Attachment 6 - C40 Cities Indoor Thermal Safety Report

# City of Toronto

**C40 CITIES: POLICY PATHWAYS FOR INDOOR THERMAL SAFETY REGULATIONS**

## Indoor Thermal Safety Report for the City of Toronto

June 2025

Introba

WESTERHOFF climate strategies

Focal ENGINEERING

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# Executive Summary

Rising temperatures and the increasing frequency, severity, and duration of extreme heat events are impacting human health and well-being in the City of Toronto. Climate projections for the region indicate a continued rise in temperatures, with the number of days with temperatures exceeding 30°C each year increasing sevenfold by the 2080s compared to historical data. These events can often be exacerbated by poor air quality, including from harmful air pollutants due to wildfires, which are becoming more common as the climate warms.

As the impacts of climate change continue to unfold, indoor thermal safety has become a growing concern for the City of Toronto and elsewhere across the globe. C40 Cities launched an effort to engage with multiple North American cities to address an emerging policy gap. A team of consultants worked with C40 and four participating cities to develop city-specific reports with recommendations for improving thermal safety in existing multi-family rental buildings. The consultant team and C40 engaged with representatives from the City of Toronto, including City staff and external stakeholders, to develop and refine the Toronto-specific recommendations in this report. Two workshops supported this process: one with technical experts to identify impactful measures, and one policy-focused session to refine potential next steps for the City.

Over the last few years, there have been proposed changes to the National Building Code of Canada to introduce a maximum indoor air temperature in summer. City of Toronto staff have expressed support for bringing these changes into the provincial Building Code and have additionally suggested that such changes should also apply to existing buildings undergoing renovation. Considerations for existing buildings are especially important, as many older buildings were not designed with extended periods of higher temperatures in mind. The high cost of operating inefficient cooling systems and the high cost of retrofitting buildings for improved thermal safety can also serve as barriers for building owners and tenants. As a result, many households are at risk of thermally unsafe conditions which may only be resolved through retrofits and supportive programs to address these challenges and protect the health and safety of residents.

To help address this issue, in 2023 Toronto City Council issued a direction for staff to explore a maximum indoor temperature requirement to safeguard thermal safety in existing rental buildings. This report provides a set of key considerations in the design and implementation of such a requirement along with a suite of 13 additional actions for the City and its partners to consider in the short to medium term (i.e. by 2030) to support and complement a maximum indoor temperature requirement and help bolster thermal safety more broadly. Recommendations are derived from a variety of sources, including a technical analysis of thermal safety retrofit options and the barriers and opportunities surrounding their implementation, a review of best practices in thermal safety policy development, and engagement with both technical and policymaking City staff and partner organizations.

The report contains the following sections:

- Section 1 provides background information on extreme heat in Toronto and the purpose of this report
- Section 2 describes how thermal safety is defined and supported in the context of this report
- Section 3 establishes the technical and policy context for thermal safety in Toronto's existing rental building stock
- Section 4 outlines key considerations for implementing a thermal safety requirement and a range of recommended supporting actions to improve thermal safety more broadly
- Section 5 provides a high-level summary of additional implementation considerations

The next page provides an overview of the key considerations and recommended actions outlined in this report.

## Key Implementation Considerations for an Indoor Thermal Safety Requirement

### Identify Needs and Opportunities

- Evaluate existing building stock & technical context
- Identify buildings and communities with the greatest thermal safety risks

### Decide on an Approach

- Design a thermal safety policy by evaluating the pros and cons of a maximum indoor temperature requirement vs. an active cooling mandate

### Provide Education to Owners and Tenants

- Provide building owners and tenants with clear, accessible information about thermal safety risks, requirements, and available supports

### Support Compliance and Enforcement

- Ensure successful implementation by establishing compliance pathways, providing adequate notice, and developing a standard operating procedure for enforcement

### Provide Financial and Other Support

- Support implementation by reducing both upgrade and energy cost burdens

### Support Industry & Technology

- Build industry capacity and awareness to support the uptake of thermal safety retrofits and leverage existing training programs to include thermal safety coaching and support

## Supporting Actions

| | | | | |
|---|---|---|---|---|
| Require residential building owners to **report and disclose the existance of cooling** | Collect **residents' and owners' stories** on challenges to installing and using cooling measures | Reevaluate any policies or covenants that **inhibit cooling measures** | Promote and support the development of **cooling plans** in rental buildings | Advocate for inclusion of **Right to Cool** in Ontario's *Residential Tenancies Act* |
| Ensure thermal safety considerations are integrated into **new construction standards** | Integrate thermal safety considerations into building **decarbonization programs and resources** | Revise, adapt, or create zoning bylaws and/or development permit areas to support **neighbourhood-level cooling** | Advocate for consistency and alignment in **cooling assessment methodologies** | Update the **Minimum Backup Power Guidelines** for multi-family buildings |
| | Advocate to higher levels of government for **financing measures** to reduce the risks of extreme heat | Advocate for increased awareness among **real estate service providers** and their customers on the **value of cooling measures** | Identify and fill any **equipment and technology** gaps for multi-family buildings | |

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# Summary of Acronyms

| | |
|---|---|
| ACORN | Association of Community Organizations for Reform Now |
| CMHC | Canada Mortgage and Housing Corporation |
| CREW | Community Resilience to Extreme Weather |
| ERV | Energy recovery ventilator |
| HRV | Heat recovery ventilator |
| MUA | Make-up air unit |
| SHGC | Solar heat gain coefficient |
| TRCA | Toronto and Region Conservation Authority |

# 1 Introduction

## 1.1 Background

Indoor thermal safety[1] has emerged in Toronto as a key issue of concern. On June 17, 2024, Environment and Climate Change Canada (ECCC) issued a heat warning for Toronto, alerting residents of dangerously hot and humid conditions expected throughout the week, with daytime high temperatures forecasted at 30–35°C and nighttime temperatures at 20–23°C. [i] According to *Toronto's Current and Future Climate Report*[ii], the city of Toronto is expected to experience as many as 40 days with temperatures exceeding 30°C each year by the 2050s, and over 70 days by the 2080s, compared to the baseline of about 10 days per year recorded between 1971-2000. These events can often be exacerbated by poor air quality as well – for example, 2023 saw record levels of harmful air pollutants affecting the city due to wildfires, which are projected to become more common as the climate warms.[iii]

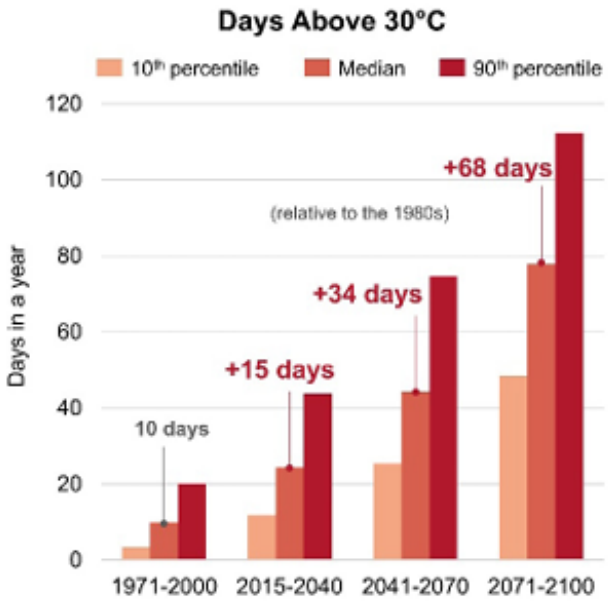


*Figure 1: Projected number of very hot days with daily maximum temperature above 30°C under the very high emissions scenario (SSP5-8.5). Source: Toronto's Current and Future Climate, 2024.*

Human and environmental physiology research, as well as existing temperature standards, show that sustained exposure to higher temperatures can negatively impact health.[iv] Older adults, infants and young children, people with chronic illness (e.g., breathing problems, mental illness, or heart problems), those who are physically impaired, and socially disadvantaged individuals (e.g., low income, experiencing homelessness or living alone) are more likely to experience adverse health outcomes when exposed to high temperatures. Building occupants who encounter barriers to accessing or paying for cooling energy costs are also at greater risk.

## 1.2 Purpose of this Report

Indoor thermal safety has become a growing concern, both in Toronto and in other cities, as annual temperatures and extreme heat events increase around the globe. While new building codes and standards are starting to take these climatic changes into account, many buildings that were constructed decades ago or even more recently were not designed with such temperatures in mind. As a result, many households may be at risk of thermally unsafe conditions.

To help address this issue, this report identifies some key considerations to support the development and implementation of a thermal safety requirement, as well as a set of actions to support indoor thermal safety more

[1] *Thermal safety* is a state in which indoor conditions are maintained within temperature thresholds that prevent adverse health effects under prolonged exposure, protecting occupants' health even if the environment is not comfortable.

broadly across existing rental buildings in the city. Recommendations included in this report are based on a technical analysis of thermal safety retrofit options and the barriers and opportunities surrounding their implementation, a review of best practices in thermal safety policy development, and engagement with both technical and policymaking City staff and partner organizations.

They further recognize that many necessary policy and legislative changes will take time to be effectively implemented. As a result, this report seeks to balance longer timelines needed for deeper change with the urgent need to protect Toronto's residents – especially those who are most susceptible to the impacts of extreme heat.

Actions have also been designed to directly support improvements in indoor thermal safety that can be deployed within the next five years (2025-2030), while keeping an eye to either supporting or at least avoiding interference with broader electrification and/or emissions reduction goals (see Figure 2).

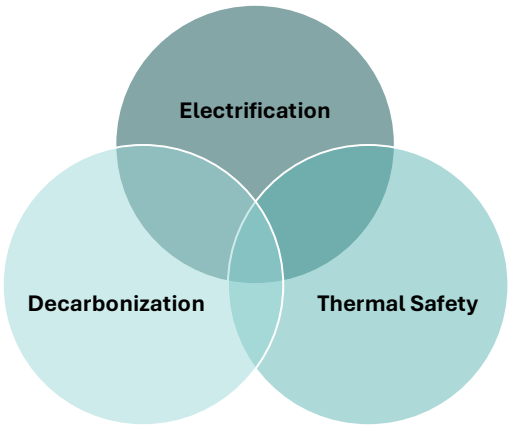


*Figure 2: Many thermal safety measures also support decarbonization and electrification goals by improving energy performance and moving towards efficient, all-electric heating and cooling solutions*

Other principles guiding this report include the need to:

- Remove barriers to accessing thermally safe living spaces
- Contribute to addressing social inequities and approach policy design in a way that minimizes risks of rent hikes and displacement
- Seek to avoid costly building level electrical service upgrades and/or limit energy cost increases wherever possible
- Seek to ensure ongoing resilience and thermal safety under changing climatic conditions
- Align with complementary actions (e.g., emissions reductions) at other scales

Finally, this report focuses on recommendations that support the implementation of building retrofits in rental multi-family buildings only. It does not provide recommendations for other building or ownership types (such as condos or commercial buildings), though some proposed actions may be relevant for those sectors as well. It also does not provide guidance for safeguarding health and safety during an actual heat event, as this falls more to the purview of emergency management and response.

