

---

# Laying the Groundwork

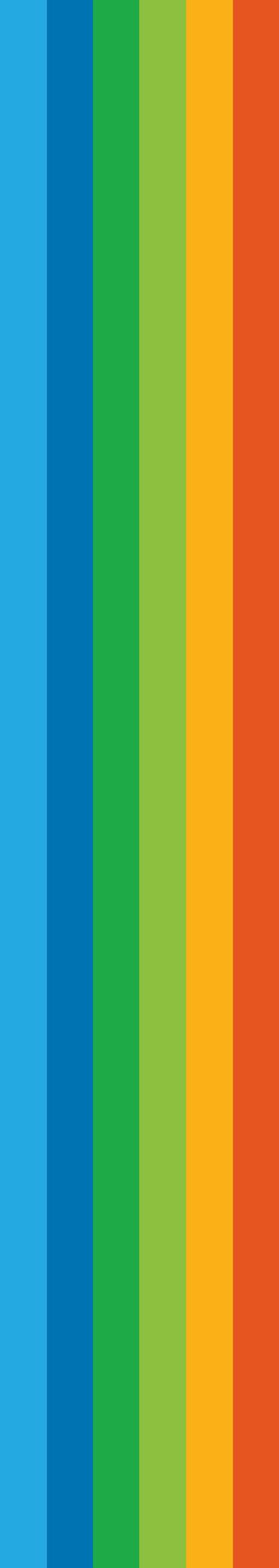
---

Design Guidelines for Retail and  
Other Ground-Floor Uses in Mixed-Use  
Affordable Housing Developments

---

A project of the Design Trust for Public Space  
in partnership with NYC Department of Housing  
Preservation and Development

---



**“Good standards and  
guidelines for street  
level commercial uses  
do not change whether  
the project is market  
rate or affordable.”**

**Reese W. Fayde**

REESE FAYDE & ASSOCIATES

---

# Laying the Groundwork

---

Design Guidelines for Retail and  
Other Ground-Floor Uses in Mixed-Use  
Affordable Housing Developments

---

A project of the Design Trust for Public Space  
in partnership with NYC Department of Housing  
Preservation and Development

---

**Design Trust for Public Space**  
[designtrust.org](http://designtrust.org)

**NYC Department of Housing  
Preservation and Development**  
[nyc.gov/hpd](http://nyc.gov/hpd)

**Laying the Groundwork Fellows**

Fiona Cousins  
ENGINEERING FELLOW

Penny Hardy  
GRAPHIC DESIGN FELLOW

Hayes Slade  
ARCHITECTURE FELLOW

James Slade  
ARCHITECTURE FELLOW

**Design Trust Staff**

Susan Chin, FAIA, Hon. ASLA  
EXECUTIVE DIRECTOR

Rosamond Fletcher  
DIRECTOR OF PROGRAMS

Ozgur Gungor  
COMMUNICATIONS MANAGER

Joseph Huennekens  
PROGRAM ASSOCIATE

Kelly Mullaney  
DEVELOPMENT MANAGER

Martha Snow  
EXECUTIVE ASSISTANT AND  
SPECIAL PROJECTS ASSOCIATE

**NYC Department of  
Housing Preservation and  
Development Staff**

Brian Baldor  
DIRECTOR OF DESIGN CONSULTATIONS  
AND STRATEGIES, BUILDING AND LAND  
DEVELOPMENT SERVICES

Jonathan Beuttler  
DIRECTOR OF MIXED-INCOME PROGRAMS,  
NEW CONSTRUCTION FINANCE

Arielle Goldberg  
SENIOR PLANNER AND POLICY ANALYST,  
PLANNING AND PREDEVELOPMENT

Joanna Kandel  
PROJECT MANAGER,  
NEW CONSTRUCTION FINANCE

Greg Kelly  
SENIOR BUSINESS ANALYST,  
TECHNOLOGY AND STRATEGIC DEVELOPMENT

**Authors**

Fiona Cousins  
Rosamond Fletcher  
Joseph Huennekens  
Hayes Slade  
James Slade

**Editors**

Rosamond Fletcher  
Joseph Huennekens

**Publication Design**

Penny Hardy,  
PS New York

**Drawings**

Hayes Slade, James Slade,  
Slade Architecture

© 2015 by the Design Trust for Public  
Space and NYC Department of Housing  
Preservation and Development.  
All rights reserved. No portion of  
this publication can be reproduced  
without the prior permission of the  
Design Trust for Public Space.

ISBN 978-0-9968944-0-1

Printed and bound in New York  
by Vanguard Printing

This publication was printed on  
recycled paper containing 10%  
postconsumer recycled fiber, reflecting  
the Design Trust's commitment to  
protecting our environment.

# Contents

---

<b>04</b>	<b>Preface</b>	Design Trust for Public Space
<b>05</b>	<b>Preface</b>	NYC Department of Housing Preservation and Development
<b>07</b>	<b>Introduction</b>	
08	Design Guidelines: Improving the Baseline, Inviting Innovation	
09	Why Now?	
10	How to Use the Guidelines	
13	Critical Success Factors Checklist for Ground-Floor Retail and Community Use	

---

<b>14</b>	<b>SECTION 1</b>	<b>Facade and Signage</b>
<b>24</b>	<b>SECTION 2</b>	<b>Exterior Access and Streetscape</b>
<b>34</b>	<b>SECTION 3</b>	<b>Interior Architecture</b>
<b>42</b>	<b>SECTION 4</b>	<b>Mechanical</b>
<b>52</b>	<b>SECTION 5</b>	<b>Electrical</b>
<b>56</b>	<b>SECTION 6</b>	<b>Plumbing and Fire Protection</b>

---

<b>63</b>	<b>Applications</b>	
64	Design Guidelines for Small Retail Space	
67	Design Guidelines for Large Retail Space	
72	Sample Configurations of Ground-Floor Retail Tenants	
<b>80</b>	<b>Appendices</b>	
80	Tenant Lease Checklist	
82	Glossary	
<b>85</b>	<b>Acknowledgments</b>	

## Preface

### Design Trust for Public Space

---

Mixed-use affordable housing developments have an important role to play in stabilizing and strengthening communities. When designed well, they provide high-quality residential units and flexible ground-floor space for a diverse range of retail and community tenants. Often, when designed with only the housing in mind, the ground-floor spaces remain vacant and blight the very neighborhoods the developments were intended to serve.

In 2014, the Design Trust for Public Space conducted an open request for proposals called *The Energetic City* to find projects that spoke to our commitment to develop public spaces that connect people and give life to the city. An independent jury selected a proposal by NYC Department of Housing Preservation and Development (HPD) to partner with the Design Trust in generating a set of design guidelines for ground-floor space in mixed-use affordable housing developments. The jury contended that the Design Trust was uniquely positioned to help HPD realize the immense opportunities mixed-use developments can bring to the public realm of neighborhoods across the five boroughs.

The Design Trust was founded in 1995 to unlock the potential of New York City's shared spaces. Today we are a nationally recognized incubator that transforms and evolves the city's landscape with city agencies and community collaborators. Our work can be seen, felt, and experienced throughout all five boroughs—from parks and plazas to streets and public government.

At the outset of the **Laying the Groundwork** project, our Fellows team identified several guiding principles—ground-floor space should be: flexible, distinctive, connected to the street and passersby, transparent, and continuous. Based on the feedback of a broad range of stakeholders and peer reviewers, these principles evolved into a set of nine 'critical success factors' and the detailed guidelines found herein.

Most importantly, these pioneering guidelines are the critical result of the Design Trust Fellows and the many individuals and organizations who contributed so much of their intelligence and effort. We truly appreciate HPD for presenting this significant opportunity and working thoughtfully and effectively with our Fellows as an integral part of the project team. We thank the National Endowment for the Arts, Design Trust Founder's Circle, and our donors for their generous support and dedication to our work.



Susan Chin, FAIA, Hon. ASLA

EXECUTIVE DIRECTOR  
DESIGN TRUST FOR PUBLIC SPACE

## Preface

### NYC Department of Housing Preservation and Development

---

Mixed-use projects play a critical role in supporting the City's goal to foster diverse, livable neighborhoods, a key tenet of Mayor Bill de Blasio's *Housing New York* plan. This type of development not only provides much-needed affordable housing to New Yorkers, but also provides an array of amenities and services to help improve the quality of life in our neighborhoods. This is especially true in communities that are underserved by retailers and service providers.

Several years ago, HPD initiated an effort to better understand the specific challenges faced by affordable housing developers when building mixed-use developments. We consulted a broad range of stakeholders, including developers, lenders, commercial brokers, property managers, and community organizations. From across these groups, we heard that poor physical design can be one of the most significant barriers to lease-up. When a building is not planned and constructed with quality design in mind, the pool of tenants willing and able to lease a space dwindles. This increases the chance for vacancies, and vacancies threaten the viability of our projects, detract from the quality of neighborhood street life, and waste an opportunity to increase local employment. These experts identified better design as a primary need, but were not in a position to suggest specific design principles that would help meet that need.

Collaborating with the Design Trust for Public Space on **Laying the Groundwork** has strengthened our expertise in the design of retail and community facility spaces in order to fill this crucial gap. The project has codified a set of guidelines that capture best practices for mixed-use projects. These guidelines will be used as a resource by our development and technical staff, and by other city agencies, developers, and community organizations that participate in our development and neighborhood planning initiatives.

This project would not have come to fruition without the hard work and vision of the Design Trust and its Fellows, the dedicated team at HPD, the workshop participants and peer reviewers, and the other City agencies who provided feedback on the **Laying the Groundwork** project. We are grateful for their creativity and attention to detail.



Vicki Been

COMMISSIONER  
NYC DEPARTMENT OF HOUSING PRESERVATION AND DEVELOPMENT



# Introduction

---

Ground-floor space in affordable mixed-use housing is inextricably connected to the pedestrian experience of our city's largest public space, the sidewalk. A well-designed storefront and retail level, including community use, has the potential to provide much-needed services and amenities to local residents, while contributing significantly to the quality of a neighborhood's streetscape and economic vitality. Good retail design extends far beyond the attractiveness and immediacy of the built environment. Benefits include positive changes to the social, economic, and environmental health of our communities.

## Design Guidelines: Improving the Baseline, Inviting Innovation

---

Good retail design is holistic and flexible to allow for a diversity of uses that may evolve over time. Key design concepts include:

---

**Maximum spatial flexibility to facilitate a variety of tenant types and merchandising strategies**

---

**Retail presence that activates the streetscape and is differentiated from residential entrances**

---

**Mechanical, electrical, and plumbing (MEP) services that allow for individual tenants to control their own environment**

---

**MEP services with the capacity to foster a mix of retail uses**

---

Plans that incorporate these factors can significantly improve the baseline of design in mixed-use affordable housing developments, contributing to greater marketability and improved rates for leasing retail space. In turn, the quality and diversity of retailers will improve, linking residents to local goods, services, and job opportunities. The increased continuity of commercial corridors will create lively, active streetscapes that invite people to gather in the public realm and promote community engagement. Although designing spaces to these guidelines may involve additional up-front costs, the benefits include:

---

**Increased leasing opportunities**

---

**Increased rent potential**

---

**Improved quality of the leased space**

---

**Reduced need for modifications to the building envelope to accommodate retail tenants**

---

These guidelines aim to advance the quality of mixed-use affordable housing developments. With this administration's focus on housing, each project's developer and architect has a tremendous opportunity to think creatively about how to capitalize on this initiative. Designers are invited to think more innovatively about how the scale of the new building will interplay with the scale of the neighborhood. How can the transparency and proportions of the storefront facade encourage interaction and activity among retail tenants and residents? How can a better streetscape attract people to the building's uses? How can greenscape improvements contribute to the community's health and resiliency?



An analysis by the **New Construction Finance** division of **NYC Department of Housing Preservation and Development** found that the cost of applying most of these guidelines was negligible, with the exception of ceiling height and MEP recommendations. A detailed **COST ESTIMATE TOOL**, developed by **Arup** for the **Design Trust for Public Space**, can be used to determine how the MEP guidelines may affect project budgets. <http://www.designtrust.org/projects/groundwork/activities-and-outputs/>

## Why Now?



Office of the Mayor,  
City of New York

HOUSING NEW YORK

[http://www.nyc.gov/html/housing/assets/downloads/pdf/housing\\_plan.pdf](http://www.nyc.gov/html/housing/assets/downloads/pdf/housing_plan.pdf)

Mayor Bill de Blasio's **Housing New York: A Five-Borough, Ten-Year Housing Plan**—an initiative to create or preserve 200,000 units over the course of a decade—will reshape New York's urban fabric and offers an opportunity for the City and developers to create dynamic, well-designed ground-floor space in mixed-use affordable housing developments. The extensive plan calls for a holistic approach to community development that will support diverse, livable neighborhoods.

### FISCAL YEAR 2015 HPD HOUSING STARTS BY BOROUGH

BOROUGH	NEW CONSTRUCTION	PRESERVATION	TOTAL
Manhattan	2,193	3,817	6,010
Bronx	2,360	2,621	4,981
Brooklyn	3,069	3,846	6,915
Queens	637	553	1,190
Staten Island	224	1,005	1,229
<b>TOTAL</b>	<b>8,483</b>	<b>11,842</b>	<b>20,325</b>

DATA: NYC DEPARTMENT OF HOUSING PRESERVATION AND DEVELOPMENT

The NYC Department of Housing Preservation and Development (HPD)—the largest municipal housing preservation and development agency in the nation, committed to strengthening neighborhoods while preserving the stability and affordability of New York City's housing stock—found that ground-floor space that is not thoughtfully designed to be attractive and accommodating to a wide variety of retail and community tenants may be difficult and undesirable to lease, resulting in underutilized or vacant storefronts in mixed-use developments. HPD asked a diverse group of development partners and stakeholders how to address this challenge and what would contribute to successful mixed-use affordable housing. High-quality design was one of the key factors contributing to effective retail outcomes, along with the perception of a strong commercial market and adequate demand for uses or services, and access to capital for retail and other ground-floor uses.

HPD approached the Design Trust for Public Space—a nonprofit dedicated to the future of public space in New York City—to develop design guidelines for ground-floor space as part of an agency-wide initiative to improve retail outcomes and create vibrant neighborhoods. The resulting **Laying the Groundwork** project and this publication aim to increase the flexibility of retail space, and consequently the diversity of ground-floor uses, to meet the needs of communities across the city as they evolve over time. These design guidelines have been developed at an opportune moment to play a critical role in the City's housing plan, informing criteria for requests for proposals (RFPs), the evaluation of development proposals, and the review of architectural plans.

## How to Use the Guidelines

---



For additional information on incorporating the guidelines into specific projects consult the following **NYC Housing Preservation and Development** resources.  
NYC DEPARTMENT OF HOUSING PRESERVATION AND DEVELOPMENT  
GUIDE TO BUILDING AND LAND DEVELOPMENT SERVICES (BLDS)  
<http://www1.nyc.gov/site/hpd/developers/guide-to-building-land-development-services.page>

NYC DEPARTMENT OF HOUSING PRESERVATION AND DEVELOPMENT  
REQUEST FOR PROPOSALS (RFPS)  
<http://www1.nyc.gov/site/hpd/developers/rfp-rfq-rfo.page> if applicable.

>

### p 63 Applications

The Applications section provides a matrix overview of the guidelines by use-type, for both small and large retail space.

### Who is this publication for?

Developers and design professionals working in the affordable housing industry may use this publication as a tool to achieve best practices in the design of retail and other ground-floor spaces in mixed-use developments. These guidelines are based on projects typical to HPD and the New York City context but are relevant to other cities as well. These best practices may also be useful for developers undertaking mixed-use market-rate housing.

### What does it cover?

For the purpose of this publication, the term ‘retail’ refers to any ground-floor use that generates commercial activity or fills a community need and activates the streetscape. The guidelines address new construction projects only, focusing on physical elements—structure and systems—that are challenging or prohibitively expensive to modify after a building is constructed, such as floor and ceiling heights, glazing, entrance and egress points, loading docks, column spacing, and building system requirements.

### What types of retail and community space are included?

To find the best mix of retail and community tenants for a specific neighborhood or development, market studies are ideal. Developers can also conduct preliminary community engagement to get input from residents, local businesses, and local nonprofits about what uses are needed and/or desired. HPD and the Design Trust project team identified the following uses as amenities or services that are frequently prioritized by local residents and stakeholders. The guidelines focus on an analysis of the specific design and MEP requirements for these uses.

---

#### Bank

---

#### Full-Service Pharmacy

---

#### Full-Service Restaurant

---

#### Grocery Store

---

#### Laundromat

---

#### Major Drugstore with Pharmacy

---

#### Supermarket

---

#### Community Use

- Childcare/Pre-K Center
  - Health Facility
  - Cultural Space
-

Some of these uses require more specific infrastructure and upfront investment in the build-out phase. The guidelines highlight the design needs for uses with significant up-front architectural and MEP demands, such as supermarkets, restaurants, and laundromats. For uses that also have specific design needs—community uses such as Childcare/Pre-K, Health Facilities, and Cultural Spaces—developers may integrate their specific requirements into the planning phases. Developers should work with a proposed tenant/partner from the earliest stages of the process in order to ensure the resulting space serves the needs of the organization or institution and meets local building requirements.

### What is ‘Base Retail Space’?

While this project does not feature every type of retail, the Base Retail Space, with two size distinctions, has been developed with a diverse set of uses and flexibility in mind. Please refer to Design Guidelines for Small and Large Retail Space on page 63.

&gt;

#### p 63 Applications

The **Design Guidelines for Small and Large Retail Space** matrices shows how the Base Retail Space accommodates a broad set of uses.

&gt;

#### p 80–81 Appendices

The **Tenant Lease Checklist** provides an itemized list of standards that can be incorporated into tenant leases.



A detailed tool, developed by **Arup** for the **Design Trust for Public Space**, can be used to determine how the MEP guidelines may impact project budgets.

COST ESTIMATE TOOL

<http://www.designtrust.org/projects/groundwork/activities-and-outputs/>

---

### Base Retail Space – Small < 4,000 square feet

---

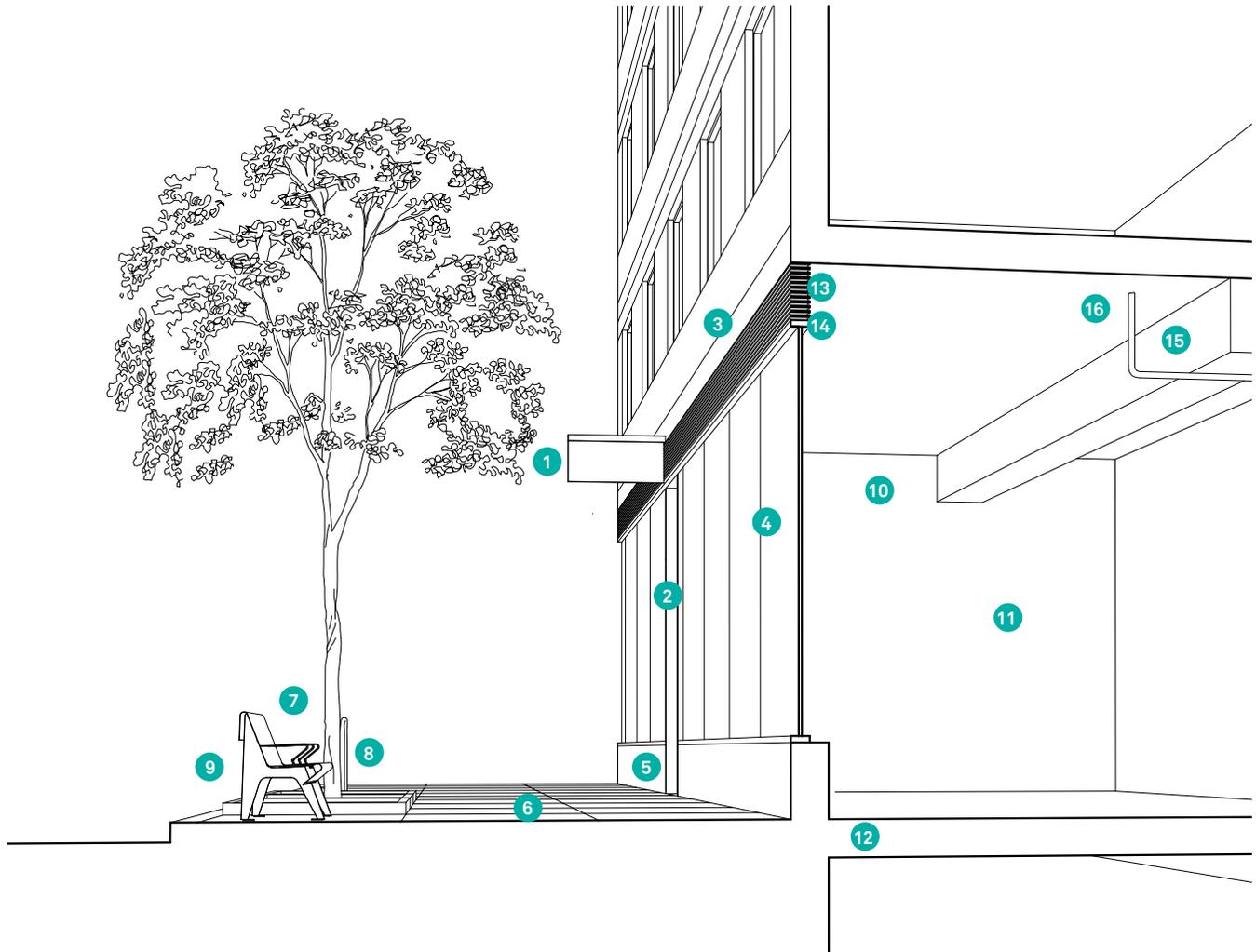
### Base Retail Space – Large > 4,000 square feet

---

The following detailed guidelines outline the architectural and service needs for a flexible combined Base Retail Space of approximately 12,000 square feet, which can be used as one large space or a mix of smaller and medium-size retail spaces, with an average minimum size of 2,000 square feet. Minimum-size spaces are referred to as a “bay,” corresponding to the column grid. The size of uses depicted in the Applications section can be inferred by the number of bays required (one or more). Developer/landlord provision of mechanical, electrical, plumbing, and fire protection services has been included in the Base Retail Space to improve the leasability of retail spaces. Examples of potential use configurations, how different retail tenants can be accommodated and the resultant design and service needs, are provided in the Applications section of the guidelines.

