Interface: Urban Gathering Spaces and the Plus 15

W. Jared Brookes

2011

THE UNIVERSITY OF CALGARY
FACULTY OF ENVIRONMENTAL DESIGN

The undersigned certify that they have read and recommend to the Faculty of Environmental Design for acceptance, a Master's Degree Project entitled:

Interface: Urban Gathering Spaces and the Plus 15

Submitted by W. Jared Brookes in partial fulfillment of the requirements for the degree of Master of Architecture.

Loraine Fowlow, Supervisor, Faculty of Environmental Design, University of Calgary.

Barry Pendergast, External Advisor, Adjunct, Faculty of Environmental Design, University of Calgary.

Michael S. Quinn, Ph.D., Dean's Appointed Examiner, Faculty of Environmental Design, University of Calgary.

2011

UNIVERSITY OF CALGARY

Interface: Urban Gathering Spaces and the Plus 15

by

William Jared Brookes

A MASTER'S DEGREE PROJECT

SUBMITTED TO THE FACULTY OF ENVIRONMENTAL DESIGN

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE

DEGREE OF MASTER OF ARCHITECTURE

FACULTY OF ENVIRONMENTAL DESIGN

CALGARY, ALBERTA

APRIL, 2011

ABSTRACT

Interface: Urban Gathering Spaces and the Plus 15

Prepared in partial fulfilment of the requirements of the degree of Master of Architecture in the Faculty of Environmental Design, The University of Calgary

STUDENT: William Jared Brookes

DATE: April 2011

SUPERVISOR: Loraine Fowlow

ABSTRACT

The challenge of the modern world is not too little information, but too much of it. This Master's Degree Project looks at the design of public spaces in the context of the winter city. In particular, it focuses on the Calgary Plus 15 network, and outlines a process for improving the system.

Beginning with a look at the topic of public space and using the Plus 15 system as an example of an evolving and growing form of public space, a strategy for analysis is generated. Six categories of core elements for the creation of successful public spaces are developed – forming a framework for analysis. Next, the project looks at the inter-relation between public and private spaces. The City of Calgary Land use Bylaw is examined, in order to gain an understanding of how incentives are utilised for the creation of public space. Suggested modifications to the policy are outlined, followed by a basic example of a change in design approach for Plus 15 access points, walkways, and bridges. This approach is applied to five simplified building typologies, allowing for depiction of a visual example.

The completed project acts as a guidebook for providing alternate approaches to maintaining and enhancing the public space of the Plus 15 system. From a manageable method of analysis of the qualitative aspects of public space, to an example of the possibilities of a subtle shift in design approach, this project seeks to simplify the process of design and implementation of compelling urban public spaces.

KEY WORDS:

urban, gathering spaces, public, design, winter city, plus 15, +15, pops, pedestrian walkway, skywalk

ACKNOWLEDGEMENTS

I would like to thank my supervisor, Loraine Fowlow, for her valuable input and steadfast guidance.
I would also like express my gratitude to Barry Pendergast for his enthusiasm, insight, and support throughout this project.

Thanks also to the Faculty and Staff of EVDS – especially Shelagh Deck. Your help through the labyrinth is greatly appreciated and shall not be forgotton.

Furthermore, I would like to acknowledge the financial support of the Faculty of Environmental Design, the estate of Murray W. Waterman, and the Province of Alberta.

Finally, thanks very much to my family and friends. Four years seems like both a short time and a long haul. I appreciate all of your help, support, and well wishes. All the best to all of you.

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

x

PREFACE

The idea of the city street is something that has been prevalent for so long that it no longer seems unusual. However, when considering the phenomenon of elevated walkways and bridges, the change of context is enough to raise questions regarding procedure, planning, and design. Whether referred to as a Plus 15, a skywalk, or an elevated pedestrian bridge, it is all the same. This sameness can be applied to the management of streets at grade and streets in the sky. Similar approaches to policy and design can also be applied to the two typologies. Both are streets. And cities understand how to deal with streets. Applying this same time-honed expertise to pedestrian bridges and walkways is a step toward a more integrated system of public spaces. Coupled with the goal of making winter cities more livable and enjoyable, the result is the creation of public spaces that function effectively year-round.

CH 1 INTRODUCTION

Perhaps it is assumed that the public gathering spaces that cities offer are carefully designed and planned with people in mind. However, there are many instances in which that is not the case. Two notable observers of the quality of spaces were William H. Whyte and Jane Jacobs. The spaces that they observed included plazas, small urban parks, and streets. Their research was primarily concerned with the quality of urban spaces and their findings were brought to the attention of municipal governments, architects, and developers. In many cases, the spaces that were provided for “the people” were underutilised. This resulted in a search for the underlying reasons why. Numerous researchers provided answers to the question of underuse, while offering insight into many other related factors regarding the design of effective and enjoyable public spacs.

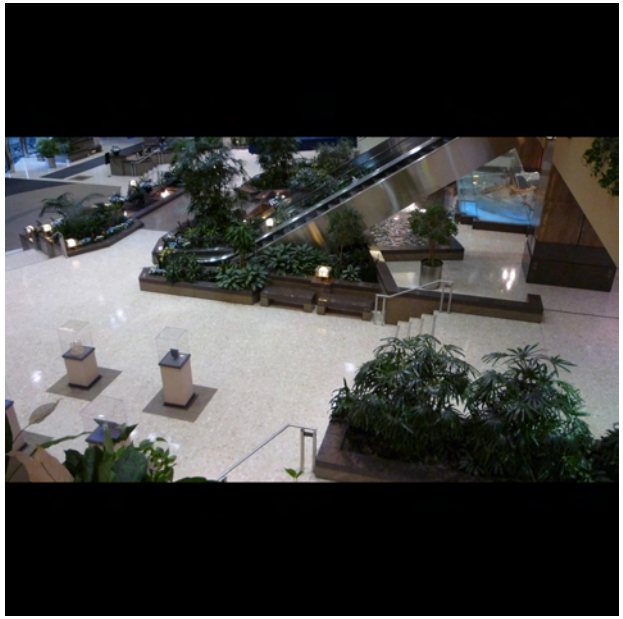


Fig. 1.01 A space with just about everything. But, do people feel welcome there?

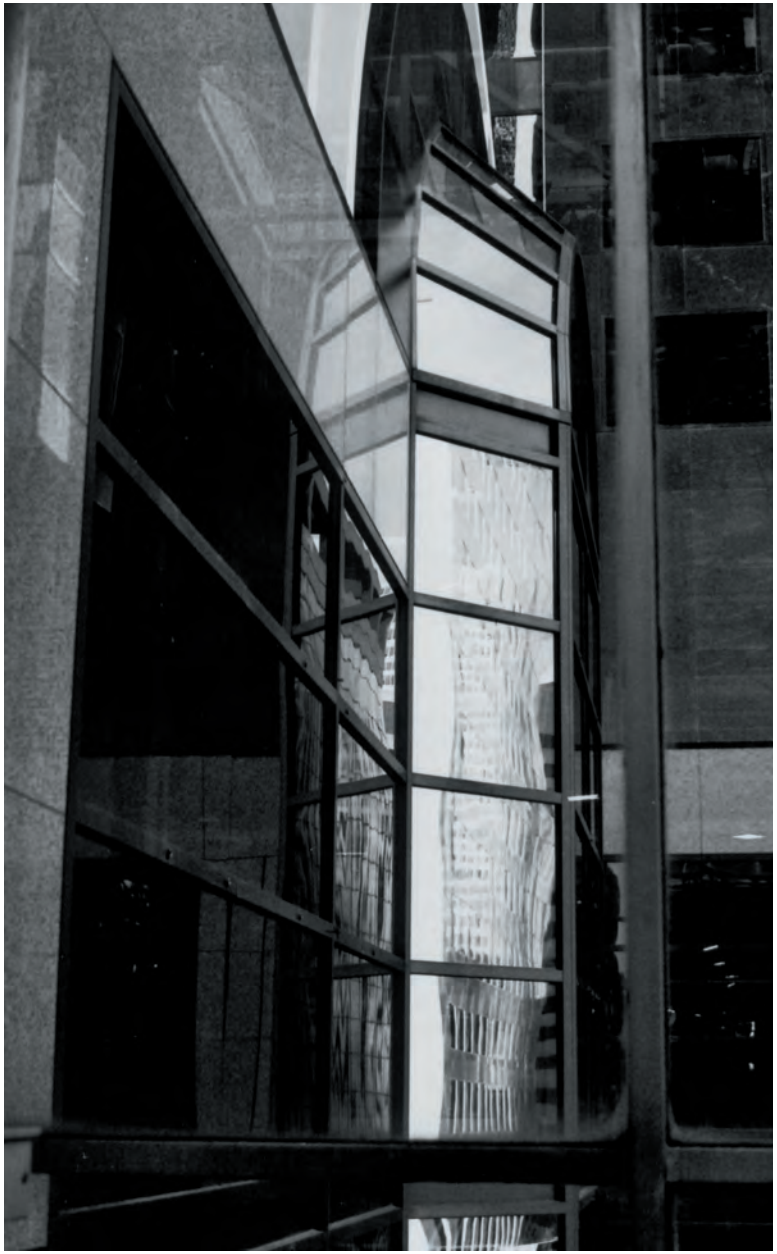
Fig. 1.02 “The Core” A mix of offices and retail.

GOALS

This Master’s Degree Project (MDP) is an attempt to extend the work of keen observers such as Whyte and Jacobs. It aims to look at the Canadian winter city context – Calgary in particular. When dealing

with issues of public space and design, a variety of disciplines provide relevant insight, including anthropologists, sociologists, industrial designers, psychologists, and architects. The interdisciplinary approach offers the possibility of truly informed answers to the issues that we continue to face in highly urbanised environments. In the case of this MDP, the spaces of concern are those in which people choose to pass the time, enjoy their visits, eat their lunch, and – in many instances – simply pause to reflect. These are public spaces. These are also sometimes privately-owned spaces. The distinction isn't always clear. But one thing is common between them – they are regulated by policy, and policy is made by people.

Presently, most North American cities want people. Furthermore, they want people to be satisfied with the cities in which they live. This satisfaction trickles down to those who offer goods and services. A vibrant city core is essential to a healthy metropolis. One approach to achieving this is to provide compelling and enjoyable public spaces that attract people. To that end, this project attempts to refine the process of designing and implementing compelling urban gathering spaces. Additionally, it looks to address



those elements that make winter cities unique. Calgary is often referred to as a winter city, and many people consider the weather conditions for much of the year to be uncomfortably cold. This has had a profound effect on design considerations for urban parks, gardens, and other spaces that attract groups of people. Calgary has had examples of successful spaces that attract people. These spaces are publicly-accessible, and are comfortable all twelve months of the year. It is on this type of success that this project is leveraged.

Enjoyable urban spaces represent important features that many city-dwellers appreciate and use. As evidenced in the works mentioned later in this MDP, many people will use spaces if they contain the right combination of elements, in the appropriate context, and with the proper climate considerations. However, there appear to be barriers to the process of creating qualitatively positive urban public spaces.

In many cases the comfort or attraction potential of urban spaces (including plazas) is treated as an afterthought by those assigned to provide them. Whether it's a lack of familiarity with the elements required for a space to be successful, the feeling that

some other profession will deal with the design details of public spaces, or considerations of speed versus economy for the project, the issues begin when the resultant spaces are unsatisfactory. Hence the core of this project involves outlining a flexible framework that can assist designers and specialists in the process of creating what are very likely to become the types of spaces in which people enjoy spending time, visiting with others, and taking in views of the city. Ultimately, this adds to the social and economic health of the city in which they are located.

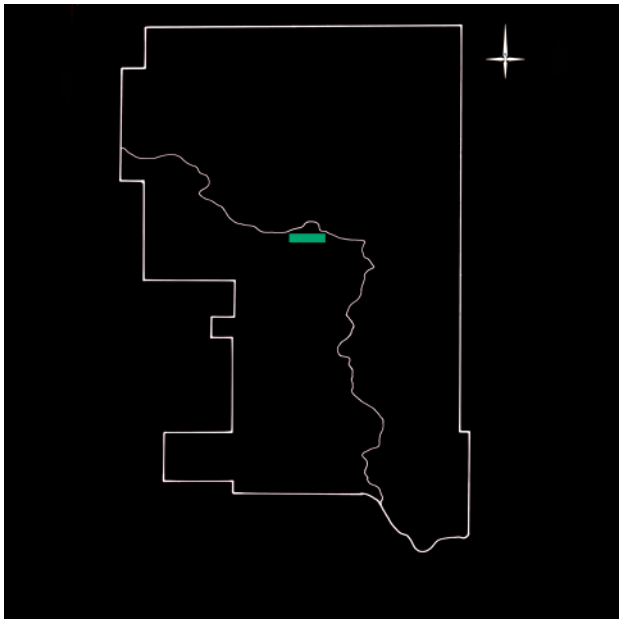


Fig. 1.03 City of Calgary perimeter with downtown core highlighted.

METHODOLOGY

The process by which this MDP was developed included:

- the consideration of the winter city context.
- the examination of existing examples of what are generally considered to be successful urban public spaces by those who visit them.
- research into the works of those who have sought to improve public spaces in cities.
- direct observation and video/photo documentation of the Plus 15 system.
- categorising the collected data in order to

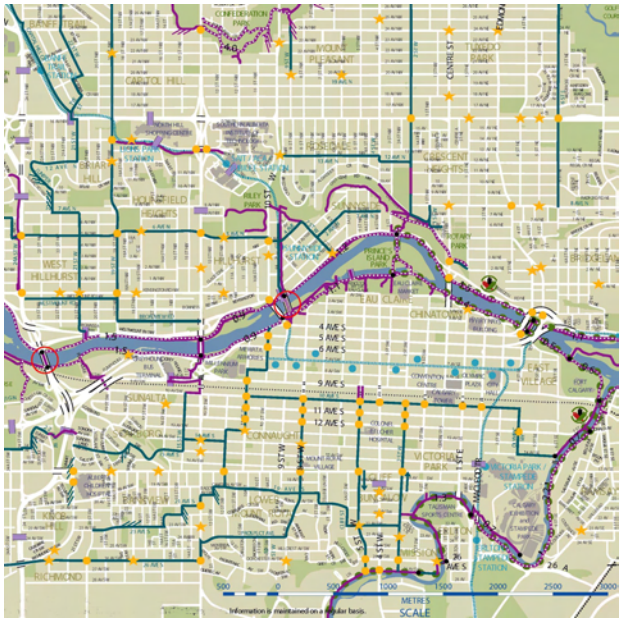


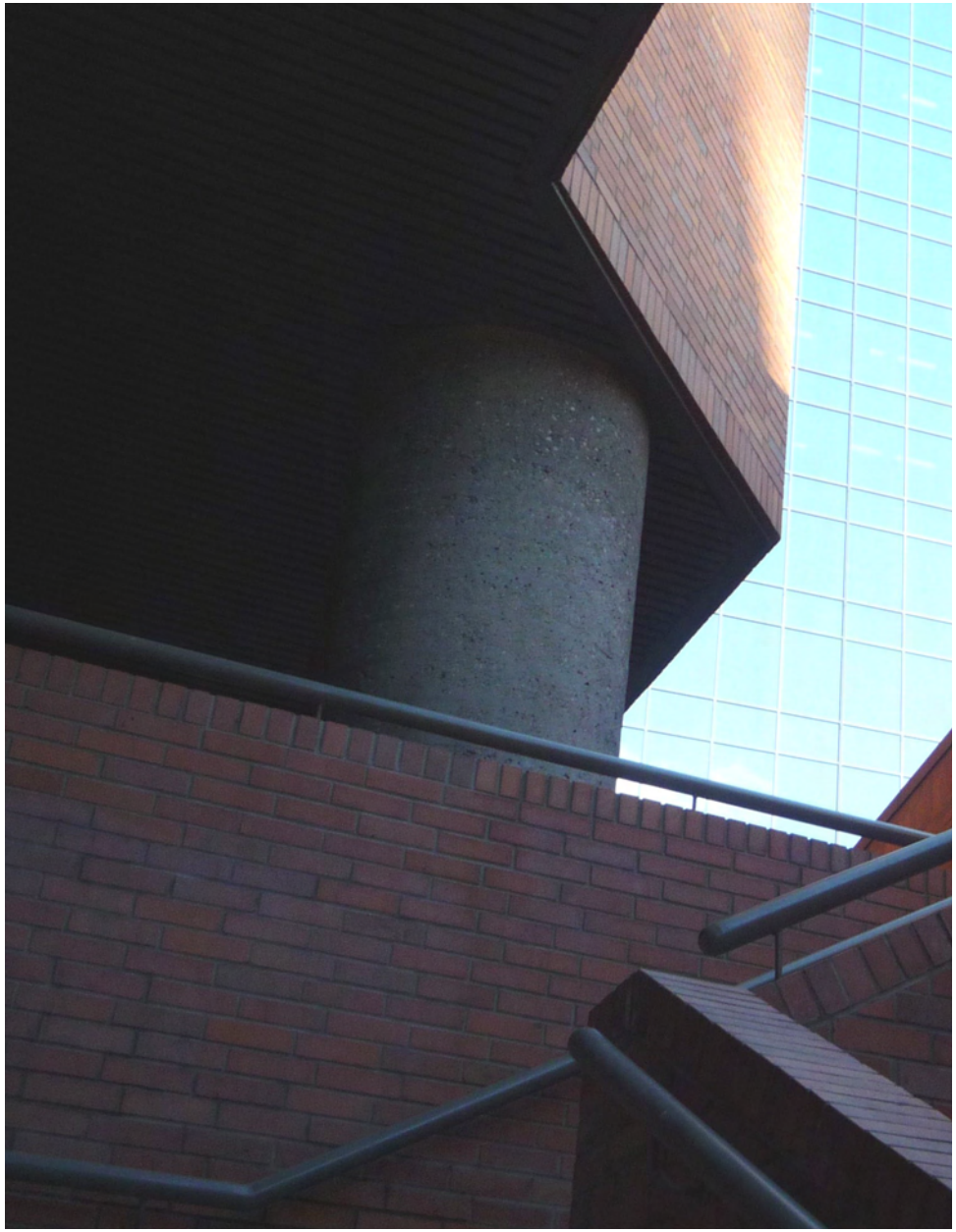
Fig. 1.04 The downtown core of Calgary, Alberta (Calgary core map).

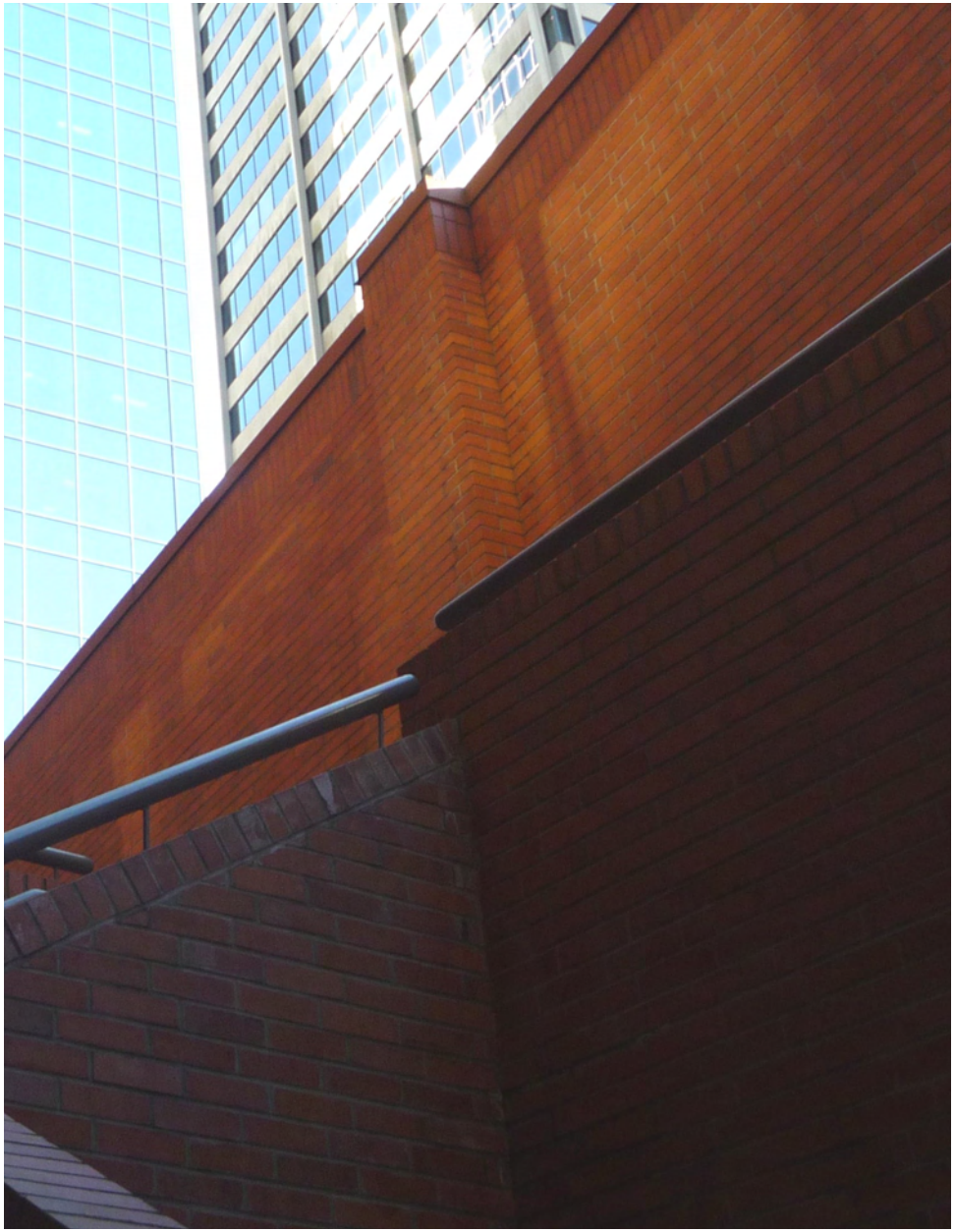
create a framework for analysis.

- qualitatively ranking spaces, using this framework of categories and elements.
- examination of relevant bylaw and contract agreements, in order to look for ways to propose improvements to the system.
- generating sketches, 3D models and renders, CAD drawings, and video for the purpose of describing possible applications of what has been learned in this study.

SCOPE

This MDP focuses on the urban core of Calgary – one which features a significant pedestrian circulation infrastructure that attempts to address the issue of adverse weather conditions. The infrastructure to which I refer is the Plus 15 system and the approach is to explore the idea of strategically blending the existing system to and from street level. Through the process of conducting research for this MDP, it became even more apparent that there are numerous possibilities for the creation of compelling urban gathering spaces in and adjacent to the Plus 15 system.





This project does not seek to prescribe specific designs. There is no one site that has been chosen. Nor is there an overall building design. Instead the goal of this MDP is to act as a guide – for the purpose of streamlining the process of designing qualitatively-engaging urban public spaces. The guideline component of this MDP is comprised of key elements that research suggests are contributors to the success of public spaces. This includes factors such as adequate seating, favourable lighting conditions, adjacency to the street, quality of space, and independent hours of operation. It is these, and a number of other key considerations, which served as the lens through which the subject of study was viewed.

DOCUMENT ORGANISATION

There are eight chapters in this book. Additionally, there is a video component which accompanies the printed text.

Chapter 1

The chapters are arranged as follows:

Chapter 1 includes the goals, methodology, and scope of the project.

Chapter 2 outlines a brief history and further sets the context.

Chapter 3 examines existing examples of notable urban public spaces.

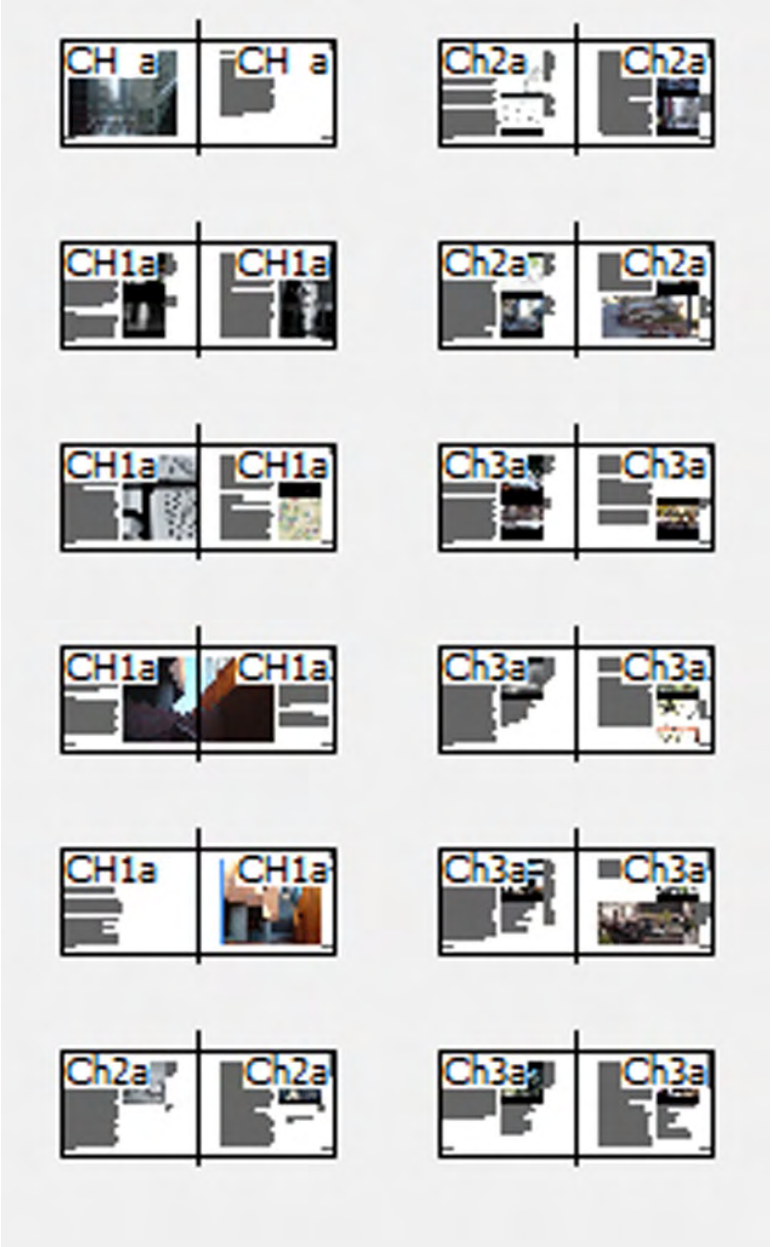
Chapter 4 describes a variety of conditions in the Plus 15 system, in order to learn what facets of the system work better than others.

Chapter 5 examines the issue of public and private space.

Chapter 6 explores the roles and responsibilities of private and public interests.

Chapter 7 analyses relevant components of Calgary's Land Use Bylaw.

Chapter 8 synthesises what has been learned through proposed ideas for augmenting the system.



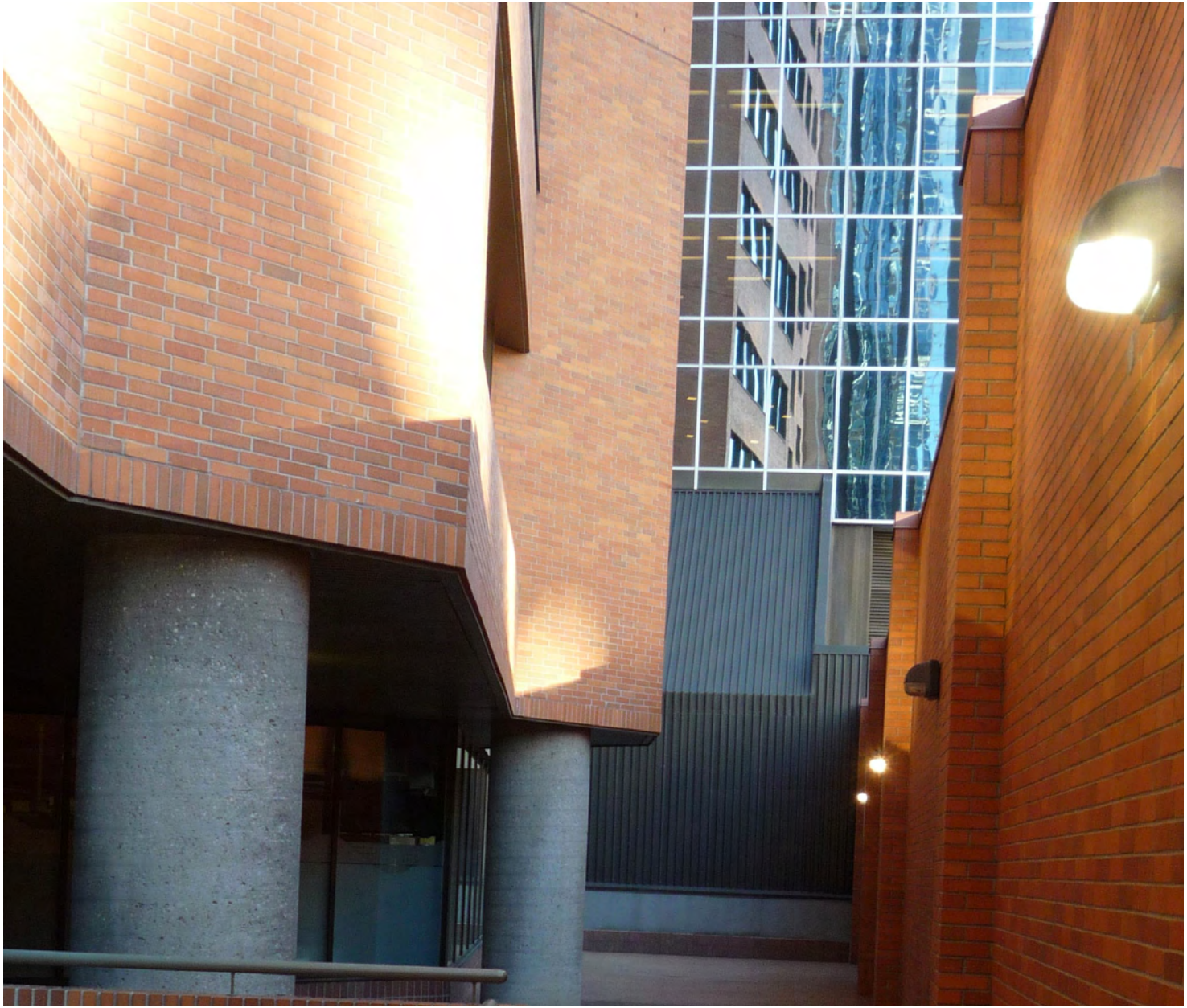


Fig. 1.05
A mix of covered and open space at the Plus 15 level.

CH 2 BACKGROUND

The importance of compelling urban gathering spaces was not lost on ancient cultures. And perhaps this is a topic that received more attention then, as compared to modern day (Krier 12). Since the days of early Greece and Rome, there has been a desire for cities to provide spaces of enjoyment for people (McDonald 22-23). Fortunately, places that attract people still retain a degree of value in the present age – as evidenced by New York City's inclusion of many of The Project For Public Spaces' recommendations in their 1975 and 1977 zoning bylaws (Whyte 15). William Whyte and his team spent over a decade analyzing and documenting usage of spaces in great detail. Their discoveries were numerous and insightful. Evidenced by the enthusiastic reception of Jan Gehl during his 2011 lecture in Calgary, there appears to be a resurgence of interest in the topic of urban spaces for public use. In fact, concerning the relevance of the study of compelling urban spaces, Architect Robert F. Gatje rhetorically asks, "Does the study of successful squares of the past make sense at a time when conditions are so different? Absolutely" (14). Indeed, the conditions have changed. The adoption of the automobile has re-shaped the context of the

Fig. 2.01 An agora or place of gathering (Steele 187).

