day, typically while people were out at work. Respite space in a cafe beside the apartment was provided by the landlord, who provided tenants with vouchers for food and drink.
- The most significant disruption to tenants occurred at the time of window removal, when adjacent components of the facade containing asbestos were fully removed. This required careful protection of units and living spaces.
- Precast facade components were fabricated off site, allowing for quick installation to minimize noise and vibrations.
- The landlord deliberately did not include in-suite interior fit-out in the project. This decision was made based on weighing the benefits of improvements against the likely level of disruption they would cause.
- The project integrated renewables to offset energy usage for near net zero status, including a rare application in retrofit construction of an ice storage system. Solar water heating was also integrated into the precast facade.
- The project was funded through various German green finance vehicles including the KfW Bank, which provided performance-based favourable lending and grants.







## A CONTRACTOR IS SELECTED TO DO THE WORK

After the design of the retrofit has been completed, a contractor is selected. The contractor is usually a company which provides overall construction management, sub-trades (electrical, plumbing, etc.) and oversees the site on a day-to-day basis. Choosing a contractor with demonstrated ability to work in occupied buildings is important, since the contractor is responsible for scheduling entry to apartments, minimizing disruption and maintaining safety and communication on site. Most importantly, the contractor will likely be the face that tenants see most often.



### Landlord

The landlord is directly responsible for hiring a contractor, using some of the following considerations:

- **Does the contractor have relevant experience?** Most procurement processes use weighted criteria to choose the successful contractor. Landlords should be aware that retrofits require experience and skills which are different than new construction. A contractor should demonstrate that they understand the additional skills required to complete work with residents in place and are entering into the project with this factor in mind.

- **Are bidding contractors required to carry cost for scheduling and potentially remobilizing to work with occupied units?** Depending on the scope of work, there can be higher costs associated with working in occupied buildings (shared elevators, more lag between work in suites, requirements for providing notice and security accompaniment into suites, etc.). A baseline assumption about these conditions should be provided to all bidding contractors. If these requirements are not spelled out in the tender, fair and competitive pricing may not be provided.



## Tenants

In some cases, tenants may be involved in the contractor selection process.

- **How has the contractor managed complicated sites with multiple stakeholders in the past?** Ask questions which require specific, detailed answers about using innovative approaches to meet schedules and budgets while maintaining good relationships with occupants in place. These answers may be provided in written submissions, or during an interview.
- **Ask about worker codes of conduct.** What are the specific procedures and codes of conduct required of workers while in an apartment? These should be clearly outlined in writing, and should align with the tenants' act in your jurisdiction. Ask how these requirements will be enforced on site.



## Industry

The contractor has the ability to deliver the project smoothly and with outcomes that directly improve the health and housing quality of tenants.

- **Understand the site well before bidding.** Walk the site and speak to tenants before bidding. Get a sense of the community, the building's configuration and its condition. Anticipate the pain points (shared elevators, access refusals, duration spent in suites) and ask questions during the tender to ensure that all bidders will be bidding on the same conditions that you have noted.
- **Review success stories.** How have similar projects been successful? What extra services were required to run those projects smoothly? What lag and contingencies were built into schedules?
- **Confirm assumptions about means, methods and access prior to submitting your bid.** Pricing will always be based on an assumption about how long an installation will take, the conditions of that installation (working in an empty space versus a space full of furniture), and the ability to easily and quickly access the work area (will elevators be shared with tenants, will delays result from access being refused, or will installation have to occur from suspended platform outside units?).





# SOLUTIONS: INCORPORATE TENANT LIAISON ROLE INTO CONTRACTOR REQUIREMENTS

## **Incorporate Tenant Liaison Role into Contractor Requirements**

Carrying out a construction project in an occupied building is complex: shared vertical access, maintaining exit routes, scheduling notifications for suite access, and maintaining safe and clear work areas inside people's homes can all pose challenges above and beyond a typical construction project. This unique set of challenges can be offset by incorporating a new role into the construction team: a "Tenant Liaison" can be responsible for foreseeing these scheduling and logistical challenges, and building solutions into the construction project.

The integration of a Tenant Liaison into retrofit projects can reduce construction delays, eliminate unforeseen remobilization and lost productivity costs, and provide tenants with a single, trusted point of contact who is on site at all times.

