Available online at www.ijapas.org

IJAPAS International Journal of Applied Arts Studies

International Journal of Applied Arts Studies

IJAPAS 5(1) (2020) 77–90

Place as an Output of Codes: Importance of Being Place-Character Base of Form-Based Codes

Amirhossein Fahimi[a], Hamid Majedi[b]*, Hossein Zabihi[c]

[a]*Ph.D., Department of Urban Planning, Science and Research Branch, Islamic Azad University, Tehran, Iran*
[b]*Professor, Department of Urban Planning, Science and Research Branch, Islamic Azad University, Tehran, Iran*
[c]*Associate Professor, Department of Urban Planning, Science and Research Branch, Islamic Azad University, Tehran, Iran*

Received 09 May 2020; revised 16 June 2020; accepted 06 July 2020

Abstract

The primary question is the product of form-based codes different in terms place-character? A secondary question that follows is if this lack of differentiation based on place-character is a result of the code itself or of issues peripheral to the code. Each place represent a customized interaction between a 'code' (conceptual framework) and a 'place' (contextual framework) which could be described as a 'narrative'. Individually dissecting these narratives along specific cross-sections, such as location, chronology, typology, scale, and fit, could reveal patterns of similarities and differences. Research shows that each of these cross-sections impact specific aspects of place-character and place-making. Qualitative correlations across codes and cross-sections, could explain certain patterns observed in the codes along specific cross-sections. It is concluded that the process of place-making could be lost in the melee. While form-based codes appear to be extremely flexible, this complex condition could prove burdensome for any code or regulation without compromising its place-making potential. Factors in shaping the output of form-based codes are place, process and the policy framework. In establishing responsiveness to context, the negotiation is between traditions and aspirations, which could be divergent concepts. Yet there is always a paradigm that successfully mediates this condition. Form-based codes present a simple response to a complex set of urban issues, it is important to maintain place-specific context around the application of this approach. Another consideration in this mediation could be eliminating zoning but it is never possible to replace a system of rules with the absence of rules.

Keywords: Form-Based Code; Place-Making; Place-Character Features; Coding

* Corresponding author. Tel: +98-9121114998.
E-mail address: majedi_h@yahoo.com

1. Introduction

Zoning can be defined as dividing the urban space to some blocks and regulating the related rules for each of them. Zoning is considered a planning instrument used for controlling land use, its dimensions, type and the location of the structure (Hodge, 2003). Its key concepts are land use, density, volume, division features and other rules (Leung, 2003). The zoning regulation approach was further developed by the German engineers Reinhard Baumeister and Franz Adicks at a meeting of the German Architectural and Engineering Societies in 1874 (Ben-Joseph, 2005). The first of these divisions was done by local rules in Germany and Holland at the end of 19th century to separate heavy industries from historical and residential sections. The first works on density and limiting the height of buildings in America for providing the light, air circulation and controlling the traffic volume was enacted at the beginning of the 20th century (Burdette, 2004). In Baumeister's book, Town expansions considered with respect to technology, Building code, and Economy (1876), the regulation approach was called as zoning and the origin was traced by the regulations in the 19th century France. He created two zones for the city and the suburb and then specified building bulk regulations for building height, setbacks, and the plot area, which influenced German cities in 1890s. Later the German zoning approach influenced in the 1909 Town Planning Act and the Garden City movement in Britain (Baumeister, 1874).

Zoning dates back to industrial revolution and its effects on controlling and targeting urban development. Among the effects was the rush of industrialized workshops to old urban textures and changed the valuable social body to an inefficient and insecure mass (Tayyebi, 2006). Modernist city design was begun to create a collective society where everyone would have housing for the minimum standards for sanitation, light, and air (Barnett, 2011). Most of the old urban areas were reshaped to eliminate slums and factories from communities. During this time, the codes were adopted to cope with the early urbanization and zoning was designed to protect existing neighborhood from inappropriate developments in the early 20th century. Zoning was considered as a primitive system that could keep residences away from the noisy and dirty factories and could protect neighborhoods from tall buildings.

Various theories of urban planning and design have influenced zoning approaches. Most zoning regulations changed built environment and the undesirable impact of the zoning regulations were immediately visible (Talen, 2012). Among numerous zoning types, the representative and distinctive zoning approaches are Euclidean, Performance, Incentive, and Form-based (Barnett, 2011). FBC places higher priority in controlling urban form such as the typology of block, street, open space, and building envelope (Ben-Joseph, 2005; Parolek, et al, 2008).

FBC is a zoning regulation approach that aims to achieve a specific urban form rather than building functions and bulks. U.S. Environmental Protection Agency (EPA) defined form-based codes as a type of zoning codes that outlines specific urban form rather than zoning. EPA differentiated FBC with design guidelines and design standards in view of significant enforceability. Talen (2009) explained that FBC is a linage of zoning codes rather than design guidelines or standards. She defined the attributes of FBC as significant enforceability, the prescriptive regulations, and the production of urban form of urbanism.

