

Form-Based Codes (FBCs)

Form-based codes (FBCs) have existed since 1987, with the first adopted in Seaside, FL. The Seaside FBC was largely in response to the developer proposing a project based on historic, highly appealing real estate in the area that the zoning and regulations no longer allowed. This disconnect revealed a major problem in many communities; the zoning does not reflect community needs and does not acknowledge appealing patterns and building types that existed before the zoning. In the interest of time and expense, the developer focused on the issues to be resolved for that project and understandably avoided the more systemic issues that could have delayed the project for years. The easiest path was to adopt a Planned Development specific to that site that would essentially replace the zoning and allow the project. In these cases, the applicant negotiates with the city/county on the standards in exchange for ‘better site design’ or enhanced results that would otherwise not be achieved through the regular zoning. The applicant and their town planner (DPZ) prepared the FBC that became the content for the Planned Development. As this pattern of broken and unresponsive zoning repeats itself across the U.S., FBCs are being applied to broader and broader areas, having been applied across many areas in large cities.

Novato, Calif.—Northwest Quadrant Zoning District; 19.14.060 Novato Zoning Code

Code Preparer: Opticos Design, Inc.

Contact at City: Bob Brown, former Community Development Director; Vicki Parker, current Community Development Director

Background and the reason the code was prepared

This is a code for one neighborhood in this small city. The city itself is mostly suburban except for this neighborhood and the adjacent Main Street. The neighborhood is low- to moderate- intensity with about 50 percent single-family houses and duplexes, and about 50 percent out-of-scale apartment buildings. These out-of-scale apartment buildings are why the community has been very tough against new multifamily zoning and buildings and why this code was prepared.

The current zoning limits development to 10 dwelling units per acre, but the General Plan allows up to 20 dwelling units per acre. In response to the negative reaction and strong opposition to the large apartment buildings built under the County zoning before Novato's incorporation, which allowed 20 dwelling units per acre, the zoning was reduced so that the full amount of density allowed by the Comprehensive Plan was not allowed. In addition, in 1977, a policy was adopted preventing new apartment development when a “... sound single-family home exists on the property”. This led to approximately 28 years of disinvestment. As a result, the community asked for options. After working through a variety of choices, the community focused on applying standards to the neighborhood that would allow the General Plan maximum of 20 dwelling units per acre. Much education was needed to show that 20 dwelling units per acre could be achieved with smaller house-scale buildings that are more compatible with the scale of older homes than the previous apartment buildings that the neighborhood wants to avoid. The education effort was a combination of public outreach in community workshops and city staff working with local stakeholders throughout the process.

How was the code adopted?

The code is mandatory and replaces the existing zoning with one form-based zone. The standards apply to new buildings and additions.



What does the code allow?

The code applies the development standards through six building types ranging from carriage houses and ADUs, detached houses to duplexes, triplexes to sixplexes (multiplex small), and cottage court up to courtyard buildings. The code also identifies standards for frontage types to shape the public realm along the front and side streets of each lot. The idea of connecting the public realm to individual development of buildings was well received and confirmed that this was not just about fitting in new buildings but also about improving the public realm. The code relies on existing parking, landscaping, site plan, land use requirements, and review procedures.

- **Height:** All buildings are limited to 20 feet to the highest top plate (eave) and 35 feet overall. The code allows buildings to expand, but through secondary wings. Wings are required to have a smaller scale and height for better compatibility with neighbors.
- **Lot coverage:** Maximum of 40 percent.
- **Density:** The code was carefully prepared and tested to comply with the City's limitation on residential density of 20 dwelling units per acre, while fitting new buildings in with the prevailing low-intensity physical character. The allowed building types and their standards were prepared and tested to comply with this limitation. Because of this, the code does not need to mention or use density as a regulation. This is important, because the community realized that regulating by density was not serving them well and that they needed to reconsider focusing first on the desired and more predictable physical form.
- **Building types:** A total of six house-scale building types are allowed, each with its own lot size, coverage, and building size requirements, to generate buildings that reflect the scale desired by the community.
- **Frontage:** A total of four types ranging from projecting porch, engaged porch, to stoop and dooryard provide the options for how the street-facing facades connect to and shape the public realm.
- **Parking:** The intent and the standards have been crafted to generate house-scale multifamily buildings that are physically compatible with single-family houses. However, the community chose to not modify the requirements for off-street parking because of the existing shortage of on-street parking and significant concerns about reducing what are already considered inadequate parking standards. Over time, this may be possible to adjust, especially given the immediately adjacent neighborhood Main Street and access to transit.

Integral relief from standards

The code describes the situations where an exception may be granted administratively through design review. The community chose to allow this type of flexibility only on requests to reduce required setbacks. Given that the context is a mature neighborhood setting, the reality of existing conditions (site features, trees, etc.) makes it necessary to build in this type of flexibility, but with clarity about when and how much of a reduction to allow. Typically, additional topics are included for this type of relief, but this community chose to address topics other than setbacks through the Planning Commission.

Built results

The code awaits adoption along with the new General Plan in early 2019. The community and City staff are optimistic and excited about implementing the code.

Challenges

- The first new buildings will test the community's reliance on the code to generate physically compatible and appealing multifamily buildings. This means that the design review process will likely be intensified, but because of the code's comprehensiveness and clarity, it is expected that the need for new discussions or topics at design review will be minimal.

