Pedagogy Plus Practice:
Engaging Boston's Housing Crisis in the Design Studio

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To bridge the gap between an architectural education and the realities of practice, architecture students must, at some point in their academic experience, engage the full complexity of issues that come to bear on real building projects. A design studio that focuses on urban housing evokes a broad range of issues that extend beyond architectural design, including urban planning, economics, demographics, zoning and building codes, and politics. By incorporating these issues of practice into the studio program, the architecture student will become cognizant of the multi-faceted nature of the building process. I am not, however, advocating a design studio that subjugates design for practical considerations; design remains the architect's prerogative. To best equip architectural students with the tools to support their design capabilities, I believe that they should first confront within the academic context the most difficult questions that face the profession, so that they will be better prepared to facilitate good design in the profession.

At Northeastern University, I have initiated an Urban Housing Design Studio that culminates the studio sequence and prepares students for the broad range of issues to be addressed in their independent research during their subsequent thesis year. The topic of housing is critical to Boston because the city is suffering from a dire housing shortage that threatens the quality of life and economic stability of the region. While many Bostonians are benefiting from the economic expansion of the 1990s, moderate income families are forced out of their neighborhoods due to an extremely low housing supply and an extraordinarily high demand. This crisis is affecting more than the ever-vulnerable lower income groups; middle income groups are also being priced out of neighborhoods that had been home for generations to Boston's working families.

This paper will first provide a brief synopsis of the housing crisis in Boston, including the origins of the crisis and its effect on the contemporary city. Second, I will describe how the urban housing design studio at Northeastern University analyzes the physical, financial, legal, and the social issues inherent in the production of housing in Boston. Finally, I will explain how this inclusive criteria educates the architecture student in design and civic responsibility.

AN ANATOMY OF BOSTON'S HOUSING CRISIS

The current cause of the housing crisis in Boston is the confluence of low supply and high demand. The demand for housing in the Metro-Boston area is created by people seeking the wealth of employment opportunities, the many desirable urban and cultural amenities, and the plethora of educational institutions. Students, for example, are willing to borrow money now to pay high rents in order to study at Boston's renowned universities as an investment in their future. Students are also generally willing to pay high rents for units that in other cities would be considered less desirable living conditions. This trend absorbs many units that would otherwise be available to modest income groups. The students of the sixty or more universities in the Metro-Boston area that seek off-campus apartments exert an intense demand for housing throughout the city and the entire region.

Zoning regulations implemented during Mayor Ray Flynn's administration in the 1970s have prevented a greater density of housing to be built for the last twenty years. These obsolete regulations were instituted by the Boston Redevelopment Authority under Mayor Flynn to placate various neighborhood groups concerned that new housing construction would gentrify their communities and make them unaffordable. This strategy, unfortunately, has back-fired: housing costs in these communities have risen sharply because of the resulting lack of supply. More recently, in 1995, rent control was repealed so landowners can now charge what the inflated market will bear. Naturally, the lower income groups increasingly can no longer afford to live within or near the city. The supply is being consumed by the few who can afford it.

Currently, a low supply of housing is maintained by the difficult and dense web of bureaucratic and political hurdles a developer must overcome in order to build housing in the city. Similarly, Boston's zoning mandates a strict separation between land uses such as residential and commercial buildings. If a lot is underutilized, but has been zoned for a commercial use, residential development can not be built there unless the developer chooses to engage in the costly process of changing the localized zoning. The separation of land uses mandated in Boston's current zoning negates the possibility of emulating an urban fabric that makes his-

toric Boston so desirable: mixed-use buildings with residences on top of street-level retail.

The lack of housing supply has reached a dangerous level that not only affects the lower income groups by making housing unaffordable, but also it affects the middle and upper income groups comprising the work force that fuels Boston's sophisticated financial markets and technology-driven economy. These industries have blossomed during the past decade, and therefore, people from around the world are attracted to the area. If satisfactory housing for all these groups is unavailable, the work force will be alienated from the region, thereby eventually destroying Boston's desirability and economic stability. This housing crisis, therefore, is affecting all economic groups and all scales of business; it is not just a problem for an unfortunate few of modest means.