### How are the guidelines organized?

The following six sections of this publication are organized around key components of ground-floor design—**Facade and Signage**, **Exterior Access and Streetscape**, **Interior Architecture**, **Mechanical**, **Electrical**, and **Plumbing and Fire Protection**. Each section outlines the key objectives, the elements that contribute to effective, high-quality design, and related references to consider exploring further. These sections are followed by the Applications section, which provides a matrix overview of the design guidelines by use and a diagrammatic overview of potential use configurations. Two appendices provide a Tenant Lease Checklist and Glossary.



SECTION PERSPECTIVE OF SUCCESSFUL GROUND-FLOOR SPACE

- |   |                                      |
|---|--------------------------------------|
| 1   Blade Signage                           | 9   Benches                          |
| 2   Entry Integrated with Storefront System | 10   Adequate Floor-to-Floor Height  |
| 3   Flush Louvers                           | 11   Deep and Wide Bay               |
| 4   Maximum Transparency                    | 12   Floor Slab Coordinated to Grade |
| 5   On-Grade Entry                          | 13   Louvers 10' Above Sidewalk      |
| 6   Clear Pedestrian Path                   | 14   Independent Ventilation         |
| 7   Adequate Tree-Pits                      | 15   Fire Alarm System               |
| 8   Bike Racks                              | 16   Wet Sprinkler System            |

## Critical Success Factors Checklist for Ground-Floor Retail and Community Use

---

- FACTOR 1** Maximum facade transparency with measures in place for attractive privacy solutions
- FACTOR 2** Well-defined retail presence, separate from residential entry
- FACTOR 3** Organized and distinct retail signage
- FACTOR 4** Exterior lighting that promotes activity and security
- FACTOR 5** On-grade entrances, and potential for future on-grade entrances, to each retail space
- FACTOR 6** Inclusion and maintenance of peripheral amenities such as benches and bike racks to support a variety of retail tenants, including small-scale, local merchants
- FACTOR 7** Adequate height clearances to facilitate a variety of tenant build-outs and maximize utility of leasable retail space
- FACTOR 8** Organized, convenient column grid spacing for the greatest flexibility across retail program types and tenant merchandising
- FACTOR 9** Sufficient, individually metered utilities and MEP service to support a variety of retail tenants—appropriately supplemented as required for priority tenant types (restaurants, grocery stores, etc.)



SECTION 1 ELEMENTS

- 1.1 | Glazing / Fenestration
- 1.2 | Entrances
- 1.3 | Louvers
- 1.4 | Signage

- 1.5 | Awnings
- 1.6 | Exterior Lighting
- 1.7 | Security Gates

## SECTION 1

## Facade and Signage

---

## OBJECTIVES

A well-designed ground-floor facade contributes to an active street life by engaging passersby and connecting interiors to the street. Facades that clearly and distinctly define retail and residential uses attract customers from many locations on the block and beyond.

Ensuring high visibility into and out of retail spaces promotes safety. A transparent storefront welcomes customers inside with products and services on display, discourages crime with more of what urban theorist Jane Jacobs called “eyes on the street,” reduces energy consumption by letting in natural light, and enhances the curb appeal and value of the store and the entire neighborhood.

ELEMENTS

## 1.1 Glazing/Fenestration

Making the facade as transparent as possible allows for a two-way visual exchange between the exterior and interior. Occupants in the retail space see what is happening on the street and pedestrians outside see the activity and offerings in the retail spaces. This symbiotic relationship benefits both patrons and retailers.

>

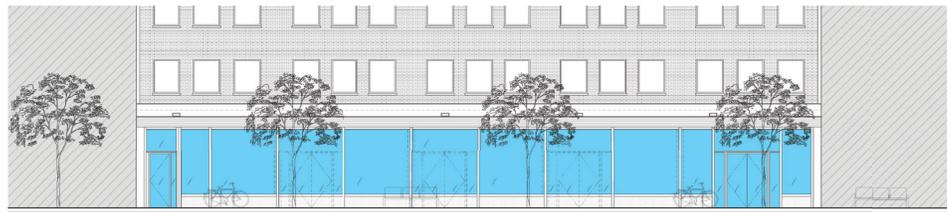
p 80-81 Appendices

When privacy is needed for specific uses, refer to the **PRIVACY STRATEGY DIAGRAM** in the **TENANT LEASE CHECKLIST**.

**.1 Provide continuous ground-to-ceiling glazing, with integral doors. Where ground-to-ceiling glazing is not possible, meet a target of 70% transparency between 2 feet and 10 feet above the sidewalk.**

**.2 Coordinate glazing zones with the building's structure, louvers, and other base elements.**

**.3 Design glazing to meet NYC code regulations as well as any State and Federal rules that apply. For projects located within Federal Emergency Management Agency (FEMA) flood zones, alternative approaches should be considered to maximize transparency while following building regulations.**



MINIMUM 70% CLEAR GLAZING BETWEEN 2 AND 10 FEET

CASE STUDY

### CRITICAL SUCCESS FACTOR 1 | MAXIMUM FACADE TRANSPARENCY



#### 501 W. 51ST STREET

501 W. 51st Street provides 31 affordable units to long-term residents of New York's Clinton/Hell's Kitchen neighborhood. The project comprises two parts: a historic renovation and a new addition. The six-story building includes two small retail spaces, each occupied by a local business. The commercial spaces are glazed to the maximum extent allowed by the historic structure. To achieve transparency, the facade features two sets of windows above a 2-foot baseboard. The first set of windows is aligned with the top of the doorway. The second set of glazing is inserted between the door and cornice. Signage pasted onto the windows, while not ideal, is minimal and discreet. The result is two cheerful and modern retail spaces that blend old and new.

DEVELOPER  
Clinton Housing Development Company (CHDC)

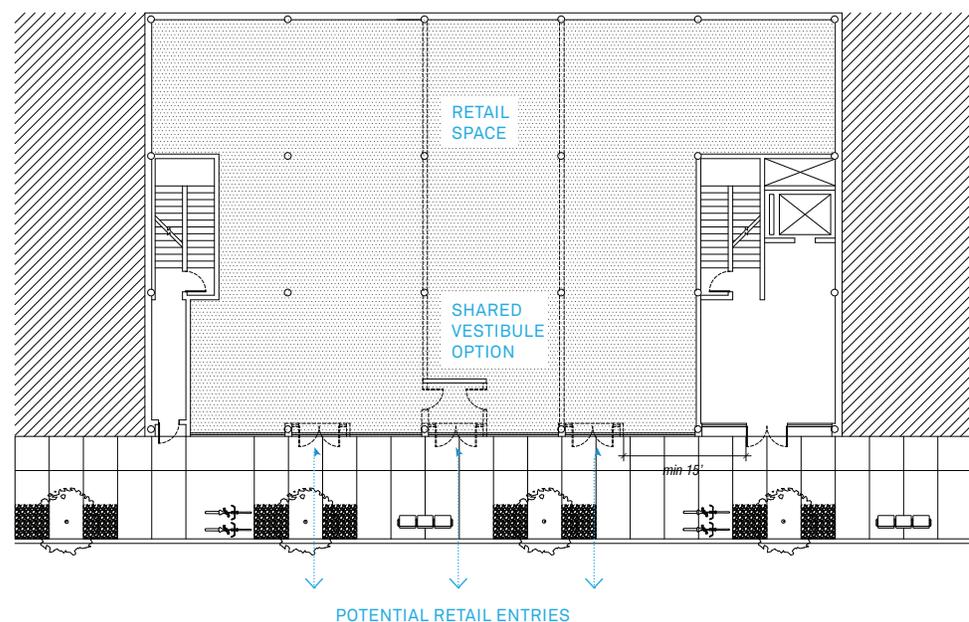
DESIGN ARCHITECT  
Edelman, Sultan, Knox, Wood / Architects

LOCATION  
New York, NY

## 1.2 Entrances

A continuous retail storefront enlivens the street. Retail and residential entrances that are distinct and clearly marked facilitate wayfinding. Good retail spaces are designed to be flexible so they can be conveniently subdivided when necessary; this requires a design that can accommodate multiple direct entries to the subdivided spaces. Internal vestibules can offer an efficient way of providing a single point of entry for two or more tenants and help maintain thermal separation between interior and exterior spaces.

- .1 Plan for flexibility in the subdivision of the retail space when designing the facade.
- .2 Integrate entrances in the storefront system and maximize transparency into the retail interior.
- .3 Provide fully accessible entrances and comply with all current applicable code requirements.
- .4 Maximize potential entry locations by coordinating with the grade of the site. This will increase the flexibility of the retail space for subdivision as well as for egress requirements. See Element 2.1 On-Grade Entry.
- .5 Where entry vestibules are required by code or for energy conservation, design them to maintain maximum transparency into the retail interior.
- .6 Consider the protection and utility of entrances for street deliveries.



Center for Active Design  
ACTIVE DESIGN GUIDELINES:  
PROMOTING PHYSICAL ACTIVITY  
AND HEALTH IN DESIGN  
<http://centerforactivedesign.org/dl/guidelines.pdf>

>

### p 73–75 Applications

For further information on separate service entrances refer to TENANT DIAGRAM 1: SUPERMARKET.

.7 Separate and differentiate retail entries from residential entrances in location as well as articulation so that there is a clear distinction between them. Maintain a minimum of 15 feet between the residential entrance and the closest retail entrance location.

.8 Provide separate service entry for retail spaces over 6,000 square feet. Locate as far as possible from residential and retail entries. Ideally the service entry is located near the garbage collection location to minimize congestion on the sidewalk.

.9 On corner lots, locate the residential entry on the side street and locate retail entries on the main street.

CASE STUDY

CRITICAL SUCCESS FACTOR 2 SEPARATE ENTRANCES



DEVELOPER  
West Hollywood Community  
Housing Corporation (WHCHC)

DESIGN ARCHITECT  
Tighe Architecture

LOCATION  
West Hollywood, CA

SIERRA BONITA

Sierra Bonita provides 41 affordable housing units in a five-story building easily distinguished by its unique solar panels and bold mesh window screens. The ground-floor of Sierra Bonita houses retail space, social service offices, and the nonprofit developer's main office. The residential entry for Sierra Bonita is located on the west side of the building in order to maximize retail frontage. This preserves the entirety of the building's frontage for commercial uses and prevents tenants from having to enter and exit their home along a heavily trafficked corridor. The separation of the entrances distinguishes the two components of the building and enhances the experience of both commercial and residential tenants.

## 1.3 Louvers

---

In most cases, the interior heating, ventilation, and air-conditioning (HVAC) requirements within the retail space necessitate street facade louvers. Well-planned placement of louvers enhances the facade and the quality of the retail storefront.

- 
- .1 Provide a clear zone for louvers on the exterior storefront. This typically runs continuously along the facade above the storefront-glazing band.**

---

  - .2 Finish louvers to match the color of the surrounding storefront elements so that they are an integral part of the facade design.**

---

  - .3 Size the louvers according to the heating and cooling system that is being used. If a remote condenser (located outside of the retail space) is used, the dimension of the exterior louver can be 1 foot tall as it will only be used for fresh air/make-up air. If a ducted condenser unit is going to be required within the retail space, the louvers will need to be a minimum of 18 inches tall. Please refer to Sections 4–6 (Mechanical, Electrical, and Plumbing and Fire Protection).**

---

  - .4 Do not install air-conditioning units over doorways or allow them to protrude through the facade.**

---

  - .5 Provide insulated panels behind louvers that can be removed if the louver is needed.**

---

## 1.4 Signage

Retailers draw customers from different directions, vantage points, and distances. Signage that projects from the facade perpendicularly can attract pedestrians or drivers who are looking obliquely at the facade from a distance. Facades with organized, adequate, and legible signage contribute to an attractive street front.



### NYC Department of Small Business Services

FACADE GUIDE TO STOREFRONT DESIGN

[http://www.nyc.gov/html/sbs/downloads/pdf/neighborhood\\_development/sbs\\_documents/sbs\\_updated%20facade\\_guide.pdf](http://www.nyc.gov/html/sbs/downloads/pdf/neighborhood_development/sbs_documents/sbs_updated%20facade_guide.pdf)

- 1 Consider the context, traffic patterns, sidewalk widths, and any governing rules, regulations, and codes when choosing signage placement. Zoning and building code requirements in NYC limit location, type, and size of signage. Zoning regulations are specific to the zoning district. Signage may require a separate permit depending on size and zoning regulations.**
- 2 Include provisions for signage in the design of the retail facade. Signage should be uniform across the length of the street front facade, creating a signage band above the storefront.**
- 3 Use blade signage to supplement the signage band. Signage that is placed perpendicular to the facade enhances visibility from a distance down the street.**
- 4 Coordinate signage lighting with the facade design. The design should prevent light pollution above the sign, and should particularly avoid illuminating the residential interiors. See Element 1.6 Exterior Lighting. Illuminated signage may not be permitted in certain zoning districts.**

### CASE STUDY



### CRITICAL SUCCESS FACTOR 3 ORGANIZED AND DISTINCT SIGNAGE

#### CHELSEA PARK

Chelsea Park, a mixed-income building in Manhattan, features 41 affordable units. 31,000 square feet of retail space wrap around the 12-story LEED-Silver building. This large retail area is subdivided into smaller spaces occupied by a mix of local and national commercial tenants. Retail signage at Chelsea Park maintains common standards but allows retailers to distinguish their establishments. Overhead signs advertise tenants and blade signs project from the facade. These highly visible signs entice customers walking up and down the street. Chelsea Park's signage creates an attractive pedestrian experience and differentiates between diverse retail types without appearing cluttered.

#### DEVELOPER

The Heller Organization

#### DESIGN ARCHITECT

GF55 Partners

#### LOCATION

New York, NY



NYC Department  
of Transportation

STREET DESIGN MANUAL

<http://www.nyc.gov/html/>

[dot/html/pedestrians/](http://www.nyc.gov/html/pedestrians/)

[streetsdesignmanual.](http://www.nyc.gov/html/pedestrians/html/streetsdesignmanual.shtml#download)

[shtml#download](http://www.nyc.gov/html/pedestrians/html/streetsdesignmanual.shtml#download)

## 1.5 Awnings

---

Well-designed awnings provide signage and protection from inclement weather. They can also shade the retail space from direct sunlight, reducing energy costs. Awnings are used by retailers to identify and differentiate their businesses. They are often a tenant fit-out item. If awnings are anticipated, provisions should be made to regulate their appearance, provide structural support, and ensure proper maintenance.

- .1 Consider the width of the sidewalk or public way and any governing rules, regulations, and codes when designing awnings. Zoning rules in NYC limit the location, size, and signage of awnings. Regulations are specific to the zoning district.**
  - .2 Maintain a uniform profile, projection, height, color, and material palette across the entire facade. Coordinate awning size/spacing with facade bays and with all retail tenant awnings. Branding for each retailer can be customized within these unifying standards.**
  - .3 Specify open ends and bottoms on all awnings in order to maintain a clean and light appearance. Front lips are recommended, but should not exceed 1 foot in depth.**
  - .4 Specify stainless steel supports and fasteners to prevent rusting. Awning support should be considered in the structural design of the building and facade.**
  - .5 Clearly define responsibility for and maintenance of awnings in the lease agreement. Poorly maintained awnings can make a street front look unkempt and unattractive. See Tenant Lease Checklist on page 80–81.**
  - .6 Integrate provisions for the support of retractable awnings into the design of the base building. Retractable awnings are often installed by restaurant tenants over sidewalk dining areas and can be deployed when weather is appropriate for outdoor dining.**
-

## 1.6 Exterior Lighting

Storefront lighting helps maintain a friendly and safe environment, and increases the physical safety of retail and residential entrances. It is a proven crime deterrent. Exterior illumination provides light on the sidewalk and highlights the facade at night. Exterior lighting can also be used to accent trees and planting.

### CASE STUDY

#### CRITICAL SUCCESS FACTOR 4 EXTERIOR LIGHTING FOR ACTIVITY AND SECURITY



#### NEW GENESIS

New Genesis provides 106 efficiency apartments for low-income and formerly homeless individuals. The ground-floor of the six-story building features two retail establishments, a generously sized community room, and an interior courtyard. Given the project's at-risk population and downtown location, lighting is especially important at New Genesis. The design of the building takes care to provide adequate illumination of retail spaces without disturbing residents living on the second to sixth floors. The building features sconce lights along the ground-floor facade and pendant lights that hang from steel awnings atop the residential and commercial entrances. These downward-facing overhead lights illuminate pedestrian spaces but avoid unnecessary light pollution. Exterior lighting at New Genesis addresses security concerns and integrates the building into the vibrant surrounding neighborhood.

#### DEVELOPER

Skid Row Housing Trust

#### DESIGN ARCHITECT

Killefer Flammang Architects

#### LOCATION

Los Angeles, CA

JIM SIMMONS PHOTOGRAPHY FOR KILLEFER FLAMMANG ARCHITECTS



#### Illuminating Engineering Society

LIGHTING FOR EXTERIOR ENVIRONMENTS

<http://www.ies.org/store/product/recommended-practice-for-the-economic-analysis-of-lighting-1360.cfm>



#### International Dark-Sky Association

DARK SKY APPROVED LIGHTING  
<http://darksky.org/fsa/dark-sky-friendly-devices/>

Exterior building lighting is necessary if street lighting is insufficient or inadequately placed. Minimum lighting requirements from the NYC Department of Transportation (DOT) Street Design Manual call for average illuminance of 5 foot-candles and illuminance uniformity of 4:1.

**1 Coordinate placement of interior lighting with security gates or other obstructions to ensure lighting is effectively illuminating the exterior.**

**2 Direct exterior lights downward to avoid illuminating residential windows. Consider specifying full cutoff fixtures to minimize light pollution.**

**3 Coordinate exterior lighting with ground-floor and residential glazing.**

**4 Ensure that lighting is energy efficient and meets Energy Star and energy code requirements.**

## 1.7 Security Gates

---

The need for after-hours security must be balanced with maintaining an inviting visual connection to the street. An active, well-illuminated street frontage improves safety for retailers, residents, and the neighborhood. It also reduces the need for security gates by creating a safer street front. Ideally, security gates should not be allowed in retail spaces under lease agreements. There are many other mechanisms for providing security, including security systems with video, sensors, alarms, etc.