In many cases, the Tenant Liaison will know most tenants' names and unique needs, having completed surveys to identify things like respiratory or mental health conditions, overcrowding or hoarding, mobility assistance required, etc.

While some owners may prefer to fill this role themselves, there are significant benefits to integrating this role into the construction team: construction schedules, access and sequencing plans should be directly and dynamically informed by the Tenant Liaison.

## How is the Requirement Implemented?

The requirement for a Tenant Liaison should be integrated directly into the project tender documents. The responsibilities of the individual performing this role should be clearly outlined. Contractors may opt to fill this role in a number of ways: assigning an assistant site superintendent to the role, or splitting the responsibilities between individuals already on site. Owners should determine how much flexibility on satisfying these requirements they are willing to accept.

After piloting this requirement on a test project, owners with larger portfolios may find that the benefits to tenant satisfaction, as well as cost and schedule risk reduction, are so evident that the requirement is incorporated throughout their portfolios. This portfolio approach is already being piloted by BC Housing.

## What are the Next Steps?

Development of model RFP language will be critical to assist owners looking for guidance on defining the role on their projects. The model language should be adapted to suit changing industry norms.

A varied skill set is required to perform this role successfully. Construction scheduling and sequencing experience is required alongside engagement and social risk-assessment skills. Crisis training, project management and communications training may coalesce in this unique role. Specialized training should be provided through trade schools.



# GRANDVIEW TERRACE EAST VANCOUVER, BRITISH COLUMBIA

8-STOREY  
APARTMENT  
TOWER, 3-STOREY  
TOWNHOUSES AND  
2-STOREY DUPLEXES

13,199 SQM / 154  
APARTMENTS

OWNED BY  
PROVINCIAL PUBLIC  
HOUSING PROVIDER  
BC HOUSING AND  
WAS COMPLETE IN  
NOVEMBER 2019

## RETROFIT SCOPE

Building envelope remediation (including new windows), upgraded heating system, roof replacement and improved ventilation, plumbing (full re-pipe) and electrical systems.

- Individual unit access was required for extended periods. A temporary wall was built four feet from the building envelope to create temporary work spaces with a barrier between the unit and the construction work.

## LENGTH OF CONSTRUCTION

Construction began in June 2018 and was complete in November 2019

## TENANT LIAISON: SHARON PITAMBER, TENANT LIAISON, NEW CITY CONTRACTING

*After being awarded a contract to retrofit BC Housing's Grandview Terrace with residents remaining in their units, New City Contracting quickly realised they would need a way to coordinate and communicate tenants to manage disruptions and keep construction on schedule. With a background in social work, Sharon Pitamber stepped in to act as a "Tenant Liaison" for the project, spending long hours everyday at the construction site getting to know every tenant, their needs and potential challenges in accessing units.*

*At the beginning, the construction budget did not include this position and New City essentially provided it free of charge. Later receiving additional funding from BC Housing to continue the Tenant Liaison role, Sharon played an integral part of construction scheduling and tenant management. "It takes a certain type of person," Sharon reflects. "You almost need to send a person to school to learn this position. It's part social work, part construction management and scheduling." Sharon's duties included:*

- *Took the time at the beginning of the project to get to know all tenants. This helps identify and work around challenges at the outset of the project.*
- *Conducted unit reviews, assessing suite conditions, how easy it will be to enter suite, pets, resident's capacity and understanding of work and whether tenants need a break or a place to go during construction. It is easier to schedule access to units if you know you have a "challenging unit" and a back-up plan.*
- *Plainly explaining the construction work. This includes framing the benefits of the work to tenants in a way that they can understand.*
  - *Ex: "What do these new windows do?" "They are going to keep your unit at a cooler and more comfortable temperature"*