1.1. Literature Review

The criticism on function zoning among which the most important cases are spreading and reduction of human life environment ignited new approaches which prepared the conditions for main changes in urban development and improvement of the status quo. The awareness of the

results of modernism on city space and removing the four directions made the postmodern movement to suggest a part to part design of urban texture and employing the past forms, more taxes and reinvestments through new uses (Ashrafi, 2009).

1.2. Euclidean Zoning

Euclidean zoning was approved in 1926 in Ohio State of America in Euclid town through verification of uses separation. After that, it was used in many societies as a regulating tool for urban activities (Aliakbari and Qahremani, 2012), spurred by the need to separate incompatible building uses to prevent the spreading of fires and to provide light and air in buildings. Eventually, the separation of incompatible uses led to segregation of uses and the creation of separate residential, commercial, and industrial "zones" within the city. Residential uses were further separated into multi-family and single-family zones, motivated by the perception that multi-family buildings were both substandard and housing for "undesirables". In 1926 this stereotype was reinforced through the court case of Village of Euclid vs. Ambler Realty Company that validated the constitutionality of comprehensive zoning, which is now called “Euclidean Zoning” (Burdette, 2004).

1.3. Conventional Zoning Influence

Unfortunately, conventional zoning, as enabled by the Standard Zoning Enabling Act, does not address the needs of physical design beyond rudimentary dimensional requirements, which weakens the poor connection between land-use regulation systems and physical design (Ben-Joseph, 2005). Zoning, basically, segregates uses (use-based zones with prohibited uses), controls land development intensity (minimum lot sizes, number of units per acre, floor-area ratios, and parking requirements, and manages building bulk (building setbacks, lot coverage, and building height). Typically, these standards are applied uniformly for a particular zone with no consideration for the location of a parcel within a zone. Over time, conventional zoning has become scapegoat for sprawl (low density, single use developments with poor accessibility) as well as social and economic exclusionary land development practices. (Ben-Joseph, 2005) Performance zoning regulates land developments for environmental protection by using performance standards on traffic flow, density, noise, air, light, etc. It is also called as Effective-based zoning. In this zoning, grading systems often administrate land development. Under the performance compliance, any building forms can be built, which allows a level of flexibility in design and administration (Ben-Joseph, 2005). However, it has not been widely adopted in the United States compared to Euclidean zoning, while it is used in hybrid approach by combing it with Euclidean zoning (Barnett, 2011).

1.4. Question of Research

The primary question of this research is the output of form-based codes differentiable in terms of place-character? This question requires defining the “output of form-based codes”. The output of form-based codes, under the circumstances, is the place as illustrated by the codes and related documents. The essential premise of this research is as follows: While form-based codes could certainly result in quality urban places, the essential character of these places, the 'spirit of place', could be singular and indistinguishable from place to place. In order to answer this question, certain terms of reference, such as 'place' and 'placelessness', require clarification. A 'place' is a 'space' that has a distinct character, whereas space denotes the three dimensional organization of the elements which make up place, 'character' denotes the general atmosphere which is the most comprehensive

property of any place. In the true sense of the world, spaces where life occurs are places (Schulz, 1980). In that sense, 'place-character' refers to certain qualities based on physical location, and other perceptual qualities based on life in spaces. 'Placelessness' refers not only to the lack of place-character but also to a lack of differentiation between places based on locational distinction. Therefore, it follows that 'place-making' is not limited to the physical design of spaces but includes all the events and activities that occur in the space. With this concept comes the notion of urban design as the design and management of the 'public realm'- defined as the public face of buildings, the spaces between frontages, the activities taking place in and between these spaces, and the managing of these activities, all of which are affected by the uses of the buildings themselves, i.e. the 'private realm' (Carmona et al., 2010). A secondary question that follows is if this lack of differentiation based on place-character is a result of the code itself or of issues peripheral to the code, i.e. the place itself, the people involved, or the policy framework.

2. Research Method

Places that the codes represent are the output of form-based codes, and hold clues about the intended 'sprit of place' (Schulz, 1980). Each place represents a customized interaction between a 'code' (conceptual framework) and a 'place' (contextual framework) which could be described as a 'narrative'. Individually dissecting these narratives along specific cross-sections, such as geography/location, chronology, typology, scale/structure, and fit, could reveal patterns of similarities and differences. Each of these cross-sections impact specific aspects of place-character and place-making. In addition, qualitative correlations across codes and cross-sections, could explain certain patterns observed in the codes along specific cross-sections. This process of layering information and inferences from codes across different cross-sections illustrates the complexity of place-making and demonstrates the flexibility of form-based codes.