Miami, Fla.—Miami 21 Code

Code Preparer: Duany Plater-Zyberk

Contact at City: Joseph Eisenberg, CNU-A, EcoDistricts AP, Planner II – UDRB and WDRC Liaison, City of Miami, FL

Background and the reason the code was prepared

This code addresses the entire city of Miami (37 square miles of land area) and was a complete rewrite of the previous zoning code. The focus of the following analysis is on the low- to moderate-intensity neighborhoods, which represent about 60 percent of the total city (T3 and T4 zones). The new code was in response to years of complaints about the previous code's unresponsiveness to existing conditions and the need to better accommodate reinvestment. The previous code allowed up to 75 dwelling units per acre but lacked the information with which to adequately address the lower end and middle of the range. This resulted in physically incompatible, out-of-scale development next to and within low- to moderate-intensity neighborhoods. This occurred mostly along corridors that backed up to neighborhoods. A need for better transitions between those two very different types of environments became a key reason for taking a comprehensive look at the existing zoning code and review procedures.



How was the code adopted?

The code was adopted in 2009 and is mandatory, replacing the previous zoning and review processes and procedures. During the code's public review process and leading up to the adoption hearings, the code preparers and city staff held over 200 public meetings to communicate about the code's details and to identify refinements. This high level of interaction led to a relatively smooth adoption process and immediate development proposals.

What does the code allow?

The code allows development across a variety of walkable urban neighborhoods. The code does not regulate building types but the standards allow equivalent types, ranging from as small as 'carriage house' accessory apartments, to townhouses, duplexes, small to medium multifamily buildings, and 3-story Main Street buildings with housing. The code allows development in a range from 9 to 36 dwelling units per acre. In lower-intensity neighborhoods (T3 zone), the code requires a mix of building types to provide housing choices other than single-family houses. In moderate-intensity neighborhoods (T4 zone) where more multifamily buildings are allowed, the code limits building width to avoid buildings with too large of a footprint. The code applies a variety of height setbacks on adjacent zones to make sure that the scale and physical character of these low- to moderate-intensity neighborhoods is maintained.

The code was carefully prepared to fit the wide range of physical conditions and intended physical character in low- to moderate-intensity neighborhoods across the entire city. This was done through an extensive analysis of existing and intended physical patterns in each type of neighborhood. This process identified the prevalent patterns of building setbacks, building height, and lot coverage to develop the standards. In addition, the standards were further tailored to each neighborhood through a three-level system: Restricted, Limited, and Open. Each level either reduces or increases the allowable maximum based on its location in the neighborhood (e.g. corridor sites typically are Open, while the interior of neighborhoods may be Restricted). This is an effective way to recognize different needs in a zone without creating more zones for a narrow purpose.

- **Height:** The code measures height to the highest eave. The T3 zone allows up to two stories (25-feet) and the T4 zone allows up to 3 stories (40 feet).
- **Lot coverage:** The T3 zone allows 50 percent lot coverage, with the second floor restricted to 30 percent in certain areas. The T4 zone allows 60 percent.
- **Density:** The T3 zone allows from 9 to 18 dwelling units per acre, and the T4 zone allows up to 36 dwelling units per acre.
- **Building types:** This code does not specify or regulate building types.
- **Frontage:** A total of six types, including common lawn, porch, terrace, forecourt, stoop, and shopfront, provide the options for how the street-facing facades connect to and shape the public realm. The shopfront is an option in certain locations and can be added to an otherwise residential building, providing flexibility for the owner while complying with the zoning.
- **Parking:** Parking was approached on the basis of proximity to high-quality transit. For example, the base requirement per unit is 1.5 spaces, but that can be reduced by 10 to 30 percent depending on the proximity to high-quality transit (within a quarter or half-mile). In addition, visitor parking is 1 per 10 spaces, which is low, but it is required off-street and uses up valuable site area. Projects of four units or less are not required to provide off-street parking. However, the market has not adapted to this and still expects some off-street parking.

Integral relief from standards

The code provides many opportunities for administrative reductions in the standards through a ‘waiver’ process. The waiver process identifies the topics and situations that qualify for a waiver, along with the amount of reduction available, enabling timely review and approval. The code provides additional forms of relief from the standards, but they require Planning Commission review.

Built results

The code has enabled much reinvestment due to the clarity of the process and how the code’s standards were made relevant to a wide variety of stakeholders. Built results range from carriage houses, detached houses, duplexes, rowhouses, small- and medium-size multifamily buildings, and small Main Street buildings that include housing. So far, the most popular building type is the duplex. According to city staff and the code preparers, not as much medium-size multifamily housing is being built because off-street parking requirements are still too high, yet the market still expects some off-street parking.

Challenges

- The market’s ongoing expectation for plentiful off-street parking and developer’s goal to have lower parking requirements.
- Very high property values in low- to moderate-intensity zones resulting in pressure to develop more than allowed by new zoning.

New Town St. Charles, Mo.—The New Town Code

Code Preparer: Duany Plater-Zyberk

Contact: Tim Busse, Town Architect, The New Town at St. Charles

Background and the reason the code was prepared

This code is for an entirely new development on a 726-acre agricultural site. This project was planned in 2002 as a new community, for the purpose of offering a range of affordable housing choices in six walkable urban neighborhoods.

How was the code adopted?

The code was adopted in 2003 through the Planned Mixed-Use Development process and covers the entire 726-acre site. The code replaces existing land use requirements and existing review procedures and is applied to each lot as it is developed.

What does the code allow?

The code identifies four zones, two of which are the focus of this analysis: T3 and T4. The T3 zone allows medium-to-large detached houses up to two stories, along with a carriage house in an accessory building. The T4 zone allows up to three stories through small-to-large detached houses, rowhouses (townhouses), live-work buildings, and apartment buildings (mansion buildings with 4 to 6 units).

The code was carefully prepared to fit the range of intended physical character of each neighborhood through extensive analysis of historic patterns in the region. This information and the developer's ideas were transformed into a master plan through a multi-day design charrette in 2003 with construction starting in 2005. The master plan identified the new network of blocks and a variety of streets along with direction for the standards: building types, setbacks, building height, and lot coverage.