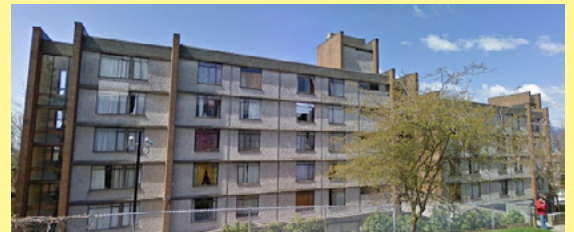
- *Close interaction with the construction team as well as supporting workers from BC Housing, such as the property manager*
- *Tenant Liaison needs to be onsite every day construction occurs. Not once a week.*
- *From the construction team, only Tenant Liaison engages with tenants. This avoids miscommunications, confusion and losing trust.*
- *Managing disruption to tenants*
  - *Tenants provided with tim hortons gift cards if they needed respite from work*
  - *Helping, not pushing the construction schedule. Construction plans and schedules need to be fluid when working in an occupied building. Have a back-up plan (Ex. Having a unit that can be accessed “on deck”, if the one scheduled for that day is proving to be challenging)*
  - *For tenants unable to cope with isolation, Sharon identified those with struggles and sometimes moved tenants to other units.*
  - *Provide 3 days written notice on the door. Visit the day before to make sure they are ready, understand the notice or add an extra day on scope of work for the unit to account for suite prep/access any issues.*
  - *Made accomodations for tenants preference (change access dates if possible)*
  - *Tenant Liaison engages with tenants in almost all face-to-face interactions. Little communication happened electronically or by mail. Signage is not always effective as not everyone can or would read posted notices.*





*The Tenant Liaison role was a success at the Grandview Terrace retrofit project. It maintained a construction schedule while simultaneously allowing tenants to live with dignity and respect during retrofits. This results in the project staying on schedule and keeping additional costs from delayed work at a minimum. BC Housing has now incorporated a Tenant Liaison position into all of their retrofit/renovation RFPs, modelled after Sharon's role. In describing suitable professional skills for the Tenant Liaison position, New City Contracting recommends the following:*

- *Experience advocating for tenants, a "client first" attitude and ability to develop rapport with residents*
- *Experience working with construction and construction schedules*
- *Willingness to engage with the role honestly, not just meeting RFP requirements*
- *Ability to stay neutral, not just be on the BC Housing side or construction side.*
- *Need to be pragmatic, can speak to residents in a way that they understand but without bad mouthing constructor, owners or tenants*
- *Have empathy and progressive ethics*
  - *Particularly when working with at-risk or low-income communities, a non-judgmental attitude is essential.*





## CONSTRUCTION TAKES PLACE IN YOUR APARTMENT

Performing construction work in an apartment unit where a tenant currently resides is disruptive. However, there are many strategies that can be used to reduce or mitigate disruptions. It is critical that the property owner, designer and contractor collaborate with tenants to plan how work will be carried out in units.

In most cases, tenants can remain in their apartments while work is underway. Some tenants prefer to be out of the apartment for this time, and can return after the workday to the work completed. In less common cases, work is so extensive that tenants are temporarily relocated to another suite within the building or nearby.

Considerable coordination is required when entering apartments to undertake retrofit construction.



## Landlord

As construction begins, clear communication becomes extremely important.

- **Provide multiple forms of communication:** Signage, email notifications, hand-delivered notifications and tenant meetings at this stage will be extremely important. Notices may often need to be provided in several languages. Use these sessions to establish tenant expectations for quiet hours, scope of work, and anticipated impacts on the tenants' day-to-day experiences within the building.
- **Streamline and review questions and complaints:** Providing a single point of contact for tenant concerns can help to identify repeat complaints, friction points, and other patterns which can be addressed with the contractor. Have a plan for acting on complaints related to behaviour, improper notification, and damage.
- **Explain the work:** Whether toilets are being replaced, or heating systems upgraded, explain what is happening and the area of the apartment it will affect. Work with the contractor to give an estimate of the time it will take (30 min? 3 hours). Will entry be required several days in a row? Will furniture need to be moved away from the area of work?
- **Explain why the work is important:** How will the tenant benefit from this work? Will temperatures in the apartment be easier for the tenant to control? Will electrical bills go down? Will mould and condensation be reduced? Will air quality be improved? Answering these questions will be critical to tenants: if a clear benefit will be tangible after the work is complete, it will be easier for tenants to experience a short period of inconvenience.





## Tenants

Gather information and understand your rights.

