

BUILDER INSIGHT



Design Guidelines for Condominium Balconies

Overview

Canadian cities are continuing to densify, and multi-unit residential buildings (MURB) are now the fastest growing urban housing type. Most new apartment buildings feature balconies and their effective design must consider the impacts on unit daylighting, accessibility, practicality and balcony size, and overall building performance.

When designed and constructed appropriately, a balcony can provide an amenity for residents without increasing energy use and costs to building owners and occupants. This report summarizes results of a study that evaluated different balcony designs to understand the impacts of daylighting and energy use. When planning or selecting between different apartment layouts and balcony designs, this information can be useful to building owners and occupants. Information in this bulletin is based on the results of a study that compared balcony types commonly built in urban Canadian areas, in a range of Canadian climate zones.



Figure 2. **Open air balcony.**

This image shows a large balcony with a chair and table and views over the city.



Figure 1. **Urban apartment balcony.**

This image shows a balcony with a chair and table next to a living room. A glazed partition separates this balcony from the neighbour, rug, and plants.

BUILDER INSIGHT is a series of bulletins and companion videos designed to provide practical information about new and emerging technologies, best practices and current issues in residential construction to Licensed Residential Builders and others in the industry. Produced by BC Housing, this bulletin was prepared based on research conducted by researchers at Toronto Metropolitan University and University of Toronto.

Typical Balcony Designs in Canadian Cities

Most new MURB have balconies, but there are significant differences in how they are used, their impact on the building energy use, their costs, and their comfort levels for residents. This chart summarizes challenges and opportunities for four typical balcony types currently being constructed in Canadian cities. In the study, these were categorized and examined in terms of their size and geometry, level of enclosure, and their position on the façade. While many general conclusions can be drawn from the results of the study, the findings may not necessarily apply to all MURB and all balconies. Each building has unique features and location, and therefore the balcony uses and building performance characteristics are also unique.

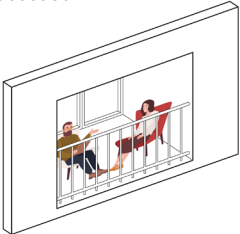
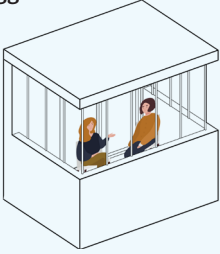
Balcony Type	Advantage	Disadvantage	Suitable Applications
Projecting 	• easy and affordable to construct • normally can fit chairs and a table • can provide a view	• low visual privacy • limits daylight entering the living room both due to the extended space • exposed to weather	• consider staggering these on the facade to avoid shading • may not suitable for units at the top of the building
Recessed 	• high level of visual privacy and safety • protection from weather conditions • can be larger and provide an area for decoration or personalization • extends the living space	• limits daylight entering the living room behind due to the extended living space • more enclosed space can attract birds and other nesting animals	• can be used year-round • for units near the top of the building, this may be more comfortable than projecting
Loggia 	• becomes an indoor room • has enough space for comfortable seating and an area for decoration • accommodates a variety of activities • extends comfortable use to spring and fall seasons	• more expensive to build due to increased enclosure	• units at the top of the building
Juliette 	• provides a view and ventilation • does not cast shadows on adjacent units	• no space for activities or seating	• smaller units where a balcony is not possible

Figure 3. Typical balcony types in Canadian apartments.

This chart shows four common balcony types and some associated advantages and disadvantages and suitable applications for each.

Impacts of Balcony Designs on Unit Daylighting

Projecting and recessed balconies each have tradeoffs with resident experience and daylighting. All projecting balconies that extend beyond the building facade will impact unit daylight to some extent, and shade the unit below. The significance of the impacts vary greatly depending on the balcony and unit design. Recessed balconies provide an indoor-outdoor space that can be used in different seasons and do not shade the unit below. Most new MURB units are small, side-lit dwellings with light from one side and daylight is a consideration for resident wellbeing.