## 1.3 Report Contents

The report includes the following sections:

- **Section 2** explores how thermal safety is defined and supported, including the measures that can be used to help improve it, as well as the typical barriers to their implementation or success
- **Section 3** establishes the technical context for Toronto's existing building stock and highlights existing policies and programs that support indoor thermal safety
- **Section 4** outlines the set of policies and programs that Toronto can take to help remove or reduce typical barriers and increase uptake of thermal safety upgrades
- **Section 5** provides a high-level summary of some key implementation considerations for further deign and implementation of any actions

# 2 What is Thermal Safety?

## 2.1 Defining Thermal Safety

Thermal safety refers to a set of conditions under which building occupants are protected from the adverse health effects of high indoor temperatures. Thermal safety prioritizes occupant health to prevent heat-related risks, such as heat stress or dehydration, especially for those who experience greatest risk during heat events. Achieving thermal safety involves managing indoor dry bulb temperature along with factors such as humidity (or wet bulb temperature) and air quality. In heating-dominant climates, winter thermal safety is already a commonly understood concept among building designers; however, indoor thermal safety in the summer months is a growing area of study and the focus of emerging policies. While there is no widely standardized measurement or limit, some jurisdictions have begun to establish maximum indoor temperature requirements as one way to address thermal safety in existing buildings (e.g., the City of Austin, the City of Phoenix)[2].

For the purposes of developing this report, thermal safety is being considered in alignment with the temperature requirements specified in the City of Toronto's *Property Standards Bylaw*[v], which set 26°C as the maximum indoor temperature that all existing air-conditioning systems shall be capable of maintaining (see Section 3.2 for more details). This 26°C indoor temperature threshold has been identified as an important limit for protecting people from heat-related health risks, especially when indoor temperatures exceed this limit for longer periods of time.[vi] Going beyond current thermal safety standards and designing for future temperatures (which are often projected to exceed existing requirements) is an important strategy to ensure thermal safety measures remain effective in the face of climate change and provide lasting protection for occupants.

**From thermal comfort to thermal safety**

The question of thermal comfort has long been a focus in the design and construction of our buildings. Systems designed to keep people comfortable are at the heart of many design decisions concerning building envelopes, windows, and mechanical systems. However, with increasing temperatures has come a shift in this focus, to include not just questions of thermal *comfort* but also thermal *safety*. For the purposes of this report, the two terms are defined as follows:

- ***Thermal comfort*** *is a condition in which building occupants generally feel satisfied with the indoor temperature, humidity, and airflow, and is achieved by balancing environmental and personal factors to create a pleasant indoor environment conducive to a range of activities, from working to sleeping.*
- ***Thermal safety*** *is a state in which indoor conditions are maintained within temperature thresholds that prevent adverse health effects under prolonged exposure, protecting occupants' health even if the environment is not comfortable.*

[2] The City of Austin has recently adopted a new technical building code that will require all residential building owners to ensure room temperatures remain at least 15 degrees Fahrenheit cooler than outdoor temperatures and not to exceed 85 degrees Fahrenheit. The City of Phoenix has an ordinance requiring cooling capable of safely cooling all habitable rooms, bathrooms and flushing toilet rooms to a temperature no greater than 86 degrees Fahrenheit, if cooled by evaporative cooling, or 82 degrees Fahrenheit, if cooled by air conditioning.

## 2.2 Supporting Thermal Safety

Advancing thermal safety will require authorities having jurisdiction to facilitate the adoption of key measures (i.e. upgrades) at the building scale, either through policy or other mechanisms. Several measures can help support thermal safety, which can be broadly categorized into the following five groupings:

1. **Active cooling measures** that remove the heat and cool a space to achieve a desired indoor temperature, such as air conditioning ("AC") units or other electric heat pumps that also support broader electrification and decarbonization benefits. These measures are the most likely to be able to maintain an indoor temperature of 26°C when the system is properly sized and installed.
2. **Measures to minimize solar heat gains** from solar radiation by preventing sunlight from entering the space to reduce the demand for active cooling, thereby reducing energy use and improving efficiency (e.g., shading, solar screens). These measures also improve a building or unit's *thermal resilience*[3] and *passive survivability*[4] in the event of a power outage. They are important complementary measures to active cooling that can help lower indoor temperatures and reduce energy costs.
3. **Measures to improve airflow** to dissipate heat from solar or internal gains and reduce the demand for active cooling, thereby reducing energy demand and improving efficiency (e.g., natural ventilation, exhaust fans). They are valuable supporting measures that can enhance thermal safety, improve passive survivability, and reduce reliance on active systems.
4. **Interim solutions** that temporarily or partially mitigate overheating risk or reduce the need for active cooling while long-term solutions are still in the planning stages. The effectiveness and benefits of interim solutions can vary. For example, providing cooling in common rooms can offer immediate relief in some spaces and to some people, but may not provide a suitable means of achieving thermal safety for all tenants, especially those with disabilities or other accessibility challenges. As another example, adding cooling to makeup air units may lead to an increase in greenhouse gas emissions.
5. **Co-benefit solutions** that indirectly support thermal safety by improving building performance in other areas or reducing electricity usage to free up capacity for adding cooling. This includes measures such as enclosure upgrades, improving air sealing, or adding green or reflective roofs that can reduce energy demand, improve efficiency, and increase a building or unit's thermal resilience and passive survivability.

Examples of specific measures that fall under each of these five categories are listed in Table 1, each of which was evaluated for effectiveness, air quality and decarbonization benefits, cost, and equity implications. This evaluation is summarized in the accompanying *Technical Memo*.

While these five categories represent distinct approaches, thermal safety measures are most effective when implemented in combination. Passive strategies alone may not be sufficient to meet the 26°C threshold during extreme heat, but they play a critical role in reducing indoor heat gain, lowering demand on active systems, and improving performance during power outages. In turn, this can reduce the risk of equipment failure, improve overall system reliability, and help mitigate grid strain during peak summer demand. Promoting active and passive

[3] *Thermal resilience* refers to the ability of a building to prepare for, withstand, and recover from major disruptions due to extreme weather events or building system disruptions, and maintain a comfortable and safe indoor thermal environment for building occupants.

[4] *Passive survivability* refers to the ability of buildings to maintain habitable conditions, including temperature control, without active mechanical systems during power outages, ensuring occupant safety and comfort. Approaches that promote passive survivability include natural ventilation and cooling, passive solar design, exterior shading, green and cool roofs and high-performance insulation.

strategies as mutually beneficial solutions will be essential to achieving thermal safety in a reliable and effective way.

The following measures were identified by local subject matter experts as those most impactful and important to consider for future policy support:

- **Central Systems:** Upgrading existing central heating systems to add cooling was seen as important due to the high prevalence of existing central heating systems. These upgrades may also be easier to implement and less expensive than envelope upgrades, and less disruptive than upgrades to individual suites. However, space availability for equipment was noted as a challenge, as well as potential limitations to the capacity of the new system given constraints (e.g. piping/ ducts) of the existing one.
- **Individual Heat Pumps:** Installing heat pump units (mini-split, all-in-one or window AC) in each suite to provide cooling was seen as the most effective option for improving thermal safety in each suite. However, these heat pump units take up space inside and/or on balconies, may require upgrades to electrical panels, and can lead to tenant disruption during installation and maintenance.
- **Operable Exterior Shading:** Operable shading devices were noted as an effective solution for reducing summer solar heat gains, but also costly to install and maintain. Participants noted they are often imported, expensive and used much more infrequently compared to other regions, such as Europe. A culture shift may be required to popularize this strategy in Toronto and elsewhere in North America, but could be encouraged with design guidelines and coupled with planned window upgrades.
- **Window Upgrades:** Window upgrades were identified as effective in reducing solar heat gains and promoting natural ventilation when replacing fixed windows with operable ones. This measure was seen as most feasible when an envelope or window upgrade is already planned, due to the high cost. In larger, denser cities like Toronto, noise suppression was seen as a major impetus for window upgrades. However, passive cooling via operable windows is less effective in noisier areas where people may choose to keep them closed.
- **Partial Cooling:** Conditioning fewer zones or providing sufficient cooling to a designated space was identified as a cost-effective solution for protecting thermal safety during extreme heat events. Participants noted that ensuring one space within a unit, or one common space to be connected to backup power can also improve resilience during power outages, however, the latter approach does not allow people to stay in their own units. Participants highlighted that it is also important to consider the accessibility and appeal of the space; residents will be less likely to use a space if it is located in a basement, without kitchen facilities or water, etc.
- **Trees & Vegetation:** This was noted as a relatively low-cost solution that can layer onto other strategies to provide shading and cooling on roofs, balconies, and surrounding landscape. However, it was deemed less effective during extreme heat waves, reliant on the skills of residents and on City or property managers for planting and maintenance, constrained by competition with other urban infrastructure, and generally easier to implement in newer buildings. Roof and balcony plantings must also consider fire code, safety and other local bylaws, and potential impacts to other residents.

While these and the other retrofit options noted above may be available to address thermal safety, their implementation often encounters many specific challenges. There are a myriad of barriers and challenges that owners and tenants encounter when trying to keep their units cool, ranging from lack of simple awareness of the problem and opportunities to address it, to the costs associated with upgrading an existing building or unit, to complex decision-making structures, and others. A summary of common barriers to implementing retrofit measures for thermal safety that are broadly applicable across jurisdictions is outlined in Table 2.