- **Ask about the construction schedule:** Gaining an understanding of the construction schedule will give you a sense of the duration of various types of work. Perhaps there is a loud and disruptive demolition component of the work such as balcony repairs. Determining how long this work is expected to go on can help you to prepare (leaving the apartment during the loudest hours, scheduling activities which require quiet around this work, etc.). If work is happening in your apartment for several hours, you can decide whether you'd prefer to be there or out of the apartment during that time.
- **Know your rights:** Understand your rights under the Tenants' Act for notification of entry. Advance notice of entry is required by law; learn what forms of notification you will receive. Ask about accompaniment for workers while they are in your apartment: will a security service be present as well? Will workers have to show identification before entering? What protection do you have against accidental damage? How is damage reported to and addressed by your landlord?
- **Ask for help:** Do you need assistance moving furniture away from the area of work, clearing off your balcony, or emptying your closet? The contractor can arrange for you to be assisted with these tasks if you are unable to do them yourself. Are you concerned about being in your apartment while work is being done, perhaps due to respiratory sensitivities or a nervous pet? You can be provided access to a respite area for the time that workers are in your apartment. Someone will notify you once the work is complete.



## Industry

Prepare the crew and relevant subtrades for the specific requirements of the project.

- **Keep apartments clean and dust-free:** Depending on the nature of the work, protective surfaces or enclosures will be required to keep the work area clean. Lay dust cloths on tenants' furniture, and put down drop cloths leading from the suite entry door to the area of work. Workers should not be tracking in construction dirt or pests from other apartments. Where work is likely to result in airborne particulate, consider building a temporary enclosure. This may also be required for openings in exterior walls, as a weather-protection measure. Any openings in fire separations must be closed immediately.
- **Hazardous materials:** Older apartments are more likely to have asbestos-containing materials in walls, floors, ceilings, and pipe insulation. If work in an apartment is going to disturb asbestos-containing materials, appropriate enclosures and negative air pressure may be required. Completing this work in an occupied apartment will require careful communication with tenants. Tenants must be made aware of the materials, and all steps being taken to safely abate them. Tenants will have concerns about their risk; these concerns should be anticipated and managed through protocols, communication, and intermittent air testing.
- **Same-day installs:** Plan to be in an apartment for the shortest-possible duration, and as few times as possible. It is better to be in an apartment for 8 hours on a single day than twice for four hours each. Limited phased trades, where multiple trades are required. For example: a window replacement may require the window trade to be followed by a drywall trade. Can a prefabricated interior finish be prepared that limits the drywaller's time on site, or can it be installed by the window trade? Consider pairing trades: Can a toilet replacement take place concurrently to a thermostat installation, in separate parts of the apartment? The plumber and electrician working in pairs can reduce the number of apartment entries from two to one.

- **Prefabrication:** Off-site fabrication has numerous benefits, including improved quality control, controlled environments, and precision which cannot typically be achieved in the field. Prefabrication in retrofits is often most practical for envelope components, but could also be applied to interior upgrades such as bathroom modules. A retrofit prefabrication challenge is with varying dimensions in repeated elements of existing buildings, which can be overcome through scanning or other site-verification technology. Determining whether any components of the retrofit are good candidates for prefabrication is often done during design, but can also happen during construction.
- **Train crews for working in occupied buildings:** Crews may not have experience working in occupied buildings, but can receive training to help them anticipate challenges, work proactively to minimize disruption, and build better relationships with tenants. Key positions, such as site superintendent or trade foreman, are most likely to benefit from this type of training. This training can be led by the Tenant Liaison or site superintendent, or can be provided by a third-party specialist.









**MARKET  
TRANSFORMATION IN  
THE CANADIAN RETROFIT  
MARKET**

TOWER RENEWAL  
PARTNERSHIP

# SOLUTIONS: SPECIALIZED TRADES TRAINING PROGRAMS

## Specialized Trades Training Programs

Training programs and certifications can play a role in familiarizing trades with the special skills required to work in occupied buildings. Communication procedures, sequence planning, scheduling for anticipated refused entry, safety and workplace protocols will all be part of this training.

Building this comfort and expertise into retrofits will expedite the process, while decreasing the “risk premium” making retrofits cheaper. Construction and design industries typically price work according to their comfort, experience and potential liability with the work which can result in higher costs for projects with new or different processes.

