Housing is the third and final semester of the required architecture core sequence. This studio is structured through three assignments; beginning with an urban and typological research and drawing set in New York City; followed by an analysis of a housing project, to the final design project. This year’s studio will focus on the many different states of housing that we, as architects, typically encounter in practice. The studio is organized through two principal means—research/analysis and an architectural proposal—and will operate as a laboratory in which to explore new possibilities for urban living in New York City, specifically within the Crotona Park neighborhood of the South Bronx. Throughout the term each student will examine the significance of public and social housing through an inclusive approach. This position literally means to be inclusive of all things related to housing, from both the past and the present, from local and to global, and to think about placing an emphasis on the history of visualization in parallel with the history of housing and its
representation. Embedded within the studio, these examinations will be developed through team projects that speculate on the rich potential for contemporary urban housing types.

The studio aims to establish a space for a discussion about typology through housing, to occur throughout the term. Housing, by its very nature, is a generic building type. Some may argue that working within a particular typology produces boring buildings. However, it is precisely through understanding of a type and its multiple typologies that one to understand the motivations behind a particular building’s peculiarities. The specificities of a particular context in the city produce weird and unexpected moments that alter the original type’s form. In the complexity of the contemporary city, housing offers up an exemplary form to be explored, rethought, altered, added to, and subtracted from, and so on. . . . The first part of this studio is structured around developing a body of research and understanding of housing in New York City, and housing found throughout global cities, introducing students to housing typologies through two specific short assignments. The first assignment will focus on site, infrastructures, and typology using a cross section of the New York City, from Manhattan to the Bronx.

The second assignment will examine the architecture of housing with an emphasis on units and unpacking their design through, environment, programs and systems, culture and social. Students will be exposed to a variety of housing types and will work within New York City for their projects, but will undertake research projects in select cities around the world to compare and contrast a variety of subjects including: density; socioeconomic structures; climate; materiality; development models; cultural relationships; single-occupant and family dwellings; and the relationship between informality and luxury. To accompany this part of the studio, past invited lectures entitled Transcripts on Housing, by Michael Maltzen and Tatiana Bilbao presented a history of urban housing, as well as examples of their design work on housing. In addition, a studio wide field trip will occur that supports the overall mission of the studio to better understand housing as a global concern. The studio researches and examines a wide list of projects to establish an inclusive list for housing. The studio will also travel during the term from November 8-11th. The location will be announced at the lottery.

The final project will consist of designing high-density, mixed-use housing and public space with community amenities. Each assignment builds upon the previous, starting with
the urban scale and gradually zooming into the scale of the unit to, finally, integrate environmental and climatic systems into a design project. Students will examine distinct typologies of housing both public and private at a variety of scales. In addition, students will design units, aggregate these units, and explore the subjects of health, live/work, and the arts in relation to housing. In general, housing studios will use their precedents and site visits as a means to gain knowledge about what constitutes contemporary housing.

Although the brief puts forth the perimeter-block housing type for the given site, no housing type is off-limits to explore.

The studio emphasizes understanding the history of New York City’s multiple housing types and how they continue to develop. But how is type in turn impacted by a multiplicity of forces, from the literal (gravity) to the more social and metropolitan. Through research and drawings, the studio will investigate neighborhoods surrounding Crontona Park in Bronx, two neighborhoods that offer innovative and rich architectures, developed over the past 50 years in the face of complex social and cultural histories. For instance, Harlem’s “Main Street” along 125th Street reflects a changing landscape of ownership, occupation, and public vs. private space.1 One can look to the lack of development of the East Harlem Triangle as an urban failure by the City, despite a local community’s efforts to reshape the same. There are many lessons to be learned by studying these neighborhoods especially in the context of the current housing crisis that New York City is confronting. Similarly, as an urban connector the Bronx’s Grand Concourse raises new possibilities for development and housing types. But are these changes and developments productive? Do they produce the kinds of neighborhoods that are culturally, socially, and economically beneficial? Rather than accepting the rules, can the studio provide the setting for a re-examination of their performance? How does architecture play a central role?

For the past six years the studio has examined sites in East Harlem and the South Bronx, focusing on the prominence of the East Harlem and its proximity to Harlem’s “Main Street,” on urban infrastructure, on the Greenway park system, and on Harlem River. They

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emphasized understanding the history of New York City’s housing, its varied typologies, and the development of the city grid, but also questioned zoning code. Prior studio sites included City-owned property and sites designated for development under former Mayor Michael Bloomberg’s New Housing Marketplace Plan, a public/private planning initiative that aimed to create and/or preserve 165,000 affordable housing units in NYC by 2014. The New York City Department of Housing Preservation and Development (HPD) is the largest municipal developer of affordable housing in the nation and will be a valuable resource for the studio. In May 2015, Mayor Bill de Blasio announced his plan for affordable housing in New York City, building upon the previous administration’s goals of increasing affordable housing units to provide a more equitable and healthy city. He set the goal of providing 200,000 affordable housing units, preventing 120,000 from becoming unaffordable and building 80,000 new affordable units. 17,400 affordable housing units were financed in 2014. De Blasio is also in the process of changing the 421-a low-income tax subsidy, typically known for its 80-20 model, to a 65-35 model, virtually cutting in half the rate of affordable unit production. (Fill in here the lastest information)

The form of the modern and contemporary city, especially as exemplified through urban housing models, has had the greatest impact on general public health. Health remains one of the most important issues confronting public housing in the American city. This is especially the case in New York City, where recent developments have had a profound impact on citizens’ health and, reciprocally, citizens’ health has had a profound impact on the form of the city. Today, New York City leads the nation with its policies and programs for housing and health, making instrumental and visible changes to the city’s social and built form through interventions like bike lanes and new parks. And yet the urban population continues to struggle with chronic health problems, from an obesity epidemic and childhood asthma in the South Bronx. The studio will study local and national policies—including New York City’s Active Design Guidelines, PlaNYC, and the Affordable Health Care for America Act—in order to understand how shifting policies relate to urbanism.

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3 Policies developed in NYC are proving to be groundbreaking and have been adopted by other cities around the country. See: http://mayorschallenge.bloomberg.org/
requires a critical rethinking of the relationship between individual and public health, the environment, development, and architectural and urban form.