- 
- .1 If security gates are required, provide internally housed roll-down security grilles mounted on the interior of the storefront. These gates roll down inside of the display window and door.**

---

  - .2 Specify that all security grilles must be of the open mesh variety in order to maintain transparency. Solid sections may be provided if they align with opaque portions of the facade. The minimum transparency allowed is 70% within 2 and 10 feet above the sidewalk.**

---

  - .3 Prevent security grilles from obscuring or detracting from the design and details of the existing storefront. Integrate all security gates or grilles with the design and construction of a new storefront.**

---

  - .4 Coordinate the location of security grilles so they do not interfere with exterior louvers.**

---



SECTION 2 ELEMENTS

- |   |                            |
|---|----------------------------|
| 2.1   On-Grade Entry                    | 2.7   Stormwater Capture   |
| 2.2   Clear Pedestrian Path             | 2.8   Bike Racks           |
| 2.3   Recycling and Trash Disposal Area | 2.9   Benches              |
| 2.4   Loading and Curb Cuts             | 2.10   Exterior Power      |
| 2.5   Parking                           | 2.11   Open Store Frontage |
| 2.6   Planting                          |                            |

**SECTION 2**

## Exterior Access and Streetscape

---

**OBJECTIVES**

The streetscape fosters social interaction and facilitates pedestrian engagement with ground-floor retail spaces, enhancing the local environment. Streetscape amenities should maintain unimpeded flow for pedestrians and goods, aim for environmental sustainability, and enrich the sidewalk experience for pedestrians and residents.

It is advantageous for everyone involved (landlord, commercial and residential tenants, pedestrian, and patron) to create an attractive and engaging street experience. Well-designed sidewalks provide opportunities for a variety of pedestrian activities at various speeds: shopping, leisurely strolls, stopping for conversations, sitting, etc.

ELEMENTS

## 2.1 On-Grade Entry

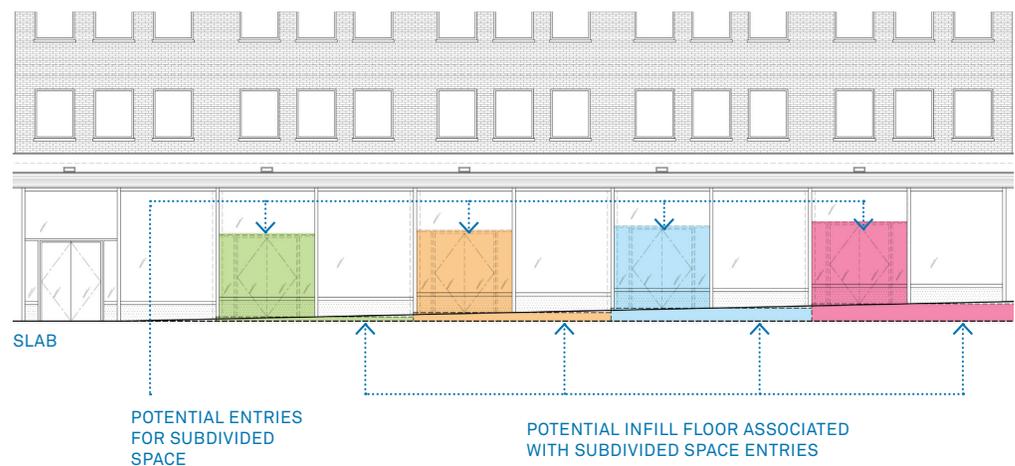
Providing the potential for on-grade pedestrian entries allows for flexibility if the space is subdivided in the future. Aligning sidewalk levels and doorways allows for multiple future on-grade entrances.



NYC Department of Transportation  
STREET DESIGN MANUAL  
<http://www.nyc.gov/html/dot/html/pedestrians/streetdesignmanual.shtml>

**.1 Set the retail floor slab at the lowest possible access point for the overall project area. Setting the slab at a higher point will preclude additional subdivisions in the future without ramps or mechanical solutions to negotiate the grade change.**

**.2 Create additional entry points by infilling up to the street level.**



CASE STUDY

### CRITICAL SUCCESS FACTOR 5 ON-GRADE ENTRY



#### MERRITT CROSSING

Merritt Crossing provides 70 affordable one- and two-bedroom apartments to low-income seniors in Oakland, California. The first floor of the LEED-Platinum building is devoted entirely to community space and social service offices. Merritt Crossing navigates a grade change along its east facade yet still incorporates multiple on-grade entrances. To achieve this, the slab is constructed at the lowest point of the building with office and residential entrances at different heights. Placing the slab at the lowest level leaves room for additional on-grade entrances and provides flexibility if additional subdivision of the ground floor is required.

DEVELOPER  
**Satellite Affordable Housing Associates (SAHA)**

DESIGN ARCHITECT  
**Leddy Maytum Stacy Architects**

LOCATION  
**Oakland, CA**

## 2.2 Clear Pedestrian Path

---

A wide and clear pedestrian path makes room for residents, shoppers, and passersby. It also enhances the accessibility of retail spaces and may increase foot traffic.

- 
- .1 Provide a clear 8-to10-foot path for travel parallel to the facade. The width can be reduced to 6 feet at tree pits or bioswales of no more than 10 feet in length.**
- 

## 2.3 Recycling and Trash Disposal Area

---

Retailers require convenient recycling and trash disposal. These areas must be easily accessible to the sanitation department for pickup and should be located out of the view and travel path of residents and pedestrians.

- 
- .1 Locate recycling bins and trash collection areas out of view from the sidewalk and main building entrances.**
  - .2 Allow retailers to securely store at least three days' worth of garbage within the interior or a designated off-street location. If a loading dock is provided, this area could be adjacent to the dock. Make sure the garbage area is big enough to house the proper number of garbage receptacles with secure lids.**
  - .3 Designate a pick-up area that is remote from the residential entry. If there is a separate service door, locate trash collection directly outside of this entrance, rather than down the street, which would require transporting refuse down the sidewalk.**
-

## 2.4 Loading and Curb Cuts

---

A well-designed loading area takes into consideration pedestrian and resident flow in order to allow for unimpeded sidewalk passage and access to the building. Coordinate with NYC Department of Transportation (DOT) to provide necessary street parking restrictions as well as approvals for a loading dock, if appropriate.

Larger retail spaces may require a loading dock to maximize their marketability. In the absence of a loading dock, a secure area for a receiving entrance should be included for back-of-house deliveries.

- .1 Provide a convenient loading area for retail tenants. In the event that a permanently designated loading dock location is not possible, ensure that street parking regulations allow for loading and unloading on a regular schedule convenient for retailers.**
  - .2 Coordinate curb cuts with loading areas and with DOT requirements. Obtain permit for curb cuts and loading docks from NYC Department of Buildings (DOB).**
  - .3 Accommodate a minimum 8-foot-6-inch wide truck width in all loading docks. Provide doors with 8 to 10 feet of clearance in height, along with a designated service area for waste receptacles.**
  - .4 Locate loading docks on side streets when a lot has two corners. Do not locate loading docks on the same street as the residential entry.**
- 

## 2.5 Parking

---

Parking needs are highly dependent on the location of the development. In dense urban locations where mass transit is available, a parking lot for retail at the front of the building is unnecessary. It is also not desirable, as it impedes sightlines and access to retail frontage. For these locations, limited curbside parking with a frequent turnover (1 hour metered limits) is ideal to increase retail turnover. In less dense, more suburban locations, parking is expected and sought out by potential patrons.

- .1 If parking is provided, ensure well-lit, secure lot locations that are visible from the sidewalk and the main street.**
  - .2 Consider providing sub-grade parking. This is crucial for large, destination retailers. Access ramps to sub-grade parking should be located to avoid disrupting continuous street-level retail frontage and pedestrian flow.**
-

## 2.6 Planting

---

Trees and plantings improve the street experience for pedestrians, residents, and retailers. They also provide environmental benefits, including aiding stormwater drainage, cleaning the air, and offering shade. Design the location of plantings to maintain unimpeded pedestrian flow, clear access to entrances, and best practices for plant health.

---



### Hudson Square Business Improvement District

HUDSON SQUARE IS  
PLANTING TREES: THE HUDSON  
SQUARE STANDARD

[http://www.hudsonsquarebid.org/wordpress/wp-content/uploads/2014/04/hudson-squarestandard\\_interactive.pdf](http://www.hudsonsquarebid.org/wordpress/wp-content/uploads/2014/04/hudson-squarestandard_interactive.pdf)



### NYC Department of Environmental Protection

PRIORITY CSO TRIBUTARY  
AREA MAP

[http://www.nyc.gov/html/dep/pdf/green\\_infrastructure/green\\_infrastructure\\_combined\\_sewer\\_reference\\_map.pdf](http://www.nyc.gov/html/dep/pdf/green_infrastructure/green_infrastructure_combined_sewer_reference_map.pdf)

**.1 Plan tree pits and plantings in accordance with the current DOT street design guidelines and NYC Department of Parks and Recreation requirements.**

---

**.2 Provide a subsurface trench filled with soil and covered with pervious pavement in the areas immediately adjacent to tree pits. For example, refer to Hudson Square Standard (diagram on page 31). This is critical to maintaining the tree root system and protecting the investment in the planting for the long term. Note that any permeable pavement will require a Sidewalk, Curb, and Roadway Application (SCARA) application and maintenance agreement prior to approval.**

---

**.3 Follow DOT requirements for all barriers around tree pits and allow for water flow. Avoid solid surrounding curbs or raised beds.**

---

**.4 Provide plantings and tree pits in compliance with more rigorous requirements for stormwater capture when locating a project within a NYC Department of Environmental Protection (DEP) Priority Tributary Area. Refer to DEP Priority CSO (Combined Sewer Overflow) Tributary Area Map as well as DOT Street Design Manual for stormwater capture installations.**

---

**.5 Provide a freeze-proof, tamper-proof water spigot on the exterior for cleaning the sidewalk and watering trees and plants.**

---

## 2.7 Stormwater Capture



NYC Department of Environmental Protection  
GUIDELINES FOR THE DESIGN AND CONSTRUCTION OF STORMWATER MANAGEMENT SYSTEMS

[http://www.nyc.gov/html/dep/pdf/green\\_infrastructure/stormwater\\_guidelines\\_2012\\_final.pdf](http://www.nyc.gov/html/dep/pdf/green_infrastructure/stormwater_guidelines_2012_final.pdf)



NYC Department of Environmental Protection  
STANDARDS FOR GREEN INFRASTRUCTURE

[http://www.nyc.gov/html/dep/pdf/green\\_infrastructure/bioswales-standard-designs.pdf](http://www.nyc.gov/html/dep/pdf/green_infrastructure/bioswales-standard-designs.pdf)

Stormwater runoff poses harm to the health and long-term sustainability of New York City's waterways. Most of New York City relies on a combined sewer system, in which sewage and stormwater share the same pipe. During storm events, excess stormwater overwhelms the system and excess stormwater and untreated sewage discharges directly from outfalls into waterways. When building within a DEP Priority Tributary Area, designs must include measures to capture runoff by introducing stormwater detention and retention infrastructure and permeable areas. Refer to DEP Priority CSO Tributary Area Map. These requirements will typically be satisfied by a bioswale or purpose-designed water catchment area.

- 1 Provide planting and trees in stormwater capture areas and/or bioswales when they are located on the main thoroughfare frontage. Refer to DOT Street Design Manual for stormwater capture installations. For siting and design refer to DEP Office of Green Infrastructure "Standards for Green Infrastructure" and DEP "Guidelines for the Design and Construction of Stormwater Management Systems."

### CASE STUDY

#### CRITICAL SUCCESS FACTOR 6 INCLUSION AND MAINTENANCE OF PERIPHERAL AMENITIES



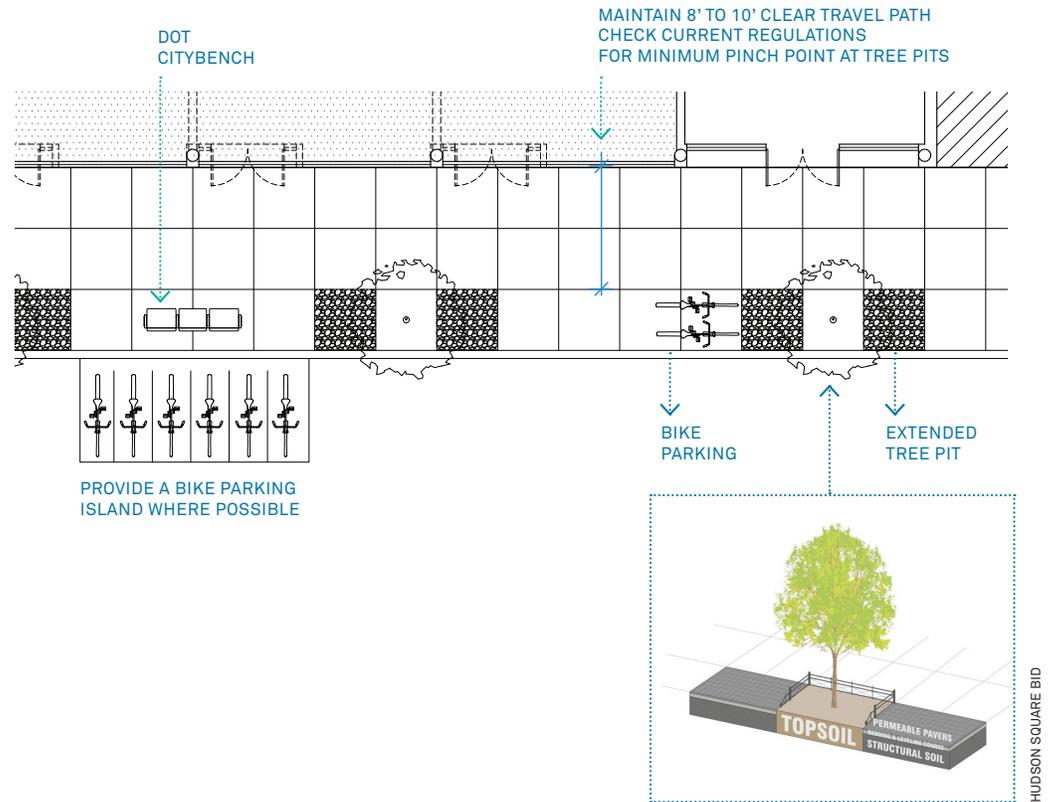
#### AVA AND AVALON WEST CHELSEA

AVA and its adjacent sister property Avalon West Chelsea are mixed-income developments that feature 142 affordable housing units. The LEED-Silver buildings house 40,000 square feet of retail beneath a 14-story and 30-story residential tower. AVA and Avalon West Chelsea have an array of streetscape amenities that improve the pedestrian experience. Building management installed specialty bike racks that align with the look of the adjacent residential entrance. Extra-large street-tree pits along both street faces shade residents and passersby. The clean and well-maintained streetscape at AVA and Avalon West Chelsea improves the marketability of retail spaces and visually unifies the two buildings. It also integrates the project into the surrounding community and enhances the public realm.

DEVELOPER  
**Avalon Bay Communities**

DESIGN ARCHITECT  
**Fogarty Finger**

LOCATION  
**New York, NY**



## 2.8 Bike Racks

Increasing connectivity and supporting multimodal transportation options is vital to enhancing the attractiveness of retail locations. Improved access increases resident mobility, retailer traffic, and potential rental rates. Biking reduces air pollution and encourages physical activity, promoting health within the community.

- .1 Provide bike racks and/or bike share facilities in an area convenient to retail locations.
- .2 Locate bike rack/bike share in a secured area with good visibility and lighting.
- .3 Work with DOT to install bike corrals where a car parking space might otherwise be located as an alternative to bike racks on the sidewalk.
- .4 Refer to zoning ordinances for minimum bike parking requirements.



### Center for Active Design

ACTIVE DESIGN GUIDELINES:  
PROMOTING PHYSICAL ACTIVITY  
AND HEALTH IN DESIGN

[http://centerforactive  
design.org/dl/guidelines.pdf](http://centerforactive<br/>design.org/dl/guidelines.pdf)



### NYC Department of City Planning

ACTIVE DESIGN: SHAPING  
THE SIDEWALK EXPERIENCE

[http://www.nyc.gov/html/  
dcp/pdf/sidewalk\\_experi  
ence/active\\_design.pdf](http://www.nyc.gov/html/<br/>dcp/pdf/sidewalk_experi<br/>ence/active_design.pdf)



### NYC Department of City Planning

ACTIVE DESIGN: SHAPING  
THE SIDEWALK EXPERIENCE  
SUPPLEMENT

[http://www.nyc.gov/html/  
dcp/pdf/sidewalk\\_experi  
ence/tools\\_resources.pdf](http://www.nyc.gov/html/<br/>dcp/pdf/sidewalk_experi<br/>ence/tools_resources.pdf)

## 2.9 Benches

---

Benches support community interaction and enhance bus stops, particularly near facilities that serve families or seniors. They may be strategically installed on the street side of the sidewalk facing the building or along the storefront facing the street. They can also serve as tree guards.



NYC Department of  
Transportation  
CITYBENCH

<http://www.nyc.gov/html/dot/html/pedestrians/citybench.shtml>

**.1 Provide backs and dividers on benches. Backs are not required for bus stops or for benches that are against the facade. Refer to DOT's CityBench program for more details.**

**.2 Maintain an 8 foot clear space on sidewalk path for unimpeded sidewalk traffic. For high-pedestrian-traffic areas, maintain 10 feet clear.**

---



NYC Department of  
Environmental Protection  
STANDARDS FOR GREEN  
INFRASTRUCTURE

[http://www.nyc.gov/html/dep/pdf/green\\_infrastructure/bioswales-standard-designs.pdf](http://www.nyc.gov/html/dep/pdf/green_infrastructure/bioswales-standard-designs.pdf)

## 2.10 Exterior Power

---

Exterior electrical outlets are beneficial to the building staff for maintenance and the local community for events. Locations and access to outlets should be conveniently placed.

**.1 Provide exterior outlets that lock and ensure that they are secured properly to protect the public and minimize liability.**

---

## 2.11 Open Store Frontage

---

An operable facade that opens onto the sidewalk can be highly desirable for pedestrians as well as retailers at restaurant and supermarket locations. Sidewalk seating or retail displays can enhance activity and visual interest. Refer to code and zoning regulations when planning an operable facade.

**.1 Consider providing an operable facade in spaces where a restaurant tenant is a priority.**

**.2 Plan for an operable facade from the outset of the design and provide support for panels; coordinate slab and grade levels with required services.**

---





SECTION 3 ELEMENTS

- 3.1 | Ceiling Height
- 3.2 | Footprint/Area
- 3.3 | Column Spacing
- 3.4 | Floor Slab
- 3.5 | Storage

**SECTION 3**

# Interior Architecture

---

**OBJECTIVES**

Well-designed and flexible retail space can accommodate a variety of tenants, provide amenities to neighborhoods, increase the connection between the interior and exterior, and make retail spaces more desirable and leasable to tenants. Designs that facilitate a range of uses can also better adapt to changes in the market.

ELEMENTS

### 3.1 Ceiling Height

Tall ceilings help create an open, inviting environment. Adequate ceiling heights accommodate mechanical, lighting, and sprinkler systems. Greater heights also improve the look and proportion of retail spaces. From the street, a higher ceiling allows for greater visibility into the retail space above cars, pedestrians, and other elements in the foreground.

CASE STUDY

#### CRITICAL SUCCESS FACTOR 7 ADEQUATE HEIGHT



#### EXTRA PLACE

Extra Place Apartments provides 41 units of affordable housing in New York’s rapidly changing East Village. The two-tone brick building features five floors of affordable units on top of a large first-floor retail space. Extra Place’s high ceilings grant retail tenants significant flexibility in fitting out the space. The ample height can accommodate a wide variety of tenant types and mechanical, electrical, and plumbing (MEP) systems without sacrificing transparency. The investment in high ceilings makes the building more attractive to potential retailers and neighborhood residents.