2.1. Conceptual Framework: Codes, Generator of Places

a) The Definition and Characteristics of Form-Based Codes

Simultaneously as there was an attempt to streamline conventional zoning, the charter of the new Urbanism collaborated and worked as individual practitioners on a new zoning approach. Some of the first attempts at this new approach were spearheaded by architecture and planning firm, Duany Plater-Zyberk (DPZ) in 1981 through the development of code for seaside, Florida. Conditions were favorable (no zoning ordinance) making it possible to plan freely with the absence of regulations, and design a mixed-use development with densities greater than conventional suburban development. The plan for seaside regulated development with a catalog of building types that were tied to specific lots on the plan, which could be represented graphically. Although many have criticized seaside's architectural standards as overly stringent and lacking diverse character, seaside inspired more cities to adopt form-based codes and has had a profound impact on urban planning and new Urbanism (Madden and Spikowski, 2006: 176).

b) Design-Based Planning

This approach tries to make a balance between urban planning systems and urban design and criticizes the separate linear model between these two factors. Design-based planning which consider the cities as a whole, doesn’t want to provide a response to appropriate traditional urban development plans and qualitative issue in cities (Abbaszadegan and Razavi, 2006: 15). As far as the traditional zoning system based on construction rights in pieces has a similar treatment with

land pieces and similar use classification and ignore to consider the differences in opportunities or limitations of each piece, it can't act successfully (Pamir, 2010).

- The principles of design-based planning include:
- Grounding on functional goals
- Flexibility of rules and regulations
- Understanding the importance of general areas and their relationship
- Noticing to density, functional mixing and architecture
- The importance of quality and form (Rafieian and Razavi, 2010: 271).

c) The Smart-Code

To be implemented in urban environments, smart codes need an integrated system of regional weighting from dispersed country areas to condensed urban centers called Transect Map (Tayyebi, 2006). The next formal iteration of a form-based code following seaside was the Smart-Code, a model form-based code written by DPZ. The code is a basic recipe for walkable, mixed-use neighborhoods and downtowns, of which character, density, and use are finely tailored or calibrated by the community.

The Smart-Code is based on an explicit, normative theory, known as the Transect that links human and natural environments in one continuous systems and promotes an urban pattern that is sustainable, coherent in design, and composed of an array of livable, humane environments. More simply, the transect works by allocating elements that make up the human habitat to appropriate geographic locations (Duany and Talen, 2001).

d) Form-Based Codes

Form-based zoning came into being at a time when the disenchantment with conventional zoning practices was high and the place-making tradition of urban design was gaining recognition. These codes originated with the new Urbanism movement, which posited specific place-making ideas about the design of neighborhoods, such as mixed uses, walkability, legibility, hierarchy in building and street types, and environmental sensitivity, as a cure for issues related to sprawl. The proponents of new Urbanism claim that true urbanism is diverse, compact, pedestrian and celebratory of the public realm. Conventional zoning gives us only a disaggregated version of urbanism, commonly known as sprawl, which doesn't constitute a viable human habitat (Duany and Talen, 2001).

Talen describes the similarities and differences between conventional zoning and form-base codes. In terms of the public realm, safety, aesthetics, order, and uniformity, both conventional zoning and form-based codes have pursued the ideal configuration of urban form, but form-based codes have many more regulations and standards than conventional zoning that directly affect urban form and the physical environment (Talen, 2009: 156-157).

Table 1 Comparison between Conventional zoning and Form-Based Codes

Conventional Zoning	Form-Based Codes
Often applied universally throughout a jurisdiction	Created for a specific planning area
Reactive, focusing on preventing bad things from happening	Purposeful, pro-active, and focused on implementation of community planning goals and objectives
Focus on land use	Connects urban form and land use
Development standards inadvertently or intentionally	Primary focus is on achieving compact, mixed-use,

discourage compact, mixed-use, and pedestrian-friendly development	and pedestrian-friendly development
Text-based presentation	Liberal use of graphics to define key concepts and requirements

Source: Author, 2014 (based on Talen, 2012)

e) Definition of Form-Based Code

The term form-based code was first used by Carol Wyant, former director of the Form-Based Code Institute (FBCI), as the proposed title of a 2001 presentation to the Chicago Zoning Reform Board (CZRB) by a New Urbanist team of architects. As its name suggests, form-based coding seeks to regulate the form of the built environment. The new approach builds on the idea that physical form is a community's most intrinsic and enduring characteristic. It seeks to codify that form in a straightforward way so that planners, citizens, developers, and other stakeholders can move easily from a shared physical vision of a place to its built reality (Katz, 2004).