Level of Enclosure

The degree to which a balcony is covered, enclosed, and exposed to weather creates different experiences for residents. This design decision also impacts how much daylight penetrates into the unit. On upper levels of a building, wind and height may make exposed, projecting balconies impractical. On lower levels of a building, and when considering rainy weather, security concerns, or noise, inset and partly enclosed balconies are a good choice.

Depth of Balcony

The depth of the balcony impacts how it can be used by residents. The minimum depth for a useable balcony is one that will fit a small table and two chairs, and this would be about 1.8m (6 feet). Recommendations for the depth of the balcony in family units are 2.4m as a minimum. Larger units can use the balcony for dining and socializing and this would require 3.6m in depth. A rectangular shape of the balcony is preferred, and the minimum length should be at least 2.5m to accommodate a door and space to move.

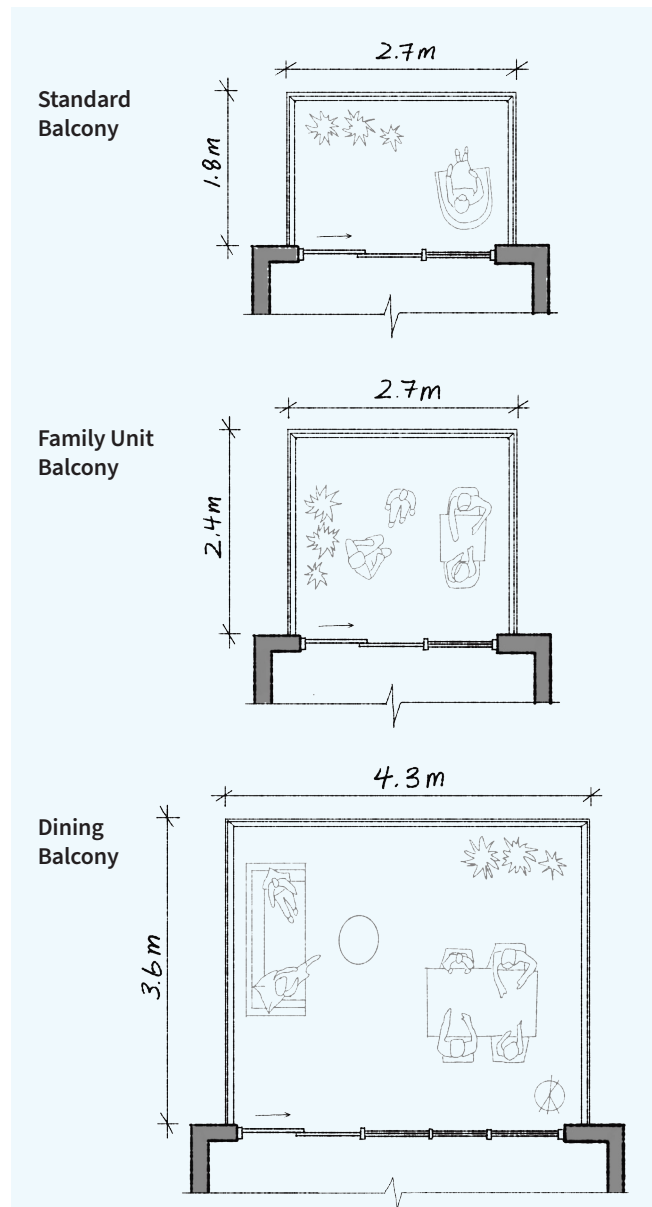


Figure 4 (left). **Enclosed balcony.**

This balcony is enclosed in glass, providing all season use.

Figure 5 (right). **Open air balcony.**

This balcony is not covered or enclosed, so it is best used in good weather.



Figures 6-8 (right side). **Balcony sizes and uses.**

Three recommended sizes of balconies are presented: a standard balcony, a family unit balcony, and a dining balcony.