DEVELOPER

**Phipps Houses**

DESIGN ARCHITECT

**Arquitectonica**

LOCATION

**New York, NY**

Typically, block-and-plank structures create greater limitations on ceiling height because they tend to require deeper spanning beams at the ground-floor ceiling. Reinforced concrete structures often carry the loads directly through the ground floor and are less limiting because deep transfer beams are not required. Adequate ceiling heights should be provided regardless of the structural system that is used.

- 
- .1 Provide a minimum of 15 feet floor-to-floor height and a minimum 14 feet, 4 inches clear floor-to-underside of slab height in the retail areas.**

---

  - .2 Maintain a clear span of 12 feet above the finish floor level (AFFL). No pipe, conduit, or other utility running horizontally in the ceiling should be lower than 12 feet above the retail floor slab. Particular attention should be paid to the turnout for plumbing stacks, drain lines, and other systems coming from the residential spaces above the retail space. To the degree possible, horizontal pipe runs should be installed as close to the underside of the floor slab above as possible in order to facilitate tenant fit-out and maintain higher ceiling heights.**

---

  - .3 Coordinate the ground-floor ceiling height with the facade to ensure that louvers, mechanical, electrical, and plumbing (MEP) equipment, and security gates (if required) all clear the structure at the facade while providing the required storefront glazing zone.**

---

  - .4 Design the second-floor slab to support heating, ventilation, and air-conditioning (HVAC) equipment in the ceiling of the retail space below. If the intent is to have packaged units in the retail space rather than remote air handlers, the space should be designed to accommodate the additional load and isolate vibrations. Refer to Sections 4-6: Mechanical, Electrical, and Plumbing and Fire Protection.**

---

  - .5 Avoid locating building shutoff valves and access panels in the ceiling of the commercial space to eliminate access problems for retailers and building maintenance staff. Refer to Sections 4-6: Mechanical, Electrical, and Plumbing and Fire Protection.**

---

### 3.2 Footprint/Area

Contiguous retail space within a development is ideal because it provides the most flexibility for configuring a variety of retail tenant types. By offering the largest possible footprint, the space can be leased by a single tenant or sub-divided for multiple smaller tenants. A contiguous ground-floor space provides a more continuous retail presence on the facade, contributing to a more active street life.

**Square footage for uses prioritized in these guidelines are:**

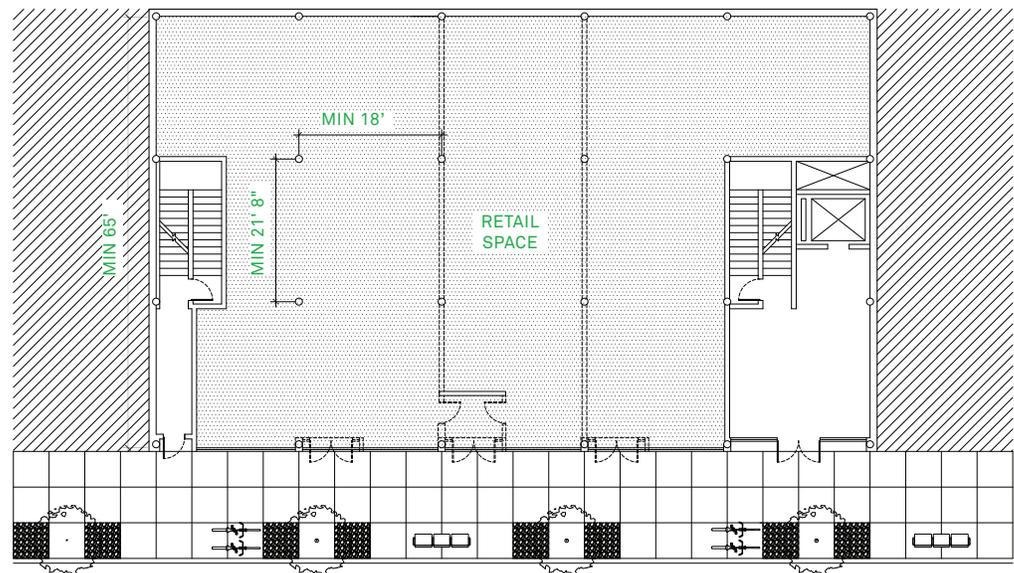
Small < 4,000 square feet
Laundromat
Community Use <ul style="list-style-type: none"> <li>• Childcare/Pre-K Center</li> <li>• Health Facility</li> <li>• Cultural Space</li> </ul>
Large ≥ 4,000 square feet
Bank
Full-Service Pharmacy
Full-Service Restaurant
Grocery Store
Major Drugstore with Pharmacy (>10,000 sf)
Supermarket (>10,000 sf)
Community Use <ul style="list-style-type: none"> <li>• Childcare/Pre-K Center</li> <li>• Health Facility</li> <li>• Cultural Space</li> </ul>

- .1 Design storefronts to be at least 23 feet wide. At no point should storefronts be less than 18 feet wide.**
- .2 Design the retail space to be a minimum of 65 feet deep from facade to rear wall. At no point should storefronts be less than 30 feet deep from facade to rear wall.**
- .3 For larger stores, design the maximum depth of the retail space to be 70 feet. Space behind this depth is often used for storage or administration.**
- .4 Locate residential entry and egress corridors to minimize the disruption of the continuous retail floor plate.**
- .5 Determine whether a second means of egress is required by code if planning for a larger store.**

### 3.3 Column Spacing

Column spacing affects a retailer's ability to lay out fixtures and displays in an organized way. Typically, column layout at the ground floor is dictated by the structural requirements of the housing above. Careful planning of the structural layout of residential units, with the objective of making a more regular and open column layout at the ground floor, can help produce a better retail space without additional construction costs. However, the column layout must never compromise the efficiency or legal compliance of the unit layouts of the building.

- .1 Maximize column spacing to allow for more flexibility in the layout of retail space, thus appealing to a greater number of retailers.**
- .2 Regularize column spacing, and extend the grid from the interior to the street. This simplifies interior layouts and allows for flexibility with shelving and displays.**



CASE STUDY

**CRITICAL SUCCESS FACTOR 8 ORGANIZED COLUMN GRID**



HALKIN MASON PHOTOGRAPHY FOR WRT

**PASEO VERDE**

Paseo Verde is a LEED-Platinum complex housing 120 affordable and workforce rental units. The building features 4,000 square feet of retail space within a ground-floor retail and office podium. Paseo Verde provides much-needed commercial space in a neighborhood lacking in retail diversity. The project's straightforward column grid allows the space to accommodate a diversity of tenant types. The regularized grid grants tenants the ability to easily install fixtures and displays. This adds value to the retail spaces, attracts higher-quality retail tenants, and enhances quality of life for residents and the community.

DEVELOPER

Asociación de Puertorriqueños en Marcha (APM) and Jonathan Rose Companies

DESIGN ARCHITECT

WRT

LOCATION

Philadelphia, PA



WRT

## 3.4 Floor Slab

---

Setting the interior elevation of the retail floor slab to the exterior sidewalk is an important decision that can affect the accessibility of the space as well as the flooring material options for tenant fit-outs.

- .1 Coordinate the elevation of the retail floor slab with the exterior grade and sidewalk conditions in order to maximize accessibility from the sidewalk into the entire retail floor plate. Refer to 2.1 On-Grade Entry.
- .2 Set the retail floor slab at the lowest access point in locations with a significant grade-change. In the future, additional access points can then be added by infilling. Failing to set the slab at the lowest point precludes additional subdivisions in the future without ramps, steps, or mechanical solutions to grade change.
- .3 Provide an accessible space beneath the slab (basement, cellar, or crawl space) whenever possible in order to accommodate MEP requirements of future ground-floor retail tenants. If a basement/cellar cannot be accommodated, a crawl space should be at least 2 feet deep to facilitate future mechanical systems.
- .4 Consider the thickness of possible future floor finishes when setting the rough slab and finish floor height. Typically, thicker materials like terrazzo and stone require minimum slab depressions of 2 inches. Even thin materials such as VCT (vinyl composition tile) or linoleum usually require a self-leveling floor preparation before the floor finish is installed. For this reason a minimum depression of a half-inch below the anticipated finished floor elevation is recommended.

## 3.5 Storage

---

Designated storage is not essential in attracting most retail tenants. However, the less retail floor area that a tenant has to dedicate for storage, the more they will pay for this floor area. If additional storage is available in the basement or in an adjacent ground-floor space, locate the storage areas to be directly accessible from the retail space.



SECTION 4 ELEMENTS

4.1 | Heating

4.2 | Cooling

4.3 | Fresh-Air Ventilation

4.4 | Air-Side Economizers

4.5 | Exhaust Air

4.6 | Kitchen Exhaust

4.7 | Air-Handling Units

4.8 | AHU Intake and Exhaust

4.9 | Base-Building Requirements

4.10 | Separate Metering

## SECTION 4

# Mechanical

---

## OBJECTIVES

Mechanical services include heating, cooling, and ventilation. These services are typically provided by the developer or the tenant. The mechanical system can be provided through separate systems, or two or more of the services can be provided through one system.

The descriptions below outline the most frequently specified systems in New York City and are intended to provide enough information for planning purposes. Systems must be designed to current codes by registered professionals and submitted for permitting to the appropriate agencies.

Good mechanical design can make retail spaces more attractive to tenants by making them easier and faster to fit out and by allowing for flexibility of retail uses and configurations. Each retail space should have enough flexibility in the installed services to accommodate a number of different retail, community, or cultural uses. Services should be provided to allow for different sizes of retail units ranging from 2,000 square feet to 10,000 square feet. This improves spatial flexibility and can be achieved through design of the retail module.

Mechanical fit-out should be possible without undue impact on residential tenants or other retailers. A smooth fit-out simplifies negotiation and lowers costs. Where possible, the base-building systems should be designed to include capacity for heating and cooling for the retail units. This reduces the impact of new services on the building infrastructure and tenants. It may also help minimize the overall energy use of the building.

Base-building services should not be located inside the retail units whenever possible. Locating base-building valves, meters, and other equipment that requires access outside of retail spaces minimizes tenant disruption. Hot water from heating and chilled water for heating, ventilation, and air-conditioning (HVAC) provided by the landlord, or steam provided by the utility, is preferred because it minimizes the number and complexity of the systems that the tenants need to provide and that need to be retrofitted into the building. Using base-building chilled water for cooling will eliminate the tenants' need for exterior space for heat rejection.

ELEMENTS

## 4.1 Heating

---

Four options are described, in order of preference:

- A** Developer provides a boiler or heat pump which supplies metered heating hot-water for connection to a tenant's air-handling system that includes a hot-water coil. If the unit is not leased, a connection should be made to a temporary hot-water unit heater to maintain freeze protection for sprinklers and other wet services. This is the preferred option because it eliminates the need for combustion air for boilers and reduces the amount of leased space needed for the boiler flue.
- B** Developer provides condenser water connection to a tenant's air-handling system that includes a heat pump. If the unit is not leased, a heat pump will be connected by the landlord to maintain freeze protection. A larger tenant electrical service will be required than for Option A.
- C** Utility company provides steam to the tenant space. Utility steam meters are large, so steam use by the tenant should be metered by the landlord from the landlord service. If the unit is not leased, steam should be provided to a unit heater or perimeter heating for freeze protection.
- D** Tenant provides a boiler within the tenant space. This will require a gas connection, combustion air make-up, and a boiler flue. It is not recommended because it does not provide freeze protection to unleased space and is complicated and costly to install for a single tenant.

>

### p 72–79 Applications

For examples of how mechanical services differ by use, refer to the mechanical overlay of each SAMPLE CONFIGURATION OF GROUND-FLOOR RETAIL TENANTS diagram.

## 4.2 Cooling

Five options are described, in order of preference:

- A** Developer installs a chiller or heat pump which provides metered chilled water for connection to a tenant's air-handling system that includes a chilled-water coil. If the unit is not leased, this connection will be capped. This is the preferred option because it is energy-efficient, operates quietly, and does not require tenant access to roof or courtyard space. This option assumes that chilled water will be provided to the residential units, which may not be cost-effective in affordable housing.
- B** Developer provides condenser water for connection to a tenant's air-handling system that includes a heat pump. This requires that the building has a condenser water loop connected to a cooling tower. This is a good option but is less energy-efficient and noisier than Option A. A larger electrical service will be required for this option than for Option A. This option does not require tenant access to roof or courtyard space. This option assumes that condenser water will also be provided to the residential units, which may not be cost-effective in affordable housing.
- C** Developer provides connection to a tenant's air-handling system that includes a variable refrigerant flow (VRF)/refrigerant cooling coil. This requires that the building has a refrigerant system available. This option is not applicable for buildings taller than 160 feet (due to limitation of refrigerant system design). This system is atypical in New York but is energy-efficient, operates quietly, and does not require tenant access to the building's roof or courtyard. A single VRF system could serve a number of retail spaces.
- D** Tenant provides direct expansion (DX) refrigerant cooling system. In this case the tenant will provide an air-handling system that includes a refrigerant cooling coil (also known as an evaporator section) and an external condenser unit. The external unit will be located on a roof or courtyard. The maximum height difference between the evaporator and condenser units is 160 feet (due to limitation of refrigerant system design). The maximum piping distance between the evaporator and condenser units is 540 feet. The developer provides a pathway from the tenant space to the external unit for refrigerant piping and tenant power. Refrigerant piping and conduit for power should be installed during base-building construction.
- E** Tenant provides DX refrigerant cooling system integrated into an air-handling unit (AHU). In this case the tenant will provide a ceiling-mounted air-handling system that includes a refrigerant cooling coil (also known as an evaporator section) and a condenser section that is separately ducted to the outside through louvers. This option is less energy-efficient and noisier for the tenants than all other options. It also requires additional louver area to allow for the cooling of the condenser section. This option is appropriate only for tenant spaces less than 4,000 square feet.



### US Green Building Council

LEED GREEN BUILDING  
RATING SYSTEM

[http://www.usgbc.org/Docs/LEEDdocs/LEED\\_RS\\_v2-1.pdf](http://www.usgbc.org/Docs/LEEDdocs/LEED_RS_v2-1.pdf)



### City of New York

ONE CITY: BUILT TO LAST

<http://www.nyc.gov/html/builttolast/pages/home/home.shtml>



### New York State Energy Research and Development Authority

ENERGY EFFICIENCY INCENTIVES

<http://www.nyserda.ny.gov/All-Programs>, <http://www.nyserda.ny.gov/Business-and-Industry/Retail>

## 4.3 Fresh-Air Ventilation

---

Ventilation removes odors and provides fresh air for occupants and operation of mechanical equipment. A mechanical ventilation system is required by code unless there is a minimum operable facade area equal to 4% of the occupiable floor area. For a 2,000-square-foot unit, the required operable area would be 80 square feet. A typical door opening is around 20 square feet. As this example illustrates, it is probably impractical for most retail tenants to rely on natural ventilation. Provision should be made for air intakes and exhausts to serve each retail space. Sizes are described in the intake and exhaust section. These will connect to an air-handling system that may be located in the ceiling of the retail unit, on the roof above the retail unit, or in a space to the rear of the retail unit.

- 
- 3.1 Provide each retail space with its own independent connection to the outside for ventilation air. This can be provided through louvers on the street face of the retail unit for ceiling-mounted AHUs or directly into the unit by externally mounted AHUs. The base building must be designed to allow for the installation of retailer ventilation.**

---

  - 3.2 Follow NYC Building Code minimum fresh-air ventilation rates. These rates depend on expected occupancy and space definition. A preliminary working assumption is that a minimum of 0.3 cfm/sf of outside air should be provided for all retail spaces, but this must be checked against the proposed use of the retail space.**

---

  - 3.3 Follow NYC Building Code guidelines for the location of fresh air openings. In general, fresh air intakes must be located 20 feet from the nearest contaminant source (or be at least 2 feet below it), and 10 feet from the lot line unless they are on the street side, in which case they can be 10 feet from the centerline of the street and 10 feet from any building on the same lot.**
-

**Enterprise Green Communities**

2015 ENTERPRISE GREEN COMMUNITIES CRITERIA

<http://www.enterprisecommunity.com/solutions-and-innovation/enterprise-green-communities/criteria>**New York City Department of Housing Preservation and Development**

ENTERPRISE GREEN COMMUNITIES CRITERIA CERTIFICATION OVERLAY FOR NYC HPD PROJECTS

<http://www1.nyc.gov/assets/hpd/downloads/pdf/developers/HPD-Overlay.pdf>

&gt;

**p 77 Applications**

For an example of an exhaust system in a laundromat, refer to TENANT DIAGRAM 2: THREE TENANTS MEP.

## 4.4 Air-Side Economizers

---

In temperate climates like New York, energy savings can often be made by using an air-side economizer. An air-side economizer works by providing more fresh air to the AHU when the outside conditions are closer to the required supply condition than the return air is. Economizers allow for 'free' cooling and are required on AHUs above a minimum size.

---

**4.1 Determine whether an air-side economizer is required by following the minimum size given in the NYC Energy Code. An initial working assumption is 5,000 cfm. If an economizer is required, then the working assumption for fresh air provision is 1 cfm/sf of outside air for all retail spaces.**

---

## 4.5 Exhaust Air

---

A means of exhausting air will be needed for restrooms and kitchens. Exhaust may also be required from dryers in laundromats. Particular retail uses such as printers, nail salons, or hairdressers may have additional ventilation requirements for the associated chemicals used in the space. Noxious exhaust air from these uses cannot be recirculated and must be exhausted using a separate fan.

---

**5.1 Follow NYC Building Code guidance for the location of exhaust air openings. In general, exhaust air louvers are located 10 feet above the sidewalk, 10 feet from any window in an adjacent building, and 10 feet from a residential window in the same building. If the exhaust can be considered a contaminant source it must be located 20 feet from the nearest intake (or be at least 2 feet above it).**

---

>

p 77, 79 Applications

For examples of kitchen exhaust systems, refer to

TENANT DIAGRAM 2: THREE TENANTS MEP and  
TENANT DIAGRAM 3: FIVE TENANTS MEP.



NYC Department of Buildings  
2014 CONSTRUCTION CODES  
[http://www.nyc.gov/html/dob/html/codes\\_and\\_reference\\_materials/2014\\_construction\\_code.shtml](http://www.nyc.gov/html/dob/html/codes_and_reference_materials/2014_construction_code.shtml)

## 4.6 Kitchen Exhaust

When restaurant or food tenants are desired, designers must plan for kitchen exhaust. Kitchen exhaust air requirements are much larger than normal retail exhaust requirements. Exact sizes depend on the type of cooking and the size of the grease hood. There are many NYC Building Code requirements.

### .1 Follow all NYC Building Code requirements for kitchen exhaust. For initial planning, the following elements are important:

- Horizontal duct runs must be sloped
- Ducts must be thicker-gauge steel than most ductwork
- Accessible reservoirs must be provided at each vertical riser
- Fire protection is required where the duct passes through a rated wall or floor and must be continuous until the duct terminates
- Kitchen exhaust is considered to be contaminant exhaust and must be at least 10 feet from all intake openings and 10 feet above grade
- Ducts must be enclosed in a fire-rated enclosure
- Access may be required at intervals along the exhaust. Required access points should not be located in tenant space.

The base building should include kitchen exhaust ducts, to accommodate food-related tenants, according to the total retail square footage of the building:

TOTAL RETAIL AREA	NUMBER OF KITCHEN EXHAUST DUCTS
< 5,000 SF	None
5,000 SF – 10,000 SF	1
10,000 SF – 20,000 SF	2

.2 Ensure that all exhaust ducts run within a fire-rated enclosure, with access points as defined by code, running from a designated kitchen area to the roof. The duct should be capped until a tenant requiring a kitchen is secured. The landlord should then install and maintain the kitchen exhaust fan at the roof. Electricity used to run the fan should be charged to the tenant. The tenant installs all required hoods and kitchen ventilation equipment within the retail space. Additional make-up air or heating may be required due to high exhaust rates. The base-building design team should consider the possible advantages and code implications of using an ozone or other grease removal system within the tenant space. This will add cost to the system overall but will reduce the requirements for clean-outs and extend the life of the kitchen exhaust fan.

## 4.7 Air-Handling Units



A detailed tool, developed by **Arup** for the **Design Trust for Public Space**, can be used to determine how the MEP guidelines may impact project budgets.