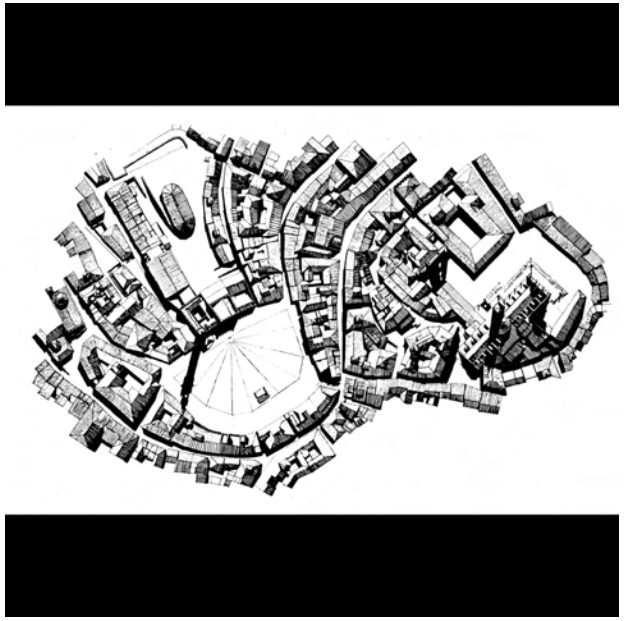


Fig. 2.02 Town centre, Siena, Italy (Gehl: Life Between 42).

city, resulting in organisation of urban space based on vehicular travel, rather than close consideration of the needs of pedestrians (Safdie 6). Traditionally, cities were designed with walking in mind. Hence, distances were a fraction of what they are today, and the layout of city plans were considerably different. In the modern age, highways have sliced cities up. Sections of cities have been isolated from one-another, leading to a reliance on vehicular traffic for certain parts of many North American cities (Kunstler 107). A surprisingly large amount of the land in modern cities is dedicated to road networks, parking lots, and other motor vehicle considerations. As Jan Gehl observes, “In most cities besieged by cars, the quality of public space has become so problematic that people avoid the city centre altogether” (New City 14).

However, the fact that there has been a shift in favour of the automobile, does not mean that there is a shortage of opportunities for the design of enjoyable urban public spaces. Although there has been a number of modern “public spaces unworthy of human affection” (Kunstler 59), often this has been the result of a lack of consideration for the pedestrian’s perspective (Gehl, New City 65). In the case of the observations of New York conducted by The Project

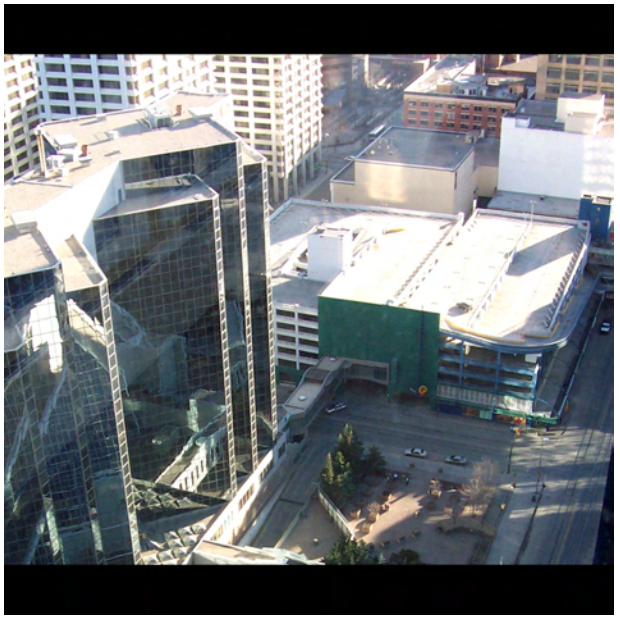


Fig. 2.03 Roads and parking lots. A re-allocation of space, in the modern age.

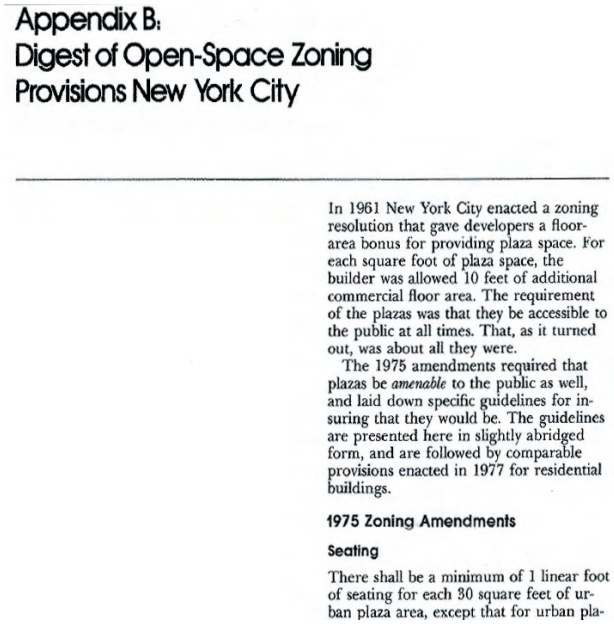
Fig. 2.04 IDS Center, Minne-apolis. Deemed one of the better all-weather spaces by Whyte. (Whyte 77).

For Public Spaces, developers were given a floor bonus incentive by the municipal government of the City of New York. In exchange, developers were to provide public spaces. However, there was little or no stipulation that these places be designed with enjoyability in mind. This resulted in a number of large and barren plaza spaces. As Whyte observed, the problem of many of these public spaces wasn't over-use – it was under-use (10). Over the past few decades, there have been improvements to many built spaces in the core of New York – largely due to adjustments to zoning bylaws (Whyte 14-15).

CALGARY AND THE WINTER CITY CONTEXT

As mentioned previously, this MDP's focus is on the Canadian city of Calgary. This section discusses the Calgary context and how it relates to what has been written so far.

Calgary Alberta sits at latitude 51°03'00"N and longitude 114°03'36"W. At an altitude of approximately 1100m, there is significant cooling of air temperature in the evenings. The average air temperature each January is –10.94°C, and in July, it's 16.31°C (based on a 22-year analysis by the NASA Atmospheric



Appendix B:
Digest of Open-Space Zoning
Provisions New York City

In 1961 New York City enacted a zoning resolution that gave developers a floor-area bonus for providing plaza space. For each square foot of plaza space, the builder was allowed 10 feet of additional commercial floor area. The requirement of the plazas was that they be accessible to the public at all times. That, as it turned out, was about all they were.

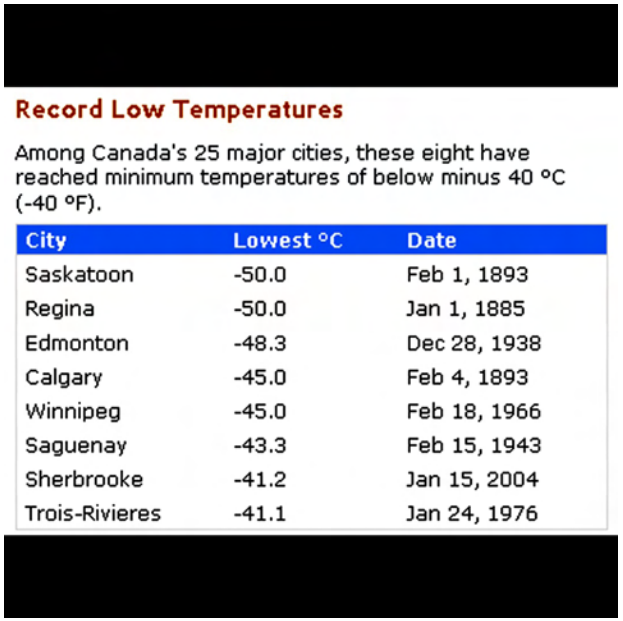
The 1975 amendments required that plazas be *amenable* to the public as well, and laid down specific guidelines for insuring that they would be. The guidelines are presented here in slightly abridged form, and are followed by comparable provisions enacted in 1977 for residential buildings.

1975 Zoning Amendments

Seating

There shall be a minimum of 1 linear foot of seating for each 30 square feet of urban plaza area, except that for urban pla-

Fig. 2.05 An excerpt from Whyte's outline of enhancements for NCY's zoning bylaws (Whyte 112).



Record Low Temperatures

Among Canada's 25 major cities, these eight have reached minimum temperatures of below minus 40 °C (-40 °F).

City	Lowest °C	Date
Saskatoon	-50.0	Feb 1, 1893
Regina	-50.0	Jan 1, 1885
Edmonton	-48.3	Dec 28, 1938
Calgary	-45.0	Feb 4, 1893
Winnipeg	-45.0	Feb 18, 1966
Saguenay	-43.3	Feb 15, 1943
Sherbrooke	-41.2	Jan 15, 2004
Trois-Rivieres	-41.1	Jan 24, 1976

Fig. 2.06 Listing of the top eight Canadian cities for record low temperatures (Osborn).

Science Data Center). The majority of the year in Calgary has an average air temperature below 10°C (Tukiainen). In the article *Planning with Winter Climate in Mind*, David Phillips ranked Calgary in-between Oslo and Kiev on the "Winter Severity Index". The higher the value, the more severe the winter conditions are considered to be. Calgary was rated a 44, Oslo a 42, and Kiev a value of 50 (71). Living in a winter city leads to an imperative for designing spaces which can shield people from what most consider to be uncomfortable conditions. This was reflected in The City of Calgary survey *The Calgary +15 System: Pedestrian Counts and a Survey of Users,* in which the most important feature of the Plus 15 system was identified as "Weather Protection" (Plan & Bldg Dept, City of Calgary 25).

Attempts to design for the Calgary climate have been made over the years. Enclosed, elevated walkways have been constructed – providing links between buildings in the downtown core (Gehl, New City 17). In order to achieve this – much like New York – Calgary's municipal government makes use of floor bonus incentives, in order to achieve trade-offs with commercial development corporations. The City of Calgary describes this as follows:

Fig. 2.07 Mid-winter in Calgary.

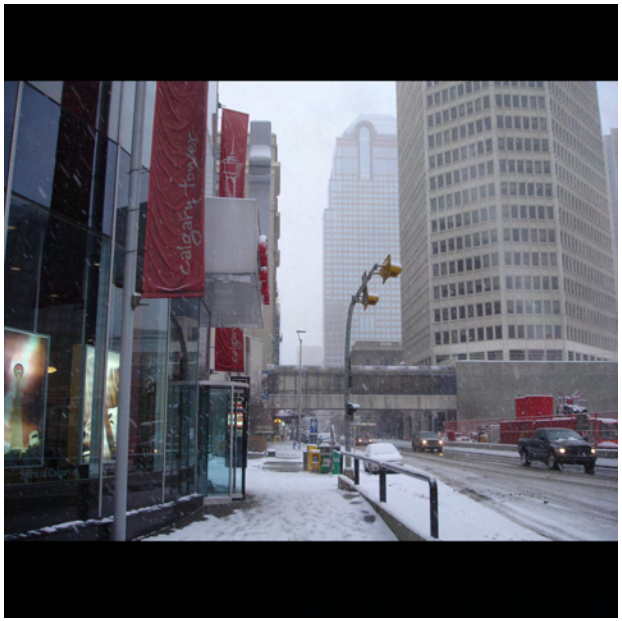


Fig. 2.08 The bridge spanning from Tower Centre to E9 / Pan-Canadian.

New developments are required to connect into the system by providing walkways and bridges that connect the development to neighbouring ones. In exchange for this, the developer is allowed to add more floorspace to the proposed building: this is known as “bonus density”. (City of Calgary web)

HAROLD HANEN

Evidence of this is the ubiquitous Plus 15 system of elevated walkways that connect much of Calgary’s downtown core. In 1966, the City of Calgary hired an architect and planner named Harold Hanen. Hanen – who apprenticed under Frank Lloyd Wright – exhibited a particular interest in both climate-relevant architecture and pedestrian traffic needs (Glenbow). Much of Hanen’s time was spent devising solutions to the issues of pedestrian safety in relation to vehicular traffic, as well as ways to provide protection from the harsh Canadian winter. Additionally, emphasis was placed on creating opportunities for compelling views of the city. It was from these criteria that the Plus 15 system of walkways was proposed. Today, Calgary’s plus 15 system represents the most extensive system of elevated walkways in the world (+15).

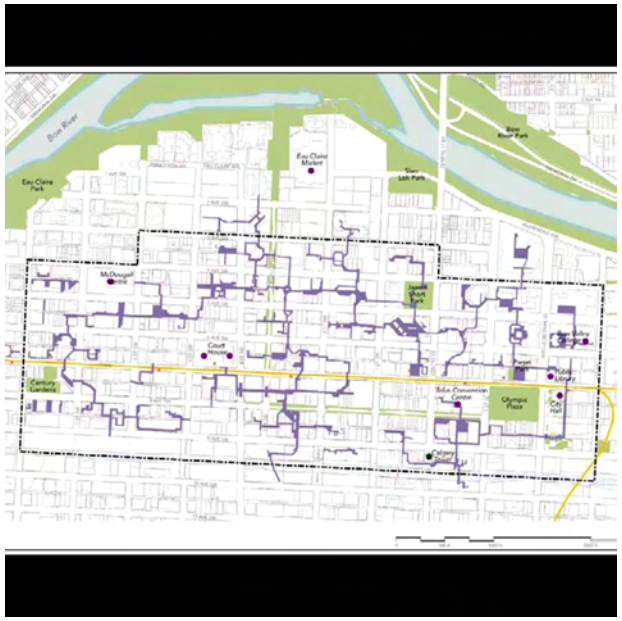


Fig. 2.09 Map of the Calgary Plus 15 system (Calgary Downtown Associa-tion 4).

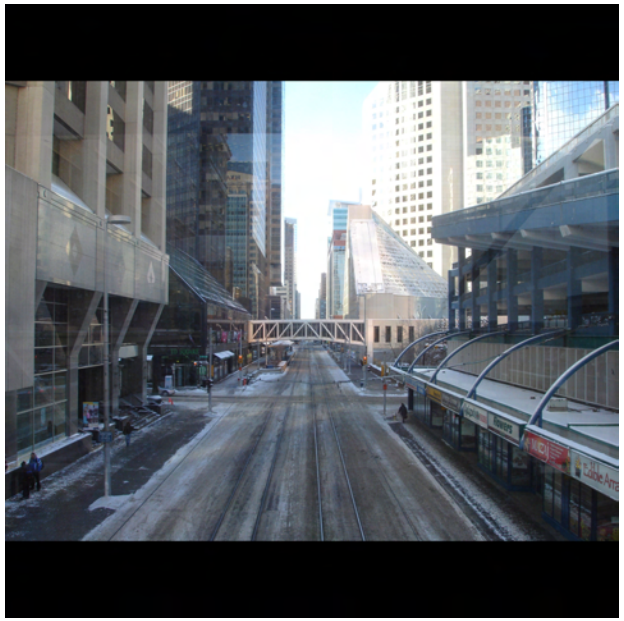


Fig. 2.10 Staying warm in a Plus 15 bridge and awaiting the next LRT train.

The majority of the Plus 15 system usage constitutes circulation. Hanen's original intention was for the Plus 15 system to also act as a series of gathering spaces (Alberta Online). Compelling views, circulation pathways, public gathering points, and protection from harsh weather conditions: It is this set of criteria, rooted in the desire to enhance the quality of life in the urban core, that forms the crux of this Project. Through the forthcoming guidelines, and embedded lessons that accompany them, it is hoped that future Plus 15 system designs will maximise opportunities for compelling urban gathering spaces.

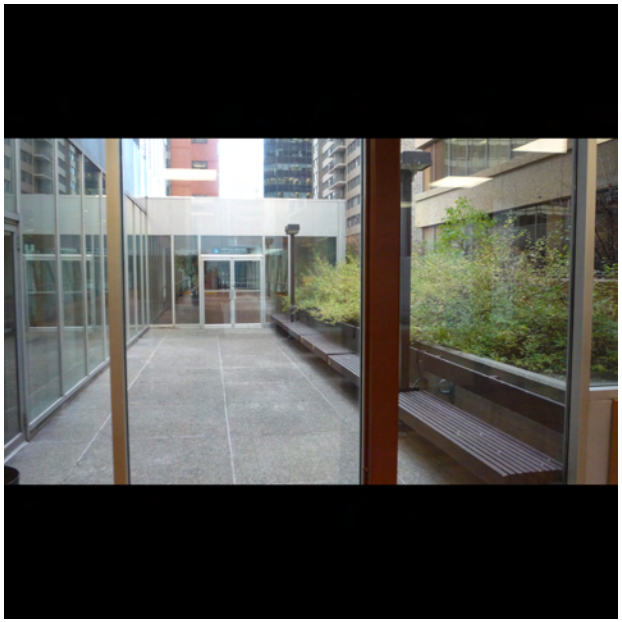


Fig. 2.11 A small seating space at the +15 level.

Fig. 2.12 A seating space at grade, placed en route between Plus 15 level and the street.

CH 3 PRECEDENTS

Design of spaces that people tend to find comfortable and inviting is both an art and a science. The creation of such spaces can begin with a highly intuitive approach, a more measured and scientifically quantifiable method of spatial design, or a combination of both approaches. In either case, questions arise as to who the principle users of the space will be, their primary activities, their needs, the furnishings and fixtures that are associated with those needs, and how items in the spaces should be arranged (Harrigan 43).

In regard to context, the types of public spaces that this MDP addresses are those located in the core of modern North American cities. Traditionally, the approach to these spaces has been to provide large open plazas. However, upon closer investigation, researchers have noted that these immense spaces can have the opposite effect of what was intended (Whyte 27). Rather than stopping and resting, many would opt to move through these spaces and treat them simply as circulation. As Sarah Gaventa observes in her book *New Public Spaces*, compelling spaces needn't be vast. She maintains that smaller,

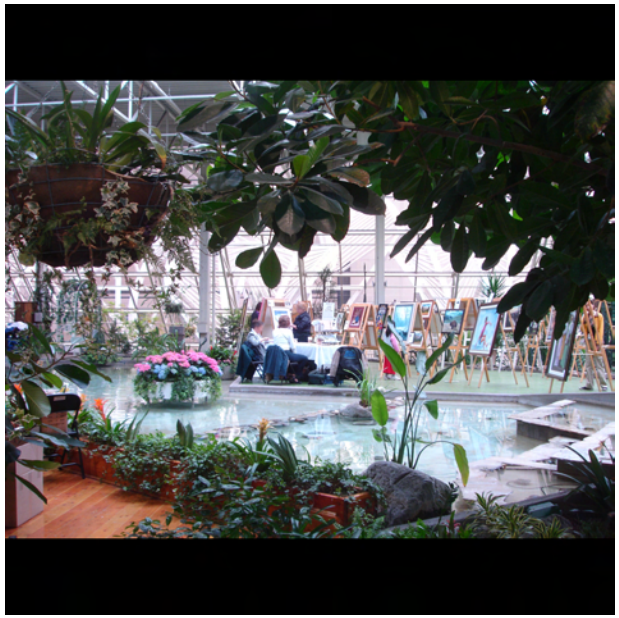


Fig. 3.01 Devonian Gardens indoor Plus 15 and Plus 30 level park.

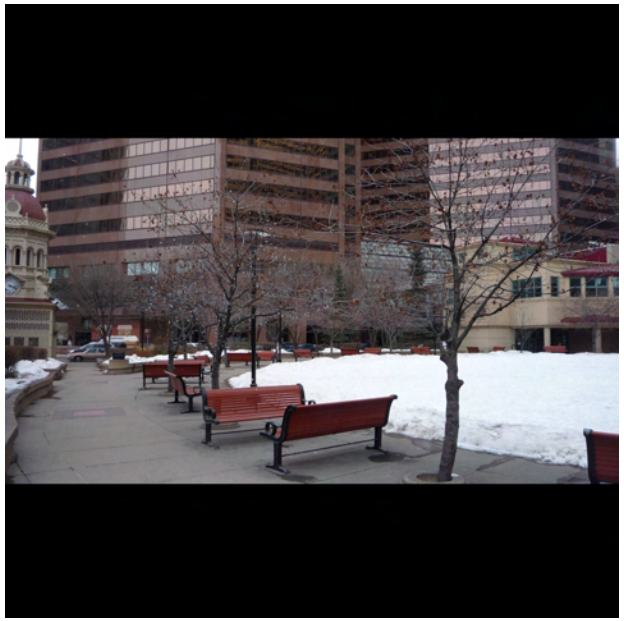


Fig. 3.02 A space with few borders.

and often overlooked, public spaces are where the attention of designers should be focussed (54). Henry Shaftoe supports this view:

> There are some ancient and modern examples to suggest that it is possible to design convivial places as a whole, but they tend to be relatively small in scale. (7)

This sentiment is echoed in Camillo Sitte's observations, including his commentary on the lack of pleasantness attributed to very large plazas, and the inclusion of guidelines for what can be considered suitable plaza sizes and shapes (44-45). Similarly, there is Sitte's observation that "the ideal street must form a completely enclosed unit!" Included with this statement is an example of a street with widened areas – suitable for kiosks and rest zones (Sitte 66).

These are the types of conditions which the Plus 15 system can offer. And, as will be shown in later examples, enclosure, edge conditions, views, and variety of scales of public spaces and rest zones currently exist at the Plus 15 level.

Fig. 3.03 A street as public space (Hertz-berger 59).

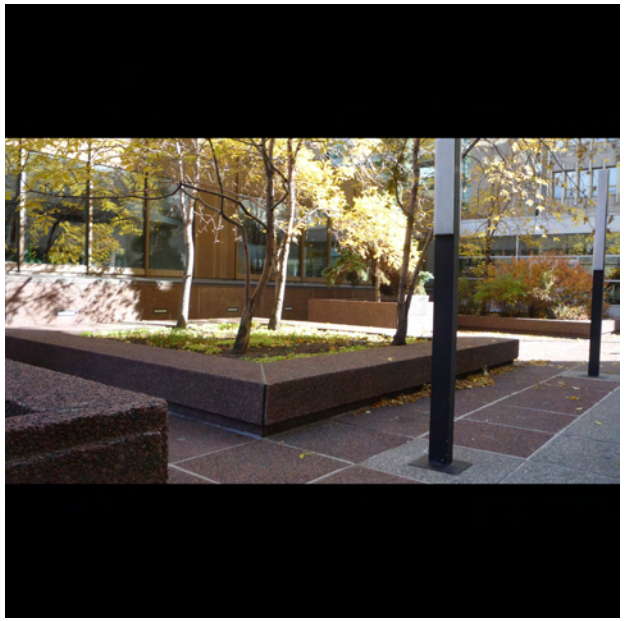


Fig. 3.04 A place to pause, at the Plus 15 level.

PALEY PARK, NEW YORK

In the case of New York's Paley Park, the scale is only 4200 square feet, yet it's regarded as highly successful (Paley Park). In addition to considerations of scale, there are a number of key elements that work together in various contexts to create a space that is well-used by people. These include seating (movable or fixed), views, sufficient light both day and night, adjacency to the street, bordered space, trees / canopy, water (both drinking water and water features), food, and protection from inclement weather (Gehl, New City 257, Jacobs 42, Whyte 112-122). Paley includes almost all of these – with the exception of weather protection.

On a micro scale, there are a number of factors that help to make some spaces more compelling than others. Even a single element like seating can be examined in finer detail. The various design choices lead to noticable changes in human behaviour – both sociological and psychological (Gottdiener 190). This includes the concept of more or less separation of the spaces in which seating is provided (Zeisel 105), seating that is loosely arranged in a circle and slightly away from pedestrian traffic (Alexander 184-5), the

Fig. 3.05 Paley Park in New York City. A small and effective public space (Whyte 56).

Elements - Paley Park:

- seating (fixed and movable)
- relatively small scale
- views
- adjacency to street
- water feature
- trees / canopy
- light

use of ledges, the tops of balustrades, partitions, and other flat surfaces as seating space (Hertzberger 181), or ergonomic considerations like performance and comfort (seating shape, tilt, height, etc…) (Bennett 42).

A successful urban gathering space is one in which people feel compelled to stop and dwell for a time. These are places where one can relax, sit, and enjoy a beverage, have a conversation, take in a view, or simply be alone in a crowd (Shaftoe 4, Gehl, New City 257). Ideally, they are spaces within which there is little or no pressure to get up and leave. A space that seems to pressure people to move along or hurry up and finish their visit, is not a successful space (Miller 112). Again, Paley has the right combination of elements, including seating, adjacency to the street, direct and reflected natural lighting, and a water wall – both for visual aesthetic and noise cancellation (Whyte 48). It also benefits from a sense of enclosure – an important factor in making a space comfortable (Ford 25).

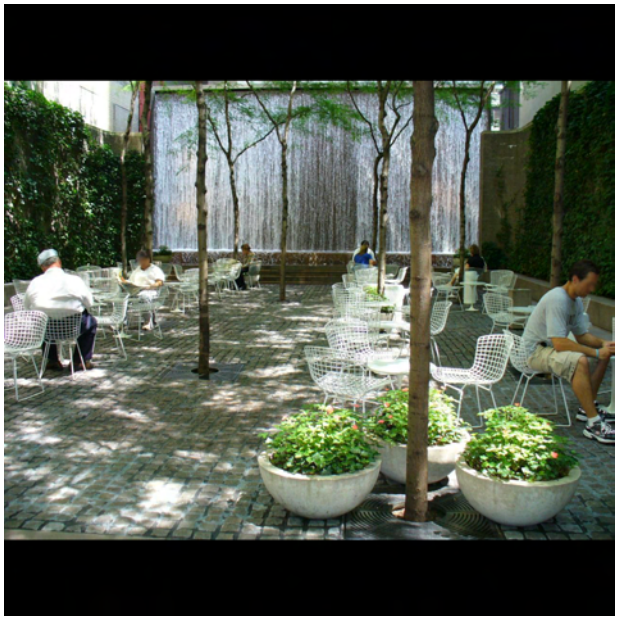


Fig. 3.06 A view of Paley showing the walls of vines and the active water wall (Paley 21667).

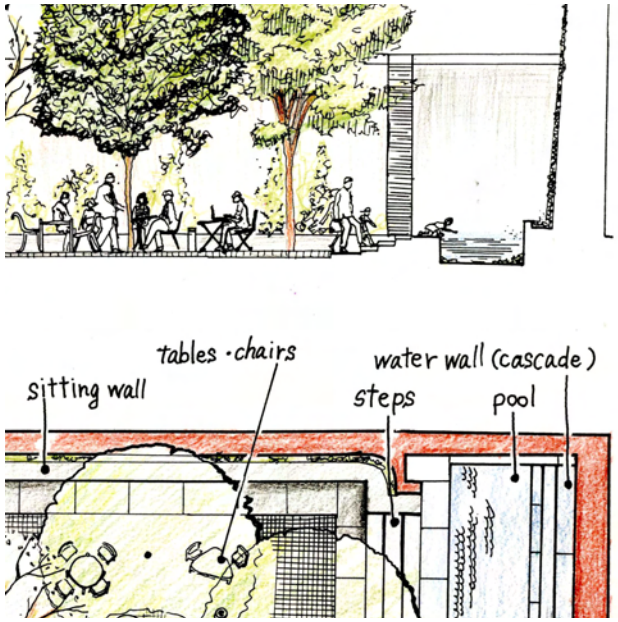


Fig. 3.07 A partial section and plan of Paley Park (infra.kochi.tech.ac-jp).

HIGH LINE, NEW YORK

A precedent that deals with elevated linear public space is the High Line project in New York. Located in Manhattan's West side, the High Line was originally constructed in the 1930s as a way to elevate freight rail above street level. Refashioned as an urban park by architecture firms James Corner Field Operations and Diller Scofidio + Renfro, phase one of this impressive pedestrian walkway was opened to the public in 2009 (High Line). This park includes fixed and movable seating, framed views in and out, numerous access points from the street (many include wheelchair access / elevators), public drinking water, separation of spaces, bordered spaces, vegetation, and non-circulation spaces. The High Line covers 22 city blocks and runs for 1.5 miles of former railroad track (Baan 131). There are two key differences from the Calgary Plus 15 system. The first is that the High Line places greatest emphasis on its park attributes, and includes circulation as a secondary aspect, whereas the Plus 15 system of walkways has been designed primarily as a system of circulation. The second key difference is that the currently completed phase of the High Line does not include enclosed spaces or protection from inclement weather, while

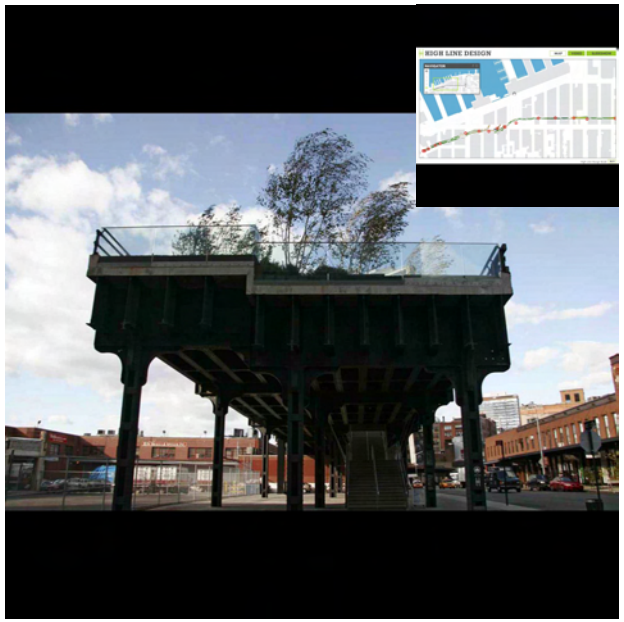


Fig. 3.08 Stair access to the High Line. One of many access points. Elevators appear at a number of vertical circulation points along the route (Access: thehighline.org).

Elements - The High Line:

- seating (fixed and movable)
- separation of spaces
- framed views
- bordered spaces
- numerous access points
- vegetation
- light
- public drinking water

Fig. 3.09 Above (inset): Plan of a portion of the High Line project (Map: Highline.org)

the Plus 15 network does.

In climates where weather conditions are moderate, the creation of public spaces lends itself well to the outdoors. However, in a winter city like Calgary, most outdoor spaces are only comfortably useable for part of the year. Hence the need to look at design solutions for dealing with inclement weather.

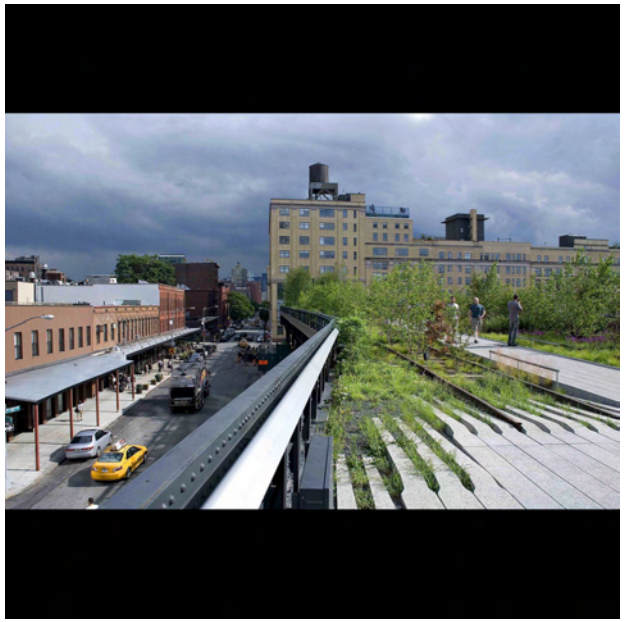


Fig. 3.10 Plants on and views from, The Highline project (Path: the-highline.org).

Fig. 3.11 Designed with relaxation in mind. Seating on the High-line (Seating: the-highline.org).

IBM ATRIUM, NEW YORK

When studying attempts to deal with the challenges of inclement weather, there are a number of precedents that are worth examining. The atrium of the IBM Building in New York is one such space.

This is a climate-controlled, indoor environment, and it represented yet another project in which Whyte's observations were tested in the modern urban context. The atrium space was designed in consultation with both William Whyte and the firm Zion and Breen – the same architectural firm that worked on the highly successful Paley Park. Their input resulted in the subdivision of space into comfortable human scale, inclusion of food kiosks, the use of canopy to enclose space, and views in and out of the space. These formed some of the key factors which contributed to the notable popularity of this centrally located urban atrium (Miller 74).

