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Publication Date

2006-08-01

Peer reviewed

Reprint 2005-02

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The Impacts of Emerging Building Types in Vancouver's
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This article originally appeared in:

Journal of Urban Design
Volume 10, No. 1, pp. 13–38
February 2005

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Street-facing Dwelling Units and Livability: The Impacts of Emerging Building Types in Vancouver's New High-density Residential Neighbourhoods

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ABSTRACT *The city of Vancouver, British Columbia, is building new high-density residential neighbourhoods around its downtown. Working within the context of large-scale corporate development projects, public sector planners are proactively shaping development to be dense but also conform to notions of livability that derive from traditional urbanism, such as 'eyes on the street' and pedestrian scale. Design guidelines have resulted in new building types that integrate ground-floor townhouses into very large buildings. This study analysed how the new embedded townhouse forms are contributing to life on the street and neighbourhood livability, using environmental measurements, behaviour observations and surveys. The findings conclude that the embedded townhouses do contribute to livability, although other aspects of the building types and neighbourhoods may pose concerns.*

Introduction

The city of Vancouver, British Columbia, is actively engaged in building new high-density residential neighbourhoods in and around its downtown as part of what local planners call a 'living first' strategy for downtown growth (Beasley, 2000). Since the late 1980s, more than 22 000 dwelling units have been built in these new neighbourhoods, and over 17 000 more are being planned (City of Vancouver, 2002). Densities being achieved range from 50 to 110 dwelling units per acre (City of Vancouver, 2003). At the same time that planners are achieving high density, they are also trying to achieve environmental qualities such as 'neighbourhood identity', 'livability', 'eyes on the street' and 'an animated and interactive street edge definition' (City of Vancouver, 1991). The mechanisms used to achieve these goals are development framework plans and design guidelines. The plans and guidelines stipulate such things as protected view corridors, tower height and tower placement, and they mandate what happens at the ground level interface between private development and the public realm, requiring certain physical elements and specifying certain relationships that urban design theory focused on traditional urbanism says can contribute to achieving the desired environmental

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qualities. Basically, the guidelines that focus on the public–private interface are directed at attaining continuous, pedestrian-scaled street walls, many entrances on the street and transitional public to private zones that are individually cared for, with the last two goals accomplished by requiring individual street-facing entries and front terraces for all ground-floor dwelling units. To be sure, much more is being done to create whole neighbourhoods, including zoning for retail high streets, and requiring developers to contribute toward parks—including extensions of Vancouver’s perimeter seawall walking and bicycling path that lines much of the downtown—community centres and affordable housing, and plant street trees and provide for public art, but the concern of this study is the ground-level public–private interface of residential buildings (Figure 1).

Two things are particularly interesting about what Vancouver is doing. First, the public sector is proactively leading and shaping development rather than merely reacting to market-led proposals. Public planners have articulated a vision for livable density, which stresses creating lively, safe and attractive streets, and providing public amenities such as parks, community centres and schools, and have put in place a highly discretionary regulatory framework and an innovative cooperative planning process that engages politicians, the public and developers in incremental design decision making directed toward achieving that vision (Punter, 2003). Secondly, Vancouver’s new neighbourhoods are being constructed within the context of standard corporate development practice, which means large property developers building large projects on large sites, and this has led to the development of new building types that are fundamentally different from the building types upon which the urban design theory being referenced is based (Figure 2).

The concept of ‘eyes on the street’, of course, originated with Jane Jacobs’s book *The Death and Life of Great American Cities* (Jacobs, 1961). Based on observations she made in her Greenwich Village neighbourhood, Jacobs (1961) theorized the physical and social qualities necessary to make city streets both safe and lively. These qualities included a clear demarcation between public space and private space, ‘eyes on the street’ belonging to natural proprietors, street and sidewalks in constant use, streets connecting places people want to go and streets with attractions on them that encourage people to linger. Jacobs’s neighbourhood, which had all these qualities, was composed of traditional building types: low-scale apartment buildings, and one- and two-family row houses.

Likewise, Jan Gehl, who developed the concept of ‘life between buildings’ and theorized the physical conditions that contributed to it, found that modern multi-storey elevator buildings contributed less to street activity than traditional



Figure 1. Many entrances along a mid-block mews.



Figure 2. Vancouver’s downtown skyline.

row houses (Gehl, 1996). Similarly, Allan Jacobs, who theorized the necessary and contributing qualities of 'great streets', and found that both human-scale street definition and ground-floor transparency were necessary qualities, grounded his theory primarily in observations of older, finely grained European and US streets (Jacobs, 1993).

These theorists and others who are analysing and revaluing the physical forms of traditional urbanism are critical of functionalist, auto-oriented building types, including most particularly multi-storey buildings that are removed from the street, have blank walls or parking garages at grade and have few entries on the street. Since the 1950s onward, many such buildings have been built in North American cities. Many zoning ordinances actually mandate such building types (or once did), in the name of light and air and meeting desired parking ratios, and they remain the norm for high-density residential buildings, both high-rise towers and lower buildings. Rather than accept such buildings and their assumed negative impacts on the public realm, Vancouver's planners are shaping new building types that will provide what are felt to be the positive qualities of older smaller-scale finer-grained street-oriented building types, while working within the contexts of modern large-scale single-developer projects and the need for high densities. The new building types emerging are point towers over low- or mid-rise podium bases containing townhouses, and low- to mid-rise apartment blocks with integrated ground-floor townhouses.

The Research

This paper presents the findings of research directed at discovering if and how these new direct entry townhouse forms, embedded as they are within very large buildings, are contributing to life on the street and perceptions of neighbourhood character and livability.

The research sought answers to the following six questions.

- (1) What aspects of building and site design related to the ground-floor public-private interface do Vancouver's guidelines control?
- (2) Where and how are the guidelines being applied?
- (3) What are the physical characteristics of the new building types that are emerging from the design guidelines?
- (4) Do the direct entry units contribute to life on the street, and, if so, how?
- (5) How do people who live in or otherwise use Vancouver's new neighbourhoods perceive the contribution of the ground-floor direct entry units to neighbourhood character and livability?
- (6) What design elements contribute to establishing a good transitional public-private zone at the ground-floor dwelling units?

The research was divided into three phases. The first phase involved analysing the various planning documents that control development in Vancouver's new neighbourhoods, to determine what design control approaches have been used. This was followed by field observations of different neighbourhoods to see what types of buildings have been built in response to the guidelines. The second phase involved conducting a series of environmental measurements and behaviour observations along selected blocks in several of the new neighbourhoods. The third phase involved surveying people who live in ground-floor direct entry units within Vancouver's new neighbourhoods, and also others who make use of the neighbourhoods.

What follows is a discussion of the research findings. The first section describes the various contexts in which Vancouver's new neighbourhoods are situated, followed by an analysis of the different design control approaches used for the different contexts, and a discussion of the building types emerging in different areas. The second section presents findings regarding the contribution of the ground-floor direct entry units to life on the street and perceptions of neighbourhood character and livability, which derive from the environmental measurements, behaviour observations and surveys. The third section discusses design aspects of the ground-floor direct entry dwelling units, and draws conclusions about which qualities contribute most to encouraging life on the street and well-used transitional public-private zones at unit entries. The paper concludes with some concerns about Vancouver's new residential neighbourhoods followed by observations on achievements.

Contexts, Planning Approaches, Guidelines and Emerging Building Types

Contexts

Analysis of Vancouver's planning documents, combined with field observations, indicates that new high-density residential neighbourhoods with ground-floor direct entry dwelling units are being developed in three fundamentally different contexts. (High-density infill development is also being encouraged along commercial corridors throughout the city, but buildings in these locations generally consist of residential units over ground-floor retail and so are not of interest for this study.)

Context 1. Existing office and commercial areas that have been rezoned for residential use, which have a street, block and lot infrastructure already in place, and where there are many property owners. The main new neighbourhood being developed in this context is Downtown South. Covering 88 acres (1 acre=0.405 ha) and including 27 city blocks, it lies directly south-east of the downtown financial and commercial core. A smaller new neighbourhood in this context, called Triangle West, covers 18.5 acres and 16 city blocks, and is located just north of the downtown core.