## How is the training implemented?

A trades training program can be offered by construction associations, colleges and training facilities, or even in-house by specialized contractors.

Owners requiring or preferring contractors with this specialized retrofit certification will make it increasingly desirable, as more retrofit projects come online.

## What are the Next Steps?

NAIMA Canada in partnership with TRP has developed a draft curriculum for a “Tenant Liaison Training Program”, alongside a sample “Healthy Housing Advocacy” training module. These can be used as the basis for development of programs across a number of institutions.



# GRAND PARC BORDEAUX BORDEAUX, FRANCE

**OWNER:** AQUITANIS, HOME PUBLIC OFFICE OF  
BORDEAUX MÉTROPOLE

**RETROFIT ARCHITECT:** FRÉDÉRIC DRUOT,  
ANNE LACATON AND JEAN-PHILIPPE VASSAL  
(FRANCE)



## BUILDING CHARACTERISTICS:

- Number and type of units: 530 units in 3 housing blocks (16 storey buildings)
- Social Housing
- Length of project/construction: 12 - 16 days per unit
- Retrofit Cost: €50,000 per unit
- Recipient of the EU Mies award

This aging social housing in Bordeaux was retrofitted by adding an external layer of winter gardens and balconies as well as upgrading technical facilities including: bathroom electrical and two former elevators replaced by a larger one in each building. Work also included renewed interior common spaces including hallway revitalization. Outdoor gardens in front of the building were also improved.

The renovation involved the addition of 3.8-metre-deep winter gardens and open-air balconies to each apartment. Small windows were replaced by large glass sliding doors opening onto the winter gardens and outdoor areas. The original windows had to be removed carefully due to asbestos-contaminated sills. Rents were kept at the same rate as before.

Crucially, residents were able to stay in their homes during the work, avoiding the need for disruptive relocations. Each of the 530 flats was refurbished in between 12 to 16 days: half day for laying the concrete slab, 2 days for adapting the old façade, 2 days for placing the new façade, and 8-12 days for renovating the interior.

Due to the retrofit proposal requiring all inhabitants remain in place, the project excluded interventions on the existing structure, stairs or floors, and instead used additions and extensions, large enough to be fully used. Inside the flats, only refurbishment of facilities or finishes was done.

## IN CONVERSATION WITH FRÉDÉRIC DRUOT OF DRUOT ARCHITECTS

*Druot Architects have conducted several retrofits in France. As a result, Frédéric Druot has been refining the retrofit process over time to minimise the impact and duration of construction. At Grand Parc, new elements were prefabricated modules, installed like scaffolding to the existing building. Precast concrete slabs and columns were transported to the site and craned into position to form a freestanding structure, extending the flats by a depth of 3.8 metres; in some cases, almost doubling unit size. Other components then slotted into place, including new external lifts that perform a mesmerising “ballet mécanique”, gliding up and down translucent shafts. Only the foundations were made from concrete poured in situ.*





### Zero Energy Building Learning House

The ZEB House shown is a progression of building strategies to meet the BC Energy Step Code and the passive design towards buildings using no energy.

ZEB House features from wall and floor and roof Tyvek with many of the interface details common to Part 3 residential buildings. The heat recovery ventilator shows insulation and where for commissioning. The purpose of the design is to provide a learning platform where strategies are demonstrated, debated, and tested.

- Vandy
- BC Hydro
- BC HOUSING
- RDH
- local.
- SIGA



# SOLUTIONS: DEMONSTRATION CENTRES

## Demonstration Centres

The Canadian retrofit market is still in its nascency, with products, assemblies and construction methods specific to retrofit relatively uncommon in most regions. This can result in widespread price inflation, unavailability of products, and general unfamiliarity with retrofit design components and approaches. Retrofit-specific construction approaches favour off-site assembly, quick-to-install components, and allow for minimal entries into suites. But in order for these approaches to become more widespread, contractors must learn specialized retrofit skills, and retrofit-specific products and assemblies must be specified by engineers and architects. Demonstration Centres can be part of the solution, providing designers, contractors and trades with full-scale mock-ups of assemblies, product demonstrations, testing support, and ongoing education.