Health, as a subject of study within this studio, can take on multiple meanings, the first being literal, physical health. But this term, health, can have value and be attributed to other conditions related to housing like economics, policy, ideas of sustainability, and the social. This year’s studio builds upon and expands previous research by shifting its site to a historically significant location of the Bronx. The relationship between the previous years’ sites and this year’s will test new architectural and urban conditions, searching for new types of housing. This studio will challenge each student to think about the aspect of urban public health within all assignments, but health will be a primary theme of the final housing project.

Over the course of the term the studio will examine a one block site in Crontona Park neighborhood. These boundaries not only create physical edges but also confront the site with their variety of scales. Each student team will be challenged to design a housing proposal that takes a position with respect to the “street,” infrastructure, specific architectural typologies at play, and the shape and elevation of the site. Among the greatest challenges for this specific site are the location of its “front door,” the question of the project’s image and impact on the skyline, and the project as part in relation to a whole. Even if the architecture can perform sustainably and healthfully, what is its impact upon its context? Inherently, the three block-ends suggest a perimeter-block model, for the purpose of maximizing light and air to thereby maximize health and comfort, as well as expansive window-wall and envelope design opportunities.

The studio will encourage public and professional discourse surrounding affordable housing and architecture today.
Assignment #1
Typology Versus the City

Due: September 18, 2017 at 01:30 p.m. in Avery 114.

To begin the term, we will walk from Columbia University through Harlem (passing Strivers Row, Astor Row, Sugar Hill Apartments, and Dunbar Apartments), to the number 2 train near the Schomborg Library and travel to the Bronx Museum.* From there the studio will travel to Crotona Park. In this assignment, each studio will undertake an analytical investigation the architectural issues associated with urban morphology and infrastructural development. The studio will focus on the neighborhood of Crotona Park in the Bronx and compare to another neighborhood such as: Pelham Parkway; Hunts Point; Co-Op City Port Morris; Randall’s Island; and the Grand Concourse of the Bronx, as well as the neighborhoods that are adjacent to the Park. In
addition, each studio produces cross section drawings. From this exercise, each student will have the opportunity to reverse the working methodology to the studio, looking at housing from the outside in. Each student will learn new lessons and gain new insight into the larger area of the housing site.

In addition to the subject of health, the studio encourages each student to think about the intersection between architecture and urbanism, including subjects of economics, structure, materials, etc. as well as formal and spatial qualities. How does culture play into housing? Has the city done enough to integrate the Bronx’s significant cultural heritage into its development of Crotona Park? How has the Bronx changed in response? Larger questions for the studio to consider include issues of homeownership: What is possible today? Is homeownership of interest? What makes a community? Emerging out of the Great Recession, nearly ten years ago and building up from the downturn in the national economy, a result of the recent housing crisis where properties in the Bronx on average experienced a 40% reduction in housing prices, how has the foreclosure crisis affected the neighborhoods the studio is working within? The South Bronx like much of Manhattan and other Boroughs also faces issues around gentrification. Today, the Bronx’s close proximity to midtown Manhattan and its ease of access to public transit—only 26 mins by express train to Penn Station—are fueling gentrification and, at the same time, new developments like Silvercup Studios (a film studio adaptive reuse in Port Morris [de-industrialization]), the Special Harlem River Waterfront District, and a greater connection to parks like Randall’s Island. The pedagogical goal of this studio is to understand the broader physical and historical context of the South Bronx, as well as to undertake an analysis of its urban infrastructure from its organization (think: the NYC grid) to the site section with its shifting geological terrain from the Harlem River to peak at Franz Sigel Park (think: soil types), to forms of urban connections (think: transit and accessibility), to the social fabric.

In the way artist Damian Ortega deconstructs the popular VW Bug, each student team is to examine and represent both their research and ideas about the site through a conceptual taking apart of the city. Students are to first examine the South Bronx and then begin to understand the specific site. (It is intended that the focus of the urban site study is the larger urban context of the South Bronx and may include comparative areas of the greater NYC area.) Students will continue to work on site issues throughout the remainder of the term and should ask questions about the site in a methodological manner that serves to both influence their designs and create architecture as much about buildings as it is about urban morphology and infrastructures.

Edge City

Originally known as Bathgate Woods, Crotona Park officially became a city park in 1888. Located at the north-west edge of The South Bronx, Crotona Park developed largely during the 1930s as part of the Works Progress Administration, which included the boat house and rebuilt landscape, in addition under the purview of then City Park’s Commissioner Robert Moses baseball diamonds, picnic and sitting areas, as well as an Olympic Pool and bathhouse were opened in 1936. While the South Bronx may be more frequently recognized for its history as “The Bronx is burning”, to its industrial complexes, and traffic congested highways and arteries, it wasn’t always the case. The South Bronx was constructed to serve more of the middle class, that included a grand street and residential buildings alongside of it with parks woven alongside. The Grand Concourse, designed by Louis Risse, who intended for the street to become the Bronx’s version of Paris’s Champs Élysées. In 1909, the Concourse was extended south to 138th Street, stretching it to five miles and, at parts, 180 feet wide. In the early 20th century, the Concourse was considered to be the “Park Avenue of the Middle Class,” bringing a centralized, “Main Street” connection through the entirety of the Bronx. This condition—of the edge of the city and, in this case, the edge of the Manhattan Grid—

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offers up a place to study the breakdown of the grid, its dissolution into urban infrastructure, and the physical possibilities of opening up to views as opposed to other buildings, and in the case of Crotona Park the natural landscape and park space within the city grid. The edge of the city is here at Crotona Park distinctive as a corner to the South Bronx, but the park itself also has unique edges. The is bound and contained by large-scale urban infrastructures by the Cross Bronx and Sheridan Expressways, in proximity to Boston Road, Louis Nine Boulevard, and Fulton Avenue; it is also in proximity to public transportation, the 174th Street Station, and several major bus lines with a bus station on the northern side of the site; one block away is the sunken Harlem line. Neighborhoods of Tremont, West Farms, Claremont Village, and Charlotte Gardens share Crotona Park. The park in its original offered views to the Palisades Parkway across the Hudson River and of the Brooklyn Bridge, part of the assignment is to explore geography and topography as well as landscape.
SITE Claremont Parkway & Third Avenue

For the purpose of the studio, we will work with a site that is imaginary but in the context of real and diverse residential projects representative of NYCHA, private and non-profit developments, as well as educational institutions.
SITE ZONING DEFINITIONS

Residential District R8A
Apartment buildings in R8 districts can range from mid-rise, eight- to ten-story buildings to much taller buildings set back from the street on large zoning lots. This high-density residential district is mapped along the Grand Concourse in the Bronx and on the edge of Brooklyn Heights. (R8 districts are also widely mapped in Manhattan neighborhoods like Washington Heights.) New buildings in R8 districts may be developed under either height-factor regulations or optional Quality Housing regulations, which often reflect an older, pre-1961 neighborhood streetscape.