Context 2. Large former industrial sites that are unplatted and have one or several owners. Large areas of this context exist within the downtown core along the water's edge, and smaller areas exist in isolated patches within outlying predominantly single-family residential neighbourhoods. Within the downtown core, the main new neighbourhoods that are being built within this context are False Creek North and Coal Harbour. The former is a 204 acre neighbourhood that lies along the False Creek waterway at the south-eastern edge of downtown, on lands previously occupied by the Expo 86 World's Fair and before that sawmills and rail yards. The latter is a 98 acre neighbourhood that lies on the northern edge of downtown, along the Burrard Inlet, and has commanding views toward Stanley Park and the north shore mountains. In outlying areas, the main new neighbourhood that has been built within this context is the Arbutus Neighbourhood in Kitsilano. This 25 acre development occupies the site of a former brewery and is mostly surrounded by single-family houses.

Context 3. Existing high-density residential neighbourhoods that have a street, block and lot infrastructure already in place, and where there are many property owners. This context exists in the long-established West End neighbourhood that sits at the western edge of the financial and commercial core, adjacent to Stanley Park. This neighbourhood, which was developed into its current high-rise form in the 1960s and 1970s, is one of the densest neighbourhoods in North America. The neighbourhood is currently undergoing gradual rather than rapid change, and most of the development guidelines focus on fitting into the local context rather than on shaping new building forms. The exception is the development guidelines put in place for Georgia and Alberni Streets, which lie just south of the new Coal Harbour development. Here, individual street-facing entries into ground-floor dwelling units are encouraged but not specifically mandated (City of Vancouver, 1989a, b)(Figures 3 and 4).

The range of contexts in which direct entry ground-floor dwelling units are being encouraged or required speaks to public sector commitment to the concept and also planners' creativity, because different regulatory approaches must be taken for the different contexts, as will be discussed below.

Ground-floor-related Aspects of the Design Guidelines

The planning processes and design guidelines used for the first two contexts, where change is happening rapidly and entire new neighbourhoods are being built, were analysed in order to ascertain how the new buildings types are being shaped and what aspects of the ground floors of residential buildings are being controlled.

Separate development framework plans have been put in place for each new neighbourhood, as well as individually tailored design guidelines. Within the larger neighbourhoods, separate guidelines control development in designated subneighbourhoods. Most of the guidelines follow a similar format. They begin by stating the key organizing principles that guide the overall development pattern—such as extending the surrounding street grid, ensuring access to

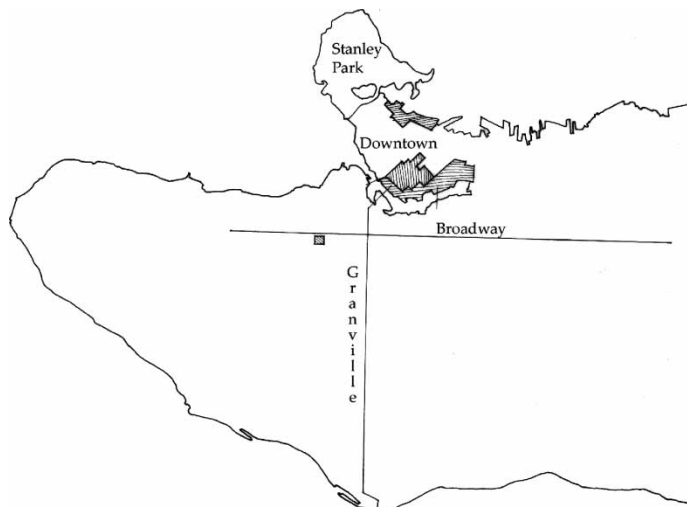


Figure 3. Map of Vancouver.

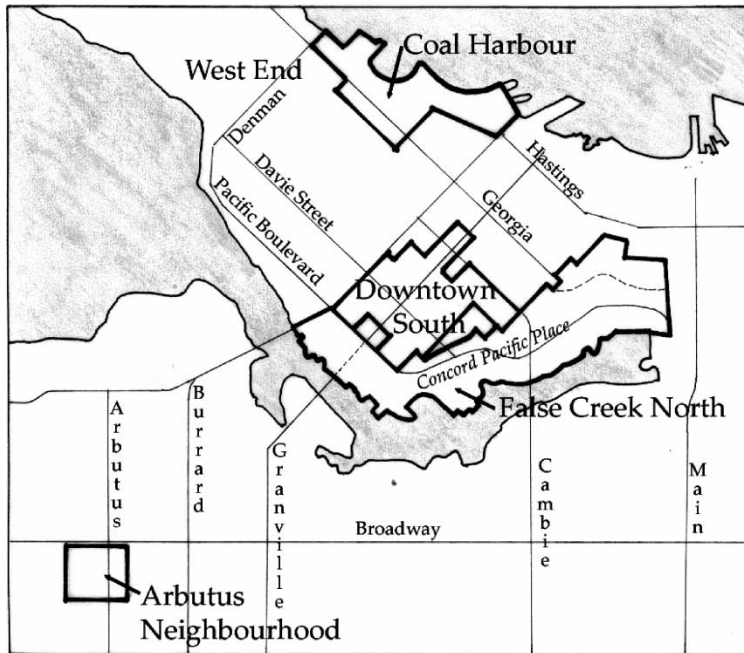


Figure 4. Vancouver's new neighbourhoods.

the waterfront or creating a gradation of tower heights stepping down to the water—and then enumerate specific guidelines related to siting, building orientation, views, massing controls, architectural character, residential livability, the public realm, disabled access and parking. All the guidelines address similar issues related to the ground floor of residential buildings, but the specifics of what is actually *required* vary considerably.

The discussion below focuses on the guidelines for three new neighbourhoods: the central part of False Creek North known as Concord Pacific Place, the Arbutus Neighbourhood and Downtown South. These neighbourhoods were selected because they illustrate both the range of guideline approaches being used and the range of emerging building types.

First, a summary of the guideline requirements.

All of the design guidelines require the following.

- Individual entries for *all* ground-floor dwelling units.
- Completely underground or hidden parking garages.
- Maximum and minimum building heights along street frontages, and extending buildings to block corners.
- Maximum and minimum setbacks along street frontages.
- Terraces or gardens at ground-floor dwelling unit entries.

Some of the design guidelines also address the following.

- Articulation of the building massing so that individual ground-floor dwelling units are expressed on the building's façade.
- Requirements for individual dwelling unit entries to be raised at least 1 m above ground level.

