On the Edge

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Abstract

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Although edges are often dismissed as a simple boundary or fringe aspect of design, their true nature is much more complex and richer. Their power lies in the fact they are neither separators or unifiers, describers of form or of space, but all, and at the same time. However, their dynamism is often neglected by designers, who afford more privilege to open space. This thesis reinvigorates the notion of edges, stimulates thinking, and initiates discussion about the active role edges play in design. It draws from theory, observation and years of professional practice, and specifically explores edges through the lens of the landscape architectural design process. Sections are broken down by typical design phases from early and development design through to post occupancy evaluation. The findings illustrate the diverse roles and scales at which edges perform, and how they are both drivers of design and an active part of it.

TABLE OF CONTENTS

LIST OF FIGURES

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DEDICATION

For Lydia, Peter and Myself.

PART 1

1.1 The leading *EDGE*

"Edges are ambiguous entities. They separate yet unite, incorporating elements of dissimilar environments, yet they are more than the sum of dissimilar things. Edges are where the action is." (Bunster-Ossa 83)

Edges can inspire, excite and, occasionally, torment landscape architects. Although they are often dismissed as a simple boundary, line of demarcation or fringe aspect of design their true nature is much more complex and richer. The complexity of edges is apparent in the terms we use to describe them: boundary, fringe, verge, rim, wall, limit. The semantic power of these words manifests the fact that every edge has two sides, an inside and an outside, and therefore the nature and interest of the edge is always open to more than one interpretation. Edges are neither a divider nor a uniter, a barrier or a protector, a describer of form or of space, but all, and at the same time. It is this tension between form making and being an integral part of the form it makes that creates much of the

"Thirteen Ways of Looking at a Blackbird"
Wallace Stevens

I
Among twenty snowy mountains,
The only moving thing
Was the eye of the blackbird.

II
I was of three minds,
Like a tree
In which there are three blackbirds.

III
The blackbird whirled in the autumn
winds.
It was a small part of the pantomime.

IV
A man and a
woman
Are one.
A man and a
woman and a
blackbird
Are one.

V
I do not know which to prefer,
The beauty of inflections
Or the beauty of innuendoes,
The blackbird whistling
Or just after.

VI
Icicles filled the long window
With barbaric glass.
The shadow of the blackbird
Crossed it, to and fro.
The mood
Traced in the shadow
An indecipherable cause.

VII
O thin men of Haddam,
Why do you imagine golden birds?
Do you not see how the blackbird
Walks around the feet
Of the women about you?

VIII
I know noble accents
And lucid, inescapable rhythms;
But I know, too,
That the blackbird is involved
In what I know.

IX
When the blackbird
flew out of sight,
It marked the edge
Of one of many circles.

X
At the sight of blackbirds
Flying in a green light,
Even the bawds of euphony
Would cry out sharply.

XI
He rode over Connecticut
In a glass coach.
Once, a fear pierced him,
In that he mistook
The shadow of his equipage
For blackbirds.

XII
The river is mov-
ing.
The blackbird must
be flying.

XIII
It was evening all afternoon.
It was snowing
And it was going to snow.
The blackbird sat
In the cedar-limbs.

This poem simply and elegantly explores layers of "knowing." In each of the haiku-like stanzas Stevens shows us how to look beyond our one-dinemsional, quick summary way of thinking.
Although each section can be read on its own, as a discrete image and lyric, it should, more importantly be read in relationship to each other sections, creating a far more complex and intertesting whole.

In a similar way, this thesis aims to explore edges through different modes, in order to bring depth, richness, and possibility, greater understanding the topic.

Figure 1.1 Thirteen Ways of Looking at a Blackbird

power of the edge. As Ignacio Bunster-Ossa identifies, for all the ambiguity found in the edge there is an equal, perhaps even greater amount of potential and possibility. An edge is rarely just an edge.

This study investigates edges, their complexity, variety, and multiple dimensions. Like "Thirteen Ways of Looking at a Blackbird" by Wallace Stevens, which creatively enhances our knowledge and understanding of blackbirds through the poetic lens, this thesis explores the concept of 'edge' from multiple perspectives. It looks at edges via definition, poetry, and lines on paper. It presents observations drawn from our urban gridded landscape; edges that occur between architecture, landscape and infrastructure. It considered how they separate and divide, overlap and interrelate. It explores edges through the lens of landscape site design with the intention of elevating an aspect often ignored or overlooked. The intent is to reinvigorate the notion of edges, to stimulate thinking, and initiate discussion about the active role edges play in design.

Due to the complex nature of the subject matter, this study uses forms of exploration and methods for presenting ideas which differ from those used in a traditional thesis. The ideas expressed are rooted in both theory, observation and practice. The genesis for this approach originated from the following ideas and critical stance described by Steven Krog (64):

"there will be no life in your art if you have no experience to draw from. To my mind the only way to produce experience-supportive landscapes, is to have an experienced-supportive reservoir of understanding. I think we should visit places not just to see them and record them with our snapshots, but rather to feel them. Let the seeing be documentary, but the feeling enlightening. Our designs will be better for it"

An exploration into of the complex relationships between things, presents ideas and discussions that intersect and contradict. To provide a sense of order, the work has been divided into two parts. Part 1 is a collection of inspirational studies and explorations into

the anatomy of edges. These studies are an assortment of findings in either written, note or illustrative form. They look at the semantic power of the word, the theory behind edge design, and contemplate the purpose and value that edges play in urban environments. Part 2 builds on Part 1 in a more structured manner, considering edges through the lens of the landscape architectural design process. Sections are broken down by typical design phases; pre-design, schematic design, design development, construction documentation, construction administration and post occupancy evaluation. The use of the design process as a tool enables the topic of edges to be reviewed from multiple dimensions and scales, and in context. The illustrations and examples are not exclusive to one section and may reference multiple dimensions.

1.2 *EDGE* Definition

***EDGE*: NOUN**

1.The outside limit of an object, area, or surface boundary
extremity
border,fringe
margin,side, lip, rim
horizon
brink
verge
perimeter,
circumference
periphery
limits
bounds
side
threshold
contour, line

2. A place or part farthest away from the center of something

3. A point right before something happens

A transition

***EDGE:* VERB** **1**. Provide with a border or edge
fringe frame
verge skirt
surround enclose
encircle circle
encompass bound
trim pipe
band decorate
finish outline border fringe bind hem

2. Move gradually, carefully, or furtively in a particular direction

3. give an intense or sharp quality to

Figure 1.2 Edge Definitions

EDGE	**IDOMS**
On ***EDGE***:	to be tense, excited, nervous, uptight, irritated, worried.
On the ***EDGE***:	very close to doing something or of having some imminent event happen,especially that which is bad disastrous.
Cutting ***EDGE***:	the edge of a breakthrough. to be of the latest design
To have an ***EDGE*** :	advantage
Leading ***EDGE***:	most advanced position, practice, or technology in a given area.
On the ***EDGE***	of your seat; excited, moved, stimulated, roused, stirred.
Rough around the ***EDGES***:	unpolished, imperfect, or unkempt, but generally able or ready for use or action.
EDGE in:	to insert, work, or force something or oneself into a narrow margin of available time or space.
EDGE out:	to move something or someone out of something very carefully, bit by bit
Over the ***EDGE***:	into a condition of extreme mental suffering (*Completing this thesis has pushed me over the edge*.)
Take the ***EDGE*** off:	to dull the intensity, force, or pleasure of
Double-***EDGED*** sword:	something that offers both a good and bad consequence.

Figure 1.3 Edge Idioms

Mending Wall by Robert Frost[1]

Something there is that doesn't love a wall,
That sends the frozen-ground-swell under it,
And spills the upper boulders in the sun;
And makes gaps even two can pass abreast.
The work of hunters is another thing:
I have come after them and made repair
Where they have left not one stone on a stone,
But they would have the rabbit out of hiding,
To please the yelping dogs.
The gaps I mean,
No one has seen them made or heard them made,
But at spring mending-time we find them there.
I let my neighbor know beyond the hill;
And on a day we meet to walk the line
And set the wall between us once again.
We keep the wall between us as we go.
To each the boulders that have fallen to each.
And some are loaves and some so nearly balls
We have to use a spell to make them balance:
"Stay where you are until our backs are turned!"
We wear our fingers rough with handling them.
Oh, just another kind of outdoor game,
One on a side.
It comes to little more:
There where it is we do not need the wall:
He is all pine and I am apple orchard.
My apple trees will never get across
And eat the cones under his pines, I tell him.
He only says, "Good fences make good neighbors."
Spring is the mischief in me, and I wonder
If I could put a notion in his head:
"Why do they make good neighbors? Isn't it
Where there are cows? But here there are no cows.
Before I built a wall I'd ask to know
What I was walling in or walling out,
And to whom I was like to give offense.
Something there is that doesn't love a wall,
That wants it down.
"I could say "Elves" to him,
But it's not elves exactly, and I'd rather
Bringing a stone grasped firmly by the top
In each hand, like an old-stone savage armed.
He moves in darkness as it seems to me,
Not of woods only and the shade of trees.
He will not go behind his father's saying,
And he likes having thought of it so well
He says again, "Good fences make good neighbors."

Figure 1.4 The Mending Wall

1.3 The two-faced *EDGE*

Frost's poem speaks to the dual and contradictory nature of edges. It describes two men "meeting on terms of civility and neighborliness to build a barrier between them" (Sparknotes) The wall both separates as a physical barrier between properties, and unites, by bringing them together in civil engagement. The speaker in the poem does not fully understand the purpose of the wall and questions what is it keeping in or keeping out. There are no animals, only apple or pine trees. However, the neighbor repeats the adage, "Good fences make good neighbors." His comment hints at the wall as something that both fences someone, or something, in while at the same time fencing something out.

This saying about fences is predicated on the belief that relationships can better prosper when boundaries and rights of ownership are clear. As in Frost's poem, the many walls and fences that divide our cities are built with the intention to prevent trespass, protect property, respect rights of ownership, and maintain a sense of privacy. But is such segregation appropriate in the collective and communal life of a city? In his study of the proverb "Good fences make good neighbors," Wolfgang Mieder states physical barriers create an "irresolvable tension between boundary and hospitality, between demarcation and common space, between individuality and collectivity, and between many other conflicting attitudes that separate people from each other" (211). He goes further to note "much is obviously at stake when it comes to erecting a fence or a wall, no matter whether the structure is meant for protection or separation from the other, to wit the Great Wall of China, the Berlin Wall, the walls that separate Americans from Mexicans or Israelis from Palestinians, and one individual neighbor from another." And asks "After all, should it not be the goal of humankind to tear down fences and walls everywhere?

How can anybody justify the erection or maintenance of barriers between people and neighbors?" (211)

Mieder's comments broach some of the key issues designers face when thinking about edges and spatial division within the urban landscape. Why and when is it appropriate to build walls? Why and where it is appropriate to remove them? Do we always need to fence the edge of a school, a park, residential complex, or parking lot? How can we create respectful barriers that separate and protect different spatial uses, and yet still allow for acts of open communication and negotiation which strengthen the collective whole? As landscape architects, we have the ability and responsibility to influence when "Good fences make good neighbors," and to effect form and aesthetic quality they are appropriate.

AMPLIFICATION, INTRIGUE The sharp, clean edges of James Turrell's skyspace intensify:
landscape without a horizon, vocabulary of light,
colour, & sound.

James Turrell's Skyspace, University of Washington, Seattle, WA

Figure 1.5 Juxtaposition, Accretion and Intrigue

1.4 On the *EDGE*

I placed a jar in Tennessee,
And round it was, upon a hill.
It made the slovenly wilderness
Surround that hill.

The wilderness rose up to it,
And sprawled around, no longer wild.
Wallace Stevens

As visual animals, our world is principally defined and described by the edges we see and feel. We use the edges of things to comprehend form, space, mass; to differentiate the world into component parts. The wilderness and the hill in Stevens' poem are composed of the trunk, stem, twig, leaf edges we see against the sky. The jar is the solid form, the shape and the hardness we see where it meets the nature. While we know that inside these things there is a complex set of atoms loosely or tightly bonded together, it is our interpretation of the edge relationships that allows us to define the form of the jar on the hill and determine how we feel about it.

This sense of edge not only applies to things; we use this concept to understand all aspects of our spatial and physical environment. In his studies of genius loci, Christian Norberg-Schulz asserts our sense of place is understood through the sum of all physical as well as symbolic values in nature and the human environment (Gunila and Larkham). In many ways, Norberg-Schulz appears to extrapolate edges as the 'character' of existential space. He states that concrete form and substance of space-defining elements, together with the comprehensive atmosphere of a place, describe the character of space (14). Thus, our feelings and experiences of a city street are determined by the physical

and formal constitution of edges, such as the walls of buildings, seat steps of plazas or the canopy of trees. Our life consists of concrete things and phenomena, such as objects, earth, and sky as well as intangible phenomena like feelings. “Man dwells when he can orient himself within and identify himself with an environment, or in short, when he experiences the environment as meaningful” (Norberg-Schulz, 5). Sometimes edges of existential space are blurred and ambiguous, like the dissolved transitions of form, surface, and space in the impressionist paintings of Monet. For example, in the many European cities it is difficult to differentiate between the plaza, sidewalk, street and outside café; they overlap and merge from to another. At other times the edges are hard, sharp, and formal, like the strong lines of expression in cubist paintings. Clipped hedges and walls prevent movement and clearly divide most urban landscapes. Whether edges are described by adjacency, overlap, or things brought together by seams, they register the boundaries of form and visual space.

