I, Scott S Brackney, hereby submit this original work as part of the requirements for the degree of Master of Architecture in Architecture (Master of).

It is entitled:
Caravanserai: An architectural solution for 21st century labor mobility

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This work and its defense approved by:

Committee chair: Michael McInturf, MARCH
Committee member: Aarati Kanekar, PhD
Caravanserai: An Architectural Solution for 21st Century Labor Mobility

A thesis submitted to the
Graduate School
of the University of Cincinnati
in partial fulfillment of the
requirements for the degree of
MASTER OF ARCHITECTURE

In the School of Architecture and Interior Design
of the College of Design, Architecture, Art, and Planning

By

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Committee Chair: Michael McInturf
ABSTRACT

In this 21st century defined by globalization and connectivity, the mobility of labor figures to play a critical role in the potential attainment of both individuals and societies. Opportunities abound around the world for those unwilling to see lines on a map as barriers to entry, with competition for skills and knowledge driving frequent relocation at all levels of society. Understanding the powerful capitalistic undertones of this development, the past 40-50 years have witnessed a revolution of personal identity, where allegiances lie less frequently with country of origin but are instead derived from shared experience of lifestyles, media, and beliefs. The push toward greater mobility, despite its overwhelming momentum, is met with a number of obstacles, from the perceived illegitimacy of the itinerant lifestyle to deeply ingrained notions of “rootedness” in place attachment. Equally problematic, contemporary building stock and urban conditions remain fundamentally ill-suited to accept rapid population turnover without fears of marginalization. A coordinated development of architecture, infrastructure, and culture is necessary to overcome these stumbling blocks, achieving a better understanding of how societies can live harmoniously with mobility. In particular, this project analyzes the needs of the global demographic with the highest latent potential for economic and social mobility, an amalgamation of creative class and skilled laborers termed collectively as “migrant professionals.”
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PART I: INPUTS
FIGURE 1-1: The Journey of the “BBC Box”
CHAPTER 1:
GLOBALIZATION AND MOBILITY

The BBC Box, a run-of-the-mill shipping container equipped with a GPS satellite tracker, was dispatched from the UK in 2008, bound for Shanghai with a cargo of Scotch whisky and a mission to illustrate in practical terms the extent of world trade and interconnectivity in the 21st century. During its 421 day voyage, the Box traveled 51,654 miles by a combination of ship, train, and road, transferring everything from bathroom scales to tins of cat food between five continents around the globe.1 As the BBC staff tracked the container’s movements, they began to draw correlations between world events and the sensitivity of trade. A rash of piracy off the coast of Somalia in 2009 caused shipping insurance rates to skyrocket, threatening the profitability of the Suez Canal. Later, global economic downturn resulted in the Box sitting idle in Yokohama for three months as financial uncertainty temporarily brought world trade to a near standstill.2 Even so, the extent and diversity of the Box’s journey is a clear indication of just how interdependent the world’s nations have become and how continuing globalization will shape our futures.

As perhaps the definitive affective force of our time, globalization serves as the primary impetus in the rationale and development of this thesis. The recent past has witnessed an unprecedented acceleration in the global exchange of culture, capital, and creativity. Developments in telecommunications and personal connectivity have further catalyzed this phenomenon. In many ways, physical limits beyond the city or regional scale have become largely arbitrary, with London, Los Angeles, Dubai, and Shanghai all within reach on the World Wide Web. As the BBC study illustrated, this interconnectivity has played a decisive role in shaping 21st century economics. For those unwilling to see lines on a map as barriers to success, the economic possiblities of cultivating the global marketplace are seemingly boundless. And yet, what amounts to a paradigm shift in the human experience has received very little attention in the

FIGURE 1-2: The “BBC Box” at rest in a UK container terminal
built environment. While the institutions, politics and lifestyles of contemporary societies are unthinkably different from those of even two generations ago, this revolution has been largely confined to the virtual realm. This chapter will identify the primary effects of globalization as they relate to our daily lives and then make a case through historical precedent that these forces must ultimately elicit a response in architecture and planning.

**DEFINING GLOBALIZATION**

Perhaps the logical place to start this discussion is a thorough understanding of what “globalization” has meant since the late 20th century and how it is unique from related phenomena of the period. In his book, *Globalization: A Critical Introduction*, Jan Aart Scholte observes a long history of “global-ness,” but determines the origins of the current movement toward “globality” to have arisen since 1980. Through keyword analysis, Scholte traces the history of the term “globalization” from its first appearance in the English dictionary in 1961 through its rapid dissemination into other world languages, noting its prolific study in academia beginning in the 1980’s. In formulating his own definition, he first argues against redundant associations with already understood terms such as *internationalism*: an increase of transactions and interdependence between countries, *liberalization*: the removal of artificial barriers to produce a “boundless” society, and *universalism*: the standardization and homogenization of cultures, which have all been happening for centuries. Instead, Schulte advocates an understanding based on “the spread of transplanetary […] connections between people” taking place in a universal social space.

The strength of this definition is its lack of dependence on territorial geography, which tends to limit understanding of the phenomenon to a quantifiable analysis of “border-crossings.” Schulte elaborates further:

*The term globality resonates of spatiality. It says something about the arena and the place of human action and experience: the where of social life. In particular, globality identifies the planet—the earth as a whole—as a field of social relations in its own right. Talk of the global indicates that people may interact not only in built, local, provincial, country and macro-regional realms, but also in transplanetary spaces where the earth is a single place.*

4
In this passage, the author is referring to a newly conceptualized virtual space that is available to anyone in the world with access to the terminals of global communication. We see this phenomenon primarily through media, where popular films and albums receive global release dates and major events like the “Arab Spring” of 2011 are simulcast to the entire world as they unfold via social networking. This social space operates parallel to traditional notions of territorial geography and does not necessarily supersede them. The distinction is perhaps best made by considering the nature of the subjects interacting.

*Internationalization* has produced bodies like the United Nations, World Health Organization, and International Monetary Fund, which are all agreements formed between *sovereign states*. True *globality*, as Schulte argues, comes from global *citizens* operating outside the confines of the nation-state.
A second key term requiring some definition is *mobility*. One of the greatest visible effects of globalization is the increased ability of individuals, products, and ideas to transverse physical space as well as social and cultural boundaries with increasing ease. The dictionary provides several definitions for the adjective *mobile*: 1. *Capable of moving or being moved readily*. 2. *Utilizing motor vehicles for ready movement*. 3. *Permanently equipped with a vehicle for transport*. Again, these first three explanations are concerned with the physical relocation of an object, implying the ability to be moved, set up, and reused from place to place. 4. *Flowing freely, as a liquid*. This introduces the notion of *fluidity*, which gives the impression that mobility is a continuous quality, something that is happening constantly as opposed to a latent potential to be moved. 5. *Changeable or changing easily in expression, mood, purpose, etc.* 6. *Quickly responding to impulses, emotions, etc., as in the mind*. These begin to apply the concepts of movement and fluidity outside of the physical realm to suggest the human faculties of thought and action. 7. a. *Characterized by or permitting the mixing of social groups*. b. *Characterized by or permitting relatively free movement from one social class or level to another*. This final definition deals explicitly with social mobility, but can be expanded to convey a sense of movement or flexibility in any system.

The Latin root of the term is *mōbilis*, meaning movable. This is the equivalent of *mō-* (shortened from *movēre*, to move) plus *–bilis*, able. *Movēre* is the common root of terms like movement and motion. The previous definition of *fluidity* is derived from the Latin *fluidas*, that is *flu*, to flow, plus *–id*, borrowed from Greek to mean “descendent from.” Once again, this sense of movement is that of a born-in trait, a critical part of the essence inseparable from the object itself. And yet, the etymology of mobile appears firmly rooted in the physical world. The use of the term to refer to thoughts, emotions, and systems has more to do with parallelisms and abstraction than a linguistic basis. However, the Latin root *mōbilis* does have at least one intriguing contemporary use. The term *Homo Mobilis* has entered the lexicon to suggest with varying degrees of sincerity that modern man’s technology-grubbing, globetrotting lifestyle establishes him as an entirely separate species from *Homo Sapiens*.

From Latin we move to the Romance languages to find further uses of the term. American sculptor Alexander Calder is most often associated with the form of kinetic art known as mobile, but the term *mobiles* was actually coined by the Frenchman Marcel Duchamp from a pun meaning “mobile” and “motive.” Of greater use, the Spanish *muebles*, Italian *mobili*, and French *meubles* all refer to furniture.
We assume that this association is meant to apply to the parts of the home that are in some way moveable, but this we can refine further. Light switches, door knobs, and windows all exhibit movement but fail to qualify as what we would call furniture. Rather furniture in this sense refers to those items which are not just moveable but also not locked down. It is perhaps this sense of not being locked down that we find most appealing about mobility. To not be locked down is in a sense to be set free, a fundamental urge in the human experience. It is through this association with freedom that the positive connotations of the term are most easily derived. With increasing profundity we desire the freedom to use our telephones and computers wherever we choose, the ability travel great distances to explore new opportunities, the knowledge that we might one day improve our lot in society or provide a better future for our offspring. An unchained life produces visions of infinite possibility, and with them the visceral emotions of exhilaration, passion, and even fear.

**CONCERNING THE “DEATH OF PLACE”**

While globalization is truly changing life in the 21st century in a profound way, the phenomenon is nevertheless prone to a number of exaggerations drawing unrealistic conclusions as to its ultimate effects. One of the more common myths (and perhaps the most relevant in terms of architecture) concerns the so-called “death of place.” In this scenario, the ever-increasing proportion of our lives spent online will eventually render the physical locations which we inhabit completely meaningless. In *Who’s Your City?* author Richard Florida is quick to debunk this notion by reminding us of the similar, yet ultimately disproven, predictions that have accompanied great technological achievements of the past:

> First the railroad revolutionized trade and transport as never before. Then the telephone made everyone feel connected and closer. The automobile was invented, then the airplane, and then the World Wide Web—perhaps the quintessential product of a globalized boundless world. They would free us from geography, allowing us to move out of crowded cities and into lives of our own bucolic choosing.⁶

If such notions really were true, would we not see a great “evening” of human populations as individuals scatter across the world along the infrastructure of transportation and communications? As Florida argues, quite the opposite pattern seems to be taking place. Rather than spreading us out, the forces of
globalization have in fact resulted in a higher degree of clustering and specialization than ever before. Cities in particular now fiercely compete for a share of the global talent pool, branding themselves as centers of life sciences, technological innovation, or environmental stewardship.

The catalyst for this concentration of human capital is largely economic. Notions of the “post-industrial society,” “information age,” and “network economy” as products of globalization and telecommunication...
tend to gloss over the capitalistic undertones of the period. In practice, the speed and ease with which ideas and products now travel has resulted in a global economic system even more rooted in capitalism than the industrial society it supplanted. The lowering of trade barriers and the rise of a global society with shared experiences and values parallel to traditional demographic understandings has allowed products like consumer electronics, media, and automobiles to compete in a larger global marketplace than ever before, regardless of their country of origin. Perhaps more significantly, the recent global
economic recession has caused job-seekers to cast an ever wider net, revealing the successful translation of certain skilled professions to markets all over the world.

The dichotomy of global and local spaces has produced a new understanding of how we can access the various parts of our world. **Figure 1-4** attempts to illustrate this shift between models of physical geography and globality. In the former representation, the world can be seen at an infinite number of scales, where every mile of physical distance separating two points in space has a real world impact on the cost and time involved in getting there. The concentric dashed circles merely represent benchmarks for necessary means of transportation. The second diagram describes a world of just two scales: the local environment that can be physically accessed on a daily basis and a second global, virtual “space” accessed via media and telecom. In this model, watching webcasts from the International Space Station, talking to your uncle in Australia, or applying for a job in the UK is as simple as ordering from the bakery across town. In both cases, however, the physical scale of the city remains a major force in shaping the lives of its inhabitants. The local environment provides us with lifestyle choices, opportunities for employment and education, and even a dating pool of prospective mates. With the tremendous mobility enjoyed by citizens of developed nations today, individuals exercise ever greater control over their life outcomes by prioritizing values and relocating to a built environment that meets their unique needs.