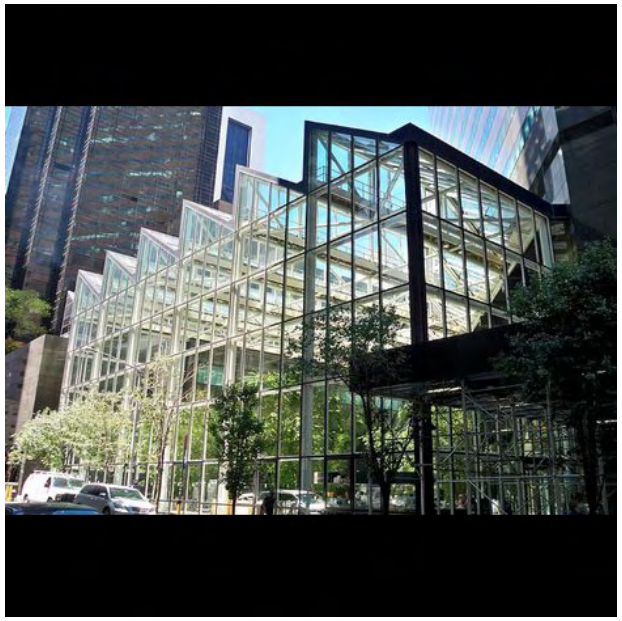


Fig. 3.12 The IBM Atrium. Public space that closely integrates with the street (IBM Atrium: wn.com).

Elements - IBM Atrium:

- seating (fixed and movable)
- separation of spaces
- food kiosks
- comfortable scale
- vegetation and canopy
- light (natural and electric)
- transparency to the street
- climate-controlled

UNDERGROUND CITY, MONTREAL

Since providing enclosed or semi-enclosed pathways between various points in the downtown core is one of the main functions of the Plus 15 system, it is useful to look at precedents that include circulation considerations above or below grade. One of these is Montreal's 'underground city'. This is a vast network of tunnels, retail, and transportation hubs that utilises natural lighting through the use of light wells (Gehl, New City 17). Both the underground systems of Montreal and Toronto feature important elements such as seating, food, sculpture, fountains, and numerous access points from grade. In the case of Montreal, there are over 120 access points, and in excess of 20 miles of tunnels (Goldman).

The main functional difference between the Plus 15 system of walkways and the tunnel systems of Montreal and Toronto is that the present implementation of the Plus 15 system is primarily designed for circulation purposes. This represents a rather limited use of the potential of the Plus 15 walkways and their adjacent spaces. Compared to underground systems, a key advantage of raised walkways is the views of the surrounding city and

Fig. 3.13 Everything in one place. A sampling of retail in Montreal's Underground city (Gare central: wikimedia.org)

Elements - Underground City:

- seating
- variety of spaces
- food kiosks
- water features
- art installations
- retail
- light (natural and electric)
- numerous access points
- integration with public transit
- climate-controlled

streets. These views serve both an aesthetic purpose and represent a notable advantage for wayfinding. Despite the views afforded by bridges and walkways, the Plus 15 network's wayfinding system still requires a degree of refinement. Modification of the Plus 15 system could ultimately result in the best of both worlds, allowing for grand views and good integration with retail and transportation hubs like Light Rail Transit (LRT) stations and bus terminals.

Fig. 3.14 Letting the daylight into the world under-ground (Place des Arts: wi-kimedia. org).

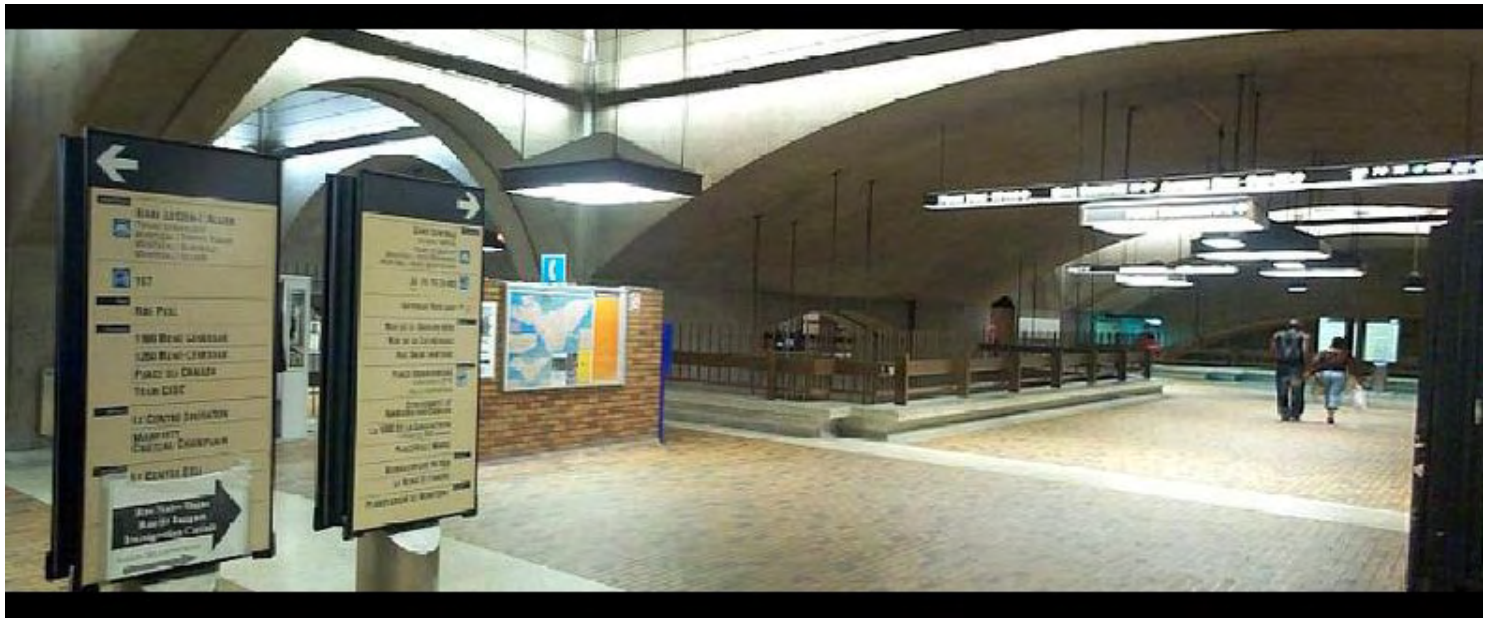


Fig. 3.15 Montreal. A close connec-tion to the metro (Bonaven-ture metro station: wikipedia. org).

DEVONIAN GARDENS, CALGARY

Calgary does have examples of successful, elevated, indoor urban gathering spaces. One of the most famous was the original Devonian Gardens. Currently under renovation, the version of the climate-controlled space outlined here was made possible through combined funding from the Devonian Foundation, Oxford Properties, and The City of Calgary. Built in 1977, this 2.5 acre indoor park featured a variety of seating (to a capacity of over 800 people), extensive views in and out, over 20,000 plants, water features, animals, numerous access points (including elevator access), close adjacency to Light Rail Transit, a good balance of natural and electric lighting, protection from inclement weather, and close proximity to retail, food, and the Plus 15 network. Included as part of the park design was an outdoor rooftop space that acted as a reflecting pool in the summer and an ice rink in the winter (Pressman 47).

Statistics from the year 2002 record over one million visitors a year, suggesting that this precedent receives a significant level of use by the public (Devonian Gardens). As with any of the precedents mentioned in this chapter, there is more to public space than

Fig. 3.16 One of Devonian's many water features.

Elements - Devonian Gardens:

- framed views
- seating
- variety of spaces (including interior and exterior spaces)
- water features
- art installations
- washrooms
- light (natural and electric)
- multiple access points
- adjacency to public transit (LRT)
- close adjacency to food and retail
- climate-controlled

the raw inventory of elements. The combination of elements and their arrangement also act as contributors to the success of public spaces. The original built Devonian Gardens design displayed a number of noteworthy configurations. Seating spaces were varied and consisted of a mix of both open and more secluded spaces. This type of variety of conditions is what Herman Hertzbeger describes as a “rich assortment of spaces” (200). Such variety of spatial conditions allows for a multitude of seating possibilities, interesting views, both compressed and open spaces, paths and stopping points, and both indoor and outdoor elevated space. Whether this level of sophistication is still present after the renovations to the gardens are completed, remains to be seen.

Each of the precedents feature a variety of important factors or elements. The examples outlined here identify a number of opportunities for the creation of successful urban spaces. There are possibilities at grade, on rooftops, exposed to the elements, enclosed and climate-controlled, linked to circulation, bordered by surrounding buildings, and tucked into the spaces between buildings. In the book *Life Between Buildings*, Jan Gehl observes that some of the most interesting spaces are those that exist between buildings – the

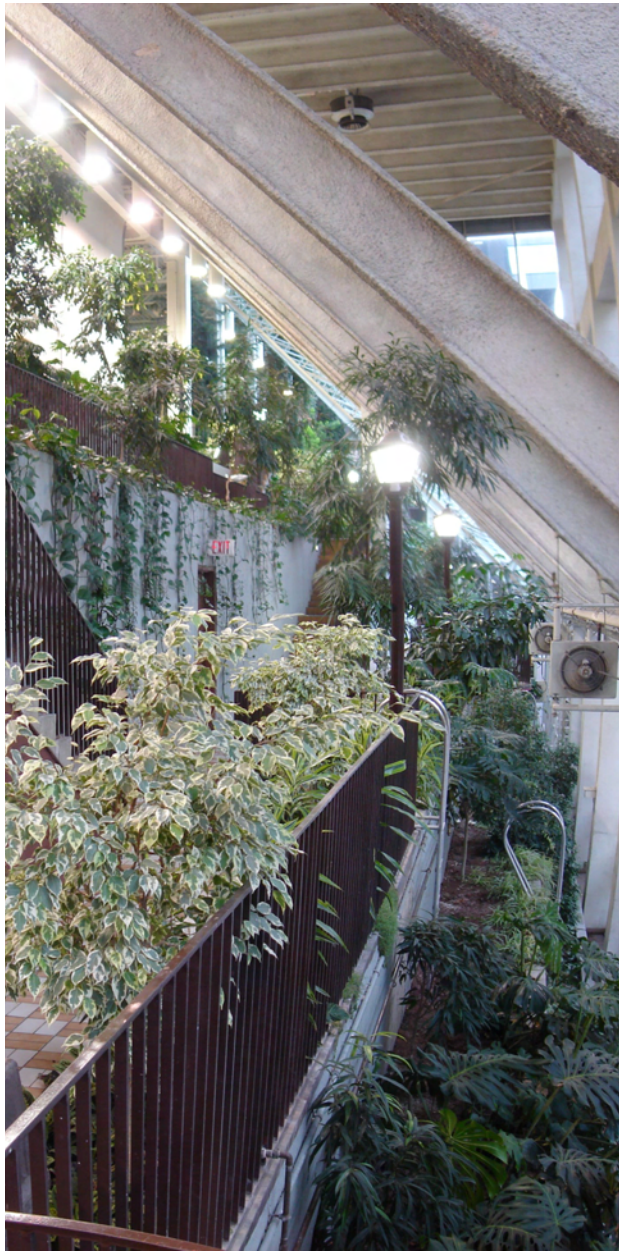


Fig. 3.17 Devonian’s extensive terracing from Plus 30 to Plus 15 level.

Fig. 3.18 Intensive landscaping is featured throughout the elevated indoor park.

closer to where people dwell the better – since "People are attracted to people. They gather with and move about with others and seek to place themselves near others" (25). This serves as a reminder of the central criteria for determining the success of a public space. The urban core has enormous potential in this regard, and the observations that have been outlined here all serve the same purpose – to attract people and give vibrancy to the life of the city.

Fig. 3.19 Gatherings and events at the Calgary Devonian Gardens.

CH 4 THE PLUS 15 SYSTEM

Over the years, the Plus 15 system of elevated walkways has often been the target of debate. Some claim that it competes with existing streets (Babin). In reality, the levels of use and perceived health of pedestrian streets in Calgary are influenced by a number of factors. Upon touring the downtown core, it becomes apparent that many of the ills that Whyte observed in New York also apply to the Calgary context. These include the blank walls that many of the office towers face to the street, block after block of raised podiums, narrow sidewalks, and wind-swept spaces that are devoid of seating (Calgary Downtown Association 86). And while the health and vibrancy of the streets at grade are indeed important, they need not be exclusive from the Plus 15 system. Instead, the Plus 15 system could be considered another type of street. Just as streets interconnect horizontally, the Plus 15 system can be regarded as possessing both horizontal and vertical paths. A combination and integration of elevated walkways and at-grade streets could result in a more fluid pedestrian infrastructure. Leveraging the benefits of both, while outlining a logic for their layout and treatment as a total system, has the potential to result in a more effective winter city

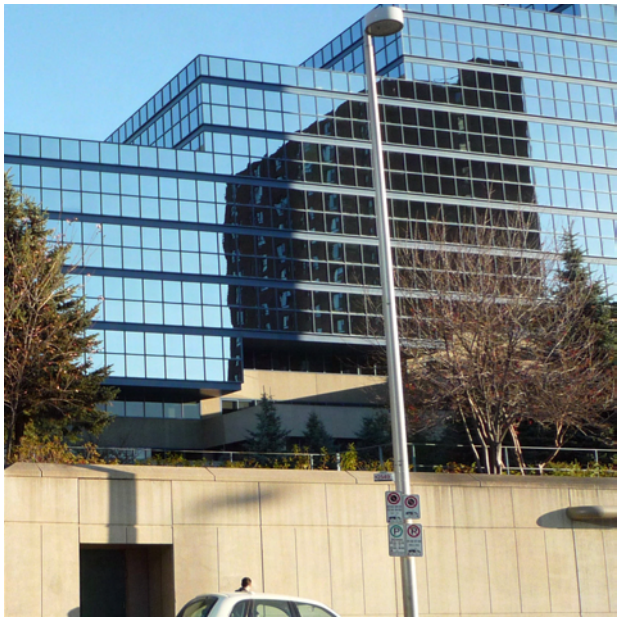


Fig. 4.01 City Hall on 9th Avenue SE

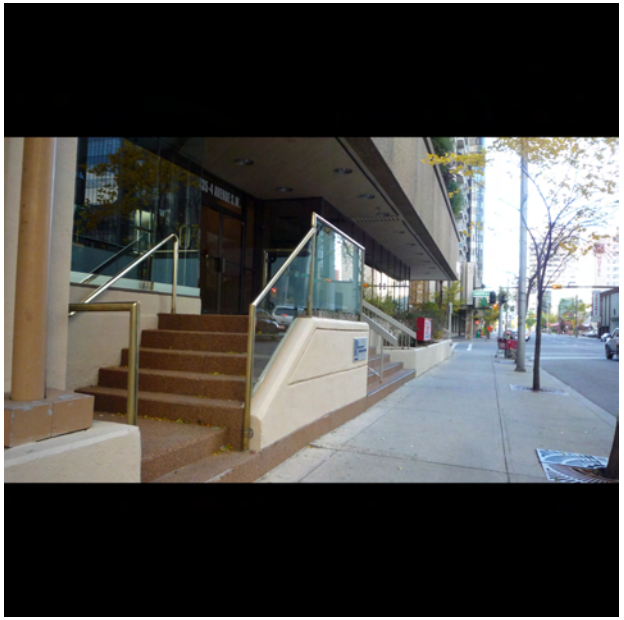


Fig. 4.02 Access raised from street level. 4th Avenue and 3rd Street SW.

(Downtown Handbook 39,44).

Particularly, in a winter city such as Calgary, the Plus 15 system offers a number of important benefits. In the 1988 Plus 15 survey, by far, respondents listed protection from inclement weather as the number one feature of the Plus 15 system (+15 Survey 19).

A better winter city was one of Harold Hanen's goals with the concept of the Calgary Plus 15 system (Alberta Online). The mechanisms by which the Plus 15 system became a reality are tied closely to the floor bonusing system. Much like the bonusing system in New York, Calgary's system of bonusing is based on a set of formulae which describe the amount of additional floor space a developer receives for providing certain types of public amenities. These include plazas, interior public spaces, Plus 15 bridges, and art installations. According to the City of Calgary's *+15 Policy,* a Plus 15 bridge is the part of the system that exists beyond the property line of the development and spans a street, avenue, alley, or other right of way. A walkway, on the other hand, constitutes the publicly-accessible circulation spaces that cut through a building and connect to the street or to another Plus 15 bridge (4). The rules for walkways

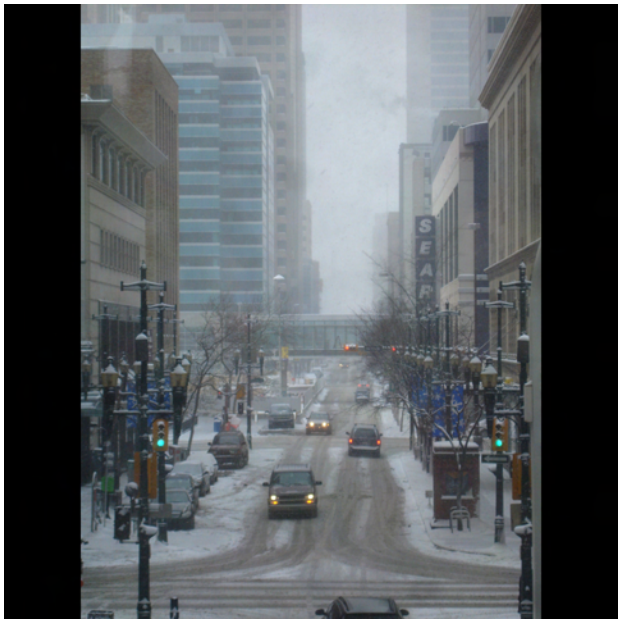


Fig. 4.03 A familiar scene during the winter months in Calgary, Alberta.

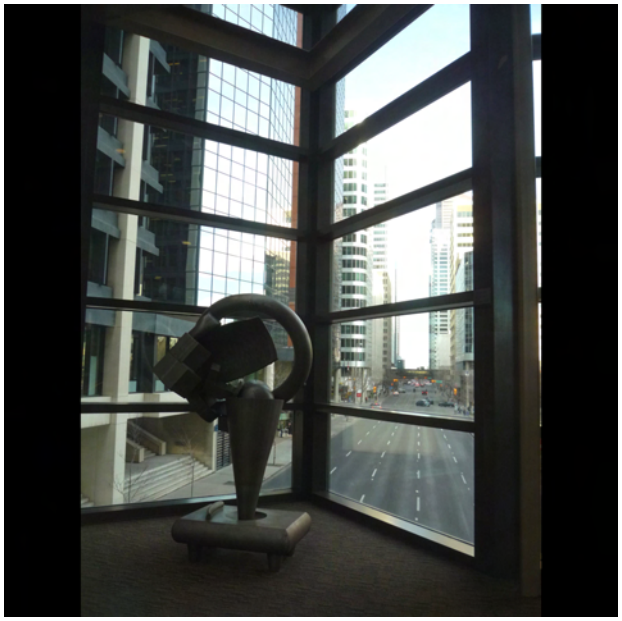


Fig. 4.04 Sculpture in a +15 bridge that strategi-cally juts out to form a day-lit display case.

and bridges differ, and this has been used to the advantage of the more intensively designed parts of the Plus 15 network.

Limits have been set in policy, regarding what part of the downtown core the Plus 15 network is allowed to extend to. The boundaries of this system of bridges and walkways spans from 9th Street SW to 3rd Street SE and from 3rd Avenue South to 10th Avenue South (+15 Policy 3).

Also clearly stated in policy are the objectives of the Plus 15 system. These include the provision of access between the major transportation nodes within the city centre (i.e. parkades, LRT stations, etc.) and the major downtown destinations (i.e. offices, retail core, major cultural and open space facilities) (+15 Policy 6).

The actual Plus 15 system is more than just the bridges that connect buildings. Similar to what is mentioned in the *+15 Policy,* the *Calgary Land Use Bylaw 1P2007* is somewhat more specific in its definition of a Plus 15 bridge. It states that “plus 15 bridge or +15 bridge means that portion of a +15 system located outside of the setback lines of a site over a right of way, other than a lane, or over a loading dock or vehicular area”. This is distinct from a Plus

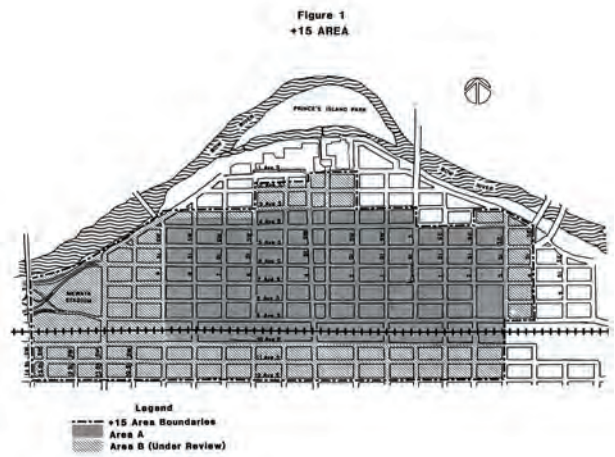


Fig. 4.05 Plus 15 system boundaries (+15 Policy 3).

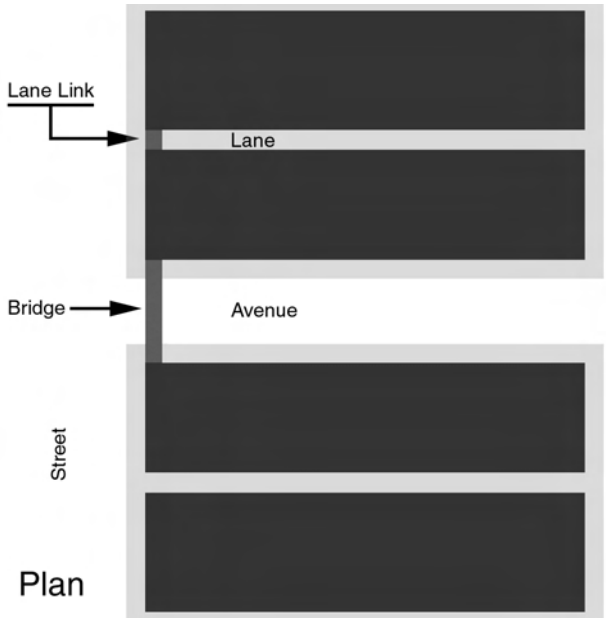


Fig. 4.06 Plan diagram of two blocks, laneways, Plus 15 lane link, and Plus 15 bridge.

15 walkway, which is defined as “that portion of a +15 system located within the setback lines of a site” (Part 10; 11).

Additionally, there are links that connect over the lanes that run parallel to avenues. These are referred to as Lane Links. Furthermore, there are the spaces that allow for connection to and from grade (via stairs, ramp, escalator, or elevator). These spaces can include indoor or outdoor plazas at grade or the Plus 15 level, terraced spaces that follow circulation between the street and the Plus 15 level, public spaces at grade that link between vertical circulation areas (access points), as well as indoor or outdoor parks that are connected to Plus 15 walkways and bridges (1P2007 Part 10; 176-193).

Minimum dimensions are listed in the City documentation. The *+15 Policy* states that the minimum Plus 15 access stair width is two metres, stairs must be identifiable from the street, elevators are to be provided with access to both grade and Plus 15 level, and signage is to be provided. Furthermore, bridges must contain at least 75 percent clear glazing on wall surfaces, are intended to be enclosed and environmentally controlled, and lighting of bridges and

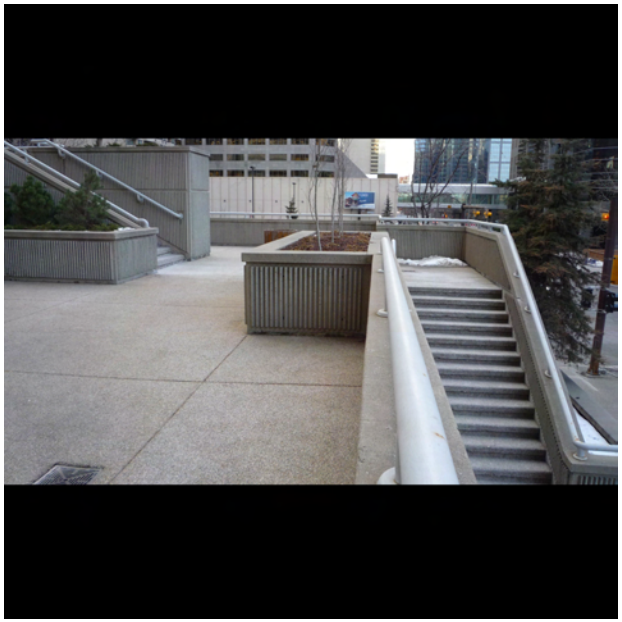
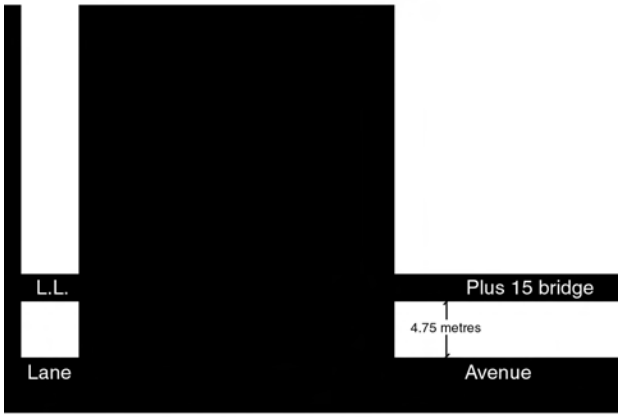


Fig. 4.07 Terraced outdoor spaces, between grade and the +15 level.



4.75 m clearance over streets and avenues
6 m clearance over Light Rail Transit lines

Section

Fig. 4.08 Sectional diagram of Plus 15 lane link, Plus 15 bridge, and bridge height.

stairs are to be a minimum of 43 lux (+15 Policy 12-13).

These policy guidelines were created for the purposes of ensuring accessibility and comfort for the users of the system. As such, it is useful to examine and contrast examples of parts of the Plus 15 system that are deemed more successful, as well as sections of the system that are generally regarded as less successful.

SYSTEM POSITIVES

A notable section of the Plus 15 system is the rooftop space between 4th and 5th avenue and 4th and 5th street SW. This is a space that features four access points to grade, access points to the Plus 15 network, seating, sculpture, green space, borders, and nearby indoor retail. Together, they combine to break the tendency to treat the system as pure circulation. Instead, those who pass through this part of the network are invited to stop to enjoy the weather, the views, or a good conversation over lunch. Interestingly, the layout of this space is similar to the recommended plaza layout featured on page 138 of Camillo Sitte's book *City Planning According to Artistic Principles.* However, this is space that is suitable for the warmer months of the year. For it to truly work, it needs to be

Fig. 4.09 Plus 15 bridge in its natural environment.

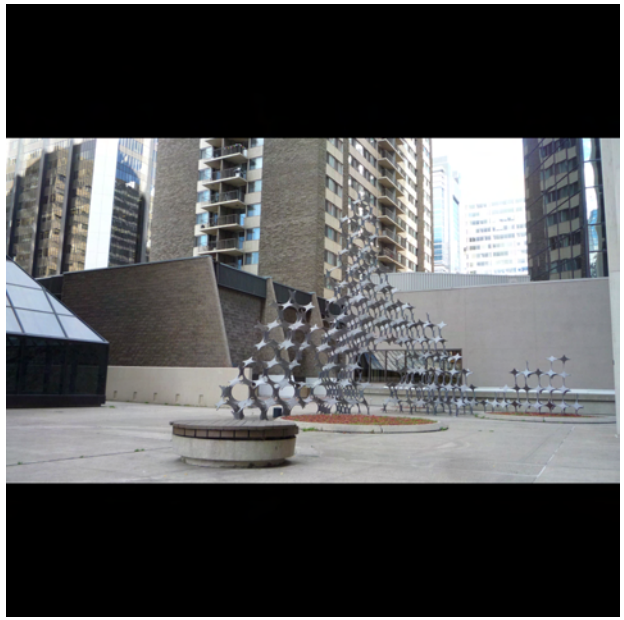


Fig. 4.10 Seating, artwork, and many means of accessing the public space from the streets and surrounding buildings.

modified for protection from colder conditions, while still allowing for open-air spaces during the warmer months.

Design for winter conditions and the Canadian climate is an important benefit that the Plus 15 system offers. For a winter city, such as Calgary, taking this type of approach and applying it to urban gathering spaces is one of the keys to successfully designing such spaces. Harold Hanen was aware of this when the Plus 15 system was conceived, and displayed a strong interest in design solutions for winter conditions (Alberta Online). There are those who argue that there is little need to create climate-controlled spaces for winter cities, and that people should learn to simply enjoy being outside in the winter months (Babin). However, as Jan Gehl observed, there is a significant difference between spending time out of doors in the dead of winter because they choose to (sports, recreation) and being exposed to the elements because they have no other choice (work, obligations). Also often overlooked are those who are required to brave the cold in nighttime conditions, people with limited tolerance for cold weather, the elderly, children, and those in wheelchairs or of limited mobility. This shifts the concept of a 'want' into something more

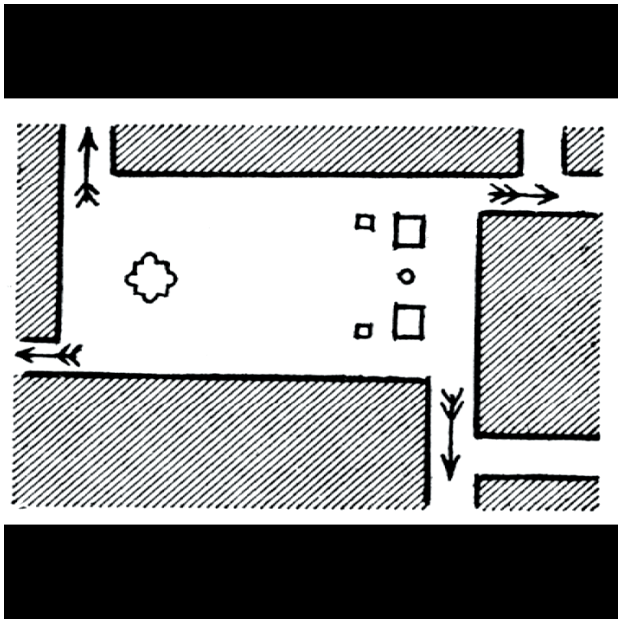


Fig. 4.11 Camillo Sitte's diagram of a suitable modern plaza lay-out (138).

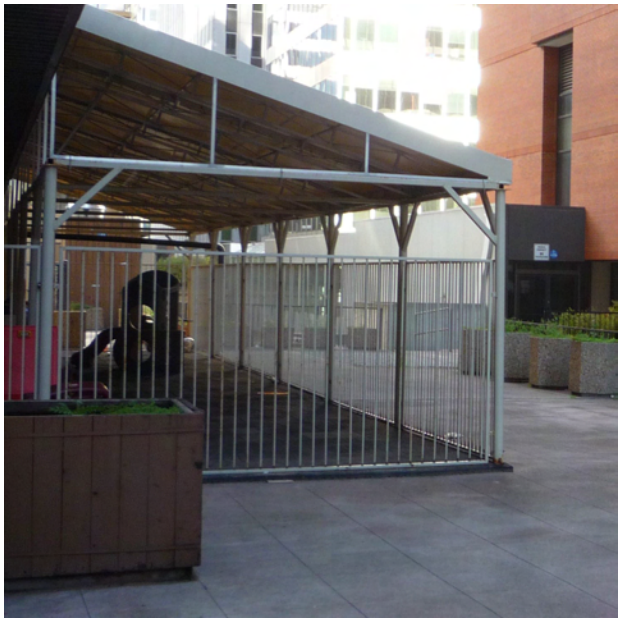


Fig. 4.12 Daycare facility at Plus 15 level.

akin to a ‘need’ (Life Between 11). To quote the *City of Calgary Access Design Standards* documentation:

> Since non-ambulatory persons have limited mobility, adverse weather conditions can hinder their movement. The Plus-15 system provides alternative routes through the downtown that are always warm and dry. The glass construction allows a visual connection with the outdoors, reducing security problems. (70)

Located on the West edge of the Calgary downtown core is the section of the Plus 15 network that includes the area between 8th and 9th avenue and 6th and 7th street SW. Here is a series of spaces that extends to the North and West and one that ties the various elements together. Within this section of the Plus 15 network, grand spaces provide extensive views, vast amounts of natural lighting, seating, retail, food, atriums, and plants. Regardless, there are a few key issues here: One is the harsh exterior transitions between the interfaces at the street and the Plus 15 network itself. The other is the lack of perceived publicness of the spaces, due to shared space between public and private programs.