f) Importance of Form-Based Codes

Design is more important than use' embodies the underlying philosophy behind the Form-Based Code. Form-Based Codes represent multi-disciplinary codes that connect the design of circulation and public space networks to the design of building form. A community's physical form -- namely, its buildings, streets, and public spaces-- signifies it's most defining characteristic as they shape the public realm. Asserting more control over a community's form could lead to improvements in the way the community functions. This increased control includes the fostering of pedestrian friendly mixed-use developments, and a range of housing types (Burdette, 2004). Katz listed eight advantages of form-based code. They: (1) state what is possible and are prescriptive; (2) encourage public participation; (3) encourage independent development; (4) reflect a diversity of architecture; (5) codify neighborhoods DNA; (6) are easier to understand for non-professionals; (7) obviate the need for design guidelines and (8) may be more enforceable than design guidelines (Cullingworth et al., 2013).

Form-based codes are mix of elements that require place-based definition and other elements that are generalized across different places. Architectural standards, more so than regulating plans or urban standards, are place-neutral, i.e. the issue of aesthetics is more subjective and open to interpretation than classification of street types or building frontage types. Although, it is important to recognize each of these representations of place-character through standards relative to the place-character inherent in the existing context. Therefore, in a place defined by its architectural style, the dominance of architectural standards is unavoidable. The product of form-based codes represents a specific interaction between a conceptual framework represented by the code and a contextual framework represented by the place. The following chapter follows the 'terrain' of a representative sample of form-based codes in order to understand this interaction based on specific cross-sections through the codes.

2.2. Contextual Framework: Place as a Product of Codes

- Two Protocols

The two protocols (surveys and case studies) are significant elements of this research. Form-based codes have two protocols; one as planning instrument and other as regulatory instrument. The representation is a collective vision for the place and that the code is insurance for faithful implementation. As the scale of the code gets larger from neighborhood scale to city or regional scale, the abstraction in representation goes higher as well.

2.3. Interaction Between Codes and Place

a) Geography

Geography refers to the physical location of the product in terms of state boundaries. The codes differ in structure, scale, typology, and fit within the existing policy framework. While this is illustrative of the flexibility of form-based codes to adjust to different contexts, the lack of similarity due to geographical affinity, especially in addressing place-specific issues, could be of concern. A coordinated approach could be valuable between cities, counties and metropolitan regions, especially on issues like transit oriented development or smart growth.

Another issue related to geography is stylistic. Considering the variety in regions represented in the case studies, the overall preference for a neo-traditional or revivalist aesthetic could be a concern. While some codes referenced specific regional styles, including historical and vernacular stylistic references.

b) Chronology

Chronology refers to the year that the code was adopted or legislated by the city, county or municipality. There is certainly evidence of clarification and correction over time, which is expected. As more form-based codes are written, there is a larger knowledge base and expertise in the field. Limited experience with implementation is a consequence of this relatively short time frame, but this issue will recede as more codes begin implementation. However, it is possible that examples of failed implementation could discourage cities and counties from adopting form-based codes. It is important to note that failed implementation is not necessarily a consequence of shortcoming in the code but a sum total of the social, economic, and political context of the application (Gosling and Gosling, 2003).

c) Scale and Structure

Scale and structure are essentially correlated cross-sections. Scale refers mostly to the physical scope of the project (neighborhood/community, district, city, or regional) but at times could reference a perceptual or identifiable scale, especially in the description of community scale plans. Structure (form-based, neighborhood/corridor/district) is a translation of scale into the organization of the code, which is almost always adjusted along a continuum based on context of the codes. Intent is an interpretive cross-section, which classifies the place-making intention (shape place or preserve place) of the code. Consequently, scale determines the structure of form-based codes. But the basic unit of design continues to be community or neighborhood, which substantially influences sense of place by aligning sense of community and sense of place. The community/neighborhood scale plans are structured as basic form based codes with regulating plan(s), building envelope standards, streetscape/thoroughfare standards, and architectural standards, allowing for minor diversions to accommodate existing conditions.

d) Typology

Typology refers to the dominant character of the urban intervention (transit oriented development, traditional neighborhood development, urban revitalization, and regional plan) and is a discrete value. Most of the case studies are easily classified as urban typologies, i.e. the motivation for undertaking a code project and the representation of place in terms of character is recognizable as a specific type of urban intervention. It is important to note that typologies are not scalar values, although certain scalar associations may be evident in the case studies. Each of urban intervention typologies is associated with specific place characteristics, which in conjunction with other contextual constraints, such as scale and structure - as a consequence of scale- constitute 'sense of place'. But it is important to note that 'sense of place' is more than a physical construct.

e) Fit

Fit is the placement of the form-based code within the legislative framework of the city, county or municipality. Fit is usually a direct consequence of scale. Form-based zoning, as an instrument, displays the required flexibility to absorb this multiplicity of characters. In order to capture both a typological intent and sense of place, the proposed 'vision' requires careful calibration and meticulous translation into intent. More importantly, form is only one aspect of place-making. The significance of the physicality of places is often overstated: (patterns of) activities and (layers of) meanings may be as, or more, important in creating sense of place (Carmona et al, 2010). Places are made vital by the people that inhabit these places, by the processes that constantly change places and allow people to participate in the making of the physical environment, and by the policies that create the framework for this civic act. Form-based codes are a single cog in the wheel, but an essential ingredient for place-making. These codes do not exist in a contextual vacuum and are shaped in many ways by the vagaries of place, the quirks of the process, the actions of people (the community, public officials and consultants) and the limitations of the policy framework.