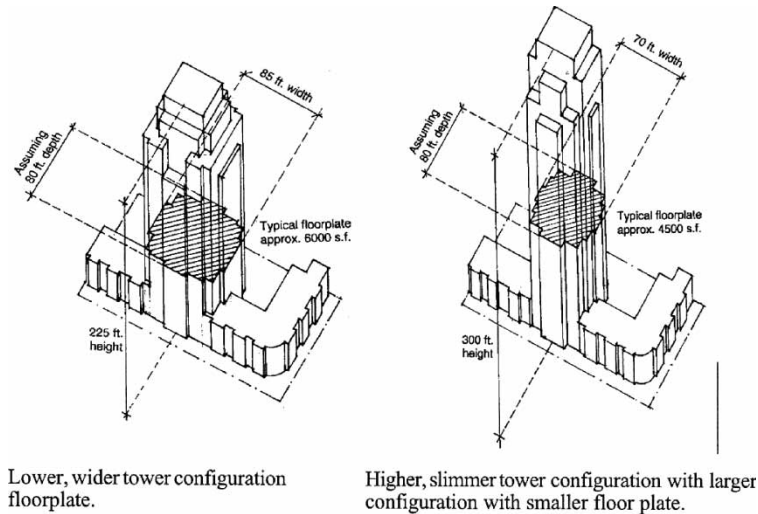


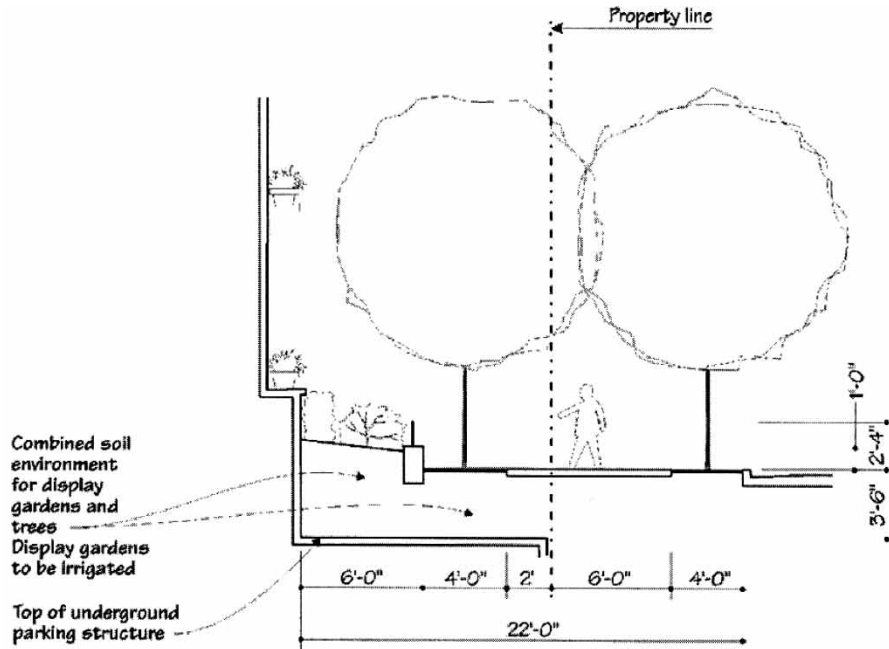
Figure 5. Example of height and bulk controls. Source: City of Vancouver (1991).

- The provision of specific design elements with the setback areas at the ground-floor direct entry units.

Specific design guideline requirements related to the ground floor of residential buildings are as follows.

Downtown South. For Downtown South, which already had a street and block structure in place and where land was held by many different property owners, building envelopes are shaped by a single set of general design guidelines, addressing views, building orientation, access, building height and massing, entrances and parking, that apply to the entire 27-block neighbourhood. Separate design guidelines address building setbacks and streetscape character for each of three designated subneighbourhoods, New Yaletown, Hornby Slopes and Burrard-Granville. The guidelines are structured as intensively detailed zoning regulations (City of Vancouver, 1991). The regulations control the height and bulk of towers (300 feet maximum height with a maximum floor plate of 6000 square feet), minimum (30 feet) and maximum (70 feet) height ranges for podium street walls and minimum (6 feet) and maximum (20 feet) setbacks for all street walls. They also stipulate that podium street walls must extend to lot corners, and wrap around for a certain distance along alleys (Figure 5) (1 foot = 0.3048 m; 1 sq. foot = 0.0929 m²).

The guidelines, as amended in 1997, require raising entries into ground-floor dwelling units at least 1 m (3.28 feet) above the sidewalk, and set out detailed requirements regarding the depth of entry terraces (6 feet in New Yaletown and 4 feet in the other subneighbourhoods) and their design, including a minimum of 60% softscaping. Two rows of street trees are required in New Yaletown and one row in the other subneighbourhoods (Figure 6). While the guidelines encourage creating pedestrian scale at lower levels via richer materials, more intensive building detailing and lighting, there is no specific requirement to articulate and differentiate a ground-floor 'townhouse' form.



New Yaletown

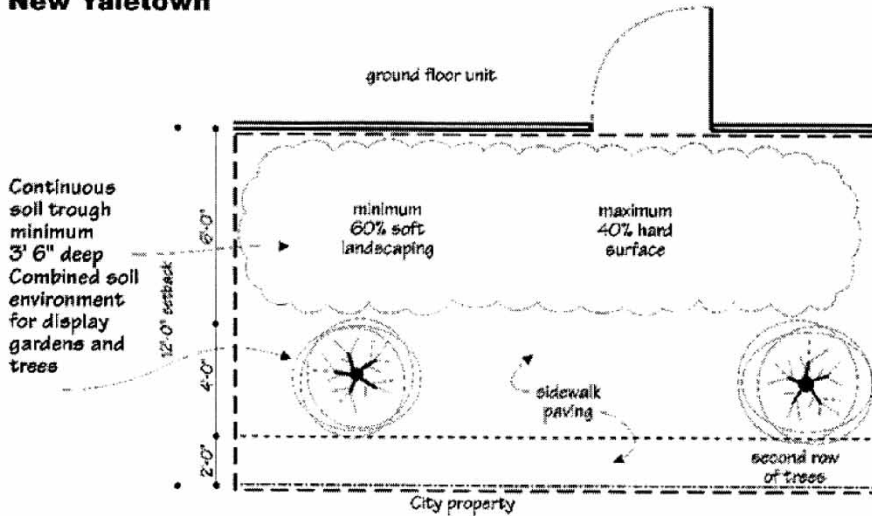


Figure 6. Example of guideline requirements at ground-floor direct entry units. Source: City of Vancouver (1991).

Concord Pacific Place, False Creek North. The central part of the new downtown False Creek North neighbourhood consists of a 166 acre area known as Concord Pacific Place. Because development of this large site, and other large waterfront sites such as Coal Harbour, would involve rapid massive change, Vancouver's planners realized they would need to implement a new development review process and new regulatory framework to manage the massive change they envisioned and win public support for it. Accordingly, they developed an innovative five-stage development process that involved politicians, developers

and the public throughout, and allowed incremental consensus building and decision making, starting with large-scale and conceptual issues in the early stages and focusing on detailed design specifics in later stages (Punter, 2003). For each new neighbourhood, the process begins with city planning staff and developers working together to develop an overall policy broadsheet, while engaging in a series of public workshops and council reviews. Once council approves the policy broadsheet, the planning staff and developers sit down around the table with each other and work out a development framework plan, which is refined through a series of public workshops and council hearings (City of Vancouver, 1990). Once council approves the development plan, the planning staff of the city and the developer's architects and landscape architects again sit down around the table and develop detailed design guidelines for each block within the neighbourhood, while consulting with stakeholders in the immediate neighbourhood and getting feedback from the city council. Once the guidelines have been approved, the developer submits for a rezoning based upon the development plan and the design guidelines, the application receives a formal staff review and a formal review by the Urban Design Panel (an independent council-appointed group of design experts) and gets a public hearing before the city council. Once the rezoning is approved, implementation occurs through normal permit processing (Punter, 2003).

For Concord Pacific Place, the planning staff worked with a single developer to develop the detailed aspects of street platting, park dedications, view corridors, building configurations and tower placement and height. As well as aiming for livable streets, planners followed Jane Jacobs's prescription for short blocks by breaking down large blocks with pedestrian-only 'mews', and also her prescription for streets that connect to some place people want to go by creating direct linkages with parks, nearby commercial high streets and the False Creek waterfront.

A development framework plan was put in place for the whole Concord Pacific Place neighbourhood, and to date guidelines have been developed for three subneighbourhoods, two of which have been built, the Roundhouse Neighbourhood and the Quayside Neighbourhood, while the third, the Beach Neighbourhood, is currently under construction. All the guidelines seek generally to maximize ground-floor direct entry units, articulate building façades to express these units, and provide landscaping at the individual entries. All require that entries to ground-floor units facing onto streets be raised at least 1 m (3.28 feet) above the sidewalk level (City of Vancouver, 1993a, b). In addition, the guidelines for the Beach Neighbourhood specifically require two- or three-storey units at the ground floor, rather than single-level units (City of Vancouver, 1999), whereas the guidelines for the Roundhouse and Quayside Neighbourhoods did not address this issue at all (Figure 7).

The Arbutus Neighbourhood. The development framework plan and design guidelines for the Arbutus Neighbourhood in outlying Kitsilano were developed using the same cooperative planning process used for the downtown waterfront neighbourhoods. Here, three different developers were involved in the process. The orientation and street pattern guidelines locate a series of 'pedestrian priority' streets and a system of connected greenways (Figure 8).