**HISTORIC COMPARISONS**

These developments of the last 30 years have produced fundamental changes in the human experience and the way people interact. Stepping back just two generations reveals a striking contrast between the society understood by our ancestors and that of our own time. If we could bring great granddad back to the present, would he not be shocked by the lives we are living? “Where’s the Elk’s Lodge? Why are you driving a car made in Japan? And what is that woman doing wearing trousers?” The cardinal institutions of the recent past—social clubs, the nine-to-five workday, even the Sunday mass—have all experienced relative declines of influence, being replaced with our contemporary set of interests, values, and social norms. One particular area our not-so-distant forbears might actually identify with is the built environment we continue to inhabit. While there are updated models of cars, faster airplanes, and new styles of architecture, the basic “types” of built objects have changed very little in the last 100 years. The great social revolution of our time has been carried out in a virtual realm of silicon and micro-waves, with...
a shocking lack of evidence in the physical world. When comparing current patterns of change to other
significant periods of world history, we recognize one in a continuing series of paradigm shifts in the
human experience that will ultimately percolate down to all areas of civilization.

Another such time was the so-called “Age of Exploration,” which began in Europe in the early 15th
Century, bridging the gap between the Middle Ages and the early modern period. As its name implies,
the era was characterized by undaunted curiosity about the undefined edges of the map, driven in part by
economic motivators including the trade of gold, silver, and spices. It was a time of great discovery, both
in terms of navigational conquests as well as the scientific and intellectual theories of the
contemporaneous Renaissance movement. Though originally concerned with the accumulation of
material (and territorial) wealth at the level of the sovereign state, the early returns of the period
catalyzed an ever-growing ring of secondary effects that fundamentally changed the lives of a larger
segment of the world’s population. For instance, the arrival of conquistadors in the Americas in search of
gold and silver heralded a catastrophic decline for native civilizations, greatly increased the economic
and military might of Spain, and ultimately resulted in a campaign of colonization and religious
conversion. This domino effect was propagated by every major European power in territories all around the globe, yielding new understandings of citizenship in increasingly global empires. As societies grew accustomed to these new realities, material culture and the built environment also began to change, resulting in new building forms designed to best exploit the economic opportunities of the period. Custom houses and expansive ports were built to allow for the easy taxation and distribution of exotically-sourced goods, mission complexes were constructed in the New World as outposts of the Christian faith, and powerful sailing vessels took to the seas in hopes of expanding each patron’s dominion.

Every critical period of human history has made similar contributions to the built environment that underscore the character and values of their respective cultures. The Ancient Romans built roads, monuments, and facilities for public entertainment, testaments to the empire’s military might and wealth. The Industrial Revolution gave us factories, locomotives, and metal-framed buildings, all emblematic of the period’s emphasis on productivity. Turning to our present “Age of Globalization,” what changes have been made to the material culture that both typify the zeitgeist and provide fundamental solutions to our epoch’s inherent problems? Again, the current ubiquity of computers, cellphones, and tablets suggests the great importance of communication and information sharing over great distances, yet these objects tell only half the story. While so much of the world has become mobile, critically, people have remained largely rooted. Despite the apparent benefits of transience and the inevitable pull from globalization to eschew geographic attachment, the built environment has yet to produce its own solutions for human mobility.

**LEVERAGING CHANGE**

This chapter has explored globalization as perhaps the primary determinant in the shaping of the 21st century. Spurred on by developments in technology and telecommunication, the phenomenon has profoundly transformed every aspect of our daily lives, from our social values to the apparent scale of our world. The period has likewise seen a corresponding proliferation of mobilities, resulting in the free flow of thought, population, and capital across barriers both physical and otherwise. Despite its transplanetary nature, the effects of globalization have not been experienced evenly. Its capitalistic practices have led to the exploitation of underprivileged populations and natural resources, increased interconnectivity has produced more volatile systems of politics and economics, and complex patterns of relocation challenge
the established lifestyles of previous generations.

As with the other periods of conspicuous change cited in this chapter, the great challenge of our age will be not simply to mitigate a set of continuously evolving conditions, but to leverage their effects to meaningfully improve our lives. One strategy for structuring a productive response to globalization is to first identify a primary international population of “change agents,” early purveyors of the phenomenon with the means and motivation to harness its vast potential. By assessing the needs of the demographic most affected by the process of globalization, solutions from both community development and the built environment might be adopted to meliorate how society as a whole copes with a reorganized paradigm.


2 Hillman, 2009.


4 Scholte, 54-59.

5 Scholte, 60.


7 Florida, chap. 1.

8 Scholte, 170.

7 Florida, chap. 1.

FIGURE 2-1: Global concentrations of economic activity (top), innovation (middle), and star scientists (bottom)
CHAPTER 2:  
THE MIGRANT PROFESSIONAL

Matthew Kelly is a married thirty-something working for Alix Partners, a “global firm of senior business and consulting professionals,” who currently resides in Brooklyn. In his first six years with the company, Kelly has worked with a global pool of corporate clients from Western Europe to the American Midwest. His job is to dispense advice directly to CEOs on topics ranging from the modernization of Soviet-era steel factories to the downsizing of the American auto industry. The demands of the consulting profession require that he spends the vast majority of his time on the premises of these far flung corporate offices, building the trust of his clients while overseeing the proper implementation of their projects. In his own words: “You have to be there, nagging them. A lot of the time, the only way to accomplish something is to stand behind them and ask, ‘Is it done yet?’” This face-to-face interaction is of the utmost importance, because Kelly essentially sells nothing to the client but his own talent and expertise.¹

The anecdote above is summarized from the book, Aerotropolis: The Way We’ll Live Next by John D. Kasarda and Greg Lindsay. In one chapter, the text describes an entire “tribe of middle-aged men” like Matthew Kelly that travel incessantly for work in pursuit of professional opportunities. They move from client to client, spending several months or even years at each engagement, functioning as the “red blood cells of globalization.”² As societies have become increasingly mobile, people now have the opportunity to pick and choose where they live and work, making stories like these all the more common. Indeed, more than 40 million Americans relocate each year,³ while one in six cites work as the primary motivation for moving.⁴ Workers in their twenties now switch jobs on average every 1.1 years.⁵ The previous chapter highlighted the corresponding rise in mobility that has accompanied globalization over
the past few decades. This portion of the text examines mobility at the human scale, first defining the constituents of a highly mobile user group called the “migrant professionals” and then analyzing the various motivations driving their pattern of regular relocations around the globe.

**THE CREATIVE CLASS**

A central theme of Richard Florida’s numerous writings on social and economic theory is the late 20th century formation of what he calls the “Creative Class.” Representing 30% of the current US workforce, the group consists of a creative core comprised of engineers, designers, educators, scientists, and entertainers whose work directly involves the creation of new technical and intellectual content, along with an additional set of knowledge-based professionals in business, finance, law, and health care.6
Despite representing a minority of the total population, this group, through high levels of political, economic, and academic attainment has risen to become the new “mainstream” of contemporary Western culture. As Florida argues, the relative concentration of these individuals in any one city is a key indicator of current and future economic viability for the surrounding region. Indeed, the maps contained in figure 2-1 speak to the striking convergence of knowledge and innovation at key urban centers around the globe.

The forces behind this accumulation of human capital lie in the characteristic motivations of the Creative Class, namely a propensity to gravitate toward economic and cultural environs that foster creativity, individual expression, and connections to the global exchange. As work has become increasingly intertwined with the personal lives of creative professionals, the desire for a stimulating and flexible office environment has become a top priority. Craving autonomy, freedom of expression, and a social atmosphere in line with their sophisticated self image, these individuals are less likely to suffer the vexations of an incompetent manager or the plodding monotony of a “dead-end job.” This attitude, combined with increased social and geographic mobility has resulted in a dramatic upswing in “horizontal migrations,” movements between similar positions at different firms or cities in search of better intellectual and economic prospects. More than simply “moving to where the jobs are,” talented and creative people are actively pursuing lifestyles. These complex synergies of work, social institutions, and physical amenities are intricately connected to what we might think of as quality of life, driving relocations across the country and around the world despite the requisite sacrifice of personal relationships and material comfort. As Florida puts it, where you live is the “biggest decision of all.”

While Florida’s Creative Class embodies the fundamental core of spatial and social mobility, a second population contributing to global economic migration is the employee base of the world’s largest multinational corporations. The top ten international firms in terms of revenue are listed in figure 2-3 along with the location of their headquarters and number of employees. Royal Dutch Shell, for example, employs some 97,000 employees in over 100 countries and territories. The firm has major capital investment projects underway in Canada, Brazil, Russia, Indonesia, and the Middle East. As these companies set up various operations in far flung corners of the world, a certain number of experienced employees are transferred to oversee implementation and management of new facilities. Operating
strictly within the “corporate universe” of a vertically integrated firm, a single individual may nevertheless experience repeated relocation through participation in construction projects, transfer between departments, or by accessing additional tiers of the bureaucratic hierarchy. Moreover, these migrations can represent dramatic changes in lifestyle and physical environment as the employee cycles between remote industrial installations and urban corporate contexts.

Together, the constituents of these two multi-faceted demographics might be thought of simply as **migrant professionals**. If membership to the Creative Class is based on knowledge, skill, and innovation, the migrant professional has the unique ability to demonstrate these same qualities in a universal spatial or cultural context, regardless of regional social or political norms. In this light, certain members of Florida’s group—lawyers, for instance, whose knowledge is particular to the legal code of an individual territory—are excluded. Also notice a distinction between the term, migrant professional, and the more familiar “migrant worker.” While both implied populations are indeed subject to a multitude of common experiences, their characteristic tastes, lifestyles, and motivations for transience are fundamentally different. To summarize, the ranks of the migrant professionals can be thought to contain Florida’s creative core, health care workers, and global investment specialists along with a subset of skilled laborers like merchant marines, foremen, and natural resource extractors that perform the same essential tasks at a multitude of locations around the world. Beyond practicing a requisite profession, these individual also posses the drive to embrace transience, being willing to relocate on regular intervals of

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**FIGURE 2-3: The World’s Largest Corporations**

<table>
<thead>
<tr>
<th>Corporation</th>
<th>Headquarters</th>
<th>Revenue ($ millions)</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wal-Mart Stores</td>
<td>Bentonville, Arkansas</td>
<td>421,849</td>
<td>2,100,000</td>
</tr>
<tr>
<td>Royal Dutch Shell</td>
<td>The Hague, Netherlands</td>
<td>378,152</td>
<td>97,000</td>
</tr>
<tr>
<td>Exxon Mobil</td>
<td>Irving, Texas</td>
<td>354,674</td>
<td>103,700</td>
</tr>
<tr>
<td>BP</td>
<td>London, UK</td>
<td>308,928</td>
<td>79,700</td>
</tr>
<tr>
<td>Sinopec Group</td>
<td>Beijing, China</td>
<td>273,422</td>
<td>640,535</td>
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<tr>
<td>China National Petroleum</td>
<td>Beijing, China</td>
<td>240,192</td>
<td>1,674,541</td>
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<td>State Grid</td>
<td>Beijing, China</td>
<td>226,294</td>
<td>1,564,000</td>
</tr>
<tr>
<td>Toyota Motor</td>
<td>Tokyo, Japan</td>
<td>221,760</td>
<td>317,716</td>
</tr>
<tr>
<td>Japan Post Holdings</td>
<td>Tokyo, Japan</td>
<td>203,958</td>
<td>233,000</td>
</tr>
<tr>
<td>Chevron</td>
<td>San Ramon, California</td>
<td>196,337</td>
<td>62,196</td>
</tr>
</tbody>
</table>

*source: Fortune*
less than two or three years. Again quoting Matthew Kelly, “If you have any responsibility at all [...] and the company you work for is global—which it almost certainly is—then you’ll be traveling. Or you will be if you’re ambitious [...]. You’ll have to become global in your outlook and responsibilities.”

While the individuals willing to subscribe to this lifestyle may represent a fraction of the workforce in any one nation, the aggregation of these populations at a global scale contributes to a critical mass of diverse international users largely unaccounted for by contemporary design.