- **Height:** The code only specifies height in stories. The T3 zone allows up to 2 stories, and the T4 zone allows up to 3 stories.
- **Lot coverage:** The T3 zone allows 40 percent and the T4 zone allows 60 percent.
- **Density:** The code does not regulate the density of individual buildings but the overall number of units is identified and agreed to during schematic planning ('sketch plan') for each site.
- **Building types:** A total of seven building types are allowed in the zones: two types in T3 and six types in T4. The code includes plan diagrams showing the standards for each allowed building type in each zone. Applicants preparing their own plans require review and approval by the Town Architect prior to submittal to the City for final approval. Applicants who use the Town Architect to prepare their plans do not require City approval.
- **Frontage:** A total of seven frontage types shape the public realm; common lawn, porch and fence, terrace, forecourt, stoop, shopfront, and gallery are allowed depending on the location.
- **Parking:** Parking was approached from the basis of needing less off-street parking because walking and biking are integrated into the site design of the overall development and for each block. On-street parking is allowed and counted toward the required amount.



Integral relief from standards

The code does not provide options for administrative reductions in the standards. However, the project was established with a town architect representing the developer and the community. The town architect reviews all proposed plans and makes a recommendation to the Architectural Review Board, and informs the City if the plans are consistent with the code and ready for approval. Because the master plan and vision are clear about the physical expectations for the site, the town architect can work with developers and individual owners to adjust their plans through a simple process. If the town architect recommends that a variance is necessary, the town architect submits the variance to the City for review and approval in the same way as it reviews proposed plans.

Built results

This development is over 50 percent built-out. The built results range from carriage houses, detached houses, and rowhouses to mews units along a pedestrian passage, small- and medium-sized multifamily buildings, and Main Street buildings that include housing.

Challenges

- Cost of installing required fire sprinklers in mixed-use buildings. While an understandable requirement for mixed-use buildings, this has made it difficult to build an individual live-work unit.
- Health Department requirements result in making small restaurants difficult and expensive.
- Building Department staff who were initially unfamiliar with the zoning and standards for the project needed specialized training to become familiar with the community's principles and different approach to neighborhood development.
- Local utility companies, City Public Works and Fire Department officials continually push for more conventional (larger), easements.
- Local utility companies, City Public Works and Fire Department officials continually push for more conventional (larger), easements, streets and alleys. This affects development costs as well as unintended consequences of overly wide alleys then being considered streets and additional requirements.
- The status quo is acceptable for the majority of builders in the area, and despite this project's success, local builders view this project differently and not an example to follow.

Daybreak, South Jordan, Utah

Code Preparer: Daybreak Communities

Contact: Cameron Jackson, Daybreak Communities

Background and the reason the code was prepared

The code was necessary to build an entirely new development on a 4,150-acre site of agricultural land. The developer, Daybreak Communities, worked with the community of South Jordan to plan the site for several villages of walkable neighborhoods, neighborhood and community-level Main Street environments, and employment areas. The previous zoning did not allow the proposed development and did not anticipate the extent of this master plan. In 2002, a master plan was prepared for the entire site along with a new zoning district supported by design guidelines. The guidelines for houses are more detailed than those for buildings of attached units. This is because of the very wide range of physical contexts that the guidelines would have to address and the team's intent to keep things simple.



How was the code adopted?

The developer worked with the community through a master planning process to establish the needs in this area and the types of development that would best address those needs. In addition to providing a wide range of housing choices, it was established that new circulation techniques would be part of the new community including light rail transit. These types of solutions were integrated from the outset to demonstrate that this development was addressing and improving upon existing issues and not simply adding houses.

As part of the master planning process, the zoning was changed to PC (Planned Community) with a broad entitlement across the 4,150-acre site for 20,000 units and 9 million square feet of non-residential space. The master plan and new zoning were prepared to be clear enough about the intent of what is and is not allowed so that all approvals are 'by-right', not requiring any discretionary review. In addition, the master plan and standards include flexibility for the developer to respond to changing market needs without needing to revise the plan or standards.

Each new project is reviewed and presented to the City for final approval after Daybreak Communities has reviewed and confirmed that it meets the standards and intent of the master plan. As part of its review, Daybreak's design team works with the individual developer's design team to plan each block in the project and to distribute the building types to different blocks instead of the typical practice of concentrating them on the site that each developer controls.

Each application is approved 'by-right' because of the clarity and flexibility of the master plan, the zone, and the on-going education/community engagement by the developer each time far before the application is submitted to the City.

It is important to note that this project was given a high amount of flexibility along with zoning and standards that are not overly detailed because of four key actions by the developer: a demonstrated commitment to solving housing, circulation and environmental issues through innovative development patterns and techniques, not 'business as usual'; an integral design team that functions in a role similar to the town architect's role in other large developments; a demonstrated commitment to high quality design; and ongoing community engagement for each project. This type of commitment by the developer explains the city's high comfort level with how the project is implemented even though the plan and standards are less detailed than most large projects.

What does the code allow?

The zoning allows up to 20,000 units and 9 million square feet of employment, retail and service. The zoning and guidelines allow a palette of building types that continues to grow as the project continues: small to large houses, duplexes, fourplexes, townhouses arranged in groupings of 3 to 9 with the typical grouping at 4 to 6 units, mews, 3-story apartments and 4-story units near the light rail station. The code replaced the previous land use requirements and existing review procedures.

The code was carefully prepared to fit the range of physical conditions and intended physical character in each village through an extensive analysis of historic patterns in the area, while integrating flexibility. This information was transformed into a master plan for the entire site in 2002 with construction starting in 2004. The master plan identified the new network of blocks and a variety of streets along with direction for building setbacks, building height, and lot coverage with which to make the standards.

