

Infill

New Construction in Heritage Neighbourhoods

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Introduction

Infill housing is new construction on an available site within a historic or mature neighbourhood. Mature neighbourhoods often have a distinct architectural character. This is the result of geographic and climatic conditions, local building techniques and materials, and the style of the period during which the area was built. A sensitive infill project will be sympathetic to the existing architecture of the neighbourhood, while providing new residential developments that take advantage of the existing infrastructure. Ideally, an infill project will use existing open space and will not require the demolition of a building. The design of the new construction should be compatible with the existing streetscape to conserve the neighbourhood's heritage character by adopting appropriate building styles, profiles, massing and materials.

Infill projects that may impact formally designated structures or neighbourhoods under the [Ontario Heritage Act](#) will require consultation with and approval from a [Municipal Heritage Contact](#).

Small-scale Historic Infill

When new buildings are integrated into an existing historic property or historic neighbourhood, the following approaches are encouraged in order of preference:

1. Preservation/conservation: maintain historic buildings with little alteration
2. Adaptive reuse: reuse historic buildings by implementing restoration and/or rehabilitation efforts
3. Incorporation: adaptive reuse that generally requires significant alterations or additions

This guide will primarily address small-scale infill projects into historic surroundings, such as:

- Secondary suites (converted basement or addition)
- Garage suites
- Garden suites (laneway housing)
- Small lots (single-detached houses)
- Semi-detached houses (side-by-side duplexes)
- Duplexes (up-and-down duplexes)
- Fourplexes
- Row housing (up to five units)

For guidance on additions to heritage structures, please refer to the Region of Waterloo's [Practical Guide: Additions](#).

Elements of Successful Infill Design

It is important to note that new construction does not need to imitate or replicate the original in order to be compatible with its surrounding heritage streetscape. An infill project should be identifiable as a product of its own time to avoid giving a false sense of the past. A contemporary building can coexist with its heritage neighbours, if the design is respectful and innovative. Every project is unique, and should be assessed accordingly.

As identified by the District of Columbia's Historic Preservation Guidelines for "New construction in historic districts," successful infill design will consider the following:

- Setback
- Orientation
- Scale
- Proportion
- Rhythm
- Massing
- Height
- Materials
- Colour

- Roof shape
- Detail and ornamentation
- Landscape features
- Secondary buildings
- Parking

Setback

An infill project should respect a building's setback from the street and the existing setback of surrounding buildings. The streetscape should not be dominated by new construction. Respecting the alignment of rear facades is not as necessary as they can rarely be viewed from a public street. Setbacks will be identified in your city or township's zoning bylaw.

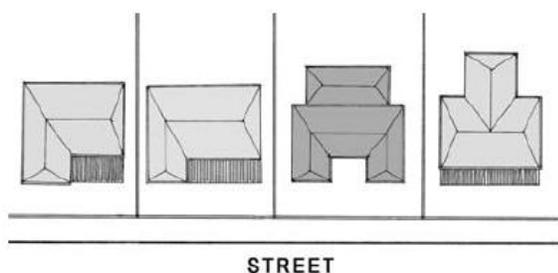


Image: Good example of infill maintaining existing setbacks (Helen Lardner Conservation & Design Pty Ltd, 2006, p.3)

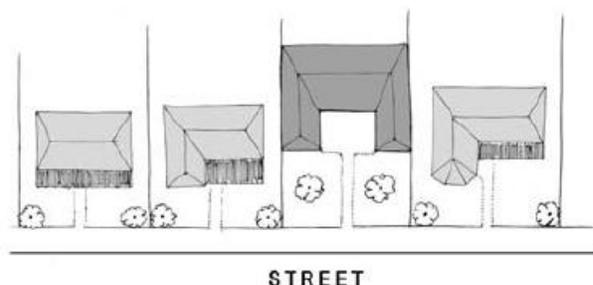


Image: Less desirable example of infill that does not match existing front and side yard setbacks (Helen Lardner Conservation & Design Pty Ltd, 2006, p.3)

Orientation

The orientation of a building is the direction that it faces. Most historic buildings squarely front the street, with their façade and main entrance in full view. In some cases, historic buildings are oriented to a side yard. A new building should respect the primary orientation of its neighbours. The porch is often an important feature of the home as seen from the street. When possible, avoid hiding the entrance behind an oversized garage, and create an inviting design to encourage public use of the street.