Other guidelines seek generally to maximize 'doors on the street', and provide weather-protected grade-level entrances into ground-floor dwelling

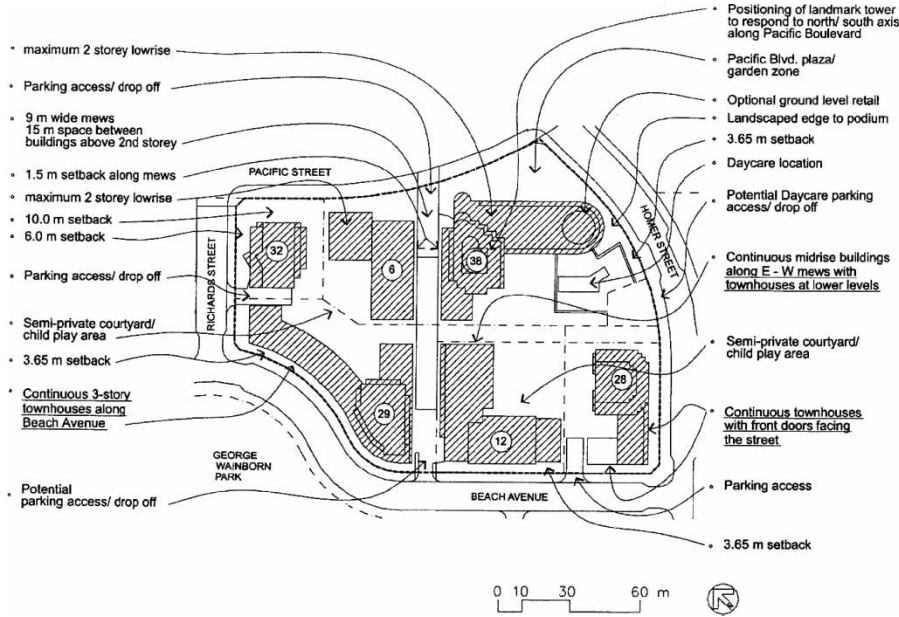


Figure 7. Typical False Creek North design guidelines. Source: City of Vancouver (1999).

units. Although sketch drawings included in the guidelines suggest buildings with raised entries into ground-floor multi-level townhouse units, neither of these elements is specifically *required*. Similarly, while each building is supposed to articulate a townhouse character, there is no specific *requirement* to articulate the extent of individual ground-floor units on the façade. Finally, although

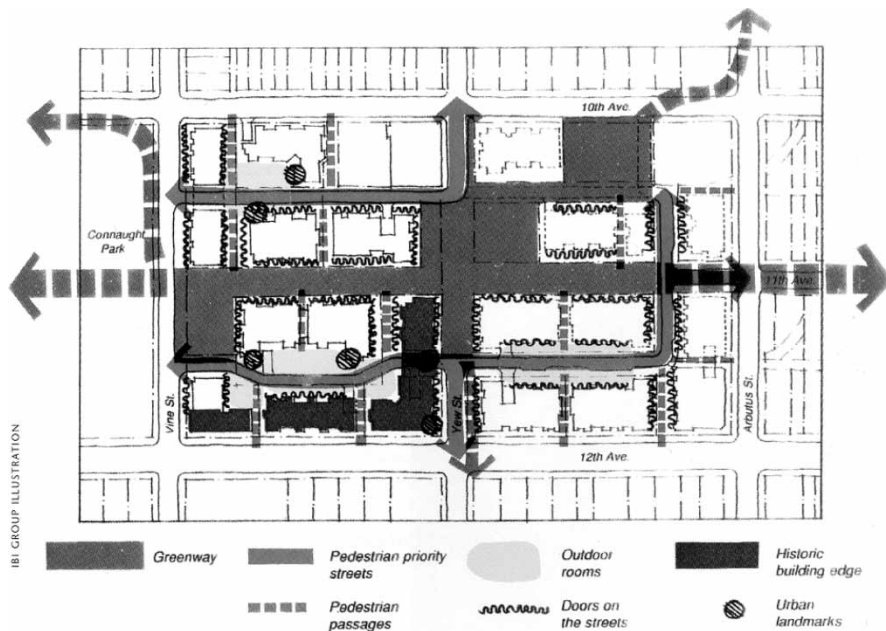


Figure 8. Structure plan for the Arbutus Neighbourhood. Source: City of Vancouver (1994).

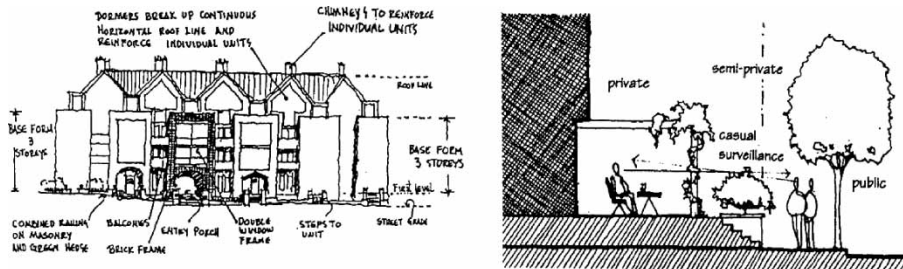


Figure 9. Typical sketch drawings from the Arbutus Neighbourhood guidelines. Source: City of Vancouver (1994).

a minimum entry terrace size of 4 m^2 (10.7 square feet) is required, how the entry terrace should be landscaped is not addressed (City of Vancouver, 1992; 1994) (Figure 9).

Emerging Building Types

Field observations were conducted and building floor plans were analysed in order to determine the typical configurations of buildings in Vancouver's new neighbourhoods. Developers have responded to the design guidelines with new building types that have ground-floor direct entry dwelling units integrated into large elevator buildings. Basic building form is driven by agreed upon floor area ratio (FAR) allowances, or height restrictions.¹ Within downtown neighbourhoods, FAR allowances range from 4.0 to 5.0, which translates into high-rise towers, except in some areas directly adjacent to water in False Creek North, where towers were not permitted in order to preserve views. Within the Arbutus Neighbourhood, height restrictions have translated into low- to mid-rise apartment blocks. The building types emerging in all the downtown neighbourhoods share basic similarities, while those in the Arbutus Neighbourhood are very different.

Within the Downtown core: False Creek North, Downtown South, Coal Harbour and the West End. Within these neighbourhoods, large buildings containing slender 'point' towers—10 to 38 storeys high with floor plates ranging from 5500 to 7315 square feet—over two- to eight-storey podium bases containing the direct entry ground-floor units have been developed over underground parking garages that are two to three levels deep. Some of the building podiums contain two- to three-storey townhouse units, with nothing above them, while others contain two-storey ground-floor units with two to six floors above them—in local parlance, these latter unit types are known as 'cityhomes'. Units in the towers, and upper units in the taller podium bases, are accessed via a common street-level lobby, a common garage-level lobby, common elevators and internal corridors (Figures 10–12).

Buildings containing affordable housing units are generally not high-rise, but rather five- to eight-storey apartment blocks containing single-level ground-floor units, so bedrooms as well as public rooms are on the ground floor.

Throughout these neighbourhoods, there is no consistency regarding how street addresses are handled. In some buildings, the ground-floor units have their own individual street addresses. In others, a single street address is used for



Figure 10. Point towers on podium bases.



Figure 11. Typical townhouses.



Figure 12. Typical cityhomes.



Figure 13. Typical entry terrace.

the tower and the ground-floor units, with identifiers placed on ground-floor dwelling unit doors such as TH-1 or TH-A, 101 or 102, etc.

Many buildings have ground-floor direct entry units that face onto pedestrian paths or private courtyards as well as onto streets. All ground-floor units have raised entries, three to eight steps up is the norm, although unit entries in some Downtown South buildings are only raised one or two steps. Different buildings have different sizes and configurations of terraces at unit entries. Most terraces have hardscape areas large enough for tables and chairs and built-in planter boxes at the sidewalk edge and between units; others have only a landing at the unit entry and larger planted areas (Figure 13). Many of the townhouses that do not have floors above them have their own private rooftop terraces. All buildings provide a common open space area for the exclusive use of residents, which takes the form of either a landscaped ground-level courtyard garden, or a landscaped second- or third-storey roof deck.

Ground-floor units always share a common parking garage with the tower units. In some areas within False Creek North, a single compartmentalized underground parking structure services a whole block and many apparently different buildings. All ground-floor units have at least two entries—one on the street, mews or private courtyard on which it fronts, and another from either an interior corridor or directly from the underground garage.

Ground-floor townhouses and cityhomes and tower units are functionally integrated. A single Strada Association (the Canadian version of a condominium association) always covers both the tower units and the ground-floor units.



Figure 14. Typical four-storey buildings.