The floor area ratio (FAR) for height-factor development in R8 districts ranges from 0.94 to 6.02; the open-space ratio (OSR) ranges from 5.9 to 11.9. A taller building may be obtained by providing more open space. In the diagram, for example, 64% of the zoning lot with the 17-story building must be open space (6.02 FAR x 10.7 OSR). Thus, the maximum FAR is achievable only where the zoning lot is large enough to accommodate a practical building footprint as well as the required amount of open space. The building must set back to a depth of 10 feet on a wide street (>75’) or 15 feet on a narrow street (<75’) before rising to its maximum height of 120 feet.

Off-street parking is required for only 40% of dwelling units, as these districts are easily accessed by mass transit, and can be waived entirely if 15 or fewer parking spaces are required or if the zoning lot is 10,000 square feet or less.

Special Purpose District MX-13
The Special Mixed Use District (MX) was established in 1997 to encourage investment in, and enhance the vitality of existing neighborhoods with mixed residential and industrial uses in close proximity, as well as to create expanded opportunities for new mixed-use communities. New residential and non-residential uses—commercial, community facility, and light industrial—can be developed as-of-right and can be located side-by-side or within the same building.

Special Purpose District M1-4
A manufacturing district, designated by the letter M—M1-1, M2-2—is a zoning district in which manufacturing uses, most commercial uses, and some community facility uses are permitted. Industrial uses are subject to a range of performance standards. Residential development is not allowed, except in Special Mixed Use Districts.

District C6-3
C6 districts permit a wide range of high-bulk commercial uses requiring a central location. These commercial districts are typically mapped in areas outside central business cores that have a commercial FAR of 6.0 and a residential FAR of 0.99–7.525.

Public Housing

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1974, Section 8 Housing, encourages the private development of affordable homes. 1992, HOPE VI, funds the demolition of poor-quality public housing projects and their replacement with mixed-income, lower-density housing. The Bronx has 100 NYCHA developments, counting 44,500 apartments.

**Affordable Housing**
421-a Tax Abatement: 80% market rate / 20% affordable. 421-a Tax Abatement under Mayor Bill de Blasio: 25–35% affordable. *Affordable* is determined by a percentage of the local medium income.

**Rent-Regulated Housing**
Includes “rent-controlled” and “rent-stabilized” apartments, received through J-51 or 421-a tax-incentive programs. Rent-control only viable if tenant has been living in apartment since before July 1, 1971. Rent-stabilized apartments comprise approximately 59% of Bronx, 43% of Brooklyn, 45% of Manhattan, and 42% of Queens housing.

**Market-rate Housing**
An apartment with no rent restrictions, allowing the landlord to raise rent to the local market rate. Less legal protection regarding the right to a lease renewal and evictions. Different neighborhood market rates (feed back into new 421-a).
Requirements and Representation

Each team will work toward a comprehensive understanding of their precedent and will document these findings through a range of scales and material output. While this research will serve as a basis to themes explored throughout the rest of the term, documentation and presentation should be treated as autonomous design exercises. All work should be clear, legible, and (very) well represented. Prepare the following materials, to be discussed in a Joint Studio pin-up:

1. A model of the whole system of an urban infrastructure at a scale to be determined in consultation with your critic.
2. One [1] model and one drawing of a significant detail of the site (either a unique component or a segment of a performative system) that you consider essential to the understanding of the city (at a minimum scale of 1-½” = 1’ 0”).
3. All drawings shall be presented on sheets that are 11” x 17” and no more than four [4] sheets per team as a small booklet.
4. Identify what type of housing project you are working with, and write one paragraph about the South Bronx that both summarizes and conceptualizes the system.
5. Photograph models.
6. Present work as a .pdf, to be projected.
7. All work is to be submitted on a labeled CD to the teaching assistant by September 18. Photos of models are to be submitted as 300 dpi .jpgs, and all drawings are to be submitted as .eps files.
8. One [1] overall site model and site section to be determined in consultation with your critic. To be completed as a studio. Due September 30th.

Review
Assignment is introduced on September 9th and all work will be presented as part of a joint studio with the entire Housing studio and faculty on September 18th starting at 01:30 p.m. in Avery 114. The review will start promptly at 01:30 p.m. The review will take the form of a round-robin with all faculty and all students reviewing the projects at once. Students are asked to keep their responses concise and should primarily speak through the documents produced for the review. The second assignment shall be presented at 05:30 p.m.

Readings
Assignment #2
Local Versus Global Typology

Due: September 28, 2016 at 01:30 p.m. in Avery 114.

In the second assignment, each studio will undertake an analytical investigation of one housing project. The pedagogical goal of this work is to investigate relationships between specific housing types, fixed building systems, variable programs, and multiple forms that are both descriptive and representative of housing. Common housing types within New York City include but are not limited to the following: single corridor; double-loaded corridor; skip-stop; tower; courtyard; railroad; row house; transverse core; and single-room occupancy. With the knowledge gained about NYC housing types and their urban setting in the first assignment, investigate how this knowledge relates to the many other types of housing that exist throughout global housing projects, see the “cutsheets” from Assignment #1. For the purpose of the studio, and given the short time frame for this assignment, each critic has preselected a precedent related to larger studio themes. Precedents range in type and in location. While the studio is based in the South Bronx, each student should undertake the problem of housing with a broad view.
Each housing type has a very specific ideology regarding the relationship between collective and domestic living, as well as specific implications for overall form and urban morphology. By its very nature housing produces new subjectivities within itself. Arguably no housing project is the same, despite largely repetitive programming of units, corridors, parking, laundromats, lobbies, elevators, stairwells, and other building systems. The precedent assignment is meant to introduce not only numerous formal types but also organizations and issues critical to housing and architecture like materials, environment, economics, value, and social and cultural influences. Further, the intent is to comprehend the systems that simultaneously inhabit the relatively small space of a dwelling, from circulation to plumbing, structure, and electrical. Precedent analysis is critical to conceptualizing work done later in the term. Where the distinction between house and home emerges is of critical importance in a housing project. To that end, divisions between public and private shape both the physical form of the building and are also embedded within the public policy and governance structuring the intent of all urban housing. Students are encouraged to research subjects that could be explored all term.