COST ESTIMATE TOOL

<http://www.designtrust.org/projects/groundwork/activities-and-outputs/>

Typical mechanical ventilation systems for retail units provide heating, cooling, and ventilation. A common solution is an air-handling unit that draws air from outside, mixes it with air from within the space, filters the air, and then cools or heats it depending on the requirements. This AHU may be suspended from the slab above the retail space, placed on a roof directly above the retail space, or located in a room adjacent to the retail space. The choice of location will depend on the size of the retail space, the available ceiling height, the location of supply air louvers, and the cost and energy efficiency of the AHU. Where heating and cooling will be installed by the retailer, space (shafts, roof area) must be allowed for these services.

Four options are described, in order of preference:

- A** Tenant installs a ceiling-mounted, single-zone or two-zone AHU in the retail space with louvered connections to the outside on the street face of the retail space, and an independent demand-controlled exhaust fan to serve the staff restroom and storage areas. This allows the retail unit to be self-contained. This is practical only for small retail units where no economizer is required.

RETAIL UNIT SIZE

< 4,000 SF

AHU SIZE

6' long, 4' wide, 2' 6" tall

- B** Tenant installs a ceiling-mounted, single-zone or multizone AHU in the retail space with a connection to the outside at the roof level in the building or rear yard. Ducts to and from the roof will serve multiple retail units. Independent, demand-controlled exhaust fans serve the staff restroom and storage areas. This option eliminates the need for louvers at the building facade. Additional space is needed for the supply ducts to run through the residential part of the building. The retail tenant requires no roof access.

RETAIL UNIT SIZE

< 4,000 SF

4,000 SF – 6,000 SF

6,000 SF – 10,000 SF

AHU SIZE

6' long, 4' wide, 2' 6" tall

8–10' long, 4' wide, 3' 6" tall

12–15' long, 6–8' wide, 5–8' tall

- C** Tenant installs a roof-mounted, multizone AHU above the retail space. Outside air connections are made directly into the AHU. Independent, demand-controlled exhaust fans are installed to serve the staff restroom and storage areas. This option is likely to be most appropriate for large retail spaces. The tenant will need access to outside space. There may be nuisance noise issues if apartments front onto the mechanical area. Sizes are the same as for Option B.
- D** Tenant installs a single- or multi-zone AHU mounted in the mechanical room to the rear of the retail space or above a storage space within the retail unit. Fresh air intake is from the rear yard or roof as in Option B. Sizes are the same as for Option B.

CASE STUDY

CRITICAL SUCCESS FACTOR 9 ADEQUATE, INDIVIDUALLY METERED UTILITIES AND MEP SERVICE



GOTHAM WEST

Gotham West features 682 affordable units in a mixed-income building. The base of the 31-story complex includes a 10,000-square-foot food hall, green-space for tenants, and a new building for Elias Howe School PS 51. Gotham West’s food hall requires a complex mechanical, electrical, and plumbing (MEP) system that can accommodate a large amount of kitchen exhaust. The visual impact of the MEP system is minimized through the integration of louvers into the facade. The majority of the exhaust is directed toward the sides of the building to shield pedestrians and enhance the attractiveness of the building’s front. All louvers are located flush with the building and are made of the same dark metal as the windows and doors. They are also fitted with steel supports that echo the rhythm of the mullions below. These design choices temper the visual impact of the large MEP system and allow the building to service a wide array of tenant types.

DEVELOPER  
**Gotham Organization**  
 DESIGN ARCHITECT  
**SLCE Architects**  
 LOCATION  
**New York, NY**

JOSEPH HUENNEKENS

CASE STUDY | CRITICAL SUCCESS FACTOR 9 | UTILITIES AND MEP SERVICE

## 4.8 AHU Intakes and Exhaust

Air handler units have both intake and exhaust connections to the outside. For more information on louver placement refer to Element 1.3 Louvers.

Two options are described:

- A Developer installs intake and exhaust louvers on the street facade of the retail unit or other facade adjacent to retail space.

**Approximate size per 1,000 square feet at 0.3cfm/sf = 0.75 square feet face area (at 50% free area).**

**Approximate size per 1,000 square feet at 1cfm/sf (with economizer) = 2.5 square feet face area (at 50% free area).**

This allows the retail unit to be self-contained, but separations between supply and exhaust and between exhaust and residential windows and lot lines must be maintained. Louvers are provided by the developer (to ensure matching across retail frontage) or the tenant. If a ducted condenser unit (Element 4.2 Cooling, Option B) is used, additional louver area is required.

- B** Developer installs intake and exhaust louvers at roof level, serving multiple retail units.

**Assume five retail units at 2,000 square feet and 1cfm/sf (with economizers).**

**Roof intake louver face area is approximately 20 square feet, and duct size to retail units is approximately 2 feet by 3 feet, including insulation.**

This option helps maintain separations between supply, exhaust, and windows. The developer provides duct and louvers. If a ducted condenser unit (Element 4.2 Cooling, Option B) is used, additional louver area is required.

## 4.9 Base-Building Requirements

---

The floor structure at the level above the retail unit must be designed to provide enough structural capacity to support MEP equipment. Vibrating MEP equipment, such as fans, fan coils, and packaged air-handling equipment, should be supported on vibration isolators to minimize transmission of noise and vibration to the rest of the building.

**.1 Provide adequate, uninterrupted ceiling height below beams and equipment serving other parts of the building to allow for the installation of necessary retail services, including MEP equipment. This height will depend on the type and size of retail unit proposed.**

**.2 Provide lobbies or air locks at entrance doors. Recent code changes require lobbies on almost all regularly used doors, even in small retail units. Design teams must check current energy code provisions.**

## 4.10 Separate Metering

---

Separate metering encourages the prudent use of energy by linking the use of the service to the price paid. It also simplifies lease negotiations.

**.1 Design each retail space to be metered separately for all utilities, preferably through direct metering by the utility. Submetering from the building is an alternative but requires that the landlord administer billing.**

**.2 Design each retail space to have the ability for independent control of mechanical services including heating, cooling, and ventilation. This will provide flexibility for the tenant, making the space more attractive.**

**.3 Meter heating and cooling systems to allow appropriate charge-back to the tenants for the energy used.**

&gt;

### p 73 Applications

---

For an example of an air lock, refer to TENANT DIAGRAM 1: SUPERMARKET.

&gt;

### p 74–75, 77, 79 Applications

---

For examples of separate metering, refer to

TENANT DIAGRAM 1: SUPERMARKET MEP;

TENANT DIAGRAM 2: THREE TENANTS MEP;

AND TENANT DIAGRAM 3: FIVE TENANTS MEP.



SECTION 5 ELEMENTS

- 5.1 | Normal Electrical Service
- 5.2 | Disconnect Switch
- 5.3 | Emergency Power
- 5.4 | Fire Alarm
- 5.5 | Separate Metering

**SECTION 5**

# Electrical

---

**OBJECTIVES**

Electrical service is essential to the functioning of a retail space. The design of electrical systems should enhance the leasability of the retail space by providing separate meters to retail tenants.

Normal electrical service should be provided to retail spaces without undue impact on residential tenants or other retailers. Base-building services should not be located inside the retail units whenever possible. Base-building valves, meters, and other equipment requiring access must be located outside of retail spaces to minimize tenant disruption. A successfully designed electrical system simplifies negotiation, promotes efficiency, and reduces the price of fit-out.

ELEMENTS

## 5.1 Normal Electrical Service

---

**Two options** are described, in order of preference:

- A** Landlord provides dedicated utility electrical service to the retail space, separate from the residential building or from a dedicated service switch off of the residential building. The landlord establishes monthly billing by the utility to the tenant, installs all conduits and wires, provides excavation services, and covers utility costs for installing service to tenant space.
- B** Residential building electrical service connects to the retail unit. Landlord provides sub-meter to monitor electrical consumption, bills tenant, and installs all conduits and wires, provides excavation services, and covers utility costs for installing service to tenant space.

## 5.2 Disconnect Switch

---

Disconnect switches are used to aid inspection and maintenance of the electrical system.

- 2.1 Provide a disconnect switch accessible to the tenant. The tenant makes all connections from the load side of the disconnect switch and provides necessary tenant electrical distribution equipment. The landlord provides the switch.**
- 

## 5.3 Emergency Power

---

Emergency lighting must be provided in most retail spaces.

- 3.1 Require tenant to provide integral 90-minute battery packs with fluorescent light fixtures and exit signs or provide a central battery inverter.**
  - 3.2 Determine whether emergency power is required for systems other than emergency lighting within the building (e.g., smoke control, elevators). If so, a generator will be required, and tenant emergency power may be able to connect to this generator.**
-

## 5.4 Fire Alarm

---

NYC Building Code dictates when a fire alarm system is needed. In buildings where a fire alarm system is not required by code, the tenant space should still be provided with one, even to vacant retail spaces.

---

**4.1 Provide a telephone line for connection to a remote central station for monitoring of the fire alarm system.**

---

**4.2 Provide a signaling line circuit (SLC) from the building's fire alarm system into the tenant space for connection into the tenant's fire alarm system. The tenant will provide the necessary fire alarm equipment to monitor and control the tenant's fire alarm system. The tenant space will need to be connected into the building's fire alarm system to activate the building's fire alarm devices in the event of a fire condition in the tenant space and vice versa.**

---

## 5.5 Separate Metering

---

Separate metering improves energy efficiency and simplifies lease negotiation.

---

**5.1 Design each retail space to have the ability for independent control of power.**

---



SECTION 6 ELEMENTS

- 6.1 | Domestic Water Service
- 6.2 | Hot Water
- 6.3 | Sanitary Waste and Ventilation
- 6.4 | Grease Waste
- 6.5 | Gas
- 6.6 | Fire Protection Systems – Wet Sprinkler System
- 6.7 | Fire Protection Systems – Standpipe System
- 6.8 | Separate Metering

**SECTION 6**

# Plumbing and Fire Protection

---

**OBJECTIVES**

Well-designed plumbing service and fire protection systems are essential to successful retail units. The design of plumbing and gas systems should enhance the leaseability of the retail space by providing separate meters to retail tenants.

Plumbing and fire protection service should be provided to retail spaces without undue impact on residential tenants or other retailers. Base-building services should not be located inside the retail units whenever possible. Base-building valves, meters, and other equipment requiring access must be located outside of retail spaces to minimize tenant disruption.

ELEMENTS

## 6.1 Domestic Water Service

---

The building will have its own dedicated water service from the NYC Department of Environmental Protection (DEP).

**.1 Provide each retail space with its own domestic water sub-meter with a valve and capped connection within the space. The tenant will then have the ability to customize the water distribution within the space.**

**.2 Determine whether additional sub-meters may be required based upon NYC Building Code (i.e., commercial laundromat.)**

---

## 6.2 Hot Water

---

Hot water can be provided by the landlord or by the tenant. The amount of hot water required and the means of creating the hot water are determined by the type of facility and the type and quantity of fuel available (gas, electric, steam, etc.). Larger facilities, such as gyms with showers or restaurants with kitchens, require larger quantities of water and typically require storage-tank-type heaters. If the retail space has only staff restrooms, instantaneous under-counter water heaters may be used.

## 6.3 Sanitary Waste and Ventilation

---

The building will have its own dedicated sewer service to which the tenant will need to connect. The service will usually be located in the basement or below the floor slab depending on the location/elevation of the city sewer in the street. Since sanitary waste piping is run at a slope and the piping is installed below the floor slab, potential locations for plumbing fixtures will be fixed during base-building design. Provide backflow preventers in accordance with NYC Building code. If flexibility is required within a given zone, as it may be for gyms or supermarkets, this may be achievable through a locally dropped floor slab. For more information see Element 3.4 Floor Slab.

Retail spaces should have separate toilet facilities for staff use, with provisions for customer use in some of the retail spaces.

**Two options** are described:

- A** Developer provides a capped waste pipe in a preset location for the tenant to connect plumbing fixtures, and a capped vent system connection at high level within the retail space for the tenant to connect to.
- B** Developer provides a capped waste pipe connection within a trench to allow the tenant some flexibility for fixture layout, and a capped vent system connection at high level within the retail space for the tenant to connect to.

>

### p 77 Applications

---

For an example of a hot water system refer to

TENANT DIAGRAM 2:  
THREE TENANTS MEP.

>

### p 73, 76, 78 Applications

---

For examples of bathroom layouts, refer to

TENANT DIAGRAM 1:  
SUPERMARKET;

TENANT DIAGRAM 2:  
THREE TENANTS;

AND TENANT DIAGRAM 3:  
FIVE TENANTS.

**NYC Department of Buildings**

2014 CONSTRUCTION CODES  
[http://www.nyc.gov/html/codes\\_and\\_reference\\_materials/2014\\_construction\\_code.shtml](http://www.nyc.gov/html/codes_and_reference_materials/2014_construction_code.shtml)

**NYC Department of Buildings**

2014 ENERGY CODE  
[http://www.nyc.gov/html/dob/html/codes\\_and\\_reference\\_materials/nycecc\\_main.shtml](http://www.nyc.gov/html/dob/html/codes_and_reference_materials/nycecc_main.shtml)

## 6.4 Grease Waste

---

Facilities that prepare food will require grease interceptors before the waste piping can connect to the building sanitary waste system. The size of the grease interceptor is based upon the connected load of fixtures where grease may be present. A small food preparation facility with a single triple pot sink will have a much smaller grease interceptor than a commercial kitchen with various fixtures and sinks.

- .1 Determine whether the space requires a localized interceptor for each fixture or a central larger interceptor for all fixtures. The localized interceptor can be located on the ground next to the fixture it is serving such as a sink. Larger interceptors will need to be located on the floor below or in a depression in the slab as indicated in the sanitary waste section.**
- .2 Maintain all grease traps and interceptors for their continued functionality. Fixed furniture or stored materials should not block access. The lease should clearly identify responsibility for maintenance. A professional should carry out maintenance regularly.**

## 6.5 Gas

---

Many buildings, especially buildings with food-related tenants, have natural gas connections.

- .1 Provide a capped and valved connection within the space if the tenant facility will be offered gas for either cooking or hot water generation.**
- .2 Provide gas piping back to the meter room. The tenant should arrange for a gas meter to be installed by the gas utility company once they occupy the space. (Please note that gas rates are different based upon the gas usage.)**

## 6.6 Fire Protection Systems – Wet Sprinkler System

---

The entire building will have its own sprinkler service.

- .1 Provide the tenants with their own floor-control assembly within the retail space. The floor-control assembly consists of a shutoff valve, flow switch, and test valve. The purpose of the independent floor-control assembly is to allow the tenant to perform alterations to their space without affecting the rest of the building sprinkler system.**
- .2 Require the tenant to perform periodic tests on their zone as required by code. By having a separate zone, the fire alarm system will be able to locate the exact retail unit during a fire event and relay this information to the fire department.**

## 6.7 Fire Protection Systems – Standpipe System

---

Typically there are standpipes with fire department hose valves within staircases for fire department use.

- .1 Provide an additional hose valve if the path to the staircase or nearest fire department hose valve is obstructed, inaccessible, or too far away from the retail unit.**

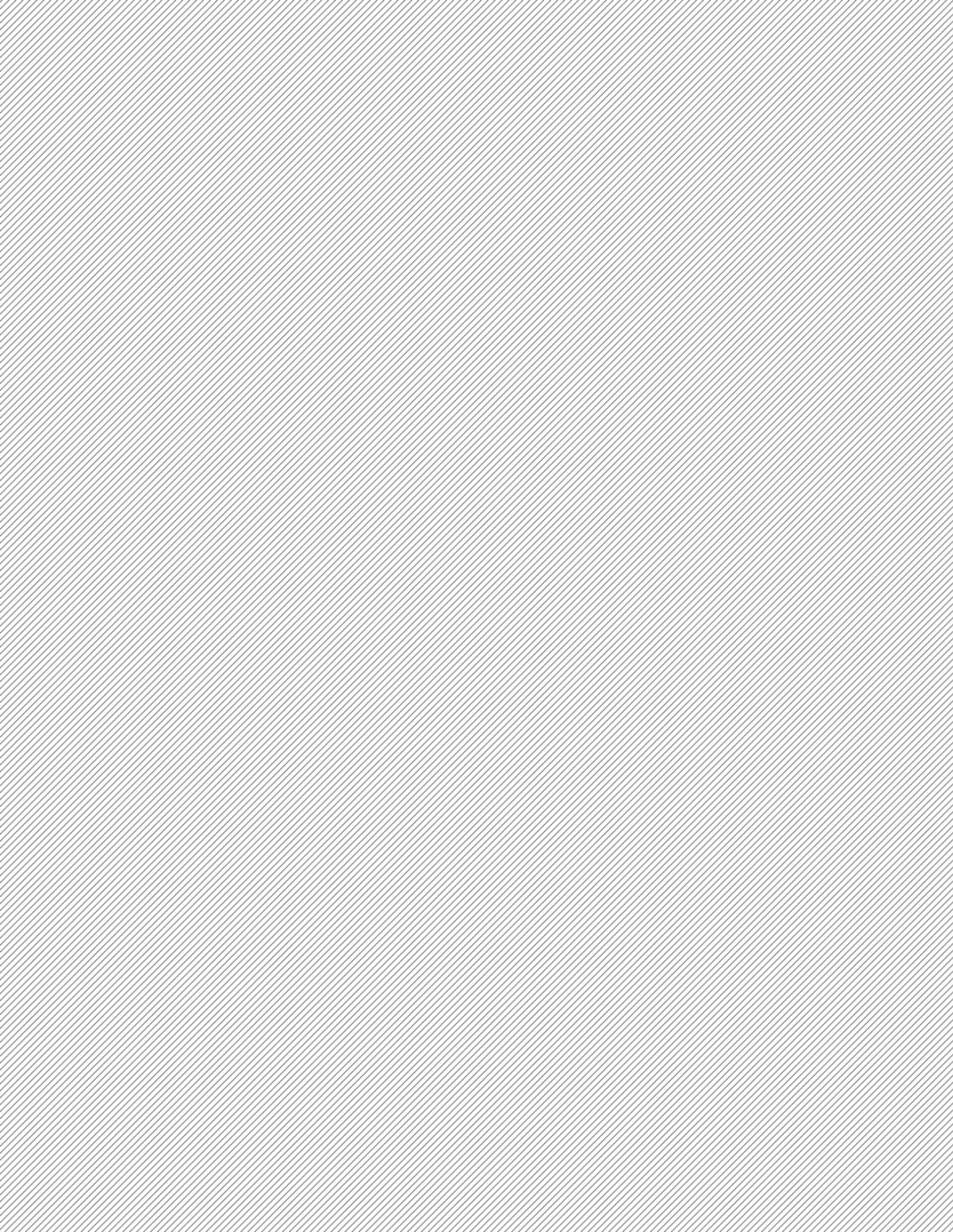
## 6.8 Separate Metering

---

Separate metering encourages the prudent use of water and gas by linking the use of the service to the price paid. It also simplifies lease negotiations.

- .1 Design each retail space to have the ability for independent control of plumbing and fire protection services including gas, water, sanitation, fire alarm, and fire protection. This will provide flexibility for the tenant, making the space more attractive.**





# Applications

Design Guidelines for Small Retail Space

Design Guidelines for Large Retail Space

Sample Configurations of Ground-Floor Retail Tenants

**Design Guidelines for  
Small Retail Space (<4,000 sf)**

# Design Guidelines for Small Retail Space (<4,000 sf)

This chart outlines the design guidelines associated with critical success factors for groundfloor retail and community use. See the Zoning Resolution of the City of New York regarding use-type allowances by area.