Where buildings share garages, they also share a Strada Association, which means that in False Creek North sometimes a single association covers an entire block.

The Arbutus Neighbourhood. Development in the Arbutus Neighbourhood of the outlying Kitsilano neighbourhood is different in many respects from development in downtown neighbourhoods. Here, there are four- to 12-storey buildings, and no towers (Figure 14).

Of the 13 new buildings in the central part of the new neighbourhood, 10 have single-level ground-floor units, which means bedrooms as well as primary rooms are on the street, and a number are designed so that the entry doors to the ground-floor units do not directly face the street, but rather are recessed into a side alcove. Residents in these buildings tend to screen off their terrace from the sidewalk. The other three buildings have two-storey cityhomes at ground level and these have upper-floor bedrooms (Figures 15 and 16).

About half of the ground-floor units have level-in or just slightly raised entries; the rest are raised three to eight steps. The size and configuration of entry terraces vary from building to building. Most terraces are 8 to 10 feet deep, but those at many of the single-level units contain additional recesses in front of bedrooms. Most are predominantly hardscape, with a low hedge and narrow planting bed separating the terrace from the sidewalk. All terraces are closed off from the sidewalk with a low gate. Somewhat less than half of the ground-floor



Figure 15. Typical cityhome.



Figure 16. Typical terrace at single-level ground-floor unit.

dwelling units face onto pedestrian paths rather than streets. Ground-floor units in the 'cityhome' buildings have their own individual street addresses; those in the other buildings share a common address with the rest of the building.

All buildings sit atop underground garages that are two levels deep. While a handful of ground-floor units have only a single entry off the street, most have a second entry off an interior corridor that leads from a lobby containing an elevator that goes to the garage. As in downtown neighbourhoods, some buildings share parking garages and Strada Associations.

In summary, Vancouver's design guidelines for its new high-density residential neighbourhoods have resulted in three new building types: (1) point towers rising from two- to three-storey townhouse bases; (2) point towers rising from six- to eight-storey apartment blocks containing ground-floor cityhomes; and (3) four- to 12-storey apartment blocks containing ground-floor cityhomes.

Environmental Character and Social Interaction

Now that they have been built, are Vancouver's new neighbourhoods achieving the vision that planners held for them? What impact do the direct entry ground-floor units have on perceptions of neighbourhood character, life on the street and social interaction? Environmental measurements, behaviour observations and surveys were undertaken to answer these questions.

Environmental measurements and behaviour observations were conducted along four blocks selected as being representative of typical environmental conditions existing within Vancouver's new neighbourhoods. These blocks included: (1) a medium-traffic street (196 vehicles per hour) in False Creek North lined with several six- and seven-storey buildings and one building containing a 31-storey tower over a three-storey townhouse base; (2) a medium-traffic street (294 vehicles per hour) in the West End lined on one side by a new building composed of three-storey townhouses and an adjacent 20-storey tower, and on the other side by older modernist apartment buildings; (3) a low-traffic street (65 vehicles per hour) in the Arbutus Neighbourhood lined on both sides with four-storey apartment blocks containing single-level ground-floor direct entry units; and (4) a high-traffic street (1420 vehicles per hour) in the Arbutus Neighbourhood lined on one side with four- to six-storey buildings containing two-level ground-floor cityhomes, and on the other side with older modernist apartment buildings.²

Environmental measurements taken included street width, building height, ground-floor unit entry spacing, percentage of ground-floor block frontage occupied by street-facing dwelling units, size and configuration of terrace and assessment of the level of front terrace personalization (Figures 17–21).

One hour behaviour observations were conducted on each of the four blocks where environmental measurements were taken. Observations included counts of vehicles and pedestrians passing by, or in and out of buildings, and counts of activities occurring on terraces at ground-floor unit entries. As well as the counts, detailed notes were taken of all socially oriented activities taking place on the block. The number of open entry doors at the ground-floor units was also counted, as an open door seemed to indicate both the immediate presence of 'eyes on the street', and a feeling on the part of residents of a secure transitional public-private realm.

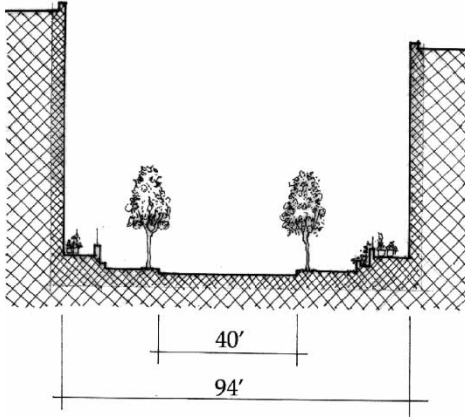


Figure 17. Medium-traffic street in False Creek North (196 vehicles per hour).

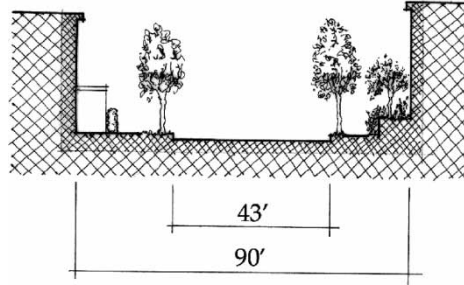


Figure 18. Medium-traffic street in the West End (294 vehicles per hour).

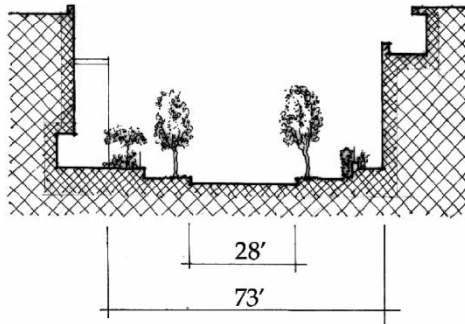


Figure 19. Low-traffic street in the Arbutus Neighbourhood (65 vehicles per hour).

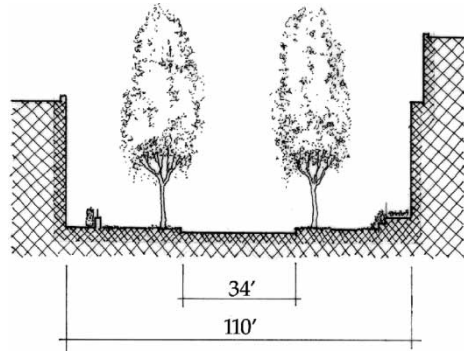


Figure 20. High-traffic street in the Arbutus Neighbourhood (1420 vehicles per hour).

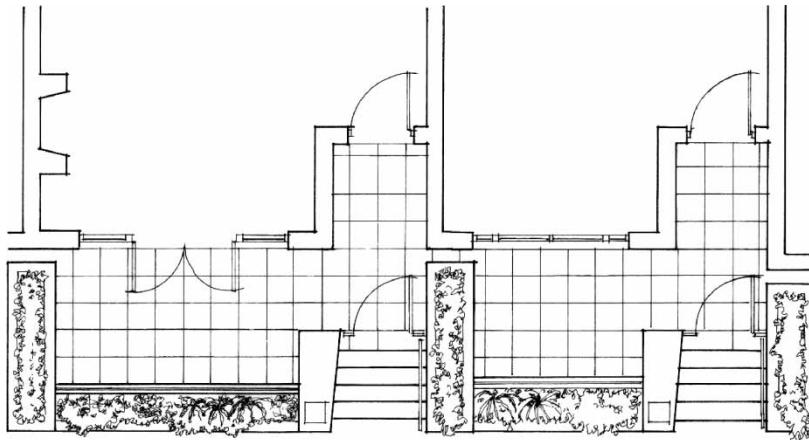


Figure 21. Typical entry terrace configurations.

A 20-question mail-back survey was later sent to a total of 100 residents of ground-floor direct entry units in False Creek North, Downtown South, the West End and the Arbutus Neighbourhood. As well as asking residents to describe physical characteristics of their unit and entry terrace, the survey also asked for information on the traffic nature of their street, how often they used their primary street entry, how much time they typically spent on their front terrace and the types of activities they did there and the amount of casual neighbouring they engaged in while on their terrace. A reasonable response rate of 30% was achieved.