Each team is charged with the task of examining and taking apart their single precedent for its form and performance/systems. (Please see the below list.) Begin by gathering all relevant information, such as plans, sections, and images. From this information each team will begin to record and assess through the acts of making and drawing, producing an analytical study of each precedent. This evaluation should be approached from two scales: from the unit and from the overall form in urban context. For the purpose of this studio the unit is as equally important as the project’s overall form. When examining precedents, analyze the models for health and wellbeing through the appropriate, related systems. Additional components and systems to investigate include: urban infrastructure; urban morphology; post-occupancy; materials; structure; life safety; accessibility; zoning; policy; etc.

Pedagogically, precedent analysis is a twofold exercise. First and foremost, it is a way into the housing studio through well-known architectural, formal, spatial, material, and structural examples. The systems found in each precedent and their relationship to one another will be defined by each team. Second, as a collective of eight studios, comparing and contrasting housing projects through specific lenses will require a particular analytical method of work. Through drawings and models, each team will reveal specific connections between the architectural form and related systems. These connections could range from the project’s organizational logic to its structural diagram and material assemblage, to its relationship to site, to its cultural underpinnings. These two ambitions serve to establish a fundamental way of thinking about architecture in relation of the subject of housing.

At the completion of the assignment each studio will present a full, comprehensive overview of their housing precedent. It will be necessary to undertake research and documentation as well as apply methods of analysis that will then be reviewed in a group pin-up. The representation of the assignment shall be comparatively evaluated between these projects in a collective studio assignment.
Requirements and Representation

Each team will work toward a comprehensive understanding of their precedent and will document these findings through a range of scales and material output. While this research will serve as a basis to themes explored throughout the rest of the term, documentation and presentation should be treated as autonomous design exercises. All work should be clear, legible, and (very) well represented. Prepare the following materials, to be discussed in a Joint Studio pin-up:

1. A model of the whole building at a scale to be determined in consultation with your critic
2. One model and one drawing of a significant detail of the building (either a unique component or a segment of a performative system) that you consider essential to the understanding of your building (at a minimum scale of 1-½” = 1’ 0”).
3. Analytical drawings of the units.
4. All drawings shall be presented on sheets that are 11” x 17” and no more than four (4) sheets per team as a small booklet.
5. Identify what type of housing project you are working with, and write one paragraph about the project that both summarizes and conceptualizes the typology.
6. Photograph models.
7. Present work as a .pdf, to be projected.
8. All work is to be submitted on a labeled CD to teaching assistant by September 29. Photos of models are to be submitted as 300 dpi .jpgs, and all drawings are to be submitted as .eps files.

Review
Assignment is introduced on Sept. 18st and all work will be presented as part of a joint studio with the entire Housing studio and faculty on September 28th starting at 01:30 p.m. in Avery 114. The review will start promptly at 01:30 p.m. The review will take the form of a round-robin with all faculty and all students reviewing the projects at once. Students are asked to keep their response concise and should primarily speak through the documents produced for the review. The third assignment shall be presented at 05:30 p.m.

Readings

Additional Readings
Reyner Banham, *The Architecture of the Well Tempered Environment*
NYC Housing Projects

1. Harlem River Houses, 1937.
2. Williamsburg Houses, Public Works Administration.
3. First Houses, New York City Housing Authority.
5. Barbizon Hotel, Palmer H. Ogden and Partners.
7. Astor Row.
8. East River Houses, Perry Coke Smith.
10. The Apthorp, 2207 Broadway, Clinton and Russell.
12. Sherry Netherland Hotel, Schultze & Weaver.
15. Olympic Tower, Skidmore, Owings and Merrill.
16. Silver Towers/University Village, I. M. Pei.
17. Brownsville Apartments, Frederick G. Frost.
20. Seward Park Cooperative, Herman Jessor.
22. Via Verde, Grimshaw.
23. 459 West 18th Street, Della Valle Berheimer.
24. Manhattan Expressway, Paul Rudolph.
25. The Dunbar Apartments.
Global Housing Typologies

4. Linked Hybrid, Steven Holl (Beijing, China, 2009).
5. Gifu Kitagata, Kazuyo Sejima (Gifu, Japan).
6. Saishunkan Seiyaku Womens’ Dormitory, Kazuyo Sejima (Kumamoto, Japan).
7. Kanchanjunga, Charles Correa (Bombay, India).
8. Kasbah, Piet Blom (Hengelo, Netherlands).
9. Madrid Social Housing, Morphosis (Madrid, Spain).
10. Habitat ‘67, Moshe Safdie (Montréal, Canada).
11. Unité d’Habitation, Le Corbusier (Marseille, France).
12. Mirador, MVRDV (Madrid, Spain).
15. Hansaviertal Tower, Van den Broek en Bakerma (Berlin, Germany).
18. Jacques Forte (Postal Worker Housing), Philippe Gazeau (Paris, France).
19. KNMS and Java Eiland, Diener and Diener, Architects (Amsterdam, Netherlands).
20. Schots 1+2, S333 Architecture + Urbanism (Groningen, Netherlands).
21. Silodom Complex, MVRDV (Amsterdam, Netherlands).
22. Borneo, MAP Architects with Josep Lluis Mateo (Amsterdam, Netherlands).
23. Hook at Holland, J. J. P. Oud (Rotterdam, Netherlands).
24. Bouca Housing Complex, Alvaro Siza (Porto, Portugal).
25. Nexus World Housing, Steven Holl (Fukuoka, Japan).
27. Eda Housing, Chiba Manabu Architects (Yokohama (Kanagawa, Japan).
28. Langham Court, Goody Clancy & Associates (Boston, MA).
29. Peabody Terrace, Sert, Jackson and Gourley (Cambridge, MA).
30. Lafayette Park Apartments Ludwig Mies Van Der Rohe (Detroit, MI).
31. Marina City, Betrand Goldberg Associates (Chicago, IL).
32. VM Houses, BIG and JDS (Copenhagen, Denmark).
33. Quinta da Malagueira Housing, Alvaro Siza (Évora, Portugal).
34. Housing on Lutzowplatz, O. M. Ungers (Berlin, Germany).
35. Crawford Manor, Paul Rudolph (New Haven, CT).
36. Conjunto Urbano Presidente Miguel Alemán, Mario Pani, (Mexico City).
37. Conjunto Urbano Nonoalco, Tatelolco, Mario Pani (Mexico City).
38. Apartment Houses on Calle Elba, Luis Barragan (Mexico City).
39. Apartment House, Luis Barragan, Jose Creixell, and Four Painters’ Studios (Mexico City).
40. House, Luis Barragan (Mexico City).
Individual Studio Assignment*

Each critic will confirm their precedent selection upon the beginning of this assignment.