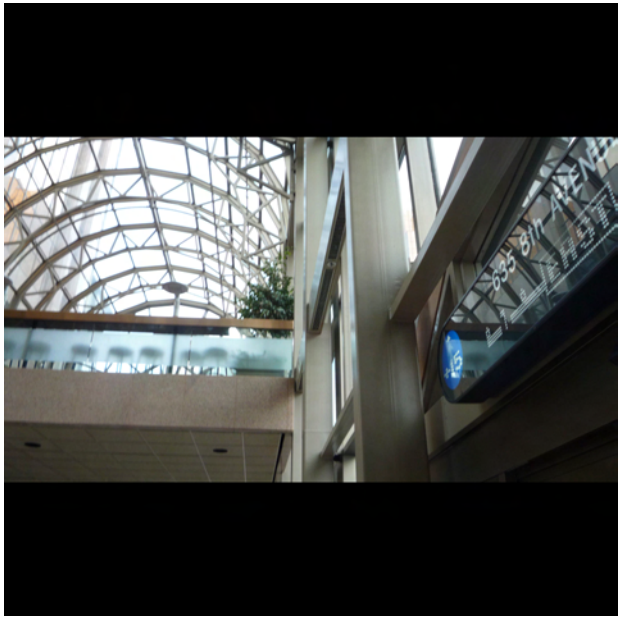


Fig. 4.13 Space contiguous with and above the Plus 15 level.

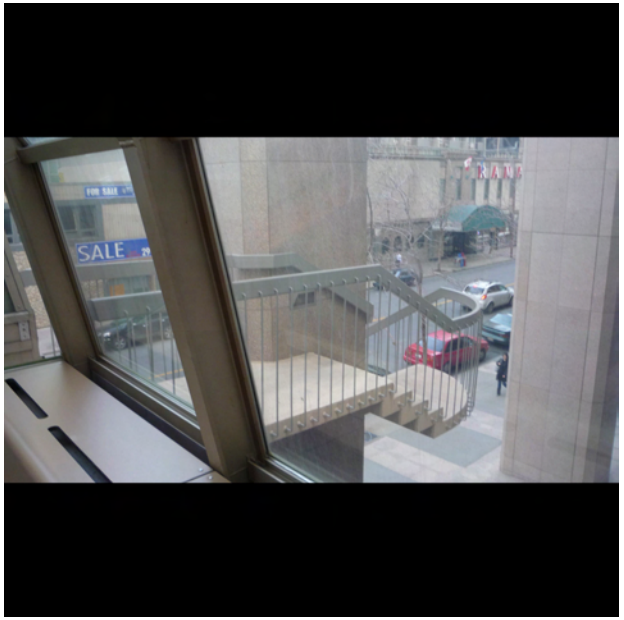


Fig. 4.14 Not a first choice as a means of egress for those with a fear of heights and open spaces.

AIR RIGHTS DEVELOPMENT

A section of the network that appears to be quite successful, but actually utilises bridges that are not defined as Plus 15 bridges, is currently referred to as “The Core” and extends from Scotia Centre through to Holt Renfrew. There are a number of attributes assigned to Plus 15 bridges that help make them “Plus 15s” by definition. These include the fact that they are intended to be compatible with retail development, are part of the Floor Area Ratio bonusing system of development incentives, are required to have extensive glazing, and that they are a maximum of 6 metres in width (+15 Policy 12). This last item is the key element that differentiates a Plus 15 link from air rights developments like the ones that cross 3rd and 4th Street SW along 8th Avenue (1P2007 Part 10; 170). While the Plus 15 bridges still fall within the jurisdiction of the City of Calgary, these larger air rights developments are fully private spaces and do not adhere to the 6 metre width limit. As such, these larger bridges represent a greater perceived separation between walkway and the street. This is the type of development that can result in excessive shadowing of city streets, and greater isolation from the street.

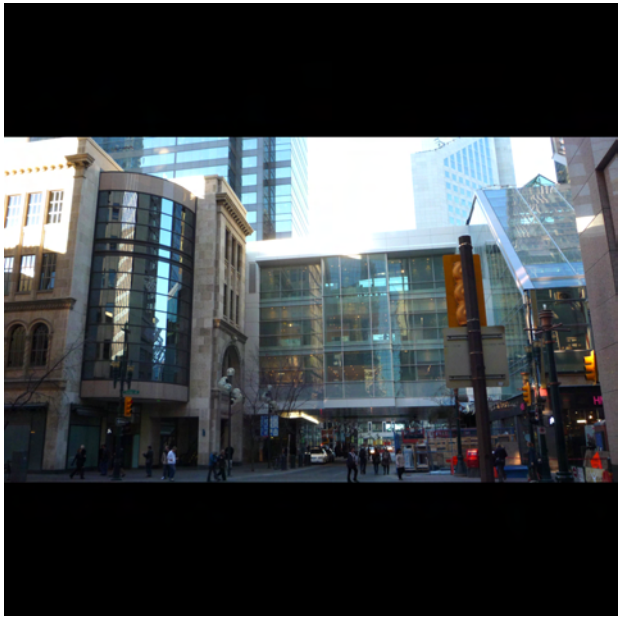


Fig. 4.15 An air rights development in the heart of the downtown retail district.

Fig. 4.16 Another air rights development. Technically, not a Plus 15 bridge.

ROOM FOR IMPROVEMENT

Despite attempts to address issues of safety, access, and the relationship to the street, these issues have not been resolved in all cases. There are many sections of the Plus 15 network that suffer from a variety of ills. Some of the less successful nodes are compressed (narrow stairs or corridors leading up to the links), non-descript entry points from street level, poor lighting, maintenance issues, lack of glazing in stairwells, and street access points that are elevated enough from the street, as to suggest fully private space (Calgary Downtown Association 77, 86, 94).

In terms of public access, the City reserves the right to enforce hours of access to the Plus 15 system, to a maximum of 24 hours a day, 7 days a week (+15 Policy 11). This is done in order to attempt to restrict developers and building owners from closing links to the Plus 15 system at early hours. The current access schedule is arranged so that the sections of the Plus 15 network that are closest to the major retail areas are open latest, with a reduction in daily access hours as one moves farther from the sections of the downtown core that are deemed most vibrant or active (+15 Walkway Map 1). In the case

Fig. 4.17 Map showing two sets of hours of operation for the +15 network (The City of Calgary).

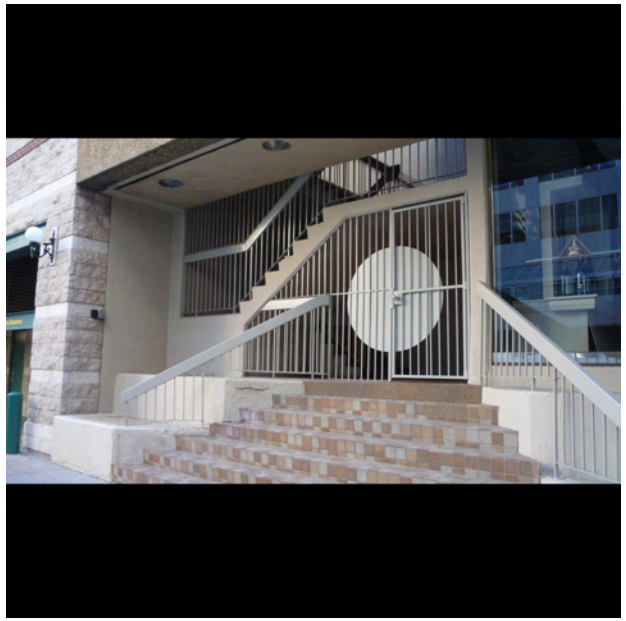


Fig. 4.18 Raised and locked. 4th Ave and 3rd Street SW.

of the Plus 15 system, the City is granted a certain degree of power over how the system is managed. And this is one of the main points of leverage that allows for improvements to the system. Outside of what is stipulated in policy, however, developers and owners control a number of aspects of the day-to-day operation of the system. The division of powers between the City and building owners will be covered in a later chapter.

THE SIX CATEGORIES

Having looked at existing precedents and numerous conditions in the Plus 15 system, the next step was to compile a manageable data set. This resulted in a set of six categories. These categories are: **[Access]**, **[Aesthetics]**, **[Amenity]**, **[Comfort]**, **[Navigation]**, and **[Security]**. Each category contains a number of key elements that are conducive to the creation of positive and enjoyable public spaces.

Rooted in existing research conducted by astute observers, such as Gehl, Jacobs, and Whyte, these categories and elements form a lens or framework through which controlled analysis can be conducted.

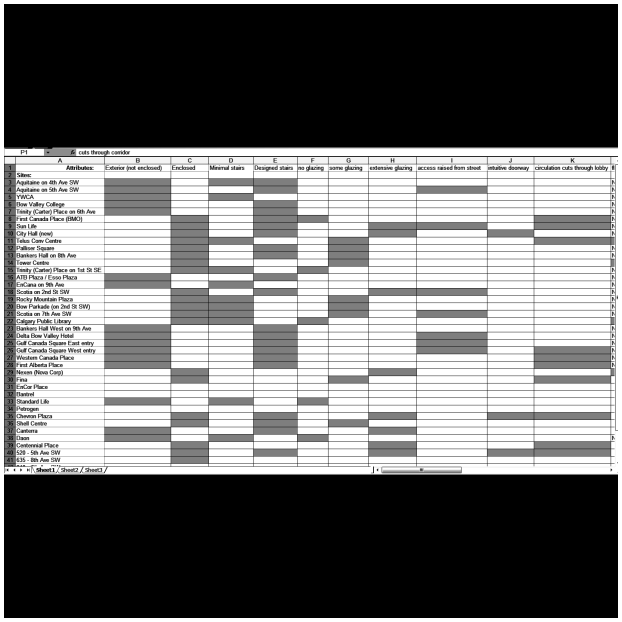
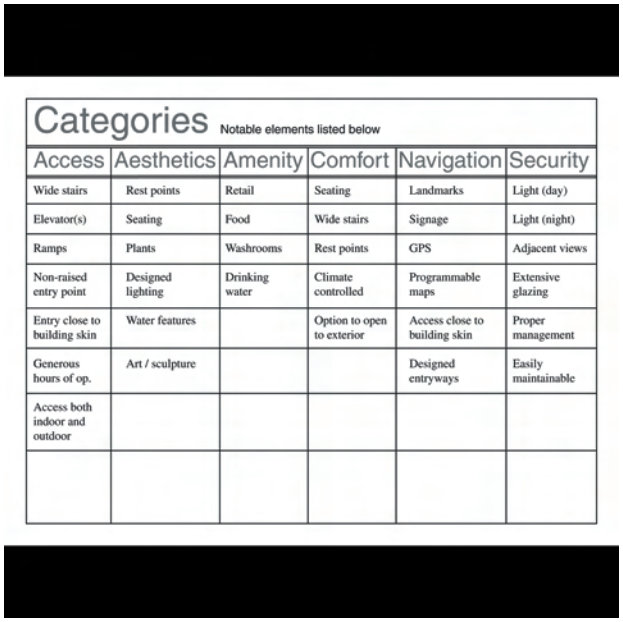


Fig. 4.19 Comparing spaces in spread-sheet format.



Categories	Notable elements listed below				
Access	Aesthetics	Amenity	Comfort	Navigation	Security
Wide stairs	Rest points	Retail	Seating	Landmarks	Light (day)
Elevator(s)	Seating	Food	Wide stairs	Signage	Light (night)
Ramps	Plants	Washrooms	Rest points	GPS	Adjacent views
Non-raised entry point	Designed lighting	Drinking water	Climate controlled	Programmable maps	Extensive glazing
Entry close to building skin	Water features		Option to open to exterior	Access close to building skin	Proper management
Generous hours of op.	Art / sculpture			Designed entryways	Easily maintainable
Access both indoor and outdoor					

Fig. 4.20 The six categories of analysis

For example, when considering hours of operation or the distance one needs to travel into the lobby of a building before they can get to the Plus 15 stairs or elevator, the matching category would be [Access]. If it's a question of being able to locate which elevator is assigned to public use for Plus 15 access, then the category of [Navigation] would be the closest fit. So, if a planner decided that it might be a good idea to extend the hours of operation for the periphery of the Plus 15 system, in order to allow apartment-dwellers improved evening access to the downtown core's arts and entertainment district, the [Access] category would be the place to start. Then, there's the task of making sure people can locate the appropriate links that will lead them to the theatre or other desired venue. [Navigation] can help with this, while also providing a starting point for addressing way-finding issues for those who are starting out at street level, from underground parking, or from hotels. Paths through the network needn't just be mapped in terms of using only Plus 15 bridges and walkways. Instead, a path displaying the use of a combination of streets and Plus 15 bridges could also be presented to the user of the system.

This concept of navigation is one that is closely

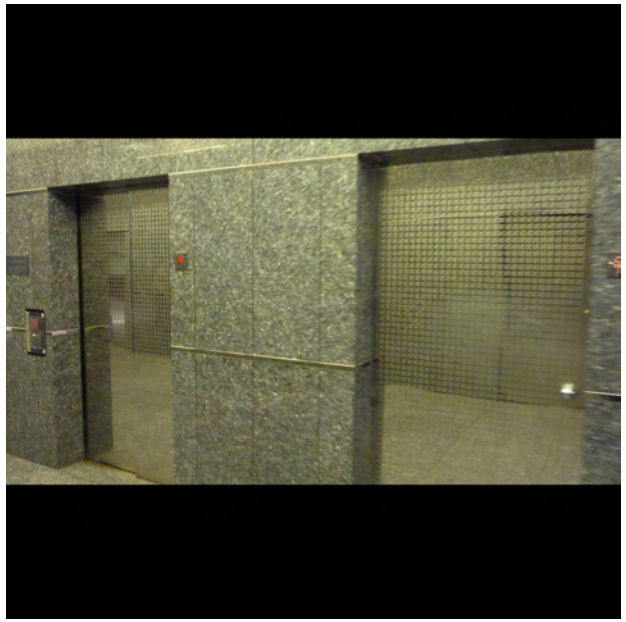


Fig. 4.21 Plus 15 elevators. Buried in the building's core. Non-descript.

Fig. 4.22 A sign for the +15 system. How many are easy to spot?

related to what Kevin Lynch refers to as a city's legibility or how easily things in the system can be recognised (3). With the Plus 15 system – and with underground systems – there has been a long-standing challenge of finding one's way around in the system. The Calgary Downtown Association's *Calgary Downtown Retail District Strategy* document maintains that the "Interior navigation of the +15 system can be difficult, with indirect corridors through buildings, poor wayfinding signage, and multiple turnoffs and connections. " (100). In an attempt to both assist in the process of way-finding and to help people become more aware of the existence of the public spaces that are available to them, various strategies have been employed. The flat-panel displays that have been placed throughout the Plus 15 system are a start, and represent an updateable map display and search-base for users of the system. Signage has been the other primary method of identifying direction, adjacent streets, and buildings. All of this is in addition to the fact that the Plus 15 bridges allow for views out. While these views do assist in the process of navigation – in some cases – it still isn't a complete solution.

A possible addition to the existing system of way-finding tools is the use of Global Positioning System

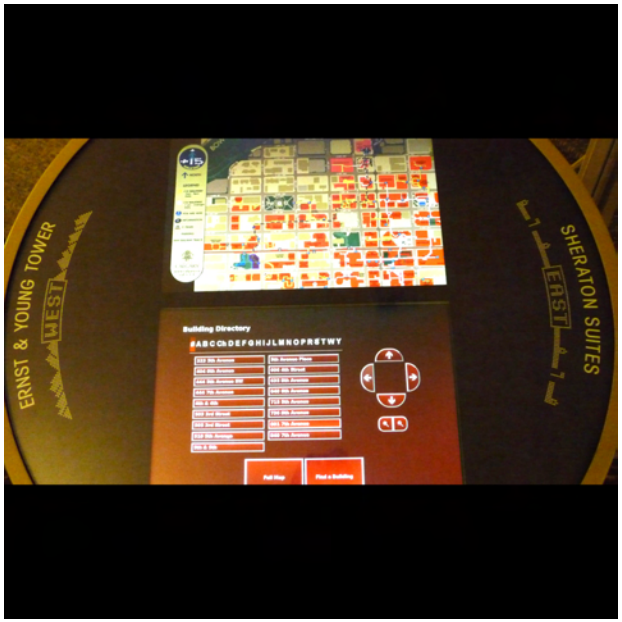


Fig. 4.23 Update-able info display units are placed throughout the +15 network.

Fig. 4.24 From Bau-haus to your PDA. A QR code from a site that allows users to make their own (kaywa.com).

(satellite) data. Currently, most cellular telephones contain the necessary features to allow for the display of real-time mapping information. Scannable codes (much like bar codes) can be entered into these devices, simply by pointing the device at the code (QRMe). In the case of way-finding, these codes can be viewed on the same displays that already exist in the Plus 15 network. Since the information on these displays can be updated through software, the codes can also be updated at any time. QR codes can hold over 7000 characters – enough to provide full instructions on how to get to a specific location (QRMe). This mapping information can be transferred directly to the phone or handheld computer. Alternatively, the phone or Personal Data Assistant (PDA) could potentially be pointed to a City website containing the latest mapping information. The user of the GPS-enabled device is able to see their own position on the map, as well as any surrounding amenities that have been entered into the mapping software (Streetside).

The use of formal signage, gadgets, and mapping technologies are not the only ways to assist in the process of navigation. Certain approaches may only work for a specific demographic. Furthermore, there

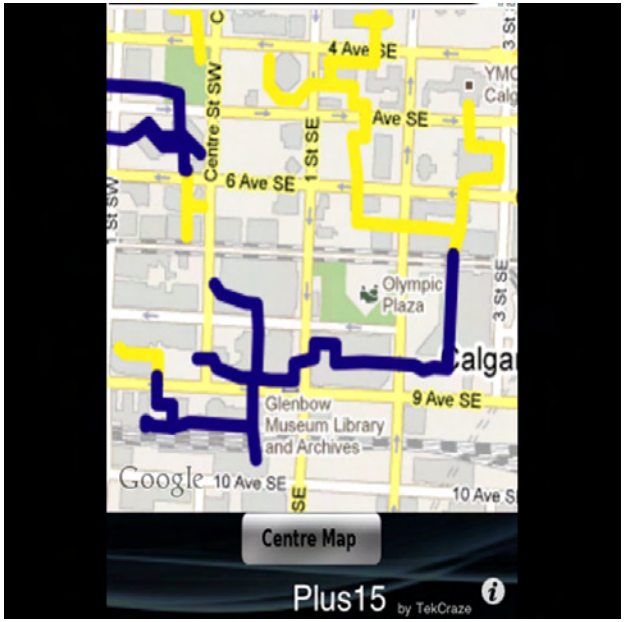


Fig. 4.25 The "Plus15" GPS app for the iPhone, by TekCraze (tekcraze.com).

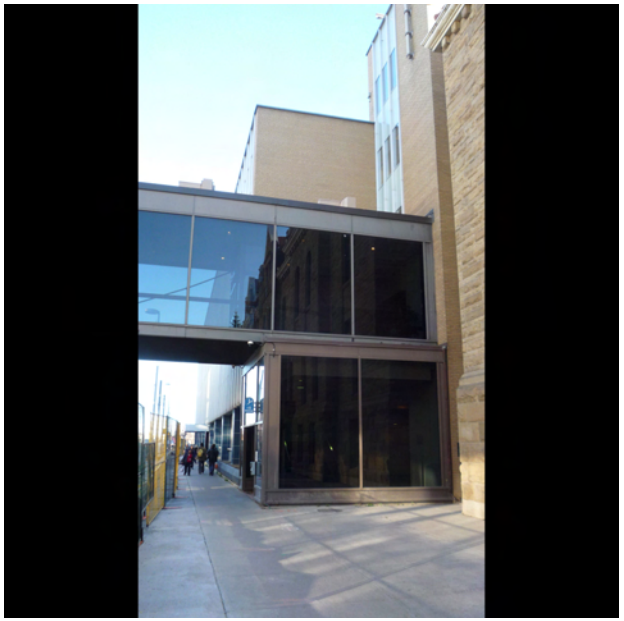


Fig. 4.26 Easy to spot from the street, and packed with all the necessary ingredients to address vertical circulation needs.

needs to be an indication of where the Plus 15 links and access points are. It is imperative that these indicators are obvious from the street (Lynch 3). So far, there has been a reliance on the use of signage. One approach is to build the indicators into the design of the Plus 15 links and access points themselves. An element that enhances the process of [Navigation] while improving the level of perceived [Security] is that of effective lighting of spaces. Not only does this include the lighting of spaces at night; it also includes lighting conditions during the day, and ensuring that vertical circulation spaces – especially stairwells – are sufficiently lit.

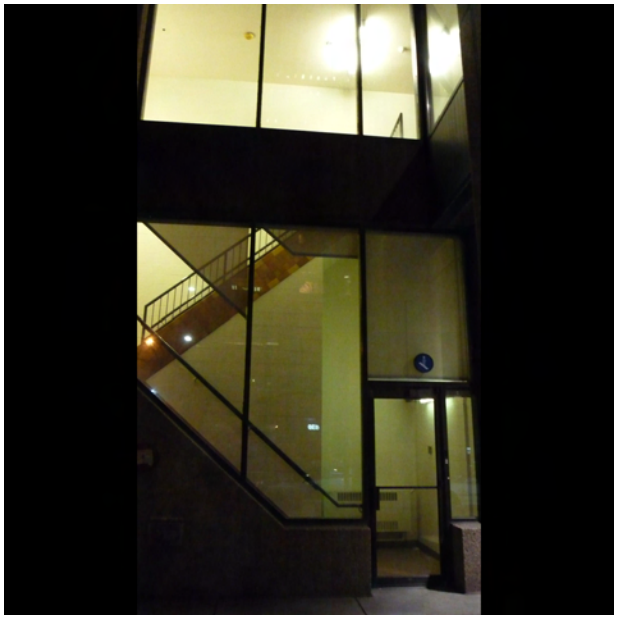


Fig. 4.27 Ample lighting to allow for location of vertical circulation, and enhance security.

As mentioned earlier, there is a percentage of glazing stipulation for Plus 15 bridges. For the purposes of enhancing security, there are other measures that can be applied. These include the strategic placement of objects in designed space, in order to delineate areas that are considered more private, more public, more connected, and more separate from one another. Much has been written about this, under the moniker of defensible spaces. Oscar Newman's guidebook *Creating Defensible Space* offers insight, analysis, and solutions for a number of conditions in which public, quasi-public, and private space overlap, as

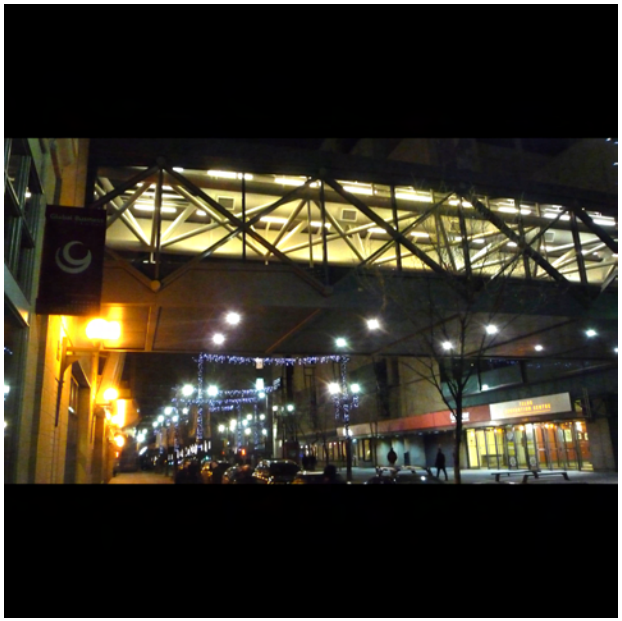


Fig. 4.28 Extensive glazing, and a lighting strategy – both within and beneath the bridge.

well as issues of [Security]. One of the most relevant points made in this study, is the concept of “symbolic barriers” – as opposed to outright fenced-off spaces. This and other strategies for creating defensible spaces include contexts such as residential towers, urban play spaces, open public spaces, and the public street (69).

Returning to the concept of ‘streets in the sky’, many of the principles that apply to streets at grade apply to Plus 15 bridges. This includes designs for beautification of streets [Aesthetics]. For example, if we look at the City of Gresham, Oregan’s guidelines for street design, we see that there exists a template for dimensions and arrangement of street elements (City of Gresham [4.11]-28). Consider a similar approach for the treatment of Plus 15 bridges. The diagrams (at right) show the correlation between the two strategies. In effect, the result is a bridge that is treated much more like a street. Just as streets can interconnect with one-another at grade, so too can streets connect vertically. Applying a street-like logic to vertical circulation elements is one such approach. The *City of Calgary Land Use Bylaw* contains the seeds of what has the potential to become a highly influential policy regarding this topic (1P2007 Part 10;

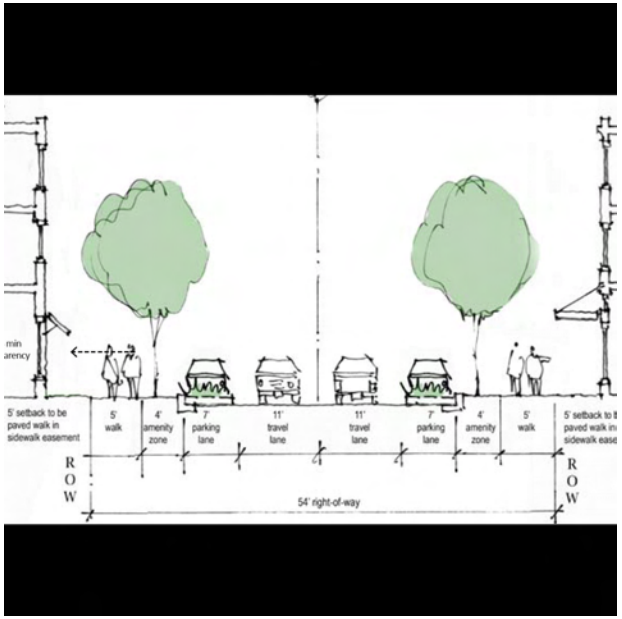


Fig. 4.29 A city planning guide with a designer’s touch. An example of Gresham’s planning documentation (City of Gresham 4.11).

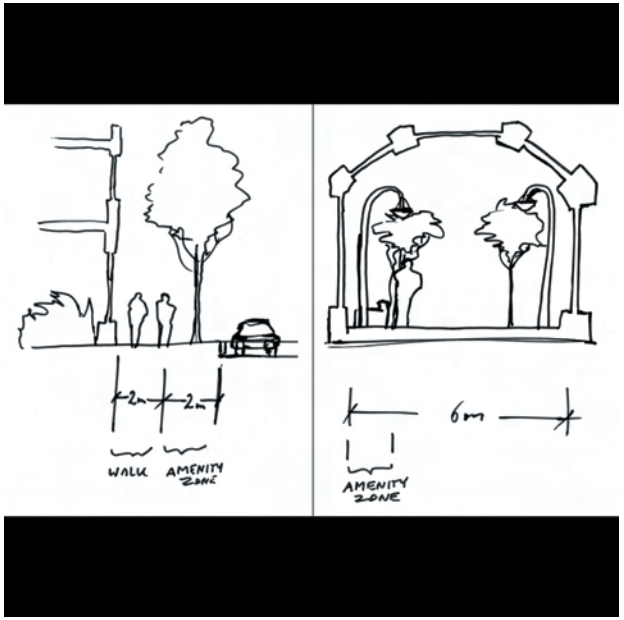


Fig. 4.30 The street at grade, the street in the sky, and their amenity zones.

188, 194-196).

ADVANTAGES

Aside from what has been mentioned before: protection from inclement weather [Comfort] and motor vehicle traffic [Security], there are additional Plus 15 system advantages. One example is the use of bridges and walkways at night, for purposes of [Security]. Additionally, there is the use of bridges for those with baby strollers, walkers, or wheelchairs [Access].

It is not uncommon for business meetings to span different buildings. The Plus 15 system allows those attending meetings in system-connected buildings to minimise the amount of materials that they need to bring with them. Weather-protection gear can be left in the office or vehicle. The same advantage of [Comfort] and practicality is extended to those attending performing arts events and formal functions.

Using this set of categories and elements, spatial quality can be evaluated. The following is an example – applied to the Plus 15 system.

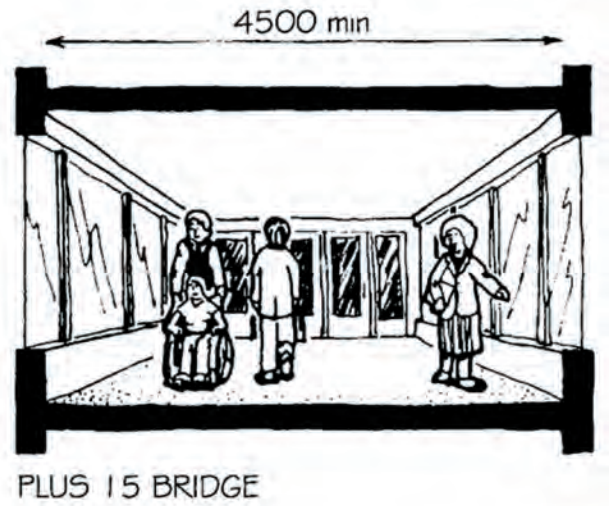
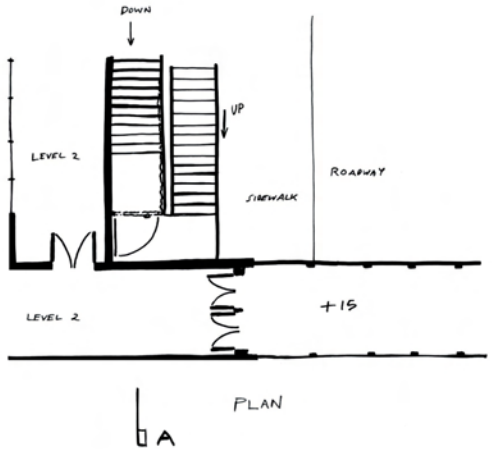


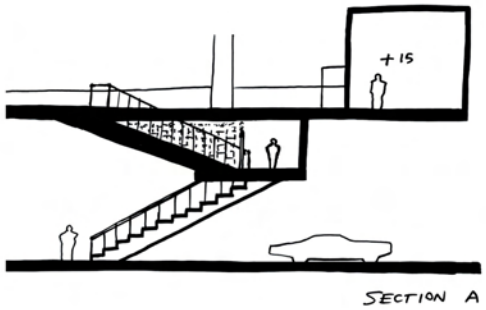
Fig. 4.31 Minimum required unobstructed right of way for Plus 15 bridges (Access Design Standards 70).

Fig. 4.32 Office workers walking from building to building (Choo 2010)

Access: negative

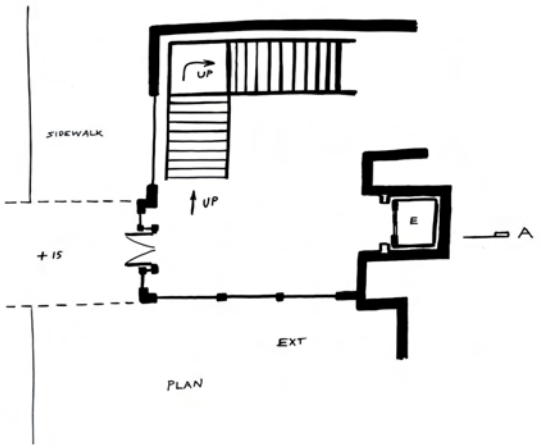


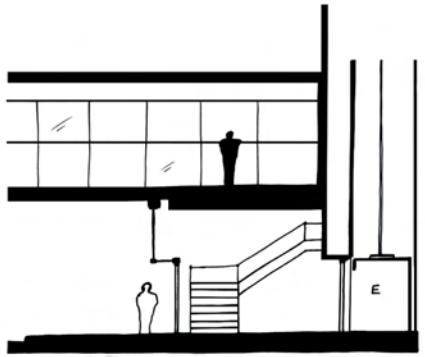
- Restricted hours of operation.
- Narrow stairs.
- Spaces caged off and compressed.



Access: positive

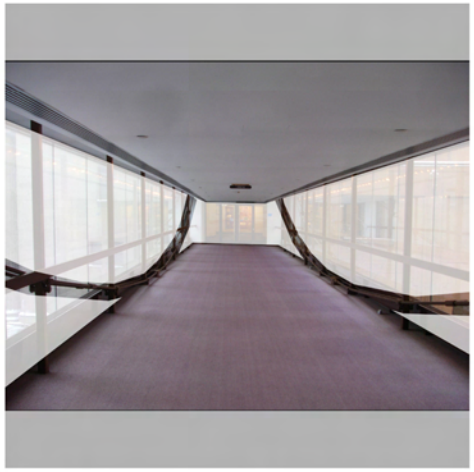
- Elevator access.
- Widened stairs.
- Extensive glazing.
- Entry at grade.