Classic figure ground theory maintains space as a conscious place which only exists when it has shape; the shape being formed by the presence and placement of figures (objects), which contrast with ground (space) (Alexander et al). The key aspect to figure ground organization depends on edge-assignment and its effect on shape perception. When a space has form, it is called positive space. In contrast, unshaped space, space without any discernable edges, is termed negative space. Physical definition of space is, by its very nature, defined by edges. The shape of space with form and the quality of the edge greatly influence human experience and behavior within an urban environment. Studies show we inhabit, linger and interact in positive spaces, whereas negative spaces tend to foster movement rather than dwelling (Ghel, Alexander et al).

The idea of edges as concrete definers of space has also been explored by Kevin Lynch in his analysis of the visual qualities of American cities. His work describes the physical importance of edges as identifiers and studies the role they play in giving

visual structure to our urban environments. In his vocabulary ‘edges’ along with ‘paths’, ‘districts’, ‘nodes’, and ‘landmarks’ are elements that people recognize and organize into coherent conceptual patterns to give cities legibility and clarity. Lynch asserts that edges act as lateral references, with the strongest being continuous in form, visible for some distance, impenetrable to cross movement, and clearly marking a change in area character. While Lynch’s studies in Boston, Jersey City and Los Angeles focus on such strong boundaries, he also acknowledges the subtle nature of seams, and suggests that where urban elements feature as both a path and edge, people tend to identify them first as a path, then secondly as an edge. Through their environmental behavior research, Rachel and Stephen Kaplan build on Lynch’s work to suggest that the qualities of legibility, mystery, coherence and complexity need to be present for people to enjoy and fully respond to places. Edge spaces are areas where all four of these requirements are present.

Although few studies that deal directly with the complex relational constructs of the urban environment, the experiential importance of edges underlines the work of other theorists who have influenced the design of cities. Jay Appleton’s “prospect-refuge” theory recognizes that edges are important elements that fulfill the desire “to see without being seen.” He discusses the experiential benefits of a forest edge and explains the similarities to edge spaces in the built environment, such as overhead cover, shadows and coves for a feeling of safety, and a position of prospect essential for a feeling of protection. Similarly, Jan Gehl’s observations in Life between Buildings discusses the behavioral aspects of edges. His work describes how people prefer the borders of public spaces and the edges of spaces to the center of space. He refers to this as the ‘edge effect’.

Throughout A Pattern Language Alexander et al, discuss not only the importance of edges themselves, but also recognize their conceptual importance as boundaries between things and as part of a larger landscape since nothing in our world exists in

isolation. They claim “Every part of [space], every part of a town, a neighborhood, a building, a garden, or a room, is whole, in the sense that it is both an integral entity, in itself, and at the same time, joined to some other entities to form a larger whole” (218). However, while edges are not separate from things or space, conceptually they may be thought of separately.

If edges are such fundamental spatial components, why then, as Catherine Dee suggests, are they “so neglected or ignored by designers?” (117). Moreover, if edges are fundamental to spatial thinking, why do design reviewers so often reprimand design teams, or students, for neglecting the edge relationships in their designs? Why does the current practice of landscape urbanism, which emphasizes the importance of both flow and connections, neglect the role edges play in design?

In Absent Wall and Other Boundary Stories Linda Pollak suggests the lack of focus on edges reflects the privilege that is afforded to open space. She suggests that Western modernity privileges openness as a positive value, and equates boundary with undesired containment and closure. She argues that the 18th –century concept of the horizontally extended landscape has caused designers to ignore the spaces that engage with the issues of boundary and constructed edges. Furthermore, she claims that later discussions regarding the division of public and private space have also focused on openness, in opposition to the closed private sphere. As a result, “openness, ….., implies a space that is without boundaries, equating boundary with undesired containment and closure….The pretense of openness has not only entailed the repression of boundaries; it has also encouraged the proliferation of unthought boundaries” (Pollak 12). It is ironic that although edges are an inescapable part of urban landscapes, they are regarded with less importance than open space.

1.5 *EDGES* of Landscape Architecture on paper

Sketched lines of early design
varying in weight,
thickness, and presence,
overlapping,
Blurring the edges.

Thick building outline,
a *demarcation* of inside and outside.

Dark section lines,
defining the *edge* between
above
and
below ground

The thick dashed line showing the
Limit of Work,
the *edge* of a project site.

Thin dashed lines,
marking overhead structures,
blurring the *edges* of inside and
outside.

Dashed,
critical root zone.

Dash dot limits of
property lines,
lease lines,
set backs.

Front *edge* of curb,
Back *edge* of curb.

Face of walls
Plant bed *edges*

Dimension lines,
marking the *edge* of clearance zones

Aligned edges.

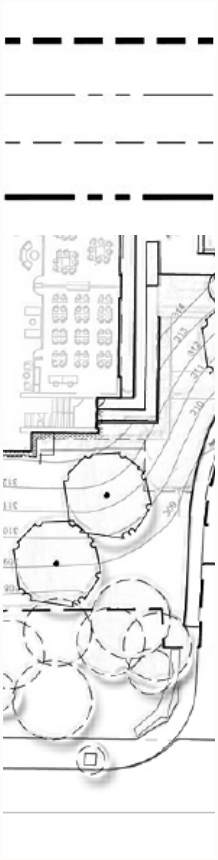


Figure 1-6 Edges on Paper

1.6 *EDGE* as an agent

The following exploration is inspired by the work of Berrizbeitia and Pollak in Inside Outside: Between Architecture and Landscape and their approach of using five 'operations' to study the relationship between building and site. Operation is defined in this context as a "procedure or process of a technical nature that constructs a specific mode of relation between elements" (10) with an emphasis on action. They suggest viewing relationships this way allows for a more exploratory nature of inquiry.

The appeal of this approach lies in the dual nature of the term 'edge.' As both a noun and a verb, it is both a condition and action. Thinking about the active role of edges, highlights their position as agent, a means or an instrument in the landscape, and not just as a condition.

The compiled list of words below, illustrate the active roles edges perform. While not all the words follow the same pattern, they support the idea of edges as relational agents. The list is drawn and generated from edge observation, practice and theory.

The active role of edges:

Accretion: The gradual growth, accumulation of additional layers. Gathering of site furnishings, matter or people at the edge.

Amalgamation: The action of combining or uniting, connecting, blending. Smoothing, blurring, easing edges, for accessible design

Amplification: The process of making something more marked or intense. Figure – Ground. Making positive space.

Connectivity: The action of joining or linking together. Associating, Relating, Converging spaces.

Camouflage: The concealment by means of disguise, to deceive or hide. Concealing, Screening, less desirable elements, such as utility equipment or expansive concrete parking lots.

Cohesion: The action of forming a united whole. Interconnection. Unifying, Interrelating, Edges that support well connected campus or urban spaces.

Complexity: The action of being intricate and complicated. Edges engaged on multiple levels.

Defense: The action of defending from or resisting attack. Protecting, Guarding, Resisting, Deterring, Fencing.

Demarcation: The action of fixing the boundary or limits of something. Marking Public vs private.

Extension: A continuation to enlarge or permit use at some distance. Horizon, Borrowed edges from the surrounding landscape.

Equilibrium: A state of balancing opposing forces or influences. Meeting and Matching, leveling.

Friction: The action and force relative to resistance. Clashing between two opposing views. Conflicting. Edges revealing pressures of urban life.

Fragmentation: The process of existing in separate parts, pieces or factions. Dividing, Breaking up. Partially open edges.

Generosity: The quality of being ample, especially as to breath, width. Giving, Plentiful, Abundance. Healthy edges.

Gradation: The action of change in a series of stages, or in a gradual manner. Grading, terracing, stepping, retaining.

Implication: The action of being implied. Disappearing, Inferring, Finding. Subtle edges

Intrigue: The action of arousing curiosity or interest of by unusual, new, or otherwise fascinating or compelling qualities. Captivate.

Integration: The action or instance of combining into an integral whole. Unifying, Interrelating, Meeting and Matching. See Cohesion.

Juxtaposition: The action of two things being seen or placed close together with contrasting effect.

Kinesthesia: The sense of movement.
Moving, Activating.

Luminosity: The action of being luminous.
Brightening, Enlivening.

Legibility: The capability of being understood.
Clarity, Transparent.

Moderation: The action of making something less extreme, intense.
Tempering, Restraining.

Multiplicity: The action of having numerous aspects or functions. The mark of diversity and variety.
Edges that Expand, Amplify, Strengthen, Augment.

Negotiation: The action of compromise and agreement.
Mediating, Promoting, Reconciling.

Reciprocity: The practice of exchange for mutual benefit.
Edges engaged in a complimentary and respectful balance.

Refuge: The action of being safe or sheltered from pursuit, danger, or difficulty.
Sheltering, Protecting, Edges offering retreat.

Tension: A strained state or condition resulting from forces acting in opposition to each other**.**
Constricting, Pressuring, Straining.

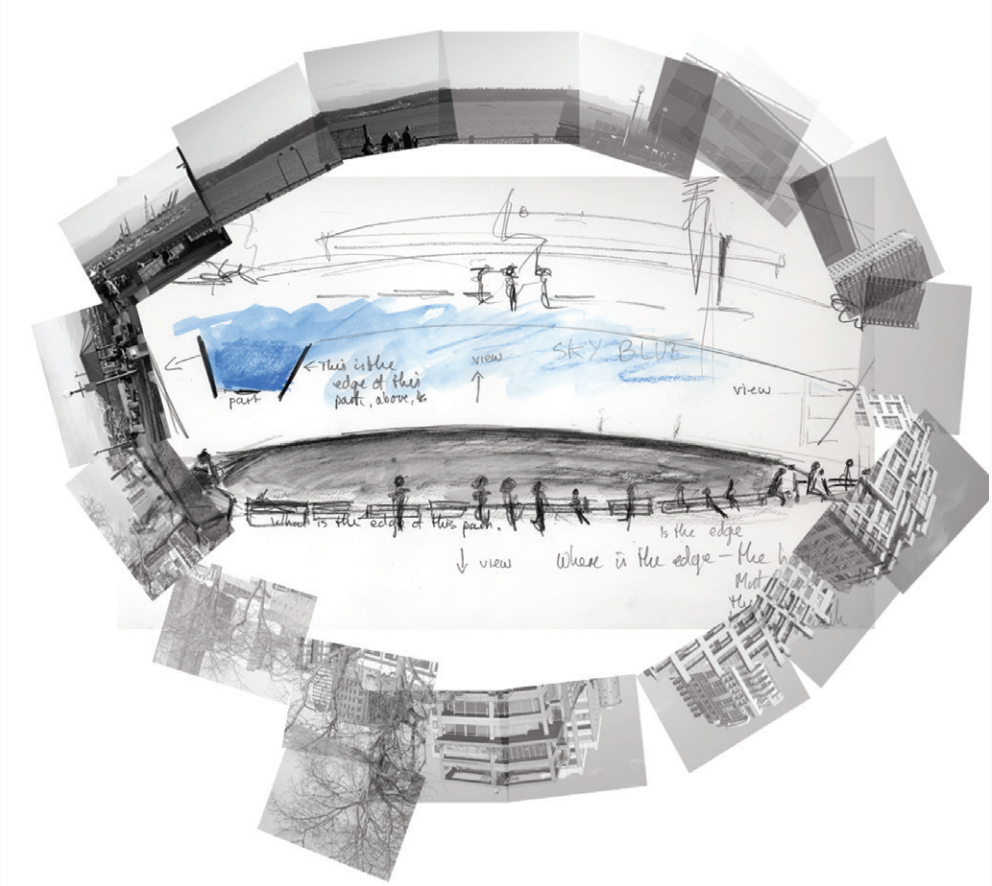
Transition: A movement or development from one form, stage, to another.
See Gradation.

Unification: The action of forming a complete and harmonious whole.
Blending, Blurring.

Source of definitions: www.merriam-webster.com

The diversity within this list highlights the numerous manifestations that edges have. It is important to note, edges rarely engage in a single operation at any one time, typically they are agents of multiple processes and actions at any one time. The active complex and multifunctional roles edges play will be explored further in Part 2 and throughout the illustrations.