## Where are Centres Housed?

Demonstration Centres might be housed in existing educational institutions, such as training centres at colleges or other vocational institutes. They may also be housed within existing Centres for Excellence. Building this programming into already-existing institutions through directed program funding would help to leverage partnerships and minimize capital requirements. A nation-wide steering committee would direct the implementation of consistent target metrics, with opportunities for region-specific retrofit solutions in each Centre.

## What are the Next Steps?

Establish a temporary pilot Demonstration Centre in conjunction with an existing facility for six months of programming, education and training. Track learnings and evaluate impact. With the results of the pilot centre in hand, put out a call for multiple partner institutions to run short-term Demonstration Centre programming for a one-year period.



# FIVE TOWER BLOCKS, OXFORD UNITED KINGDOM

**OWNER: OXFORD CITY**

**BUILDING CHARACTERISTICS: FIVE “TOWER BLOCKS”: EVENLODE AND WINDRUSH TOWERS IN BLACKBIRD LEYS, HOCKMORE TOWER IN COWLEY, PLOWMAN TOWER IN NORTHWAY AND FORESTERS TOWERS IN WOOD FARM**

- **NUMBER AND TYPE OF UNITS: ~340 UNITS**
- **TYPE OF ORGANIZATION (PRIVATE, NON-PROFIT, SOCIAL HOUSING, ETC): PUBLIC SOCIAL HOUSING (THOUGH ROUGHLY 54 UNITS WERE PURCHASED BY TENANTS THROUGH RENT-TO-BUY PROGRAMS)**
- **LENGTH OF PROJECT/CONSTRUCTION: 2016 TO 2018**



## RETROFIT OVERVIEW

The range of repairs across all five of the city's tower blocks includes:

- Works to the communal structure of the blocks
- Over-cladding and additional insulation (non-combustible insulation, fire breaks within the cladding system)
- Replacement of windows & new heating and ventilation system
- Upgrading communal electrical and fire safety systems and refurbishment of elevators
- Updates include post-Grenfell code requirements
- Works will also be carried out to improve the grounds, car parks, fencing, landscaping, and front entrances.

## RETROFIT WITH FOCUS ON SUPPLY CHAIN - LESSONS LEARNED

- Retrofits occurred with residents in place.
- The envelope was enclosed with rockwool insulation with a mixture of stucco and panel sheathing systems.
- Existing balconies were enclosed to form a 'winter garden', where the primary insulation plane is within the inner building face; windows facing balconies are replaced; the balcony upturn and soffit is insulated and clad; and balconies enclosed with operable windows using a purpose built system.
- Building ventilation was upgraded through in-suite HERVs, using rapid install 'snap' in place ductwork (a system as yet unavailable in Canada). This system eliminates the need for sheet metal and drywall work for ventilation ducts.
- Individual thermostatic controls were introduced in each suite.
- The buildings introduced a sprinkler system, face mounted to ceilings and covered with a tamper guard. This system eliminates the need for drywall work.
- Respite flats were provided (although uptake was low; residents preferred to stay in their own units)
- Council-run **independent resident group** scrutinized the process and provided feedback
- **Contractor Selection:** Residents participated in the selection of contractor (based on track record with similar projects)
  - Residents were invited to visit previous similar projects and speak to residents there





- Builder was **contractually required** to provide a “high degree of customer care” and opted to provide a **resident liaison** on-site to meet this criteria.
  - This strategy allowed the contractor to mitigate lost time due to access refusal. Although in some cases, worst case scenarios resulted in legal measures to allow suite access.
- Clear relationship established between builder and council
  - Regular check-ins between constructor and landlord re: tenant issues.
  - Builder not responsible for issues which were the legal responsibility of the landlord, but many items only escalated to landlord once vetted by constructor tenant liaison











## RESIDENTS ADJUST TO POST-CONSTRUCTION APARTMENT AND PROVIDE THE LANDLORD WITH FEEDBACK

Once construction is complete, there are tangible improvements to tenants' apartments. These could include: better indoor air quality, more weather-tight building enclosures, less extreme peaks of hot and cold, or other improvements to lighting, plumbing or thermal controls. Property owners should consult with tenants to confirm the effectiveness of the retrofit, and to identify any optimizations or deficiencies.