AFFORDABLE HOUSING VERSUS MARKET-RATE HOUSING

The cost of planning and construction of affordable housing is equal to the cost of market-rate housing. The quality of affordable housing has to be as good, if not better than, market-rate housing because it must withstand years of rental tenants versus owner-occupied units. The downsides to financing affordable housing are twofold. First, one cannot charge as much for the units, so the profit margins for affordable housing are much lower. Second, most affordable units are rental properties, so the return on the investment occurs over a long period of time instead of immediately after construction upon the sale of a condominium unit. These two points are critical because there are diminishing subsidies from the government for affordable housing. This leaves only developers to finance the majority of housing construction.

The gap between the developer's motivation towards maximum profit and the communities' desire not to displace members of modest income is often bridged by designating a certain percentage of the units as affordable, or below-market-rate units. This economic and political compromise, called "linkage," has been instituted by Mayor Thomas Menino for all new housing in Boston. The city, therefore, could use the leverage of the tremendous development opportunities that would be generated under a plan of greater housing density to insure that new housing will not displace any community members of modest incomes. In fact, not only would a greater density of housing reduce the overall demand, but also it would significantly increase the number of designated affordable units under the Mayor's plan.

The Urban Housing Design Studio does not, therefore, propose "affordable" housing per se. Instead, this studio focuses on market-rate housing to increase the overall housing stock within the city. This proposal would produce more affordable, available housing by moderating the supply-and-demand ratio throughout the city. This studio also considers diverse housing configurations in response to the diverse social and familial types, including a couple with children, a single parent with children, couples with no children, extended families living under one roof, single occupants, and roommate units.

BOSTON'S URBAN MORPHOLOGY AND HISTORY

Boston's urban morphology is a radial pattern of main streets that emanate from the historic center, or "hub." These major radiating streets mark the development of the city in the nineteenth century as it expanded out from the downtown along these primary arterial boulevards, or "spokes." The main streets became a continuous thread stretching from the hub out to the surrounding open land that was ideal for more development. These streets were defined by four-to-five story row houses with commercial spaces at grade and residences above. The consistent row house pattern was periodically interrupted by civic and religious buildings that were also typically located along the main streets. The zones between the radiating spokes developed as residential areas with detached multi-family homes and a plethora of open space. The main streets served the interstitial neighborhoods with their commercial amenities, civic centers, and religious institutions. They also provided the mass-transportation and vehicular routes back into the downtown.

These new neighborhoods were deemed the emerging communities of the city. It was a place in which immigrants would aspire to live and ultimately occupy after fulfilling their American dream of prosperity. During the first half of the twentieth century, these neighborhood continued to flourish as the immigrant class transformed itself into a burgeoning middle-class. Main streets such as Washington Street extend from downtown Boston, through Roxbury, Jamaica Plain, Forest Hills, and beyond to the west. Dorchester Avenue starts in South Boston and interconnects many of the neighborhoods of Dorchester at points to the south. Commonwealth Avenue starts in the Back Bay, and extends out through the Allston and Brighton sections of Boston. Together, these neighborhoods created a para-urban periphery around the hub that had many of the urban amenities of the downtown, but not the urban congestion associated with the city center.

After World War II, development no longer followed the pattern of the hub and its radiating boulevards. New super highways and a commuter-train network stepped over the semi-urban main streets in favor of semi-autonomous suburban communities isolated by countryside. The towns of Boston immediately surrounding the hub, including Dorchester, Mattapan, Roxbury, Jamaica Plain, Allston, and Brighton, became the repository of the urban poor. Businesses began to suffer and the housing began to deteriorate as the middle-class wealth fled for the suburbs. A vicious downward spiral of dis-investment ensued and led to properties being abandoned and/or burned down, creating a zone of post-urban decline in its wake. This mid-century suburban flight was exacerbated by the racial tensions of the 1960s and 1970s. The physical pattern and the social fabric of these communities was in decline.