Scale

Scale is the relative size of a building in relation to neighbouring structures or a common object, such as cars. It is also the relative size of building

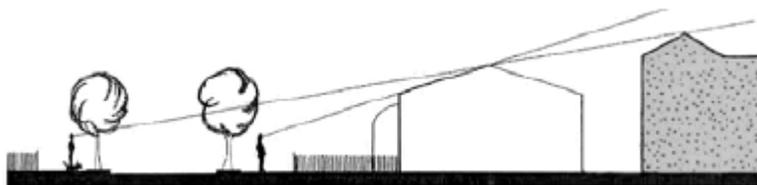


Image: Site lines used to determine visibility of taller infill at the back of a lot as seen from the street (Helen Lardner Conservation & Design Pty Ltd, 2006, p.4)

elements to one another and the overall building, such as windows, doors, cornices and other features. Most residential buildings are designed to the human scale, rather than a monumental scale, as is the case with many churches or government buildings. The building scale of a new structure should be kept consistent with the general scale of its neighbours. If you had hoped to build a taller structure, opt to place the highest portions of the building away from the street, so they are less noticeable to pedestrians and do not cast unnecessary shadows.

Proportion

Proportion is the relationship of the dimensions of building elements, like windows and doors, to each other and to the elevations. Proportions are often expressed in mathematical ratios. For example, many heritage buildings designed in the 1800s and early 1900s used mathematical proportions to determine the size and position of building elements. The design of a new building should respect, but not necessarily duplicate, the existing proportions of neighbouring buildings.

Rhythm

The spacing of repetitive façade elements, like projecting bays, windows, doors and brackets, gives an elevation its rhythm. The space between houses, the height of roofs, cornices, towers and other roof projections establishes the rhythm of a street. A new building should respect the rhythm of its neighbours and the streetscape.

Massing

Massing is the general shape and size of a building. A building's massing significantly contributes to the character of a street, especially in areas with row houses and adjoining commercial buildings. As a result, new construction should



Image: Unsuccessful example of infill due to significantly smaller massing and height compared to adjacent heritage buildings (Helen Lardner Conservation & Design Pty Ltd, 2006, p.4)

respect the massing of existing neighbouring buildings. The apparent mass of a structure may be altered through the appearance of dormers, towers and other roof projections, as well as façade projections such as bays, porches and steps.

Height

The height of walls, cornices, roofs, bays, chimneys and towers all contribute to the character of a building and neighbourhood. New buildings should be designed to respect existing building heights, although they do not necessarily need to be exactly the same height. Generally, if a new building is more than half-to-one storey higher or lower than existing buildings that are all the same height, it will appear out of place. However, a new building added to a street with structures of varied heights may be more than one storey higher or lower than its neighbours and still be compatible. Upper storey setbacks can be helpful in reducing the apparent height of a new building.



Image: Undesirable example of infill housing. The new construction is substantially larger than adjacent heritage buildings (Helen Lardner Conservation & Design Pty Ltd, 2006, p.5)

Materials

Materials typical of a historic neighbourhood, such as brick, stone or wood should be used in the design of new construction. If a number of materials are used in an area, there will be more leeway to integrate a wider variety of materials. The size, texture, surface finish and other defining characteristics of exterior materials are as important as the type of material itself. For example, a new building constructed of glazed brick in a street of heritage buildings clad in buff brick would not be compatible.

Colour

The construction materials used on a building often determine its colour scheme. For example, brick, stone, terra cotta, slate, wood, stucco, asphalt shingle, copper, lead and other materials that are usually left unpainted give colour to a building. The colour scheme of a new building should complement the surrounding buildings. As a general rule, no more than three different colours should be used on a new building.

Roof Shape

The roof shape of a new building should respect those of its neighbours. For example, on a street composed of homes



Image: Poor example of infill due to inappropriate roof type and placement of window and door openings (Helen Lardner Conservation & Design Pty Ltd, 2006, p.5)

with front gable roofs, it is advised that a new building have a similarly designed roof. Introducing a different roof style, such as a flat roof, would alter the established character of the street. For more information on roofs, please see the Region of Waterloo's [Practical Guide: Roofs](#).