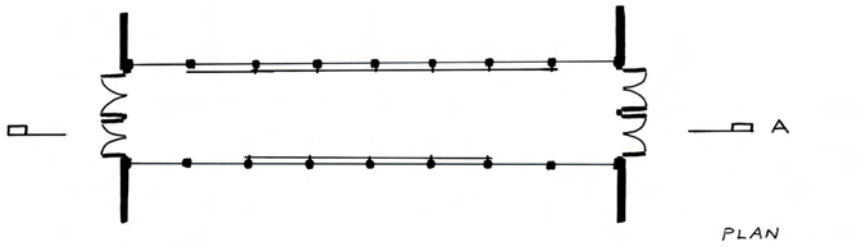




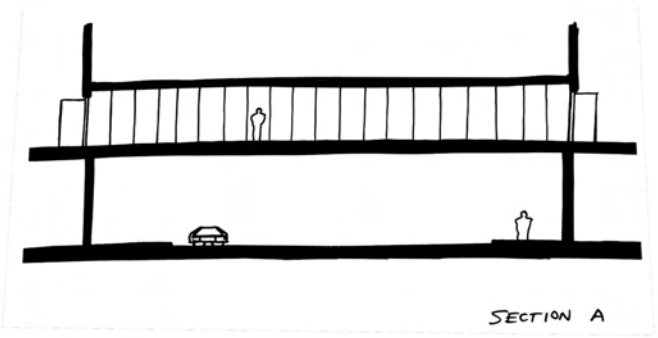
SECTION A

Aesthetics: negative



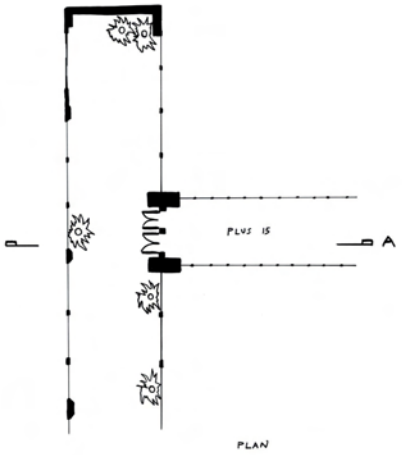


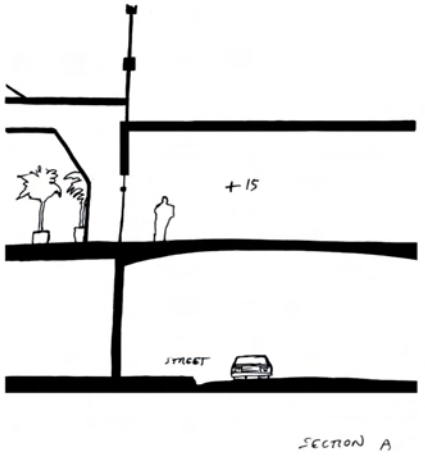
- Narrow +15 spec.
- Uninteresting design.
- Minimal night lighting.



Aesthetics: positive

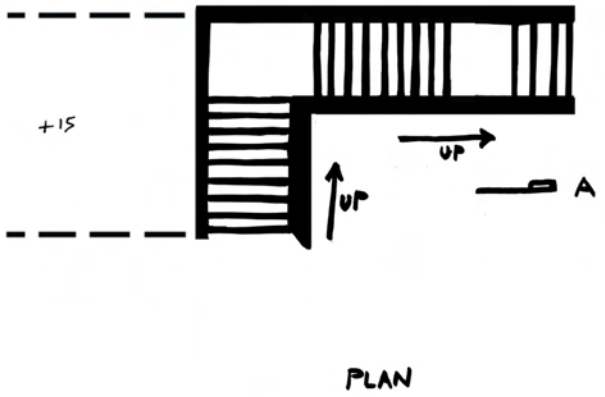
- Interesting views.
- Extensive glazing.
- Good day and night lighting.
- Plants / foliage.



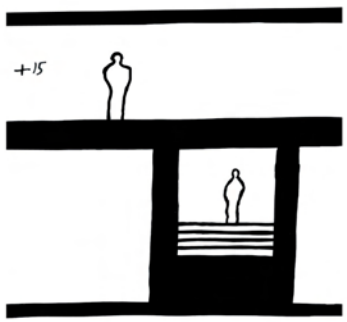


Amenity: negative

- No retail.
- No public drinking water.
- No washrooms.
- No food vendors.



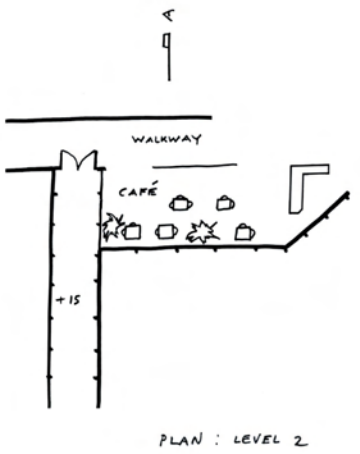
PLAN

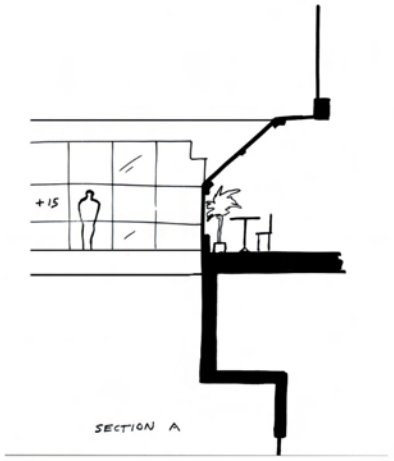


SECTION A

Amenity: positive

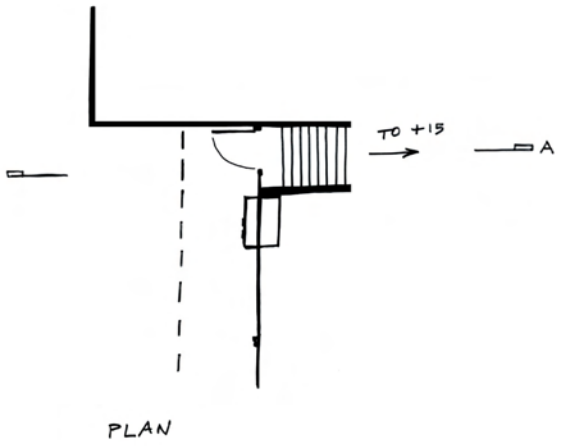
- Food vendor.
- Some retail.
- Washrooms

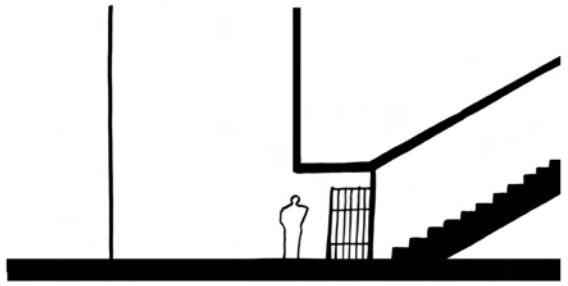




Comfort: negative

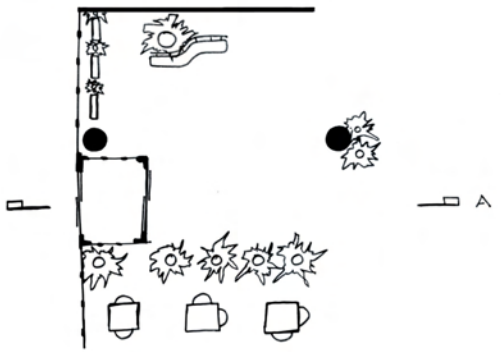
- Compressed space.
- Poorly maintained.
- Not climate controlled.
- No seating.

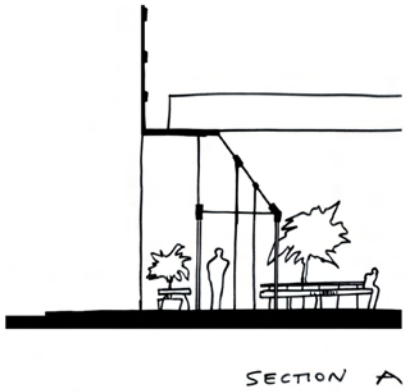




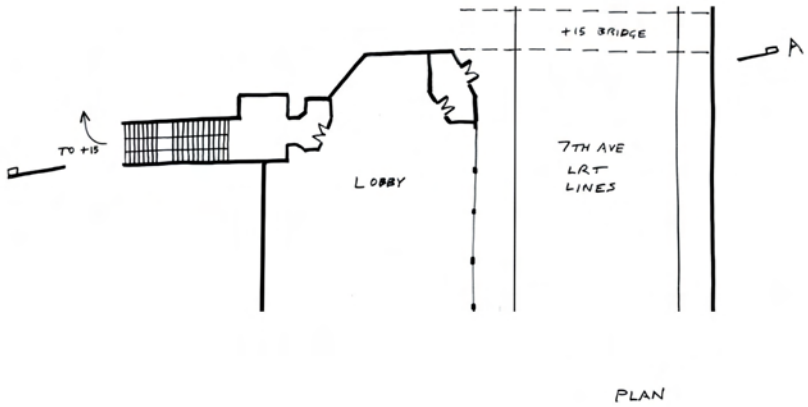
Comfort: positive

- Climate controlled (incl. airlock).
- Rest points.
- Variety of seating.



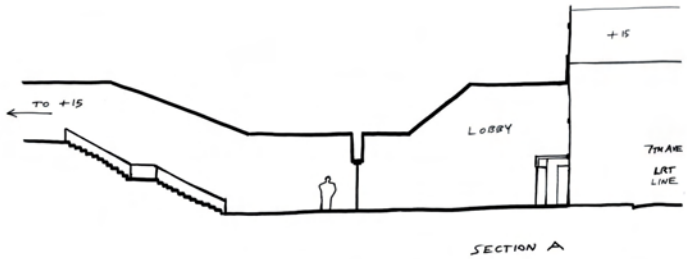


Navigation: negative



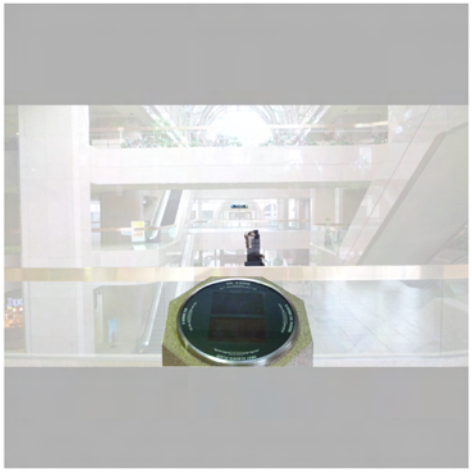
PLAN

- Plus 15 access point buried past lobby.
- Minimal signage.
- Little physical indication of Plus 15 access point.
- No map displays.

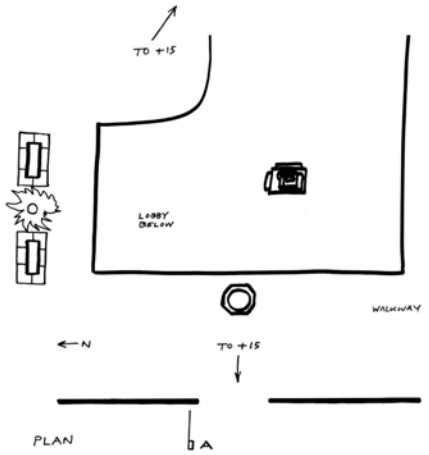


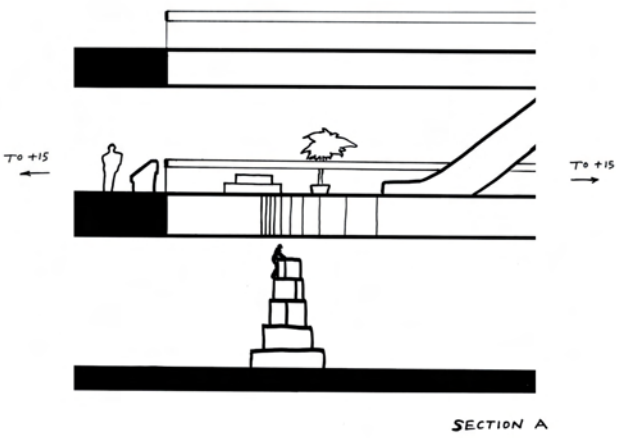
SECTION A

Navigation: positive



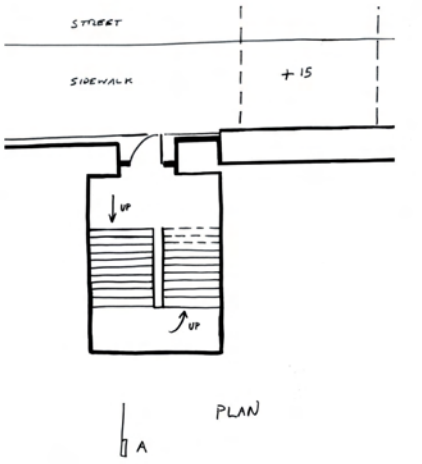
- Plus 15 network map display unit.
- Signage throughout.
- Physical indication of Plus 15 bridge connection points.
- Links close to building skin.

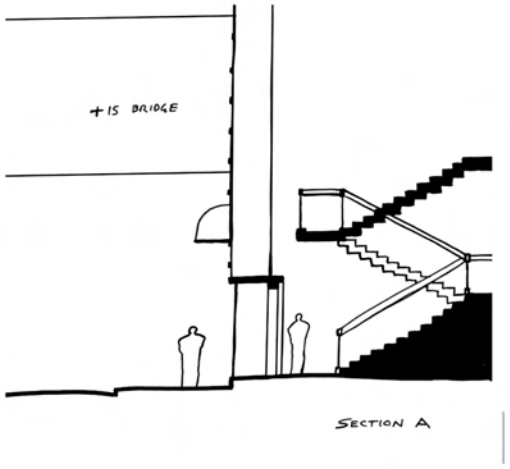




Security: negative

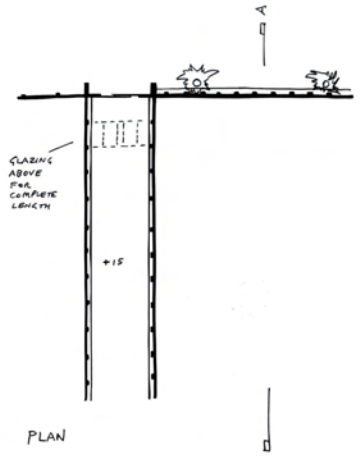
- Minimal glazing.
- Substandard lighting.
- Poorly maintained.
- Low visual permeability.

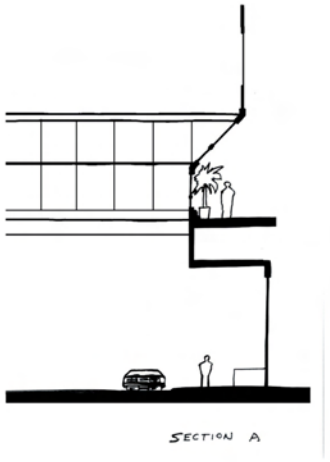




Security: positive

- Extensive glazing. (views to and from street / offices).
- Excellent day lighting.
- Good night lighting.
- Well maintained.





CH 5 PUBLIC VERSUS PRIVATE SPACE

The Plus 15 system “offers opportunities to develop public spaces at the +15 level” (+15 Policy 4). However, in the process of being managed by building developers and owners, it begins to cross over into quasi-private territory (Kayden 21). In the case of the Plus 15 system’s walkways, and the adjacent spaces that are marked as public in the developer agreements, there are two core aspects set off against one-another. They are:

1) The spaces marked as public that are the result of the floor bonusing system are to be accessible and for use by the general public.

2) These spaces are to be maintained, heated (if applicable), lit, and security provisioned by the developer or building owner.

The first point effectively describes the general rights of access for the public. The intent is that the space is for the people, provided by institutions that represent the people, and are funded using public money.

However, when dealing with a system like the floor

Fig. 5.01 Warnings ...

Fig. 5.02 complete with a list of infrac-tions from the pages of the developer agree-ment.

bonusing system, the flow of money changes. And with that change, there is a shift in perceived rights and responsibilities toward the developer / owner.

THE FLOOR BONUSING SYSTEM

When tracing the flow of money, it at first appears that the building managers are using money – out of pocket – to maintain, light, heat, and run security though these spaces. However, in reality, the flow of money is somewhat more complex. The City offers a trade. If the developer provides a certain amount of public space, the City will allow the developer to add more floor space to their buildings. Added floor space generally results in increased rental revenue. Revenue is calculated in such a way that the developer is typically able to amortize the cost of initial construction of the public spaces, pay for maintenance, security, electricity, and heating for these spaces and still turn a profit. In many cases, the profit margin significantly exceeds the costs of construction and maintenance of these spaces (Kayden 22). In effect, the owner is being paid to provide and maintain these spaces, and is making a profit from it. From that perspective, there is a responsibility to carry out the mandate of the first point. And that is to provide public spaces for the use

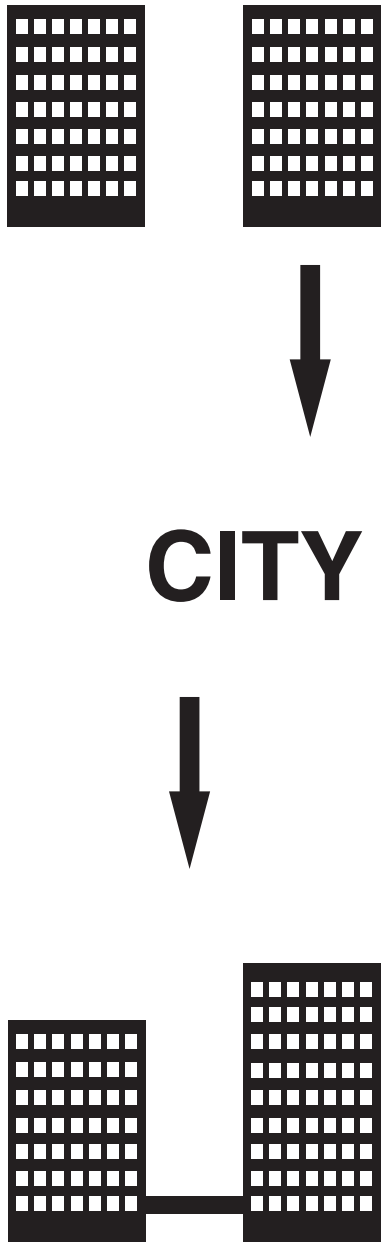


Fig. 5.03 Building owner adds a Plus 15 bridge and is awarded extra floor space. The added floors are rented out, increas-ing the owner's revenue stream.

of the general public.

RESTRICTED ACCESS

Instead, there exists a perception of the building owner as threatened by the presence of the general public. As such, caveats have been added which describe the many conditions in which the use of the spaces can be regulated. These restrictions – and the resultant tone of the spaces (especially interior spaces) – tend to create the impression that the spaces are neither public, nor are people welcome to dwell in the spaces for more than a few minutes at a time (Miller 164). The exception to this is the sense that one feels welcome, as long as they are actively consuming a product. This is where public spaces as a result of the floor bonusing system are primarily different than public spaces that are directly funded by public money. This sense of welcoming, without conditions or pressure, has proven to be somewhat elusive. As Miller asserts, “these spaces are often embedded within private buildings, making their role in public life difficult to decipher” (xix). Despite this, it is possible to reduce the confusion between public and private zones through visual or physical separation of spaces (Zeisel 105).

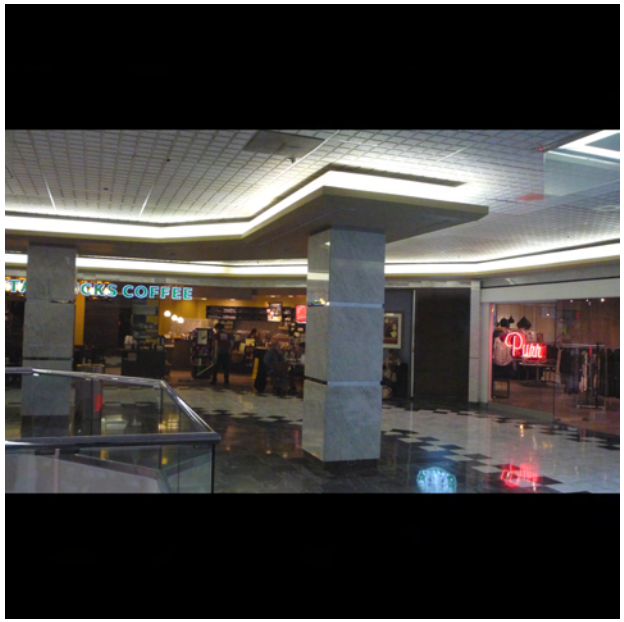


Fig. 5.04
Retail at the +30 level.

Fig. 5.05
How long is too long to sit in a privately owned public space?

ECONOMICS

The floor bonusing system is attractive to cities, since it minimises the cost to the public. The City has a very low financial investment level for both initial construction and maintenance. This same system is also attractive to developers, since it represents a way to gain valuable rental space and – in many cases – provide additional retail opportunities. The cities save money, and the developers make money. However, there is research to suggest that Privately Owned Public Spaces cannot be considered truly public (Miller 73).

As such, it can be argued that it is the public that benefit the least from the floor bonusing system of incentives. Regardless, because this is an incentive system that is often profitable for developers and cost-effective for municipalities, it represents what has become an entrenched system of shaping the urban fabric. Essentially, this is an approach to public space provisioning that is deemed both successful and popular enough that it is likely here to stay (Safdie 40). Fortunately, the bonusing system of incentives is one that is continually undergoing improvements and "fine tuning" (Kayden 18).

Fig. 5.06 Have the public gained what can be considered truly public space?

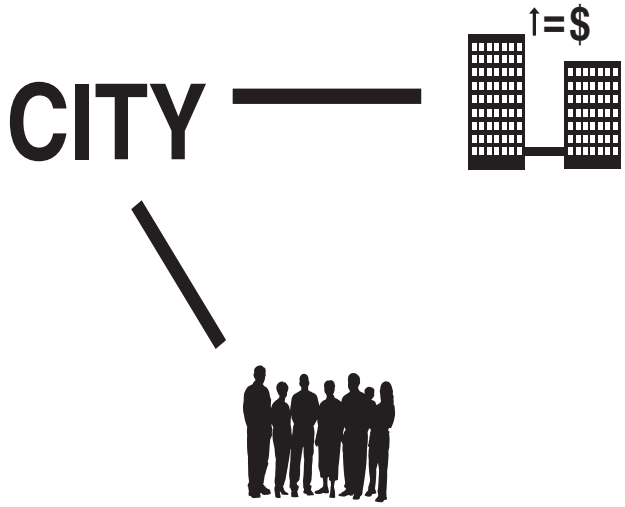


Fig. 5.07 The public. Natural ties to the City and municipal government. But what about to the building owners?

RESPONSIBILITY

Developers and building owners need to maintain a sufficient profit margin – and contract agreements should continue to be drafted in order to allow this to continue. An added element is advisable. That is, something similar to the obligation of responsibility in the profession of architecture. In particular, it seems fair to remind developers that they also have a responsibility to the cities that they operate within. This responsibility includes the people that live in these cities. To that end, it is not unreasonable for municipal governments to ask for more in return for the bonus floor space that they offer to developers. This leads back to the topic of design of suitable spaces for the public. The focus should be on quality spaces, and ones that are welcoming and comfortable. As such, a public space that is smaller and better designed and managed is superior to a larger space that is poorly managed and lacking in elements that contribute to its level of enjoyment (Kayden 16).

One of the most important responsibilities is to provide public spaces that actually function and feel like places where the public is welcome to visit. Much of this is dependent on how the spaces are managed

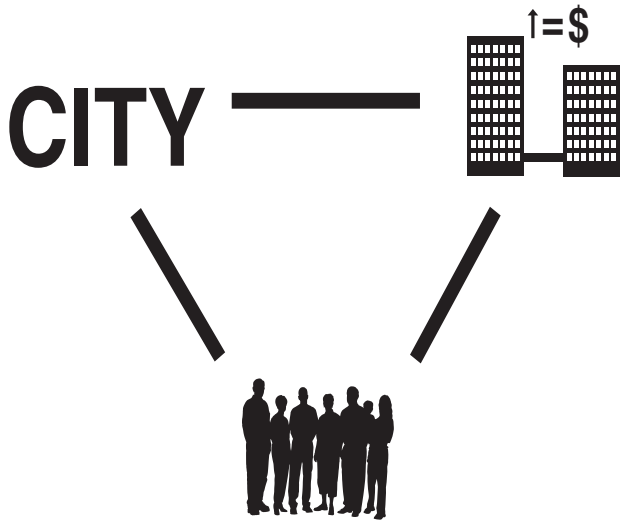


Fig. 5.08 Inclusiveness of the public in the process of the design and future of privately owned public spaces.

Fig. 5.09 Quasi-public space, with retail and seating.

– assuming the space has been successfully designed to attract visitors (Kayden 33).

Design, policy, and a sense of responsibility to the people who live and work in the city are the core enabling factors. These are what make it possible to have spaces that are managed by private organisations, while serving as public enough to be of significant value to those who wish to have access to spaces where they may relax, converse, read, or simply be contemplative (Miller 76). Jan Gehl suggests that the increase in tendency of city-dwellers to stay at home and watch television is in part due to a lack of quality public spaces in cities (Life Between 33). If this is indeed the case, then now – more than ever – there is an imperative to make these quasi-private public spaces public enough to attract and keep patrons.

Since the Plus 15 network is created through the same processes with which public plazas are created, there are opportunities to blend public walks, plazas, and Plus 15 links together. This same approach can further the goal of blending between streets at grade and the Plus 15 bridges and adjacent spaces.

- **Design**
- **Policy**
- **Responsibility**

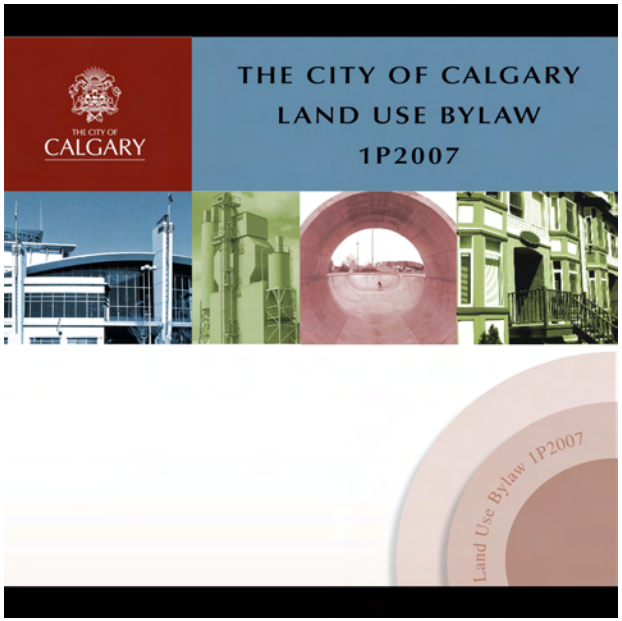


Fig. 5.10 The current Calgary Land Use Bylaw (1P2007).

CH 6 PRIVATELY OWNED PUBLIC SPACES

Taking a cue from the policy framework of New York, there are a number of important policy-related issues that have come to light. The key question is one between the level of control allocated to the private developers and building owners, and the level of control allocated to the municipal governments. Essentially, it concerns who has a say in, and in what parts of, the privately owned public space debate.

Fig. 6.01
The ideal: a more balanced arrangement between owners and the public.

In her book *Designs on the Public: The Private Lives of New York's Public Spaces*, Kristine Miller states that public life

> is bound by regulation and codes of conduct. These codes and regulations not only control what can happen on the streets and sidewalks, plazas and parks, but also who can be present there. (Miller x)

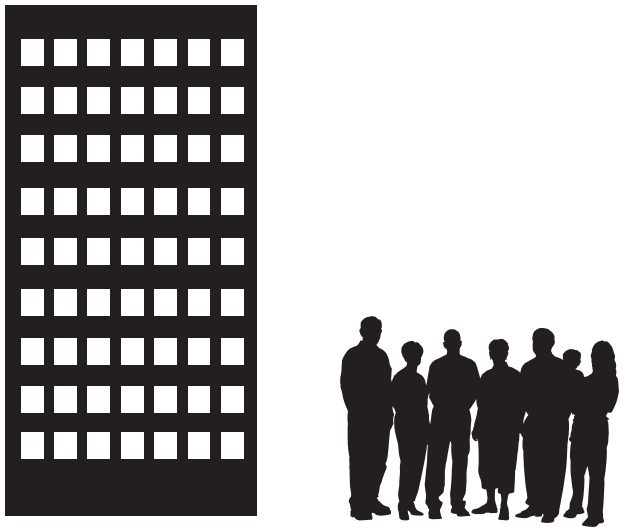


Fig. 6.02
The reality, according to Miller.

For privately owned public spaces to work effectively for the public that they're intended for, there must be a proper balance between private and public interests (Zeisel 35). Currently, the argument exists that there is a disproportionate bias in favour of the building

owners. Tracing the process back to its modern beginnings, it becomes clear why this bias can exist.

In 1961, the concept of privately owned public spaces became a reality on a large scale, with the advent of the New York City Zoning Resolution of that same year. The primary goal of this legislation was to allow for the creation of public space for the purposes of bringing more air and light into the city, while saving the City money. The floor bonusing system represented a shift of expense from public entities (municipal governments) to private entities (owner/developers) (Miller x, 85). Whether intended or not, the initial results of this policy led to a disproportionately large number of uninteresting spaces. Many developers opted to construct large barren plaza spaces in return for the bonus floor space that was granted to them by the City. While a few of these plaza designs were successful, many were underutilised (Whyte 14). The City of New York took notice of this lack of use and made changes to the legislation in 1975. Building owners were expected to provide “more and better amenities in exchange for the financial incentives they receive.” (Miller 91). This represents a step in the right direction, and is something that could also apply to the Plus 15 network. It is not unreasonable to expect more from

Fig. 6.03 Calgary City Hall, as viewed from Olympic Plaza.

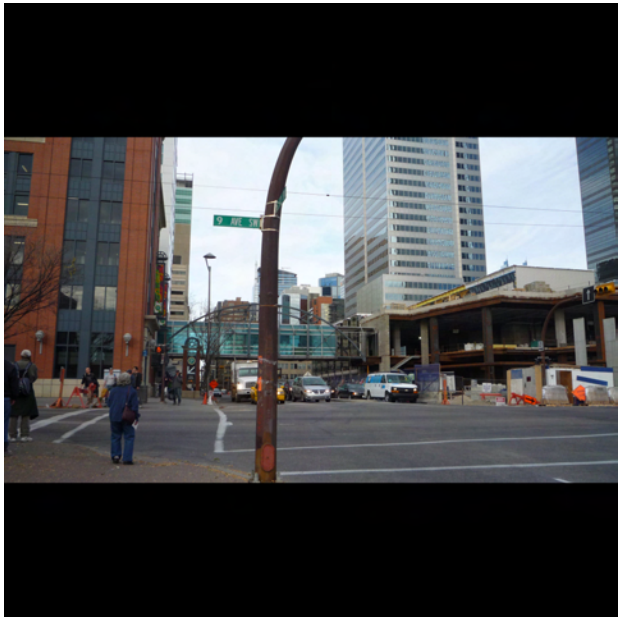


Fig. 6.04 Plus 15 bridge, under construction.

building owners and developers for future designs of privately owned public spaces in Calgary, as well.

AN INVENTIVE APPROACH

An example of a recent development that is delivering more for Plus 15 and walkway design is The Bow building, located at 6th Avenue and Centre street in Calgary's downtown core. The lead architecture firm for this project is Fosters and Partners. They are joined by a number of firms, including the Zeidler Partnership, Gustafson Guthrie Nichol Ltd., Carson – McCulloch Associates Ltd., and Sturgess Architects (DP2006-3431 Appendix II: 2). At the time of this writing, the main tower is still under construction and its Plus 15 links are not yet complete.