"Good frames provide a variety of places for people to settle"
(Mark Child 125)



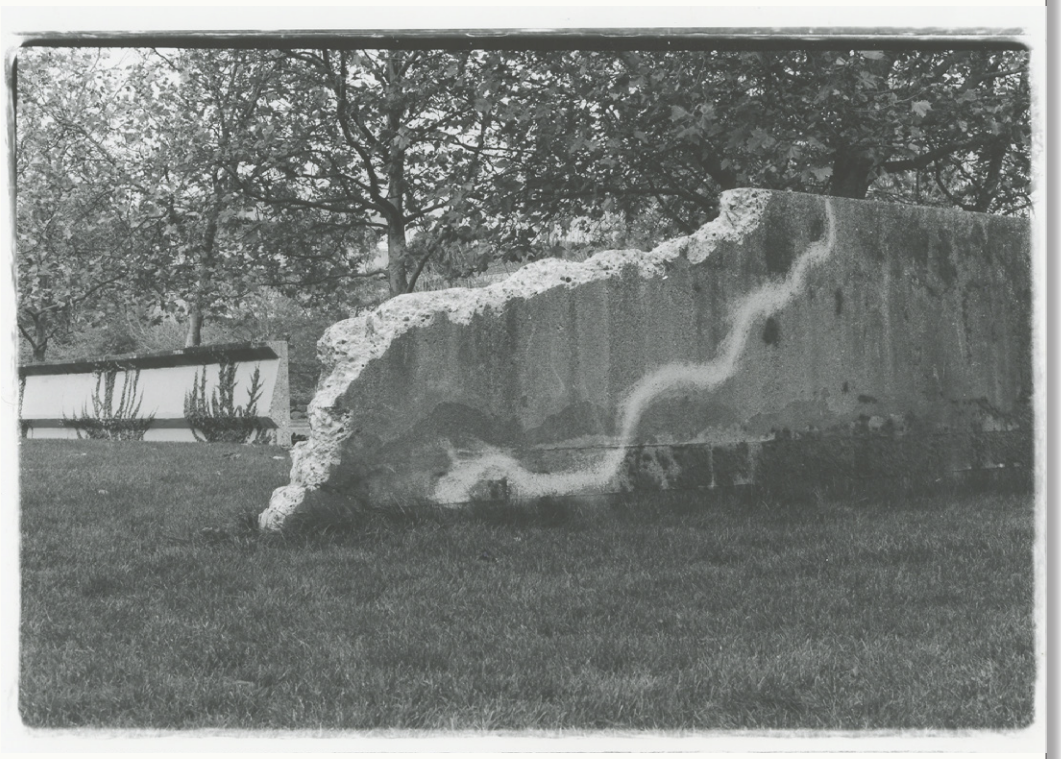
EXTENSION - Sometimes frames face outward to engage with borrowed edges formed by city skylines or distant mountain ranges

Edges engage in PROSPECT, REFUGE, EXTENSION

Victor Steinbeck Park, Seattle, WA

Figure 1-7 Extension, Prospect and Refuge

Openings cut for new access engage in JUXTAPOSITION.
Some sections are cut cleanly, revealing concrete composition, and the vividly colourful beauty of aggregate.
Other sections are left to weather, deteriortate, and crumble.



ACCRETION
Moss along the corwn of the wall,
Tinsels of climbing ivy,
Ppatchwork of painted squares covering the graffitti which adorns the facades. Thus, edges are also engaged in TENSION.

Traces of the past frequently survive around the edges, and provide a canvas on which the evidence of change is visisble.

Gas Works Park, Seattle WA

Figure 1-8 Juxtaposition, Accretion and Tension

Edges play the role in joining unlikely things together.
Celebrating TENSION

Edges merge and separate, activating a dymnamic tension.

UNIFICATION - The Blades act like a seam and unifies the vertical mass of the experience Music Project (EMP) building and the horizontality of a parking lot.
Edges play the role in joining unlikely things together.
Celebrating TENSION
Alternate spacing of tall panels mitigate scale & create broken views of the organic form of the EMP, on one side, & snapshots of the parking lot on the other.
This enhances the tension between the two spaces.
Preservation of differences.

The Blades of Grass, Seattle WA

Figure 1-9 Unification and Tension

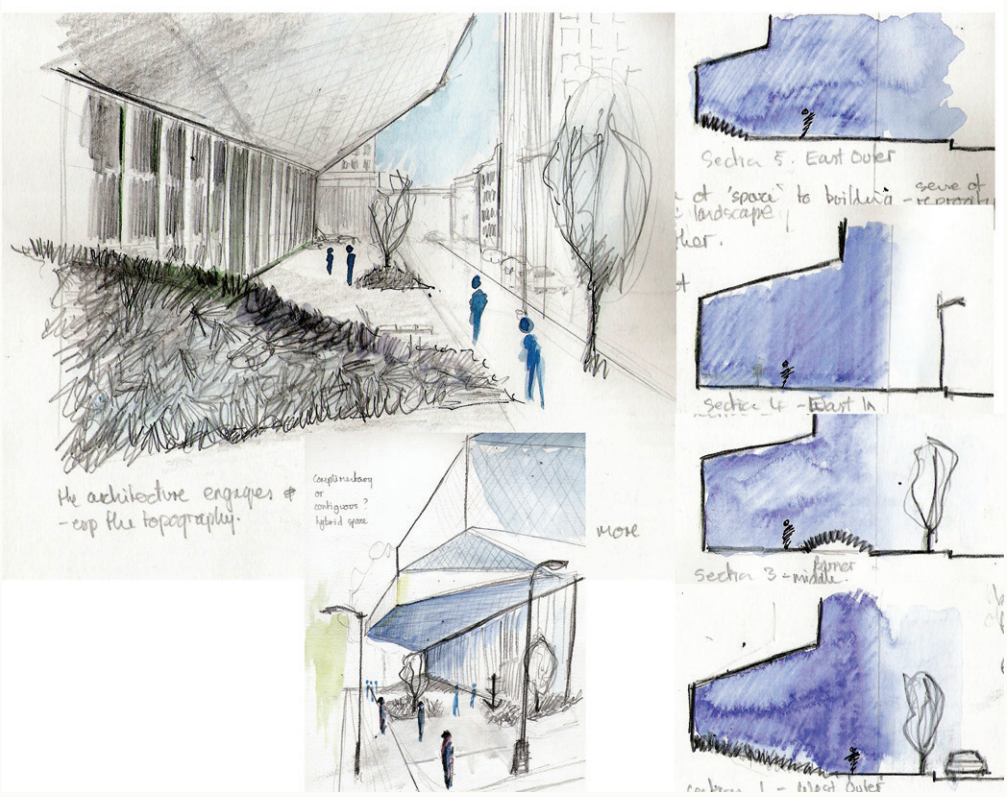
LUMINOSITY, KINESTHESIA, INTRIGUE, COMPLEXITY

Planted edges provide an opportunity in our destination-orientated world to engage our bodies and minds in the space between - through color, texture, movement, smell.

Ballard, Seattle, WA

Figure 1-10 Luminosity, Kinesthesia and Conplexity

Edges "engage in strategies of assertion and negotiation of both the interior and exterior spaces....to contribute to ...spatial and experiencial autonomy" (Berrizbeitia & Pollak, 84).



The edge of engaged in RECIPROCITY break city infinity and repetition.

Sections showing spatial and experiential COMPLEXITY, COHESION, RECIPROCITY between inside and out.

Seattle City Library, WA

Figure 1-11 Reciprocity, Complexity and Cohesion

COMPLEXITY
Where is the edge? Transparency of facade, maipulates window edges. Opens.

JUXTAPOSTION
Of tectures and form, inside to outside

Ironically, glass walls can be barriers more than connectors. While they create connection for the eyes, they separate our ability to engage and experience more tactile and sensual environments.

Figure 1-12 Juxtaposition

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PART 2

If, as stated on the American Society of Landscape Architecture website, landscape architecture is “the design of almost anything under the sky… best understood by the profession’s mantra: achieving a balance between the built and natural environments” (2016 May 19), where does a study of edges begin? How does one begin a thesis on edges? One could begin with a focus on the edges of the land masses; coastlines, country borders, or the periphery of the city or town to which we identify. Or, as Lynch did in his studies, an investigation could report on the limits and perimeter of the districts and neighborhood areas within a city. It could examine horizons, or the boundaries and fringes of the spaces we move through daily. Look around, and decide what creates the edges of the space you occupy in this moment. Are there walls, trees, paving, curbs, steps, streets, roofs?

One approach is to think about the “edges” that concern designers as they move through the design process in phases from the initial concept through construction and occupancy. It accommodates studying edges of varying types and scales, and exposes overlapping operations and interpretations. The exploratory nature of this inquiry precludes describing every possible edge condition, and instead provides a selection of illustrations from practice, experience and observation.

2.1 *EDGING* into early design.

During the early stages of urban/landscape architectural design, projects are typically represented in a firm and hard manner. Plans present analytical information with sharp, clearly defined edges. A classic figure ground diagram, used to understand the spatial structure and show relationships between public and private space, is usually in contrasting colours. A thick dashed line, or intense colour defines the edge of the proposed site. Zoning and conceptual illustrations resemble modernistic paintings with brightly colored, discrete, isolated, shapes with distinct edges, that may not meet. Steep slopes or wide transportation corridors create strong edges that dissect and bound neighborhoods and cities. At this stage in the design process the edges and spaces designers study are large. They may extend many blocks, or entire neighborhoods.

Although the edges of pre-design appear sharp and distinct, most do not exist in any physical form within the urban landscape. They are not visible to the naked eye. These edges are jurisdictionally determined and depicted in legal documents and city codes. They are the edges of neighborhoods boundaries, zoning and developmental districts, property lines, markers of public vs private land, and the extent of the public right of way. A literal interpretation of these dash dash dot dot legal lines can create an artificially compartmentalized hard landscape with rigid edges, like those found in the ubiquitous big block development with cavernous streets.

Such well-defined and marked legal edges suggest inflexibility and challenge. However, they are just the starting lines. These distinct edges are, in reality, amorphous, nebulous, overlapping and fluid.

In the early stages of project development, the interface of legal boundaries and public and private domains is no less than a battlefield of demarcation. Domain edges become the place of encounter and confrontation, the point where conflict is inevitable.

Neighborhood residents, property owners and public space users have different interests, claims and needs, which can be in contrast to each other. This complex juxtaposition of interests can be a catalyst for creative and flexible design solutions. Throughout schematic design (SD), design teams, and especially landscape architects within those teams, are in the position to provide options that challenge and transform the edge conditions between the private and public realm.

The early design process supports evaluating the benefits of pursuing jurisdictional boundary amendments or easements. At this stage, designers study the ramifications of pushing, receding, discarding, or overlapping boundaries, exalting the public benefit these actions may bring. For example, negotiations to change zoning boundaries and increase building height, can result in increased building setbacks, pushing the edge of space for public use onto private property. Such actions can lead to the creation of plazas and courtyards at street level. Other edge negotiations result in the extension or overlap of building facades or site improvements across the property line into the right-of-way. The goal of manipulating the jurisdictional boundaries is to create positive outdoor spaces within the city landscape and focus on acts of interchange and reciprocity, rather than division, separation and confrontation. A reciprocal approach allows design opportunities that favor mutuality. The resulting designs solutions soften, blend, unify, or celebrate the demarcation between private and public.

Acts of exchange and mutuality do not only occur along property lines. Within the public domain of the street, the edges between vehicular, landscape and pedestrian zones are no longer merely prescriptive. Throughout early and schematic design, designers review existing boundaries within the right-of-way and sometimes advocate for merging the lines between uses and users. Depending on the street type, they may seek to include bike lanes, parking zones, loading zones, transit zones, pedestrian walk zones, planting zones, and zones for outdoor gathering and street furniture. To accommodate such a

collection of uses it is necessary for the edge of each use zone to shift, thicken and sometimes overlap.

A review of City of Seattle adopted street concept plans show a variety of approaches to street design and illustrate the important role edges play as agents of integration and multiplicity. They show how trade-offs and compromise are necessary to accommodate the variety of users within a limited amount of space. Examples include bike lanes clearly defined by street trees and planting on both sides. Other examples show how the combination of required building setbacks, clear path sidewalk zones and useable space for planting and furnishing can be combined to create unified side street rooms that are, clearly separate from the vehicular zone. Some of these design approaches are for specially designated streets, such as Green and Festival Streets. Recommendations for Green Streets, which are streets that give priority to pedestrian circulation and open space over other transportation uses, include extending the sidewalk edge, or incorporating wide planting areas to buffer pedestrians or cyclists. Festival streets, which can be closed to traffic on multiple occasions during the year for pedestrian-focused special events, employ edge conditions that encourage gathering.

Edges also come in the form of regulatory design guidelines and city code. Technical requirements include setbacks (environmental, building, alley, driveways), minimum sidewalk widths, plant area and tree pit dimensions, street trees clearances from curbs, driveways, intersections or utilities, critical root zones (CRZ) extents for existing trees, parking and turning radii extents, and utilities above and below ground. Accessibility requirements establish another layer of perimeters and edge zones for design teams to address. Designers must provide minimal standards for safety at these edges to make sites readily accessible to, and usable by, individuals with disabilities. This edges can be a place of tension and pressures there is little flexibility in the regulations. Tolerances are fixed and typically not open for discussion.

At times, regulatory requirements can encourage blurring the boundaries between public and private. The Seattle Green Factor (SGF) is an innovative development standard designed to increase the quantity and quality of urban landscaping and to promote attractive and ecologically functional landscapes. To meet this requirement, designers are encouraged to view the boundary of their project at the face of the curb, and not the project limit of work. SGF encourages developers and designers to consider projects contribute to the larger urban context. Although SGF has its opponents, it has increased the quantity and extents of green infrastructure included on new development projects. Thus, commercial zones within the City (where SGF is required) have a higher frequency of vegetative edges adjacent to right-of-way's, green roofs, green walls, permeable paving and bioretention cells.

Early in schematic design, if not prior, two key spatial forming attributes develop: the guiding program and general "lay of the land" (grading/topography). Edges begin to take form, influenced by desired uses and functions, and by the limitations or possibilities of molding the landscape. Although it is impossible here to fully address the complexity and intricacy of both program and grading are complex in the design processit is important to cite in general terms, their influence on edges.

The functions that are intended to take place, and the number of people to be accommodated, shape both site spaces and the basic scale and operation of edges. The program of a site, as defined by a client or user requirements, guides the desired circulation, the connections between and at the edges of spaces, and raises questions about how edges may impact or enhance occupant interactions. Further, designers are electing and determining how a project relates to its surroundings; whether it should be similar or distinct, have open or closed boundaries, or simple or complex edges.

Manipulation of site topography is perhaps the most fundamental precept in physical landscape design. The interconnectedness of grading and design cannot be overestimated. Grading not only solves practical requirements of access and drainage, but also contributes to the aesthetic and spatial ambition of the overall site design and its boundaries. The topographical differences across sites, and how these are manipulated, modified or preserved, inform the edge conditions of both interior and perimeter spaces. Edges can moderate and mediate grade differences with subtle and graceful interventions, or, edges can be the agent of friction and juxtaposition between opposing conditions, with the creation of hard, impenetrable walls and steep steps.