*Table 1: Typology of retrofit options for thermal safety*

| CATEGORY | MEASURE GROUPS | INDIVIDUAL MEASURE EXAMPLES |
|---|---|---|
| **Active Cooling** (mechanical systems using refrigeration to cool) | Central System Retrofits | • Retrofitting central heating-only system with heat pump or air conditioning (AC) |
| | Individual Heat Pumps (heat & cool) | • Split or all-in-one (packaged) heat pumps |
| | Portable AC Units (cool only) | • Single or dual hose units |
| | | • Portable window AC units |
| **Reduce Solar Heat Gains** (passive measures to prevent solar gains) | Exterior Shading | • Fixed shading |
| | | • Operable shading (manual or automatic) |
| | | • Solar screens |
| | Window Upgrade | • Reduce solar heat gain coefficient (SHGC) |
| **Improve Airflow** (passive measures to remove heat buildup in a space) | Window Upgrade | • Natural ventilation via operable windows |
| | Mechanical Assist Strategy | • Exhaust fans |
| | Operational Strategy | • Nighttime ventilation |
| **Interim Solutions** (typically shorter-term solutions that can temporarily or partially mitigate overheating risk while longer-term solutions are being planned) | Partial Cooling | • Make-Up Air (MUA) unit (add cooling in corridors) |
| | | • Cooled common room |
| | Passive Strategies | • Interior blinds (insulated & reflective) |
| | | • Thermal mass (e.g., Phase change materials) |
| | | • Reduce solar gains (e.g., SHGC window films or dynamic glazing) |
| | | • Reduce internal gains (e.g., efficient appliances) |
| | | • Circulation fans (e.g., ceiling) |
| **Co-benefit Measures** (solutions that typically focus on other improvements, such as reducing energy use or GHG emissions, or longer-term measures that can also improve thermal safety if designed correctly) | Mechanical | • Heat recovery ventilator (HRV) |
| | | • Energy recovery ventilator (ERV) |
| | Enclosure | • Upgrade enclosure (walls, roofs, etc.) |
| | | • Upgrade windows (higher U-value, lower SHGC) |
| | | • Improve air sealing |
| | | • Green roof |
| | | • Reflective/ high albedo roof |
| | Other | • Free up electrical capacity (e.g., efficient appliances) |
| | | • Renewables (e.g., solar PV) |
| | | • Trees and vegetated areas near building |

*Table 2: Summary of common barriers to thermal safety retrofits in multi-family buildings*

| CATEGORY | DETAILS |
|---|---|
| **Awareness and capacity** | • **Access to information.** Many building owners and tenants are unaware of the benefits and necessity of thermal safety retrofits, as well as the retrofit opportunities, available technologies, the retrofit process, rebates, and contractor information.<br>• **Time and experience.** Implementing retrofit solutions to enhance thermal safety can involve multiple measures and may be complex to initiate, approve, and manage. Owners and property managers often lack the knowledge, experience, and time required to successfully launch these types of projects. |
| **Equity and affordability** | • **Competing priorities.** Buildings often have to meet many capital and operational needs under limited budgets. Competing priorities can limit the allocation of funds for thermal safety retrofits.<br>• **Additive retrofit capital costs.** Depending on a building or unit's characteristics, some retrofit measures require additional assessments or building system upgrades (e.g., electrical service panels) to enable their implementation. This can result in a growing list of upgrades and associated costs, many of which are not covered by existing incentive programs.<br>• **Post-retrofit operation costs.** The impact of retrofits on operational costs, including utility costs and maintenance expenses, varies depending on the measures adopted. Operational costs for cooling typically fall to tenants, which are also impacted by utility prices, the quality of installation, and the proper operation of systems and equipment.<br>• **Cost and other barriers:** Where tenants may be required to add their own measures, they may find the up-front cost prohibitive. Even where they are installed, some tenants may also experience barriers to using or accessing some thermal safety measures (e.g. cooling rooms).<br>• **Opportunities for tenant influence.** Tenants often have limited opportunities to advocate for their rights to a safe and comfortable environment and influence decisions on retrofits (or face forms of retaliation). To make upgrades or implement certain measures, they typically need to obtain approval from the property owner or condo association.<br>• **Impacts to tenants.** Retrofits can be disruptive and may temporarily require tenants to leave their home during construction, for a few hours or longer. There also exists a risk of homes becoming unaffordable to current tenants if rents are increased to cover the cost. |
| **Policy and regulation** | • **Split incentives.** Rental building owners typically bear the costs of retrofits, but they may not directly benefit from any expected energy savings, reducing the motivation to invest in thermal safety retrofitting.<br>• **Policy drive.** Clear and consistent policies are essential to incentivize and accelerate retrofitting actions, advancing the necessary retrofits to enhance thermal safety in buildings.<br>• **Coordinated climate action.** Current bylaws or permitting processes may hinder the implementation of thermal safety improvements in multi-family buildings. Better alignment and coordination with existing plans and programs are often needed. |
| **Industry and technology** | • **Industry awareness.** Building professionals and contractors may have low interest and limited knowledge of thermal safety retrofits in multi-family buildings, resulting in lower availability of services, suboptimal retrofit designs, and lower quality installations.<br>• **Market availability.** There may be low availability of certain products that are most appropriate for meeting local needs.<br>• **Access to qualified installers.** The demand for qualified installers often exceeds the supply, leading to long wait times for retrofits. |

# 3 Improving Thermal Safety in Toronto

## 3.1 Toronto's Technical Context

Characterizing Toronto's existing building stock provides a foundation for understanding the needs and opportunities for improving thermal safety in multi-family rental buildings. According to the *City of Toronto Housing Data Book*[vii], there were over 1.16 million housing units in Toronto in 2021, nearly evenly split between rental housing (48%) and ownership housing (52%). Most renter households (65%) live in apartment buildings with five or more stories, followed by low-rise apartment buildings (21%). The remaining 14% includes single detached houses, duplexes, row houses, and semi-detached houses. Purpose-built rental units constitute the primary rental market, comprising 46% of the rental stock.

Looking at the distribution of building ages of apartment buildings registered in the *RentSafeTO program.*[viii] shows that 72% of the 3,588 registered rental apartment buildings in the city were built before 1970, and 23% between 1970 to 1999, while only 4% were constructed in 2000 or later. Although this sample may not represent the entire rental housing stock, it provides a sound estimate of the vintage profile of Toronto's rental housing inventory, given that most rental units are in apartment buildings.

> The RentSafeTO program is a bylaw enforcement initiative designed to ensure that building owners and operators comply with *Chapter 354*[1], which sets standards for building operations, tenant communication, and regular evaluation and audit schedules. All rental apartment buildings with three or more stories and ten or more units must register with RentSafeTO and renew their registration annually. This process allows RentSafeTO to collect and update building information annually.

In addition to building stock characteristics, existing mechanical systems and fuel sources are key metrics closely linked to the indoor thermal safety performance of a building. According to the *City of Toronto's Net Zero Existing Buildings Strategy*[ix], natural gas is the predominant heating energy source in multifamily buildings, accounting for 64% of heating fuel source. With regards to air conditioning (AC) adoption, only 16% of apartment buildings registered in RentSafeTO currently have AC equipment, with 7% having central systems and 9% equipped with individual units[x]. It is worth noting that among RentSafeTO registered buildings, 94% allow tenants to install some type of air conditioning (e.g., portable, window). Additionally, 12% (437 out of 3,588 buildings) reported having a cooling room available within the building, about half of which have building-level cooling in the form of central systems or individual units.[xi] However, there is limited information on the characteristics of these cooling rooms, including their size, accessibility, maintained temperature, and available amenities.

These data start to paint a picture of how indoor thermal safety could be further supported in Toronto's existing rental buildings. Focus should be placed on buildings and households that have low access to (or ability to pay for) cooling measures. The low incidence of AC systems in rental buildings and the prevalence of older (pre-1970) mid- and high-rise apartments that use natural gas as a primary heating fuel source suggest a crucial opportunity to dovetail additional thermal safety measures with efforts to improve energy efficiency and reduce carbon.

## 3.2 Existing Policies and Programs

Toronto has already made a number of efforts that will help protect the community from extreme heat, either directly or indirectly as part of broader electrification and decarbonization initiatives. Dating back to 2017, City Council directed staff to consult with tenants, landlords, and other interest holders to identify effective solutions for managing heat in apartment buildings.[xii] In 2023, City Council further provided direction to staff to explore key elements for designing and implementing a maximum temperature by-law.[xiii] *Toronto Municipal Code, Chapter*

*629, Property Standards, Section 38*[xiv] now mandates that where air-conditioning systems are provided, they must operate from June 2 to September 14 (or from June 1 to September 30, as of April 30, 2025) to maintain a maximum indoor temperature of no more than 26°C. *Toronto Municipal Code, Chapter 354, Apartment Buildings*[xv], additionally requires owners of residential rental buildings with three or more storeys and at least ten apartment units to disclose information about air-conditioned spaces within the building or property that relieve uncomfortable indoor temperatures. Property owners are also required to post on the tenant notification board the name, address and map to the nearest location of a publicly accessible airconditioned location.

These policies are supported by the *RentSafeTO Program*, a bylaw enforcement program that ensures compliance and maintains the *RentSafeTO Interactive Building Score Map*[xvi] that allows people to access their building's score and related information. As a complementary initiative, the City of Toronto *Heat Relief Strategy*[xvii] outlines heat response activities with a focus on providing targeted relief for the most vulnerable populations. The related *Heat Relief Network*[xviii] identifies cool spaces throughout the city, including libraries, community centres, and shopping malls, to help maximize the use of existing air-conditioned and other cool infrastructure (e.g., pools and splash pads) on hot days. To complement these responsive strategies, there are also targeted programs that provide direct financial support to vulnerable residents. The *Toronto Employment and Social Services (TESS)* program provides financial support for cooling devices when prescribed as medical devices. These may be accessed through Ontario Works or the Hardship Fund[xix].

Recognizing the incremental costs associated with retrofits, a range of incentives and financing options are available to support envelope improvements, energy efficiency upgrades, electrification, and renewable energy adoption. Toronto's *Tower Renewal Program*[xx] assists owners of residential apartment buildings constructed before 1990 with three or more storeys located in Neighbourhood Improvement Areas or where residents live on low incomes in identifying opportunities for performance enhancements and implementing necessary upgrades. Through the *Energy Retrofit Loan Program*[xxi], the City offers financing to building owners, covering up to 100% of project costs at an interest rate equal to the City's borrowing rate.

The City of Toronto and its partners have also made progress in encouraging the uptake of some of the more promising retrofit options. Notably, electric heat pumps have already been shown to provide effective cooling and dehumidification during Toronto's hot summers while maintaining consistently warm interior conditions throughout its cold winters. In September 2017, The Atmospheric Fund (TAF) launched a pilot project to install and monitor cold climate air-source heat pumps (CC-ASHPs) at 66 Walpole Avenue, a townhouse complex in Toronto's east end. [xxii] A detailed survey with 28 questions was conducted to capture residents' perceptions of the indoor environment, particularly around indoor thermal comfort. Prior to the retrofit, space heating was provided by electric baseboards, and no central cooling system was available. Although many residents had used window mounted or portable air conditioners, discomfort was still reported during summer. The study revealed that while 70% of residents found their suites too hot in the summer prior to the retrofit, 97% of residents expressed satisfaction with summer temperatures after it was completed. The installed cold climate heat pumps were also found to meet 100% of space heating needs.

Industry organizations such as the Greater Toronto Apartment Association (GTAA) have also contributed through advocacy and pilot programs focused on building performance and resident safety. Their continued involvement will be important in advancing both voluntary and regulated improvements in indoor conditions.