According to the information included in the building permit and development agreement documentation for the Bow project, the Bow's design features Plus 15 links which provide seating at the transition points between bridge and walkway. These rest points are located just inside the skin of the tower.

In the City of Calgary's *+15 Policy*, the maximum listed width for Plus 15 bridges is 6 metres (12).

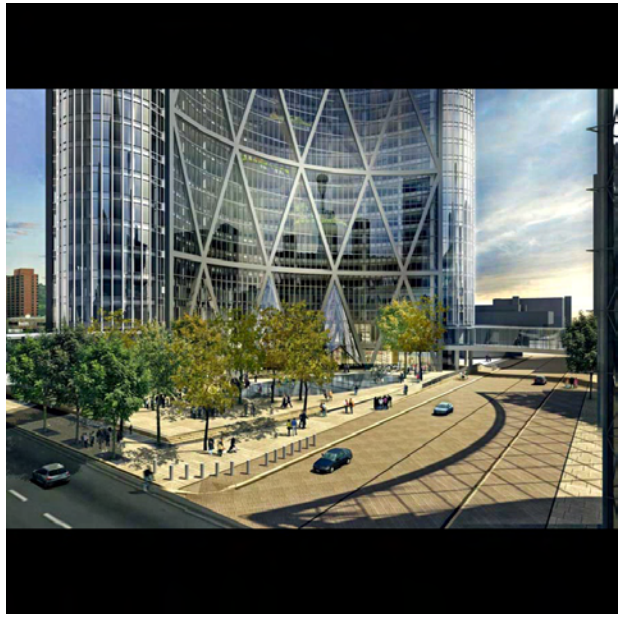


Fig. 6.05 The Bow Tower as it is expected to appear, once completed (e-architect.co.uk).

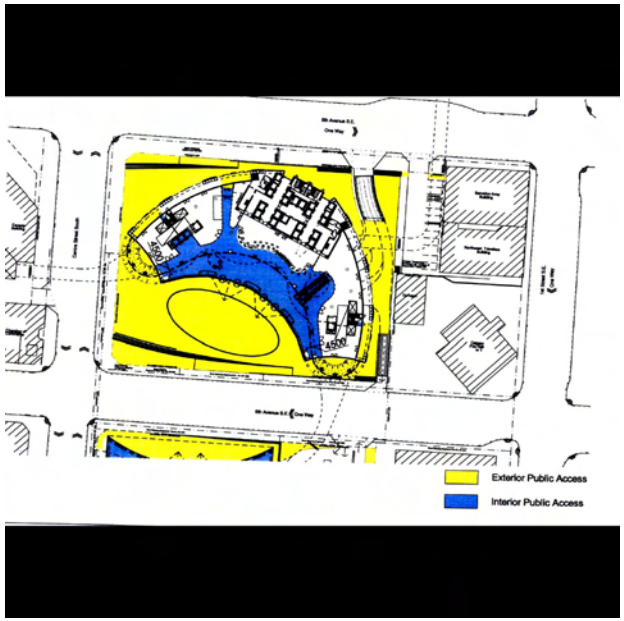


Fig. 6.06 The public right of way at grade (Development Agreement 27).

However, Plus 15 walkways can exceed 6 metre widths (1P2007 Part 10: 195). The Bow's Plus 15 design includes strategically widened walkways which create opportunities for non-circulation space (Development Agreement: The Bow 29).

The Bow building's developer agreement contains what may be the start of a variety of new and unique approaches to Plus 15 design in Calgary. This document is representative of the type of agreement that is drafted up between building owners and the City for each and every Plus 15 bridge. These agreements, contain details regarding who is responsible for what. This will be covered in the next section of this chapter.

POWER PLAY – DEVELOPERS AND CITIES

In recent years, the relationship between cities and developers has received closer scrutiny from the public (Miller 164). Two main issues have been brought to light. The first is the division of powers and responsibilities over and for public spaces. The second has to do with who has the right to make changes to a privately owned public space, after it has been constructed.

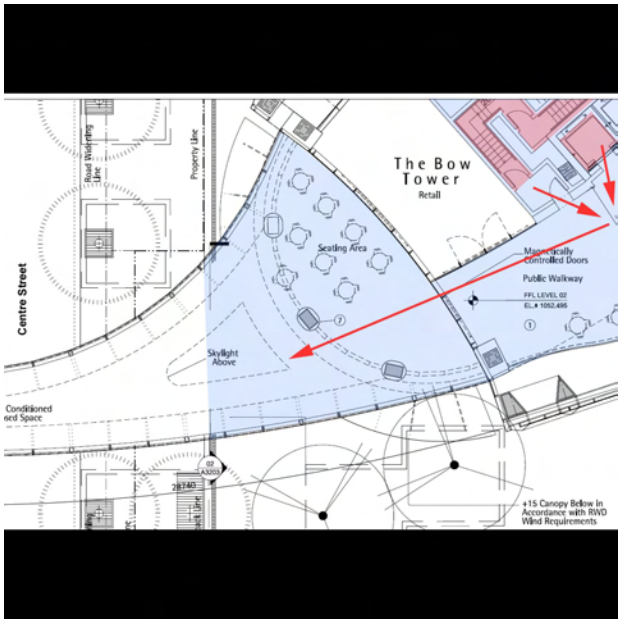


Fig. 6.07 Example of an innovative approach to bridge and walkway design as public space (Sturgess Architecture).

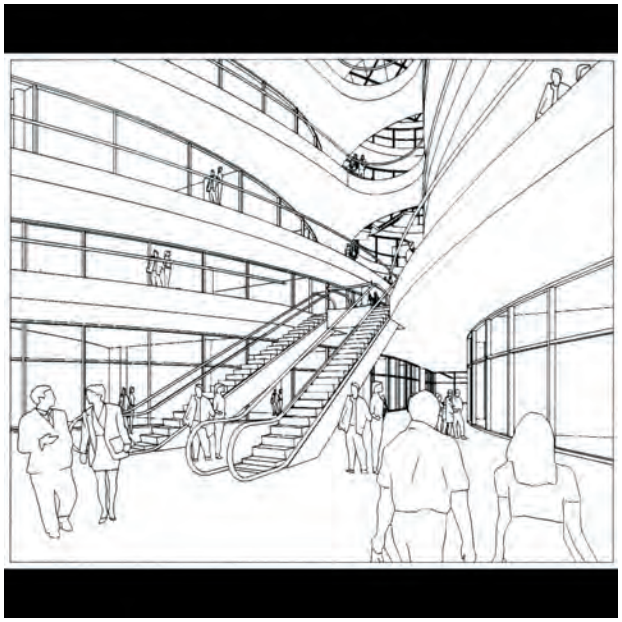


Fig. 6.08 The lobby, and most visual aspect of vertical circulation in the Bow Tower (Urban Design Review 91).

i) WHO CONTROLS WHAT

For the most part, developers receive most of the responsibility for privately owned public spaces. They are expected to maintain, heat, light, and run security through the spaces. As far as the City's powers are concerned, the municipality reserves the right to access the Plus 15 bridges, walkways, and all associated public spaces that were arrived at as a result of the floor bonusing system. As such, the City can request that these spaces remain open 24 hours a day, 7 days a week (+15 Policy 11). Outside of this, developers are granted powers to remove people from these public spaces for a wide variety of reasons. This includes cases in which the developer or owner interprets a person's behaviour as loitering (Development Agreement: The Bow 9).
As for ownership of the bridge spaces that exist above streets and avenues, this remains with the City of Calgary (Development Agreement: The Bow 8). As such, policing of the Plus 15 bridges is the responsibility of the City of Calgary Police Department (+15 Policy 11).

Above and beyond these general requirements, there are more specific stipulations in the City of Calgary's

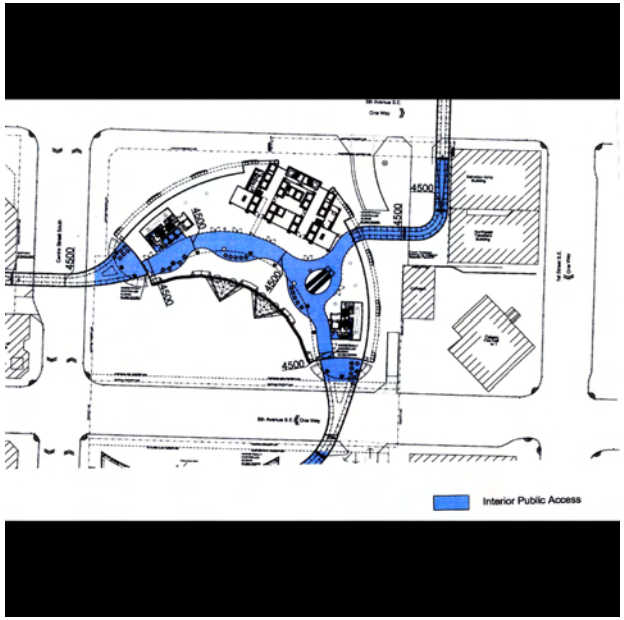


Fig. 6.09 Shaded area indicates the public right of way at Plus 15 level (Development Agreement 29).

Fig. 6.10 A clear message.

Land Use Bylaw. As mentioned in Chapter 4, the Calgary Land Use Bylaw lists a number of different public space conditions and the associated floor bonusing incentives. These include open air and covered plazas at Plus 15 level, indoor parks and gardens at the Plus 15 level, walkways connecting bridges, and terraced spaces tied into the circulation routes between the street and the Plus 15 network. Each of these conditions has an associated incentive in the form of the right to construct additional floor space. Typically, 7 F.A.R. is the maximum bonus incentive amount. Floor Area Ratio is the ratio of the total floor space of a building to the area of the parcel on which it is sited (1P2007 18). So, in the case of 7 F.A.R., if the building is sited on a 3000 square metre parcel, a F.A.R. of 7 would be 3000x7 or a maximum of 21,000 square metres of floor space.

As an example of incentives as power, the City of Calgary offers up to 30 square metres of additional floor space for every 1 square metre of amenity. Surprisingly, indoor plazas and indoor parks at the Plus 15 level only receive a 10:1 ratio of bonus floor space to feature space (1P2007 Part 10; 192). Adjustments to these ratios could have a profound positive influence on future public spaces adjacent to

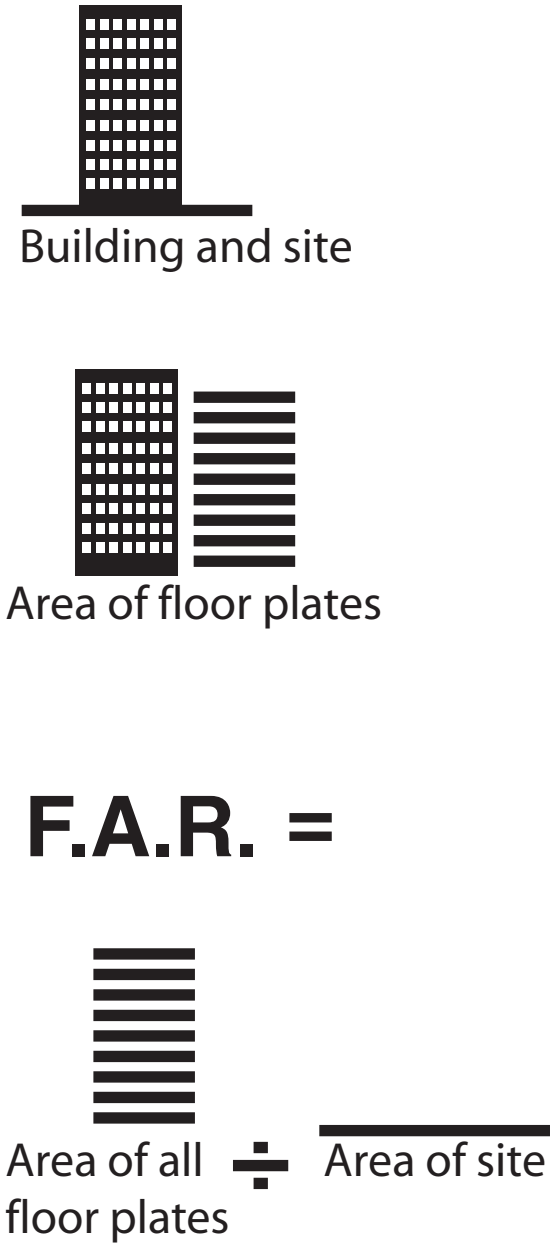


Fig. 6.11 A visual explanation of Floor Area Ratio.

the Plus 15 system. An example would be the result of an increase in the ratio assigned to indoor parks at the Plus 15 level.

ii) CHANGING SPACES

Once a privately owned public space is created, there appear to be few – if any – restrictions on what changes can be made to the space. This includes architecturally designed spaces like Calgary's Devonian Gardens, or New York's IBM Atrium. In both cases, changes that had a marked impact on the character of the spaces were carried out, years after the initial (and successful) designs were implemented.

Spaces designed for use by the public should require public input (e.g. public hearings), in the event that the building owners intend to significantly change the character of public spaces. Currently, this appears to serve as a loophole that – according to Miller – has been exploited to ill effect (Miller 81). In order to preserve the character and features of a privately owned public space, the associated developer agreement should include information regarding what features cannot be changed without a public hearing (Miller 74).

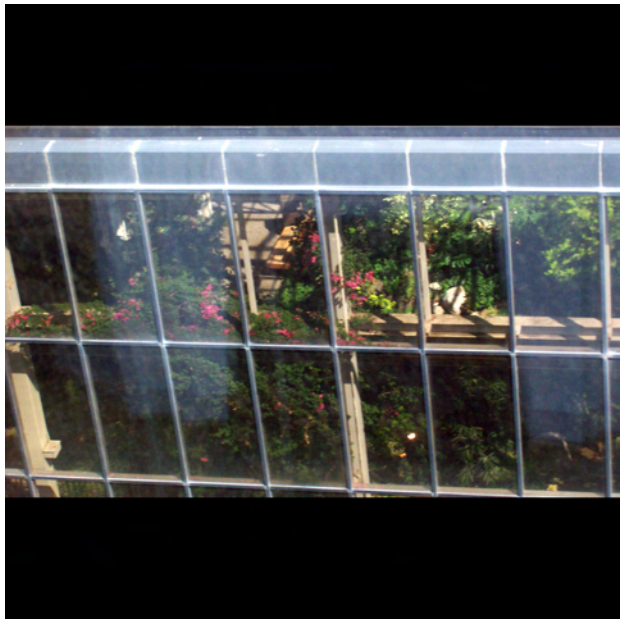


Fig. 6.12 Calgary Devonian Gardens: Outside, looking in.

Fig. 6.13 The Core, from above.

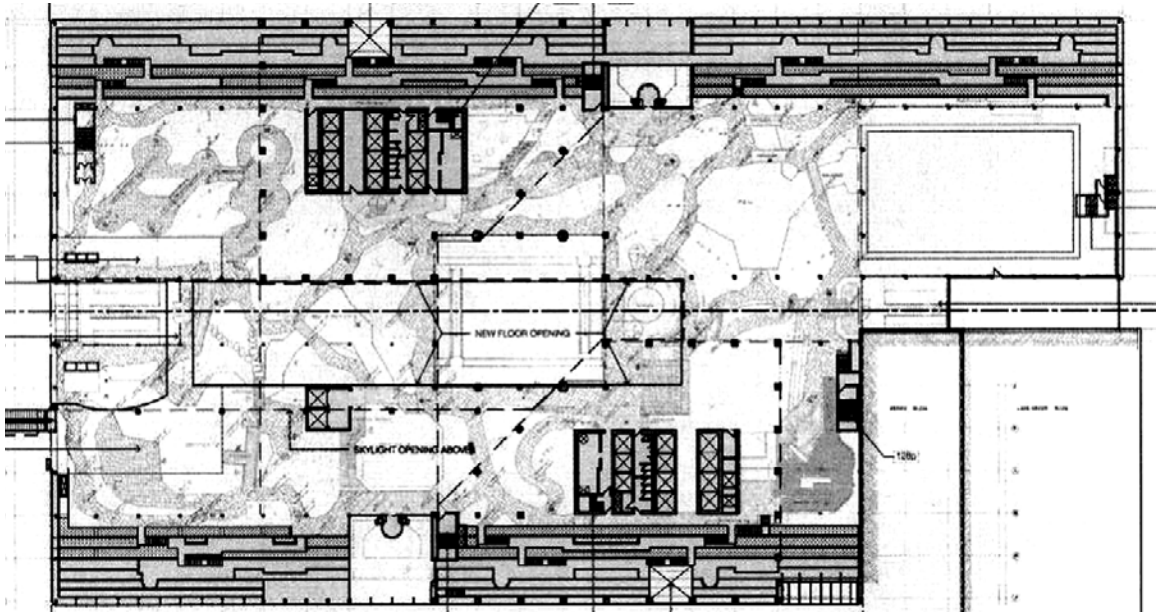


Fig. 6.14 Original Devonian Gardens plan (City of Calgary).

Fig. 6.15 The plan for the new Devonian Gardens, scheduled to open in late 2011 (City of Calgary).

CH 7 OPPORTUNITIES IN POLICY

As you tour the urban core's Plus 15 network of over 60 bridges and 18 Km of walkways (centrecity), you encounter rooftop plazas and bordered spaces. What about a strategy which protects more of these spaces from inclement weather, provides strategic seating, sufficient lighting, and carries out policy that favours the interests of public use?

EXISTING INCENTIVES

Something that may not be immediately apparent is that efforts to create these types of conditions have been put into effect. These are not new ideas, and a close look at the City of Calgary Land Use Bylaw reveals that incentives exist for the creation of these types of weather-protected conditions. As mentioned in chapter 6, these incentives include bonusing for the creation of plazas, parks, and terraced spaces adjacent to – and at the level of – the Plus 15 walkways and bridges. And, as chapter 4 discussed, so too are incentives for the creation of stopping zones in bridges that have been widened to 6 metres. This is hinting at something that deserves greater exploration. Specifically, it concerns the consideration

Fig. 7.01 Rooftop plaza.

Pleasant, on warm days.

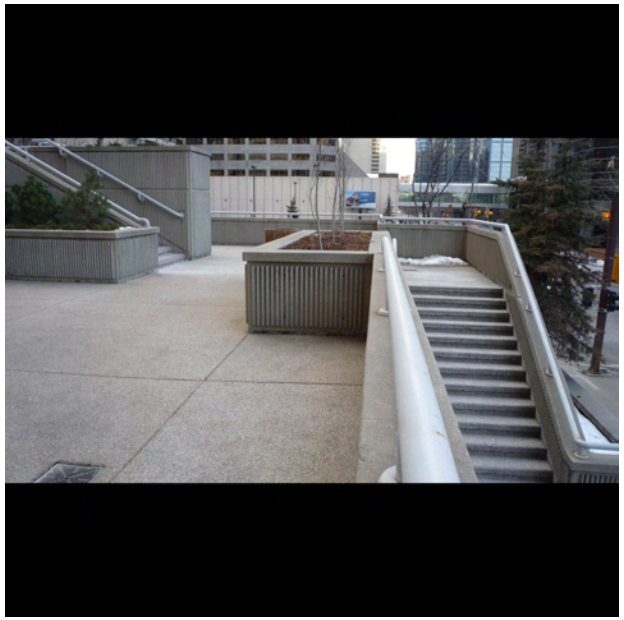


Fig. 7.02 Terraced spaces between grade and Plus 15 level.

of the spatial qualities of public places in the context of the Plus 15 system.

For example, taking a closer look at the City of Calgary Land Use Bylaw and the +15 Policy documentation, there are attempts to address circulation between street and Plus 15 level (1P2007 Part 10: 188). In the case of standard B9, a 30:1 bonus ratio is offered for the addition of a pair of escalators for the purposes of circulation between grade and the Plus 15 level. That is – the developer receives 30 square metres of additional floor space for every 1 square metre of amenity space. In this case, the bonus is offered on every square metre of area of the escalator's floor plate. The maximum gain for this standard is an additional 1 F.A.R.

POSSIBILITIES

For most of the standards in the policy, amenities or features are specified. However, the more qualitative aspects are typically not mentioned. There are diagrams that suggest the addition of plants to spaces. But it is not always included as an item that could receive bonusing award.

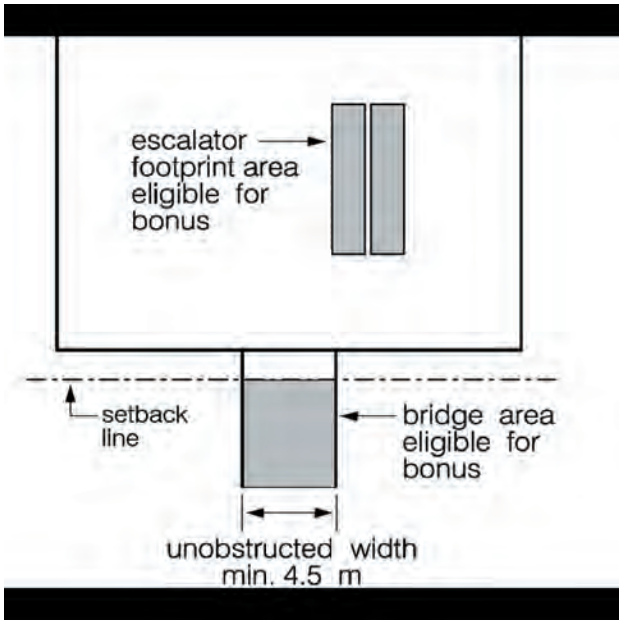


Fig. 7.03 Escalator bonus descriptor, plan view

(Bylaw 1P2007 p. 197).

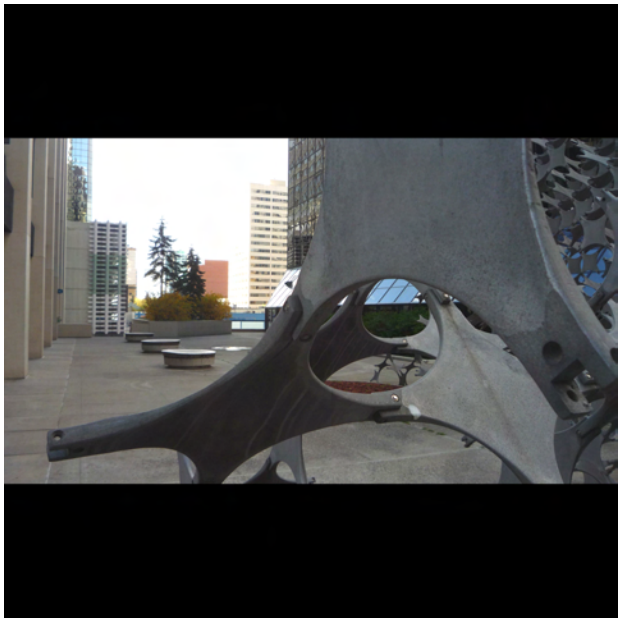


Fig. 7.04 Public space and sculpture at Plus 15 level, between 4th and 5th ave and 4th and 5th street SW.

The word ‘could’ is used here, since the standards listed in the bonus density tables are discretionary. That is – they are contingent on whether or not the approving authority deems the amenity provided to be satisfactory. This is an important factor and one that currently offers an opportunity for a degree of qualitative assessment (1P2007 Part 10: 187).

To further advance the process of the creation of spaces with positive qualities or aspects, the following section lists proposed enhancements or additions to the existing land use bylaw.

The addition of seating, plants, and landscaping is part of the requirement for bonusing, as part of the Indoor Parks (B6.1) standard. These same elements can benefit walkways, small plazas at the Plus 15 level, and transition spaces between grade and the Plus 15 level (1P2007 Part 10: 193).

Strategic widening of Plus 15 bridges beyond the 6 metre width limit is another possibility. Sufficient bonusing could be provided for widening parts of the bridge as part of a design strategy. E.g.) creation of pods or seating nooks on edges of a Plus 15 bridge.

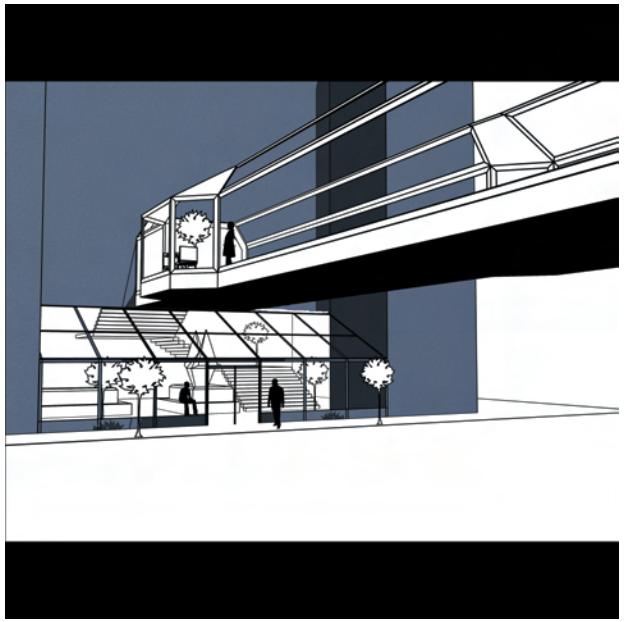


Fig. 7.05 Strategic widening of Plus 15 bridges for the purposes of public space.

Fig. 7.06 Something a little more unconventional in a Calgary pedestrian bridge.

Modifications to existing and future bylaw documents could offer bonuses to developers who put the extra money and effort into features like designed surfaces, designed lighting (including accent lighting), and interactive displays (Calgary Downtown Association 66, 78, 97, 99).

For example, the use of flat-panel display technology opens up a vast number of possibilities for surfaces that enhance the spaces in which they are installed. These can include interactive floors or ceilings, or virtual water features that pedestrians can walk on or across (Calgary Downtown Association 97).

Lighting design represents a notable enhancement to public spaces in cities around the world. As of yet, this has been used in very few instances for the Plus 15 system. These could include interior and exterior lighting features, and have the possibility of serving secondary functions for the purposes of navigation (Calgary Downtown Association 13, 66).

The model of evaluation by the approving authority would apply – as it does now. This is a part of the process that allows for qualitative flexibility in the design of urban public spaces.

Fig. 7.07 Skywalk: Lincoln, Nebraska (flickr.com).

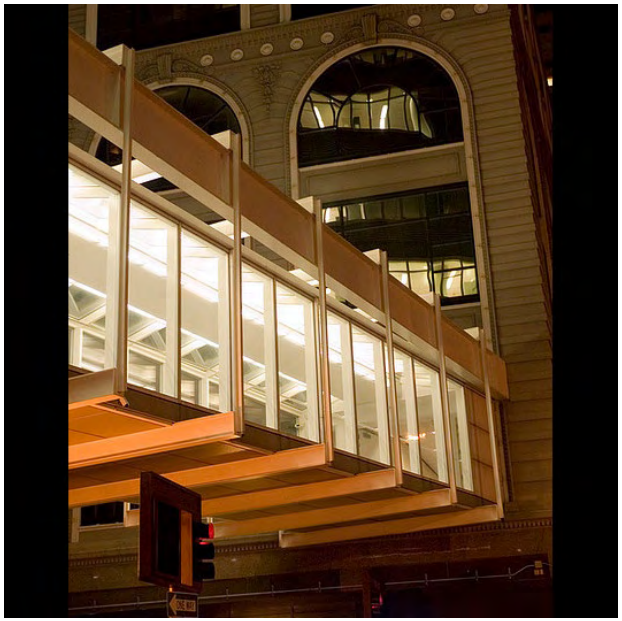


Fig. 7.08 Des Moines, Idaho (flickr.com).

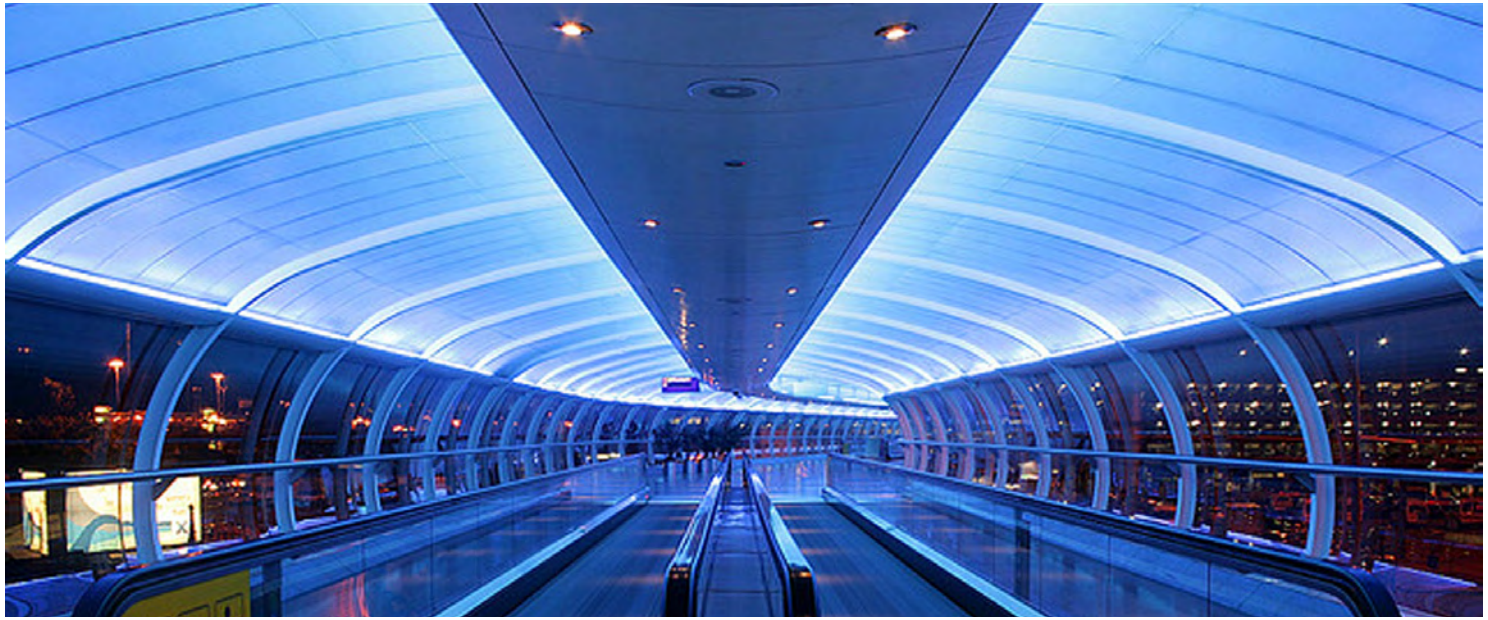


Fig. 7.09 Manchester, UK: Skywalk from Terminal 1 to main station (Gaitonde).

Fig. 7.10 Tunnel connection at Chicago O'Hare airport (Savatier).

(www.h-w.at)

(meme.yahoo.com)

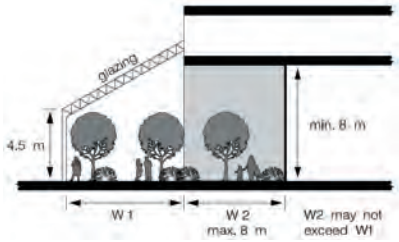
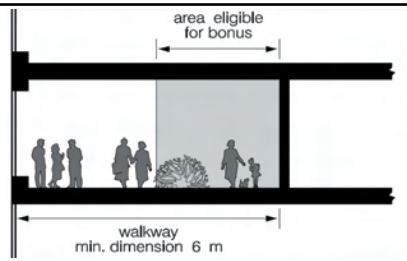
(royalacademy.org)

(picasaweb.google.com)

(vane553.tumblr.com)

Figs. 7.11 - 7.15
London Royal Ballet School skywalk by Wilkinson Eyre.

PUBLIC AMENITY TO BE PROVIDED:	BONUS RATIO / MODIFICATION:
• Public access stair between grade and Plus 15 level.	• Increase minimum width from 2 metres to 3 metres.
• “Indoor Park”	• Offer equal or greater bonus incentive for creation of indoor park at Plus 15 level, compared to at-grade. • Increase over-all bonus incentive for indoor parks, as they include seating, climate control, and intensive landscaping (plants and/or water features).
• “Cultural Space”	• Offer equal or greater bonus incentive for creation of cultural space at Plus 15 level, compared to at-grade.
• “+15 Walkway Enhancement”	• Increase bonus incentive for enhancement features. Further define “other public facilities” • Offer bonus for inclusion of design lighting, food, and public drinking water. Note: Seating and landscaping are already included in the existing +15 Walkway enhancement documentation.
• “+15 Bridge”	• Increase incentive for strategic bridge widening up to 6m. Consider allowances for widening to 8m if localised to a specific percentage of surface area. • Offer bonus for inclusion of design lighting, plants, and seating.