- **Height:** The code allows the building types relevant to this analysis up to 4 stories.
- **Lot coverage:** The code does not regulate lot coverage, relying instead on building setbacks and required open space.
- **Density:** The code does not regulate the density of individual buildings but regulates the overall number of units agreed to within the 4,150-acre site.
- **Building types:** The code does not regulate building types, but as mentioned above, the palette of building types being developed is used as a reference point for new projects.
- **Parking:** Off-street parking is required at one space per unit, but the market is still largely suburban and is asking for more parking and is being built at two spaces per unit.

Integral relief from standards

The development is implemented through a design team that works for the master developer, Daybreak Communities. The design team reviews all proposed plans and only presents the proposed project to the City when it meets the requirements. As part of that collaboration, Daybreak's design team works with each developer to adjust their plans and/or propose a solution that is within the intent of the master plan and zoning without the need for specific procedures.

Built results

This development is far from built-out, having started construction in 2004 and approximately 25 percent complete (5,200 of 20,000 units). The built results range from a variety of detached houses, duplexes, townhouses, and mews units to small- and medium-size multifamily buildings, and Main Street buildings that include housing.

It's important to note that even though this project provides 'by-right' approval and no community engagement is required, this master developer understands the need to engage the community on each proposed project to maintain communication and a positive relationship. *"You need to communicate about how it works, why it works, and why it makes a difference."* – Cameron Jackson

Kentlands, Gaithersburg, Md.—MXD Zone, Mixed Use Development, Division 19, Sec. 24-160D

Code Preparer: Duany Plater-Zyberk

Contact at City: Trudy Schwarz, Planning Division Chief, City of Gaithersburg, Maryland

Background and the reason the code was prepared

This code was necessary to build an entirely new development on a 352-acre site formerly occupied by a farm and a few houses. The goal of the developer from the outset of this project in 1987 has been to develop walkable urban neighborhoods, including a small downtown. This development pattern remains very different from the sprawling suburbs surrounding the project. The code implements a master plan and vision for the site that were prepared in a public design charrette. The code was adopted in 1988 through the MXD (Mixed Use Development) zone and replaces the existing zoning as each area or lot is developed.

The previous zoning did not allow the proposed development. In addition, the previous zoning reflected a development pattern and building types that did not promote nor were able to implement the walkable environment proposed by the developer. The adopted language in the MXD zone states “...it is intended that this zone provide a more flexible approach to the comprehensive design and development of multi-use projects than the procedures and regulations applicable under the various conventional zoning categories.” In addition, the code states as one of its purposes “...locating employment and retail uses convenient to residential areas; reducing reliance upon automobile use and encouraging pedestrian and other non-vehicular circulation...”

How was the code adopted?

The code was adopted as a mandatory zoning district that is applied as each site within the 352 acres is developed.

What does the code allow?

The code uses one zone but articulates the intended physical character through a palette of eight building types: carriage houses, small to large houses, duplexes, townhouses, garage townhouses, live-work buildings, apartments and Main Street buildings. In addition, the code allows each lot for single-family house (attached or detached) to also contain an urban cottage, a smaller, secondary unit. The urban cottage can be up to 1,200 square feet. The code replaces existing land use requirements and existing review procedures.

The code was carefully prepared to fit the range of physical conditions and intended physical character in each neighborhood through an extensive analysis of historic patterns in the area. This information was transformed into a master plan for the 352-acre site through a multi-day design charrette in 1988 with construction starting in 1991. The master plan identified the new network of blocks and a variety of streets along with direction for the standards: building types, setbacks, building height, and lot coverage.

- **Height:** The code allows the building types relevant to this analysis up to 4 stories. Interestingly, there is no height limit for structures or portions of structures with a footprint of less than 215 square feet.
- **Lot coverage:** The code does not regulate lot coverage, relying instead on building setbacks and required open space.



- **Density:** The code does not regulate the density of individual buildings but regulates the overall number of units within the 352-acre overall site. The code regulates non-residential space through floor area ratios that vary depending on the use (e.g. retail up to 0.60, office up to 0.65, and other commercial up to 0.15).
- **Building types:** The code identifies eight building types, ranging from small detached houses to rowhouses to apartment buildings and Main Street buildings.
- **Frontage:** The code does not specify frontage types but requires, as most FBCs do, that a minimum amount of the building's facade be placed along the front setback. This is intended to shape the public realm and is typically done in other FBCs through frontage types.
- **Parking:** The parking requirements are more suburban at two spaces per unit and reflect the larger suburban context surrounding the development.

Integral relief from standards

The code does not provide options for administrative reductions in the standards. However, the project was established with a town architect representing the developer and the community. The town architect reviews all proposed plans and makes a recommendation to the city, who has final review authority. Because the master plan and vision are clear about the physical expectations for the site, the town architect can work with developers to adjust their plans without the need for specific procedures.

Built results

This development is nearly built-out, having been under construction since 1991. The built results range from carriage houses, detached houses, duplexes and rowhouses to small- and medium-size multifamily buildings and Main Street buildings that include a variety of housing choices.

Cincinnati, Ohio—Chapter 1703 Form-Based Code

Code Preparer: Opticos Design, Inc.

Contact at City: Alex Peppers, AICP, Supervising City Planner, Department of City Planning

Background and the reason the code was prepared

This code is a form-based set of nine zones and standards for 42 neighborhood centers and the adjacent neighborhoods. Six of the zones are relevant to the focus of this analysis. The areas to be zoned with form-based zones were identified by the community as currently walkable or as areas that they desired to be walkable. This was part of a larger effort to apply a form-based approach to Cincinnati's Comprehensive Plan, *'Plan Cincinnati'*. The neighborhoods range from low-intensity single-family neighborhoods with thriving neighborhood Main Streets to higher intensity neighborhoods with and without neighborhood Main Streets.

How was the code adopted?

