Form First

The New Urbanist alternative to conventional zoning.

By Peter Katz

"Just throw your existing zoning in the garbage."

That's what New Urbanist architect-planner Andres Duany exhorts audiences to do in his lectures about the decline of America's suburbs.

When I first heard Duany express this view in the early 1990s, I was taken aback, as, I'm sure, most planners were. It seemed outrageous to suggest that zoning, the body of law that controls development in 99 percent of America's communities, could be so easily dismissed.

Since then, however, I've come to believe that Duany's prescription may not be so radical after all. His main point is that conventional zoning based on the segregation of land uses was never intended to deal with physical form, and that the "band-aid" measures (including design guidelines) that planners cobble onto existing ordinances to address this deficiency just make matters worse. Something else is needed, and that something else is what New Urbanists call form-based coding.

What is it?

As its name suggests, form-based coding seeks to regulate the *form* of the built environment. In contrast, conventional zoning primarily seeks to control land use and density, but is largely silent on matters of form beyond the most basic height, floor-area, and setback limits for individual buildings.

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.

To understand the concept, think of the way neighborhoods change over time. In many cities, warehouse and industrial areas have morphed into trendy arts districts with galleries and restaurants at street level and loft housing above. The form of the buildings has remained fairly constant, while internal uses and activity patterns have been transformed.

Under the current, use-based zoning system, such a change would be considered drastic. The land-use category has gone from industrial, at one end of the spectrum, to residential, at the other, although to the average onlooker, the place looks pretty much the same. In this example, a form-based code would regulate the part that had remained the same — the form of the building and the configuration of the street and sidewalk. Use would be regulated, too, but at a secondary, rather than primary level of the code.

In some cities, planners have found ways to bend land-use zoning to enable this kind of reuse to promote the revitalization of older neighborhoods, particularly those with good architectural "bones." But such modifications are typically made on a case-by-case basis or within narrowly defined special districts.

Meanwhile, in new growth areas and in most existing neighborhoods, use-based zoning remains the law of the land. One result is the suburbanization of city neighborhoods by provisions such as setback rules that force houses far back on their lots and away from each other.

Getting down to work

Generally, the creation of a form-based code is interwoven with a community visioning process. The process typically includes a public design workshop, or charette, lasting several days. The community's "consensus vision" is conveyed through a range of visuals, including perspective drawings, site analysis diagrams, and an illustrative plan. That plan, which resembles an aerial photo, includes proposed buildings (shown as rooftops), key natural features, and existing and planned public spaces.

The first step in coding is to translate the illustrative plan into a more diagrammatic regulating plan, which indicates what goes where. This document, while similar in some ways to a zoning map, is far more detailed. It also omits any direct labeling of uses, a job that is handled in the building standards described below.

In one kind of form-based code, the regulating plan assigns a building type or types to each available parcel of land. Other kinds of regulating plans indicate a range of building or frontage types that may be constructed in a certain area.

Clearly, when it comes to detailing the urban environment, one size does not fit all, and the new approach to coding recognizes that. Coding by building type provides the freedom to create one set of rules for one building type and another set for a different type. For example, a townhouse may function best with its main floor lifted a half-level above grade for interior privacy, with a front stoop for access. Yet a shopfront in the same neighborhood may be more accessible to customers if it is set at grade.

Although public buildings are very important to New Urbanist designers, they are typically not coded. Such buildings are usually indicated in the regulating plan by a conceptual footprint that serves as a placeholder until an actual design is formulated (often years in the future).

Nuts and bolts

The physical characteristics of each building type are summarized in the building standards — a set of annotated building cross-sections and plan diagrams assembled on a single, letter-size sheet. In some cases, all the building types are combined into a matrix and formatted as a poster.

Regardless of layout, building standards typically establish these parameters:

Building height is a key standard. A maximum number of floors (or dimension-to-the-eave) is set to ensure that a building does not overwhelm its neighbors. Unlike use-based zoning, form-based codes also specify a minimum height in order to maintain a proper street wall.

Siting standards control the placement of structures in relation to fronting streets and adjacent building lots. Dimensions to front, side, and rear building lines, as well as the

location and configuration of entrances, parking, yards, and courtyards are specified. Key building elements — i.e., windows, doors, and porches — are also controlled by the standards.

Uses are also part of the building envelope standards, but the approach here is quite different from conventional zoning. Permissible uses, stated in general terms (e.g., retail, residential), are identified for each building type and labeled on the cross-section diagram.

This approach makes it easy to assign different uses to each floor of a mixed-use development, and avoids the problem of trying to communicate the same information on a flat map. (The plethora of colors, stripes, and cross-hatch patterns on most zoning maps shows how confusing this can be.)

Thoroughfare standards for a range of recommended street types may also be part of the code in places where streets are not individually designed. Such standards are indicated by section diagrams with dimensions for travel and parking lanes, sidewalks, medians, and planting strips. Tree alignment and property lines are also shown.

Finally, many codes include a set of landscape standards listing appropriate tree and groundcover species. Most codes also provide a glossary that defines terms that are used in a specific way in the document.