2.4. Surrounding of Form-Based Codes

a) Form

In urban planning literature, the word "form" is a synonym of city physique. Queen Lynch defined the form as "physical and visible manifestation". Some of the scholars considered the physique of city as synonymous with artificial and inanimate elements. The form of the city includes the special distribution of individuals and activities and spatial and physical movement of individuals, goods, and information in space, those physical features making considerable change in the space, periodical changes and the periods resulted in spatial distribution on space controlling and its understanding (Tayyebi, 2006).

b) Holism and a Single Wholeness in Urban Form

In holistic approach, the understanding faces with the general whole not its parts and a phenomenon understood by its relation with other phenomenon. The features of a whole can't be specified through the elements making it especially when the elements are studies separately or in a simple relation with other parts (Stokols and Altman, 1987). If everything is limited to its elements, this cutback makes a gap in our understanding. So, the elements follow from the relations and goals which dominate the whole (Ash, 1987). Alexander represented seven performable rules in his book on new urban planning and showed how a whole can be made up of urban space. The rules are 1- gradual growth, 2- growth of bigger wholes, 3- contemplation and vision, 4- positive basic principle of urban space, 5- arrangement of big building, 6- building, 7- formation of the centers (Mohajeri and Qomi, 2008: 50).

c) Reaching an Integrated Coherent Structure

The word coherence has been defined as "becoming a part of something" and "determining the wholeness of something" (Bateni, 2007). According to view of sociologists, coherence can be defined as the organizing process of spatial order connecting separate spatial units together (Chalabi, 1995). In urban development process, a new model is made through increase of new elements affecting the form of other components. It can make coherence or destroy it.

Alexander put considerable emphasis on interactive effect of people and environment on each other. He represented many patterns through which people can make an unlimited variety for buildings, cities, new urban space and physical environments. He presented 253 patterns divided to three main groups: cities, buildings, and structures.

The language of the model considers the following purposes:

1. A way for understanding and controlling complicated systems

2. Using the language of the model as an instrument for reaching structural and functional coherence (Mohajeri and Qomi, 2008: 51).

According to Mumford (1949), the concept of structure-based urbanization is accompanied with excessive wholeness and coherence where everything is formed based on general goals and is in contrast with simple personal benefits. Structure-based urbanization needs time and can't be applied for all generations. Mumford emphasized that structure-based urbanization, unlike its adventitiousness, sometimes lead to a coherent and integrated plan and makes a plan which seems to be guided by an ingenious theory (Mumford, 1949).

Alexander (2004) introduced 15 irrefrangible principles of matter and awareness which lead to the formation of a single and integrated generality. In his view, two orders are influential in making physical space including spatial functional order and form-based order. These two orders connect the plan to nature and human emotions which is called wholeness. In a good designing, wholeness is seen in all elements of a structure. The functional and form-based order can be effective in reaching the live quality factor in physical environment (Mohajeri and Qomi, 2008: 52).

d) The Effect of Classical Zoning on Urban Forms

A city is a plan and a mass of buildings, constructed and non-constructed private and public spaces. The third dimension which is size and architecture is so important that Bruno Zevi used "Urbatecture" for determining its analysis (Ashrafi, 2009: 155). Mainly, the focus is on the method of determining land use, representation of capita tables and physical regulations. One of the main problems of comprehensive/comparative model is the separation and deep problems between two main elements of urbanization which are urban planning and urban designing which is reflected brilliantly in Iranian urbanization trends. In fact, one of the most important factors of unsuccessfulness of comprehensive traditional plans in Iran and world is the overemphasis on functional and physical duties and ignoring social, cultural and aesthetic dimensions of urban environment (Pirzadeh, 2008: 89).

3. Result and Discussion

Form-based codes exist within the constraints of a context, which includes place, process, people, and policy. Addressing place requires a fine-grained approach. Communities demand increasing value while maintaining status quo. Community participation could result in an unpredictable output, yet administrators and policy makers require predictability. Code facilitators are promoting an ideology in an extremely rigid policy framework. The process of place-making could be lost in the melee. While form-based codes appear to be extremely flexible and reflexive, this complex condition could prove burdensome for any code or regulatory instrument without compromising its place-making potential.