Once applied, the code is mandatory and replaces the existing zoning with form-based zones. Then, the standards apply to new buildings and additions. The first part of the process was to generate the palette of form-based zones through a public design charrette process. Once the communities could see why each zone was created, they could then identify which zone(s) are to be applied to their neighborhood. This process was established with a pilot group of four neighborhoods that tested this process, paving the way for future neighborhoods to do the same when ready. This technique offers clarity about the process, while leaving the timing and refinements up to the individual neighborhoods.

What does the code allow?

The code allows a range of building types, including carriage houses, duplexes, sixplexes, multiplex buildings, live-work buildings, courtyard buildings, and Main Street buildings with housing. The buildings range from 2 to 4 stories depending on the zone. The code replaces existing land use requirements and some procedures, while relying on most existing review procedures.

The code was carefully prepared to fit the range of existing lots in each neighborhood through an extensive microscale documentation and analysis. This identified the prevalent patterns of building types, setbacks, building footprint, building height, ground floor height, and lot coverage.

- **Height:** The code specifies height in stories and feet. The T3E, T3N, T4N.MF and T4.SF zones allow up to 2.5 stories. The T5MS and T5.LS zones allow up to 4 stories.
- **Lot coverage:** The T3 zones are limited to 35 percent, while the other zones are limited by the setbacks and open space requirements.
- **Density:** The code does not mention or use density as a regulation. This is possible because of the extensive analysis and testing of the existing and range of allowed building types and how they fit on the existing lots in each of the different neighborhoods. With this understanding about the actual performance, size and scale of each building type, the need to regulate by density no longer existed.



- **Building types:** Nine allowed building types, including carriage house, detached house, duplex, sixplex, cottage court, rowhouse, live-work, multiplex (up to 20 units) and Main Street building, provide the options for development across these neighborhoods. This wide palette of types is necessary to address the intended physical character of the 42 neighborhoods, as many of the desired types already exist but were not acknowledged by the existing zoning.
- **Frontage:** Eight frontage types are identified for shaping the public realm along the front and side streets of each lot. Each frontage type connects the public realm to individual development of buildings while improving the public realm.
- **Parking:** The approach to parking acknowledges the existing and intended neighborhood main streets with the range of services, retail and restaurants within short walking distance of most dwellings in these neighborhoods. The T3 zones require at least one space per unit. The T4 zones require from 0.5 to 1 space per unit and the T5 zones require one space per 1,500 square feet.

Integral relief from standards

The code describes a set of situations where a variation from the standards may be granted administratively. The allowable situations for granting a variation include reductions in setbacks, reducing the amount of facade along a build-to line, reducing lot dimensions, and reducing off-street parking requirements. Each neighborhood has existed for over 100 years, which presents many situations and unique factors in existing conditions (site features, trees, etc.). This makes it necessary to integrate this type of flexibility, but with clarity about when and how much of a reduction to allow.

Built results

The built results are primarily in the upper end of the intensity range with low- to moderate-intensity buildings expected in the next group of development applications.

Mesa, Ariz.—Central Main Area Code— Chapters 56 through 64

Code Preparer: Opticos Design, Inc.

Contact at City: Jeff McVay, Manager of Downtown Transformation, City of Mesa, AZ

Background and the reason the code was prepared

This code is a set of form-based zones for the central area of Mesa, including the downtown. The code was prepared to realize better walkable urban development while improving the review and processing time for development applications.

How was the code adopted?

The code was adopted as an optional form-based code in 2012. The optional aspect was in response to the then-proposed Proposition 207, which was later adopted and requires cities to reimburse property owners for real loss in property value attributed to a zoning action. To avoid the exposure to significant claims anticipated with a large-scale city-initiated rezoning, Mesa decided to provide the form-based code as an option to the existing zoning. As a result, if an applicant/owner wants to use this code, this code requires that they choose to opt into the form-based code as part of the application process. The process is simple and quick, but the owner must opt into the form-based code or stay with the existing zoning.

Once the applicant opts into the form-based code, the code is mandatory and replaces the existing zoning. Then, the standards apply to new buildings and additions. The new zones were identified and applied through a public design charrette process that tested the emerging standards against the community's expectations before making the draft standards.

What does the code allow?

The code includes six zones ranging from low-intensity single-family neighborhoods (T3) up to intense downtown Main Street environments (T5 and T6). The low- to moderate-intensity neighborhoods are the focus of this analysis (T3N, T4N, T4NF, and T4MS).

The code was carefully prepared to fit the range of intended physical character of each neighborhood through extensive analysis of historic patterns in the region. This information was transformed into possible outcomes and corresponding standards through a multi-day design charrette in 2010. Those results were integrated into the City's master plan for the area and then into form-based zones.

- **Height:** For the T3N, T4N, T4NF, and T4MS zones, the code only specifies height in stories. The T3N zone allows up to two stories, the T4N and T4F zones allow up to 3 stories, and the T4MS zone allows up to 4 stories when including certain affordability/senior components.
- **Lot coverage:** The code does not regulate lot coverage, relying instead on building setbacks and required open space.
- **Density:** The density of individual buildings is determined by the building types allowed in each transect.



- **Building types:** A total of nine building types are allowed in the zones including carriage house, single-unit house, bungalow court, duplex, townhouse, mansion apartment, apartment house, courtyard building, Main Street building and Mid-rise building: 6 types in T3N, 9 types in T4N, 9 types in T4NF, and 2 types in T4MS. The code includes plan diagrams and descriptions showing the standards for each allowed building type in each zone.
- **Frontage:** A total of ten frontage types are identified for shaping the public realm including common yard, porch and fence, stoop, forecourt, dooryard, shopfront, terrace, and gallery, and arcade depending on the location.
- **Parking:** The approach to parking is progressive and based on the proximity to walkable services and the light rail transit along the Main Street corridor, which spans most of the code area. Developers have responded to the reduced parking requirements, but lender parking requirements have resulted amounts in excess of the allowed minimums. However, recent projects have effectively worked with lenders to fund projects with urban parking ratios.