Finally, to foster greater interest in heat pumps, Toronto Hydro has also launched a field trial in partnership with behavioral scientists to evaluate the effectiveness of various messaging strategies. The initiative is designed to help enhance understanding of public interest in heat pumps, refine outreach and engagement efforts and inform program development to drive adoption. Toronto Hydro is additionally developing a Cleantech Services Network to connect customers with trusted cleantech providers to accelerate the adoption of clean energy technologies, including heat pumps, by streamlining the retrofit process for building owners while enhancing contractors' capacity in equipment sizing, selection, and installation.[xxiii]

# 4 Key Considerations for an Indoor Thermal Safety Requirement

Despite some of the actions noted above, there is a need and opportunity to further support the thermal safety of Toronto's tenants as extreme heat becomes more frequent, intense, and prolonged. To explore what kind of expanded set of requirements may be suitable – and to respond to City Council's direction to examine the implementation of a maximum indoor temperature standard – this section outlines key considerations for the design, implementation, and enforcement of a potential bylaw. It draws on input from a workshop with Toronto policymakers and partner organizations, as well as insights from other jurisdictions.

Each key consideration includes a summary table that provides an overview of any recommended actions and their type (e.g., educate, regulate, etc.) and proposed timeline. Following a description of the key consideration, a series of additional actions have been identified where appropriate to support the rollout of an indoor temperature requirement and accelerate the implementation of retrofits that safeguard the health and safety of Toronto's rental apartment community members. These supporting actions have been identified from a range of sources, from best practices in other jurisdictions, to engagement with local experts, policy makers and industry partners, and consultation with the City of Toronto staff. Many of the details in these actions were suggested, supported, or refined through workshops with City staff and external stakeholders. They have been developed to align with the key considerations for developing and implementing an indoor temperature requirement in Toronto and to address the primary barriers to improved thermal safety identified in Table 2. Considerations for helping to ensure that costs and benefits of proposed actions are distributed equitably have been included into each category.

Each supporting action includes details on the type of action (educate, advocate, regulate, etc.), and the proposed timeline for its implementation.

In recognition of Toronto's multiple and sometimes overlapping goals, each supporting action was also assessed for the relevance of one or more co-benefits, as described in Table 3.

*Table 3: Summary of common co-benefits associated with actions to improve thermal safety in multi-family buildings*

| CO-BENEFIT | DESCRIPTION |
|---|---|
| **Energy Efficiency** | Action improves energy performance in buildings, reducing strain on the local grid and lowering utility costs for owners and residents. |
| **Emissions Reductions** | Action lowers building-related greenhouse gas emissions, contributing to mitigation targets. |
| **Health & Wellbeing** | Action improves indoor comfort or air quality, creating healthy, livable spaces. |
| **Equity & Affordability** | Action improves access to housing that is safe and affordable, with a focus on vulnerable populations or reducing financial burdens. |
| **Economic Activity** | Action creates opportunities for economic growth or cost savings. |

## 4.1 Identify Needs and Opportunities

**Overview**

- Identify buildings and communities with the greatest thermal safety risks to improve the implementation of a thermal safety requirement. This includes understanding where gaps in building performance or cooling access exist and using that information to prioritize outreach, guide enforcement, and direct support where it's needed most.

| **Type of Action** | **Timeline** |
|---|---|
| Study | 0-1 year |

The technical and policy context established in Section 3 (and further summarized in the accompanying *Technical Memo*) represents an important first step in understanding the needs and opportunities for improving thermal safety in multi-family rental buildings in Toronto. However, more can be done to understand where thermal safety risks are greatest and where additional support may be needed to improve the effectiveness and equity of indoor thermal safety policies and programs. Targeted data on buildings, neighbourhoods, and populations most vulnerable to extreme heat can help the City of Toronto prioritize where cooling efforts should be focused, anticipate which communities are most likely to experience unsafe indoor temperatures, and inform outreach, enforcement, and financial support strategies. This approach may also help property owners in high-risk areas comply with new standards and better protect tenants who are most likely to experience unsafe indoor conditions.

**Build on Existing Studies and Data Sources**

To help gather information and identify where building-scale cooling measures can have the greatest impact, Toronto can leverage existing efforts, including:

- The upcoming citywide climate risk and vulnerability assessment
- The TRCA's Climate Ready County Court[xxiv] project, which piloted a neighbourhood-scale retrofit approach in Brampton that combined building upgrades, community engagement, and green infrastructure to enhance climate resilience
- The University of Toronto's heat vulnerability mapping[xxv] through the School of Cities, which developed detailed, building-level maps of urban heat exposure and sensitivity to help identify high-priority areas for thermal safety interventions and inform local policy decisions

**Conduct Further Studies**

To further support this work, the City could collect and understand additional data to help identify which rental buildings do not currently have active cooling, what constraints they may be facing to add it, and what building-scale cooling measures could most impactful. This kind of information could include:

- The technologies that are currently installed in buildings
- The role and efficacy of adding either passive and/or active measures to improve thermal safety
- Which buildings are also subject to BEPS, any implications of adding cooling to their likely compliance, and extent to which compliance with BEPS would achieve thermal safety
- Demographic factors (e.g., age, pre-existing physical or mental health conditions, income level), social factors (e.g., social isolation), or other indicators

These data sources could help the City prioritize early action in heat vulnerable neighbourhoods and households. Prioritization of cooling efforts could also be explored at multiple levels:

- Neighbourhood scale (e.g., urban heat exposure, tree canopy coverage, outdoor temperature trends)
- Building scale (e.g., age, financial position, existing HVAC systems, location)
- Unit scale (e.g., whether a unit is located on a top floor, has limited ventilation, or houses residents with elevated risk)

Together, these efforts can provide the foundation for a data-informed, equity-centered approach to thermal safety measures, ensuring that cooling resources and policy interventions are directed where they're needed most, and that Toronto's most heat-vulnerable residents are better protected.

### 4.1.1 Supporting Actions

Beyond the climate risk and vulnerability assessment noted above, there is also an opportunity to deepen the City's understanding of residents' lived experiences and barriers to accessing and using adequate indoor cooling. City-wide building data such as age, condition, and system type can be useful, but often falls short of capturing the full picture. More information on specific neighbourhoods, buildings, populations, or even individual units can help determine the places and ways in which thermal safety upgrades can be most beneficial.

**1) Require residential building owners to report and disclose the existence of cooling**

As part of the City's existing benchmarking requirement, ensure *percent cooled* fields in ENERGY STAR® Portfolio Manager and the type of cooling (e.g., heat pump, AC) are included among the data points multi-family building owners are required to report to provide a better understanding of where buildings are likely to already have cooling.

Include this information into any current or planned disclosure strategies (e.g., online map) to help signal availability of active cooling and showcase leading residential property owners in thermal safe

Explore means of expanding current requirements under the RentSafeTO program for building owners to include information on presence of active cooling. Consider:

- What kinds of additional information would be valuable to require and/or disclose to tenants (e.g., validated city service requests)
- Expanding the safety plans to include thermal safety information

*Helpful Links:*

- City of Toronto Energy & Water Reporting for Buildings
- City of Toronto's RentSafeTO: Apartment Building Standards

| **Type of Action** | **Timeline** | **Co-benefits** |
|---|---|---|
| Regulate | 2-3 years | Equity & Affordability |

**2) Collect residents' and owners' stories on challenges to installing and using cooling measures**

Collect residents' and owners' stories about their challenges in maintaining thermal safety in summer to lend weight to advocacy efforts to increase access to cooling measures (e.g., heat pumps, window upgrades). Focus on a diversity of ages and abilities to provide a clear picture of different kinds of challenges.

Make use of these stories in communications campaigns to socialize the use of heat pumps and need for cooling in general.

As part of this effort, consider how these opportunities could also be used to provide smart thermostats to collect actual temperature data (see Action 17).

Consider collecting stories via methods such as:

- Working with organizations such as ACORN and CREW
- Leveraging data provided via 311 calls and/or service requests
- New or planned AC distribution programs (see Action 22)

*Helpful Links:*

- ACORN Canada
- Ecotrust Canada. Advancing tenants' rights to retrofits and energy efficiency (2024)
- City of Vancouver Vancouver Indoor HEAT Study, 2021-2023

| **Type of Action** | **Timeline** | **Co-benefits** |
|---|---|---|
| Coordinate | 0-1 year | Equity & Affordability<br>Health & Wellbeing |

## 4.2 Decide on an Approach

**Overview**

- Design a phased thermal safety policy by evaluating the potential of a maximum indoor temperature requirement (Toronto's primary focus) as well as alternative approaches such as an active cooling mandate. Build on existing codes and regulatory updates, and consider approaches adopted in other jurisdictions. Key decisions include how thresholds are defined, when requirements apply, and what flexibility is provided to accommodate different building types and constraints. The chosen approach should balance feasibility for building owners, clarity for enforcement, and protection for tenants.

| **Type of Action** | **Timeline** |
|---|---|
| Regulate | 0-1 year |

In response to City Council's direction to investigate and report back on implementation considerations and next steps for a health-based maximum indoor temperature standard, the City is primarily considering the adoption of a maximum indoor temperature requirement. However, the City could also consider an alternative approach in the form of a simpler active cooling installation requirement. Regardless of the approach taken, it is important that the policy aligns with the Ontario Building Code and any provisions related to existing buildings to avoid conflicts or ambiguity.

**Maximum Indoor Temperature**

A maximum indoor temperature requirement would set a maximum indoor temperature threshold that must be maintained over a defined time period. This approach is becoming a more established and recommended

practice based on current research and precedent, and is either under consideration or already in place in several jurisdictions, including the City of Austin[xxvi], the State of California[xxvii] (under consideration), the City of Dallas[xxviii], the City of Phoenix[xxix], Montgomery County, Maryland[xxx], and others. In Toronto, early discussions have centered on a threshold of 26°C for leased residential premises and designated cooling rooms, building on recent updates to *Toronto Municipal Code Chapter 629-38*[xxxi], which extended the date ranges for mandatory operation of air conditioning systems.

As the City continues to explore a maximum indoor temperature requirement, some consideration can be given to whether to:

- Explore a dual threshold approach, rather and a single threshold (26°C), For example, Phoenix requires all air conditioning units to cool to 82°F or below, and all evaporative coolers to cool to 86°F or below.
- Explore whether further stipulations around the timing of the requirement are necessary (e.g., expanding the current window of June to September to year-round, into shoulder seasons, whenever the outdoor temperature exceeds a certain threshold, to a certain number of days above a certain temperature, etc.)
- Apply the requirement to one room, multiple rooms, or the entire unit. Jurisdictions in hotter climates (e.g., Austin, Phoenix) have adopted the whole-unit approach to ensure that tenants can safely and comfortably use all living spaces during extreme heat. Others have focused on one room only.
- Integrate relative humidity or wet bulb temperature into requirements alongside standard dry bulb temperature to account for the impacts of humidity
- Explore phasing of the requirement, while ensuring phasing considers implications for additive costs for compliance over time (see Section 4.4)
- Allow certain kinds of portable units to be accepted on interim basis during a transition to installed/centralized systems
- Identify which buildings would have the greatest challenge in complying with such amendments (e.g., any buildings that can't easily switch between heating and cooling)
- Identify which owners may need additional financial/non-financial support in installing cooling measures (e.g., heritage, low-income, housing high priority populations, etc.)