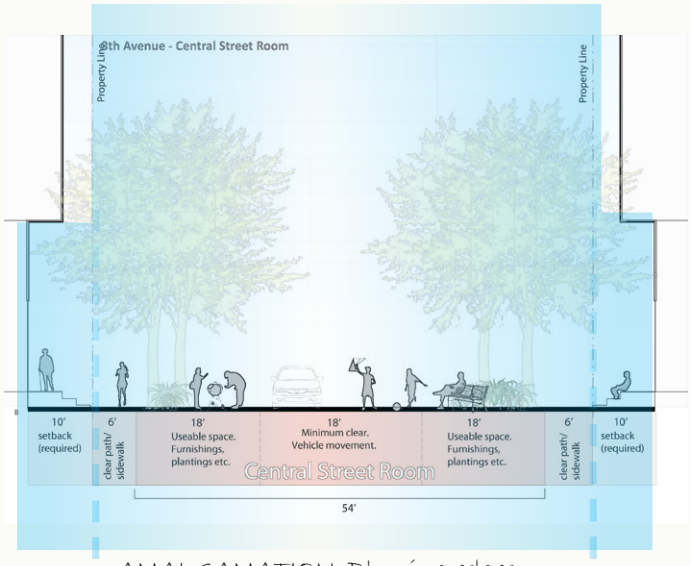
Grading is particularly challenging in the tight urban conditions of the city block, where it is necessary to seamlessly connect with existing conditions. The mantra, “meet and match” reverberates around the circumference of all landscape site plans. Designers struggle and agonize over the complex and difficult topographic transitions from building interior finish floor elevations to existing exterior grades, and from proposed site grades to adjacent existing elevations. Grading, and the design of edges, is an iterative process, non-linear and, as such, it is reviewed, regulated, adjusted, and honed from the early stages of design through construction. They are ameliorated or erased completely to create seamless and porous urban fabric. This complex, but necessary, process helps ensure the requirement to ‘meet and match’ is successfully achieved. More importantly it is in the pursuit of design supportive, safe, and universally accessible landscapes.

Hand-in-hand with the manipulation of topography is drainage design, whether amplification or restoration of natural processes, or the creation of artificial systems that direct water from one place to another. At their core, decisions about site drainage determine the scale and qualities of designed edges – whether they block the movement of water, to what degree they are porous, or whether they need to be physically present at all. Drainage within a site influence edges that may self-contain the site’s water or

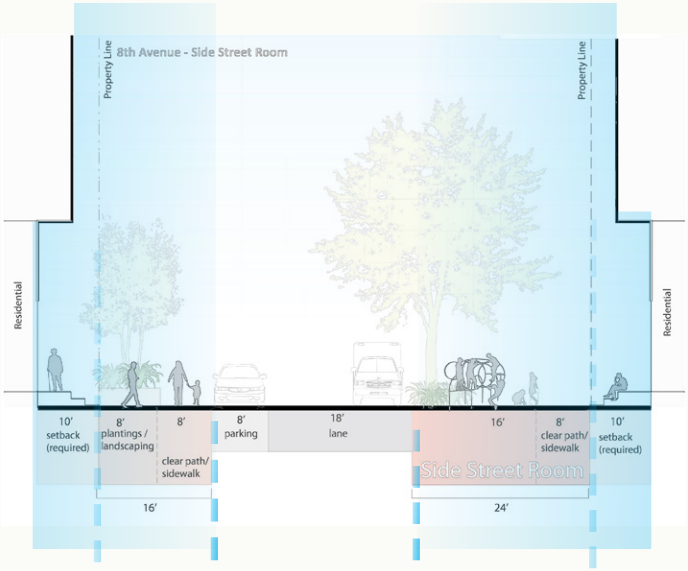
contribute to a larger watershed system. Some sites lend themselves to retention and infiltration of stormwater *in situ*, thus accentuating the demarcation of boundaries, while others projects seek to integrate and connect to the larger whole. How a design team decides to tackle stormwater management at this early stage of design sets yet another ideology of edge design.

Edging into early design has summarized several large design concepts and highlights that many elements drive the development of edges. It must be remembered, these "early" edges are often physically invisible and may disappear almost entirely in later project phases. It is also important to remember design also comes from a place of gestural form and instinct. Gestures area are often drawn boundary-less, without edges, without constraints. Early explorations require a delicately balance of working with the requirements of codes and regulations, and also working from a place of design, form and instinct. Sometimes the resultant design proposals blur the edges between what is proposed and existing conditions, and further, may push way beyond the property line or the initial project scope.

Acts of exchange and mutuality along property lines



AMALGAMATION: Blurring edges



Edges as agents of INTEGRATION and MULTIPLICITY.

Edges engaged in UNIFICATION and COHESION show the trade-offs and compromise necessary to accommodate the variety of users within a limited amount of space.

Sections from City of Seattle adopted street concept plans

Figure 2-1 Amalgamation and Multiplicity

Invisible Edges

Clearances are the minimum distances between elements in, under and above the street right-of-way. Clearance requirements are a key factor in how space within the right-of-way and on private property adjacent to the right-of-way can be used.

Lateral Clearances

From	To	Standard Clearance
Curb face	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	3 feet
Edge of sidewalk	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	1 feet
Textured surface of wheel chair ramp	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	1 feet
Edge of sidewalk	Stair riser	2 feet
Pole face, fire hydrant	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	5 feet
Stop sign	Nearest parking space	30 feet
Obstruction in sidewalk	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	6 feet
Multi-use trail, edge of pavement	Closest part of any fixed object (excluding traffic control signs and parking meter posts)	2 feet (3 feet preferred)

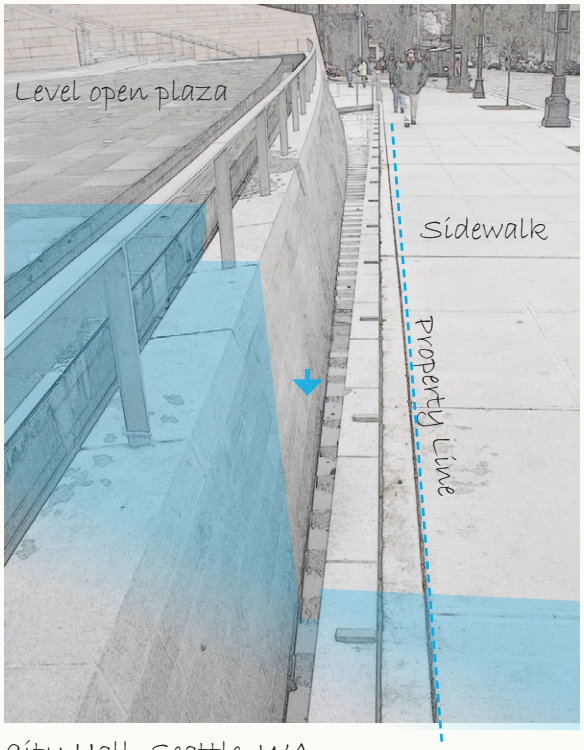
Clearances from Trees

From	To	Standard Clearance
Centerline of Tree	Face of curb	3.5 feet
	Sidewalk or sidewalk landing	2 feet
	Driveway (measured from edge of driveway at sidewalk)	7.5 feet
	Edge streetlight poles	20 feet
	Edge of fire hydrants	5 feet
	Edge of utility poles	10 feet
	Extension of cross street curb at an intersection	30 feet
	Underground utilities	5 feet (except ducts and gas pipes as shown on Seattle Standard Plan 030 for residential streets)
	Roadway edge, where no curb exists	10 feet

Maintaining appropriate clear distances between certain elements in the right-of-way and on private property is necessary for a variety of reasons. Safety is a key consideration—for the traveling public, the property owner and for operations and maintenance crews who must access elements in the right-of-way for routine maintenance or repair.

Source: Seattle Right-of-way Improvements Manual

Figure 2-2 Clearances

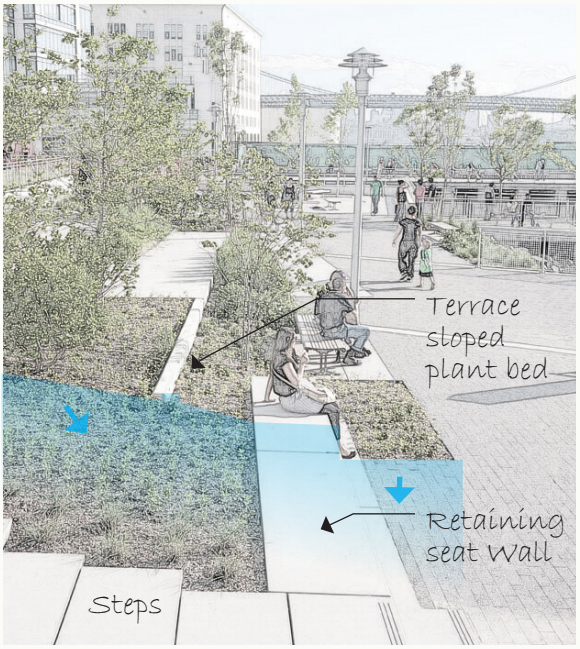


City Hall, Seattle, WA

Topography and grading forces edges into the role of NEGOTIATION.

Grading is often pushed to the edge!

Edges can moderate and mediate grade differences with subtle and graceful interventions, or, edges can be the agent of friction and juxtaposition between opposing conditions, with the creation of hard, impenetrable walls.

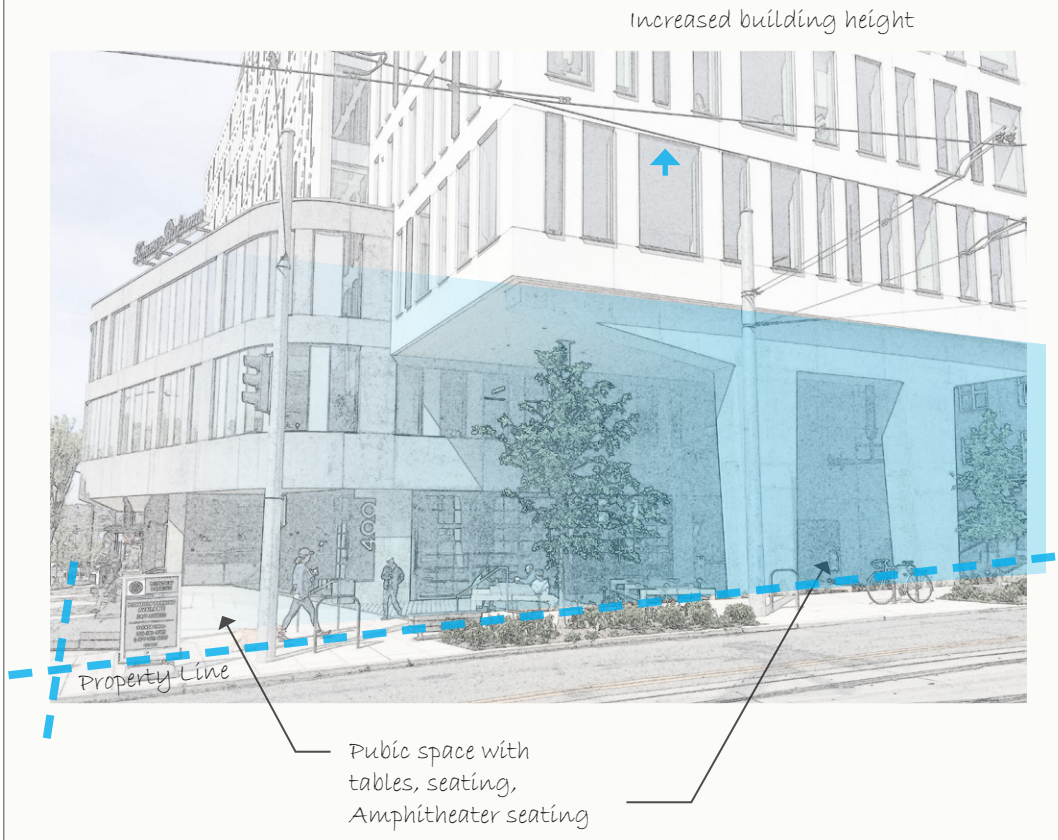


Terracing, seat steps are and steep steps.

The Edge Park, Brooklyn, NY by W-Architecture
Source: Landzine. Photo by Alison Cartright

Figure 2-3 Gradation

NEGOTIATION of edges



Manipulating the jurisdictional boundaries, creates positive outdoor spaces
Focus on acts of interchange and RECIPROCITY, rather than division, separation and confrontation.

A reciprocal approach allows design opportunities that favor mutuality.

400 Fairview, Seattle WA

Figure 2-4 Negotiation

2.2 *EDGING* from Schematic design into Design Development

Any artist, whether amateur or professional, knows that irrespective of his/her style or medium, a lot of time is spent thinking and agonizing about edges. Although composition is critical, paintings are less about objects or scenes and more about construction of shapes and the edges of those shapes in respect to each other. Where one shape begins, another shape ends. This is not only experienced through line, but also in gradation of colour and the variance of shading. Edge manipulation in a painting is a valuable tool for an artist to guide a viewer's eye around a painting. Edge treatment can lead a viewer to a focal point, by making certain areas more important and others less important, and provide interest and intrigue to prevent a viewer's eye from leaving a painting.