Integral relief from standards

This code does not include provisions for adjustments or modifications because it relies on existing variance procedures and an informal process during zoning clearance review.

Built results

The majority of the built results were developed with the mid-rise building type and a small number were built with the single-unit house. To date, the vast majority of units are all for rent. Although the City believes there is much demand for ownership units, the for-sale end of the spectrum has not been realized because of developers' concerns about recent history of unfounded litigation against condominium projects.

Challenges

- Lawsuits against condominium ownership.
- The existing base zoning can occur next door to a parcel that opts into the form-based code, affecting the form-based code's predictability of what can be expected on any block.
- Lack of integrated relief from standards for design excellence.

Peninsula Neighborhood, Iowa City, Iowa—Peninsula Code

Code Preparer: Ferrell Madden Associates

Contact at City: Anne Russert, AICP Senior Planner, City of Iowa City

Background and the reason the code was prepared

This code is for an entirely new development on a 70-acre site within Iowa City. The neighborhood is the result of the city purchasing the site in 1995 to protect its water supply while providing affordable housing and demonstrate excellence in neighborhood design through this prominent site. The city commissioned a public participation charrette led by Dover Kohl Partners to determine a community vision for the site that resulted in a master plan and design guidelines. The city then hired a development team to write a form-based code for the project and move forward with its implementation.

How was the code adopted?

The code is mandatory and was adopted in 2001 through the Planned Unit Development process. The site was rezoned to OPDH-5.

What does the code allow?

The code implements the vision for a low- to moderate-intensity neighborhood of up to 340 units. The code identifies ten building types ranging from small-to-large houses, duplexes, up to small and large apartment buildings and live-work/Main Street buildings. ADUs are allowed by-right but require that the owner of the primary house occupy one of the units.

- **Height:** The code specifies maximum height in stories and feet. The maximum allowed height ranges from two stories and 35-feet for the four types of houses, to 3 stories and 35-feet for rowhouse buildings, to 3 stories and 48-feet for small apartment buildings, to 4 stories and 40-feet for live-work/Main Street buildings, and 4 stories and 48-feet for multi-unit buildings. The multi-unit building type is further limited to 200-feet in length. This along with a maximum height standard is an effective technique to reduce the visual size and scale of a building in this type of neighborhood.
- **Lot coverage:** The code does not regulate lot coverage, relying on building setbacks and required open space.
- **Density:** The code does not regulate the density of individual buildings.
- **Building types:** A total of ten building types are allowed ranging from estate house, peninsula house, bungalow, cottage, and cottage flats (duplex), to townhouse (two stories), rowhouse (3 stories), live-work (Main Street building), small apartment, and multi-unit building. The code includes plan diagrams and descriptions showing the standards for each allowed building type.
- **Frontage:** The code requires that a minimum amount of the facade be placed at the minimum setback line and requires porches in certain locations.
- **Parking:** The approach to residential parking is not aggressive and counts on-street parking as visitor parking. The non-residential requirements are reduced to apply only above 1,500 square feet to encourage small businesses.



Integral relief from standards

This code does not have provisions for adjustments or modifications because it relies on the City's existing variance procedures.

Built results

The neighborhood is built-out with all of the allowed types and has attracted some of the expected neighborhood services and retail, making this a complete walkable environment.

FORM-BASED CODES (FBCs) CASE STUDIES

Meridian Court, Courtyard Apartment Pasadena, Calif.

- **Code type example:** Form-based code for infill development
- **Contact:** Juan Gomez-Novy, Architect, Moules & Polyzoides Architects & Urbanists

Client/Team

- **Developer:** Meridian Properties, LLC.
- **Builder:** Del Pesco, Inc

Size and scale

0.38-acre site; 3 unit types (1 to 3 bedroom), 10 dwelling units total

Unit size range

1,300 to 1,800 square feet

Density

26 dwelling units per acre

Project timeline

The project was reviewed and approved by the city within 6 months of submitting the plans and was built in 1999.

Project costs

- **Soft Costs:** Not available
- **Construction Costs:** Not available
- **Sale Price:** Not available

Project description

The project is a house-scale condominium building comprised of 10 fee-simple townhouse units built around a shared courtyard. Two single-family lots were combined to make a 120-foot wide by 140-foot deep site with an area of 16,800 square feet (0.38-acres). The building is primarily two stories tall, with a small three-story portion at the rear. It contains 13,650 square feet of habitable space and has a density of 26 dwelling units per acre. Unit sizes range from one- to three-bedrooms and from 1,300 to 1,800 square feet in area. All units are accessed directly from the sidewalk or from the courtyard. The building is built over a subterranean garage that accommodates 30 parking spaces, ten of which are dedicated to the offices of the architects who designed Meridian Court. The office building is listed on the local historic register.





Zoning and Neighborhood Description

Located in Pasadena, California at the corner of Marengo Avenue and California Boulevard, the project is designed per the City of Pasadena's "City of Gardens" Ordinance (adopted in 1989). The site is situated at the edge of a well-established residential neighborhood comprised of a mix of detached houses and small multifamily buildings that abuts a commercial district containing one- and two-story commercial buildings. The Metro Gold Line light rail train stops within a half-mile of this site, and bus service is available along Marengo Avenue and California Boulevard.