Recognizing that there are certain buildings that would struggle to achieve a temperature threshold without making expensive renovations, key considerations for these dimensions of policy design, along with the strengths of the maximum indoor temperature requirement are presented in Table 4.

**Active Cooling Requirement**

An active cooling requirement would require the presence of active cooling (i.e. air conditioning) in all multi-family units. This represents a much simpler approach that is being increasingly adopted in new construction codes but can apply to existing buildings as well (e.g., City of Chicago[xxxii]). This approach could be favourable from the tenant perspective, as it may allow for greater control over the indoor environment and would simplify tenant ability to monitor and seek enforcement. However, there are concerns around the quality, maintenance, and overall ability of cooling systems to keep spaces within a safe temperature range. Some of these challenges, along with other strengths and considerations of an active cooling requirement, are summarized in Table 4.

*Table 4: Strengths and Considerations in Policy Design*

| Maximum Indoor Temperature Requirement | Active Cooling Requirement |
|---|---|
| **Strengths**<br>• Provides consistency and alignment with existing requirements in the *Toronto Municipal Code*<br>• Can be based on a standardized thresholds for human safety as determined by clinical studies/research<br>• Allows tenants to monitor and submit a report when indoor temperatures exceed the threshold | **Strengths**<br>• Provides a clear and simple requirement that is easy for tenants to understand<br>• May allow for easier tenant control over their indoor environment |
| **Considerations**<br>• Building owners with 2-pipe systems would struggle to comply during the shoulder seasons/when the temperature spikes, as it takes time to switch from heating to cooling (or vice versa)<br>• Some systems may not be capable of maintaining the maximum threshold, especially as the climate warms and if the system is not properly maintained<br>• Can be harder to communicate to tenants<br>• Does not address concerns related to the costs associated with system operation<br>• Requires clarity and additional capacity in how the threshold is measured and enforced<br>• Maintaining two thresholds can be harder for tenants to conceptualize and monitor their indoor temperatures<br>• Increasing climate variability renders it more difficult to set the requirement for specific months of the year; a year-round threshold may better support compliance in the spring and fall<br>• Does not take humidity into consideration (though this could be resolved if tied to a heat index metric) | **Considerations**<br>• Building owners with 2-pipe systems would struggle to comply since only heat or air conditioning can be made available to tenants at one time<br>• Installing temporary window units would come with upfront costs, as well as lead to potential challenges with their provision, maintenance, and storage (e.g., when they are not in use)<br>• May be more appropriate and easier to require in new construction projects<br>• Window units would be the most likely form of compliance for existing buildings<br>• Does not address concerns related to the costs associated with system operation<br>• Creates a clear divide between active and passive solutions for indoor thermal safety, leading to a narrower set of outcomes<br>• Need to incentivize the installation of permanent, reliable solutions rather than lower-cost interim solutions such as window units that may be discarded once permanent systems are installed<br>• The issue of regular maintenance and ability for older, under-maintained units to provide adequate cooling, especially given how conducive to mold growth these can be |

## 4.3 Provide Education to Owners and Tenants

**Overview**

- Provide building owners and tenants with clear, accessible information about requirements, thermal safety risks, and available supports to build awareness, support compliance, and encourage informed action. Outreach efforts should align with existing City resources and be tailored to the specific needs of each audience. Coordinated, proactive communication, especially in high-risk communities, can help reduce confusion, build trust, and support successful implementation as extreme heat becomes more frequent.

| **Type of Action** | **Type of Action** |
|---|---|
| Educate | 0-1 year |

Once the form and target of a thermal safety requirement is determined, a crucial step in successful implementation is to educate building owners and tenants subject to the incoming policy. Outreach can begin before a requirement is set to socialize the importance of thermal safety and establish strong communications channels in advance of any incoming regulation.

**Rental Building Owners**

For rental building owners, City staff can work with provincial and regional health authorities and industry associations to develop a set of clear and actionable educational materials. These should include:

- What thermal safety is and the thermal safety risks associated with prolonged exposure to high indoor temperatures (including the risks of inaction)
- An overview of the landlord's responsibility to safeguard thermal safety (see Section 4.4 for details on compliance)
- The co-benefits (e.g., for energy efficiency, resilience during power outages, emissions reductions, BEPS compliance, attractiveness to tenants, potential cost savings) and risks (e.g., increased utility costs) of thermal safety upgrades, especially heat pumps
- Temporary measures to reduce overheating risks during health emergencies and heat events (e.g., neighbour check-ins, educating residents on the locations of nearby cooling centres)
- Types of upgrades, including where to acquire them, ranges of potential costs, incentives available, guidance on proper installation, and technologies to avoid
- How to plan for upgrades to meet a building's long-term cooling needs, including guidance on renovating central systems and navigating constraints in historic buildings or districts, and how to align cooling upgrades with other improvements made to advance decarbonization (e.g., in response to BEPS).
- How to find quality contractors best suited for a given type of project
- Guidance on balancing priorities such as sound attenuation, airtightness, cost, ability to accommodate cooling units, ease of operation, demand impacts, and moisture safety when selecting appropriate cooling measures
- Best practices in room design and material use to support lower indoor temperatures

Materials should be tailored to different types of building owners, from those managing small, aging buildings to larger property managers with more resources. In addition, all materials should have a clear purpose and provide owners with actionable steps.

To enhance the reach and effectiveness of these efforts, the City should work with regional and nonprofit partners pursue opportunities to further align messaging around thermal safety and support 'hard to reach' populations including populations including multi-lingual speakers, disabled populations, low-income populations, residents without digital access. Messaging should also be integrated with other initiatives where appropriate, such as electrification and emissions reduction efforts and the upcoming BEPS[xxxiii], to show the added value of thermal safety upgrades.

Finally, the City can explore opportunities to leverage existing community-based and housing-focused organizations to incorporate thermal safety education alongside energy efficiency efforts, and to help distribute resources and information to homeowners (e.g., by mailing postcards to building owners ahead of the heat season or sharing educational videos).

**Tenants**

For tenants, the City can develop targeted information and outreach campaigns (and/or "toolkit") to raise awareness of the measures they can implement to increase their thermal safety. This work can reference any existing guidance, codes, and bylaws and include information on available supports and points to raise to landlords or owners to make a case for additional cooling. Materials should include:

- The health risks of extreme heat, the importance of cooling measures, and when it is no longer safe to stay indoors without a source of active cooling (with specific thresholds)
- Simple, cost-effective, low- or no-cost cooling and ventilation strategies (e.g., impact of curtain colours), strategies to be cautious of (e.g., internal blinds, ceiling fans), and any appropriate temporary measures
- Ways to avoid increasing indoor temperatures (e.g., planning cooking at certain times, prioritizing cooling at night)
- Clarity on roles and responsibility for landlords vs. tenants
- Guidance on the safe, proper, and lawful installation (e.g., balcony plantings), maintenance, and use of cooling strategies and HVAC systems, including the use of Smart thermostats
- Temporary measures to reduce overheating risks during health emergencies and extreme heat events (e.g., neighbour check-ins, educating residents on the locations of nearby cooling centres)
- Landlord responsibilities for maintaining indoor temperature thresholds, and how tenants can ask for and hold landlords accountable for thermal safety measures
- Available rebate and incentives programs that can help reduce utility costs

The RentSafeTO platform can also serve as a key tool in supporting tenant education and transparency around thermal safety. Disclosing thermal safety-related information on the platform can help renters make informed housing choices that align with their needs. In addition to online disclosures, the City can integrate thermal safety information into other RentSafeTO touchpoints such as new tenant materials, building audits, and required notification boards. Under current requirements, property owners or operators must also post on the tenant notification board:

- The location of any on-site air-conditioned or cooled spaces, including cooling rooms or shaded areas accessible to all tenants
- The name, address, and a map to the nearest publicly accessible air-conditioned location

This information is typically verified during scheduled building evaluations, which occur approximately every two years. Expanding and reinforcing these communications through RentSafeTO could further increase tenant

awareness of available resources and support better-informed conversations between tenants and landlords regarding cooling needs.

This work should be supported by grassroots and community-serving organizations, municipal committees, and tenant associations that can help tailor and disseminate information across diverse geographic areas and populations. Materials should be available in multiple languages and, where possible, distributed through channels like building message boards or real-time alerts during heat events. The City should also explore opportunities to build on and scale existing neighbourhood heatwave response protocols, such as CREW Toronto's Neighbourhood Heatwave Response Project[xxxiv].

Together, these education and outreach efforts will help ensure that building owners and tenants across Toronto are informed, empowered, and better prepared to meet the new requirement and protect indoor thermal safety as extreme heat events become more frequent and intense.

## 4.4 Support Compliance and Enforcement

**Overview**

- Ensure successful implementation by establishing clear compliance pathways, phasing requirements to accommodate building-specific challenges, and developing practical mechanisms for enforcement. Depending on the policy approach, enforcement may include proactive inspections, complaint-driven processes, or digital monitoring. Flexibility and fairness in enforcement will be key to maintaining accountability and supporting the needs of both owners and tenants.

| **Type of Action** | **Timeline** |
|---|---|
| Regulate | 4-5 years |

**Compliance**

Once a thermal safety requirement is in place, supporting compliance and initiating enforcement become the most important steps to its success. Irrespective of whether a requirement takes the form of a maximum indoor temperature threshold or the presence of active cooling only, clarifying how building owners can demonstrate compliance, what exceptions or flexibility may be permitted, and under what circumstances is crucial. Regardless of the policy approach, there will be some building owners that can easily comply without major changes to their infrastructure or management practices, while there will also be buildings that cannot come into compliance without expensive physical or operational changes. With enough notice and options for compliance, even owners that will face challenges in complying (e.g., owners of buildings without any active cooling) will be better able to prepare for an incoming requirement.

**Proactive Outreach**

One way to support compliance is to provide adequate notice of an incoming requirement and its potential impacts to owners and tenants. The City can consider adopting a proactive outreach strategy to ensure widespread awareness and preparedness. This can be achieved by leveraging multiple communication channels, such as RentSafeTO, community-serving organizations, municipal committees, and tenant associations (see Section 4.2 for additional outreach approaches). Any outreach efforts should be specific about when and how residents can raise concerns or request compliance with the thermal safety requirement, what types of responses they can expect, and the procedures that may follow. Outreach should also provide guidance for how owners can prepare in advance for potential complaints, inspections, and issues of violation (e.g., by developing a heat response plan).

**Phasing**

One means of accommodating different owners and providing flexibility is to phase in the requirement. Phasing can be thought of in terms of which buildings need to comply, the kind of action that would be required by different buildings, which requirement would come first, and how long buildings will have to come into compliance.