Balcony Design to Reduce Reliance on Electric Lighting

The most significant design parameters relating to daylight in a unit are the orientation of the unit, and the unit layout and geometry. A south facing unit will have the most daylight penetration, and a narrow and deep ‘shoebox’ geometry for a floorplan will always lack natural light. All projecting balconies limit daylight into a unit, but small differences in balustrade materials and depth of balconies have only minor impacts compared with orientation and geometry. To minimize the negative impact on unit daylighting, study results indicate that balconies should be offset from one another on the facade rather than stacked, and feature glazed balustrades rather than solid ones.

Balcony Design	Impacts on Unit Daylighting	Amenity for Residents	Recommendations
Projecting, 1m depth balcony	Minor – balcony shades the unit below	Too small for most uses, doors can be used to bring in fresh air	With a glazed balustrade, the impact is less significant
Projecting, 1.8m depth balcony	Significant – balcony shades the unit below	Can be used to sit outside, suitable for a small unit	When balconies are stacked on the façade, impact is significant, when staggered, impact is significantly lessened
Projecting, 2.4m depth balcony	Significant – balcony shades the unit below	Can be used by two or three residents at once	When balconies are staggered, and the balustrade is glazed, the negative impact is significantly lessened
Recessed	Does not shade the unit below	Can be used to make an indoor-outdoor space	Depending on the level of enclosure, and when the balustrade is glazed, there is minimal negative impact

Figure 9. **Balcony design recommendations.**

This chart summarizes results of balcony designs in relation to impacts on unit daylighting, the ways that the balcony can be a resident amenity, and overall recommendations for designers.

Position on Facade and Shading Below

The location of the balcony on the building facade is a design factor that has an impact on building performance. Simulation results showed that when projecting balconies are stacked vertically on a façade, the balconies are shaded and daylight is reduced. This means increased resource use and cost for electrical lighting. Offsetting, or staggering the positioning of balconies on the façade makes a significant difference to unit daylight availability.



Figure 10 (left). **Staggered balcony.**

Exterior photograph of a building with balconies arranged so that they do not have balconies above each other.

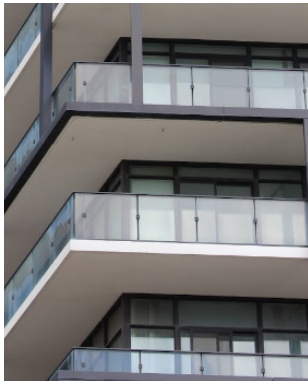


Figure 11 (right). **Stacked balcony.**

Exterior photograph of a building with balconies stacked one above the other.

Projecting Open Balcony

Important Note: Ensure proper moisture management measures have been addressed in the balcony design. Attention to waterproof membranes, flashings, adequate slope for drainage and effective drip edges is advised.