Ames Studio: Madrid: Carabanchel Public Housing, Morphosis, 2006
Bunge Studio: Casablanca: Habitat Marocain, Andre Studer, 1956
Frampton Studio: Detroit, Lafayette Park, Mies van der Rohe, 1959-63
Gooden Studio: Chicago: Lake Shore Drive, Mies van der Rohe, 1951
Park Studio: Kumamoto: Saishunkan Seiyaku Women’s Dormitory, 1991
Solomonoff Studio: Copenhagen: # 32. VM Houses, BIG and JDS, 2005
Zeifman Studio: Fukuoka: Void Space/Hinged Space Housing, Steven Holl, 1991
Le Corbusier, Unité.

Units
Having already been introduced to lessons from site and precedent studies, students will be introduced to the problem of designing housing by creating units, addressing the problem of aggregation not as an autonomous practice but instead through systems of structure, program, accessibility, and environment. Modern architects approached housing as a purely functional problem, often working from the inside out. An example of this approach can be seen in Czech avant-gardist Karel Teige’s research for the 1932 book *The Minimum Dwelling*: For Tiege, the housing question is essentially one of “a problem of statistics and technology,” to the point that housing ultimately comes down to “a question of the general plan.” While these ideas were formulated to address housing crises in the aftermath of World War I, today the idea of the minimal dwelling is understood to hold a different meaning. Each team will design a prototypical unit that explores the minimal. In a city often already at the minimum—minimum area, minimum light, minimum budgets, minimum amenities, and minimum proximity to fresh air—what is a minimal unit today? How is the minimal addressed in systems? Each team should speculate on the limits of this prototype. Inclusion of the model of the OMA/Rem Koolhaas’s Lemoine House as model introduces structures, physics, and accessibility as a means to both understand and produce the design of a house and its basic forms. These same criteria are essential to urban public housing, and should begin the design of the unit.
“States of Housing.”

M / Th 01:30–06:30 p.m. Studio Faculty: Daisy Ames; Eric Bunge; Adam Frampton; Mario Gooden; Jinhee Park; Hilary Sample; Galia Solomonoff; Emmett Zeifman

W 02:00–04:00 p.m. Lectures in Avery 114, Hilary Sample with Faculty

Via Verde, Bronx.
From Structures to Environments

Formal exercises of unit repetition will begin the next series of studies, on structures and aggregation. Here students are to propose complex structures of repeated units, learning lessons related to scale, structure, and systems, as well as engage in the dialectic between form and function. Today, aggregation is understood through different processes of production than those previously practiced. (Compare Moshe Safdie’s Habitat [1967] in Montréal to Steven Holl’s Linked Hybrid Housing [2009] in Beijing.) For the purposes of this studio, the focus will be on high-density models. Returning, perhaps nostalgically, to the beginning of the Columbia Housing Studio—that is, to its emergence in reaction to 1960s urban renewal projects and in the context of the Museum of Modern Art’s exhibition New City: Architecture and Urban Renewal (1967) and Another Chance for Housing: Low-Rise Alternatives (1973)—the studio will hold history up as a valuable lens and reference for reading the city. (Both exhibitions presented housing projects for East Harlem.) This longstanding interest in high-density alternatives should not only form the ground of each aggregation study but also rethink the same for the contemporary conditions of the city.

The studio will examine high-density housing that serves a specific audience, such as aging populations or artists with a special regard for human comfort. Students will design a series of climate effects and comfort zones within their projects. Similarly, to test and model climatic envelopes, structural studies should be completed in the form of digital stress tests. The School’s Roving Engineer program, which has previously accompanied the studio, is being reorganized this year; a new program of initial Presentation and Roundtable Discussion will be held in the beginning of the term. The purpose of this program is to provide students with access to structural engineering principles and concepts at the beginning of the design process. Roundtable discussion will be followed by an engineer being assigned to each studio. This engineer will visit the studios once before the mid-review and once before the final review. Students should be prepared in advance of meeting with their assigned structural engineer. Structural and aggregation studies will interweave with site studies.
G. Robert Le Ricolais (1894–1977) examined the beauty of failures. The elements of stress upon built form include
gravity, physics, wind loads, shear, lateral forces, and other strains placed on its structure. What type of structure can be made in
response to such stresses? Imagining a stress diagram, will a particular type of stress produce a formal response? Is this stress
examined from the inside out? Or from the outside in? Structural concepts will be explored primarily through model making. The
structural stress should promote a fundamental concept for the project that equally reflects a particular position on the domestic.

Program

Before beginning design work the program given as part of the housing project is to be analyzed, in consultation with
your critic, through a series of modeling studies. The primary program for this studio includes housing, a community center for
the aging, and a commercial space with public space. This city-owned property is to be developed under the Department of
Housing Preservation and Development’s (HPD) Low Income Rental Program. For the purpose of the studio it is also allowable
to work with the guidelines of the 80-20 program: “At least 20% of the units in the project must be affordable to tenants earning
no more than 50% of the Area Median Income (AMI), or 40% of the units must be affordable to tenants earning no more than
60% of the Area Median Income, or, in New York City only, 25% of the units to be affordable to tenants earning no more than
60% of the Area Median Income.”

The zoning change permits a change in residential units and the inclusion of a community center to be located
anywhere in the building(s) where residences are allowed. Each team should carefully examine both the program and the
relationships between given programmatic parts. The program may be changed, but only following consideration with your critic.
Any changes should be considered against the given zoning and codes.