- **Phasing by building type** would see a focus on those buildings that are most in need of thermal safety improvement, those that can achieve thermal safety in the short-term most easily, or those that will need to make incremental steps over time to come into compliance. As described in Section 4.1, this would entail identifying the buildings in greatest need of upgrades, as well as the areas, buildings or households at greatest risk of thermal safety issues.
- **Phasing by type of measure** could allow owners to implement lighter-touch or temporary measures initially, while navigating the challenges associated with planning for a longer term (and costlier) upgrade (e.g., using temporary cooling systems, allowing cooling centres within a common area of a building).
- **Phasing by availability of financial support and incentives** could demonstrate recognition that some building owners cannot afford to make costly investments to retrofit HVAC systems without external support. Buildings that face the most burdensome retrofits could receive temporary leniency in the requirements as long as they demonstrated active pursuit of external funds to support improvements.
- **Extended timeframes for compliance** for those buildings that can demonstrate that eventual improvements they must make to achieve compliance with BEPS in future BEPS cycles will facilitate meeting temperature thresholds.

A combination of these approaches and creativity around other ways to introduce requirements over time can provide the most flexibility to owners while ensuring tenants' needs are met.

While a phased approach can offer flexibility based on building characteristics or funding availability, it's also important to consider who is best positioned to act early. Larger owners may have more resources and capacity to implement changes quickly and could be prioritized for earlier requirements. However, smaller landlords, community land trusts, or not-for-profit housing authorities may serve more heat-vulnerable populations and should remain a focus for near-term support and engagement, even if their compliance timelines are later. Balancing these considerations will be essential to ensuring that the rollout of requirements is both feasible and equitable.

**Enforcement**

The approach to enforcing a thermal safety requirement depends in part on the kind of requirement that is set. With respect to a maximum indoor temperature requirement, the mechanism for enforcement is necessarily reactive, in that any exceedance of the required threshold must be determined in real time. This begs the question of who bears the responsibility of identifying where a building or unit is out of compliance – the tenant, the owner, or someone else.

In jurisdictions where such requirements are already in place (e.g., Dallas, Austin, Texas), determining whether a unit is out of compliance is generally a complaints-based process. For example, the City of Dallas' code stipulates that:

> *An owner shall provide and maintain in operating condition, refrigerated air equipment capable of maintaining a room temperature of at least 15 degrees cooler than the outside temperature, but in no event higher than 85°F in each habitable room. Installation of window-mounted air condition unit(s) must be in compliance with construction codes. Using an extension cord to power the unit would be an*

*electrical violation and fire hazard. Window units must be installed as directed by the Manufacturer's Installation Instructions.*

Once a complaint is received via 311, a code compliance officer is sent to verify the indoor temperature by taking a measurement using a handheld sensor. If the temperature is found to exceed the threshold, inspectors issue a Notice of Violation, after which owners must either make repairs or provide portable units for each habitable room (i.e. living room, bedrooms).

If the City chooses to take a complaints-based approach, this can help align enforcement with existing code compliance practices. However, there are a number of additional factors to consider, including:

- **Staff capacity and equipment.** The City should first identify the resources and structures needed across City divisions, with a focus on education for owners, tenants, and bylaw enforcement staff. This includes ensuring that bylaw staff are adequately trained, have access to the necessary tools, and follow clear standard operating procedures to support consistent and accurate enforcement. Although staffing may be challenging, important tactics to consider include creating a specialized team, providing targeted training for new inspectors, offering flexible hours to match likely times of complaints, and coordinating with other departments (e.g., human services, case workers, fire departments) to build redundancy and enable the activation of larger teams during extreme events.
- **Standard operating procedure for determining non-compliance.** Standardizing an approach for measuring indoor temperatures will be critical to ensure fairness and consistency across cases of non-compliance and to support legal defensibility if violations are contested in court. A detailed standard operating procedure should be developed that specifies how to obtain necessary consent to enter a home, the type of equipment to use, the locations for taking measurements, and the process for recording and reporting results. Additionally, the procedure should clearly define how humidity will be factored into assessments – whether by being explicitly addressed in the code (which is uncommon), or by ensuring that measurement devices are calibrated to perform accurately in humid conditions. For buildings with repeated issues or complaints, the City may also explore the feasibility of installing fixed temperature and humidity readers to enable continual monitoring and more efficient enforcement.
- **Lag time between notice of violation and equipment installation/repair.** After receiving a notice of violation, building owners may be provided with a defined timeframe to comply with the requirement. This should include a clear specification of how long owners have to take corrective action and may allow for limited extensions in cases where sourcing equipment or completing installation presents legitimate delays. Cities should also clarify when enforcement actions or penalties will begin if compliance is not achieved. During this lag time, residents may still be experiencing unsafe conditions, making it critical to identify potential temporary solutions (e.g., individual AC units) and take other steps to expedite longer-term solutions. One way to do so is to require owners to submit an action plan that indicates corrective steps, the expected timing, and how tenants will be supported in the interim. In addition, the City could consider developing or leveraging a self-help repair statute that enables tenants – if repairs are not completed within the required timeframe – to notify landlords of their intent to make repairs themselves and deduct the cost from rent. Broader tenant protections should also be explored, such as enabling tenants to terminate leases or sue for damages in cases where landlords fail to remediate unsafe indoor temperatures.
- **Flexibility for challenging circumstances.** It is important to anticipate and consider when unique circumstances may hinder a building owner's ability to take corrective action. For example, condo associations may delay or restrict HVAC system upgrades, power outages may prevent both cooling and code enforcement, or residents may choose not to use available cooling technologies. The City should consider establishing guidelines for when additional flexibility or support may be appropriate in such cases. In extreme circumstances, where tenant health and safety remain at risk despite reasonable

attempts to secure landlord action, the City could also consider providing emergency funding for temporary cooling equipment or alternative housing arrangements.

The City may also wish to explore the potential designation of cooling as a vital service (similar to heating or water) under the *Apartment Bylaw, Chapter 354*, and potentially under *Discontinuance of Vital Services, Chapter 835*. This would have implications for enforcement, as the discontinuation of cooling could then trigger a vital service complaint. However, this may not be feasible without parallel action from the Province of Ontario to formally recognize the right to cooling as a vital service. The City should further consider how this designation, or the lack thereof, would affect enforcement across the residential sector.

Together, these considerations can help establish a robust compliance and enforcement framework that is fair, effective, and responsive to both tenant needs and the operational realities of property owners.

With respect to an active cooling requirement, enforcement initially appears simpler and more straightforward, as compliance can be verified simply by verifying the presence of a cooling unit. However, additional considerations to determine include:

- Where cooling is present (i.e. one room vs. whole unit)
- What form of cooling would be required (e.g., portable cooling unit vs. permanent)
- Any related specs associated with cooling units (e.g., size, efficiency, noise levels)
- When the cooling unit is verified as present and/or operable (e.g., on installation or at some other point)
- A mechanism for ensuring the cooling unit is in proper working order and properly maintained

As with a maximum temperature threshold, as tenants cannot be required to use a system once installed, compliance should be seen as satisfied once any installation criteria are met.

The issue of how to verify compliance could also be difficult, in that the appropriate timing and mechanism is unclear. In the event that a permit is triggered, it could simply fall to the building inspector. However, absent any other specs, window units are the most likely system that owners would install to comply with this kind of requirement, which are not likely to trigger a permit. As such, more effort may be needed to identify the right means to ensure enforcement.

### 4.4.1 Supporting Actions

Additional policy and legislative actions can help ensure the long-term success of a thermal safety requirement. While clear pathways for compliance and enforcement are essential, barriers remain that may prevent property owners from implementing necessary thermal safety upgrades, including existing bylaws, design covenants, permitting barriers, or other policies or agreements that may conflict with various thermal safety measures. This section explores the supporting advocacy and policy actions that the City can explore to remove barriers for existing multi-family buildings. Collectively, these actions aim to ensure that thermal safety retrofits are not only encouraged but realistically achievable, particularly for Toronto's most heat-vulnerable residents.

### 3) Reevaluate any policies or covenants that inhibit cooling measures

Work with municipal staff and industry partners to identify any guidelines, bylaws, design covenants, and/or other policies or agreements that conflict with any form of overheating mitigation, such as external operable shades, operable windows, heat pumps, and AC units. Once identified, explore means and opportunities to remove them to allow their installation, considering the implications for ease of compliance and enforcement.
For example, the *Property Standards Bylaw* currently requires a limit of 10cm window openings to prevent young children from falling out, which could be revised (e.g., enable protection while maintaining full window operability, consider requiring this limit only where children under 10 occupy the unit).

*Helpful Links:*

- Toronto Municipal Code Chapter 629, Property Standards
- US Office of Legislative Research, "Solar Rights" Laws in Arizona, California, Florida, Massachusetts, and New York

| **Type of Action** | **Timeline** | **Co-benefits** |
|---|---|---|
| Regulate | 4-5 years | Equity & Affordability |

### 4) Promote and support the development of cooling plans in rental buildings

Consider developing a template for, and support the uptake of, cooling plans in rental buildings. Consider using a standardized cooling audit as the basis for the heat response plan.

Plans should help owners take a phased approach that gives building owners time to address thermal safety needs in the short term while planning for more permanent, efficient systems over the longer term that may require extended periods for design, permitting and installation.

Encourage adoption by developing and sharing a value/business case for cooling plans, highlighting benefits such as insurance advantages and integration into renewal planning.

Link to financial or non-financial support for building owners to help them with completing a plan (see Action 21).

Consider building on neighbourhood-level heat response planning underway by Toronto Environmental Alliance and CREW, and/or retrofit roadmaps for decarbonization planning.

*Helpful Links:*

- Toronto Environmental Alliance
- Community Resilience to Extreme Weather (CREW)

| **Type of Action** | **Timeline** | **Co-benefits** |
|---|---|---|
| Coordinate | 2-3 years | Health & Wellbeing |

### 5) Advocate for inclusion of Right to Cool in Ontario's *Residential Tenancies Act*

Building on the Council direction from December 17/18, 2024, advocate to the Province of Ontario for:

- Defining cooling as a vital service in the Residential Tenancies Act (RTA), akin to how heating is currently defined.
- Ensuring protections for tenants from undue financial burden that could result from the addition of cooling (e.g., preventing owners from being able to disconnect cooling where tenants are unable to pay for cooling), irrespective of leasing agreements.

As part of this effort, clearly define the City's jurisdiction regarding thermal safety, and align local legislation with any changes to the RTA.

*Helpful Links:*

- Proposed amendments to the Residential Tenancy Act to clarify and enhance rental rules related to air conditioning
- Tenant Rights & Extreme Weather Events: An Analysis of Indoor Temperature Requirements in U.S. and Canadian Landlord-Tenant Law. Written for the Tenant Resource Advisory Centre of British Columbia in conjunction with the Climate Justice Research Collaborative.
- Ecotrust. The Missing Third: Improving Tenants' Rights to Energy Efficient, Climate Resilient, and Safe Housing (2023)

| **Type of Action** | **Timeline** | **Co-benefits** |
|---|---|---|
| Advocate | 0-1 year | Equity & Affordability |

### 6) Ensure thermal safety considerations are integrated into new construction standards

Ensure any updates to the Toronto Green Standard address the need to ensure thermal safety in new residential buildings.

