

The Evolution of Infill Housing from Dense Urban Cores to Close-Lying Suburbs

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Infill housing has existed as long as we have lived in cities, slowly integrating itself into the urban fabric; filling in gaps left by the demolition or destruction of a building or being squeezed into lots previously considered unsuitable for building. In present times, the continuing growth of cities and rise in property values has caused the densification of suburbs lying close to urban cores, and with the insertion of new compact housing, there comes the opportunity to correct small-scale problems in existing neighbourhoods. Carefully designed houses can breathe life and encourage a more social pedestrian lifestyle in the suburbs, but as the popularity of infill houses increases, so does opposition from neighbourhood residents, and cities are realizing that integrating them into the existing fabric is a challenge with solutions more complex than simply compressing a standard house plan onto a narrow building lot. As a result there has arisen a need to study the past development of infill housing in urban cores in order to inform the new typology of suburban infill.

When the Aurelian walls were built to contain Rome in 271-280 AD, the city housed an incredibly dense population, reaching over 1000 persons per hectare. Today this number would only be exceeded by the densest parts of Hong Kong, Tokyo and Moscow.¹ Land was scarce and expensive creating a need for architects to devise ingenious and creative solutions to building in very tight conditions. These ideas have been built upon throughout the centuries injecting contemporary ideas into historical fabrics. "Greeting rather than confronting the fabric, these buildings re-establish the physical continuity of the city as they tie new construction to the city's past. This establishes a visual dialogue that vividly comments on the relationship of old and new buildings, while it preserves the city as the physical emblem of human memory."²

After much experimentation with large-scale redevelopment projects, most cities are returning to small-scale infill projects to correct their housing shortages. New York City has implemented many solutions for their housing projects in Harlem over the past century. The area was originally developed, like most of Manhattan, as row houses in a long and narrow gridiron pattern. These homes

began to be considered unhealthy due to their lack of natural light and proper sanitation. Many attempts were made to correct these problems, including developing entire city blocks into units entered off a central courtyard, as with the example of the Dunbar Apartments built in 1928, or a modernist attempt to convert many city blocks into a large green space scattered with towers, such as the East River Houses built in 1941. However, these housing projects quickly engendered a sense of isolation among residents and critics such as Jane Jacobs and Oscar Newman argued that inspiration must be found in the existing urban fabric with an understanding that the street is the primary space of community interaction. Since then most projects have been carried out to a much smaller scale and has included the renovation and refurbishment of the historic row houses, and filling in the gaps left behind by those that have decayed.³

Similar cycles have occurred in many cities throughout the world. Amsterdam, for example, also saw the failure of a large-scale modernist development in the Bijlmer district southeast of the city centre. Currently the city's housing developments, though still quite large, are built with proportions much more closely modeled on the existing urban fabric. Their most recent success was the housing built on the islands of Borneo and Sporenburg; a short cycle from the centre of the city and connected by tramlines, these projects have brought life back to Amsterdam's formerly deserted docklands. On any given day there can always be children found playing in the streets as families look on from their stoops. The urban plan for this area called for high densities that the Dutch population is familiar with. The series of one hundred one off houses created along Borneo were



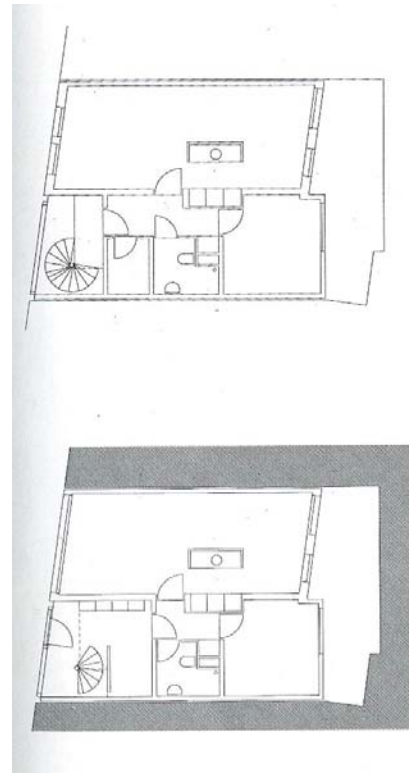
1. Canal view of custom houses along Borneo Island

all long and narrow lots with no setback, butting up directly against the street in the front and the canal in the back. Each design creatively utilized the tight space, allowing room for carports and private exterior spaces.



2. Houses on Borneo Island

The Dutch have also been open to contemporary infill projects within the historic core of Amsterdam. Claus en Kaan Architecten has built a series of small projects across the city including a project in the haarlemmerbuurt. This project



3. image and plan of Claus en Kaan infill house with adjoining historic building (left)



4. Apartment building in Cologne, Germany

fills in an existing lot which measures only 8 x 3.2m, but then extends each of the project's three apartments seamlessly into the neighbouring historical building.⁴ Tiny, narrow infill projects such as these abound in extremely dense cities such as Tokyo, but are also common in cities such as London and Cologne, where architects struggle to build in places previously considered unsuitable.

Without the walls of ancient Rome, many cities today have been growing at an alarming rate. Some cities have begun to implement urban growth boundaries, which force up the value of properties close to the centre and connected to public transit. This has made the issue of infill housing a priority to city planners improving the suburbs. In Toronto many small bungalows are being torn down to make way for tall and narrow homes. Many of which suffer from a lack of design, with prominent garage doors and long staircases leading the way to less prominent front entrances. These homes put up a façade

of wealth to entice buyers with stone cladding and traditional architectural ornaments, but are most often poorly built, with crooked walls and windows that leak.