While it is possible to approach housing through these systems of value and economies, it is also important to work
towards new contemporary ideas of living and habitation. The Lemonie House by OMA/Rem Koolhaas presents commingles
issues from domesticity, privacy, intimacy, and physical limitations to structural, environmental, and material novelty in creating a
new form of living. If housing at a larger scale with repetitive units undertakes all of these elements, what types of design studies
and concepts can each team explore?
New York development tends to follow artists, a movement currently synonymous with gentrification. This trend started in a deindustrialized SoHo, when artists renovated large industrial factories into live/work lofts. In 1971, the City rezoned the area to allow for commercial activity. SoHo has since been used as a precedent for Brooklyn, Queens, and now the Bronx. According to the current NYC zoning regulation, Chapter 2, Article 1, “home occupation” enables residents to use 10% of their homes for specific types of work: artist studios, professional offices, and teaching up to four pupils at a time. However, as our site is also under the MX-13 Special District Overlay, “home occupation” is redefined as 49% and allows greater variation in work. Live/work units can offer the neighborhood a variety of commercial types that directly relate to street life. Neighborhoods in Rio like Rio das Pedras are entirely constructed by mixing living and working spaces, where proximity to the street increases value and accessibility. Although signage and advertisement in live/work units in NYC are addressed in the zoning code, are there opportunities to link the impact of live/work units with the design of the street?

As part of the “home occupation” code and in relation to the NYC Housing Maintenance Code, the site’s immediate context, of the schools and continuing education centers, the housing project should consider new models for working and education as part of its program. A community is growing in this neighborhood, and within the Bronx, through projects like Silvercup Studios that open up opportunities for live/work unit types and affordable or below-market-rate housing for artists. Consider the expanded programs of the Bronx Museum, as well as the programs of Crotona Park and exercise and sports, as well as the demographics of the area and the need for support of women and children.

As NYC has had a long tradition of mixing residential types and populations, the studio will also include programming for the aging. “Crystal ball in hand, I see a future that retires the retirement community and fully integrates older adults into every facet of American life,” writes Dean Linda Fried of the Mailman School of Public Health in her book Unafraid of Aging.

There is evidence that, by the year 2030, certain global populations will count more elderly than child citizens. What it means to grow old in American society holds different meaning than in the past. (“Aging” and retirement were understood to take place at a particular age: 65.) What does this mean for society and for (urban) housing? Statistics show that Bronx’s aging population is growing. Part of this studio’s program is to design and develop a community center for the aging.
This program serves as a guide from which to start, but the studio project is open to change and being amended within reason.

<table>
<thead>
<tr>
<th>ROOM</th>
<th>SQUARE FOOTAGE (SF)</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry</td>
<td>500 SF</td>
<td>Serves as entrance</td>
</tr>
<tr>
<td>Lobby</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reception / Security Desk</td>
<td>1,000 SF</td>
<td></td>
</tr>
<tr>
<td>Fire Command Station</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mailboxes</td>
<td>1,000 SF</td>
<td></td>
</tr>
<tr>
<td>Storage Room</td>
<td>1,000 SF</td>
<td></td>
</tr>
<tr>
<td>Manager's Office</td>
<td>250 SF</td>
<td></td>
</tr>
<tr>
<td>ATM</td>
<td>1,000 SF</td>
<td></td>
</tr>
<tr>
<td>Core</td>
<td>per code</td>
<td></td>
</tr>
<tr>
<td>Stairwell</td>
<td></td>
<td>Accessible/Wayfinding graphics</td>
</tr>
<tr>
<td>Elevators</td>
<td>per code</td>
<td>Accessible/Wayfinding graphics</td>
</tr>
<tr>
<td>Service</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical Room</td>
<td>per code</td>
<td>Accessible</td>
</tr>
<tr>
<td>Trash Collection Room</td>
<td>250 SF min.</td>
<td></td>
</tr>
<tr>
<td>SUBTOTAL</td>
<td>5,000 SF</td>
<td></td>
</tr>
</tbody>
</table>

RESIDENT SHARED AMENITIES

| Laundry                  |                     |                                    |
| Dryers                   | 1 dryer per 40 units|                                    |
| Washers                  | 10 washers          |                                    |
| Waiting & Folding Area   |                     |                                    |
| Exercise Room            | 2,250 SF            | cardio machines, stretching area   |
| Accessible Green Roof    | 8,000 SF            |                                    |
Bicycle Storage        50% of units; 15 SF / bike
Parking                         30,000 SF
required for all buildings above
110th street

<table>
<thead>
<tr>
<th>SUBTOTAL</th>
<th>48,250 SF</th>
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<table>
<thead>
<tr>
<th>ROOM</th>
<th>SQUARE FOOTAGE (SF)</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMMERCIAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail (Café, Market)</td>
<td>500 SF</td>
<td></td>
</tr>
<tr>
<td>Class A Office Space</td>
<td>2,000 SF</td>
<td></td>
</tr>
<tr>
<td>SUBTOTAL</td>
<td>2,500 SF</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>COMMUNITY PROGRAMS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Pool</td>
<td>10,000 SF</td>
</tr>
<tr>
<td>Community Garden / Terrace</td>
<td>10,000 SF</td>
</tr>
<tr>
<td>Equipment Storage</td>
<td></td>
</tr>
<tr>
<td>Community Center for the Aging</td>
<td>10,000 SF</td>
</tr>
<tr>
<td>Exercise Room</td>
<td></td>
</tr>
<tr>
<td>Lecture Hall / Auditorium</td>
<td>Stackable seating, piano</td>
</tr>
<tr>
<td>Country Kitchen</td>
<td></td>
</tr>
<tr>
<td>Manager's Office</td>
<td></td>
</tr>
<tr>
<td>Storage</td>
<td></td>
</tr>
<tr>
<td>Accessible Restrooms</td>
<td></td>
</tr>
<tr>
<td>Dining Room</td>
<td></td>
</tr>
<tr>
<td>Arts and Crafts</td>
<td></td>
</tr>
<tr>
<td>Beauty Salon</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Center</th>
<th>1,000 SF</th>
<th>Two computer stations, fax machine</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SUBTOTAL</th>
<th>29,000 SF</th>
<th></th>
</tr>
</thead>
</table>
Columbia University
Graduate School of Architecture, Planning and Preservation
A4003: Core Studio 3, Fall 2017. “States of Housing.”

M / Th 01:30–06:30 p.m. Studio Faculty: Daisy Ames; Eric Bunge; Adam Frampton; Mario Gooden; Jinhee Park; Hilary Sample; Galia Solomonoff; Emmett Zeifman

W 02:00–04:00 p.m. Lectures in Avery 114, Hilary Sample with Faculty

Hilary Sample, Housing Studio Coordinator; hms2155@columbia.edu
Teaching Assistant: Andrea Chiney, aac2196@columbia.edu

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<thead>
<tr>
<th>ROOM</th>
<th>SQUARE FOOTAGE (SF)</th>
<th>NOTES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro Unit</td>
<td>300 SF</td>
<td>100% (50%)</td>
</tr>
<tr>
<td>Studio</td>
<td>500 SF</td>
<td>75%</td>
</tr>
<tr>
<td>One Bedroom</td>
<td>750 SF</td>
<td>75%</td>
</tr>
<tr>
<td>Two Bedroom</td>
<td>1,000 SF</td>
<td>50%, one superintendent</td>
</tr>
</tbody>
</table>

**SUBTOTAL** 173,750 SF

**TOTAL NET** 258,500 SF+

Net Service areas include common spaces and mechanical at 20%. Envelope enclosure to be determined in gross calculation.