Create design guidelines that can be used to encourage both active (e.g., heat pumps) and passive (e.g., operable windows, external shading, façade materials, and vegetation) cooling measures for improving indoor thermal safety.

Cross-reference with and promote other policies and guidelines that help improve thermal safety (e.g., Thermal Comfort Guidelines for large area studies, public realm capital projects and large site developments).

*Helpful Links:*

- Toronto Green Standard
- Toronto Thermal Comfort Guidelines: For Large Area Studies, Public Realm Capital Projects, and Large Site Developments – Final Report

| **Type of Action** | **Timeline** |
|---|---|
| Regulate | 0-1 year |

### 7) Integrate thermal safety considerations into building decarbonization programs and resources

In developing support programs and resources to encourage building decarbonization (e.g., the forthcoming BEPS, emissions limits), integrate thermal safety considerations. For example, explore means of integrating cool-related content into future versions of the "retrofit roadmaps" developed by ECF.

| Type of Action | Timeline | Co-benefits |
|---|---|---|
| Regulate | 0-1 year | Energy Efficiency<br>Emissions Reductions<br>Economic Activity |

### 8) Revise, adapt, or create zoning bylaws and/or development permit areas to support neighbourhood-level cooling

Revise, adapt, or create zoning bylaws and/or development permit areas to encourage:

- Strategies that reduce the urban heat island effect, either by enhancing greenery (e.g., trees) close to buildings (i.e. on site) and/or encouraging high albedo roofs and surfaces, and the use of cooling corridors where possible
- Zero-emissions district-level energy systems that allow mechanical cooling to tie in for energy sharing purposes
- Space designations that support the installation of active cooling equipment in high-density locations where adequate space for new cooling systems may be challenging within a building's footprint

Consider creating/leveraging urban design guidelines for existing building retrofits to encourage these strategies.

*Helpful Links:*

- Greenbelt Foundation Cooling Corridors: The Role of Green Infrastructure in Building Resilience to Extreme Heat
- City of Phoenix Cool Corridors Program
- Stewardship Centre for BC's Green Bylaws Toolkit

| Type of Action | Timeline | Co-benefits |
|---|---|---|
| Regulate | 4-5 years | Energy Efficiency<br>Emissions Reductions<br>Economic Activity |

## 9) Advocate for consistency and alignment in cooling assessment methodologies

Advocate for agreement among key provincial and federal agencies in cooling assessment methodology and parameters for designers and renovators, focusing on:

- Verifying that 26°C in one space of each unit is adequate for protecting thermal safety
- Clarifying the summer design temperatures to use for system sizing
- Clarifying the climate files to use for energy modelling
- Establishing the primary metric of interest (e.g., dry bulb T, operative T, overheating hours, SETT, etc.)

Standardizing cooling audit frameworks and electrical load calculations.

*Helpful Links:*

- City of Vancouver Energy Modelling Guidelines (referenced by BCBC 10.2.3.4)
- EGBC and AIBC's Joint Whole Building Energy Modelling Professional Practice Guidelines
- Dunsky Energy + Climate Advisors (2024) Overview of Power Efficient Design. Prepared for the Consortium for Power Efficiency

| **Type of Action** | **Timeline** |
|---|---|
| Advocate | 2-3 years |

## 10) Update the Minimum Backup Power Guidelines for multi-family buildings

Update the Minimum Backup Power Guidelines for multi-family buildings to include emergency measures that reduce thermal safety risks during power outages.

Expand recommendations on common refuge areas to emphasize the need for these spaces to be not only accessible but also appealing and comfortable for residents to use during emergencies.

Consider introducing incentives or requirements to increase uptake of these voluntary performance standards.

*Helpful Links:*

- City of Toronto Minimum Backup Power Guidelines for multi-family buildings

| **Type of Action** | **Timeline** | **Co-benefits** |
|---|---|---|
| Regulate | 2-3 years | Health & Wellbeing |

## 4.5 Provide Financial and Other Support

**Overview**

- Support implementation by reducing both upgrade and energy cost burdens through expanded incentives, targeted municipal financing tools, and interim measures such as portable air conditioner distribution. Assistance should prioritize buildings and households with limited financial resources, while also ensuring protections such as limiting added cooling fees are in place to support equitable access to thermal safety.

| **Type of Action** | **Timeline** |
|---|---|
| Fund | 0-1 year |

A successful thermal safety requirement must be designed to accommodate the financial implications of implementation, both for owners and tenants. Costs can be broken down into two categories:

- Those associated with any upgrades themselves, likely paid for by the building owner, and
- Those associated with any increase in energy costs, paid for by either tenant or building owner, according to the terms of their lease agreement.

In some jurisdictions, rising concerns over housing costs have actually helped make the case for introducing minimum standards that ensure living spaces are, at a bare minimum, habitable, reinforcing the need for thermal safety requirements as a matter of basic tenant protection.

However, a well-known and significant barrier to the uptake of thermal safety (and other) retrofits is their associated cost. Owners and managers often have limited budget for adequate capital repair and maintenance due to pressure from investors concerned with their return on investment. While some lighter-touch measures can be implemented at relatively low cost, many others can incur a substantial price tag. Owners and managers of rental buildings are consistently faced with the need to balance many competing priorities, making thermal safety retrofits one of a long list of potential upgrades or deficiencies to address. Potentially compounding this challenge are rising costs associated with property taxes and insurance, as well as unexpected costs that can arise in implementing retrofit measures, such as hazardous material removal.

Any support for upfront costs should be targeted towards buildings that have fewer resources and lower overall capacity (e.g., small landlords, community land trusts, or not-for-profit housing authorities). Programs that help reduce these upfront costs may also help to avoid any knock-on cost impacts to tenants, such as increased rents. Wherever possible, direct financial support should be provided to buildings and/or dwellings that are at highest risk of overheating and resulting in thermally unsafe conditions for occupants, including buildings that may have no other means to adequately address thermal safety outside of significant retrofits. Alternatively, a subsidized program that does direct installation on behalf of the owner could be considered, similar to the *Rental Apartment Efficiency Program (RAP)*[xxxv] in British Columbia.

The need to address the affordability of paying for the energy costs of cooling has been flagged as equally or more important than supporting upgrade costs. Concerns around the cost of utilities are preventing the full usage of existing active cooling measures (e.g., some tenants that have cooling don't use it because of high costs), with potential consequences for indoor thermal safety. As utility rates rise, this trend is likely to continue, putting some tenants in the unjust predicament of choosing to accept health and safety risks due to their inability to pay for energy. Passive measures can play a critical role in reducing energy demand, which in turn lowers utility costs and helps make active cooling more affordable and sustainable. Taking a combined approach, where passive strategies

reduce baseline demand and active systems deliver targeted cooling, offers both immediate and long-term benefits.

**Leverage, Expand On, and Promote Existing Programs**

Leveraging, expanding on, and widely promoting existing programs – especially for buildings and tenants who are at higher risk – is crucial for the successful implementation of an indoor temperature policy. Wherever possible, current sources of funding should be maximized to support these efforts, including:

- The *Toronto Employment and Social Services (TESS)* program, which provides financial assistance for cooling devices when prescribed as medical equipment, accessible through Ontario Works or the Hardship Fund[xxxvi].
- Toronto's *Tower Renewal Program*[xxxvii], which assists owners of pre-1990 apartment buildings with three or more storeys located in Neighbourhood Improvement Areas or serving low-income residents by identifying performance enhancement opportunities and implementing upgrades.
- Toronto's *Energy Retrofit Loan Program*[xxxviii], which offers low-interest financing covering up to 100% of project costs for eligible retrofit projects, with interest rates equal to the City's borrowing rate, helping to overcome upfront cost barriers.
- The Save on Energy program[xxxix], which provides financial incentives for eligible energy efficiency upgrades including heat pumps.

**Consider Additional Forms of Support**

Recognizing that the programs above may not currently be able to fully support the need and demand for large-scale HVAC retrofits, nor the need for utility assistance for vulnerable residents, the City can explore a variety of complementary tools and policy mechanisms, including the following:

*New sources of funding and financing*

- Create a dedicated rebate or grant program for cooling measures that closes the remaining funding gap after provincial or federal programs are applied
- Integrate thermal safety into existing incentive programs by using a "cooled building baseline" as a reference model for decarbonization financing
- Provide dedicated funding to support cooling audits and assessments that help prioritize effective measures
- Identify funding sources tied to public health, emergency management, and life safety to supplement traditional energy efficiency and building upgrade programs
- Provide incentives to building owners who support tenant-installed cooling measures
- Collaborate with utilities to fund or co-fund upgrades to electrical service panels ("heavy-ups") that are often a barrier to installing central or high-efficiency cooling systems
- Develop a financing program or support package to enable comprehensive, whole-building retrofits that incorporate thermal safety, emissions reductions, and climate resilience
- Explore complementary financial tools such as on-bill financing, PACE financing, time-of-use pricing, energy arbitrage, revitalization tax exemptions, and blended or concessionary financing to reduce capital and operating costs

*Incorporate thermal safety into existing policies or sources of funding*

- Align thermal safety funding tools with the upcoming Building Emissions Performance Standards (BEPS) to maximize co-benefits and streamline participation
- Include conditions in City-funded programs that limit additional "cooling fees" being charged to tenants

*Other*

- Consider establishing a fining structure for indoor temperature violations, with collected fines directed toward retrofit funding or emergency support
- Reduce long-term energy costs by supporting improved building controls and educating tenants on how to use cooling systems efficiently

The City can also look to existing programs in other jurisdictions for inspiration and guidance in designing effective financing tools. For example, the District of Saanich's Climate Action Tax Exemption[xl], the City of Vancouver's high-performance building standards[xli], and the City of Vancouver and BC Non-Profit Housing Association's retrofit grant program[xlii] all offer relevant models.

In addition to retrofit financing, the City should consider creating or expanding municipal air conditioner rebate and distribution programs, with an emphasis on high-risk multi-family buildings and vulnerable residents. The City is currently scoping such a program, and a short-term pilot is being launched this summer with the goal of distributing air conditioning units by July 1, 2025. Such programs should:

- Provide portable air conditioning units for common areas or directly to individuals who are tenants, are vulnerable to extreme heat, and meet low-income thresholds
- Take into account broad prohibition of window shakers (i.e. window units) and pursue indoor units in those cases
- Be treated as short-term emergency measures, not replacements for comprehensive cooling strategies
- Include guidelines and standards to ensure that distributed units are energy efficient, easy to use, and capable of maintaining indoor temperatures of no more than 26°C in at least one room
- Scale equipment based on household size and layout to ensure effective cooling
- Include program evaluation tools, such as smart thermometers or indoor temperature documentation
- Produce granular data to inform local decision-making and future policy design

This work also involves engaging owners, tenants, utilities, financial institutions, and other interested and affected parties in developing policies and support programs to address the split-incentive challenge and explore innovative approaches to alleviating financial burdens for both building owners and tenants. The City could also ensure all financial opportunities are consolidated into a single platform to make it easier for owners and tenants to access this information.