Successes

- The courtyard, designed as a garden reminiscent of historic courtyard buildings in the area, provides shared open space for residents, and in the spirit of the guiding City of Gardens ordinance, ensures that green space in the neighborhood is preserved.
- Each unit's private patio space is unique based on the location of the unit on the site. Two units contain completely internalized patios.
- Consistent with the provisions of the City of Gardens ordinance, the three-story portion of the building is located in the rear corner, away from the adjacent streets to preserve the two-story character of the existing neighborhood. The three-story portion adds visual interest to the courtyard and enables larger three-story units to have views of the city and the nearby mountains.
- The developer provided medium to large units in response to an oversupply of small units within the area at the time.
- The garage is completely subterranean, and the driveway entry is located to the side of the facade. The high cost of land in the area supports the construction of subterranean parking. The concealed garage ensures that the building fits in with the single-family houses and small-scale multifamily buildings of the neighborhood and with the adjacent historic office building.
- The front facade was designed with the scale and massing of large estate houses in the area, disguising the fact that the building has 10 units.
- The side façade was designed as a series of townhouses accessed by stoop entries. These units are also accessed from the main courtyard.

Challenges/Lessons learned

- The project required a variance to reduce the side street setback from 15 feet to 5 feet. The 5-foot setback was consistent with the neighboring historically designated office building and other nearby commercial buildings that were built close to the sidewalk. Without the variance, the increased setback would have made it impossible for the project to comply with the required courtyard size. City staff recognized that designing the project to conform with the character of the adjacent commercial district made for a better project.
- The City did not permit the garage to be accessed from the side street and at the site's low point, since the side street was a major crosstown corridor. Consequently, the garage entrance had to be accessed at the high point of the site from the front street.
- The project team wanted to design the building in the same style as the historic building west of the project, but the historic preservation advocates required that this building be totally different in style and materials.

Mansion Apartment, New Town St. Charles St. Louis, Mo.

- **Code type example:** Form-based code for greenfield development
- **Contact:** Tim Busse, Town Architect, The New Town at St Charles

Client/Team

- **Developer:** Whittaker Homes
- **Builder:** Whittaker Homes
- **Photographer:** Larry Duffy

Size and scale

0.17-acre site (6 units); 0.10-acre site (3 units)

Unit size range

840 to 1,300 square feet; two dwelling unit types (one to two-bedroom)

Density

36 dwelling units per acre (6 units) to 31 dwelling units per acre (3 units)

Project timeline

The mansion apartment building was reviewed and approved by the city in one month and built in 2004 for a total timeline of 6 months. This community features a town architect who designs each building for the builder or reviews and provides a recommendation to the city for submitted designs. The project is regulated by a form-based code that covers the entire 726-acre community.

Project costs

- **Soft Costs:** \$5,000
- **Construction Costs:** \$448,000 (6 units), \$248,000 (3 units)
- **Sale Price:** \$120,000 per unit

Project description

The project in this analysis is a house-scale mansion apartment building. The mansion type is intended to appear as a large single-family house but contains 6 units. The building is on a 70-foot wide by 105-foot deep lot of 7,350 square feet with alley access (0.17-acre site). The building is two stories, contains 5,600 square feet of habitable space distributed to make 6 units (36 dwelling units per acre). A variation of this type is made by reducing the number of units to 3 (3,100 square feet). This variation fits on a 40-foot wide by 105-foot deep lot of 4,200 square feet (0.10-acre site; 31 dwelling units per acre). The units are a mix of one- to two-bedrooms and range from 840 - 1,300 square feet. An entire building is for sale as rental apartment building or units may be purchased separately by individuals. All units feature walk-up access and can be organized as townhouses or stacked flats. Parking is at the rear of the lot with 6 spaces (one off-street per unit and one on-street per unit).



Zoning and neighborhood description

The mansion apartment building is one of several building types within the 726-acre New Town St Charles development that is reviewed in Chapter 2, which is planned for six new neighborhoods based on the historic patterns and buildings of the St. Louis region. The mansion building type has been built along New Town Avenue, a major east-west street, and along side streets.

Successes

- The rental occupancy rate is 95 percent and very good given the region's negative perception toward rental and especially toward multifamily housing.
- The mansion buildings gave people a level of comfort, because multifamily has a negative track-record in St. Louis. People who were looking to build a single-family house in the neighborhood actually said "*...I want to build my house to look just like that...*" before they knew that the mansion was a 6-unit building.
- The mansion buildings include a two-story porch to provide upper story units with outdoor space along the street. Over time, the two-story porch has been requested by at least half of the homeowners who want a two-story house.
- Small-increment owners could now buy small-apartments as income property and are increasingly doing this. Until this, the only option for income property was large apartment projects.
- There was an 18- to 24-month backlog for buying, constructing and moving into single-family houses in the community. Many of these owners rented an apartment in a mansion building while waiting for their single-family house to be completed and confirmed that they wanted to live in this community; doing so changed their perception of multifamily housing and density.

Challenges/Lessons learned

- The mansion building turned out to be more expensive to build than expected because the detailing was more than the local trades were accustomed to doing. In addition, new elements such as porches had not been built by locals in a long time, and it took time to develop efficiencies.
- People who hear about the 'high' density in this community react negatively at first but when they see and walk through the Mansion, their attitude changes positively. This takes some time because of the region's strong resentment toward apartments.
- Some people are choosing to rent because until this project, they did not feel they had that option since apartments in the region are not typically desirable.

Kentlands Cottages (Tower Houses), Kentlands Gaithersburg, Md.

- **Code type example:** Form-based code for greenfield development
- **Contact:** Planning Division, Planning & Code Administration, City of Gaithersburg

Client/Team

- **Architect:** CHK Architects & Planners, Inc
- **Developer:** Great Seneca Development Corporation
- **Builder:** Mitchell & Best Homes

Size and scale

0.02-acre site, 10 dwelling units total

Unit size range

1,288 to 1,544 square feet; 2 - 3 bedroom

Density

40.33 dwelling units per acre

Project timeline

The project site plan was reviewed and approved by the city Planning Commission in January 1988 and the final architecture in September 1998. Building permits were submitted in October and approved in early December. Construction was completed for 10 Kentlands Cottage units between May and November of 1999 for a total timeline of 17 months. The overall Kentlands development features City-approved design guidelines and a Community Architect who provides a recommendation to the city for submitted designs for conformance to the guidelines. The project is regulated by the MXD zone that was specifically prepared to implement the master plan for the entire 352-acre community and is now used in many other areas of the City.

