

MULTI-UNIT RESIDENTIAL BUILDING DESIGN

Recommendation

That the October 8, 2024, Community Services report CS02084, be received for information.

Requested Action	Information only		
ConnectEdmonton's Guiding Principle	ConnectEdmonton Strategic Goals		
CONNECTED This unifies our work to achieve our strategic goals.	Urban Places		
City Plan Values	LIVE		
City Plan Big City Move	A rebuildable city	Relationship to Council's Strategic Priorities	15-minute districts
Corporate Business Plan	Transforming for the future		
Council Policy, Program or Project Relationships	<ul style="list-style-type: none"> • C551 - Residential Infill in Mature Neighborhoods • Bylaw 20001 - Zoning Bylaw 		

Previous Council/Committee Action

At the September 12/13, 2023, City Council meeting, the following motion was passed:

That Administration provide a report on the feasibility and required budget for developing an alternative solution for multi-unit residential building designs in the 'point access block' configuration, conforming to the municipal zoning requirements for a typical city lot; that could be made freely available (e.g. open-source) to help reduce the overall cost of housing development (a point access block is defined as a multi-unit residential building of three to six storeys having a maximum of four dwelling units per storey served by a single exit staircase).

MULTI-UNIT RESIDENTIAL BUILDING DESIGN

Executive Summary

- A single egress stair building, commonly referred to as a point access block, is a common building typology in many jurisdictions around the world. However, building regulations in Canada, and most of the United States require a minimum two 'means of egress' for buildings above two storeys, effectively eliminating the development of point access blocks in Canadian cities.
- Under the National Building Code, Alberta Edition (Building Code), a single egress stair building can be submitted for consideration through the alternative solution process where a building plan provides approximately equal or greater level of performance than what is required by the prescriptive requirement of two staircases.
- To facilitate building innovation and encourage greater diversity of housing, Administration is undertaking the development of a guideline that will provide developers and designers with relevant information on this building type and effective strategies for acceptable alternative solutions.
- As part of a third party submission led by LGA Architects, Canada Mortgage and Housing Corporation will provide the City with \$200,000 through its Housing Supply Challenge grant to pay for the development of this guideline. The guideline will be completed and published before the end of December 2024.

REPORT

A single egress stair building, commonly referred to as a point access block, is a common building typology in Europe and many other parts of the world. Building code requirements and firefighting practices vary significantly around the world, and so does each jurisdiction's knowledge, skills and abilities to employ the use of a single egress staircase. Current building regulations in Canada require two 'means of egress', or multiple stairs serving all floors and basements for buildings above two storeys.

Advocates for single-egress or point access blocks cite that the built form can create multiple benefits including:

1. **Space Optimization:** A single stairwell configuration allows for more usable floor space, which can be allocated to larger living areas or additional units, especially where sites/space is limited such as infill scenarios.
2. **Community Feel:** With one central stairwell, residents are more likely to encounter each other, which can foster a stronger sense of community.
3. **Environmental Impact and Lower Operating Costs:** With fewer common areas, a single stairwell building can be more energy-efficient, reducing heating, cooling and lighting needs. Additionally, without the interruption of a hallway corridor, suite alignment can be more easily designed for passive temperature control methods like situating windows on both sides of the building of a suite to create a cross breeze.

The combination of the above attributes may lead to more dense and diverse infill development on sites that are constrained or limited in size, leading to a greater diversity of quality housing options in neighbourhoods. As point access blocks are currently not a prescriptive design available in the

MULTI-UNIT RESIDENTIAL BUILDING DESIGN

building code, Edmonton has some limited examples of three story buildings with single egress, although they are common around the world.

Jurisdictional Scan

Across the United States, single-stair residential buildings are permitted up to three storeys in height, with a maximum of four dwellings per storey in the State of Hawaii and New York City; the City of Seattle allows up to six storeys. A jurisdictional scan of more than 30 building codes of other countries shows that Canada is one of the most prescriptive jurisdictions with respect to egress requirements in building regulations¹.