These components constitute the basics of a form-based code. They control the urban design elements that New Urbanists are most concerned with. However, some communities — master-planned developments, special retail districts, historic districts, among others — may want to exercise a higher level of control over the appearance of individual buildings. For this reason, some form-based codes include architectural standards.

This optional "dress code" controls exterior colors, materials, and construction techniques. Particular emphasis is given to cladding, doors, windows, stairs, and roofs. Style may also be included as part of the architectural standards, but not in every case. Many New Urbanists choose to avoid direct references to building style, fearing that too much specificity will lead to an overly homogeneous, "themed" look.

A little history

While the term form-based coding has only recently emerged, the technique has been used for over 20 years. Andres Duany's Miami firm, Duany Plater-Zyberk & Company, first applied the approach in its 1982 code for Seaside, the highly publicized coastal resort town on Florida's panhandle.

The firm's principals, Duany and his wife, Elizabeth Plater-Zyberk, initially set out to design all the town's buildings themselves. But once the true scale of the project became evident, they realized that such a high level of design control would not be possible, or even desirable. Instead, they handed off the design responsibility to the lot purchasers, or their architects. That decision led to a new challenge — finding a way to impart a distinctive character to specific areas within the development.

On study trips to historic Southern communities, the design team saw that certain building types tended to dominate in certain parts of a town: shopfronts on the main square, rowhouses on side streets, and mansions flanking Main Street just beyond the edges of the downtown. The team also noted that, while building types were fairly consistent in a given area, there was always enough variety within the design of each building to avoid a cookie-cutter look.

The first Seaside code established a hierarchy of seven (later expanded to eight) "classes" of buildings for use in the new community. Each class was based on a traditional Southern vernacular building type. The code specified the rudimentary physical characteristics of each class, controlling siting on the lot, building height, location of porches and outbuildings, and how parking should be handled.

The code progressed through a number of iterations, achieving its near-final form during an on-site design charette in 1981. Shortly after that event, several architecture professors at Washington, D.C.'s Catholic University conducted a test of the code. They asked 140 students to design and build models of every building included in the 80-acre master plan according to the rules set forth in the code. The students then combined their individual creations into a 16-foot-long composite model of the community.

Looking at the finished product, one could easily envision the town's streets and public spaces. The model also assumed an important diagnostic role. Recognizing the tendency of architecture students to push the design of each building to its limits, the code's creators were able to identify and fix a number of potential regulatory problems before the code was formally adopted.

After the firm's experience at Seaside, Duany Plater-Zyberk adapted form-based codes to work within the legal framework of a planned-unit development. The Kentlands in Gaithersburg, Maryland, is one early example of that application. Since 1989, when its plan and code were created in a highly publicized charette, DPZ has crafted similar documents to regulate the buildout of over 200 new and existing communities.

Broadening the circle

Other urban designers have since used form-based codes in a wide variety of projects and locations. In 1999, Dover, Kohl & Partners of South Miami, working in collaboration with DPZ, prepared a master plan and form-based development ordinance for a new downtown for Kendall, an edge city just south of Miami. The 240-acre project site is adjacent to two commuter rail stations and a state highway.

Since the adoption of the ordinance, an estimated $250 million in new construction permits have been issued. Some 3,400 new dwelling units, most in high-rise buildings (up to 25 stories), are now under construction in an area that previously had no residential population at all. While the recent wave of construction in Kendall was foreseen well before the code was adopted, many credit the regulations with helping the community to achieve a true downtown development pattern rather than the patchwork typical of booming suburban areas.

On the East Coast, Dover Kohl and Ferrell Madden Associates of Washington, D.C., conducted an eight-day charette that resulted in the adoption in February 2003 of a plan and form-based code for the Columbia Pike Corridor in Arlington, Virginia. That work focused on the detailed design of four mixed-use centers along a 3.5-mile section of the historic corridor, which is minutes away from the Pentagon and downtown Washington.

A year later, Arlington County planners approved Columbia Station, a mixed-use development consisting of 257 housing units above 42,000 square feet of street-fronting retail. Future plans call for the integration of bus rapid transit or light rail along the corridor.

Geoffrey Ferrell of Ferrell Madden was also responsible for the form-based coding of a $200 million, mixed-use development in Contra Costa County, California. For two decades,

neighborhood opposition had stalled the proposed public-private venture on a 20-acre site adjacent to the Pleasant Hill station on the Bay Area Rapid Transit line. The plan for this project was developed by Lennertz Coyle & Associates of Portland, Oregon.

The code, and the elaborate public involvement that led up to it, created a level of trust that led to approval of the project in December 2001. The project is now moving forward under the direction of architect Dan Parolek, of Opticos Design in Berkeley, California.

Stephen Lawton, the community development director of Hercules, another Contra Costa County community, credits the streamlined nature of form-based coding with helping the city to deal with a backlog of development proposals. Dover Kohl & Partners' Central Hercules plan is shaping several new mixed-use neighborhoods on a patchwork of brownfield sites.

Says Lawton: "The clarity of the form-based code made it easy for citizens to understand the development proposals and to accept the intensity of growth needed to achieve financial stability. This was something we'd never have been able to achieve with conventional zoning."