3.1. Factors in Shaping the Output of Form-Based Codes

Factors in shaping the output of form-based codes are: (1) the place itself, (2) the process (including the participants i.e. the community, policy-makers and professional facilitators), (3) the policy framework. These are factors that shape the stated intent of the codes and direct development in a specific direction through the prescribed code.

a) Place

Form-based codes, in terms of product, focus on formal aspects of the built environment, i.e. function follows form (Kohr, 2004). The built environment can be measured on multiple dimensions. Broadly these measures represent the intersection of physical form, function/activity,

and perception and include several aspects of the built environment such as character, continuity, quality, accessibility, legibility, adaptability and diversity (Carmona et al, 2010). It includes the way places work, as well as how they look. It concerns the connections between people and places, movement and urban form, nature and built fabric, and the processes for ensuring successful villages, towns and cities (Carmona et al, 2010).

Another issue related to sense of place is the lack of it, i.e. placelessness. In the specific case of American urbanism, many years of uncontrolled growth have resulted in dysfunctional urban/suburban landscapes with little place-character; morphologically, perceptually, socially or visually. Under the circumstances, the place itself becomes an impediment to responsive place-making and 'form follows function' (Ellin, 2007) appears to be an acceptable axiom.

b) Process and People

The process of generating form-based codes involves civic participation, which includes the community, policy-makers and professional facilitators. At present, tremendous value is associated with inclusive processes, especially in long term planning and regulatory propositions, but participatory processes could also be abused in the service of preserving neighborhood and business property values (Ellin, 2007).

Form-based codes could be classified into two categories; 'shaping place' (facilitating desired place characteristics) and 'preserving place' (protecting and preserving existing place characteristics). In both cases the community and policy-makers are involved in the process of underwriting property values through their implicit association with specific best practices in urbanism, i.e. form follows finance (Ellin, 2007). Homes in new Urbanist neighborhoods command an aggregate premium. Most of the premium stems from increased internal connectivity and decreased external connectivity and more than compensates for the severe trice discount associated with increased density and mixed land-uses (Song and Knaap, 2003).

c) Policy

A final consideration in this discussion is the policy framework within which form-based codes are located and how this framework could limit the place-making potential of the codes and vice-versa. The objective of this discourse is not to compare form-based codes to conventional zoning but to extend the understanding of form-based codes as a regulatory instrument.

- ***Hierarchical Structure***

Any place, community or city, is located within a policy framework, a hierarchical structure for decision making. Generally, this would include federal, state and local (city/town) levels, and an intermediate (metropolitan/regional) level for agglomerations around major cities. While certain developmental sectors, such as transportation, are planned at the state level, the state mostly establishes legislative requirements to guide development at the local or regional level.

- ***Implications of Smart Code***

Since form-based codes focus on physical form, these codes are more akin to urban design guidelines, which are meant as specific 'prescriptions' for the built environment. As policy, form-based codes are attempting to step away from the performance-based aspects of zoning but getting mired in limitations of a prescribed vocabulary and lack of flexibility to innovatively interpret this vocabulary.

- ***The role of architecture***

Compared to urban standards and land use policies, architectural standards are favored in terms of use and implementation (Sohmer and Lang, 2000). While form-based codes allow architectural standards as an optional element of the code, most cases studied opted to include architectural standards in order to capture visibility and ease of implementation.

4. Conclusion

In establishing responsiveness to context, the negotiation is between traditions and aspirations, which could be divergent concepts. Yet there is almost always a paradigm that successfully mediates this condition. It is critical not to create more homogenization in the way we are doing what we are doing (Polyzoides et al., 2002). While form-based codes present a simple response to a complex set of urban issues, it is important to maintain place-specific context around the application of this approach. Another consideration in this mediation could be eliminating zoning but it is never possible to replace a system of rules with the absence of rules. Under the circumstances, form-based zoning presents an alternative, which is responsive and capable of producing the desired results conditional to proper calibration of the code itself and clarification of processes proceeding as well as following the code.

4.1. Product and Place

The central question of this research about form-based codes is about the spirit of place (Schulz, 1980). This terminology espouses perceptual qualities (spirit) in location-specific physical space (place) and frames the working definition of 'place-character'. While form-based codes, as a product, prove to be extremely reflexive to contextual differences, the places imagined as a product of the codes represent a narrow intentional range in terms of place-character. It is possible that form-based codes promote uniform development not unlike the product of conventional zoning, albeit of higher quality.