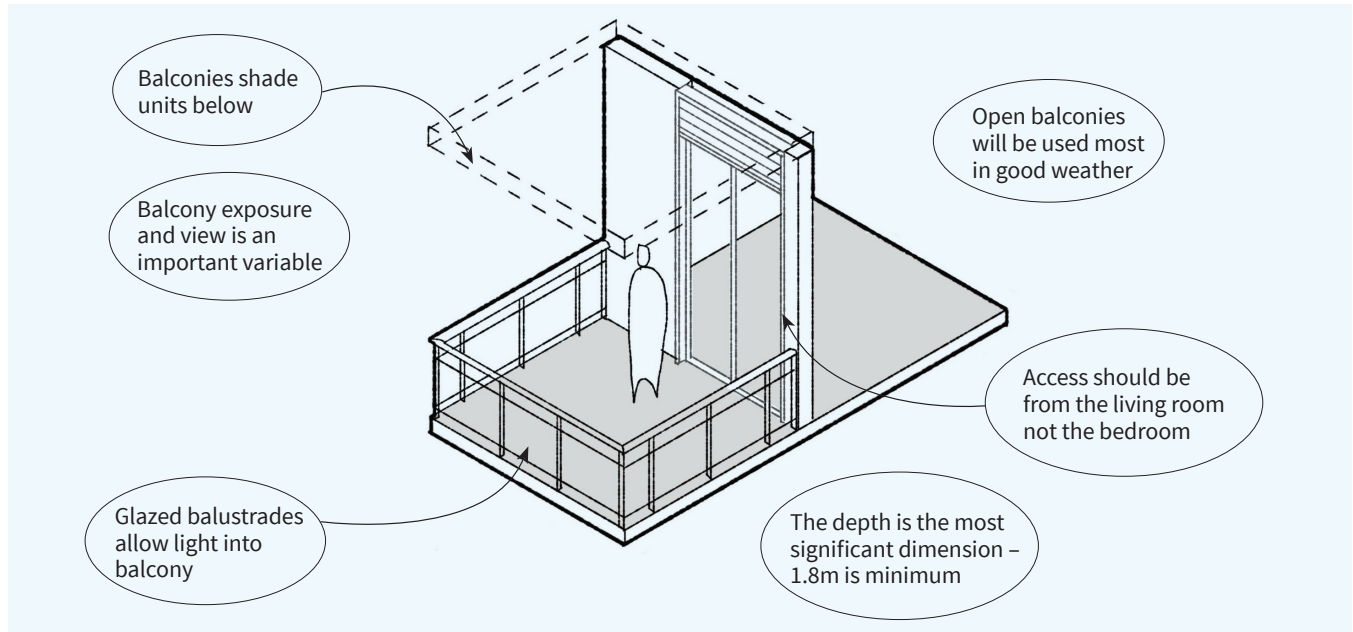


Figure 12. Projecting open balcony.

Drawing of a balcony and relationship to the interior living space with design recommendations.

Enclosed Recessed Balcony

Important Note: Ensure proper moisture management measures have been addressed in the balcony design. Attention to waterproof membranes, flashings, adequate slope for drainage and effective drip edges is advised.