To date, most form-based codes have been crafted individually in response to the needs of a specific community or site. Now comes a new generation of standardized form-based codes, which are derived from the SmartCode, a template developed by DPZ and licensed by the Municipal Code Corporation in Tallahassee, Florida.

The SmartCode template defines a series of preconfigured (but customizable) zones based on the "transect" — a framework for organizing a metropolitan area into a series of zones, ranging from most natural to most urban.

One of the first communities to take this new approach is Petaluma, California, which adopted a variation of the SmartCode in July 2003. Laura Hall of Fisher & Hall Urban Design in Santa Rosa and Paul Crawford, FAICP, of Crawford Multari & Clark in San Luis Obispo tailored the document to the city's needs; it focuses on a 400-acre portion of the downtown.

According to Hall, Petaluma adopted the code in just nine months, after a seven-year effort to complete and adopt a more conventional, use-based downtown plan and zoning ordinance. Over $100 million in development has been approved since the code's adoption, she says.

California out front

As more communities begin to incorporate New Urbanist and smart growth principles into their planning strategies, the practice of form-based coding is likely to spread.

How much that will happen depends on several factors: the availability of qualified consultants (just a handful of firms practice true form-based coding); the dissemination of knowledge about the technique (little has been written on the subject, and there are few places to learn about it); and a continuing legal concern about overly prescriptive design guidelines that are often mistaken for form-based codes.

The good news is that the state of California recently included an endorsement of form-based coding in its general plan guidelines. The document refers to the code as a "useful implementation measure for achieving certain general plan goals, such as walkable neighborhoods and mixed-use and transit-oriented development." And this summer, Gov.

Arnold Schwarzenegger signed Assembly Bill 1268, making California the first state to specifically enable the practice of form-based development regulation.

The bill's language is brief and to the point: "The text and diagrams in the land use element [of the general plan] that address the location and extent of land uses, and the zoning ordinances that implement these provisions, may also express community intentions regarding urban form and design. These expressions may differentiate neighborhoods, districts, and corridors, provide for a mixture of land uses and housing types within each, and provide specific measures for regulating relationships between buildings and outdoor public areas, including streets."

As states such as Florida and Arizona follow California's lead in mandating local planning through the use of a general plan, zoning consistent with the plan, and the use of specific plans, one can hope that the practice of form-based coding and the enabling laws that support it will not be far behind.

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FBCs: The Advantages

Because they are prescriptive (they state what you want), rather than proscriptive (what you don't want), FBCs can achieve a more predictable physical result. The elements controlled by FBCs are those that are most important to shaping a high- quality built environment.

FBCs encourage public participation because they allow citizens to *see* what will happen where — leading to a higher comfort level about greater density, for instance.

Because they can regulate development at the scale of an individual building or lot, FBCs encourage independent development by multiple property owners. This eliminates the need for large land assemblies and the megaprojects that are frequently proposed for such parcels.

The built results of FBCs often reflect a diversity of architecture, materials, uses, and ownership that can only come from the actions of many independent players operating within a communally agreed-upon vision and legal framework.

FBCs work well in established communities because they effectively define and codify a neighborhood's existing "DNA." Vernacular building types can be easily replicated, promoting infill that is compatible with surrounding structures.

Nonprofessionals find FBCs easier to use than conventional zoning ordinances because they are much shorter, more concise, and organized for visual access and readability. This feature makes it easier for nonplanners to determine whether the codes have been complied with.

FBCs obviate the need for design guidelines, which are difficult to apply consistently, offer too much room for subjective interpretation, and can be difficult to enforce. They also require less oversight by discretionary review bodies, leading to a less politicized planning process that can deliver huge savings in time and money and reduce the risk of takings challenges.

The stated purpose of FBCs is the shaping of a high-quality public realm (a presumed public good) that, in turn, promotes healthy civic interaction. For that reason, the codes can be enforced not on the basis of aesthetics but because noncompliance would diminish the good that is sought.

While enforceability of development regulations has not been a major problem in new growth areas where aesthetic concerns are usually addressed in private covenants, such matters have created problems for local governments in already-urbanized areas. Because they have the potential to level the regulatory playing field between city and suburb, form-based codes could play a major role in the recovery of vast areas of America's urban landscape.

Resources

Images: Top — In Iowa City's Peninsula Neighborhood, the code requires sidewalks and minimum-width front porches in a effort to create a pedestrian-friendly community. Photo by Paul Warchol. Middle — Townhouses in the Pleasant Hill development define the walls of a "public room" focused on Mount Diablo. Citizens supported the redevelopment plan in part becauseof the generous provisions of open space. Illustration by LCA Associates. Bottom — The row of storefronts, with lofts above, seen in the computer simulation, shows the results of following an FBC's build-to line in a Chicago neighborhood. Illustration by Urban Advantage.

For more information on form-based codes, go to www.formbasedcodes.org. This website has been created by FBCA, an alliance of form-based coding practitioners recently convened to set standards for and disseminate information about the technique.

Examples of early form-based codes can be found in *The New Urbanism: Toward an Architecture of Community* by Peter Katz (McGraw-Hill 1993) on pages 76-77, 94, 110-116, 141.