**MOTIVATIONS**

While allusions to the essential motivators of the Migrant Professional have already been made in this chapter, a detailed understanding of the issues affecting this demographic is critical in understanding their social, professional, and ultimately, architectural needs. Traditional unifiers in terms of shared political ideologies, life experiences, and cultural backgrounds are confounded by the international make-up of this population. Instead, an examination of the competitive benefits of mobility along with its inevitable pitfalls is of critical importance alongside an appreciation of the social and psychological factors that determine consumer behavior in the 21st century globalized economy. The following paragraphs represent a series of inquiries into the psyche of a culturally and geographically diverse user base and the common characteristics that define them as a unique global social class.

In this chapter, we have already seen that the obvious advantage to mobility is the freedom to pursue new economic opportunities, lifestyle choices, and ideological values. To again quote Richard Florida, “In today’s highly mobile and interconnected society, one’s life chances are significantly affected by the ability to move and relocate.” But what exactly are these outcomes the migrant professional works so stridently to achieve? Digging deeper into the unique characteristics of the user group, we find that much of what often binds these diverse individuals into a distinct social class is the common nature of their work and desired lifestyle. The creative intellectual process, in short, is not something that adheres to the rhythms of an eight-to-five workday. As anyone struggling from writer’s block can tell you, true inspiration comes in cycles of intense productivity separated by a need for mental and physical renewal. In order to adequately perform their duties, the meditative domain of creative professionals must extend beyond the walls of the workplace to mingle with the activities of everyday life. A lifestyle rich in intellectual and emotional stimuli, whether in the form of physical activity, interpersonal dialogue, or consumption of
media, is thus a kind of prerequisite to success in their chosen careers. The places where creatives tend to cluster, cities like New York, Paris, and Tokyo, offer these possibilities in abundance, and become ever more attractive with the fresh ideas imported through a steady stream of newcomers.

The inevitable drawbacks of mobility come in the form of wanton instability in routine, relationships, and physical surroundings. Designers have attempted to deal with these effects in a variety of ways. Take, for example, Stefan Ulrich’s “real doll for the Creative Class,” a shapeless white body pillow that gently “breathes,” meant to supplant a human partner as a source of intimacy and physical comfort. Ulrich makes the argument that interpersonal relationships have lost meaning in the untethered lives of the Creative Class and are being replaced by material connections. His proposed solution, at once revealing and strangely melancholy, has tapped into a real phenomenon surrounding the cult of material objects. Consumer goods along with personal items like photo frames and teddy bears increasingly contribute to the migrant professional’s self-image and identity. The need to fetishize these objects, whether as tokens of past experience or links in a life narrative, suggests a real human need for material comfort and stability.

Per Gustafson expounds on this notion in his writings on place attachment and mobility. The concepts of “home” and “dwelling” and their importance to human quality of life have been routinely investigated in social sciences since Martin Heidegger. As a conception of place, most definitions of home involve “geographic location, material form, and investment with meaning and value,” a tripartite approach which grounds the home within physical space, sensory perception, and social institutions. As individuals or entire societies, bonds with place are formed on the basis of emotions, thought, and behavior, strengthened and deepened by periods of long-term continuity. This “rootedness” is often seen as mutually exclusive to the concepts of mobility brought on by a globalized society. The result is a dialectic of the cosmopolitan, whose knowledge and competence in a global setting overcome the basic human need for place attachment, versus the local, who prefers “the safe homogeneity of their local culture.”

As Gustafson argues, this characterization, smacking of elitism, has become rather obsolete through the social developments of the late 20th century. As globalization has expanded our understanding beyond a static, territorial representation of place, so too has the notion of “home” come to be characterized rather by connectivity to the outside world. With this de-emphasis of physical location, the migrant professional’s
In the 21st century, the present age also permits a wealth of supranational cultural and behavioral identities. What this amounts to is an unprecedented proliferation of lifestyles, a series of habits and choices that radically shape an individual's self-image.

Innate longing for place attachment is instead sated by material continuity and connections to meaningful social institutions and loved ones through telecommunications.

**POSTMODERN CONSUMERISM**

As the mountain of potential lifestyle choices piles ever higher, so too have the number of products designed to accommodate these varied interests. One of the central tenants of postmodern economic theory is that consumers are drawn to personal choice. Bespoke goods that meet the individual needs of...
each user can command a higher price in the marketplace and create a public buzz that draws wave after wave of new customers through the door. This strategy is certainly well understood by most business owners, while attempts to harness its effects in practical applications are often met with varying degrees of success.

The prime example of this phenomenon would almost certainly be Starbucks Coffee. The Starbucks experience is centered on the idea of mass-customization, offering each and every customer “their coffee, their way.” While any given city might have hundreds of coffee shops to choose from, consumers will regularly flock to the white and green mermaid (and happily overpay) for the simple promise of a beverage that is both prepared to their exact specifications and unique from any of their peers’. Completing the experience are a carefully curated playlist, décor reminiscent of a chic urban loft, and well-publicized philanthropic endeavors that personify the brand as “standing for the right things.” The fact that this package has been replicated literally thousands of times in kiosks, strip malls, and airport terminals all around the world betrays the artifice inherent to any successful brand concept. Even so, Starbucks’ customers will continue to come back as long as the public identity of the corporation continues to mesh with their lifestyle and individual self-image.

Economist Joseph Pine recognizes this value of this kind of experience in a market increasingly typified by commoditization of goods and services. He argues that increased competition, especially in a globalized marketplace, drives producers of manufactured goods and consumer services to offer nearly identical products that are ultimately chosen based on price and convenience. The exception to this rule is the notion of experience, or more specifically, authentic experience.15 While Pine himself debunks the concept of true or universal authenticity, he is quick to point out how even contrived experiences can be leveraged to make millions if they resonate with the right group of consumers. In other words, the creation of a unique and powerful encounter is the last best way of generating value in the eyes of consumers. Ultimately, public perception and self-image form the basis of the authenticity illusion. When people describe a person, product, or neighborhood as “authentic,” what they really mean is that it readily exhibits an idealized set of qualities they hope to identify with. Applied to architecture, this notion implies the importance of design for client need at a holistic level with all the requisite flexibility that goes along with interpreting a diverse customer base.
**THE EXPERIENTIAL LIFE**

Beyond driving consumer choice, experiences have a romantic appeal that contributes to the ideal of a dynamic, engaging lifestyle. The “experiential life” refers to the construction of a personal narrative rich in plot, characters, and setting. This chapter has already hinted at the connections between novelty, the creative process, and the desire to choose one’s own path. The value of experience is the ability to tie these loose abstractions together in a format that can be captured, catalogued, and recalled for later enjoyment or productivity. The processes by which this occurs vary from journal writing, to photography, to storytelling, but all serve the same purpose: a means to review one of humanity’s great ambitions, to live a life of meaning.

The relationship between experience and the creative process is well documented in the work of authors like Jack Kerouac. The great myth of *On the Road* is of course the notion that Kerouac hammered out the original manuscript as a single stream of consciousness, transposing years of personal experiences onto a continuous 120-foot typewriter scroll. Whether one’s work is creative or knowledge-based in nature, the stimulus of new ideas, people, and places offers opportunities for learning, inspiration, and decompression, a temporary escape from the omnipotent specter of the workplace and an indulgence of personal interests. What is more, the effects of these experiences are not relegated to the “presents” they occur in but have powerful influence before and after the events actually take place. In Ben Malbon’s fascinating account of British night club culture, *Clubbing*, the author describes in detail the rituals associated with “going out,” from the anticipatory phase of getting dressed and putting on makeup, to the experience of the club itself, drinking, dancing, and social interaction, to reflection on past antics days, months, or even years down the road.  

Beyond the rather ethereal goals of achieving a rewarding and purposeful lifestyle, the benefits of new experience are also experienced in the practical world of business. Face-to-face exposure to new cultures, innovative thinkers, and networks of capital expands the subject’s economic possibilities. One of the major reasons Florida cites for the geographic clustering of creative professionals is the desire to live near like-minded individuals with the implied benefit of sharing and testing new ideas. Combining the flood of information from global media with an intimate forum to unpack and discuss new innovations makes for a compelling proposition for the incubation of creative and intellectual content.
FROM MOBILE INDIVIDUALS TO MOBILE SOCIETIES

In this chapter, we have placed individuals like Matthew Kelly within the newly defined ranks of the migrant professionals. The constituents of this group are largely the same as Florida’s Creative Class, but with a prerequisite of social and professional mobility. Culturally, and geographically diverse, these individuals are nevertheless linked by certain distinguishing characteristics: First, the proliferation and importance of custom-tailored lifestyles, the pursuit of which drives Creative Class relocation as much as the search for particular jobs. Second, the common nature of their work, which extends beyond the walls of the office to influence all aspects of their daily rituals and drives a need for creative stimulation, rest, and renewal. Third, like all people, the innate predilection toward material attachment that can be mitigated through long-term continuity in the immediate physical environment and connections to meaningful institutions through telecommunications. Finally, we observed the importance of individual choice and authentic experience in the sense of both postmodern consumerism and the creative process.

Together, these findings suggest that for a particular segment of the population, mobility can be part of a healthy, productive lifestyle, and may in fact enhance some of the unique traits that make knowledge-based professionals the consummate purveyors of a globalized society. Furthermore, the insights gleaned in this chapter regarding the self-image, consumer habits, and deep emotional connections of the migrant professionals begin to inform how architecture and design can accommodate their unique needs. This portion of the text has focused largely on the needs of the individual, and in doing so has neglected a second essential part the mobile lifestyle: interpersonal connections and the formation of societies. The next chapter will seek to remedy this imbalance, applying much of what was learned above to the community scale in order to maximize the pleasure and productivity of professional mobility.

2 Kasarda et al., 101
4 Florida 2008, 83.
7 Florida 2002, 104.
8 Florida 2008, 4.
10 Kasarda et al., 104
12 Gustafson, 18.
13 Gustafson, 19.
14 Gustafson, 24.
16 Florida 2002, chap. 10.
CHAPTER 3:  
COLLISION POINTS

Transience has always been a staple of the human experience. From the earliest hunter-gatherers to modern Mongolian nomads, generations of people have carved out unique ways of life based on the benefits (or necessities) of mobility. As frequent relocation becomes an increasingly integral aspect of the migrant professional’s work, the advantages of again seeing travel as a fundamental part of life rather than mere interlude are clear to see. The present system of hub-and-spoke air travel, extended-stay beltway hotels, and intercontinental weekly commutes can be a dehumanizing experience, but within this core infrastructure opportunities abound for the creation of spontaneous communities at the collision points of wayward business travelers. Italo Calvino speaks of the “lightness” and “quickness” of life in the new millennium¹, suggesting with great eloquence both the universe of activity encapsulated in each passing moment and the delicate existence of participants in these fleeting encounters. Through mobile analysis of the systems of interaction², these brief meetings of migrant professionals can be leveraged to expose fleeting yet meaningful societies free from the static constraints of spatiality and structure.

This chapter will start to delineate an architectural program based on these aforementioned “systems of interaction” as a means of maximizing the social relevance of the brief periods of interaction shared by migrant professionals. Through historical precedent and contemporary analysis, those functions of everyday life (and the requisite spaces for their performance) will be called out that offer the greatest opportunities for dialogue across a culturally-diverse user base. A critique of existing residential buildings will identify typological shortcomings in dealing with these activities, while a concluding experiential narrative describes how they can be synthesized into a specialized built environment.
The early progenitors of today’s migrant professionals can be found among the merchants, dealers, and mercenaries traveling the ancient Silk Road. A diverse group of participants from Europe, Persia, India, and Asia, these roving traders connected remote civilizations through the exchange of goods, customs, and ideas, transitioning between urban centers and harsh open country in a lifestyle tuned to the rhythms of supply and demand. Ancient market towns and their shrewd viziers understood the great economic benefits brought on by trade, especially in the accumulation of material wealth, and sought to channel the Silk Road through their respective territories through a number of strategies. Chief among these was the...
construction of a network of Caravanserai, or fortified roadside inns, which provided protection, lodgings, and a local base of operations for traveling merchants and pilgrims.