SUCCESS FACTORS	FACADE AND SIGNAGE			EXTERIOR ACCESS AND STREETScape			INTERIOR ARCHITECTURE		MECHANICAL			ELECTRICAL				PLUMBING AND FIRE PROTECTION				
	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9
Elements	Clear glazing: 2' to 10' above sidewalk	Separate, well-defined retail entry	Blade signage in addition to signage band	Exterior building down-lighting	Slab at lowest access point for future on-grade entries	Peripheral amenities (bike racks, benches)	Ceiling height: floor to slab	Organized column grid for flexible layout	Ventilation System	Cooling	Heating	Normal Electrical Service	Tenant Disconnect Switch	Emergency Power	Fire Alarm	Domestic Water	Domestic Hot Water	Sanitary Waste and Ventilation	Grease Waste	Gas
Base Retail Space (un-programmed)	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, equipment	✗	✗
Clothing & Accessories Store	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, equipment	✗	✗
Convenience Store	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust, equipment ventilation*	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, equipment	✗*	✗*
Coffee Shop	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust, equipment ventilation*	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, customer WC, equipment	✗*	✗*
Dry Cleaner	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust, equipment ventilation*	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, equipment	✗	✗
Electronics Store	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, equipment	✗	✗
Financial Services Center	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, equipment	✗	✗
Food Store-Takeout	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust, equipment ventilation*	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, equipment	✗*	✗*
Food & Beverage Specialty Store	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust, equipment ventilation*	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, equipment	✗*	✗*
Hair Salon	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust, equipment ventilation*	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous/storage	Tenant WC, customer WC, equipment	✗	✗
Laundromat	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust, dryer exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous/storage	Tenant WC, equipment	✗	✓*
Nail Salon	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust, equipment ventilation*	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, customer WC, equipment	✗	✗
Pop-Up Shop	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, equipment	✗	✗
Community Use: Childcare/Pre-K Center	70%†	✓	✓	✓	✓	✓	14'-4"	✓	Air-side economizer, kitchen exhaust, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous*	Tenant WC, customer WC, equipment	✗	✗
Community Use: Health Facility	70%†	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous/storage	Tenant WC, customer WC, equipment	✗	✗
Community Use: Cultural Space	70%†	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous*	Tenant WC, customer WC, equipment	✗	✗
Art Center	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous*	Tenant WC, customer WC, equipment	✗	✗
Community Center	70%	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, kitchen exhaust, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous/storage	Tenant WC, customer WC, equipment	✓	✓
Dance Studio	70%†	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust, shower exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous/storage	Tenant WC, customer WC, equipment, shower	✗	✗
Gallery	70%†	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, customer WC, equipment	✗	✗
Performance Space	70%†	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, customer WC, equipment	✗	✗
Religious Facility	70%†	✓	✓	✓	✓	✓	14'-4"	✓	Minimum code fresh air, WC exhaust*	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous*	Tenant WC, customer WC, equipment	✗	✗

These uses may require some additional translucent treatments—see privacy strategies diagram in the Tenant Lease Checklist

\*Equipment and product dependent

**Design Guidelines for  
Large Retail Space (>4,000 sf)**

# Design Guidelines for Large Retail Space (≥4,000 sf)

This chart outlines the design guidelines associated with critical success factors for groundfloor retail and community use. See the Zoning Resolution of the City of New York regarding use-type allowances by area.

SUCCESS FACTORS	FACADE AND SIGNAGE			EXTERIOR ACCESS AND STREETScape			INTERIOR ARCHITECTURE		MECHANICAL			ELECTRICAL				PLUMBING AND FIRE PROTECTION				
	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6	FACTOR 7	FACTOR 8	FACTOR 9	Cooling	Heating	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	FACTOR 9	
Elements	Clear glazing: 2' to 10' above sidewalk	Separate, well-defined retail entry	Blade signage in addition to signage band	Exterior building down-lighting	Slab at lowest access point for future on-grade entries	Peripheral amenities (bike racks, benches)	Ceiling height: floor to slab	Organized column grid for flexible layout	Ventilation System			Normal Electrical Service	Tenant Disconnect Switch	Emergency Power	Fire Alarm	Domestic Water	Domestic Hot Water	Sanitary Waste and Ventilation	Grease Waste	Gas
Base Retail Space (un-programmed)	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Air-side economizer, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, customer WC, food preparation	✗	✗*
Bank	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC	✗	✗
Department Store	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Air-side economizer, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, customer WC	✗	✗
Full-Service Pharmacy	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Air-side economizer, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC	✗	✗
Full-Service Restaurant	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Air-side economizer, kitchen exhaust, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous/storage	Tenant WC, customer WC, food preparation	✓	✓
Furniture & Housewares Store	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Air-side economizer, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, customer WC	✗	✗
Grocery Store	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC	✓	✓
Gym/Fitness Center	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Air-side econ., WC exhaust, shower exhaust, equipment ventilation*	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous/storage	Tenant WC, customer WC, shower	✗	✓
Major Drug Store w/ Pharmacy (>10,000 sf)	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Air-side economizer, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC	✗	✗
Office Supply Store	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Air-side economizer, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, customer WC	✗	✗
Sporting Goods Store	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Air-side economizer, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, customer WC	✗	✗
Supermarket (>10,000 sf)	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Air-side economizer, kitchen exhaust, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous/storage	Tenant WC, customer WC, food preparation	✓	✓
Community Use: Childcare/Pre-K Center	70%†	✓	✓	✓	✓	✓	14'– 4"	✓	Air-side economizer, kitchen exhaust, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous*	Tenant WC, customer WC, equipment	✗	✗
Community Use: Health Facility	70%†	✓	✓	✓	✓	✓	14'– 4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous/storage	Tenant WC, customer WC, equipment	✗	✗
Community Use: Cultural Space	70%†	✓	✓	✓	✓	✓	14'– 4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous*	Tenant WC, customer WC, equipment	✗	✗
Art Center	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous*	Tenant WC, customer WC, equipment	✗	✗
Community Center	70%	✓	✓	✓	✓	✓	14'– 4"	✓	Minimum code fresh air, kitchen exhaust, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous/storage	Tenant WC, customer WC, equipment	✓	✓
Dance Studio	70%†	✓	✓	✓	✓	✓	14'– 4"	✓	Minimum code fresh air, WC exhaust, shower exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous/storage	Tenant WC, customer WC, equipment, shower	✗	✗
Gallery	70%†	✓	✓	✓	✓	✓	14'– 4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, customer WC, equipment	✗	✗
Performance Space	70%†	✓	✓	✓	✓	✓	14'– 4"	✓	Minimum code fresh air, WC exhaust	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous	Tenant WC, customer WC, equipment	✗	✗
Religious Facility	70%†	✓	✓	✓	✓	✓	14'– 4"	✓	Minimum code fresh air, WC exhaust*	✓	✓	✓	✓	Lighting only	✓	✓	Instantaneous*	Tenant WC, customer WC, equipment	✗	✗

†These uses may require some additional translucent treatments—see privacy strategies diagram in the Tenant Lease Checklist

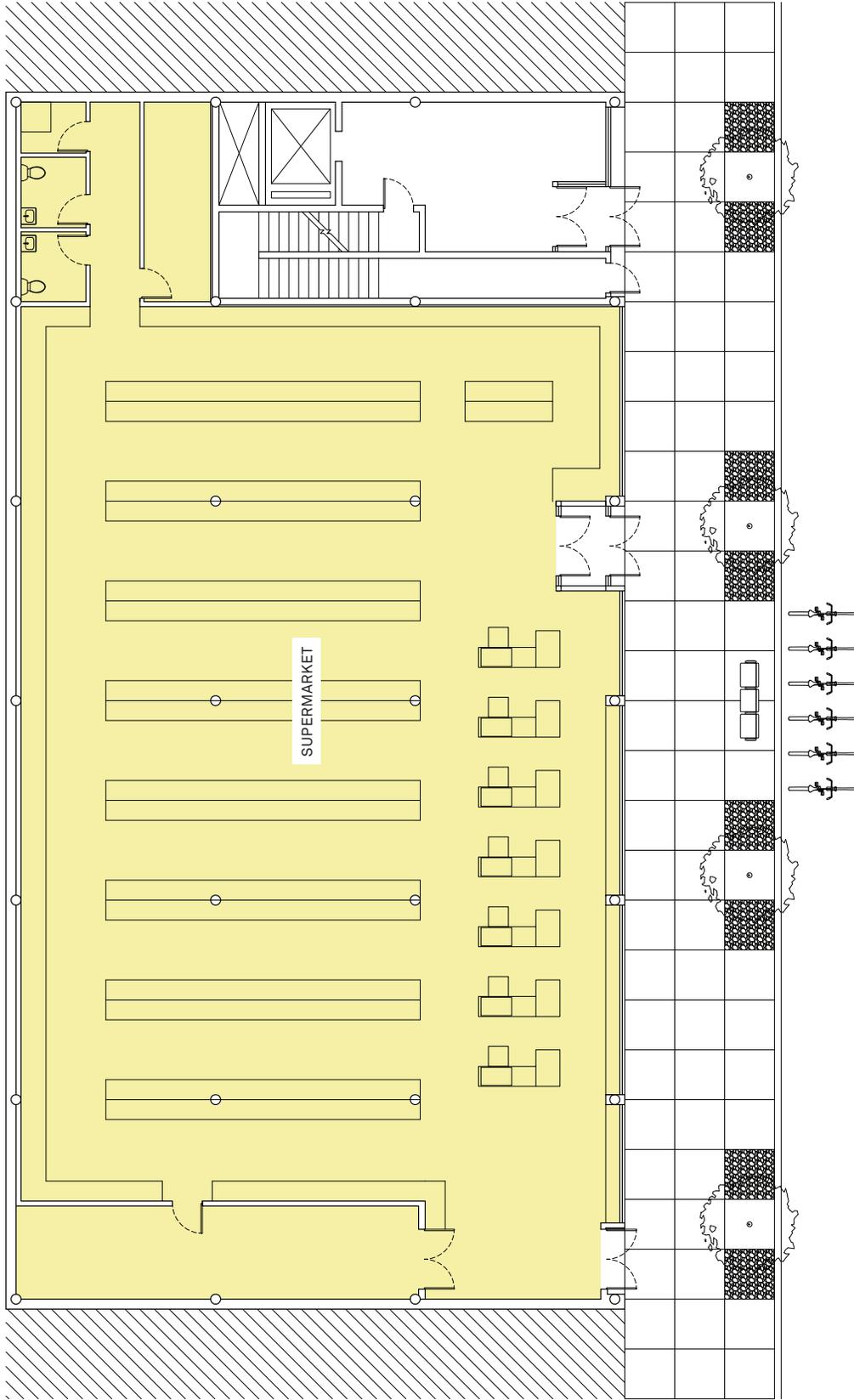
\*Equipment and product dependent

## **Sample Configurations of Ground-Floor Retail Tenants**

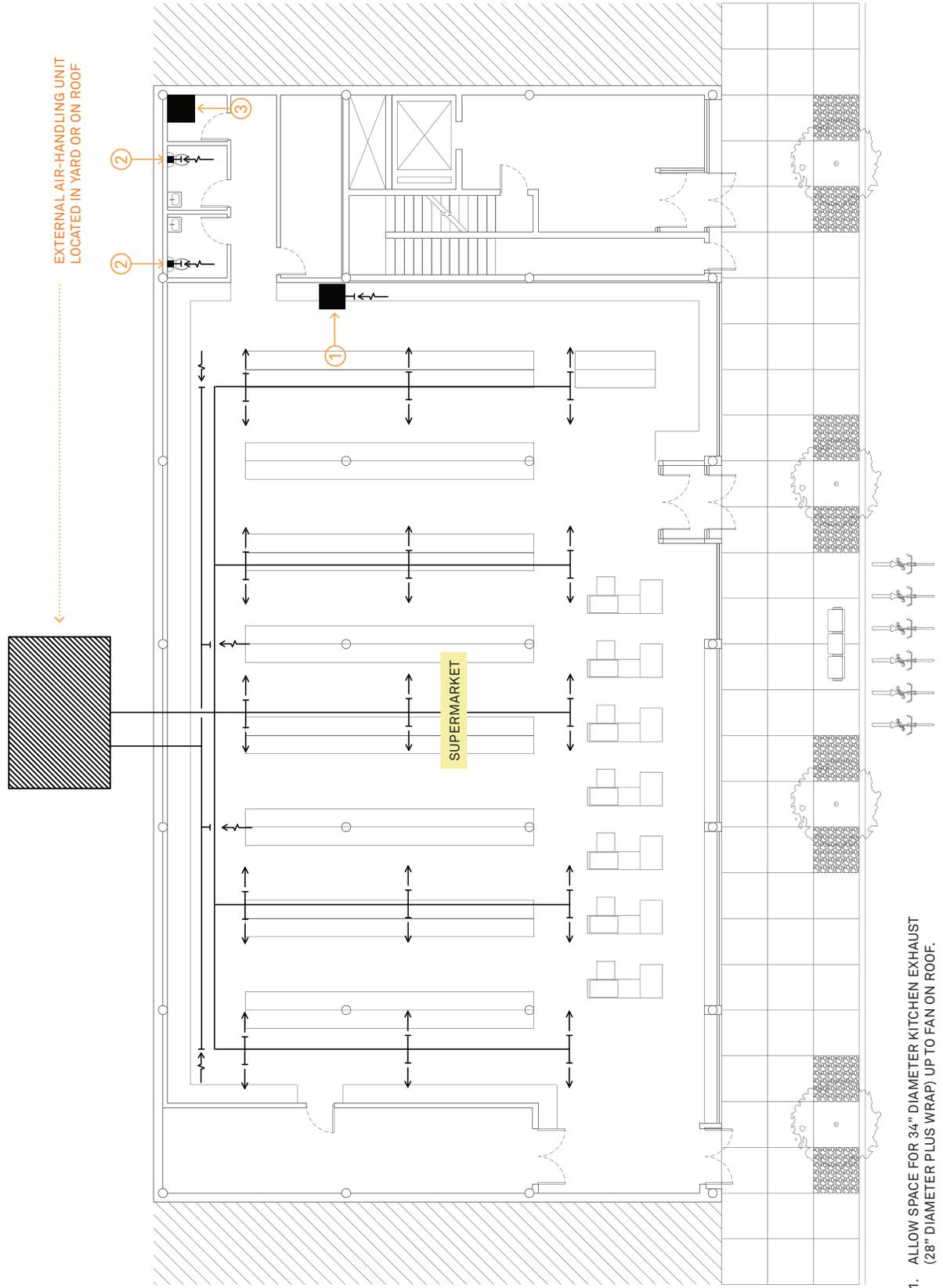
The drawings found on the following pages demonstrate how a typical ground-floor can be arranged to accommodate desirable tenant types.

These layouts each contain a schematic design diagram and a schematic MEP overlay. In Tenant Diagram 1, a single supermarket tenant occupies all retail bays. In Tenant Diagram 2, a full-service pharmacy and restaurant occupy two bays each and a Laundromat is housed in the remaining space. In Tenant Diagram 3, five separate retail tenant-types each occupy a separate bay.

# Tenant Diagram 1: Supermarket



## Tenant Diagram 1: Supermarket MEP Option A

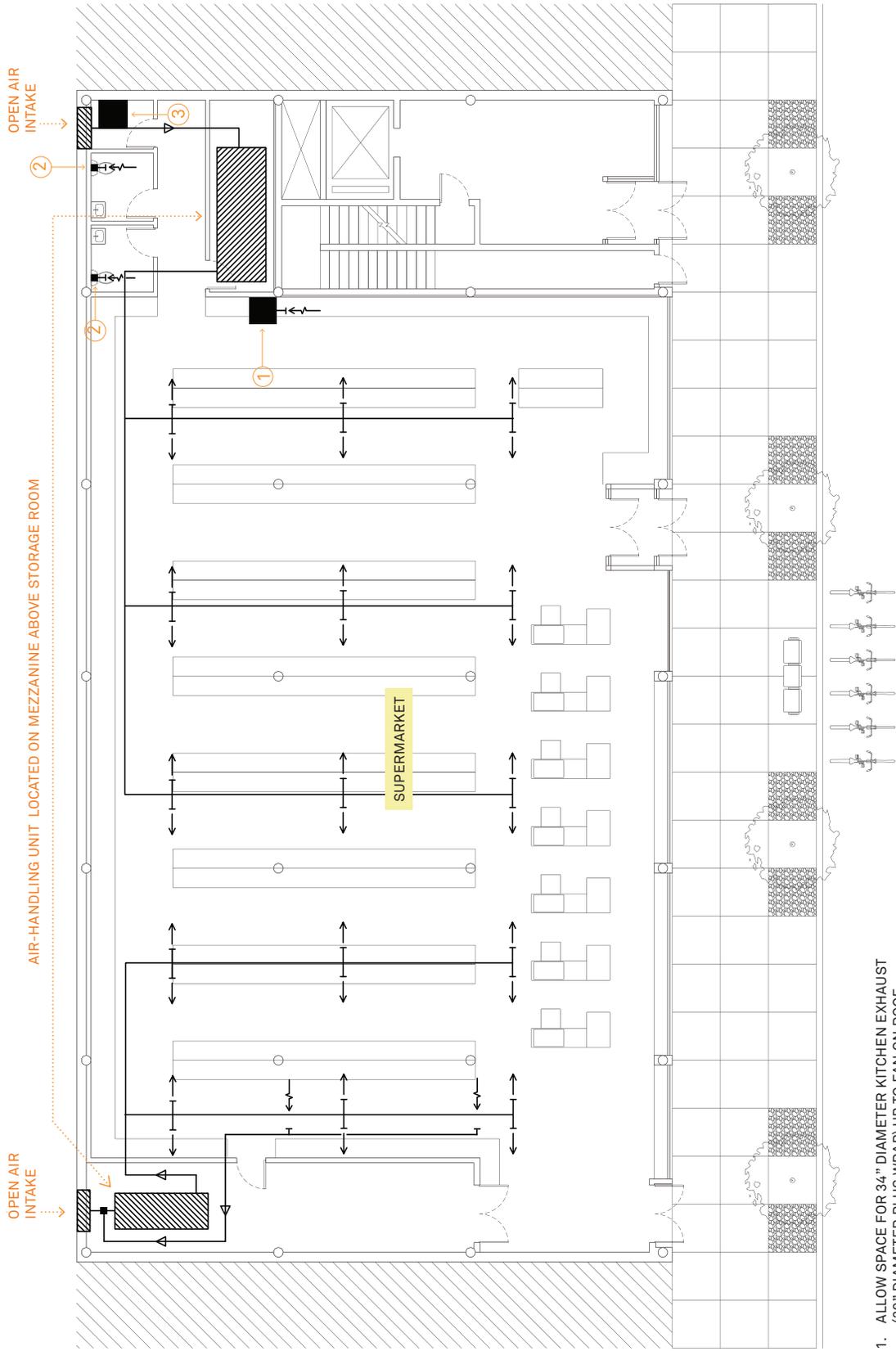


1. ALLOW SPACE FOR 34" DIAMETER KITCHEN EXHAUST (28" DIAMETER PLUS WRAP) UP TO FAN ON ROOF.

2. ALLOW 12"X12" CHASE FOR TOILET EXHAUST TO FAN ON ROOF DUCT CAN SHARE CHASE WITH REFRIGERANT PIPING.

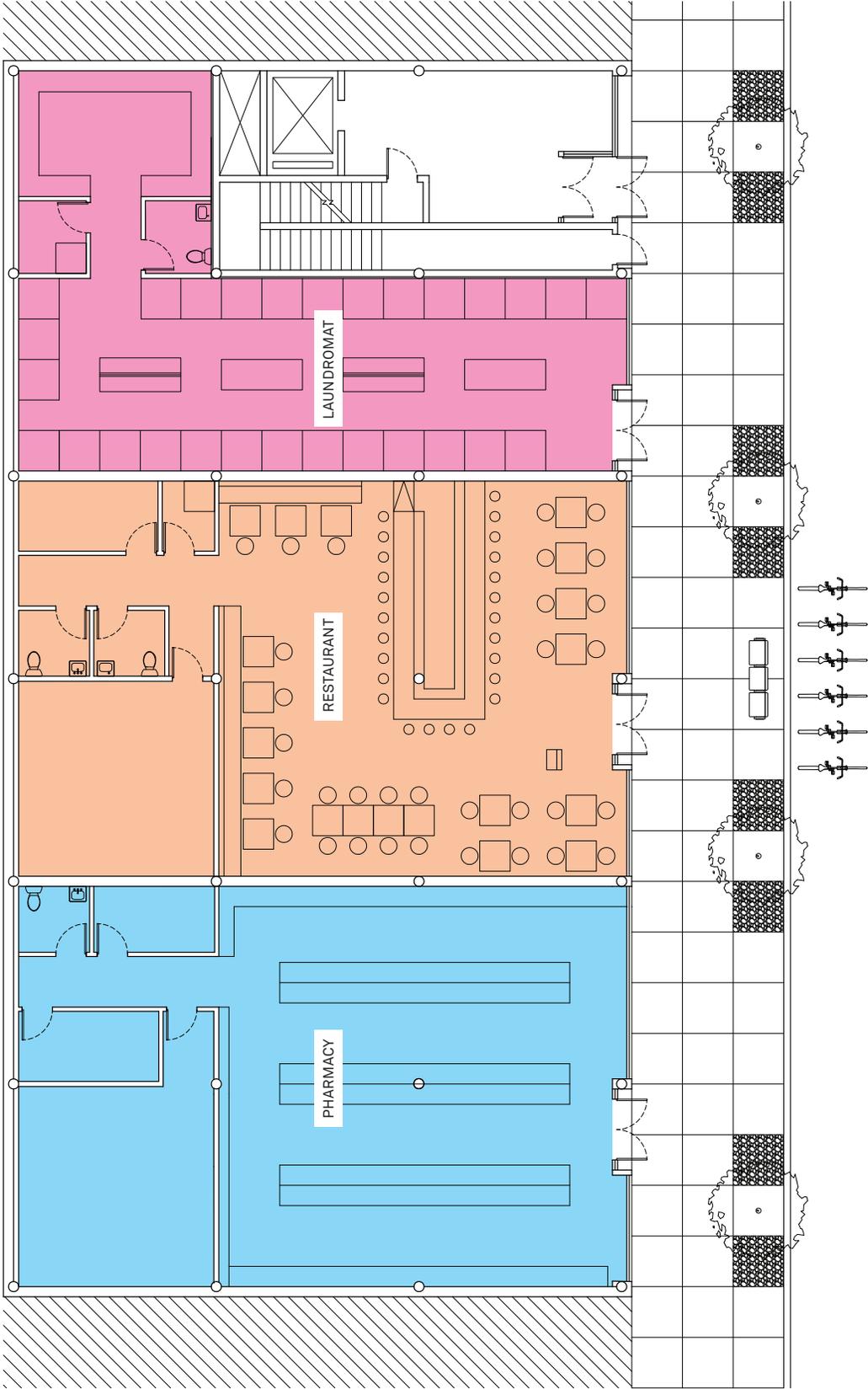
3. ALLOW SPACE FOR 36" DIAMETER WATER HEATER.