Art teachers constantly remind students of the three broad classifications of edges – hard, soft, lost, or disappearing. Generally speaking, contrast between complementary colors makes a harder edge than contrast between close colors. The hardest edge and focal point of a piece of art will usually be where the lightest light is next to the darkest dark. Soft edges, which in paintings, are often the most common, are where colours and values are close. They are the natural blur, the blend. A lost edge is a visible edge that becomes indistinguishable and disappears when it enters an area of equal value. As value contrast increases, it reappears again; It is sometimes termed the found edge. Our eye has ability to fill in the lost edge. Disappearing edges, when used effectively, are deemed to greatly enrich a painting making it more dynamic and interesting.

As artists in urban design, landscape architects are faced with the same challenges of deciding where, when, and how to create edges. As teams explore overall composition, in terms of how spaces will be organized, used and experienced, they are also determining the primary structural components of spaces, including the edges. As

in painting, designers decide which edges should be hard, which are soft, and where edges should disappear. However, designers are both painters and sculptors. They.not only work two dimensionally in plan, but three dimensionally with volumetric spaces, often via section or modeling. Like figure ground theory, a three-dimensional space is considered a positive space if it has defined shape and a sense of boundary or threshold between in and out. These boundaries are the hard, soft and lost edges designers choose to create. Edges are formed through manipulating ground, wall, and sky planes. A designer's palette includes not only line, colour, and shading, but also building facades, columns, walls, steps, trees, sloped earth, plantings and innumerable other elements. How these elements are configured and applied, determines both the scale and degree to which edges are hard or soft.

The conventional interpretation of hard and soft edges is determined by materiality. The term hardscape is used to refer to structures and elements that are composed of hard wearing materials such as wood, stone, concrete, used in paved areas, walls, and stairs. Edges formed by these materials are often sharp, clean, continuous, and permanent. In contrast, the term softscape refers to the animate living, horticultural aspects of the landscape. Soft edges are predominantly formed by foliage and are irregular, random, and sometimes light and kinetic. It is too simplistic to identify edges only as defined by hard- or softscape. Edges do not existas isolated objects in the landscape and can be composed of both hard and soft materials.

In terms of spatial design, a hard edge is defined as a barrier, a place eluding penetration, one that is closed. Hard edges are often solid forms juxtaposing the spaces they describe. They can be imposing, especially in terms of scale. In contrast, soft edges are places that gradually integrate, blend or mesh spaces together. Soft edges can both allow movement and can be kinetic themselves. The combination of spatial form and

materiality provides designers with an inexhaustible palette from which to form the edges of our urban landscape, and underscores their multifaceted nature. The following illustrations provide but a few examples.

Throughout design development designers consider both the condition and action that an edge will perform especially in terms of integrative and social functions. It is worth noting again that edges rarely engage in one single operation. For example, edges engage in reciprocity, provide a separation of spaces psychologically or physically, simultaneously affording refuge and defense. Low smooth seat walls (hardscape element) and planting with trees (softscape) create edges with respect to adjacent uses. These types of spatial relationship offer generous separation of uses and privacy while maintaining a sense of safety. The challenge in designing edges as buffers or separators, is not to unintentionally create an undesired barrier. Pursuing a more integrated edge often requires designers to implement more rugged edges which offer a greater variety of sub-spaces within their form.

In the previous chapter it was noted that one of the greatest challenges to edge design is topography. Any change in topographic grade creates an edge. The extent of grade difference, horizontally and vertically, both within a site and at its perimeter, sets the tenant of edge operations. Large grade changes typically result in the use of hardscape materials and hard edges engaged in defense, moderation and/or tension. Hardscape allows the erection of man-made landscaping features (such as retaining walls) that would be impossible to form with “softer” materials due to soil erosion. Vertical features such as walls, or stacked terraces are some examples. Steps mitigate the imposing nature of the vertical elements and allow users to penetrate and can provide social environments at the same time in the form of landings and even seating.

In the tight confines of urban design, the challenges associated with grade are often pushed out to the edge of a site. The features that bound either side of a property line are often designed with the sole objective of smoothing topographic differences between finish floor elevations at building entrances or plazas and courtyards and the adjacent finish grade. The edges play an active role in establishing an equilibrium and amalgamation between one side of a property line and the other.

As mentioned at the beginning of this chapter, hard and soft edges can be manipulated to appear and disappear. When used effectively disappearing edges, can greatly enrich an environment by making it more dynamic and interesting. Subtlety can be achieved through diversity in rhythm, sequence and repetition of textures and forms. These variations can take place in the isolation of the ground plane, creating large open boundaries, or they can be formed by the intermittent placement of either hardscape or animate elements. The length of the sequence, and the rhythm and position of individual elements in relationship to each other, sets the candor of the edge. Where the contrast between both vertical scale and colour is strong, edges are more dynamic and have more vigor.

Another edge endemic in design, is what can be called the double edge. Double edges establish a strong foreground with views to the distant horizon to expand the psychological sense of space and perceived perimeters of a space. This idea of the borrowed landscape has been long employed in garden design and makes the user feel they have a greater connection into the world beyond. In hilly cities like Seattle and San Francisco, the distant view of mountains, bridges or aggregate of downtown buildings, provide a borrowed edge. These views to wider landscape enlarge the sense of space from where they are experienced. The success of borrowed edge lies in the extent to which it

is revealed. Foreground edges that frame or limit the extent to which a distant horizon is revealed engage in intrigue and arouse curiosity. It is the manipulation of these qualities that make edges unusual, new and fascinating.

There are many components inherent in edge design; only a few configurations have been considered here. Schematic and design development are perhaps the most iterative and richest periods in the design process, and are a time of experimentation, where ideas are fleshed out or elaborated on. The key is to establish the active role edges are to perform and determine relational aspects of adjacency, through plan, section and modeling or early detailing. This comprehensive approach sets the spatial scale, form and materiality of edges within our urban environment.

GENEROSITY: In the quantity and range of seating opportunities; under canopy or not; movable chairs, benches set back in plantinging, or around the edge of the lawn. Generosity in the thickness, extent and simplicity of plant palette. Generosity in canopy.

ACCRETION: The gradual growth, accumulation of a furnishings and people around the edge.

Bryant Park, New York

Figure 2-5 Generosity and Accretion

COHESION: interrelating the park with the neighborhood.
The edge extends functions of the park into the right-of-way and serves to form a complete and harmonious whole

Tongva Park, Los Angeles

Figure 2-6 Cohesion

DEMARCATION and DEFENSE:

MULTIPLICITY

With urban space so limited and in such high demand, edges perhaps more than other 'parts' have a responsibility to engage in multiplicity.

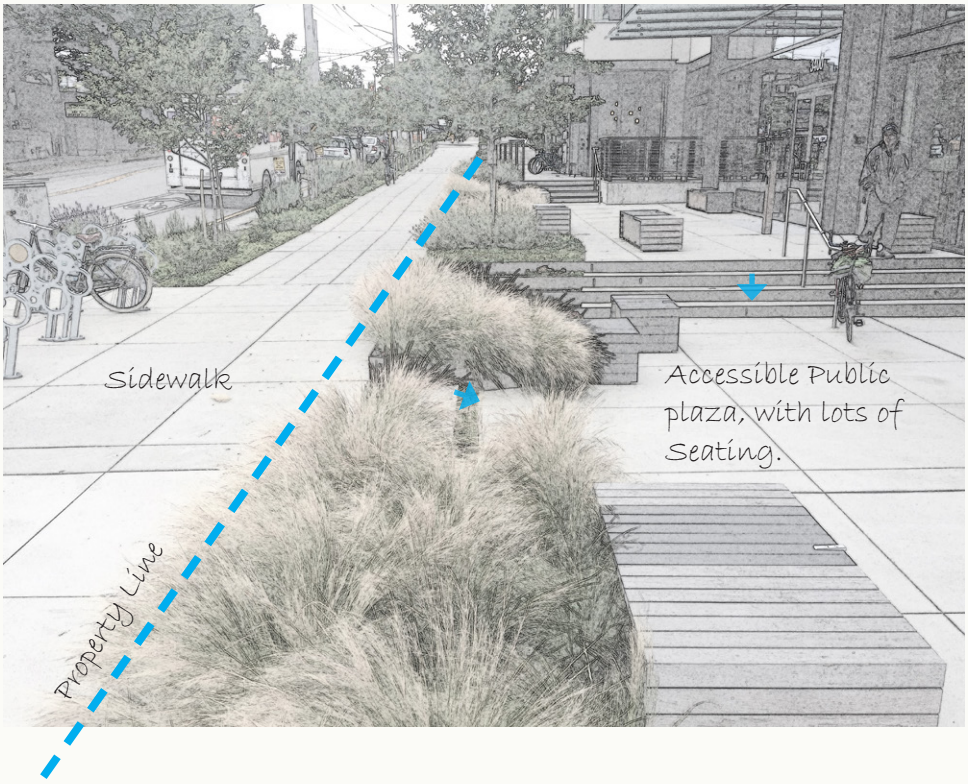
Planting buffers offer protection and functional drainage opportunites, blurring the edge between landscape and civil engineering.

Edges with overlapping functions and human scale details are more successful in attracting people to stay.

Swale on Yale, Seattle WA

Figure 2-7 Demarcation, Defense and Multiplicity

GENEROSITY allows for/ blurs/ blends RECIPROCITY



While urban space is limited, edges that are generous, echo the qualities of ecotones in natural environments. They are transition zones, gradually blend two communities, create greater diversity. This gradual blending may occur across a broad area, or it manifest itself as a sharp boundary line.

Generosity not just in width, but in material, form, use and combinations. Generosity in different approach to grade changes.

Stoneway, Seattle WA

Figure 2-8 Genorosity

2.3 To *EDGE* through Construction Documentation

In Construction Documents attention shifts, from overall space shaping, to detailing the materiality and methods of construction of the features and components that form the design. Designers conceive the connection between elements and comprehend their intimate edges. The focus moves from the larger edge form of boundary or threshold to the finer and more intimate facets, such as the side, lip, rim, and interface of two different forms or materials. The focus moves to the edges of the edges.

For instance, the concept of a walkway flanked with seating leads to a multitude of questions about the edge of the pathways itself and the seat elements themselves. Designers consider such questions as: Is the seating notched within an adjacent planting area or niches of a building? Does it protrude out, or is it fully within the paved corridor, in a zone unto itself? Is the seating edge one long continuous linear element, or fragmented, formed by the rhythmic placement of individual seats? Does the top edge of the seating element continue at the same height or does it step, slope up, or angle down? What kind of rim does the seating have? A half circle, chamfered, or a sharp 90-degree angle? How does the bottom edge of the seat connect to the ground? Is it flush, or does it have an offset, allowing for shadow, which elevates the bench as an object and emphasizes this lower edge? Is the vertical face of the seat, angled or curved? Does a metal strip inscribe or protect the top edge, thus supporting skateboard use, or is the edge active in the defense against skateboarders with metal projections? The list of questions related to edges at this detailed level in design is complex and seemingly endless. A review of any set of final construction documents will illustrate the attention designers pay to the edges of each design feature and the relationship of one element to another.

The articulation, interpretation and formulation of edge conditions during the CD phase, informs construction, and makes for successful well-built outdoor places people

enjoy. The attention to finer edges and junctions between both materials and forms are the features that make outdoor public spaces cohesive and unique and built well. They are what make design interesting. While it is not possible to include every edge, scenario seen in practice, the examples that follow break down approaches to edge detailing into three conditions - edges of horizontal to horizontal surfaces, edges of horizontal to vertical surfaces, and “the adjunct edge.” In each section, edge strategies described in the previous chapters are re-visited, only now they perform at a finer scale. The focus is on the coming together of materials and forms rather than larger spatial forms.

2.3.A The edge between horizontal surfaces.

Arguably one of the most important horizontal to horizontal edge conditions tackled is the relationship of inside to outside. At all entry points to any building, the finish floor elevation of inside is carefully studied in conjunction with site grades to ensure a smooth and safe transition. The edge between inside and outside subtly engages in the operation of defense. While entrances may appear quite level, typically ground planes are graded to slope away from buildings at 1- 2%, to prevent water flooding inside, and to meet accessibility requirements. The defensible nature of the interior/exterior edge is indicated by a sill or threshold saddle, or by a trench drain. Sometimes this junction is designed to take an active role in extension/suspension, by either protruding the interior out into the site, or extending the exterior treatment of the ground plane into a building.

Another standard horizontal to horizontal edge occurs at the property line, typically in the form of an expansion joint. How designers treat this edge establishes the tone of transition between private and public spaces. Sometimes this edge is designed to be undistinguishable, with paving and scoring treatments the same on both sides, or subtly different; the common 2-footby 2-foot paving of the pedestrian sidewalk one side of the expansion joint, and a more irregular, custom pattern on the other, within the property line. Understating the transition between private and public spaces in this

manner underscores edges as agents of amalgamation and cohesion; blending the paved open space between buildings and sidewalk to form a united whole. Such edges are subtle but implied. In contrast, others are designed to actively participate in the role of juxtaposition and demarcation. Designers accentuate and clearly define the property lines using materials, texture, or colour. Such means of demarcation occurs not only at the property line, but are often used to help distinguish zones of use, such as a building threshold, marking major pathways through plazas, or highlighting areas for refuge, gathering or water play. In these instances edges are engaged in the role of amplification, the process of making something more marked or intense.

Where two differing materials intersect designers occasionally insert a third element or material. These edge conditions can be a construction necessity, or purely aesthetic. Sometimes an element is employed to hold the form of the edge, or is used as a vehicle for equilibrium, to find balance between opposing forces, this is especially at meet and match conditions that occur between existing and new conditions.