Detail and Ornamentation

Some heritage buildings in the Region of Waterloo contain elaborate detail and ornamentation while others have relatively simple designs. A new building should take into account the amount, location and elaborateness of architectural ornamentation on neighbouring buildings. Existing details and ornamentation can be used as the basis for those on a new building but they should not be copied exactly. A contemporary interpretation of historic details and ornamentation should be used to differentiate between a heritage building and sympathetic new construction.

Landscape Features

Plants, trees, fences, retaining walls, sidewalks, driveways and other landscape features are important character defining elements in historic neighbourhoods (see [Practical Guide: Landscaping](#) for more information). If possible, mature trees and shrubs and existing landscaping should be retained when a new structure is built on a lot. If this is not possible, landscaping that complements the new building and the neighbouring structures and landscaping should be designed. New construction may alter site drainage patterns and affect trees both on and near the site. Protection of major trees with extensive root systems may require the oversight of a specialist during construction. Significant existing landscape features, such as retaining walls and iron fences, should also be retained. Again, if this is not possible, new compatible features should be constructed along with the new building.

Secondary Buildings

Secondary buildings, such as garages and sheds, are important character defining elements in some historic neighbourhoods. They add scale and visual interest to primary buildings. New structures designed for inclusion in neighbour-



Image: Inappropriate inclusion of garages inconsistent with design of adjacent buildings (Helen Lardner Conservation & Design Pty Ltd, 2006, p.6)

hoods with existing secondary buildings should consider the contributions they make to the character of the site and the street, while respecting their location, size, and materials.

Parking

New infill developments should not worsen the neighbourhood parking situation, especially if there is already a shortage of parking spaces for residents and visitors. Parking spaces should be screened from private and communal outdoor living areas and should be secure and visible from the house.

Neighbourhood Composition

Mature neighbourhoods in the Region of Waterloo have distinct architectural character resulting from local building methods and materials, and the style of the period in which the neighbourhood was built. When this character is consistent, for example in the St. Mary's neighbourhood of Kitchener with its concentration of wartime housing, it is important that new infill development reflect the existing style as closely as possible. However, when the existing character is more varied, as in neighbourhoods that developed over longer time periods or areas with a diverse mix of houses and industrial or commercial buildings, there is less pressure to conform.

Neighbourhood Amenities

Plans for infill construction should try to take advantage of adjacent neighbourhood amenities, such as parks, services and public transit. For example, new construction should ensure that a significant view or access to a neighbourhood park is not spoiled or altered for residents and visitors to the area. The existing site landscape should be used to continue or contribute to the enjoyment of public parks and open spaces. More specifically, angled or bay windows can be incorporated to gain views of significant topographical features, or upper level balconies and roof terraces can be included to provide private outdoor living areas and unobstructed views.

Demolition

The conservation and integration of heritage buildings into new development is encouraged and may be required by the local municipality. An assessment of the potential reuse of build-

ings on an infill site should be undertaken before a decision is made to demolish them. When contemplating removing a historic building to allow for higher densities, moving the building onto a new site should be considered. However, if this is not possible, the careful salvage of significant historic building materials should be undertaken to allow their use in the restoration of other buildings.

Summary

The construction of successful infill housing in historic neighbourhoods is an effective way to ensure that the vibrancy and unique architectural character of a neighbourhood is maintained over time. It allows a neighbourhood to evolve while still respecting the spirit of the era in which it was first constructed. To ensure that an infill project is successful, adherence to the principles outlined in this practical guide should be followed. Consultation with a heritage professional as well as a local Municipal Heritage Committee or Municipal Planning staff will also ensure that the design of a new infill project is respectful of the neighbourhood context in which it will be located.

References

If you would like to learn more about infill in historic neighbourhoods, please refer to the following primary sources:

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Alternate formats of this document are available upon request. Please contact Lindsay Benjamin at LBenjamin@regionofwaterloo.ca, 519-575-4757 ext. 3210, TTY 519-575-4608 to request an alternate format

Disclaimer

This practical guide contains useful information on restoring and preserving heritage buildings, but it is intended as a general resource only. Content from third parties with specific expertise has been heavily relied upon and their original works have been acknowledged in the list of references included at the end of this document. The Region of Waterloo has taken all reasonable steps to ensure the accuracy of the information in this publication. However, it is recommended that building owners consult with trained specialists, such as contractors, builders, plumbers, heating and air professionals and electricians, before undertaking any renovations, repairs or construction on their properties. The Region does not assume responsibility for any loss or damage resulting from adherence to the information in this practical guide.