In the last few years within North America, there has been a growing movement of architects and city planners to encourage building code changes or alternative solutions to allow greater development opportunity for point access blocks. Related actions within Canada include:

- A formal 2025 Code Change Request was submitted to the Canadian Board for Harmonized Construction Codes².
- The City of Vancouver commissioned a report on the feasibility of point access blocks³.
- The City of Vancouver is co-funding a subsequent report with BC Housing Building Excellence Research Grants that explains the benefits of single egress stair design in an urban context⁴.
- In January 2024, BC Housing issued a request for proposal (RFP) seeking a response from consultants with expertise in building design, engineering, and fire and life safety to better understand the potential for single egress stair (SES) designs in buildings.
- In July 2024, the Minister for BC Housing announced that the province intends to change provincial code to allow single egress stair exit buildings, with potentially significant and costly compensatory measures. Engagement is encouraged to comment on the potential code changes⁵.
- In July 2024, the City of Toronto City Council requested their Administration to develop a public-facing guideline to assist in the preparation of alternative solution proposals under the Ontario Building Code where a single means of egress is proposed⁶.

Over the past year, multiple Canadian fire associations have released official positions opposing single-stair multi-family buildings due to perceived significant fire and life safety concerns, including but not limited to; Canadian Association of Fire Chiefs, International Association of Fire Chiefs, National Association of State Fire Marshals, Ontario Association of Fire Chiefs, Ontario Professional Fire Fighters Association, Fire Chiefs' Association of British Columbia. The main points of contention are that a single staircase limits the ability to evacuate a building when the stairway is the initial or focus point of the fire and that of congestion with tenants evacuating in

¹ Speckert, C. (2022). *Jurisdictions: Maximum Permitted Height for Single Stair Buildings* [Infographic]. McGill School of Architecture. Updated in July 2024. Retrieved from <https://secondegress.ca/Jurisdictions>

² <https://secondegress.ca/Code-Change-Request>

³ Larch Lab, Unlocking livable, resilient decarbonized housing with point access blocks, https://www.larchlab.com/wp-content/uploads/2022/01/Eliason_CoV-Point-Access-Blocks-report_v1.2.pdf

⁴ Public Architecture, Single Stair Residential Buildings <https://www.publicarchitecture.ca/wp-content/uploads/2024/02/240213-PUBLIC-Single-Stair-Report.pdf>

⁵ <https://www2.gov.bc.ca/gov/content/industry/construction-industry/building-codes-standards/bc-codes/innovation>

⁶ <https://secure.toronto.ca/council/agenda-item.do?item=2024.PH14.7>

MULTI-UNIT RESIDENTIAL BUILDING DESIGN

the same space as the emergency services who are bringing fire fighting equipment into the same space.⁷

Edmonton Context

Building and fire code standards are adopted by the provinces, based on the model National Building and Fire Codes. The City of Edmonton, through its administrative responsibility as the Authority Having Jurisdiction (AHJ), has no ability to change or lessen the performance of the provincially adopted codes. However, innovative designs like point access blocks, can be considered on a building-by-building basis through an alternative solution proposal to the AHJ. An alternative solution is a means to authorize an installation, process, equipment or action that is not strictly consistent with existing code rules, but that provides approximately equal or greater level of performance than what is required by the code rule.⁸

This means that point access blocks can legally be built in Edmonton provided designers consider and demonstrate the building's safety performance under the alternative solution process. This requires consideration of project-specific elements (case-by-case review), as well as appropriate professional involvement, to evaluate the safety of innovative designs. This process is well-established and ensures that buildings meet the standards and objectives identified in the code. Variances approved through this process can be used by the Government of Alberta to inform future updates to the prescriptive portions of the codes and may be considered for Standata bulletins (STANDATA is a province wide variance, interpretation or information bulletin related to safety codes and standards, issued by the Public Safety Division of Municipal Affairs) through the interim. This ensures that rapid innovation in building design is both permitted and appropriately regulated to ensure safety outcomes are not reduced.

Supporting Point Access Blocks In Edmonton

Innovations in building design are an important part of ensuring efficient paths to improvements in increasing choice for consumers, environmental sustainability, affordability, economic stability and simply creating places where people want to live or work.

Today, alternative solutions for point access block building types can be proposed and approved but it is rare that Administration receives a proposal. To help multifamily developers understand potential alternative solutions it was determined that a guideline could be established to help navigate how to propose a variance that can meet the performance standard of the Safety Code, the safety needs of tenants and the operational challenges of fire emergency responders.