One of the most common juxtaposed edges within the urban landscape is between planting and hardscape. The irregular, kinesthetic soft nature of a mature planting overflowing onto a pathway softens and camouflages the typical hard straight edge of paving. However, it takes time for planting to establish and flourish in this way, and in a newly developed site the sharp edges between hardscape and planting areas are prominent. New edge construction also highlights the slight elevations differences, which engage in the operation of defense. Designers typically detail a slight ½" to 1" lower elevation between the surface of the soil/mulch planting medium and the adjacent hardscape, to prevent the scattering of mulch or flooding of rain water onto the sidewalk; the grade difference acts as a ditch. Conversely, lawn areas are designed to be fractionally higher than hardscape areas to protect the paving edge, and to accommodate the use of machinery and ease maintenance practices.

Even though a horizontal to horizontal edge is perceived to be essentially two dimensional, its impact on our spatial experience is powerful. Its strength and sense of presence is determined by shape, colour, extent, and repetition of form. Designers may implement forms which are long, continuous, gracious and generous, or fragmented and rugged, cohesive by the repetition of form.

While the illustrations given here are not inclusive, they do show that not all horizontal to horizontal surfaces are smooth and flush, contributing only to unity and cohesion. These edges also engaged in subtle operations of defense, insertion and extension. In the CD phase through specifications and detail documentation, designers stipulate the degree to how these edges influence our experience of urban landscapes.

2.3.B Vertical to horizontal surfaces.

Although urban spaces are a jigsaw configuration of vertical and horizontal surfaces, little thought is given to the point of confluence, until one is responsible for designing them. As with the edges of horizontal planes, in CD designers must decide the edge conditions of the vertical/horizontal intersect at walls, curbs, steps, seating elements.

In many urban landscapes, the nearly ubiquitous junction between a vertical wall and adjacent site is marked by nothing more than the thickened divot of an expansion joint. In other instances, the condition is designed to operate as camouflage; a 2’ gravel band around the base of a building hides foot drains and keeps planting at bay. Where the materiality between the vertical and horizontal surfaces remain the same, the junction can be designed to be smooth and cohesive, forming a complete and harmonious whole. Or, where the vertical element is transparent, the desire may be to have the edge disappear become invisible.

Landscape and building architects also carefully consider which facet is to have prominence over the other. Do the vertical facades have prominence and overlap or rest

on the horizontal surface, which disappears beneath? Or, does the horizontal surface have prestige, either rising in front of, or absorbing the vertical face. Sometimes, vertical edges are suspended a few inches above ground. This approach is employed to hide or conceal lighting fixtures or structural elements, or to emphasize the lower edges. The angle of a vertical façade further influences where the dominance of the edge falls. An angled face of less than 90 degrees, promotes a deeper shadow, creating strong bottom edges.

Frequently vertical to horizontal edges are places of mediation and amalgamation, with the insertion of another material. This is particularly true with the currently popular use of weathering steel (often called by a brand name, Corten)**,** which is often edged/ bounded with cobble or gravel to lessen the impact of runoff and staining that can occur. Designers do not always use another material at edges, sometimes they employ a narrow empty 'space'. A gap between steps and an adjacent walls creates a strong dark edge. Drop channels engage in multiplicity for either drainage, or bicycle use.

The vertical to horizontal intersections not only occur around the ground plane, but also within the of layers of spatial design and overhead elements, and more importantly where hard and soft elements overlap and are juxtaposed to create complex layered edges and buffers. Within planting design, the innumerable combinations of plant species, with their differing heights, textures, and forms, create a plethora of edge combinations, too many too list here. Sometimes edges between plant types are sharp and clear, like shaped evergreen hedges or swaths of mass planting groups. Other times the edges are soft, blurred and even disappear. A unique feature of edges within planting design is that they fluctuate and are, more often than not, temporal. A swath of tall grasses may create a bold buffer during the summer and fall, however, as seasons change, its sense of presence will diminish and almost disappear, until new growth shows in spring. Similarly, the luminous canopy of deciduous trees create strong multi-layered and expansive edges for over half a year in most climates, but fade to transparent webs,

grounded only by the rhythmic vertical presence of solid trunks, for the rest of the year.

As designers work through planting design, they evaluate the inevitable transforming qualities of both individual and group plantings, to ascertain where the sense of edge will fall throughout the year. Their choice of plant is determined in part by the role in which edges are to perform. If plant edges are to create pedestrian separation from fast moving traffic, evergreen vegetation may be favored, to provide a constant form. However, if planting edges are to be thick transparent buffers, the choice may favor the evolving qualities of deciduous planting. When designing edge conditions with trees, designers consider tree species, form - whether the tree is umbrageous or more vertical - and the spacing between trees. Designers are constantly gauging the extent and sense of presence vegetative edges are to perform in terms of height, width, and form. In addition to seasonal change, designers must also be conscious of the change over time. Trees and shrubs, grow, expand and mature with time, and thus their sense of presence, and effectiveness in operations of demarcation, camouflage, cohesion, separation, increases with time.

Other edge conditions prevalent throughout planting design, which are maybe less obvious, concern the environmental conditions on a site, and involve light and water requirements. Planting design is typically divided into zones defined by sun exposure - full sun, part sun, part shade and shade, and water requirements – irrigated vs non-irrigated areas, and drought tolerant, moderate, or high water requirement plants. While full complexity of these attributes can only be alluded to, it is necessary to point out the multifaceted nature of planting design and respectfully reference the multitude of edge conditions in play.

2.3.C The adjunct edge.

A third condition, which I will call “adjunct edges,” plays an important and defining role in the design of most landscapes, and is most often developed and specified in the CD phase of a project.. The term adjunct was chosen because so often these elements are included as an appendage, an add-on. Sometimes it is necessary for designers to provide these features in response to code and safety requirements, such as handrails, guardrails, bollards or tactile paving. Often these edges are to engage in defense and protection. The mere presence of such an appendage strengthens the sense of the interface between differing zones; an area safe for pedestrians verses a vehicular environment, or a significant drop in elevation between zones. In other instances, designers employ appendages to discourage certain behavior, such as the prolific use of protrusions to deter skate boarders from mounting seating or walls. In this instance the appendage is added to protect the edge, rather than the users.

One of the greatest challenges designers face is to integrate such elements in a way that make them visibly and experientially a part of the whole and not an appendage at the edge. While there are many examples where this has been done successfully, there are many more generic and less successful examples, determined by low budgets and a lack of understanding on how such appendages influence, break or make a space. It is worth noting that in European cities, edges within public spaces are not nearly as divided by fences and rails. In Europe users are generally expected to monitor their own behavior and that of their loved ones, and act in a responsible way at the edge. In contrast, the litigious climate of the US leads design teams and their clients to design in a much more cautious and protective manner.

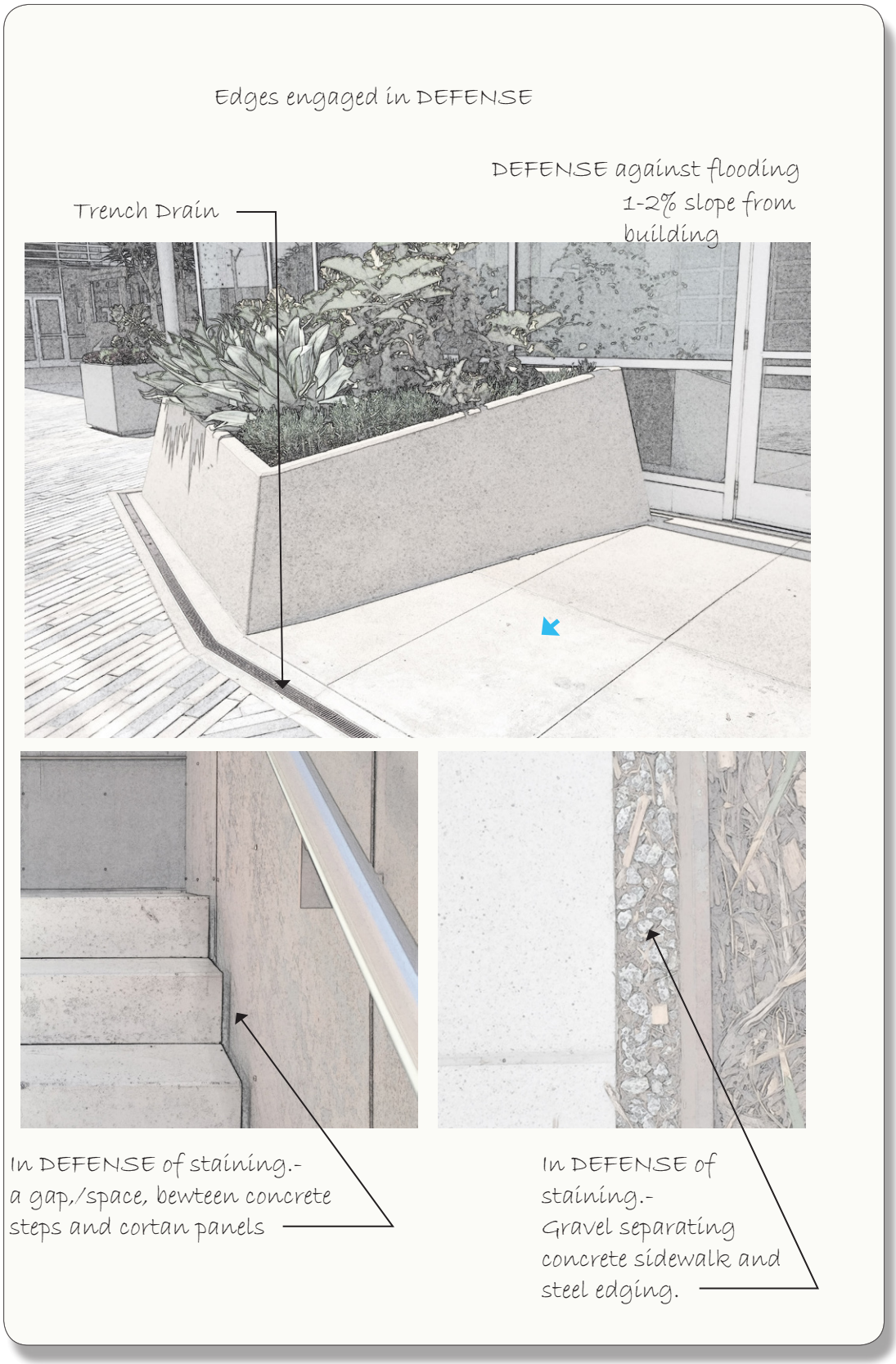
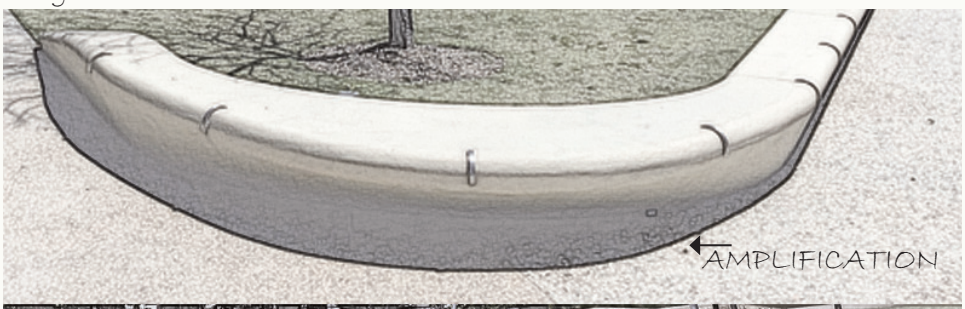
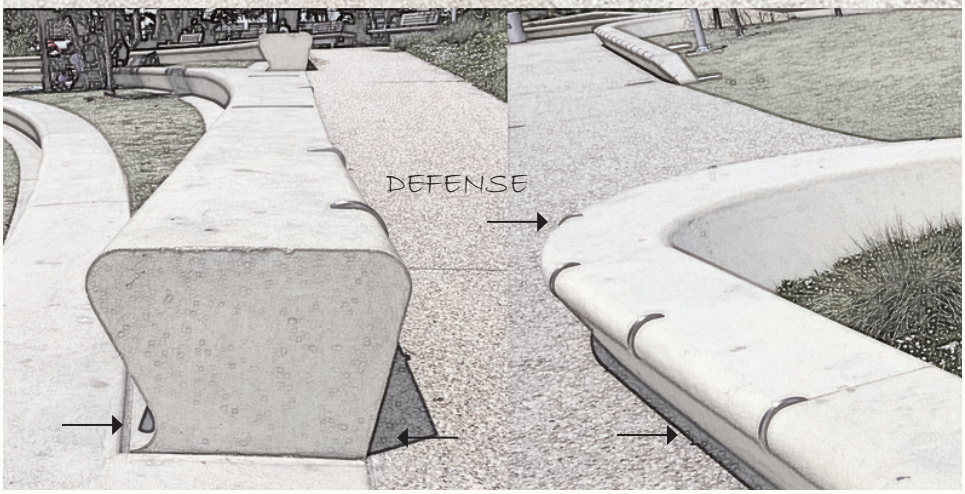


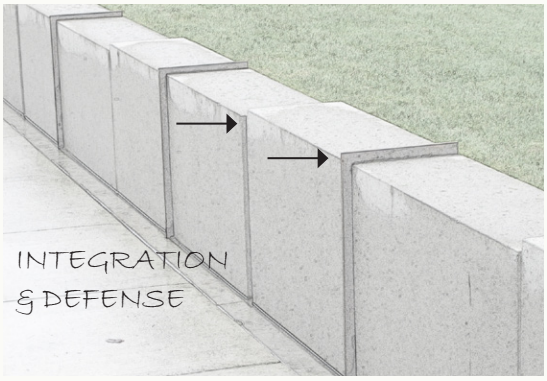
Figure 2-9 Defense

The attention to finer edges and junctions between both materials and forms.
Beveled top edge, with metal protrusions actively engaging in DEFENSE of skateboarders. Acute angle of bottom edge engages in AMPLIFICATION to create shadow to elevate the bench structure from the ground.