Finally, surveys of people walking along six blocks were conducted. These blocks included the four where the environmental measurements were taken, as well as one additional low-traffic block in the Arbutus Neighbourhood and one additional high-traffic block in Downtown South. In all, 45 on-the-street surveys were conducted on Arbutus Neighbourhood streets, and 54 were conducted on downtown streets (19 in the West End, 18 in Downtown South, 17 in False Creek North). Survey questions were directed at ascertaining respondents' familiarity with the neighbourhood, and also their perceptions of the block, their preference for living in a ground-floor direct entry unit or an upper-floor unit along the block and their experiences with seeing people on terraces along the block and interacting with them. The following observations constitute the research findings.

Although small in numbers, the ground-floor direct entry units have a substantial effect on perceived environmental character. Data from the city on the total number of dwelling units built in False Creek North and Downtown South since 1996 (City of Vancouver, 2002), combined with a direct observation count of ground-floor dwelling units within these neighbourhoods, indicate that less than 2% of all the new dwelling units have individual entries directly on public streets or public pedestrian paths. Yet, in spite of their low numbers, the ground-floor direct entry units contribute substantially to the overall character of the neighbourhood as being made up of point towers and townhouses. Their environmental effect is disproportionate to their numbers because they are at eye level. The townhouses and cityhomes constitute much of what is immediately seen, while the tower and upper-floor units contribute the density that makes neighbourhood amenities possible—local retail, parks and community centres (Figure 22).

The survey of people walking along downtown streets with direct entry ground-floor units found that 74% would like to live on the block, and, if money were no factor, 56% would like to live in a ground-floor direct entry unit rather than an upper-floor unit. The survey of people walking along Arbutus Neighbourhood streets with direct entry ground-floor units found that 80% would like to live on the block, and 78% would rather live in a ground-floor direct entry unit rather than an upper-floor unit. That people would like to live within the neighbourhoods studied is probably a function of neighbourhood newness as well as neighbourhood character. That so many would prefer to live in ground-floor units, which represent such a small percentage of overall unit numbers, is a more significant finding. This is particularly interesting given that when Vancouver's planners first implemented neighbourhood plans and design guidelines prescribing ground-floor direct entry units, developers felt there would not be much of a market for those units—reasoning that people would find them unsafe and would prefer the views offered by upper-floor units—and originally priced them quite low. The market, however, proved otherwise and



Figure 22. Townhouses along a pedestrian path. Figure 23. Regular rhythm of townhouse entries.

prices of the first townhouses and cityhomes rose substantially when resold; townhouses and cityhomes built more recently command top dollar.

The finding that significantly more people surveyed in the Arbutus Neighbourhood than in downtown neighbourhoods would prefer to live in a ground-floor direct entry unit is possibly explainable by the dramatic mountain and water views available from the tower units in the downtown neighbourhoods. Comparable views are not available from the upper floor of buildings in the Arbutus Lands.

The survey of residents found that there were two benefits broadly perceived to be associated with living in a ground-floor direct entry unit: that it felt more house-like; and that access in and out was easy. The only broadly perceived problem with living in a ground-floor direct entry unit was the potential greater possibility of break-ins. It is notable that some of the most recent development guidelines address the issue of ground-floor crime vulnerability and recommend design strategies to overcome this problem, including reducing areas of concealment around unit entries, providing small paned windows on the ground floor and providing secured swing doors onto terraces rather than sliding doors (City of Vancouver, 1999).

Observation of particular blocks suggests that the ground-floor direct entry units do indeed contribute positively to neighbourhood character and life on the street as suggested by urban design theory, although perhaps they do not contribute as much to the latter as traditional building types would because of their secondary interior entries.

The ground-floor direct entry units contribute to visual interest along the street. Entries to ground-floor units are typically spaced 22 to 32 feet apart, creating a regular pedestrian-scaled rhythm of display gardens, entry steps and doors. When walking along a block, a passer-by's eye takes in the gardens, travels up the steps, lingers on the terraces and looks at the doors. The imagination then moves inside, imaging what residents are like based upon how they have personalized or not personalized their front yards. The survey of people walking along downtown streets found that 89% felt that the gardens and terraces associated with the ground-floor direct entry units contributed positively to the quality of the street, and 65% thought the individual entry doors did. Of people surveyed in the Arbutus Neighbourhood, 90% felt the gardens and terraces contributed positively, and 82% felt the individual entry doors did (Figure 23).

The ground-floor direct entry units provide a sense of 'eyes on the street'. The clearly distinguishable individual entries into the townhouse and cityhome units give a sense that the street is immediately overlooked, that whoever is inside can be outside quickly should some disturbance arise on the street that calls for attention. This sense corresponds with ground-floor residents' perceptions. Of those surveyed, 80% feel they pay more attention to activities on the street they live on than do people living on upper floors.

Highly personalized gardens and terraces at the entry door contribute to a greater sense of 'eyes on the street', because there is a sense that the occupant cares about the transitional public-private space and so is likely to spend time there and also keep an eye out for it. A notable finding is that it does not take much for the front terraces to have an impact. If just one or two gardens or terraces along a block are personalized, there is a noticeable increase in the visual interest of the block and the sense of nearby eyes. Over half of the residents surveyed feel they have personalized their front terraces and gardens—30% say their front entry terrace is highly personalized and another 27% say theirs is somewhat personalized (Figure 24).

The Ground-floor direct entry units contribute to life on the street. Field observations show that each case study area has a somewhat different street activity character (Table 1). The West End street has lots of people walking, jogging and bicycling on it, and a regular flow of vehicles that often backs up along the block during the evening rush hour because a major arterial traffic route out of the city lies nearby. Because the townhouse terraces contain lush planted gardens and very little hardscape, there is no room for tables and chairs or even benches, so townhouse residents do not have many options for spending time on their terrace, other than gardening, which they tend to do from the sidewalk. The False Creek North street has a steady flow of people walking, jogging, bicycling and rollerblading along it, and a fairly regular flow of vehicle traffic moving at a moderate pace. The number of vehicles and pedestrians moving in and out of the parking garage entry was significantly higher than in the other case studies, perhaps because in addition to parking for residents the garages also contain paid public parking. The two Arbutus Neighbourhood streets had similar numbers of walkers and joggers, but the high-traffic street also had a significant number of bicyclists, perhaps because it provides a direct through route, while the low-traffic street does not. The high-traffic street had no garage activity because no garages faced on the block studied. Overall, more townhouse-associated activity was observed along the Arbutus Neighbourhood streets than either of the downtown streets.

In most cases street-oriented activity associated with the ground-floor direct entry units was cumulatively greater than that associated with the building entry leading to the upper-floor units. Although, for all the case studies, the number of individual trips in and out of building lobby entrances was greater than the number of trips in and out of ground-floor direct entry units, in all cases street-oriented activity associated with the ground-floor direct entry units was of longer duration and involved more complexity and social interaction than that associated with the tower or upper-floor units. However, activity associated with parking garages was generally substantial as well, consisting mostly of entering and exiting vehicles. Since all of the ground-floor direct entry units on blocks where observations were made have second entrances from interior corridors or directly from parking garages, it seems likely that the presence of

the underground garages dilutes street-oriented activity associated with them. The impact may not be extreme, however, as the survey of residents of ground-floor direct entry units found that 47% of them use their primary street-oriented entry almost all the time, and another 37% use it at least half the time. It is worth noting that the underground parking garages, with their narrow single entries, contribute less of a blank wall on the street than if each townhouse had its own individual garage with its own garage door on the street.

Not all ground-floor unit occupants actively use their street entry door or actively use their gardens and terraces. Observations were conducted at several different times on some blocks, and it is notable that activity was often observed at the same ground-floor units. However, again, it does not take much: if several occupants are very active it contributes substantially to life on the street, as the following example from the low-traffic street in False Creek North illustrates.

A young woman is walking about on the sidewalk in front of her townhouse talking on a cell phone and casually tidying up the planter in front of her terrace. Her front door is wide open. She goes inside and then is back out on the sidewalk a few minutes later, still talking on the cell phone but now also eating an ice cream bar. She waves to a maintenance person who came out of the building entry and is walking along the sidewalk. She goes back inside, then walks back out and on to the sidewalk again. She goes in, comes back out, goes in, comes back out, goes in, comes back out, goes in and comes out. A young man comes out of the same townhouse and says goodbye to her before walking down the street. The woman goes in, comes back out with a book or pamphlet in her hand, goes in, comes out, goes in, comes out and goes in. A different man comes along, goes in and shuts the door. All in all, the front door remained open for 43 minutes during the observation (and was open before the observation began).