In response to Council's motion, Administration contacted the lead organization of a shortlisted Canada Mortgage and Housing Corporation (CMHC) Housing Supply Challenge to determine the potential of a mutually beneficial submission for funding from CMHC. The lead organization, LGA Architects of Toronto, ON, and the City developed a Memorandum of Understanding (MOU) to contribute on a multi-jurisdictional submission to CMHC for funding. The City of Edmonton's contribution within the submission will be the creation and publication of guidelines for the

⁷ National Fire Protection Association, Single Stair, Many Questions, <https://www.nfpa.org/News-Blogs-and-Articles/NFPA-Journal/2024/08/06/The-Single-Exit-Stairwell-Debate>

⁸ [National Building Code, Alberta Edition 2023](#), Division A, Article 1.2.1.1.

MULTI-UNIT RESIDENTIAL BUILDING DESIGN

development of an alternative solution for single egress stair staircase buildings. In February 2024, Administration was informed that CMHC chose to fund the LGA Architects led submission⁹. The City of Edmonton will receive \$200,000 through the CMHC grant administered by LGA Architects to develop the guidelines. Under the contractual obligations of the grant, the City must complete and publish the design guidelines by December 31, 2024.

Administration has procured Dub Architects, who have assembled a team of designers and code specialists that have been working collaboratively with Administration and specialists across the country on the creation of the guidelines. Upon completion, the City of Edmonton will be one of the first municipalities in Canada to develop municipality-led design guidelines for their expectations on alternative solutions for point access blocks. Upon publication of the design guidelines, Administration will update Council through a memo.

Budget/Financial Implications

The upset maximum of \$200,000 for the development of the guideline will be funded with the CMHC Housing Supply Challenge grant via LGA Architects who were the successful CMHC Housing Lab lead applicant. Should additional funding be required to complete and promote the final product, existing funds will be utilized for that purpose.

Legal Implications

Section 66 of the *Safety Codes Act*, RSA 2000, c S-1 (the "*Safety Codes Act*") indicates that a bylaw that purports to regulate a matter that is regulated by the *Safety Codes Act* is inoperative. The City will have to ensure that any purported steps in developing an alternative solution for multi-unit residential building designs, comply with the *Safety Codes Act* and its corresponding regulations, including the *Building Code Regulation*, Alta Reg 5/2024.

Community Insight

Administration and Dub Architects undertook a limited engagement session with organizations who have expressed interest in developing point access blocks in the private and non-profit housing sector. This session tested Administration's assumption that an alternative solutions guideline would provide greater confidence to the development industry in proposing point access blocks designs for permits.

The feedback informed the path forward in the development of guidelines and provided new exploratory opportunities to address within the guidelines. Administration intends to do further industry engagement in conjunction with the design and development industry before finalizing the end product.

GBA+

Point access blocks increase additional housing choice. Offering a range of housing options allows individuals to find living arrangements that best suit their specific housing needs, including

⁹ Single stair alternative solutions: A construction innovation for "missing middle" housing: <https://www.cmhc-schl.gc.ca/professionals/project-funding-and-mortgage-financing/funding-programs/all-funding-programs/housing-supply-challenge/round-4-housing-supply-challenge/round-4-funding-recipients#2>

MULTI-UNIT RESIDENTIAL BUILDING DESIGN

whether it be close to work, cultural/spiritual centres or spaces that accommodate intergenerational connection.

Environment and Climate Review

The development of new housing can cause an increase to community greenhouse gas emissions and can impact the City's ability to achieve its energy transition targets. Incorporating approaches to reduce emissions associated with construction and when the dwelling is in use, can reduce these impacts. A residential building can incorporate sustainable construction practices such as sourcing building materials with low carbon emissions to help reduce emissions associated with new construction.

Point access blocks with a single stairwell can be more energy-efficient as there are less common areas to service reducing emissions from heating, cooling, and lighting.

With a single staircase the floor area ratio of sellable space can make a multi-unit residential building more feasible on a constrained infill site. This may in turn allow greater density to occur on these infill sites or elsewhere than what is deemed feasible in a traditional two staircase building. Point access block development in these constrained sites can assist in creating greater density in established and developing neighborhoods. This in turn can reduce the need for the development of new neighborhoods. Filling in established neighborhoods can limit emissions from automobile travel to services or employment and can delay or eliminate the usage of natural spaces or agricultural land for residential development.