Today, the main streets that interconnect the city's neighborhoods are typically unattractive, under-utilized, and lack a clear urban

integrity. Because these main streets still serve as regional transportation arteries, people from all over the Metro-Boston area travel along these routes going to or coming from downtown. These streets constitute the primary identity of their neighborhood, and collectively, they become the image of the city. Although the main streets are not developed to their capacity and they project an image of despair, there is no comprehensive strategy to address the condition of Boston's main streets. Ironically, the neighborhoods that exist along these major thoroughfares are also the areas most adversely affected by the housing crisis.

URBAN HOUSING DESIGN STUDIO: STRUCTURE

Unique to the Urban Housing Design Studio is its team structure. Students work in teams of four to five students, and there are typically three to four teams working on the same site during the term. Each team first must decide how to organize its internal management. Some teams agree on an urban plan and zoning rules, then each individual member designs his/her own buildings needed to fulfill the plan. Other teams designate specific tasks or topics to the members. For example, one member may be in charge of the urban plan, another member may be in charge of the design of the housing units themselves, and yet another member may be responsible for designing the exterior spaces such as roadways, sidewalks, parking, and green spaces. The team structure is a political microcosm where the students must learn to adapt their personal agendas in order to benefit the project. Working in collaboration with other people with a diverse set of ideas is intrinsic to the production of urban housing.

The first phase of the urban housing studio is a rigorous analysis of urban form. Students identify desirable urban types that exist in Boston, such as the Back Bay, the South End, or urban campuses. The elements of each type are then extracted and catalogued for future reference, such as row houses, triple-decker houses, storefronts, and street wall. Also, the dimensions of buildings, sidewalks, roads, and open spaces are documented to calculate the density of each neighborhood type. The next phase is an analysis of the building codes to determine what construction types are possible and what configurations are legally allowable for the housing units. Here, dimensional requirements are determined, i.e., minimal dimensions of rooms and ceiling heights, required maximum distances from kitchens to windows, and the requirements for exit stairs and hallways. The students also meet with architects who are involved with urban housing in Boston to get a comprehensive view of the design process. Finally, the students learn about the financial criteria necessary to determine if a developer will be willing to invest in a project. At this point, they meet with developers to learn about all the financial factors considered in a large scale housing project in the city. The students accumulate a substantial body of information before they plan and design their housing projects.

URBAN HOUSING DESIGN STUDIO: LOCATION

Once the team structures are in place, and the all the factors that have an impact on the design of urban housing are understood, the students then focus on the specific site chosen for the studio. Sites are located along the radiating main streets of Boston where the continuity of the urban fabric has been interrupted by neglect, destruction, incompatible development, or infrastructural intervention. Because these streets currently consist of an interrupted urban street wall, one-story retail buildings, light industrial buildings in poor condition, and under-utilized vacant lots, they are an ideal location for new housing and related neighborhood amenities, such as parking, retail stores, medical facilities, and day care. Development along Boston's main streets would not only ameliorate the housing crisis, but also it would reconstitute the urban fabric, repair the street wall, induce more pedestrian vitality, and improve the city's image and livability.

Reusing land that has already been built upon and subsequently abandoned is a form of "sustainable" development. Building housing with a greater density within the city's boundaries and mixing uses together so residential neighborhoods have amenities and services close by would eliminate traveling long distances between the home and businesses. It would reduce the time one spends in the automobile, it would reduce pollution, and it would preserve more of the natural surroundings beyond the city limits. If travel is necessary, mass transportation already exists along the main streets, thus further reducing the automobile's impact on the city.

The post-war middle-class migration to the suburbs runs directly counter to the ideals of sustainability due to the lack of population density and the lack of proximate diverse use-groups. In the suburban model, single-family detached-home developments devour the environment with inefficient land use, and great distances exist between the residential communities and the commercial centers. These separate districts are connected by congested highways which add pollution, use more natural territory, and occupy great amounts of a commuter's valuable time. We can help curtail suburban sprawl by developing under-utilized areas within the city with a greater residential density and more programmatic diversity.