**Prioritize Support where the Need is Greatest**

Finally, to ensure funding is used where it can have the greatest impact, financial support should be prioritized for:

- Buildings and units at the highest risk of overheating and thermally unsafe conditions.
- Buildings and units facing greater compliance challenges, such as heritage buildings, those serving low-income or high-priority populations, those with lower overall capacity (e.g., small landlords, community land trusts, or not-for-profit housing authorities), and those unable to finance improvements without external assistance.

- Properties that have already received assistance through home repair or weatherization programs and are well-positioned to benefit from deeper investments in energy and cooling upgrades.
- Replacement of aging or inefficient central systems with high-efficiency heat pumps that provide both cooling and dehumidification.
- Building envelope improvements (e.g., insulation and air sealing) that reduce energy use and improve indoor comfort.
- Low-income and particularly vulnerable residents that might have AC but can't afford to use it.

These efforts will not only help support compliance with a thermal safety requirement but also ensure that Toronto's most heat-vulnerable residents are not left behind as the City works to build a safer, more resilient housing stock.

### 4.5.1 Supporting Actions

While the City can align and expand its own financial tools to support thermal safety retrofits, broader progress will require additional support from higher levels of government, as well as greater market recognition for the value of these improvements. Advocacy will play an instrumental role in developing new funding streams, shaping programs that respond to local needs, and ensuring that tenants are not left to bear the burden of rising energy costs. This section outlines a set of additional supporting actions the City may consider to help reduce these and other financial barriers.

**11) Advocate to higher levels of government for financing measures to reduce the risks of extreme heat**

Advocate to provincial and federal levels of government to establish appropriate means of financing retrofit measures that reduce extreme heat and to explore funding opportunities for programs that promote equitable access to safe and comfortable indoor environments in their homes.
Promote these opportunities to owners and tenants as available.

*Helpful Links:*

- CMHC's funding options

| **Type of Action** | **Timeline** | **Co-benefits** |
|---|---|---|
| Advocate | 0-1 year | Equity & Affordability<br>Economic Activity |

**12) Advocate for increased awareness among real estate service providers and their customers on the value of cooling measures**

Advocate to real estate agents, insurance companies, financial institutions and property appraisers to implement measures to increase staff and customer understanding and awareness of the value of cooling measures such as shading, operable windows, and heat pumps in existing multi-family buildings. Such awareness raising could include sharing existing heat vulnerability maps.
Advocate for a means of including the risks of *not* having cooling into pricing for insurance rates and financing, taking care not to advocate for measures that would inadvertently increase premiums. Work towards a shift in the appraisal methodology to factor in the value of climate readiness in general, and cooling in particular.

*Helpful Links:*

- University of Toronto School of Cities Mapping Heat Vulnerability in Toronto
- Toronto Housing Action Plan: Apartment Infill Study – Preliminary Report
- Insurance Bureau of Canada. Helping to protect Canadians and build resilient communities

| **Type of Action** | **Timeline** | **Co-benefits** |
|---|---|---|
| Advocate | 2-3 years | Equity & Affordability<br>Economic Activity |

## 4.6 Support Industry & Technology

**Overview**

- Build industry capacity and awareness to support the uptake of thermal safety retrofits and leverage existing training programs to include thermal safety coaching and support.

| **Type of Action** | **Timeline** |
|---|---|
| Coordinate/Educate | 2-3 years |

As noted in Section 4.5, Toronto has already taken steps that indirectly support indoor thermal safety through programs focused on energy efficiency, electrification, and emissions reductions. These include rebate programs, capacity-building initiatives, and educational resources for building professionals. The City is also piloting an air conditioner distribution program in summer 2025 to provide immediate relief to residents. While these efforts lay important groundwork and provide overlapping benefits, they are not specifically designed to address thermal safety as a long-term, systems-level challenge. As a result, there may remain a gap in industry awareness and capacity related to overheating risks and the appropriate retrofit strategies and technologies to address these risks.

**Build Industry Capacity and Awareness**

One way to address this gap is to build industry capacity to support the uptake of thermal safety retrofits. The City can work with partners to improve overall market awareness and support the ability of contractors, engineers, architects, and retrofit specialists to identify and address indoor thermal safety needs. This work could involve:

- Developing materials to support education and awareness raising among designers, renovators, and contractors, including on how to avoid the need for panel or other building-scale upgrades (e.g., power

efficient design guidelines, electrical code changes), proper heat pump installation practices, and refrigerant management. Consider drawing from other topics where education has been successful.

- Establishing a local renovators' community of practice, working group and/or workshop series to educate designers and contractors on thermal safety risks and key practices for mitigating them.
- Providing or supporting the upskilling of auditors to be able to speak to need and options for cooling.
- Providing building supervisor education and certification in energy efficiency and heat pump installation.
- Hosting or supporting demonstration projects and developing case studies that foreground the thermal health and safety benefits of adopting cooling strategies, including both passive and active measures.
- Incorporating education on intersecting issues including air quality and mold

To help drive this work, the City can leverage the renovators' roundtable to educate designers and contractors on thermal safety risks and best practices for mitigating them in both new construction and infrastructure upgrades.

**Leverage Existing Training Programs**

Where already in place, thermal safety should also be integrated with ongoing efforts to educate industry members on decarbonization and electrification, such as Toronto Hydro's Clean Technology Network[xliii], the City of Toronto's Green Will Initiative[xliv], and the Better Buildings Partnership Navigation Support Services training[xlv]. This effort could also be leveraged to create a "qualified contractors" list, associated with (or akin to) Toronto Hydro's CleanTech Services Network, and informed by existing resources such as Ontario's registry of qualified designers.

### 4.6.1 Supporting Actions

To further support industry and technology and better direct the capacity building efforts above, the City may consider gaining a better understanding of the specific equipment and technology gaps that exist for multi-family buildings. With a clearer picture of these gaps, the City can develop tailored educational materials and training in areas where the need and potential for impact is the greatest.

**13) Identify and fill any equipment and technology gaps for multi-family buildings**

Commission a study to identify equipment and technology gaps for providing thermal safety in multi-family buildings, including policy and other barriers to their access.
Use this information to identify a means of increasing (or rendering more accessible) the supply of smaller, lower cost systems and equipment capable of providing both thermal safety and indoor air quality, as well as shading retrofit products suitable for suites and bedrooms within multi-family buildings.
Consider a competitive pilot program to identify high-performing units that could help transform the market (see NYC Clean Heat for All Challenge which has installed window heat pump units in public housing).

*Helpful Links:*

- Example: NYC Clean Heat for All Challenge
- Innovate BC's Innovation Challenges

| **Type of Action** | **Timeline** | **Co-benefits** |
|---|---|---|
| Study | 4-5 years | Health & Wellbeing<br>Equity & Affordability<br>Economic Activity |

# 5 Implementation

## 5.1 Implementation Considerations

The key considerations and supporting actions described above are the result of a process of research, preliminary engagement and analysis intended to support the City increase the indoor thermal safety of residents of existing multi-family buildings in their jurisdiction. To ensure the success of any future efforts, it is critical that the City adopts a holistic and integrated approach. No single action will be sufficient on its own; instead, a coordinated package of actions is necessary.

For example, effective compliance and enforcement of an indoor temperature requirement will only be successful if accompanied by some level of education for both building owners and tenants. Similarly, thermal safety measures are most impactful when implemented in combination. While this report emphasizes the need for active cooling, passive approaches play a critical role in reducing indoor heat gain, lowering demand on active systems, and maintaining thermal safety during power outages. As such, promoting active and passive strategies as complimentary solutions is essential for building thermal resilience.

Policy development should also focus on overcoming the key barriers to implementation identified throughout this report and summarized in Table 2. Policies and programs should be clearly linked to addressing these challenges to facilitate the adoption of a dedicated indoor thermal safety policy. While the report prioritizes short-term actions (within the next 5 years), it is equally important for the City to maintain a long-term vision that continues to address barriers to thermal safety and aligns with broader goals such as decarbonization, climate resilience, and public health. By linking short-term actions to future benefits, the City can create a durable and forward-looking thermal safety policy framework.

The recommendations in this report should be seen as a starting point, as more work will need to be done to further design and implement each one. To help prioritize and implement actions further, the following additional considerations should be noted:

1. **Engaging with interested and affected parties**

   Engaging with the interested and most affected parties is central to the development of any potential program or policy. While actions presented in this report have been derived from a preliminary engagement process, implementing some or all of these actions should undertake a process of meaningful engagement with owners, property managers, tenants, people with lived experience of inequity, representative associations, non-profit organizations, and other institutions (e.g., health authorities, professional associations, etc.).

2. **Centering equity**

   Both as part of the action planning process, as well as policy direction itself, it is important to focus effort and attention on addressing social and health inequities. Meaningful community engagement and collaboration with residents and community groups can help ensure that diverse voices are included and empowered through decision-making, thereby informing strategies that are culturally appropriate, helping to remove barriers, and addressing systemic inequities. A commitment to equitable outcomes should also carefully consider and mitigate any unintentional burdens that might arise from recommended actions. For example, placing the burden of reporting non-compliance or issues with thermal safety in general on tenants could have negative consequences for those who may face language barriers, have limited time, or fear repercussions from landlords.

3. **Working collaboratively and at scale**

   Several of the actions noted in this report are fundamentally collaborative in nature – they require the perspectives and insights from across City divisions, agencies, and partner organizations. Working together can not only help to streamline efforts and reduce resources needed for policy design and implementation, but also to increase consistency and straightforwardness for multi-family building owners and tenants. Wherever educational materials, requirements, or support programs can be made consistent across a broader area, the clearer it will be for owners and tenants to make the thermal safety upgrades they need.

4. **Creating and leveraging local partnerships**

   One of the crucial dimensions of improving indoor thermal safety is ensuring that information on options and strategies reaches those who need it most. This is why working with community groups and others who have a direct connection to owners, property managers and tenants is crucial. Examples of such organizations include local health authorities, as well as housing authorities, neighbourhood associations, block and tenant associations, organizations representing typically underserved groups, and others.

5. **Building internal capacity**

   Many of the actions in this report require inter-divisional design and implementation, especially where it concerns new regulatory action. It will be important to work collaboratively with a range of internal divisions, from City Planning to Toronto Buildings, Financial Planning, and others. It should be noted that the implementation of some of these recommended policies/requirements will likely require a significant increase in monitoring and enforcement capacity, making the involvement of inspections staff a crucial step. It will also be important to seek internal (and sometimes external) legal counsel for some of the proposed actions that

# 6 End Notes

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