Shortly after the start of the observation, three kids on bikes pull up to the townhouse next to the unit where the woman is talking on the cell phone. They lean their bikes against the terrace wall, go on to the terrace and mull around. Then an older man on a bike pulls up, leans his bike with the others and goes into the townhouse. The kids go in as well. Then an older woman on a bike pulls up, leans her bike with the others and goes into the townhouse. The man and three kids come out, get the bikes and walk with them toward the garage entry. One girl rides her bike up and down the sidewalk for a period. One boy lingers on the sidewalk down the block. The kids come back and go into the townhouse. After a few minutes, the woman and one of the boys come out of the unit carrying a tray holding glasses and a pitcher, and they walk down the sidewalk toward the seawall. The boy returns, goes in, comes back out and heads back to the seawall with a folding chair. He comes back, goes in, back out. Soon he returns and goes inside. The man comes out of the apartment building stairwell exit door, walks down the sidewalk and goes into his townhouse. He comes back out a minute later and puts a piece of clear plastic at top of entry steps (a dog gate?) then goes back inside. All in all, the front door remained open for 55 minutes of the observation and was still open afterwards.



Figure 24. Personalized entry garden and terrace.



Figure 25. Sunbathing on a townhouse terrace is a popular activity in good weather.

The observational findings that the townhouse units contribute substantially to encouraging life on the street were corroborated by the surveys. Of people surveyed walking along downtown streets, 24% said they sometimes or often see people outside on the townhouse terraces. Of people surveyed in the Arbutus Neighbourhood, 53% did.

The survey of residents of ground-floor direct entry units found that in good weather 54% spend some time on their terrace every day. On weekdays, 53% estimate they spend 10 minutes to half an hour on their terrace, 20% estimate they spend between a half hour and an hour and 17% estimate they spend more than an hour. On weekends, the respective percentages are 43%, 13% and 27%. The survey also found that people do many things on their front terraces. The most prevalent activity is watching people walk by (73%), followed by socializing with friends (57%), sunning or reading (53%), eating (50%), gardening (50%), barbequeing (30%), playing with children (13%) and working on projects (10%) (Figure 25).

The ground-floor direct entry units contribute to social interaction on the street. At the same time that the activity counts were performed along the selected blocks, social encounters and extended-duration on-street activity (i.e. activity more complex than just walking or driving along the street or going in or out of an entrance) were also recorded. In all cases, social encounters associated with the ground-floor direct entry units were substantially greater and of longer duration than those associated with the tower or upper-floor dwelling units. The following observation from the high-traffic street in the Arbutus Neighbourhood illustrates the activity witnessed in the early evening.

A man is standing on a townhouse terrace. A woman passing by, who is walking a dog, stops to chat. A man gets out of a car carrying groceries.

Table 1. Activity observations

Observed activity	Arbutus high-traffic ^a	Arbutus low-traffic ^b	False Creek North	West End ^d
Vehicle passing	1420	65	196	294
Vehicle into garage	0	24	42	4
Vehicle out of garage	0	12	47	6
Bicyclist into garage	0	0	0	0
Bicyclist out of garage	0	0	4	9
Person into garage	0	1	6	0
Person out of garage	0	0	6	0
Person walking/jogging	46	41	92	215
Bicyclist	16	0	26	37
Rollerblader	1	0	17	4
Skateboarder	0	0	0	2
Person into building entry	8	18	15	44
Person out of building entry	3	11	27	47
Person on upper-unit balcony	0	6	0	0
Person into townhouse ^e	9	31	6	6
Person out of townhouse ^f	5	23	3	5
<i>Townhouse terrace activities</i>				
Brief foray	12	3	5	0
Sitting	1	3	0	0
Eating	2	0	0	0
Working	0	1	0	0
Gardening	1	4	1	0
Playing	0	0	0	0
Cooking	2	0	0	0
Open townhouse doors	5	7	2	0

^aCounts taken on Wednesday, 10 July 2002, 5.35–6.35 p.m.

^bCounts taken on Sunday, 14 July 2002, 4.40–5.40 p.m.

^cCounts taken on Saturday, 20 July 2002, 1.20–2.20 p.m.

^dCounts taken on Sunday, 21 July 2002, 2.55–3.55 p.m.

^eThis means a person going from the sidewalk into a townhouse unit.

^fThis means a person going from a townhouse unit to the sidewalk.

He walks over and briefly joins the conversation then leaves, going into a townhouse down the block. The woman with the dog moves on and the first man goes inside his townhouse but leaves the terrace doors wide open. The woman with the dog comes back, calls something into the man's townhouse through the open doors, then goes into townhouse next door and opens her terrace doors. The man in the townhouse keeps making brief forays outside, talking on a cell phone all the while.

The woman comes out of her unit with a bottle of wine and wine glasses, and goes next door, leaving her terrace doors open. She and the man sit at a table on his terrace and sip wine. A man walking by enters the townhouse next to where the man and woman are sitting on the terrace; he waves to them and they wave back. Two women get out of a car and start walking along the sidewalk. The wine drinkers say something to them as they pass and they stop to chat for a minute before going into another townhouse down the block.

After about 15 minutes, the woman wine drinker gets up and goes back over to her townhouse. The man stays on his terrace and fiddles in

the garden. The woman comes back almost immediately and sits down again. The man begins to set the table on the terrace. An outdoor meal seems about to happen.

A second example on the low-traffic street in the Arbutus Neighbourhood illustrates the range of activities taking place on a typical Sunday afternoon.

A man is watering plants on a townhouse terrace. He talks through a hedge to a woman on the neighbouring terrace who is playing with a toddler. The man then goes over to the other terrace, plays with the toddler and waters plants. He also sprays off the windows. The woman goes inside, then comes back out and talks with the man. (Perhaps he lives here rather than at other unit and had simply been watering the neighbour's plants.) The woman goes back inside, then comes back out and sits on a concrete wall at the edge of the terrace. The toddler drops a ball over the terrace gate and it rolls into the street. The man retrieves it. The woman smokes a cigarette.

A sports utility vehicle (SUV) pulls up and the driver double-parks in front of a townhouse with an elaborately planned garden, near the building entry. A man, woman and dog get out. They start taking things out of the car and into the townhouse. They go back and forth a number of times, all the while carrying on an animated conversation. After all the transporting is done, the woman, man and dog come back out on to the terrace. The dog goes through the open terrace gate and into the street, and the woman calls him back. Then she takes him for a walk down the street. The man gets into the SUV, makes a U-turn and parks in a space across the street, down the block a bit. He walks back to the townhouse and goes back to sitting on the terrace. The woman comes back and starts gardening.

A man comes out of the townhouse on the other side of the building entry and starts gardening. A woman walks down the street, then into the building entry. She does not exchange any words with the people on the adjacent terraces.

The woman gardening on the first terrace says hello to the man gardening on the other terrace. They each remain in their yards but have a conversation about someone they both know. Later, the woman is still gardening and she says hello to someone passing by who then goes into the building entry. The man is still sitting outside, talking on a cell phone. The woman goes in and out of her townhouse many times.

A car pulls up and the driver double-parks in front of a townhouse. A man, woman and little girl get out. The man and woman start taking things out of the car and carrying them into the townhouse. The toddler gets in the way and is accidentally hit by something the man is carrying. A crying scene follows and the woman comforts the girl; they go into the townhouse. The man takes a small boy out of the car and carries him into the townhouse. The man keeps going back and forth between the car and the townhouse, taking things inside. He eventually gets in the car and drives it into the garage. He probably re-enters the townhouse from the interior corridor as he does not reappear on the street.

A car pulls out of the garage and comes up the street. The driver illegally parks in front of a townhouse, a woman gets out and runs inside, then comes back out, gets in the car and drives off.

A man in a wheelchair going into the apartment building looks toward those on the adjacent terraces but does not say anything. He says hello to a young man coming out of the building.

A car pulls up, the driver double-parks and drops someone off who goes into the apartment building. A car pulls up, the driver double-parks and drops someone off who goes into a townhouse.