The typical caravanserai was a sturdy, two-level, square or rectangular complex with an open central courtyard. A large central passageway in the outer wall allowed access to interior spaces and could be closed off for purposes of security. Apartments lined the interior of both floors, with shops on the lower level and family quarters on the upper. Between these rooms and the outer wall were a series of animal stables and servant quarters. Other facilities might have included latrines, kitchens, bathhouses, or mosques. While the travelers might pay a small fee for entry, they paid practically nothing for rent and in many cases enjoyed the use of provisions stocked at the owner’s expense. Again, local support for the caravanserai was intimately linked with the monetary wealth associated with foreign trade. In many cases a specialized sort of service industry developed around the structures in the form of brokers, bankers, porters, and prostitutes, dedicated to the transport and sale of goods at the bazaar and the entertainment of its visitors.

In such surroundings, a vibrant cosmopolitan society was forged by individuals of distinct cultural, religious, and professional identities united by common economic ambition. Critically, the arrangement and function of architectural spaces contained in the caravanserai elucidate the essential daily activities catalyzing the formation of this transient community. Foremost, the fortified nature of the built environment was crucial in concentrating similarly motivated individuals within a private enclave. Rather than spreading throughout the city to be marginalized as foreigners, the residents of the caravanserai found inter-personal membership through emotional experience and a shared sense of ordeal. Also notice the communal activities encouraged by the facility’s public amenities. Commercial spaces suggest interaction through trade and negotiation. The mosque, while undoubtedly alienating to non-Muslim residents, nevertheless fostered a sense of deep spiritual unity among those that chose to pray there. Shared kitchen and dining areas highlight the social significance of “breaking bread” together and perhaps more importantly, offered a critical opportunity for the ritual of storytelling. This art form, also practiced over drinks or while relaxing in the hot baths, was uniquely suited to the traveling merchant, who lived a life fraught with exotic experience. Indeed, such was the value of their work to society as a whole that traders became the folk heroes of their day. Their collective exploits, both real and
exaggerated, came to dominate contemporary literature, as seen through *One Thousand and One Nights.*

**SOCIAL FUNCTIONS**

From the analysis of the caravanserai, the first essential activities of a contemporary architectural program begin to be revealed: cooking, dining, commerce, worship, and storytelling. These are again preceded by an overarching argument for concentration, the gathering of migrant professionals at discrete locations. While gleaned from a historical context decidedly removed from our own, the functions listed above are deeply rooted in the human experience and continue to shape our contemporary daily rituals. For instance, the practice of story-telling, once recorded into folk tales and epic poems, today plays an integral role in the formation of public identities through the media of photo-sharing and social networking sites. The following paragraphs will add to this primary set of activities through analysis of contemporary patterns of interaction at both micro and macro scales.

**Figure 3-5** depicts social activity in a typical two-story home shared by three adult occupants. Nodes of intensity in the public spaces of the house occur in areas associated with greeting, cooking, dining, and the consumption of media. Again, these activities share several commonalities that help to explain their importance in encouraging interaction and relationship-building. First, each behavior is imbued with its own code of norms. Dining, for instance, is particularly governed by etiquette, which once shared, represents a basic level of belonging. Second, each activity takes place over some protracted period of time. With individual bodies synchronized to the rhythms a simple task, the mind remains open to pursue other forms of interaction. Together, these first two aspects introduce a relatively stable framework for inter-personal communication.

All of the functions discussed so far also involve the introduction of new stimuli to a static environment. In his book, *Mobility,* lecturer Peter Adey refers to the “event of the encounter” as a powerful affective force, rising and surging between individual bodies. This phenomenon occurs within a multitude of actions: the arrival of an individual to the social scene, the experience of a unique location or environment, or exposure to new ideas, symbols, and images. One of the greatest examples of the combined influence of these forces is the social process of watching television. This combines intense periods of audio / visual
stimulation with built-in pauses (adverts and program blocks) for inter-personal discussion of said material. Though commonly regarded as a passive activity (especially when performed alone), in a group setting, media consumption in fact provides fertile ground for the cultivation of meaningful social contact.

An outlier in the social patterns of the shared residence arises in the activities of telecommunications. In contrast to the other interactions discussed above, these acts take place largely in the private physical
spaces of the house. This observation presents an excellent illustration of the dichotomy of the globalized world view: the creation of a universally accessible global “space” along with the lasting importance of the local physical environment. The notion that social interaction in the 21st century may take place on both of these scales, poses an interesting dilemma in our understanding of space relationships. Again using the shared residence as an example, the public amenities of the home belong to (and facilitate interaction within) the local environment, while the private bedrooms, through their connections to the networks of telecommunications, exist equally in the global realm. From these physical surroundings, occupants connect through calls, texts, and forum posts regardless of geographic constraints.

Moving now to the urban scale, the same process of “heat mapping” reveals subsequent sets of activities fostering spontaneous social interaction. Commerce appears again, manifesting now in shopping districts.
and places of work. The values of competition and spectating are revealed at athletic facilities and arenas. Team sports in particular provide an excellent vehicle for the development of trust and camaraderie. Lastly, we see the propensity of social activity to concentrate around varied means of transportation. John Urry examines this concept in depth through his book, *Mobilities*, beginning with the implications of paved pedestrian paths in early industrialized European capitals. The construction of long, even boulevards and manicured side streets offered rambling pedestrians stunning urban vistas imbued with undeniable attractive force, affording access to a series of linked spaces of experience and consumption. The advent of rail networks introduced the once individual act of travel to large scale synchronization of departure times and destinations. Finally, the automobile privatized the experience of travel, constructing a personalized “space for time” in which the occupant today multi-tasks (however imprudently) entertainment, snacking, and—critically—telecommunications during the daily commute. Again, the two scales of the globalized world view are expressed along the lines of public and private space. Travel by foot, train, or bus creates opportunities for shared experience, while the space-time of the automobile in traffic affords additional connections through telecommunications.

**ARCHITECTURAL SUITABILITY**

The preceding paragraphs generated a comprehensive inventory of functions integral to spontaneous social interaction and the formation of meaningful communities. This list of activities includes: cooking, dining, commerce, worship, storytelling, sharing, media consumption, telecommunication, competition, spectating, and transportation. This group of functional primitives can be readily extrapolated into a series of architectural spaces, forming the basis of a design program. Aside from the quantitative requirements of each built space, the qualitative environmental aspects that best enable the performance of these critical activities provide an equally important basis for design.

When evaluated against these criteria, the shortcomings of existing building stock are readily apparent. Traditional apartment and condo buildings are generally conceptualized as blocks of private residences, with common spaces like laundry rooms or outdoor terraces merely supplementing the gaps in functionality of individual units. Very seldom are spaces designed specifically to encourage interaction between neighbors, especially outside of specialized structures such as university dormitories. The developer-lead paradigm, rather, seems concerned primarily with matching the competition’s slate of
These deficiencies are particularly rooted in poor programming. Again, in an effort to appeal to as broad a market as possible, large housing developments tend to offer few “specialized” spaces. In a typical building, efforts to develop a more purposeful offering of amenities are seemingly confounded by the

amenities with as little impact on building efficiency as possible. In this respect, community spaces are judged by representative square footages rather than their capacity to contribute meaningfully to residents’ quality of life.

These deficiencies are particularly rooted in poor programming. Again, in an effort to appeal to as broad a market as possible, large housing developments tend to offer few “specialized” spaces. In a typical building, efforts to develop a more purposeful offering of amenities are seemingly confounded by the
disparity of potential residents. Open lounges, “multi-purpose areas,” and exercise facilities, even when well-appointed and generous spaces, truthfully offer little in the way of additional day-to-day functionality or social utility. However, when catering to a specific, well-understood demographic like the migrant professionals, relevant programmatic functions can be worked into these same square footages to create a lifestyle-building experience.

**EXPERIENTIAL NARRATIVE**

In advance of actual architectural design work, this chapter concludes with an experiential narrative, which seeks to describe a specialized work of residential architecture through the eyes of a representative member of the migrant professional class. The passage outlines the programmatic elements of the building and rituals of arrival, check-in, and relocation, while also illustrating the specialized lifestyle that might develop within such a framework. For the story’s protagonist, Tim, making new connections, crossing paths with old friends, and cultivating a rich personal identity are all essential to the experience of the modern-day caravanserai:

“We’re here.”

Tim has fallen asleep in the cab from the airport. “Erm… cheers!” he manages as he pays the fare, gathers his bag and jacket, and tumbles out the door onto the pavement. It’s a crisp, cloudless morning. Tim pauses briefly for a summarizing glance around his urban surroundings before entering his home for the next six months.

Once through the door he arrives in what feels more like a living room than a lobby. A smartly-dressed and rather sprightly receptionist glances up from her conversation when she notices Tim resting his elbows on the check-in table. “How are we doing today? May I please see your card?”

Tim rummages through his wallet, pulling out a worn aluminum key fob bearing the Caravanserai logo. The receptionist swipes the card on a tablet device at her side and begins to run through Tim’s information in her distinctively-receptionist meter: “Mmmmmmm-kay. It looks like your home left the Salt Lake City area yesterday evening, traveling by rail. It will arrive by the end of the week, but we can put
you up in one of our studios until then. We’ve just received your trunk; would you like us to install it for you or do you want to unpack it yourself?” Tim chooses the later. “Very good, sir. It looks like we’re all set then. Rio Tinto Group have paid your membership assessment through April, just let us know in March if you want to extend your stay in New York. If you need anything, I’m Emma!”

Tim takes his card back and makes his way toward the elevator, scanning the ground floor for familiar faces along the way. A twisting and folding breakfast table is packed, diners clustered in conversation through all the unique seating arrangements its undulating geometry affords. Newspapers from around the world are pinned down by espressos and plates of waffles being served by two gregarious Australian studio musicians that appear to still be drunk from last night. Tim turns a speculative eye toward the fitness area, where beyond the tantalizing wares of the meat market, he notices a group of 40-somethings drinking orange juice while watching younger colleagues take part in a bit of futsal. With a sigh he pokes his head into the media lounge, which has been taken over by a throng of young Wall Street-types with undone neckties, their eyes glued to a curious mix of market reports and hip hop videos, the thumping bass plainly disturbing a Japanese designer sewing in the next room. Just as the word, “a-s-s-h-o-l-” is beginning to form in Tim’s mind, he feels a heavy hand clamp down on his shoulder and turn him around on the spot.

“Alright, Tim?”

The person now embracing Tim with serious relish is Andrew Spragg. Tim and Andy met in Mumbai five years ago while Tim was on his first assignment with Rio Tinto Group and Andy, a merchant marine, was holed up in port following a rash of piracy in the Indian Ocean and soaring energy prices. Andy is from a town in the East of England called Ipswich, where the local football team is known colloquially as the “Tractor Boys.” He has a unique character of always belonging, as if he predates every space he inhabits, the resultant environment carefully constructed around his pre-existing presence. In a lifestyle marked by change, Tim sees this staying quality as at once charming and comforting. Here is someone who is truly at home on the road.

“My God! Andy! What are you doing here?”
“New job. I’m out of sailing for now, but of course I could never get used to standing still. Now I consult for the shipping industry. When did you get in?”

“Less than five minutes ago. I’m heading upstairs to unpack.”

“Well belay that, obviously. It’s clearly Providence! I just arrived last night... What are you drinking, Tim?”

“Andy, it’s like, 8:00 in the morning...”

“Who gives a damn? Where I just came from, it’s almost (he checks his watch)—MIDNIGHT! See, we’re already behind schedule!”

With considerable effort, Tim convinces his friend to delay their spirited reunion a few hours so he can get settled in to his new apartment. He finally proceeds to the elevator and exits at the 14th floor, passing an irritable-looking man dressed in scrubs speaking curtly over his Bluetooth. He uses the same card he produced at check-in to unlock the apartment, entering his temporary accommodations. Tim has never even visited New York before, but everything in the space he now occupies is familiar, save the sublime view of Lower Manhattan and the Brooklyn Bridge rising in the early-morning sun beyond the East River. The finishes, location of bathroom, even the dinnerware in the cabinets are all styled in the same fashion as those similar facilities he has inhabited throughout his travels.