A house that stands apart from the rest in Toronto is the Craven Road laneway house designed by Bridgette Shim and Howard Sutcliffe. The house was built as part of a row of homes on lots made available by the progressive selling off of the rear gardens belonging to larger houses to the east. The lot measured 7.5 x 27m, but on it the architects



5. Craven Road house in Toronto, Ontario

created a house specific to the clients needs, with a broad range of spatial experiences.⁵ Through careful planning and the use of inexpensive building materials, a larger portion of the budget was left to customize the house with bookshelves for the client's extensive architectural book collection.

The city of Portland, Oregon has acknowledged their quickly growing population and responded by implementing an urban growth boundary to protect outlying open spaces and agricultural land. The city has made a long-term commitment towards growth management and realized that it promises both rewards and challenges. The immediate solution was to add density to existing neighbourhoods through infill housing, and "as a result, the city has seen significant redevelopment and growth in the downtown area and can boast truly walkable neighbourhoods that are well served by an array of transit options."⁶

However, there has been growing neighbourhood opposition because in some cases infill construction has caused the demolition of existing homes, and because many of the new houses are criticized as being out of scale with those in the surrounding neighbourhoods. Nonetheless the city has remained convinced of the benefits of infill housing and has organized a competition to produce intelligent designs for detached single family homes on challenging narrow lots entitled "Living Smart: Big Ideas for Small Lots." The competition is hoping to produce designs that among other values, "create a pleasant pedestrian environment, enhance public safety by providing people with the opportunity to survey their neighbourhood from the inside of residences, provide opportunities for community interaction among residents, visitors and neighbours through creative use of public, semi-private and private areas, and strive to create houses with interior spaces that accommodate modern amenities and a range of lifestyle choices and family configurations."⁷

The category of the competition for which I created a submission was a 15 foot wide house with an attached garage in the front on a lot that measures 25' x 100'; half of a traditional neighbouring lot. The height was restricted to 25 feet. This category is the most realistic for the needs of entry-level homebuyers, and is at a scale that does not conflict with the rest of the neighbourhood. The primary

move in my design was to reverse the common layout of a home that places the public family rooms opening towards the backyard. Instead, the garage is sunken a half storey and the family room sits above it opening towards the street with a large terrace that can be used for dining and lounging outside, and is an ideal place to interact with neighbours and survey the street.



6. Street perspective of design for Living Smart competition

The master bedroom is shifted to the rear of the house and now opens towards a private back garden. By moving the main entrance along the generous side yard provided by setbacks, its own space is articulated to be visible from the street, separate from the garage and to allow access directly into the core of the house. If the houses were built in pairs, or a series, these side entrances and transparent circulation cores would provide semi-public spaces shared by neighbours. The plan of the house is split in section with the stairwell placed in the centre of the house. This not only allows the public terrace to hover a half level above the street, but also creates a diversity of spatial qualities connected



7. Diagoon Experimental Housing in Delft, Netherlands

with diagonal views, as inspired by Herman Hertzberger's Diagoon Experimental Housing in Delft.

By hosting this competition the city of Portland is encouraging the public to be aware of design and to use the challenges set up by their urban growth boundary and existing urban planning to inspire imaginative solutions. By weaving a number of beautiful and intelligently designed homes through the residential fabric of the city, Portland is taking a progressive step in establishing the continuity of their neighbourhoods into the future.

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¹ Chard, Colin and Goodman, David. **European Cities and Technology**. London: Open University, 1999.

² Gutman, Marta. "Housed Together: the Shape of Urban Infill." **Reweaving the Urban Fabric: Approaches to Infill Housing**. New York: The New York State Council on the Arts, 1988.

³ Gutman, Marta.

⁴ Lotus International. No. 92, 1997. "Minimal Acts of Deconstruction of the Fabric; Small Windows on the Future." pg. 50.

⁵ Pople, Nicholas. **Experimental Houses**. New York: Watson-Guption Publications, 2000.

⁶ Living Smart: Big Ideas for Small Lots Competition Brief. Portland: City of Portland Bureau of Development Services, 2004.

⁷ Living Smart: Big Ideas for Small Lots Competition Brief.

Bibliography

Architecture and Urbanism. No. 380, May 2002. "Possibilities of Collective Living." pg. 19-84.

Chard, Colin and David Goodman. **European Cities and Technology.** London: Open University, 1999.

Hertzberger, Herman. **Articulations.** Munich: Prestel, 2002.

"Living Smart: Big Ideas for Small Lots" competition brief. Portland: City of Portland Bureau of Development Services, 2004.

Lotus International. No. 92, 1997. "Minimal acts of Deconstruction of the Fabric; Small Windows on the Future." pg. 27-91

Norden, Deborah. **Reweaving the Urban Fabric: Approaches to Infill Housing.** New York: New York State Council on the Arts, 1988.

Pople, Nicolas. **Experimental Houses.** New York: Watson-Guption Publications, 2000.

The Architects' Journal. Volume 217, No. 25, 26 June 2003. "Quarts in Pint Pots." Barrie Evans. pg. 26-51