4.2. Unintended Consequence of Predictability

While the highly prescriptive nature of form-based codes ensures consistent quality in the resulting development, this prescription also imposes a specific format or regime on the character of the resulting place. The application of form-based codes as an implementation vehicle for the desired outcome in terms of place elevates the persistence of this prescription. Predictability of outcome is critical, but could result in homogeneity of place as an unintended consequence. In order to ensure diversity in place character, this prescription requires adjustment based on the context of the form-based code application. Genetic structure of form-based codes is not lacking in capability or flexibility to adapt to place-based application.

4.3. From Shaping to Preserving Place

Initial applications of form-based codes were limited to create new communities in green-field developments (shape place). Over time, the potential inherent within the structure of the codes to address issues endemic to existing urban places (preserve place), including infill and preservation, was exploited.

4.4. Limited Narrative about Place

The present range of applications covers both ends of the spectrum. However, the implicit character of these places, as represented by the codes, continues to reference a limited narrative. While this narrative of walkability, mixed uses, and sociability under the rubric of sustainability and livability is current to urbanism, its problem solving potential is far from validated. Application of this essentially generic and transferable narrative across different locations and contexts without

place-based calibration results in places that lack differentiation in terms of place character. Thus, form-based codes become the vehicle for the propagation of this specific agenda regarding urbanism.

4.5. Impact of Place, Process, People and Policy

It is possible that this much favored approach is being underwritten by conditions peripheral to form-based codes, i.e. the vagaries of place, the quirks in the process, the actions of people and the limitations of policy. This is an important reminder of the fact that places are not limited to forms and physical qualities. Physical form is only a vessel for social, economic, cultural, and political processes that define places and give them character. While form-based codes and codes/regulations in general, lack the capabilities to directly address issues beyond physical form, the unintended consequences of these processes play a role in directing the intent of the codes.

4.6. Codes as Information

Suggestions such as local self-determination and design management imply reduced dependence on codes and standards as a regulation tool and increased reliance on codes and standards as an information tool. Regulation offers certainty – something must happen - whereas information only provides a suggestion of what could or should happen. This duality of purpose is inherent in form-based codes, which are tools for implementation as well as illustrations of ideas about place. The potential of place-making contained in this combination is severely limited by the dominance of regulation over information.

4.7. Place-Based Codes

The association of these codes with a specific trend in urbanism, i.e. neo-traditional urbanism or new Urbanism, redirects the resulting product towards a singular narrative. As noted earlier in the thesis, this association is not automatic and form-based codes could be proposed for alternative narratives and urban conditions. Possibly, what is needed is more typological consistency, which, in turn, will bring more architectural consistency (Kelbaugh, 2008).

4.8. Scale of Application

While the unit of design for form-based codes is the neighborhood, the resulting development and its connections to the larger planning and design context are shaped at the city, metropolitan or regional scale. In order to capture place character, a code project, at community scale or district scale, should be approached as a city scale or regional scale code. This vastly expands the vocabulary of the code and allows for diversity of urban narratives. The codes, in this case, facilitate the continuity between the local and universal.

4.9. Establishing Local Suitability Criteria

The diversity of code titles illustrates this reflexive quality of form-based codes. Yet, the negotiation between code and context is susceptible to peripheral issues like place, people, process, and policy. While most codes describe procedures for code administration and implementation as a means to clarify future negotiations, few codes address this issue preceding the code. Clarifying procedures related to understanding place and sensing place character could enhance the

responsiveness of the form-based code by establishing local suitability criteria for testing the standards.

4.10. Measuring 'Good City Form'

It is also critical to test the realized product of these codes against established paradigms for "goodness". Essentially, built environments could be measured in terms of form, activity, and meaning. Lynch's criteria for measuring good city form - Vitality, Sense, Fit, Access and Control (Lynch, 1984) - could be evaluated through place-based testing of specific qualitative inputs, such as morphology - land uses, street and public space networks, plot patterns, and building types-, perception - identity, structure, and meaning, visual - aesthetics and kinesthetic- , functional - uses, environmental response, and economics-, temporal-time and change management- , and social-diversity and equity- (Carmona et al, 2010). The key is in recognizing the diversity of narratives embedded in places and adjusting the inputs to achieve a reflexive output.

References

Abbaszadegan, M., & Razavi, H. (2006). A new approach for urban development plans: design-based planning. *Honar-Ha-Ye-Ziba, 28*, 15-22.

Aliakbari, F., & Qahremani, H. (2012). Form-based codes: a strategy for development of design-based urban development. *4th conference on urban planning and management*. Mashhad, Iran: Mashhad University.

Allen, R. (2009). *Urban morphology, geography, logistics and urban architecture* (Ashrafi, A. Trans.). Tehran, Iran: Art University Publication.

Ash, M. (1987). *New renaissance: Essays in search of wholeness*. Bideford, UK: Green Books.

Bateni, M. R. (2007). *Farhang moaser living English-Persian dictionary*. (2nd ed.). Tehran, Iran: Farhang Moaser

Barnett, J. (2011). *City Design: Modernist, traditional, green, & systems perspectives*. Abingdon, England: Routledge.