After briefly taking in the scene, Tim’s eyes settle on his trunk, which stands reassuringly in the middle of the room. He approaches the object with much the same warmth he greeted his old friend a short time before. He runs his hand over the trunk’s silicon finish, still remarkably unmarred despite the ravages of shipping. Tim unlocks the trunk and unfolds it, taking in the familiar rich smell of cedar as the piece reconfigures to something like a six-foot bookshelf and wardrobe. Everything is in its right place: his clothes folded neatly in drawers, important files locked in a secure cabinet, his plush duvet freshly laundered and ready to toss on the bed. From the largest compartment, he unpacks his favorite desk chair, a cheap IKEA number he’s had since college but has never found a reason to replace. Since he will only be in this room a few days, he leaves the majority of his possessions safely packed away until his usual residence arrives on site. He removes just three items: a photograph of his parents and sister, a seashell
his college girlfriend found for him while studying abroad in Marseille, and a certain framed artwork. This he carries near the window where he hangs it from a handsome metal picture rail. The piece is a collage of photographs taken from the breakfast table of his mobile residence, depicting the multitude of varied landscapes he has woken up to over the years. He takes another look out the window, smiling.

A geophysicist, Tim has just finished a three-month stint overseeing a major expansion to the Bingham Canyon copper mine in Utah. Pleased with his work, his employers have offered relocation to their New York office, where he will be responsible for remotely monitoring the firm’s North American mining operations. While in Utah, he enjoyed the lifestyle opportunities afforded by the local environment, trying his hand at skiing, horseback riding, and even mountain climbing, but he is excited to be back in a vibrant urban setting. It is the first time Tim has been back from remote field work in almost two years, and eight years since he accepted his first job out of university after an interview at Rio Tinto’s London HQ.

returns to wheel the unfolded trunk into a specially-designed alcove near the bed. It pops in with a satisfying click, becoming a seemingly permanent fixture of the room’s décor. A small screen brightens up with a chime, letting Tim know the device has synchronized with the facility’s communications network. The phone on the work surface is now tied to his mobile number, his music and other media can be streamed over the unit’s media systems, and the trunk has shared a “digital handshake” with the Caravanserai system, noting his check-in time and announcing his safe arrival to his employer.

* * * * * *

Around dinner time, Tim heads back downstairs, where he finds Andy seated in a small, comfortably furnished cubicle—known as a “chat room” to journeyman Caravanserai residents—across from the bar. They share another embrace and get to work catching up on life events and sharing stories from their travels which escalate in depravity with each passing drink. About an hour later, Andy introduces two acquaintances: Maya, a Sri Lankan-born architect, and Clélie, a French actress currently contracted with a Broadway production. Andy explains how he met Maya while he was still working on a container ship. Her firm, whose practices spans five continents, had recently invested in a mobile office deliverable to project sites around the world:
“We do our business development and initial design work remotely from one of our regional offices. When a client decides to move forward on a project, my team packs up and ships out to the site. On the way, our homes and portable office modules are arranged among the regular intermodal containers on the ship, so we can continue to live and work more or less as usual during a three-week ocean crossing. There’s not a whole lot to do at sea besides play ping pong, drink, and stare at the ocean, so we work long days and push through design development. When we arrive on site, we’re generally ready to begin final documents and construction administration while working closely with the client. It’s actually cheaper than flying back and forth every few weeks, and we don’t have to invest in a satellite office for each new market we pursue.

“What we’ve really found is that the process of travel carves out a space for time. Whatever means of transportation we use, a huge amount of time is spent sitting in terminals, waiting for meetings to begin, tracking down lost baggage, whatever. The isolation of the ship frees us from all these other obligations, allowing us to use the elapsed time of travel productively. Is it really any different from checking emails or returning phone calls while caught in traffic on the motorway?”

* * * * *

In the early hours of the morning, Tim stumbles back to his building. Despite his impaired state, this new home is already familiar enough to make navigation to his apartment manageable. In the elevator, he attempts to piece together the night’s events. Around 10:00, the group left their enclave of migrant professionals to experience the local night life in the surrounding neighborhood: art galleries, Grimaldi’s famous pizza, and an endless procession of bars and clubs. When the door opens, he sees the same man dressed in scrubs on his way to work, now seemingly placated by a few hours rest. Once back in his room, Tim collapses into his desk chair and switches on his laptop. He emails his parents letting them know he’s arrived in New York. He texts his sister a juicy anecdote from his night out. He falls asleep chatting with his college girlfriend on Skype. He is at home.


5. Blake, 118.


7. Blake, 117.


10. Adey, 173.

11. Urry, chap. 4.


15. Urry, chap. 6.
Ideas of mobile housing are nothing new to the discourse of architecture. Indeed, the historical examples cited in the previous chapter represent a brief survey of the rich anthropological tradition of human transience. With the advent of mass production and high-speed transit, this creative thinking about mobility flourished in the early 20th century through a number of incarnations on scales as large as entire cities or as small as the airstream trailer. However, despite the apparent volume of prefabricated, portable, and adaptive schemes in contemporary architecture, none have been adopted as a mainstream solution for truly mobile living. The particular reasons for this vary from project to project, but most efforts can be categorized as one of the following:

1. Avant-garde, “paper architecture” that puts forth a visionary concept but offers no real buildable solutions
2. Technocratic wizardry that ignores the realities of demand and economies of scale
3. Architectural gimmicks which lose novelty if adopted as a pervasive system
4. Austere designs set aside for fringe groups like the poor, refugees, and counter cultures
5. Prefabricated or modular strategies that become static once assembled on site

This chapter will provide examples for each of these categories while describing both the novel solutions and ultimate shortcomings they offer. Several promising recent projects will also be cited for their achievements in technology, aesthetics, and user experience. The purpose of this discussion is to
position the outcomes of this thesis within the crowded field of mobile architecture, elucidating its unique intentions through comparison and testimony of positive and negative examples. A set of design goals will be established (with an eye to the social, cultural, and economic concepts discussed in previous chapters) that will inform the direction of architectural decisions in the second part of this document.

Before digging deeper into precedent analysis, there is one important distinction that should be made between architecture that is portable, and architecture that is truly mobile. The former most aptly applies to material objects that can easily be moved from place to place. A rather mundane definition confined to the physical plane, portability can describe just as easily a music player, a barbeque, a toothpaste container. Mobility, on the other hand, is transcendent, certainly useful in describing movement within the tangible world, but also through social strata, within mental space, and interpersonal communications. The key difference between the terms in architecture is a sense of fluidity. A concert stage, military hospital, or carnival funhouse is a portable space, one which pops up to perform a particular function before being packed away until it is needed again or discarded. Mobile places retain a sense of continuity. Whether in physical, emotional, or intellectual terms, they always exist somewhere.

**PAPER ARCHITECTURE**

With the phenomenal advances in personal transportation of the early 20th century came a wild cultural obsession with speed and movement. The rise of aircraft, personal automobiles, and passenger train service along with long-distance communication through radio waves resulted in the creation of entirely new built forms and a profound change in how people understood distance and travel. Italian Futurismo, described by the poet Filippo Tommaso Marinetti in his 1908 manifesto, was perhaps the first widespread artistic movement to embrace movement and technology in a rapidly changing world. Marinetti and his fellows saw themselves as the primitives of a new world order, rejecting the past in favor of “an existential dimension of the artist’s experience and a projection forward.”¹ In painting, sculpture, and poetry, the ideals of the movement were captured in abstract representations of sight, speed, and sound, visions of machines, and the indomitable sprawl of cityscapes. Architects associated with the movement, such as fellow Italian Antonio Sant’Elia, shifted their focus to black and white line drawings of immensely scaled districts or entirely new cities built around the very infrastructure of speed: rails, highways, and airports.
Though the political ideals of the Futurism movement eventually died out—its connections to Italian Fascism, glorification of war and violence, and blatant disdain for the past all rather unfashionable by today’s ideological standards—its means of representation in art and architecture, especially its penchant for drama and sense of movement, continued to be extremely influential for the remainder of the 20th century. Take for example, the *Jersey Corridor Project* proposed by a team of Princeton professors (including the not-yet-famous Peter Eisenman and Michael Graves) that appeared in a 1965 edition of Life magazine. This “linear city” was designed to exploit the miles of open space adjacent to America’s then-recent interstate highway system. The drawing submitted as part of the publication depicts a cross section of feverish activity, a seemingly endless assortment of shops, homes, and recreation spaces built over a massive super highway that cuts through the pristine natural landscape of New Jersey.

Indeed, the 1960’s and the Jet Age were something of a renaissance for ideas of urban idealism in a travel obsessed society. At the forefront of this creative outpouring was the London-based design consortium known as Archigram. In a series of self-published magazines released from 1961-1970, the group envisioned a wildly fantastic future in which individual buildings were absorbed into a reflexive, systematized architecture of indeterminate scale. Working primarily as individuals, Archigram’s combined body of work was prolific and varied, but always offered uncompromising new approaches to life in a changing world. Ron Herron’s unfathomable *Walking City* proposed the urban form as a cellular mechanical behemoth, stalking the planet in search of a permanent home. Dennis Crompton’s *Computer City* anticipates the interconnectivity of a computer network in the physical form, with individual nodes of living and commercial space strung together along a circuit board of hierarchical infrastructure.

Perhaps most notable about Archigram’s work was the calculated attempt to tap into the zeitgeist of their unique generation, however tongue-in-cheek. Their seductive collaged renderings, wrought from an unabashed obsession with American pop culture, advertising, and comic books, elicit strong emotional appeals to the latent desires of liberty, growth, and change. “Nomads” became the protagonists in a modern narrative, in which the mobility of built space became the mechanism for a reordered society. The group recognized the economic implications of mass production and its inevitable impact on the individual experience. As such, their designs often attempt to accommodate personal choice through a responsive amalgamation of standardized pieces, even in the pre-fabricated capsules of the plug-in city.
In other words, the users retain ownership of their built environment through the unique arrangement of a standard kit of parts.

Ultimately, Archigram’s visions are defeated by the weight of their own ambition. Despite a professed sensitivity to personal choice, their ideas leave no room for compromise. In this *tabula rasa* approach, integration with the status quo is rarely discussed; the world as a whole must abandon its past and reorganize according to a strict new code of predetermined principles. The rare circumstances capable of instantly generating such sweeping change in human behavior are almost always catastrophic (the events of 9/11 might be the most recent example in Western society). Far more often, revolutions require
the slow building of a critical mass of affective “change agents,” those members of society with a natural inclination to new ideas and the requisite mobility to spread them. Of course, given the whimsical and sometimes antagonistic nature of the group, the question of how seriously to take its suggestions is readily apparent. Even so, Archigram’s influence on many milestone projects of the later 20th century is undeniable. For example, Renzo Piano and Richard Roger’s Centre Georges Pompidou rather clearly illustrates the principles of the Network City, albeit at a decidedly smaller scale. Their tectonic propositions of modular plug-ins and systemized construction have likewise become widely adopted.

**METABOLISM**

The Japanese Metabolism movement closely paralleled Archigram as another force in Mid-Century avant-garde architectural theory. Debuting at the World Design Conference of 1960 in Tokyo, the movement was championed by a cadre of young designers including Kisho Kurokawa, Kiyonori Kikutake, and Fumihiko Maki under the guidance of Kenzo Tange. The rhetoric of the period advocated flexible and expandable structures evoking the phenomena of organic growth. Again like Archigram, the Metabolists tended to operate on a grand scale, producing intricate drawings of massive towers and entire cities shaped according to the principles of biological geometry. Despite being rooted in natural processes, architecture of the period typically made use of advanced tectonics and the mechanisms of mass production. The ideals of the movement involve a radical new way of thinking about the user’s relationship to space and, as such, are rather technocratic or prescriptive in design. Gunther Nitschke summarized his concerns with this approach as follows:

> As long as the actual buildings get heavier, harder, more and more monstrous in scale, as long as architecture is taken as a means of expression of power, bet it of oneself or of any kind of vulgar institution, which should be serving not ruling society, the talk of greater flexibility and change-loving structures is just fuss. [...] It must be considered a mere anachronism, a thousand years out of date, or to say the least, not an advance of modern architecture in terms of theory and practice.  

Perhaps the best known built example of Japanese Metabolism is Kurokawa’s Nakagin Capsule Tower in Tokyo. Completed in 1972, the mixed-use building is comprised of a central service and circulation core...
FIGURE 4-7 (right): Exterior view of Nakagin Capsule Tower showing the original pods still installed after 40 years.