## Tenant Diagram 1: Supermarket MEP Option B

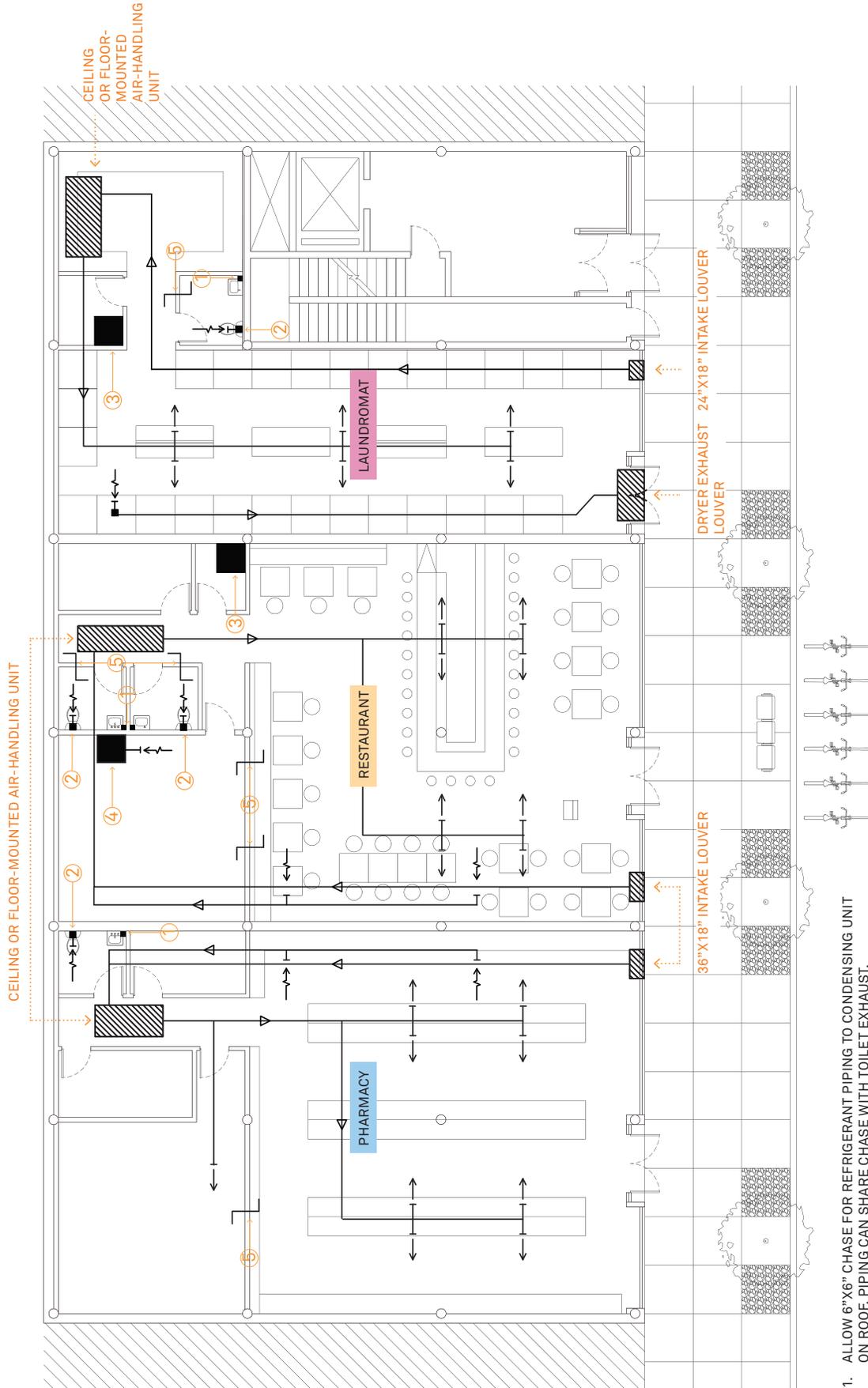


1. ALLOW SPACE FOR 34" DIAMETER KITCHEN EXHAUST (28" DIAMETER PLUS WRAP) UP TO FAN ON ROOF.
2. ALLOW 12"X12" CHASE FOR TOILET EXHAUST TO FAN ON ROOF DUCT CAN SHARE CHASE WITH REFRIGERANT PIPING.
3. ALLOW SPACE FOR 36" DIAMETER WATER HEATER.

Tenant Diagram 2: Three Tenants

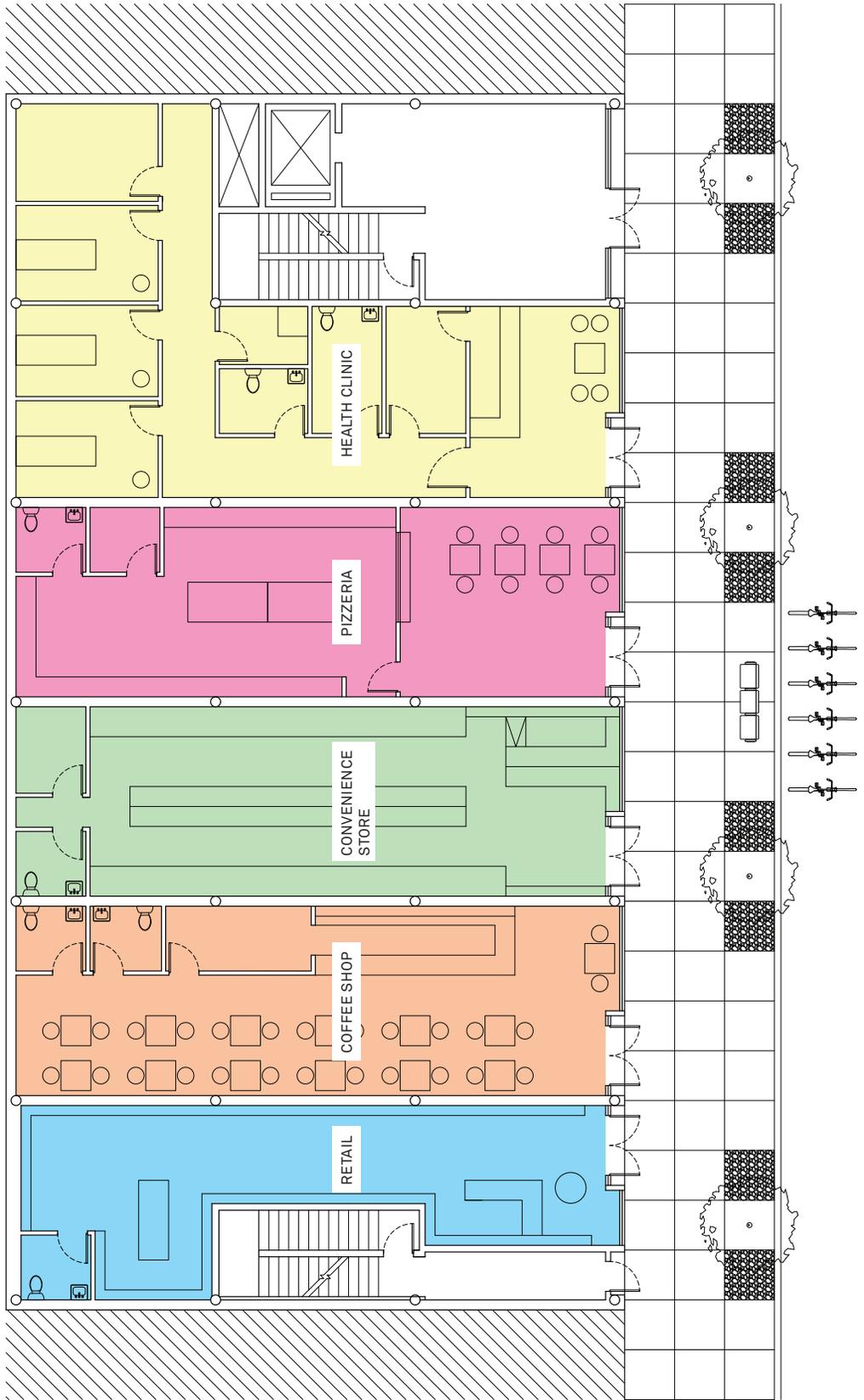


# Tenant Diagram 2: Three Tenants MEP

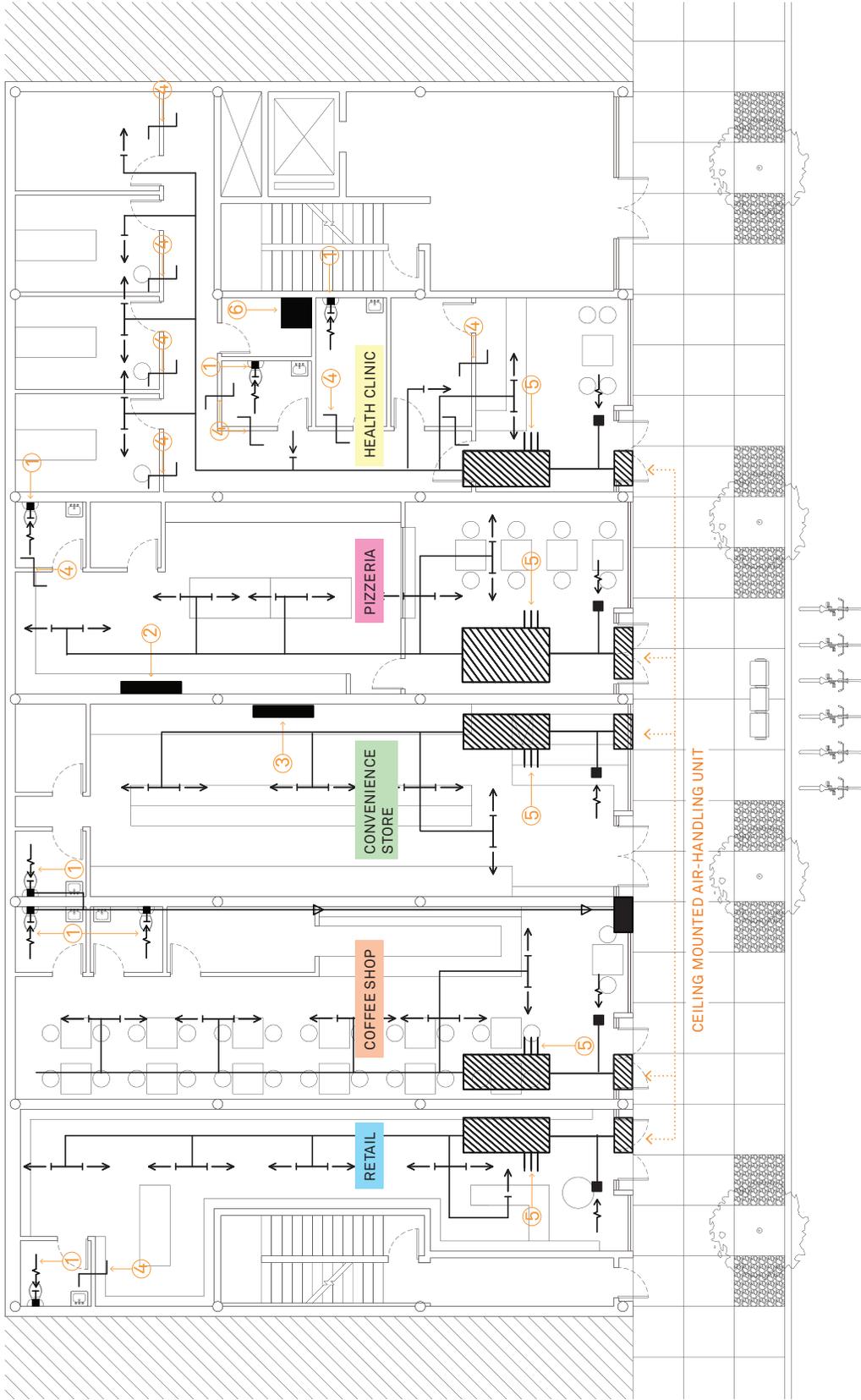


1. ALLOW 6"X6" CHASE FOR REFRIGERANT PIPING TO CONDENSING UNIT ON ROOF. PIPING CAN SHARE CHASE WITH TOILET EXHAUST.
2. ALLOW 12"X12" CHASE FOR TOILET EXHAUST TO FAN ON ROOF. DUCT CAN SHARE CHASE WITH REFRIGERANT PIPING.
3. ALLOW SPACE FOR 36" DIAMETER WATER HEATER.
4. ALLOW SPACE FOR 34" DIAMETER KITCHEN EXHAUST DUCT (28" DIAMETER PLUS WRAP) UP TO ROOF.

**Tenant Diagram 3: Five Tenants**



## Tenant Diagram 3: Five Tenants MEP



1. TO COMMON TOILET EXHAUST.
2. TO DEDICATED KITCHEN EXHAUST FAN THROUGH RISER. POSSIBLY PROVIDE DEDICATED MAKE UP AIR UNIT TO BE DUCTED.
3. TO DEDICATED KITCHEN EXHAUST FAN THROUGH EXHAUST RISER (APPLICABLE IF COOKING SURFACE PROVIDED).
4. PROVIDE RETURN AIR PATH BACK TO UNIT FOR ANY FULL HEIGHT WALLS, AS REQUIRED.
5. REFRIGERANT / CHS / HWS / R / STEAM / CWS / R PIPING THROUGH PIPING CHASE TO ASSOCIATED EQUIPMENT (DEPENDING ON TYPE OF UNIT SELECTED).
6. ALLOW SPACE FOR 36" DIAMETER WATER HEATER.

# Tenant Lease Checklist

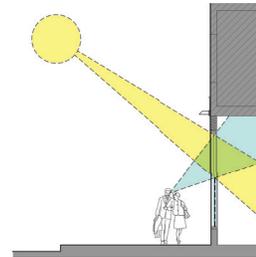
Developers may use this checklist to modify standard leases to ensure that their tenants comply with the design guidelines.

## SECTION 1

### Facade and Signage

#### 1.1 Glazing/Fenestration

- .1 Maintain 70% transparency on exterior glazing between 2 feet and 10 feet above the sidewalk. Do not paste stickers, posters, or fliers that exceed 70% transparency. When privacy is needed for specific uses refer to this diagram.



FROSTED SCREENING, BLINDS, OR CURTAINS SET AT A HEIGHT TO OBSCURE EXTERIOR VIEWS INTO THE SPACE, WHILE ALLOWING DIRECT SUN AND INTERIOR VIEWS OF THE SKY.

#### 1.3 Louvers

- .4 Do not install air-conditioning units over doorways or allow them to protrude through the facade.

#### 1.4 Signage

- .2 Maintain uniform signage across the length of the street front facade, creating a signage band above the storefront.
- .4 Ensure that signage lighting minimizes light pollution and does not illuminate residential interiors located above the sign.

#### 1.5 Awnings

- .2 Awnings should maintain a uniform profile, projection, height, color, and material palette across the entire facade. Awning size/spacing should be coordinated with facade bays and with all retail tenant awnings. Branding for each retailer can be customized within these unifying limitations.
- .3 Install awnings with open ends and bottoms to maintain a clean and light appearance. Front lips are recommended, but should not exceed 1 foot in depth.
- .4 Install stainless steel awning supports and fasteners to prevent rusting.
- .5 Maintain awnings according to standards of care. Awnings should be clean and fully functional at all times.

#### 1.6 Exterior Lighting

- .1 Ensure that interior lighting is not obstructed or otherwise prevented from effectively reaching the exterior.

#### 1.7 Security Gates

- .1 If security gates are required, provide internally housed roll-down security grilles mounted on the interior of the storefront. These gates roll down inside of the display window and door.
- .2 Install open mesh security grilles only, in order to maintain transparency. Solid sections may be provided if they align with opaque portions of the facade. The minimum visibility allowed is 70%. More visibility is desirable.
- .3 Prevent security grilles from obscuring or detracting from the design and details of the existing storefront.
- .4 Coordinate the location of security grilles so they do not interfere with exterior louvers. The security gate should not impede the visual connection from the interior to the exterior. Coordinate the location of the security grilles with the required mechanical space behind the exterior louvers prior to installation.

**SECTION 2**

## Exterior Access & Streetscape

---

### 2.3 Recycling and Trash Disposal Area

- .1 Locate recycling bins and trash collection area out of view from sidewalk and main building entrances. At least three days' worth of garbage should be able to be stored within the interior or a designated off-street location.

### 2.10 Exterior Power

- .1 Ensure that exterior power outlets are properly secured at all times.

**SECTION 3**

## Interior Architecture

---

### 3.1 Ceiling Height

- .2 Maintain a clear span of 12 feet above the finish floor (AFFL). No pipe, conduit or other utility running horizontally in the ceiling should be lower than 12 feet above the retail floor slab.

**SECTION 4**

## Mechanical

---

### 4.5 Exhaust Air

- .1 Ensure that the location of exhaust air openings is compatible with the NYC Building Code. In general, exhaust air louvers are located 10 feet above the sidewalk, 10 feet from any window in an adjacent building and 10 feet from a residential window in the same building. If the exhaust is considered to be a contaminant source it must be located 20 feet from the nearest intake (or be at least 2 feet above it).

**SECTION 6**

## Plumbing and Fire Protection

---

### 6.4 Grease Waste

- .2 Maintain all grease traps and interceptors for their continued functionality. Fixed furniture or stored materials should not block access. A professional should carry out maintenance regularly.

### 6.5 Gas

- .2 Arrange for a gas meter to be installed by the gas utility company.

## Glossary

### **AHU**

Air-handling unit, an acronym for the mechanical unit that provides air to the building.

### **Awning**

A roof-like covering, often constructed of fabric, which extends over the storefront; awnings shelter people from the elements and provide shade for the interior.

### **Backflow Preventer**

A device designed to prevent water from flowing back into a building's plumbing system.