LOCATION AND ACCESS REQUIREMENTS:	ILLUSTRATION:	REFERENCE:
• Components of stair must be visible from street or avenue.		• 1P2007 Part 10: 189
• Extend indoor park design principles to smaller plaza spaces at Plus 15 and Plus 30 levels.		• 1P2007 Part 10: 192-193
• Add elevator access to list of requirements for below-grade and Plus 15 level variants.		• 1P2007 Part 10: 192-193.1
• Same location and access requirements as in existing policy.		• 1P2007 Part 10: 194-195
• Add corner location as a possible bridge connection point, with requirement for access point to be located directly below bridge connection point.		• 1P2007 Part 10: 194-195

PUBLIC AMENITY TO BE PROVIDED:	BONUS RATIO / MODIFICATION:
• "Vertical Movement Between Grade and +15 Level" (Access point).	• Consider increased bonus level for access points located at building corners adjacent to intersections. • Offer bonus for inclusion of design lighting, plants, water features, food, and seating.
• "Lane Link"	• Increase maximum width of lane links – universally. • Offer bonus for inclusion of design lighting, plants, water features, food, and seating.
•"At-Grade Plaza"	• Provide bonus for inclusion of connection to Plus 15 level. • Offer less incentive for plazas over a specific size. • Offer bonus for all or percentage of space built as climate-controlled. • Offer bonus for inclusion of design lighting, plants, water features, food, drinking water, and seating.

To be carried over from existing legislation and integrated into future land use bylaws:

• Bonuses for glazed coverage and/or climate-control and enclosure of plazas at the Plus 15 and Plus 30 levels.

    • Adjust wording to include plazas and not just walkways for climate-control bonus incentive.

LOCATION AND ACCESS REQUIREMENTS:	ILLUSTRATION:	REFERENCE:
• Add minimum glazing requirement for access points. E.g.) 60%.		• 1P2007 Part 10: 188
• List perimeter-located lane links with glazing facing streets.		• 1P2007 Part 10: 196-197
• Same location and access requirements as listed in bylaw, with the addition of adjacency to Plus 15 access points.		• 1P2007 Part 10: 190-191
		• 1P2007 Part 10: 174
• Bonus for public spaces above the Plus 15 level. • Increase bonus incentive level for these spaces.		

CH 8 SYNTHESIS

Combining the information that has been covered so far with the intention of improving the Plus 15 system, there are a number of strategies that can have positive results.

AUGMENTATION

One strategy involves modifying the existing configurations that are outlined in the *+15 Policy*. In particular, page 16 of the policy describes the condition of wrapping the Plus15 walkway around the edge of the building or buildings. This allows for enhanced views to the street from the walkway, and vice-versa. And, in the case of Epcor Centre, Holt Renfrew on 7th Avenue SW, and for The Glenbow museum on 9th Avenue – this has been put into effect.

Taking this modification one step farther, the issue of navigation can be addressed, along with that of improving the interface between Plus 15 and street. This can be achieved, in part, through the shift from Plus 15 bridges at the centre of buildings or blocks, to the corners of the blocks (Downtown Handbook 41).

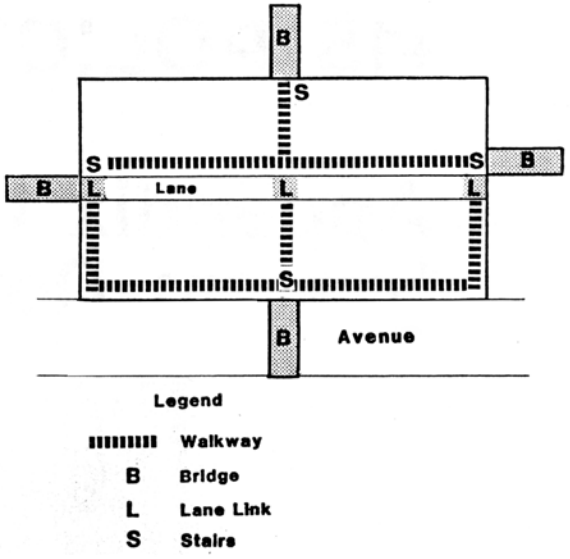


Fig. 8.01 The original diagram from the City of Calgary *+15 Policy* (16).

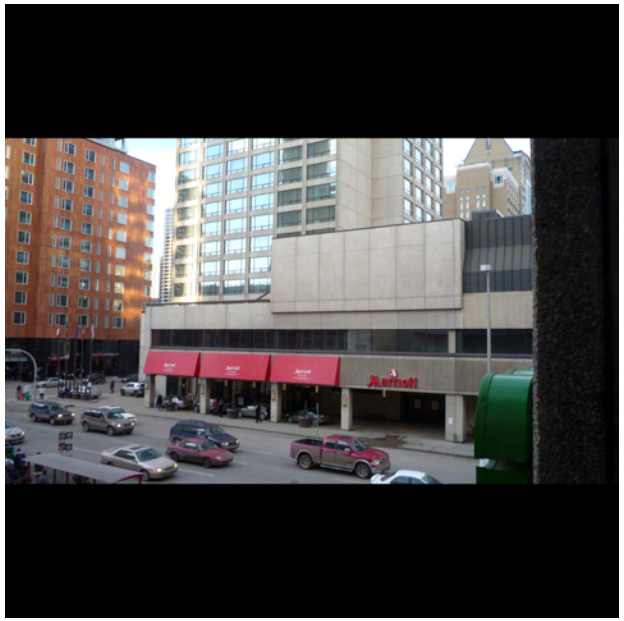


Fig. 8.02 An example of an existing wrap condition. The Marriott Hotel and the Glenbow Museum.

By positioning bridges and their access points at the corners of blocks, and locating walkways at the edges of the buildings, pedestrians gain valuable views down both streets and avenues. This improves the ability to orient oneself in the maze of towers. Building owners benefit from an enhanced ability to seal off publicly-accessible spaces from private spaces. The walkways, bridges, lane links, and access points can all remain open, while the office and residential spaces can be locked and secured. Essentially, it's a model for a building within a building.

VISIBLE INTERFACE

In the process, the corners become the interfaces to the street. With sufficient glazing, and design savvy, these become highly accessible, easily identifiable nodes for moving between street level and plus 15 level (Downtown Handbook 41). Rather than searching for access points that are buried in the walls, and partway along a block – these are obvious and transparent. The design possibilities are numerous.

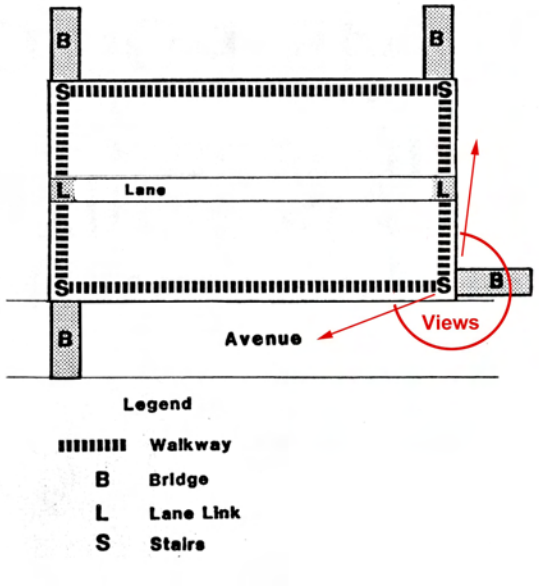


Fig. 8.03 A modified version of the diagram, using the same resources and moving bridge connections to the corners.

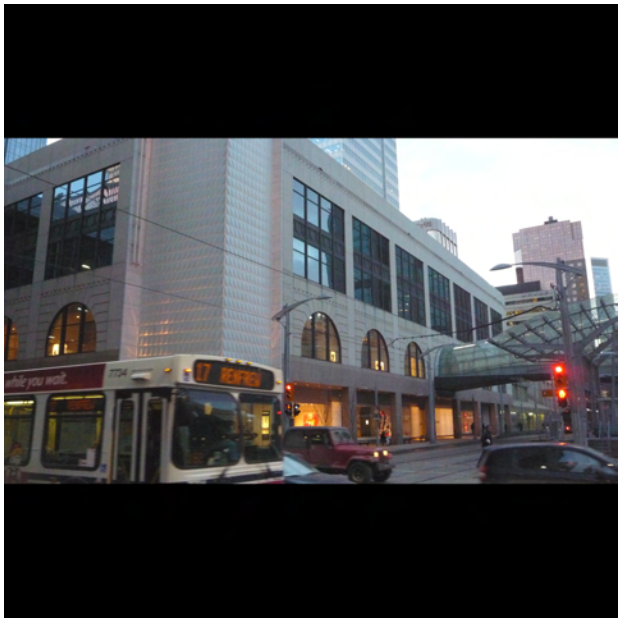
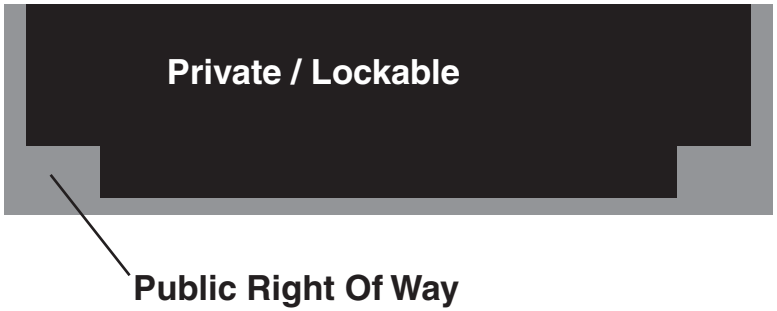


Fig. 8.04 Holt Renfrew's perimeter walkway.

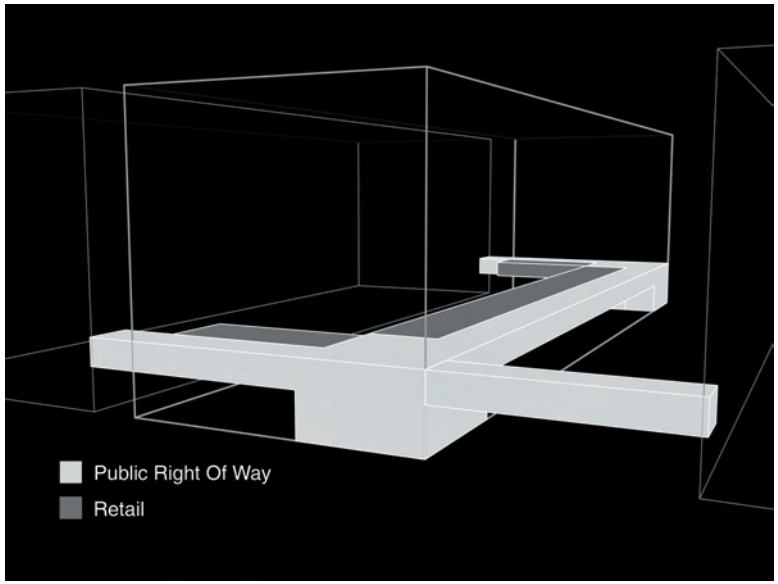
As covered in chapter 6, all of this is tied to policy and incentives. If building owners decide that the building corners at the Plus 15 level are simply too valuable to give up, then the bonusing ratios can be adjusted. However – as Holt Renfrew and ATB Plaza demonstrate – second level building corners are already put to use as Plus 15 system infrastructure, under the current system.



Plan

AUTONOMY

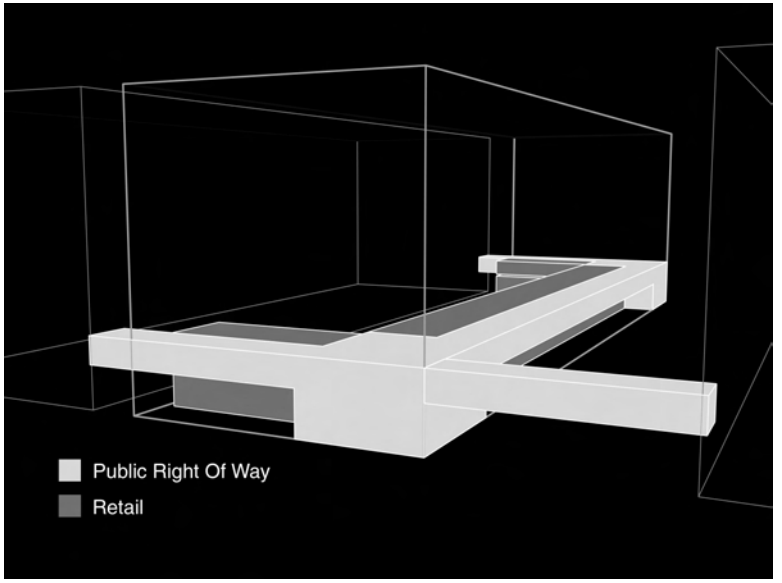
Furthermore, by creating what is effectively a building inside of a building, owners can easily seal off the private core of their buildings after hours, leaving the public right-of-way areas open. Walkways, access points, and bridges could remain open until much later than office spaces, banks, and other traditionally early to mid-day programs.

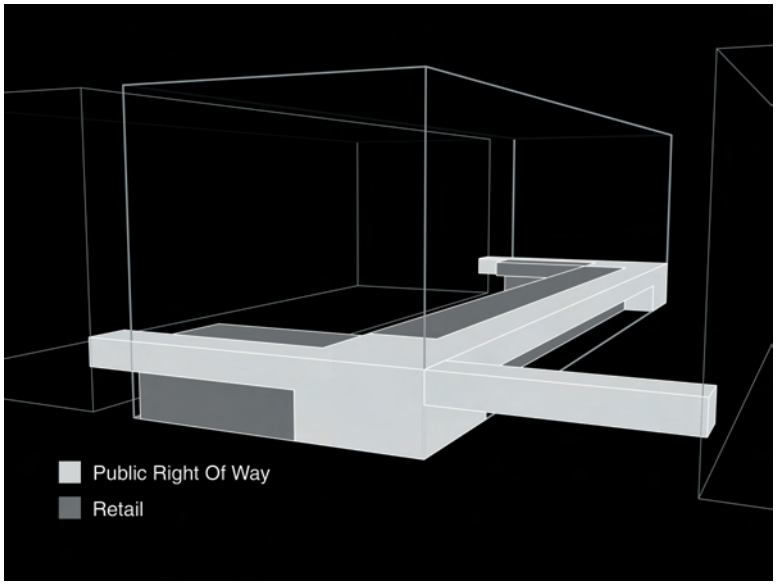


A DEMONSTRATION

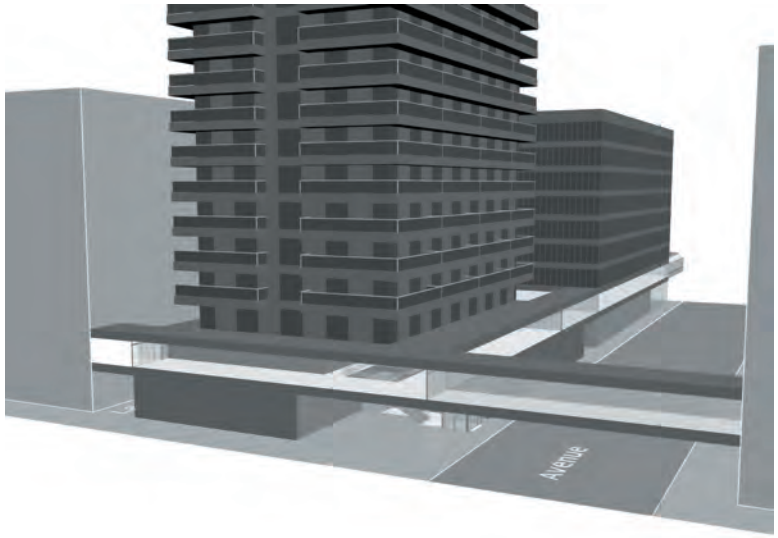
In order to demonstrate basic applications of this approach, a number of typologies are featured in the pages that follow. Space is divided up into public right-of-way (walkways, lane links, access points, and bridges) and areas that are left to the discretion of the building owner. That is, spaces that are not strictly allocated as walkways, bridges, lane links, or access points can be configured however the building owner sees fit. The owner/developer could leave these spaces fully private and non-accessible to the general public. Or they could assign spatial programs like food, retail, or privately owned public spaces, such as indoor parks and plazas. As per the approval process for the City of Calgary Land Use Bylaw, public spaces could potentially qualify for floor bonusing incentives.

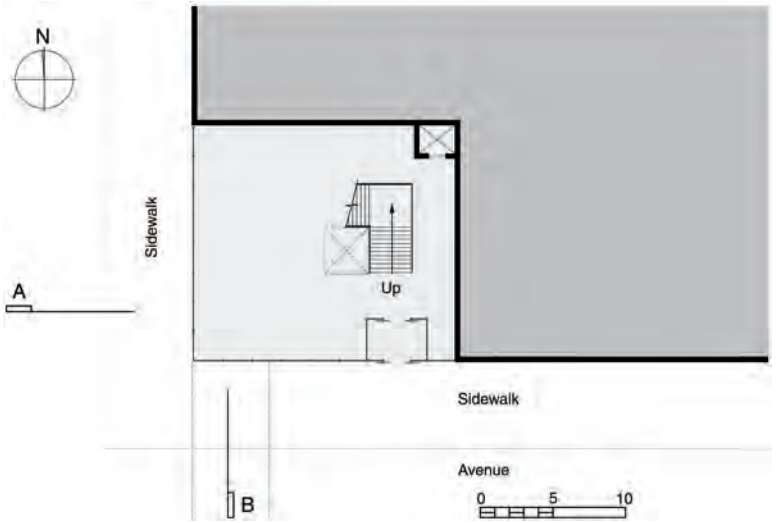
Note: Drawing units are in SI.





Residential:





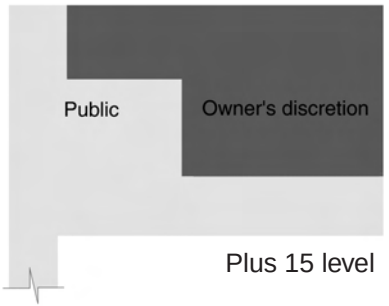
Plan: Grade

- Residential tower (East side of half block).
- Corner-located access points and bridges.
- Lane links at East and West mid-block.
- Additional link connects neighbouring building.
- 5 metre wide Plus 15 bridge crosses avenue.

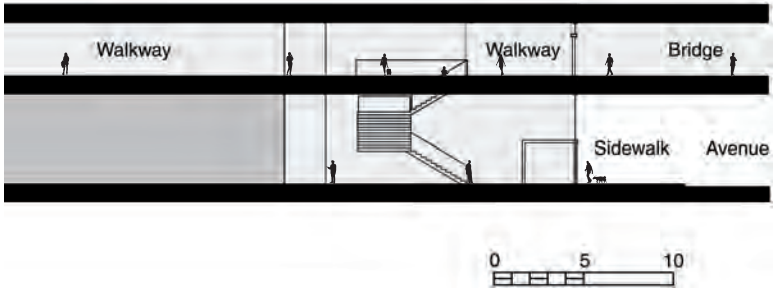
Section A

Plan: +15 level

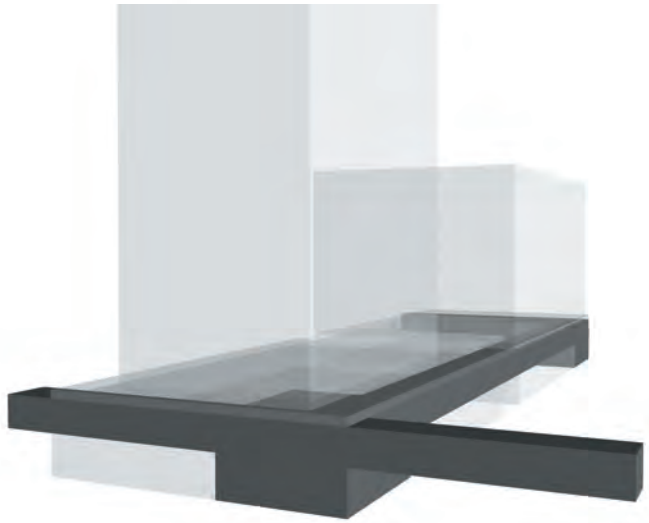
At grade



Plus 15 level

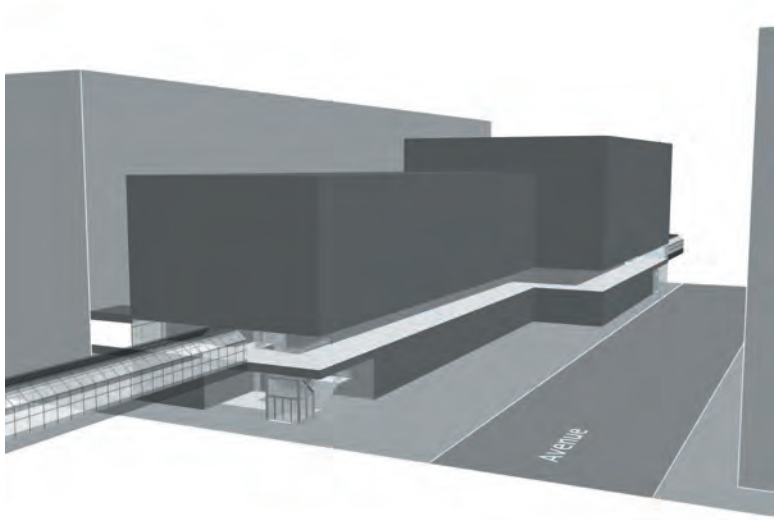


Section B

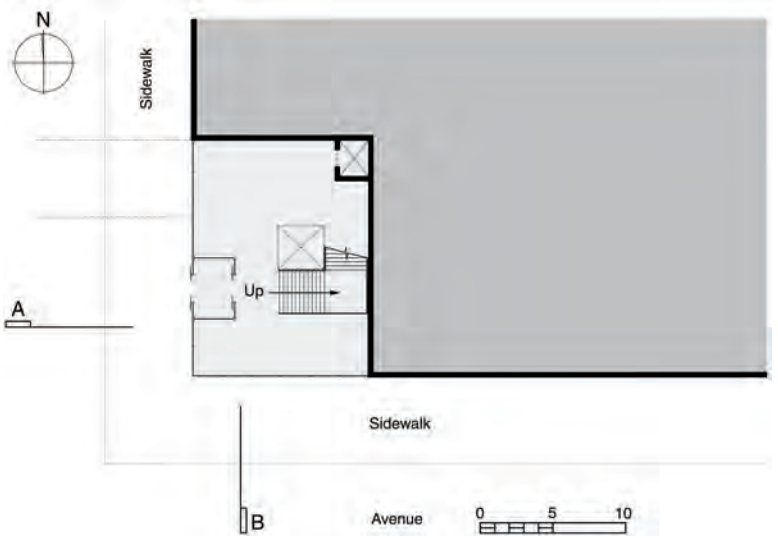


Public right of way

Performing arts

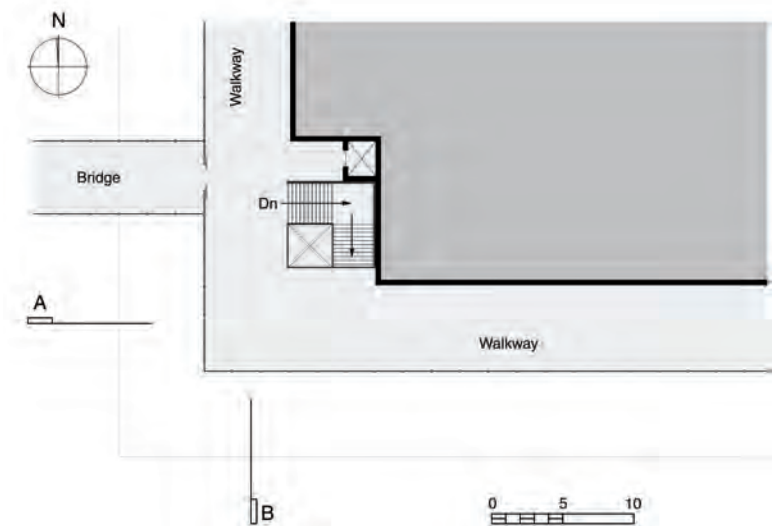


- Performing arts / theatre (half a block, spanning ave.)
- Corner access point and bridge to the East.
- ‘Legacy’ bridge connection to the West with corner access point condition.
- Lane links located at perimeter.

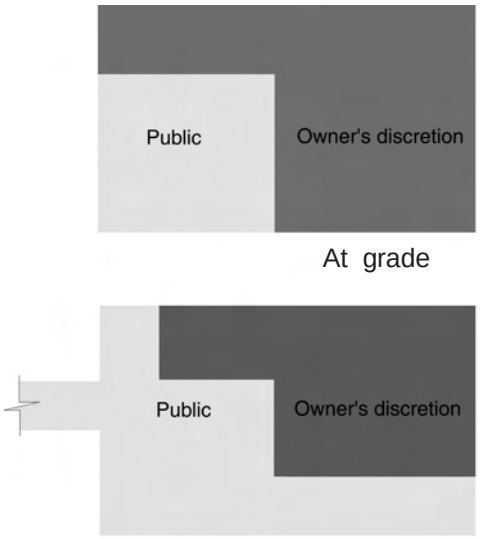


Plan: Grade

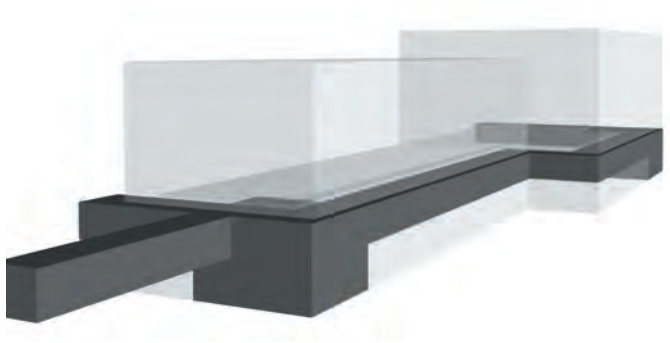
Section A



Plan: +15 level

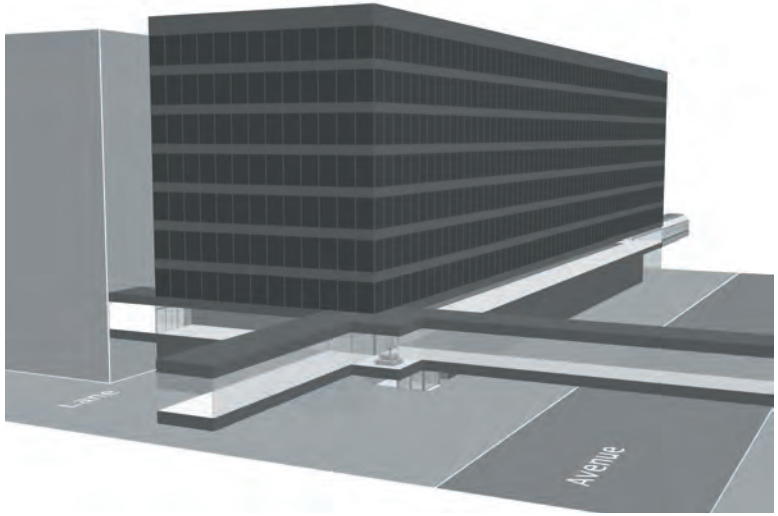


Section B



Public right of way

Office:

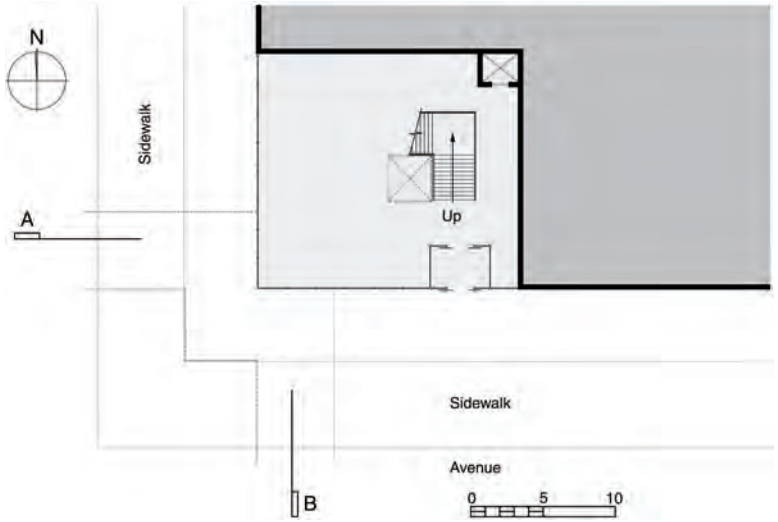


- Walkway runs perimeter of building, allowing independent hours for public right of way.

- Public space at meeting point of bridges / ‘independent’ circulation element.

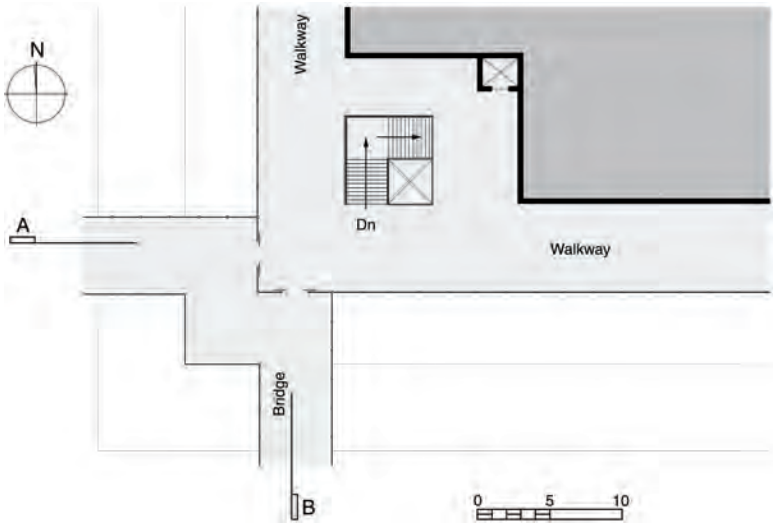
- Corner condition for bridges and vertical circulation.

- Lane links located at perimiter – following the wrapping condition.