FIGURE 4-8 (above): Capsule interior. Note how the furniture and appliances are all built-in, precluding any opportunity for user-customization and making replacement of outdated technology difficult.
surrounded by detachable pods. These modules, envisioned as individual living and work spaces, were delivered to the site on trucks, hoisted into position by a crane, and installed using an ingenious system that requires only four bolts. Appliances, lighting fixtures, and furniture are all integrated into the interior surfaces and pre-assembled in a factory. Kurokawa intended for the pods to be replaced and upgraded over the lifetime of the tower in order to take advantage of new technology, facilitate additional programmatic functions, and cater to the user’s changing needs. That vision was never realized; not a single unit has been changed in the 40-year history of the building.

For the most part, this failure is a result of poor implementation. While Kurokawa was successful in translating the intent of the movement into a working prototype, a series of important social and economic forces conspired to prevent further proliferation. At just 140 units, the economies of scale were never in place to justify the development of new models. The decision that every amenity should be built into a fixed molded console, in addition to completely discounting any potential for user control, also ensured that those units that were produced would be difficult to update and modify individually. A second polemic aspect of the movement concerns the emotional and psychological implications of encouraging users to discard or radically alter their homes at regular intervals. In a sense, Metabolism represents an inversion of the model of mobile architecture advocated in this thesis. Rather than traveling with the same unit to a variety of distinct sites, the user remains at a fixed location while inhabiting a series of continually replaced modules. Returning to a discussion from Chapter 2, this polar comparison presents a philosophical debate concerning the relative importance of physical surroundings and geographic location in the formation of place attachment. While Kurokawa was operating within a time and culture distinctive from that of the migrant professional, our connected, globalized society has produced a new understanding of location independent of territorial geography. With contemporary identities increasingly intertwined with connections to material objects, the Metabolist’s proposition of rapid replacement of intimate personal spaces with new generic models seems destined to exacerbate a growing sense of 21st century alienation.

**SHIPPING CONTAINERS**

Moving into more contemporary approaches, a recent pattern in mobile architecture has been the development of novel building systems from clever geometric forms or the reuse of industrial relics. The
popular example of this comes in the form of “shipping container architecture,” which leverages the inherent mobility, cost effectiveness, and systemized nature of the intermodal container to create cheap, easy-to-construct buildings. Units can be stacked in any orientation, adding some variation to interior spaces or functioning as a form of enclosure. Literally designed to be moved, these projects integrate seamlessly into the pre-existing infrastructure of ship, train, and automotive transport. The trend has also benefitted from perceived notions of positive environmental stewardship based on the creative recycling of disused containers.
of disused industrial objects.

New York-based LOT-EK is among the most prolific in this technique, with virtually all of their projects employing shipping containers in one form or another. In 2003, the firm released a book detailing their Mobile Dwelling Unit (MDU) exhibit at the University Art Museum, Santa Barbara. The project proposes the development of a portable, residential module based on a repurposed container in tandem with a network of deployment sites (referred to as “MDU Harbors”) in “major metropolitan areas around the globe.” The residences are designed to meet the user at their next destination, being raised into an open matrix of other units by a specially designed lift. This system is again based on industrial practices of staging empty containers when not in use. The units themselves contain all the essential elements of the traditional home in separate “pull-outs,” which can be pushed back into the 8’ x 8’ x 40’ volume of the shipping container during transit. This arrangement allows for all of the user’s personal belongs to be transported within the home itself, facilitating rapid relocation and installation. All interior finishes and furnishings are intended to be factory-installed, with a measure of customization possible through user selection of materials and colors.

Critically, the MDU is designed as a fiercely introverted space. This is supposedly representative of LOT-EK’s “commitment to enriching and sustaining the individual’s relation to his or her living space.” As such, individual units are not intended to interface with their vertical or horizontal neighbors. In more ways than one, this seems like something of a missed opportunity. One of the great advantages of the intermodal container is its ability to form up directly with other units. This quality could have been leveraged to create scalable residences composed of multiple containers, expanding the potential user base to larger families or even making mobile office spaces possible. The inward focus of the module also extends to the system level, suggesting a lack of thought on how the transient citizens of the MDU Harbors might interact and make use of community space.

Architectural analysis of the residential unit reveals the greater shortcomings associated with this kind of adaptive reuse. In chopping up the unit plan into individual programmatic elements, LOT-EK have created an amalgam of cramped, functionally divorced spaces, exacerbated by the low ceiling heights and linear morphology afforded by the shipping container platform. Furthermore, the use of multiple

FIGURE 4-12: The MDU’s (left) use of multiple pull-outs results in a poor ratio of floor area to perimeter enclosure. The alternative (right) suggested here yields an additional 30 ft² despite having a smaller exposure size and overall footprint, making it more efficient both in terms of initial cost and heating / cooling loads.
independent push-outs, as opposed to a single large one, results in a shockingly disproportionate ratio between unit area and perimeter length. With all six sides of the module exposed to the elements, thermal performance is a major area of concern, especially considering the poorly insulated envelope of corrugated steel and plywood. Ultimately, the premise of reusing shipping containers in such a fashion appears rather dubious. Without extreme modifications, these units can never achieve the performance criteria of a purpose-built dwelling. The novelty of their appearance would similarly be diminished if such a concept were ever adopted as a pervasive system. Bearing this in mind, it seems a more prudent

FIGURE 4-13: Sean Godsell’s “Future Shack” was created from a modified 8’ x 20’ shipping container. The prototype is intended to be used as a rapidly deployable housing solution for disaster areas around the world. The parasol is designed to be finished with local building materials such as straw or thatch, while its shape represents a universal symbol for “home.”
direction would be to devise a wholly new platform that respects the synergies achieved by the intermodal container while making use of higher-performing construction techniques.

**DISASTER RELIEF**

Besides the functional shortcomings of LOT-EK’s MDU effort, the use of repurposed industrial relics perpetuates long-held social attitudes associating transient housing with poverty, crime, and illegitimate squatting. Indeed, the corrugated metal of the shipping container readily calls to mind the roofs of Brazilian favelas and other forms of Third-World ad hoc housing. The recent past has seen a number of seemingly altruistic efforts intended to deliver rapidly deployable mobile housing to the poor, refugees, and fringe cultures of the world. Driven by cost and ease of construction, these projects often result in extremely austere spaces with questionable potential for long-term acceptance by the cultures into which they are introduced. When poorly executed, these projects have the potential to become major political bugaboos, as in the case of the poorly-received FEMA trailers dispatched to New Orleans in the wake of Hurricane Katrina. Even when successful in meeting the needs of their intended audiences, the baggage associated with the visual language of transience presents a formidable barrier to mainstream adoption.

For instance, Australian architect Sean Godsell’s “Future Shack” is a mass-producible prototype intended for temporary disaster relief housing. Again, the building is essentially a modified 8’x20’ shipping container, designed to be readily transportable and expedite emergency response. The interior comprises a single living/sleeping space along with a small kitchenette and bathroom. Tables and beds fold out from panels in the wall. A frame of steel tubes allows the entire unit to function as a structural box beam. The inherent rigidity of this system, combined with a set of outriggers at each corner, means the buildings can be stacked, cantilevered, and sited over uneven terrain. Mechanical, electrical, and plumbing systems are self-contained and unitized. Gas fuel cells and water tanks are housed on the roof, which in turn is protected by a parasol complete with photovoltaic panels. This gable shape is intended as a universal symbol for “home,” and can be finished with local building materials such as mud, thatch, and tile.

Godsell’s sensible approach accomplishes the basic requirements of human habitation while the on-site...
application of traditional building fosters a sense of ownership and place attachment among the users. However, the obvious retrofit of the design and even the use of the world “shack” in the project’s moniker limit the social mobility of the system and its inhabitants by association. As with most aspects of architecture, these subtleties of presentation are critical in garnering wide-spread acceptance. Take MVRDV’s Container City, a self-described “bee-hive” of mixed programmatic functions housing an ever-changing population of business travelers. The project narrative suggests a level of cultural sophistication and relative financial prosperity among the target user group, and yet the accompanying renderings tell a different story entirely. Shadowy figures gather around a pile of burning refuse in one particularly unsettling nighttime scene. Again, the greatest shortcoming of this field of mobile architecture is the failure to produce a meaningful visual language palatable to a broad cultural context and free of the imagery of illegitimate fringe societies.

THE “MOBILE” HOME

The manufactured home industry has a long and storied history in the United States. From the cast iron buildings of the 19th century to the ubiquitous “double-wide” trailer, easy-to-transport prefabricated housing has played a vital role in America’s frenetic pace of expansion and development. Truly remarkable designs, such as the Airstream camper, have become classic images of Americana, deeply ingrained within the hearts of a populace obsessed with exploration and movement. Besides being quick and simple to erect, the factory-controlled nature of these buildings increases cost efficiencies and construction tolerances. The end result is often an inexpensive, space saving residence with construction quality at times exceeding stick-built alternatives.

Unfortunately, mobile homes suffer from a number of disparities both in terms of functionality and social attitude. Transient lifestyle have traditionally been met with prejudice in Western societies, with the habitation of mobile residences seen as some how less legitimate than “landed” alternatives. Indeed, the buildings suggest an impermanent nature, implying a lack of integration into established society. Whether right or wrong, this notion extends to the perceived socio-economic attainment and cultural values of today’s trailer communities. The building form is also prone to a number of performance-based shortcomings. The quick erection and at times unplanned nature of prefab communities can overwhelm existing infrastructure. The use or simple, repetitive building elements can lead to a rather bleak
landscape if not carefully managed. Perhaps most troubling with respect to the aims of thesis is the degree to which most “mobile” homes are painfully static. The vast majority of these structures are designed to be easily shipped to the site, but then become permanently fused to other modules or platforms once deployed. Ironically, the fast construction, economic use of materials, and ubiquitous nature that make the buildings compelling residences conspire to make moving an already deployed unit impractical. More often than not, it is far easier and less expensive to simply move into an identical unit at the new location.

BESPOKE SOLUTIONS
Perhaps the most promising area of mobile design comes in the form of specialized responses to particular problems. By dealing with functional issues head-on, these projects often achieve a level of performance unmatched by catch-all solutions. These kinds of examples are certainly not limited to architecture; consumer electronics, automobiles, and even luggage serve as tremendous studies for co-opting a design language of portability. Indeed, it seems fitting that design inspiration for a portable architectural platform would be drawn from the very devices driving increased personal mobility.

The recent past has produced many noteworthy examples of purpose-built mobile buildings. Gollifer Langston Architects’ Classroom of the Future is one such project, designed from the ground up as an auxiliary technology laboratory transportable between schools via flat bed truck. The custom built platform employs high quality materials and finishes to achieve performance criteria similar to static examples while creating a slick, cohesive design product.

Another stellar example is the Taliesin Mod.Fab by Office of Mobile Design. This portable residence, designed in collaboration with students, employs water and solar collection strategies, enabling it to function on or off the grid. While the project is designed to be shipped on a standard truck, it transforms and expands once deployed, offering generous interior spaces and polished aesthetic standards in line with a traditional upscale dwelling. The overall effect is a mobile residence with the look, feel, and quality of a permanent, site-fixed home.
FIGURE 4-17 (right): The Classroom of the Future is designed to travel via lorry to schools around Britain, acting as a mobile technology laboratory.

FIGURE 4-18t (opposite): Taliesin Mod.Fab by Office of Mobile Design is a transportable prefabricated residence designed to operate both on and off the grid.
ANTECEDENTS OF MOBILE ARCHITECTURE

POSITIONING THE THESIS PROJECT

Through the classification and analysis of precedents above, the goals of the thesis project can be positioned within the crowded field of mobile architecture. All of the examples offer novel technical or functional solutions that can be used to generate an effective direction for design. The work of Archigram stresses the importance of systemized construction, consumer choice, and lifestyle attraction, while the Metabolist movement offers the technological solutions to make these kinds of projects buildable. Shipping container architecture reveals the powerful synergies of transportation infrastructure and how design might leverage these to create inherently mobile buildings. Projects like Future Shack and...
traditional manufactured housing units convey the economic advantages of prefabrication. Finally, by combining these realizations with insight gleaned from the design of other forms of mobile objects, a purpose-built solution will be developed that offers uncompromising performance in the execution of its function as mobile residential architecture.