*The project must comply with ADA requirements and all current zoning guidelines and restrictions for New York City.
BIBLIOGRAPHY

CODE / ZONING REFERENCES
*GeoData@Columbia* Columbia University Libraries www.gis.columbia.edu

HARLEM HISTORY
*Andrew Dolkart, Touring Historic Harlem (New York: The Oliphant Press, 1997).*
*Jonathan Gill, Harlem: The Four-Hundred Year History from Dutch Village to Capital of Black America (New York: Grove Press, 2011).*

BRONX HISTORY

HOUSING HISTORY

PRECEDENTS
Colin Rowe Conditions of Modernity,*
Columbia University  
Graduate School of Architecture, Planning and Preservation  
A4003: Core Studio 3, Fall 2017.  
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URBAN/SITE STUDY
*Ernest W. Burgess,* "The Growth of a City."
*Jane Jacobs,* *The Death and Life of Great American Cities."
*Julian Brash,* "Bloomberg's New York: Class and Governance in the Luxury City."
*La Marqueta Mile: A Green Engine for Multi-Cultural Entrepreneurship,* Harlem Community Development Corporation.

UNIT AND AGGREGATION
*Albert Ferre,* *Total Housing: Alternatives to Urban Sprawl* (Barcelona: Actar, 2010).
Barry Bergdoll and Reinhold Martin, *Foreclosed: Rehousing the American Dream.
Charles Eames, "What is a House?" *Arts and Architecture* (July 1944).

New York apartments may get even smaller with new ‘micro’ rent plan, The Guardian:  
http://www.guardian.co.uk/world/2012/jul/10/new-york-micro-apartments?newsfeed=true

AGING
*Imperfect Health: The Medicalization of Architecture* (Montréal: Canadian Centre for Architecture, 2012)

HEALTH
Emily Thompson, “Noise and Noise Abatement in the Modern City,” in *Sense of the City: An Alternate Approach to Urbanism* (Montréal: Canadian Centre for Architecture/Lars Müller Publishers, 2006).

ACCESSIBILITY

CONTEMPORARY HOUSING
[http://urbanomnibus.net/2011/03/from-the-archives-harlems-ps90/](http://urbanomnibus.net/2011/03/from-the-archives-harlems-ps90/)

DOCUMENTARIES / FILMS
Urbanized
Rezoning Harlem (video available in Butler Library) put on reserve, check reviews
The Pruitt-Igoe Myth: An Urban History
I Remember Harlem, The Studio Museum in Harlem:
Sarah Morris, Video Clips [http://sarah-morris.info/?/FilmClips/Midtown/] and [http://vimeo.com/user4010809](http://vimeo.com/user4010809)
The Bronx in The 1980’s: [https://www.youtube.com/watch?v=xgUsEVwXch0](https://www.youtube.com/watch?v=xgUsEVwXch0)

Marty (1955), Delbert Mann
The Warriors (1979), Walter Hill
Fort Apache to the Bronx (1981), Daniel Petrie
Paris Is Burning (1990), Jennie Livingston
Jungle Fever (1991), Spike Lee
Summer of Sam (1999), Spike Lee
Finding Forrester (2000), Gus Van Zandt
My Brooklyn (2014), Kelly Anderson
EXHIBITS

Past


“This Is for Everyone: Design Experiments for the Common Good,” MoMA, 2015.02.14–2016.01.16.


“Saving Place,” Museum of the City of New York, 2015.04.21–2016.01.03.


Sites of Reason: A Selection of Recent Acquisitions, MOMA
https://www.moma.org/visit/calendar/exhibitions/1480

Sylvan Cemetery: Architecture, Art & Landscape at Woodlawn, Wallach Art Gallery, Columbia University
http://www.columbia.edu/cu/wallach/exhibitions/Sylvan-Cemetery.html

Conceptions of Space: Recent Acquisitions in Contemporary Architecture, MOMA
https://www.moma.org/visit/calendar/exhibitions/1486

Uneven Growth: Tactical Urbanisms for Expanding Megacities.
http://uneven-growth.moma.org/

Assembled Realities: Jeff Chien-Hsing Liao’s New York, Museum of the City of New York
http://www.mcny.org/exhibition/assembled-realities

Reimagining the Waterfront: Manhattan’s East River Esplanade, Museum of the City of New York
http://www.mcny.org/exhibitions/current/reimagining-the-waterfront.html

The Harlem Edge: Cultivating Connections, AIA Center for Architecture:

Illuminations: Expanding the Walls 2012, The Studio Museum in Harlem:

Harlem Walking Tours: In Their Footsteps, The Studio Museum in Harlem:
http://www.studiomuseum.org/event-calendar/event/harlem-walking-tours-2012-09-29

Ghosts in the Machine, The New Museum:
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http://www.newmuseum.org/exhibitions/view/ghosts-in-the-machine

Foreclosed: Rehousing the American Dream, MoMA;
http://www.moma.org/visit/calendar/exhibitions/1230

The Greatest Grid, The Museum of the City of New York:
http://www.mcny.org/exhibitions/past/The-Greatest-Grid.html

The Unfinished Grid: Design Speculations for Manhattan, The Architectural League of NY:

Do Ho Suh, Lehmann Maupin Gallery:
http://www.lehmannmaupin.com/#/artists/do-ho-suh/

Natalie Jeremijenko, Environmental Health Clinic:
http://www.environmentalhealthclinic.net/

Creative Time:
http://www.creativetime.org/mission

Making Room, Citizens Housing and Planning Council:
http://makingroomnyc.com/
http://urbanomnibus.net/2011/10/making-room/

MAKING ROOM is an initiative of Citizens Housing & Planning Council (CHPC) that brings together: cutting-edge housing research; new design proposals; and pragmatic policy recommendations to advocate for New York City to allow the development of some brand new, legal and safe housing options.