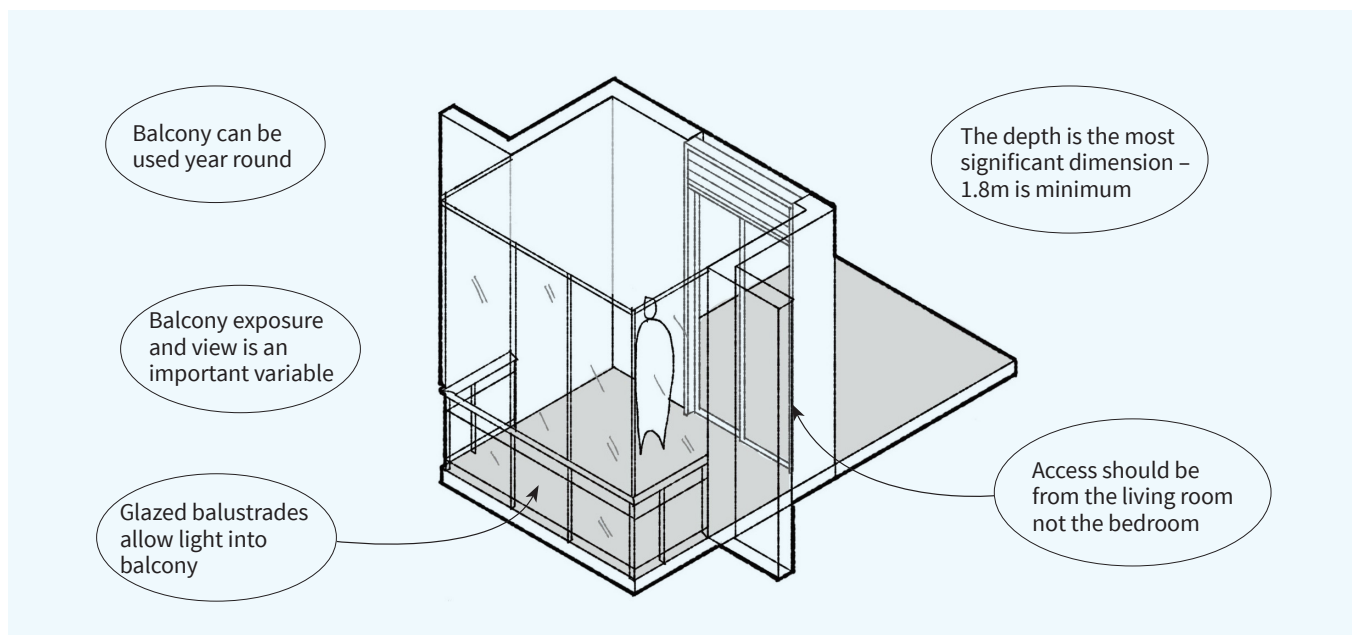


Figure 13. Enclosed recessed balcony.

Drawing of a balcony and relationship to the interior living space with design recommendations.

Recommendations for Balcony Design for the MURB Construction Industry

1. Balcony Locations on Façades

All protruding balconies shade the balcony and the unit below to some degree, so on the façades protruding balconies should be staggered not stacked.

2. Inset Balconies

In rainy climates, and on upper levels of a tall building, all-weather inset balconies are preferable because they provide safe, private, semi-enclosed outdoor space without shading the unit below.

3. Narrow Single Aspect vs Larger Corner units

There are tradeoffs between balcony depth and unit daylighting. Narrow balconies do not provide a useable space for residents and balconies with less than a 1.8m depth therefore should be avoided. In small units, a balcony should be able to have a table and chairs in order to be usable. Larger, corner units with light and air from both sides would benefit from larger balconies.

4. Partitions and Balustrades

Glazed rather than solid partitions and balustrades are preferable as they allow daylight into the balcony space, making it more comfortable. There may be a tradeoff with privacy, so the design of partitions and balustrades should consider fritting or frosting, and how the glazing may be screened or adapted by residents.

5. Specific Context

In MURB, there are numerous important parameters aside from daylight that must be considered when designing balconies, including issues of the relative size of the unit to the balcony space, views, and privacy that were not explored in this study.

More Information

- ❑ MURB Design Guide: Enhancing the Liveability and Resilience of Multi-Unit Residential Buildings
research-library.bchousing.org/Home/ResearchItemDetails/2041
- ❑ Builder Insight 12 – Energy Use in Mid to High-Rise Multi-Unit Residential Buildings
<https://research-library.bchousing.org/Home/ResearchItemDetails/704>
- ❑ Energy Consumption and Conservation Mid- and High- Rise Residential Buildings in British Columbia
<https://research-library.bchousing.org/Home/ResearchItemDetails/1507>

Disclaimer

The greatest care has been taken to confirm the accuracy of this information. The authors, funder and publisher assume no liability for any damage, injury or expense that may be incurred or suffered as a result of the use of this publication including products, building techniques or practices. The views expressed do not necessarily represent those of any individual contributor or BC Housing. It is always advisable to seek specific information on the use of products in any application or detail from manufacturers or suppliers of the products and consultants with appropriate qualifications and experience. It is acknowledged that many product options exist. Materials and products depicted in figures are shown as examples and do not represent an endorsement of any specific brands or products.

About BC Housing's Research Centre

BC Housing's Research Centre collaborates with industry, non-profit, and public sector partners to foster excellence, innovation, and affordability in British Columbia's housing sector. We share leading-edge research, advance science and technologies to encourage best practices, and provide data analysis to understand and find solutions to housing issues across the province. The Research Centre identifies and bridges research gaps in the following topic areas: populations & communities, built environment & design, sustainable & resilient housing, housing assistance & policy, housing & wellbeing. Mobilizing knowledge and research expertise accelerates innovation and facilitates the adoption of new housing models, building methods, and standards. Housing studies and program evaluations drive policy changes and support access to affordable housing in British Columbia. Sign up to receive the latest news and updates from BC Housing's Research Centre at www.bchousing.org/subscribe.