Consistant materiality- Edges engaged in MODERATION



Rhythmic stepped vertical seat wall with inserted metal bands. Edges Unifying, Interrelating

Figure 2-10 Defense, Integration and Moderation

Sometimes the inside/outside edge is designed to take an active role in EXTENSION/ SUSPENSION.

Protruding the interior gound or ceiling planes out into the site.

This blurrs the edge between public and private, inside and outside.

Edges emgage in COHESION to form a united whole,

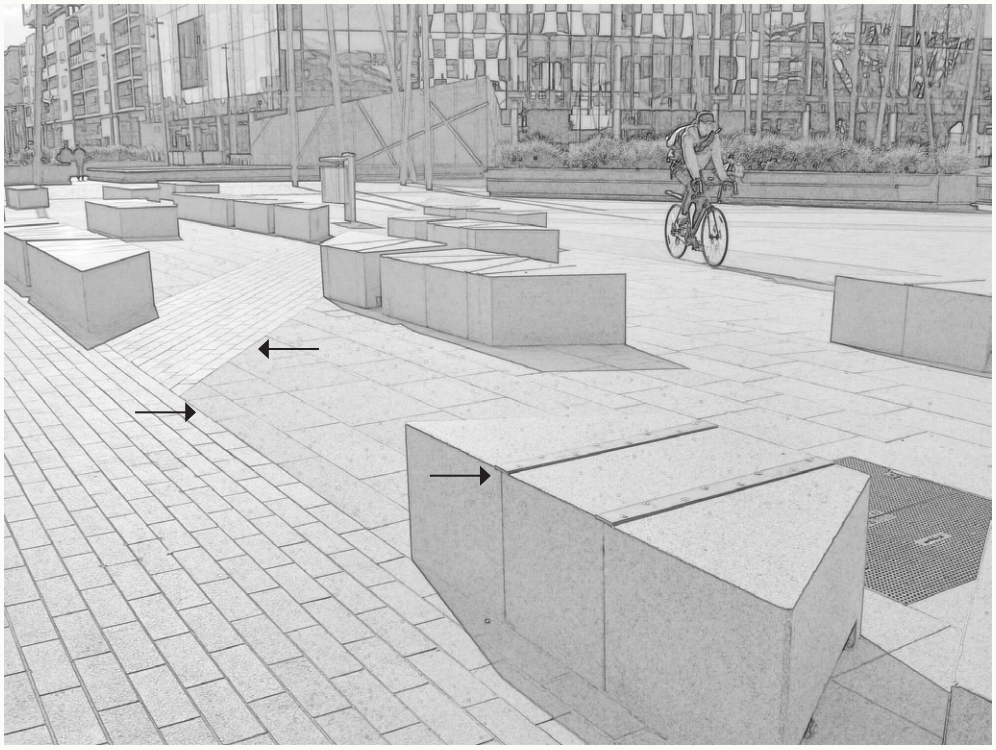
RECIPROCITY - a complimentary and respectful

balance

Seattle Sculpture Park Fairview, South Lake Union, Seattle WA

Figure 2-11 Extension, Cohesion and Reciprocity

The articulation, interpretation and formulation of edge conditions makes for successful well-built outdoor places people enjoy.



Edges engaged in the subtle task of COHESION and DEMARCATION. Different pavers identify main paths of travel and areas for seating. Edges are open.

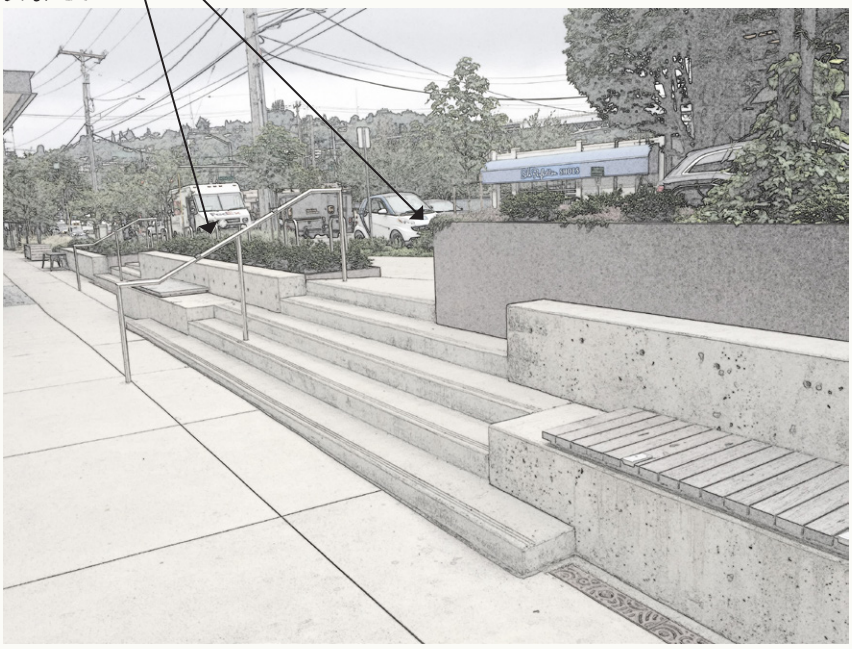
Edges in stone blocks engage in defense against skateboarders with integrated metal bands into the overall design compesition of seating.

Grand Canal Square, Dublin, Ireland
Source: Landzine Martha Schwartz-Partners

Figure 2-12 Cohesion and Demarcation

GRADATION - the many forms
Steps, walls, plinths, ramps.

To avoid the use of railings lining the side-walk, plant beds buffer grade differences of over 30"



LEGIBILITY
Clearly defining the edge between pedestrian and vehicular zones

Rhythm and equal spac-ing of trees
Strong band of textured pavers lined with concrete

Figure 2-13 Gradation and Legibility

Trees and shrubs, grow, expand and mature with time. Planting edges are DYNAMIC. Their sense of presence, and effectiveness in operations of demarcation, CAMOUFLAGE, COHESION, SEPARATION, increases with time.

Canopy engages in EXTENSION, pushes the boundaries of edges.

Plants choice is determined in part by the role in which edges are to perform. If plant edges are to create a permenant screen or separation, evergreen vegetation may be favored, to provide a constant form. However, if planting edges are to be thick transparent buffers, the choice may favor the evolving qualities of deciduous planting.

Figure 2-14 Dynamic and Camouflage

2.4 The cutting *EDGE* of Construction Administration

One could argue that the Construction Administration Phase of a project begins at the edges. Planning, negotiations and discussion may begin months in advance, but on site, the erection of a perimeter wire or boarded fence defines the edge of the site to be impacted by construction. For the engineers, the architects and especially the contractor, this edge, known as the limit of work (LOW), is often dismissed as the clear demarcation between the inside and outside of the limit of work. However, this edge is not such a simple boundary, it can be a line of tension and conflict.

The edge of a site to be developed, together with the area outside of the construction fence, require as much attention from a construction team, as the area within the LOW. Prior to the start of any construction work, the owner's representative, the contractor, and other members of the design team, typically walk the circumference of the LOW to assess all existing elements to remain, on either side of the fence, to determine the best way to protect them. Although it is easy to identify physical structures such as walls, footings and areas of paving, it is much more difficult to ascertain a tree's relationship to this edge. Tree limbs reaching close to or over fences are obvious, but it is much harder for construction crews to appreciate the extent to which trees extend below ground. Sometimes roots system of trees, whose trunks may be located considerable feet outside of the construction fence, extend into site limits and therefore need to be protected; this is especially true for mature trees. The presence of trees blurs the edge between inside and outside.

To understand which trees, require protection, contractors have an obligation to consult a registered arborist. The arborists role is to determine the critical root zone (CRZ) of all trees. While establishing CRZs is critical, root systems vary in depth and spread based on size, soil quality, water table, species, and other related factors, such as

adjacent pervious/impervious conditions. It is common in urban environments to find mature trees surrounded by impervious paving. In these situations, tree roots expand well beyond the drip line (canopy), and dependent on species, can extend an area two to three times the size of a tree's crown in search of water. The arborists role is to provide the contractor with a plan illustrating where tree CRZs and the LOW fence overlap and intersect, blurring the edge between inside and outside.

Blurred edges like this cause a degree of tension and possible conflict. It is the responsibility of the landscape architect and arborist to advocate for thick edges to ensure tree and root protection receives the respect it deserves. Typically, additional protection fencing is erected to alert work crews to the sensitivity and dual nature of the edge. LOW edges remain places of negation from the beginning to end of construction.

Other edges that concern Landscape Architects during construction associate with site hardscape and softscape elements. As a rough rule of thumb, once the main structures are built, hard edges that describe a site are constructed, such as retaining walls, steps, paths, and fixed seating elements. As defined through construction documentation, designers focus on the rim of walls and steps, edges of paving, any junctions where one element abuts another. They work with construction crews to ensure edges of all hardscape receive the attention outlined in the construction details. Often it is the edge of elements that first reveal problems, such as drainage or construction faults. After hard edges are constructed, attention shifts to soft planting edges, particularly to the junctions where the two come together. These include the level of planting soil and alignment of irrigation systems at paving edges, to prevent overspill. It includes also the placement of planting. As plants are laid out, edges are one area designers pay extra attention to ensure placement is not to far away from paving edges. The corners and ends of a bed also receive extra attention. The desire is to ensure edges have strong form.

In addition to finer detailing, attention is paid to spatial form and structure of

buffer zones. Tree placement and its ability to screen or frame views into and out of a site are important. Designer's will often consider edges of a project from various angles, from both within and outside of a site to ensure edges perform the desired effect.

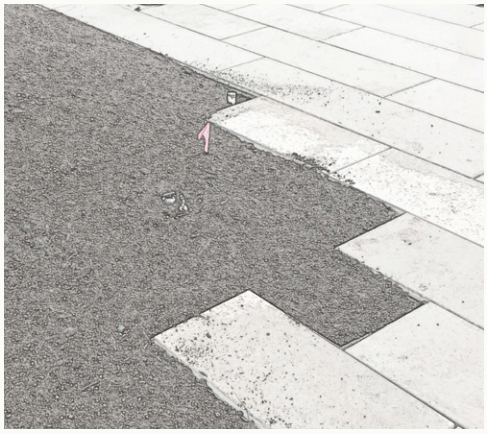
Landscape design is often on the edge of the construction. Site and planting construction is typically one of the last pieces of a project. As such, it becomes a race against time to meet project completion dates or seasonal planting windows. The pressures associated with this can result in the feeling of being pushed over the edge!

Construction Administration begins at the edge.

The preservation of existing trees on the edges of project sites can cause tension and possible conflict. Landscape architects and arborists advocate for thick edges to ensure tree and root protection receives the respect it deserves.

Figure 2-15 Negotiation

Attention focuses on the hard edges
walls, steps and paving first.



In plants layout, the desire is to ensure edges have strong form.

Figure 2-16 Legibility

2.5 Post (occupancy evaluation) cards from the *EDGE*

In this final chapter of exploring edges through the lens of the design process, the focus falls on Post Occupancy Evaluation (POE). A POE is typically a comprehensive examination of the performance of a project after it has been built and used, and evaluates if the design project satisfies the needs of the users, and makes recommendations for change if the needs are not satisfied. However, because the topic of edges has been discussed in this thesis at a multitude of scales, perspectives and with examples from multiple projects, the evaluation and comments presented here are be done through a series of post cards. This approach allows for a myriad of notes, without the struggle of trying to tie the comments eloquently together. It provides a means to include observations about edges that have not been recorded elsewhere in the thesis; or if they have, repeating them.

It should be noted that this is not a complete set of "Post cards from the edge" (Fisher, book title). Far from it. It is hoped that these will continue to grow, long after this thesis is submitted. But like any good POE study the post cards presented here aim to contribute to the body of design knowledge.

TENSION AT THE EDGE

The beauty of a trees lies in the fact they are dynamic, always changing, through seasons and years. Each is unique in form, colour, shadow, light, texture. Their magical dimensions both compliment and alleviate the angular urban forms. The finest streets the world over are lined with trees.Cities, like Seattle, adopt plans to expand canopy coverage by 30% within 25 years.