### **Bioswale**

A landscape element designed to capture and filter stormwater runoff.

### **Block and Plank**

A type of construction that uses precast concrete slabs or "planks" for the floor system of a building and concrete masonry units (CMUs) for the bearing walls.

### **BLDS**

Building and Land Development Services, a division within the NYC Department of Housing Preservation and Development (HPD) that provides environmental, architectural, engineering, and construction support services to HPD projects.

### **Building Entrance**

Primary building entrance that provides access to upper-story retail, commercial, or residential tenants.

### **Building Facade**

For the purposes of these design guidelines, the street face of the building above the storefront, or the upper facade of the building.

### **Bulkhead**

The horizontal part of the storefront starting from the ground to the bottom or sill of the display window.

### **Brickmold**

The exterior molding at the joint between the window frame and the masonry opening, typically forming a part of the window enframingent.

### **cfm**

Cubic feet per minute, a unit of volume commonly used to measure HVAC system capacity.

### **cfm/sf**

Cubic feet per minute per square foot, a unit of measurement used to evaluate the efficiency of an HVAC system.

### **Column Bay**

The space between two rows of columns.

### **Contaminant Source**

A point or location that emits unhealthy chemicals or organic matter.

### **Cornice**

The horizontal, exterior trim or feature of a building at the meeting of the roof and the building facade.

### **CSO**

Combined Sewer overflow. A discharge from the city's combined sewer system that occurs when heavy rainfall taxes the system beyond the capacity of wastewater treatment plants. CSOs deposit both wastewater and stormwater into the city's natural waterways and are harmful to the environment.

### **CSO Tributary Area**

The geographic area a certain combined sewer serves. Specific tributary areas may be targeted in order to increase natural water filtration and limit the use of the combined sewer during a storm event.

### **Curtain Wall Facade**

An exterior building wall that is non-load-bearing.

### **DEP**

Department of Environmental Protection, a division of the New York City government that manages the city's water supply.

### **DX**

Direct expansion cooling system, an HVAC technology that uses the refrigerant vapor expansion/compression cycle to cool the building. DX systems take up less room than traditional HVAC systems and have lower noise levels.

### **DOT**

NYC Department of Transportation, a division of the New York City government that has jurisdiction over streets, sidewalks, and other transportation infrastructure.

### **Display Window**

Large area of transparent plate glass in the storefront infill that provides space for product and service display as well as visibility into the store.

### **Energy Code**

Standards developed by local, state, or federal governments that detail the energy-efficiency requirements of new buildings. In New York City, the applicable energy code can be found at: [http://www.nyc.gov/html/dob/html/codes\\_and\\_reference\\_materials/nycecc\\_main.shtml](http://www.nyc.gov/html/dob/html/codes_and_reference_materials/nycecc_main.shtml)

**Enframement**

The decorative trim, moldings, or molded projections around the top and sides of a window or door opening.

**Facade Signage**

Signage, often located above the building entrance or on the cornice, which may be engraved in the building masonry or otherwise constructed of masonry or metal and installed on the facade. Facade signage is typically an original element in the building design.

**Fascia Band**

A flat, horizontal member or molding with little projection, separating elements of the facade.

**FEMA**

Federal Emergency Management Agency, a governmental agency within the Department of Homeland Security that coordinates the federal response to natural disasters.

**Glazing**

The glass surface of a window, door opening, or wall.

**Historic Fabric**

Any building element that is part of the original construction of a historic building.

**HPD**

NYC Department of Housing Preservation and Development, an agency of the New York City government that works to develop and preserve affordable housing.

**HVAC**

Heating, ventilation, and air conditioning. An acronym used as shorthand for the air systems of a building.

**Instantaneous Water Heaters**

Gas-powered modules which heat water instantly without a tank.

**Large Retail Unit**

A retail unit greater than or equal to 4,000 square feet in floor area.

**LEED**

Leadership in Energy & Environmental Design, a green building certification program that recognizes best-in-class building strategies and practices.

**Light Pollution**

Excessive, misdirected, or obtrusive artificial light, typically at night. Also known as photo-pollution or luminous pollution.

**Lintel**

A horizontal structural member, such as a beam, over an opening which carries the weight of the wall above it.

**Louvers**

A screen composed of horizontal slats for admitting air and screening views of an air-conditioning unit, housed in a framed opening often located in the signage zone or bulkheads.

**MEP**

Mechanical, electrical, and plumbing, an acronym used as shorthand for the working systems of a building.

**NYSERDA**

New York State Energy Research and Development Authority, a public benefit corporation that promotes energy efficiency and the use of renewable energy sources. NYSERDA works with residents, business owners, developers, community leaders, local government officials, university researchers, utility representatives, investors, and entrepreneurs.

**Parapet**

The extension of the building facade wall above the building's roofline.

**Pier**

A vertical column that projects from, and is an integral part of, a wall. Usually rectangular in section and placed at intervals along the wall for support.

**Pilaster**

A pier or pillar attached to a building's facade, which often contains a base, shaft, and capital, and supports a horizontal band above.

**Security Gates and Grilles**

Apparatus for securing windows and doors consisting of a retractable metal sash that is either solid metal (gate) or open mesh (grille), and, in the case of overhead rolling types, an overhead metal box where the gate or grille stays when retracted. The gate or grille is installed on the interior or exterior side of windows and doors.

### **Security Grille or Gate Housing**

The part of the rolling security grille or gate that contains the grille or gate when rolled up.

### **sf**

Square feet, a common unit of measurement for building area.

### **Signage Zone**

A continuous zone appropriate for placing signage immediately above the storefront glazing, often stretching the full length of the storefront or storefront infill, or within the display window area. Signs may be installed only within the signage zone.

### **Small Retail Unit**

A retail unit less than 4,000 square feet in floor area.

### **Sprinkler Service**

A fire protection system composed of pipes and nozzles that automatically release water in the event of a fire.

### **Standpipe System**

A pipe system that connects a water supply with strategically placed hose connections for use by either the building's occupants or the fire department.

### **Storefront**

Retail or commercial face of building at street level, typically articulated and distinct from the rest of the building face, reflecting its use, and which may extend up to the second floor. The storefront is often architecturally terminated by a storefront cornice.

### **Storefront Cornice**

A continuous horizontal fascia band with projecting moldings above the storefront that visually separates the storefront from the upper or building facade.

### **Storefront Entrance**

Entrances to individual ground-floor retail and other commercial spaces; entrances are typically coordinated with the design of other storefront components.

### **Storefront Infill**

The area within the masonry opening of the street level facade that provides access and natural daylight into retail or other commercial spaces. Typically, the storefront infill includes large areas of plate glass for display and visibility. The storefront is defined by a cornice or lintel at the top, a bulkhead at the base, and by piers or pilasters at the sides. Doors and transoms are located within the storefront infill area.

### **Storefront Lighting**

Artificial light sources used inside display windows and on the exterior of the building to illuminate product displays, signage, or the storefront as a whole.

### **Transom**

A framed area of glass above a door opening, separated by a transom bar.

### **Vestibule**

A hall or lobby indent adjacent to the front door of a building.

### **VRF**

Variable refrigerant flow system, an HVAC technology that uses refrigerant for both cooling and heating. If used properly, VRF systems can provide significant energy savings.

# Acknowledgments

## Project Participants

### Laying the Groundwork Fellows

#### Fiona Cousins

##### ENGINEERING FELLOW

Fiona Cousins, PE, CEng, LEED Fellow, is a principal in the New York office of Arup, where she leads the sustainability team and is one of the leaders of the Buildings Practice. She has worked for both corporate and institutional clients on a wide variety of building, planning, and sustainability projects including museums, galleries, archives, trading floors, laboratories, libraries, performing art centers, energy master plans, and campuses. Fiona has been named chair-elect by the US Green Building Council (USGBC) board of directors. She holds degrees in engineering science and interdisciplinary design for the built environment from the University of Cambridge and has spent her career engaged in HVAC design and sustainability.

#### Penny Hardy

##### GRAPHIC DESIGN FELLOW

Penny Hardy is the founding principal of PS New York. Established in 2004, PS New York is a creative agency specializing in brand identity, interactive, and print solutions. The firm has a diverse and extensive client base within the architectural/design, retail and cultural communities. Recent clients include the AIA New York, Center for Architecture, Smithsonian Archives of American Art, and Open House New York. Her work has been published and awarded by the AIGA, Print, Communication Arts, Output, and BitxBit. Penny has an MFA in design from Yale University, where she was awarded the Bradbury Thompson prize.

#### Hayes and James Slade ARCHITECTURE FELLOWS

Hayes Slade AIA, IIDA, and James Slade AIA, IIDA, LEED-AP, cofounded Slade Architecture in 2002. Their work has been exhibited at MoMA, the National Building Museum, Deutsches Architekturmuseum, the Swiss Institute, the Architecture League of New York, AIA Center for Architecture, the Venice Biennale, and other venues. Slade Architecture has received numerous honors for their designs, including awards from the Retail Design Institute and the Association for Retail Environments. Hayes is a licensed architect with a BS and master's in structural engineering from Cornell and an MBA from Wharton, and James has a BA from Cornell University and a MArch from Columbia University.

### Design Trust Staff

#### Megan Canning

DEPUTY DIRECTOR (FORMER)

#### Susan Chin, FAIA, Hon. ASLA

EXECUTIVE DIRECTOR

#### Rosamond Fletcher

DIRECTOR OF PROGRAMS

#### Ozgun Gungor

COMMUNICATIONS MANAGER

#### Joseph Huennekens

PROGRAM ASSOCIATE

#### Kelly Mullaney

DEVELOPMENT MANAGER

#### Caroline Bauer

PROGRAM MANAGER (FORMER)

### NYC Department of Housing Preservation and Development Staff

#### Brian Baldor

DIRECTOR OF DESIGN CONSULTATIONS AND STRATEGIES, BUILDING AND LAND DEVELOPMENT SERVICES

#### Jonathan Beuttler

DIRECTOR OF MIXED-INCOME PROGRAMS, NEW CONSTRUCTION FINANCE

#### Leila Bozorg

CHIEF OF STAFF, COMMISSIONER

#### Tom Cavallo

DEPUTY DIRECTOR OF MECHANICAL ENGINEERING, BUILDING AND LAND DEVELOPMENT SERVICES

#### Shampa Chanda

DIRECTOR, QUEENS AND STATEN ISLAND PLANNING AND PREDEVELOPMENT (FORMER)

#### Sara Dabbs

EXECUTIVE DIRECTOR, MULTIFAMILY NEW CONSTRUCTION PROGRAMS

#### Andrew Eickmann

EXECUTIVE DIRECTOR, PREDEVELOPMENT AND NEIGHBORHOOD PLANNING

#### Eric Enderlin

DEPUTY COMMISSIONER/SPECIAL ADVISOR, DEVELOPMENT

#### John Gearrity

ASSISTANT COMMISSIONER, BUILDING AND LAND DEVELOPMENT SERVICES

#### Arielle Goldberg

SENIOR PLANNER/POLICY ANALYST, PLANNING AND PREDEVELOPMENT

#### Elizabeth Greenstein

DIRECTOR OF EXTERNAL AFFAIRS

#### Jack Hammer

DIRECTOR, BROOKLYN PLANNING, PLANNING AND PREDEVELOPMENT (FORMER)

#### Daniel Hernandez

DEPUTY COMMISSIONER, NEIGHBORHOOD STRATEGIES

#### Patrick Hess

CHIEF OF STAFF, DEVELOPMENT

#### Joanna Kandel

PROJECT MANAGER, NEW CONSTRUCTION FINANCE

#### Greg Kelly

SENIOR BUSINESS ANALYST, TECHNOLOGY AND STRATEGIC DEVELOPMENT

Susan Kensky  
ASSISTANT COMMISSIONER,  
NEW CONSTRUCTION FINANCE

Elizabeth Seward  
DIRECTOR, PIPELINE PLANNING,  
PLANNING AND PREDEVELOPMENT  
(FORMER)

Eunice Suh  
DIRECTOR, PREDEVELOPMENT  
PLANNING, PLANNING AND  
PREDEVELOPMENT

Ted Weinstein  
DIRECTOR, BRONX PLANNING,  
PLANNING AND PREDEVELOPMENT

Eric Wilson  
ASSISTANT COMMISSIONER,  
PLANNING AND PREDEVELOPMENT

Julia Zasedatel  
DEPUTY DIRECTOR OF COST EVALUATION  
AND CHANGE ORDERS, BUILDING AND  
LAND DEVELOPMENT SERVICES

Lin Zeng  
DIRECTOR, BROOKLYN PLANNING,  
PLANNING AND PREDEVELOPMENT

**Stakeholder Workshops and  
Peer Review**

Eva Alligood  
LOCAL INITIATIVES SUPPORT  
CORPORATION (LISC)

Laure Aubuchon  
SAUGATUCK COMMERCIAL REAL ESTATE

M. Blaise Backer  
NYC DEPARTMENT OF SMALL BUSINESS  
SERVICES

Ellen Baer  
HUDSON SQUARE CONNECTION

Matthew A. Bauer  
MADISON AVENUE BID

Carmi Bee  
RKTB ARCHITECTS

G. Lamont Blackstone  
G.L. BLACKSTONE & ASSOCIATES

Ralph Blessing  
NYC DEPARTMENT OF CITY PLANNING

Viren Brahmhatt  
DE.SIGN STUDIO

Shawn Brede  
NYC DEPARTMENT OF CITY PLANNING

Calvin Brown  
NYC DEPARTMENT OF CITY PLANNING

Laurel Brown  
DOWNTOWN BROOKLYN PARTNERSHIP

Noel Caban  
WINICK REALTY

Jodi Callender  
NYC ECONOMIC DEVELOPMENT  
CORPORATION (FORMER)

Patrick Cammack  
NYC DEPARTMENT OF SMALL  
BUSINESS SERVICES (FORMER)

Amber Christoffersen  
ENTERPRISE COMMUNITY PARTNERS

R. Darby Curtis  
CURTIS + GINSBERG ARCHITECTS

Barry Dinerstein  
NYC DEPARTMENT OF CITY PLANNING

Bruce Eisenberg  
NYCHA

Karen Fairbanks  
MARBLE FAIRBANKS

Reese Fayde  
REESE FAYDE ASSOCIATES

Colleen Flynn  
LOCAL INITIATIVES SUPPORT  
CORPORATION (LISC)

Dana Frankel  
LONG ISLAND CITY PARTNERSHIP  
(FORMER)

Namon Freeman  
NYC DEPARTMENT OF  
TRANSPORTATION

Mark Ginsberg  
CURTIS + GINSBERG ARCHITECTS

Erick Gregory  
NYC DEPARTMENT OF CITY PLANNING

Lindsay Haddix  
NYCHA (FORMER)

Chris Hayner  
NYC DEPARTMENT OF CITY PLANNING

Terra Ishee  
NYC DEPARTMENT OF  
TRANSPORTATION

Lee Jaffe  
CYPRESS HILLS LOCAL DEVELOPMENT  
CORPORATION

James Johnson-Piatt  
URBANE DEVELOPMENT

Tawkiyah Jordan  
NYC DEPARTMENT OF CITY PLANNING

Bomee Jung  
ENTERPRISE COMMUNITY  
PARTNERS (FORMER)

Aaron Koffman  
HUDSON

Emily Kurtz  
RBSCC

Michael Lambert  
BEDFORD-STUYVESANT GATEWAY  
BID AND NYC BID ASSOCIATION

Frank Lang  
ST. NICKS ALLIANCE

Russell Lang  
DOUGLSTON DEVELOPMENT

Charles Laven  
FORSYTH STREET

Burton Leon  
NYCHA

Nick Magilton  
NYC DEPARTMENT OF  
TRANSPORTATION

Kerry A. McLean  
WHEDCO

Sam Marks  
LOCAL INITIATIVES SUPPORT  
CORPORATION (LISC)

Vineeta Mathur  
NYC DEPARTMENT OF CITY  
PLANNING

Justin Garrett Moore  
NYC DEPARTMENT OF CITY  
PLANNING

Daniel Murphy  
PITKIN AVENUE BID

Cathy Nonas  
NYC DEPARTMENT OF HEALTH  
AND MENTAL HYGIENE

Larisa Ortiz  
LARISA ORTIZ ASSOCIATES

Robert Puddicombe  
RELATED

Chad Purkey  
MYRTLE AVENUE BROOKLYN  
PARTNERSHIP

Barbara Blair Randall  
GARMENT DISTRICT ALLIANCE

Mary Serafy  
BRP

Scott Short  
RBSCC

Jeffrey Shumaker  
NYC DEPARTMENT OF CITY PLANNING

Abby Sigal  
ENTERPRISE COMMUNITY PARTNERS  
(FORMER)

Leia Sims  
ENTERPRISE COMMUNITY PARTNERS

Howard Slatkin  
NYC DEPARTMENT OF CITY PLANNING

Laura Smith  
NYC DEPARTMENT OF CITY PLANNING

Thomas Smith  
NYC DEPARTMENT OF CITY PLANNING

Ismene Speliotis  
MHANY

J. Josef Szende  
ATLANTIC AVENUE BID

Karina Totah  
NYCHA

Winston Von Engel  
NYC DEPARTMENT OF CITY PLANNING

Christina Warner  
L+M DEVELOPMENT PARTNERS

Elisabeth Wooten  
NYC DEPARTMENT OF TRANSPORTATION

Kiyoshi Yamazaki  
NYC DEPARTMENT OF CITY PLANNING

John Young  
NYC DEPARTMENT OF CITY PLANNING

Thomas Yu  
ASIAN AMERICANS FOR EQUALITY

### The Energetic City Advisory Committee

The Design Trust formed the Energetic City Advisory Committee to provide advice on projects selected from our 2014 RFP, including **Laying the Groundwork**.

M. Blaise Backer  
NYC DEPARTMENT OF SMALL  
BUSINESS SERVICES

Robert Balder  
CORNELL UNIVERSITY AAP

Theodore S. Berger  
DESIGN TRUST FOR PUBLIC SPACE  
BOARD AND JOAN MITCHELL FUND

R. Darby Curtis  
DESIGN TRUST FOR PUBLIC SPACE  
BOARD AND CURTIS + GINSBERG

Ann Harakawa  
DESIGN TRUST FOR PUBLIC SPACE  
BOARD AND TWO TWELVE

Natalie Jeremijenko  
XDESIGN ENVIRONMENTAL HEALTH  
CLINIC AT NYU

Zack McKown  
DESIGN TRUST FOR PUBLIC SPACE  
BOARD AND TSAO & MCKOWN

Jeff Merritt  
MAYOR'S OFFICE OF TECHNOLOGY  
AND INNOVATION

Larisa Ortiz  
LARISA ORTIZ ASSOCIATES

Nancy Prince  
NYC DEPARTMENT OF PARKS AND  
RECREATION

Damon Rich  
HECTOR DESIGN SERVICE

Edwin Torres  
NYC DEPARTMENT OF  
CULTURAL AFFAIRS

Ruth Anne Visnauskas  
NYS HOMES AND COMMUNITY  
RENEWAL

Andrea Woodner  
FOUNDER AND BOARD PRESIDENT  
DESIGN TRUST FOR PUBLIC SPACE

### Additional Thanks

Connie Chan  
NYC DEPARTMENT OF CITY PLANNING

Vivi Feng  
PS NEW YORK

Adam Finkin  
ARUP

Alan Glynn  
ARUP

David Iseri  
SLADE ARCHITECTURE

Mark Leskovec  
SLADE ARCHITECTURE

Eric Miller  
ARUP

Carl Mister  
ARUP

Anthony Nyugen  
PS NEW YORK

Emily Puhnaty  
SLADE ARCHITECTURE

Raymond Quinn  
ARUP

Robb Risani  
ARUP

Nice Warisara Sudswong  
SLADE ARCHITECTURE

Dana Wall  
DESIGN TRUST INTERN

**Laying the Groundwork** is made possible in part by generous support from



**ARUP**

Project funding is also provided by the Design Trust Founder's Circle, including Agnes Gund, Kitty Hawks, Sophia W. Healy, the Lily Auchincloss Foundation, Camila Pastor & Stephen Maharam, and Kelly Posner.

Additional support is provided by the New York State Council on the Arts and public funds from the New York City Department of Cultural Affairs, in partnership with the City Council.