The site chosen for the Urban Housing Design Studio Spring term of 2000 was on Washington Street, beyond Roxbury and Jamaica Plain, in an area called Forest Hills. A twelve acre parcel across Washington Street from the Forest Hills "T" station lies vacant with the exception of a single-story garage building owned by the regional transportation organization known as the MBTA. The site is surrounded by other vacant lots, gas stations, and other single-story retail buildings, and yet it is within view of the Prudential and Hancock towers in the Back Bay. The scale of the structures adjacent to the site vary considerably: one edge of the site is bounded by a raised highway called the Arborway, while the housing that constitutes the neighborhood behind Washington Street is typical detached, triple-decker, three family homes. The students were asked to consider the impact on the existing community when planning their new housing.

URBAN HOUSING DESIGN STUDIO: DESIGN

Using the accumulated information from the analytic phases, the teams established design goals for density ratios and percentage of unit types, such as three, two, or one bedroom units. Also, the teams had to decide for themselves what other use-groups to include in their design proposals to create a desirable environment. These uses included large retail stores such as super markets, small "mom-and-pop" stores and services, market places, day care, and medical facilities. Another critical consideration was the amount and type of vehicular parking. It became clear from the beginning of the planning and design phase that not only were the students proposing new housing on Washington Street, but also that they were creating a whole new community. A "community" should include enough amenities and services so people can live comfortably without having to travel far for the basic necessities, such as groceries, restaurants, and transportation links. It should also have a cohesive urban and architectural identity and be sympathetic to the surrounding existing neighborhoods.

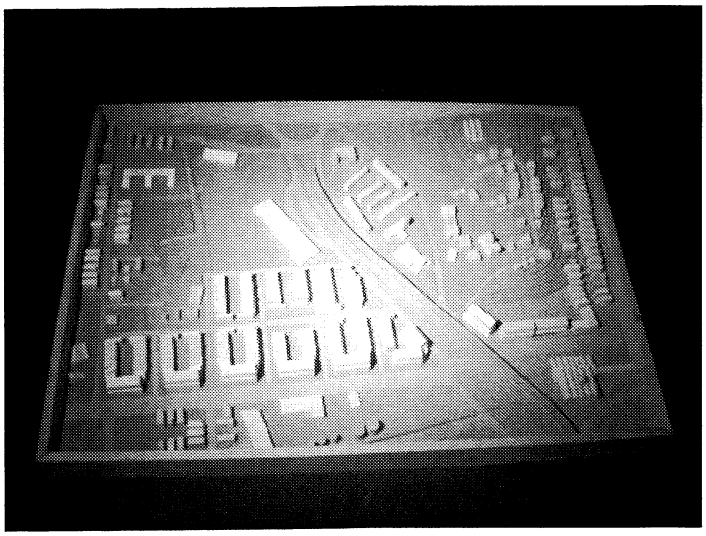

Fig. 1. Project 1.

The first project is based on a repeated street pattern that blankets the site. Seven story units face onto Washington Street with retail at the sidewalk level. This creates an animated urban edge along the major thoroughfare, and it is periodically interrupted by the perpendicular side streets. The height mandates that steel frame construction be used. Seven stories is the maximum height before one must conform to more stringent high-rise building codes that create an economic and architectural threshold developers do not want to exceed. The row houses on the side streets are just four stories; this allows for less expensive wood frame construction. A third type of street with a low profile is introduced through the center of the site parallel to Washington Street. This becomes a quieter, slower promenade with sporadic retail stores and public green spaces along its length. The density of this scheme, 70 units per acre, is comparable to areas of Boston's Back Bay. The clear and overriding planning strategy is the result of task-specific team structure.

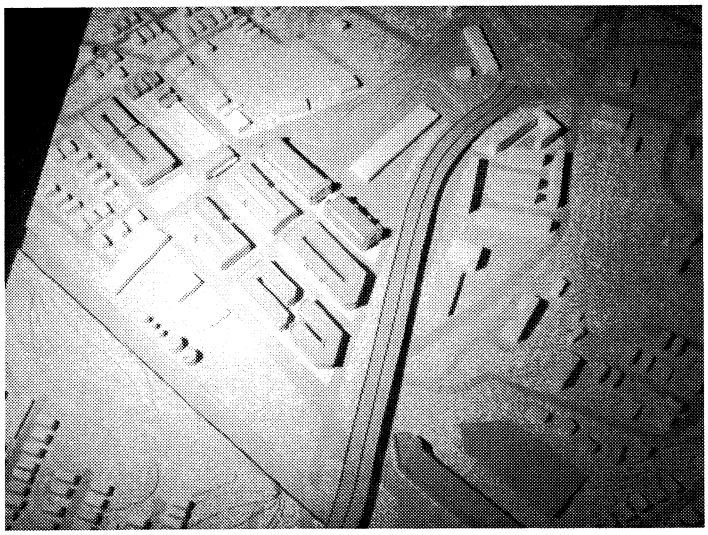

Fig. 2. Project 2.