The final example illustrates activity taking place on a Sunday afternoon on the medium-traffic street in the West End.

A car pulls up and parks. A man and woman get out and go back and forth between a townhouse and the car several times. The woman goes inside and the man comes out and takes the car into the garage. The front door stays open while they are going in and out.

Three young men walking along see an old Ford Mustang convertible parked on the street. They admire it, take pictures of each other around it and then walk on.

A man and woman and two young boys are walking along the shady side of the street. They notice the highly planted townhouse terraces on the other side and stop to take a picture of them. They walk across the street for a closer look at the flowers. The man takes several more close-up pictures.

An older man pulls up and parks his car in front of one of the heavily planted townhouse terraces. He takes a big box out of the car and heads toward his unit. Another man comes out of the mid-block common entry (from the garage), hails the first man and goes over to talk with him. "Need some help?" They talk a long while about many different things, leaning against the low walls at the foot of the steps. A woman comes out of the townhouse next door and goes over to talk with the two men. She stays a few minutes then heads off in the other direction toward the tower entry and goes inside.

The following activity continued after the 1-hour observation period was over.

The man who stopped to 'help' goes into the townhouse next door, the place where the woman who stopped to chat had come from. The man stays in the front yard gardening a while. Then he takes the package inside and comes back out. The woman returns and she and the man start talking. He gardens, she surveys the street. They start talking animatedly and pointing at the gardens of other townhouses. They point up at towers along the block. They start milling about, then walk over in front of her unit, look up at balcony planting, talk about the planting, make lots of gestures. After a couple of minutes she goes into her townhouse. The man goes to his terrace, surveys the street and then goes inside. Then he comes back out, cleans up things he had been weeding, goes in and closes the door.

All in all, there was a half-hour of social interaction: 10 minutes during the official observation period, and 20 minutes afterward.

These observations of increased social activity revolving around the ground-floor direct entry units were corroborated by the surveys. Many passers-by have casual interactions with people living in the townhouses when they are on their terrace. Of people surveyed walking along downtown streets, 20% say they have spoken to someone on a townhouse terrace. Of people surveyed walking along

streets in the Arbutus Neighbourhood, 33% say they have. Of residents surveyed, 30% say that when they are on their front terrace they often have casual conversations with their neighbours or people walking by, and another 47% say they occasionally do. In total, 83% of the resident respondents feel that living in a townhouse increases casual neighbouring more than living in an apartment unit.

Answers to an open-ended survey question that asked residents to describe the benefits they perceive associated with living in a townhouse unit give a fuller picture of the possibilities for social interaction that occur across a townhouse terrace. One resident said "I have met hundreds of people in my neighbourhood and feel that I am in a small town with those values yet I have all the conveniences of the city".

Important Design Qualities of Ground-floor Direct Entry Units

Observations suggest that some design characteristics of ground-floor dwelling units and the streets along which they are situated contribute substantially to encouraging life on the street and well-used transitional public-private zones at unit entries, and should be considered essential. Other qualities contribute somewhat and should be included if possible.

Essential Design Characteristics

- The entry door should be raised at least four to six steps above street level, so that people passing by cannot see too far into the unit, and residents feel less compulsion to screen off the front terrace.
- The public-private transition space at unit entries should include a garden *and* a terrace, because this increases the range of activities unit occupants might engage in, and also increases opportunities for personalization. A minimum terrace width of 6 feet is desirable, as this provides enough space to comfortably accommodate a table and chairs.
- The unit should have multiple levels, so that the bedrooms are not on the street, and residents feel less compulsion to screen off the transitional space.
- The front door should be designed to look like a front door, in terms of its orientation, style and detailing, and the terrace should be designed to look like a front terrace instead of a back yard. Otherwise, there can be a sense of confusion on the part of the passer-by as to whether one is looking at a publicly presented 'face' or voyeuristically looking into a private realm.

Contributing Design Characteristics

- An individual street address, so that visitors can find and use the street-facing door.
- Strong articulation of individual ground-floor units within the building massing, because it adds to visual interest and the sense of 'eyes on the street'.
- On-street parking, because it allows car-focused activity to take place in front of ground-floor units.

Conclusions

By and large, Vancouver's new neighbourhoods achieve the sense of 'eyes on the street' and human scale that planners hoped they would, while at the same time

also achieving high density. Planners have developed a complex combination of design requirements that have effectively shaped new embedded townhouse forms that can be built within the context of large-scale corporate development practice. The research suggests that these embedded townhouses contribute a unique sense of place to neighbourhood streets, a sense of overlook and a sense of life.

However, what of the tower units and the upstairs apartment flats? The research was not designed to test directly how these units contribute to street livability, although the activity counts show that people living in these units do use the street-level lobby entrance and do walk along neighbourhood streets when going to and fro from this entry. What the upper-floor units clearly do contribute to the new neighbourhoods is high density, between 50 and 110 dwelling units per acre. This density threshold supports a high level of local services, most notably a variety of local retail shops, including supermarkets, and public transit (Lozano, 1990). Nearby retail gives residents a local destination they can walk to, which contributes to life on the street.

Nonetheless, some characteristics of the new neighbourhoods and the large new building types are of some concern. Jacobs (1961) argues that a number of conditions are necessary to generate exuberant diversity on city streets. The district must serve two or more primary functions (living, working, shopping, eating, etc.), contain a variety of building ages and conditions, have a dense concentration of people, both those who live there and those there for other reasons, and have short blocks and frequent streets. Vancouver's new residential neighbourhoods meet all these requirements except building ages and conditions. Most of the new neighbourhoods are being built very rapidly and so buildings are all of the same age. Because large buildings are being constructed and they are predominantly condominium projects rather than rental projects, everything is fixed for the long term. No new buildings or building additions will probably ever be built, unless the whole area, in the distant future, becomes a redevelopment area. As completely new neighbourhoods where almost all residents own rather than rent, the people living there are not very socio-economically diverse, with the exception of those people living in the government-owned social housing buildings mandated within each neighbourhood, which amount to about 20% of all units.

In addition, because single Strada Associations cover both upper-floor and ground-floor units in the new building types, and since association rules are determined by a majority vote, the extent of personalization allowed at ground-floor unit terraces may well be constrained over time. Personalization may be kept within fairly strict bounds. Time will tell.

Jacobs (1961) also argues that wealthy people do not make good 'eyes on the street'. A look at real estate resale listings for Vancouver's new neighbourhoods suggests that most of the ground-floor units are fairly expensive, with the exception of the ground-floor units located in the social housing projects. They are generally not as expensive as top-floor tower penthouses, but generally more expensive than the average tower or above-grade unit. Also, hearsay suggests that many ground-floor units have been bought by part-time non-Canadian residents, although corroborating evidence has not been collected on this. So, although the new building types may suggest a sense of 'eyes on the street', and some level of it is indeed being achieved, there may not be as much as in an older, more varied and mixed-income neighbourhood.

Finally, the complexity of the new building types means there may be long-term maintenance issues. Front gardens and terraces, and sometimes also sidewalk extensions, look like they are on solid ground, while in fact they sit on parking garage roofs. Waterproof membranes supposedly protect the below-garage structures, but tree roots and individual gardeners' activities could easily damage membrane integrity. These are things to watch.

The above concerns aside, what planners in Vancouver have accomplished in less than a decade is a huge achievement, and a surprising one. People admire New York City's brownstones, Philadelphia's and Baltimore's row houses and San Francisco's cheek-by-jowl Victorians, but are prone to say that those days are past, that similar buildings cannot be built today. They are outdated building types, romantic and, no matter how much we like them and wish we could have them in our neighbourhoods, impossible or impractical today. Vancouver's new neighbourhoods say it is possible to achieve the human-scale qualities of street-facing townhouses with new building types. Planners have taken urban design theory and turned it into reality, and they have done it working with large developers. In other cities today, such as San Francisco, when public sector planners and designers suggest requiring new buildings contain completely underground parking garages or direct entry ground-floor units, developers complain that such regulations would make building uneconomic, and planners cave in. The new building types in Vancouver must be economic, or else developers would not be building them.

Notes

1. Floor area ratio is ratio of building square footage to square footage of land.
2. These traffic counts are based on field observations.

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