## Landlord

Given the type and level of retrofit, owners should consult tenants on their experiences with newly renovated apartments and be prepared to organize and schedule time to adjust elements of the construction.

Owners can also go beyond simple consultation and conduct thorough monitoring studies measuring an array of environmental, economic and social factors. Creating a base case scenario ahead of the retrofit construction is also key to making meaningful comparisons and analysis.



## Tenants

In some cases, it will take time to adjust to new features of retrofitted apartment units. Heating/cooling, water delivery, air flow or interior temperatures can all change, and may take some time to get right. It is also important to provide feedback to the property owner so that issues can be addressed.



# SOLUTIONS: PREVENTING RENOVICTIONS

## Preventing Renovictions

In some Canadian markets with low vacancies, renovictions are increasingly common. This is a practice where landlords force eviction, typically by raising rents above rent control guidelines, under the premise of a renovation. Often those renovations are cosmetic in nature, with little to no benefit to the tenant. Due to this trend, tenants are often concerned by news of retrofits in their buildings, which have come to signal pending housing insecurity rather than improved housing quality.

## What can be done to prevent renovictions?

### Municipal Actions & Solutions

- **Protect Rental Housing**
  - Introduce Rental Replacement policies which make ‘condo-ization’ illegal.
- **Data & Tracking**
  - Create inventory of buildings, work orders, code violations, etc.
  - Keep track of all apartment buildings sold, and immediately inform tenants of their rights;
  - Regulate and publicly register all tenant “buyouts.”
- **Enforcement:**
  - Increase authority of Municipal Licensing and Standards divisions within cities to enforce housing standards.
- **Tenant Protection:**
  - Create an anti-displacement strategy and introduce tenant protection policies
    - Ensure owners/developers give all displaced tenants suitable housing options;
    - Consider enforcing new/existing regulations on tenant buyouts and tenant relocation through building permit approval processes and all tools/mechanisms available to the Municipality;
  - Provide tenants and/or owners with resources for connecting someone in crisis with the right support system;



## What can be done to prevent renovictions? Continue

- **Tenant Education:** Tenants need to know their rights (eg. right to refusal for entry)
  - Municipalities to fund/support tenants associations

### Provincial Actions & Solutions

- **Codes & Standards:**
  - **Building Code Updates:** Setting performance, state of repair and resilience standards for existing housing, phased-in in a stepped process over a 10-year period;
    - Work with organizations related to safety authorities, such as the ESA in Ontario, to set standards
  - **Review AGIs:** For jurisdictions with rent control, review “Above Guideline Increases” to ensure that AGIs are not being used unfairly
    - Reframing AGI guidelines such that meeting the base housing standards does not qualify for rent increases, nor do energy retrofits.
  - **Rent Control:** For jurisdictions without any protections, introduce Rent Control policies to prevent unfair and/or sudden rent escalations

### Federal Actions & Solutions:

- Regulate financial actors (Landlords & REITs) to ensure that they uphold their obligations to tenants in properties they own, and consider the financial interest and protection of their tenants in their business plans.

## What can be done to prevent renovictions? Continue

- **Funding:**
  - Support owners' engagement in repair and renewal work through direct and indirect financial support, such as loans, grants, tax incentives;
  - Stop all grant programs to developers/owners who are displacing tenants;
    - Programs need to ensure recipients are not renovicting / demo-victing sitting tenants.
  - Performance criteria should ensure and maintain affordable units
    - Funding should ensure affordability standards deliver truly affordable units for at least 25 years
- **Support:**
  - For retrofit projects using federal funding, require tenant engagement programs
    - Include Pre-retrofit tenant engagement about why tenants will benefit from retrofit (eg. may save money, less noise, better for smells from throughout the building, etc.)
  - **Monitor and Document** affordability in all rental stock: purpose-built, secondary suites, condominiums in rental tenure, and single-room occupancy, and make this data available to municipalities to support their affordable housing preservation efforts.
  - Urge / require provincial governments to implement rent controls
  - Urge / require municipalities to adopt rental replacement by-laws and eviction prevention by-laws.