4 Sadler, 109.


6 Frampton, 283.

7 Christopher Scoates, Mobile Dwelling Unit, (New York: Distributed Art Publishers, 2003), 71.

8 Scoates, 47.

9 Scoates, 71.


PART II: OUTCOMES

*This portion of the document describes an architectural design project still under development.
CHAPTER 5:
PLANNING A NETWORK OF SITES

As outlined in the precedents chapter of this document, a common stumbling block for new architectural paradigms is the failure to account for the realities of implementation. In the case of mobile residential architecture, a great number of planning, construction, and manufacturing efforts must be expertly coordinated to ensure a successful start to the global enterprise. Taking into account the profile of the migrant professional, this chapter is concerned with the strategic development of a network of potential sites with access to world’s richest social and economic resources. Potential landing points for migrant professionals occur anywhere where employment and lifestyle opportunities abound. These can exist in a variety of distinct contexts, from dense urban sites to remote industrial operations, even aboard moving platforms like ships and railcars. Each of these scenarios operates within a unique set of economic conditions that govern everything from the scale of development projects to their sources of financing. A critical understanding of these issues along with an appreciation for the qualities contributing to a viable installation is the first step in the development of a successful system of mobile residential architecture.

SITE SELECTION
One of the major barriers to implementation this project faces is the need to simultaneously develop a critical mass of host locations at strategic global hotbeds of economic and cultural activity. Each of the three deployment contexts discussed in the introduction will follow a specific pattern of development. Remote / industrial sites largely coincide with the far-flung operations of multi-national corporations. These would include oil fields, mining operations, and manufacturing centers, installations that require a great deal of knowledge and skill to operate efficiently, but may not offer an attractive lifestyle to the
The map above depicts the relative shipping cost of a 40’ intermodal container between each of the 25 network cities, with the most economical routes are shown in blue. Assuming a residential module could be shipped interchangeably with traditional containers, the average cost of transport between any two of these cities would be less than $3,500.

migrant professional. Mobile platform sites are much the same, only they would be situated along geographically dynamic economic processes like commercial fishing, scientific exploration, and large-scale infrastructure construction (highways, pipelines, etc.).

The locations best suited to the lifestyles of the migrant professionals are most likely cities. As centers of creativity, innovation, culture, and economic wealth, urban environments offer the primary amenities driving the user group to take up transience in the first place. However, not every city offers the same quantity and variety of opportunities. The list of cities in figure 5-2 represents the 25 most likely candidates for supporting communities of migrant professionals. The criteria is based mainly on ratings assigned by the Globalization and World Cities Research Network, a complex metric that takes into account percentage of foreign-born population, number of major corporate headquarters, major cultural
institutions, and total economic output amongst a sea of other factors. Due to the importance of physically transporting residential modules to each of these locations, a weighted bonus was then awarded to each of the top 100 container ports by volume in the world. This explains how a city like Guangzhou, despite just receiving a “Beta World City” designation, is counted among the 25 candidate cities due to its seventh-ranked port.

THE URBAN PROTOTYPE

As the top rated city in the selection index, New York represents a logical starting point for the development of an urban prototype. In addition to its excellent connectivity through transportation infrastructure, including sea, road, and rail, the city has long been upheld as a center for innovation, culture, and opportunity. The site depicted here lies along the East River just south of the Brooklyn Bridge near the loosely defined border of Brooklyn Heights and DUMBO. The parcel itself was formerly Pier 1 of the Brooklyn Port Authority Marine Terminal before being converted into a public park in 2008. The site is still adjacent to an active slip, allowing residences to be delivered by barge after passing through the Red Hook Container Terminal just down river. The area is also excellently served by ground transportation, with Interstate-285 running just to the east and access to three different MTA lines within a 10-minute walk. Residents would be able to reach Wall Street via subway, taxi, or bicycle all under 20 minutes. Besides factors of convenience, the site offers unparalleled views of Lower Manhattan and the Brooklyn Bridge. The newly developed park provides opportunities for exercise and recreation, while adjacent Brooklyn neighborhoods offer a distinctly bohemian vibe. Again, while the greater city of New York is ideal for its employment opportunities, this particular site was selected based on the unique lifestyle it affords, highlighting the distinctive motivations of the target user group.

The built environment surrounding the site is now largely midrise commercial / residential, but the industrial past of the neighborhood is still readily apparent. The tract of land was just recently cleared, previously holding a collection of shipping warehouses and factory works from 150 odd years or so of active service as a shipping terminal. As industry has moved out, many of the former piers are either being demolished or transformed into public green spaces. Along with its location along the East River, these developments give the site a remarkably open feel, a unique attribute in typically congested New York City. This openness also leads to a great deal of high profile exposure, with views into the site.

FIGURE 5-4: DEM elevation model showing areas of fill in red. The areas of high green contrast indicate the approximate natural boundaries of the East River. Notice how the western edge of Long Island has been artificially straightened and terraced to allow for construction of Interstate-285.
FIGURE 5-7: Street Frontages
EASTERN FRONTAGE OF FURMAN STREET

WESTERN FRONTAGE OF FURMAN STREET (PRIOR TO REDEVELOPMENT)
FIGURE 5-8: Critical Viewsheds
coming in great volume from the Brooklyn Bridge, I-285, and the office towers of Lower Manhattan. The project responds to this extensive audience through a constant performance of reconfigurations and change as new residential modules are moved in and out of the framework.

In thinking about the project at a system level, the individual residential modules, designed to be deployed in a variety of distinct climates and orientations, are poorly equipped to respond to local environmental conditions. Therefore, it falls on the network of community frameworks to combat the particular forces of nature prevalent on their unique sites. Combining urban density with a waterfront location, one of the major challenges of the Brooklyn location will be mitigating the various microclimates brought on by complex topography. Wind loads in particular can be expected to be highly variable due to the vast expanse of open water represented by the East River and the wind channeling behavior of urban canyons. Fortunately, climate data recorded from LaGuardia Airport, which is similarly situated along the east bank of the river, can provide a relatively accurate understanding of the particular forces at work.

With a humid continental climate, the site will be hard pressed to achieve thermal comfort for most of the year without the use of mechanical heating and cooling systems. Even so, a number of passive strategies can be employed to help increase the energy efficiency of the project. Among the most promising are internal heat gain and natural ventilation for heating and cooling the building, respectively. Solar and temperature data suggests a high number of days with desirable heat gain. With a natural southwest exposure, the site is uniquely positioned to take advantage of this energy through appropriate glazing and shading combinations. Also of interest is the seasonal variance in wind patterns affecting the site; strong, cold winter winds blow in across the river from the northwest, perhaps suggesting the need for berms or plant materials to lessen the impact on heating the building. Summer winds are more variable, with a cooler, humid, northeastern wind being the most common. This force could be channeled for natural ventilation during the summer months. One area for concern, however, is the prevalence of hot western winds, a product of Lower Manhattan’s sizeable “heat island effect.”

**THE REMOTE / INDUSTRIAL PROTOTYPE**

Outside of the cities, potential deployment sites for migrant professionals are best located near vast natural resource deposits or the remote operations of the world’s largest multinational firms. These
locations might offer temporary employment opportunities for free-lance engineers, technicians, and laborers or serve as seasonal homes for employees of a particular corporation. While vested with economic activity, these sites often lack the lifestyle amenities or even basic services that would make them acceptable full-time homes for migrant professionals. An apt example of this kind of location is the Bingham Canyon Copper Mine located outside of Salt Lake City, Utah. The facility, billing itself as the “largest open pit copper mine in the world,” is operated by the Rio Tinto Group, a UK-based mining and exploration firm. It currently supports a population of around 800 workers in the nearby town of Copperton, although some 15,000 people worked and lived inside the mine during 1920s before increased mechanization of labor. In order to sustain operations, large mines like Bingham Canyon require the services of a wide range of professionals, including engineers, geologists, and miners.

While located far from any major body of water, the site is served by excellent ground transportation. The same rail lines used to export metals from the mine could also be used to deliver residential modules to the facility. A highway connects Copperton to the Salt Lake City metropolitan area a little over 20 miles away. Much like the urban prototype, this site is ripe with local environmental issues. The arid climate of Utah can turn cold and windy during the winter, especially at higher altitudes. Proximity to an active mining operation means concerns over noise, dust, and surface contamination must be mitigated to meet acceptable residential standards. From a design point of view, the untapped potential of Bingham Canyon comes in the form of its otherworldly landscape. The dramatic contrast between the dusty yellow void of the pit and the surrounding pristine mountains presents an iconic view shed that ties would-be residents to the radical nature of their work.
BUILDING A NETWORK OF SITES

VIEWS TO OQUIRRH MOUNTAINS

BINGHAM CANYON COPPER MINE

VIEWS TO OQUIRRH MOUNTAINS

SALT LAKE CITY (22 MILES)
CHAPTER 6:
THE RESIDENTIAL MODULE

In the chapter on migrant professionals, the characteristic qualities and motivations of this target demographic were analyzed at length. The residential designs depicted on the following pages are the direct product of this research, creating easily transportable living solutions that cater to the specific needs of the migrant professionals. Before architectural work began, a set of overarching design directives were developed to inform the direction of the project:

1. Make relocation a simple and fluid experience.
2. Recognize an evolution of the home.
3. Meet or exceed spatial and performance criteria of traditional building types.
4. Encourage development of meaningful social interactions through concentration.
5. Leverage inherent strengths of unit construction and morphology.
6. Plan for implementation using existing infrastructure and realistic economic models.
7. Consider mobile architecture at multiple component scales based on duration of stay.
8. Foster the legitimacy of the migrant professional lifestyle.

The final directive might be thought of as the essential goal of this thesis: to design a system of architectural spaces that enable creative class mobility while making professional itinerancy a viable and attractive way of life.
One of the primary concerns in the development of this mobile architectural system was to provide for the basic human need of place attachment despite frequent cycles of relocation. The concept of easily transportable residential modules thus becomes a vehicle for the development of material familiarity. Rather than suffering the alienation of endless nights living out of a suitcase in generic extended-stay hotels, the mobile residence allows migrant professionals to carry with them those critical personal objects that help to begin to formulate both a unique public identity and meaningful life narrative.

Of course, the amount of material that can practically be transported is largely dependent on the duration of each appointment. For trips lasting a week or so, a laptop or cellphone along with the personal media (photos, video, and music) it contains might serve the purpose of providing a link to an individual’s persistent personal identity. For longer stays, additional items like photographs, a favorite book, or even...
a stuffed animal increasingly contribute to mental and material comfort. Continuing down this path, we eventual reach the scale of an entire mobile room, where all the integral contents have been meaningfully chosen and curated by the user. In this light, a series of nesting modules was developed to provide for the simple packing, transportation, and storage of personal items, ultimately culminating in a holistic mobile residence.

**CRITICAL DIMENSIONS**

At each of these scales, certain synergies must be achieved to best take advantage of existing means of transportation. The smallest scale described in this project, a small piece of carry-on luggage, is based on the dimensions of a typical overhead storage compartment. Groups of these cases can be assembled at the destination either to form stand-alone pieces of furniture in traditional buildings or integrated into specialized pieces of millwork inside a mobile residence.