The Vienna Model: Housing for the 21st Century City, Austrian Cultural Forum
http://www.acfny.org/event/the-vienna-model/

HISTORY OF HOUSING AT GSAPP

PUBLIC HOUSING
http://www.nydailynews.com/new-york/picture-nycha-tenants-cameras-article-1.1128800

MID-REVIEW REQUIREMENTS

These requirements represent the minimum documentation required.

Drawings
At a scale of 1/32"=1'-0": Site Plan with context.
At a scale of 1/16"=1'-0" and 1/8"=1'-0": Plans with Ground Plan.
At a scale of 1/16"=1'-0": Sections and Elevations.
At a scale of ¼"=1'-0": Full Building Section with detail.

Models
At a minimum scale of 1/64"=1'-0": Massing Model within urban context.
At a scale of 1/16"=1'-0": Building Model with immediate site.
At a scale of ½"=1'-0": Detail Model of your selection.

Perspectives

Conceptual Structural Diagrams
Produce one [1] key structural diagram that reflects your structural concept and system. In addition, produce a series of diagrams that illustrate the structural strategy and its relationship to other qualities of the design, from materials to light and form.

Conceptual Daylighting Studies
Produce one [1] unit that is presented through either digital or physical modeling to illustrate daylighting effects on June 21 and Dec. 21st at sunrise, noon, and sunset.

Post-Medium Specificity
Produce one [1] drawing, model or 30 seconds of video that captures the essence of your project. This work shall be created to expand upon a theme or narrative of your project.

Additional Work
Other work is also acceptable, and should further elaborate on your design concept. Wherever possible, do not repeat information. Please discuss with your individual critic.

Presentation and Time
Part of studio culture includes balancing your studio work with other classes, both inside and outside of the School. Since this term is dedicated to work as part of a team, please be considerate of your teammate's time in addition to your own. Reviews are meant to be productive, useful, and critical of your work, providing insight and thus helping you move your project forward. Reviews are limited in time and therefore require that each student arrives on time and presents in a concise manner. All digital work should present a visually clear description of your project. Pin-ups are an opportunity for
students to test their project with varying audiences. Mock up your presentation before any review and discuss with your critic.

**Pencils down.** All work shall be collected the night before the mid-review at 11:00 p.m. Each student is to finish printing and pin up or submit their work. Students are advised to stop all work and get some rest. It is recommended that students attend studio reviews as well as the introduction presentation.
FINAL REVIEW REQUIREMENTS

These requirements represent the minimum documentation required.

**Drawings**
At a scale of 1/16"=1'-0": Site Plan with context.
At a scale of 1/8"=1'-0": Plans, Sections, Elevations. All drawings with context
At a scale of ¼"=1'-0": Full Building Section with detail.

**Models**
At a minimum scale of 1/64"=1'-0": Massing Model within urban context.
At a scale of 1/8"=1'-0": Partial Building Model with immediate site.
At a scale of ½"=1'-0": Detail Model of your selection.

**Perspectives**
Minimum of three [3] views of a day in the life of the building, illustrating both interior and exterior. One perspective should be of a unit. Additionally, views should consider the qualification of experiential differences in public vs. private, shared vs. communal spaces, etc.

**Structural Diagrams**
A diagram that reflects your structural concept. In addition, produce a series of diagrams that illustrates the structural strategy and its relationship to other qualities of the design from materials to light to form.

**Daylighting Studies**
Produce at a minimum one space, preferably the unit that is presented through digital modeling to illustrate daylighting effects on June 21 and Dec. 21st at noon.

**Post-Medium Specificity**
Produce one [1] drawing, model or one-minute video that captures the essence of your project. This work should be used to introduce your project.

**Additional Work**
Other work is also acceptable, and should further elaborate on your design concept. Wherever possible, do not repeat information. Please discuss with your individual critic.

**Presentation and Time**
Part of studio culture includes balancing your studio work with other classes, both inside and outside of the School. Since this term is dedicated to work as part of a team, please be considerate of your teammate's time in addition to your own. Reviews are meant to be productive, useful, and critical of your work, providing insight and thus helping you move your project forward. Reviews are limited in time and therefore require that each student arrives on time and presents in a concise manner. All digital work should present a visually clear description of your project. Pin-ups are an opportunity for students to test their project with varying audiences. Mock up your presentation before any review and discuss with your critic.
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Pencils down. All drawings, digital presentations, .pdfs, PowerPoints, etc. shall be collected on December 7 at 01:30 p.m. Each team is to submit their work to their critic for review. Model making is acceptable until December 8 at 11:00 p.m. These deadlines are recommended for the purpose of ensuring that students can be present on review days.

Final Documentation
All models, drawings, and other materials must be documented and collected for the School’s archive and for Abstract. Please provide a CD to your critic of all drawings, model photos, and other forms of representation. No grade will be given until your work has been collected and archived. No exceptions.

Schedule
The studio is structured around a profound set of critical issues that will build upon one another. Students will work in pairs for the entire term. Studio pedagogy will focus on a working methodology of building up the scale of each project throughout the term. Domestic projects should take the approach of building from the inside out, while urban projects will look from the outside in. The studio will begin with a one-week precedent study of one housing type. Following this short introductory exercise, the studio will shift scales and examine the site in the broadest of terms. At week four, students will begin design work by developing unit and aggregation schemes, proposing a structural concept, and analyzing the given program. Each team will produce several conceptual schemes for the housing block up to the mid-term review. Each studio will be assigned a structural engineer to work with throughout the term. In addition, presentations and roundtable discussions by experts and professionals will be a critical component of the studio.

Studio Team Spirit
The housing studio aims to touch on many subjects and skill sets throughout the course of the semester. One challenge of the studio is working collaboratively. The ability to work and coordinate with others is a crucial skill for students to cultivate. If you find yourself frustrated, do not worry! Critics and teaching assistants have been through the same thing and are there to help. Students will learn as much, and perhaps more, from their classmates as from their studio critic. With that in mind, please be present in studio during studio class time and engage in pin-ups and class discussions. Students absolutely must be present at all pin-ups and reviews for the entire duration (unless for medical or other urgent reasons). It is more important that students are present for one another’s presentations than gluing last-minute additions to models. Roundtable discussions are intended for students to ask questions, inspire dialogue and challenge one another (and their critics!). Please attend and be on time. There may even be food. . . .

End-of-year Show
In preparation for the End-of-year Show in May, all students must submit three [3] high-resolution images of their projects. Additionally, please remember to save your models for inclusion in the show.