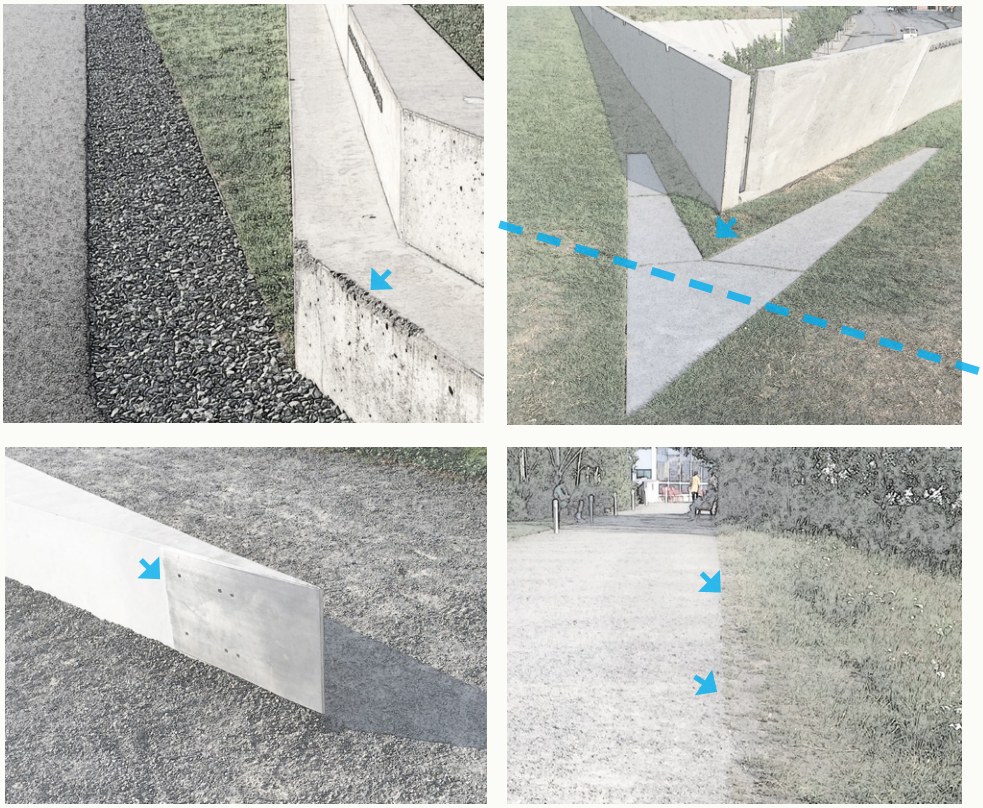
However, the treed edges of the urban grid are not without tension. Trees are lopped in favor of overhead utilities. Trees are a utility too; they contribute to the drainage system, lower urban temperatures by providing shade and absorb pollutants.

Site limitations need to influence species selection. Bigger is not always better. Create a strong rhythm & plant smaller trees 15'-20' apart. Healthy trees create strong and dynamic edges.

Street trees around Seattle, WA

Figure 2-17 Tension at the Edges

AMPLIFICATION OF PRESSURE SHOWS AT THE EDGES



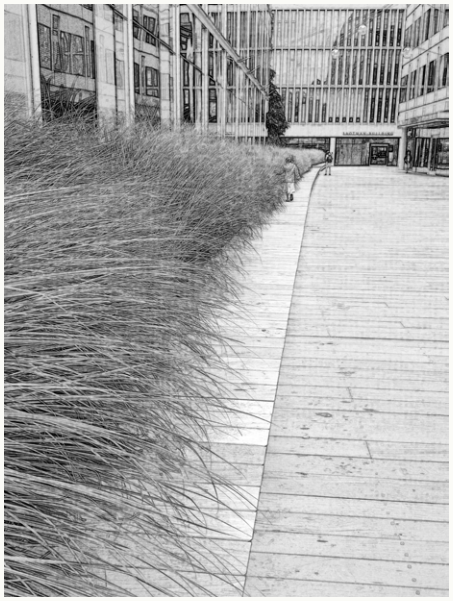
Edges are often the first to reveal form failure, or show where user behavior was not fully thought through during the design process. Poor compatibility or construction can quickly become apparent at the intersect between materials. Weaknesses in design form can take time to be revealed, but the first signs of stress occur edges. At the Seattle sculpture park, sharp edges and acute angled walls were designed in support of the conceptual ideals. However the concrete forms in this project have been prone to chipping and cracking. Several walls have had to be retrofitted with metal plates to both hide the chips and protect them from further damage. In other areas, additional paving has been inserted at the base of the one wall to mitigate the erosion caused from users crossing the lawn area by taking the most direct route and cutting the corner.

Edges can quickly reveal the pressure of wear and tear.

Seattle Sculpture Park, Seattle, WA

Figure 2-18 Amplification of pressure shows at the edges

FRICTION.



Edges have the potential to include or exclude users.

Bench seating can be simple, generous, continuous, flexible in use and open to all; offering opportunities for seating, sleeping, or skate tricks.

Long linear seating does not foster group gathering.

However, the placement of arm rests or other protrusions reduce the number of seats, make sleeping difficult and skating impossible. With these attachments, edges have the power to reduce the publicness of a city plaza or square, by excluding a certain demographic. Such edge elements are physical reminders of the frictions and pressures of larger social issues that concern many cities today.

South Lake Union, Seattle and Park Square, London

Figure 2-19 Friction

FRICTION II

Another edge revealing urban pressures and friction is a sidewalk/planting bed edge, rimmed with cobbles. Bands of stones interspersed with large rocks represent a design move to mitigate canine toilet habits on plants by providing an inorganic alternative.

This is an inclusive design move to address the friction between urine and plant roots, accommodating the needs of a demographic with more dogs than children. In the dense biotech/condo zone of Seattle's South Lake Union, cobble edge zones are the response to the large number of tech workers who bring their dogs to work, and who use the planting strip nearest to their office as a place for the dogs to relieve themselves. The almost standard application of cobbles does indeed remove the friction between dogs and plant roots, and avoid edges lined with dying plants. Although space is limited, there must be another solution. Or do we just accept this as another form of accretion at the edge?!

II
South Lake Union Neighborhood, Seattle

Figure 2-20 Friction II

EDGE SUSPENSION

Streets and sidewalks comprise up over 25 percent of most American Cities land area. They balance the needs of people walking, riding bicycles, taking transit, or moving around in a private automobile, resulting in sidewalks that are narrow, crowded and uncomfortable, with little public space for parks or gathering spaces. Some cities engage in strategies to suspend the sidewalk edge to create more community gathering places.

San Francisco's Pavement to Parks Program and Seattle's parklet program repurpose part of the street next to the sidewalk into a public space for people and provide amenities like seating, planting, bicycle parking, and art. Although temporary, these creative installations which negotiate new sidewalk dimensions and suspend the edge, are beginning steps to soften and broaden the edges within the right-of-way to create safe, complete streets and new open space for the public.

Parklet by Gensler Architects, Washington DC

Figure 2-21 Edge Suspension

ACCRETION I

Trees, stop signs, no stop signs, bus stops, parking signs, parking meters, bicycle racks, recycle bins, trash bins, utility vaults, light pole, utility pole, street signs, load/unload only signs, fire hydrants. Some have regulatory locations, others fight for space, filling in, adding to the rhythmic pattern of accretion along the sidewalk edge, to maintain an object free pedestrian path.

How much more can be accommodated? More generous edges, allow for conscious and considerate placement, with better integration.

Stoneway, Seattle WA

Figure 2-22 Accretion

ACCRETION & EXTENSION

Manipulation of the six-inch edge that inscribes so much of the urban grid.

Curb extensions: angled narrowing of the roadway and a widening of the sidewalk, at intersections, midblock, or along the length of the roadway. They provide traffic calming opportunities along with storm water management opportunities, such as depressed plant beds.

The retrofit of existing curb conditions leads to the gradual growth and accumulation of layers of matter and people. A buildup of; road markings (e.g. lines, colored areas, or chevrons); barriers, bollards, or the addition of pavement or street furniture (e.g. planters, lamp standards, or benches); vegetation and planting materials.

Accretion of processes – detention of water, infiltration, evapotranspiration, deposition.

SE Siskiyou Curb extension, Portland OR

Figure 2-23 Accretion and Extension

COMPLEXITY

Many street edges appear neglected or under served. While they may appear empty and devoid of substance, at certain times they are an amorphous mass of movement. Their openness is required to accommodate their dynamic nature. The 20' sidewalk north of the Capital Hill Station, Seattle, must accommodate peak flows of people moving between public modes of transport.

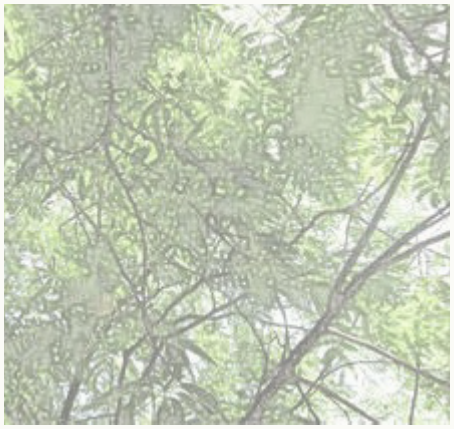
This is not to say such edges couldn't engage in a greater sense of reciprocity, multiplicity, or legibility to create a richer edge space. The current emptiness results from conflicted negotiations during design, not only between the different disciplines of a design team, but also with public agencies, and ultimately the property owner. Unfortunately, too often edges come right to the property line. If only a generous ecotone or transition zone were more widely valued by the ultimate powers that be.

Capitol Hill Transit Station (Swift Company), Seattle WA

Figure 2-24 Complexity

Edges engaged in GENEROSITY
not just in width, but in material, form and length.

Edges engaged in GENEROSITY in nature.



Edges engaged in GENEROSITY in publicness
Active edges

Figure 2-25 Generosity

PART 3

3.1 Reflections on the *EDGE*

This thesis started as an exploration of the dual role edges play in our urban environments. The initial idea was always to do something a little different; to push the edge. My early concept, inspired by Jane Wolff's *Delta Primer,* was to compose the study solely through a series of post cards, with each focusing on single aspect of edge anatomy or operation. The thought was to organize them alphabetically, such that they could be read either in entirety, in a linear fashion, or in a non-linear way and referenced like a dictionary. However, while the post card concept seemed like an effective way to approach a multifaceted topic, it turned out to be a challenge. The cyclical diverse roles and scales at which edges perform made it difficult to organize ideas without sounding repetitive. Ultimately, the ambiguous nature and complexity became overwhelming, and this thesis was edged out, as my professional life began.

However, the appeal and fascination of edges remained with me, and the notion that they should be afforded the same privilege as open space, strengthened. Practice reinforced the complexity edges embody; that of form making and being an integral part of the form they make. It also opened new understanding and provided perspectives that were not accessible in an academic setting. I became cognizant of how edges are active conditions that continuously challenge designers. Furthermore, professional insight showed that distinct types of edges influenced and drove design direction throughout various periods of the design process. The idea of using the design process as a lens through which to structure and explore edges could not have come into fruition without the benefit of professional experience from which to draw.

Breaking the thesis into two parts allowed part 1 to be a more poetic exploration of ideas from early studies, and permitted the opportunity to introduce the idea of edges as active components of our urban landscape without getting tangled in the web of overlap and interrelation between each “operation”. Part 2, then built on the first, in a structured manner and provided the context in which to reveal how edges operate as relational agents at a range of scales and a diverse set of circumstances. The design process offered a lens from which to undertake a substantive investigation into all forms of edges that influence design.

The findings of this study support the idea that edges are active components of our urban landscape emerged from early research and observations. Lynch’s discussions about edges being both seams and paths, as well as Gehl’s studies on the experiential qualities of edges as preferred social spaces, refer to the idea of active edges spaces, but they do not explicitly discuss the complex relational active constructs of edges. It was the study by Berrizbeitia and Pollak, and their approach to thinking about relationships as technical procedures that inspired the compilation of “operations” to illustrate the active roles edges perform. As the list of words grew, it became apparent operations are interconnected, overlapping and complex. The examples in this thesis show, these edge operations exist at a range of scales; they occur at the scale of city neighborhood boundaries, and at the more intimate scale of detailed elements.

The findings of this study also illustrate how edges are active conditions that challenge the designer throughout the whole design process. From the beginning of a project, until long after it is completed, designers spend considerable time negotiating and coordinating edges.

Early design proceedings reveal the active way edges push the ultimate confines of site design, or release opportunities to blur boundaries and push initial project scope. In this period, edges are both nebulous and precise, permanent and temporary. In schematic and design development edges stimulate the most iterative and richest periods design, and establish relational aspects of adjacency. Designers are engaged in edge manipulation and edge treatment. They expend great energy working through options to resolve grade differences either side of a property line, and determining the experiential qualities of space forming components. Through construction documentations edges drive the finer details of design and initiate a focus on adjacency; the edges of the edges. In construction administration edges campaign for understanding, mutual reciprocity and compromise. And in post occupancy evaluation, edges are active participants in ultimately revealing strengths and weaknesses in designs. Throughout the whole design process, edges are active conditions that are both drivers of design and an active are a part of it.

Ultimately, the findings of this study reveal a lot of time is spent thinking and agonizing about edges.

There is no prescriptive approach to site design, or edges, since each project is unique in context, function, and aesthetic, to name but a few. However, it is hoped the list of operations may inspire design teams to consider the wide range of roles edges play. In my own work, I find myself continually reflecting on three in particular; Multiplicity, Reciprocity and Generosity. For me, these three actions embody events most abundant in natural ecotones, where edges are the most dynamic and rich. I strive to engage edges in:

Multiplicity, to achieve design solutions that can be justified in at least two ways.

Reciprocity, to construct solutions of mutual benefit, generating a new hybrid.

Generosity, to create edges of ample form, length, breath, material and function.

I also try to be aware that like eco-tones, edges within the urban landscape are dynamic and continually in flux. While they may appear static, they are constantly changing, through the seasons, with time and durability, and in context, challenged by the pressures of urban development.

There is much more to explore in many respects, and my own and understanding of edges continues grow and influence my own work. Although few concepts presented here are novel, the manner in which the subject of “edges” has been presented and structured is original. It is hoped that this fresh approach of experienced–supportive understanding inspires students and professionals to reflect on the substantive role “edges” perform throughout design, and to elevate “edge” thinking from its position on the periphery, to the center!

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