**FIGURE 6-3: One-month module**

- **Mode of transit:** stationary furniture
- **Controlling dimension:** racks for luggage modules

For longer engagements, specialized pieces of furniture or millwork allow individual pieces of luggage to be assembled into a convenient storage system in either a mobile residential module or traditional apartment. In addition to clothing, tools, and business items, the user also begins to travel with critical personal, entertainment, and lifestyle objects.
The mobile residence itself is based on the construction and dimensions of a refrigerated 40' “high-cube” intermodal container. Again, this module has been perfected over decades of service with the shipping industry, and can be easily handled and transported by wide range of equipment and vehicles. These containers are also incredibly sturdy, and can be stacked seven units high on the deck of a ship or on a storage lot. The ability of the residential modules to integrate seamlessly with these containers is critical to economic and logistic realities that make the project feasible. The inherent drawback to this system is the lack of architectural flexibility afforded by a 8’ x 40’ floor plan. However, by ganging units vertically or horizontally and incorporating slide-out functions, spaces can be created that reasonably approximate traditional living quarters in a truly mobile package.
FIGURE 6-5: Technical Section Through Mobile Residence
40’ HIGH-CUBE ISO CONTAINER

- Length: 40’-0” (12.192 m)
- Width: 8’-0” (2.438 m)
- Height: 9’-6” (2.896 m)
- Gross Area: 320 SF (29.7 m²)

SCHEME 1

- Length: 40’-0” (12.192 m)
- Width: 8’-0” (2.438 m)
- Height: 9’-6” (2.896 m)
- Gross Area: 320 SF (29.7 m²)
**SCHEME 2**

- **Length:** 40'-0" (12.192 m)
- **Width:** 7'-0" (2.134 m)
- **Height:** 8'-6" (2.591 m)
- **Gross Area:** 280 SF (26.0 m²)

**SCHEME 3**

- **Length:** 40'-0" (12.192 m)
- **Width:** 14'-0" (4.267 m)
- **Height:** 9'-6" (2.896 m)
- **Gross Area:** 560 SF (26.0 m²)
In an effort to both maximize the functionality of the unit and offer a measure of user customization, the mobile residence is equipped with a series of custom millwork room dividers, which slide along a set of rails to produce variations in room sizes. Each configuration might correspond to the current use of the unit. For instance, while working from home during the day, the bed can be folded away and a divider with a desk positioned to create a small study. While entertaining, this bedroom/office can be collapsed completely to form one large, open space.

The inspiration for this system comes from real-world solutions developed by residents of crowded urban areas. In cities like New York and Hong Kong, the past few years have seen a growing number of custom furniture pieces and intricate built-ins that transform a limited plan into all the functional spaces of a traditional home.
FIGURE 7-1: Initial Concept for the Great Hall of an Urban Caravanserai
CHAPTER 7: COMMUNITY FRAMEWORKS

The final component of this system for mobile architecture comes in the form of a physical framework to house an ever-changing assortment of residential modules and their users. Beyond functional concerns involving docking space, connections to utilities, and the mechanics of loading units, these buildings must also provide social environs critical to enriching the lifestyle of the migrant professional. From the list of activities generated in Chapter 3, a set of programmatic spaces has been developed with the expressed purpose of encouraging meaningful resident interaction at a variety of scales. While many of these elements have parallels in traditional housing models, subtle adjustments have been made to bring about extroversion of space. For instance, as opposed to a fitness room filled with treadmills and individual screens, playing fields for the exercise of team sports like volleyball or futsal have been provided. Again, these public spaces are meant to compliment the private domains of the residential units. By concentrating a diverse, yet like-minded, group of individuals within a set of spaces tailor-made for interaction, rich, if fleeting, societies with low barriers to entry enjoy the greatest chance of success.

FUNCTIONAL CONCERNS

The community framework, which we might also call a modern-day caravanserai, plays a number of key roles in the project’s overall system of mobile architecture. Each unit must be provided with a docking location and a practical means of installation dependent on context. In urban developments, units can be lifted into place off a truck or barge using a simple crawler system powered by an electric winch. In other scenarios, residential modules might be driven directly over their plots and positioned using integral skids or rollers. Electricity, water, and sewage connections are provided along the short side of each module.
FIGURE 7-2: Section Perspective Showing Loading of Units
and interface with on-board tanks and appliances housed on either end of the unit. The framework also provides vertical and horizontal circulation for movement between units and community amenities. An additional function of the caravanserai is to respond to the unique environmental context of each site. This can mean anything from optimizing solar orientation and shading devices to protecting units from hazards like floods or landslides.

Beyond slots for residential modules, the frameworks also mix in traditional static apartment units of various sizes. These can serve as short-term residences when the cost or ordeal of shipping an entire
FIGURE 7-4: Program Generation
FIGURE 7-5: Functional Adjacencies

*ADJACENCIES*
A personal unit cannot be justified. They may also serve as more permanent homes for individuals that lack the resources or motivation to purchase their own module but nevertheless participate in the migrant lifestyle. Including permanent apartment units also plays a vital role in the economics of the development, increasing the potential efficiency of floor plans while providing a more stable source of revenue.

**URBAN VS REMOTE CARAVANSEAI**

The design presented here represents a prototypical urban caravanserai on a large site with plenty...
of room for additional amenities. Due to the varied nature of the potential sites, each installation would need to be packaged with an appropriate set of community spaces and other design criteria. Depending on factors like topography, zoning, and real estate values, developments might be larger or smaller in scale and include additional elements such as parking. Despite these kinds of discrepancies, the overriding design directives and quality of spaces would remain constant throughout the entire system, merely scaled to fit the particular installation.

The most notable contrast would occur between urban and remote sites. While city projects would be developed according to local real estate conditions and market supported, remote caravanserai are more likely to be tied to a particular economic activity and would be designed in accordance with this unique set of needs. For instance, Rio Tinto Group might build an installation at Bingham Canyon specifically to house a team of traveling geotechnical engineers. The framework would thus be sized in accordance with the exact number of potential residents. Included amenities might depend on if the facility is only intended to be used during a particular season or if it house corporate employees or outside contractors. Mobile residences along with similarly modified community or office modules could also be combined to form moveable camps onboard ships or railways. These might carry engineers and laborers along the path of large-scale projects like highway or pipeline construction. Again, this unique set of circumstances would require subsequent modification of the original caravanserai archetype.
### FIGURE 7-8: Data Sheets

<table>
<thead>
<tr>
<th>Space</th>
<th>Quantity</th>
<th>Area (SF)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>URBAN PROTOTYPE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mobile Residence Bays:</td>
<td></td>
<td>22,000</td>
<td>Non-enclosed area. Module units are raised into place and &quot;dock&quot; with building infrastructure.</td>
</tr>
<tr>
<td>40' Module</td>
<td>40</td>
<td>550</td>
<td></td>
</tr>
<tr>
<td>Standard Apartments:</td>
<td></td>
<td>38,800</td>
<td>Mid-market to upscale apartment units. Special alcoves built to accept portable travel trunks.</td>
</tr>
<tr>
<td>Studio</td>
<td>8</td>
<td>600</td>
<td>Large communal table designed to offer a variety of seating</td>
</tr>
<tr>
<td>Convertible</td>
<td>8</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td>1-Bedroom</td>
<td>20</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td>2-Bedroom</td>
<td>10</td>
<td>1,200</td>
<td></td>
</tr>
<tr>
<td>Resident Amenities:</td>
<td></td>
<td>12,400</td>
<td></td>
</tr>
<tr>
<td>Pantry</td>
<td>3</td>
<td>100</td>
<td>For group preparation of meals. Open to dining areas</td>
</tr>
<tr>
<td>Communal dining room</td>
<td>3</td>
<td>500</td>
<td>Large communal table designed to offer a variety of seating</td>
</tr>
<tr>
<td>Business Center</td>
<td>1</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Fitness room</td>
<td>1</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>Playing courts</td>
<td>1</td>
<td>5,000</td>
<td>Convertible squash, basketball, and futsol surfaces</td>
</tr>
<tr>
<td>Pool</td>
<td>1</td>
<td>900</td>
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</tr>
<tr>
<td>Locker rooms</td>
<td>1</td>
<td>500</td>
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</tr>
<tr>
<td>Game room</td>
<td>1</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>Media lounge</td>
<td>1</td>
<td>400</td>
<td>A mix of business and pleasure, with easy access for sharing</td>
</tr>
<tr>
<td>Bar</td>
<td>1</td>
<td>400</td>
<td>The center of attention, seen from most of the ground floor</td>
</tr>
<tr>
<td>&quot;Chat rooms&quot;</td>
<td>12</td>
<td>50</td>
<td>Semi-private seating groups for &quot;break out&quot; conversations</td>
</tr>
<tr>
<td>Multi-faith area</td>
<td>1</td>
<td>400</td>
<td>A calm, meditative space</td>
</tr>
<tr>
<td>Parking:</td>
<td></td>
<td>80,000</td>
<td></td>
</tr>
<tr>
<td>Car share spaces</td>
<td>50</td>
<td>400</td>
<td>&quot;ZIP Car&quot; or similar services</td>
</tr>
<tr>
<td>Spaces</td>
<td>150</td>
<td>400</td>
<td>Spaces as required by local building code</td>
</tr>
<tr>
<td>Retail:</td>
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<td>5,500</td>
<td></td>
</tr>
<tr>
<td>Café</td>
<td>1</td>
<td>2,500</td>
<td>Connected to communal dining room</td>
</tr>
<tr>
<td>Additional bays</td>
<td>6</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>Other:</td>
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<td>47,610</td>
<td></td>
</tr>
<tr>
<td>Circulation (10%)</td>
<td>1</td>
<td>31,740</td>
<td></td>
</tr>
<tr>
<td>Mechanical (20%)</td>
<td>1</td>
<td>15,870</td>
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**Building Summary:**

- Total Area: 206,310
- Residential Units: 86
- Parking Spaces: 200
### REMOTE PROTOTYPE

<table>
<thead>
<tr>
<th>Space</th>
<th>Quantity</th>
<th>Area (SF)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Residence Bays:</td>
<td></td>
<td>5,500</td>
<td>Non-enclosed area. Mobile units slide into place from flatbed truck and &quot;dock&quot; with building infrastructure.</td>
</tr>
<tr>
<td>40' Module</td>
<td>10</td>
<td>550</td>
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<tr>
<td>Standard Apartments:</td>
<td></td>
<td>4,800</td>
<td>Mid-market to upscale apartment units. Special alcoves built to accept portable travel trunks.</td>
</tr>
<tr>
<td>1-Bedroom</td>
<td>6</td>
<td>800</td>
<td></td>
</tr>
<tr>
<td>Resident Amenities:</td>
<td></td>
<td>2,325</td>
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</tr>
<tr>
<td>Pantry</td>
<td>1</td>
<td>100</td>
<td>For group preparation of meals. Open to dining areas</td>
</tr>
<tr>
<td>Communal dining room</td>
<td>1</td>
<td>250</td>
<td>Large communal table designed to offer a variety of seating</td>
</tr>
<tr>
<td>Meeting / business center</td>
<td>1</td>
<td>250</td>
<td>Small office with uplink to corporate network</td>
</tr>
<tr>
<td>Fitness room</td>
<td>1</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td>Media lounge</td>
<td>1</td>
<td>225</td>
<td>A mix of business and pleasure, with easy access for sharing</td>
</tr>
<tr>
<td>Other:</td>
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<td>3,788</td>
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<tr>
<td>Circulation (10%)</td>
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<td>2,525</td>
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<tr>
<td>Mechanical (20%)</td>
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<td>1,263</td>
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**Building Summary:**

<p>| | | | |</p>
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<thead>
<tr>
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<tbody>
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<td>Residential Units:</td>
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### MOBILE PROTOTYPE

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<tr>
<td>Mobile Residence Bays:</td>
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<td>5,500</td>
<td>Units stacked interchangeably with ISO containers on train or ship</td>
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<tr>
<td>40' Module</td>
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<td>550</td>
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<tr>
<td>Resident Amenities:</td>
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<td>Pantry</td>
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<td>100</td>
<td>For group preparation of meals. Open to dining areas</td>
</tr>
<tr>
<td>Communal dining room</td>
<td>1</td>
<td>220</td>
<td>Large communal table designed to offer a variety of seating</td>
</tr>
<tr>
<td>Meeting / business center</td>
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<td>320</td>
<td>Small office with uplink to corporate network</td>
</tr>
<tr>
<td>Fitness room</td>
<td>1</td>
<td>320</td>
<td></td>
</tr>
<tr>
<td>Media lounge</td>
<td>1</td>
<td>320</td>
<td>A mix of business and pleasure, with easy access for sharing</td>
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**Building Summary:**

<table>
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<tr>
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</tr>
<tr>
<td>Residential Units:</td>
<td></td>
<td>10</td>
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</table>
BIBLIOGRAPHY


Per Gustafson, “Place Attachment and Mobility,” chap. 2 in Multiple dwelling and tourism: negotiating place, home, and identity, ed. Norman McIntyre, Daniel Williams, and Kevin McHugh (Cambridge, MA: CABI, 2006).