Baumeister, R. (1876). *Town expansions considered with respect to technology, building bode and economy*. Berlin: Germany. Ernst & Korn.

Ben-Joseph, E., & Szold, T. S. (2005). *Regulating Place: Standards and the Shaping of Urban America*. New York: Routledge.

Ben-Joseph, E. (2005). *The code of the city: Standards and the hidden language of place making*. Cambridge, MA: MIT Press.

Burdette, J. T. (2004). *Form-Based Codes: A cure for the cancer called Euclidean zoning*? Virginia: Digital Library and Archives.

Carmona, M., Heath, T., Tiesdell, S., & Oc, T. (2010). *Public places, urban spaces: The dimensions of urban design*. Boston, MA: Architectural Press.

Chalabi, M. (1995). *Sociology of order: Theoretical explanation and analysis of social order*. Tehran, Iran: Ney publication.

Cullingworth, B., Caves, R. W., Cullingworth, J, B., & Caves, R. (2013). *Planning in the USA; policies, issues and processes*. New York, NY: Routledge.

Duany, A., & Talen, E. (2001). Making the good easy: The smart code alternative. *Fordham Urban Law Journal, 29*(4), 1445-1468.

Ellin, N. (2007). *Postmodern Urbanism*. (Rev. ed.). New York NY: Princeton Architectural Press.

Gosling, D., & Gosling, M. C. (2003). *The Evolution of American Urban Design: A Chronological Anthology*. Hoboken, NJ: John Wiley & Sons.

Hodge, G. (2003). *Planning Canadian communities*. Toronto, Canada: Thomson Canada Ltd.

Katz, P. (2004). Form first: The new urbanist alternative to conventional zoning. *Planning, 70*(10), 16-21.

Kelbaugh, D. (2008). Toward Neighborhood and Regional Design. *Pioneer America Society Transactions: PAST, 31*, 77.

Kohr, R. T. (2004). *From form to function: An evaluation of the effectiveness and potential of form-based zoning codes* (Doctoral dissertation, Massachusetts Institute of Technology).

Lynch, K. (1984). *Good City Form*. Cambridge, MA: MIT Press.

Leung, H. L. (2003). *Land Use Planning Made Plain*. Toronto: Canada. University of Toronto Press.

Madden, M. E., & Spikowski, B. (2006). Place-Making with form-based codes. *Urban Land, 65*(9), 174-178.

Mohajeri, N., & Qomi, Sh. (2008). Analytical approach on the theories of Christopher Alexander. *Hoviatshahr Journal, 2*(2), 45-56.

Mumford, L. (1949). Monumentalism, symbolism & style. *Architectural Review, 105*(628), 173-180.

Pamir, S. (2010). *The formation of a lively city center* (Behzadfar, M., & Shakibamanesh, M. Trans.). Tehran, Iran: Science and Technology University.

Parolek, D. G., Parolek, K., & Crawford, P., C. (2008). *Form-based codes: A guide for planners, urban designers, municipalities, and developers*. Hoboken, NJ: John Wiley & Sons.

Pirzadeh, H. (2008). *Reforming the urban development and management system in Iran based on strategic approach*. Tehran, Iran: Ministry of housing and urbanization publication.

Polyzoides, S., Moule, E., Duany, A., Katz, P., Robertson, J., Krieger, A., … & Jacobs, A. (2002). *The Seaside debates: A Critique of the new urbanism*. Seaside, FL; The Seaside Institute; New York; Rizzoli International Publications.

Rafieian, M., & Razavi, H. (2010). Promoting the quality of urban environment using design-based planning: city theatre and around. *Journal of Planning and Logistics of Space, 14*(2), 269-287.

Schulz, C. N. (1980). Genius Loci: Towards a Phenomenology of Architecture. *Academy Editions, London.*

Sohmer, R. R., & Lang, R. E. (2000). From seaside to southside: New urbanism's quest to save the inner city. *Housing Policy Debate, 11*(4), 751-760.

Song, Y., & Knaap, G. J. (2003). New urbanism and housing values: a disaggregate assessment. *Journal of Urban Economics, 54*(2), 218-238.

Stokols, D., & Altman, I. (Eds.). (1987). *Handbook of environmental psychology* (Vol. 2). New York NY: John Wiley & Sons.

Talen, E. (2012). *City rules: How regulations affect urban form*. Washington DC: Island Press.

Talen, E. (2009). Design by the rules: The historical underpinning of form-based codes. *Journal of the American Planning Association, 75*(2), 144-160.

Tayyebi, A. (2006). *Urban designing based on form-based code through transect map: a case of Chalous, Tehran* (Master's thesis). Retrieved from University of Tehran.