Project costs

- **Soft Costs:** not available
- **Construction Costs:** \$215,000
- **Sale Price:** \$279,000 initially in 1998; \$599,000 in 2018¹



¹ The 2016 5-year ACS reports the median value of owner-occupied housing in the City of Gaithersburg at \$369,900.

Project description

The project in this analysis is a house-scale, detached single-family Kentlands Cottage. The house has a compact footprint of 24-feet by 30-feet and is on a very compact lot that faces a small public green. The lot is typically 30-feet wide by 36-feet deep, with 1,080 square feet and alley access (0.02-acre site). The building is 3.5 stories and contains 1,288 to 1,544 square feet of habitable space (40.33 dwelling units per acre). The units are for sale and have two to three bedrooms. All units feature walk-up access and are detached, arranged side by side, fronting the small public green. Parking for each unit is in a tuck-under garage with two spaces that is accessed from the rear of the lot.

Zoning and neighborhood description

The Kentlands Cottage is within the 352-acre Kentlands development of nine neighborhoods, including a small downtown, all based on the historic patterns and buildings of the region. The Kentlands code was reviewed in Chapter 2. The Kentlands Cottage building type has been built on lots where the block shape is not typical, providing the opportunity to place a grouping of these buildings facing a small green at street corners.

Successes

- The Kentlands Cottage provides a very small footprint house that can fit in many places, providing variety within a neighborhood and overall in the development.
- The Kentlands Cottage is similar to the 'tuck-under' type in other parts of the U.S., with its compact footprint and ground floor mainly being a garage. The Kentlands Cottage is more effective though, because it seamlessly fits into the street network without adding driveways or changing the size and shape of blocks. This is because the type always fronts on a public green that is part of the block and because it shares the alley at the back of the lot.

Challenges/Lessons learned

- Working with the Community Architect and three reviews by the Planning Commission (April, June & September) were required for final approval of the architecture.
- Only 10 buildings of this type exist in Kentlands because it was not introduced here until the last phase. It may have been used more often if introduced earlier.



Mews Townhouse Units, Daybreak South Jordan, Utah

- **Code type example:** Form-based code for a greenfield development
- **Contact:** Jason Nageli, Vice President of Sales and Marketing

Client/Team

- **Architect:** Opticos Design, Inc.
- **Developer:** Holmes Homes
- **Builder:** Holmes Homes

Size and scale

3.2-acre site; 64 mews units total

Unit size range

958 to 1,416 square feet; 5 mews unit plans; 2- and 3-bedroom units

Density

- 20 dwelling units per acre overall density
- 20 to 30 dwelling units per acre unit density

Project timeline

The project started design in 2014 and is being constructed in phases. About half the development was completed construction and sold in 2017/2018.

Project costs

- **Construction Costs:** \$113 to \$136 per square foot
- **Total Costs:** \$211,000 to \$242,000 per unit
- **Sales Prices:** \$237,000 to \$278,000

Project description

The project in this analysis is a house-scale townhouse. The townhouses are attached and have compact footprints ranging from 26 feet by 26 feet to 26 feet by 52 feet. Each unit is oriented with the longer side facing a pedestrian passage, which is atypical for conventional townhomes. This allowed the units to fit on the narrower lot sizes that were left over after the conventional townhouses were laid out on the predetermined block sizes. Each building contains two units, with some containing three units. All units front on dedicated pedestrian passages that have been designed as courts. All units have a private,



fenced patio area, with tuck-under parking accessed from an alley off the rear. The developer's objective was to provide a market-rate, entry-level purchase price point for townhomes. The for-sale two- and three-story units range from 958 to 1,416 square feet of habitable space.

Zoning and neighborhood description

The project is within the 4,000-acre master-planned Daybreak community, which was designed using a traditional neighborhood development model so that all homes are within a five minute walk or bike ride of a major commercial or civic amenity. The Mews development walk shed includes a light rail station and a large park. Many of the home designs were inspired by Salt Lake City's historical neighborhoods and include large front porches and alley-loaded garages and were built by multiple developers. The community is currently divided into several neighborhoods, which are designated as villages that were created using the form-based development standards. See Chapter 2 for the detailed review of Daybreak. There is a diversity of housing types within the community that includes for sale (attached and detached) and multifamily rental units.

Successes

- The developer was able to deliver an entry-level price at the highest square foot sales price of any of their product.
- The Mews were the first townhomes to sell in the Holmes developed project area.
- The design turned a constraint (awkward lot configuration) into a successful, small scale project through an unconventional approach.
- The unit orientation provides more opportunities for light and air than a conventional townhouse orientation.
- Having a design that allows for private outdoor living areas specific for each owner.
- Interiors with two-story volumes had a strong market appeal as did extended garage sizes for additional storage.

Challenges/Lessons learned

- Awkward lot configuration that was challenging for the efficiency of a typical block layout.
- Primary challenges were accommodating the grading at the front entrances without having too many stairs protruding into the pedestrian court. When building on smaller lots, it is critical to plan for additional design time to consider each unit independently.
- There were issues with the HVAC units, both in terms of installation and having enough space. When working with small unit plans, every appliance and piece of equipment needs to be thoughtfully accommodated during the design phase, as there is not a lot of extra space to adjust during construction. As the units are built slab on grade, the heating had to be provided from above, which can be challenging for double height spaces. Some plan changes were made during construction to resolve the HVAC issues.



This document is a portion of NAHB's report
Diversifying Housing Options with Smaller Lots and Smaller Homes
[Click here to view the full report.](#)

Diversifying Housing Options with Smaller Lots and Smaller Homes



Photo Courtesy of Ross Schmitt

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