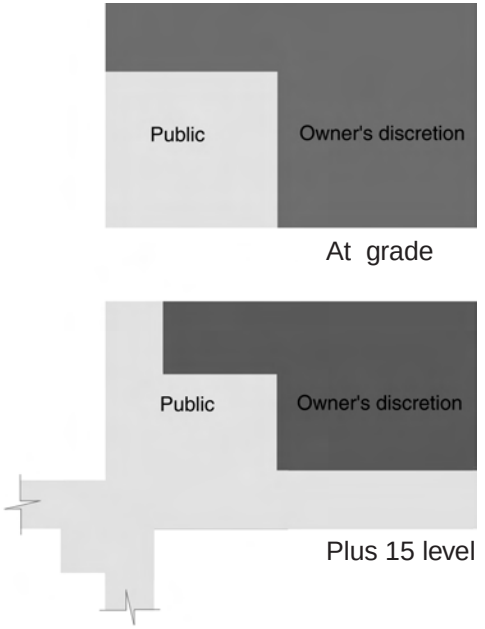


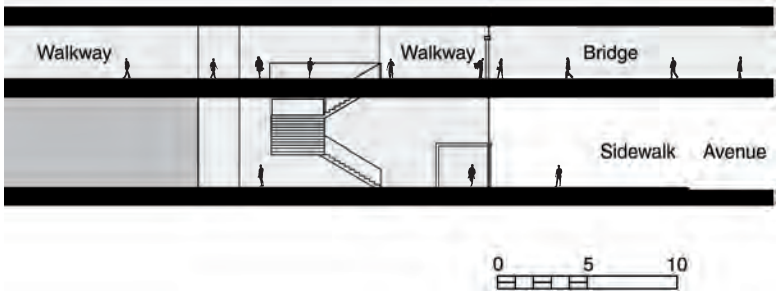
Plan: Grade

Section A

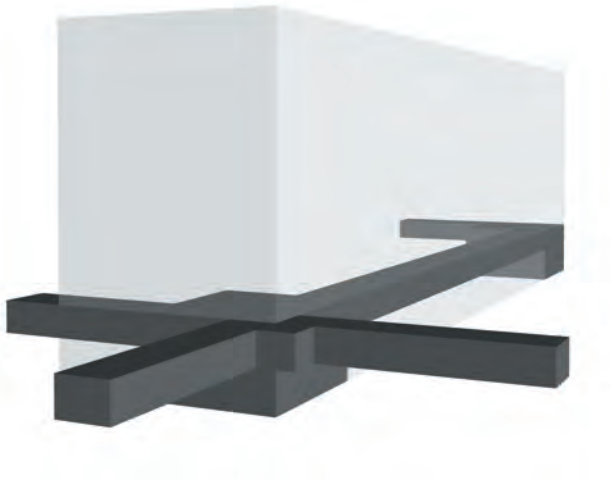


Plan: +15 level



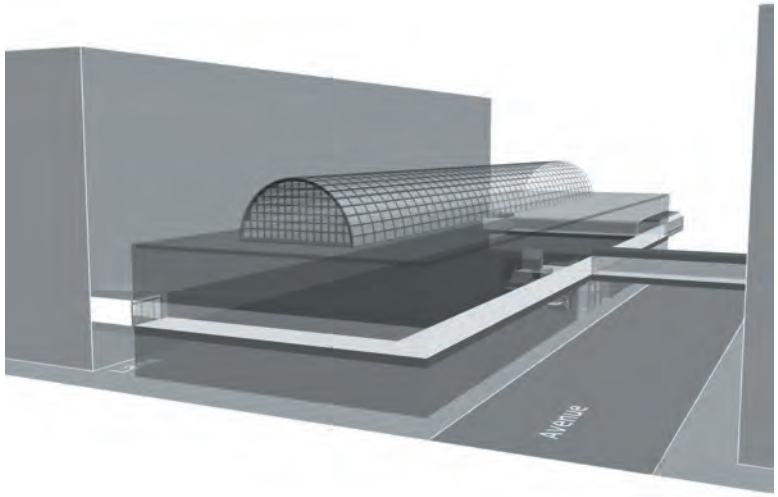


Section B

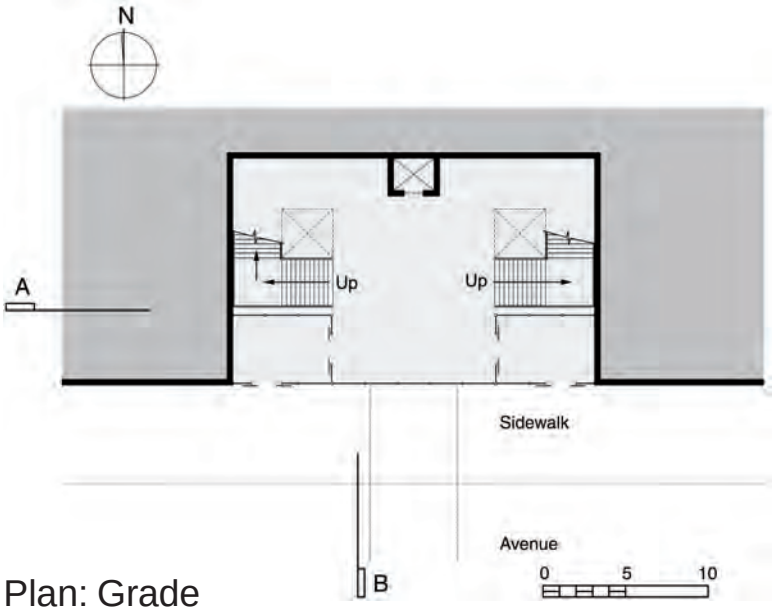


Public right of way

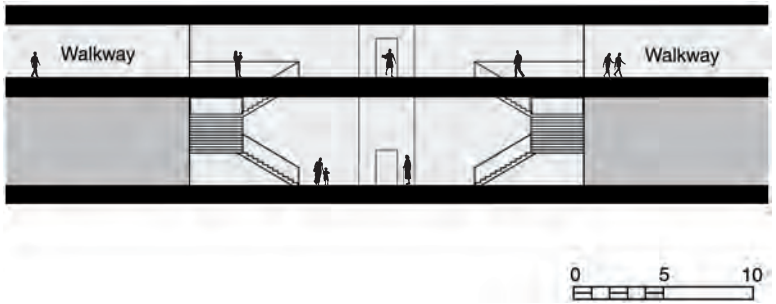
Retail:



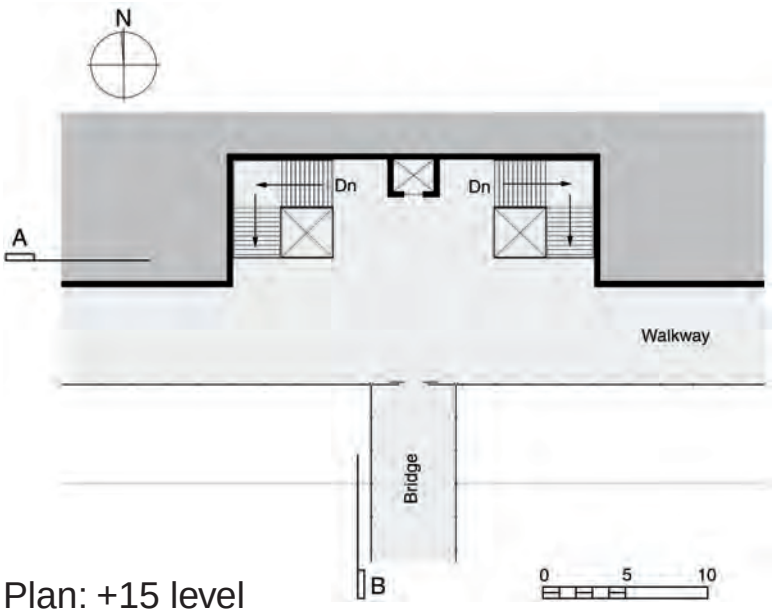
- Mid-block bridge connection and vertical circulation.
- Circulation runs perimeter.
- Lane links at perimeter with glazing to street.
- Vertical circulation elements located close to glazed exterior.



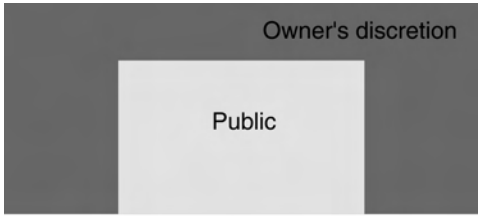
Plan: Grade



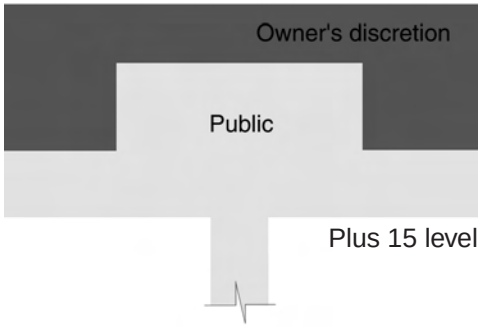
Section A



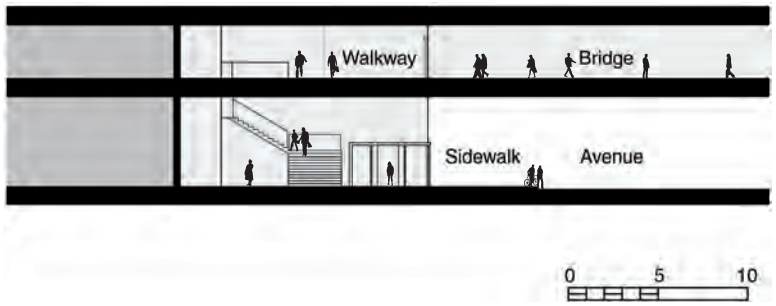
Plan: +15 level



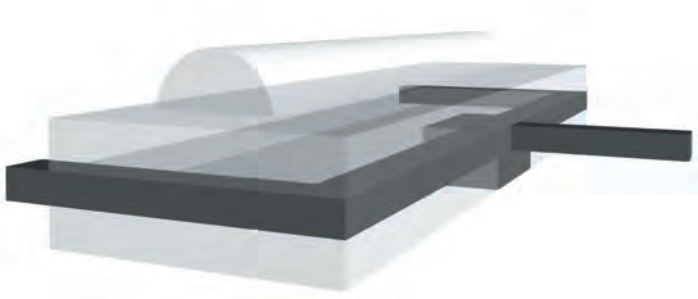
At grade



Plus 15 level

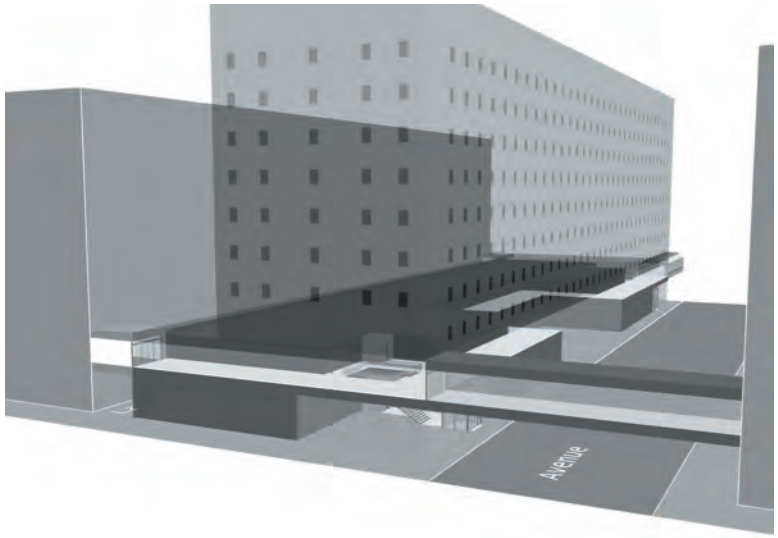


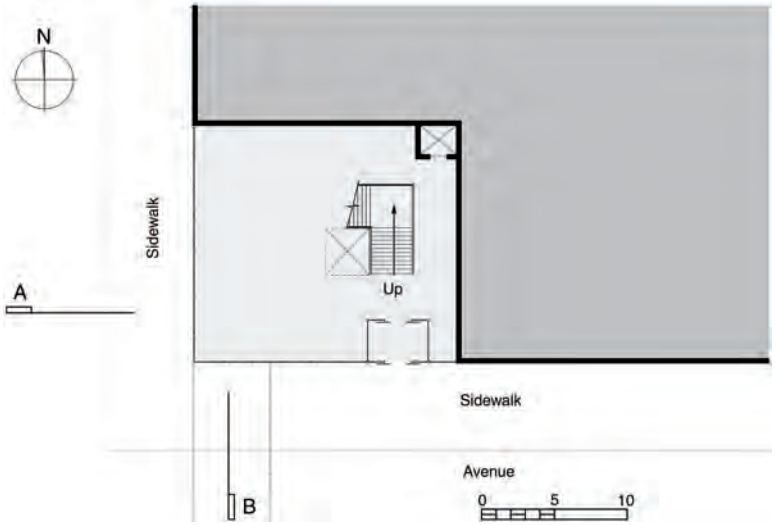
Section B



Public right of way

Hotel:





Plan: Grade

- Corner condition for bridges and vertical circulation.

- Lane links at perimeter of block.

- Public right of way wraps edge of building, into lobby space, and back out again. Flows through central space, while remaining autonomous.

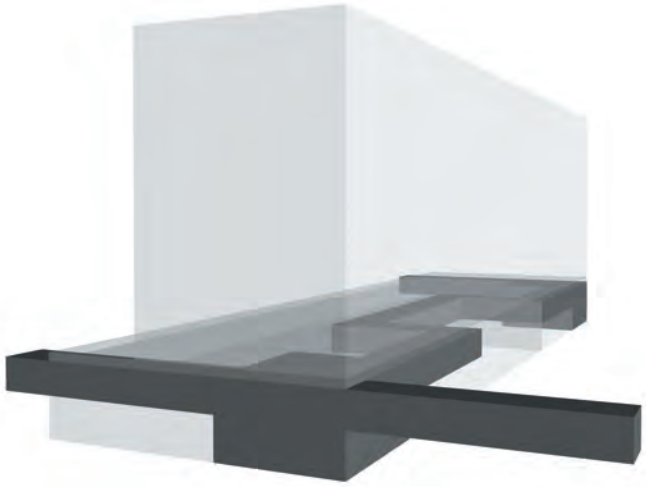
Section A

Plan: +15 level

At grade

Plus 15 level

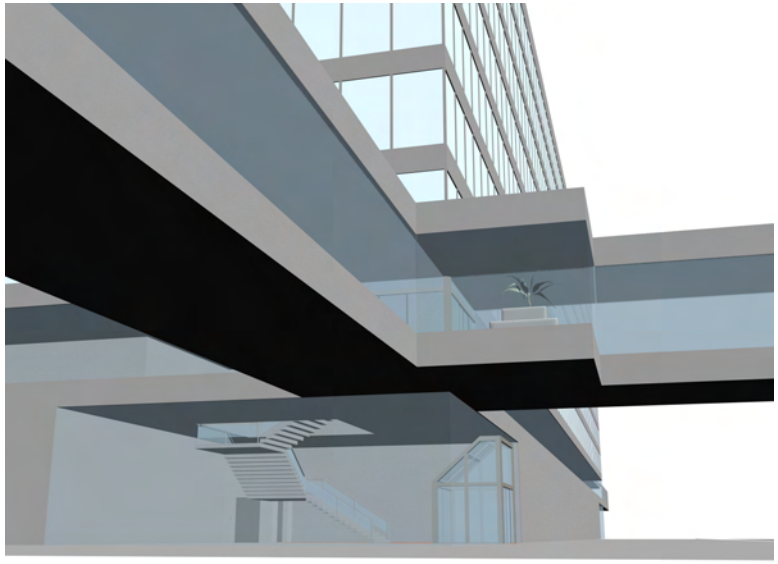
Section B



Public right of way

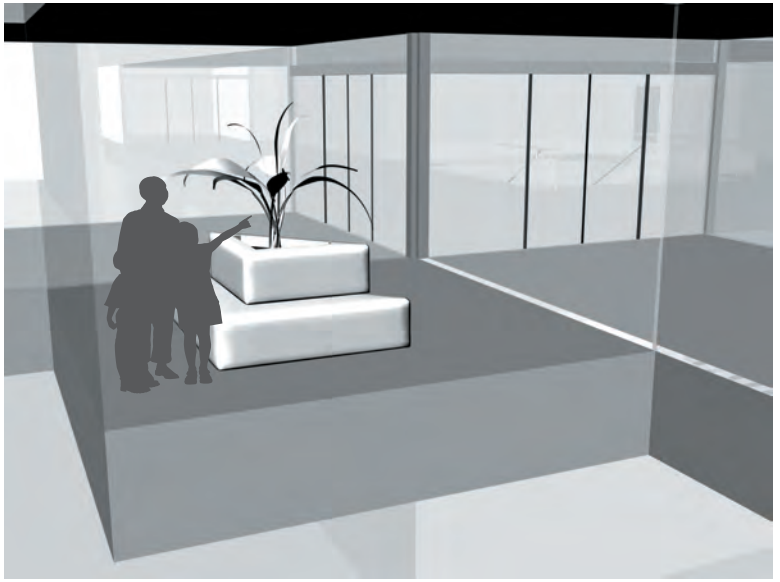
The **Residential** typology or building program type demonstrates the combination of a wrap condition and vertical circulation located at the corners of the half-block. In addition to the two lane links (both located at the perimeter of the block), there is a link between the residential building on the West side of the block and the office building to the East. Throughout, the public right of way follows the edge of the half block and allows for a separation between public space and what a building owner could opt to assign as more private space. As such, hours of operation between the two types of spaces can be independent from one-another.

A **Performing arts** theatre provides an example of support for both a connection to a building utilising a corner-connected bridge and a building with an existing bridge farther in-block. Greater economy of plan is demonstrated here, while still allowing for sizing beyond the minimum standards set out in the land use bylaw and Plus 15 policy guidelines.

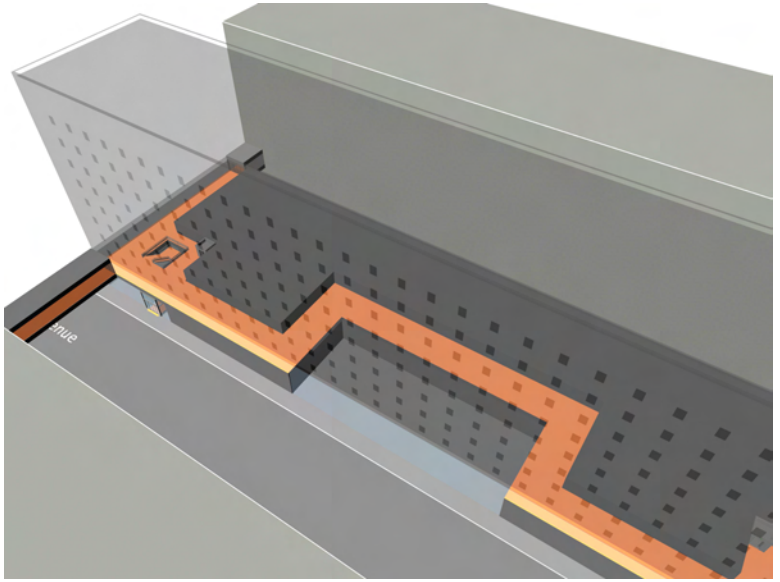


For the next condition, an **Office** building serves as the example typology. Again, a perimeter wrapping condition is applied. However, in this case, the point at which the two bridges terminate at the corner of the building has been pushed out from the building skin.

The primary objective of this is to create a suspended rest zone. However, this same formation has the potential of accommodating a degree of the circulation – directly from bridge to bridge. Furthermore, this represents an additional level of autonomy between the public right of way and the private space of the building itself.



The **Retail** typology demonstrates a connection at mid-block. While not as easily viewed as the corner connections, this access point is positioned directly below the Plus 15 bridge and extensively glazed. Circulation elements are visible from the street and immediately identifiable once inside the building.



The **Hotel** typology offers an opportunity to apply a perimeter-wrapping condition that dips into a quasi-public space, and then back out to the perimeter of the building. Passing through the lobby space, the walkway has the option of visual transparency to the lobby – and potentially – through to the street itself. As with all of the example conditions, the public right of way can operate independently of the building within which it resides. Stairs, elevators, walkways, and bridges can remain open beyond the host building's operational hours.

PROJECT CONCLUSION

At the heart of this project is the desire for high quality urban public spaces, and it echoes the sentiments of those who have sought the same goals for cities. It is the question of efficiency over quality of life. And it is a question that architecture, design, and planning continually seek to address and balance. Through the course of this Master's Degree Project, the Plus 15 has been held up as both catalyst and constraint for the purposes of creating spaces for people to enjoy. Planners and designers have the opportunity to leverage the flexibility of municipal policy, the intelligence of interdisciplinary team-work, and the integrity that keeps the focus on the search for better ways of living in cities. Today, there exists the technology to help address the needs of those who live, work, and play in winter cities. Providing guidelines for streamlining the process of informed qualitative analysis and design is an important step in the creation of positive urban public spaces that serve people well, 365 days a year. The intent of this project is to improve public spaces for winter cities and for the people that dwell in them. In the process of researching the topic of public space and the Plus 15, there were a number of surprises. One

Fig. 8.05 Gord Atkins' design for Stephen Avenue (Livesey 78).

Fig. 8.06 This architecturally designed series of spaces was later removed by the City (Livesey 78).

of them included the level of detail that is already embedded in the City of Calgary's Land Use Bylaw. This bylaw clearly demonstrates attempts to arrive at positive public spaces at grade and at the Plus 15 level. However – in practice – it is a set of rules that only partially achieves what it sets out to achieve. Regardless, it constitutes a rule-set that is able to influence the built environment. Furthermore, it forms a useful framework that – once modified further – has the potential to become truly effective at arriving at more and better spaces for public use.

Adjustments in policy can lead to positive results in the built environment. The task of arriving at compelling omni-seasonal public space is achievable. Through the process of working through this Master's Degree Project, there was a discovery of a process already set in motion. A policy framework for creating positive spaces has already been established. Furthermore, recent material regarding public space and the Plus 15 is bringing forth new and inventive suggestions for the design of public spaces that can be enjoyed throughout each year.

Among the many factors that contribute to effective and enjoyable public spaces, there are three in

particular that should be mentioned. These are: policy, technology, and the ability to reduce the problem to manageable levels of complexity. With well-thought-out policies and guidelines, inventive use of technologies, and a distillation of relevant information into workable components, there are numerous possibilities for the future of public space.

The final observation for the future is one that is echoed by a number of the researchers who have sought the same outcome for cities. In essence, it has to do with the public. Regardless of our professions and occupations, interests, and hobbies, each of us constitute the public to some degree. There is the danger of the public losing sight of its role in the process of creating positive urban spaces. However, as long as the public continues to recognise how very valuable their input is, the greater the chances of a future with more and better urban spaces for people to enjoy. Ultimately, cities have an important role to play in the quality of life for those who live, visit, play, and work in them. As such, spaces for the public remain as relevant today as they have for centuries.

BIBLIOGRAPHY

+15 walkway system (map). Calgary: The City of Calgary, 2010.

"Plus 15 Walkway System." Calgary Public Library. 29 Sept. 2010 <http://blog.calgarypubliclibrary.com/blogs/local_history_and_genealogy/archive/2010/08/10/plus-15-walkway-system.aspx>

Access Design Standards. Calgary: The City of Calgary Advisory Committee on Accessibility, 2009.

"Harold Hanen." Alberta Online Encyclopedia. Heritage Community Foundation. 2008. 29 Sept. 2010 <http://www.albertasource.ca/realestate/people/architects_hanen.html>

Alexander, Christopher, Sara Ishikawa, Murray Silverstein. *A Pattern Language.* New York: Oxford University Press, 1977.

Baan, Iwan. "The High Line." *Cloud9: Rooftop Architecture.* Ed. Serrats, Marta. Barcelona: Loft Publications, 2010. 128-137.

Babin, Tom. "Building a better winter city." Calgary Herald Online. 19 Dec. 2010 <http://www.calgaryherald.com/business/Building+better+winter+city/3999815/story.html>

Bennett, Corwin. *Spaces For People: Human Factors in Design.* New Jersey: Prentice-Hall, Inc., 1977.

Calgary Downtown Retail District Strategy. Calgary: Calgary Downtown Association, 2009.

BIBLIOGRAPHY

Land use bylaw sustainment team, development & building approvals, planning implementation. *Calgary Land Use Bylaw 1P2007.* Calgary: The City of Calgary development and building approvals planning implementation document centre #8135, 2008.

Development, Land Use & Downtown Division. *+15 Policy.* Calgary: The City of Calgary Planning and Information Centre, 1984.

Devonian Plan 1. Image. Calgary: The City of Calgary Parks Department.

Devonian Plan 2. Image. Calgary: The City of Calgary Parks Department.

"Plus 15." The City of Calgary. Aug 2008. 02 Oct. 2010 <http://www.calgary.ca/portal/server.pt/gateway/PTARGS_0_0_771_203_0_43/http%3B/content.calgary.ca/CCA/City+Hall/Business+Units/Development+and+Building+Approvals+and+Land+Use+Planning+and+Policy/Land+Use+Planning/Centre+City/Downtown+Planning/Plus+15.htm>

Ford, Larry R. *The Spaces between Buildings*. Baltimore: The Johns Hopkins University Press. 2000.

Gatje, Robert F. *Great Public Squares: An Architect's Selection.* London: W. W. Norton & Company, 2010.

Gehl, Jan. *Life Between Buildings: Using Public Space.* New York: Van Nostrand Company. 1987.

BIBLIOGRAPHY

Gehl, Jan and Lars Gemzoe. *New City Spaces*. Copenhagen: The Danish Architectural Press, 2000.

"Harold Hanen Fonds." Glenbow Museum. 30 Sept. 2010 <http://ww2.glenbow.org/search/archivesMainResults.aspx?XC=/search/archivesMainResults.aspx&TN=MAINCAT&AC=QBE_QUERY&RF=WebResults&DL=0&RL=0&NP=255&MF=WPEngMsg.ini&MR=5&QB0=AND&QF0=Main%20entry%2B|%2BTitle&QI0=Harold%20Hanen%20fonds>

Goldman, Norman P. "Montreal's Unique Underground City." Suite101. Apr 2003. 25 Oct. 2010 <http://www.suite101.com/article.cfm/montreal_canada/96358>

Gottdiener, Mark. *The new urban sociology.* New York: McGraw-Hill, 1994.

Harrigan, John E. *Human factors research : methods and applications for architects and interior designers.* New York: Elsevier Science Publishing, 1987.

Hertzberger, Herman. *Lessons for Students in Architecture*. Rotterdam: Uitgeverij 010 Publishers, 1991.

"High Line." Friends of the High Line. 2010. 25 Oct. 2010 <http://www.thehighline.org/about/park-information>

Jacobs, Jane. *The death and life of great American cities.* New York: Random House, Inc., 1961.

BIBLIOGRAPHY

Krier, Rob. *Elements of architecture.* London: Academy Group, Ltd., 1992.

Kunstler, James Howard. *The geography of nowhere : the rise and decline of America's man-made landscape*. New York: Simon & Schuster, 1993.

Livesey, Graham. *Gordon Atkins Architecture 1960-65*. Calgary: University of Calgary Press, 2005.

Lynch, Kevin. *The Image of the City.* Cambridge, M.A: The M.I.T. Press, 1960.

McDonald, William, A. *The Political Meeting Places of the Greeks.* Baltimore: The Johns Hopkins Press, 1943.

Miller, Kristine F. *Designs on the Public: The Private Lives of New York's Public Spaces.* Minneapolis: University of Minnesota Press, 2007.

Newman, Oscar. *Creating Defensible Space.* Washington, DC: U.S. Department of Housing and Urban Development Office of Policy Development Research, 1996.

"Paley Park." Project for Public Spaces. 24 Nov. 2010. < http://www.pps.org/great_public_spaces/one?public_place_id=69>

Phillips, David. "Planning with Winter Climate in Mind." *Cities Designed for Winter.* Ed. Manty, Jorma and Norman Pressman. Helsinki: Building Book Limited, 1988. 65-83.

BIBLIOGRAPHY

Pressman, Norman. “Winter Policies, Plans and Designs: The Canadian Experience.” *Cities Designed for Winter.* Ed. Manty, Jorma and Norman Pressman. Helsinki: Building Book Limited, 1988. 35-64.

Safdie, Moshe. *The city after the automobile : an architect’s vision.* Toronto: Stoddart Publishing Co. Limited, 1997.

Shaftoe, Henry. *Convivial Urban Spaces.* London: Earthscan, 2008.

Sitte, Camillo. *City Planning According To Artistic Principles.* London: Phaidon Press, 1965.

Special Projects Division. *Downtown Handbook of Public Improvements.* Calgary: The City of Calgary Planning Information Centre, 1982.

Steele, James. *Hellenistic Architecture in Asia Minor.* London: Academy Editions, 1992.

Planning & Building Department. *The Calgary +15 System: Pedestrian Counts and a Survey of users.* Calgary: The City of Calgary Planning Information Centre, 1988.

The Bow +15 bridge. Image. Calgary: Sturgess Architecture, 2010.

Tukiainen, Matti. “Calgary Canada Sunrise, Sunset” Gaisma. 11 Oct. 2010 <http://www.gaisma.com/en/location/calgary.html>

Urban Design Review Panel. *The Bow, Calgary: Urban Design Review*. Item# 2, DP2006-3431. Calgary: 2006.

BIBLIOGRAPHY

Whyte, William H. *The Social Life of Small Urban Spaces.* New York: Project for Public Spaces, 1980.

Zeisel, John. *Inquiry By Design.* Cambridge: Cambridge University Press, 1981.

Illustrations from electronic sources (In order of appearance):

Osborn, Linda. *Record Low Temperatures.* Online Image. 13 Mar. 2011 < http://www.currentresults.com/Weather-Extremes/Canada/coldest-cities.php>

Calgary Core Map. Online Image. 26 Feb. 2011 <http://web.archive.org/web/20070227143733/www.calgary.ca/docgallery/BU/engineering_services/emaps/calgary_core_map.pdf>

Paley 21667. Online Image. 12 Mar. 2011 < http://family.webshots.com/photo/2166709220056421846gdlAsa>

Paley Drawing. Online Image. 12 Mar. 2011 <http://www.infra.kochi-tech.ac.jp/shige/LD1/>

High Line New York: Access. Online Images. 25 Sept. 2010 <http://www.thehighline.org/galleries/images/high-line-park-photos>

High Line New York: Map. Online Image. 29 Sept. 2010 <http://www.thehighline.org/design/high-line-design>

High Line New York: Path. Online Images. 25 Sept. 2010 <http://www.thehighline.org/galleries/images/high-line-park-photos>

BIBLIOGRAPHY

High Line New York: Seating. Online Images. 25 Sept. 2010 <http://www.thehighline.org/galleries/images/high-line-park-photos>

IBM Atrium. Online Image. 25 Nov. 2010 <http://article.wn.com/view/2010/09/21/>

Gare centrale, Montreal. Online Image. 25 Sept. 2010 <http://upload.wikimedia.org/wikipedia/commons/5/54/Halles%2C_Central_train_station%2C_Montreal_2006-01-09.JPG>

Place des Arts, Lightwell, Montreal. Online Image. 25 Sept. 2010 <http://upload.wikimedia.org/wikipedia/commons/3/30/Place_des_Arts%2C_light_well%2 C_Montreal_2005-10-21.JPG>

Bonaventure metro station. Online Image. 25 Sept. 2010 <http://en.wikipedia.org/wiki/File:Ville-souterraine-1.jpg>

QR Code. 06 Mar. 2011. <http://qrcode.kaywa.com/>

TekCraze. 24 Jan. 2011 <http://www.tekcraze.com/plus15>

Choo, Jonathan. *Office workers.* Directly Aquired Image. 15 Dec 2010.

The Bow, exterior perspective. 05 Feb. 2009 <http://www.e-architect.co.uk/images/jpgs/canada/the_bow_foster051108_5.jpg>

Lincoln Skywalk. Online Image. 23 Feb. 2011 <http://www.flickr.com/photos/flowrbx/377634486/>

BIBLIOGRAPHY

Des Moines Skywalk. Online Image. 22 Feb. 2011 <http://www.flickr.com/photos/photobug_fred/3657605109/>

Gaitonde, Aalok. *Manchester skywalk.* Online Image. 23 Feb. 2011 <http://www.flickr.com/photos/aalokg/3089072388/>

Savatier, Tristan. *Chicago airport.* Online Image. 21 Feb. 2011 <http://www.loupiote.com/photos/2224358335.shtml>

Wilkinson Eyre 736. Online Image. 04 Mar. 2011 <http://www.h-w.at/project.php?country_id=221&show=list>

Wilkinson Eyre 8799f. Online Image. 04 Mar. 2011 <http://meme.yahoo.com/rafael_nubile/p/Bb4tY5A/>

Wilkinson Eyre 2-283. Online Image. 04 Mar. 2011 <http://www.royalacademy.org.uk/architecture/architecture- resources/interviews/wilkinson-tells-a-story,206,AR.html Wilkinson Eyre 2.jpg>

Wilkinson Eyre 014. Online Image. 04 Mar. 2011 <http://picasaweb.google.com/lh/photo/SLD24jzTrlsXpHXNcMeAxw>

Wilkinson Eyre 1_500. Online Image. 04 Mar. 2011 <http://vane553.tumblr.com/post/356673177/the-bridge-of-aspiration-connecting-the-royal>

LINKS AND ADDITIONAL CONTENT

To obtain a digital PDF copy of this project, scan the code to the right or use the following link:

http://www.voltage-control.com/mdp/wjbmdp2011.pdf

To obtain a copy of the video that accompanies this project, scan the code to the right:

http://www.voltage-control.com/mdp/wjbmdv1.zip

LINKS AND ADDITIONAL CONTENT

To obtain a copy of the video in an alternate format, scan the code to the right:

http://www.voltage-control.com/mdp/wjbmdv2.zip

Special thanks to Tona Ohama for the use of his time-lapse videographic content:

http://www.voltage-control.com/mdp/tohama.zip