The second project is based on long buildings running parallel to Washington Street creating highly defined street spaces. These buildings are unique to Boston typologically: they are just one unit deep with a common corridor that surrounds an open courtyard. The Washington Street edge is comprised of seven story buildings, and the scale of the buildings gets smaller the farther they are into the site. At the edge of the site where the new massing abuts the existing neighborhood fabric, the housing is just three stories tall. Unlike the first project, the team for this project first declared a master plan, then they designed individual buildings for separate parcels. This project achieved a density of 65 units per acre.

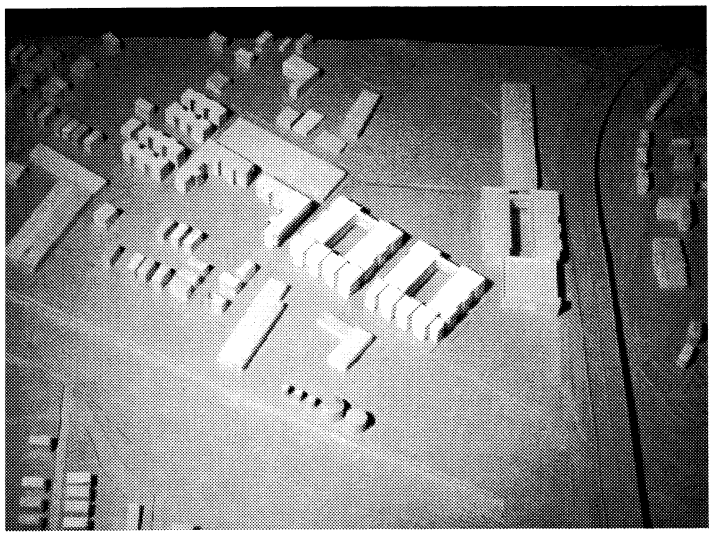

Fig. 3. Project 3.

The third project emphasizes open space over density and street wall definition. A large plaza of retail and market spaces faces onto Washington Street inviting more than just the local inhabitants into the new community. There are also open spaces embedded within the new community fabric, as well. The organizational struc-

ture of this team fluctuated as the scheme evolved and resulted in a true mix of housing types, including double-loaded corridor buildings, single-loaded corridor buildings, row houses, and triple-deckers. Here, an erratic team structure is reflected in its heterogeneous plan. This scheme creates a density of 55 units per acre.

CONCLUSION

The city agencies that control zoning and building in Boston are restricted from proposing bold initiatives to resolve the housing crisis because of conflicting political pressures and a lack of leadership. Community groups that are interested in improving their neighborhoods have little resources or political power to bring about change. The political progress towards more housing is relatively static, but the crisis is dynamic: it worsens every day. The students' design projects serve as concrete recommendations to the City of Boston for configuring density, building heights, street-wall definition, allowable mixed-uses, parking requirements, and public spaces. In the Spring of 2000 after the Urban Housing Design Studio concluded, the students presented their work to the Boston Society of Architects Housing Committee. This committee is coordinating with various city agencies and neighborhood groups to educate the public about the profound housing crisis that faces Boston. The students' design work contributes to this city-wide dialogue by offering concrete solutions.

The design of housing is particularly complex due to the range of knowledge and skill required to generate meaningful and practical architectural proposals. Students must learn to consider carefully the design of domestic space, innovative and cost-effective construction, environmental and urban impact, and the creation of urban communities. The fundamental criteria for the production of any large scale urban intervention should not be considered beneath the dignity of the academic design studio. To best prepare our students to shape the myriad external factors that influence architectural design, they must learn that proper research and the careful accumulation of knowledge through analysis creates the foundation for creative insight.